



JEEP & SCOUT 1941 & NEWER

ENGINE & TRANSMISSION CONVERSION MANUAL

AUGUST 2010

- ❁ CJ, YJ, TJ, XJ JEEP MODELS
- ❁ CHEROKEE & WAGONEER
- ❁ SCOUT 80, 800, SCOUT II
- ❁ V6 & V8 ENGINE SWAPS
- ❁ TRANSMISSION ADAPTERS
- ❁ ENGINE MOUNT SYSTEMS
- ❁ ATLAS TRANSFER CASES
- ❁ SAGINAW STEERING KITS
- ❁ SATURN OVERDRIVES





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August 1, 2010

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This **Twentieth** edition of the Advance Adapters Jeep Conversion Guide is an accumulation of our experiences and knowledge in performing various types of conversions. The information and photos are directly related to the products offered by our company. We have put this manual together for your reference in either performing the actual conversion or trying to establish an estimate on tools required for your specific type of conversion. There are several reprint articles that have been supplied to us through the courtesy of various magazines.

The information in this guide is constantly being updated and we ask that you verify any information that may be critical to your application. It is nearly impossible to keep up with all of the transmission and transfer case changes on the newer vehicles. Therefore, we recommend that you acquire the individual shop manuals for your particular vehicle as support for torque specifications, gasketing, wiring, and assembly specifications which pertain to your vehicle's requirements.

We are pleased to receive your inquiry indicating your interest in Advance Adapters product line. We are very proud of our organization and we are ready to help you with your automotive requirements. If you should have any questions or comments, please feel free to contact our sales staff.

SPECIAL NOTE: Catalog Contents

This manual has been put together with the best possible information available to us. Advance Adapters cannot accept the responsibility for vehicles and applications that are not standard. The contents of this brochure have been proofread before printing to minimize errors. We cannot be held responsible for errors overlooked. Please feel free to contact us with any suggestions or comments you may have regarding any portion of this manual. The information that you provide us could be useful in assisting other customers.

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Mike Monahan - PartsMike.com, Moab 2004



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REPRINT ARTICLES:

“Cradle Installation”, by Rob Hall
(Featured in 4Wheel Parts Off-Road Adventure Mag.) . 122-125

“The Big Swap”, by Mark Nobles
(Courtesy of 4WD & Sport Utility - Primedia Pub.) 126-127



JEEP TRANSFER CASE ADAPTER SELECTION CHART

JEEP TRANSFER CASE SELECTION CHART GM, FORD AND DODGE MANUAL TRANSMISSIONS	DANA 18/20 6 SPLINE 1941-79 JEEP AND SCOUTS 10.5" long NOTE 11	DANA 18 10 SPLINE 1969-71 (T14 3SP) 10.5" long NOTE 11	DANA 300 23 SPLINE 1980-86 NP208 T/C & (84-86 downsize Cherokee NOTE 10)	NP T/C FLUSH 23 1987-06 (999/904 & NV3550) 20.5" long	NP T/C LONG 23 1989-99 (AX15) 20.5" long	NP T/C FLUSH 21 1987-02 (AX4/AX5 UP TO 1996) SOME AW4	NP T/C LONG 21 1987-89 PEUGEOT (AX5 1997 & NEWER)
GM SM420 4 SPEED 10.5" CASE LENGTH	50-2400 (2) 4.5" ADAPTER 50-2401(3) 4" ADAPTER	50-2402 (3) 4" ADAPTER	50-9702 5.25" ADAP.	50-9702 5.25" ADAP.	50-9704 5.25" ADAP.	50-9701(1) 5.25" ADAP.	50-9703 5.25" ADAP.
GM SM465 4WD 10 SPL. 12" CASE LENGTH	50-4702 4.625" ADAPTER 50-4703 .875" ADAPTER	50-4701 4.625" ADAPTER	50-9810 (26) 3.5" ADAPTER 50-9800 7" ADAPTER	50-9808 (1,29) 5.25" ADAP. 50-9800 7" ADAPTER	50-9808(29) 5.25" ADAP. 50-9805 7" ADAPTER	50-9801 7" ADAPTER N/A	50-9809(29) 5.25" ADAP. 50-9804 7" ADAPTER
GM SM465 2WD 35 SPL. 12" CASE LENGTH	50-4801 4.625" ADAPTER 50-4703 .875" ADAPTER		50-9807(26) 3.5" ADAPTER 50-9802 7" ADAPTER	50-9812 (1) 5.25" ADAP. 50-9802 7" ADAPTER	50-9812 5.25" ADAP. 50-9806 7" ADAPTER	50-9811(1) 5.25" ADAP. 50-9803 (1) 7" ADAPTER	50-9811 5.25" ADAP. 50-9803 7" ADAPTER
FORD T & C 4 SPEED 10.25" CASE LENGTH NOTE 21	50-2000 1.25" ADAPTER						
FORD T & C 3 SPEED 9.25 & 9.68 CASE LENGTH NOTE 21	50-2100 (RAT) 50-2200 (RAN)						
FORD T & C 4 SPEED O.D. 10.25" CASE LENGTH (CAR TRANS)	50-5400 1.25" ADAPTER						
FORD & JEEP T98 4 SPEED 11.87" CASE LENGTH	50-8704 (4) 1.0" 50-8703 (5) 1.0"		50-7503 (6) 3.25" ADAP.	50-7503 (6) 3.25" ADAP.			50-7506 (6) 3.25" ADAP.
JEEP T18 4 SPEED 11.87" CASE LENGTH	50-8706 (4) 1.0" 50-8705 (5) 1.0"		50-7502 (6) 3.25" ADAP.	50-7502 (6) 3.25" ADAP.			
FORD T18 4 SPEED 11.87" CASE LENGTH	50-7202 (4) 1.0" 50-7201 (5) 1.0"		50-7500 3.25" ADAP.	50-7500 3.25" ADAP.	50-7505 3.25" ADAP.	50-7501 3.25" ADAP.	50-7504 3.25" ADAP.
FORD T19 4 SPEED 11.87" CASE LENGTH	50-6701 (4) 1.0" 50-6700 (5) 1.0"		50-6501(1) 3.25" ADAP.	50-6501(1) 3.25" ADAP.	50-6501 3.25" ADAP.	50-6600 (1) 5.125" ADAP.	50-6600 5.125" ADAP.
FORD NP435 4 SPEED 10.87" CASE LENGTH	50-6102 3.325" ADAP.		50-3801 4.25" ADAP.	50-3801(29) 4.25" ADAP.	50-3901(29) 6.25" ADAP.	50-3900(1,29) 6.25" ADAP.	50-3900(29) 6.25" ADAP.
JEEP T176 4 SPEED		50-9902	STOCK	50-4101(1)	50-4101	50-4100 (1)	50-4100
DANA 300 ROTATION KIT			50-8604(9)				50-3021
AMC 1980 & NEWER TRANS 21 SPL. OR 23 SPL.	50-8601 (23) 50-8602 (24)		50-3021(23,26) 50-8603 (24)				
GM NV4500 4WD 32 SPL. 12.375" CASE LENGTH	50-0210 5.87" ADAP. (25)		50-0205 6.3" ADAPTER	50-0212 5.87" ADAP (20)	50-0212 5.87" ADAP. (20)	50-0212 (9) 5.87" ADAP. (20)	50-0212(9) 5.87" ADAP. (20)
DODGE NV4500 4WD 23 SPL. 12.375 CASE LENGTH			STOCK (8) & 716221	50-0204 5.87" ADAP (20)	50-0204 5.87" ADAP. (20)	50-0204 (9) 5.87" ADAP. (20)	50-0204(9) 5.87" ADAP. (20)
DODGE NV4500 4WD 29 SPL. 2001 TRANS NOTES 9 & 28			52-0229 (8,26) & 716221	50-0231 (27)	50-0231 (27)	50-0231 (27)	50-0231
NV3550 4WD TRANS.	50-8602		50-8604(9)			See NV3550	See NV3550
FORD ZF 4WD TRANS.			50-9925(9)				
GM MUNCIE 4 SPEED 10.5" CASE LENGTH NOTE 21	50-0100 4.5" ADAPTER		50-6000 5" ADAPTER				
WARNER SUPER T10 4 SP. 9.5" CASE LENGTH (THIN HUB) NOTE 21	50-0702 5.75" ADAPTER	SPECIAL 5.75" ADAPTER	50-0701 7.625" ADAP.				
WARNER SUPER T10 4 SP. 9.5" CASE LENGTH (THICK HUB) NOTE 21	50-0802 5.75" ADAPTER	SPECIAL 5.75" ADAPTER	50-0801 7.625" ADAP.				
WARNER SUPER T10 4 SP. 9.5" CASE LENGTH NOTE 21	50-0902 5.75" ADAPTER	SPECIAL 5.75" ADAPTER	50-0901 7.625" ADAP.				
GM SAGINAW 3 & 4 SPEED 9.75" CASE LENGTH NOTE 21	50-1000 .715" ADAPTER						
JEEP AX15 5 SPEED	.750" ADAP.		50-8603				

NP refers to New Process transfer cases 231, 207 & 241.



JEEP TRANSFER CASE ADAPTER SELECTION CHART

JEEP TRANSFER CASE SELECTION CHART GM, FORD AUTOMATIC TRANSMISSIONS	DANA 18/20 6 SPLINE 1941-79 <i>JEEP AND SCOUTS</i> NOTE 11	DANA 18 10 SPLINE 1969-71 <i>(T14 3SP)</i> NOTE 11	DANA 300 23 SPLINE 1980-86 <i>NP208 T/C 84-86 DOWNSIZE CHEROKEE</i>	NP T/C FLUSH 23 1987-06 <i>(999/904 & NV3550)</i>	NP T/C LONG 23 1989-99 <i>(AX15)</i>	NP T/C FLUSH 21 1987-02 <i>(AX4/AX5 UP TO 1996) SOME AW4</i>	NP T/C LONG 21 1987-89 <i>PEUGEOT (AX5 1997 & NEWER)</i>	SCOUT DANA 300 23 SPL. <i>(SCOUT 727) & JEEP QUADRA-TRAC 10 SPL.</i>
GM TH350 2WD TRANS. <i>21.5" CASE LENGTH</i> NOTE 12	50-3000 <i>1.85" ADAP.</i>	50-3100 <i>1.85" ADAP.</i>	50-6300 <i>3.65" ADAP.</i>	50-6300 <i>3.65" ADAP.</i> 50-6802 <i>1.5" ADAP.</i>	50-6307 <i>3.65" ADAP.</i> 50-6802 <i>1.5" ADAP.</i>	50-6301 <i>3.65" ADAP.</i> 50-6801 <i>1.5" ADAP.</i>	50-6305 <i>3.65" ADAP.</i> 50-6801 <i>1.5" ADAP.</i>	50-3102 <i>1.85" ADAP. (17)</i>
GM TH350 4WD TRANS. <i>21.5" CASE LENGTH</i>	50-3001 <i>1.85" ADAP.</i>	50-3101 <i>1.85" ADAP.</i>	50-6304 <i>3.65" ADAP.</i>	50-6304 ^{3.65"} 50-6802 ⁽¹²⁾ 50-6804/5 <i>(9,15,31) 1.5"</i>	50-6308 ^{3.65"} 50-6802 ⁽¹²⁾ 50-6804/5 <i>(9,15,31) 1.5"</i>	50-6302 ^{3.65"} 50-6801 ⁽¹²⁾ 50-6804/5 <i>(9,15,31) 1.5"</i>	50-6306 ^{3.65"} 50-6801 ⁽¹²⁾ 50-6804/5 <i>(9,15,31) 1.5"</i>	50-3103 <i>1.85" ADAP. (17)</i>
GM TH400 2 & 4WD TRANS. <i>24.25" CASE LENGTH</i>	50-1300 ⁽¹²⁾ 50-0500 ^(13,14)	50-1400 <i>2.87" ADAP. (12)</i>	50-6400 ⁽¹²⁾ 50-6404 ⁽¹³⁾ <i>4.25" ADAPTERS</i>	50-6402 ⁽¹⁾ <i>1.2" ADAP. (12)</i>	50-6403 <i>4.2" ADAP. (12)</i> 50-6402 <i>1.2" ADAP. (12)</i>	50-6401 ⁽¹⁾ <i>1.2" ADAP. (12)</i>	50-6401 <i>1.2" ADAP. (12)</i>	50-1401 ⁽¹⁷⁾ <i>2.87" ADAP. (12)</i>
GM 4L80 & 4L80E 4SP TRANS. <i>MUST USE GM SHAFT 8661596 OR 24204289</i>			50-0401 ^(1,9) <i>4.25" ADAP.</i>					
GM 700R / 4L60 O/D 4 SPEED <i>23.375" CASE LENGTH 2WD OR 4WD</i>	50-6905 ⁽¹⁶⁾ <i>6.25" ADAP. (13)</i>		50-6303 <i>3.65" ADAP. (12)</i>	50-9102 <i>1.5" ADAP. (12)</i>	50-9102 <i>1.5" ADAP. (12)</i>	50-9103 <i>1.5" ADAP. (12)</i>	50-9103 <i>1.5" ADAP. (12)</i>	
GM 700R / 4L60 O/D 4 SPEED <i>4WD TRANSMISSION ONLY</i>			50-6309 <i>3.65" ADAP. (15,26)</i>	50-9104/5 <i>2.5" (9,15,31)</i>	50-9104/5 <i>2.5" (9,15,31)</i>	50-9104/5 <i>2.5" (9,15,31)</i>	50-9104/5 <i>2.5" (9,15,31)</i>	50-2501 ⁽¹⁸⁾
GM 4L60E 2 & 4WD TRANS. <i>700R/4L60 With VSS</i> NOTE 12			50-0404 <i>4.65" ADAP.</i>	50-0402 <i>3.65" ADAP.</i>	50-0402 <i>3.65" ADAP.</i>	50-0403 <i>3.65" ADAP.</i>	50-0403 <i>3.65" ADAP.</i>	
GM 4L60E 2 & 4WD TRANS. <i>W/ REMOVABLE BELLHOUSING</i>			50-0432 <i>4.1" ADAP. (15)</i>	50-0430 <i>3" ADAP. (19)</i>	50-0430 <i>3" ADAP. (19)</i>	50-0431 <i>3" ADAP. (19)</i>	50-0431 <i>3" ADAP. (19)</i>	
GM 4L60E 4WD TRANS. 4.10"			50-0432	50-0434/5	50-0434/5	50-0434/5	50-0434/5	
AMC 1980 & NEWER TRANS.	50-8601 ⁽²³⁾ 50-8602 ⁽²⁴⁾		50-3021 ⁽²³⁾ 50-8603 ⁽²⁴⁾					
FORD C4 3 SPEED TRANS.	50-2900 <i>5" ADAP. (12)</i>		50-8100 ⁽¹⁾ <i>6.25" ADAP. (12)</i>	50-8100 ⁽¹⁾ <i>6.25" ADAP. (12)</i>	50-8100 <i>6.25" ADAP. (12)</i>			
FORD AOD EARLY 4SP TRANS. <i>1987 & EARLIER 20.5" CASE LENGTH</i>			50-2902 <i>6.37" ADAP. (12)</i>	50-2902 <i>6.37" ADAP. (12)</i>				
FORD AOD LATE & AODE 4 SP <i>1988 & UP 20.5" CASE LENGTH</i> NOTE 30			50-2901 <i>6.37" ADAP. (12)</i>	50-2901 <i>6.37" ADAP. (12)</i>				
FORD C6 3 SP. TRANS. <i>20" CASE LENGTH</i>	50-3300 <i>5" ADAP. (12)</i>		50-9925 <i>.75" ADAP. (1, 9, 15)</i>					
GM 4L60E (HEX PAT) ATLAS T/C	50-9300 for an ATLAS 2 SPEED & 50-9305 for an ATLAS 4 SPEED				C4 / ATLAS (50-2903 Shorty) or (50-2905 Shorty 300M)			

NOTES:

- (1) OUTPUT SHAFT MAY NEED TO BE SHORTENED OR A 1" SPACER ADAPTER MAY NEED TO BE USED (P/N 51-0404)
- (2) THIS KIT USES A NEW FULL MAIN SHAFT
- (3) THIS KIT USES A SPUD SHAFT
- (4) THIS KIT FITS SMALL HOLE T/Cs
- (5) THIS KIT FITS LARGE HOLE T/Cs
- (6) TRANSMISSION CASE NEEDS MACHINE WORK
- (7) ADAPTER LENGTH IS PART OF TRANS. MEASUREMENT
- (8) THIS ADAPTER WILL ALSO NEED AA P/N 716221
- (9) THESE KITS COME WITH A NEW T/C INPUT GEAR
- (10) ADAPTERS FOR CHEROKEES REQUIRE FLOOR & SHIFTER MODS.
- (11) THESE ADAPTERS REQUIRE A NEW BEARING & RETAINER
- (12) NEW TRANSMISSION OUTPUT SHAFT MUST BE INSTALLED
- (13) USES STOCK 2WD OUTPUT SHAFT
- (14) USES 15 TOOTH JEEP GEAR
- (15) USES STOCK 4WD OUTPUT SHAFT
- (16) LONG WHEEL BASED VEHICLES ONLY
- (17) SCOUT DANA 300 T/C
- (18) JEEP QUADRA-TRAC T/C
- (19) COMPLETE TRANSMISSION TO TRANSFER CASE ADAPTER
- (20) THESE ADAPTERS ARE SUPPLIED WITH A TRANSFER CASE BRKT.

(21) THESE TRANSMISSIONS ARE SIDE SHIFTED. BELOW ARE THE SHIFTER

BRACKETS, ROD KITS & HURST SHIFTER WE OFFER:

715501	MUNCIE BRACKET	715627-NS	SUPER T-10 ROD KIT
715502	T10 SHIFTER BRACKET	715628	SAGINAW ROD KIT
715502-NS	SUPER T-10 SHFT.BRKT.	715631	FORD T&C ROD KIT
715506	SAGINAW & FORD T&C SHFT.BRKT.	715600	HURST SHIFTER
715625	MUNCIE ROD KIT (MALE STUDS)	715643	JEEP T/C KNOBS
715626	MUNCIE ROD KIT (FEMALE STUDS)	715644	OFFSET HANDLE
715627	T-10 ROD KIT		

(22) THIS KIT USES A STOCK 700R4 4WD OUTPUT SHAFT. IF YOUR 4L60E IS A 4WD TRANNY, YOU CAN USE THIS STOCK SHAFT, BUT IT WILL REQUIRE A DIFFERENT CLAMP ON RELUCTOR THAN THE ONE PROVIDED IN THE KIT. THAT PART NO. IS 716074

(23) FOR USE ON A 21 SPLINE TRANSMISSION

(24) FOR USE ON A 23 SPLINE TRANSMISSION

(25) STOCK OUTPUT SHAFT MUST BE SHORTENED. KITS USE THE 31 TOOTH PORTION OF OUTPUT SHAFT

(26) THIS KIT WILL NOT WORK ON A NP208 TRANSFER CASE.

(27) KIT 50-0231 IS A 29 SPLINE INPUT GEAR THAT FITS NP231 T/Cs

(28) THIS KIT WORKS IN CONJUNCTION WITH THE ADAPTER LISTED UNDER DODGE 23 SPL. NV4500

(29) THE CASTING IN THIS KIT ONLY HAS ONE ROTATION AVAILABLE

(30) THE AODE WILL REQUIRE SOME ADDITIONAL PARTS FROM FORD

(31) THESE KITS FIT THE NP231 T/C ONLY. TRANSFER CASES UP TO 1994 USE A DIFFERENT INPUT GEAR THAN THE 1995 & LATER MODEL NP231. KITS ENDING WITH A "4" FIT THE EARLY MODEL; KITS ENDING WITH "5", LATE MODEL.

TRANSMISSION TYPES:

CAR-TYPE TRANSMISSIONS: The car-type transmissions can be easily adapted into most 4WD vehicles. The GM car-type transmissions would be the Saginaw, Muncie M21-M22, and Borg Warner T10. The Ford transmissions would be the 3 speed Top Loader, 4 speed 10-bolt top cover, and the Ford overdrive 10-bolt top cover. While these transmissions provide added strength and easy adaptability, they are not recommended for rugged offroad driving. The first gear ratio on these car-type transmissions are normally 2.2 to 2.5-to-1. This particular ratio, when used in conjunction with your 4WD transfer case, will still create some difficult situations when faced with rocky terrain. These transmissions are excellent for someone that is spending 95% of their time on the highway and 5% of their time off the road. The lack of good low gears for rock crawling can be overcome by slipping the clutch and having a good braking system. This type of transmission is usually expensive, since the demand is exceptionally high for good Muncie and T10 transmissions. These transmissions will require the use of a Hurst shifter. The shifter must be mounted with a special bracket that is compatible with the new transfer case adapter.

TRUCK-TYPE TRANSMISSIONS: The truck transmissions can also be easily adapted to nearly every type of 4WD transfer case. The GM truck transmissions can be the Muncie SM420, SM465, the NV4500 & NV3550. The Ford truck transmissions can be the Ford T18, Ford New Process 435, and the Ford T19. The stock Jeep T18, T176, and T98 transmissions can also be easily adapted to the various engine bellhousings. This type of transmission generally has a super low gear ratio and offers excellent offroad benefits when rocky terrain is involved. For normal everyday driving the 1st gear is very seldom used and the transmission is normally shifted as a 3 speed. The disadvantages of this type of transmission is the weight and stiff shifting of the floor shifter. The shift handle can usually be modified for comfort in most 4WD vehicles. The cost of the truck 4 speeds is normally less than the car 4 speeds, and transmissions can range from \$200 to \$500. Some of the transfer case adapters will require new main shafts, while other kits use a spud shaft that simply slips over the original output shaft.

AUTOMATIC TRANSMISSIONS: Both GM & Ford offer many selections of automatic transmissions. The GM transmissions you can use are the TH350, TH400, 700R, 4L60, 4L60E. We offer some adapters for the 4L80E. The Ford transmissions that you can use are the C4, C6, AOD and AODE. Automatic transmissions are excellent for 4WD conversions since they eliminate the need for clutch linkage modifications. The added length of the transmission can sometimes be limiting and, at other times is an asset towards the elimination of driveshaft modifications. The automatics usually are equipped with only a 1st gear ratio of around 2.5 to 3.0-to-1. However, the automatic will not have the gear reduction hold-back that the manual truck transmissions provide. Nearly all of the transfer case adapters will require a new transmission output shaft to be installed. A cable shifter for the automatics is usually recommended. We recommend the Lokar or the B & M sport shifter. On certain installations, transmission pan modifications may be required for front driveshaft clearance.



FLEXIBLE AUTOMATIC TRANSMISSION DIPSTICKS: If you're planning on doing an automatic transmission swap, be aware that using the stock transmission dipstick can cause clearance problems. We carry the solution from Lokar Performance Products. They manufacture flexible dipsticks that work ideally with the different transmissions we offer. This teflon-lined, braided stainless steel transmission dipstick mounts easily to the firewall and the transmission.

P/N 23-0001 - All TH350 & TH400 transmissions

P/N 23-0002 - All 700R transmissions

P/N 23-0003 - All C4 transmissions

KICKDOWN CABLES: An adjustable TH350 kickdown with stainless mounting bracket that mounts onto the back manifold bolts. Designed for 4 barrel-type carburetors for small block Chevs.

P/N 23-0017 - Bracket and Cable (this cable does not work with 700R transmissions)
Special 700R kickdown cables available upon request.

transmission types

CALIFORNIA GATED SHIFTER: This cable shifter is ideal for rock crawling rigs. This shifter fits the GM TH350, 700R, TH400, Powerglides, Ford C4, C6 & AOD transmissions. This is a console mounted, gated shifter that works well. For the transmissions just listed, the shifter requires different gating and linkage requirements. When ordering this kit, please specify the transmission being used.

P/N 715681



LOKAR AUTOMATIC SHIFTERS: Lokar shifters are completely adjustable so you can mount them in a number of locations front-to-rear. The shifter bolts directly to the top of your transmission. It come complete with a 12" handle and boot.

P/N 23-T350 - TH350 automatic shifter

P/N 23-4L60 - 4 bolt 4L60 shifter

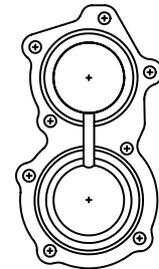
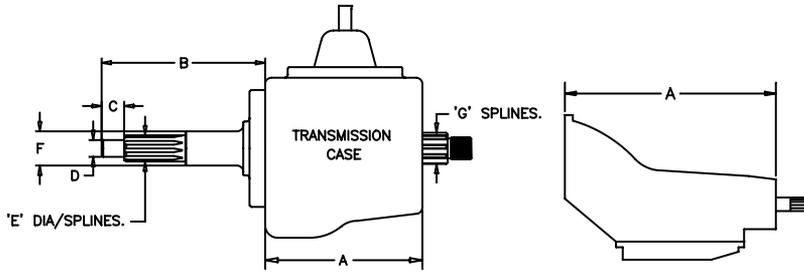
P/N 23-T400 - TH400 automatic shifter

P/N 23-4L60E - 6 bolt 4L60E shifter

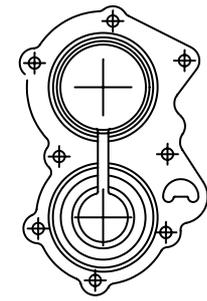
P/N 23-R700 - 700R automatic shifter

P/N 23-4L80E - 6 bolt 4L80E shifter

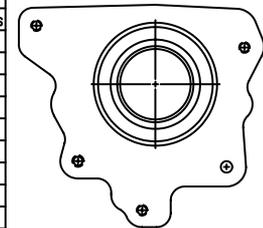
B & M SPORT SHIFTER: This sport shifter fits the GM TH350, 700R, TH400, Ford C4 & C6 transmissions. This is a console mounted, cable-operated shifter that works well for most conversions using automatics. P/N 715680



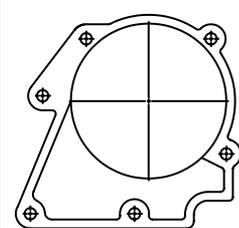
GM SM420



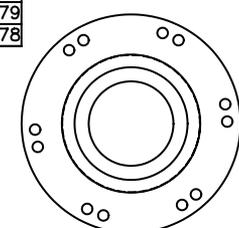
GM SM465



DANA 18/20

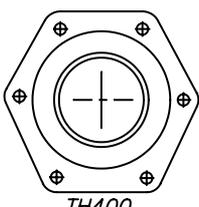


FORD C4

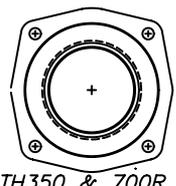


DANA 300 & NEW PROCESS

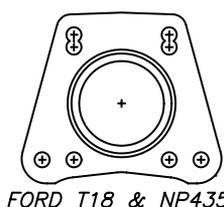
MODEL	A	B	C	D	E	F	G	1st	2nd	3rd	4th	5th
MUNCIE CAR 4-SPD.	10.43	6.50	1.00	.590	1-1/8-10	1.373	27 SPL.	2.20	1.64	1.27	1.00	
SAGINAW 3 & 4 SPD.	9.62	6.50	1.00	.590	1-1/8-10	1.373	27 SPL.	2.84	3.11	1.88	1.00	1.47
SM 420 4-SPEED.	10.43	6.50	1.00	.590	1-1/8-10	1.373	10 SPL.	7.05	3.57	1.70	1.00	
SM 465 4-SPEED.	12.00	6.50	1.00	.590	1-1/8-10	1.373	10,35,32	6.54	3.57	1.57	1.00	
TURBO 350	21.50						27 SPL.	2.52	1.52	1.00		
TURBO 400	24.25						32 SPL.	2.48	1.48	1.00		
700R-4 & 4L60	23.37						27 SPL.	3.059	1.625	1.00	0.696	
4L60E 4 BOLT TAIL	21.87						27 SPL.	3.059	1.625	1.00	0.696	
4L60E W/ REM. B/H	15.50						27 SPL.	3.059	1.625	1.00	0.696	
4L80E	26.00						32 SPL.	2.482	1.482	1.00	0.750	
GM NV4500 92-94	12.44	6.50	.910	.590	1-1/8-10	1.373	32 SPL.	6.34	3.44	1.71	1.00	0.73
GM NV4500 95& UP	12.44	6.50	.910	.590	1-1/8-10	1.373	32 SPL.	5.61	3.04	1.67	1.00	0.73
DODGE NV4500	12.44	7.50	1.185	.670	1-1/8-10	1.433	23 OR 29	5.61	3.04	1.67	1.00	0.73
DODGE NV4500 H.D.	12.44	7.50	1.185	.670	1-1/4-10	1.433	29 SPL.	5.61	3.04	1.67	1.00	0.73
T & C 4-SPEED	10.12	6.50	1.125	.670	1-1/16-10	1.433	28 SPL.	2.32	2.78	1.88	1.00	1.35
T & C 4-SPEED O.D.	10.12	6.50	1.125	.670	1-1/16-10	1.433	28 SPL.	3.29	3.01	1.84	1.00	1.70
NP435 4-SPEED	10.875	6.50	.875	.670	1-1/16-10	1.433	28 SPL.	6.69	3.34	1.79	1.00	
T18 4-SPEED	11.875	6.50		.670	1-1/16-10	1.433	31 OR 28	6.32	3.09	1.69	1.00	
T19 4-SPEED	11.875	6.50		.670	1-1/16-10	1.433	31 OR 28	5.11	3.03	1.79	1.00	
ZF (S5-42 & S5-47)	26.25			.670	1-1/16-10		31 SPL.	Varies	Varies	Varies	Varies	Varies
C4 3-SPEED AUTO.	17.00						28 SPL.	2.46	1.46	1.00		
C6 3-SPEED AUTO.	20.00						31 SPL.	2.46	1.46	1.00		
AOD & AODE	17.00						28 SPL.	2.40	1.47	1.00	0.67	
TF-727	16.00						23 SPL.	2.45	1.45	1.00		
TF-904	20.00						21 SPL.	2.46	1.46	1.00		
TF-999	17.00						23 SPL.	2.80	1.47	1.00		
AW4	16.25						21 OR 23	2.40	1.55	1.00	0.69	
518-A	17.00						23 SPL.	2.40	1.47	1.00	0.67	
T84 3-SPEED	6.75	6.87	1.00	.629	15/16-10	1.25	1-3/8-6	2.94	1.94	1.00		
T85 3-SPEED	9.50	11.00	1.00		1-1/8-10	1.50	1-3/8-6	2.91	1.79	1.00		
T86 3-SPEED	8.00	9.50	1.18	.590	1-1/8-10	1.37	1-3/8-6	2.88	1.68	1.00		
T89 3-SPEED	9.50	9.00	1.00	.629	1-1/8-10		1-3/8-6	3.36	2.14	1.00		
T90 3-SPEED	8.12	9.50	1.50	.629	1-1/8-10	1.37	1-3/8-6	2.98	1.66	1.00		
T14-V6 3-SPEED	8.75	9.50	1.18	.590	1-1/8-10	1.37	1-3/16-10	3.10	2.61	1.00		
T14-STR. 6 3-SPEED	8.75	8.50	1.18	.590	1-1/8-10	1.37	1-3/16-10	3.10	2.61	1.00		
T15 3-SPEED	10.00	8.50	1.18	.750	1-1/8-10	1.40	1-3/8-6	2.97	1.55	1.00		
T18 4-SPEED	11.87	VARIES	1.00	.625/670	1-1/8-10	1.31	1-3/8-6	4.03	2.42	1.41	1.00	
T98 4&6 CYL. 4-SPEED	11.87	10.75	1.00	.625/670	1-1/8-10	1.31	1-3/8-6	6.40	3.09	1.69	1.00	
T150 1976-79 3-SPEED	9.25	7.25	2.00	.673	1-1/16-10	1.43	1-3/8-6	2.99	1.75	1.00		
T176 1980-86 4-SPEED	10.25	7.12	1.50	.590	1-1/8-10	1.43	23 SPL.	3.52	2.27	1.46	1.00	
T4 4-SPEED	9.18	7.19	1.50	.590	1-1/8-10	1.43	23 SPL.	4.03	2.37	1.50	1.00	
T5 5-SPEED	9.18	7.19	1.50	.590	1-1/8-10	1.43	23 SPL.	4.03	2.37	1.50	1.00	.76
SR4 4-SPEED	9.18	7.18	1.50	.590	1-1/8-10	1.43	23 SPL.	3.50	2.21	1.43	1.00	
AX4-AISIN.4-SPEED	10.25	7.25	1.06	.590	1"-14	1.43	21 SPL.	3.93	2.33	1.44	1.00	
AX5-AISIN.5-SPEED	10.25	7.25	1.06	.590	1"-14	1.43	21 SPL.	3.83	2.33	1.44	1.00	.79
BA10/5 PEUGEOT 5-SPEED	9.25	7.25	1.50	.590	1-1/8-10	N/A	21 SPL.	3.39	2.33	1.44	1.00	.79
AX15	16.75	8.00	1.46	.590/750	1-1/8-10	N/A	23 SPL.	3.83	2.33	1.44	1.00	.79
NV3550	16.75	8.00	1.46	.750	1-1/8-10	N/A	23 SPL.	4.01	2.32	1.40	1.00	.78



TH400



TH350 & 700R



FORD T18 & NP435

transmission bolt patterns

BELLHOUSING SELECTION CHART

JEEP MANUAL TRANSMISSIONS	GM V8 & V6	FORD 302 V8	BUICK V6	AMC 4.0L	AMC V8 & 4.2L	AMC 4 CYL.
T-84 3 SPEED	N/A	N/A	N/A			
T-90 3 SPEED (REPLACING 4 CYL.) NOTE 1	712502 (4)	712505 (4)	712502 (3,4)			
T-90 3 SPEED (REPLACING 6 CYL.)	712502 (4)	712505 (4)	712502 (3,4)			
T-89 3 SPEED	N/A	N/A	N/A			
T-86 3 SPEED	712506 (4)	712508 (4)	712506 (3,4)			
T-14 3 SPEED (REPLACING V6)	712506 (4)	712508 (4)	712506 (3,4)			
T-14 3 SPEED (REPLACING STRAIGHT 6)	712510 (4)	712511 (4)	712510 (3,4)			
T-15 3 SPEED	712510 (4)	712511 (4)	712510 (3,4)			
T-150 3 SPEED	712527 (4)	FORD B/H	712527 (3,4)			
T-150 3 SPEED	712548 (2)	FORD B/H	712583 (2)			
T-18 (STICKOUT 7.375")	712528 (4)	712529 (4)	712528 (3,4)			
T-18 & T-98 (STICKOUT 7.750")	712512 (4)	712514 (4)	712512 (3,4)			
T-18 (STICKOUT 9.375")	712521 (4)	712522 (4)	712521 (3,4)			
T18 & T-98 (STICKOUT 10.250")	712517 (4)	712518 (4)	712517 (3,4)			
T18 (STICKOUT 13-14")	712516 (4)		712516 (3,4)			
T176 4 SPEED	712548 (2)	FORD B/H		712569 (2)	STOCK / 712599	
T176 4 SPEED	712534 (4)	FORD B/H	712534 (3,4)	712569 (2)	STOCK / 712599	
T4, T5, SR4	712548 (2)			712569 (2)	STOCK / 712599	
PEUGEOT 5 SPEED	712566 (2)		712566 (2)		STOCK	
AX4, AX5	712565(2,13)		712565(2,13)	N/A	N/A	STOCK
AX15 5 SPEED	712567 (2)	712543 (4)	712567 (2)	STOCK		712563
NV3550 5 SPEED	712591 (2)	712544 (4)	712591 (2)	712590 (2)	712545	
JEEP AUTOMATIC TRANS.						
AMC TH400 (1974 & NEWER)	716133					
727 TORQUEFLITE	716131 (6)					
904 TORQUEFLITE (replacing 4cyl or V6)	716132 (7)					
999 TORQUEFLITE	716131 (6)					
AW4						
SCOUT MANUAL & AUTOMATICS						
T18,T19,T98 4-SPEED	712530 (4)	712531 (4)	712530 (4)			
T-90 3 SPEED NOTE 1	712502 (4)	712505 (4)	712502 (3,4)			
727 TORQUEFLITE	712572-A (12)					
MISC. GM, FORD, DODGE TRANS.						
GM SM420 *ALSO REQUIRES 716041	STOCK/712577*		712581 (2)	712570 (2)	712570 (2)	
GM SM465	STOCK/712577		712582 (2)	712571 (2)	712571 (2)	
FORD 4 SPEED (T18,T19 & NP435)	712549 (2)	STOCK	712583 (2)	712569 (2)	712569 (2)	712555NP
GM NV4500 (6.34:1 1ST GEAR)	712577 (2)			712571 (2)	712571 (2)	
GM NV4500 (PRE-96 / 5.61:1 GEAR RATIO)	712577 (2)	712552 (4)		712571 (2)	712571 (2)	
GM NV4500 (1996+)	712576 (2)			712568 (2)	712568 (2)	
DODGE NV4500 4WD GAS VERSION	712550 (5)	712551 (4)	712550 (3,5)		712553 (4)	712555 (9)
DODGE NV4500 4WD GAS VERSION	712550 (5)	712551 (4)	712550 (3,5)	712554 (8)		712559 (10)
CHEVY AUTOMATIC	STOCK	712588 (14)	716134	716138 (11)	716138 (11)	

NOTES:

- REQUIRES A NEW INPUT SHAFT 716014
- THIS KIT IS A FULL BELLHOUSING
- OUR BUICK B/H CAN BE USED WITH THIS ADAPTER
- GM & BUICK KIT USES 4.686" B/H INDEX (ADD P/N 716078 FOR 5.125 INDEX B.H.) FORD KIT USES A 4.848" B/H INDEX
- GM & BUICK KIT USES A 5.125" B/H INDEX
- THIS KIT HAS TWO VERSIONS REF. PAGE 39, 83 & 106.
- THIS KIT IS SOLD FOR EITHER A EARLY (-B) OR LATE (-A) GM V8
- FOR USE WITH AX15 BELLHOUSING, INTERNAL HYDRAULIC ONLY
- FOR USE WITH AX5 BELLHOUSING, INTERNAL HYDRAULIC
- FOR USE WITH AX5 BELLHOUSING, EXTERNAL HYDRAULIC
- SEE PAGE 43, 85 & 109 FOR OPTIONS
- THIS KIT ONLY WORKS ON 1985 & EARLIER BLOCK (NO 400CI)
- THE TRANSMISSION FOR THIS BHSG. HAS A 1"-14 SPL. INPUT SHAFT, WHICH REQUIRES A SPECIAL CLUTCH DISC
- THERE ARE 3 VERSIONS OF THIS KIT. THE CORRECT KIT DEPENDS ON THE YEAR OF YOUR FORD BLOCK.

CHEVY, FORD & AMC BELLHOUSINGS

There are several types and styles of bellhousings that can be used on Jeep engine conversions. The variations will limit you to different clutch sizes, starter motor configurations, release lever options, transmission index diameters, and bolt patterns. We have outlined some of the various available bellhousings that will be compatible with your Jeep engine conversion.

A. Chevy Bellhousings: When selecting a Chevy bellhousing for your engine conversion, you must make sure the inside diameter of the bellhousing will be compatible with the clutch you are going to use. We recommend that you use the 11" flywheel and clutch assembly, which will require the large inside diameter bellhousing. In order to verify that the bellhousing will fit the large flywheel, you must make sure the inside diameter will clear the 14" diameter flywheel. These bellhousings are more common on truck applications, but there are several car-type applications that also have the larger diameter. Once you have established the larger inside diameter, you must then verify the transmission register diameter. GM offers two different diameters. The large diameter is limited to late model trucks and the small diameter is usually found in Chevy passenger car applications. If a bellhousing adapter plate is going to be used, we supply a bearing retainer on the front of the adapter plate that will index into the 4.686" diameter. If you purchase a bellhousing that has the 5.125" diameter, then you can order our index ring [P/N 716078](#) that has the larger diameter for the 5.125" bellhousing index.

GM has always used the same transmission bolt pattern up until 1993 when they introduced the NV4500 5 speed transmission. In 1996, GM bellhousings started to incorporate an internal hydraulic release bearing and, once again, they changed the transmission bolt pattern on the bellhousing. You must be careful when selecting a NV4500 transmission to make sure that you obtain the proper bellhousing. We offer numerous bellhousings that will fit most applications.

The engine block bolt patterns have always been the same for the Chevy small block and big block engines. The bellhousings are aligned by two dowel pins that are normally on the engine block. Without these dowel pins, severe misalignment of the bellhousing and transmission will occur.

On all Chevy applications, the starter motor locates on the engine block with exception of the very early 265 V8s. When using the stock bellhousing, no special starter will be required. We recommend that you try to retain the 168 tooth flywheel for all conversions using stock GM bellhousings.

Our conversion bellhousings are designed to work with a stock Chevy starter nose cone. We have found that some GM starter nose cones will cause interference inside our bellhousing. If your stock starter is interfering with our bellhousing, you may need to grind on the bellhousing a bit or purchase a hi-torque starter which does not have a nose cone. When using a 168 tooth flywheel with our conversion bellhousing for the 1987-2005 stock Jeep transmissions, you will be required to use a hi-torque starter. We carry a hi-torque starter for the Chevy V6 and V8 under [P/N 22-0001](#) staggered pattern, and a hi-torque starter for the Vortec blocks under [P/N 22-0002](#) and a hi-torque starter for the straight bolt pattern under [P/N 22-0003](#).

B. Ford Bellhousings: When selecting a Ford bellhousing for your engine conversion, you must make sure the bellhousing you select is compatible with your engine flywheel. On Ford bellhousings, the starter motor has a predetermined location that can only be used with either the 157 tooth or 164 tooth flywheel. On some V8 engines such as the Windsor, a 157 tooth flywheel is not available. Problems can be avoided by selecting the proper bellhousing. Once you have established the correct bellhousing diameter for your flywheel, you must then verify the transmission register diameter. Ford offers three different diameters. The small diameter of 4.848" is common to all car and some truck applications, while the 5.125" diameter is limited to early trucks. The 4.910" is used with the T4 and T5 transmissions. If a bellhousing adapter is going to be used, we supply a bearing retainer on the front of the adapter plate that must index into the 4.848" diameter. **DO NOT ATTEMPT** to use the Ford bellhousing that has the larger 5.125" or 4.910" diameter.

The bolt pattern for the transmission will always be the same on Ford bellhousings 1966 and newer. The early bellhousings (up to 1965) have a different transmission bolt pattern and are held to the engine block with only 5 bolts. All of the adapters manufactured are only compatible with the late model bellhousings. In most cases, the bellhousings will already have a clutch release lever, ball pivot or mounting bracket.

The bellhousings are aligned by two special dowel pins that are normally on the engine block. Without these dowel pins, severe misalignment of the bellhousing and transmission will occur. Since the starter motor locates into the bellhousing, you must make sure that the starter, flywheel, and bellhousing are all compatible.

C. AMC Bellhousings: Some applications will require the use of an AMC bellhousing. Listed below are the AMC blocks that share the same engine block bolt pattern. AMC bellhousings are similar to the Ford bellhousings in that the starter bolts directly to the bellhousing. We have found that Jeep used two different starters. The bolt pattern on these starters are the same; however, the amount of engagement of the Bendix is different. Make sure that the starter you are using obtains proper engagement with reference to the Bendix and flywheel.

(Note: AMC includes 258, 304, 360, 401, 4.2L, 4.0L all of which have the same block bolt pattern.)

SPECIAL CONVERSION BELLHOUSINGS

NV4500 BELLHOUSING ADAPTERS TO GM ENGINES:

The NV4500 transmission has become a popular combination when installing a Chevy engine into a Jeep. Since the NV4500 is offered from General Motors or Dodge, the stock GM & Dodge bellhousing is not always compatible with the original Jeep clutch linkage. Depending on the model NV4500 you obtain, the full bellhousings we offer have provisions to utilize your stock hydraulic or mechanical clutch linkage. When using an adapter plate, additional clutch linkage items will be necessary. If using one of our bellhousings with a Vortec engine, you may be limited on clutch linkage due to the exhaust manifolds.

GM NV4500:

- P/N 712577 - GM NV4500 (1993-1995) to GM block, full bellhousing (11" clutch recommended)
- P/N 712576 - GM NV4500 (1996 & up) to GM block, full bellhousing (11" clutch recommended)
- (Both these bellhousings come with a Chevy release arm and proper bellhousing boot)

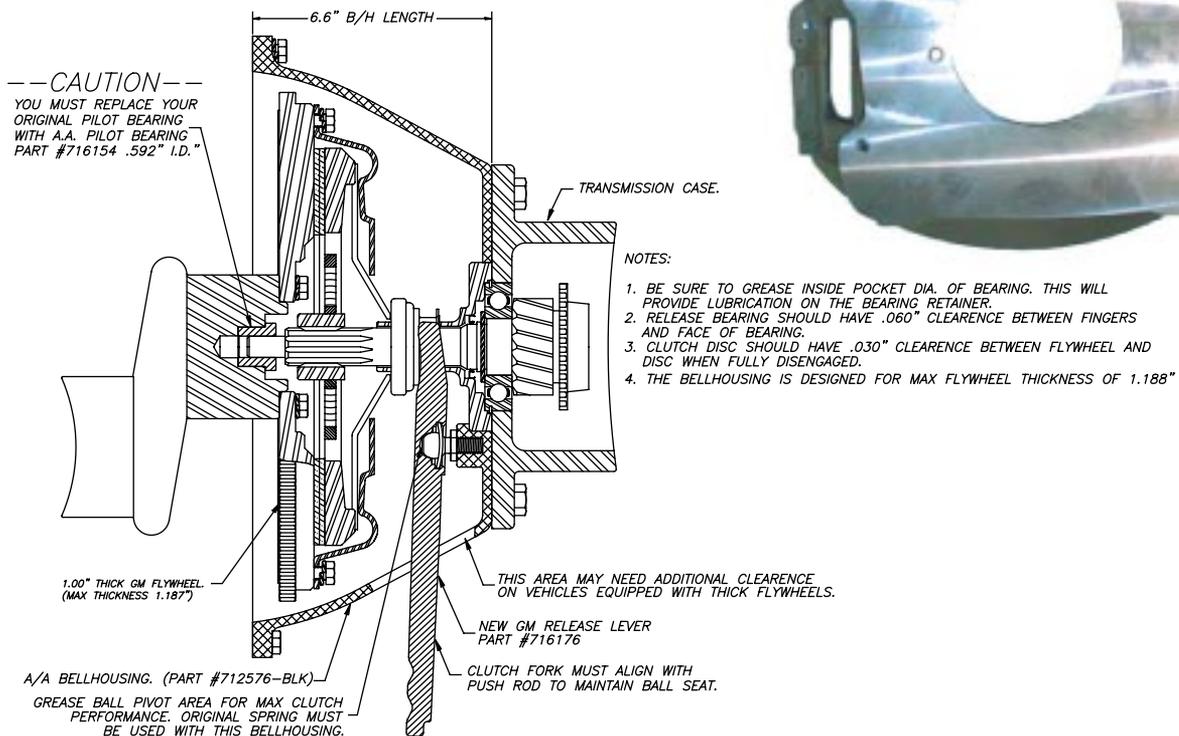
DODGE NV4500:

- P/N 712550 - Dodge NV4500 to GM 5.125" indexed adapter plate
- (This kit requires the use of a stock GM bellhousing. Clutch bracket [Part No. 716638](#) may be necessary to aid with a mechanical clutch linkage connection.)

(Full bellhousing P/N 712576 can be used with a Dodge NV4500 by installing a new input shaft, [P/N 52-0221](#))

Clutch components for both GM & Dodge NV4500 kits:

- P/N CF165552 - 11" Pressure Plate
- P/N 383735 - 11" Clutch Disc
- P/N N1430 - Release Bearing (w/ full bhsg.)
- P/N N1714 - Release Bearing (w/ adapter plate)



CLUTCH ALIGNMENT TOOLS:

- P/N 716228 - CLUTCH TOOL 1-1/8" 10 SPLINE .590 PILOT TIP
- P/N 716229 - CLUTCH TOOL 1-1/16" 10 SPLINE .670 PILOT TIP
- P/N 716230 - CLUTCH TOOL 1" 14 SPLINE .590 PILOT TIP
- P/N 716231 - CLUTCH TOOL 1-1/8" 21 SPLINE .460 PILOT TIP
- P/N 716232 - CLUTCH TOOL 1-1/8" 10 SPLINE .750 PILOT TIP

special conversion bellhousings

NV4500 BELLHOUSING ADAPTERS TO FORD ENGINES:

The NV4500 transmission has also become a popular combination when installing a Ford engine into a Jeep. The adapters listed below are necessary to perform this conversion. Both these adapter plates utilize a stock Ford bellhousing 4.848" index. We do not offer brackets to install either hydraulic or mechanical clutch linkages for these applications. Some fabrication on your part will be required.

GM NV4500: P/N 712552 - Chevy NV4500 (1995 only) to Ford 4.848" indexed adapter plate

DODGE NV4500: P/N 712551 - Dodge NV4500 to Ford 4.848" indexed adapter plate

Clutch components for both GM & Dodge NV4500 kits:

- P/N CF260000 - 11" Pressure Plate (bolts to flywheel with 3 sets of 2 bolts)
- P/N CF360049 - 11" Pressure Plate (bolts to flywheel with 6 evenly spaced bolts)
- P/N 383735 - 11" Clutch Disc
- P/N 716311 - Release Bearing



BUICK BELLHOUSING ADAPTERS:

Automatic Transmissions:

The Buick V6 has always been a popular engine to swap into Jeep vehicles. When installing the Buick V6 to an automatic transmission, we recommend using a Buick automatic. When this option is not available, we offer an adapter plate, [Part No. 716134](#). This plate will couple a Chevy automatic to the Buick engine block. There are some applications where you may have a Buick transmission and you want to bolt it to a GM block. For this, we offer adapter plate, [P/N 716129](#).

Manual Transmissions:

Due to the limited availability of stock bellhousings, a problem exists when trying to adapt the Buick engine to a manual transmission. Jeep was the only large volume manufacturer that ever used a manual transmission to a Buick engine. Needless to say, these bellhousings are extremely hard to locate. So in the early 1990s, we decided to design and manufacture a Buick V6 bellhousing to fit the 231, 225, and the rear-wheel drive 3.8L V6 engine to a manual transmission. To meet the various transmission requirements, we manufacture three different styles. (Hydraulic or mechanical clutch linkage brackets will need to be fabricated).

Bellhousing Adapters:

- P/N 712581 - Buick V6 to Chevy transmission bolt pattern with a 4.686" index
- P/N 712582 - Buick V6 to Chevy transmission bolt pattern with a 5.125" index
- P/N 712583 - Buick V6 to Jeep T4, T5, SR4, T176 & Ford transmissions
(These bellhousings are limited to a stock Buick 10-1/2" clutch assembly & 160 tooth flywheel)
(These bellhousings are not compatible with 3.8L transverse engines)

Clutch Components:

- P/N CF360056 - 10-1/2" Buick Pressure Plate
- P/N 383271 - 10-1/2" Clutch Disc w/ 1-1/8" 10 spline
- P/N 381021 - 10-1/2" Clutch Disc w/ 1-1/16" 10 spline
- P/N CF700010 - 160 Tooth Flywheel (for Buick 231 except Turbo-Charged)



FORD MANUAL TRANSMISSION TO GM V6/V8 ENGINE:

In some of the short wheel-based vehicles, doing an engine & transmission swap is a game of inches when trying to retain the longest possible rear driveshaft length. In many cases, it's easier to accomplish this by coupling a GM engine to a Ford transmission to a Jeep transfer case. We've designed a bellhousing that can retain the stock hydraulic or mechanical clutch linkage on most applications. The bellhousing requires an 11" Chevy flywheel and pressure plate with a Ford Clutch disc and late model release bearing. The bellhousing comes complete with a new Chevy release arm, pilot bushings, and necessary hardware.

- P/N 712549 - Ford Truck 4sp (T18, T19 & NP435) to Chevy V6/V8 engine
- P/N CF165552 - 11" Chevy Pressure Plate
- P/N 281226 - 11" Clutch Disc w/ 1-1/16" 10 spline
- P/N N1714 - Release Bearing
- P/N LC281226 - 11" GM LUK Pressure Plate w/ Ford disc

GM 700R, TH350 & TH400 TRANSMISSIONS TO FORD 302 ENGINE:

We offer an adapter plate and flywheel adapter to couple the GM automatics (TH350, TH400 & 700R) to the stock Ford engine. This kit is 3/8" thick and provides an excellent way of combining the GM transmission into a Ford-powered Jeep.

- P/N 712588-A GM Transmission to Ford 302 1968-80 (28 oz. balance)
- P/N 712588-B GM Transmission to Ford 302 1982-97 (50 oz. balance)
- P/N 712588-C GM Transmission to Ford 302 1981

CLUTCH RELEASE ARMS & BEARINGS:

On the Clutch Selection Chart, the Centerforce clutches we have listed are all high diaphragm pressure plates. By using these pressure plates, we can standardize on just a few release arms and bearings.

RELEASE ARMS: The clutch throw-out levers are available in several sizes, materials, and configurations. They can be purchased at your local dealer or from us directly. The clutch release arms are not interchangeable between different manufacturers. For example, you cannot use a Ford or AMC arm in a Chevy bellhousing. Most arms are held inside the bellhousing by a ball pivot that the release arm clips over. The ball pivot permits the arm to swing back and forth to release the clutch.

In order to get the maximum efficiency from the clutch mechanism, the release arm portion that is outside of the bellhousing should be angled approximately 3 to 5 degrees towards the engine block. The angle can be adjusted by using an adjustable ball pivot on the bellhousing. (Adjustable ball pivots for GM bell housings can be purchased at any auto parts store). With the clutch release lever properly installed, you must maintain a minimum of .060" clearance between the release bearing and clutch fingers. It is important that you verify the clearance between the clutch release arm and clutch pressure plate. There are some applications that will require additional clearance for the clutch release arm.

The GM arm we use is the straight cast iron style, [P/N 716176](#) (GM# 3765372), that accepts the groove-type throw out bearing. On most of our conversion bell housings and adapter plates, we recommend this arm (except on P/N 712548 bellhousing assembly). The clutch linkage rod or slave cylinder rod that couples to the GM arm may require a pivoting wedge to prevent the linkage from binding. We offer this wedge under [P/N 716139](#) (GM# 3765322).

On Ford bellhousing applications, we have found a wide variety of release arms. The release arm that your stock Ford bellhousing has is your best choice. The release arm normally accepts one of two types of release bearings: Up to 1981, Ford used a clip-type. On 1982 & newer, Ford (like GM) uses a groove-type.

Jeeps are similar to the early Fords in that they use a clip-type release bearing. The only application that we retain the stock Jeep throw out arm is with our conversion bellhousing P/N 712548 (vehicles 1976-86). When using this bellhousing on vehicles that were originally equipped with a AMC 4 cylinder, you will need to purchase: [Part No. 716332](#) (boot), [716333](#) (spring) & [716334](#) (T/O arm - Jeep# 5361620).



CLUTCH RELEASE BEARINGS: This bearing fits on the inside of your bellhousing and attaches to the release lever, providing a means of disengaging the clutch while shifting the transmission. The bearing only rotates upon the depression of the clutch arm. Depending on the height of the pressure plate, there are different lengths of bearings. It is important that you have the proper bearing to obtain the proper release. There should be approximately .060" minimum clearance between the bearing and the clutch fingers. The clutch pedal should have approximately 1" of play at the top of the pedal swing. If the bearing is allowed contact with the clutch fingers prior to clutch disengagement, premature bearing failure will occur. The bearing must slip easily over the transmission bearing retainer. The inside of the release bearing will have a small cavity that has been provided for grease storage. This cavity should be packed with a good quality grease so that proper lubrication can be maintained between the bearing and transmission bearing retainer. Most new bearings are already pre-lubricated.

The Centerforce clutches that we recommend are all high diaphragm pressure plates. They all require a flat-face release bearing. If you are acquiring your own pressure plate, which may be a low diaphragm pressure plate, you will need a radius-face release bearing.

When selecting the release bearing and using one of the Centerforce clutches recommended, there are two simple things to consider. First, how does the bearing attach to the release arm? (Clip or Groove). Second, what is the external dimension of the transmission snout that the bearing rides on? (The GM retainer snout is 1.37", and Ford, Jeep & Dodge NV4500 is 1.43").

[P/N N1430](#) - 1.37" I.D. groove-type release bearing. This flat-face Chevy release bearing is used with high diaphragm clutches. The inside diameter will fit Chevy transmission bearing collars.

[P/N 716311](#) - 1.43" I.D. clip-type release bearing. This is a flat-face release bearing that will fit the Jeep transmission bearing collars 1976-86. The bearing will clip onto the original Jeep release arm and can only be used with high diaphragm type clutches. This bearing is also used on all Ford V8 conversions using the stock Ford release lever on bell housings 1981 & earlier. Ford and Jeep both have the same inside diameter on the bearing collar.

*[P/N N1714](#) - 1.43" I.D. groove-type release bearing. This release bearing is a Ford style that requires a Ford release arm having the groove-type connection. It should only be used when the late model Ford V8 release arms are being used. This bearing also works well on Dodge NV4500 transmissions in combination with the GM release arm. Slight modifications will be necessary on the GM release arm to properly fit this bearing.

*(When using this bearing with a GM arm, the GM arm will require slight modifications)



CLUTCH COMPONENTS:

CLUTCHES: A clutch is made up of two major parts; the pressure plate and the clutch disc. Each has its own purpose. Clutch pressure plates come in two styles - 3 finger Borg & Beck or a multiple finger diaphragm type. When a hydraulic clutch system is going to be retained, it is critical that you use a pressure plate that is compatible with the existing hydraulic system. The pressure plates that we offer are the diaphragm type and are available for both the mechanical and hydraulic clutch linkages.

There are several engine conversions that will require a mixed combination of pressure plate and disc components. Quite often we will use a Ford clutch disc with a Chevy pressure plate, or a Chevy clutch disc with a Ford pressure plate in order to make the proper clutch connection.

The pressure plate and disc must be aligned to the flywheel prior to securing the pressure plate bolts. Special tools are made for this alignment, or the transmission input shaft can also be used. The pressure plate bolts should be tightened progressively to the flywheel, and you must use the recommended torque specifications provided by the manufacturer. When assembling the clutch & pressure plate to the flywheel, it is also crucial that you check the clutch disc spring clearances on the flywheel-to-crank bolt heads. Many times, if a flywheel has been resurfaced, this can be a problem.

FLYWHEELS: The flywheel is one of the most important parts of your engine conversion. Special care should be given in selecting the proper one. Flywheels are available in many sizes, tooth counts, and materials. Most factory 4WD vehicles, such as Jeeps and Toyota Land Cruisers, are furnished with a heavy cast iron design. The weight is a very important factor when serious offroad driving is planned. It seems that the weight has a tendency to keep the engine's performance at a low RPM - ideal when in the rocks and rough terrain. For a vehicle that is used very little in offroad use, a lighter flywheel will be sufficient. In either case, make sure that the flywheel has been balanced and has a good surface for clutch contact. When installing a flywheel onto the engine crank, make sure you use the special flywheel bolts and factory torque specifications. On Chevy and Buick manual transmission conversions, we have standardized our bellhousing lengths for flywheels that are 1" thick. If you are going to use a flywheel that is either thinner or thicker, then modifications may be required. These modifications can be as easy as using an adjustable ball pivot. Some applications may require additional surfacing from the face of the flywheel.

Chevy V6 & V8 engines can be equipped with either a 153 or 168 tooth flywheel. You must make sure that engines 1986 & newer have the proper balancing since these engines are all externally balanced. The 1985 & earlier blocks are internally balanced. The flywheels between these years cannot be interchanged. In the late 90's the Vortec Gen 3 engines came out and these engine used a few different flywheels. These flywheels are not interchangeable with anything earlier and can cause some problems when converting to an earlier transmission. For these blocks refer to our P/N 712500M and 712500A for flywheel and flexplate options

On Buick engine conversions, there are three styles of flywheels available. Our adapters are designed for use with only the flat-type style of flywheel. The recessed and raised surfaced flywheels may have some difficulty with relation to clutch performance. Manual flywheels for Buicks are sometimes hard to find since most of these blocks were originally connected to an automatic transmission. Centerforce offers a 160 tooth, 35 lbs. Buick V6 flywheel, [AA P/N CF700010](#). The 225 out of a CJ has a recessed flywheel and is a odd fire block, 231's out of GM cars up to 1977 are normally odd fire blocks also. 1978 and later 231's were normally coupled to an automatic and they were even fire V6's. You can use our flywheel on an odd fire block but the flywheel must be rebalanced for this block.

The Ford flywheels are available in two different tooth counts - 157 & 164 tooth. **Since the starter bolts and indexes to the Ford bellhousing, it is crucial that the flywheel is matched to the bellhousing.** Some of the later model Ford blocks only offered one diameter or tooth count flywheel. However, our adapter may require the opposite. On these applications, you will need to have the correct flywheel diameter balanced to the year of the block. Ford blocks are 1968-80 28oz. balance and 1982-97 50oz. bal.

The following flywheels can be use for the various engine blocks:

	CHEVY & GM FLYWHEELS	TOOTH COUNT	COUNTER BALANCED	
	CF700120 - V8 (Up to 1985)	168T, 30 lbs., 14.09" Dia.	No	
	CF700100 - V8 1963 to 1985	153T, 30 lbs., 12.83" Dia.	No	
	CF700170 - 305 & 350 V8 (1986-Up)	153T, 30 lbs., 12.83" Dia.	Yes	
	CF700160 - 305 & 350 V8 (1986-Up)	168T, 30 lbs., 14.09" Dia.	Yes	
	The flywheels listed above will not fit the Gen III engines			
	BUICK V6 FLYWHEELS			
	CF700010 - 231 V6 (Except Turbo)	160T, 35 lbs., 13.42" Dia.	Yes	
	FORD V8 FLYWHEELS			
	900220 - 289 V8	157T, 30 lbs., 13.29" Dia.	Yes	
	900240 - 302 V8 (Mustang 5.0)	157T, 33 lbs., 14.21" Dia.	Yes	
	900230 - 302/351 V8	164T, 25 lbs., 14.21" Dia.	No	

Before installation of your flywheel, be sure to clean all surfaces that contact the pressure plate and disc so that there is no oil or grease contact. If a flywheel has been resurfaced, you should make sure that the bolt hole depth that holds the pressure plate to the flywheel has sufficient clearance for the bolts. There have been occasions when the depth does not permit the bolt to secure the pressure plate, causing severe clutch problems.

CLUTCH SELECTION CHART

The Centerforce clutches and flywheels listed below are recommended when using our conversion components. We design our adapter kits around the Centerforce clutch design. If clutch components from other manufacturers are used, we cannot guarantee proper clutch operation. Both the 10-1/2" and 11" clutch assemblies are available for most conversions, although there are several applications that only a 10-1/2" clutch assembly can be used. There are also some instances where a 10-1/2" clutch disc is only available when using an 11" pressure plate assembly.

	1-1/8" 10 SPLINE ALL GM TRANS. NV4500, JEEP T5, T176, T90, T86, T14, T15, T18	1-1/16" 10 SPLINE ALL FORD TRANS. JEEP T150 JEEP T18 1976-79		1-1/8" 10 SPLINE ALL GM TRANS. NV4500, JEEP T5, T176, T90, T86, T14, T15, T18	1-1/16" 10 SPL. ALL FORD TRANS. JEEP T150 JEEP T18 1976-79
GM 10-1/2" CLUTCH PRESSURE PLATE CLUTCH DISC 153 FLYWHEEL UP TO 85 153 FLYWHEEL 86 & UP	CF360056 383271 CF700100 CF700170	CF360056 381021 CF700100 CF700170	FORD 10" CLUTCH PRESSURE PLATE CLUTCH DISC 157 FLYWHEEL	CF360030 383303 STOCK	CF360030 280490 STOCK
GM 11" CLUTCH PRESSURE PLATE CLUTCH DISC 168 FLYWHEEL UP TO 85 168 FLYWHEEL 86 & UP	CF165552 383735 CF700120 / CF785168 CF700160 / CF786168	CF165552 281226 CF700120 / CF785168 CF700160 / CF786168	FORD 11" CLUTCH PRESSURE PLATE (3 sets of 2) (6 bolts evenly spaced) CLUTCH DISC 164 FLYWHEEL	CF260000 CF360049 383735 STOCK	CF260000 CF360049 281226 STOCK
AMC 10-1/2" CLUTCH PRESSURE PLATE CLUTCH DISC FLYWHEEL	CF361675 (MECH) CF361897 (80-85 HYD) CF361890 (86&up HYD) 384193 STOCK	CF361675 (MECH) CF361897 (80-85 HYD) CF361890 (86&up HYD) 384180 STOCK	BUICK 10-1/2" CLUTCH PRESSURE PLATE CLUTCH DISC 160 FLYWHEEL SPECIAL PRESSURE PLATE FOR RECESSED 225 FLYWHEEL	CF360056 383271 *CF700010 CF361662 383271 (disc) N1178 (release brg.)	CF360056 381021 *CF700010

*This flywheel is designed for a Buick even fire block. Before installing, the flywheel should be balanced to the Buicks engine crank.

We also offer a few clutch assemblies which include the pressure plate and disc: 11" Chevy LC165552. 10.5" Chevy LC360056 and a Chevy pressure plate with a Ford disc P/N LC281226

CRANK PILOT BUSHINGS

See clutch alignment tools on page 10 to aid in the installation of most clutch assemblies.



Pilot bushings are the small sintered bronze bushings, or sometimes needle bearings, that are installed into the rear part of the engine crank. They may seem small and unimportant, but believe us, this can really make a difference in the transmission and clutch performance.

To remove the old bushing, you can use a small puller. A little trick we learned for easy removal is to pack the old bushing and crank cavity full of grease. Then using a bolt or small shaft close to the same size of the inside diameter, simply tap it in and the hydraulic transfer will push the bushing out.

On new installations, check the fit on the shaft and also make sure the new bushing is installed to the proper depth. If the bushing is not installed to the proper depth, it could cause a drag on the transmission shaft which will cause shifting problems. The bushing should have a minimum of .375" contact on the transmission shaft. After installation of the bushing, double check the transmission shaft for fit. Sometimes the press fit will shrink the inside diameter enough to create too tight of a fit. Use a small piece of fine emery paper to enlarge .001" to .002".

In most of the bellhousing adapter kits we sell, the crank pilot bushings are included. The bushings listed show the outside & inside dimension, and the overall length.



Part No.	O.D.	x	I.D.	x	Length	Application
716120	1.818		.590		.870	AMC/Jeep block
716122	1.377		.750		.500	Ford block
716148	1.090		.675		1.50	GM block
716153	1.377		.590		.359	Ford block
716154	1.090		.590		1.00	GM block
716156	1.818		.670		.500	AMC/Jeep block
716156GM	1.818		.590		.600	AMC/Jeep block
716158	1.090		.670		.750	GM block
716159	1.050		.590		.625	AMC/Jeep block
716161	1.090		.590		1.50	GM block
716163	1.377		.750		1.00	Ford block
716164	1.818		.750		.500	AMC/Jeep block
716166	1.818		.750		.750	AMC/Jeep block
716168	1.090		.750		.750	GM block
716169	1.377		.750		.350	Ford block
716170	1.090		.590		.750	GM block
716171	1.090		.629		.750	GM block
716172	1.377		.625		.500	Ford block
716173	1.377		.670		.500	Ford block

NOTE: Jeep 4.0L with the 42RLE transmission used a crank sleeve for the torque converter. This sleeve has a 1.336" I.D. When converting to a manual transmission this sleeve must be removed to install the new pilot bushing. The sleeve O.D. is 1.818" which is the same diameter as the pilot bushing supplied in our bellhousing kits

JEEP RADIATORS

When installing a larger engine into any Jeep vehicle, the radiator is normally an area that needs attention. We offer conversion radiators for just a few of the Jeep applications. For CJ7 models, we offer a [Part No. 716685](#), which is a 3 row copper/brass radiator. It measures 24-3/4" wide, 20-1/2" high, and 3" thick. For YJ & TJ Wranglers, we offer [P/N 716687](#). This is a 3 row copper/brass radiator that measure 20" wide, 22" high, and 2-1/2" thick. Both radiators utilize the factory mounting holes and work well with either the Chevy V6 & V8 conversions. On early model Jeeps, we recommend having a custom radiator built or your stock radiator modified.



P/N 716685

Mounting a radiator for offroad use is critical due to rough offroad conditions. Be sure you secure your radiator properly, since any slight damage could cause severe engine overheating problems. The Jeep radiator is normally mounted to the grille area by a flange that is part of the radiator. This type of mounting keeps the radiator independent of the chassis. On some early Jeep, it may be necessary to shorten the grille cowling. This will allow for the radiator to be positioned further forward, providing more room for the new engine.



P/N 716687

If an engine-driven fan is going to be used, a fan shroud must be installed. This will allow proper protection from the rotating fan, but will also create an effective airflow through the radiator for maximum cooling. We have seen many electric fans used with engine conversions. They are normally mounted directly to the radiator. They offer great cooling characteristics and come with their own shrouding for safety. Sometimes they can provide additional clearance for the engine when necessary.

If an automatic transmission is going to be used, you might consider incorporating the transmission cooler inside the radiator. Since most conversions are limited on space, a separate transmission cooler might not be feasible.

If you are retaining your stock engine temperature gauge, we suggest that you verify its calibration. The gauge can sometimes read 10-15 degrees different than what the Chevy or Ford engine is actually running.



Our trademark named "Rad-A-Kool" aluminum radiators cover Jeep applications from 1970 to current Jeep models. On earlier model Jeeps, we recommend having a custom radiator built or your stock radiator modified.

Chevy to 1970-1986 Jeep CJ

- [P/N 716692-AA](#) - Conversion Radiator w/Manual Transmission (Aluminum)
- [P/N 716692-LS](#) - LS1 & GEN III Radiator w/Manual Transmission (Aluminum)
- [P/N 716692-LT](#) - LT1 Radiator w/Manual Transmission (Aluminum)
- [P/N 716690-AA](#) - Conversion Radiator w/Automatic Transmission (Aluminum)
- [P/N 716690-LS](#) - LS1 & GEN III Radiator w/Automatic Transmission (Aluminum)
- [P/N 716690-LT](#) - LT1 Radiator w/Automatic Transmission (Aluminum)

Chevy & Dodge 1987-2005 Jeep Wrangler

- [P/N 716693-AA](#) - Conversion Radiator w/Manual Transmission (Aluminum)
- [P/N 716691-AA](#) - Conversion Radiator w/Automatic Transmission (Aluminum)
- [P/N 716693-LS](#) - LS1 & GEN III Radiator w/Manual Transmission (Aluminum)
- [P/N 716693-LT](#) - LT1 Radiator w/Manual Transmission (Aluminum)
- [P/N 716691-LS](#) - LS1 & GEN III Radiator w/Automatic Transmission (Aluminum)
- [P/N 716691-LT](#) - LT1 Radiator w/Automatic Transmission (Aluminum)
- [P/N 716688-AA/AB](#) -Dodge Hemi radiator (Aluminum)



The above aluminum radiators can also be ordered to fit a small block Ford or a stock Jeep 6 cylinder engine. The prices for a Ford or Jeep 6 cylinder radiator are the same as our Chevy radiators.

Aluminum Radiator Features:

- *1" wide core tubes
- *Temperature Sensor Provision
- *Billet Filler Neck
- *No Epoxies, 100% TIG Welded
- *Air Pressure Tested
- *Cross Flow Design
- *16 Fins per inch
- *.083" Mounting Flanges

Our radiators can be ordered with or without a transmission cooler. The radiator has two 1/4" NPT fittings welded into the tank. We also include two 1/4" Male NPT x 5/16" inverted flare fittings. A benefit of the transmission cooler in the radiator is the heat exchange between the radiator and the tranny cooler. The radiator brings the transmission fluid up to a safe and constant operating temperature.

jeep radiators

Spal Fan Kits: The Spal fans we offer are the high performance, curved bladed pusher or puller fans. These 16" fans are 16.3" tall, 15.75" wide, and 3.39" deep at the fan motor. The fans are rated at 2360 CFM and being that they are pre-shrouded, they are ideal for cooling larger engines. Our fan kits come complete with the needed wiring harness, which is compatible with both positive and negative ground vehicles. The 3/8" pipe thread sending unit is designed to turn the fan on at 185 degrees and off at 170 degrees.

[716670](#) - Puller Fan Kit

[716671](#) - Pusher Fan Kit



Radiator Cap: The normal operating temperature on most engines is 180 to 200 degrees which generates a pressure of 8-12 pounds. This is true for both carbureted and fuel injected engines. To blow the cap of the radiator the coolant would have to be 270 degrees. Hopefully, the engine would be shut down prior to getting this hot, keeping the coolant inside the radiator. But for added protection, we offer a new 22 lb. radiator pressure cap. This cap works on all of our radiators. [P/N 716679](#).

Transmission Cooler Lines Kit: As you finish up a drivetrain conversion, there are always a few last minute items that need attention. One of these is the transmission cooler lines. You can surely bend up custom ridged cooler lines and route them up to the radiator or splice into your old lines if your vehicle has a stock automatic. We've found that the ridged lines are sometimes a pain to fit properly, and splicing into your stock lines may not always be the cleanest installation. We now offer a flexible stainless steel hose kit. These hoses are simple to route and easily installed onto the radiator. The seven foot long hoses are long enough to fit most applications while having a bit of extra hose to allow for body and frame flex. Our kit includes two 7' stainless steel outer braid lines with Teflon inner tubing. The ends have dash 6 female A.N. fittings that are pre-crimped to the hose ends. The kit includes two 1/4" MPT to dash 6 Male fittings for aluminum Rad-a-koool radiators, and two 5/16" inverted flare to dash 6 Male fittings for the transmissions.

[P/N 23-1500](#) - fits TH350 and TH400 transmissions.

[P/N 23-1501](#) - fit 700R and 4L60E transmissions.



Radiator Recovery Can: This canister will accumulate any "overflow" from the radiator cap. The accumulated fluid will then be pulled back into the radiator once the engine has cooled. [P/N 716672](#).

Radiator In-Line Temperature Sensor Adapters: We offer three upper radiator hose in-line temperature sensor adapters. These adapters allow you to retain your vehicles stock temperature sending unit and stock gauge. These units are offered in either 1-3/8" or 1-1/2" hose diameter as to fit most block and radiator configurations. The sensor hole is either 3/8" or 1/2" on the 1-3/8" adapters or 1/2" on the 1-1/2" adapter.

[P/N 716673](#) - 1-3/8" with 3/8" sensor hole

[P/N 716673A](#) - 1-3/8" with 1/2" sensor hole

[P/N 716674](#) - 1-1/2" with 1/2" sensor hole



FUEL SYSTEMS

The stock fuel tanks are sufficient for all V6 and V8 engine conversions. If additional fuel is needed, there are several aftermarket fuel tanks available to increase the fuel storage capacity. The fuel can be supplied to the engine in two ways: an electric fuel pump and a mechanical fuel pump. The mechanical pump is normally part of the engine and, at times, does create clearance problems. When the mechanical pump cannot be used, the alternative is an electric pump. On installations that are installing a fuel injected engine, you will be required to install the corresponding high pressure type fuel pump. These high pressure pumps are available from your local performance automotive warehouse. Later model vehicles have the fuel pump installed in the fuel tank. You can retain this fuel pump as long as it will provide the correct fuel pressure for your engine choice. You can also use a aftermarket in-line fuel pump if desired. The two fuel pumps listed below are Airtex brands in-line fuel pumps:

E8094 12-17 psi for TBI engines

E8228 100-125 psi for MPI engines

OIL SYSTEMS

Depending on which type of vehicle you are converting will determine if a remote oil filter is going to be required. If your front driveshaft is located on the passenger side, then the stock oil filter can be retained. Vehicles 1987 & newer (with the driveline on the driver's side) may require the use of a remote oil filter on Chevy V6 & V8 installations, depending on the suspension travel. Jeeps 1971 & earlier retaining the stock steering system may require the oil filter bypass for clearance of the steering box pitman arm.

P/N 716085 - Chevy 4.3 V6 Engines

P/N 716083 - Chevy V8 Engines

P/N 716084 - Ford V8 Engines

On all Jeep vehicles using a Ford V8, you must use an early Bronco oil pan with the sump in the rear. These pans are only available for 289 and 302 engines. If a 351W is going to be used, then the oil pan will need to be modified accordingly. Modifications to the oil pan will require a new oil pickup tube, and possibly a new dipstick.

Many small block conversions have limited engine compartment space affecting the stock oil dipstick positioning. Lokar Performance Products offers a slim design flexible dipstick for engine conversions with little or no room to spare.

P/N 23-0005 - Small Block Chevy 1980 & Up

P/N 23-0006 - Small Block Chevy 1979 & Earlier

P/N 23-0007 - Ford 302 Small Block Engine



THROTTLE LINKAGES

One of the final touches of a good conversion is the gas pedal and throttle linkage to the carburetor. On the later model Jeeps, the original components will work excellent. The older Jeep vehicles, however, can use our throttle cable kit, P/N 716125. This kit comes with a new firewall mounted pedal that has a cable control directly to the carburetor. It is universal and will work for most applications where stock parts are not compatible. The original Buick V6 linkage, used on Jeeps 1966-71, is also an excellent throttle control system.

We also stock a performance line of throttle linkages by Lokar Performance Products. The throttle cable linkages adapt to factory and aftermarket pedals. These cut-to-fit assemblies work great with most conversions.

P/N 23-0010 - 24" Stainless Steel High Tech Throttle Cable

P/N 23-0011 - 24" Universal Black Throttle Cable

P/N 23-0012 - Tune Port Stainless Steel Throttle Cable

P/N 23-0015 - Stainless Steel Carburetor Bracket

P/N 23-0013 - Large gas pedal

If you're installing an automatic transmission with your engine conversion, Lokar also offers an adjustable kickdown cable. This cable mounts to the back of the manifold bolts and is designed for a 4 barrel-type carburetor on the Chevy small block. **This kit only fits the TH350 transmission.** P/N 23-0017 (Bracket and Cable)

A special 700R transmission TV cable bracket and cable kit is available upon request.

ENGINE ACCESSORIES BRACKETS

The stock bracketry normally works fine in most engine conversions; however, special bracketry is sometimes needed or you may want engine accessory relocater components. Alan Grove Components Inc. offers custom engine bracketry.

700R TRANSMISSION LOCKUP

TRANSMISSION ACCESSORY: Now you can control the lock-up function on your 700R4 overdrive transmission with your carbureted engine without having to buy expensive computer controlled equipment. A vacuum controlled switch and a 4th gear pressure switch controls the torque converter lock up solenoid. Kit comes complete with everything to complete the installation and fits any 700R4 GM transmission. P/N 24-700R

ADDITIONAL ELECTRICAL WIRING SOURCES: When it comes to computer controlled engine blocks, there are many aftermarket sources. We have listed several sources that offer conversion wiring harnesses.

Howell Engineering (810) 765-5100

Street & Performance (479) 394-5711

Hotwire Auto.com (479) 243-9115

G.M. wire harnesses

G.M. & Ford wire harnesses

GM & Dodge

VEHICLE SPEED SENSOR INFORMATION

Computer Controlled engines and/or transmissions require a Vehicle Speed Sensor (VSS). Although there are a couple of different styles of sensors, they all perform the same type of purpose - to tell the computer (or PCM) how fast the vehicle is traveling. Using this data, the computer can determine how to adjust for freeway driving, fuel economy, transmission shift points (automatic only), and how to get the best performance at any given moment. Power and fuel economy will be lost if the VSS is not functioning properly. A few different styles of VSS are shown below.

Application	Signal type	Pulse count per driveshaft revolution	Mechanical Speedo driven signal available
1986-1992 GM TBI engines 1985-1989 GM TPI engines	Square wave signal - two wire sensor "Pulse Generation"	2	Yes
GM trucks (1993-current)	Sine wave signal - two wire sensor "Voltage Generation"	40	No See voltage generation chart
Jeep (1987-current)	Square wave signal - three wire sensor "Pulse Generation"	3	Yes

As can be seen above, some Vehicle Speed Sensor signals can be created from a standard mechanically driven speedometer. These drivetrains are much easier for swapping because it allows the use of almost any transmission or transfer case combination.

For the 40 pulse GM VSS, there are much fewer options. Please refer to the flowchart below to determine the correct location for the GM 40 pulse VSS in your application.

We do not offer any type of mechanical speedometer driven VSS units; however, these type of units (pulse generation / square wave) are available from most companies that supply engine wiring harnesses or custom speedometer shops such as Nevada Speedometer. Tel# (775) 358-7422.



Late model GM Engine Voltage generation

GM 40 pulse Vehicle Speed Sensor - proper location flowchart:

Computer Controlled GM engine with a computer controlled automatic transmission.	Computer Controlled GM engine with non computer controlled automatic or manual transmission.	Computer Controlled GM engine & drivetrain in a GM 4WD vehicle (Atlas T/C install)
Transmission Output VSS	VSS is needed, but location is not critical	Transfer case tailhousing VSS
<p>Transmission:</p> <p>700R/4L60 - Jeeps 50-0402, 50-0403, 50-0404 50-9103, 50-9104</p> <p>Early 4L60E - All vehicles can use P/N 716073. You can also use the adapters listed under the 700R/4L60.</p> <p>Late 4L60E - See the adapters listed under 4L60E in your vehicles specific year.</p> <p>4L80E - Most early transmissions have a internal tone ring for VSS. The 1997 & later 4WD transmission did not. If you are using a 1997 & later transmission, you need to install a tone ring. On later model transmissions coupled to an Atlas, we offer kit 50-6409 which will provide a rear reluctor ring.</p>	<p>The VSS can be in the transmission or transfer case and still function properly. We offer a reluctor kit that fits on all of our tailhousing kits for the Jeeps. This kit is an external mounted unit that provides a Tru 40 Pulse required for the computer system. The reluctor ring gets mounted to the transfer case yoke. The kit is offered in several yoke styles except a flange yoke. Our Tru-Pulse kit fits the Dana 20, 300, NP, and Atlas transfer cases.</p> <p>P/N 50-5040 is a 1310 non CV. P/N 50-5041 is a 1310 CV. P/N 50-5042 is a 1350 non CV. P/N 50-5043 is a 1410 non CV.</p>	<p>Atlas transfer case Kit # AVT32L provide a VSS tailhousing with the provision for a low-range switch. (See the Atlas manual for more info.). If the Atlas T/C is not being used, then a GM transfer case that came behind the donor engine can be used. All other transfer cases will require a custom fabricated VSS.</p>
		<p>P/N 716073 fits in the main case of a 4L60E transmission and provides a voltage signal.</p>

ENGINE INFORMATION

Being a manufacturer of engine and transmission conversion components, we receive numerous questions regarding engine specifications. We are not experts with the internal workings of these engines; however, we are very familiar with the bolt patterns, motor mounts, flywheels, etc. This section is intended to help identify engine use and interchangeability.

CHEVY V8: When it comes to bellhousing bolt patterns, the small & big block Chevys are the same. (This is known as the 90 degree bolt pattern). These engines use a dowel pin alignment. The stock starter bolts to the bottom of the block except on some early blocks like the 265. (Note: These early blocks, in which the starter bolts to the bellhousing, should not be used for conversions). The flywheel can either be 153 tooth measuring 12-3/4" in diameter, or 168 tooth measuring 14" in diameter. The 1985 & earlier flywheels are not interchangeable with the 1986 & later flywheels due to a change on the flywheel crank bolt pattern and balancing. If you are using a stock GM bellhousing, make sure you have proper clearance for the flywheel. For the proper starter, GM used two different bolt patterns on the bottom of the block. The straight bolt pattern is normally used with the 153T flywheel, and the offset or staggered starter bolt pattern is normally used with the 168T flywheel. Many Chevy blocks today offer both starter bolt patterns on the block. Some of our conversion bellhousings require a special GM starter nose cone. If your stock starter is interfering with our bellhousing, you may need to grind on the bellhousing a bit or purchase a hi-torque starter which does not have a nose cone. **Warning:** Do not use one of our full conversion bellhousings with a diesel engine. The starter will not fit the bellhousing pocket on our bellhousings.

The oil pans on Chevy blocks have gone through a few changes. 1985 & earlier blocks are all the same except the dipstick access is either on the driver's side or passenger side. In 1986, GM changed their gasket design to a one piece rear main seal. The earlier style oil pans will not fit the newer blocks. The computer controlled blocks in the '90s added oil level sensors. The pans that we manufacture do not have provisions for this sensor.

Most GM blocks used a triangular motor mount bolt pattern. Our conversion mounts all utilize this most common mounting configuration. Some late '90s blocks have varied from this bolt pattern. Please confirm that the block your converting has this triangular mounting pattern. LS1 blocks and Vortec Gen. III V8 blocks use a square bolt pattern for the motor mount. We offer a full selection of conversion mounts for these blocks. GM also changed the crank flange stickout location on the LS1 and Vortec Generation III V8 blocks. This crank is recessed .400" closer in than any other stock Chevy block. When these blocks are used in a conversion, the torque converter or clutch components will need to be adjusted. LT1, LT4, ZZ4, LS1, and Vortec blocks all use angle port heads which are not compatible with most of our header systems. We offer some specialized headers for these blocks. These blocks also require a steam release port on the radiator. The radiator we offer can be ordered with this steam release provision.

CHEVY 90 degree V6: This block can either be the 3.8 (229) or 4.3 V6. These engines are identical to the Chevy V8 application with reference to bellhousing, starter, and flywheel. The oil pan has year differences like the Chevy V8 except with the 1997 & newer aluminum oil pan. Vehicles requiring oil pan modifications should not use this block. Motor mounts are also the same as the Chevy V8 with the exception of the location of the triangular bolt pattern in reference to the back of the block. The mount is approximately 4-1/2" closer to the backside of the block.

CHEVY 60 degree V6: This is the 2.8L V6 used in S10s and Jeep Cherokees. This bellhousing bolt pattern is completely different than the 90 degree Chevy bolt pattern. GM automatics that have this bolt pattern will not bolt to the 90 degree blocks. In 1996, GM introduced a stock engine replacement known as the 3.4L.

BUICK V6: Buick used two different bolt patterns like the engines listed above. The 225, 231, and 3.8L (rear wheel drive vehicle) all used the standard Buick bolt pattern for which we offer motor mounts, bellhousings, and adapters. Engine blocks like the 3.8L transverse (front wheel drive vehicle) have the same bolt pattern as the Chevy 2.8L V6. We do not offer adapters or motor mounts for the Buick aluminum 215 block.

FORD V8: Ford V8s use three different block bolt patterns. Most of the adapters and motor mounts we offer are for the Ford small block 302. Ford used two flywheels, 157 tooth & 164 tooth. These starters index and bolt on to the bellhousing. It is imperative that you match the flywheel, starter and bellhousing. If you mismatch any of these items, it will only cause you grief! The 351 Windsor is considered a small block but has a few differences. One difference is that the heads of the block are wider. This may cause exhaust clearance problems on some conversions. Another difference is the oil pan bolt pattern.

AMC/JEEP Iron Duke 151 4 cylinder: This 4 cyl. engine is manufactured by GM and used in Jeeps 1980-83. When converting to a Chevy 90 degree V6 or V8, no adapter is necessary. You are limited to a 10-1/2" clutch assembly and a GM Mini High Torque starter.

AMC/JEEP 150 4 cylinder: This 4 cyl. engine has the same bolt pattern as the GM 2.8L V6 and is used in Jeeps vehicles 1983 & newer.

AMC/JEEP V8s & In-line 6 cylinders: Jeep started using the 258 6 cyl., 304 & 360 V8 in 1972, the 401 V8 in 1974 and the 4.0L in 1991. These blocks are listed together because their block bolt patterns are all the same. The same pattern makes engine swapping between these vehicles simple; however, when using the 4.0L, it requires a special hole in the bellhousing for the flywheel sensor. We manufacture the conversion bellhousings for these applications. When installing a V8 where the 6 cyl. was previously, we offer motor mounts for easy installation.

DRIVELINE MODIFICATIONS

On all 4WD vehicles, you will find a front and rear driveline. Whenever possible, we design the conversion components to eliminate the need for driveshaft modifications. However, several conversions will still need to have both front and rear drivelines modified to accommodate the new engine location. We recommend that driveshaft modification requirements be determined after the engine and transfer case locations have been finalized. There are numerous combinations of transmission and engine conversions, and it is nearly impossible to relate every application as to driveline requirements. Normally, vehicles equipped with a 6 cylinder engine or 304 V8 engine can change to the newer Chevy V8 without driveline modifications. The transmission that you are selecting, whether the original or a new aftermarket transmission, will make the biggest effect on driveline requirements. For specific applications, we suggest you contact our sales department for further information.

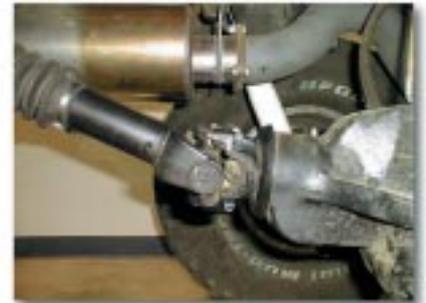
When removing your existing driveshafts, it is a recommended procedure that you mark the relative positioning of each driveline component to the appropriate connection. This procedure will prevent any unbalancing of the drivetrain system. This same procedure should be followed if the driveline is to be shortened or lengthened.

Driveshaft modifications can vary in cost between \$100-\$250. The cost is greater if the shafts are going to be extended since new material is going to be added. We have used both professional driveline shops and regular machine shops for doing driveline modifications. Whenever possible, we recommend a qualified driveline/machine shop that has the proper balancing & driveshaft equipment. Always make sure that the driveshaft is properly balanced.



Front "leaf spring" (too low).
Gets worse under load.

Jeeps have used several different types of Universal yokes and driveline components. It is critical that the driveline Universals be run at a slight 2 to 3 degree angle. The angle will make sure of proper bearing lubrication. When driveline angles are excessive, it may be necessary to space the transmission and transfer case down slightly to improve the angle. It is also possible to angle the differential housing upward to compensate for a better angle to the transfer case. This adjustment can be performed by the installation of a degree shim between the axle housing and spring mount. With the introduction of suspension lifts, we are constantly seeing the rear driveline



Rear "leaf spring" (too low).
Will not rise enough for C.V.

angle exceeding the limits of a normal driveline bearing and cross assembly. We have had several customers install a C.V. joint at the transfer case location in order to provide the necessary angle required to reach the rear differential. On short wheel base vehicles such as CJ5s, the driveline angle can even be worse due to the short driveline required.

Once the conversion is completed, a visual inspection should be made regarding driveline angles & clearances. New & unwanted noises are most often related to poor driveshaft angles. C.V. driveshaft combinations must be set so that the differential yokes are in line with the driveshaft under normal operating load. Non-C.V. driveshaft combinations must be set so that the pinion yoke angles match the transfer case output angle under normal operating load. Remember to allow for spring wrap when your vehicle has leaf springs. The front pinion will dive downward under load, and the rear pinion will rise upward under load. There are many different spring rates on the market, so this may take some adjusting to eliminate poor driveline conditions.



Front "4-link" (correct).
Good example.

For certain early model Jeep conversions that require additional front driveshaft clearance alongside the automatic transmission pan, we recommend using a special Jeep yoke and bearing assembly. The special small diameter yoke was used in Jeep vehicles 1966-71.



Rear "4-link" (correct).
Good example.

FREQUENTLY ASKED QUESTIONS

(Questions & Answers)

Over the years, customers have asked various questions pertaining to the durability of their vehicle, and whether or not additional modifications should be made in making them more durable. Below, we have listed some of the most commonly asked questions when performing a conversion, or preparing the vehicle for offroad use.

QUESTION: Will my stock axles hold up to the power and torque of the new engine?

Answer: For stock V6 engine conversions and most V8 conversions, the stock axles are acceptable. We have had several customers comment that, under normal use (with stock wheel and tire sizes), the stock differential assemblies work fine. The alternative to upgrading the rear differential and axle assemblies would be to install a custom made rear axle unit.

QUESTION: How strong is my stock transmission for use with the V6 & V8 engines?

Answer: Vehicles equipped with the early model 3 speed transmissions should seriously consider changing to a standard Ford or Chevy transmission. There are several adapters available and, in some cases, the cost is less than when using the original transmission. If the original transmission was the T18 or T176, it will perform excellent with the power of a new V8. The strength of your transmission should be regulated by your driving habits. If the original transmission is going to be retained, then we suggest you use caution when having the pedal to the metal.

QUESTION: How strong is the transfer case found in the Jeep vehicles?

Answer: The transfer case is sufficient to handle both V6 & V8 conversions. When the factory designs a transfer case, they have to allow for the added torque in the low range position. It is for this reason that they over design the transfer case gear box. We very seldom have a customer find the transfer case unsatisfactory in this regard.

QUESTION: Will I require a body lift?

Answer: Body lifts are very inexpensive and easy to install. They will provide additional clearance in the engine compartment area and also added clearance for the transmission tunnel area. However, most conversions can be completed without a body lift.

QUESTION: Will I need to modify my driveshafts?

Answer: It is almost impossible to answer this question due to the various engine and transmission options. Whenever possible, we will manufacture the components in a way that will prevent any modification to the driveshafts. You can usually plan on driveshaft modifications when installing V8 engines with a new automatic transmission. V8 engines retaining the stock 4 or 5 speed transmission will not normally require driveshaft modifications.

QUESTION: What does the kit include?

Answer: We do not offer complete packages. Motor mounts, transmission adapters, headers, etc. must be ordered separately. You must plan on fabricating the necessary brackets to mount the power steering, alternator, and air conditioning units.

QUESTION: How long should my conversion take?

Answer: We have been surveying several of our customers over the last few years, and we have seen variations between 40 to 100 hours. The average time seems to range between 40 to 50 hours for the complete conversion.

QUESTION: I have a 1986 Camero TPI engine and I would like to install this into my Jeep vehicle. Is it possible to retain the fuel injected unit or would it be better to switch to carburetion?

Answer: It is possible to install the Tuned Port Injected 305 or 350 engine, but you must have a complete engine, including the wiring harness and the electronic control module. These will need to be installed into your vehicle along with all of the correct sending units and sensors. There are new wiring looms available to assist you in connecting the TPI engines into the Jeep vehicles. We installed a Chevy 4.3 TBI engine into a 1966 CJ5 using all of the original California smog equipment, along with a special wiring harness. We found the installation of the computer system to be excellent, and found very little difficulty performing the engine swap so that the vehicle could retain its smog legal status.

QUESTION: I live in California and if I do a V8 conversion, will it still be smog legal?

Answer: Our kit is not smog legal in the State of California. However, California law states that the engine you chose for your conversion must be the same year or newer than the year of the vehicle. Vehicles in the State of California that are 1972 and earlier are usually smog exempt. We recommend that you check your states laws on engine swaps before starting one. We do not provide a diagram or installation procedure for using the emission equipment. If you need assistance in this area, we recommend that you purchase the technical service manuals from General Motors, Ford or Chrysler, whichever pertain to your vehicle and the vehicle that the new engine came from. The manuals will give you the information that you will need to complete the installation of the equipment.

QUESTION: Will the stock radiator work with my new engine?

Answer: Depending on the size of engine that is going to be replaced will determine the feasibility of retaining the original stock radiator. If the original engine is a V6, V8 or straight 6, you should be able to retain the radiator size and simply change the inlet and outlet locations. If the previous engine was a 4 cylinder, then we highly recommend increasing the radiator capacity for use with the new V8 engine. Automatic transmission coolers can be incorporated into the stock radiator with very little difficulty.

QUESTION: Will the Jeep 4.0L engine interchange with the 258 6 cylinder?

Answer: With the introduction of the Jeep 4.0L in 1987, the engine block was slightly changed to incorporate two additional bellhousing-to-engine block mounting holes. The engine also requires a flywheel sensor that is not available on the earlier style AMC bellhousings. We manufacture a special conversion bellhousing (Part No. 712569) that will adapt the Jeep 4.0L engine Jeep vehicles 1976-86. There is also a bellhousing available for the 4.0L high output engine that will permit the use of the Chevy transmissions, such as the truck 4 speeds.

1941-79 JEEP & SCOUT TRANSFER CASES

Dana Spicer 18 & 20 T/C and SCOUTS (1980 Dana 300):

This section of the Jeep manual deals with the 1941-1979 Jeep vehicles and Scouts. The purpose of this manual is to provide the needed information to help you with stock part identification, conversion parts needed, and general information on what to expect when dealing with drivetrain components. Along with that information, we have provided information on steering upgrade kits we offer and the Saturn overdrive unit we manufacture. The information in this manual does change regularly, and we do recommend that you contact our sales staff to verify anything that you may have questions on. No matter what you plan on swapping, Advance Adapters can be your one stop shop for your conversion components.

These transfer cases, although used in different vehicles, all have the same bolt pattern. The only way they differ is the indexing diameter when bolting to the transmission (referring to the Large hole T/C or Small hole T/C), and the input spline count on the transfer case drive gear.

INDEXING: The Dana Spicer transfer cases were indexed to the stock transmission by either a bearing or a bearing retainer. Early Jeeps that were equipped with the T90 or T84 transmissions used a bearing to index the transmission to the transfer case. We classify this transfer case as a *small hole* transfer case. This small hole transfer case will require a bearing when you adapt to this transfer case. In addition to this bearing, our adapter will also require a thin bearing support retainer. This support retainer is necessary to align our adapter to the transfer case. This support retainer can be purchased from us or be obtained off of a stock T90 transmission.



Small Hole transfer case (3-1/8")



Large Hole transfer case (4")

All other Jeep transmissions were indexed to the transfer case by either a retainer housing or an index hub which was part of the stock transmission case. These transfer cases are classified as *large hole* transfer cases. Our adapters will require this indexing retainer to obtain proper alignment. This retainer can be purchased from us or you can also use a retainer from a Jeep T86 transmission. All large hole transfer cases require this retainer. (Scout Dana 300s are also a large hole transfer case). When utilizing either one of these retainers, we also recommend that a new 307 sealed bearing be used.

- P/N 716002 - Small hole index retainer (T90) Dana 18 transfer case
- P/N 716001 - Large hole index retainer (T86) Dana 20 transfer case
- P/N 716302 - Sealed bearing (307)

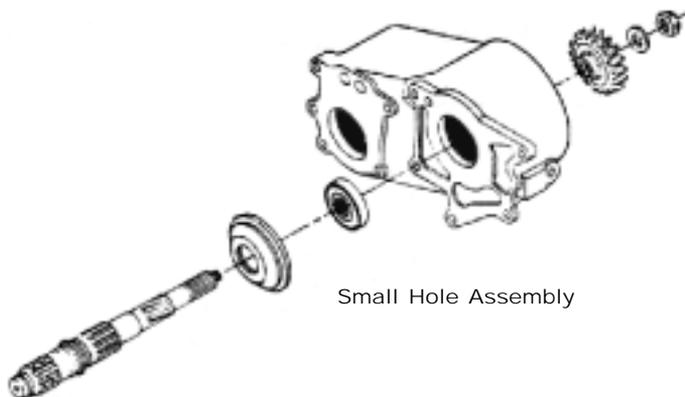
Both retainers can also be purchased through a Jeep dealership and the sealed bearing through a local bearing supplier.



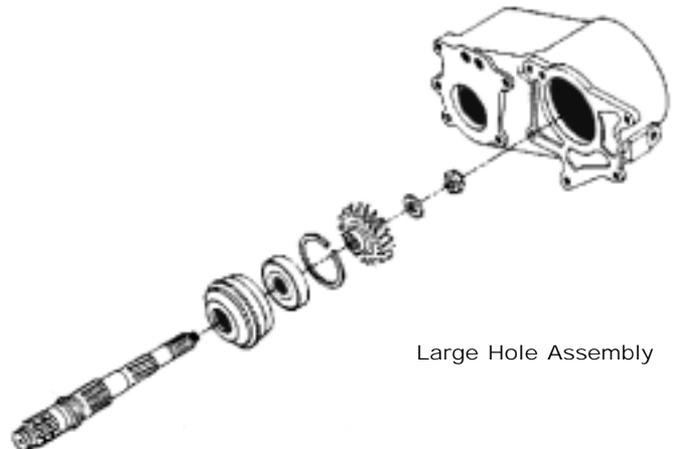
Small Hole T90



Large Hole T86



Small Hole Assembly



Large Hole Assembly

SPLINES: All Jeeps and Scouts used a 6 spline input gear except the following applications: Years 1969 to 1971 Jeeps with a T14 transmission used a 10 spline input. Jeeps with an AMC TH400 used a special 15 tooth drive gear. Scout transfer cases used with an automatic were always 23 spline. (Note: On Scouts, we recommend you verify your input spline count before ordering parts.)

A. MB Jeep Universals 1941-1945: The Dana Spicer transfer case, Model MB dual lever shift control, can be identified by the small intermediate gear idler shaft that is only .750" in diameter. This MB transfer case is marginal for V8 power, so we suggest that you limit your engine size to a V6 or change the transfer case to the later model Dana 18. This transfer case uses an input gear with 1-3/8" 6 spline. We offer a special Saturn overdrive unit for use with this transfer case.

Transfer Case Input Gear #A10469 (18-8-19) 27 tooth x 6 spline

B. Jeep Universals 1945-1979: These vehicles were equipped with the Dana Spicer Model 18 and 20. These transfer cases have a four position shifter that provides two gear ratios in 4WD, one ratio in 2WD, and a neutral position. Four wheel drive low provides a reduction ratio of 2.03:1 on the Dana 20, and a 2.46:1 on the Dana 18. The controls varied from a dual lever design to a single lever on the later models. The bolt pattern on the input side has always remained the same, so transfer cases can be interchanged between years - with some exceptions. These exceptions include: the indexing or alignment bearing retainer that protrudes from the back side of the transmission. The early models used a 3.150" indexing diameter, while the later model transfer cases used a hub that measured 4.000". The other critical area is that the input gears have different splines and tooth counts. This can be critical especially when changing transmissions that require a different input gear. This is real common with vehicles equipped with a AMC factory TH400 and Dana 20 transfer case when changing over to the Advance Adapters design kit. Our design uses a standard input gear with either 6, 10 or 23 splines, while the factory adapter design uses a 15 tooth gear and a snap ring for locking the gear in position. Another difference is that the Model 20 transfer cases have the power to the rear axle directly in line with the transmission, while the Dana 18 has the power offset to the passenger side.

TRANSFER CASE INPUT GEAR INFORMATION

Dana 20 Transfer Case - 26 Tooth x 6 Spline	#946574 (18-8-46)
Dana 20 Transfer Case - 26 Tooth x 10 Spline	#947339 (18-8-49) Early Jeeps
Dana 20 Transfer Case - 26 Tooth x 23 Spline	
Dana 18 Transfer Case - 29 Tooth x 6 Spline	#809297
Dana 18 Transfer Case - 29 Tooth x 10 Spline	#947382



Dana Spicer 18/20 Transfer Case 6 Spline: On all Jeep vehicles 1941-79 equipped with the Dana Spicer 6 spline transfer case, you will have the largest selection available for transfer case adapters. These adapters are for replacement of Jeep transmissions that have a 6 spline input gear to the transfer case. The Jeep transmission model numbers are T84, T90, T86, T85, T89, T98A, T18, T15, and T150. Not all of the transmission options are compatible for use with short wheel base vehicles.

Dana Spicer 18/20 Transfer Case 10 Spline: On all Jeep vehicles 1969-71 equipped with the Dana Spicer 10 spline transfer case, you will have a large selection of transfer case adapters that can be used without changing the input gear of the transfer case. These adapters are all manufactured to fit a 10 spline transfer case input gear that was used only on T14 3 speed transmissions. The adapters that have the 10 spline design are critical when your vehicle is equipped with a Warn, Husky, or Saturn overdrive. If your vehicle does not have an overdrive, then you could use any of the 6 spline adapters and simply change the input gear of the transfer case to one that had 6 splines. Refer to the gear numbers listed above for the proper gear. All of the adapters will require a new output bearing, P/N 716302, and a T86 bearing retainer, P/N 716001.

Dana Spicer 20 Transfer Case 15 Spline: On all Jeep vehicles that were equipped with the AMC TH400 automatic transmission, you will find that they used a special input gear to the transfer case that was held in place with a snap ring and splined to a special coupler shaft with 15 teeth. We manufacture a replacement adapter for this stock application, Part No. 50-0500. The individual components of this kit will not work with your stock adapter components. If you are using this adapter on a new installation, you will need to purchase a new input gear to the transfer case.

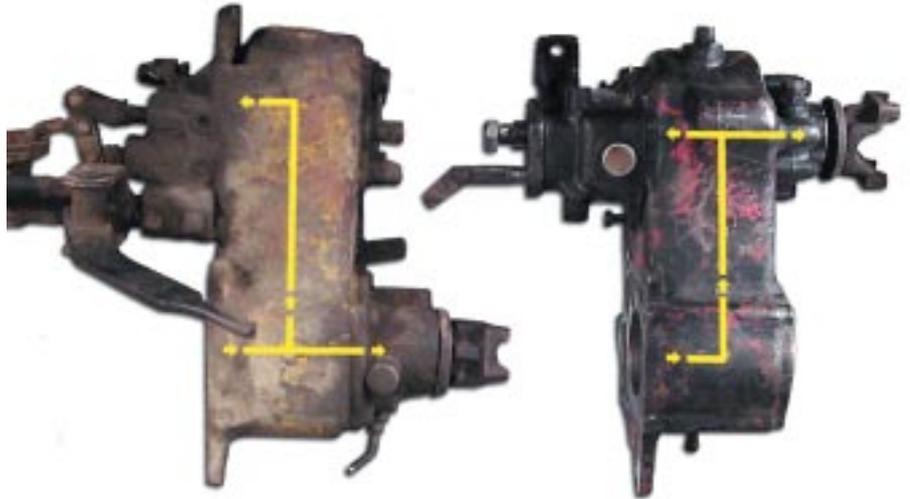


Scouts With Dana 300 1979-80: In 1979, the International Scout vehicles were equipped with a specially designed Dana 300 transfer case. This particular transfer case resembled the Jeep Dana 20 design and, in fact, can be directly interchanged with the Jeep Dana 20 transfer case since they both have the same bolt pattern. The Scouts that were equipped with this transfer case either had the 727 Torqueflite automatic or T19 4 speed transmission. The input gear to the transfer case could have been either a 23 spline (on automatics), or a 6 spline (on 4 speed applications). The tooth count on the Scout Dana 300 transfer case is always 26 teeth. Replacement gears for the Scout Dana 300 are available through *Border Auto Parts*.

The two transfer cases to the right illustrate the power distribution flow of both the Dana 20 and that of the Dana 18.

Dana 20 transfer case

Dana 18 transfer case



FRONT YOKE & DRIVESHAFT CLEARANCE: On most transmission swaps, we try to allow for proper front yoke clearance. However, the early Dana 18 transfer cases can present a problem. The Dana 18 transfer front yoke protrudes out further than that of a Dana 20. Although front yoke clearance can sometimes be a problem on the Dana 20, it is usually on the early Dana 18 transfer cases with the large diameter yoke only that front yoke clearance issues are found. The large diameter yokes on most 1965 and earlier Jeeps will normally interfere with the transmission pan on most automatic transmissions. This yoke has been discontinued; however, we have had it reproduced. Our [P/N 716407](#) is the same as the 1966 to 1971 small Jeep yoke.

All Dana 18 & 20 applications will require the centerline of the drivetrain to be offset 1" to the driver's side. In many cases, you will be limited on your driveshaft diameter. We offer a complete kit which would include a new stub yoke (weld yoke) bearing cross and U-bolts. This kit also includes the new front transfer case yoke listed above. The complete kit is under [P/N 716009](#).

TRANSFER CASE SHIFTERS: The 1941 to 1979 transfer cases use several designs of shifters. Illustrated below are the various designs. These shifters are always supported off the front of the stock transfer case. On some of the truck 4 speed adapters and the NV4500 adapters, you may need to modify your stock shifter. The instruction sheets provided with the kits will give you this information.



JEEP DANA 18 & 20 T/C UPGRADE COMPONENTS:

JEEP DANA 20, 32 SPLINE OUTPUT SHAFT KIT:



The Dana 20 transfer case is a good, strong cast iron transfer case; however, with the introduction of the various low gear options for this unit and the popularity of rock crawling, a growing concern for drivetrain reliability has materialized. Since low gear kits increase the torque to the output shaft and rock crawling usually demands tire size, we've developed a heavy-duty rear output shaft kit for the Dana 20 transfer case to add strength and reliability to your drivetrain. Our kit fits all Dana 20 transfer cases with or without a low gear kit installed. The stock Dana 20 output shaft is a 1-1/8" diameter 10 spline, and our new output shaft is a larger 1-3/8" diameter 32 spline output. The output shaft kit is approximately 1.5" longer than your stock tailhousing; however, you do gain the option of calibrating your speedometer to compensate for a different axle ratio and/or larger tires. Our kits come complete with a new tailhousing, output shaft, tapered roller bearings, yoke, and speedometer drive. When you require strength and reliability, install the Advance Adapters H.D. Dana 20 output shaft kit.

[P/N 50-3020](#) - Heavy duty 32 spline Dana 20 output shaft with 1310 non C.V. yoke.

[P/N 50-3020A](#) - Heavy duty 32 spline Dana 20 output shaft kit without yoke.(see Atlas T/C for yoke option)

JEEP DANA 18/20 INTERMEDIATE GEAR KIT:

These kits are available for Jeep transfer cases 1946-53 (with an 1-1/8" intermediate shaft), or 1953-79 (1-1/4") to fit the stock cluster gear. These kits use tapered roller bearings and a new shaft that aids in the noise reduction of your stock transfer case. Machining is required on your cluster gear.



[P/N 716006](#) - 1-1/8" Kit

[P/N 716005](#) - 1-1/4" Kit



JEEP DANA 18 GEAR KNOBS KIT:

We offer replacement knobs for the Dana 18 twin stick transfer case. [P/N 715643](#)

DANA 18/20 3.15:1 LOW GEAR SETS (6 Spline Input only):

Kits are available for both the Dana 18 and Dana 20 transfer cases. These kits are shipped complete with the necessary hardware and gaskets to obtain the 3.15:1 low gear ratio.

The Dana 20 kit fits transfer cases 1963 to 1979 in CJs, Jeepsters, Jeep trucks, Wagoneers, and 1972 to 1979 Scouts. This is a 5-gear low range kit replacing the stock 2.03:1 gears. A slight amount of internal case grinding is necessary. [P/N 420315](#).



3.15:1 low gears, [Part No. 418315OD](#). We also offer just the Saturn Overdrive bowl gear if you have already obtained your low gear set, [P/N 911098](#).

The Dana 18 kit, [P/N 418315](#), fits large hole transfer cases only. This 4-gear kit requires the shortening of the shift rod for intermediate gear clearance. A slight amount of internal case grinding may be necessary. CJs 1965 & older will require the use of a case from either a 1966 to 1971 CJ, 1963 to 1979 Wagoneer/pickup (Dana 20), or a 1972 to 1979 CJ (Dana 20). If a Dana 20 T/C is to be used with the Dana 18 components, you will still be able to retain your stock driveshaft offset. For Warn and Saturn O.D. owners, we offer a complete gear set to retain your overdrive using the

C. Borg Warner Quadra-Trac (1972-1979):

This is a chain-driven transfer case used with the AMC Turbo 400 automatic transmission. The Turbo 400 has a 10 spline super-long output shaft that simply slides into the input gear of the transfer case. When changing to a Dana 18/20 transfer case, you will need to use [Kit No. 50-0500](#) or [50-1300](#), which will require a new Turbo 400 shaft to be installed into your transmission along with the new adapter housing. We recommend using the Dana 18 transfer case since it has the same rear driveshaft offset as the Quadra-Trac.



We also offer a kit, [P/N 50-2501](#), to adapt the 700R4 to the Quadra-Trac transfer case. Since this transfer case is a full-time 4WD unit, the front yoke is normally a C.V. style. If installing a 700R to this transfer case, the C.V. yoke may cause interference. The easiest fix for this problem is to change to a standard yoke assembly. The overall length of this combination is identical to the TH400.



[P/N 50-1300](#)



[P/N 50-2501](#)

ADAPTER CROSSMEMBER SUPPORT:

The early Jeep vehicles were equipped with a single channel-type crossmember that mounted directly to the frame rail with two bolts on each side. The mount had approximately a 4" drop from the bottom of the frame rail and provided a pad for positioning the transfer case support donut. The donut gave the transfer case additional support and flexibility which prevents it from splitting. It is important that you retain this donut location with the same type of support. If the transmission mount is moved on the crossmember, then the transfer case mount location will also need to be relocated. On conversions that are going to move the drivetrain closer to the driver's side of the vehicle, we suggest that the crossmember end on the driver's side be shortened and welded back to the passenger side. This will make sure that the relationship between the transmission location and transfer case support is retained. The crossmember may need to be positioned downward off the frame rails on certain conversions. This can be easily done by using an aluminum spacer block between the frame rail and crossmember. The original skid plate should be maintained for maximum offroad protection.

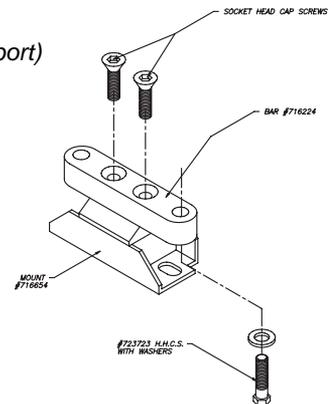
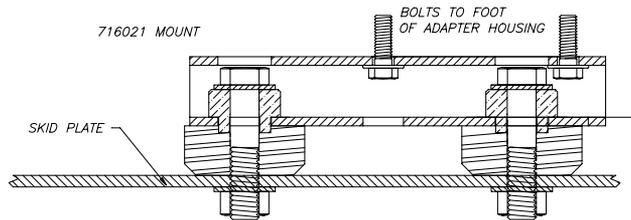


In the early 1970s, Jeep started to incorporate the crossmember and skid plate into one unit. This skid plate has been manufactured in various widths and configurations for the different models of vehicles. The crossmember/skid plate combination can be easily adapted for most engine conversions. With a little planning and minor modifications, you can retain the original transmission support location to assure maximum offroad protection. When changing transmissions, it may be necessary to cut away the front portion of the skid plate for additional front driveshaft clearance. The transmission support should be retained in its entirety. The long arm of the transmission mount must be retained with the rubber snubber in order to limit the movement of the transfer case. Without this rubber donut, the transfer case will be permitted to over rotate and contact the skid plate. The skid plates used have all basically been the same, while the transmission support mount has had numerous variations.

When changing to different transmissions, we have provided a support pad machined on the bottom of the adapter housings. This mounting area may not be identical to your original transmission, and a small adapter plate or bracket may be required on certain applications. We offer a crossmember mounting bar, [Part No. 716017](#), that will adapt the new housing to the original transfer case skid plate support mount. The skid plate can be spaced downward from the crossmember if additional transmission and tunnel area clearances are required.

Most of the adapters we manufacture offer a support pad machined on the casting. The location of this pad will normally require you to relocate your crossmember on your frame rails or reposition the rubber mount on the crossmember. We offer a few options to aid you in this area.

- P/N 716003 - New rubber support (Jeeps 1941-79)
- P/N 716021 - New rubber support (Jeeps 1972-79)
- P/N 716017 - Aluminum adapter block (used to help retain your stock rubber support)



DANA 18/20 TRANSMISSION-to-TRANSFER CASE ADAPTERS

The Jeep Universals and Scout transfer cases from 1941-79 all had the same Dana 18/20 transfer case bolt pattern. There has been variations to this such as large hole transfer cases and small hole transfer cases, shift linkage, and drive gear variations. We manufacture the complete transfer case product line so that they can be interchanged with the various designs. It is VERY critical that you use the correct alignment bearing retainer when bolting our adapter to your transfer case. In the photos on the previous pages, you will be able to see the differences between a small hole and a large hole transfer case. If the transfer case drive gear can be removed from the front side of the transfer case, then it is a large hole design. If the gear has to be removed from the back side of the transfer case, then it is a small hole design. Small hole designs are limited to only Dana 18 transfer cases, while large hole transfer cases can be either a Dana 18 or Dana 20. The Dana 18 transfer case has the output power OFFSET to the passenger side of the rear axle, while the Dana 20 has the output power directly IN LINE with the transmission.

Alignment retainers: When replacing a T90 3 speed transmission, you must remove the bearing retainer from the backside

of the original transmission for installation into the new adapter. The original T90 or T86 bearing must be reinstalled back into this retainer for use with the new transmission. An optional sealed bearing, P/N 716302, or a non-sealed replacement bearing, P/N 716312, can be used.

When replacing a Jeep T14, T15, T18, T150 or T98 transmission, you will need to purchase a new bearing retainer, P/N 716001, or Jeep No. 928477. This retainer is so critical to your installation that, if it is left out, you will have severe damage to both your transmission and transfer case. This retainer must be installed in the backside of our new adapter and then have a 307 roller bearing installed inside the retainer. The bearing must be retained inside the retainer with a large snap ring. The snap ring is furnished with the new retainer. The illustration on Page 22 shows this assembly. There are a few exceptions as to alignment with the T18 and T98 transmissions.

Transfer Case Input Gears: In the Dana 18 and Dana 20 transfer cases, we have seen three different spline sizes and three different tooth counts on the input gears. We have designed most of our kits so that they can be interchanged and furnished with a new shaft having the correct drive spline to match the transmission that is being replaced. This is very helpful since it will eliminate the expense and time necessary to change input gears. There are a few exceptions that will require the purchase of a new input gear. Be sure that the new gear is compatible with your transfer case. There are some cases where Dana has manufactured two 26 tooth gears that appear to be identical, but have a slightly different tooth pitch.

The transfer case input gear is positioned from the bearing that is installed into the rear bearing retainer. If your original transmission has a spacer or bushing between the rear bearing and drive gear, then you will be required to eliminate this original spacer bushing. In order to prevent any error in the installation of your gear, we suggest that you make sure that the gear splines are dead-even with the end of our shaft splines with only the threads for the nut showing.

Output Nut 7/8"-16 Nylock: Each adapter kit includes a new nylon lock nut for your conversion. These nuts are standard Jeep items that are used on most Jeep transmissions (Jeep P/N 8126806). They do not require a cotter pin to lock the nut in position. The nut must be replaced every time it is removed from the shaft. Nuts that are reused could possibly loosen and cause transmission or transfer case damage. These nuts must be used with the original flat washers. The nut must be torqued to a maximum of 75 ft./lbs. in order to prevent bearing pre-load. This same torque specification must be maintained with the Warn, Husky, and Saturn overdrives.

When considering an aftermarket transmission, it is important to determine what type of transmission you will require for your driving habits. The three transmission types listed on Page 6 will help you to determine the type of transmission best suited for your particular style of driving.

CAR-TYPE TRANSMISSION ADAPTERS:

Muncie (Car) 4 speed (M21/M22): Used in cars 1964 to 1974, this aluminum case transmission measures 10-1/2" long. The 1st gear ratio is 2.20:1; 2nd 1.64:1; 3rd 1.27:1, and a 4th gear ratio of 1:1. This is an externally shifted transmission and any adapters using this transmission will require shifter components. We offer an adapter kit that includes a new main shaft, a 4.5" aluminum housing, and the necessary seals and hardware. We do not include a sealed bearing or a index retainer in this kit. When ordering this kit you will also need to consider a Hurst shifter, shifter bracket, and shifter rod kit. We also offer new transmissions with the adapter kit installed. Call for pricing.

Muncie M21/M22 to Dana 18/20
50-0100 4.5" 6 spl. adapter kit

Optional Items:

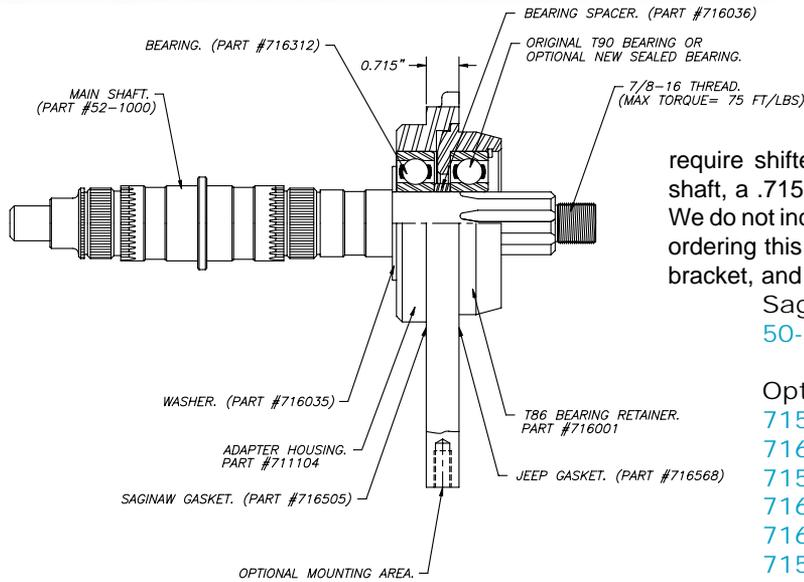
715600	Hurst shifter	716302	Sealed bearing
715501	Shifter bracket	716001	Large hole index retainer
715625	Rod kit male studs	716002	Small hole index retainer
715626	Rod kit female studs	716003	Trans mount

Borg Warner Super T10: This transmission was produced in 4 different versions. There was a Borg Warner T10, a Super T10 (thin hub), a Super T10 (thick hub), and a Super T10 (2nd design). We only offer kits for the Super T10 thin hub, thick hub & 2nd design. Before you purchase an adapter, you should identify which transmission you have. The case length is 10" long and the most common gear ratio is 2.64:1 1st ; 2nd 1.75:1; 3rd 1.33:1; and 4th of a 1:1. This transmission is side-shifted and will require a shift bracket and shift rods. We offer an adapter kit that includes a new main shaft and a 5.75" aluminum housing, and the necessary seals and hardware. We do not include a sealed bearing or a index retainer in this kit. When ordering this kit you will also need to consider a Hurst shifter, shifter bracket and shifter rod kit.

B/W T10 to Dana 18/20
50-0702 5.75" 6 spl. Super T10 kit
50-0802 5.75" 6 spl. Super T10 kit
50-0902 5.75" 6 spl. Super T10 kit

Optional Items:

716001	Large hole index retainer		
716002	Small hole index retainer		
715627-NS	Rod kit T10	716302	Sealed bearing
715502-NS	Shifter bracket	715600	Hurst shifter
716003	Trans mount (or)	716017	Trans mount



Saginaw (Car) 3 & 4 speed: Used in cars 1966 to 1982, these transmissions measure 9-5/8" long. The 1st gear of the 4 speed is 2.20:1; 2nd 1.64:1; 3rd 1.47:1, and a 4th gear ratio of 1:1. The 3 speed has a 1st gear ratio of 2.54:1; 2nd 1.88:1, and a 3rd gear ratio of 1:1.

These transmissions are externally shifted and will require shifter components. This adapter kit includes a new main shaft, a .715" adapter plate, and the necessary seals and hardware. We do not include a sealed bearing or a index retainer in this kit. When ordering this kit you will also need to consider a Hurst shifter, shifter bracket, and shifter rod kit.

Saginaw 3 & 4 speed to Dana 18/20
50-1000 .715" 6 spl. adapter kit

Optional Items:

- 715600 Hurst shifter
- 716302 Sealed bearing
- 715506 Shifter bracket
- 716001 Large hole index retainer
- 716002 Small hole index retainer
- 715628 Rod kit
- 716003 Trans mount

T & C 4 Speed: This transmission is mainly found in cars from 1967 to 1982. The case length is 10-1/4". The 1st gear ratio is 2.78:1; 2nd 1.92:1; 3rd 1.35:1, and a 1:1 4th gear ratio. This transmission is popular for both the early Broncos & Jeeps. The shifting mechanism is external, so the shifter brackets and a shifter rod kit are normally required. This transmission is sometimes referred to as a T & C or 10 bolt top cover. The adapter kit for the T&C 4sp includes a new aluminum adapter plate and main output shaft. Also included in this kit is necessary hardware. We do not include a sealed bearing or a index retainer in this kit. When ordering this kit you will also need to consider a Hurst shifter, shifter bracket and shifter rod kit.

T & C 4 speed to Dana 18/20
50-2000 1.250" 6 spl. adapter kit

Optional Items:

- 715600 Hurst shifter
- 715506 Shifter bracket
- 715631 Rod kit
- 716003 Trans mount (or)
- 716302 Sealed bearing
- 716001 Large hole index retainer
- 716002 Small hole index retainer
- 716017 Trans mount

T & C 4 Speed Overdrive: This transmission is used in both car and truck applications. The case length on this transmission is 10-1/4". The 1st gear ratio is 3.29:1; 2nd 1.84:1; 3rd 1:1, with a 20% overdrive. Ford used this transmission from 1978 to 1989. When used in a car application, this transmission resembled the standard T & C 4 speed. The shifting mechanism is external, and a shifter bracket and rods will be required. When used in a truck application, this transmission used a larger rear output shaft bearing and was top shifted. This kit requires the installation of a new main output shaft. The adapter kit for the T&C 4 speed overdrive includes a new aluminum adapter plate and main output shaft. Also included in this kit is necessary hardware. We do not include a sealed bearing or a index retainer in this kit. When ordering this kit you will also need to consider a Hurst shifter, shifter bracket, and shifter rod kit. The truck 4 speed does require a special rear bearing.

T & C 4 speed to Dana 18/20
50-5400 1.250" 6 spl. adapter kit

Optional Items:

- 715600 Hurst shifter
- 715506 Shifter bracket
- 715631 Rod kit
- 716003 Trans mount (or)
- 716302 Sealed bearing
- 716001 Large hole index retainer
- 716002 Small hole index retainer
- 716017 Trans mount

TRUCK-TYPE TRANSMISSION ADAPTERS:

SM420 Truck 4SP: This transmission works great in Jeeps. The overall length is 10-1/2". It has the lowest 1st gear available of 7.05:1; 2nd 3.57:1; 3rd 1.7:1, and a 4th gear ratio of 1:1. This transmission was used in GM trucks from 1947 to 1968, and has a 10 spline output shaft. As the years progress, it is getting harder to find this transmission and parts. We offer 3 adapter kits for the SM420 transmission. The first kit is 4.5" long and has a new main shaft that must be installed into the transmission. The other two kits are designed with a spud shaft that couples to the stock SM420 main shaft. These two kits are 4.0" long. One is for the 6 spline Dana transfer case and the other is for the 10 spline. All the kits are supplied with the proper gaskets and bolting hardware.



SM420 to Dana 18/20
50-2400 4.5" main shaft 6 spl. adapter kit
50-2401 4.0" spud shaft 6 spl. adapter kit
50-2402 4.0" spud shaft 10 spl. adapter kit

Optional Items:

- 716003 Trans mount
- 716001 Large hole index retainer
- 716002 Small hole index retainer
- 716302 Sealed bearing



SM465 Truck 4SP: Used from 1968 to 1988, this transmission replaced the SM420. It has an overall length of 12". The 1st gear ratio is 6.58:1; 2nd 3.58:1; 3rd 1.57:1, and 4th gear ratio of 1:1. This transmission was used in both the 2WD & 4WD vehicles. Throughout its 20 years, the transmission case never changed; however, we have seen three different output shafts. The 1968-79 4WD transmission used a 10 spline output shaft, which is easily adapted to. The 1968-88 2WD version used a 35 spline output shaft. This transmission can also be used, but not without output shaft modifications. The 1980-91 4WD tranny used a long 32 spline output shaft. We offer two types of kits to fit these transmission.

Our newest kit is a new main shaft kit that fits all the transmission versions listed above. This kit is .875" long and is only available in a 6 spline option. We also offer a spud shaft style kit. This kit retains the stock transmission output shaft, but only works with the 10 & 35 spline SM465 transmissions. This kit is 4.63" long. Both adapters are supplied with the proper gaskets and bolting hardware. The 10 spline spud shaft kit is offered to fit either the 6 or 10 splined Dana 18/20 transfer cases, and the 35 spline SM465 kit is offered for only the 6 spline Dana transfer case.

SM465 to Dana 18/20

- 50-4701 4.625" 10 spl. x 10 spl. adapter kit
- 50-4702 4.625" 10 spl. x 6 spl. adapter kit
- 50-4703 .875" new output shaft kit x 6 spl. (Crossmember mount included)
- 50-4801 4.625" 35 spl. x 6 spl. adapter kit

Optional Items:

- 716003 Trans mount
- 716002 Small hole index retainer
- 716001 Large hole index retainer
- 716302 Sealed bearing

T18 Truck 4SP: This transmission, found in 1965 to 1985 Ford pickups, is identified by a case length of 11.875". The 1st gear ratio is 6.32:1; 2nd 3.09:1; 3rd 1.69:1, and a 1:1 4th gear ratio. The adapters we manufacture for this transmission come with a new main shaft. This will usually allow the overall length of this transmission to remain ideal for most short wheel base vehicles. Ford was not the only manufacturer who used the T18 transmission. When searching for a T18 in salvage yards, make sure the bellhousing bolt pattern has a dimension of approximately 8-1/2" across the top, and 6-1/4" top-to-bottom. The input shaft stickout should be approximately 6-1/2". It is easier to adapt to the Ford T18 than to the Jeep or Scout T18. We do, however, also offer adapters for the Jeep & Scout transmissions. These kits are all a main shaft style kit. The top end of the transmission must be rebuilt with the new main shaft included in the kit. All of the kits include a new 1" thick adapter plate that couples the transmission to the Dana 18/20 transfer case. The transmission bolt patterns between the Ford and Jeep transmission cases are different, so we do offer a few different kits for that reason. These adapter kits also have the indexing hub to the transfer case as part of the adapter plate, so an index retainer is not needed. This transmission is also very popular for use as a transmission retrofit when retaining the stock Jeep engine. For more information, see the 1941-79 Transmission Retrofit section of this manual.

Ford T18 to Dana 18/20

- 50-7201 1" 6 spl. large index adapter
- 50-7202 1" 6 spl. small index adapter

Optional Items:

- 716003 Trans mount or stock Jeep T18 mount

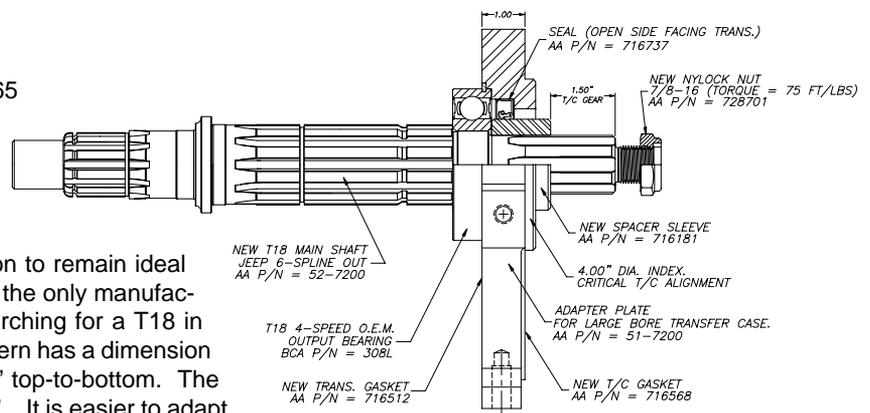
T98 Truck 4SP: This transmission, found in 1960 to 1971 Ford pickups & Jeeps, is identified by a case length of 11.875". The 1st gear ratio is 6.39:1; 2nd 3.09:1; 3rd 1.68:1, and a 1:1 4th gear ratio. The adapters we manufacture for this transmission come with a new main shaft. This will usually allow the overall length of this transmission to remain ideal for most short wheel base vehicles. Ford was not the only manufacturer who used the T98 transmission. When searching for a T98 in salvage yards, make sure the bellhousing bolt pattern has a dimension of approximately 8-1/2" across the top, and 6-1/4" top-to-bottom. The input shaft stickout should be approximately 6-1/2". It is easier to adapt to the Ford T98 than to the Jeep or Scout T98. These kits are a main shaft style kit. All the adapters include a new 1" thick adapter plate that couples the transmission to the Dana 18/20 transfer case. These adapter kits also have the indexing hub to the transfer case as part of the adapter plate, so an index retain is not needed.

Ford & Jeep T98 to Dana 18/20

- 50-8703 1" 6 spl. large index adapter
- 50-8704 1" 6 spl. small index adapter

Optional Items:

- 716003 Trans mount or stock Jeep T18 mount



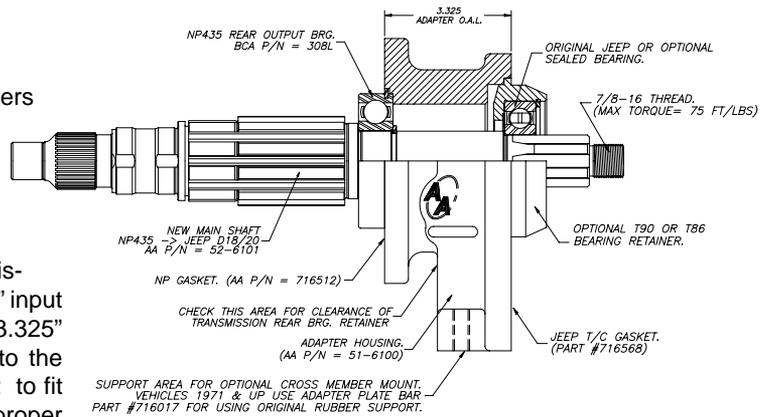
T19 Ford Truck 4SP: This transmission looks identical to the Ford T18, and the case length is the same. The 1st gear ratio is 5.11:1 1st; 2nd 3.03:1; 3rd 1.79:1, and 1:1 4th gear ratio. These transmissions were used in Ford pickups 1974-88. The first gear on this transmission is synchronized, which is the biggest advantage over the T18. The adapter kits we manufacture for this transmission require a new main shaft. This shaft looks identical to the Ford T18, except it has a snap ring groove for the 1st gear synchronizer. This kit includes a new T19 main shaft and a new 1" thick adapter plate that couples the transmission to the Dana 18/20 transfer case. These adapter kits also have the indexing hub to the transfer case as part of the adapter plate, so an index retainer is not needed.

- Ford T19 to Dana 18/20
- 50-6700 1" 6 spl. large index adapter
- 50-6701 1" 6 spl. small index adapter

- Optional Items:
- 716003 Trans mount or stock Jeep T18 mount

NP435 Ford Truck 4SP: We manufacture many adapters for the Ford version of the NP435. These adapters do not work on the Chevy or Dodge NP435. This transmission has a case length of 10.875". The 1st gear ratio is 6.69:1; 2nd 3.34:1; 3rd 1.66:1, and a 1:1 4th gear ratio. This transmission was used in Ford pickups 1969 to 1979. It is easily identified by an aluminum shift cover. This transmission is available with two front input shaft lengths. The 6-1/2" input shaft stickout length is the ideal version to look for. This kit is 3.325" long and has a new main shaft that must be installed into the transmission. This kit is only offered with a 6 spline output to fit the Dana transfer cases. This kit is supplied with the proper gaskets and bolting hardware.

- NP435 to Dana 18/20
- 50-6102 3.325" main shaft 6 spl. adapter kit



- Optional Items:
- 716302 Sealed bearing
 - 716001 Large hole index retainer
 - 716003 Trans mount (or) 716002 Small hole index retainer
 - 716021 Trans mount

GM NV4500: (1993-94) During the first two years of the NV4500, Chevy offered this 5 speed with a 6.34:1 1st gear; 2nd 3.44:1; 3rd 1.71:1; 4th 1:1 ratio, and a 27% overdrive. It was also the first year that Chevy changed the bellhousing-to-transmission bolt pattern. This transmission is ideal when converting your vehicle, providing an ultra-low 1st gear. GM, however, only produced this particular ratio during these years. The major complaint of this 5 speed was stiff shifting and noise in 3rd gear. **(1995):** This transmission is identical to the 1993-94 transmission, except the 1st gear ratio had been changed to 5.61:1; 2nd 3.04:1; 3rd 1.67:1; 4th 1:1 ratio, and a 27% overdrive. The noise and shifting problems had been corrected. **(1996-2005):** This transmission has the same gear ratio as the 1995 version. Chevy once again changed the bellhousing-to-transmission bolt pattern and went to a larger bellhousing index diameter. This Chevy NV4500 has the same bellhousing-to-transmission bolt pattern as the Dodge NV4500. These transmissions use a GM internal release bearing. All the NV4500 transmissions have a 12.375" case length. This kit includes a new adapter housing that houses the 5th gear assembly. We use a spud shaft for this transmission to couple to the 6 spline gear of the Dana 18/20 transfer case. The spud shaft will only fit the GM NV4500 output shaft. The stock output shaft must be cut to a specific length to work in this kit. Some transfer cases require the stock linkage to be modified for clearance on the NV4500 case.

- GM NV4500 to Dana 18/20
- 50-0210 5.87" spud shaft 6 spl. adapter kit

- Optional Items:
- 716302 Sealed bearing
 - 716001 Large hole index retainer
 - 716002 Small hole index retainer
 - 716008 Trans mount

Jeep T176 and 1980 & Newer Jeep Transmissions: We offer transfer case adapters to fit both the Jeep T176 and most Jeep 5 speeds and Jeep automatics. The T176 kit consist of a new main shaft and a .750" thick adapter plate. The 4 speed transmission is a new short setup for the early Jeeps. The universal kit that fits any Jeep transmission from 1980 & newer is a spud shaft kit that couples to the newer Jeep 21 or 23 spline output shaft. The adapter in this kit bolts to the circular pattern found on these transmission. The adapter is just over 1" thick and gives you the option to fit a good 5 speed into your vehicle. Please be aware that some of the later Jeep transmissions were fairly long and may cause some driveshaft length issues. All these kits come with the necessary gaskets and hardware. You will need to order the index retainer for your transfer case

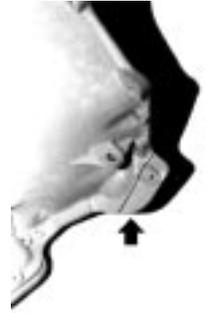
- T176 & 1980 & UP Jeep Transmissions to Dana 18/20
- 50-9902 .750" main shaft 10 spl. adapter kit
- 50-8601 1.012" spud shaft 6 spl. x 21 spline female adapter kit
- 50-8602 1.012" spud shaft 6 spl. x 23 spline female adapter kit

- Optional Items:
- 716302 Sealed bearing
 - 716001 Large hole index retainer
 - 716002 Small hole index retainer

AUTOMATIC TRANSMISSION ADAPTERS:

We now offer rebuilt automatic transmissions with our adapter kits installed. To stand up to the stress & strain put on most 4WD vehicles, these transmissions are built with the best heavy-duty components available. We offer most makes and models for GM, Ford, and Jeep vehicles. These transmissions are all dyno tested and come with a 2 year or 24,000 mile warranty. Call for applications and pricing.

TH350: This GM automatic was commonly found stock in vehicles from 1969 to 1981. It was used in both the 4WD pickups and 2WD car applications. These transmissions are identical except when it comes to the output shaft stickout length. The 4WD transmission used an adapter to bolt this transmission to its stock transfer case. With this adapter removed, the stock output shaft protrudes from the back of the transmission case approximately 1". On 2WD vehicles, these transmissions used 3 different tail housings. The lengths of these tail housings are 6", 9", and 12". The output shafts lengths correspond with these tailhousing lengths. This transmission is one of the most popular choices for engine and transmission conversions due to the overall length of 21-1/2". The 1st gear ratio is 2.52:1; 2nd 1.52:1, and a 3rd gear ratio of 1:1. When converting with this transmission, we recommend that you cut the two tabs as illustrated. This allows for exhaust and firewall clearance. When using this transmission on Jeeps that have a right hand front driveshaft, the transmission should be offset 1" to the driver's side for front driveshaft clearance.



The adapters we offer for this transmission are designed for the short 4WD output shaft. If you obtain a 2WD transmission then you would be required to install a new rear output shaft. We offer kits that will supply you a new TH350 4WD output shaft. If you obtain the 4WD transmission, select the kit that excludes the output shaft. All kits use a 1.875" aluminum adapter housing. These kits use a spud shaft (either 6 or 10 spline) that is pressed on to a roller bearing and then pressed into the adapter housing. These adapters do not come with the sealed transfer case bearing or index retainer. The front transfer case yoke can sometimes become a clearance issue, so we do offer a smaller yoke kit to assist you if it does present a problem.

TH350 to Dana 18/20 & Scout 300

Optional Items: **716001** Large hole index retainer

50-3000 1.875" 6 spl. with TH350 shaft adapter kit

716002 Small hole index retainer

50-3001 1.875" 6 spl. without a main shaft adapter kit

716302 Sealed bearing

50-3100 1.875" 10 spl. with TH350 shaft adapter kit

716009 yoke kit

50-3101 1.875" 10 spl. without a main shaft adapter kit

716010 Modulator

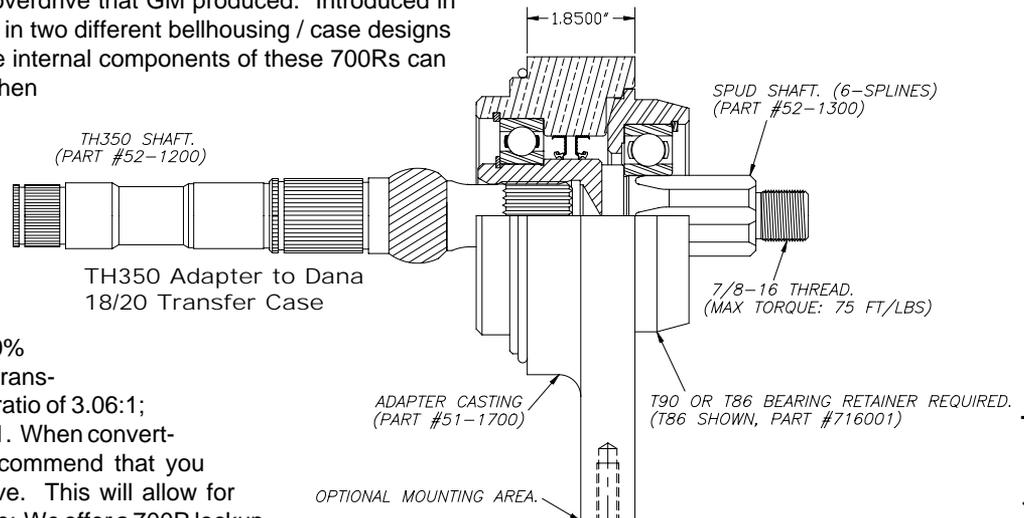
50-3102 1.875" Scout Dana 300 23 spl. with TH350 shaft adapter kit

716003 Trans mount

50-3103 1.875" Scout Dana 300 23 spl. without a main shaft adapter kit

716021 Trans mount

700R: This is the first automatic overdrive that GM produced. Introduced in 1982, this transmission was offered in two different bellhousing / case designs (60 & 90 degree bolt patterns). The internal components of these 700Rs can be interchanged if necessary. When this transmission was first introduced, it quickly developed a bad reputation for certain weaknesses. In 1987, GM resolved all of the problems that previously existed. In the 1990s, the name of the 700R transmission changed to 4L60. These transmissions are ideal for many conversions because of the 30% overdrive. The overall length of this transmission is 23-3/8". It has a 1st gear ratio of 3.06:1; 2nd 1.62:1, and a 3rd gear ratio of 1:1. When converting using this transmission, we recommend that you cut the two tabs as illustrated above. This will allow for exhaust and firewall clearance. (Note: We offer a 700R lockup bypass kit, P/N 24-700R). The adapter we offer for this transmission to fit the Dana 18/20 is limited to only long wheel based vehicles. The adapter length is 6.25" long to allow for front driveshaft clearance on the transmission pan of the transmission. This adapter uses a 2WD 700R output shaft and a 6 spline spud shaft to the transfer case. This adapter does require a index retainer. We also offer an adapter to fit the 700R to the Quadra-trac transfer case. This kit uses a stock 4WD output shaft that couples to a new spud shaft and aluminum adapter plate. If your transfer case has a stock front CV joint, you will be required to change it to a standard yoke for front drive shaft clearance.

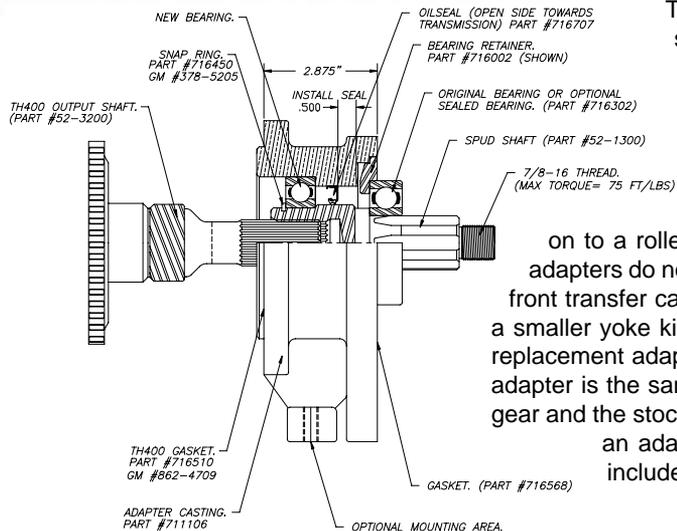


The adapter length is 6.25" long to allow for front driveshaft clearance on the transmission pan of the transmission. This adapter uses a 2WD 700R output shaft and a 6 spline spud shaft to the transfer case. This adapter does require a index retainer. We also offer an adapter to fit the 700R to the Quadra-trac transfer case. This kit uses a stock 4WD output shaft that couples to a new spud shaft and aluminum adapter plate. If your transfer case has a stock front CV joint, you will be required to change it to a standard yoke for front drive shaft clearance.

700R to Dana 18/20 or Quadra-Trac

50-6905 6.25" 6 spl. adapter kit

50-2501 Quadra-trac adapter kit



TH400 to Dana 18/20 & Scout 300
 50-1300 2.875" 6 spl. adapter kit
 50-1400 2.875" 10 spl. adapter kit
 50-1401 2.875" 23 spl. adapter kit
 50-0500 2.50" 15 spl. stock adapter replacement kit

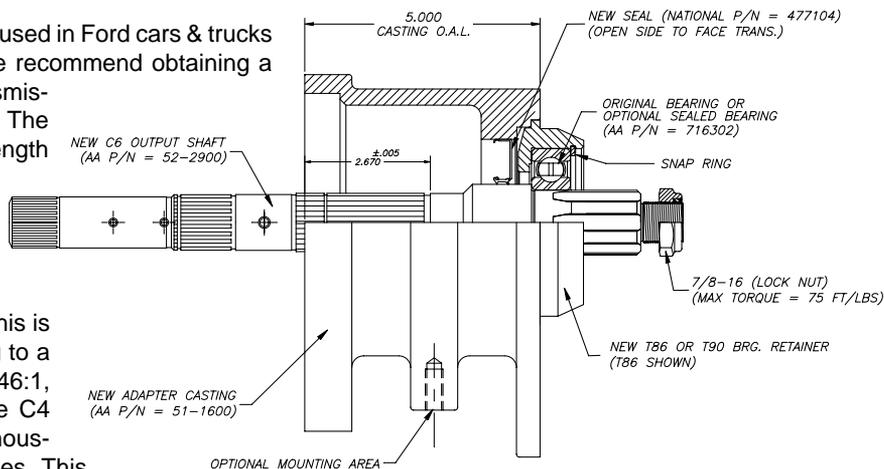
Optional Items: [716001](#) Large hole index retainer
[716002](#) Small hole index retainer
[716302](#) Sealed bearing
[716009](#) Small yoke kit
[716003](#) Trans mount (or)
[716021](#) Trans mount



C4: This 3 speed transmission was used in Ford cars & trucks from 1964 to 1981. We recommend obtaining a 1970 & newer transmission for conversions. The transmission case length is 11.180", and with the bellhousing measures 17.00". This transmission was used up against small block Ford engines.

The adapters we manufacture will normally require the installation of a new output shaft. This is the most popular transmission when converting to a Ford engine. The 1st gear ratio is 2.46:1; 2nd 1.46:1, and a 1:1 3rd gear ratio. The adapter for the C4 transmission includes a 5" aluminum adapter housing and a new custom C4 output shaft with 6 splines. This kit also includes a seal, gasket, and necessary hardware.

C4 to Dana 18/20
 50-2900 5.00" 6 spl. adapter kit



Optional Items: [716003](#) Trans mount
[716001](#) Large hole index retainer
[716002](#) Small hole index retainer
[716302](#) Sealed bearing

C6: The C6 is a Ford Heavy Duty 3 speed automatic. The gear ratio is also identical to the C4 transmission. The C6 has a case length of 20", which includes the bellhousing. This transmission was used up to all three Ford block bolt patterns. The bellhousing and case are integral (one piece); therefore, the C6 has 3 different casings. This transmission was used in vehicles 1968 to 1979. The adapter for the C6 transmission includes a 5" aluminum adapter housing and a new custom C6 output shaft with 6 splines. This kit also includes a seal, gasket, and necessary hardware.

C6 to Dana 18/20
 50-3300 5.00" 6 spl. adapter kit

Optional Items: [716001](#) Large hole index retainer
[716002](#) Small hole index retainer
[716302](#) Sealed bearing
[716021](#) Trans mount (or)
[716003](#) Trans mount

IDENTIFYING THE STOCK TRANSMISSION:

Over the past 60 years, Jeep vehicles have been equipped with over 25 different transmissions. Listed in this section are the stock 1941-79 Jeep transmissions. It is difficult to identify the specific transmission by the year of the vehicle, so we will detail specific information that applies to both the identification and application for Jeep transmission conversions.

Bellhousing adapters usually consist of an adapter plate that bolts to the stock engine bellhousing, then the stock transmission bolts to the backside of the adapter plate. A bellhousing adapter is usually the easiest and least expensive way to go.

Since smog regulations in your state may limit you from upgrading your engine, we have also expanded our product line to include many adapters to retain your stock engine while upgrading to a better transmission. Listed on the following pages are the stock Jeep transmissions and the corresponding bellhousing adapters we manufacture, along with transmission upgrade adapters.

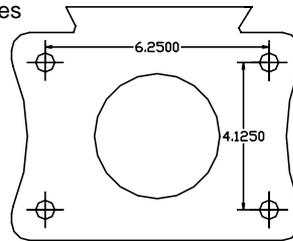
(Note: The engine blocks referenced are as follows: Chevy includes all V8s, 229 & 4.3 V6. Ford includes 289, 302, 351W. AMC includes 258, 304, 360, 401, 4.2L, 4.0L - each manufacturer group having the same block bolt pattern. The newer Chevy Generation III Vortec engines require a few additional considerations.)

JEEP UNIVERSAL - MANUAL TRANS:

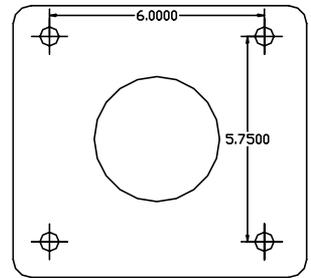
Vehicle ID	Year	Application
Warner T84 3 Speed	1941-45	
Warner T98A 4 Speed	1955-71	
Warner T90J 3 Speed	1947-58	4WD Utility Models w/226 Engines
Warner T90C 3 Speed	1947-71	Standard on all models except CJ2A
Warner T90C 3 Speed	1947-71	CJ-2A Up to Serial #38221
Warner T90 3 Speed	1947-58	4WD Vehicles w/4 Cyl. 134 Engines
Warner T86AA 3 Speed	1965-67	Standard on all V6 Engines
Warner T18A 4 Speed	1976	Optional on all Models
Warner T14A 3 Speed	1968-71	Standard on all V6 Engines
Warner T15 3 Speed	1972-75	Standard on all Models
Tremec T150 3 Speed	1976-79	Standard on all Models

JEEP UNIVERSAL - AUTOMATIC TRANS:

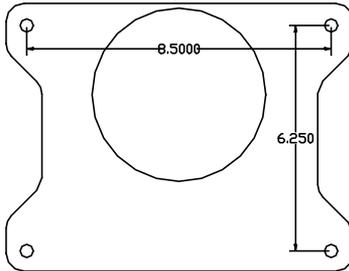
Vehicle ID	Year	Application
AMC TH400 3 Speed	1976-79	CJ7 Vehicles
AMC TH400 3 Speed	1965-79	Wagoneer



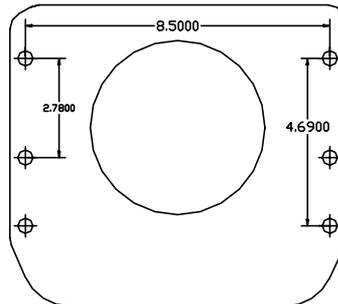
JEEP T90



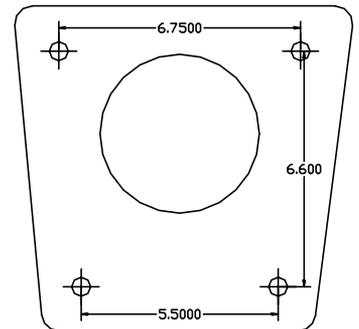
JEEP T86, T14 & T15



JEEP T150 & T176
STANDARD FORD



JEEP T18 & T98



SCOUT T98

Identifying the stock transmission (1941-79)

JEEP TRANSMISSIONS and BELLHOUSING ADAPTERS 1941-79:

Most of the early Jeep transmissions 1941-79, used a long transmission input shaft. We manufacture adapter plates that make the stock Jeep transmission look just like a Chevy or Ford. This enables us to bolt a Chevy or Ford engine and stock bellhousing to this adapter plate. With these adapter plates, we utilize a new front bearing retainer to obtain proper bellhousing alignment. On Chevy bellhousing kits, we use a small index of 4.686", (for the larger index bellhousing, P/N 716078, can be added for the 5.125" Chevy bellhousing). On Ford bellhousing, a bearing index of 4.848" is used.

- T84 (1941-45)** - This 3 speed transmission has a case length of 6.750". The bellhousing bolt pattern of this transmission is identical to the T90 bolt pattern. This transmission was used in vehicle Model numbers 441, 442, MB and U.S. GPW 1/4 ton 4x4s. The transmission was used with Jeep 4 cylinder "L" head engines. The shifting lever is mounted to the top of the transmission case. We do not recommend the use of this transmission on engine conversions. We do not manufacture any adapters to retain this 3 speed.

T90 (1946-72)
(Jeep & Scout)



- This 3 speed transmission has a case length of 8.000". T90 will normally be stamped on the case. This transmission was used in various models of Jeep military vehicles, Universal Jeeps, utility trucks, and Scouts (1961-73). It was used with both the 4 & 6 cylinder applications. The gear shift control can either be mounted to the top of the transmission case with 6 bolts or, on utility wagons, the shifter linkage extends through the driver's side of the case for use with a column shifter.

Between the years of 1946-1972, Warner Gear made several variations in the design of the input shaft in relation to the length and tooth count. When adapting this transmission to a V6 or V8 engine, it is critical that your transmission be equipped with the correct length of input shaft. The only vehicles that would have the correct input shaft length would be the utility wagons and pickups equipped with 6 cylinder engines. The stickout length of this input shaft from the face of the transmission should be 9 to 9-1/2". If your transmission has a shorter shaft, you will need to change input shaft. The correct input shaft has a clutch size of 1-1/8" 10 spline (same as the Chevy clutch disc).

Chevy Engine to T90
712502 Adapter Plate
713001 Motor Mounts

Ford Engine to T90
712505 Adapter Plate
713002 Motor Mounts

Buick V6 Engine to T90
712502 Adapter Plate
713011 Motor Mounts

Optional Items:

716014 Input Shaft
716640 Clutch Linkage
716176 GM Release Arm
CF360056 10-1/2" P.P.
383271 10-1/2 Clutch Disc
CF165552 11" P.P.
383735 11" Clutch Disc
N1430 Release Bearing

716014 Input Shaft
716640 Clutch Linkage
CF360030 10" Pressure Plate
383303 10" Clutch Disc
CF260000 11" P.P.
CF360049 11" P.P.
383735 11" Clutch Disc
716311 Release Bearing

716014 Input Shaft
716640 Clutch Linkage
712581 Buick Bellhousing
CF360056 10-1/2" P.P.
383271 10-1/2" Clutch Disc
CF700010 Flywheel (231 V6)
N1430 Release Bearing

(Headers and Steering conversions are available for all of these applications)

If your T90 was originally fitted to a 4 cylinder, you will be required to purchase a 6 cylinder style input shaft, P/N 716014 (Jeep #906203). This shaft has a gear tooth count of 18 teeth. On some Jeep (and Scout) vehicles, the input shaft that you are replacing may be 16 tooth. This special tooth count is normally found only in a vehicle that has a 4:27 axle ratio. On these applications, you will also need to purchase a new cluster gear, P/N 716018. Below we have listed the years and gear data that will be necessary to determine your vehicle requirements. The best way to determine what your vehicle is equipped with is to simply remove the top cover and count the teeth on the front input shaft.

Year	O.A.L of Input Shaft	Tooth Count	Jeep Number	Warner Number
*1946-49 (T90)	9"	S30-R16T	643246	T90E-16
1946-64 (T90A)	11-1/2"	S30-R18T	906203	T90J-16
*1961-70 (T90)	9"	S30-R16T	643246	T90E-16
1946-72 (T90A)	9-1/16"	S30-R18T	640428	T90A-16
*1962-72 (T90)	9-1/8"	S30-R16T	936448	T90L-16

Note: Items above marked with an asterisk "*" will require both a cluster gear & input shaft replacement



The next section covers both the T98 & T18 transmissions. Since these two gear boxes are almost identical, we have grouped and listed the conversion components together.

T98A (1955-73) - This 4 speed transmission can be identified by a case length of 11.875", and a casting number of T98. The shift cover is mounted on the top of the case with 6 bolts. This is an excellent transmission to mate to any V8. For the necessary adapter, you will need to determine your front input shaft stickout length. There are several various lengths and it is critical that you determine this measurement prior to ordering the necessary components for your vehicle.

Year	O.A.L of Input Shaft	Tooth Count	Jeep Number	Warner Number
1965-73 (T98A) 4 Cyl.	10-3/8"	S27-L17T	912361	T98-16M
1965-72 (T98A) 230	12-7/8"	S27-L17T	916341	T98A-16Q
1957-64 (T98A) 262	12-7/8"	S27-L17T	916341	T98A-16Q
1955-64 (T98A) 4 Cyl.	10-3/8"	S27-L17T	912361	T98A-16M

JEEP T18
(1965-79)



- This 4 speed transmission has a case length of 11.875". The casting number is T18, 1301, or shifter top cover casting T98. There are over 14 variations of this 4 speed transmission. These transmissions can have either a 4:1 or 6.32:1 1st gear ratio. This transmission is an excellent choice for Chevy and Ford conversions. The biggest problem that we have with this transmission is the various lengths of the front input shaft. To select the correct adapter, you will be required to determine your stock input shaft stickout length.

Year	O.A.L. of Input Shaft	Tooth Count	Jeep Number	Warner Number
1980-81 (T18)	15-7/8"- 8 Cyl.	S27-L17T	8132656	T18-16P
1977-79 (T18)	10"-6 Cyl.	S27-L17T	8130260	T18-16J
1979 (T18)	15-3/4"- 8 Cyl.	S27-L17T	8130258	T18-16G
1975-78 (T18)	16"- 8 Cyl.	S27-L17T	8125946	T18-16K
1967-78 (T18)	12"- 6 Cyl.	S27-L17T	941110	T18-16F
1976-79 (T18C)	10"- 6 Cyl.	S27-L23T	8126875	T18C-16N
1972-75 (T18C)	12"- 6 Cyl.	S27-L23T	8121360	T18C-16B
1973-74 (T18C)	16-3/4"- 8 Cyl.	S27-L17T	8123036	T18C-16D
1971-73 (T18C)	12"- 258 6 Cyl.	S27-L23T	8122416	T18C-16B
1971-72 (T18C)	16-3/4"- 8 Cyl.	S27-L23T	998602	T18C-16C
1968-72 (T18)	15-3/4"- 8 Cyl.	S27-L17T	991394	T18-16K
1965-72 (T18C)	14"- 8 Cyl.	S27-L17T	940505	T18-16D

In order to assist you in determining the necessary adapter plates for both the T98 and T18 transmissions, we have listed the adapters that correspond to the transmission stickout length. **The stickout length is usually 2-5/8" less than the O.A.L.**

Stickout	O.A.L. Of Input Shaft	GM Kit Number	Ford Kit Number
7-3/8"	10"	712528	712529
7-3/4"	10-3/8"	712512	712514
9-3/8"	12"	712521	712522
10-1/4"	12-7/8"	712517	712518
11-3/8"	14"	N/A	N/A
13-1/8"	15-3/4"	712516	N/A
13-1/4"	15-7/8"	712516	N/A
13-3/8"	16"	712516	N/A
14-1/8"	16-3/4"	712516	N/A



On any transmission that has a 17 tooth input shaft, you have the option of installing a new shorter input shaft. If you are using a T98 or T18 in a short wheel base vehicle, drivetrain length is crucial. These input shafts have a 17 tooth gear and allows us to use a 1/2" thick adapter plate. **P/N 712512** for a T18 and **P/N 712512-T98** for the T98 transmission is to a Chevy engine. **P/N 712514** for a T18 and **P/N 712514-T98** for the T98 transmission is to a Ford engine. These adapters are 1/2" thick adapter plates (thin design) that come complete with a new input shaft for your transmission.

The other adapters listed are for when you are retaining the stock input shaft. The transmissions with a tooth count of **S17-L23T** must retain the stock input shaft, since there are no short-style 23 tooth gear input shafts. The longer transmission input shafts are normally retained on long wheel based vehicles. If you attempt to use the short style adapter on a long wheel based vehicle, you will have trouble with the shifter & linkage.

For vehicles that have the longer input shaft (O.A.L. of 15-3/4", 15-7/8", 16", and 16-3/4"), we offer **Part No. 712516**. This kit requires you to modify the existing aluminum spacer between your transmission and Jeep bellhousing. It will eliminate the need to change the stock input shaft and will possibly eliminate the need for driveshaft modifications.

Jeep T98 & T18 Bellhousing adapters:



- P/N 712549** - Chevy bhsg. (input shaft stickout 7.375", 1-1/16" 10 spl. normally used in 1976-79)
- P/N 712529** - Ford bhsg. (input shaft stickout 7.375", 1-1/16" 10 spl. normally used in 1976 only)
- P/N 712521** - Chevy & Buick bhsg. (input shaft stickout 9.375")
- P/N 712522** - Ford bhsg. (input shaft stickout 9.375")
- P/N 712517** - Chevy & Buick bhsg. (input shaft stickout 10.250")
- P/N 712518** - Ford bhsg. (input shaft stickout 10.250")
- P/N 712516** - Chevy & Buick bhsg. (13 to 14" input shaft stickout)
- P/N 712512** or **712512-T98** - Chevy bhsg. to kit (input shaft stickout 7.750")
- P/N 712514** or **712514-T98** - Ford bhsg. to kit (input shaft stickout 7.750")



Motor mounts and clutch components are listed on the next page

Chevy Engine to T98 & T18
713001 Motor Mounts

Ford Engine to T98 & T18
713002 Motor Mounts

Buick V6 Engine to T98 & T18
713011 Motor Mounts

Optional Items:

716640 Clutch Linkage (up to 1971)
716639 Clutch Linkage (1972 & up)
*716638 Stock Linkage (1972 & up)

716640 Clutch Linkage (up to 1971)
716639 Clutch Linkage (1972 & up)

716640 Clutch Linkage (up to 1971)
716639 Clutch Linkage (1972 & up)

*Part No. 716640 & 716639 are chain linkages. Part No. 716638 is used when retaining the stock torque tube (w/ stock GM bhsg).

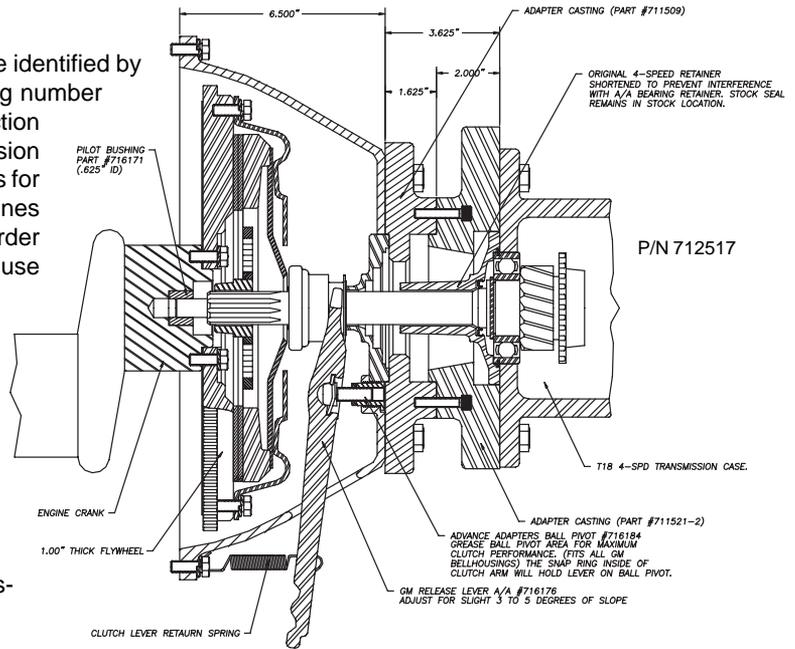
716176 GM Release Arm
CF360056 10-1/2" P.P.
383271 10-1/2 Clutch Disc
CF165552 11" P.P.
383735 11" Clutch Disc
N1430 Release Bearing

CF360030 10" Pressure Plate
383303 10" Clutch Disc
CF260000 11" P.P.
CF360049 11" P.P.
383735 11" Clutch Disc
716311 Release Bearing

712581 Buick Bellhousing
CF360056 10-1/2" P.P.
383271 10-1/2" Clutch Disc
CF700010 Flywheel (231 V6)
N1430 Release Bearing

(Headers and Steering conversions are available for all of these applications.)

T85 (1966-68) - This 3 speed transmission can be identified by a case length of 9.500", a casting number of T85, and a side shift inspection cover with 9 bolts. This transmission is not very common; and adapters for use with Chevy or Ford V8 engines are only available on a special order basis. We do not encourage the use of the T85 transmission.



T89 (1965-66) - This 3 speed transmission can be identified by a 9.500" case length, a casting number of T89, and a side shift inspection cover with 9 bolts. Adapters for Chevy & Ford V8 conversions are not available and we suggest that you consider an OEM transmission-to-transfer case adapter.

T86AA (1966-68) - This 3 speed transmission has a case length of 8.000". T86 will normally be stamped on the case. This transmission is identical to the T90 transmission, except the bolt pattern is almost perfectly square. (See the bolt patterns illustrated on Page 33). These transmissions were only used with Buick V6 engines. The stock adapter plate on this transmission is a 2-1/2" thick cast iron adapter that mates the transmission to the Buick bellhousing. This same adapter can be used with the Chevy V8 bellhousings without any modifications. Since Jeep no longer makes this stock adapter, we manufacture our Chevy adapter plate as a direct replacement. The input shaft on this transmission is 1-1/8" 10 spline.

Chevy Engine to T86AA
712506 Adapter Plate
713001 Motor Mounts

Ford Engine to T86AA
712508 Adapter Plate
713002 Motor Mounts

Buick V6 Engine to T86AA
712506 Adapter Plate
713011 Motor Mounts (universal)
713003 Motor Mounts (similar to stock)

Optional Items:

716640 Clutch Linkage (up to 1971)

716640 Clutch Linkage (up to 1971)

716640 Clutch Linkage (up to 1971)

(Vehicles that have a cable operated clutch system must retain the stock linkage)

716176 GM Release Arm
CF360056 10-1/2" P.P.
383271 10-1/2 Clutch Disc
CF165552 11" P.P.
383735 11" Clutch Disc
N1430 Release Bearing

CF360030 10" Pressure Plate
383303 10" Clutch Disc
CF260000 11" P.P.
CF360049 11" P.P.
383735 11" Clutch Disc
716311 Release Bearing

712581 Buick Bellhousing
CF360056 10-1/2" P.P.
383271 10-1/2" Clutch Disc
CF700010 Flywheel (231 V6)
N1430 Release Bearing

(Headers and Steering conversions are available for all of these applications)

T14A (1968-75) - This 3 speed transmission has a case length of 8.75". T14A or 1302 is normally cast on the side of the case. This transmission was used up against two different engines, with two different input shaft lengths. It is very important that you identify your transmission prior to ordering an adapter. The input shaft lengths are different, depending on the stock engine your vehicle was equipped with. Therefore, we offer two adapters with different thickness to correspond with these input shaft lengths.

From 1968-71, the T14A transmission was used primarily with a Buick V6 engine. They were adapted with a cast iron adapter plate similar to what we manufacture. In 1971, Jeep discontinued this cast iron adapter and manufactured an aluminum bellhousing in which the adapter was cast or molded onto the bellhousing. Between the years of 1968-75, Jeep used the same transmission with their in-line 6 cylinder engines. This version of the T14 was equipped with a shorter input shaft. The shorter input shaft was necessary to compensate for the length of the in-line 6 cylinder. We have listed the input shaft specifications for your reference.

Year	O.A.L of Input Shaft	Tooth Count	Jeep Number	Warner Number
1968-71 (T14A)	11-1/2"	S21-L20T	991058	T14A-16
1968-75 (T14A)	10-1/2"	S21-L20T	991059	T14A-16A

(The stickout length of the input shaft is approximately 2-5/8" short than the O.A.L.)

- P/N 712506 - Chevy & Buick bhsg. to T14A (replacing V6 engine)
- P/N 712510 - Chevy & Buick bhsg. to T14A (replacing straight 6 engine)
- P/N 712508 - Ford bhsg. to T14A (replacing V6 engine)
- P/N 712511 - Ford bhsg. to T14A (replacing straight 6 engine)

Chevy Engine to T14A
713001 Motor Mounts

Ford Engine to T14A
713002 Motor Mounts

Buick V6 Engine to T14A
713011 Motor Mounts (universal)
713003 Motor Mounts (similar to stock)

Optional Items:

- 716640 Clutch Linkage (up to 1971)
- 716639 Clutch Linkage (1972 & up)
- *716638 Stock Linkage (1972 & up)

*Vehicles that have a cable operated clutch system must retain the stock linkage

- 716176 GM Release Arm
- CF360056 10-1/2" P.P.
- 383271 10-1/2 Clutch Disc
- CF165552 11" P.P.
- 383735 11" Clutch Disc
- N1430 Release Bearing

- 716640 Clutch Linkage (up to 1971)
- 716639 Clutch Linkage (1972 & up)
- CF360030 10" Pressure Plate
- 383303 10" Clutch Disc
- CF260000 11" P.P.
- CF360049 11" P.P.
- 383735 11" Clutch Disc
- 716311 Release Bearing

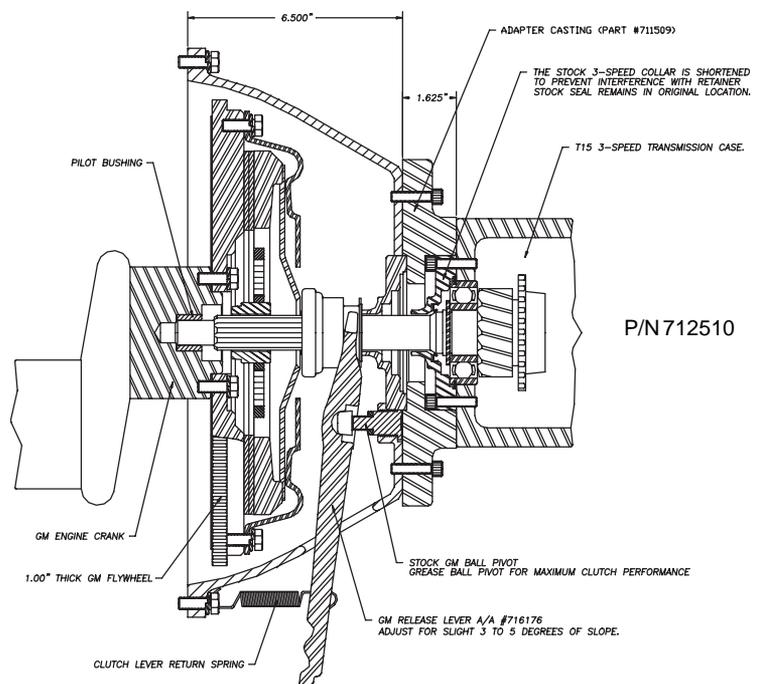
- 712581 Buick Bellhousing
- CF360056 10-1/2" P.P.
- 383271 10-1/2" Clutch Disc
- CF700010 Flywheel (231 V6)
- N1430 Release Bearing

(Headers are available for all of these applications)
(Steering conversions are available for vehicles up to 1971)



T14A Transmission

Stock Buick bellhousing to T14



T15A (1972-75) - This 3 speed transmission can be identified by a case length of 10.000". T15 or 1307 is normally cast on the side of the case, and 8 bolts hold the shift cover to the top of the case. This is probably one of the strongest of the 3 speed transmissions. We manufacture adapters to fit both Chevy & Ford blocks. The adapter length is a 1-5/8". The input shaft has an O.A.L. of 10-7/8", and is a 1-1/8" 10 spline. There are a few transmissions that may require the changing of the input shaft to work with our adapter. These applications would be in trucks, wagons, and in some Jeep Universals. To verify this, simply compare the listings below to see if your shaft will be compatible with our adapter kit.



Year	O.A.L. of Input Shaft	Tooth Count	Jeep Number	Warner Number
1972-75 (T15A)	15-1/4"	S24-L20T	998608	T15A-16C
1972-75 (T15A)	13-7/8"	S24-L20T	998607	T15A-16B
1972-75 (T15A)	10-7/8"	S24-L20T	991061	T15A-16A
1972-75 (T15A)	13-3/8"	S24-L20T	8128499	T15A-16E

(The stickout length of the input shaft is approximately 2-5/8" short than the O.A.L.)

Chevy Engine to T15A
[712510](#) Adapter Plate
[713007](#) Motor Mounts

Ford Engine to T15A
[712511](#) Adapter Plate
[713002](#) Motor Mounts

Buick V6 Engine to T15A
[712510](#) Adapter Plate
[713011](#) Motor Mounts (universal)

Optional Items:

[716639](#) Clutch Linkage (Chain)
[716638](#) Stock Clutch Linkage Brkt.
[716176](#) GM Release Arm
[CF360056](#) 10-1/2" P.P.
[383271](#) 10-1/2 Clutch Disc
[CF165552](#) 11" P.P.
[383735](#) 11" Clutch Disc
[N1430](#) Release Bearing

[716639](#) Clutch Linkage (Chain)
[CF360030](#) 10" Pressure Plate
[383303](#) 10" Clutch Disc
[CF260000](#) 11" P.P.
[CF360049](#) 11" P.P.
[383735](#) 11" Clutch Disc
[716311](#) Release Bearing

[716639](#) Clutch Linkage (Chain)
[712581](#) Buick Bellhousing
[CF360056](#) 10-1/2" P.P.
[383271](#) 10-1/2" Clutch Disc
[CF700010](#) Flywheel (231 V6)
[N1430](#) Release Bearing

(Headers and radiators are available for all of these applications)

T150 (1976-79) - This 3 speed transmission can be identified by a case length of 9.250", a casting number of 2603983 on the case under the fill hole, and the top shifter mounted to the case with 8 bolts. The input shaft on this transmission is a 1-1/16" 10 spline, and has a pilot tip diameter of .670". It was normally used with an AMC 304 V8 engine, so it is an excellent transmission for most V8 conversions. The T150 is very similar to a Ford 3 speed transmission. We manufacture two types of GM adapters for this application.

When using a stock Chevy or Buick bellhousing, we offer an adapter plate, [P/N 712527](#). This kit comes with a special pilot bushing that is extended to allow support for the input shaft. This kit will also require the use of our clutch linkage bracket, [P/N 716638](#). In some cases, it may be necessary to shorten the extended pilot bushing to prevent interference with the clutch spline area. The input spline engagement to the clutch disc is not always 100%.

An alternative would be to use our full bellhousing kit, [P/N 712548](#). Using this bellhousing design will permit the use of all the original clutch linkage. The advantages of using the full bellhousing kit include the use of a standard pilot bushing and full input spline engagement to the clutch disc.

This transmission bolt pattern is the same as a standard Ford. A Ford bellhousing can be bolted directly to the T150. No adapter is necessary.

Using the adapter plate with the T150:

Chevy Engine to T150
[712527](#) Adapter Plate
[713007](#) Motor Mounts

Ford Engine to T150
 No adapter required
[713002](#) Motor Mounts

Buick V6 Engine to T150
[712527](#) Adapter Plate
[713011](#) Motor Mounts

Optional Items:

[716639](#) Clutch Linkage (Chain)
[716638](#) Stock Clutch Linkage Brkt.
[716176](#) GM Release Arm
[CF360056](#) 10-1/2" P.P.
[381021](#) 10-1/2 Clutch Disc
[CF165552](#) 11" P.P.
[281226](#) 11" Clutch Disc
[N1430](#) Release Bearing

[716639](#) Clutch Linkage (Chain)
[CF360030](#) 10" Pressure Plate
[280490](#) 10" Clutch Disc
[CF260000](#) 11" P.P.
[CF360049](#) 11" P.P.
[281226](#) 11" Clutch Disc
[716311](#) Release Bearing
[716173](#) Pilot Bushing

[716639](#) Clutch Linkage (Chain)
[712581](#) Buick Bellhousing
[CF360056](#) 10-1/2" P.P.
[381021](#) 10-1/2" Clutch Disc
[CF700010](#) Flywheel (231 V6)
[N1430](#) Release Bearing

(Headers and radiators are available for all of these applications)

Using the full bellhousing kit with the T150:

Chevy Engine to T150
712548 Bellhousing Kit
713007 Motor Mounts

Ford Engine to T150
No adapter required
713002 Motor Mounts

Buick V6 Engine to T150
712583 Bellhousing Kit
713011 Motor Mounts

Optional Items:

716639 Clutch Linkage (Chain)
716334 Jeep Release Arm
716176 GM Release Arm
716332 Bellhousing boot
CF165552 11" P.P.
281226 11" Clutch Disc
716311 Release Bearing (w/ 716334)
N1714 Release Bearing (w/ 716176)

716639 Clutch Linkage (Chain)
CF360030 10" Pressure Plate
280490 10" Clutch Disc
CF260000 11" P.P.
CF360049 11" P.P.
281226 11" Clutch Disc
716311 Release Bearing
716173 Pilot Bushing

716639 Clutch Linkage (Chain)
CF360056 10-1/2" P.P.
381021 10-1/2" Clutch Disc
CF700010 Flywheel (231 V6)
N1714 Release Bearing

(Headers and radiators are available for all of these applications)



AMC TH400 (1972-79) - This transmission can be identified by a case length of 24.250". In 1972, this transmission was introduced into the Jeeps; however, this early transmission used a cast iron adapter plate to fit this tranny to the AMC block. *We manufacture an adapter to mate only the 1974 & newer transmissions to the Chevy blocks.*

As we just mentioned, the very early AMC TH400 (1972-73) was equipped with a cast iron adapter plate that connected the AMC TH400 transmission case to the Jeep engine. There were two variations to these adapters. If your transmission is equipped with either one, you WILL NOT be able to adapt it to a Chevy V8. The only option on these early model transmissions is to change the AMC TH400 case to a GM TH400 case. The internal parts of the AMC TH400 transmission are identical to the Chevy and Buick TH400 transmissions. You can simply interchange the internal parts into the proper case, allowing you to bolt the transmission directly to your new engine.

In 1974, Jeep redesigned the AMC TH400 case and eliminated the cast iron adapter so it would bolt directly to the Jeep engine. These transmissions can be used with the Chevy V8 engine by using our adapter plate. This kit consist of a new steel plate, special crank support bushing, and flexplate spacers. In addition, you will need to purchase a new Chevy flexplate.

This transmission was used in two different transfer case applications. The early models were equipped with the Dana 20 transfer case, while the later models were equipped with the Quadra-Trac transfer case.

P/N 716133 - AMC TH400 plate to Chevy block

P/N 713007 - Chevy Universal Motor Mounts

(Headers are available for all of these applications)

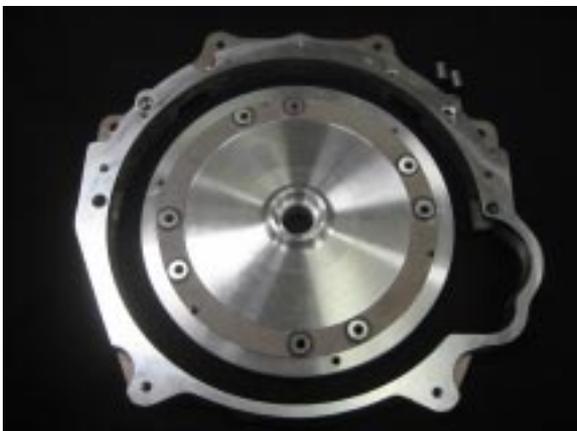
727 Torqueflite (Jeeps 1976-79) - This transmission has a case length of 16.000". Although rarely used within these years, it would have been found mostly in Jeep Wagons and pickups, and used with a V8 or straight 6 cylinder. Our adapters will enable these transmissions to be bolted directly to the Chevy V8 engine. Installations that were previously bolted to a Jeep V8 engine may require the changing of the torque converter to the Jeep 6 cylinder design. The following adapters are not compatible with the 4 cylinder transmission model #904. The adapter kit uses a adapter disc that bolts to your stock torque converter and then has the GM bolt pattern to match up to your stock GM flexplate.

P/N 716131-A Chevy block to Jeep Torqueflite

P/N 716131-V Chevy Gen III Vortec V8 block to Jeep Torqueflite

(Some 727 transmissions, when coupled to a stock V8, may require a new torque converter)

P/N 713007 - Chevy Motor Mount



SCOUT TRANSMISSIONS:

The Scout transmissions are very similar to the Jeep transmissions. The similarities include the same transfer cases, the transfer case bolt pattern, and the transmission identification numbers. However, the International Scouts used different engines than Jeep, thus requiring different bellhousing adapters. We offer bellhousing adapters for both the Scout manual and automatic transmissions. Both Scout and International Carryall vehicles can be treated the same.



Torqueflite - Scouts & International vehicles used a special Torqueflite automatic transmission that bolts directly to the International engines. For Scout vehicles equipped with this Torqueflite 3 speed automatic, we offer a kit that will bolt a Chevy V8 to this transmission, replacing the stock I.H. 304 or 345 engine. This kit comes complete with an adapter plate, crank bushing, and flexplate. This kit is not compatible with a small block 400.

P/N 712572-A Torqueflite to Chevy V8 (up to 1985)
 P/N 713007 - Motor Mounts

International Scouts used two types of clutch controls; mechanical & hydraulic. The most difficult part of a Scout conversion is adapting and modifying the existing clutch linkage. Although we manufacture various adapters to retain the stock manual transmission, we do not offer any assistance with the clutch linkage mounting. We have been told that using a 1984 Toyota Land Cruiser master cylinder with our P/N 716119 slave cylinder and our 716287 slave cylinder bracket works well as a hydraulic linkage. When using this setup, you will have to change the pedal assembly that the master cylinder bolts to. The above method is only a suggestion from other customers, since we have not verified whether or not this is a proven method. The only way we know to avoid clutch linkage modifications would be to use an automatic transmission.

Scout T18/T19 - (1969-82) These Borg Warner 4 speed transmissions have a long 10-1/4" stickout with an 1-1/4" 10 spline input shaft. The Scout transmissions can be identified by a case length of 11.875", and casting number of T18, T19, 1301 or 1309. We have developed two kits to use these transmissions. The original clutch linkage will need to be modified and relocated forward from the firewall, which is the most difficult part of this particular conversion.



Scout T19

These transmissions are an excellent choice for Chevy & Ford conversions. You must make sure that the input shaft protrudes from the face of the transmission approximately 10-1/2" for Chevy conversions. The Ford conversions are supplied with a new input shaft which has a 17 tooth gear. The transmissions listed below that have a tooth count of S27-L17T will only work with our adapters.



Year	O.A.L. of Input Shaft	Tooth Count	Jeep Number	Warner Number
1969-77 (T18)	13"	S27-L17T	386160C1	T18-16N
1969-77 (T18C)	13-1/8"	S27-L23T	386159C1	T18C-16
1971-82 (T19)	13"-6:32	S27-L17T	439230C1	T19-16D
1974-82 (T19A)	9-1/8"-4:02	S27-L23T	439231C1	T19A-16D
1965-82 (NP435)	12-15/16"	S24-L17T	312692C1	WT291-16M

Chevy Engine to Scout T18 & T19
 712530 Adapter Plate
 713007 Motor Mounts

Ford Engine to Scout T98 & T18
 712531 Adapter Plate
 713006 Motor Mounts

Optional Items:
 CF165473S 11" P.P.
 Release arm supplied in 712530 kit
 Release bearing supplied in 712530 kit
 Use a Stock Scout clutch disc

CF360030 10" Pressure Plate
 280490 10" Clutch Disc
 CF260000 11" P.P.
 CF360049 11" P.P.
 281226 11" Clutch Disc
 716311 Release Bearing



P/N 712530

Scout T15 - (1974-79) Similar to the Jeep T15A, this 3 speed transmission can be identified by a case length of 10", and a casting number of T15 or 1307. We do not offer any adapters to retain this transmission.

Scout T90 - (1961-73) This 3 speed transmission has a case length of 8.000". T90 will normally be stamped on the case. This transmission was used in various models of Scout vehicles.

identifying the stock transmission (1941-79)

Between the years of 1961 & 1973, Warner Gear made several variations in the design of the input shaft in relation to the length and tooth count. When adapting this transmission to a V6 or V8 engine, it is critical that your transmission be equipped with the correct length of input shaft. The only vehicles that would have the correct input shaft length would be Scouts equipped with a 6 cylinder engine. The stickout length of this input shaft from the face of the transmission should be 9 to 9-1/2". If your transmission has a shorter shaft, you will need to change the input shaft. The correct input shaft has a clutch size of 1-1/8" 10 spline (same as the Chevy clutch disc).

Chevy Engine to Scout T90
[712502](#) Adapter Plate
[713001](#) Motor Mounts

Ford Engine to Scout T90
[712505](#) Adapter Plate
[713002](#) Motor Mounts

Buick V6 Engine to Scout T90
[712502](#) Adapter Plate
[713011](#) Motor Mounts

Optional Items:

[716014](#) Input Shaft
[716640](#) Clutch Linkage
[716176](#) GM Release Arm
[CF360056](#) 10-1/2" P.P.
[383271](#) 10-1/2" Clutch Disc
[CF165552](#) 11" P.P.
[383735](#) 11" Clutch Disc
[N1430](#) Release Bearing

[716014](#) Input Shaft
[716640](#) Clutch Linkage
[CF360030](#) 10" Pressure Plate
[383303](#) 10" Clutch Disc
[CF260000](#) 11" P.P.
[CF360049](#) 11" P.P.
[383735](#) 11" Clutch Disc
[716311](#) Release Bearing

[716014](#) Input Shaft
[716640](#) Clutch Linkage
[712581](#) Buick Bellhousing
[CF360056](#) 10-1/2" P.P.
[383271](#) 10-1/2" Clutch Disc
[CF700010](#) Flywheel (231 V6)
[N1430](#) Release Bearing

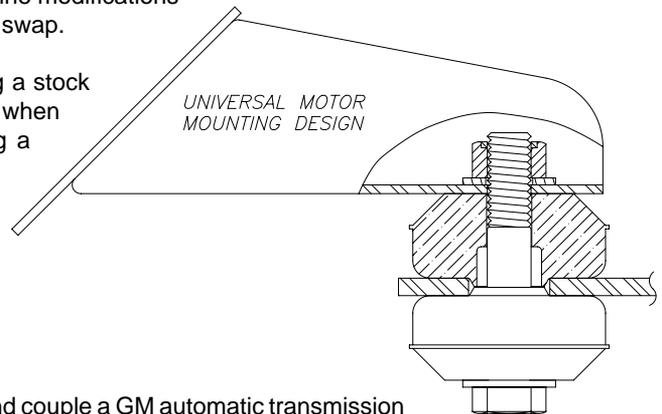
If your T90 was originally fitted to a 4 cylinder, you will be required to purchase a 6 cylinder style input shaft, [P/N 716014](#) (Jeep #906203). This shaft has a gear tooth count of 18 teeth. On most Scouts, the input shaft that you are replacing will be 16 tooth. On these applications, you will also need to purchase a new cluster gear, [P/N 716018](#). Below we have listed the years and gear data that will be necessary to determine your vehicle requirements. The best way to determine what your vehicle is equipped with is to simply remove the top cover and count the teeth on the front input shaft.

SCOUT CONVERSION NOTES:

The Chevy small block is a great choice for these vehicles. When replacing a 304 or 345, a Chevy small block is 200 to 300 pounds lighter. It provides you with a proven, dependable engine. Part cost & availability is better, and a lighter and more efficient Chevy engine will give you an estimated 2 to 6 more miles to the gallon. Scout engines are generally overlooked by the aftermarket industry with reference to performance parts. The internal engine components are also becoming increasingly more difficult to find - making a Chevy engine your best choice.

We offer a complete line of bellhousing adapters to couple a Chevy engine to the various stock Scout transmissions; however, a new transmission like a TH350 or TH400 are great options due to ease of installation. The Chevy TH350 or TH400 eliminates the clutch linkage connection issues that exist with the Scouts. Driveline modifications are normally required when doing an engine and transmission swap.

Motor mounts for the Scouts are a weld-in style. When retaining a stock manual transmission, engine placement may be different than when installing a new Chevy automatic transmission. When installing a Chevy automatic, the new center line of our motor mount should be approximately 3" rearward of the center line of the stock Scout V8 mount. This measurement is approximate, not exact. Please check for proper engine clearances before finalizing the new engine placement.



SCOUT SPECIALITY ADAPTERS:

We manufacture an adapter to retain the stock I.H. 345 V8 block and couple a GM automatic transmission to it. This adapter kits are manufactured by Advance Adapters but sold through I.H. Only North. The bellhousing kit has the aluminum adapter plate with a aluminum torque convert adapter ring plus the hardware.

1941-79 JEEP TRANNY RETROFITS

(JEEPS RETAINING STOCK AMC ENGINE & STOCK TRANSFER CASE)

On many of the late model Jeeps, the stock engines that were used were adequate for horsepower and torque. An example of these engines include the 4.0L, 4.2L, 258 6 cyl., 304, 360, and 401. The weak link is normally the stock transmission up against these power plants. We also have many customers who wish to retain their 4 cylinder, but change their transmission for better gearing. We manufacture bellhousing adapters to retain these stock AMC-Jeep engines with a new, stronger and, in most cases, a lower geared transmission. The part numbers listed below are just the bellhousing & transfer case components required. A crossmember support & clutch components may also be necessary.

FORD T18 & NP435: These transmissions are popular to retrofit into these vehicles. They are a heavy-duty 4 speed with a granny low 1st gear. When converting to the AMC blocks, a stock AMC bellhousing can be used (Jeep P/N 8133951, 3236291 or AA P/N 712599). These bell housings are normally found coupled to T150 & T176 trannys in Jeeps 1976-1983.

- P/N 716156 - AMC pilot bushing (required for all applications)
- P/N 384180 - AMC Clutch disc (required when the stock tranny has 1-1/16" 10 spline)
- P/N 712599 - AMC stock T150 and T176 bellhousing (for early Jeep engines)
- P/N 712569 - AMC 4.0L to Ford truck transmission (T18 & NP435)

Ford T18 T/C Adapters

- 50-7201 Large Hole Dana 18/20 adapter
- 50-7202 Small Hole Dana 18 adapter

Ford NP435 T/C Adapters

- 50-6102 Dana 18/20 adapter
- 50-3801 Dana 300 & NP flush 23 spline

(A crossmember support will be necessary on these conversions)

SM420 & SM465: GM truck 4 speeds with a granny low 1st gear. Ideal for rock-crawling. The two bell housings below bolt to the stock Jeep engines and allow the GM truck 4 speeds to be coupled into the Jeep drivetrain. These bell housings have the flywheel sensor option necessary for the 4.0L blocks. They also work fine for any other earlier Jeep engine.

- P/N 712570 - AMC engines to SM420 (4.686" bellhousing index)
- P/N 712571 - AMC engines to SM465 (5.125" bellhousing index)

SM420 T/C Adapters

- 50-2401 6 spline Dana 18/20 adapter
- 50-2402 10 spline Dana 18 adapter

4WD SM465 T/C Adapters

- 50-4703 6 spline Dana 18/20 adapter
- 50-4702 6 spline Dana 18/20 adapter
- 50-4701 10 spline Dana 18 adapter

(For 2WD SM465 adapters, see the Transfer Case Selection Chart)

(Crossmember support & clutch components will be necessary on these conversions)

NV4500: GM & Dodge truck 5 speeds with a 5.61 first gear ratio and 27% overdrive. This transmission is one of the most popular options when it comes to a transmission retrofit.

The most popular and the shortest way to convert the NV4500 into the Jeeps is using one of our full bell housings. Part No. 712571 bellhousing is designed mainly for the 1995 & earlier GM NV4500 transmission. Part No. 712568 can be used on both the 1996 & later GM transmissions. The stock Jeep flywheel thickness must be 1-1/8" or thinner to obtain proper clutch clearance. Thicker flywheels are sometimes found on some early Jeep V8s.

- P/N 712571 - AMC engines to GM NV4500 (up to 1995)
- P/N 712568 - AMC engines to GM or Dodge NV4500 (1996 & up)
- P/N 50-0210 - GM NV4500 to Dana 18/20

NV3550 into a CJ5: Although this is a fairly long transmission to fit into these short wheel-base vehicles, it can be accomplished when used with a GM V6 engine swap. The GM V6 is short enough to be set further forward in the frame rails and then coupled to the NV3550. The overall length of the 5 speed with the bellhousing and the transfer case adapter is 24.875" long. This ideal engine and transmission combination provides the needed highway gearing for these Jeeps and still provides a usable low gear for off-roading. The front driveshaft has good clearance on the transmission; however, count on lengthening and shortening the driveshafts to fit the new drivetrain length. Other modifications would include transmission crossmember support and floorboard modifications for the shift handle. NOTE: The GM 4.3 V6 should be a 1996 & earlier model because of the flywheel limitations on the later model blocks and oil pan configurations.

We do not offer this as a complete kit. The following parts will be required for this CJ5 installation:

- P/N 26-3550 - NV3550 transmission
- P/N 712591 - Bellhousing to mate the NV3550 to the GM 4.3 V6 (153 tooth flywheel limitation)
- P/N 50-8602 - Transfer case adapter NV3550 to Jeep Dana 20 transfer case

GM TH350, TH400 & 700R: This adapter kit was designed to allow the use of a GM TH350, TH400 or 700R transmission to the stock AMC straight 6 cylinder & V8s. This 5/8" thick steel plate allows you to couple to any one of these transmissions, utilizing a modified flexplate (listed below), and retain the stock GM torque converter. The kit comes with the necessary hardware, crank bushing, and flexplate spacers. Flexplates are sold separately. For the necessary transfer case adapter for your application, see the Transfer Case Selection Chart. Each transfer case adapter will also require a crossmember support.

[P/N 716138](#) - AMC engines to GM automatic

One of the following modified flexplates is necessary to complete this conversion:

[P/N 716138-A](#) AMC flexplate 304 & 360 (1972-87)

[P/N 716138-D](#) AMC flexplate 401 (1972-76)

[P/N 716138-E](#) AMC flexplate 258 (1972-87)

When installing an automatic into a Jeep, some additional parts will need to be considered. A transmission shifter will be required and most applications need a flexible dipstick. We also carry a 52" long 700R TV cable under [P/N 716138-KD](#) and for the TH350 transmissions a 52" long kick down cable under [P/N 716138-KD1](#)

CLUTCH LINKAGE

(Manual Transmissions Only):

Jeep has used both hydraulic and mechanical clutch linkages over the years. When doing an engine conversion, it is not uncommon to have clutch linkage changes. Many of these stock linkages can be retained with only a few modifications. However, if you would like to improve your clutch linkage, we offer many upgrades from these stock linkages.

Jeeps 1941-1971 - These Jeeps use a torque tube that pivots off the stock transfer case. The clutch pedal & bellhousing arm use rods that connected to this torque tube. The design was more than adequate for the small 4 cylinder Jeep vehicles. On V6 & V8 conversions that are equipped with heavier clutches, a greater mechanical advantage is required. We offer a new assembly that removes the torque tube & rods and replaces them with a sprocket and chain. This controller utilizes the stock pedal and clutch arm. It can be easily installed and offers a great mechanical advantage on most vehicle whether stock or converted. [P/N 716640](#). This kit will not work on stock 4 cylinder Jeep bellhousings.

If the original linkage is going to be retained on a new engine conversion, the only modifications will be to lengthen or shorten the corresponding linkage rods. If the transfer case is going to be offset towards the driver's side, the torque tube will also need to be modified accordingly. The torque tube mounting on the inside of the frame rail can be moved to match the new transfer case location by simply drilling two new mounting holes on the frame rail. If additional leverage is required, the stock Jeep torque tube can be modified by lengthening the control tabs. These control tabs generate the mechanical leverage between the clutch pedal and clutch release arm. If these tabs are lengthened for a new pivot location, then the mechanical advantage will become greater.

Jeeps 1970-1972 (**Cable linkage**) - This linkage was only used by Jeep for a short time. With the introduction of the 304 V8 engine, Jeep changed the clutch control linkage to a cable-operated system. The cable came directly from underneath the dash, through the floorboard and wrapped around to the clutch release lever. This linkage proved to be very inadequate. We've never manufactured an upgrade linkage kit to replace this type of linkage, but it can be retained when doing a conversion. You must make sure that the radius in the bends of the cable are kept as large as possible. The large bends will provide for a smoother clutch control.



Jeeps 1941-1972 (**Hydraulic linkage**) - Although these year Jeeps never came with this type of linkage, we have designed a new dual pedal and master cylinder assembly to upgrade your vehicle to a hydraulic linkage. These components cannot be used on vehicles with disc brakes.

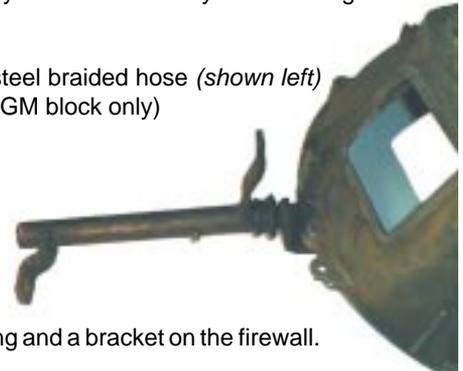
[P/N 716117](#) - Dual Swing Pedals

[P/N 716116](#) - Slave Cylinder Kit with steel braided hose (*shown left*)

[P/N 716118](#) - Dual Master Cylinder

[P/N 716287](#) - Slave Cylinder Bracket (GM block only)

Jeeps 1972-1986 (**Mechanical**) - These Jeeps use the same type of clutch torque tube as the earlier models, except the torque tube pivots off the bellhousing instead of the transfer case. This design consisted of a long rod that extended from the pedal mechanism underneath the dash, through the firewall and connected directly to a clutch torque tube. This linkage uses a ball design pivot bracket that bolts to the stock bellhousing. The clutch torque tube was supported between a pivot point on the bellhousing and a bracket on the firewall. This assembly can be retained on most conversions with very little modifications.



When using one of our Chevy conversion bellhousings, the stock bracket can be retained. If you are using a GM bellhousing, we offer P/N 716638 which will provide you with an adjustable pivot location on the Chevy bellhousing. This bracket kit is furnished with a male ball stud and multiple hole location that permits the use of all the original Jeep clutch linkage components. This multiple hole location will provide positioning for various engine locations. The kit also includes new nylon bushings to replace the original Jeep nylon bushings. Depending on which bellhousing is being used, the push rod that extends from the clutch torque tube to the clutch release lever will need possible modifications.



One of the biggest problems with the stock Jeep clutch linkage is its reliability on the trail. Most Jeep owners have either experienced or seen the stock linkage fall apart when a vehicle is tweaked or twisted while 4-wheeling. The linkage has too many pivoting and non-secured points and, when put under stress, they tend to come undone.

We offer an upgrade kit for your clutch linkage. This chain-operated clutch linkage kit, Part No. 716639, connects to the original push rod that extends out of the firewall and mounts to the stock Jeep driver's side body mount. This kit also uses a sprocket & chain that parallels the inside of the frame rail. Unlike the stock linkage pushing the release lever, this chain controller uses a pulling motion. On serious offroad use, the chain linkage will allow for twisting of the frame and the torque of the engine. The chain control linkage is solidly mounted to all components of the clutch linkage. **This kit will not work with inside-the-frame rail exhaust.**



ENGINE CONVERSIONS

GENERAL INFORMATION:

Engine conversions for offroad vehicles are popular with both old & new models. We have been involved with engine and transmission conversions for more than 30 years and are not surprised when we see a new vehicle with less than 10,000 miles having an engine swapped. Since you are venturing out beyond the boundary of the corner gas station and local repair shop, you should be aware that offroad driving is quite different than street driving. Once you pull onto a dirt road, your vehicle must be capable of returning you and your passengers back to civilization. The best, single reason for an offroad 4WD engine conversion is reliability. If your 4WD cannot deliver this, then you're in serious trouble. Make sure that when making a change on your offroad vehicle it is done with the best equipment and design available. Don't short change your conversion for components that will give you less reliability.

There will always be situations where more power would be nice such as when towing a trailer, turning those big new tires, or falling short from the top of a hill. A common mistake of many offroad drivers is overpowering the existing drivetrain. If additional power is required and the stock transmission specifications and rear axle torque rating have been exceeded, then you might be required to use a stronger substitute. Jeeps have been equipped with several types and sizes of engines. In order to assist you, we have listed the various stock engines that were used in these years.

engine conversions (1941-79)

L134 4 Cylinder Engine "L"-head	(1941-53)
F134 CID 4 Cylinder Engine "F"-head	(1950-73)
230 Tomado	
232 CID Straight 6 Cylinder	(1972-78)
258/4.2L CID Straight 6 Cylinder	(1972-90)
225 CID V6 Engine	(1966-71)
327 AMC Rambler V8	(1965-68)
350 CID V8 Engine	(1968-71) Buick
304 CID V8 Engine	(1972-81)

ENGINE SELECTION:

Select a motor which best fits the use of your vehicle. We manufacture motor mounts, bellhousing adapters, headers, and transfer case adapters for Chevy, Chevy Vortec V8's, Ford, Dodge, Buick V6 & some AMC motors. Within these range of motors, every practical need can be met.

ENGINE LOCATION:

Many people become overly concerned about moving the transmission, resulting in driveshaft modifications. The value of a good engine location requiring driveshaft modifications will far exceed the expenses of an installation requiring special cooling due to poor engine location.

We design most transfer case adapters to eliminate driveshaft modifications (whenever possible). This normally pertains to the newer type Jeeps with the longer wheel base. In order to position your new engine, it is usually mandatory that the original engine mounts be removed from the chassis. When placing the new motor into the chassis, several factors determine the best possible location.



A. Firewall Clearance: Allow adequate clearance between the distributor & firewall. Be sure that the distributor can be removed easily. Make sure the engine can be worked on without having to remove it from the vehicle.

B. Front Axle Clearance: Check the oil pan and harmonic balancer for axle housing clearance. Double check the suspension clearance if bottoming out. Location of the motor mounts will require some vehicles to relocate their front axle snubber.

C. Hood Clearance: When the air cleaner is in position, will the hood still close? On certain applications, special low profile air cleaners may be required.

D. Driveshaft Clearance & Angularity: The front driveshaft should have sufficient clearance to pass the bellhousing and starter. When using a transmission other than what was stock, front driveshaft clearances may be an issue. On vehicles up to 1979, the drivetrain should be offset 1" to the driver's side to obtain additional clearance. The angle of the rear driveshaft is very critical, and compensation can be made by either axle shims or lowering the transfer case.

E. Steering Box Clearance: Most stock 4WD engines are offset to the driver's side 1/2" to 1" to line up the transfer case and differential yoke. On some new motors, this may cause interference with the stock pitman arm or the steering box. On early Jeeps retaining the stock steering, make sure the pitman arm and oil filter have clearance. On Jeeps manufactured before 1971, a popular alternative is to switch to Saginaw steering. We offer complete kits on upgrading your early Jeep to Saginaw steering.

1972-79 Steering Upgrade: Jeep replacement steering shafts, we carry heavy duty replacement steering shafts for Jeep 1972 to 1979. Jeep's original steering shaft assembly was not designed for the added stress of body lifts and oversize tires. We carry the Borgeson's replacement assembly's which have a telescoping shaft with two precision needle bearing u-joints. The steering assembly is easy to install with common hand tools. Once installed, you will experience much tighter and more responsive steering.

P/N 716867	72-75 CJ STEERING SHAFT MANUAL BOX
P/N 716868	72-75 CJ STEERING SHAFT POWER BOX
P/N 716869	76-86 CJ STEERING SHAFT MANUAL BOX
P/N 716870	76-86 CJ STEERING SHAFT POWER BOX

F. Radiator Clearances: Proper spacing and centering of the fan with the radiator is necessary for optimum cooling. If you are having a problem in this area, an alternative is an electric cooling fan. These fans are popular for engine conversions, since they can be mounted on the front or backside of the radiator and don't require engine placement considerations when using an engine-driven fan.

G. Front Crossmember Clearance: On Jeeps 1971 & older, the crossmember is located just ahead of the original engine. This may have to be removed or modified for additional clearance. These modifications may cause problems because the stock steering bellcrank is located on this crossmember. You have the option of replacing the existing crossmember with a new structural crossmember (to be located directly beneath the radiator). By doing this, you will be required to upgrade to a Saginaw steering system. A second option is to section the existing crossmember to provide ample clearance for the new engine, and re-gusseting this stock crossmember for strength. By retaining the original crossmember, you will be able to retain the original Jeep steering linkage. We feel the best solution is to remove the existing crossmember and add Saginaw steering.

H. Exhaust Manifold/Header Clearance: If headers are planned for the vehicle, it is best to purchase them before the installation of the engine. Although we make headers for several different applications, a perfect fit can never be guaranteed. When locating the engine, have the headers or stock manifolds in place and check the following for clearances: firewall, brake & clutch pedals through travel, steering box or linkage, body & frame, heater/defroster, and battery. When placing the engine into position, be sure and have your engine exhaust system mounted on the engine. This ensures all proper clearances are maintained.

I. Oil Filters: Oil filters can be a real problem especially on Ford conversions. The filter on Ford engines is located up front on the driver's side, and this can interfere with the stock steering or suspension components. If additional clearance is needed, we suggest a remote oil filter. We offer remote oil filter kits for most engines.

J. Motor Mount Installation: The motor mounts we manufacture are designed for specific applications, along with some universal applications. Some are a bolt-in style, while others require welding. The universal mounts are designed to fit a variety of frame widths. The channels that extend to the block are drilled in 1" increments, allowing choice of engine placement. In some applications, you may be required to elongate one or both sides of these mounts for bolt hole alignment. Early Jeeps with a channel frame should box-in their frame to provide a good, strong mounting surface.

"L" brackets on weld-in mounts should be welded entirely around the perimeter. All welding should be done by a certified welder. When using a double donut design mount, make sure that the donuts properly index to the "L" bracket and the bolts are properly tightened. Mount bolts should be checked periodically.

Once the engine has been selected, you will now need engine mounts. We offer several combinations that will fit Ford, Chevy, Dodge, and Buick blocks. On most Ford and Chevy applications, we standardize our mounts by using a special dual rubber donut, locked together with special hardened bolts. This combination offers a positive means of securing the engine for the most severe offroad conditions.

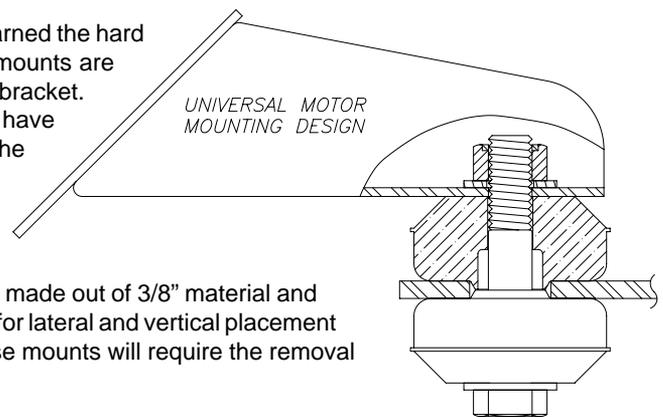
Most of our mounts are universal and can be adjusted to accommodate the best possible engine location, while others are very specific and offer no alternate for changes. Our Universal Chevy and Ford side mounts are the most popular style for Jeep and Scout engine conversions. The mounts are furnished so that they can be either welded or bolted into position, and are fully adjustable so that the engine can be offset.

The universal mounts are now available in two styles; one for the Jeep Universals, and one for the wider framed vehicles that will fit up to 30.500" frames. We also offer a saddle-type mount for Chevy engine conversions that works well for vehicles with frames from 25" to 30". In the Buick V6 category, we have a weld-in kit that places the V6 engine in Universal Jeeps (up to 1979) identical to the stock position used by AMC. These mounts use stock V6 rubber mounts and are very heavy-duty. We also offer a universal Buick V6 engine mount that utilize our double donut design and is fully adjustable, similar to the Chevy and Ford engine mounts. This mount is [Part No. 713011](#), and does not require the use of the original Buick V6 rubbers.

In conjunction with all engine mounts, you will need to use a rear crossmember mount. This is usually the same mount with a new location adjusted to the new engine position. Two mounting points are all that is ever required with most installations. This will allow for plenty of engine flexibility and will eliminate transmission and engine vibrations.

We have been doing engine conversions for over 34 years. We've learned the hard way to count only on top-quality & proven design installations. Our mounts are secured with a 5/8" diameter bolt between the engine brace and frame bracket. No rubber vulcanization failure will let you down. To assure that you have the premier engine mounts that we offer, make sure our name is on the box. **Do not accept look-a-like takeoffs.** We are the "4-Wheel Drive Experts" and have the quality to prove it.

Universal Motor Mounts: The universal mounts we manufacture are a high quality mounting system. The "L" brackets in these kits are made out of 3/8" material and designed to handle any style of driving. These universal mounts allow for lateral and vertical placement in the frame rail to maximize your drivetrain fit. The installation of these mounts will require the removal of your stock engine mounts.



Chevy V8:

- [P/N 713001](#) - 1941-1971 Jeep Universal Chevy V8 motor mounts
- [P/N 713007](#) - 1972-1979 Jeep universal and Jeep Wagons/Trucks Chevy V8 motor mounts
- [P/N 713005](#) - 1941-1979 Jeep universal and Jeep Wagons/Trucks Chevy V8 LT1 motor mounts
- [P/N 713088](#) - 1976-1979 Jeep CJ7 Chevy V8 Gen III & LS1 motor mounts

Ford V8:

- [P/N 713002](#) - 1941-1971 Jeep Universal Ford small block V8 motor mounts
- [P/N 713006](#) - 1972-1979 Jeep universal and Jeep Wagons/Trucks Ford small block V8 motor mounts

Buick V6:

- [P/N 713011](#) - 1941-1979 Jeep universal and Jeep Wagons/Trucks Buick V6 motor mounts

Dodge V8:

- [P/N 713095](#) - 1972-1979 Jeep universal and Jeep Wagons/Trucks Dodge V8 (318/360) motor mounts



Stock Rubber Support Motor Mounts: We also offer motor mounts designed to utilize the stock engine rubber mounts. These type of engine mounts are a good alternative to the universal type if you need to replace a rubber support. Most auto parts stores can supply you with a stock rubber support. We offer only three mounting systems this way; one for the Chevy block, one for the Buick and one for the AMC V8 engines.

- P/N 713089 - 1976-1979 Jeep CJ7 bolt-in Chevy V8 motor mounts
- P/N 713003 - Weld in CJ Jeep Buick V6 motor mounts (rubber mounts not included)
- P/N 713120 - 1941-1979 Jeep universal and Jeep Wagons/Trucks AMC V8 (304/360/401) motor mounts



P/N 713089

Advance Adapters "Off Road" Mounts: We now carry "Off Road" series motor mounts for the hard core 4-wheel enthusiast. These mounts are a weld-in design that use a horizontal neoprene isolator. These mounts are designed to handle the abuse of the roughest type of trail.

- P/N 713200 - CJ5 & CJ7 GM V8 Mounts
- P/N 713202 - CJ5 & CJ7 AMC V8 Mounts
- P/N 713204 - CJ5 & CJ7 Small Block Ford Mounts



P/N 713204



P/N 713202



P/N 713088



Body Lifts
P/N 714455 -
Jeep 76-79 1" body lift



713089 passenger side mount.



Universal Chevy mount being installed.



Universal Chevy mount final installation.



When mounting the block into a Jeep, it is recommended to remove the grille and fenders for ease of installation.

1941-79 JEEP EXHAUST

We design & manufacture our own header systems to complement the engine conversion business. We started manufacturing custom headers about the same time we started manufacturing adapters. There was a definite need for headers that would fit the various engine conversions. Through the years, our designs have evolved into header applications that were most typical. Our header systems are for non-pollution control, engine converted vehicles.

If your vehicle is going to be smog legal, you will need to retain the original manifolds. Stock manifolds will work equally as well on engine conversions; however, stock manifolds will sometimes create a clearance problem around the steering mechanism.



Most stock manifolds will require the exhaust system to be routed on the inside of the frame rails, while most headers will carry the exhaust on the outside of the frame rails. We offer both fenderwell & inside-the-frame rail headers.

When doing an engine swap, the exhaust system must be given consideration before finalizing the exact engine location. **If headers are going to be used, we highly recommend that you bolt the new headers to the engine before determining the final engine location.** If you don't have the headers on the engine while positioning the engine, there is a good chance the headers may not fit properly.

The fenderwell headers that we manufacture are designed for a minimum amount of fenderwell and firewall modifications. On square fender vehicles such as the CJ2A and round fender Jeeps, the headers can be installed with only minor trimming of the lower fender skirting. These modifications will vary depending upon the actual engine location. On this style of headers, the driver's side header will go over the existing steering assembly on Jeeps up through 1975, and an under the steering assembly on Jeeps 1976 & newer.

Jeeps equipped with the early style steering boxes that are mounted directly at the bottom of the steering column will find a definite advantage using fenderwell headers over stock manifolds. Stock manifolds will require the engine to be located towards the passenger side, while headers will permit the engine to be located towards the driver's side. This allows for additional front driveshaft clearances around the Chevy starter motor.

When using headers on a new engine conversion, you will find that the headers do not offer the accessory mounting provisions that are found on stock manifolds. It may be necessary to fabricate special brackets for the air conditioner, power steering, and alternator supports.

The chrome headers we offer are not show quality, but are a commercial grade of chrome that will protect the headers from corrosion. The availability of the chrome headers is becoming limited due to the availability of chrome plating facilities on the West Coast. The alternative to chrome is a plain non-plated header set furnished to the customer for his own application of finish. The header can be painted by the consumer using a special heat paint available in most auto parts stores.

STOCK MANIFOLDS:

If stock manifolds are being used on a Chevy small block, a rear dump, close-fitting manifold off of a 1982 & newer low performance car is a good option. On vehicles that are smog exempt (depending on your vehicle year or state laws), the early Chevy ram horn (centerdump) manifolds are great for most conversions.

Chevy V6 applications can use manifolds off of a 1978 Malibu Classic. For non-smog legal vehicles, manifolds off of a 1980 Monte Carlo fit the best.



HEADERS:

Our header flanges are 3/8" thick and all of our primary tubes are constructed with 16 gauge tubing with a 2-1/2" 3 bolt collector ring. Each design is available in either a commercial chrome finish or a non-plated version, ready for your painting or custom coating. *NOTE: Our headers are not designed to fit Chevy small blocks with angle port heads.*



Our *written guarantee* states that if the headers do not fit your engine conversion exactly as you see fit, then simply return them for a full refund. You will only be responsible for the freight charges. We do not warranty the chrome plating on our exhaust systems, and the use of aftermarket header wrap products **will void** the header warranty. Thirty-four years of continual fine tuning and adjustments have made the Advance Adapters headers a choice for all engine conversion installations.

SMALL BLOCK CHEVY HEADERS: The Chevy headers we offer come complete with header flange gaskets, header bolts, and collector rings for the exhaust shop. All headers can be ordered in a chrome finish or a non plated finish by adding a (NP) to the numbers listed below.

- P/N 717001 - Fender well header that fits Jeeps (CJ2A, CJ3B, MB, M38, M38A1, CJ5, CJ6)
- P/N 717035 - Fender well header that fits Jeep CJ5 1972-1975
- P/N 717038 - Fender well header that fits Jeep CJ7 1976-1986
- P/N 717010 - Inside the frame header that fits 1941-1986 Jeep Wagons
- P/N 717011 - Inside the frame header that fits 1941-1979 center dump Jeep Universal

SPECIAL HEADERS: We now offer universal headers like our 717011 headers that work with angle plug and D-port heads.

- P/N 717015 - Inside the frame header fits blocks with a std port head and angle plugs.
- P/N 717016 - Inside the frame header fits D-port heads with angle plugs.

CHEVY 3.8 & 4.3 V6 HEADERS: These Chevy V6 headers we offer come complete with header flange gaskets, header bolts, collector rings or clamps for the exhaust shop, and the collector gaskets. All headers can be ordered in a chrome finish or a non plated finish by adding a (NP) to the numbers listed below. 1-1/2" tubing is used on V6 headers.

- P/N 717019 - Fender well header that fits Jeeps (CJ2A, CJ3B, MB, M38)
- P/N 717002 - Fender well header that fits Jeeps (M38A1, CJ5, CJ6)
- P/N 717056 - Inside the frame header that fits 1941-1979 rear dump Jeep Universal
This universal header should not be used with manual transmissions.



GEN III CHEVY V8 HEADERS: The Chevy Gen. III headers are welded to a 3/8" steel flange. These headers use the stock flange gasket and metric bolts. We provide two collector rings for the exhaust shop and the collector gaskets. All headers can be ordered in a chrome finish or a non plated finish by adding a (NP) to the numbers listed below.

- P/N 717040 - Fender well header that fits Jeep CJ7 1976-1986
- P/N 717043 - Inside the frame header that fits Jeep CJ7 1976-1986 (1-1/2" tubing)

BUICK V6 HEADERS: The Buick headers we offer come complete with header flange gaskets, header bolts, collector rings for the exhaust shop, and the collector gaskets. All headers can be ordered in a chrome finish or a non plated finish by adding a (NP) to the numbers listed below. 1-1/2" tubing is used on V6 headers.

- P/N 717005 - Fender well header that fits Jeeps (CJ2A, CJ3B, MB)
- P/N 717020 - Fender well header that fits Jeeps (M38A1, CJ5, CJ6)
- P/N 717021 - Fender well header that fits Jeepsters 1966-1971
- P/N 717042 - Fender well header that fits Jeep CJ7 1976-1986

SMALL BLOCK FORD HEADERS: The Ford small block headers we offer come complete with header flange gaskets, header bolts, collector rings for the exhaust shop, and the collector gaskets. All headers can be ordered in a chrome finish or a non plated finish by adding a (NP) to the numbers listed below. 1-1/2" tubing is used on Ford V8 headers.

- P/N 717004 - Fender well header that fits Jeeps (CJ2A, CJ3B, MB, M38, M38A1, CJ5, CJ6)
- P/N 717003 - Fender well header that fits Jeeps (CJ2A, CJ3B, MB, M38, M38A1, CJ5, CJ6)
- P/N 717034 - Fender well header that fits Jeep CJ5 & CJ7 1972-1986
- P/N 717012 - Inside the frame header that fits 1941-1979 center dump Jeep Universal

CONVERSION APPLICATION SUMMARY

JEEPS 1941-79

This section reviews some of the most common conversions that we deal with. The information is comprised from 34 years of conversion experience, along with the valuable input we received from our customers. If you find any of this information outdated or incorrect, please let us know. The information you provide may be useful in assisting others in the future.

1946-64 JEEP UNIVERSALS:

The Jeep Universal models CJ2A, M38, M38A1, CJ5 & CJ6 are popular vehicles for engine and transmission conversions. The original T90 3 speed transmission can be retained, but will require changing the front input shaft. Since most of these vehicles were originally equipped with a 4 cylinder engine, the clutch spline size and length will need to be increased for use with the new engine. This new input shaft, Warner Gear #906203, is available only in an 18 tooth gear design. There are a few Jeeps that will require the cluster gear change in order to use this new input gear. We stock this input gear under [Part No. 716014](#). The adapter plate is 2-5/8" thick and can be used with a standard car-type bellhousing. When selecting the bellhousing, you will have the option of either a 12-7/8" or 14" inside diameter. If the smaller bellhousing is selected, then you will need to use the 153T flywheel. If the larger bellhousing is selected, then you will need to use the 168T flywheel. Driveshaft modifications and transfer case relocation is normally required when replacing 4 cylinder engines. The stock steering mechanism can be retained, and the clutch linkage can either be modified or substituted with our chain control kit. The exhaust systems can be either stock manifolds or the A/A header systems. The engine location must be offset 1" towards the driver's side of the vehicle to allow for front driveshaft clearance around the starter motor. The engine must be kept as high as possible to allow for this front driveshaft clearance. On square fender Jeep installations, you may be required to modify the firewall for distributor clearance. The radiator will need to be increased in size and possibly remounted so that it is flush with the front grille. The original front crossmember that the steering bellcrank is mounted on can either be removed or sectioned for clearance for the new engine oil pan. The use of our Saginaw steering conversion kits will eliminate the need of the stock steering bellcrank. If the original crossmember is going to be removed, it should be replaced with a new crossmember directly beneath the grille area. The transfer case is a Dana Model 18, and we offer numerous optional transmission-to-transfer case adapters. If your T90 is in marginal condition, we suggest that you consider using an optional OEM type transmission.



conversion application summary (1941-79)

A. Transmission Assembly: If you have decided to keep the T90 transmission, it should be completely disassembled and inspected for any worn parts. It is recommended that new bearings and transmission synchronizer rings be installed. The adapter kit is provided with a new front bearing retainer that bolts directly to the front of the T90 transmission. The seal inside the retainer will need to be positioned directly over the ground surface of the new input shaft with the open side towards the transmission. Some stock input shafts were designed with the seal located further out on the input shaft. This particular design will periodically have seal failure, which is caused by the rough unfinished seal surface beneath the seal location on our new retainer.

B. Transfer Case Assembly: Whether you are retaining the T90 or installing a new transmission, you will need to remove the Dana 18 transfer case. At this time, you should inspect the transfer case for any excessive wear. The intermediate shaft in the transfer case is probably overdue for new bearings and a new counter shaft.

C. Engine Location: The engine must also be offset 1" towards the driver's side of the vehicle. This offset is limited to the clearance between the stock manifold and original steering box. This offset will allow additional driveline clearances for the front driveshaft. The engine mount brackets can be either welded or bolted into position. We recommend trial fitting the engine position prior to final assembly. Things to take into consideration are height of engine, distributor, and radiator clearance. On most early Jeeps, slight firewall modifications are required.

D. Crossmember Support: With the engine centerline being offset, you must now move the transmission and transfer case support towards the driver's side by an equal amount. This can be accomplished by either moving the mount over on the existing crossmember, or by trimming the necessary amount needed on the driver's side and rewelding it to the passenger side. Make sure that all welds are gusseted for maximum strength. Since driveline modifications are normally necessary, the transfer case and crossmember support will also need to be relocated on the frame rails. You will need to drill new mounting holes on your frame to reposition the crossmember support.

E. Clutch Mechanism: We recommend the GM cast iron clutch release lever for all Jeep conversions. It may be necessary to shorten the lever if the stock brake master cylinder is still being used. The clutch linkage between the transfer case and frame

rail will need to be modified, since the transfer case is now closer to the frame rail. The linkage rod between the torque tube and the release arm will also need to be modified due to the new transfer case position. When using our chain clutch controller, all of these modifications are eliminated.

F. Brake Pedal Modifications: When offsetting the engine towards the driver's side more than 1", you may be required to modify the break pedal arm that extends through the floorboard. This arm will come in contact with the bellhousing, and the only solution is to heat and bend the arm for the necessary clearance. An optional solution is to install the overhead dual swinging pedals, [Part No. 716117](#). These swinging pedals are available in double applications only.

G. Front Crossmember: We feel it is beneficial to remove the existing crossmember and replace it with a new support directly underneath the grille. The stock bellcrank will need to be remounted onto the new crossmember support. By removing this crossmember, you will find additional clearances necessary for the engine oil pan and larger radiator. The new crossmember can be either structural tubing or angle iron. If Saginaw steering is going to be used, then the bellcrank located on the stock crossmember can be eliminated. On certain models of military Jeeps, you will find the stock steering box to be slightly larger than one found on the late model CJ5s. These boxes will create additional clearance problems and should be converted to either the later model CJ5 design or to a Saginaw steering conversion.

1972-1975 JEEP CJ5:

We offer a complete product line for Jeeps 1972-75, that are going to be changed to either a Ford or Chevy V8 engine. If you are retaining the stock transmission, the conversion is fairly simple since the transmission & transfer case can remain in the stock location. Both the 3 and 4 speed transmissions can be used with the new engines. Before you purchase the conversion components, make sure you identify which transmission your vehicle is equipped with. The T15A was used from 1972 to 1975. The 4 speed transmission used with the straight 6 cylinder engine was referred to as the T18 transmission.

When using the T15A or the T18 transmission, a standard Chevy bellhousing can be used with this conversion. When selecting your bellhousing, you must measure the inside diameter to determine what size of clutch can be used. In order to use an 11" clutch, you must have an inside diameter of 14". The adapter index to the bellhousing is 4.686" (Chevy), and 4.848" (Ford). If a Chevy bellhousing with a 5.125" is used, you can add our index spacer ring to the retainer [P/N 716078](#).

A. Optional Transmissions: The stock transmission can easily be replaced by using various types of Ford or Chevy transmissions. The adapters available for your transfer case are listed in the front section of this brochure. The transmission selection includes truck 4 speeds, car 4 speeds, and various automatic transmission adapters.

B. Stock Transmissions: If you are retaining the stock 3 or 4 speed transmission, neither application will require disassembly. The clutch spline on both transmissions is a 1-1/8" 10 spline. We recommend a new clutch disc when retaining your stock transmission. **DO NOT ATTEMPT TO REUSE THE ORIGINAL CLUTCH DISC.**

C. Clutch Linkage: The stock clutch linkage on these vehicles can be easily adapted to the Chevy V8 engine by positioning a clutch pivot location on the driver's side of the engine block. We offer [P/N 716638](#), which is a plate that bolts to the engine block directly above the oil filter and provides a multiple hole location necessary for remounting the stock clutch linkage. The new bracket is supplied with a male ball stud and new nylon bushings for the original linkage. The stock linkage can also be completely replaced by using chain controller [P/N. 716639](#).

D. Exhaust: There are two Chevy V8 header systems that could be used on these conversions. [Part No. 717011](#) offers the exhaust system inside the frame rails, while [P/N 717035](#) offers the exhaust system outside the frame rails. Outside-the-frame rail headers will offer much more performance due to the length of the tubing used. These headers are not compatible with Nerf bars. Only minor modifications are required to the fender skirting. It is a good idea to have these headers installed on the engine prior to final engine positioning.

E. Radiator: The original radiator can be retained in the stock location. The inlet and outlet positions will need to be changed to match the new engine. An optional electric fan could be installed on the front side of the radiator for additional cooling.

F. Driveshafts: On Chevy V8 engine conversions, the driveline lengths can be retained without modifications when retaining the stock transmission. When upgrading to a new transmission, driveline modifications are normally required.

G. Engine Location: The main limiting factor when positioning the engine is firewall clearance. On Chevy engines, it is crucial to allow proper clearance for the distributor cap. To locate your engine (retaining the stock transmission), leave the transfer case in the original location and assemble the transmission, bellhousing, and engine forward from this location. When changing transmissions, locate the engine and work towards the transfer case. Areas to keep under consideration are firewall, radiator, and hood clearances. On some applications, additional clearance can be obtained with firewall modifications; or on Chevy blocks, using a smaller distributor cap. When installing a new transmission & engine, most applications will require the engine to be offset 1" to the driver's side for front driveshaft clearance.

1976-79 JEEP CJ5 & CJ7:

When retaining the stock transmission with either a Ford or Chevy engine, the conversion is fairly simple. The transmission and transfer case can remain assembled and in the stock location. The 3 speed transmission used in these vehicles was referred to as a T150. Before you purchase the adapter plate, you should verify if your vehicle is equipped with the T150 3 speed transmission. The 4 speed transmission used was referred to as the Jeep T18 transmission.



When using the T150 transmission with a Chevy engine, you will have the option of using the Advance Adapters full bellhousing, [P/N 712548](#). This bellhousing will accept the stock transmission without modifications, and all the original clutch linkage can be retained. If a GM bellhousing is going to be used, adapter plate [P/N 712527](#) will be required. This adapter kit will require a Chevy bellhousing that has the 4.686" transmission index diameter. You have the option of using the larger bellhousing with the 5.125" transmission index. You can add our index spacer ring to the retainer [P/N 716078](#). A Ford conversion does not require any adapter. The T150 transmission has the same bolt pattern and index diameter as a standard Ford transmission.

When using the T18 transmission, there are various input shaft lengths to consider. Most of these 1976-79 Jeeps used a 7-1/2" input shaft. When converting to a Chevy engine, adapter plate [P/N 712528](#) is necessary. This adapter plate comes with a 4.686" index retainer. For a Ford engine, [P/N 712529](#) will be required. This adapter plate comes with a 4.848" index retainer.

A. Optional Transmissions: The stock transmission can be easily replaced by using various types of Ford or Chevy transmissions. The adapters available for your transfer case are listed in the front section of this brochure. The transmission selection includes truck 4 speeds, car 4 speeds, and automatics. The transfer case used in these Jeeps was a Dana 20.

B. Stock Transmissions: The T150 transmission used a 1-1/16" 10 spline input shaft (same as Ford). The Jeep T18 used a 1-1/8" 10 spline (same as Chevy). Refer to the Clutch Section Chart for proper components. **DO NOT ATTEMPT TO REUSE THE ORIGINAL CLUTCH DISC.** If you are retaining your T150 transmission with a Ford engine, you will not need to use an adapter plate. The stock T150 will bolt directly to the standard Ford bellhousing that has a transmission index diameter of 4.848". **Caution should be given to the tip of the T150 transmission extending too far inward and bottoming out into the Ford engine crank.**

C. Clutch Linkage: The stock clutch linkage can be easily adapted to the Chevy engine by positioning a clutch pivot location on the driver's side of the engine block. We offer [P/N 716638](#), which is a plate that bolts to the engine block directly above the oil filter and provides a multiple hole location necessary for remounting the stock clutch linkage. The new bracket is supplied with a male ball stud and new nylon bushings for the original linkage. If you are using the 712548 bellhousing, the stock Jeep pivot bracket can be retained with only minor modifications. The stock linkage can also be completely replaced by using the chain controller, [Part No. 716639](#). On Ford applications, we do not offer any brackets to assist in the connection of your stock clutch linkage. Some fabrication is required.

D. Exhaust: There are two header systems that could be used on these conversions. For the Chevy V8 conversions, [Part No. 717011](#) headers offer the exhaust system inside the frame rails, while [P/N 717038](#) offers exhaust systems outside the frame rails. On Ford V8 conversions, we offer [P/N 717012](#) inside-the-frame rail headers, or [P/N 717034](#) outside-the-frame rail headers. Outside-the-frame rail headers will offer much more performance due to the length of the tubing used. It is recommended that exhaust headers be test-fitted **BEFORE** final engine location is determined.

E. Radiator: If the original engine was an AMC V8, the original radiator can be retained. The inlet and outlet positions will need to be modified to match the new engine. Vehicles that were equipped with the 6 cylinder should look at upgrading to a higher cooling capacity radiator.

F. Driveshafts: On V8 engine conversions retaining the stock transmissions, the driveshafts should not require modifications. When upgrading the vehicle with a new engine & transmission, driveline modifications should be expected.

G. Engine Location: The main limiting factor when positioning the engine is firewall clearance. On Chevy engines, it is crucial to allow proper clearance for the distributor cap. To locate your engine (retaining the stock transmission), leave the transfer case in the original location and assemble the transmission, bellhousing, and engine forward from this location. When changing transmissions, locate the engine and work towards the transfer case. Areas to keep under consideration are firewall, radiator, and hood clearances. On some applications, additional clearance can be obtained with firewall modifications; or on Chevy blocks, using a smaller distributor cap. When installing a new transmission & engine, most applications will require the engine to be offset 1" to the driver's side for front driveshaft clearance.

1974-79 JEEPS WITH TH400s:

In the early 1970s, Jeep started to use the AMC TH400 automatic transmission. The transmission case was first used with a circular bolt pattern that was equipped with a cast iron spacer ring. The spacer ring was approximately 2" wide and was used to adapt the special AMC TH400 case to two different types of V8 engines; the 304 V8 and the Buick 350 V8. In 1974, AMC redesigned the transmission case to eliminate the special adapter ring. The case simply bolted direct to the 304 V8. The transfer cases used in both these transmission variations were the Dana 20 and the Borg Warner Quadra-Trac. The internal components of these transmissions are interchangeable with the GM TH400. The TH400 output shaft was 10 spline when coupled to the Quadra-Trac, and could only be used with the Quadra-Trac transfer case. The TH400 output shaft for the Dana 20 transfer case was very similar to the GM short shaft TH400, with exception of the "O"-ring that sealed the inside diameter of the sleeve. Chevy V8 conversions equipped with these transmissions have been very popular for these vehicles.

A. Stock Transmissions: If the original AMC TH400 transmission is mounted directly to the 304 V8 engine block without the use of a special adapter plate, then you can use [P/N 716133](#). If your transmission is equipped with the spacer plate, then you will need to replace the transmission case with a Chevy case. In either application, you will need to use the Chevy flexplate and eliminate the original AMC flexplate. On some of the early model applications, if the stock torque converter was mounted to the flexplate with 5/16" diameter bolts or has an AMC 360 engine, the torque converter will need to be replaced with another AMC TH400 or GM torque converter.

B. Transmission Linkage: The original column shift control linkage for the transmission can be retained or an optional floor shifter can be added. The transmission should remain in the original location, so no modifications to the stock linkage should be required.

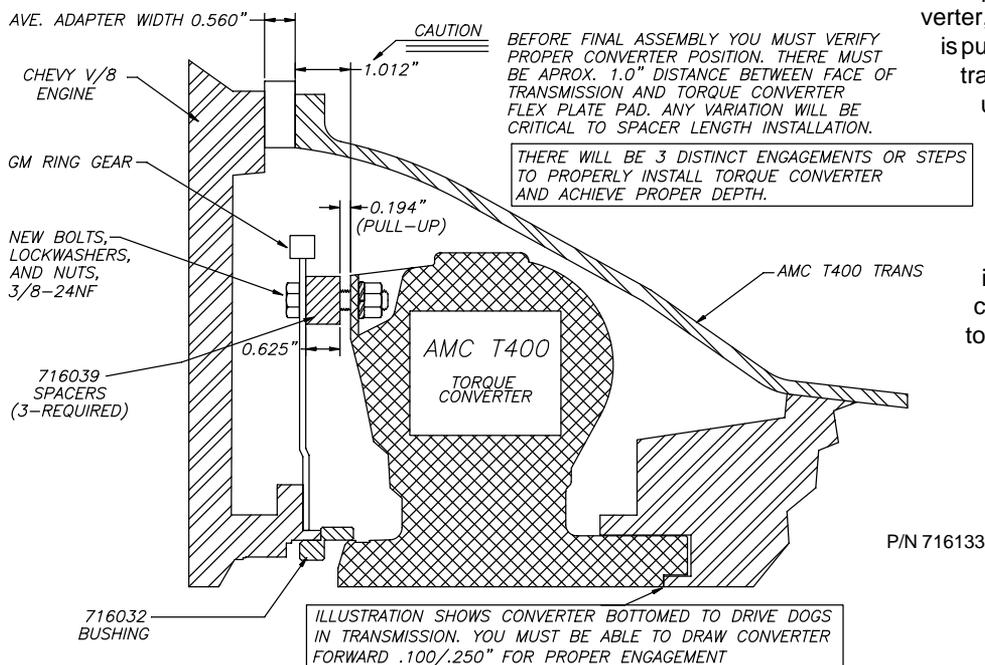
C. Radiator: The original radiator can be retained in the stock location. The inlet and outlet positions will need to be changed to match the Chevy engine. An optional electric fan can be installed on the front side of the radiator for additional cooling.

D. Driveshafts: On Chevy V8 engine conversions, the drivelines can be retained without modifications. The main limiting factor is positioning the engine so that the Chevy distributor cap has sufficient clearance with the firewall. To locate your engine, leave the transfer case in the original location and assemble the transmission and adapter plate forward from the transfer case stock location. Additional clearance for the distributor cap can be obtained by using a standard point-type distributor.

E. New Transfer Case: The Quadra-Trac transfer case has the rear output driveshaft located on the passenger side of the vehicle. We have had several customers change the transfer case to the Dana 18, which also has the rear output shaft located on the passenger side. If changing to the Dana 18 transfer case, you will need to purchase transfer case adapter kit [P/N 50-1300](#). If a Dana 20 transfer case is going to be used, you will need to change your rear axle to a centered design and use [P/N 50-0500](#) or [P/N 50-1300](#). Part No. 50-0500 is a copy of the original Jeep Dana 20 adapter kit, however, these parts are not interchangeable with the stock parts. When using this kit, you will need to purchase a new input gear for your transfer case.

F. Flexplate: When installing a Chevy V8 engine to your AMC TH400, you will need to purchase a new flexplate. GM flexplates are available in either a 153 tooth or 168 tooth gear count. The bolt pattern will match the original Jeep torque converter. When installing

the flexplate to the original Jeep torque converter, you must make sure that the converter is pulled forward approximately 1/8" to avoid transmission pump damage. You must use the spacers provided in the kit between the flexplate and converter. These spacers will properly locate the converter. Each adapter kit is furnished with a new torque converter crank support bushing. This bushing is installed in the back of the engine crank for support of the nose of the stock torque converter.



AMC 401 ENGINE SWAPS:

The 401 AMC engine swap is an easy alternative to the Chevy & Ford engine conversions. Between the years of 1972 and 1979, Jeep used the 304 V8 engine and the 258 6 cylinder engine as standard equipment. The engine block bolt pattern on both of these engines is identical to the 401 AMC V8. The 401 V8 conversion can be performed with off-the-shelf parts. On Jeep vehicles 1976 & newer, the stock bellhousing that was used on the 6 cylinder or 304 V8 engines can be retained when changing to the 401 engine. The wiring harness, clutch linkage, and other key components can also be retained. The drivetrain of the CJ will take the increased power, provided it's not abused.

The AMC 401 engine has been around since late 1971, and its use has been on a decline since its introduction (except for police or high performance versions). In 1976, the 401 was offered in California only in Cherokee and Jeep pickups.

A. Stock Transmissions: The stock transmission can be retained without modifications. The original bellhousing used with the manual transmission & Torqueflite automatic will bolt directly to the 401 engine.

B. Bellhousings: As mentioned above, the 401 has the same bolt pattern as the 304 & 258. An exception to this is a 401 block that was originally equipped with an automatic transmission. On these engines, the very top hole that receives the bellhousing bolt may not exist on the engine block. The engine block has sufficient material that will provide an area to drill & tap a new hole. The conversion will fit without adding the new tapped hole, but you will only be using a total of six bolts instead of the normal seven.

C. Clutch Assembly: The 10-1/2" stock clutch should be replaced with an 11" clutch assembly. If the 401 engine was from an automatic transmission application, you will then be require to purchase a new Jeep flywheel, Jeep# 3212655. The original clutch release bearing can be retained. The pilot bushing can also be Jeep# 3213751. This will vary depending on which transmission is going to be used. This particular part number will fit the T18 Jeep transmissions.

STOCK JEEP CLUTCH PARTS:

3184955	10-1/2" Jeep Pressure Plate
3184867	10-1/2" Jeep Clutch Disc.
3212655	10-1/2" Jeep Flywheel
3213751	Jeep Pilot Bearing

D. Radiators: The original 6 cylinder 2-core radiator will not be acceptable for the new engine. A 3-core radiator used with the 304 V8s is acceptable for the 401 conversion.

E. Driveshafts: The original driveshafts and transfer case location can be retained. The only time you will need to change the drivelines will be when you are changing the transmission or transfer case location.

F. Alternator: A Delco or Motorcraft alternator unit will not fit the older 401 block. Minor bracket and spacer modifications will be necessary to get the newer alternator to fit.

G. Motor Mounts: We offer a motor mount kit, [P/N 713120](#). This kit will adapt the 304, 360, and 401 V8 engines into the Jeep Universal vehicles. The engine mounts come complete with block mounts, frame brackets, and rubber insulators. These mounts require welding.

Windshield Latches



The CJ5 & CJ6 Jeep vehicles (up to 1978) always had a problem with the stock windshield. They had a tendency of loosening up and falling forward.

We remedied this problem by designing aluminum castings that would replace the stock dash & windshield brackets. This kit is available with a polished aluminum finish and are directly interchangeable with your stock latching mechanism.

[Part # 716127](#)



SAGINAW STEERING CONVERSIONS

The Saginaw steering conversions for these vehicles is a proven advantage simply because they allow you to have better control of your vehicle both on and off the highway. The problem with stock steering on these vehicles is excessive play or backlash. In addition to offering a sound positive means of controlling your vehicle, it can be performed at a reasonable cost. Additional advantages include exhaust clearance, engine positioning, and custom steering columns. **These kits fit Jeep vehicles only.**

Before you consider this conversion we recommend that you thoroughly read and understand the complete installation procedure. **Do not take shortcuts on steering installations.** We recommend that these conversions be installed by a qualified technician. The control of your vehicle depends on your steering performance. Failure of your steering system can result in severe damage and possible injury.

SAGINAW STEERING KITS:

Most Jeep vehicles had basically the same stock configuration. It is simply a gear box at the base of the steering column which controls a drag link towards the front of the vehicle. The bellcrank is mounted on the front crossmember or axle and uses a push-pull affect for steering. Because there are many motions and joints on this system, excessive free play and backlash develops.



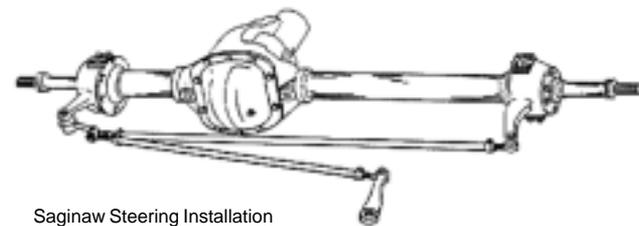
The Saginaw steering system requires the elimination of the stock gear box and bellcrank. The new steering box is mounted on the inside of the left front frame rail, just behind the bumper. Although this sounds simple, there are several things that must be considered before the installation can be completed. Such things include:

Power or manual steering
Motor mount clearance on steering shaft

Steering column type
Tie rod size & length

Steering box location
Winch clearance

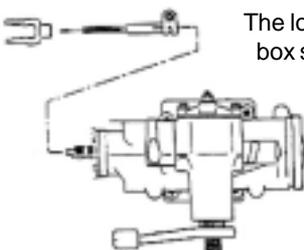
On engine conversions that are retaining the original steering box location, you will be locating the engine position as close as possible to the original steering box. When eliminating the original steering box, you will be able to offset the new engine 1" towards the driver's side in order to allow for additional front driveshaft and starter motor clearance. In 1971, Jeep changed their steering design to almost the exact same configuration as the kit that we offer. The difference between the original Jeep installation and our installation is mainly in the design of the mounting bracket for the steering box. Jeep also used a rag joint coupler between the steering box and driveshaft.



We offer a couple conversion kits. These kits are either power or manual steering conversions, and use either a Flaming River or Borgeson yoke design. None of these kits supply the steering box (manual or power), or steering pump and hoses (power applications). To help identify the kit necessary for your conversion, please consider the following information. **Note: Full steering kits should not be ordered when converting Jeep Pickups & Wagons, since special tie rods will be required.**

POWER & MANUAL STEERING BOX SELECTION:

Make sure the box that you select has the same basic configuration as the ones illustrated. Both Power & Manual boxes can be found in the 1960s and early 1970 GM cars, or Jeep vehicles 1972 & newer. The manual steering box must have a shaft stickout length of approximately 3" long, and the spline on the shaft approximately 1" long.



Power Steering Box

The location of the Saginaw steering box will require a spud shaft. This shaft couples and extends the steering box shaft into the engine compartment. Both Power and Manual boxes have two spline sizes that mate to our spud shaft. Our manual steering kits are supplied with a .730" dia. 30 spline spud shaft. If your steering box has .730" dia. 36 spline, **Part No. 716834-36** can be substituted. On power steering kits, we supply the most common spud shaft which is a .800" dia. 36 spline. On some of the newer Saginaw boxes, we have found them to have a .730" dia. 30 spline. **Part No. 716834-30** can be substituted.



Manual Steering Box

BORGESON / FLAMING RIVER:

These kits are the newest and most recommended style that we manufacture. The steering shaft assembly connects directly to our steering spud shaft. This collapsible slip steering shaft extends to the firewall and can be adjusted to any length. With a 3/4" DD connection (round shaft having 2 flat surfaces), it is easily coupled to any of the yokes supplied in the kit or listed under the Custom Steering Column subheading. These kits require welding on the steering box mounting plate, frame enclosures, and firewall mounting plate.

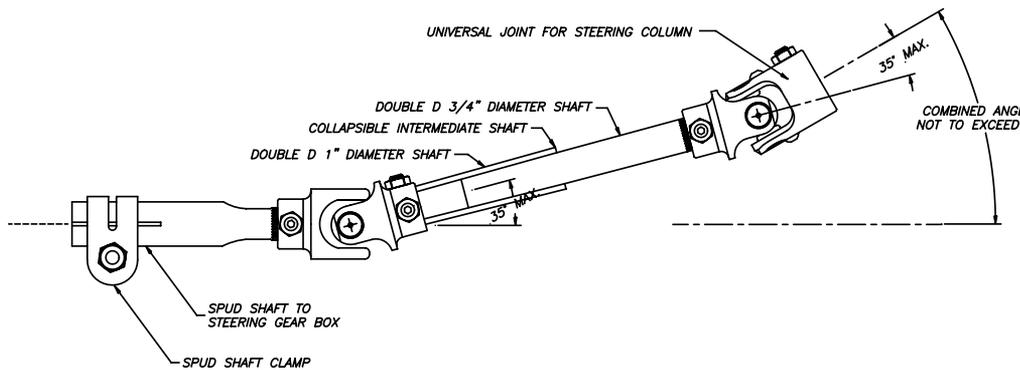
P/N 716805 - Jeep conversion kit, Manual Saginaw box

P/N 716806 - Jeep conversion kit, Power Saginaw box (shown)

P/N 716806A - Jeep conversion kit, Power Saginaw box

(does not include column yoke and steering spud shaft.)

(These kits do not include boxes or pumps)

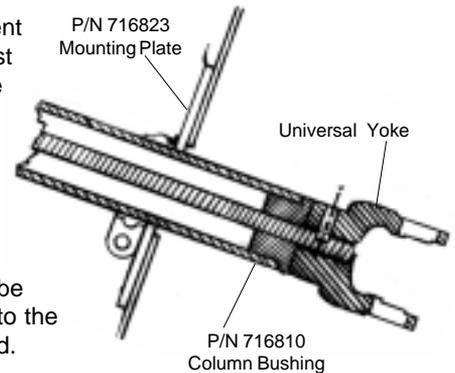


STEERING COLUMNS:

The stock steering column is the easiest option when installing the Saginaw steering. If you are planning to use a custom steering column, some fabrication will be necessary for mounting.

The stock steering column protrudes through the firewall and into the engine compartment where it enters the stock Jeep worm gear steering mechanism. The steering box must be disassembled so that the worm portion of the steering column shaft can be cut off. Once removed, the end of the shaft must be machined to fit the universal joint provided. The diameter of this shaft must be machined to fit a 7/8" (.875") universal joint.

After the shaft has been machined, the column can be reassembled with the modified shaft. To support the shaft in the center of the column, a bushing (P/N 716810) fits into the column housing with a precision fit on the shaft. Make sure the bushing and the shaft have sufficient clearance for easy turning. The column will then need to be assembled into the support plate. The new steering shaft bushing must be installed into the bottom of the steering column so that alignment and support of the shaft is maintained.



With the bushing in place, you can now install the universal yoke. Slip the yoke in position onto the shaft and firmly up against the bushing. Before tightening the set screw, have someone push the steering wheel downward. You will find that the column has a slight spring tension. Make sure that the tension will provide a slight pressure of the universal yoke against the bushing. We require the universal yoke installation to have a spot drilled in line with the set screw. **Failure to make each yoke installation as specified could result in the loss of control of the vehicle.**

Borgeson / Flaming River: Using the one set screw provided on the U-joint, tighten it down to the shaft until a mark or indentation is made on the steering shaft. Remove the U-Joint and spot drill 3/16" deep where the set screw mark is indicated. Reinstall the U-joint and tighten the set screw until it comes to a stop. Next, using the opposite hole on the U-joint as a pilot hole, drill a 5/16" hole through the steering shaft & the opposite side of the U-joint. Using the shoulder bolt provided, install and tighten with the provided lock nut. All of these threaded areas should be secured using Loctite. **Never weld on these steering U-Joint assemblies.**

CUSTOM STEERING COLUMNS:

Custom columns offer several distinct advantages. The advantages include locks, tilts, flashers, and custom vehicle appearance. However, they do create some problems and require careful consideration when mounting them to the floorboard and universal joint connection.

Borgeson / Flaming River: Universal joints are available to match nearly every style steering column available. The special spline size on some of the custom columns will require a new U-joint. We offer a wide selection of various sizes. The new universal joint is supplied with a mating connection that will fit the new 3/4" DD steering shaft. If a custom column is being used and you have already purchased the stock Jeep 7/8" diameter column yoke, you will then need to exchange your universal joint for the one that will be required on your installation. We offer special yoke assemblies to connect a custom steering column to our Saginaw steering components.

P/N 716848 - 1" 48 spline Universal yoke (GM columns)

P/N 716849 - 1" DD x 3/4" DD Universal yoke (GM and Ford)

P/N 716850 - 3/4" x 36 spline Universal yoke (GM and Ford)

(The dimensions represent the column side of these yokes only. The opposite side of these yokes is a 3/4" DD)

STEERING SHAFT:

The control shaft between the end of the column and the steering box spud shaft is defined as the steering shaft.

Borgeson / Flaming River: With each kit, we have provided a 3/4" DD shaft that has a length of 36", and a special U-joint pre-assembled to the bottom of the shaft. The shaft can be shortened to the necessary length for your installation. The new shaft assembly has a 3/4" DD end that will need to fit into the steering column universal joint. Use the same procedure to spot drill both of the set screws, and Loctite the connections with the two lock nuts. The lower connection has been pre-assembled with a special 2" slip connector. The lower portion of this universal yoke is supplied with a 36 tooth fine spline connector that will fit directly onto the steering box (.730 x 36) or AA spud shaft. Always use Loctite on the double set screws and lock nuts for all universal yoke connections. A special boot has been provided that can be installed over the lower U-joint assembly. This special boot will provide a weather protective seal on the universal joint assembly. P/N 716862

We have had request for steering shafts with different yoke ends, we now also offer a slip shaft without any yokes supplied. We have also increased the selection of yokes that we carry. This will allow you to custom configure a steering shaft for your steering needs. Always use Loctite on the double set screws and lock nuts for all universal yoke connections. P/N 716863

P/N 716844 - Universal Joint 3/4"DD X .800 36 Spline

P/N 716847 - Jeep column shaft 3/4" DD x 7/8"

P/N 716853 - Universal Joint 3/4" DD x 3/4" - 30

P/N 716843 - Universal Joint 1" DD X 7/8"

P/N 716845 - Universal Joint 1" DD X .3/4 - 36 Spline

P/N 716846 - Universal Joint 1" DD X .800 36 Spline

P/N 716854 - Universal Joint 1" DD X 3/4" - 30



ROUTING THE STEERING SHAFT:

Routing the steering driveshaft may seem simple, but care should be taken as to the actual routing. On some Jeep installations, it may be necessary to go directly through the motor mount. Routes may be adjusted by changing the angle of the steering box slightly, or by extending the universal yoke from the column bushing with a spacer. Before any final route is decided, be sure to allow for suspension travel and engine movement. On some conversions, a third universal yoke might be considered along with a bearing pillow block.

Manifold clearance on Jeeps with a stock 225 V6. The steering shaft can have some exhaust clearance issues on some Jeeps. One that was brought to our attention is the Jeep 225 V6 with a Saginaw steering swap. The steering shaft hits the stock manifold, two options for clearance would be switch to exhaust headers for the Jeep or switch to a Buick 231 1975 and newer rear wheel drive vehicle manifold.

FRONT CROSSMEMBER:

The early Jeeps used a bell crank mounted on the front crossmember, and this crossmember was originally located in the engine compartment. If an engine swap has been performed, we recommend installing a new crossmember located further forward, directly in line with the front grill. When installing the Saginaw conversion, this new crossmember will require an access hole that is roughly 2-1/2" in diameter to provide clearance for the steering spud shaft clamp. This access hole allows the steering spud shaft to extend through and into the engine compartment. In most cases, the front crossmember must be reinforced on both the top & bottom because of the diameter of the access hole.



STEERING BOX LOCATION:

The power steering box will require every bit of space between the bumper and front crossmember. It will usually require you to modify the lower flange of the front bumper by notching it for added clearance. The actual positioning of the steering box should be accomplished by bolting the box to the plate provided, and then temporarily clamping the plate and box to the inner frame rail until an ideal position is achieved. Make sure this position allows the steering spud shaft to extend through the front crossmember and into the engine compartment. Once in position, the plate must be completely welded to the frame. **Since this plate encounters extreme forces from the steering system, the welding of this plate should be done by a certified welder.**

We have provided a pair of 3/16" thick steel frame enclosures to box in both of your frame rails, providing a good base for welding the steering box mounting plate. The steering box mounting plate must have a solid surface for welding and positioning. The extra plate is simply supplied for boxing of the passenger side frame rail. On vehicles equipped with winches, it may be necessary to offset the winch bumper to allow for the steering box clearance.

When using either of the two mounting plates, [P/N 716826](#) or [P/N 716838](#), you will be required to have these plates welded onto your frame rail. Both plates are made of steel so that a good weld can be made. These welds should be made only by a qualified welder. Do not short change your installation with a poor quality weld of these mounting plates to your frame rail. The plates should be welded along the complete perimeter. We have included a special frame-to-steering mounting plate gusset, [P/N 716832](#), to provide additional support from the outside of your frame rail to the bottom of the steering box mounting plate.



SAGINAW STEERING BOXES:

Power and Manual steering gear boxes are very similar. We have already illustrated what the two boxes should look like. Normal applications were on GM cars, but a few other vehicles are also using the same boxes. The steering box must be able to mount on the inside frame rail of your vehicle, with the input shaft extending horizontally toward the firewall. This input shaft is normally not long enough to extend fully into the engine compartment to couple with the steering driveshaft. This is why we offer steering spud shafts to extend these steering input shafts. On occasion, we carry power steering boxes which are listed at the end of the steering section.

Power: Not all power steering boxes are the same. Beginning in the late 1970s, three different power steering boxes have been produced. Before this, they were all externally the same. The major difference to be concerned with is the input shaft diameter. The most common style has a major diameter of .800" 36 spline, but we've also seen a .730 diameter 30 spline. A smaller input shaft is sometimes found on power steering boxes in light midsize cars, which is not compatible with the spud shafts produced by Advance Adapters.

On power steering boxes, you will be required to use four bolts when using our mounting plate, [P/N 716838](#). The 4 bolts must be installed from the bracket side into the steering box. Some of the newer Chevy boxes come only with a 3 bolt mounting flange. This is similar to the manual steering boxes. [P/N 716838](#) will still work on these boxes. **DO NOT drill out the threads in the power steering box assembly.**

Manual: The manual boxes have variable input shaft lengths. The manual boxes that we recommend have an input shaft extending approximately three to four inches away from the main housing. The stock input shafts for these boxes can be found with a diameter of .730", and either 30 or 36 splines. The connection of this spud shaft to the input shaft is accomplished with a special clamp that locks these shafts together.

The manual steering boxes must be secured with a minimum of three socket head cap screws with high collar lock washers. The threads in the manual steering box must be drilled out for clearance of the 7/16" socket head cap screws so that the bolts can be installed through the steering box into the mounting plate.

TIE RODS:

Each of our kits include the necessary long & short tie rods for your conversion. The long tie rod connects the two front wheels, while the other connects the Pitman arm to the passenger side steering knuckle/center socket tie rod. Both tie rods are manufactured with both a right & left hand thread to assist in proper alignment. The Pitman arm that we have furnished with your kit has exactly the same taper that the Jeep tie rod ends have. Care should be taken for the proper fit of the tie rod end's taper and threads when installing into the Pitman arm. In some cases, it may be necessary to use two or three washers on the top side of the Pitman Arm so that the threads on the tie rod end will secure the proper taper fit. All tie rod ends must be secured with a castle nut and cotter pin. All tie rod-to-tie rod end connections must have a tie rod clamp installed with a bolt, lock washer, and nut. **We DO NOT find it acceptable to cut and weld the tie rods.**

PITMAN ARMS:

The steering box Pitman arms vary from power to manual, and are not interchangeable. The Pitman arm supplied in each kit is for use on vehicles that are not equipped with a suspension lift. If your vehicle requires a dropped Pitman Arm, then we suggest that you contact a suspension lift company. **We DO NOT find it acceptable to cut or bend our Pitman Arms.**

POWER STEERING PUMPS:

There are only a few pumps available and most are interchangeable. We recommend the purchase of the power steering pump and steering box as a pair if possible. For proper installation, special hoses will probably have to be made. The hardware for mounting the pump to the engine can be standard parts from Chevy & Ford engines. Stock 4 & 6 cylinder applications require you to fabricate or modify existing standard brackets. On occasion, we carry power steering pumps which are listed at the end of the steering section.

TURNING ANGLE ADJUSTMENT:

To avoid damage to the outer axle U-joints, it is advisable that you check the turning angle. The following is a list of the correct turning angles.

CJ2A, CJ3A	23 Degrees	CJ5	Up to Serial No. 57548-48284, 23 Degrees
CJ3B	Up to Serial No. 57348-35326, 23 Degrees	CJ5	After Serial No. 57548-48284, 27.5 Degrees
CJ3B	After Serial No. 57348-35326, 27.5 Degrees	CJ6	Up to Serial No. 57748-12497, 23 Degrees
		CJ6	After Serial No. 57748-12497, 27.5 Degrees

To adjust the turning angle stops, loosen the lock nut and turn the adjustment screw. On some early models, a secured weld will have to be broken. The adjusting screw is located on the axle tube near the knuckle housing. For further detailed information, refer to your vehicle service manual.

CASTER ADJUSTMENT:

The purpose of the caster adjustment is to provide steering stability, which will keep the front wheels in a straight ahead position. It also assists in straightening the wheels after making a turn. If the angle of the caster is found to be incorrect, correct it to the specifications given in your service manual. The correct angle is obtained by installing caster shims between the axle pad and the springs. If the camber and the toe-in are correct and it is known that the axle is not twisted, a check may be made by testing the vehicle on the road. Before road testing, make sure that the tires are properly inflated at the same pressure. If the vehicle turns easy to either side, but is hard to straighten out, insufficient caster for ease of handling is indicated. If correction is necessary, it can be accomplished by changing the shims between the spring and axle pads.

TOE-IN ADJUSTMENT:

Lift the front of the vehicle to raise the front tires off of the ground. Turn the wheels to the straight ahead position. Using a pencil or chalk, scribe a line in the center of each tire tread. The mark should circle the entire diameter of the tire. Measure the distance between the scribe lines at the front and rear of the wheels, using care that both measurements are made at an equal distance from the floor level. The distance between the lines should be greater at the rear than at the front by 3/64" to 3/32". To adjust, loosen the clamp bolts and turn the long tie rod with a small pipe wrench. The tie rod is threaded with right hand and left hand threads to provide equal adjustment at both wheels. **Do not overlook the retightening of the two clamp bolts.** It is a common practice to measure between the wheel rims. This is satisfactory providing the wheels run true. By scribing a line on the tire tread, a measurement is taken between the road contact points reducing error caused by wheel rim run out.

It is recommended to have the alignment done by a qualified technician.

STEERING COMPONENTS:

Although we manufacture and sell complete kits for Saginaw steering conversions, we do offer the individual components.

- P/N 716810 - Stock Jeep column bushing
- P/N 716812 - Tie rod clamp
- P/N 716814 - Spud shaft clamp
- P/N 716816 - Manual pitman arm
- P/N 716817 - Power pitman arm
- P/N 716819 - Center socket tie rod end
- P/N 716820 - Left hand thread tie rod end
- P/N 716821 - Right hand thread tie rod end
- P/N 716823 - Jeep column mounting plate
- P/N 716824 - Jeep frame enclosures
- P/N 716826 - Manual steering box mounting plate
- P/N 716829 - Jeep tie rod 22-1/2"
- P/N 716830 - Jeep tie rod 35-1/2"
- (custom tie rods can be made for longer lengths)
- P/N 716832 - Manual box mounting plate gusset
- P/N 716834-30 - Spud shaft .730" dia. x 30T (manual & power)
- P/N 716834-36 - Spud shaft .730" dia. x 36T (manual)
- P/N 716835 - Spud shaft .800" dia. x 36T (power)
- P/N 716837 - Jeep (Spicer) steering shaft 32"
- P/N 716838 - Power steering mounting plate
- P/N 716843 - Universal Joint 1" DD X 7/8"
- P/N 716844 - Universal Joint 3/4"DD X .800 36 Spline
- P/N 716845 - Universal Joint 1" DD X .3/4 - 36 Spline
- P/N 716846 - Universal Joint 1" DD X .800 36 Spline
- P/N 716847 - Jeep column shaft 7/8" x 3/4" DD
- P/N 716848 - Universal Joint 3/4" x 1"-48 GM
- P/N 716849 - Universal Joint 3/4 DD x 1" DD



- P/N 716850 - Universal Joint 3/4" DD x 3/4" - 36
- P/N 716851 - Universal Joint 3/4" DD X 3/4" DD
- P/N 716852 - Univ. Joint 3/4"-36 x 3/4" - 36
- P/N 716853 - Universal Joint 3/4" DD x 3/4" - 30
- P/N 716854 - Universal Joint 1" DD X 3/4" - 30
- P/N 716860 - Steering shaft support bushing
- P/N 716862 - Slip yoke steering shaft assembly
- P/N 716863 - Slip steering shaft (no yokes)

SAGINAW POWER STEERING BOXES & PUMPS

Both Power & Manual boxes can be found in the 1960s & early 1970 GM cars or Jeep vehicles 1972 & newer. We also carry new power boxes & pumps which are as follows.

We stock Saginaw power steering boxes from PSC and the TRITON. These steering boxes are ideal for the offroad enthusiast that uses their vehicle as a daily driver. These units use a large piston and have a 16:1 turning ratio. The valving is designed for a more firm and precise steering effort. This gives you more stability and control at highway speeds, and less oversteer offroad. These units also help stabilize larger tires giving the vehicle a more stable feel on the highway. The PSC boxes are new and the Triton boxes are rebuilt.

P/N 716881-P -PSC Saginaw power steering box with o-ring fittings
(.730 dia., 36 spline input shaft)

P/N 716882 - Triton Saginaw power steering box with o-ring fittings
(.730 dia., 30 spline input shaft)

We also offer a complement power steering pump from PSC. These pumps work well when combined with the steering boxes mentioned above. Larger cam packed with a larger rotor and vanes enables these pumps to flow 3.4 gallons per minute, and produce 1500 psi. The custom ported housing makes for less flow restriction, allowing the pump to run stronger and cooler.

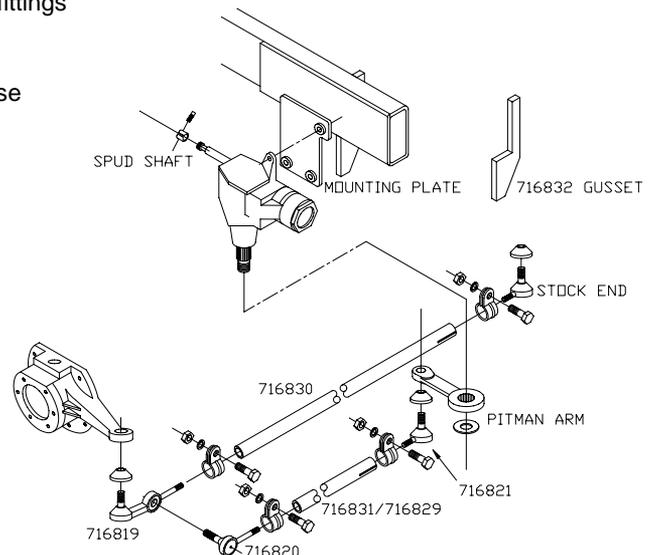
P/N 716885-P -Power steering pump w/ o-ring fitting, (does not include pulley)

P/N 716886-P -Power steering pump w/ o-ring fitting and remote reservoir, (does not include pulley)

P/N 716887-P -Power steering pressure hose kit for o-ring box

P/N 716888-P -Power steering return hose kit for o-ring box

P/N 716889-P -Power steering heat sink cooler kit



SATURN

Overdrive

This all-range overdrive is a great addition to any of the early model Jeeps from 1940 to 1971, and I.H. Scouts 1961-65 with the Model 18 transfer case. The addition of this 25% overdrive unit offers you the needed gearing the early Jeeps were lacking. The Saturn overdrive is a fully synchronized unit that can be shifted-on-the-fly. When installing the unit, only minor modifications are required to the floorboard for the shifter. The Saturn is built to handle up to 300 ft./lbs. of torque, well within the range of a stock V8. If you are interested in a lower gear set for your Dana 18 transfer case, but would like to retain your overdrive, we offer a Saturn bowl gear that will work with the gear reduction kits currently on the market. (See the Jeep Dana 18 & 20 Upgrade section for more information on low gear sets). If a low gear set is purchased, we have available a Saturn overdrive less the bowl gear.

The Saturn is the original unit designed and developed by Warn Industries. Soon after their introduction, another unit emerged in Colorado by the name of Husky or Dual-A-Matic. The Colorado unit was identical in appearance, but in no way was it interchangeable with the Warn All-Range. Both units were available for the early Jeep and Scout vehicles. The units were offered with the 6 and 10 spline internal assembly and the 26 or 29 tooth output gear. Both units were very popular in the mid-1960s, but it wasn't until the introduction of the Dana Spicer Model 20 transfer case in 1972 that production quantities started to recede. The Warn and Husky overdrives were no longer compatible. Both companies stopped production, and the availability of spare parts became very scarce by the mid-1970s.

Advance Adapters purchased the tooling, engineering data, & inventory from Warn Industries in 1991. The components we manufacture today are the same as the old Warn components. We have incorporated a few upgrades on the units we sell today, but these units are all still interchangeable with the original Warn overdrive. (Note: The Saturn is not compatible with the Husky unit.) The Saturn overdrive installs directly on the backside of the transfer case through the inspection cover. No cutting or modification of the drivetrain is required. No relays and electrical connections required.

APPLICATION INFORMATION:

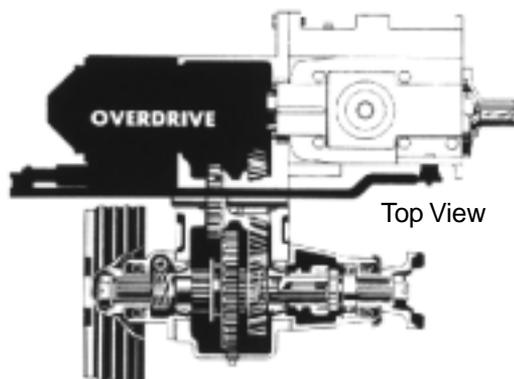
To select the proper overdrive model, find your vehicle model and transmission type listed below. The Saturn overdrive will only fit the vehicles listed that have a Dana 18 transfer case.

Part #	Description	Vehicle Models
915670	26T x 6 spline	M38, M38-A1, CJ2A, CJ3A, some CJ3B, 4-63 4X4, 4-73 4X4
915672	29T x 6 spline	CJ5, CJ5A, CJ6, CJ6A, 4-74 4X4, some CJ3B, 6-266, 6-230
915674	29T X 10 spline	(T14 trans) CJ5, CJ5A, CJ6, CJ6A
915676	31T X 10 spline	(Mitsubishi Jeep only)
915677	6 spline overdrive (minus the bowl gear) designed for the Tera Low & Jack O'Brien low gear sets.	
915678	27T x 6 spline	Some early Jeeps had a 27 thooth drive gear.

SHIFTER APPLICATION:

(Shifters are sold separately.)

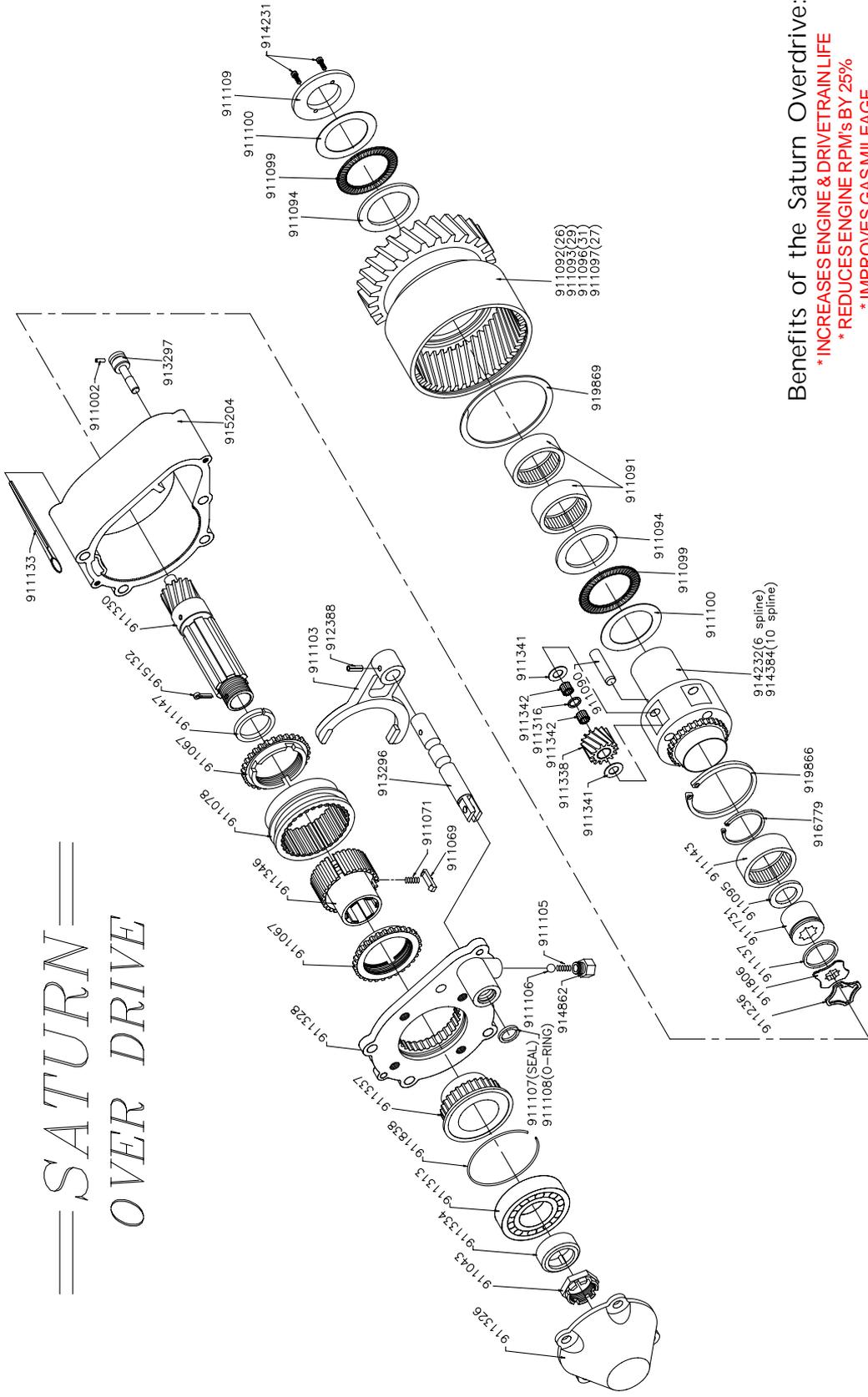
Part #	Description
920000	T90 Dual Handle T/C
920001	T90 Single Handle T/C
920003	Universal Saturn Shifter
920013	T14 Shifter



SATURN OVERDRIVE ONE (1) YEAR LIMITED WARRANTY

The manufacturer warrants this product against material defects and faulty workmanship for a period of one (1) year from the time of shipment on the Saturn Overdrive. We do not offer any type of labor allowance, and all warranty claims are subject to inspection by Advance Adapters. It is the customers responsibility to return possible warranted parts to Advance Adapters. The customer will be refunded for shipping costs incurred if the product is found faulty. We reserve the right to repair or replace any product. All returns must have a Return Goods Authorization Number (RGA#). Please call 1-800-350-2223, and our sales department can assist you. Warranty is void if proper gear lubricates are not used, the proper oil levels are not kept, the product has not been properly installed, and/or installation instructions have not been followed.

SATURN OVER DRIVE



Benefits of the Saturn Overdrive:

- * INCREASES ENGINE & DRIVETRAIN LIFE
- * REDUCES ENGINE RPM'S BY 25%
- * IMPROVES GAS MILEAGE
- * NO DRIVELINE MODIFICATIONS
- * CAN BE USED IN OVERDRIVE OR DIRECT
- * ONE (1) YEAR WARRANTY

SATURN OVERDRIVE PARTS LIST

PART NO.	QTY REQ.	DESCRIPTION
911043	1	HEX NUT
911067	2	BRASS SYNCHRO-RING
911069	3	SYNCHRO DOG
911071	3	SYNCHRO SPRING
911078	1	SHIFTER SLIDER RING
911088	1	O'BRIAN'S 4WD BOWL GEAR
911090	4	PIN, PLANETARY GEAR
911091	2	NEEDLE BEARING
911092	1	26-TOOTH GEAR
911093	1	29-TOOTH GEAR
911094	2	THRUST RACE
911095	1	THRUST WASHER
911096	1	31-TOOTH GEAR
911097	1	27-TOOTH GEAR
911098	1	TERA LOW BOWL GEAR
911099	2	NEEDLE BEARING
911100	2	THRUST WASHER
911103	1	SHIFTER FORK
911105	1	SPRING, SHIFT DETENT
911106	1	SHIFT DETENT BALL
911107	1	SHIFT RAIL SEAL NEW STYLE
911108	1	SHIFT RAIL O-RING SEAL
911109	1	SPACER WASHER
911130	1	GASKET CASE
911131	1	GASKET BODY
911133	1	OIL SCOOP
911137	1	O-RING
911143	1	NEEDLE BEARING
911147	2	RETAINER RING SUN GEAR BEARING
911236	1	SPECIAL SNAP RING
911313	1	ROLLER BEARING
911316	4	THRUST WASHER
911326	1	BEARING CAP
911328	1	CASE COVER
911330	1	6 SPLINE SHAFT
911334	1	SPACER WASHER
911336	1	GASKET CAP
911337	1	STATIONARY MEMBER
911338	4	14-TOOTH GEAR
911341	8	THRUST WASHER
911342	8	NEEDLE BEARING STRIP
911346	1	DRIVE MEMBER
911731	1	DRIVE NUT
911731-S	1	SPECIAL METRIC DRIVE NUT
911806	1	LOCKWASHER
911838	1	RETAINER RING
912388	1	ROLL PIN
913296	1	SHIFTER SHAFT
913297	1	SHIFTER GUIDE PIN
914231	2	SOCKET HEAD SCREWS 6-32 X 1/4
914232	1	PLANET HUB ONLY-6 SPLINE
914384	1	PLANET HUB ONLY-10 SPLINE (T14)
914384-S	1	PLANET HUB ONLY SPECIAL 10 SPL.
914862	1	CAP SCREW SHIFTER
915132	1	COTTER PIN
915204	1	SATURN CASE
916779	1	SNAP RING/PLAN HUB
919866	1	RETAINING RING PLANET PINS
919869	1	RING OIL SLINGER

COMPONENT ASSEMBLY KITS

911349	SEAL AND GASKET KIT KIT INCLUDES ALL GASKET SEALS & SEAL WASHERS
912821	THRUST BEARING KIT KIT INCLUDES: (2) 911099 (2) 911094 (2) 911100
918963	4-PC PLANETARY GEAR SETS KIT INCLUDES: (8) 911341 (8) 911342 (4) 911316 (4) 911090 (4) 911338
911362	SPLINED SHAFT KIT KIT INCLUDES: (1) 911043 (1) 915132 (1) 911143 (1) 911147 (1) 911330
911317	SYNCHRO RING SERVICE KIT KIT INCLUDES: (2) 911067 (3) 911069 (3) 911071
911318	SYNCHRO ASSEMBLY KIT KIT INCLUDES: (2) 911067 (3) 911069 (3) 911071 (1) 911078 (1) 911346
911223	26 TOOTH PLANETARY HSG. KIT KIT INCLUDES: (1) 911092 (2) 911091 (1) 919869
911224	29 TOOTH PLANETARY HSG. KIT KIT INCLUDES: (1) 911093 (2) 911091 (1) 919869
911837	PLANETARY ASSEMBLY (6 SPL.) KIT INCLUDES: (1) 914232 (4) 911090 (1) 911095 (1) 911137 (4) 911316 (4) 911338 (8) 911341 (8) 911342 (1) 911731 (2) 919866 (1) 916779 (1) 911143

911839 -
PLANETARY ASSY. (T14 10 SPL.)
911840 -
PLANETARY ASSY. (METRIC 10 SPL.)
THESE KITS INCLUDE THE SAME PARTS AS 911837

SATURN INSTALLATION PROCEDURES

1. Drain and flush transfer case before starting with installation.
2. Put transmission into reverse gear and set hand brake. Remove shift knob, floor mat, and transmission floor plate.
3. Clean the transfer case and P.T.O. unit (if installed). Remove the rear cover plate or P.T.O. unit and clean all surfaces of gasket material and burrs. Using a socket wrench, remove the retaining nut that holds the stock drive gear in place. Remove the main drive gear (Fig 1) and make sure the new planetary gear assembly (Fig. 2) has the same number of exterior & interior teeth. Check the transmission main shaft for end play and the transfer case intermediate gear assembly. Replace any worn bearings and inspect the transmission rear output shaft bearing, replacing if necessary. (If installing Model No. 915674 overdrive unit, be certain that the spacer between the transmission output bearing and the main drive gear is not removed. This spacer is only on the T14 3 speed transmission).
4. Install the planetary gear assembly onto the transmission main shaft. Using 1/2" socket drive, tighten the drive nut to 100-120 ft./lbs. torque. **DO NOT USE** an impact wrench. Install the special lockwasher (Fig. 3). This lockwasher prevents the drive nut from loosening. To retain the lockwasher, we have also provided a square snap ring that fits into the snap ring groove inside this planetary assembly. These items must be installed to prevent premature failure of this unit.



(Fig. 1)

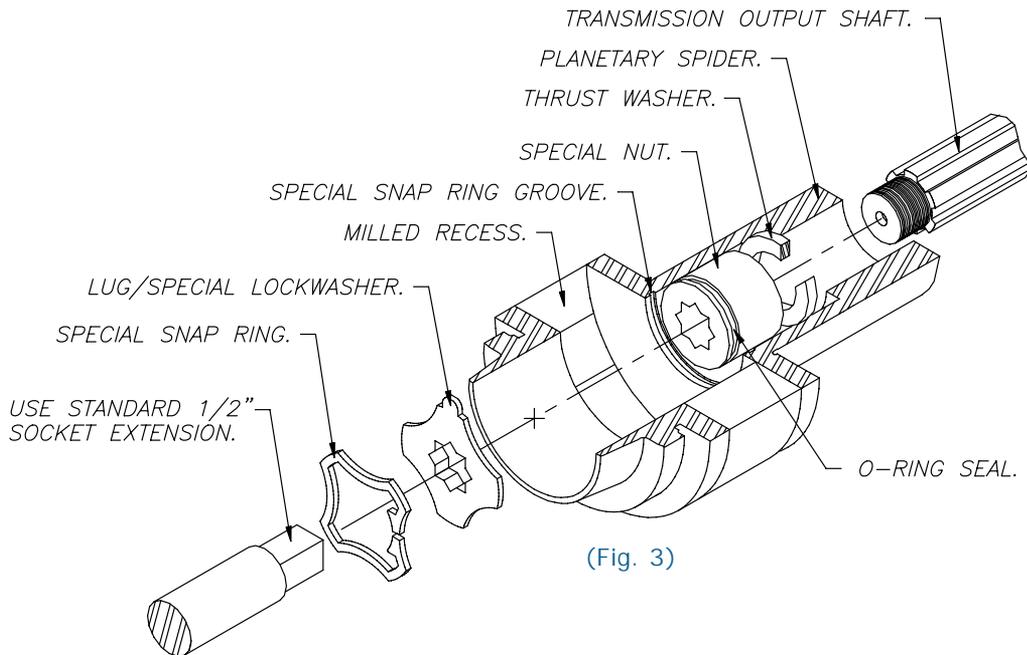


(Fig. 2)

Square snap ring installation:

- a. Use "snap ring" or "needle nose" pliers to install.
- b. Compress the ring until the two ears touch. (If compressed beyond this point, the ring will collapse and will not be suitable for use).
- c. After installing, **DOUBLE CHECK** and make sure the retaining ring is properly seated in its groove.

NOTE: If the snap ring is not properly seated in its groove, the planetary unit will eventually work loose on the main shaft and cause severe damage to the overdrive unit.



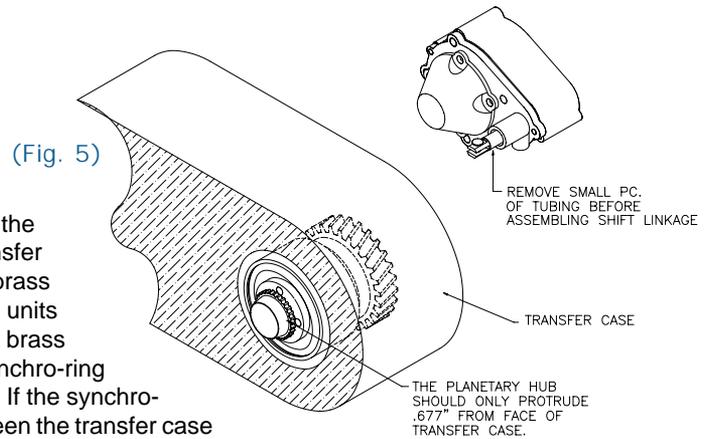
(Fig. 3)

5. Lift both rear wheels off the ground. Put transmission into neutral, transfer case in gear and release the hand brake. Turn driveline by hand to check for free rotation and run out. If rotation is not free, recheck Step 3 & 4.



6. Install the oil scoop into the case assembly (Fig. 4). **NOTE: Be sure the oil scoop is in place. Failure to install this scoop will cause lack of proper oiling and eventual overdrive failure.**
7. Before assembly, you must verify the proper location of the gear assembly. This measurement of .677" is taken from the case to the top of the planetary. (See Fig. 5).

(Fig. 4)



(Fig. 5)

8. Align the gasket to the rear of the transfer case and install the aluminum housing portion of the overdrive to your transfer case. Caution should be taken to make sure the brass synchro-ring is properly seated before mating these units together. The three steel keys must interlock with the brass synchro-ring. We have packed grease underneath the synchro-ring to prevent it from falling out of position during assembly. If the synchro-dogs do not line up properly, you will find a 1/4" gap between the transfer case and overdrive housing. **DO NOT FORCE** these components together. We have seen failure occur because of synchro-ring misalignment.

Further precaution must be taken when installing your unit so that the planetary gears mesh properly. The overdrive unit may need to be rotated slightly to allow the gears to align correctly. Once the unit is mounted flush to your transfer case, install bolts with lock washers and tighten to 30 ft./lbs. torque. Make certain the seal washer is installed as shown in (Fig. 6). Turn the driveline by hand to check for free rotation.

9. Install the shifter pivot mount and handle assembly to the transmission case. Before connecting the shift lever rod to the Saturn shift rail, you must remove and discard the small tube that was installed on the shift rail on the unit (*do not remove this tube until the overdrive unit is installed on to the transfer case*). Connect the shift lever rod to the overdrive unit and the shifter handle. Make sure you have proper clearance between shift rod, transfer case shifter, and vehicle body to assure quiet operation.
10. Using the new shift boot retainer plate as a pattern, mark and cut a new lever opening in your transmission floor plate (removed earlier). Install this modified floor plate. Install the shift boot retainer plate and shift boot.



(Fig. 6)

11. Now is a good time to fill your transfer case with the proper lubrication. A high grade of gear oil (75-90w) is recommended. We **DO NOT** recommend the use of additives in the gear oil. The oil level in the transfer case must be maintained at proper levels to assure maximum overdrive durability.
12. Put the transfer case in neutral, the transmission in high gear, and the overdrive in the overdrive gear. Run the engine at a fast idle for 7 to 10 minutes. This will circulate the oil through overdrive unit. Stop the engine and recheck the oil level in the transfer case, and refill if necessary.
13. About 100 miles after the installation of the overdrive, check and retighten the five (5) bolts that hold the overdrive unit to the transfer case (30 ft./lbs. torque) if necessary. Recheck the transfer case oil level once again.

OPERATION & USE:

Shifting the overdrive is done in the same manner as with a standard transmission, which is to release the throttle, depress the clutch pedal and shift. On automatic applications, the transmission should be shifted into neutral. When the shift lever in the forward position, the unit is engaged in overdrive. When the handle is shifted back towards the driver, the unit is in direct. The Saturn is designed mainly to be used as an overdrive; however, it can be used in any transmission gear-shifted in direct or overdrive. **Caution:** The unit should not be used in overdrive when towing or pulling a heavy load.

SATURN BREAKDOWN & ASSEMBLY INSTRUCTIONS



Planetary & Case Assembly
The overdrive has two basic parts which include the planetary gear assembly & case assembly.

DISASSEMBLY OF THE PLANATARY GEAR ASSY.



Step P1
Using a small flathead screwdriver, remove the snap ring from the gear housing.



Step P2
Using a 7/64" Allen wrench, remove the socket head screws holding the beveled spacer. (Early model Warn units used 2 roll pins).



Step P3
Remove the thrust bearing sets. Take note that the thickest race is next to the gear housing.



Step P4
Remove the thrust washers & bearing. Take note that the thin race is next to the spider assembly.



Step P5
Thoroughly clean & inspect all parts for wear. Replace if necessary.

Step 6

Planetary gears & bearings may be replaced by driving out the pins. (On some early model units, these pins were held in place by a small roll pin). By pushing the planetary pins out with a 5/16" drift punch, the roll pins will shear. Inspect the thrust washers, needle bearings, planetary pins and gears for wear.

Units produced today do not use the planetary pins retained by a roll pin. To keep these planetary pins in place we use a snap ring retainer that fits underneath the synchro-teeth. To prevent the pin from spinning and/or moving back and forth, we also started putting a small tack weld on the bottom of each pin.



Step C2

Remove the cotter pin that locks the nut to the spline shaft.

DISASSEMBLY OF THE CASE



Step C1

Using a 9/16" wrench, remove the 4 cap screws holding the bearing cap.



Step C3

Remove the nut using a 12" adjustable wrench. The shift fork must be at the rear of the case, locking the unit in the overdrive position before the nut can be removed.



Bearing cap & screws removed. (During the reassembly, the 4-3/8" cap screws should be torqued to 19 ft./lbs., and the 1/4" cap screw to 6 ft./lbs. of torque)



Step C4

Remove the shift detent screw, ball and spring.



Step C5

Thoroughly clean and inspect all parts. Replace any if necessary. Reassemble the case assembly in the reverse order.

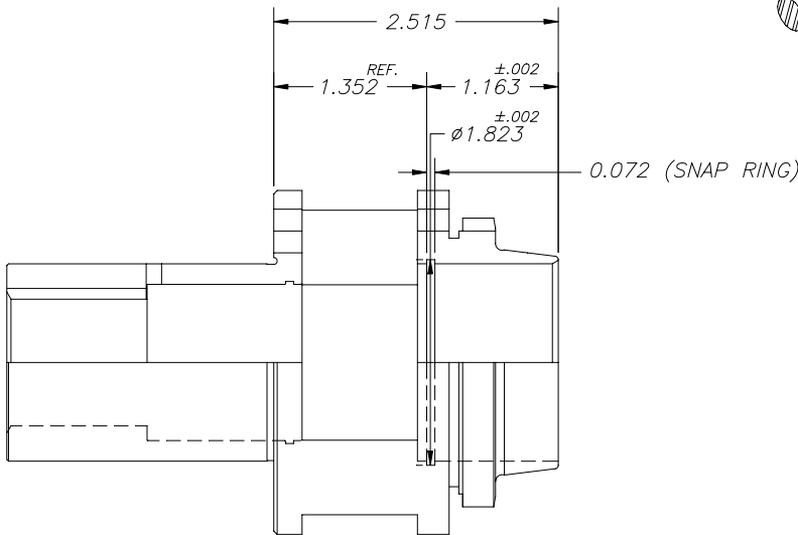
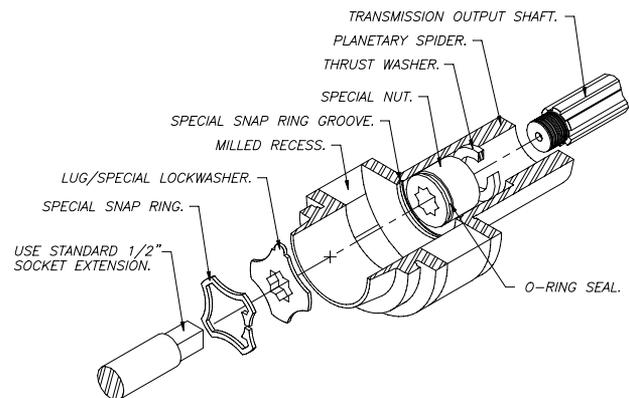
Step C6

Be certain that the notches in the rear synchro-rings are aligned with the shifter dogs when assembling. To properly retain the outer brass synchro-ring during assembly, we recommend using a quality grease to hold this ring in position. All internal components should be lubricated during reassembly using SAE 90w gear oil. Remember to install the oil scoop, as it is crucial for proper oiling of the unit.

SPECIAL CONSIDERATIONS:

The photo below represents the snap ring, lock ring, and retaining nut that fastens the planetary gear assembly to your transfer case. These items are only accessible once the case assembly has been removed. To remove the case assembly, unbolt the five 3/8" bolts. The case assembly should then be removed. (NOTE: On high mileage units, the unit may be difficult to separate. This is due to the caged needle bearing that was originally pressed into the planetary hub. DO NOT disassemble the case assembly from the bearing cap inward.)

Once the case assembly has been removed, you should have access through the middle of the planetary housing to remove the snap ring, lock ring, and nut. See illustration below. Whenever the snap ring and lock ring are removed, they should be replaced with new components.



The design of the planetary housing has undergone a few changes from the early Warn & Saturn units.

One of the biggest problems when installing & removing this unit from a vehicle is the caged needle bearing that rides on the 6 spline shaft. This bearing required a pressed fit when installed into the planetary housing.

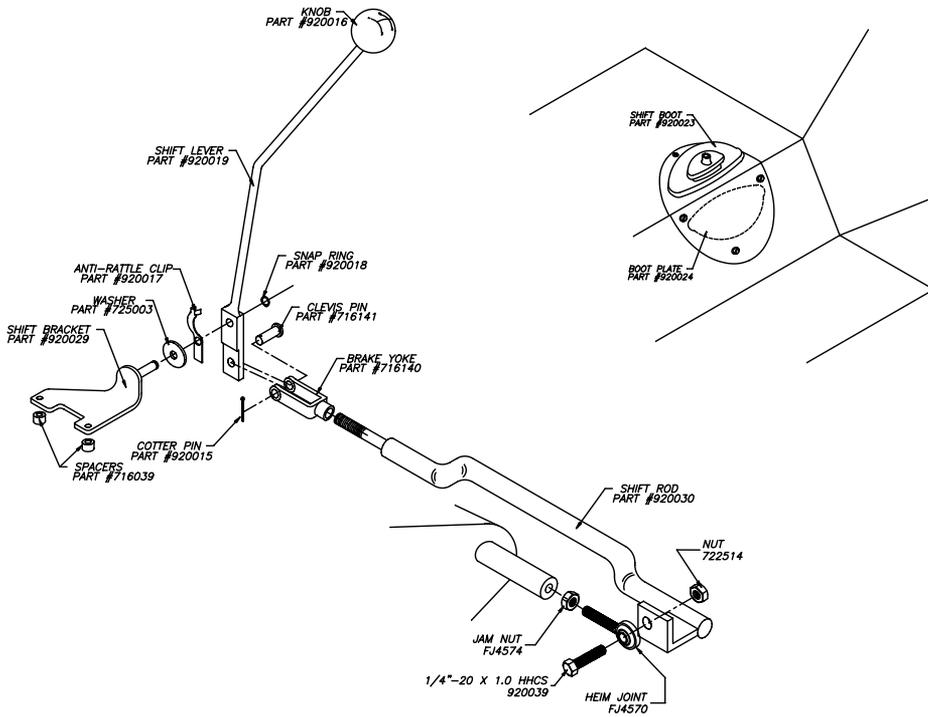
Today we have designed the planetary hub and the 6 spline shaft to simplify the installation & removal. Instead of the caged bearing being pre-installed on the 6 spline shaft, we now install it first in the planetary hub. This required a snap ring groove machined in the planetary hub. The retaining hub on the 6 spline shaft was removed. Current production of these 6 spline shafts, with the use of the older style planetary hub, will require this snap ring groove to be machined. Refer to the illustration on the left.



SATURN SHIFTER LINKAGE ASSEMBLY

There are 4 linkages available for the Saturn overdrive. Illustrated below is the linkage for a T90 dual lever transfer case. The pivot bracket on most linkages bolts to the 2 front top cover bolts of the transmission. The universal Saturn shifter bolts to the top 2 holes of the Dana 18 transfer case.

Little or no modifications will be necessary for linkages offered for the stock transmission assemblies. On the universal shifter application, some fabrication may be required. This is due to the various transmission assemblies that could be installed in the vehicle.



Both above photos illustrate the shift rod installation on the Saturn Overdrive. The shift rod must remain in close proximity to the overdrive unit for proper floorboard clearance. The configuration of some of the shifter rods are to avoid transfer case shifter lever interference.

SATURN SHIFTERS

- P/N 920000 T90 Dual Lever T/C Shifter
- P/N 920001 T90, T86 Single Lever T/C Shifter
- P/N 920003 Universal Shifter
- P/N 920013 T14 Shifter

SHIFTER COMPONENTS

- P/N 920021 Dual Lever Rubber Boot
- P/N 920022 Dual Lever Retainer Ring
- P/N 920023 Universal Rubber Boot
- P/N 920024 Universal Retainer Ring

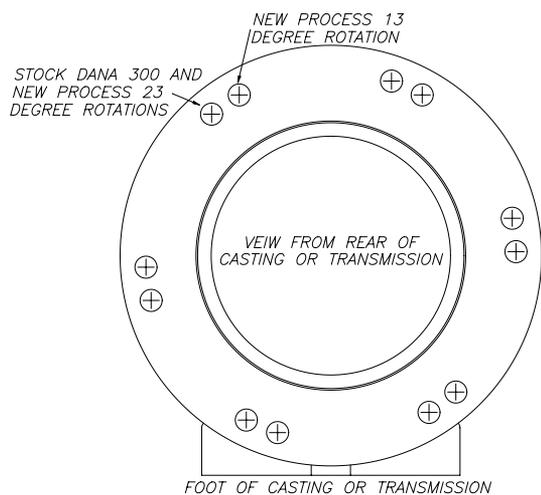
1980-86 JEEPS

(Dana 300):

In 1980, the Jeep Universal changed to the Dana 300 transfer case. This was a great improvement over the Dana 20, and it seems to handle V8 horsepower without any problems. We manufacture several adapters that will bolt different transmissions to this stock transfer case. These adapters are manufactured to fit a 23 spline input sleeve in Dana 300 transfer cases. These adapters should be used when replacing the SR4, T4, T5, T176, and Torqueflite transmissions.

All Jeep Dana 300s are a right-hand drop. They have a circular bolt pattern, 23 tooth input spline, and main case material of cast iron. The length of the Dana 300 is 12". The transfer case uses an aluminum retainer that indexes this transfer case to the transmission. The stock low gear ratio is 2.62:1. The power to the rear axle is in line with the transmission. This is a good gear-driven transfer case to retain when doing an engine or transmission swap.

Jeep Dana 300s all use a 23 spline input. Some of the adapters we manufacture include a new Dana 300 input with a different input spline and other adapters retain the stock input. The various Dana 300 input shafts we manufacture include a 10 spline, a stock 23 replacement, a long 23 spline which is .750" longer spline engagement than stock, a 27 spline, a 21, 29, 31, 32, and 35 spline. Therefore, if you obtained a Dana 300 from a salvage yard, please verify the input spline.



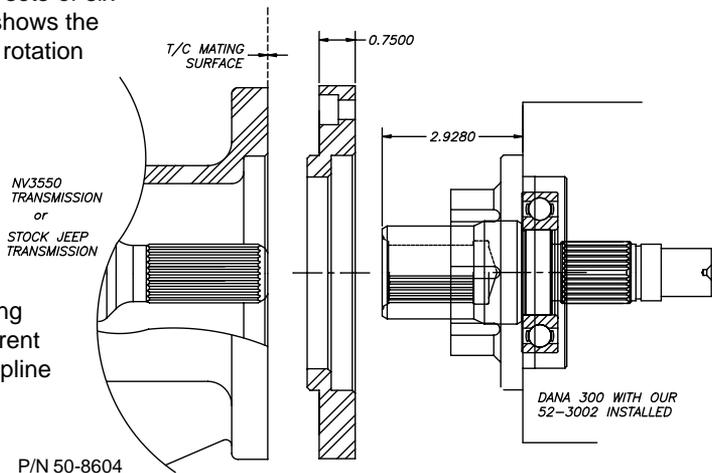
Dana 300 input shaft:

- P/N 52-0203 - Dana 300 35 spline input shaft
- P/N 52-0208 - Dana 300 32 spline input shaft
- P/N 52-0229 - Dana 300 29 spline input shaft
- P/N 52-2910 - Dana 300 31 spline input shaft
- P/N 52-3001 - Dana 300 23 spline input shaft
- P/N 52-3002 - Dana 300 long 23 spline input shaft
- P/N 52-3021 - Dana 300 21 spline input shaft
- P/N 52-6309 - Dana 300 27 spline input shaft
- P/N 52-9810 - Dana 300 10 spline input shaft

The aluminum index retainer incorporates a front seal to protect the transfer case fluid from entering the transmission. The transmission adapter housing normally has a seal that is installed with the open side towards the transmission. This seal can be omitted on transfer case adapter installations, provided a gasket or silicone seal is used in between the adapter and the transfer case. The original Jeep adapters have a small weep hole that is located between the two seals. This weep hole is an indicator that one of the seals has gone bad and needs replacing. We do not use this concept on the transfer case adapters that we manufacture.

The Jeep Dana 300 has a stock rotation of approximately 35 degrees. All of the adapters we manufacture for this transfer case have the provisions for this rotation. Most of the adapters have two sets of six adapter-to-transfer case mounting holes. The illustration (left) shows the correct holes to maintain this degree of rotation. The second rotation option is used for New Process transfer cases.

With ground clearance being an issue or concern with some vehicles, we also offer a Dana 300 rotation kit that allows the transfer case to be clocked up higher to provide additional ground clearance. The rotation kit will require transfer case shifter handle modifications and possible floorboard modifications. This kit comes with a new 23 spline input shaft and adapter plate to maintain proper indexing, P/N 50-8604. Using this indexing plate with one of our adapters that uses a different spline count than the 23 spline will cause a loss of some spline engagement and may not be recommended.



TRANSMISSION & TRANSFER CASE SUPPORT PLATE:

All of the adapters we manufacture offer a support pad machined on the casting. In most cases, this pad will not line up with your original skid plate mounting slots. Jeep vehicles 1980-86, have a boxed-in frame that has the skid plate mounting holes embedded into the bottom of the frame rail. It makes it difficult to move the crossmember due to this enclosed frame. On most applications, we found that retaining the skid plate in the stock position and adjusting the mounting slots on the skid plate works the best. On longer transmission assemblies, it may be necessary to modify the skid plate for front driveshaft clearance or relocate & mount the skid plate further back on the frame rails using 4 of the 6 mounting holes. On some applications, a spacer between our adapter housing foot and our new rubber crossmember may be required. We offer a 2" spacer for such applications.

If you are planning to reuse your stock rubber support, use P/N 716017 to assist in the mounting. We also offer a new support bracket which replaces your stock transmission rubber support.

P/N 716021 - New rubber support (Jeeps 1980-86)

P/N 716017 - Aluminum adapter block (used to help retain your stock rubber support)

P/N 716048 - 2.0" Spacer between adapter foot and crossmember



P/N 716017



716021 mount & kit



Stock rubber mount



716021 and 716048 installed

FRONT DRIVESHAFT CLEARANCE:

On most vehicles, we have tried to allow for proper clearance. However, we are unable to allow for this with some automatic transmissions. These applications will require the centerline of the drivetrain to be offset 1" to the driver's side, and you will be limited on your driveshaft diameter.



TRANSFER CASE SHIFTERS:

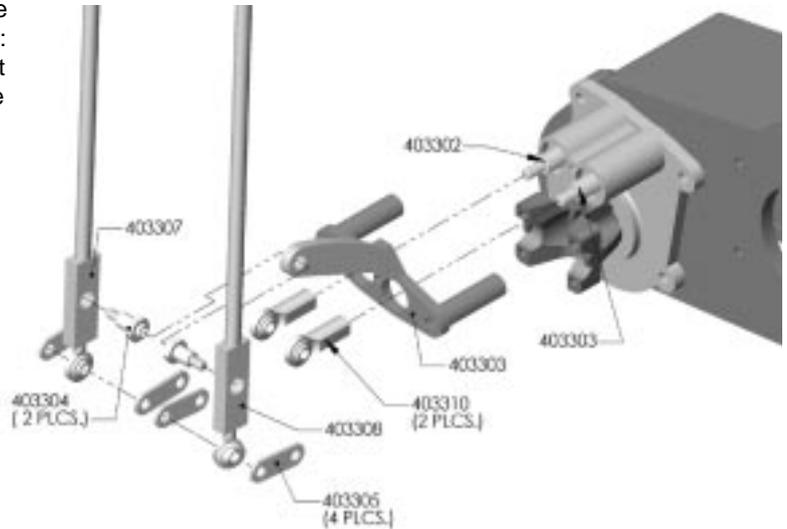
The Dana 300 shifters are always supported off the front of the stock transfer case. On some of the truck 4 speed and NV4500 adapters, the shifter support and pivot shaft may need to be modified to fit these transmissions. Most applications will not require any modifications.



Another option for the Dana 300 transfer case is a twin stick shifter. Our twin stick application requires the installation of two new shift rails. This kit is a securely mounted assembly off of the stock aluminum shifter housing. The new shifter rod allows a heim joint linkage for a smooth, positive shifter motion.

- P/N 403300 - Deluxe Twin Stick kit (with new shift rails included)
(If using this kit with a 4.1:1 gear set, the shift rails do require modifications)
- P/N 403330 - Aluminum Knobs for Twin Stick kit

The new deluxe twin stick kit does require the installation of new shift rails into your transfer case. This kit allows the Dana 300 to be shifted to the following configurations: 2WD High, 4WD High, 4WD Low, Rear Low, and Front Low. This is a universal-type kit that may require the handles to be bent for specific applications.



- P/N 400300R - Dana 300 seal and bearing rebuild kit

HEAVY DUTY DANA 300 OUTPUT SHAFT:

About the only weakness we've seen on the Dana 300 is the output shaft. The stock Dana 300 output shaft is a 1-1/8" diameter, 26 spline. We now offer a new, larger 1-3/8" diameter 32 spline output shaft for this transfer case. The Dana 300 has two different stock tailhousing lengths. We offer kits to fit both lengths of the Dana 300 tail housings.

- P/N 50-3032 - Heavy duty 32 spline Dana 300 output shaft with 1310 non-CV yoke.
- P/N 50-3032A - Heavy duty 32 spline Dana 300 output shaft without yoke. (see Atlas t/c for yoke option)
- P/N 50-3033 - Heavy duty 32 spline Dana 300 output shaft with 1310 CV yoke.
- P/N 50-3034 - Heavy duty 32 spline Dana 300 short output shaft w/ 1310 non-CV yoke.
- P/N 50-3034A - Heavy duty 32 spline Dana 300 short output shaft kit without yoke. (see Atlas t/c for yoke option)

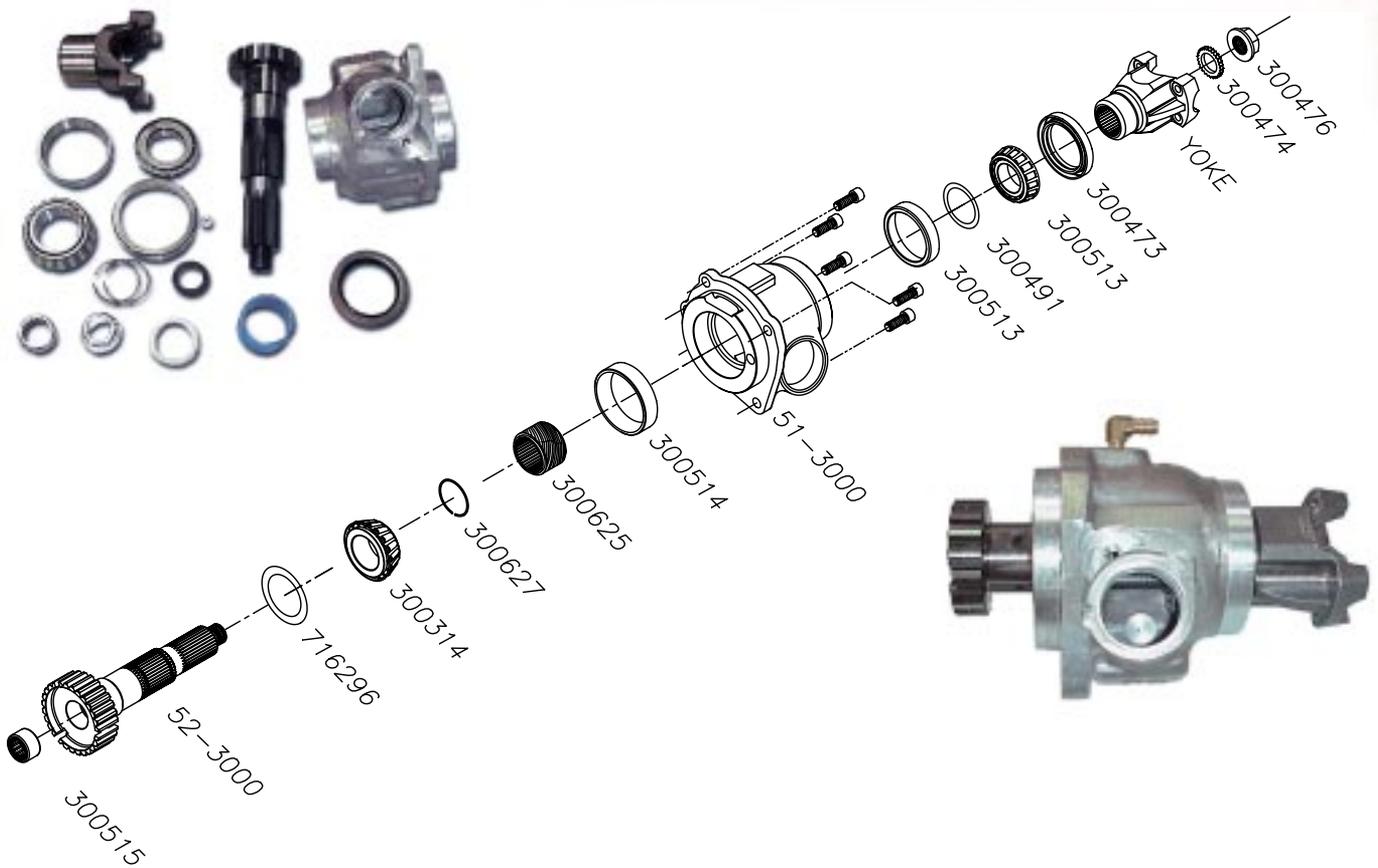
Kits come complete with a new tailhousing, output shaft, taper roller bearings, yoke, and speedometer drive. If you require strength and reliability, the Advance Adapters Dana 300 output shaft kit is a must have.



To install the H.D. output shaft into the Dana 300 transfer case, the transfer case must be removed from the vehicle. Once the transfer case is out, the front retainer, the stock yoke, and the access cover must be removed. Next, the stock tailhousing gets removed and the tapered roller bearing must be pulled off the output shaft. With these items taken off, the stock output shaft will exit out of the front of the transfer case. The new H.D. output shaft kit comes loosely assembled into the new tailhousing. The new tailhousing and shaft have had the proper end play set with shims on the output shaft. The shim set should not be changed or modified. The new kit gets installed exactly the same as the old, small diameter output shaft that was removed. This is a short description of the install procedures. A complete set of instructions is included with our H.D. output shaft kits.

Our kits are 1/2" longer than the stock Dana 300 tailhousing, and 1-1/2" longer than the short version Dana 300 tailhousing. The 3.5" short version tailhousing will require driveshaft modifications since our kit is 1.5" longer than stock.

Note: When replacing the short version Dana 300 tailhousing with our new tailhousing, you will gain speedometer calibration options.



ATLAS TRANSFER CASE/DANA 300 REPLACEMENT:

The 4:1 gear sets, heavy duty output shafts, twin sticks, and rebuild kits are all improvements to the Dana 300 transfer case. These components all improve the reliability and performance of the vehicle. One additional option for the Dana 300 owner is the complete upgraded transfer case, the Atlas. The Atlas is a new transfer case we manufacture that has incorporated the all of the upgrade options of the Dana 300 plus more. The Atlas also provides shift-on-the-fly capability, better front driveshaft clearance, and additional ground clearance with 4 rotation options. The Atlas offers several different low gear ratios, which include a 2.0:1, 3.0:1, 3.8:1, 4.3:1, and a 5.0:1. Along with the Atlas 2 speed transfer case, we also offer a new Atlas 4 speed transfer case. The 4 speed transfer case offers three low gear ratios of a 2.0, 2.72 & 5.44 or 2.72, 3.80 & 10.34.

The Atlas has been designed to fit as a universal transfer case. When replacing a Dana 300 and retaining your stock transmission, the Atlas will bolt directly to the stock transmission adapter. The crossmember mount is always located on this adapter housing. No other adapters will be necessary.

When replacing a Dana 300 and changing the transmission, we offer numerous transmission-to-transfer case adapters to mate these units. Because of the wide selection of input shaft splines, some applications will only require the adapter housing, not a full transfer case adapter kit. All of the adapter housings we manufacture have provisions for the rubber crossmember support.

The Atlas has the standard Dana 300 rotation, but also offers 3 other rotation options. Depending on the rotation you choose, some body and crossmember modifications may be necessary. The twin stick shifter assembly protrudes approximately 6-3/4" from the front of the case. This assembly can easily be shortened to custom fit your application. The unit for the Dana 300 replacement comes with a new speedometer drive that connects to your stock cable. For details on the Atlas transfer case, please obtain a copy of our Atlas manual or go to www.advanceadapters.com and look at our Teck Vault.



TRANSMISSION TYPES & TRANSFER CASE ADAPTERS

When considering an aftermarket transmission, it is important to determine what type of transmission you will require for your driving habits. The three transmission types listed in this section will help you to determine the type of transmission best suited for your particular style of driving.

CAR-TYPE TRANSMISSIONS:

Muncie (Car) 4 speed (M21/M22): Used in cars 1964 to 1974, this aluminum case transmission measures 10-1/2" long. The 1st gear ratio is 2.20:1; 2nd 1.64:1; 3rd 1.27:1, and a 4th gear ratio of 1:1. This is an externally shifted transmission and any adapters using this transmission will require shifter components. We offer an adapter kit that includes a new main shaft, a 5" aluminum housing and the necessary seals and hardware. When ordering this kit you will also need to consider a Hurst shifter, shifter bracket, and shifter rod kit. We also now offer new transmissions with the adapter kit installed, call for pricing.

Muncie M21/M22 to Dana 300
50-6000 5" 23 spline adapter kit

Optional Items:

715600 Hurst shifter	715625 Rod kit male studs
715501 Shifter bracket	715626 Rod kit female studs
716021 Trans mount (or)	716017 Trans mount

Borg Warner Super T10: This transmission was produced in 4 different versions. There was a Borg Warner T10, a Super T10 (thin hub), a Super T10 (thick hub), and a Super T10 (2nd design). We only offer kits for the Super T10 thin hub, thick hub & 2nd design. Before you purchase an adapter, you should identify which transmission you have. The case length is 10" long and the most common gear ratio is 2.64:1 1st ; 2nd 1.75:1; 3rd 1.33:1; and 4th of a 1:1. This transmission is side-shifted and will require a shift bracket and shift rods. We offer an adapter kit that includes a new main shaft and two aluminum adapter housings that add up to 7.625", plus the necessary seals and hardware. When ordering this kit you will also need to consider a Hurst shifter, shifter bracket, and shifter rod kit.

B/W T10 to Dana 300

50-0701 7.625" 23 spl. Super T10 adapter kit (thin hub)
50-0801 7.625" 23 spl. Super T10 adapter kit (thick hub)
50-0901 7.625" 23 spl. Super T10 adapter kit (fine spline rev.)

Optional Items:

715600 Hurst shifter
715502-NS Shifter bracket
715627-NS Rod kit Super T10
716017 Trans mount

TRUCK-TYPE TRANSMISSIONS:

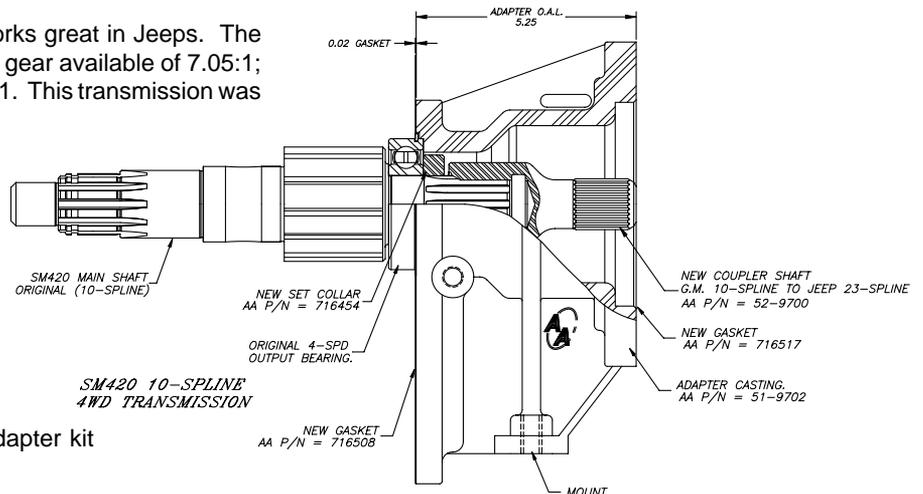
SM420 Truck 4SP: This transmission works great in Jeeps. The overall length is 10-1/2". It has the lowest 1st gear available of 7.05:1; 2nd 3.57:1; 3rd 1.7:1, and a 4th gear ratio of 1:1. This transmission was used in GM trucks from 1947 to 1968, and has a 10 spline output shaft. As the years progress, it is getting harder to find this transmission and parts. The kit we offer is 5.25" long and has a new spud shaft that couples to the Dana 300 transfer case. This kit is supplied with the proper gaskets and bolting hardware.

SM420 to Dana 300

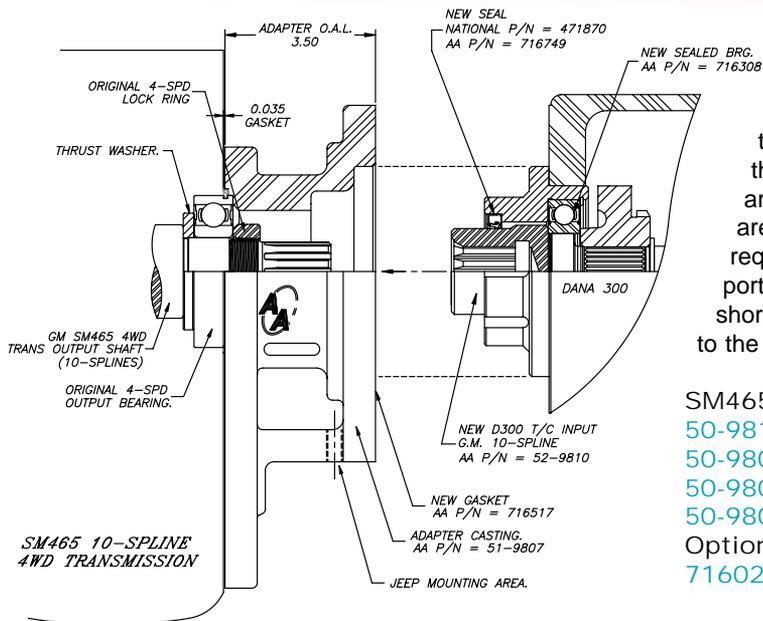
50-9702 5.25" spud shaft 23 spl. adapter kit

Optional Items:

716021 Trans mount



SM465 Truck 4SP: Used from 1968 to 1988, this transmission replaced the SM420. It has an overall length of 12". The 1st gear ratio is 6.58:1; 2nd 3.58:1; 3rd 1.57:1, and 4th gear ratio of 1:1. This transmission was used in both the 2WD & 4WD vehicles. Throughout its 20 years, the transmission case never changed; however, we have seen three different output shafts. The 1968-79 4WD transmission used a 10 spline output shaft, which is easily adapted to. The 1968-88 2WD version used a 35 spline output shaft. This transmission can also be used, but not without output shaft modifications. The 1980-88 4WD tranny used a long 32



spline output shaft. We do not offer any adapters that couple to this output shaft because of its length. If you have this SM465 version, you can change the output shaft to the 10 or 35 spline output. We offer adapter two kits each for both the 10 & 35 spline SM465 transmissions. The adapters for these kits are either 3.50" or 7.00" long and are supplied with the proper gaskets and bolting hardware. Both of the 3.50" kits are supplied with a new Dana 300 input shaft. The longer kits are a spud shaft design. The kits for the 35 spline transmission requires the main output shaft to be modified. The threaded portion of this output shaft must be removed to fit our kits. The short style adapters will require some assembly work to be done to the transfer case.

SM465 to Dana 300

- 50-9810 3.50" 10 spl. adapter kit
- 50-9807 3.50" 35 spl. adapter kit
- 50-9800 7.00" 10 spl. spud shaft adapter kit
- 50-9802 7.00" 35 spl. spud shaft adapter kit

Optional Items:

- 716021 Trans mount (do not use on the 3.5" adapters)

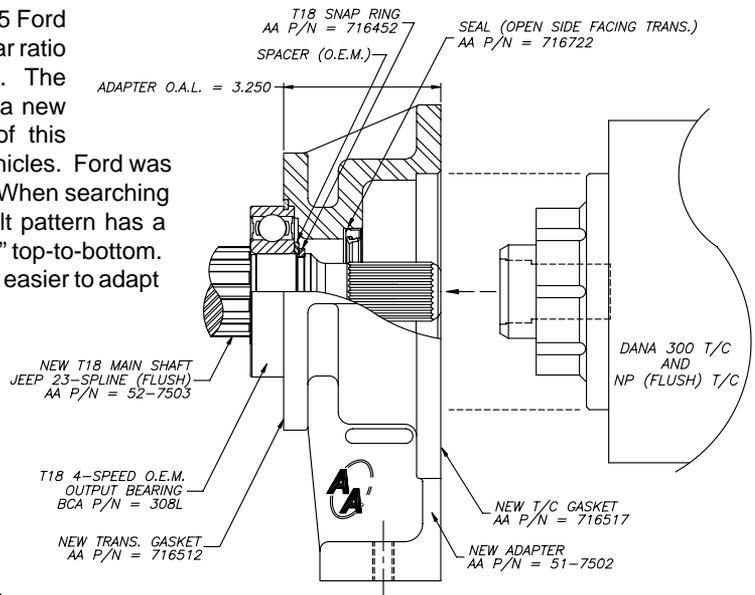
T18 Truck 4SP: This transmission, found in 1965 to 1985 Ford pickups, is identified by a case length of 11.875". The 1st gear ratio is 6.32:1; 2nd 3.09:1; 3rd 1.69:1, and a 1:1 4th gear ratio. The adapters we manufacture for this transmission come with a new main shaft. This will usually allow the overall length of this transmission to remain ideal for most short wheel based vehicles. Ford was not the only manufacturer who used the T18 transmission. When searching for a T18 in salvage yards, make sure the bellhousing bolt pattern has a dimension of approximately 8-1/2" across the top, and 6-1/4" top-to-bottom. The input shaft stickout should be approximately 6-1/2". It is easier to adapt to the Ford T18 than to the Jeep or Scout T18. We do, however, also offer adapters for the Jeep & Scout transmissions. These kits are all a main shaft style kit. The top end of the transmission must be rebuilt with the new main shaft included in the kit. All of the kits include a new 3.25" thick adapter plate that couples the transmission to the Dana 300 transfer case. The transmission bolt patterns between the Ford and Jeep transmission cases are different, so we do offer two different kits for that reason. This transmission is also very popular for use as a transmission retrofit when retaining the stock Jeep engine. For more information see the 1980-86 Jeep Retrofit section of this manual.

Ford T18 to Dana 300

- 50-7500 3.25" 23 spl. adapter

Jeep T18 to Dana 300

- 50-7502 3.25" 23 spl. Jeep T18 adapter



Optional Items:

- 716021 Trans mount (or)
- 716017 Trans mount

T98 Truck 4SP: This transmission, found in 1960 to 1971 Ford pickups & Jeeps, is identified by a case length of 11.875". The 1st gear ratio is 6.39:1; 2nd 3.09:1; 3rd 1.68:1, and a 1:1 4th gear ratio. The adapters we manufacture for this transmission come with a new main shaft. This will usually allow the overall length of this transmission to remain ideal for most short wheel base vehicles. Ford was not the only manufacturer who used the T98 transmission. When searching for a T98 in salvage yards, make sure the bellhousing bolt pattern has a dimension of approximately 8-1/2" across the top, and 6-1/4" top-to-bottom. The input shaft stickout should be approximately 6-1/2". It is easier to adapt to the Ford T98 than to the Jeep or Scout T98 because of the length of input shaft. These kits are a main shaft style kit. All the adapters include a new 3.25" thick adapter housing that couples the transmission to the Dana 300 transfer case.

Ford & Jeep T98 to Dana 300

- 50-7503 3.25" 6 spl. large index adapter

Optional Items:

- 716021 Trans mount (or)
- 716017 Trans mount

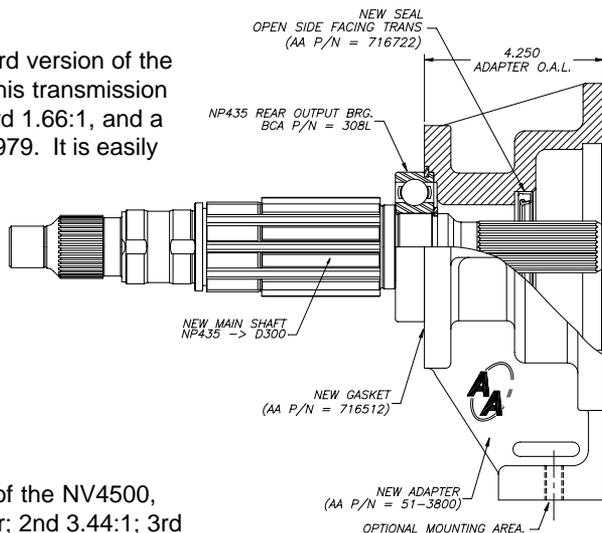
T19 Ford Truck 4SP: This transmission looks identical to the Ford T18, and the case length is the same. The 1st gear ratio is 5.11:1 1st; 2nd 3.03:1; 3rd 1.79:1, and 1:1 4th gear ratio. These transmissions were used in Ford pickups 1974-88. The first gear on this transmission is synchronized, which is the biggest advantage over the T18. The adapter kits we manufacture for this transmission requires a new main shaft. This shaft looks identical to the Ford T18, except it has a snap ring groove for the 1st gear synchronizer. This kit includes a new T19 main shaft and a new 3.25" thick adapter housing that couples the transmission to the Dana 300 transfer case.

Ford T19 to Dana 300
50-6501 3.25" 23 spl. adapter kit

Optional Items:
716021 Trans mount (or) **716017** Trans mount

NP435 Ford Truck 4SP: We manufacture many adapters for the Ford version of the NP435. These adapters do not work on the Chevy or Dodge NP435. This transmission has a case length of 10.875". The 1st gear ratio is 6.69:1; 2nd 3.34:1; 3rd 1.66:1, and a 1:1 4th gear ratio. This transmission was used in Ford pickups 1969 to 1979. It is easily identified by an aluminum shift cover. This transmission is available with two front input shaft lengths. The 6-1/2" input shaft stickout length is the ideal version to look for. This kit is 4.25" long and has a new main shaft that must be installed into the transmission. This kit is supplied with the proper gaskets and bolting hardware.

NP435 to Dana 300
50-3801 4.25" 23 spl. adapter kit
 Optional Items:
716021 Trans mount (or) **716017** Trans mount



GM NV4500 (1993-94): During the first two years of the NV4500, Chevy offered this 5 speed with a 6.34:1 1st gear; 2nd 3.44:1; 3rd 1.71:1; 4th 1:1 ratio, and a 27% overdrive. It was also the first year that Chevy changed the bellhousing-to-transmission bolt pattern. This transmission is ideal when converting your vehicle, providing an ultra-low 1st gear. GM, however, only produced this particular ratio during these years. The major complaint of this 5 speed was stiff shifting and noise in 3rd gear.

(1995): This transmission is identical to the 1993-94 transmission, except the 1st gear ratio had been changed to 5.61:1; 2nd 3.04:1; 3rd 1.67:1; 4th 1:1 ratio, and a 27% overdrive. The noise and shifting problems had been corrected. **(1996-2005):** This transmission has the same gear ratio as the 1995

version. Chevy once again changed the bellhousing-to-transmission bolt pattern and went to a larger bellhousing index diameter. This Chevy NV4500 has the same bellhousing-to-transmission bolt pattern as the Dodge NV4500. These transmissions use a GM internal release bearing. All the NV4500 transmissions have a 12.375" case length. This kit includes a new adapter housing that houses the 5th gear assembly. We use a new shaft for this transmission to couple to the 6 spline gear of the Dana 300 transfer case. The spud shaft will only fit the GM NV4500 output shaft. The stock output shaft must be cut to a specific length to work in this kit. Some transfer cases require the stock linkage to be modified for clearance on the NV4500 case.

GM NV4500 to Dana 300
50-0205 6.25" main shaft adapter kit
 We offer complete packages for this transmission.

Optional Items:
716021 Trans mount (and)
716048 Trans mount

Dodge NV4500 23 SPL.(1993-1998): This transmission is the same as the 1996-99 Chevy version; however, the only differences are the transmission input shaft lengths (Dodge 7.5" & Chevy 6.5"), output shaft splines (Dodge 23 & Chevy 32), and the tailhousing lengths and bolt patterns. **Dodge NV4500 29 SPL.(1999-2005):** For the transmissions in these years, Dodge changed the shifter stud on the top cover to a threaded stud, requiring a different shifter handle. In 2001, Dodge changed the output spline of their transmission to a 29 spline. We stock this 29 spline transmission under P/N 26-0029. All NV4500 transmissions have a 12.375" case length.

Dodge NV4500 to Dana 300
716221 Retainer adapter kit for both 23 and 29 spl. transmissions
 derEngine "F"-head
52-0229 29 spl. input for 29 spl. transmissions
 We offer complete packages for this transmission.

Optional Items:
716021 Trans mount (and) **F134 CID 4 Cylin-**
(1950-73)
716048 Trans mount

ZF Transmissions: The ZF 5 speed has been used in full size Fords from 1987 to the current models. These transmissions are now starting to show up in salvage yards, and we've been getting more requests for adapters to couple this 5 speed to the various transfer cases. We now offer a kit that couples the ZF transmission to the Jeep Dana 300. This aluminum adapter is .750" long and comes with a new Dana 300 input shaft. The ZF 5 speed is a large transmission and, due to its size, driveline modifications and a body lift are required. This transmission has either a 4.65:1 or 5.72:1 first gear, and a 23% overdrive which makes it an ideal transmission for on and off road capabilities.

ZF 5 Speed to Dana 300
50-9925 .750" adapter kit with new Dana 300 input shaft

Jeep NV3550 Transmissions: The NV3550 transmission is an ideal transmission swap for the early Jeeps. This 5 speed is rated at 300 ft./lbs. at 7200 GVW. The weight of this 5 speed is 97 lbs. The gearing of this 5 speed is as follows: 1st 4.01:1; 2nd 2.32:1; 3rd 1.40:1; 4th 1.00:1; 5th 0.78:1, and Reverse 3.57:1. The NV3550 transmission works well as a replacement transmission for the CJ7s or as a great transmission when performing an engine swap. The NV3550 is approximately 2-1/4" longer than the stock Jeep T5, T4, and SR4 transmissions, and 4-3/4" longer than the T176 transmission. When retrofitting the stock transmission with the NV3550, driveline modifications are to be expected. We currently manufacture bellhousing adapter plates or a full conversion bellhousing to couple the NV3550 to the GM V6 & V8 blocks, the Ford V8 blocks, and the Jeep blocks. Depending on the choice of engine along with the placement in the frame rails, driveshaft modifications may not be necessary.

Even though the NV3550 has the correct output shaft spline count to fit to the Dana 300 transfer case and the correct indexing, the rear bolt pattern is slightly rotated from that of the Dana 300. The transmissions we sell are modified on the tailhousing to accept the stock Dana 300 bolt pattern rotation. If you obtain your own NV3550 transmission, then we would recommend our adapter kit 50-8604. This kit is .750" long and has a new .750" longer 23 spline input shaft for the Dana 300 transfer case.

NV3550 to Dana 300

[50-8604](#) .750" 23 spl. adapter kit

Optional Items:

[716007](#) Trans mount

Jeep AX15 Transmissions: The overall transmission case length is 24.000". The output shaft on this transmission is 23 spline and protrudes approximately .400". This transmission is normally found coupled to the AMC 4.0L 6 cylinder engine and seems to be one of the better transmissions Jeep used, being very capable of handling the horsepower and torque of a V8 engine. The adapter kit we offer for this transmission is .750" thick and allows for a couple of rotations of the Dana 300 transfer case.

AX15 to Dana 300

[50-8603](#) .750" 23 spl. adapter kit

Optional Items:

[716007](#) Trans mount

Jeep AX5 / Peugeot & AW4 Transmissions: We have had request for the Dana 300 to fit up to these late model Jeep transmissions. This kit is designed for the AX5 transmission, but will fit the other two with some modifications to the output shafts. The adapter kit we offer for these transmission is .750" thick and allows for a couple of rotations of the Dana 300 transfer case. This kit comes with a new 21 spline Dana input shaft.

AX5 to Dana 300

[50-3021](#) .750" 21 spl. adapter kit

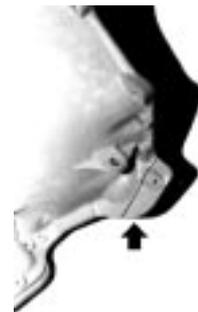
AUTOMATIC TRANSMISSIONS:

We now offer rebuilt automatic transmissions with our adapter kits installed. To stand up to the stress & strain put on most 4WD vehicles, these transmissions are built with the best heavy-duty components available. We offer most makes and models for GM, Ford, and Jeep vehicles. These transmissions are all dyno tested and come with a 2 year or 24,000 mile warranty. Call for applications and pricing.

POWERGLIDE to Dana 300 Adapter: The GM Powerglide automatic has become a popular transmission for the rock crawling rigs. We offer a new cast aluminum adapter and crossmember mount. Our kit is designed to couple the Powerglide to the Dana 300 using a new 27 spline Dana 300 input shaft. When coupling the Powerglide to the Dana 300, the adapter kit requires a shorty 27 spline output shaft to be used in the transmission. A few sources to obtain this shaft would be Hughes Performance or B & M. [Part No. 50-9205](#)

TH350: This GM automatic was commonly found stock in vehicles from 1969 to 1981. It was used in both the 4WD pickups and 2WD car applications. These transmissions are identical except when it comes to the output shaft stickout length. The 4WD transmission used an adapter to bolt this transmission to its stock transfer case. With this adapter removed, the stock output shaft protrudes from the back of the transmission case approximately 1". On 2WD vehicles, these transmissions used 3 different tail housings. The lengths of these tail housings are 6", 9", and 12". The output shafts lengths correspond with these tailhousing lengths. This transmission is one of the most popular choices for engine and transmission conversions due to the overall length of 21-1/2". The 1st gear ratio is 2.52:1; 2nd 1.52:1, and a 3rd gear ratio of 1:1. When converting with this transmission, we recommend that you cut the two tabs as illustrated. This allows for exhaust and firewall clearance. When using this transmission on Jeeps that have a right hand front driveshaft, the transmission should be offset 1" to the driver's side for front driveshaft clearance.

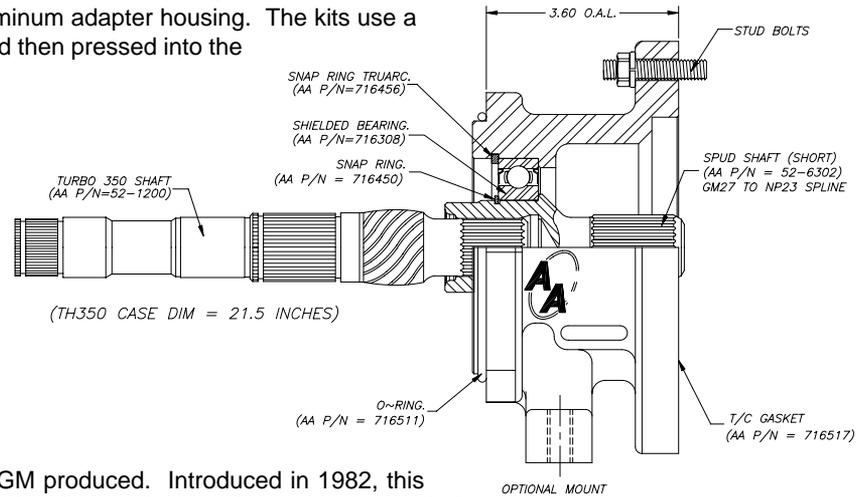
The adapters we offer for this transmission are designed for the short 4WD output shaft. If you obtain a 2WD transmission then you would be required to install a new rear output shaft. We offer a kit that will supply you



a new TH350 4WD output shaft. If you obtain the 4WD transmission, select the kit that excludes the output shaft. All kits use a 3.65" aluminum adapter housing. The kits use a spud shaft that is pressed on to a roller bearing and then pressed into the adapter housing.

TH350 to Dana 300

- 50-6300 3.650" kit with TH350 shaft adapter kit
- 50-6304 3.650" kit without a main shaft adapter kit
- Optional Items:
- 716021 Trans mount (or)
- 716017 Trans mount



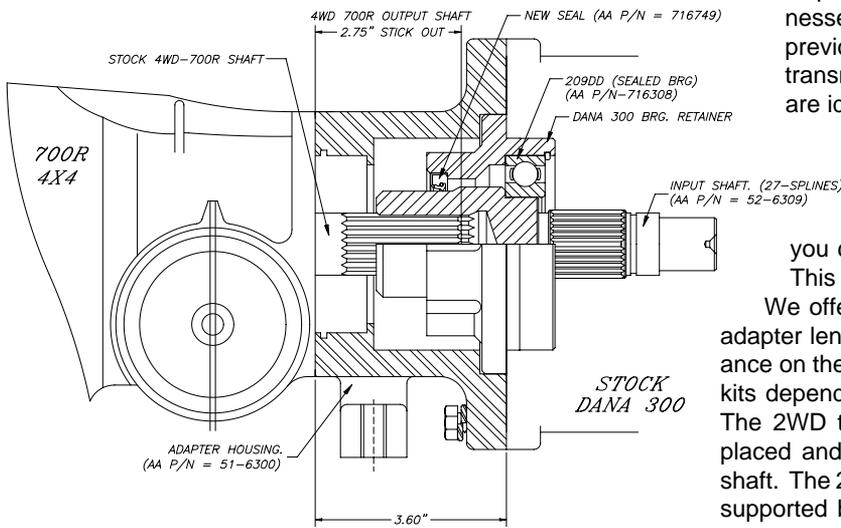
700R: This is the first automatic overdrive that GM produced. Introduced in 1982, this transmission was offered in two different bellhousing / case designs (60 & 90 degree bolt patterns). The internal components of these 700Rs can be interchanged if necessary. When this transmission was first introduced,

it quickly developed a bad reputation for certain weaknesses. In 1987, GM resolved all of the problems that previously existed. In the 1990s, the name of the 700R transmission changed to 4L60. These transmissions are ideal for many conversions because of the 30% overdrive. The overall length of this transmission is 23-3/8". It has a 1st gear ratio of 3.06:1; 2nd 1.62:1, and a 3rd gear ratio of 1:1. When converting using this transmission, we recommend that

you cut the two tabs as illustrated in the TH350 section. This will allow for exhaust and firewall clearance. (Note: We offer a 700R lockup bypass kit, P/N 24-700R). The adapter length is 3.650" long to allow for front drive shaft clearance on the transmission pan of the transmission. We offer two kits depending on which transmission you get (2WD or 4WD). The 2WD transmission will require the output shaft to be replaced and the 4WD transmission will retain the stock output shaft. The 2WD kit has a 700R output shaft and a new spud shaft supported by a bearing in our adapter housing. The 4WD kit replaces the Dana 300 input shaft to a 27 spline input and uses the stock 700R output shaft.

This will allow for exhaust and firewall clearance. (Note: We offer a 700R lockup bypass kit, P/N 24-700R). The adapter length is 3.650" long to allow for front drive shaft clearance on the transmission pan of the transmission. We offer two kits depending on which transmission you get (2WD or 4WD). The 2WD transmission will require the output shaft to be replaced and the 4WD transmission will retain the stock output shaft. The 2WD kit has a 700R output shaft and a new spud shaft supported by a bearing in our adapter housing. The 4WD kit replaces the Dana 300 input shaft to a 27 spline input and uses the stock 700R output shaft.

- Optional Items:
- 716021 Trans mount (or) 716017 Trans mount



700R to Dana 300

- 50-6303 3.650" 2WD 700R to Dana 300 kit
- 50-6309 3.650" 4WD 700R to Dana 300 kit

4L60E: This transmission is identical to the 700R/4L60 except that it is an electronically controlled transmission. GM manufactures this transmission in two versions. Both these transmissions use a reluctor ring connected to the GM engine computer for proper shifting points. The first version is a mirror image of the 700R/4L60, but it requires the reluctor ring.

The second version is found in most of the 1997 & newer vehicles. The case and bellhousing are no longer cast together (now a removable bellhousing design). This transmission no longer has the square bolt pattern on the output side, but is equipped with a hex bolt pattern similar to a TH400. This transmission is 21-7/8" long, and is used in both 2WD & 4WD vehicles. We manufacture an adapter plate that bolts to the output side of this transmission, giving it both the reluctor pickup and the same overall length as the 700R.

4L60E to Dana 300

- 50-0404 4.650" 2WD or 4WD early style 4L60E to Dana 300 kit
- 50-0432 4.10" 4WD removable bellhousing 4L60E to Dana 300 (a 2WD version transmission can be used that requires a new output shaft to be installed)

- Optional Items: 716021 trans mount (or) 716017 trans mount

We offer a stand alone computer system that operates the 4L60E transmission. P/N P4L110 allow this transmission to be installed into numerous applications.

TH400: This transmission is known as the heavy duty version of the TH350. We manufacture a full line of adapters to utilize this transmission. The O.A.L. is 24-1/4" long. It has a 1st gear ratio of 2.48:1; 2nd 1.48:1, and a 3rd gear ratio of 1:1. We offer two kit styles for the TH400 transmissions. Both kits use a 4.25" aluminum adapter housing. The first kit comes with a new TH400 output shaft. It couples to the Dana 300 using a spud shaft that is supported by a roller bearing located in the adapter. The second kit is designed for a 2WD transmission with an output shaft stick out of 4.5" from the hex bolt pattern. This kit requires the output shaft to be slightly shorten. We use a new 32 spline Dana 300 input shaft in the transfer case to couple these units together.

TH400 to Dana 300

50-6400 4.25" spud shaft adapter kit

50-6404 4.25" Dana 300 input shaft adapter kit

Optional Items:

716021 Trans mount (or)

716017 Trans mount

4L80E: This transmission is similar to the TH400 except that it is electronically controlled and has an overdrive. This transmission does not use a reluctor ring like the 4L60E. The 4L80E transmission is normally equipped with an internal reluctor ring on both the transmission input shaft and output shaft. The computer takes both of these readings in for the proper shifting and operation of this transmission. We have always ignored the reluctor ring requirement for this transmission since it is internally regulated. We have now learned that the rear reluctor ring is not always installed into the transmission. The basic rule of thumb is 4WD transmissions up to 1996 should have a rear reluctor ring in the main transmission case. All 2WD transmissions should have the rear reluctor in the main transmission case. The 1997 & newer 4WD 4L80E transmissions have a sensor provision; however, the reluctor ring in the transmission is left out. The tailhousing bolt pattern is the same as the TH400, but indexed with a different diameter. There are several lengths of the stock 2WD transmission output shaft, but only one length of the 4WD. The 1st gear ratio is 2.482; 2nd 1.482; 3rd 1.1, and a 4th gear ratio of .75. This transmission was designed by GM to replace the GM TH400 transmission. Like the TH400, the 4L80E has a 32 spline output shaft. Our kit is designed for a 2WD transmission with a output shaft stickout of 4.5" from the hex bolt pattern. This kit requires the output shaft to be slightly shorten. We use a new 32 spline Dana 300 input shaft in the transfer case to couple these unit together.

4L80E to Dana 300

50-0401 4.25" Dana 300 input shaft adapter kit

Optional Items:

716021 Trans mount (or) 716017 Trans mount

C4: This 3 speed transmission was used in Ford cars & trucks from 1964 to 1981. We recommend obtaining a 1970 & newer transmission for conversions. The transmission case length is 11.180", and with the bellhousing measures 17.00". This transmission was used up against small block Ford engines. The adapter we manufacture will require the installation of a new 23 spline output shaft to couple to the Dana 300. This is the most popular transmission when converting to a Ford engine. The 1st gear ratio is 2.46:1; 2nd 1.46:1, and a 1:1 3rd gear ratio. The adapter for the C4 transmission includes a 6.25" aluminum adapter housing and a new C4 output shaft. This kit also includes a seal, gasket, and necessary hardware.

C4 to Dana 300

50-8100 6.25" adapter kit

Optional Items:

716021 Trans mount (or) 716017 Trans mount

AOD & AODE: This Ford automatic overdrive 4 speed is drastically different in appearance than any of the C-series transmissions. This integral (one piece) transmission was introduced in 1980, and found in the F-series pickups behind small blocks. The transfer case adapters we manufacture for this transmission require the installation of a new output shaft. The AOD was used up until 1993, in cars & trucks. The 1980-87 (early) transmission main shaft was different than the 1988 & up (late) transmission main shaft. These shafts use different oiling holes and, if interchanged, could cause improper shifting or transmission damage. This transmission is becoming very popular for many conversions. We offer adapters for most early and late transmission applications. The transmission O.A.L. is 20.50" long. It has a 1st gear ratio of 2.40:1; 2nd 1.47:1; 3rd 1:1, and the 4th gear is a 33% overdrive.

The AODE (4R70W) transmission is similar to the above AOD transmission and was used in rear wheel drive vehicles starting in 1991. The adapter housing for the AOD transmission will fit the AODE; however, the output shaft of the AODE is different with reference to the oiling holes. Since the AODE does not have a governor, the oil supply line must be plugged. Our kits for the AOD can be used on the AODE transmission, provided that you obtain a few components from Ford. The necessary components are stocked by us under P/N 716057. These kits come with a new 23 spline output shaft and a 6.37" aluminum adapter housing. This adapter housing is a stock Ford 4WD adapter.

AOD & AODE to Dana 300

50-2901 6.37" 1988 & newer transmission adapter kit

50-2902 6.37" 1987 & earlier transmission adapter kit

50-9925 .75" Kit fits a 4WD AOD with 31 splines to the Dana 300 transfer case

C6: The C6 is a Ford Heavy Duty 3 speed automatic. The gear ratio is also identical to the C4 transmission. The C6 has a case length of 20", which includes the bellhousing. This transmission is used up to all three Ford block bolt patterns. The bellhousing and case are integral (one piece); therefore, the C6 has 3 different casings. This transmission was used in vehicles 1968 to 1979. The adapter for the C6 transmission includes a .75" aluminum adapter plate and a new Dana 300 input shaft. This plate bolts to the stock Ford 4WD housing and allows for some rotation options on the Dana 300 transfer case. This kit will only fit a 4WD version C6 transmission.

C6 to Dana 300

50-9925 .75" . adapter kit

IDENTIFYING THE STOCK TRANSMISSION:

Over the past 60 years, Jeep vehicles have been equipped with over 25 different transmissions. Listed in this section are the stock 1980-86 Jeep transmissions. It is difficult to identify the specific transmission by the year of the vehicle, so we will detail specific information that applies to both the identification and application for Jeep transmission conversions.

Bellhousing adapters usually consist of an adapter plate that bolts to the stock engine bellhousing, then the stock transmission bolts to the backside of the adapter plate or a new full bellhousing. A bellhousing adapter is usually the easiest and least expensive way to go.

Since smog regulations in your state may limit you from upgrading your engine, we have also expanded our product line to include many adapters to retain your stock engine while upgrading to a better transmission. Listed on the following pages are the stock Jeep transmissions and the corresponding bellhousing adapters we manufacture, along with transmission upgrade adapters.

(Note: The engine blocks referenced are as follows: Chevy includes all V8s, 229 & 4.3 V6. Ford includes 289, 302, 351W. AMC includes 258, 304, 360, 401, 4.2L, 4.0L - each manufacturer group having the same block bolt pattern. The newer Chevy Generation III Vortec engines require a few additional considerations.)

JEEP UNIVERSAL - MANUAL TRANS:

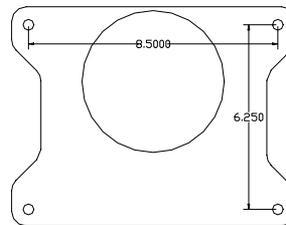
Vehicle ID	Year	Application
Warner T55 Speed	1982-86	Optional on all Models
Warner T44 Speed	1982-83	Standard on all Models W/4-151
Warner T44 Speed	1984-86	Standard on all Models W/4-150
Warner T44 Speed	1982-86	Standard on all Models W/6-258
Warner SR-44 Speed	1980	Only Standard on CJ7 W/6-258
Warner SR-44 Speed	1981	All CJ5, CJ7 W/4-151
Warner SR-44 Speed	1981	Some CJ5 & CJ7 W/6-258
Tremec T176 4 Speed	1980	All CJ5 & CJ7 W/8-304
Tremec T176 4 Speed	1981	Some CJ5, CJ7 W/6-258
Tremec T176 4 Speed	1982-83	All Models with 6-258
Tremec T176 4 Speed	1984-86	Standard on some Models W/6-258

WAGONEER, CHEROKEE/COMANCHE:

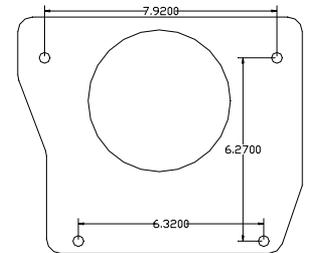
Vehicle ID	Application
Manual Transmissions	
Warner T44 Speed	1984 Cherokee w/4 Cyl.
Warner T55 Speed	1984 Cherokee w/6 Cyl.
AISIN AX44 Speed	1985-87 Cherokee w/4 Cyl.
AISIN AX55 Speed	1985-02 Cherokee w/4 Cyl.
Automatic Transmissions	
Chrysler 727 3 Speed	1980-86 Wagoneer
AISIN/Warner AW44 Sp	1987-93 Wagoneer
Chrysler 904 3 Speed	1984-86 Cherokee w/4 & V6

JEEP UNIVERSAL - AUTOMATIC TRANS:

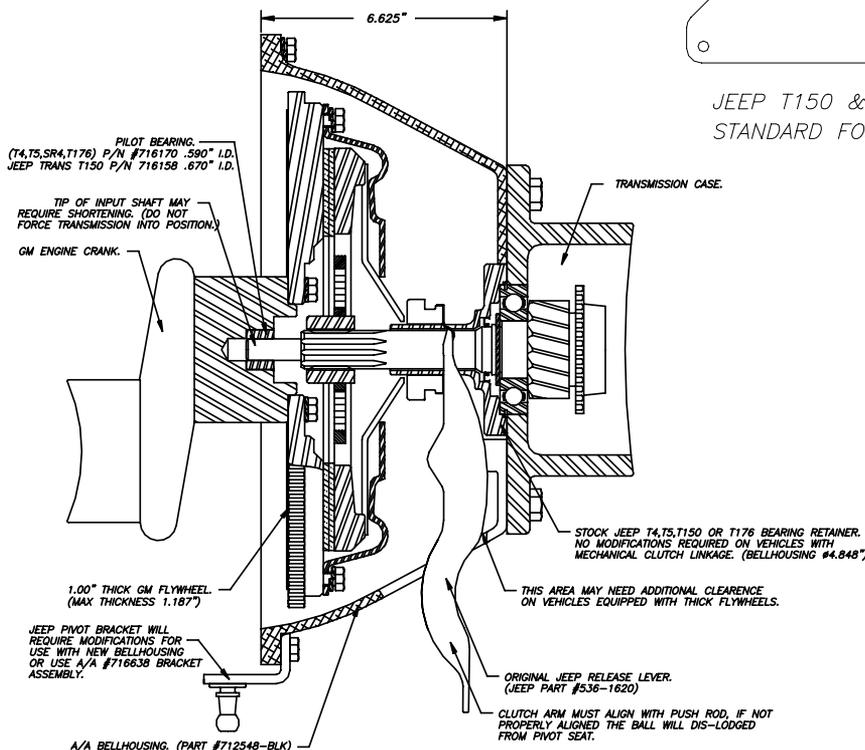
Vehicle ID	Year	Application
Chrysler 904 3 Speed	1980-83	CJ5 Vehicles
Chrysler 904 3 Speed	1980-86	CJ7 Vehicles w/4 Cyl.
Chrysler 999 3 Speed	1980-86	CJ7 & Scrambler 6-258



JEEP T150 & T176
STANDARD FORD



JEEP T4, T5 & SR4



identifying the stock transmission (1980-86)

JEEP TRANSMISSIONS 1980-86:

Between 1980-86, Jeep transmissions underwent some changes. The clutch input shaft was shorter than the earlier year transmissions, which presented a problem with clutch & pilot bushing engagement when trying to use an adapter plate. We offer adapter plates for these transmissions; however, we recommend a full bellhousing kit to avoid these problems. These bell housings are designed to bolt directly to the stock 4 or 5 speed transmission and retain the stock clutch linkage. We utilize the original bearing retainer for aligning the stock transmission to a new bellhousing on Chevy or Ford engine conversions.

T176, T177
(1980-83)

- These 4 speed transmissions can be identified by an aluminum case length of 10.250", and a casting number of 2604203. The gear shift cover is mounted on top of the case with 10 bolts. The input shaft spline size is 1-1/8" 10 spline, so a Chevy clutch disc must be used on all engine conversions. The pilot tip diameter on the end of the input shaft is .590". The shift pattern on this transmission has a reverse gear located to the right, and back towards the rear of the vehicle. The stock transfer case adapter is 2-5/8" long, and is only available for use with Dana 300 transfer cases. We manufacture two types of adapters for this application. (Note: On some T177 transmissions, Jeep used a long input shaft. These adapters will not work on this application.)



Year	O.A.L. of the input shaft	Count	Jeep Number	Warner Number
1981-83 (T176)	13-1/2"-8 Cyl	S34-L20T	8133434	WT170-16T
1981-83 (T176)	9-5/8"-4/6 Cyl	S34-L19T	8132401	WT170-16T
1980 (T176)	9-5/8"-6 Cyl	S34-L20T	8132369	WT170-16Q
1980 (T177)	13-1/2"-8 Cyl	S34-L22T	8132370	WT170-16R

The transmission bolt pattern and bearing retainer diameter is the same as a standard Ford transmission. This transmission can be bolted directly to a Ford V8 bellhousing (1965 & newer) with very little modifications. When used with the Ford bell housings, a special pilot bearing will be required along with shortening the tip of the input shaft.

To adapt these transmissions to a Chevy engine, we offer either an adapter plate design that must be used in conjunction with a Chevy bellhousing, or a full bellhousing that will accept this transmission without any modifications. The original clutch linkage can all be retained when using the full bellhousing design. This is a good transmission to retain with most V8 conversions. We've had enough interest in this transmission to design transfer case adapters for many other Jeep applications. Refer to the Transfer Case Adapter Chart for the applications available.

Using the full bellhousing kit with the T176:

Chevy Engine to T176
712548 Bellhousing Kit
713007 Motor Mounts

Ford Engine to T176
No adapter required
713006 Motor Mounts, or
713132 Saddle Mount

Buick V6 Engine to T176
712583 Bellhousing Kit
713011 Motor Mounts

Optional Items:

716639 Clutch Linkage (Chain)
716334 Jeep Release Arm
716176 GM Release Arm
716332 Bellhousing boot
CF165552 11" P.P.
383735 11" Clutch Disc
716311 Release Bearing (w/ 716334)
N1714 Release Bearing (w/ 716176)

716639 Clutch Linkage (Chain)
CF360030 10" Pressure Plate
383303 10" Clutch Disc
CF260000 11" P.P.
CF360049 11" P.P.
383735 11" Clutch Disc
716311 Release Bearing
716153 Pilot Bushing

716639 Clutch Linkage (Chain)
CF360056 10-1/2" P.P.
383271 10-1/2" Clutch Disc
CF700010 Flywheel (231 V6)
N1714 Release Bearing

Using the adapter plate with the T176:

Chevy Engine to T176
712534 Adapter Plate
713007 Motor Mounts

Ford Engine to T176
No adapter required
713006 Motor Mounts, or
713132 Saddle Mount

Buick V6 Engine to T176
712534 Adapter Plate
713011 Motor Mounts

Optional Items:

716639 Clutch Linkage (Chain)
716638 Stock Clutch Linkage Brkt.
716176 GM Release Arm
CF360056 10-1/2" P.P.
383271 10-1/2" Clutch Disc
CF165552 11" P.P.
383735 11" Clutch Disc
N1430 Release Bearing

716639 Clutch Linkage (Chain)
CF360030 10" Pressure Plate
383303 10" Clutch Disc
CF260000 11" P.P.
CF360049 11" P.P.
383735 11" Clutch Disc
716311 Release Bearing
716153 Pilot Bushing

716639 Clutch Linkage (Chain)
712581 Buick Bellhousing
CF360056 10-1/2" P.P.
383271 10-1/2" Clutch Disc
CF700010 Flywheel (231 V6)
N1430 Release Bearing

(Headers and radiators are available for all of these applications)

SR4, T4 & T5 -
(1980-86)

Found in Jeep models CJ5, CJ7 & Scramblers, these transmissions can be identified by an overall case length of 15.187". These transmissions were used with the AMC 258 6 cylinder, AMC 150 4 cylinder, and the GM 151 Iron Duke 4 cylinder. The SR4 models were only used in 1980-81, while the T4 & T5 models were used from 1982-86. When replacing the stock 4 cylinder or in-line 6 cylinder engine with either a V8 or V6, you should be able to leave the transfer case and transmission in their original location. This may vary depending on various models. The strength of these transmissions is marginal for use with V8 engines.



The adapter between the main case and transfer case is 5-7/8". The input shaft has a stickout length of 7-1/16", and a pilot tip diameter of .590", which is identical to all Chevy transmissions. The input shafts on these transmissions are normally 1-1/8" 10 spline; however, in some 1986 applications we have found a 1"-14 spline. These applications will require a special clutch disc, [Part No. 716104](#).



When converting to these transmissions, we offer two options. We manufacture a full bellhousing that will bolt directly to the Chevy engine and accept the Jeep transmission. This bellhousing uses all of the original Jeep clutch linkage with only minor modifications. This bellhousing can also be equipped with a hydraulic slave cylinder off of a 151 Iron Duke engine ([P/N 716331](#)). The new bellhousing will incorporate the original Jeep clutch release lever, release bearing, return spring, ball pivot, and release arm boot. When replacing an AMC 4 cylinder and using the 712548 bellhousing, you will need to purchase a few additional items; [Part No. 716332](#) T/O arm boot, [P/N 716333](#) internal return spring, [P/N 716334](#) clutch release arm, and [P/N 716331](#) slave cylinder kit.

When replacing the Iron Duke, no adapter is required. Vehicles equipped with this engine will not require an adapter plate for adapting to a new Chevy engine. The original Jeep bellhousing has the same bolt pattern as the Chevy V8. This bellhousing is limited to a 153 tooth flywheel and a 10-1/2" maximum clutch size. The original Jeep flywheel cannot be retained. The original slave cylinder can be used with your new Chevy clutch. The clutch must be a short release type, [P/N CF360056](#). The original clutch linkage and release bearing can be retained without modifications. The interior of the bellhousing will need to have 3 areas ground for additional flywheel and clutch clearance. The new V8 can be installed without driveshaft modifications. [P/N 22-0003](#) Hi torque starter without a nose cone is also needed.

Using the full bellhousing kit with the SR4, T4 & T5:

Chevy Engine to SR4, T4 & T5
[712548](#) Bellhousing Kit
[713007](#) Motor Mounts

Buick V6 Engine to SR4, T4 & T5
[712583](#) Bellhousing Kit
[713011](#) Motor Mounts

Optional Items for full bellhousing:

[716639](#) Clutch Linkage (Chain)
[*716334](#) Jeep Release Arm
[716176](#) GM Release Arm
[*716332](#) Bellhousing boot
[CF165552](#) 11" P.P.
[383735](#) 11" Clutch Disc
[716311](#) Release Bearing (w/ 716334)
[N1714](#) Release Bearing (w/ 716176)
[*716333](#) Release Arm Spring
[716331](#) Slave Cylinder Kit

(If vehicle was previously equipped with mechanical linkage, a Jeep master cylinder is necessary)

[**716639](#) Clutch Linkage (Chain)
[**CF360056](#) 10-1/2" P.P.
[**383271](#) 10-1/2" Clutch Disc
[**CF700010](#) Flywheel (231 V6)
[N1714](#) Release Bearing

*These components are necessary when replacing the AMC 4 cylinder.



1986 CJ7 Chevy V8 Conversion. Photo & installation data provided by Howard McCreary of Albuquerque, NM.

904 Torqueflite - (1984-86)

This transmission has a case length of 16". This transmission is mainly found in down-sized Cherokees, coupled to either a 2.8L V6 or AMC 4 cylinder. The bolt pattern on this transmission is different than the bolt pattern on a Torqueflite found in 6 cylinder Jeep applications. Our kits will adapt the stock transmission directly to the GM 4.3 V6. The Torqueflite 904 seems adequate enough for the V6 engine. Although our adapters can also be used with V8 engine installations, we do not consider the transmission and torque converter capable of handling the power. The 1st gear ratio of the 904 is 2.45:1, 2nd 1.45:1, and 3rd is a 1:1.



When coupled to the Iron Duke 4 cylinder engine, the Torqueflite 904 has a case length of 16". AMC had this Torqueflite casing made with a Chevy V8 bolt pattern to fit the 4 cylinder motor. Even though this transmission can be bolted directly to a Chevy V8 engine, we do not recommend using this transmission because the Chevy engine will require a special torque converter to be manufactured. The torque converter could cost upwards of \$500. We highly recommend replacing this transmission.

- P/N 716132-A Chevy block (1986 & up) to Torqueflite transmission
- P/N 716132-B Chevy block (up to 1985) internally balanced to Torqueflite transmission

Due to differences in torque converters, these kits should only be used on 1984-86 transmissions.
(Motor Mounts and headers are available for these applications)



Torqueflite 999

Torqueflite 904

999 / 727 Torqueflite - (1980-86)

This transmission can be identified by a case length of 16", and a transfer case adapter housing length of 6-5/8". These transmissions can be found behind a 258 6 cylinder or AMC V8 engine. These transmissions were coupled to both the Dana 300 and New Process transfer cases. We have developed an adapter plate that bolts to the front side of the transmission case, adapting it to a Chevy V6 or V8 engine. The kit also includes an internal adapter for the torque converter. This adapter ring indexes to the Jeep torque converter and then has a standard GM bolt pattern to couple to a factory GM flexplate, this ring also takes care of the spacing of the converter with the new engine and adapter housing.



This installation has become very popular since the transmission can remain in the original location, eliminating the need for driveshaft modifications. This transmission is very capable of handling the horsepower and torque of a Chevy engine. The stock column linkage can be retained, but it will require some fabrication. By installing a Chevy V8, you will lose the original

column linkage pivot point. An alternative to this stock column linkage would be a cable-operated floor mounted shifter. The 1st gear ratio of the 727 is 2.45:1, 2nd 1.45:1, and 3rd is a 1:1 and the 1st gear ratio of the 999 is 2.74:1, 2nd 1.54:1, and 3rd is a 1:1..

THE TORQUE CONVERTER AND ALUMINUM RING MUST BE FULLY INSTALLED INTO THE TRANSMISSION. WHEN BOLTING THE TRANSMISSION TO THE CHEVY V8 YOU WILL BE REQUIRED TO CHECK THE ENGAGEMENT BETWEEN THE TORQUE CONVERTER ASSEMBLY AND THE CHEVY FLEXPLATE. THE TORQUE CONVERTER ASSEMBLY MUST BE PULLED FORWARD OUT OF THE TRANSMISSION AT LEAST .100" TO AVOID TRANSMISSION PUMP ISSUES.

ADAPTER PLATE PART #716131

1.430"

THE ALUMINUM RING SHOULD BE INSTALLED TO THE STOCK TORQUE CONVERTER. THE JEEP TORQUE CONVERTERS ARE OFFERED WITH TWO DIFFERENT BOLT PATTERNS AND THREE DIFFERENT THREAD PITCHES. ONCE THE CORRECT HOLES ARE LOCATED BOLT THE ALUMINUM RING TO THE TORQUE CONVERTER. THE TORQUE CONVERTER SHOULD PILOT ON TO THE ALUMINUM RING OFF THE CENTER HUB.

TORQUE CONVERTER MUST BE JEEP 6-CYLINDER #52117749-IF A V8 CONVERTER IS USED, THE SPACER LENGTHS WILL NOT BE COMPATIBLE.

THE STOCK FLEXPLATE CAN BE RETAINED. THE NEW ALUMINUM RING WILL LINE UP WITH ONE SET OF STOCK TORQUE CONVERTER HOLES ON THE GM FLEXPLATE. WE DO OFFER NEW FLEXPLATE IF YOUR ENGINE HAS A FLYWHEEL INSTALLED

JEEP 999 OR 727 TRANSMISSION

- P/N 716131-A Chevy block
- P/N 716131-V Chevy Gen III Vortec V8 block

(Motor Mounts and headers are available for these applications)

1980-86 JEEP TRANNY RETROFITS

(JEEPS RETAINING STOCK AMC ENGINE & STOCK TRANSFER CASE)

On many of the late model Jeeps, the stock engines that were used were adequate for horsepower and torque. An example of these engines include the 4.0L, 4.2L, 258 6 cyl., 304, 360, and 401. The weak link is normally the stock transmission up against these power plants. We also have many customers who wish to retain their 4 cylinder, but change their transmission for better gearing. We manufacture bellhousing adapters to retain these stock AMC-Jeep engines with a new, stronger and, in most cases, a lower geared transmission. The part numbers listed below are just the bellhousing & transfer case components required. A crossmember support & clutch components may also be necessary.

FORD T18 & NP435: These transmissions are popular to retrofit into these vehicles. They are a heavy-duty 4 speed with a granny low 1st gear. When converting to the AMC blocks (except the 4.0L), a stock AMC bellhousing can be used (Jeep P/N 8133951, 3236291 or [AA P/N 712599](#)). These bellhousings are normally found coupled to T150 & T176 trannys in Jeeps 1976-1983. When coupling up to a 4.0L engine, we manufacture a new full bellhousing that retains the stock flywheel sensor which is essential for the operation of this Jeep engine.

[P/N 716156](#) - AMC pilot bushing (required for all applications)

[P/N 712569](#) - AMC 4.0L to Ford truck transmission

[P/N 384180](#) - AMC Clutch disc (required when the stock tranny has 1-1/16" 10 spline)

[P/N 712599](#) - AMC stock T150 and T176 bellhousing (for early Jeep engines)

Ford T18 T/C Adapters

[50-7500](#) Dana 300 23 spl.

(A crossmember support will be necessary on these conversions)

Ford NP435 T/C Adapters

[50-3801](#) Dana 300 & NP flush 23 spline

SM420 & SM465: GM truck 4 speeds with a granny low 1st gear. Ideal for rock-crawling. The two bellhousings below bolt to the stock Jeep engines and allow the GM truck 4 speeds to be coupled into the Jeep drivetrain. These bellhousings have the flywheel sensor option necessary for the 4.0L blocks. They also work fine for any other earlier Jeep engine.

[P/N 712570](#) - AMC engines to SM420 (4.686" bellhousing index)

[P/N 712571](#) - AMC engines to SM465 (5.125" bellhousing index)

SM420 T/C Adapters

[50-9702](#) Dana 300 23 spl.

4WD SM465 T/C Adapters

[50-9810](#) 4WD trans Dana 300 adapter

[50-9807](#) 2WD trans Dana 300 adapter

(Crossmember support & clutch components will be necessary on these conversions)

NV4500: GM & Dodge truck 5 speeds with a 5.61 first gear ratio and 27% overdrive. This transmission is one of the most popular options when it comes to a transmission retrofit. Over the years, we have developed several ways to convert this tranny into the Jeep vehicles.

The most popular and the shortest way to convert the NV4500 into the Jeeps is using one of our full bellhousings. Part No. 712571 bellhousing is designed mainly for the 1995 & earlier GM NV4500 transmission. Part No. 712568 can be used on both the 1996 & later GM transmissions, but it also works great on the Dodge NV4500s. The Dodge trannies require the installation of a shorter GM style input shaft. Both of these bellhousings have the provision for the 4.0L flywheel sensor and will also work fine on all other Jeep engines. The stock Jeep flywheel thickness must be 1-1/8" or thinner to obtain proper clutch clearance. Thicker flywheels are sometimes found on some early Jeep V8s. The GM input shaft required for the Dodge transmission using this NV4500 bellhousing is [Part No. 52-0221](#).

[P/N 712571](#) - AMC engines to GM NV4500 (up to 1995)

[P/N 712568](#) - AMC engines to GM or Dodge NV4500 (1996 & up)

If the overall length is not a concern or you're looking for the easiest adaptation, we also offer an adapter plate for these transmissions. The adapter is based around the Dodge transmission and the length of the Dodge input shaft. The Dodge transmission input shaft has a stickout length of 7-1/2". This allows us to use an adapter plate and then couple it to the stock AMC bellhousing.

[P/N 712553](#) - AMC engines (using Jeep bhsg. 8133951 or 3236291) to Dodge NV4500

AX15 and NV3550 to DANA 300: These transmissions are for Jeeps 1980-1986, equipped with a Dana 300 transfer case. The case length is 16-3/4" long and has a stock bellhousing length of 7-1/4". When replacing a T5, T4 & SR4 and keeping the stock engine, these transmissions are a 2" longer transmission assembly. When adapting to the Dana 300, we offer two options for the NV3550 and one for the AX15 transmissions.

AX15 transmissions must use our adapter [50-8603](#) which includes a new front retainer for the Dana 300 transfer case. This adapter requires the Dana 300 to be installed nearly flat when using the stock transfer case shifter. For other rotation options, which this adapter offers, you must install our deluxe twin stick shifter [P/N 403300](#) that allows more transfer case clearance along side the AX15 transmission.

For NV3550 transmissions, first option is to simply modify the NV3550 stock tailhousing by drilling the correct rotation in the tailhousing to mount the Dana 300 transfer case. If you are looking for a higher Dana 300 rotation for ground clearance, we offer adapter kit [P/N 50-8604](#) which allow for three rotation options. This NV3550 adapter works with transmission kit [P/N 27-3530R](#). This transmission kit comes with a new NV3550 transmission, crossmember adapter plate, and transmission shifter handle.

[P/N 26-AX15](#) - New AX15 transmission
[P/N 50-8603](#) - AX15 rotation kit

[P/N 27-3530R](#) - NV3550 to Dana 300 stock rotation
[P/N 50-8604](#) - NV3550 to Dana 300 higher rotation kit

We offer bellhousing adapters for the Chevy V6 & V8 engines, the Ford 302 V8, and the AMC 6 cyl. & V8 engines.
Chevy Engine kit Ford Engine kit AMC Engine kit
[712567](#) Bellhousing Kit AX15 [712544](#) Adapter plate [712590](#) Bellhousing Kit
[712591](#) Bellhousing Kit NV3550

(The Chevy and the AMC bellhousing will only work with a hydraulic clutch linkage).

A 168 tooth flywheel and clutch can be used on our GM bellhousing; however, a hi-torque starter is required, [P/N 22-0001](#).

GM TH350, TH400 & 700R: This adapter kit was designed to allow the use of a GM TH350, TH400 or 700R transmission to the stock AMC straight 6 cylinder & V8s. This 5/8" thick steel plate allows you to couple any one of these transmissions, utilizing a modified flexplate (listed below), and retain the stock GM torque converter. The kit comes with the necessary hardware, crank bushing, and flexplate spacers. Flexplates are sold separately. For the necessary transfer case adapter for your application, see the Transfer Case Selection Chart. Each transfer case adapter will also require a crossmember support.

[P/N 716138](#) - AMC engines to GM automatic



One of the following modified flexplates is necessary to complete this conversion:

- [P/N 716138-A](#) AMC flexplate 304 & 360 (1972-87)
- [P/N 716138-C](#) AMC flexplate 360 (1988-91)
- [P/N 716138-E](#) AMC flexplate 258 (1972-87)

When installing an automatic into a Jeep, some additional parts will need to be considered. A transmission shifter will be required and most applications need a flexible dipstick. We also carry a 52" long 700R TV cable under [P/N 716138-KD](#) and for the TH350 transmissions a 52" long kick down cable under [P/N 716138-KD1](#)

CLUTCH LINKAGE

(Manual Transmissions Only):

Jeep has used both hydraulic and mechanical clutch linkages over the years. When doing an engine conversion, it is not uncommon to have clutch linkage changes. Many of these stock linkages can be retained with only a few modifications. However, if you would like to improve your clutch linkage, we offer many upgrades from these stock linkages.

Jeeps 1972-1986 (**Mechanical**) - These Jeeps use the same type of clutch torque tube as the earlier models, except the torque tube pivots off the bellhousing instead of the transfer case. This design consisted of a long rod that extended from the pedal mechanism underneath the dash, through the firewall and connected directly to a clutch torque tube. This linkage uses a ball design pivot bracket that bolts to the stock bellhousing. The clutch torque tube was supported between a pivot point on the bellhousing and a bracket on the firewall. This assembly can be retained on most conversions with very little modifications.

When using one of our Chevy conversion bellhousings, the stock bracket can be retained. If you are using a GM bellhousing, we offer [P/N 716638](#) which will provide you with an adjustable pivot location on the Chevy bellhousing. This bracket kit is furnished with a male ball stud and multiple hole location that permits the use of all the original Jeep clutch linkage components. This multiple hole location will provide positioning for various engine locations. The kit also includes new nylon bushings to replace the original Jeep nylon bushings. Depending on which bellhousing is being used, the push rod that extends from the clutch torque tube to the clutch release lever will need possible modifications.

One of the biggest problems with the stock Jeep clutch linkage is its reliability on the trail. Most Jeep owners have either experienced or seen the stock linkage fall apart when a vehicle is tweaked or twisted while 4-wheeling. The linkage has too many pivoting and non-secured points and, when put under stress, they tend to come undone.

We offer an upgrade kit for your clutch linkage. This chain-operated clutch linkage kit, [P/N 716639](#), connects to the original push rod that extends out of the firewall and mounts to the stock Jeep driver's side body mount. This kit also uses a sprocket & chain that parallels the inside of the frame rail. Unlike the stock linkage pushing the release lever, this chain controller uses a pulling motion. On serious offroad use, the chain linkage will allow for twisting of the frame and the torque of the engine. The chain control linkage is solidly mounted to all components of the clutch linkage. **This kit will not work with inside-the-frame rail exhaust.**

Jeeps 1980-1986 (**Hydraulic linkage**) - Jeep first started using a hydraulic linkage in the 1980-83 CJ7s with the 151 Iron Duke engine. This slave cylinder bolts to the bellhousing using the same two holes as the mechanical linkage ball pivot bracket. The slave cylinder is mounted to the outside of the bellhousing using a special slave cylinder flange. This flange is part of the slave cylinder casting and has provisions for two bolts to mount to the bellhousing. The release arm, release bearing, ball pivot, and lever spring are all identical to the mechanical clutch linkage.

If you are using one of our conversion bellhousings and retaining the stock Jeep transmission, then this Iron Duke slave cylinder can easily be installed using the mounting holes on our bellhousing. If your Jeep originally had a mechanical linkage and you wish to change to a hydraulic linkage, we offer the stock Iron Duke slave cylinder assembly under [Part No. 716331](#). Along with this slave cylinder, the installation of the a master cylinder is required (Jeep master cylinder No. J5359822). Jeeps 1980-86, will have the firewall provision to mount a stock Jeep master cylinder when converting a mechanical linkage to a hydraulic linkage. The pedal assembly will require modifications and adjustments in order to couple to the master cylinder and achieve the proper throw motion.

ENGINE CONVERSION

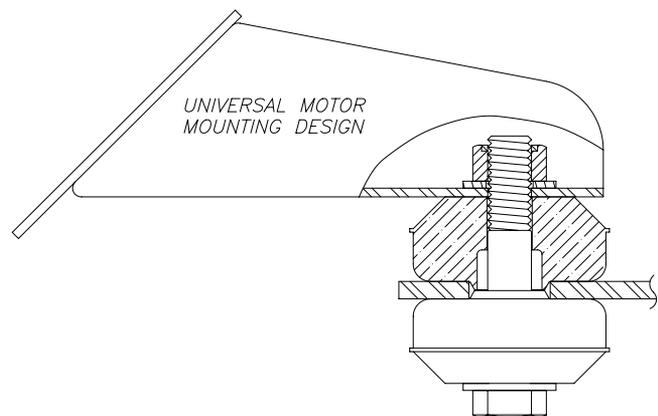
GENERAL INFORMATION:

Engine conversions for offroad vehicles are popular with both old & new models. We have been involved with engine and transmission conversions for more than 30 years and are not surprised when we see a new vehicle with less than 10,000 miles having an engine swapped. Since you are venturing out beyond the boundary of the corner gas station and local repair shop, you should be aware that offroad driving is quite different than street driving. Once you pull onto a dirt road, your vehicle must be capable of returning you and your passengers back to civilization. The best, single reason for an offroad 4WD engine conversion is reliability. If your 4WD cannot deliver this, then you're in serious trouble. Make sure that when making a change on your offroad vehicle it is done with the best equipment and design available. Don't short change your conversion for components that will give you less reliability.

There will always be situations where more power would be nice such as when towing a trailer, turning those big new tires, or falling short from the top of a hill. A common mistake of many offroad drivers is overpowering the existing drivetrain. If additional power is required and the stock transmission specifications and rear axle torque rating have been exceeded, then you might be required to use a stronger substitute. Jeeps have been equipped with several types and sizes of engines. In order to assist you, we have listed the various stock engines that were used in the 1980s & newer vehicles.

engine conversions (1980-86)

151 CID 4 Cylinder	(1980-83) Iron Duke
150 CID 4 Cylinder Engine	(1984-86)
150 CID 4 Cylinder Engine TBI	(1987-02)
148 CID 4 Cylinder Engine (2.4)	(2003-04)
258/4.2L CID Straight 6 Cylinder	(1972-90)
4.0L Straight 6 Cylinder	(1991-04)
2.8L V6 Engine (Cherokees)	(1984-86) GM
2.5L V6 Engine 151 CID (XJ)	(1984-00) GM
304 CID V8 Engine	(1972-81)
4.0L Engine (XJ)	(1987-01)
2.4L & 3.7L Engine (KJ)	(2002-04)



ENGINE SELECTION:

Select a motor which best fits the use of your vehicle. We manufacture motor mounts, bellhousing adapters, headers, and transfer case adapters for Chevy, Chevy Vortec V8's, Ford, Dodge, Buick V6 & some AMC motors. Within these range of motors, every practical need can be met.

ENGINE LOCATION:

Many people become overly concerned about moving the transmission, resulting in driveshaft modifications. The value of a good engine location requiring driveshaft modifications will far exceed the expenses of an installation requiring special cooling due to poor engine location.

We design most transfer case adapters to eliminate driveshaft modifications (whenever possible). In order to position your new engine, it is usually mandatory that the original engine mounts be removed from the chassis. When placing the new motor into the chassis, several factors determine the best possible location.

A. Firewall Clearance: Allow adequate clearance between the distributor & firewall. Be sure that the distributor can be removed easily. Make sure the engine can be worked on without having to remove it from the vehicle.

B. Front Axle Clearance: Check the oil pan and harmonic balancer for axle housing clearance. Double check the suspension clearance if bottoming out. Location of the motor mounts will require some vehicles to relocate their front axle snubber.

C. Hood Clearance: When the air cleaner is in position, will the hood still close? On certain applications, special low profile air cleaners may be required.

D. Driveshaft Clearance & Angularity: The front driveshaft should have sufficient clearance to pass the bellhousing and starter. When using a transmission other than what was stock, front driveshaft clearances may be an issue. The drivetrain should be offset 1" to the driver's side to obtain additional front driveshaft clearance. Make sure that the driveshafts do not bottom out when the suspension is collapsed. The angle of the rear driveshaft is very critical, and compensation can be made by either axle shims or lowering the transfer case.

E. Radiator Clearances: Proper spacing and centering of the fan with the radiator is necessary for optimum cooling. If you are having a problem in this area, an alternative is an electric cooling fan. These fans are popular for engine conversions, since they can be mounted on the front or backside of the radiator and don't require engine placement considerations when using an engine-driven fan.

F. Exhaust Manifold/Header Clearance: If headers are planned for the vehicle, it is best to purchase them before the installation of the engine. Although we make headers for several different applications, a perfect fit can never be guaranteed. When locating the engine, have the headers or stock manifolds in place and check the following for clearances: firewall, brake & clutch pedals through travel, steering box or linkage, body & frame, heater/defroster, and battery. When placing the engine into position, be sure and have your engine exhaust system mounted on the engine. This ensures all proper clearances are maintained.

G. Oil Filters: Oil filters can be a real problem especially on Ford conversions. The filter on Ford engines is located up front on the driver's side, and this can interfere with the stock steering or suspension components. If additional clearance is needed, we suggest a remote oil filter. We offer remote oil filter kits for most engines.

H. Motor Mount Installation: The motor mounts we manufacture are designed for specific applications, along with some universal applications. Some are a bolt-in style, while others require welding. The universal mounts are designed to fit a variety of frame widths. The channels that extend to the block are drilled in 1" increments, allowing choice of engine placement. In some applications you may be required to elongate one or both sides of these mounts for bolt hole alignment.

"L" brackets on weld-in mounts should be welded entirely around the perimeter. All welding should be done by a certified welder. When using a double donut design mount, make sure that the donuts properly index to the "L" bracket and the bolts are properly tightened. Mount bolts should be checked periodically.

I. Steering Shaft: Most stock 4WD engines are offset to the driver's side 1/2" to 1" to line up the transfer case and differential yoke and we recommend the new engine have a offset to the drivers side on these Jeeps. This normally does not present any clearance issues with the stock steering shaft. We have found that as these Jeep get older, the stock steering shaft does develop end play. We now carry heavy duty replacement steering shafts for Jeep 1980 to 1986. Jeep's original steering shaft assembly was not designed for the added stress of body lifts and oversize tires. We carry the Borgeson's replacement assembly's which have a telescoping shaft with two precision needle bearing u-joints. The steering assembly is easy to install with common hand tools. Once installed, you will experience much tighter and more responsive steering.

P/N 716869 75-86 CJ STEERING SHAFT MANUAL BOX
P/N 716870 75-86 CJ STEERING SHAFT POWER BOX

Once the engine has been selected, you will now need engine mounts. We offer several combinations that will fit Ford, Chevy, Dodge, and Buick blocks. On most Ford and Chevy applications, we standardize our mounts by using a special dual rubber donut, locked together with special hardened bolts. This combination offers a positive means of securing the engine for the most severe offroad conditions.



Most of our mounts are universal and can be adjusted to accommodate the best possible engine location, while others are very specific and offer no alternate for changes. Our universal Chevy and Ford side mounts are the most popular style for Jeep engine conversions. The mounts are furnished so that they can be either welded or bolted into position, and are fully adjustable so that the engine can be offset.

The universal mounts are now available in two styles; one for the Jeep universals, and one for the wider framed vehicles that will fit up to 30.500" frames. In the Buick V6 category, we also offer a universal Buick V6 engine mount that utilize our double donut design and is fully adjustable, similar to the Chevy and Ford engine mounts. This mount is [Part No. 713011](#), and does not require the use of the original Buick V6 rubbers.

In conjunction with all engine mounts, you will need to use a rear crossmember mount. This is usually the same mount with a new location adjusted to the new engine position. Two mounting points are all that is ever required with most installations. This will allow for plenty of engine flexibility and will eliminate transmission and engine vibrations.

We have been doing engine conversions for over 30 years . We've learned the hard way to count only on top-quality & proven design installations. Our mounts are secured with a 5/8" diameter bolt between the engine brace and frame bracket. No rubber vulcanization failure will let you down. To assure that you have the premier engine mounts that we offer, make sure our name is on the box. **Do not accept look-a-like takeoffs.** We are the "4-Wheel Drive Experts" and have the quality to prove it.



Body Lifts
[P/N 714454](#) -
Jeep 80-86 1" body lift



engine conversions / motor mounts (1980-86)

Universal Motor Mounts: The universal mounts we manufacture are a high quality mounting system. The "L" brackets in these kits are made out of 3/8" material and designed to handle any style of driving. These universal mounts allow for lateral and vertical placement in the frame rail to maximize you drivetrain fit. The installation of these mounts will require the removal of you stock engine mounts.

Chevy V8:

- [P/N 713007](#) - 1972-1986 Jeep universal and Jeep Wagons/Trucks Chevy V8 motor mounts
- [P/N 713005](#) - 1972-1986 Jeep universal and Jeep Wagons/Trucks Chevy V8 LT1 motor mounts
- [P/N 713088](#) - 1976-1986 Jeep CJ7 Chevy V8 Gen III & LS1 motor mounts

Ford V8:

- [P/N 713006](#) - 1972-1986 Jeep universal and Jeep Wagons/Trucks Ford small block V8 motor mounts

Buick V6:

- [P/N 713011](#) - 1972-1986 Jeep universal and Jeep Wagons/Trucks Buick V6 motor mounts

Dodge V8:

- [P/N 713095](#) - 1972-1986 Jeep universal and Jeep Wagons/Trucks Dodge V8 (318/360) motor mounts

ADDITIONAL JEEP MOUNTS

Stock Rubber Support Motor Mounts: We also offer motor mounts designed to utilize the stock engine rubber mounts. These type of engine mounts are a good alternative to the universal type if you need to replace a rubber support. Most auto parts stores can supply you with a stock rubber support. We offer only two mounting systems this way; one for the Chevy block and one for the AMC V8 engines.

[P/N 713089](#) - 1976-1986 Jeep CJ7 bolt-in Chevy V8 motor mounts

[P/N 713120](#) - 1980-1986 Jeep universal and Jeep Wagons/Trucks AMC V8 (304/360/401) motor mounts



Chevy LS1 Blocks and Vortec Generation III Universal Mounts: We offer a universal weld-in mount. [Part No. 713088](#) is a weld-in mount that uses a double donut rubber insulator. *This mount should not be used in a Jeep TJ.* These mounts will interfere with the Generation III LS1 stock manifolds.

We also offer a mount plate that adapts the square bolt pattern to a triangular bolt pattern. This plate positions the triangular bolt pattern in the same block location as that of the early GM mount. This mount will work with most stock GM configurations. [P/N 713088-P](#)



P/N 713088-P



Ford 302 Bolt-in Mounts for CJ7 & YJ Wranglers: This cradle motor mount bolts directly to your CJ7 & YJ Jeep. By simply removing your stock motor mounts, this mount will properly position your 302 for header, fan & radiator clearance. No welding is required on P/N 713131 & 713132. Part No. 713130 requires the frame brackets to be welded to the frame. Most applications will not require driveline modifications. **Note:** *We do not offer any conversion headers to fit with these motor mounts.* Stock manifolds are your best choice.

[P/N 713130](#) - Ford 302 to 1987-95 YJ Wrangler

[P/N 713131](#) - Ford 302 to 1987-95 YJ Wrangler (replacing 4 cyl.)

[P/N 713132](#) - Ford 302 to 1980-86 CJ7

Advance Adapters "Off Road" Mounts: We now carry "Off Road" series motor mounts for the hard core 4-wheel enthusiast. These mounts are a weld-in design that use a horizontal neoprene isolator. These mounts are designed to handle the abuse of the roughest type of trail.

[P/N 713200](#) - CJ5 & CJ7 GM V8 Mounts

[P/N 713202](#) - CJ5 & CJ7 AMC V8 Mounts

[P/N 713204](#) - CJ5 & CJ7 Small Block Ford Mounts



P/N 713204



P/N 713202



713089 passenger side mount.

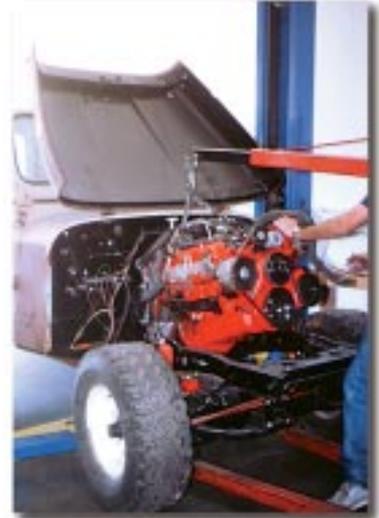




Universal Chevy mount final installation.



Universal Chevy mount being installed.



When mounting the block into a Jeep, it is recommended to remove the grille and fenders for ease of installation.

1980-86 JEEP EXHAUST



We design & manufacture our own header systems to complement the engine conversion business. We started manufacturing custom headers about the same time we started manufacturing adapters. There was a definite need for headers that would fit the various engine conversions. Through the years, our designs have evolved into header applications that were most typical. Our header systems are for non-pollution control, engine converted vehicles. If your vehicle is going to be smog legal, you will need to retain the original manifolds. Stock manifolds will work equally as well on engine conversions.

When doing an engine swap, the exhaust system must be given consideration before finalizing the exact engine location. **If headers are going to be used, we highly recommend that you bolt the new headers to the engine before determining the final engine location.** If you don't have the headers on the engine while positioning the engine, there is a good chance the headers may not fit properly.

The fenderwell headers that we manufacture are designed for a minimum amount of fenderwell and firewall modifications. The headers can be installed with only minor trimming of the lower fender skirting. These modifications will vary depending upon the actual engine location. On this style of headers, the driver's side header will go under the steering assembly on Jeeps 1976 to 1986.

When using headers on a new engine conversion, you will find that the headers do not offer the accessory mounting provisions that are found on stock manifolds. It may be necessary to fabricate special brackets for the air conditioner, power steering, and alternator supports.



The chrome headers we offer are not show quality, but are a commercial grade of chrome that will protect the headers from corrosion. The availability of the chrome headers is becoming limited due to the availability of chrome plating facilities on the West Coast. The alternative to chrome is a plain non-plated header set furnished to the customer for his own application of finish. The header can be painted by the consumer using a special heat paint available in most auto parts stores.



STOCK MANIFOLDS:

If stock manifolds are being used on a Chevy small block, a rear dump, close-fitting manifold off of a 1982 & newer low performance car is a good option. On vehicles that are smog exempt (depending on your vehicle year or state laws), the early Chevy ram horn (centerdump) manifolds are great for most conversions.

Chevy V6 applications can use manifolds off of a 1978 Malibu Classic. For non-smog legal vehicles, manifolds off of a 1980 Monte Carlo fit the best.

HEADERS:

Our header flanges are 3/8" thick and all of our primary tubes are constructed with 16 gauge tubing with a 2-1/2" 3 bolt collector ring. Each design is available in either a commercial chrome finish or a non-plated version, ready for your painting or custom coating. *NOTE: Our headers are not designed to fit Chevy small blocks with angle port heads.*

Our [written guarantee](#) states that if the headers do not fit your engine conversion exactly as you see fit, then simply return them for a full refund. You will only be responsible for the freight charges. We do not warranty the chrome plating on our exhaust systems, and the use of aftermarket header wrap products **will void** the header warranty. Thirty-four years of continual fine tuning and adjustments have made the Advance Adapters headers a choice for all engine conversion installations.

SMALL BLOCK CHEVY HEADERS: The Chevy headers we offer come complete with header flange gaskets, header bolts, collector rings for the exhaust shop, and collector gaskets. All headers can be ordered in a chrome finish or a non plated finish by adding a (NP) to the numbers listed below.



P/N 717038

P/N 717038 - Fender well header that fits Jeep CJ7 1976-1986

P/N 717010 - Inside the frame header that fits 1941-1986 Jeep Wagons

P/N 717011 - Inside the frame header that fits 1941-1979 center dump Jeep universal

SPECIAL HEADERS: We now offer universal headers like our 717011 headers that work with angle plug and D-port heads.

P/N 717015 - Inside the frame header fits blocks with a std port head and angle plugs.

P/N 717016 - Inside the frame header fits D-port heads with angle plugs.

CHEVY 3.8 & 4.3 V6 HEADERS: These Chevy V6 headers we offer come complete with header flange gaskets, header bolts, exhaust clamps for the exhaust shop. All headers can be ordered in a chrome finish or a non plated finish by adding a (NP) to the numbers listed below. (1-1/2" primary tubes)

P/N 717056 - Inside the frame header that fits 1980-1986 rear dump Jeep universal

GEN III CHEVY V8 HEADERS: The Chevy Gen III headers are welded to a 3/8" steel flange. These headers use the stock flange gasket and metric bolts. We provide two collector rings for the exhaust shop and the collector gaskets. All headers can be ordered in a chrome finish or a non plated finish by adding a (NP) to the numbers listed below.

P/N 717040 - Fender well header that fits Jeep CJ 1976-1986

P/N 717043 - Inside the frame header that fits Jeep CJ7 1976-1986 (1-1/2" primary tubes)

BUICK V6 HEADERS: The Buick headers we offer come complete with header flange gaskets, header bolts, collector rings for the exhaust shop, and the collector gaskets. All headers can be ordered in a chrome finish or a non plated finish by adding a (NP) to the numbers listed below. (1-1/2" primary tubes)

P/N 717042 - Fender well header that fits Jeep CJ7 1976-1986

SMALL BLOCK FORD HEADERS: The Ford small block headers we offer come complete with header flange gaskets, header bolts, collector rings for the exhaust shop, and the collector gaskets. All headers can be ordered in a chrome finish or a non plated finish by adding a (NP) to the numbers listed below. (1-1/2" primary tubes)

P/N 717034 - Fender well header that fits Jeep CJ5 & CJ7 1972-1986

P/N 717012 - Inside the frame header that fits 1941-1979 center dump Jeep universal

CONVERSION APPLICATION SUMMARY

JEEPS 1980-86

1980-86 JEEP CJ5 & CJ7 (Manual Transmissions):

Between these years, Jeep used 3 different engines: from 1980-86, the 258 6 cylinder; from 1980-83, a GM 4 cylinder 151 Iron Duke engine; and from 1983-86, an AMC 151 4 cylinder. These engines were equipped with both hydraulic & mechanical clutch control systems. The stock manual transmissions used could be one of four types: T5, T4, SR4 or T176.

A. Optional Transmissions: Most of these stock transmissions are marginal for use with a Chevy V8 engine. The stock transmission can be easily replaced by using various types of Ford or Chevy transmissions. The transmission selections include truck 4 speeds, car 4 speeds, and automatics. When changing transmissions, most cases may require the relocation of the transfer case further back to accommodate the new transmission length. The adapters available for your transfer case (Dana 300) are listed in the Transfer Case section of this brochure.

B. Stock Transmissions: If you have decided to retain your stock transmission, please refer back to the 1980-86 Stock Transmission & Bellhousing Adapters section for the necessary conversion components. (Iron Duke bellhousing modifications are also found this Bellhousing Adapter section).

C. Exhaust: There is ample room to use stock cast iron manifolds. We offer two header systems that could be used on these conversions. For Chevy V8 conversions, [P/N 717011](#) headers offer the exhaust system inside the frame rails, while [P/N 717038](#) offer exhaust systems outside the frame rails. On Ford V8 conversions, you can use [P/N 717012](#) inside-the-frame rail headers, or [P/N 717034](#) outside-the-frame rail headers. The outside-the-frame rail headers will offer much more performance due to the length of the tubing used.



D. Clutch Linkage: Both Jeep 4 cylinder engines have been equipped with hydraulic clutch controls. When converting to a Chevy small block and using our full bellhousing, we utilize the Iron Duke slave cylinder. This slave cylinder mounts directly to our conversion bellhousing.

On 6 cylinder applications, Jeep used a mechanical linkage that pivots off of the stock bellhousing. When using our full conversion bellhousing with a Chevy engine, this pivot can be retained. If you have decided to use one of our adapter plates in conjunction with a Chevy bellhousing, then [P/N 716638](#) can assist you in obtaining this clutch pivot mount. On Ford conversions, we do not offer any brackets. Fabrication will be required.

On both Ford & Chevy engine conversions with the mechanical linkage, we offer a chain linkage to replace the stock Jeep clutch linkage, [P/N 716639](#). This system retains the stock rod that comes through the firewall and replaces all other stock components.

E. Radiator: The stock radiator is not normally sufficient to cool the newer engine. One option is to have a custom radiator built. We offer some custom radiators for Chevy applications. If you are planning on performing an automatic transmission swap, thought should be put into proper cooling for the transmission.

F. Driveshafts: On V8 engine conversions retaining the stock transmissions, the driveshafts should not require modifications. When upgrading the vehicle with a new engine & transmission, driveline modifications should be expected.

G. Engine Location: The main limiting factor when positioning the engine is firewall clearance. On Chevy engines, it is crucial to allow proper clearance for the distributor cap. To locate your engine (retaining the stock transmission), leave the transfer case in the original location and assemble the transmission, bellhousing, and engine forward from this location. When changing transmissions, locate the engine and work towards the transfer case. Areas to keep under consideration are firewall, radiator, and hood clearances. On some applications, additional clearance can be obtained with firewall modifications; or on Chevy blocks, using a smaller distributor cap. When installing a new transmission & engine, most applications will require the engine to be offset 1" to the driver's side for front driveshaft clearance.

1980-86 JEEP CJ5 & CJ7 (Automatic Transmissions):

Between these years, Jeep used 3 different engines: from 1980-86, the 258 6 cylinder; from 1980-83, a GM 4 cylinder 151 Iron Duke engine; and from 1983-86, an AMC 151 4 cylinder. These engines were mated to the Torqueflite 904 & 999 automatic transmissions.

A. Optional Transmissions: Vehicles equipped with the Torqueflite 904 transmission usually had a AMC 4 cylinder engine. This transmission is marginal when used up to a V8 engine. The stock transmission can be easily replaced by using various types of Ford or Chevy transmissions. The transmission selections include truck 4 speeds, car 4 speeds, and automatics. When changing transmissions, most cases may require the relocation of the transfer case further back to accommodate the new transmission length. The adapters available for your transfer case (Dana 300) are listed in the front section of this brochure.

B. Stock Transmissions: The Torqueflite 999 was usually found mated to the in-line 6 cylinder, while the 904 was mated to the AMC 4 cylinder. If you have decided to retain your stock transmission, we offer adapters that couple these stock Torqueflites to the Chevy V6 & V8 engines only. There are two kits designed for these transmissions; one to fit the Torqueflite when replacing the 6 cylinder (P/N 716131), and one to fit the Torqueflite when replacing the 4 cylinder (P/N 716132). Please refer back to the 1980-86 section of the Stock Transmission & Bellhousing Adapters for the additional conversion components. The stock column linkage can be retained, but it will require some fabrication. By installing a Chevy V8, you will lose the original column linkage pivot point. An alternative to this stock column linkage would be a cable-operated floor mounted shifter. (NOTE: Although rare, we have seen the Torqueflite transmission coupled to the Iron Duke 151 4 cylinder. This transmission has a Chevy bolt pattern on the bellhousing; however, to couple this transmission to the Chevy engine requires a special torque converter. This torque converter costs \$500 and upward. We highly recommend replacing this transmission.)

C. Exhaust: There is ample room to use stock cast iron manifolds. We offer two header systems that could be used on these conversions. For Chevy V8 conversions, P/N 717011 headers offer the exhaust system inside the frame rails, while Part No. 717038 offer exhaust systems outside of the frame rails.

D. Radiator: The stock radiator is not normally sufficient to cool the newer engine. One option is to have a custom radiator built. We offer some custom radiators for Chevy applications. When retaining your stock automatic transmission or swapping to another automatic, thought should be put into proper cooling for the transmission.

E. Driveshafts: On V8 engine conversions retaining the stock transmissions, the driveshafts should not require modifications. When upgrading the vehicle with a new engine & transmission, driveline modifications should be expected.

F. Engine Location: The main limiting factor when positioning the engine is firewall clearance. On Chevy engines, it is crucial to allow proper clearance for the distributor cap. To locate your engine (retaining the stock transmission), leave the transfer case and transmission in the original location and assemble the adapter & engine forward from this location. When changing transmissions, locate the engine and work towards the transfer case. Areas to keep under consideration are firewall, radiator, and hood clearances. On some applications, additional clearance can be obtained with firewall modifications; or on Chevy blocks, using a smaller distributor cap. When installing a new transmission & engine, most applications will require the engine to be offset 1" to the driver's side for front driveshaft clearance.



1987 & NEWER JEEPS (JEEP NP200 Series Transfer Cases):

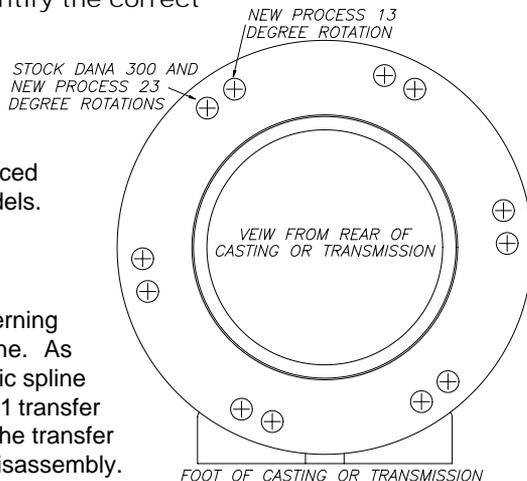
The New Process transfer cases used in late model Jeeps are always a left-hand drop configuration and have the same circular bolt pattern as the Dana 300. One of the differences between the Dana 300 and New Process transfer case is the rotation. The stock rotation on the New Process transfer case depends on the year of the vehicle and the stock transmission used. The rotations are approximately 13 or 23 degrees. Most of our adapter housings will have both sets of six adapter-to-transfer case mounting holes. The illustration (right) shows both rotations.

The input splines on these transfer cases vary from 21 to 23 splines, and the transmission that is mated to these transfer cases had either a long or flush output shaft length. It is crucial that you identify the correct spline length and tooth count before ordering any adapters.

There are numerous styles of New Process transfer cases, and you must be very careful in making your identification of such. The first units were the NP207s, and they were used in the early model Cherokee Jeeps. The full size Jeep trucks and Grand Wagoneers used the NP208. Jeep soon added the NP231 which replaced the Model 207 in 1987. A Model NP242 was also added for the full time 4WD models.

SPLINES:

With all of the variations in model numbers, the only variation that we see concerning transmission adaption is the size and tooth count of the transfer case input spline. As mentioned in the second paragraph, the New Process transfer case has two basic spline counts and each spline count has two different lengths. Both the NP207 and NP231 transfer cases were available with these two different input splines. The input splines of the transfer case can be changed if necessary, but the complete transfer case will need disassembly.



The easiest way that we have found to identify the proper transfer case input is by identifying the stock transmission that Jeep used. The 21 and 23 spline output shafts vary on different transmission models. The AX15 transmission is always 23 spline and protrudes 1/2" beyond the face of the transmission. The Torqueflite and NV3550 are normally a flush 23 spline. The AX4 & AX5 always have 21 splines and is flush with the back of the transmission adapter until 1996; and then in 1997, the AX5 output shaft was lengthened to a 1/2" stickout past the tailhousing adapter. The Peugeot transmission is always 21 splines and protrudes 1/2" beyond the back of the transmission adapter housing. We have seen the AW4 automatic transmission in both a long 21 & 23 spline.

On the Transfer Case Selection Chart, we have listed the stock Jeep transmissions used with each transfer case. You can also refer to the Stock Jeep Transmission & Bellhousing section for additional transmission identifications. If you have a 21 spline transfer case, you will notice that some transmission applications are not available. On these applications and on high horsepower applications, we recommend changing your input gear to a 23 spline. This will allow you to use the transmissions listed for the 23 spline applications and will also give you added strength.

P/N 716053A - New Process 231 T/C 23TH input 1987-94 (used for flush output shaft stickout on transmission)

P/N 716054A - New Process 231 T/C 23TH input 1987-94 (used for long output shaft stickout on transmission)

On Jeeps 1995 & newer, New Process used a different planetary assembly. The two part numbers listed above will not work with this transfer case. To the best of our knowledge, this transfer case can be identified by one of three case model numbers: 52097-894, 52098-361, and 52098-540.

Another way to differentiate between these assemblies is illustrated by the photo right. If you have one of these model transfer cases and wish to change to a 23 spline input, the input gear required is **AA P/N 716095**.

The gears listed above will not work with the NP207 transfer case. If you have a 1987 Jeep equipped with the NP207 21 spline input gear and wish to add some strength to your drivetrain, you can purchase a new 23 spline input gear (P/N 716096). This new gear was designed for transmissions with a flush output shaft stickout. Transmissions having a .500" stickout past the adapter housing may require the transmission output shaft to be modified.

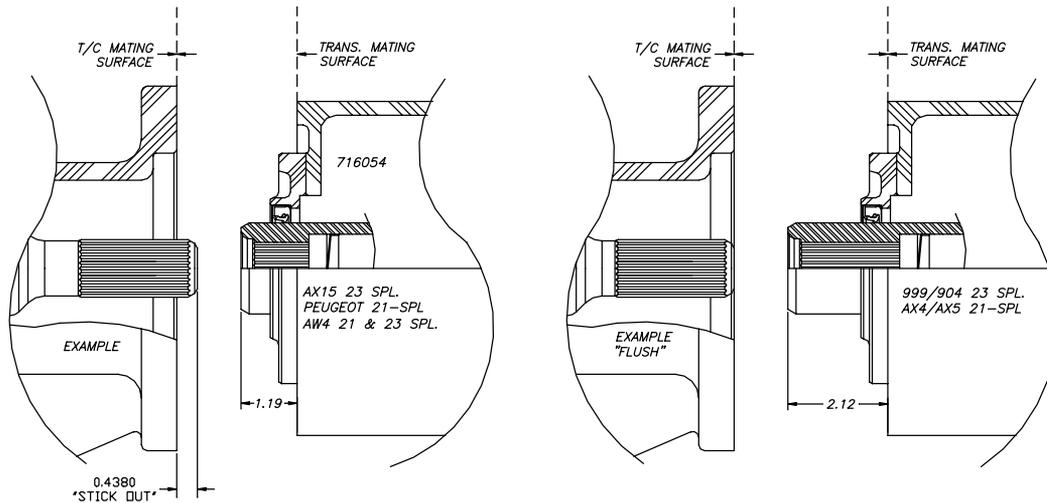


1995 & Newer
(tall & narrow)
Part number
needed:
716095 (5-1/8")

NP231 INPUT GEARS

Pre-1995
(short & wide)
Part number
needed:
716053 (5-1/8") or
716054 (4-1/8")

Note: Some XJ models with the NP240 series case are an exception to the above year differences. Please specify if your case is a NP240 series out of an XJ model.



REAR DRIVESHAFT:

When converting to a new transmission, driveshaft modifications are normally necessary. Jeeps with the NP231 now have the advantage of gaining needed length for suspension travel. We offer a new short shaft "Fixed Yoke" kit, P/N 50-7906, that will add 4" of rear driveshaft length on a YJ, and up to 6" on a TJ. This kit has the provision for the vacuum shift control located on the stock tailhousing (mainly found in Cherokees). This kit comes with a new 1310 C.V. yoke. If you would like to use a non-C.V. yoke like a 1350, we offer kit P/N 50-7907 that allows a couple of yoke options which are listed below.

The Jeep NP231 is one of the most commonly used transfer cases today. It is a chain-driven, planetary designed gear box with a low ratio of 2.72 to 1. For the average 4-wheeler, this is a good transfer case. One of the biggest faults of this transfer case is the overall length. At 20+ inches, this creates an extremely short rear driveshaft in the Jeep YJ & TJ Wranglers. This short rear driveline becomes even more crucial when the vehicle is lifted or a transmission swap is performed. In addition, when a lift kit is installed, larger tires are usually the next upgrade. Strength and driveline angle of the output shaft then becomes a concern.

To make the NP231 better suited for these upgrades, we have designed our "Fixed Yoke" kit with the best features available. We manufacture a new one-piece tailhousing that will add the needed inches to your rear driveline length. This will allow you to obtain a better driveshaft angle and eliminate driveline vibrations. The new 32 spline output shaft is over 50% stronger than stock. This kit, along with a new 1310 series C.V. yoke, makes the NP231 a better transfer case for trail use. A full set of installation instructions is provided to assist in the installation of this kit.



The installation of this kit requires you to nearly disassemble the entire transfer case. If your transfer case is in need of a rebuild, now is the perfect time to do it.

Our kit P/N 50-7907 allows the use of a couple different yokes. The yoke options are as follows:

- P/N 716295 - 1310 Non-C.V. Yoke (ONE YOKE, NO CHARGE WITH PURCHASE OF THIS KIT)
- P/N 300472 - 1350 Non-C.V. Yoke U-Bolt Style (ONE YOKE, NO CHARGE WITH PURCHASE OF THIS KIT)
- P/N 300470 - 1310-1350 C.V. & Non-C.V. Yoke Flange Yoke (\$100.00 ADDITIONAL COST)
- P/N 300471 - 1410 Non-C.V. Yoke Flange Yoke (\$100.00 ADDITIONAL COST)

If your stock NP231 is giving you trouble, we also offer a stock replacement NP231 with or without a heavy-duty short shaft kit installed.

- P/N 29-2310 - NP231 with a H.D. Output Shaft Kit

ATLAS TRANSFER CASE REPLACING A NEW PROCESS:

The Atlas has been designed to fit as a universal transfer case. When replacing a New Process transfer case and retaining your stock transmission, the Atlas will bolt directly to the stock transmission adapter. The crossmember mount is always located on this adapter housing. No other adapters will be necessary.



When replacing a New Process transfer case & changing the transmission, we offer numerous transmission-to-transfer case adapters to mate these units. Because of the wide selection of input shaft splines, some applications will only require the adapter housing, not a full transfer case adapter kit. All of the adapter housings we manufacture have provisions for the rubber crossmember support.

The Atlas has the standard New Process rotation, but also offers 3 other rotation options. Depending on the rotation you choose, some body and crossmember modifications may be necessary. We offer the twin stick shifter in different configurations to fit the different years & models of vehicles. These configurations are designed to fit with only minor modifications to your vehicle. The Atlas has provisions for the vacuum actuated front differentials and most dash board indicator lights. The stock speedometer drive will be reused from your original New Process transfer case.

The Atlas provides shift-on-the-fly capability, and additional ground clearance with 4 rotation options. The Atlas offers several different low gear ratios, which include a 2.0:1, 3.0:1, 3.8:1, 4.3:1, and 5.0:1. Along with the Atlas two speed transfer case we also offer a new Atlas 4 speed transfer case. The 4 speed transfer case offers three low gear ratios, which include 2.0:1, 2.72:1 & 5.44:1 or 2.72:1, 3.8:1 & 10.34:1. For details on the Atlas transfer case please obtain a copy of our Atlas manual.

FRONT DRIVESHAFT CLEARANCE:

Regarding front driveshaft clearance, this is usually not a problem. Care should be given on some manual transmissions with reference to the clutch release arm and slave cylinder mounting.

TRANSMISSION/TRANSFER CASE SUPPORT PLATE:

With the introduction of the AISIN and Peugeot 5 speed transmissions, the transmission crossmember support was changed. The mounting bracket and rubber assembly are completely different than the previous models. The original parts can be retained on most transfer case conversions, and some minor modifications may be necessary. Whenever possible, it is best to keep the original transmission support in the same location. This support will control the torque and movement of the transfer case.

Part No. 716017 mounting bar will adapt the original Jeep crossmember support to the bottom of the Advance Adapter tailhousing. It may be necessary to space the crossmember downward from the frame rails in order to maintain the proper transmission clearance from the vehicle floorboard.

In 1995, we introduced a new style of transfer case support mount, P/N 716008, that utilizes the special dual donut neoprene mounts. This mount was needed for the NV4500 5 speed transmission installations. The new mount will support a much heavier load and is easily adapted to the existing skid plate location.

All of the adapters we manufacture offer a support pad machined on the casting. In most cases, this pad will not line up with your original skid plate mounting slots. If you are planning to reuse your stock rubber support or one of our new supports, we suggest that you retain your skid plate in the stock location and add two new holes to your skid plate to fasten the rubber support. The supports below can be used to fasten our adapter to your stock skid plate.



- P/N 716008 - New rubber support (Jeeps 1987 & Up)
- P/N 716017 - Aluminum adapter block *(used to help retain your stock rubber support)*
- P/N 716021 - New rubber support *(used in conjunction with 713087 saddle mount & auto transmission)*

Some vehicle applications may require a spacer between the adapter crossmember foot and the rubber mount. This is to provide ample clearance between the transmission and the skid pan. We offer a 2" spacer that works well. Since all applications differ, it's hard to determine or recommend when this additional mount is needed.

- P/N 716048 - 2.0" spacer between adapter foot and crossmember



P/N 716008 assembled



P/N 716008 assembled on a NV4500 with spacer P/N 716048

NEW PROCESS TRANSFER CASE SHIFTERS: There are several configurations used on the New Process transfer cases. We manufacture several brackets to assist you in retaining your stock shifter; however, some applications are not available. You may be required to fabricate your own brackets to work with our adapters.

The stock brackets pictured below are the most common brackets we have found on New Process series transfer cases. Some of these brackets were used in specific applications, while others were interchanged. The photos below will help you identify the stock linkage your vehicle may have. This will assist you as to whether or not we offer additional brackets to mount your linkage.



(Brkt. #1)
Jeep# 53004280

This bracket bolts the adapter to the transfer case flange and is the most universal of the 4 brackets. If you are having trouble mounting your transfer case linkage, obtain this bracket to simplify your installation. No additional brackets are normally necessary. This bracket is sometimes hard to find. We now offer a bracket similar to this one, [P/N 715545](#).



(Brkt. #2)
Jeep# 53005371

This bracket is normally found on Jeep AX15 transmissions.



(Brkt. #3)
Jeep# 53004278

This bracket is normally used with the AX4 & AX5 transmission.



(Brkt. #4)

This bracket (used mostly in TJs and some Cherokees) is by far, the hardest linkage to retain when doing any type of conversion. The outside of the bracket is bolted to the frame rail or floorboards, thus causing difficulty adjusting for different transmission lengths.

We offer assistance on mounting some of the above stock transfer case shifters. If we do not offer a bracket for your application, we suggest that you purchase Bracket #1. The part numbers listed below refer to the stock bracket referencing numbers.

AA Part #	Fits AA Casting # or Application	Fits Stock Bracket #
715523	50-6300, 6800, 9100 kit series	Brkt. #2 & 3
715524	Early Cherokee pivot brkt.	Jeep #53000791 (not pictured)
715531	50-0212, 0204 (NV4500 adapters)	Brkt. #2 & 3
715538	50-3900 kit series	Brkt. #2 & 3
715542	TJ with 13 degree T/C rotation	Brkt. #4
715545	NV3550 to early NP transfer case	New brkt.



715545 bracket



715523 bracket



715542 bracket

When replacing the stock transmission on Cherokee vehicles, some fabrication on the transfer case linkage will be required. The transfer case handle is mounted to the body of these vehicles; and this vehicle has a console that fits around the transfer case shifter. The replacement of this linkage would require both floorboard and interior modifications. The type of linkage under the body is shown by Bracket #4. This linkage uses a bellcrank that pivots between a transfer case mounting bracket and a body mount bracket. When the transfer case moves, so does the transfer case mounting bracket which will cause a misalignment of the transfer case shifter bellcrank. We recommend modifying the body mount bellcrank support to realign the bellcrank to the transfer case support. The rods on the bellcrank may also need to be lengthened or shortened accordingly. You can also try using our [P/N 715542](#) bracket which replaces the body pivot mount.

TRANSMISSION-to-TRANSFER CASE ADAPTERS

Most of the transmissions listed below offer several adapter options. These adapters are all similar in length; however, the shaft lengths and spline counts vary. Identifying what transmission your vehicle was originally equipped with will aid in obtaining the right kit to maximize the spline engagement and avoid timely part exchanging.

Flush 23 kits fit transfer cases originally coupled to a NV3550, Torqueflite 999 & 904.

Long 23 kits fit transfer cases originally coupled to a AX15.

Flush 21 kits fit transfer cases originally coupled to a AX4, early AX5 and some AW4 transmissions.

Long 21 kits fit transfer cases originally coupled to a Peugeot, and 1997 & newer AX5.

TRUCK TRANSMISSIONS:

SM420 Truck 4SP: This transmission works great in Jeeps. The overall length is 10-1/2". It has the lowest 1st gear available of 7.05:1; 2nd 3.57:1; 3rd 1.7:1, and a 4th gear ratio of 1:1. This transmission was used in GM trucks from 1947 to 1968, and has a 10 spline output shaft. As the years progress, it is getting harder to find this transmission and parts. The kit we offer is 5.25" long and has a new spud shaft that couples to the New Process transfer case. This kit is supplied with the proper gaskets and bolting hardware.

SM420 to New Process T/Cs

50-9702 Flush 23 spl. adapter kit

50-9704 Long 23 spl. adapter kit

50-9701 Flush 21 spl. adapter kit

50-9703 Long 21 spl. adapter kit

Optional Items:

716008 Trans mount (or)

716021 Trans mount (or)

716017 Trans mount

SM465 Truck 4SP: Used from 1968 to 1988, this tranny replaced the SM420. It has an overall length of 12". The 1st gear ratio is 6.58:1; 2nd 3.58:1; 3rd 1.57:1, and 4th gear ratio of 1:1. This transmission was used in both the 2WD & 4WD vehicles. Throughout its 20 years, the transmission case never changed; however, we have seen three different output shafts. The 1968-79 4WD transmission used a 10 spline output shaft, which is easily adapted to. The 1968-88 2WD version used a 35 spline output shaft. This transmission can also be used, but not without output shaft modifications. The 1980-88 4WD tranny used a long 32 spline output shaft. We do not offer any adapters that couple to this output shaft because of its length. If you have this SM465 version, you can change the output shaft to the 10 or 35 spline output. We offer adapter kits for both the 10 & 35 spline SM465 transmissions. The adapters for these kits are 5.25" long and are supplied with the proper gaskets and bolting hardware. These kits use a spud shaft to couple to the New Process transfer case. The kits for the 35 spline tranny requires the main output shaft to be shortened.

SM465 10 spline to New Process T/Cs

50-9808 Flush & long 23 spl. adapter kit

50-9801 Flush 21 spl. adapter kit (7" long adapter)

50-9809 Long 21 spl. adapter kit

Optional Items:

716008 Trans mount (or)

716021 Trans mount (or)

716017 Trans mount

SM465 35 spline to New Process T/Cs

50-9812 Flush & long 23 spl. adapter kit

50-9811 Flush & long 21 spl. adapter kit

T18 Truck 4SP: This transmission, found in 1965 to 1985 Ford pickups, is identified by a case length of 11.875". The 1st gear ratio is 6.32:1; 2nd 3.09:1; 3rd 1.69:1, and a 1:1 4th gear ratio. The adapters we manufacture for this transmission come with a new main shaft. This will usually allow the overall length of this transmission to remain ideal for most short wheel based vehicles. Ford was not the only manufacturer who used the T18 transmission. When searching for a T18 in salvage yards, make sure the bellhousing bolt pattern has a dimension of approximately 8-1/2" across the top, and 6-1/4" top-to-bottom. The input shaft stickout should be approximately 6-1/2". It is easier to adapt to the Ford T18 than to the Jeep or Scout T18. We do, however, also offer adapters for the Jeep & Scout transmissions. These kits are all a main shaft style kit. The top end of the transmission must be rebuilt with the new main shaft included in the kit. All of the adapters include a new 3.25" thick adapter plate that couples the transmission to the New Process transfer case. The transmission bolt patterns between the Ford and Jeep transmission cases are different, so we do offer two different kits for that reason. This transmission is also very popular for use as a transmission retrofit when retaining the stock Jeep engine. For more information, see the 1987 & Newer Jeep Tranny Retrofit section of this manual.

Ford T18 to New Process T/Cs

50-7500 Flush 23 spl. adapter kit

50-7505 Long 23 spl. adapter kit

50-7501 Flush 21 spl. adapter kit

50-7504 Long 21 spl. adapter kit

Optional Items:

716008 Trans mount (or)

716021 Trans mount (or)

716017 Trans mount

Jeep T18 to New Process T/Cs

50-7502 Flush 23 spl. adapter kit

Photo courtesy of Kent Chipman AKA "Mad Dog", a satisfied Atlas owner.



transmission to t/c adapters (1987 & newer)

T98 Truck 4SP: This transmission, found in 1960 to 1971 Ford pickups & Jeeps, is identified by a case length of 11.875". The 1st gear ratio is 6.39:1; 2nd 3.09:1; 3rd 1.68:1, and a 1:1 4th gear ratio. The adapters we manufacture for this transmission come with a new main shaft. This will usually allow the overall length of this transmission to remain ideal for most short wheel based vehicles. Ford was not the only manufacturer who used the T98 transmission. When searching for a T98 in salvage yards, make sure the bellhousing bolt pattern has a dimension of approximately 8-1/2" across the top, and 6-1/4" top-to-bottom. The input shaft stickout should be approximately 6-1/2". It is easier to adapt to the Ford T98 than to the Jeep or Scout T98 because of the length of input shaft. These kits are a main shaft style kit. All the adapters include a new 3.25" thick adapter housing that couples the transmission to the New Process transfer case.

Ford & Jeep T98 to New Process T/Cs

50-7503 Flush 23 spl. adapter kit

50-7506 Long 21 spl. adapter kit

Optional Items:

716008 Trans mount (or)

716021 Trans mount (or)

716017 Trans mount

T19 Ford Truck 4SP: This transmission looks identical to the Ford T18, and the case length is the same. The 1st gear ratio is 5.11:1 1st; 2nd 3.03:1; 3rd 1.79:1, and 1:1 4th gear ratio. These transmissions were used in Ford pickups 1974-88. The first gear on this transmission is synchronized, which is the biggest advantage over the T18. The adapter kits we manufacture for this transmission requires a new main shaft. This shaft looks identical to the Ford T18, except it has a snap ring groove for the 1st gear synchronizer. This kit includes a new T19 main shaft and a new adapter housing that couples the transmission to the New Process transfer case.

Ford T19 to New Process T/Cs

50-6501 Flush 23 spl. adapter kit (3.250" long)

50-6501 Long 23 spl. adapter kit (3.250" long)

50-6600 Flush 21 spl. adapter kit (5.125" long)

50-6600 Long 21 spl. adapter kit (5.125" long)

Optional Items:

716008 Trans mount (or)

716021 Trans mount (or)

716017 Trans mount

NP435 Ford Truck 4SP: We manufacture many adapters for the Ford version of the NP435. These adapters do not work on the Chevy or Dodge NP435. This transmission has a case length of 10.875". The 1st gear ratio is 6.69:1; 2nd 3.34:1; 3rd 1.66:1, and a 1:1 4th gear ratio. This transmission was used in Ford pickups 1969 to 1979. It is easily identified by an aluminum shift cover. This transmission is available with two front input shaft lengths. The 6-1/2" input shaft stickout length is the ideal version to look for. These kits come with a new housing and main shaft that must be installed into the transmission. This kit is supplied with the proper gaskets and bolting hardware.

NP435 to New Process T/Cs

50-3801 Flush 23 spl. adapter kit (4.250" long)

50-3901 Long 23 spl. adapter kit (6.250" long)

50-3900 Flush & long 21 spl. adapter kit (6.250" long)

Optional Items:

716008 Trans mount (or)

716021 Trans mount (or)

716017 Trans mount

Jeep T176 Jeep Transmissions: We offer transfer case adapters to fit the Jeep T176. The 1st gear ratio is 3.82:1; 2nd 2.29:1; 3rd 1.46:1, and a 1:1 4th gear ratio. The T176 kit consist of a new spud shaft and a 7.00" thick adapter housing. The spud shaft connects to the stock T176 23 spline output shaft.

T176 to New Process T/Cs

50-4101 Flush & long 23 spl. adapter kit

50-4100 Flush & long 21 spl. adapter kit

GM NV4500 (1993-94): During the first two years of the NV4500, Chevy offered this 5 speed with a 6.34:1 1st gear; 2nd 3.44:1; 3rd 1.71:1; 4th 1:1 ratio, and a 27% overdrive. It was also the first year that Chevy changed the bellhousing-to-transmission bolt pattern. This transmission is ideal when converting your vehicle, providing an ultra-low 1st gear. GM, however, only produced this particular ratio during these years. The major complaint of this 5 speed was stiff shifting and noise in 3rd gear. (1995): This transmission is identical to the 1993-94 transmission, except the 1st gear ratio had been changed to 5.61:1; 2nd 3.04:1; 3rd 1.67:1; 4th 1:1 ratio, and a 27% overdrive. The noise and shifting problems had been corrected. (1996-2005): This transmission has the same gear ratio as the 1995 version. Chevy once again changed the bellhousing-to-transmission bolt pattern and went to a larger bellhousing index diameter. This Chevy NV4500 has the same bellhousing-to-transmission bolt pattern as the Dodge NV4500. These transmissions use a GM internal release bearing. All the NV4500 transmissions have a 12.375" case length. This kit is only offered as a 23 spline option. Transfer cases with a 21 spline input must upgrade to a 23 spline transfer case input. The kit offers a new 23 spline output shaft for the NV4500. This new output shaft must be installed to obtain the right spline for the New Process transfer case. The kit also includes a new tailhousing adapter and transfer case linkage bracket for the Jeep YJ Wranglers.

GM NV4500 to New Process T/Cs

50-0212 5.87" main shaft adapter kit

Optional Items:

716008 Trans mount

We offer complete packages for this transmission.

Dodge NV4500 (1993-1998): This transmission is the same as the 1996-99 Chevy version; however, the only differences are the transmission input shaft lengths (Dodge 7.5" & Chevy 6.5"), output shaft splines (Dodge 23 & Chevy 32), and the tailhousing lengths and bolt patterns. **Dodge NV4500 29 SPL.(1999-2005):** For the transmissions in these years, Dodge changed the shifter stud on the top cover to a threaded stud, requiring a different shifter handle. In 2001, Dodge changed the output spline of their transmission to a 29 spline. We stock this 29 spline transmission under P/N 26-0029. All NV4500 transmissions have a 12.375" case length. The adapters to couple the Dodge NV4500 to the New Process transfer case utilizes the stock transmission output shafts. The kits consist of a new adapter housing, transfer case linkage and necessary hardware. When using a new 29 spline transmission, you will also be required to purchase a new 29 spline input gear for your transfer case which is listed below.

Dodge NV4500 to New Process T/Cs

50-0204 Adapter kit for both 23 & 29 spl. transmissions

50-0231 29 spl. input gear for 29 spl. transmissions

Optional Items:

716008 Trans mount (or)

716048 Trans mount

(We offer complete packages for this transmission.)

Jeep NV3550 Transmissions: This 5 speed is rated at 300 ft./lbs. at 7200 GVW. The weight of this 5 speed is 97 lbs. The gearing of this 5 speed is as follows: 1st 4.01:1; 2nd 2.32:1; 3rd 1.40:1; 4th 1.00:1; 5th 0.78:1, and Reverse 3.57:1. The NV3550 transmission is ideal for retrofitting the Peugeot 5 speed. The NV3550 transmission is within a 1/4" length of the Peugeot 5 speed, making this an ideal swap. The transmission shifter towers are within 1" of each other, so floorboard modifications are very minimal. Even though the length of these transmissions are the same, the transfer case splines are different; therefore, we provide a new input gear for either the New Process 231 or 207 transfer case. The only available rotation for the New Process transfer case to the NV3550 is the 13 degree rotation. This could cause some floorboard interference on vehicles that originally had a 23 degree stock rotation. The transmission kits we offer include a new NV3550 (P/N 26-3550R), a full bellhousing (P/N 712590), a transfer case shifter linkage (P/N 715545), a crossmember adapter mount that retains the stock Peugeot rubber mount (P/N 716007), a slave cylinder kit (P/N 716340), and an input gear for your transfer case (P/N 716053 NP231 or 716096 NP207). These components can be ordered in one of the two kits listed below:

27-3507R NV3550 to Peugeot 5 speed replacement with NP207 transfer case

27-3510R NV3550 to Peugeot 5 speed replacement with NP231 transfer case

Jeep AX15 Transmissions: The AX15 transmission has always been a great transmission able to handle the torque and horsepower of most V8s. The biggest problem now is the availability of new units. With the lack of availability of new NV3550s, we revisited the possibility of obtaining the Asian Warner AX15 transmission and were successful. Although the torque specifications are not listed on this transmission in any service manual, we feel it's similar enough to the NV3550. The NV3550 was the transmission that superseded the AX15; and Jeep used the same engine with the same vehicle ratings. With the availability of AX15 transmissions, we can now offer some additional transmission retrofit applications. **P/N 26-AX15**

AX15 Direct Replacement: The AX15 was used between 1988 to 1999 in the Jeep vehicles. Since these Jeeps are getting up in mileage, a new AX15 makes sense as a direct retrofit. Available in both an internal and external release bearing design.

AX15 retrofitting the AX5: This is a newer kit for all 4 cylinder Jeeps 1987 to 2002. The AX5 is considered a light duty transmission compared to the AX15. Jeeps equipped with larger tires and lower gears in the axle & transfer case may find the weak link in the drivetrain is the stock transmission. You can now install the AX15 in place of the AX5 to gain some drivetrain strength. The nice thing is that when you're ready to replace the 4 cylinder with a larger V6 or V8, the AX15 is an ideal transmission for the power increase.

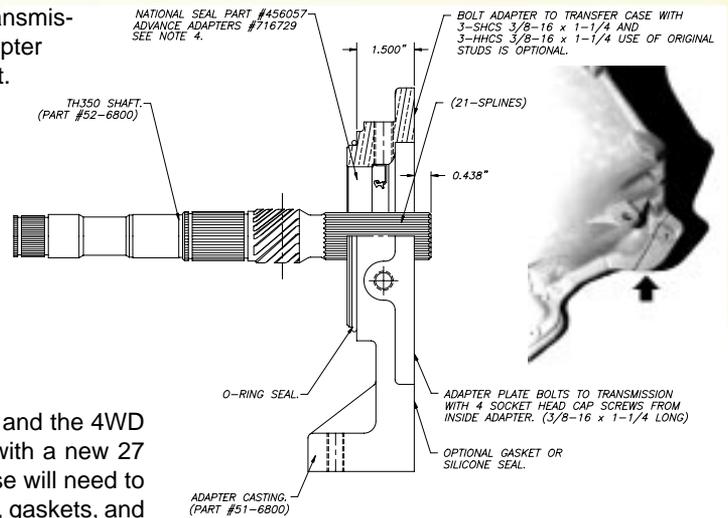
Peugeot 5 speed Replacement: The AX15 is the exact same length. The kits we offer include a new input gear for either the New Process 231 or 207 transfer case. Due to vehicle variances, some applications may require transfer case linkage modifications. Kits include a new bellhousing, transfer case shifter linkage, a crossmember adapter mount to retain the stock Peugeot rubber mount, slave cylinder kit, and an input gear for your transfer case.

AUTOMATIC TRANSMISSIONS:

We now offer rebuilt automatic transmissions with our adapter kits installed. To stand up to the stress & strain put on most 4WD vehicles, these transmissions are built with the best heavy-duty components available. We offer most makes and models for GM, Ford, and Jeep vehicles. These transmissions are all dyno tested and come with a 2 year or 24,000 mile warranty. Call for applications and pricing.

TH350: This GM automatic was commonly found stock in vehicles from 1969 to 1981. It was used in both the 4WD pickups and 2WD car applications. These transmissions are identical except when it comes to the output shaft stickout length. The 4WD transmission used an adapter to bolt this transmission to its stock transfer case. With this adapter removed, the stock output shaft protrudes from the back of the transmission case approximately 1". On 2WD vehicles, these transmissions used 3 different tail housings. The lengths of these tail housings are 6", 9", and 12". The output shafts lengths correspond with these tailhousing lengths. This transmission is one of the most popular choices for engine and transmission conversions due to the overall length of 21-1/2". The 1st gear ratio is 2.52:1; 2nd 1.52:1, and a 3rd gear ratio of 1:1. When converting with this transmission, we recommend that you cut the two tabs as illustrated. This allows for exhaust and firewall clearance. We offer several adapter options for the TH350 transmission.

OPTION 1: These adapters work best for the 2WD TH350 transmission but can also be used with a 4WD transmission. This adapter is 1.50" long and comes with a new 23 or 21 spline output shaft. The transmission will need to be torn down to install this output shaft. This kit comes with a new seal, gaskets, and hardware for coupling the TH350 the New Process transfer case. TH350 to New Process T/Cs
 50-6802 Flush & long 23 spl. 1.5" long adapter kit
 50-6801 Flush & long 21 spl. 1.5" long adapter kit



Optional Items:
 716008 Trans mount (or) 716021 trans mount (or)
 716017 Trans mount

OPTION 2: These adapters only fit the NP231 transfer case and the 4WD TH350 transmission. This adapter is 1.50" long and comes with a new 27 spline New Process transfer case input gear. The transfer case will need to be torn down to install this gear. This kit comes with a new seal, gaskets, and hardware for coupling the TH350 the New Process transfer case.

TH350 to New Process T/Cs
 50-6804 NP231 T/C up to 1994 27 spl. 1.5" long adapter kit
 50-6805 NP231 T/C 1995 & newer 27 spl. 1.5" long adapter kit

Optional Items:
 716008 Trans mount
 716021 Trans mount (or) 716017 trans mount

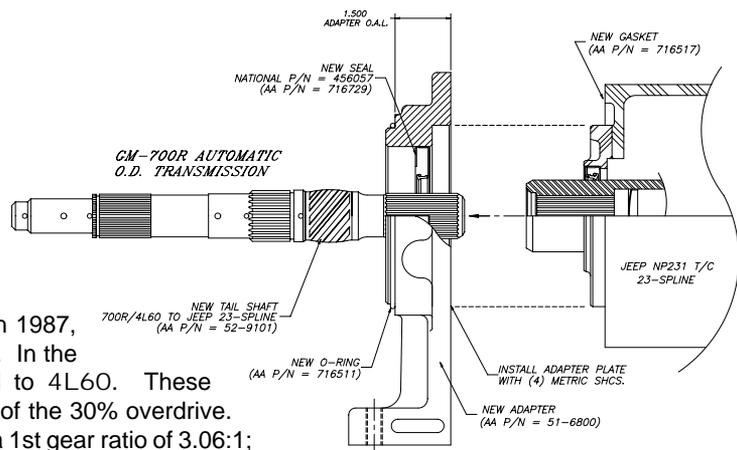
OPTION 3: These adapters are 3.65" long and are designed for the short 4WD output shaft. If you obtain a 2WD transmission then you would be required to install a new rear output shaft. We offer a kit that will supply you a new TH350 4WD output shaft. If you obtain the 4WD transmission, select the kit that excludes the output shaft. The kits use a spud shaft either 23 or 21 spline that is pressed on to a roller bearing and then pressed into the adapter housing.

2WD TH350 to New Process T/Cs (with output shaft)
 50-6300 Flush 23 spl. adapter kit
 50-6307 Long 23 spl. adapter kit
 50-6301 Flush 21 spl. adapter kit
 50-6305 Long 21 spl. adapter kit

Optional Items:
 716008 Trans mount (or)
 716021 Trans mount (or)
 716017 Trans mount

4WD TH350 to New Process T/Cs (less output shaft)
 50-6304 Flush 23 spl. adapter kit
 50-6308 Long 23 spl. adapter kit
 50-6302 Flush 21 spl. adapter kit
 50-6306 Long 21 spl. adapter kit

700R: This is the first automatic overdrive that GM produced. Introduced in 1982, this transmission was offered in two different bellhousing / case designs (60 & 90 degree bolt patterns). The internal components of these 700Rs can be interchanged if necessary. When this transmission was first introduced, it quickly developed a bad reputation for certain weaknesses. In 1987, GM resolved all of the problems that previously existed. In the 1990s, the name of the 700R transmission changed to 4L60. These transmissions are ideal for many conversions because of the 30% overdrive. The overall length of this transmission is 23-3/8". It has a 1st gear ratio of 3.06:1; 2nd 1.62:1, and a 3rd gear ratio of 1:1. When converting using this transmission, we recommend that you cut the two tabs as illustrated in the TH350 section. This will allow for exhaust and firewall clearance. (Note: We offer a 700R lockup bypass kit, P/N 24-700R). We offer a couple of adapter options when using this transmission, depending on which transmission you get (2WD or 4WD). The first kits listed will work on either a 2WD or 4WD transmission and will require the output shaft to be replaced. These kits have a 700R output shaft with either 21 or 23 spline and uses a 1.50" adapter housing. The other kits we offer only fit the 4WD transmission and only the NP231 transfer case. These kits come with a new 27 spline input gear to fit the stock 700R 4WD output shaft and the adapter is 2.50" long.



700R to New Process T/Cs
 50-9102 1.50" 2WD or 4WD 700R to 23 spline New Precess transfer case kit
 50-9103 1.50" 2WD or 4WD 700R to 21 spline New Precess transfer case kit

Optional Items:
 716008 Trans mount

4WD 700R to New Process 231 T/Cs Only
 50-9104 2.50" 4WD 700R to 1994 & earlier New Precess 231 T/C kit
 50-9105 2.50" 4WD 700R to 1995 & later New Precess 231 T/C kit

Optional Items:
 716654 Trans mount (or)
 716055 Trans mount

4L60E: This transmission is identical to the 700R/4L60 except that it is an electronically controlled transmission. GM manufactures this transmission in two versions. Both these transmissions use a reluctor ring connected to the GM engine computer for proper shifting points. The first version is a mirror image of the 700R/4L60, but it requires the reluctor ring. The second version is found in most of the 1997 & newer vehicles. The case and bellhousing are no longer cast together (now a removable bellhousing design). This transmission no longer has the square bolt pattern on the output side, but is equipped with a hex bolt pattern similar to a TH400. This transmission is 21-7/8" long, and is used in both 2WD & 4WD vehicles. We offer kits to fit both the early and late model transmissions. These kits come with both a reluctor ring and sensor in the adapter housing.

4L60E to New Process T/Cs

50-0402 3.650" 2WD or 4WD early style 4L60E to 23 spline NP transfer case

50-0403 3.650" 2WD or 4WD early style 4L60E to 21 spline NP transfer case

50-0430 3.00" 2WD or 4WD removable bellhousing 4L60E to 23 spline NP transfer case

50-0431 3.00" 2WD or 4WD removable bellhousing 4L60E to 21 spline NP transfer case

50-0434 4.10" 4WD removable bellhousing 4L60E to NP231 T/C up to 1994 27 spl.

50-0435 4.10" 4WD removable bellhousing 4L60E to NP231 T/C 1995 & newer 27 spl.



Optional Items: **716008** Trans mount (or) **716021** Trans mount (or) **716017** Trans mount

We also offer two short style adapters for the 4L60E transmission to the Atlas transfer case. **P/N 50-9300** is only .600" thick and couples the 4L60E transmission to the Atlas 2 speed transfer case. **P/N 50-9305** is 1-5/8" and couples the 4L60E transmission to the Atlas 4 speed transfer case. This kit can work with a NP231; however, a T/C shifter bracket must be fabricated.

We offer a stand alone computer system that operates the 4L60E transmission. **P/N P4L110** allow this transmission to be installed into numerous applications. One new application is a full bellhousing to fit this transmission to the Jeep 4.0L 6 cylinder engine retaining the stock crank trigger, **P/N 712596**. This kit will only fit the 4L60E transmission with the removable bellhousing. Please call for more information on this new part.

TH400: This transmission is known as the Heavy Duty version of the TH350. We manufacture a full line of adapters to utilize this transmission. The O.A.L. is 24-1/4" long. It has a 1st gear ratio of 2.48:1; 2nd 1.48:1, and a 3rd gear ratio of 1:1. We offer a 1.25" long adapter kit for the TH400 transmission. These kits are supplied with a new output shaft with either a 21 or 23 spline output.

TH400 to New Process T/Cs

50-6401 1.25" 21 spline TH400 to New Process T/C adapter

50-6402 1.25" 23 spline TH400 to New Process T/C adapter

Optional Items:

716008 Trans mount (or)

716021 Trans mount (or)

716017 Trans mount

C4: This 3 speed transmission was used in Ford cars & trucks from 1964 to 1981. We recommend obtaining a 1970 & newer transmission for conversions. The transmission case length is 11.180", and with the bellhousing measures 17.00". This transmission was used up against small block Ford engines. The adapter we manufacture will require the installation of a new 23 spline output shaft to couple to the New Process transfer case. This is the most popular transmission when converting to a Ford engine. The 1st gear ratio is 2.46:1; 2nd 1.46:1, and a 1:1 3rd gear ratio. The adapter for the C4 transmission includes a 6.25" aluminum adapter housing and a new C4 output shaft. This kit also includes a seal, gasket, and necessary hardware.

C4 to New Process T/Cs

50-8100 6.25" 23 spline C4 to New Process T/C adapter kit

(21 spline transfer cases can use this adapter by changing out the input gear)

Optional Items:

716008 Trans mount (or)

716021 Trans mount (or)

716017 Trans mount

AOD & AODE: This Ford automatic overdrive 4 speed is drastically different in appearance than any of the C-series transmissions. This integral (one piece) transmission was introduced in 1980, and found in the F-series pickups behind small blocks. The transfer case adapters we manufacture for this transmission require the installation of a new output shaft. The AOD was used up until 1993, in cars & trucks. The 1980-87 (early) transmission main shaft was different than the 1988 & up (late) transmission main shaft. These shafts use different oiling holes and, if interchanged, could cause improper shifting or transmission damage. This transmission is becoming very popular for many conversions. We offer adapters for most early and late transmission applications. The transmission O.A.L. is 20.50" long. It has a 1st gear ratio of 2.40:1; 2nd 1.47:1; 3rd 1:1, and the 4th gear is a 33% overdrive.

The AODE (4R70W) transmission is similar to the above AOD transmission and was used in rear wheel drive vehicles starting in 1991. The adapter housing for the AOD transmission will fit the AODE; however, the output shaft of the AODE is different with reference to the oiling holes. Since the AODE does not have a governor, the oil supply line must be plugged. Our kits for the AOD can be used on the AODE transmission, provided that you obtain a few components from Ford. The necessary components are stocked by us under **P/N 716057**. These kits come with a new 23 spline output shaft and a 6.37" aluminum adapter housing. This adapter housing is a stock Ford 4WD adapter.

AOD & AODE to New Process T/Cs

50-2901 6.37" 1988 & newer transmission 23 spline AOD to NP T/C adapter kit

50-2902 6.37" 1987 & earlier transmission 23 spline AOD to NP T/C adapter kit

IDENTIFYING THE STOCK TRANSMISSION:

Over the past 60 years, Jeep vehicles have been equipped with over 25 different transmissions. Listed in this section are the stock 1987 & Newer Jeep transmissions. It is difficult to identify the specific transmission by the year of the vehicle, so we will detail specific information that applies to both the identification and application for Jeep transmission conversions.

(Note: The engine blocks referenced are as follows: Chevy includes all V8s, 229 & 4.3 V6. Ford includes 289, 302, 351W. AMC includes 258, 304, 360, 401, 4.2L, 4.0L - each manufacturer group having the same block bolt pattern. The newer Chevy Generation III Vortec engines require a few additional considerations.)

JEEP UNIVERSAL - MANUAL TRANS:

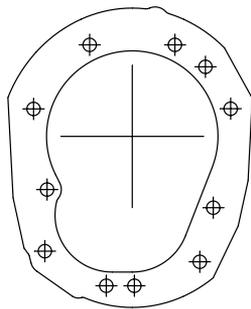
Vehicle ID	Year	Application
Peugeot BA 10/55 Sp	1987-89	Standard on some Models-21 Tooth
AISIN AX55 Speed	1987-02	4 Cylinder models-21 Tooth
AISIN AX155 Speed	1989-99	4.0L 6 Cylinder engines-23 Tooth
NV3550 5 speed	2000-04	4.0L 6 Cylinder engines-23 Tooth
NV1550 5 speed	2003-04	2.4L 4 Cylinder engines
NSG-370 6 speed	2005-07	4.0L & 2.4L engines-23 Tooth

JEEP UNIVERSAL - AUTOMATIC TRANS:

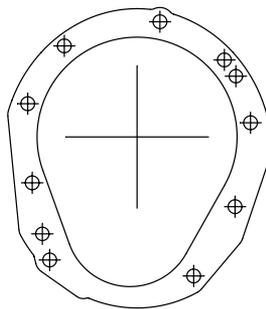
Vehicle ID	Year	Application
Chrysler 9043 Speed	1987-02	Wrangler w/4 Cyl.
Chrysler 9993 Speed	1980-86	CJ7 & Scrambler 6-258
Chrysler 9993 Speed	1987-91	Wrangler 4 & 6 Cyl.
Chrysler 32RH3 Speed	1992-93	Wrangler 4 & 6 Cyl.
Chrysler 32RH3 Speed	1994-02	Wrangler 4.0L
Chrysler 42RLE 4 Spd.	2003-07	23Spl. Jeep TJs 4 & 6 Cyl.

WAGONEER, CHEROKEE/COMANCHE:

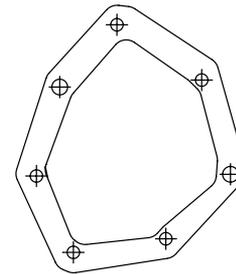
Vehicle ID	Application
Manual Transmissions	
AISIN AX4 4 Speed	1985-87 Cherokee w/4 Cyl.
AISIN AX55 Speed	1985-02 Cherokee w/4 Cyl.
Peugeot BA 10/55 Sp	1987-89 Cherokee w/6 Cyl.
Automatic Transmissions	
AISIN/Warner AW44 Sp	1987-93 Wagoneer
Chrysler 9043 Speed	1984-86 Cherokee w/4 & V6
AISIN/Warner AW44 Sp	1989-02 Cherokee
A500 4 Speed	1994-99 Grand Cherokee w/4.0L
A518 4 Speed	1991-02 Grand Cherokee w/V8
5-45RFE	2004-05 23Spl. 4.7L ZJ
5-45RFE-A5	2002-05 23Spl. KJ w/ 2.8
45RFE	1999-05 23Spl. 3.7L & V8's
W5A580	2005 23Spl. 3.7L ZJ



JEEP AX5



JEEP AX15 AND NV3550



JEEP PEUGEOT

JEEP TRANSMISSIONS 1987 & UP:

The transmissions used in Jeeps 1987 & up changed once again. The indexing of these transmissions to the bellhousing was no longer done by a bearing retainer. Dowel pin alignment was then introduced. Along with this new type of indexing, Jeep also changed the design of their clutch mechanism. In Jeeps 1987-93, Jeep used an internal hydraulic throw-out bearing design (photo on right). This bearing used a plastic housing that mounted to the front of the transmission. Many Jeep owners experienced leaking problems with this assembly. Jeep then changed to the external design on 1994 & newer models. For the transmissions listed in this section, we manufacture a full bellhousing due to the overall length of the input shaft. When retaining these transmissions, it is crucial to identify the exact transmission and the type of linkage it is equipped with.



AX4 & AX5 (1985-2002)

- The overall transmission case length is 22.500". The output shaft of these transmissions are a flush 21 spline in vehicles up to 1996, and then switched to a 1/2" stickout past the tailhousing in 1997 & newer Jeeps. They are normally found coupled to an AMC 4 cylinder & some 2.8L V6 engines. The shift handle is located on top of the adapter housing and mounted with 4 bolts. The bellhousing indexes to the transmission case using a dowel pin alignment. The input shaft protrudes 7-1/4" from the front of the transmission case. The clutch spline is 1"-14, so all conversions will require the use of a special clutch disc, P/N 716104. The input shaft pilot tip diameter is .590", which is the same as a stock Chevy transmission.



1985-86 Bellhousing



1994 & newer Bellhousing

These transmissions have used both internal and external slave cylinders. When these transmissions were used in Cherokees (1985-86), the slave cylinder was mounted on the backside of bellhousing and parallel to the transmission. In 1987, Jeep incorporated the use of an internal release bearing. The 1994 & newer versions of the AX5 moved the slave cylinder back to an externally mounted unit. The conversion bellhousing we manufacture requires a new slave cylinder, [P/N 716213](#), which is mounted externally.

Our bellhousing bolts directly to the AX4 & AX5 transmission. The bellhousing can be used with either a Buick V6 or a Chevy V6 & V8 engine. Since the original installation used a hydraulic clutch control, we have incorporated an external slave cylinder that mounts to the outside of our bellhousing. The new bellhousing is furnished complete with a clutch release arm, ball pivot, and pilot bushing to simplify the conversion. The bellhousing kit does not include a slave cylinder ([Part. No. 716213](#)) & flat-face release bearing ([P/N 1430](#)). This bellhousing is designed for a 153 tooth flywheel and clutch assembly; however, some later model V6 and V8 blocks only have a 168 tooth flywheel option. Our bellhousing will fit the 168 tooth flywheels, but you'll be required to use a custom hi-torque starter without a nose cone. Listed below is the starter we offer for both the standard V6 and V8 blocks with a 168T flywheel.

Chevy Engine to AX4 & AX5

- [712565](#) Bellhousing Kit
- [712565V](#) Vortec V8 Bellhousing Kit
- [713001-S](#) Motor mounts (YJs)
- [713090](#) Motor mounts (V8)(TJs)
- [713092](#) Motor mounts (Vortec V8)(TJs)

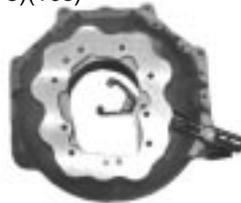
Buick V6 Engine to AX4 & AX5

- [712565](#) Bellhousing Kit
- [713011](#) Motor mounts(YJs)

Optional Items:

- | | |
|---|---|
| <ul style="list-style-type: none"> 716213 Slave Cylinder CF360056 10-1/2" P.P. 716104 10-1/2 Clutch Disc N1430 Release Bearing 716130 YJ Hydraulic Fitting 716130TJ TJ Hydraulic Fitting 716130H 42" Stainless Steel Hose CF165552 11" P.P. P/N 22-0001 V6 & V8 168T Hi-Torque starter (<i>must be used when using a 168T flywheel</i>) P/N 22-0002 Vortec V8 Hi-Torque starter | <ul style="list-style-type: none"> 716213 Slave Cylinder CF360056 10-1/2" P.P. 716104 10-1/2" Clutch Disc CF700010 Flywheel (231 V6) N1430 Release Bearing 716130 YJ Hydraulic Fitting 716130TJ TJ Hydraulic Fitting 716130H 42" Stainless Steel Hose |
|---|---|

(Headers & radiators are available for all of these applications)



identifying the stock transmission (1987 & newer)

Peugeot 5 speed - This transmission, also called BA10/15, has an overall transmission case length of 24.000". The case (1987-89) is made of aluminum and has a removable bellhousing that uses a dowel pin alignment. The transmission case has a seam directly down the middle of the case. The output shaft on this transmission is a long 21 spline and protrudes out of the tailhousing approximately 1/2". This transmission is normally found coupled to an AMC 4.2L 6 cylinder engine and always used an internal slave cylinder. The bellhousing indexes to the transmission by two dowel pins and five stud bolts. The input shaft has a 1-1/8" 10 spline, and a pilot tip diameter of .590". The input shaft protrudes from the front of the transmission 7-3/4". All of these transmissions are equipped with a plastic internal hydraulic release bearing. This transmission can be found in both Wranglers & Cherokees. **(Note: This is a very light-duty transmission. We do not recommend using this transmission on V8 engine conversions.)**

Our bellhousing kit can be used with a Buick V6, Chevy V6 & Chevy V8 engine. The new bellhousing will require the use of a new Jeep internal hydraulic release bearing, which is included with the adapter kit. The clutch assembly is limited to a 10-1/2" diameter. In order for the Jeep hydraulic bearing to work properly, you must use a Centerforce pressure plate ([P/N CF360056](#)), and clutch disc ([P/N 383271](#)).

Chevy Engine to Peugeot

- [712566](#) Bellhousing Kit
- [713001-S](#) Motor mounts

Optional Items:

- [CF360056](#) 10-1/2" P.P.
- [383271](#) 10-1/2 Clutch Disc

Buick V6 Engine to Peugeot

- [712566](#) Bellhousing Kit
- [713011](#) Motor mounts

- [CF360056](#) 10-1/2" P.P.
- [383271](#) 10-1/2" Clutch Disc
- [CF700010](#) Flywheel (231 V6)

(Headers & radiators are available for all of these applications)



1998 Cherokee with AA SYE kit installed. Photos courtesy of Sam Leidig of Salem, OR.



AX15 (1989-99) - The overall transmission case length is 24.000". The output shaft on this transmission is 23 spline and protrudes approximately .400". This transmission is normally found coupled to the AMC 4.0L 6 cylinder engine. Transmissions from 1989-93 used an internal release bearing, while 1997-99 transmissions were switched to the external slave cylinder. **We have seen both internal & external release bearings used between 1994-96; therefore we suggest that you verify what you have.** This transmission seems to be one of the better transmissions Jeep used and is very capable of handling the horsepower and torque of a V8 engine. The input shaft length of this transmission is 7-1/2". The input shaft spline is an 1-1/8" 10 spline, which is the same as Chevy. The pilot tip diameter is .590" on transmissions 1989-96, and .750" on transmissions 1997-99.



When converting to a Chevy engine and retaining either version of the AX15, our new GM conversion bellhousing uses a new slave cylinder, [P/N 716213](#), that is mounted externally.

When converting to a Ford engine, we manufacture an adapter plate that requires the use of a stock Ford bellhousing. Since the AX15 has the hydraulic linkage, we recommend obtaining a 1987-88 F150 bellhousing. This bellhousing has provisions for a Ford hydraulic slave cylinder. The adapter kit is supplied with a brass hydraulic fitting, enabling the Ford slave cylinder to have a standard #3 male fitting for easy connection.

Chevy Engine to AX15
[712567](#) Bellhousing kit
[712567V](#) Vortec V8 Bellhousing kit
[713001-S](#) Motor Mounts, or
[713087](#) V8 Saddle Mount (1987-95)
[713091](#) V8 Saddle Mount (TJs)
[713092](#) Vortec motor mount (TJs)
[713088](#) Vortec motor mount (YJs)

Ford Engine to AX15
[712543](#) Adapter Plate
[713006](#) Motor Mounts, or
[713130](#) Saddle mounts (1987-95)

Buick V6 Engine to AX15
[712567](#) Bellhousing kit
[713011](#) Motor Mounts

Optional Items:

[CF360056](#) 10-1/2" Pressure Plate
[383271](#) 10-1/2" Clutch Disc
[716213](#) Slave Cylinder
[N1430](#) Release Bearing
[716130](#) YJ Hydraulic Fitting
[716130TJ](#) TJ Hydraulic Fitting
[716130H](#) 42" Stainless Steel Hose
[383735](#) 11" Clutch Disc
[22-0001](#) Hi-torque starter 168T flywheel
[22-0002](#) Hi-torque starter Vortec V8

[CF260000](#) 11" Pressure Plate
[CF360049](#) 11" P.P.
[383735](#) 11" Clutch Disc
[716130](#) YJ Hydraulic Fitting
[716130TJ](#) TJ Hydraulic Fitting
[716130H](#) 42" Stainless Steel Hose
[716130H](#) 42" Stainless Steel Hose

[CF360056](#) 10-1/2" P.P.
[383271](#) 10-1/2" Clutch Disc
[CF700010](#) Flywheel (231 V6)
[N1430](#) Release Bearing
[716130](#) YJ Hydraulic Fitting
[716130TJ](#) TJ Hydraulic Fitting
[CF165552](#) 11" Pressure Plate

(Headers and radiators are available for all of these applications)



1997 AX15 transmission & NP231 transfer case.

NV3550 (2000-04) - This transmission was used in the TJ Wranglers equipped with the 4.0L 6 cylinder engine. This transmission has a case length of 16.750". The bellhousing indexes to this transmission with a dowel pin alignment. It has a 1-1/8" 10 spline input shaft, and a pilot tip diameter of .750". The output shaft of this transmission is a flush 23 spline. The bolt pattern on the face of NV3550 looks almost identical to the AX15 transmission, except for a shift rail that protrudes from the top front of the NV3550. The shifter handle location is 12" from the face of the transmission to the center of the shifter handle.

When converting to a Chevy engine, we offer a full bellhousing. Our GM bellhousing is designed for a 153 tooth flywheel; however, most late model Chevy V6 & V8 engines only allow for a 168 tooth flywheel. In addition, the Generation III Vortec engines are only equipped with a 168 tooth flywheel. These larger flywheels and clutches will fit our bellhousing as long as you use a hi-torque starter without a nose cone. We offer two hi-torque starters for either the standard GM V6 and V8 and the Vortec V8s.

When converting to a Ford engine, we manufacture an adapter plate that requires the use of a stock Ford bellhousing. Since the NV3550 has the hydraulic linkage, we recommend obtaining a 1987-88 F150 bellhousing. This bellhousing has provisions for a Ford hydraulic slave cylinder. The adapter kit is supplied with a brass hydraulic fitting, enabling the Ford slave cylinder to have a standard #3 male fitting for easy connection.

Chevy Engine to NV3550
[712591](#) Bellhousing Kit
[712591V](#) Vortec V8 Bellhousing Kit
[713091](#) Motor Mounts (V8 TJs)
[713092](#) Motor Mounts (Vortec TJs)

Ford Engine to NV3550
[712544](#) Adapter Plate
 No motor Mounts for the Ford into the TJs

Optional Items:

- CF360056 10-1/2" Pressure Plate
- 383271 10-1/2" Clutch Disc
- 716213 Slave Cylinder
- N1430 Release Bearing
- 716130 YJ Hydraulic Fitting
- 716130TJ TJ Hydraulic Fitting
- 716130H 42" Stainless Steel Hose
- CF165552 11" Pressure Plate
- 383735 11" Clutch Disc
- 22-0001 Hi torque V6 & V8 168T flywheel
- 22-0002 Hi torque Vortec Gen. III V8 starter
- CF260000 11" Pressure Plate
- CF360049 11" P.P.
- 383735 11" Clutch Disc
- 716130 YJ Hydraulic Fitting
- 716130TJ TJ Hydraulic Fitting
- 716130H 42" Stainless Steel Hose

(Headers and radiators are available for all of these applications)

NSG-370 6sp. -
(2005 & UP)

This is the newest transmission used in the TJ Wranglers with the 4.0L 6 cylinder and 4 cylinders engine and the into the JK's up to the V6. This transmission has a **integral bellhousing** and a case length of 25.3125". We currently do not offer any engine conversion adapters for this transmission. The output side of this transmission is a circular 23 spline, the same as previous transmissions.

Torqueflite 999 (30RH & 32RH) -
(1987-2002)

This transmission can be identified by a case length of 16.000", and a transfer case adapter housing length of 6-5/8". This transmission can be found behind a 4.0L cylinder engine. This transmission was coupled to a New Process transfer case. We have developed an adapter plate that bolts to the front side of the transmission case, adapting it to a Chevy V6 or V8 engine. This installation has become very popular since the transmission can remain in the original location, eliminating the need for driveshaft modifications. This transmission is very capable of handling the horsepower and torque of a Chevy engine. The 1st gear is 2.74:1, 2nd 1.54:1, and 3rd 1:1

- P/N 716131-A Chevy block
- P/N 716131-V Chevy Gen III Vortec V8 block

(Motor Mounts and headers are available for these applications)



identifying the stock transmission (1987 & newer)

Aisin AW4
(1989-2000)

- This transmission is an overdrive automatic similar to the GM 700R tranny. The transmission output shaft could either be 21 or 23 splines. This tranny was introduced in 1989 with the high output 4.0L 6 cylinder engine in Jeep Cherokees. This transmission is equipped with a flywheel sensor that helps control the computerized 6 cylinder engine. Due to the complex computer controls, we do not offer any adapters to retain this transmission with a new engine.

42RLE 4 Speed -

This transmission was used in the Jeep Wranglers in 2003 through 2010. We currently do not offer any engine conversion adapters for this transmission. We have installed several Atlas transfer cases to this transmission. The rear section of this transmission is the same circular bolt pattern with a 23 spline output. The transmission gear ratios are as follows: 1st gear is 2.84:1; 2nd 1.57:1; 3rd 1:1, and a overdrive gear of .69:1. **We have devised a new gear reduction unit that bolts to the 42RE transmission, providing a 2:72 reduction and allowing you to retain your stock transfer case ratio. This unit does not change the driveshaft lengths. It is a cable shifted unit and doubles your transfer case options. See page 110 for more information on the Rubicrawler**

45RFE 4Sp
5-45RFE 5sp
5-45RFE-A5 5sp

- We currently do not offer any engine conversion adapters for these transmissions. These transmissions were used from 1999 to 2005 in the Dodge and Jeep vehicles. The rear section of these transmissions are the same circular bolt pattern with a 23 spline output. The transmission gear ratios are as follows: 1st gear is 3.0:1; 2nd 1.67:1 / 1.50:1; 3rd 1.0:1, and a overdrive gear of .75:1 on the 4 speed or 2nd overdrive of .67:1 on the 5 speeds.

W5A580 5 Speed -

This transmission was used in the Jeep Cherokee in 2005. We currently do not offer any engine conversion adapters for this transmission. The rear section of this transmission is the same circular bolt pattern with a 23 spline output. The transmission gear ratios are as follows: 1st gear is 3.59:1; 2nd 2.19:1; 3rd 1.41:1; 4th 1.0:1, and a overdrive gear of .83:1.

1987 & Newer JEEP TRANNY RETROFITS

(JEEPS RETAINING STOCK AMC ENGINE & STOCK TRANSFER CASE)

On many of the late model Jeeps, the stock engines that were used were adequate for horsepower and torque. An example of these engines include the 4.0L, 4.2L, 258 6 cyl., 304, 360, and 401. The weak link is normally the stock transmission up against these power plants. We also have many customers who wish to retain their 4 cylinder, but change their transmission for better gearing. We manufacture bellhousing adapters to retain these stock AMC-Jeep engines with a new, stronger and, in most cases, a lower geared transmission. The part numbers listed below are just the bellhousing & transfer case components required. A crossmember support & clutch components may also be necessary.

FORD T18 & NP435: These transmissions are popular to retrofit into these vehicles. They are a heavy-duty 4 speed with a granny low 1st gear. When converting to the AMC blocks (except the 4.0L), a stock AMC bellhousing can be used. These bell housings are normally found coupled to T150 & T176 trannys in Jeeps 1976-1983. Along with the Jeep bellhousing you would also need a custom pilot bushing [P/N 716156](#). This bushing allows for the proper Ford input shaft support.

When coupling up to a 4.0L engine we manufacture a new full bellhousing that retains the stock flywheel sensor which is essential for the operation of this Jeep engine.

[P/N 712569](#) - AMC 4.0L to Ford truck transmission

[P/N 384180](#) - AMC Clutch disc (required when the stock tranny has 1-1/16" 10 spline)

Ford T18 T/C Adapters

[50-3801](#) NP flush 23 spline

[50-7500](#) New Process flush 23 spline

[50-7501](#) New Process flush 21 spline

[50-7504](#) New Process long 21 spline

[50-7205](#) New Process long 23 spline

(A crossmember support will be necessary on these conversions)

Ford NP435 T/C Adapters

[50-3900](#) New Process flush & long 21 spline

[50-3901](#) New Process long 23 spline

SM420 & SM465: GM truck 4 speeds with a granny low 1st gear. Ideal for rock-crawling. The two bell housings below bolt to the stock Jeep engines and allow the GM truck 4 speeds to be coupled into the Jeep drivetrain. These bell housings have the flywheel sensor option necessary for the 4.0L blocks. They also work fine for any other earlier Jeep engine.

[P/N 712570](#) - AMC engines to SM420 (4.686" bellhousing index)

[P/N 712571](#) - AMC engines to SM465 (5.125" bellhousing index)

SM420 T/C Adapters

[50-9701](#) New Process flush 21 spline

[50-9702](#) New Process flush 23 spline

[50-9703](#) New Process long 21 spline

[50-9704](#) New Process long 23 spline

(Crossmember support & clutch components will be necessary on these conversions)

4WD SM465 T/C Adapters

[50-9808](#) New Process flush & long 23 spline

[50-9809](#) New Process long 21 spline

(For 2WD SM465 adapters, see the Transfer Case Selection Chart)

NV4500: GM & Dodge truck 5 speeds with a 5.61 first gear ratio and 27% overdrive. This transmission is one of the most popular options when it comes to a transmission retrofit. Over the years, we have developed several ways to convert this tranny into the Jeep vehicles.

The most popular and the shortest way to convert the NV4500 into the Jeeps is using one of our full bell housings. Part No. 712571 bellhousing is designed mainly for the 1995 & earlier GM NV4500 transmission. Part No. 712568 can be used on both the 1996 & later GM transmissions, but it also works great on the Dodge NV4500s. The Dodge trannies require the installation of a shorter GM style input shaft. Both of these bell housings have the provision for the 4.0L flywheel sensor and will also work fine on all other Jeep engines. The stock Jeep flywheel thickness must be 1-1/8" or thinner to obtain proper clutch clearance. Thicker flywheels are sometimes found on some early Jeep V8s. The GM input shaft required for the Dodge transmission using this NV4500 bellhousing is [Part No. 52-0221](#).

[P/N 712571](#) - AMC engines to GM NV4500 (up to 1995)

[P/N 712568](#) - AMC engines to GM or Dodge NV4500 (1996 & up)

(Dodge transmissions require a new input shaft)

(Note: 1987-89 YJ with the Peugeot transmission use a 11/16 master cylinder. This master cylinder will not work with the 716331 slave cylinder designed for these bell housings, You will be required to change out your master cylinder on these applications.)



If the overall length is not a concern or you're looking for the easiest adaptation, we also offer a complete line of adapter plates for these transmissions. The adapters are all based around the Dodge transmission and the length of the Dodge input shaft. The Dodge transmission input shaft has a stickout length of 7-1/2". This allows us to use an adapter plate and then couple it to the stock AMC bellhousing.

NV4500 to Jeep 6 cylinder and V8 adapter plates
 P/N 712553 - AMC engines (using Jeep bhsg. 8133951 or 3236291)

to Dodge NV4500
 P/N 712554 - AX15 bhsg. to Dodge NV4500
 (internal release bearing only)

(The 712554 kit can only be used on AX15 transmissions that were equipped with the internal throw out bearing. AX15 trannys that have an external slave cylinder must use the full bellhousing assembly, Part No. 712568 & input P/N 52-0221)

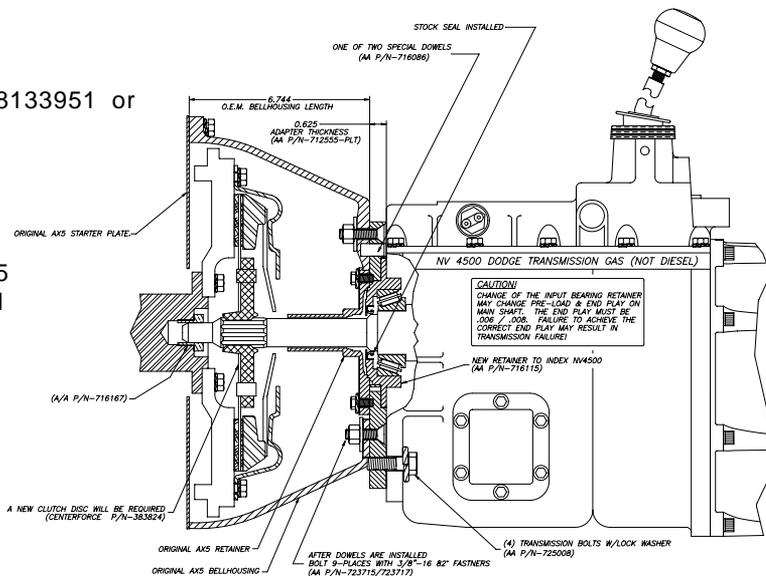
P/N 712557 - Peugeot bhsg. to Dodge NV4500

NV4500 to Jeep 4 cylinder adapter plates

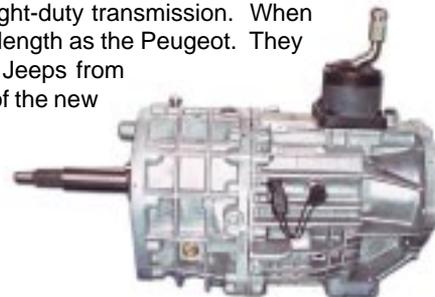
P/N 712555 - AX5 bhsg. to Dodge NV4500
 (internal release bearing only)

P/N 712559 - AX5 bhsg. to Dodge NV4500
 (external slave cylinder only)

P/N 383824 - Clutch Disc 1-1/8" 10 spline



NV3550 or AX15 Replacing the PEUGEOT: This transmission assembly is for Jeeps previously equipped with a Peugeot 5-speed transmission. The Peugeot 5 speed transmission is considered a light-duty transmission. When retaining the stock 6 cylinder, the NV3550 and AX15 transmissions are exactly the same length as the Peugeot. They can be installed in Jeep Wranglers without driveline modifications. This assembly fits Jeeps from the years 1987-1989, with the New Process 231 or 207 transfer case. The overall length of the new transmission will be within 1/4" of the original Peugeot tranny. This kit comes with a new 23 spline New Process input gear for your transfer case. The transfer case must be taken apart to install this new input gear. These kits include a new transmission, bellhousing, crossmember adapter, transfer case shifter bracket, slave cylinder kit, transfer case input gear, and a transmission shifter handle.



- P/N 27-3507R - NV3550 to Peugeot Replacement to NP207
- P/N 27-3510R - NV3550 to Peugeot Replacement to NP231
- P/N 26-AX15 - New AX15 transmission
- P/N 27-3507AA - Adapter kit NV3550 & AX15 to Peugeot Replacement to NP207 (transmission not included)
- P/N 27-3510AA - Adapter kit NV3550 & AX15 to Peugeot Replacement to NP231 (transmission not included)

AX15 Replacment: On Jeeps that have the AX15 with an internal hydraulic release bearing, you will be required to purchase our bellhousing and slave cylinder kit listed below. You can also swap your front bearing retainer from the internal release AX15 transmission to our new Ax15 transmission and bypass the purchase of this bellhousing.

- P/N 26-AX15 - New AX15 transmission
- P/N 712590 - Jeep 4.0L bellhousing to AX15(for replacing the AX15 internal hydraulic)
- P/N 716340 - Jeep slave cylinder kit for 712590 bellhousing (replacing AX15 internal hydraulic)

NP435 to JEEP 4 cylinder replacing the AX5: The NP435 is a excellent transmission choice when retaining the stock 4 cylinder engine. You do lose the overdrive 5th gear, however; you do get a much lower first gear along with a stronger transmission. The NP435 must be equipped with a 7.5" input shaft to work with this adapter. The most common NP435 shaft is only 6.5" long. This kit also does require some machining to the stock NP435 front retainer. The kit comes with a adapter plate, pilot bushing, hardware and the machining requirements for the NP435 requirements. This kit couples to the stock AMC bellhousing and can be used with both an internal or external slave cylinder.

- P/N 712559NP - NP435 transmission to Jeep 4 cylinder
- P/N 716121 - Clutch Disc NP435 transmission to Jeep 4 cylinder
- P/N 52-0232 - 7.5" stick out Ford NP435 input shaft

JEEP AX15 replacing the AX5: Tired of replacing your worn out AX5 transmission with another AX5? We have a solution to your dilemma. The AX15 transmission has long been touted as a good, reliable 5 speed transmission. We now offer a kit that will allow you the opportunity to upgrade rather than replace. This kit is designed to fit the 1995 & newer AX15 transmission. Earlier model transmissions can be used, but a stock pilot bushing with a .590" I.D. is required. This kit allows you to replace the light duty AX5 transmission with the stronger AX15 transmission. The 4 cylinder Jeeps are a popular vehicle for installing lift kits and using larger tires. Along with larger tires comes more wear and tear on the stock drivetrain components.

- P/N 712563 - Jeep AX15 replacing Jeep AX5 external slave
- P/N 712564 - Jeep AX15 replacing Jeep AX5 internal slave



The AX15 is approximately 2" longer than the AX5, so count on doing driveshaft modifications. We recommend that the stock flywheel be removed and resurfaced at a machine shop. A new clutch disc and release bearing has been provided in the kit. A new pressure plate is also recommended before installing your new transmission. This new pressure plate can be ordered under P/N CF361914.



Before disposing of the old AX5 transmission, you will need to retain the shifter housing from that transmission. You will also be using the stock 4 cylinder bellhousing, the stock release arm, and crossmember mount.

The transfer case must have a new input gear installed to fit to the AX15 transmission. If retaining the NP231 transfer case, we highly recommend a fixed yoke kit be installed during this transmission swap because the new transmission is longer. This will allow for a new, longer rear drive shaft. The Atlas 2 speed or 4 speed

transfer case is also an excellent upgrade for your Jeep, and this would be the perfect time to do this swap.



When retaining the stock NP231 or NP207 the stock input is a 21 spline. The AX15 transmission has a 23 output shaft. Due to the various options, an input gear must be purchased separately.

- P/N 716054 input gear for 1987-1994 NP231 T/Cs
- P/N 716095 input gear for 1995-2006 NP231 T/Cs
- P/N 716096 input gear NP207 T/Cs

Because this transmission fits both Wranglers & Cherokees, the transfer case shifter bracket is also sold separately.

- P/N 715545 shifter bracket for Jeep YJs
- P/N 715542 shifter bracket for Jeep TJs

New transmissions can be purchased under P/N 26-AX15

GM TH350, TH400 & 700R: This adapter kit was designed to allow the use of a GM TH350, TH400 or 700R transmission to the stock AMC straight 6 cylinder & V8s. This 5/8" thick steel plate allows you to couple any one of these transmissions, utilizing a modified flexplate (listed below), and retain the stock GM torque converter. The kit comes with the necessary hardware, crank bushing, and flexplate spacers. For the necessary transfer case adapter for your application, see the Transfer Case Selection Chart. Each transfer case adapter will also require a crossmember support.

- P/N 716138 - AMC engines to GM automatic (needs a modified flexplate from list below)
- P/N 716138-1 - 1988-2005 AMC 258/4.0L engines to GM automatic uses stock flexplate



One of the following modified flexplates is necessary to complete this conversion:

- P/N 716138-A AMC flexplate 304 & 360 (1972-87)
- P/N 716138-C AMC flexplate 360 (1988-91)
- P/N 716138-E AMC flexplate 258 (1972-87)

When installing an automatic into a Jeep, some additional parts will need to be considered. A transmission shifter will be required and most applications need a flexible dipstick. These items can be found on Page 6. We also carry a 52" long 700R T.V. cable under P/N 716138-KD or a kickdown cable for the TH350 52" long under P/N 716138-KD1.

When using the 716138 adapter kit on a 4.0L Jeep 6 cyl. engine, We offer two options for retaining the flywheel sensor. The easiest option is kits 716138-M and 716138-N. These kits do require you to modify the GM bellhousing, but the retain the sensor on the flexplate as it was factory. The "M" kit is for 1991-96 Jeeps and The "N" kits fits 1997-2004 Jeeps. The other option is a modified harmonic balancer kit listed on the next page.

Harmonic Balancer Kit:

We offer a harmonic balancer kit for the Jeep 4.0L engines. Our kits mount to the oil pan bolts on the passenger side of the block. Jeeps 1991-1995 may require the drive belt to be rerouted and/or a new drive belt may need to be purchased. Our kits is designed to use a stock two-bolt sensor. The kits includes a modified harmonic balancer, sensor support bracket, and a new sensor.

P/N 716012 - Fits 1997-2004 4.0L blocks (5 volt system)

P/N 716012-C - Fits 1991-1996 4.0L blocks (8 volt system)

NOTE: This kit will not work on a 258 6 cylinder that has been retrofitted with a 4.0L intake fuel injection system.



RUBICRAWLER GEAR BOX

This units fits Jeeps 2003 to 2010 with the 42RLE automatic overdrive transmission. This new reduction unit replaces the stock 42RLE tailhousing with a 6 gear planetary reduction box featuring a 2.72 low range. This is a true bolt-in doubler that couples to the stock Jeep transfer case or an existing Atlas transfer case.

Features: The RubiCrawler increases our available gear ratios allowing you to gear your Jeep to the terrain in which you're wheeling on. The various ratios will allow you more control of the vehicle which results in extreme off road performance while maintaining a fun and safe offroading experience.

Stock Transfer Case Functions: With the Rubicrawler installed in any Jeep, The Normal two wheel drive feature of your Jeep does not change. The city or rural road handling of your Jeep is the same as it was the day you bought the Jeep.

Stock Transfer Case Functions with the RubiCrawler in High Gear: Rubicrawler in high range and the transfer case in four wheel drive high range (all Jeeps). The gear ratio of the transmission does not change. This feature gives you power to all four wheels.

Rubicrawler in high range and the transfer case in four wheel drive low range (non Rubicon Jeeps). The final gear ratio with the transmission in any gear is reduced 2.72 times lower. This feature gives you power to all four wheels.

2a. Rubicrawler in high range and the transfer case in four wheel drive low range (Rubicon Jeeps). The final gear ratio with the transmission in any gear is reduced 4.0:1 times lower. This feature gives you power to all four wheels.

Stock Transfer Case Functions with the RubiCrawler in Low Gear: Rubicrawler in low range and the transfer case in two wheel drive (all Jeeps). The final gear ratio with the transmission in any gear is reduced 2.72 times lower. This feature does not give you power to all four wheels, but provides slower speeds and more throttle response for easy trail use. The nice feature of this is that you have more torque and better handling.

Rubicrawler in low range and the transfer case in four wheel drive high range (all Jeeps). The final gear ratio with the transmission in any gear is reduced 2.72 times lower. This feature give you power to all four wheels and provides a shift on the fly option for four wheel drive. The New Process transfer case can be shifted into high ratio on the fly; so if you're in sand, mud or offroad trail and need power to all four wheels this is a great option.

Rubicrawler in low range and the transfer case in four wheel drive low range (non Rubicon Jeeps). The final gear ratio with the transmission in any gear is reduced 7.40 times lower. This feature gives you power to all four wheels. This is an extreme crawl ratio that provides a slow controlled approach to an obstacle.

3a. Rubicrawler in low range and the transfer case in four wheel drive low range (Rubicon Jeeps). The final gear ratio with the transmission in any gear is reduced 10.88 times lower. This feature gives you power to all four wheels. This is an extreme crawl ratio that provides a slow controlled approach to an obstacle.

Ratio's with a Stock New Process 231/241 are a 2.72:1 and a 7.40:1

Ratio's with a Stock NP Rocktrac are a 2.72:1, 4.0:1 and a 10.88:1

The RubiCrawler's shifting mechanism utilizes push/pull cable technology for a smooth and easy shift. The universal cable shifter is included with the purchase of your RubiCrawler. (The universal shifter should be used if your vehicle is equipped with an Atlas transfer case)

We also offer a twin stick cable shifter for the Jeeps. These kits are designed to fit the stock TJ and JK consoles. These shifters are an additional charge but are the best suited for most installations.

The Jeep TJ's twin stick shifter replaces the standard hard linkage. We have designed a twin stick shifter that comes through the stock console for a clean installation that operates the RubiCrawler and the stock NP231 or NP241 transfer case.

The twin stick JK shifter also provides a twin stick shifter through the stock console. This kit retains the stock transfer case cable with the addition of the new RubiCrawler cable.



jeep tranny upgrades (1987 & newer)

CLUTCH LINKAGE

(Manual Transmissions Only):

Jeep has used both hydraulic and mechanical clutch linkages over the years. When doing an engine conversion, it is not uncommon to have clutch linkage changes. Many of these stock linkages can be retained with only a few modifications. However, if you would like to improve you clutch linkage, we offer many upgrades from these stock linkages.

Jeeps 1987-2006 (**Hydraulic linkage**) New engine - These year series Jeeps all had hydraulic linkages and use both internal and external release mechanisms. When installing a new engine and retaining the stock 5 speed transmission, we normally use an external slave cylinder - except on Peugeot 5 speeds where the stock internal slave cylinder must be retained (new one supplied with our bellhousing). The external slave cylinder for AX5, AX15 & NV3550 transmissions is found off of a 1975 Toyota Land Cruiser, Toyota #31470-60022 or [AA Part No. 716213](#).



P/N 716213



P/N 716215



The bellhousing kits for the AX5, AX15 & NV3550 includes a slave cylinder fitting to adapt this slave cylinder to a #3 or AN3 37 degree fitting, which is the same size fitting that Jeep used on the master cylinder. [Part No. 716130H](#) can be used to couple the slave cylinder & master cylinder together.

Jeeps 1987-1991 (**Hydraulic linkage**) New Engine & Transmissions Swap Combos & Transmission Retrofits: Engine and transmission swaps are very popular in these years of vehicles. When you are installing a new drivetrain using one of our full conversion bellhousings, we offer a slave cylinder that bolts directly to our bellhousing. This Jeep Iron Duke slave cylinder works well with the 1987 to 1991 master cylinder (1-1/16" bore). This slave cylinder is [P/N 716331](#) and fits both the GM and Jeep conversion bellhousing we manufacture. (Note: 1987-89 YJ with the Peugeot transmission use a 11/16 master cylinder. This master cylinder will not work with the 716331 slave cylinder, you can switch out you master cylinder or just use the 716119S slave cyl.)

Jeeps 1992-2006 (**Hydraulic linkage**) New Engine & Transmissions Swap Combos: When you are installing a new drivetrain, using one of our full conversion bellhousings, Jeeps 1992 and newer used a master cylinder with a 3/4" cylinder bore. We offer a slave cylinder bracket that bolts to our bellhousing and allows the use of a Toyota Land Cruiser slave cylinder. This bellhousing does have the provision to use a Jeep Iron Duke slave cylinder, however, this slave cylinder is marginal when used with this YJ and TJ master cylinder. The recommended method of using the Land Cruiser slave cylinder would require the following: [P/N 716288](#) slave cylinder bracket, [P/N 716119S](#) TLC slave cylinder, [P/N 716215](#) slave cylinder fitting, and [P/N 716130H](#) slave cylinder hose. You will also require a special master cylinder fitting depending on the year of your vehicle. This assembly only works on our GM conversion bellhousing. The Jeep bellhousing will require a special bracket to be manufactured.

Jeeps 1992-2006 (**Hydraulic linkage**) Transmission Retrofits: This slave cylinder fits the Jeep 4.0L to truck transmission full bellhousing. This slave cylinder is a 3/4" bore and works well with the late model Jeep master cylinder. [P/N 716327](#) includes the transmission bracket, slave cylinder, and fitting.

Jeeps 1987-2006 (**Hydraulic linkage**) New Engine & Trans Swap Combos using Stock GM Bellhousing: When using a stock Chevy bellhousing, we offer a slave cylinder bracket that bolts to the Chevy bellhousing and allows the use of a Toyota Land Cruiser slave cylinder. This combination works well with the Jeep master cylinder. The part numbers required for this application are as follows: [P/N 716287](#) slave cylinder bracket, [P/N 716119S](#) TLC slave cylinder, [P/N 716215](#) slave cylinder fitting, and [P/N 716130H](#) slave cylinder hose. You may also require a special master cylinder fitting depending on the year of your vehicle.

Jeep TJ 1997-2006 - Jeep TJs have a hard plastic hydraulic hose assembly. We offer a replacement stainless braided hose assembly with two fittings for the master and slave cylinders, [P/N 716130TJH](#).

Jeeps 1980-2006 (**Master cylinders**) - Jeep master cylinders up to 1991 have threaded fittings, and 1992 & newer Jeep master cylinders have a pin-type connection. We offer hydraulic fittings to couple the stock master cylinder to the steel braided hose that we offer. The early master cylinders require [P/N 716130F](#), which is a threaded connector. On later model master cylinders, you will have two options. We have found that Jeep used two types of pin-style connectors. The difference seems to be between the YJ & TJ models. The photos below will assist you in the identification process. We suggest you check the fitting on your vehicle by matching it to one of these examples. To assist you with connecting these fittings to the slave cylinder, we also offer a 42" long stainless braided hose with #3 female fittings, [P/N 716130H](#). In some cases the 42" hose is not long enough; therefore, we carry a 12" extension hose for when you're just short of the proper fit, [P/N 716130E](#).



P/N 716130



P/N 716130TJ



P/N 716130H

clutch linkage (1987 & newer)

111

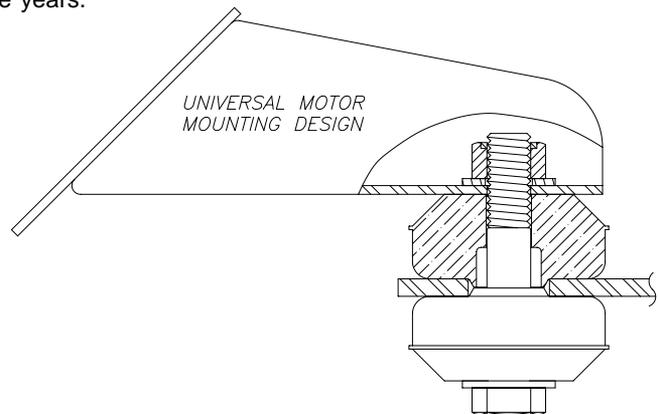
ENGINE CONVERSION

GENERAL INFORMATION:

Engine conversions for offroad vehicles are popular with both old & new models. We have been involved with engine and transmission conversions for more than 30 years and are not surprised when we see a new vehicle with less than 10,000 miles having an engine swapped. Since you are venturing out beyond the boundary of the corner gas station and local repair shop, you should be aware that offroad driving is quite different than street driving. Once you pull onto a dirt road, your vehicle must be capable of returning you and your passengers back to civilization. The best, single reason for an offroad 4WD engine conversion is reliability. If your 4WD cannot deliver this, then you're in serious trouble. Make sure that when making a change on your offroad vehicle it is done with the best equipment and design available. Don't short change your conversion for components that will give you less reliability.

There will always be situations where more power would be nice such as when towing a trailer, turning those big new tires, or falling short from the top of a hill. A common mistake of many offroad drivers is overpowering the existing drivetrain. If additional power is required and the stock transmission specifications and rear axle torque rating have been exceeded, then you might be required to use a stronger substitute. Jeeps have been equipped with several types and sizes of engines. In order to assist you, we have listed the various stock engines that were used throughout these years.

150CID 4 Cylinder Engine TBI	(1987-02)
148CID 4 Cylinder Engine (2.4)	(2003-05)
258/4.2L CID Straight 6 Cylinder	(1972-90)
4.0L Straight 6 Cylinder	(1991-05)
2.8L V6 Engine (Cherokees)	(1984-86) GM
2.5L V6 Engine 151 CID (XJ)	(1984-00) GM
4.0L Engine (XJ)	(1987-01)
2.4L & 3.7L Engine (KJ)	(2002-05)



ENGINE SELECTION:

Select a motor which best fits the use of your vehicle. We manufacture motor mounts, bellhousing adapters, headers, and transfer case adapters for Chevy, Chevy Vortec V8's, Ford, Dodge & Dodge Hemi, Buick V6 & some AMC motors. Within these range of motors, every practical need can be met.

ENGINE LOCATION:

Many people become overly concerned about moving the transmission, resulting in driveshaft modifications. The value of a good engine location requiring driveshaft modifications will far exceed the expenses of an installation requiring special cooling due to poor engine location.

We design most transfer case adapters to eliminate driveshaft modifications (whenever possible). This normally pertains to the newer type Jeeps with the longer wheel base. In order to position your new engine, it is usually mandatory that the original engine mounts be removed from the chassis. When placing the new motor into the chassis, several factors determine the best possible location.

- Firewall Clearance:** Allow adequate clearance between the distributor & firewall. Be sure that the distributor can be removed easily. Make sure the engine can be worked on without having to remove it from the vehicle.
- Front Axle Clearance:** Check the oil pan and harmonic balancer for axle housing clearance. Double check the suspension clearance if bottoming out. Location of the motor mounts will require some vehicles to relocate their front axle snubber.
- Hood Clearance:** When the air cleaner is in position, will the hood still close? On certain applications, special low profile air cleaners or a 1" body lift may be required.
- Driveshaft Clearance & Angularity:** The front driveshaft should have sufficient clearance to pass the bellhousing and starter. On vehicles 1987 & newer, the drivetrain may have to be offset towards the passenger side or centered in the frame rails. Make sure that the driveshafts do not bottom out when the suspension is collapsed. The angle of the rear driveshaft is very critical, and compensation can be made by either axle shims or lowering the transfer case.

E. Radiator Clearances: Proper spacing and centering of the fan with the radiator is necessary for optimum cooling. If you are having a problem in this area, an alternative is an electric cooling fan. These fans are popular for engine conversions, since they can be mounted on the front or backside of the radiator and don't require engine placement considerations when using an engine-driven fan.



F. Exhaust Manifold/Header Clearance: If headers are planned for the vehicle, it is best to purchase them before the installation of the engine. Although we make headers for several different applications, a perfect fit can never be guaranteed. When locating the engine, have the headers or stock manifolds in place and check the following for clearances: firewall, brake & clutch pedals through travel, steering box or linkage, body & frame, heater/defroster, and battery. When placing the engine into position, be sure and have your engine exhaust system mounted on the engine. This ensures all proper clearances are maintained.

I. Oil Filters: Oil filters can be a real problem especially on Ford conversions. The filter on Ford engines is located up front on the driver's side, and this can interfere with the stock steering or suspension components. If additional clearance is needed, we suggest a remote oil filter. We offer remote oil filter kits for most engines.

J. Motor Mount Installation: The motor mounts we manufacture are designed for specific applications, along with some universal applications. Some are a bolt-in style, while others require welding. The universal mounts are designed to fit a variety of frame widths. The channels that extend to the block are drilled in 1" increments, allowing choice of engine placement. In some applications you may be required to elongate one or both sides of these mounts for bolt hole alignment.

"L" brackets on weld-in mounts should be welded entirely around the perimeter. All welding should be done by a certified welder. When using a double donut design mount, make sure that the donuts properly index to the "L" bracket and the bolts are properly tightened. Mount bolts should be checked periodically.

Once the engine has been selected, you will now need engine mounts. We offer several combinations that will fit Ford, Chevy, Dodge, and Buick blocks. On most Ford and Chevy applications, we standardize our mounts by using a special dual rubber donut, locked together with special hardened bolts. This combination offers a positive means of securing the engine for the most severe offroad conditions.

Most of our mounts are universal and can be adjusted to accommodate the best possible engine location, while others are very specific and offer no alternate for changes. Our universal Chevy and Ford side mounts are the most popular style for Jeep engine conversions. The mounts are furnished so that they can be either welded or bolted into position, and are fully adjustable so that the engine can be offset.

The universal mounts are now available in two styles; one for the Jeep universals, and one for the wider framed vehicles that will fit up to 30.500" frames. We also offer a saddle-type mount for Chevy engine conversions that works well for vehicles with frames from 25" to 30". In the Buick V6 category, we also offer a universal Buick V6 engine mount that utilizes our double donut design and is fully adjustable, similar to the Chevy and Ford engine mounts.

In conjunction with all engine mounts, you will need to use a rear crossmember mount. This is usually the same mount with a new location adjusted to the new engine position. Two mounting points are all that is ever required with most installations. This will allow for plenty of engine flexibility and will eliminate transmission and engine vibrations.

We have been doing engine conversions for over 34 years. We've learned the hard way to count only on top-quality & proven design installations. Our mounts are secured with a 5/8" diameter bolt between the engine brace and frame bracket. No rubber vulcanization failure will let you down. To assure that you have the premier engine mounts that we offer, make sure our name is on the box. **Do not accept look-a-like takeoffs.** We are the "4-Wheel Drive Experts" and have the quality to prove it.

K. YJ Steering Shaft and Mounting upgrades: The stock steering shaft normally does not present any clearance issues with new engines. We have found that as these Jeeps get older, the stock steering shaft does develop end play. We now carry heavy duty replacement steering shafts for Jeep YJ's. Jeep's original steering shaft assembly was not designed for the added stress of body lifts and oversize tires. We carry the Borgeson's replacement assembly's which have a telescoping shaft with two precision needle bearing u-joints. The steering assembly is easy to install with common hand tools. Once installed, you will experience much tighter and more responsive steering.

[P/N 716871](#) YJ STEERING SHAFT POWER & MANUAL BOXES

Steer your Jeep YJ easy without interference. This new mounting plate moves the YJ steering box 1" forward, increasing the clearance between the tie rod and drag link. This provides more clearance making it less likely to have steering bind. This mounting plate is made with 1/2" steel for strength and reliability. [P/N 716855](#)

Universal Motor Mounts Jeep YJs: The universal mounts we manufacture are a high quality mounting system. The "L" brackets in these kits are made out of 3/8" material and designed to handle any style of driving. These universal mounts allow for lateral and vertical placement in the frame rail to maximize your drivetrain fit. The installation of these mounts will require the removal of your stock engine mounts.

Chevy V6 & V8:

- P/N 713001-S - 1987-1996 Jeep YJ Chevy V8 motor mounts
- P/N 713005 - 1987-1996 Jeep YJ Chevy V8 LT1 motor mounts
- P/N 713088 - 1987-1996 Jeep YJ Chevy V8 Gen III & LS1 motor mounts

Ford V8:

- P/N 713006 - 1987-1996 Jeep YJ Ford small block V8 motor mounts

Buick V6:

- P/N 713011 - 1987-1996 Jeep YJ Buick V6 motor mounts

Dodge V8 & Hemi:

- P/N 713095 - 1987-1996 Jeep YJ Dodge V8 (318/360) motor mounts
- P/N 713097 - 1987-1996 Jeep YJ Dodge Hemi motor mounts

Body Lifts
P/N 714450 -
Jeep TJ 1" body lift

P/N 714452 -
Jeep YJ 1"body lift

1987 to 1996 Jeep YJs: We offer a bolt-in saddle motor mount for the Chevy engines. This mount is designed to replace both the stock 4 & 6 cylinder Jeep engines, and is designed around a stock oil pan. If you are using an aftermarket oil pan, the maximum depth in the front is 3-5/8". This motor mount will not work with LT1 or 383 Stroker motors.

We have designed this mount to position your new engine in the best location possible. Driveshaft modifications may be necessary depending on your application. This mount will allow 1-1/4" of overall adjustment from front to rear. The stock Jeep motor mounts need to be completely removed from the frame before installing the new saddle mount. An electric fuel pump is required for ALL applications.



P/N 713087

Chevy V8:

- P/N 713087 - Chevy V8 to Jeep YJ (*bolt in mount*)

1997 to 2005 Jeep TJs: We now offer motor mounts for Chevy and Mopar engines. The mounts are designed to replace both the stock 4 & 6 cylinder Jeep engines and also work on both stock and lifted TJs; however, a 1" body lift is recommended on most applications and required on Vortec Gen. III engine installation.



P/N 713090 installed

Chevy V8:

- P/N 713090 - Chevy V8 to Jeep TJ 4 cyl. replacement (*bolt in mount*)
- P/N 713091 - Chevy V8 to Jeep TJ 6 cyl. replacement (*welding is required*)
- P/N 713092 - Vortec Gen. III V8 to Jeep TJ 4 cyl. & 6 cyl. replacement (*welding is required*)
- P/N 713093 - Vortec Gen. III V8 to Jeep TJ 4 cyl. & 6 cyl. with AC replacement (*welding and frame mods. required*)

Dodge V8 & Hemi:

- P/N 713094 - Dodge 318 to Jeep TJ 4 cyl. & 6 cyl. repl. (*welding is required*)
- P/N 713098 - Dodge Hemi to Jeep TJ 4 cyl. & 6 cyl. repl. (*welding is required*)

Chevy V6:

- P/N 713096 - 4.3 V6 to Jeep TJ 4 cyl. & 6 cyl. replacement (*welding is required*)



P/N 713090



P/N 713094

Ford 302 Bolt-in Mounts for CJ7 & YJ Wranglers: This cradle motor mount bolts directly to your CJ7 & YJ Jeep. By simply removing your stock motor mounts, this mount will properly position your 302 for header, fan & radiator clearance. No welding is required on P/N 713131. Part No. 713130 requires the frame brackets to be welded to the frame. Most applications will not require driveline modifications. **Note:** We do not offer any conversion headers to fit with these motor mounts. Stock manifolds are your best choice.

- P/N 713130 - Ford 302 to 1987-95 YJ Wrangler
- P/N 713131 - Ford 302 to 1987-95 YJ Wrangler (replacing 4 cyl.)



Advance Adapters "Off Road" Mounts: We now carry "Off Road" series motor mounts for the hard core 4-wheel enthusiast. These mounts are a weld-in design that use a horizontal neoprene isolator. These mounts are designed to handle the abuse of the roughest type of trail

- P/N 713206 - Jeep YJ & TJ Stock Rubber Mount Replacement

Jeep Cherokee XJ Mounts: We manufacture motor mounts for installing a Chevy V6 or V8. Our mounts require the original motor mounts to be removed from the frame rails. The engine mounts will set the Chevy engines at a height that will provide minimum hood clearance. Engines equipped with throttle body fuel injection, will need to modify the air cleaner.

A suspension lift is mandatory in order to have the proper suspension clearance. Failure to use a suspension lift will not provide the proper engine clearance which will cause both engine and suspension damage. The engine mounts are designed for a direct bolt in conversion. The stabilizer assembly on the driver's side will need to be reinstalled to the new engine mounts.

- P/N 713109 - Jeep Cherokee to Chevy V8 mounts
- P/N 713117 - Jeep Cherokee to Chevy V6 mounts



1991 YJ conversion with AA SYE kit installed. Photo courtesy of Todd Smith of Nacogdoches, TX.

Dodge Hemi TJ Conversion parts:
 The Dodge truck engine is the most preferred engine with the 545RFE automatic transmission. If a non 4WD transmission is obtained, the tailhousing can be changed without disassembling the transmission. Jeep TJ's from 1997 to 2000 will not be able to use the stock instrument cluster. The Jeep instrument cluster from 2001-2006 4 & 6 cylinder engines works fine with the Hemi engines. The Jeep TJ must have at least 1" of body lift before starting and we recommend a 3" or greater suspension lift with adjustable bump stops. This motor mount is designed to work with a 1997-2003 4 cylinder steering bracket, Part# 52058855. If your replacing a 6 cylinder, you will need this Jeep part number.

- P/N 716601 Hemi exhaust manifolds
- P/N 716688-AA Hemi with automatic transmission
- P/N 716688-AB Hemi with manual transmission
- P/N 716607 A/C lines kit
- P/N 716609 Gas Pedal bracket



We offer Gen. III mounts and adapters designed to couple to any earlier GM automatic or manual transmission.

JEEP EXHAUST

We design & manufacture our own header systems to complement the engine conversion business. We started manufacturing custom headers about the same time we started manufacturing adapters. There was a definite need for headers that would fit the various engine conversions. Through the years, our designs have evolved into header applications that were most typical. Our header systems are for non-pollution control, engine converted vehicles.

If your vehicle is going to be smog legal, you will need to retain the original manifolds. Stock manifolds will work equally as well on engine conversions. Most stock manifolds will require the exhaust system to be routed on the inside of the frame rails.

When doing an engine swap, the exhaust system must be given consideration before finalizing the exact engine location. **If headers are going to be used, we highly recommend that you bolt the new headers to the engine before determining the final engine location.** If you don't have the headers on the engine while positioning the engine, there is a good chance the headers may not fit properly. The fenderwell headers that we manufacture are designed for a minimum amount of fenderwell and firewall modifications.

When using headers on a new engine conversion, you will find that the headers do not offer the accessory mounting provisions that are found on stock manifolds. It may be necessary to fabricate special brackets for the air conditioner, power steering, and alternator supports.

The chrome headers we offer are not show quality, but are a commercial grade of chrome that will protect the headers from corrosion. The availability of the chrome headers is becoming limited due to the availability of chrome plating facilities on the West Coast. The alternative to chrome is a plain non-plated header set furnished to the customer for his own application of finish. The header can be painted by the consumer using a special heat paint available in most auto parts stores.

STOCK MANIFOLDS:

If stock manifolds are being used on a Chevy small block, a rear dump, close-fitting manifold off of a 1982 & newer low performance car is a good option. On vehicles that are smog exempt (depending on your vehicle year or state laws), the early Chevy ram horn (centerdump) manifolds are great for most conversions. On the newer Generation III engines, the stock truck-style manifolds are a tight fit but they will work in the TJs.

Chevy V6 applications can use manifolds off of a 1978 Malibu Classic. For non-smog legal vehicles, manifolds off of a 1980 Monte Carlo fit the best.

HEADERS:

Our header flanges are 3/8" thick and all of our primary tubes are constructed with 16 gauge tubing with a 2-1/2" 3 bolt collector ring. Each design is available in either a commercial chrome finish or a non-plated version, ready for your painting or custom coating. *NOTE: Our headers are not designed to fit Chevy small blocks with angle port heads.*

Our **written guarantee** states that if the headers do not fit your engine conversion exactly as you see fit, then simply return them for a full refund. You will only be responsible for the freight charges. We do not warranty the chrome plating on our exhaust systems, and the use of aftermarket header wrap products **will void** the header warranty. Thirty-four years of continual fine tuning and adjustments have made the Advance Adapters headers a choice for all engine conversion installations.

SMALL BLOCK CHEVY HEADERS: The Chevy headers we offer come complete with header flange gaskets, header bolts, collector rings or clamps for the exhaust shop, and the collector gaskets. All headers can be ordered in a chrome finish or a non plated finish by adding a (NP) to the numbers listed below.

- P/N 717090 - Inside the frame header Jeep TJ 1997-2005 rear dump
- P/N 717011 - Inside the frame header Jeep YJ 1987-1996 center dump
- P/N 717039 - Outside the frame header Jeep YJ 1987-1996
- P/N 717053 - Inside the frame header Jeep XJ rear dump

SPECIAL HEADERS: We now offer universal headers like our 717011 headers that work with angle plug and D-port heads.

- P/N 717015 - Inside the frame header fits blocks with a std port head and angle plugs.
- P/N 717016 - Inside the frame header fits D-port heads with angle plugs.
- P/N 717043 - Inside the frame header fits Gen III engines. (Will not fit Jeep TJ's) (1-1/2" tubes)

CHEVY 3.8 & 4.3 V6 HEADERS: These Chevy V6 headers come complete with header flange gaskets, header bolts, exhaust clamps for the exhaust shop, and the collector gaskets.

- P/N 717056 - Inside the frame header Jeep YJ & XJ rear dump

CONVERSION APPLICATION SUMMARY

JEEPS 1987 & Newer

1987-99 JEEPS CHEROKEES (4WD):

The Chevy V6 & V8s are very popular engines to swap into 4WD Cherokees 1987-99. We do not offer any conversion components if your vehicle was originally equipped with a Chrysler V8. The conversion kits we offer are for replacing the 4 cylinder, 2.8 V6, and the in-line 6 cylinder engines. We have a complete line of bellhousing adapters to retain any of the original stock automatic or manual transmissions. We also offer a full complement of transfer case adapters, adapting to many of the Ford & Chevy transmissions.

A. Stock Manual Transmissions: If your vehicle was equipped with a 4 cylinder engine, the transmission would be an AX5. This 5 speed is considered to be a light-duty transmission. We offer a full bellhousing kit to mount this transmission to either a Chevy V6 or V8 engine.



If your vehicle was equipped with an in-line 6 cylinder, the transmission would be a Peugeot 5 speed (1987-89), or an AX15 5 speed transmission (1990 & newer). The Peugeot is a very light-duty transmission and should be replaced when doing an engine conversion. The AX15 is a good & reliable transmission. It has an excellent gear ratio and is ideal for V6 & V8 conversions. This transmission is one of the only newer Jeep manual transmission capable of handling the engine torque of a V8. We offer a full bellhousing kit, [P/N 712567](#), to retain this transmission to a Chevy engine. Please refer to the 1987 & Newer Stock Transmission & Bellhousing Adapter section for more information.

B. Stock Automatic Transmissions: If your vehicle was equipped with a 4 cylinder or 2.8L V6, the transmission would be a Torqueflite 904. Retaining this automatic is not recommended when installing a V8. If your vehicle was equipped with a 6 cylinder, the transmission would be a Torqueflite 999 or a AW4. The 999 transmission works great with either the Chevy V6 or V8 engine conversions. For more information on retaining these stock automatics, refer to the 1987 & Newer Stock Transmission & Bellhousing Adapter section.



C. Exhaust: The engine compartment on these vehicles is very restrictive. We do offer some exhaust headers which only fit when installing or retaining an automatic transmission. For a V8 application, use [Part No. 717053](#), and on a V6 application use [Part No. 717056](#). If you want to use stock manifolds, the following are some suggestions:

- | | |
|--------------|--|
| Chevy 4.3 V6 | Manifolds off of a 1980 3.8L Monte Carlo (for smog-legal vehicles) |
| Chevy 4.3 V6 | Manifolds off of a 1978 3.8L Malibu Classic (for non-pollution control vehicles) |
| Chevy V8 | Manifolds off of a 1982 & newer low-performance car application |

D. Radiator: The stock radiator is not normally sufficient to cool the newer engine. We do not offer a custom radiator for these vehicles. We recommend having a custom radiator made. When retaining your stock automatic transmission or swapping to another automatic, thought should be put into proper cooling for the transmission.

E. Driveshafts: On V6 & V8 engine conversions retaining the stock transmissions, driveshafts modifications may be required. When upgrading the vehicle with a new engine & transmission, driveline modifications should be expected.

F. Engine Location: The main limiting factor when positioning the engine is firewall clearance. On Chevy engines, it is crucial to allow proper clearance for the distributor cap. The mounts that we manufacture are a bolt-in application, positioning the block to allow for this. If a large H.E.I. distributor cap is being used, modifications to the firewall will be required.



The placement of our engine mounts bolt directly to the unibody, replacing the stock motor mount supports. To obtain proper hood clearance, it is mandatory to position the new engine lower than stock. This creates interference with the suspension system. To provide adequate suspension travel clearance around our mounts, a 3" suspension lift is required.

When using a V8 engine, the overall length of this Chevy block may cause clearance issues with the radiator and grille assembly. A grille assembly off of a later model XJ, equipped with the in-line 6 cylinder, can provide additional clearance in this area.

1987-96 JEEP WRANGLERS (Chevy V8 with TH350 Automatic):

When the Jeep YJ Wrangler was introduced in 1987, we had many customers interested in Chevy V8 conversions for these vehicles. Since we did not produce any adapters for this new model, the solution was to purchase a new Jeep Wrangler and swap in a Chevy

V8. The Jeep we purchased was a 1988 YJ Wrangler equipped with a 6 cylinder, Torqueflite automatic transmission, air conditioning, power steering, and power brakes. The transfer case this Jeep was equipped with was a New Process 231 with a vacuum shift control that actuated the front differential. As we began to research this application, we also decided to upgrade the transmission to a TH350 automatic.

The new engine that we selected for the conversion was a new 1986 Chevy 350 V8. The engine was equipped with the standard "H.E.I." distributor. In this section, we have listed some of the different areas of concern that might be of interest if you are performing a similar conversion. The conversion took approximately 60 hours to complete.

Transmission: The stock transmission was a Torqueflite 999 automatic. The NP231 transfer case was coupled to this transmission using the factory adapter. We learned that the bolt pattern of the NP231 was almost identical to the Jeep Dana 300 transfer case used in the earlier 1980-86 model Jeeps. By using P/N 50-6304 (or 50-6300 shown right), we were able to mate the new TH350 transmission to the existing transfer case. We used our crossmember mount, P/N 716017, to attach the original crossmember support to the bottom of the new adapter housing. The location of the transmission mount needed to be changed slightly on the skid plate. The transfer case remained exactly in the original location. This location may vary on vehicles equipped with different transmissions and engines. The transmission cooler lines that were originally used for the Torqueflite were retained and reconnected to the TH350 by using two small rubber hose connections. The original column shift linkage can be retained, but it is easier to use a floor shifted cable-operated shifter for controlling the transmission.



Engine: The engine mounts that we used were P/N 713007. The existing 6 cylinder mounts were completely cut away from the frame, and the new brackets from our kit were welded into position. The location of these new mounts will be determined by the assembled length of the new transmission, adapter, and transfer case when assembled into the vehicle. The engine was centered between the frame rails. The oil filter was replaced with a new oil filter bypass kit, P/N 716083. This kit was required since the front driveshaft is located on the driver's side of the vehicle.

In our installation, we used a 2" fan spacer to keep the fan close to the stock radiator. The engine must be equipped with the late model long water pump that has the extra four holes for use with the power steering and alternator brackets. The exhaust system was the standard Chevy ram horn (centerdump) design; or you could use our fenderwell headers, P/N 717039. The linkage on the carburetor was easily connected to the existing throttle assembly. The Jeep engine had a single Serpentine belt drive. When switching to the V8, we found it easy to convert all of the accessories to the standard V-belt design. The original Jeep fan operated in the opposite direction of a Chevy V8 fan, so a different fan was required on our new engine. The crank pulley that we used was a three groove design, GM# 4023148. A two groove design was used on the water pump, GM# 14023155, and used to drive the following: 1st groove - For the alternator, water pump and crank; 2nd groove - For the crank, A/C and power steering; and 3rd groove - Also for the crank, A/C and power steering

Brackets: There are two areas that require brackets. Using all GM stock brackets, we were able to simplify the installation.

Alternator Mounting Brackets: The alternator is installed on the right side of the vehicle. We selected a 33 amp internal regulator model alternator. The unit was mounted with three stock GM brackets. The brackets listed below were the GM part numbers used. The electrical wiring connection that was originally used on the Jeep was simply plugged back into the new alternator. Top Bracket #14081227, Lower Front#14015533, Bolt #3932414, and Water Pump to Alternator #6262934.

Power Steering Brackets: We retained the original Jeep power steering pump and used a pump mounting bracket from a 1986 Chevy truck. This stock bracket required an additional rear support that bolted between the adjustment slot of the power steering bracket and the Chevy manifold. Since the Jeep power steering pump had the wide groove pulley, we had to remove the stock pulley and replace it with a new two groove V-pulley. The second groove on this pulley will be used as an idler for the air conditioning compressor.

Stock Gauges: We were able to retain all three of the engine operating gauges. The alternator amp gauge works without any modifications. The electrical engine temperature gauge sender that was originally installed with the 6 cylinder was reinstalled by using a standard bushing adapter. The wire for this sender will need to be lengthened for use with your new V8 engine. The oil pressure sender was simply reinstalled using the 45 degree pipe elbow and, once again, the electric wire needs to be extended.

Vacuum Connections: There are several areas that will require vacuum fittings from the new engine in order for the vehicle to operate properly. We suggest that you purchase a multi-port vacuum connector, GM# 355786, that can be used for the various vacuum connections.

1. **4WD Shift Control:** The Jeep transfer case operates off a vacuum control linkage system that is regulated by a vacuum reservoir, located on the lower right side of the engine compartment. This vacuum reservoir requires a vacuum line connection.
2. **Power Brake Booster:** On the multi-port vacuum line fitting, there is one large connection that must be used for the Jeep power booster vacuum line.
3. **Heater:** The heater control must have a vacuum-fed line.
4. **Charcoal Cannister:** The charcoal cannister is an area that accumulates excessive gas fumes and requires a vacuum line to be connected.

F. Fuel System: The existing fuel system has two metal lines that come from the gas tank up the driver's side of the vehicle. One goes to the fuel pump and the second goes into the smog system. The fuel system line will need to be rerouted across to the passenger side of the engine compartment to couple to the Chevy V8 fuel pump. The vent line will be installed into the charcoal cannister.

1997-05 JEEP WRANGLERS (Gen III V8):

The information that follows is base on Vortec engines that we sell. A Vortec engine obtained elsewhere may have some differences. The Jeep TJ should have at least 1" of body lift before starting and a minimum of 4" suspension lift with adjustable bump stops. The suspension lift is mandatory to clearance the A/C compressor.

Motor Mount: These mounts require the original motor mounts from the frame to be removed. Also remove the steering pillow block bracket and discard. The frame surface for the mounts should be bare metal so that there are no contaminants in the weld area for the new mounts. The TJ frame has a small hole on both sides that originally held the brake lines. We use these holes for the alignment of our mounts. Clamp the mounts in place and verify that the steering pillow block fits to our mount without any interference. When the mounts have been correctly positioned, weld them in place and paint. The Vortec engine is very large. Firewall modifications are minor, yet mandatory. The engine and transmission should be bolted together for an easier installation.

Air Conditioning Modifications: In order to retain air conditioning into the TJ, there are some fairly major modifications that need to be made. The frame must be modified if the air conditioning compressor is to be used. The configuration of the serpentine belt on the newer blocks will not allow the compressor bracket to be located anywhere else besides stock. The best way to determine the proper clearance on the frame would be to do a dry run once the new mounts are in place. It is a good idea to keep the stock A/C pump lines and manifold handy when checking the clearances. Please keep in mind that it is far easier to check often and do minor trimming than it is to repair a frame rail with too much taken out of it. When you feel comfortable with the notch in the frame, a piece of scab plate MUST be fit and welded into place on the frame to secure the frame integrity.

Vacuum Connection for Brake Booster: You will notice that the Vortec block has no provision for a vacuum line for the brake booster. There is a small port on the back of the intake manifold that can be used.

Gauge Wiring: The Vortec V8 and the Jeep systems do not "speak the same language". In our installations, we retained the stock Jeep computer as well as install the new Vortec computer. We retained the stock Jeep sending units and attached them to the GM block (oil pressure, temperature, and fuel level). All of them work fine except the tachometer. An aftermarket tachometer would be the easiest option at this point. Since you are using the stock sending units, the Jeep computer thinks that the original engine is still sending information.

Radiator Hoses: For our conversion we ran to our local auto parts store for hoses. The lower hose is NAPA P/N 7473. The upper hose is actually two separate hoses spliced together. A 1/2" hole with pipe thread was tapped into this splice for the stock TJ temperature sending unit. The two hoses were NAPA P/N 8111 and 8563. We used our custom Rad-a-Kool radiator for this conversion to make sure cooling would not be an issue. The radiator fit into the stock location on the Jeep TJ. The Vortec engines recommend a 50/50 mixture of Dex-cool and water.

Throttle Linkage: The throttle cable that comes with our Vortec engines will work with the TJ pedal. To connect the two, start by drilling a hole in the firewall where the stock Jeep cable was located. The hole diameter is determined by taking a pair of calipers and measuring the mounting slot on the stock GM throttle linkage. Use the correct drill bit and open the stock hole on the Jeep firewall. The hole must be big enough to accept the housing, but not too large for it to slip through. The inner cable may need some shortening to work correctly with the stock pedal. It may even be necessary to solder and relocate the stop on the cable.



Fans: Either a stock clutch fan or an electric fan will work with these motor mounts. With our aluminum radiator, there should be approximately 2-1/2" between the clutch on the fan and the radiator fins. A custom shroud will have to be fabricated if you use the clutch fan. An electric fan is what we used and it works great with these mounts. There is ample clearance in the engine compartment which allows for good air circulation. We offer a Spal fan and mounting brackets to fit our radiator under Part No. 716670. This fan is rated at 2360 CFM.

Exhaust: All of the stock exhaust system must be removed for the Vortec conversion. New pipe should be run from the manifolds all the way out. Routing the exhaust around the frame should not be a problem. Weld flanges and crush gaskets are available separately for the truck-style Vortec manifolds (AA P/N 716573 and P/N 717514). If you are doing a smog legal conversion, you may need to find a stock GM vehicle to measure the location of where the oxygen sensors and cats are located on the stock pipes.

Intake: The intake we used on our TJ installation was a GM 25176891. This ducting was cut and modified to fit the Jeep configuration. We used a K&N air filter, P/N E-1796. This setup required a electric fan to be used.

Fuel System: Refer to the fuel section of your Jeep owner's manual before servicing or taking apart any piece of the fuel system. Special fittings, pressurized line, and certain procedures must be taken into consideration before work can be done on the fuel

system. **Do not take short cuts on fuel systems.** The new Vortec Gen. III fuel rails have anywhere between 50-60 pounds of fuel pressure! *Only approved high pressure hose and fittings should be used.* Take care when routing fuel lines, and make sure all fittings are secure. The new Vortecs need a minimum diameter of 3/8" line on the pressure side, and a minimum of 5/16" on the return (3/8" is best for the return line). The stock Jeep fuel pump comes close to feeding the new block, but falls short. The stock Jeep fuel pump is internally regulated in the fuel tank at 46 psi. The Vortecs regulate at 56 psi on the fuel rail. Since the Jeep regulated the pressure at the tank, it did not run a return fuel line. We opted to run two new 3/8" lines, one pressure and one return. The pressure line needs to be installed by drilling and installing a bulkhead-type "AN" fitting alongside the stock Jeep pump assembly. A fuel tank pick up must also be installed. Make sure the new pickup line draws from the bottom of the tank and has no restrictions. The old Jeep "pressure" line out of the tank can be used as a return line connection from the Vortec. To use this connection you must take all the "guts" out of the stock internal regulator.



AA's Vortec & Atlas test vehicle, Moab 2004

1987-2005 JEEP WRANGLERS:

Chevy V8 conversions in these years, replacing the 4 cylinder and in-line 6 cylinder engines, are very popular. We have a complete line of bellhousing adapters to use any one of the original stock transmissions. We also offer a full complement of transfer case adapters, adapting to many of the Ford & Chevy transmissions.

A. Stock Manual Transmissions: If your vehicle was equipped with a 4 cylinder, the transmission would be an AX5. This 5 speed is considered to be a light-duty transmission. We offer a full bellhousing kit to mount this transmission to either a Chevy V6 or V8 engine. If your vehicle was a 1987-89 YJ equipped with a 4.2L 6 cylinder, then the transmission would be a Peugeot 5 speed. This transmission is also considered to be light-duty and unreliable; however, we do offer a full bellhousing kit to retain this 5 speed, coupling it a V6 or V8. **NOTE: This bellhousing will retain the internal hydraulic release bearing.** The AX15 5 speed transmission was first used in 1990, and the NV3550 in 2000. These transmissions were used in Jeeps with a 4.0L 6 cylinder. These transmissions have an excellent gear ratio and are ideal for a V8 conversion. These transmissions are probably the only newer Jeep manual transmissions capable of handling the engine torque of a V8. We offer a full bellhousing kit to retain the stock transmission to a Chevy engine; [P/N 712567](#) for the AX15 and [P/N 712591](#) for the NV3550. We also offer an adapter plate, [Part No. 712543](#) (AX15) & [712544](#) (NV3550), for Ford small block V8 applications.

All of the bellhousings for the above mentioned stock Jeep transmissions are all limited to a 10-1/2" flywheel & clutch assembly. The clutch linkages on these applications are always hydraulic, and are either mounted on the bellhousing or the front of the transmission. Please refer to the 1987 & Newer Stock Transmission & Bellhousing Adapter section for more information.

B. Stock Automatic Transmissions: If your vehicle was equipped with a 4 cylinder, the transmission would be a Torqueflite 904. This automatic is not recommended when installing a V8. If your vehicle was equipped with a 6 cylinder, the transmission would be a Torqueflite 999. This transmission works great with either the Chevy V6 or V8 engine conversions. For more information on retaining these stock automatics, refer to the Stock Transmission & Bellhousing Adapter section. All of the transmissions listed above are found in both the YJ & TJ Wranglers. The following information is based mainly around the YJ conversions. Nevertheless, this information may be applicable since these vehicles use mostly the same drivetrain (transmission & transfer case). We have had some customers replace their stock transmission using the T18 4 speed and the NV4500. Both customers were forced to reposition the air bag module and some console modifications to provide room for the new manual gear lever.

C. Optional Transmissions: We offer numerous types of transmission options that could be substituted for the original Jeep transmission. The options for the Chevy conversions would be the GM automatics such as the TH350, TH400, and 700R-4; and for the manual transmissions, the NP435, T176, T18, SM465, SM420, and NV4500. The transfer case equipped in these vehicles is manufactured by New Process Gear, and came equipped with 21 or 23 spline input. For more information, refer to the Transfer Case section of this manual.

D. Exhaust: We offer two styles of header systems for a Chevy V8 in these late model Jeeps. The inside-the-frame rail headers, [P/N 717011-NP](#), drop straight down inside the frame rails, similar to centerdump manifolds. [Part No. 717039-NP](#) is a complete tubular header system that is designed to fit Jeep vehicles 1987 to 1995. These headers exit over the frame rails and drop down between the fender skirting and firewall. These headers are not compatible with vehicles equipped with Nerf bars. For Ford V8s, we offer [P/N 717012-NP](#), which is an inside-the-frame rail header.

E. Radiators: The original radiator can be retained in the stock location. The inlet and outlet positions will require relocation for a Chevy engine. An optional electric fan can be installed for additional cooling capacity. Consideration should be taken as to upgrading to a larger, more efficient radiator.

F. Driveshafts: On Chevy V8 installations, retaining the stock transmission, the original driveshafts should not require modifications. When upgrading the transmission, driveline modifications should be expected.





1997-2005 JEEP TJ WRANGLERS:

Engine conversions in these years, replacing the 4 cylinder and in-line 6 cylinder engines, are becoming very popular. We have a complete line of bellhousing adapters to use any one of the original stock transmissions. We also offer a full complement of transfer case adapters, adapting to many of the Ford & Chevy transmissions.

A. Stock Manual Transmissions: The information listed on the previous page is the same as for the TJs.

B. Stock Automatic Transmissions: The information listed on the previous page is also the same as for the TJs. The only exception is the 2003 Jeep TJ 6 cyl. and 4 cyl. These vehicles switched to a new style automatic transmission. We currently do not offer any adapters for these transmissions.

C. Optional Transmissions: We offer numerous types of transmission options that could be substituted for the original Jeep transmission. The options for the Chevy conversions would be the GM automatics such as the TH350, TH400, 700R-4, and 4L60E; and for the manual transmissions, the NP435, T176, T18, SM465, SM420, and NV4500. The transfer case equipped in these vehicles is manufactured by New Process Gear, and came equipped with 21 or 23 spline input. For more information, refer to the Transfer Case section of this manual.

D. Exhaust: We offer a header system for a Chevy V8 into the Jeep TJ. [Part No. 717090](#) headers are a rear drop exhaust that stays inside the frame rails. If stock manifolds are required for emissions, car manifolds work the best. On Dodge engine conversions, we used the manifolds off of a Dodge 1500 series pickup. We do not offer any headers for the Dodge blocks.

E. Radiators: Both the Chevy and Dodge engine require a radiator upgrade. We offer a copper/brass or aluminum radiator that fit the TJs. Both radiators mount in the stock location and work well for cooling the new engines.

F. Driveshafts: On Chevy V8 installations retaining the stock transmission, the original driveshafts should not require modifications. When upgrading the transmission, driveline modifications should be expected. Driveshaft modifications on the Dodge conversions will depend on the transmission that is going to be used.

G. Engine Location: The mounts designed for the TJ set the block in the ideal location in the frame rails. The mounts were created to allow both the GM and Dodge V8s to be installed with both stock and aftermarket suspensions. The GM V8 mounts replacing the 4 cylinder is a bolt-in motor mount. The mounts for the GM V8 replacing the 6 cylinder are a weld-in. Welding is also required when installing the Dodge V8 engines. All mounts allow for some fine tuning of engine placement; front to rear and side-to-side.

1997-2005 Dodge Engine Swap:

The 5.2L and 5.9L Magnum gasoline engines have good dependability ratings and are wired similar to the Jeep power plants. The best donor vehicles are 1996 & newer Ram 1500 – 3500 trucks, Dakota and Durango trucks. Be sure, as we did, to get all wiring from the donor truck. If your auto dismantler will not unplug the connectors for you, please offer to do it yourself. You will need many of the plugs and wiring from the donor truck. Hacked and cut wires are difficult to trace because the factory service manuals reference the plugs in the schematics. The emissions equipment, such as the charcoal canister and leak detection pump are important to the computer when performing pre-startup diagnostics. Get all these parts now because if you have to buy them later you will spend a lot of dollars from the dealership - whereas the auto recycler may just “throw in” the parts you need.

The stock “Y” pipe is also a good starting point to help route the exhaust. Catalytic converters are also expensive aftermarket pieces, so get them too. If you are using a manual transmission, use a donor engine and ECM that was originally manual. Do not try to attempt to run the electronic overdrive transmission from the manual computer. It is more trouble than it's worth.

We have found that removing the grille and fenders makes the conversion go much faster. The factory motor mounts must be removed to install the new weld-in mounts. Use a grinder to trim the mounts from the frame and upper control arm mount. Take care not to damage the suspension mount point. The V8 mount position is determined by a pre-existing dowel hole in the frame. Remove the large factory rubber mounts from the V8 (commonly found in Dodge truck applications) because they will not be used. Advance Adapters [P/N 713094](#) is used for this application. The frame mounts are easily placed in the engine bay and welded. Be sure to have a qualified welder do this because the welds will be supporting about 500 lbs. Cleanup and painting should be done prior to lowering the V8 into the chassis. The rubber bushings will index into the upper mount and be secured with the 5/8” bolts into the lower mount. Reinstall the skid plate. While still on the hoist, trial fit the drivetrain assembly. Look at possible interferences with anything in the engine bay. It is best to install the transfer case now. Attach the linkage at the case. Adjustments and/or modifications may be necessary for the movement of the transfer case. Bracket [P/N 715542](#) may be needed if using the NP231J.



install



Cradle Installation

by Rob Hall

The humble beginnings of Advance Adapters traces back to 1971. A small garage in Downey, CA was the site for the first Jeep adapter. Since then, the product line has changed and grown, but the loyalty to Jeep has been at the forefront of designing since day one. Over the years the Jeep CJ also underwent growth spurts. In 1987, the Jeep platform changed to such a degree that engine conversions could tie into the frame using existing holes and strengthen the frame between the shock towers. Traditionally, Jeep conversion mounts were weld-in and usually limited the conversion to a professional shop. The 1987-96 YJ conversion cradle from Advance Adapters is truly a bolt in modification. V8 engine conversions can now be performed in any driveway using only standard hand tools. The engine placement for a Chevy V8 is correct and requires no sweating about firewall clearance. "Bolt-in" means that a welding machine no longer needs to be among the list of handy items when doing a YJ engine conversion. The Jeep featured here is one



1 This is the mount bolted to the passenger side shock tower.



2 These two tabs correctly index the mount into the frame.



3 These are the stock frame holes used by Advance Adapters. The lower hole is used to bolt the cradle from the outside of the frame.

that was purchased to prototype the Atlas II transfer case. Once the bugs were worked out, the YJ became the platform for an extreme trail rig. The cradle is designed to be used when replacing the stock Jeep transmission with a GM TH350 or 700R4. Driveshaft modifications are not usually necessary when completely replacing a 999 automatic, AX15 or Peugeot using the adapters and the stock transfer case. The cradle can be used with Advance Adapters' conversion bellhousings to any stock Jeep transmission; however, the stock transfer case will be relocated and driveshafts will need to be fabricated. The engine we used here is a TBI motor from a '95 Chevy C1500. We chose this because of the simplicity of the fuel injection system and the great availability of replacement parts. The headers are a tubular rendition of the old "ram horn" GM center dump manifolds. The 700R4 transmission is from JET Performance in Huntington Beach. We chose this automatic because of the 3.06:1 first gear and 30% overdrive.

The first step is to remove the stock Jeep drivetrain. The YJ had a 4.2L 6 cylinder and a 999 automatic from the factory. Stock 4.2L sixes are great torque motors, but we wanted the added horsepower of a Chevy V8. The stock motor mounts must also be removed. Usually this is made easier by removing the front clip. The front shocks must also be removed to gain access to the inside of the shock tower. This is an excellent time to inspect for wear on the bushings or look for seal failure. The indexing tabs locate a hole in the shock tower. The lower boss on the cradle snaps into the lower frame hole. Be sure that the mounts are positioned behind the crossmember, or the motor will be too far forward. Once bolted in, and the GM mounts on the block, the engine and transmission are then lowered into the chassis. An electric fuel pump and block-off plate are used on all applications due to the location of the cradle.

The adapters account for the stock transmission length and usually require



4 Installation of the upper frame bolt. (Note the removal of the shock to access the nut from the outside.)



5 Both sides are in place and are ready for the engine and transmission to be dropped in. Take care that the mounts are positioned so that they are behind the crossmember.



6 The engine is bolted in using the stock GM mounts provided by Advance Adapters.



7 The double-donut design provides for greater stability over stock.



8 The Atlas will bolt in one of the two rotations on the adapter. We rotated ours almost flat to give us optimum ground clearance.



9 The transmission, adapter, and Atlas are a fairly short combination with an overall length of 38.1". This allows for a 22.5" driveshaft in the rear and a 31" shaft in the front.

install

Advance Adapters' Cradle Installation

10 Here the rolling chassis patiently awaits the body to return from the paint shop.



11 Now with the body installed, Project YJ is ready for the final touches.



12 The donor motor from the Chevy truck included all of the wiring and computer to ease the grafting into the YJ.

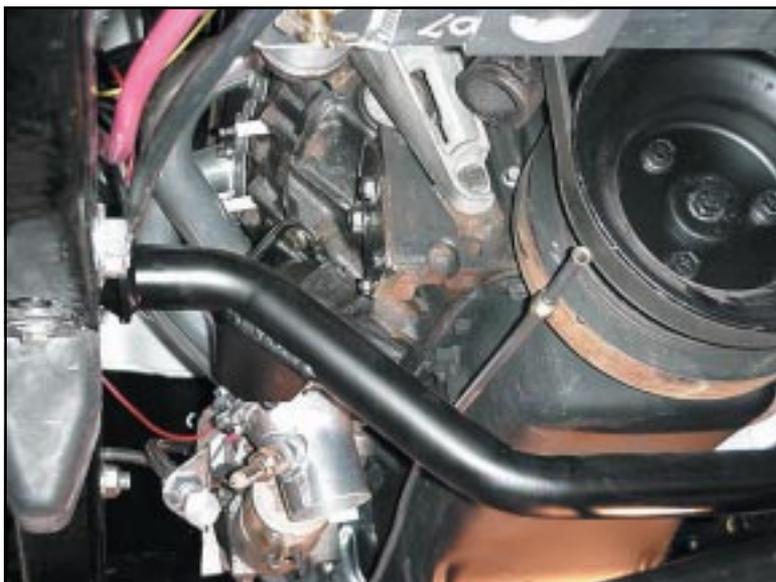


14 The Atlas II comes stock with twin shifters so the front and rear axles can be engaged with ease. This is done without ever leaving the comfort of the driver's seat.

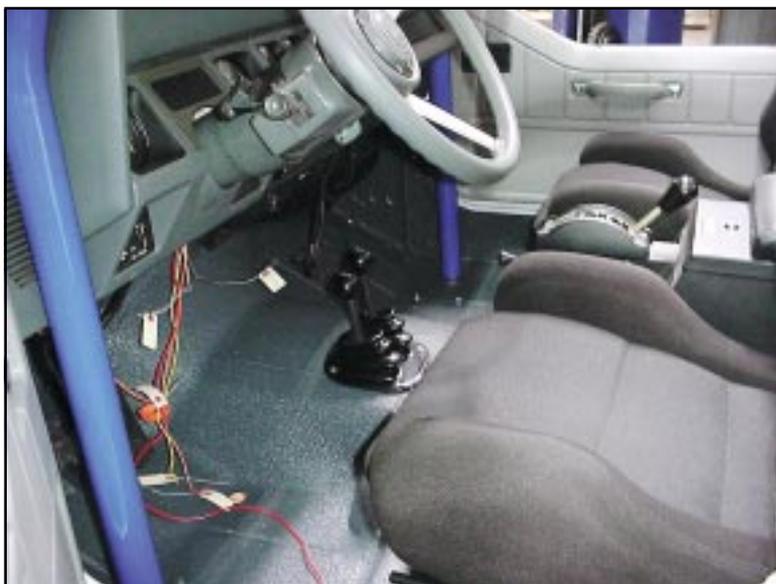


13 The motor fits so perfectly you have to wonder if the factory ever saw this coming.

no driveshaft modifications when using the stock transfer case. The 700R4s usually mount to the crossmember at the tailhousing; however, the mount moves to the adapter casting on a V8 conversion. The holes were marked and drilled for the double-donut mount. The adapter we used is a short casting to mate to a 23 spline Atlas II. This casting design eliminates the spud shaft and replaces it with a new 700R4 output shaft with 23 splines. The 2" we saved by using the short adapter translated into tolerable driveshaft angles for our YJ with an extreme lift. The added adapter bolted directly to the Atlas II using the studs supplied with the Atlas. This is, of course, an extreme YJ and we thought a 4.3:1 low range would suffice. Usually the 4.3:1 is too low for automatic applications. The stock drum brakes are often insufficient in holding the vehicle while in gear. Our YJ was to be fitted with Currie disc brake axles, so we continued as planned. Many aftermarket compa-



15 *We've found that using a deep sump oil pan will cause interference with the crossmember mount; however, a stock oil pan works well.*



16 *This is the correct boot position for the twin sticks. When installing, be sure they do not hit the floor when in full movement.*

nies offer disc brake conversions for stock axles so check around before you order your Atlas II.

We marked the firewall location and removed the body for easier access. Removing the body is not necessary, but we wanted to restore the body at the same time.

Our bodywork was performed in-house by Scott Corgiat with phenomenal results, and sent out to be painted and have a liner sprayed in. With the body off, we installed Warn's Black Diamond XCL suspension system. The flexibility of this kit is incredible due to the fully adjustable Fox coil-over shocks. Our Currie axles arrived and we went to work mating the suspension to the drivetrain. We measured the driveshafts and had them custom fabricated by Tom Wood's Custom Driveshafts. Tires now became a concern. Which one? How big? Radial? After much researching and many games of scissor-paper-rocks, 35x12.50 15 Super Swamper TSL radials were chosen to put the power to the ground.

We reinstalled the body and front clip. The floor was modified so that the twin Atlas II sticks did not bind or hit the body. This is a critical step because most shifting problems we've seen have been traced to improper installation. We installed our aluminum Be-Cool radiator and wired the motor up using a Howell wiring harness. The thick bracketry on the motor forced us to use an electric fan on the front of the radiator. This seems to work fine.

The crawl ratio of the YJ is 60-to-1. Not a bad number considering that stock is somewhere around 38-to-1. The horsepower that the motor develops now can be utilized more effectively by using less tire speed to conquer obstacles. This slower and controlled speed equals safer four wheeling because you have more time to react in a dangerous situation. The YJ now feels lighter and is more responsive thanks to the new powerplate.