INSTRUCTION SHEET

FOR

MODELS 8071-1 and 8071-2

TERMALINE® LOAD RESISTOR

GENERAL

The Bird Model 8071-1 and 8071-2 TERMALINE® Coaxial Load Resistors are specially designed, liquid free, conduction cooled type, 50 ohm RF line terminations. They are capable of dissipating 100 W of continuous power when connected to the requisite heat sink or up to 10 watts in free air, see Specifications Page 3, and furnishing an accurate termination of 50 ohm transmission systems in which they are installed. These loads operate with equal efficiency in any position; i.e., attitude insensitive. The Model 8071-1 is equipped with a Female SMA type connector and the Model 8071-2 is equipped with a Male SRM type connector. These connectors, as assembled at the factory, are fixed and are not interchangeable.

DESCRIPTION

The load is of a compact and very efficient design, being quite small for its relatively large power handling capability. This is achieved through use of a unique flat plane dissipating resistor and exotic materials for the conduction system and substrates. The unit is intended primarily to be permanently installed in an RF transmission system.

INSTALLATION

The unit must be attached to a suitable heat sink of such capacity that at 100 watts continuous input, the temperature on top of the load body will not exceed 155°C (311F). An aluminum plate of at least 100 square inches by 1/8 inch thick (650 cm^2 x 3 mm) or equivalent is recommended. Use four 4-40 mounting screws, preferably stainless steel, of suitable length to include the heat sink thickness plus washer and yet allow about 5/16 inch penetration into the mounting holes. The four 4-40 x 3/8 inch mounting holes in the load are positioned on a rectangle of 13/16 by 25/32 inches (21 x 20 mm). See outline drawing.

The mounting surface must be flat and thoroughly clean. When clamping the Model 8071-1 or 8071-2 load to the heat sink, a film of heat transfer compound (such as Wakefield Engineering Type 120 Thermal Joint Compound or Emerson & Cuming TC-4) must be used. The film must be applied over the entire mating surface and when flattened not exceed a thickness of 0.001". To assure proper thermal contact, tighten the four mounting screws very securely, to an approximate torque of 10 inch-pounds.

To connect RF power to the load, use a suitable cable, such as RG-142B/U or RG-188B/U equipped with a Male SMA or Female SRM plug for Models 8071-1 and 8071-2 respectively. Keep the cabling as short as convenient and plug connections tightened firmly . Avoid the use of angle plugs or adapters. In operation, be careful not to exceed the ratings of the 8071-1 and 8071-2 Load Resistors. Be sure the heat sink has ventilation adequate for the requirements of this load (to maintain body temperature maximum of 155°C on top).

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*                    W A R N I N G                       *
*                                                        *
*  This product contains a resistor substrate made of    *
*  beryllia oxide. This is a potentially toxic ceramic   *
*  and may be harmful to your health. Beryllia oxide     *
*  must be disposed of in accordance with the legal      *
*  statutes dealing with hazardous material.             *
*                                                        *
*  Do not attempt to repair this unit, but return to     *
*  BIRD ELECTRONIC CORPORATION.                          *
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MAINTENANCE

The Models 8071-1 and 8071-2 Coaxial Load Resistor are rugged and simple. Keep the load and particularly the heat sink wiped free of dust. Principal maintenance required will be the cleaning on the input connector. Wipe the insulator and metallic contact surfaces using a dry cleaning solvent on a cotton swab stick. Avoid breathing the fumes. The load resistor may be checked for basic condition by measuring the dc resistance between the center conductor and body of the RF input connector. Use a resistance bridge or ohmmeter with an accuracy of ±1 percent or better at 50 ohms. Connect with a short length of low resistance cable equipped with a Male SMA or Female SRM plug. Measured resistance should be nominal 50 ohms ±2 ohms. A defective unit must be returned to the factory for repair.

SPECIFICATIONS FOR MODELS 8071-1 and 8071-2 TERMALINE® LOAD RESISTOR

Power Rating, Conduction Mode	100 watts maximum
Maximum Body Temperature - Measured on Top of Load Body	155°C (311F)
Power Rating - Free Convection	10 watts maximum at 25°C air ambient 8 watts maximum at 45°C air ambient
Frequency Range	dc-2000 MHz
VSWR	
dc-1000 MHz	1.10 maximum
1000-2000 MHz	1.20 maximum
Input Impedance	50 ohms
Input Connector	
Model 8071-1	SMA Female
Model 8071-2	SRM Male
Dimension	1-13/32"L x 1"W x 33/64"H (35.7 x 25.4 x 13.1 mm) Length dimension without connector, add 1/2" for SRM or 3/8" for SMA
Weight	1-1/4 oz. (35.4 g)
Finish	Lusterless black enamel (Fed. Spec. TT-E-527)
Housing Material	Aluminum Alloy
Mounting	Four 4-40 machine screws required (stainless steel) Length to suit

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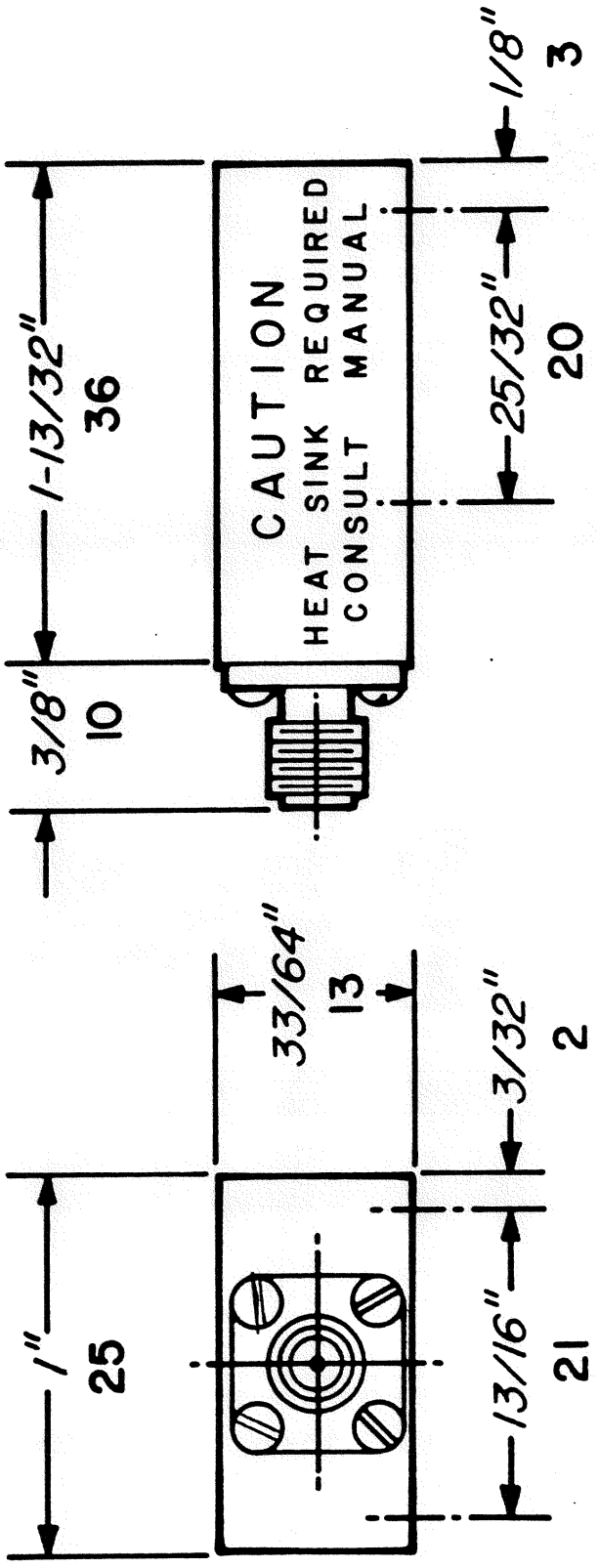
As an exemplary case of heat sink requirements; for 100 W input with 25°C ambient temperature, use 100 square inch sheet of 1/8 inch thick aluminum. For lower power values, reduce in approximate proportion.


1-13/32"
36
3/8"
10
CAUTION
HEAT SINK REQUIRED
CONSULT MANUAL
1/8"
3
25/32"
20
33/64"
13
3/32"
2
1"
25
13/16"
21