DX1500 POWER AMIPLIFIER

OWNER'S MANUAL

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HILL AUDIO INC., 5002B N. ROYAL ATLANTA DRIVE, TUCKER, GEORGIA 30084, U.S.A Tel: 404 934 1851 Thank you for choosing a Hill Audio power amplifier. We are sure it will give you many years of trouble free service: to help you achieve this, please read the following advice before turning on your amplifier.

Due to our policy of continuous development, we reserve the right to alter any specification without notice.

WARNING

To prevent shock or fire hazard DO NOT EXPOSE to rain or moisture!

CAUTION

There are no user servicable parts inside the amplifier.

Any and all controls needed for operation of the amplifier are accessible from outside the amplifier.

RACK MOUNTING YOUR AMPLIFIER

It is recommended by Hill Audio that you support the back of the amplifier when mounting in a rack. Hill Audio will not be responsible for any damage (electronic or structural) caused from insufficient structural support when mounted.

BACK PANEL

POWER:

20 amp attached AC cord.

INPUT:

XLR - transformerless.

balanced pin #3 +, #2 -

1/4" jack balanced tip +, ring -

unbalanced tip +

Terminal block for installations

OUTPUT:

8 banana sockets on 3/4" centres

Terminal block for installations

FANS:

2 x 3" fans, thermal-servo controlled

GROUND:

Ground isolation switch

BRIDGE:

switch to turn on the MONO bridging

circuit

FRONT PANEL

INPUT LEVEL:

Sensitivity control per channel

Green LED indicating signal present

Red LED indicating onset of clip per channel

ON/OFF:

power on circuit breaker

LED indicating power on

PROTECTION:

LED indicating protect circuit on

BRIDGE:

LED indicating MONO BRIDGE active

SPECIFICATIONS

Size 19" rack mount, 3-1/2" high (2 rack spaces)

13" behind back panel

Weight 34 lbs (15Kg)

AC Supply 50/60Hz 240/220 VAC - 5 amps - music power

240/220 VAC - 10 amps - full power sine wave

120/110 VAC - 10 amps - music power

120/110 VAC - 20 amps - full power sine wave The supply voltage is NOT switchable, so verify the voltage of your amplifier BEFORE you switch it on.

AC Breaker 240/220 - 10amp

120/110 - 20 amp

Noise -100dB

Power r.m.s. per channel, both channels driven

300 watts into 8 ohms, 500 watts into 4 ohms 750 watts into 2 ohms bridged MONO:

1000 watts into 8 ohms 1500 watts into 4 ohms

IMD SMPTE 250mW to rated power 60Hz/7kHz 4:1

better than 0.015% at 8 and 4 ohms

better than 0.02% at 2 ohms

THD DIN within rated power

1kHz: better than 0.01% at 8 and 4 ohms

better than 0.02% at 2 ohms

within 0.5dB of rated power 20Hz - 20kHz: better than 0.02% at 8 ohms

better than 0.04% at 4 ohms better than 0.1% at 2 ohms

Slew rate greater than 40V/microsecond

Damping 600 at 8 ohms < 1 kHz

300 at 8 ohms 1kHz-20kHz

Rise time 3 microseconds

Frequency 20Hz - 20kHz, +0dB, -0.5dB

Response

Phase Response 18º @ 10khz

Input Impedance 10k unbalanced, 20k balanced

Load Impedance 2 - 16 ohms

Input sensitivity 1.55v, +6dBm

centre detent at 3.1v, +12dBm

OPERATION

CIRCUITRY - TOTAL SYMMETRY:

Using a unique transformer coupled driver stage, the DX1500 features identical ultra-linear NPN output devices connected in a 'Super A' sliding bias configuration exhibiting a much more linear response than conventional amplifiers using NPN and PNP devices. The negative feedback is a very low 26dB and, in addition, the transformer coupled drive interrupts the DC voltage chain - eliminating all the circumstances in which a conventional amplifier can introduce DC voltage onto the speaker.

INPUT SENSITIVITY - 1.55V (+6dBm):

This multi-position, centre detent control is graduated in volts to signify the input signal voltage needed to produce the rated power at the output connectors. The centre detent is at 3.1V (+12dBm)

Your DX1500 amplifier will develop rated output power as long as the signal input is at least 1. 55 volts.

So as not to overdrive the amplifier, set the input sensitivity control to a setting that matches the output level of the device driving the amplifier.

For example: if you are wiring your system such that your crossover is driving your amplifier, and your crossover has a 3 volt maximum output, set the sensitivity control of your amplifier to the 3 volt position so that when your crossover develops rated output (3volts) your amplifier will develop rated output (rated power) without clipping.

CONNECTING AN INPUT SIGNAL:

The DX1500 will accept balanced and/or unbalanced signals using 3 pin XLRs, stereo 1/4" jacks and mono 1/4" jacks. The connector not being used for signal input can be used to link input channels of different amplifiers to the same signal - e.g. with signal into the LEFT channel using an XLR connector, the 1/4" jack can be used to feed signal to the right channel input of the same amplifier, or one or both inputs of any other DX1500 amplifier by using a 1/4" to 1/4" cord (stereo or mono), or a 1/4" to XLR cord (balanced or unbalanced).

A terminal block is provided on the rear panel to allow users to permanently wire the amplifier into an installation. All the outputs and inputs are available on this block.

BRIDGE:

When the mono bridging switch is depressed, the amplifier is in the BRIDGE (MONO) mode: both channels are now internally connected, so only the left channel signal input is needed to drive the amplifier.

The output connections should be between the RED terminals of the output sockets (one Left+ and one Right-).

AC SWITCH: The AC circuit breaker is ON in the down position

GROUND: some ground-loop hum problems may require isolating the audio [technical] ground from the AC ground: moving the switch provided achieves this N.B.-the AC ground remains permanently connected to chassis.

COOLING

FANS:

The speed of the fans is servo-controlled by an automatic temperature sensitive circuit, which will automatically start the fans when your amplifier reaches a temperature of 40°C, gradually speeding up to full airflow at 70°C

It is recommended that the fan covers are cleaned of dust periodically.

RUNNING TEMPERATURE:

Unlike other power amplifier manufacturers, Hill Audio constructs amplifiers out of custom aluminium heatsink extrusion that is not 'hidden' inside the amplifier's outer box (in fact the whole amplifier casing acts as a heatsink).

Because of this, your amplifier will give the **appearance** of running hotter than other amplifiers, as the front panel and sides can be hot to the touch after continuous full power operation. This is normal.

One problem encountered by all power amplifiers is one of heat dissipation - and to protect amplifiers from overheating, a thermal switch to shut down the amp when it reaches a specific temperature is standard on most amplifiers. In the DX1500 the thermal sensing circuit will activate the protection relay when the heatsink temperature reaches 80°C.

If an amplifier is driven at high output with a different signal in each channel (such as one channel driving bass frequencies at low impedances and the other channel driving high frequencies) it is possible for one side of the amplifier to reach 'shut down' temperature before the other - which is a waste of the thermal dissipation capacity of that amplifier.

To eliminate this problem, the DX1500 has all the positive driven devices on one heat sink and all the negative driven devices on the other, which allows any heat developed by either channel of the DX1500 to be uniformally distributed throughout the whole amplifier, such that in the above mentioned situation, the DX1500 will NOT shut down until the whole amplifier reaches 'shut down' temperature - NOT just one channel - maximizing the DX1500 thermal dissipation characteristics.

PROTECTION

The DC isolation transformer coupling technique allows the amplifier circuitry to perform perfectly safely and reliably without any protection devices whatsoever in the audio signal path - with significant sonic benefit particularly at or beyond clipping.

There are no internal fuses in the amplifier as all circuits are relay protected and the AC line is protected by the on/off circuit breaker.

RELAY:

Persistent overdriving, short circuit, component malfunction etc., will activate a protection relay, shutting down the entire amplifier.

If the relay does trip, for example, after sensing continuous high level, high frequency feedback (to protect your high frequency drivers), it will automatically re-set within 3 seconds.

If it still senses a problem it will trip and try to re-set again. After 3 attempts the relay will turn off the amplifier.

To reset the amplifier at this stage, you will have to turn the on/off breaker off and back on.

If the relay re-trips immediately when switched on, check that:

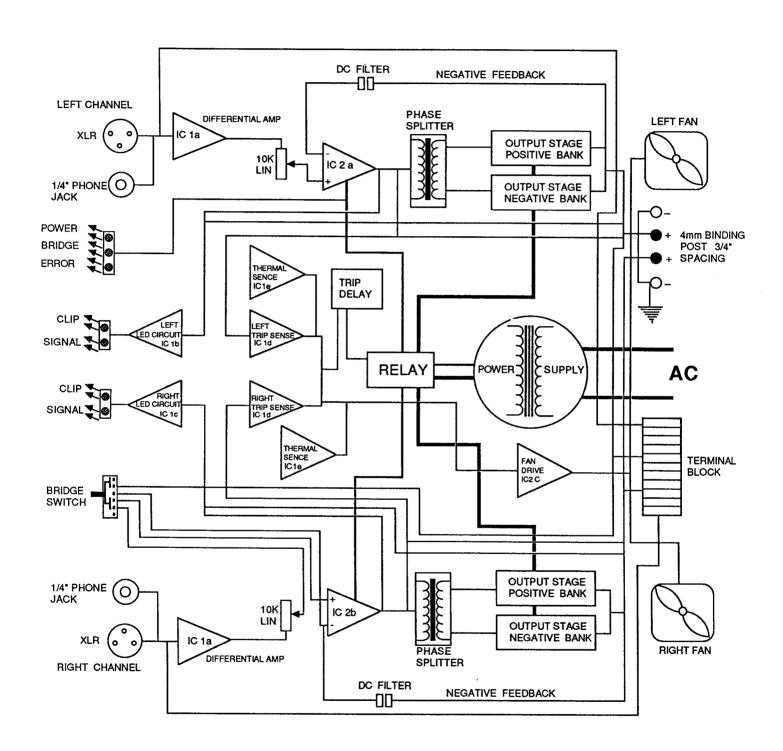
1. the DX1500 is not being overdriven or being driven with ultra high frequencies (such as an oscillating crossover) by turning down the input level controls before trying again.

2. the DX1500 is not driving a shorted speaker or speaker cable by removing the speaker cables before trying again.

3. the DX1500 is within normal operating temperature. If the amplifier has thermally tripped, it will stay off until it has cooled down to operating temperature.

If after trying all the above you still cannot turn on your DX1500, or the AC breaker continually trips, you should consult your Hill Audio authorized dealer.

BLOCK DIAGRAM DX1500



R& R47

C222 R50 XLR 3F

XLR 3F

1

TERMINAL BLOCK.

```
5 % 0.25 W
                                                                               5 %
5 %
5 %
R 1
R 2
             10K
                                                      R 84
                                                                                       0.25 W
                                                                                                                           33p F
                                                                                                                                                                          2v7
                                                                                                                                                                                       Zener
             10K
                                                      R 85
                                                                   100R
                                                                                        0.25 W
0.25 W
                                                                                                           C 2
                                                                                                                          470u F
                                                                                                                                         EL 16V
                                                                                                                                                               D 2
                                                                                                                                                                          2v7
                                                                                                                                                                                       Zener
R 3
             10K
                                                      R 86
                                                                   1K
                                                                                                                         470u F
                                                                                                                                                               D 3
D 4
                                                                                                                                                                           1N4148 Diode
                                                                                                                                         FI 16V
R 4
           560R
                                                                                        0.25 W
                                                                                                            C 4
                                                                                                                                         ST 16V
                                                      R 87
                                                                   1K
                                                                                                                           22u F
                                                                                                                                                                          1N4148 Diode
R 5
            10K
                                                      R 88
                                                                  820F
                                                                               5 %
                                                                                           25 W
                                                                                                            C 5
                                                                                                                             1u F
                                                                                                                                                                                       Zener
R 6
           *##
                                                      R 89
                                                                  820R
                                                                               5 %
                                                                                            25 W
                                                                                                           C 6
C 7
                                                                                                                                         PC
                                                                                                                                                               D 6
D 7
                                                                                                                            47p F
                                                                                                                                                                          2V7
                                                                                                                                                                                       Zener
R 7
            ####
                                                                               5 %
                                                                                                                                                                          2V7
                                                      R 90
                                                                   10K
                                                                                        0.25 W
                                                                                                                           22p F
                                                                                                                                         PC
                                                                                                                                                                                       Zener
                                                                               5 %
5 %
5 %
R 8
           100K
                                                      R 91
                                                                   10K
                                                                                         0.25 W
                                                                                                                                         ST 3V
                                                                                                            C 8
                                                                                                                          100u F
                                                                                                                                                               D 8
                                                                                                                                                                          1N4148 Diode
R 9
           100K
                                                      R 92
                                                                   10K
                                                                                        0.25 W
                                                                                                            C 9
                                                                                                                           22p F
                                                                                                                                         PC
                                                                                                                                                               D 9
                                                                                                                                                                           1N4148 Diode
R 10
            39K
                                                      R 93
                                                                  560R
                                                                                        0.25 W
                                                                                                            C 10
                                                                                                                                         PL
                                                                                                                         0.22u F
                                                                                                                                                               D 10
                                                                                                                                                                          2V7
                                                                                                                                                                                       Zener
R 11
             39K
                                                      R 94
                                                                  10K
                                                                                        0.25 W
                                                                                                            C 11
                                                                                                                                                               D 11
                                                                                                                                                                          1N4148 Diode
                                                                                                                         0.22u F
                                                                                                                                         PL
R 12
R 13
                                                                               5 %
5 %
5 %
           820R
                                                      R 95
                                                                   ####
                                                                                         0.25 W
                                                                                                            C 12
                                                                                                                         0.22u F
                                                                                                                                                                           1N4148 Diode
                                                                                                                                                               D 12
                                                                                                           C 13
            10K
                                                                                        0.25 W
0.25 W
                                                      R 96
                                                                  100K
                                                                                                                           4u7 F
                                                                                                                                         100V DC
                                                                                                                                                               D 13
                                                                                                                                                                          1N4148 Diode
                        5 % 2.5 W 2.5 W 2.5 W 2.5 W 2.5 W 5 % 5 % 5 W 5 5 % 5 W 5 5 % 5 5 % 5 5 % 5 5 % 5 5 % 6 0.25 W 5 5 % 0.25 W 5
R 14
             4R7
                                                      R 97
                                                                                                                         470u F
                                                                                                                                         EL 16V
EL 16V
                                                                  39K
                                                                                                                                                               D 14
                                                                                                                                                                          1N4148 Diode
                                                                               R 15
R 16
             6R8
                                                      R 98
                                                                   39K
                                                                                        0.25 W
                                                                                                            C 15
                                                                                                                                                               D 15
                                                                                                                                                                          1N4148 Diode
                                                                                                                          470u F
           820B
                                                      R 99
                                                                  820B
                                                                                        0.25 W
                                                                                                            C 16
                                                                                                                         150p F
                                                                                                                                         SM
                                                                                                                                                               D 16
                                                                                                                                                                           1N4148 Diode
R 17
            22K
                                                                                                           C 17
C 18
                                                      R 100
                                                                  10K
                                                                                        0.25 W
                                                                                                                             1u F
                                                                                                                                         PL
                                                                                                                                                               D 17
                                                                                                                                                                          1N4148 Diode
R 18
R 19
             4R7
                                                                  15K
                                                                                        0.25 W
                                                      R 101
                                                                                                                           6n8 F
                                                                                                                                         PL
                                                                                                                                                               D 18
                                                                                                                                                                          10V
                                                                                                                                                                                      Zener
           820R
R33
                                                      R 102
                                                                  ####
                                                                                         0.25 W
                                                                                                            C 19
                                                                                                                           22u F
                                                                                                                                         ST 16V
                                                                                                                                                                           1N4148 Diode
                                                                                                                                                               D 19
                                                                               5 %
5 %
5 %
                                                                                          2.5 W
2.5 W
R 20
                                                                  487
                                                      R 103
                                                                                                            C 20
                                                                                                                           22u F
                                                                                                                                         ST 16V
                                                                                                                                                               D 20
                                                                                                                                                                          1N4148 Diode
R 21
             R33
                                                      R 104
                                                                  6R8
                                                                                                            C 21
                                                                                                                           10p F
                                                                                                                                                                          IN4002 Diode
IN4002 Diode
                                                                                                                                         PC
                                                                                                                                                               D 21
R 22
             R33
                                                      R 105
                                                                  22K
                                                                                         0.25 W
                                                                                                            C 22
                                                                                                                             1u F
                                                                                                                                         PL
                                                                                                                                                               D 22
R 23
R 24
                                                                                                                                         PC
PL
PL
             R33
R33
                                                      R 106
                                                                  4R7
                                                                                          2.5 W
                                                                                                            C 23
                                                                                                                           10p F
                                                                                                                                                                           1N4148 Diode
                                                      R 107
                                                                  5R6
                                                                               2.5 W
0.25 W
                                                                                                            C 24
                                                                                                                         0.22u F
                                                                                                                                                               D 24
                                                                                                                                                                          1N4148 Diode
R 25
                                                      R 108
                                                                  ####
             R33
                                                                                                           C 25
                                                                                                                             1u F
                                                                                                                                                               D 25
                                                                                                                                                                          IN4148 Diode
R 26
             R33
                                                      R 109
                                                                  1K
                                                                                        0.25 W
                                                                                                            C 26
                                                                                                                             1u F
                                                                                                                                         PL
                                                                                                                                                               D 26
                                                                                                                                                                          4.7V
                                                                                                                                                                                       Zener
             R33
R33
R 27
                                                      R 110
                                                                 8K2
                                                                                        0.25 W
                                                                                                            C 27
                                                                                                                           10p F
                                                                                                                                         PC
                                                                                                                                                               D 27
                                                                                                                                                                          4.7V
                                                                                                                                                                                       Zener
R 28
                                                      R 111
R 112
                                                                  22K
                                                                                       0.25 W
0.25 W
                                                                                                           C 28
                                                                                                                         0.22u F
                                                                                                                                         PL
PL
                                                                                                                                                               D 28
                                                                                                                                                                          10V
                                                                                                                                                                                       Zener
R 29
             R33
                                                                  10K
                                                                                                                             1u F
                                                                                                                                                               D 29
                                                                                                                                                                          10V
                                                                                                                                                                                       7ener
             R33
R 30
                                                      R 113
                                                                  10K
                                                                                        0.25 W
                                                                                                            C 30
                                                                                                                           33p F
                                                                                                                                         PC
                                                      R 114
R 115
R 31
                                                                  8K2
                                                                                       0.25 W
0.25 W
                                                                                                            C 31
                                                                                                                           22u F
                                                                                                                                         ST 16V
R 32
             R33
                                                                 2K2
                                                                                                           C 32
                                                                                                                             1u F
                                                                                                                                         PL
                                                                                                                                                            BR 1
                                                                                                                                                                          15A
                                                                                                                                                                                       Bridge
R 33
             R33
                                                      R 116
                                                                  22K
                                                                                        0.25 W
                                                                                                            C 33
                                                                                                                           4u7 F
                                                                                                                                         100V DC
                                                                                                                                                            BR 2
                                                                                                                                                                          1.0A
                                                                                                                                                                                       Bridge
Bridge
             R33
R33
R 34
R 35
                                                      R 117
                                                                 22K
                                                                                        0.25 W
                                                                                                            C 34
                                                                                                                         ####
                                                                                                                                                             BR 3
                                                                                                                                                                          1.0A
                                                      R 118
R 119
                                                                  15R
                                                                               5 % % % % % 5 5 5 5 5 5 5 5 % %
                                                                                       2.5 W
0.25 W
                                                                                                           C 35
C 36
                                                                                                                                         PC
PC
                                                                                                                                                                                       Bridge
                                                                                                                           47p F
                                                                                                                                                             BR 4
                                                                                                                                                                          1.0A
R 36
             R47
                                                                  2K2
                                                                                                                           22p F
                                                                                                                                                            BR 5
                                                                                                                                                                          1 0A
                                                                                                                                                                                       Bridge
R 37
R 38
             R47
                                                      R 120
                                                                  2K2
                                                                                        0.25 W
                                                                                                            C 37
                                                                                                                          100u F
                                                                                                                                         ST 3V
                                                                                                                                                            BR 6
                                                                                                                                                                          1.0A
                                                                                                                                                                                       Bridge
              1K
                                                      R 121
R 122
                                                                                       0.25 W
0.25 W
                                                                                                           C 38
C 39
                                                                  33K
                                                                                                                           22p F
                                                                                                                                         PC
R 39
             8K2
                                                                  1K5
                                                                                                                         0.22 ii F
                                                                                                                                         ы
                                                                                                                                                                          NE5532N
                                                                                                                                                             IC 1
R 40
           220K
                                                      R 123
                                                                  470K
                                                                                        0.25 W
                                                                                                            C 40
                                                                                                                         0.22u F
                                                                                                                                         PL
                                                                                                                                                             IC 2
                                                                                                                                                                          TDA2030A
R 41
             10K
                                                      R 124
                                                                  18K
                                                                                        0.25 W
                                                                                                            C 41
                                                                                                                         0.22u F
R 42
             10K
                                                      R 125
                                                                  560
                                                                                       0.25 W
0.25 W
                                                                                                            C 42
                                                                                                                           4u7 F
                                                                                                                                         100V DC
                                                                                                                                                              TF 1
                                                                                                                                                                          H001A/B
R 43
                                                                  1K
             8K2
                                                      R 126
                                                                                                           C 43
                                                                                                                         470u F
                                                                                                                                         16V elect.
                                                                                                                                                             TF<sub>2</sub>
                                                                                                                                                                          H001A/B
                                                                               5 %
5 %
5 %
R 44
            2K2
                                                      R 127
                                                                  2K7
                                                                                        0.25 W
                                                                                                            C 44
                                                                                                                                         16V elect.
                                                                                                                         470u F
                                                                                                                                                                          H001A/B
                                                                                                                                                             TF3
R 45
R 46
           220K
                                                      R 128
                                                                  10K
                                                                                        0.25 W
                                                                                                            C 45
                                                                                                                                                                          H001A/B
                                                                                                                         150p F
                                                                                                                                         SM
                                                                                                                                                              TF 4
                                                      R 133
R 134
                                                                                       0.25 W
0.25 W
              1K
                                                                  4K7
                                                                                                            C 46
                                                                                                                             1u F
                                                                                                                                         PL
                                                                                                                                                              TF 5
                                                                                                                                                                          H001A/B
R 47
             6K8
                                                                  1K
                                                                                                            C 47
                                                                                                                         #### F
                                                                                                                                                              TF 6
                                                                                                                                                                          H001A/B
                                                                               5 %
5 %
5 %
5 %
R 48
R 49
             10K
                                                      R 135
                                                                  4K7
                                                                                        0.25 W
                                                                                                                                                                          H001A/B
                                                                                                            C 48
                                                                                                                             1u F
                                                                                                                                         100V DC
                                                                                                                                                              TF 7
           100K
                                                      R 136
                                                                  10K
                                                                                        0.25 W
                                                                                                            C 49
                                                                                                                             1u F
                                                                                                                                         100V DC
                                                                                                                                                              TF8
                                                                                                                                                                          H001A/B
R 50
           390K
                                                      R 137
                                                                  2.7K
                                                                                        0.25 W
                                                                                                           C 50
C 51
                                                                                                                           6n8 F
                                                                                                                                         PL
ST 16V
                                                                                                                                                              TF9
                                                                                                                                                                          H001A/B
R 51
             33K
                                                      R 138
                                                                  15K
                                                                                        0.25 W
                                                                                                                           22 u F
                                                                                                                                                              TR 10
                                                                                                                                                                          H001A/B
R 52
             10K
                                                      R 139
                                                                  1K
                                                                                        0.25 W
                                                                                                            C 52
                                                                                                                           22u F
                                                                                                                                         ST 16V
                                                                                                                                                              TF 11
                                                                                                                                                                          H001A/B
                                                                               5 %
5 %
5 %
            22K
                                                      R 140
                                                                  20K
                                                                                        0.25 W
                                                                                                           C 53
C 54
                                                                                                                           10p F
                                                                                                                                         PC
                                                                                                                                                              TR 12
                                                                                                                                                                          H001A/B
R 54
             22K
                                                      R 141
                                                                  1K5
                                                                                        0.25 W
                                                                                                                                         EL 16V
                                                                                                                           47u F
                                                                                                                                                             TF 13
                                                                                                                                                                          H001A/B
R 55
             10K
                                                      R 142
                                                                  2K2
                                                                                                            C 55
                                                                                                                         470u F
                                                                                                                                                                          H001A/B
                                                                                                                                         EL 25V
                                                                                                                                                              TF 14
R 56
R 57
             15K
                                                                                                            C 56
                                                                                                                        6800u F
                                                                                                                                         EL 25V
                                                                                                                                                                          H001A/B
                                                                                                                                                              TR 15
            51K
                                                     VR1
                                                                   10K lin
                                                                                                            C 57
                                                                                                                        2200u F
                                                                                                                                         EL 25V
                                                                                                                                                              TF 16
                                                                                                                                                                          H001A/B
R 58
            51K
                                                     VR2
                                                                   10K lin
                                                                                                            C 58
                                                                                                                       6800u F
                                                                                                                                         EL 85V
                                                                                                                                                             TR 17
                                                                                                                                                                          TIP120
R 59
R 60
            20K
                                                     VR3
                                                                   100R Preset
                                                                                                            C 59
                                                                                                                        6800u F
                                                                                                                                         EL 85V
           100K
                                                                                                                          10p F
10p F
                                                     VR4
                                                                   100R Preset
                                                                                                            C 60
                                                                                                                                         PC
                                                                                                                                                              RLY1
                                                                                                                                                                          10ARELAY
R 61
             47K
                                                     VR5
                                                                                                           C 61
C 62
                                                                   10K Preset
                                                                                                                                         PC
R 62
             15K
                                                                                                                           22p F
                                                                                                                                         PC
                                                                                                                                                             TH 1
                                                                                                                                                                          10k Thermistor
R 63
R 64
           100R
                                                                                                                                                              T1-2
                                                                                                                                                                          10k Thermistor
              1K
1K
                                                                                                                                                              TX1
                                                                                                                                                                          M17616
R 65
                                                                                                                                                              TX2
                                                                                                                                                                          M17616
R 66
             5R6
                                                                                                                                                                          62-15-0-15-62 800VA
                                                                                                                                                              TX3
R 67
R 68
            ####
                                                                                                                                                                          0V-110/ 120
              1K
                                                                                                                                                                          0V-220/ 240
R 69
             6K8
R 70
             10K
                                                                                                                                                             LED1
                                                                                                                                                                         Green - 1v ON
R 71
R 72
           100K
                                                                                                                                                              LED2
                                                                                                                                                                          Red - Clip
           390K
                         5 %
5 %
5 %
5 %
5 %
                                 0.25 W
                                                                                                                                                              LED3
                                                                                                                                                                          Green - 1v ON
R 73
                                 0.25 W
           33K
                                                                                                                                                             LED4
                                                                                                                                                                          Red - Clip
R 74
           10K
                                 0.25 W
                                                                                                                                                                          Yellow- Power
                                                                                                                                                             LED5
R 75
R 76
           22K
                                 0.25 W
                                                                                                                                                                          Red-
                                                                                                                                                              LED6
                                                                                                                                                                                       Trip
           22K
                                 0.25 W
                                                                                                                                                             LE D7
                                                                                                                                                                          Yellow - Bridge
R 77
           10K
                                 0.25 W
A 78
           51K
                                 0.25 W
                                                                                                                                                              SW1
                                                                                                                                                                          4pCo (Fox)
                        5 % 0.25 W
R 79
           51K
R 80
           20K
```

R 81

R 82

R 83 47K

15K

100K

