

Mobile Package



Repeater Package



Henry C130AB Series VHF RF Power Amplifiers Operating and Maintenance Manual

Revised 10/14

Henry Radio, Inc.

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Specifications

RF Output Power:	130 watts maximum - mobile package 100 watts maximum - repeater package
RF Input Power:	C130AB02 Series - Factory set between 1 and 5 watts C130AB10 Series - Factory set between 5 and 20 watts C130AB30 Series - Factory set between 20 and 50 watts
Tuned Frequency Range:	Factory tuned between 70 and 175 MHz Bandwidth approximately 5 MHz after factory tuning
Input and Output Impedance:	50 ohms nominal with SWR less than 1.5:1
Harmonic Suppression:	70 dB or better nominal
RF Connectors:	Customer selectable from N female, UHF female or BNC female
Mode:	Class C (for FM or Digital transmit signals)
Duty Cycle:	Mobile package - 50% at rated output Repeater package - 100% continuous at rated output
Cooling:	Mobile package - Convection cooled Repeater package - 3 x built-in DC fans thermally switched
Power Requirements:	13.8 VDC, negative ground C130AB02 Series - 30 amps maximum nominal C130AB10 Series - 27 amps maximum nominal C130AB30 Series - 25 amps maximum nominal
Transmit/Receive Switching:	Mobile package - Standard Base package - Optional Repeater package - Drop out relay optional
Dimensions:	Mobile package - 13.5" long x 4" wide x 4" high Repeater/Base Package - 19" wide x 6.5" high x 6" deep
Shipping Weight:	Mobile package - 6 pounds Repeater package - 10 pounds
Remote Jack:	Short for low current on/off control
Options:	Transmit/Receive or Drop Out Relay - Repeater/Base package AC power supply - 110 or 220 VAC
Warranty:	1 year parts and labor - Made in the USA -

Warranty

Limited Warranty: Henry Radio warrants each new product to be free from defective material and workmanship. Henry Radio agrees to remedy any such defect or to furnish a new part in exchange for any part of any unit which under normal installation, use and service discloses such defect. The equipment or part must be delivered by the original owner to us intact for our evaluation, with all transportation charges prepaid to our address, within 1 year from the date of sale to the original purchaser. Provided that our examination discloses, in our judgment, such a defect, Henry Radio will repair at no charge, or replace at their discretion, such defective part or equipment.

Exclusions: Henry Radio does not warranty any vacuum tube used in their equipment. These are warranted by the tube manufacturer. Warranty claims must include proof of the date of purchase or it will be determined by the production date marked on the product. The warranty does not extend to damage or failure caused by transportation damage, misuse, neglect, accident, incorrect installation, acts of nature (lightening), or to equipment modified or repaired without our prior approval.

This warranty does not include any incidental or consequential damages and the Henry Radio warranty disclaims any liability for such damage. All implied warranties, if any, are limited in duration to the above stated 1 year.

Henry Radio reserves the right to make any improvements to its products which it may deem desirable without obligation to install such improvements in its previously sold products.

Installation Notes

Introduction

Unpack the amplifier from its packing material and examine it carefully for damage during shipment. If the amplifier was damaged in shipment, save the box and packing material and notify the transportation company immediately.

Your amplifier was tuned and tested at our factory at the operating frequency and drive level specified with your order and detailed on the invoice supplied with the shipment. The unit was tested on our service bench operating into a 50 ohm dummy load.

The buyer is responsible to provide the following:

- A 50 ohm antenna or load rated at the specified power of the amplifier
- An operating location with proper ventilation to prevent overheating
- Output coax to connect the amplifier to the antenna that can handle the specified power and frequency. High quality double shielded coax is required for repeater installations.
- An operating location protected from environmental hazards such as water, heat, dust or pests
- A stable drive signal at the RF Input connector adjusted to the specified power level

Installation

Connect the amplifier to a 13.8 VDC power source capable of supplying the proper current required to operate this model. You must use a wire gauge large enough to prevent voltage drop at high current levels.

Connect your transceiver or repeater to the RF Input connector on the amplifier using 50 ohm coax cable. High quality double shielded coax is required for repeater installations.

Connect the amplifier to your antenna or a 50 ohm dummy load before transmitting.

If you have the proper test equipment, it is always wise to connect a through-line wattmeter in the output coax and confirm that the amplifier is operating properly with the drive level you are using.

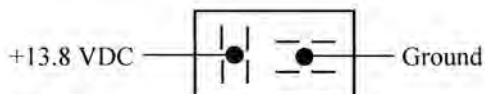
If you are using a wattmeter, you should also check

the VSWR of the load by measuring the reflected power from your load. You should not operate this amplifier into a load with greater than 2:1 VSWR (a reflected power level greater than 10% of the forward power level).

You can increase system reliability and save money by installing proper lightning protection on your base antenna system.

DC Connection

Your amplifier is supplied with a short DC power cable with the red wire for +13.8 VDC connection and the black wire for ground. The 8 pin Jones plug has the following polarity:



Control Jack

The RCA Control Jack supplied on your amplifier offers an optional, low current on and off control of your amplifier. This feature is only available on amplifiers supplied with a relay system. For Transmit/Receive relays you can short the jack to ground to turn off the amplifier. For Drop Out relays you short the jack to ground to enable the amplifier and open the connection to disable the amplifier.

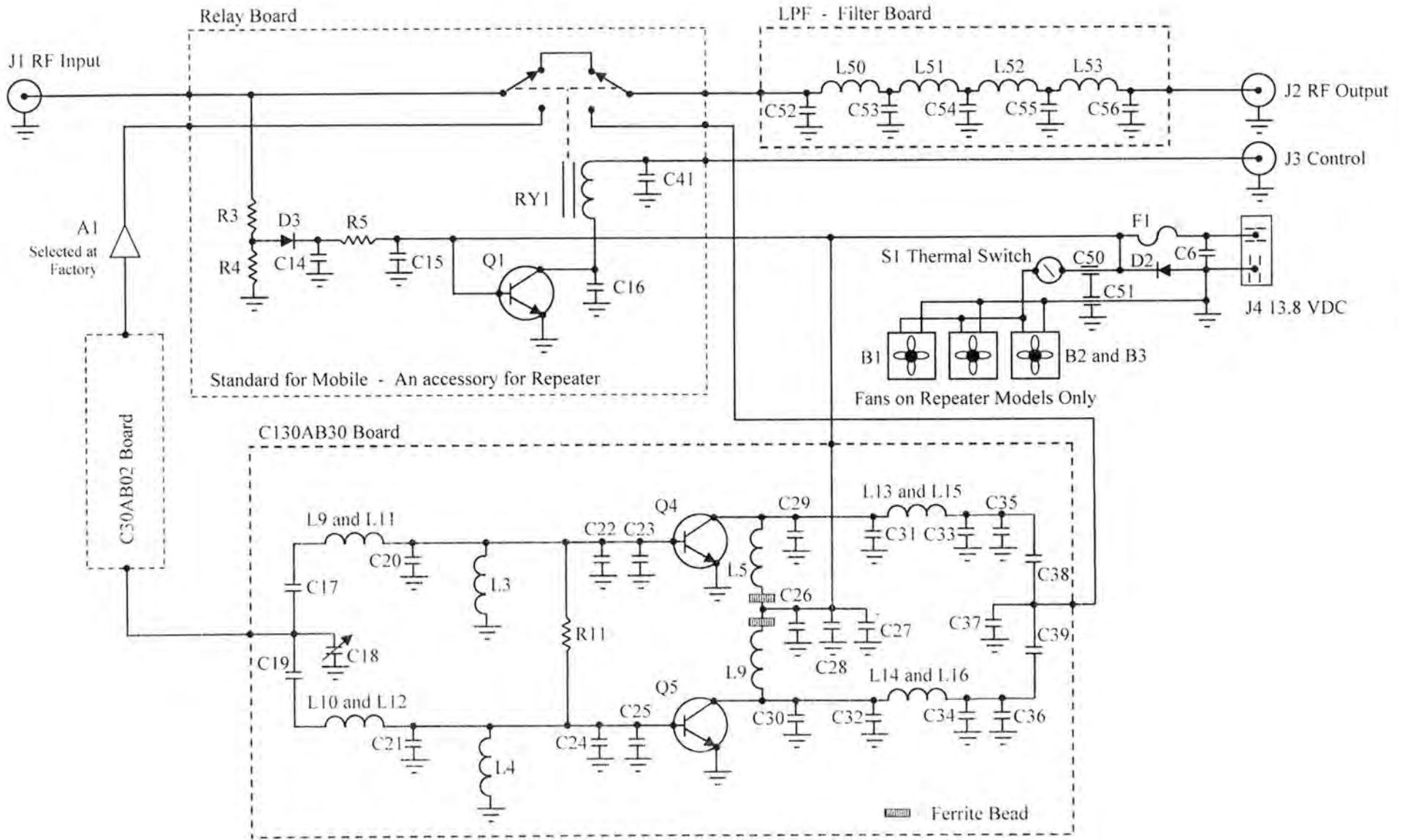
Tuning

The amplifier was factory tuned for optimum performance at your specified operating frequency. It is not easily field tunable by non-trained operators and should be returned to the factory for a significant frequency change.

Service and Repair

If it is necessary to return the amplifier for warranty or non-warranty repair or tuning, pack it carefully to prevent shipping damage. Include a short description of the problem and include your operating frequency, drive level and contact information

You are welcome to contact us first to make sure it is necessary to return the equipment



Henry C130AB30 - C130AB10 - C130AB30R - C130AB10R Schematic

Parts List

Chassis	Description	Part Number or Equal
Circuit Board-C30AB02	Assembled Module, Predriver Board.	Henry
Circuit Board-C130AB30	Assembled Module, Final Amplifier Board.	Henry
Circuit Board-LPF	Assembled Module, Low Pass Filter.	Henry
Circuit Board-Relay	Assembled Module, Relay Board.	Henry
A1	Attenuator, value selected for order specification.	Res-Net
B1 (Repeater Only)	Fan, 13.8 VDC, 3"x3"x1", high capacity.	US Toyo US8025-4-12XH
B2-B3 (Repeater Only)	Fan, 13.8 VDC, 4.5"x4.5"x1", high capacity.	US Toyo US1202512H
C6	Capacitor, ceramic disc, .001 mf, 1000 vdc.	Centralab DD-102
C50-C51 (Repeater Only)	Capacitor, feedthrough, 2000 pf, 500 vdc.	Corry FT2-02-202M
D2	Diode, zener.	1N4720
F1	Fuse, 30 amp.	Generic
Fuse Holder	3AG type.	Buss S-8002-1
J1-J2	RF Connector, Selected N(f), UHF(f) or BNC(f).	Generic
J3	Control Jack, RCA female.	Generic
J4	13.8 VDC Connector, 8 pin.	Jones P-308-AB
Power Cord	13.8 VDC Connector, 8 pin with Cable	Jones S-308-CCT Assem.
S1	Thermal Switch, close at 115 degrees F.	Selco CA-115

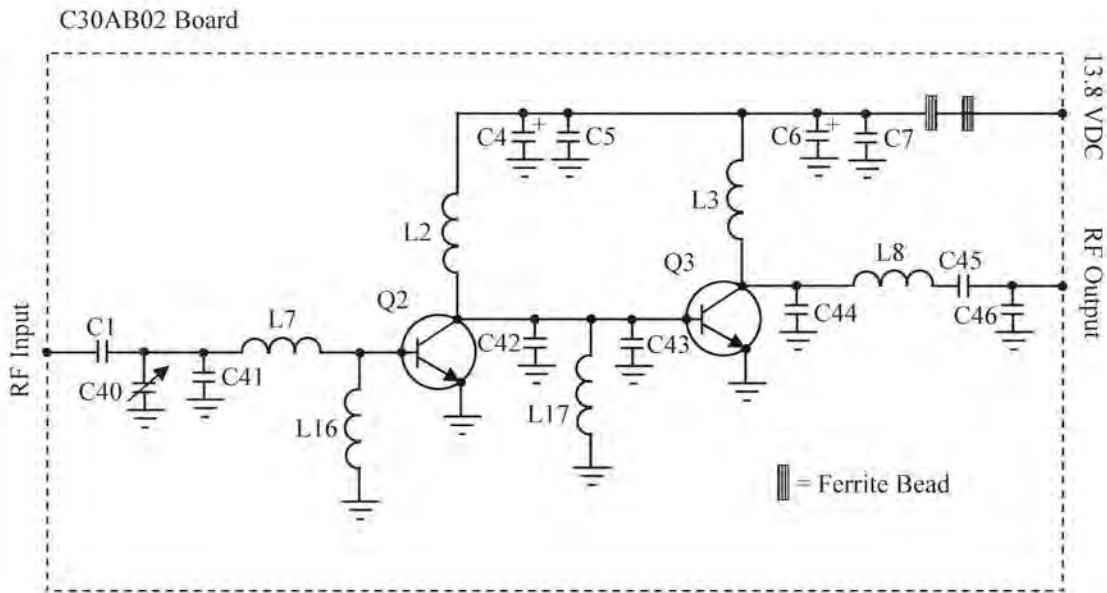
Relay Board	Description	Part Number or Equal
C14-C15-C16-C41	Capacitor, ceramic disc, .01 mf, 150 vdc.	Centralab DDM-103
D3	Diode, 1N914 type, switching.	1N914
Q1	Transistor, 2N2222A, bipolar switching.	2N2222A
R3-R4-R5	Resistor, 1000 ohm, 1/4 watt, 10%.	Generic
RY1	Relay, DPDT, 13.8 VDC.	Guardian 1365-PC

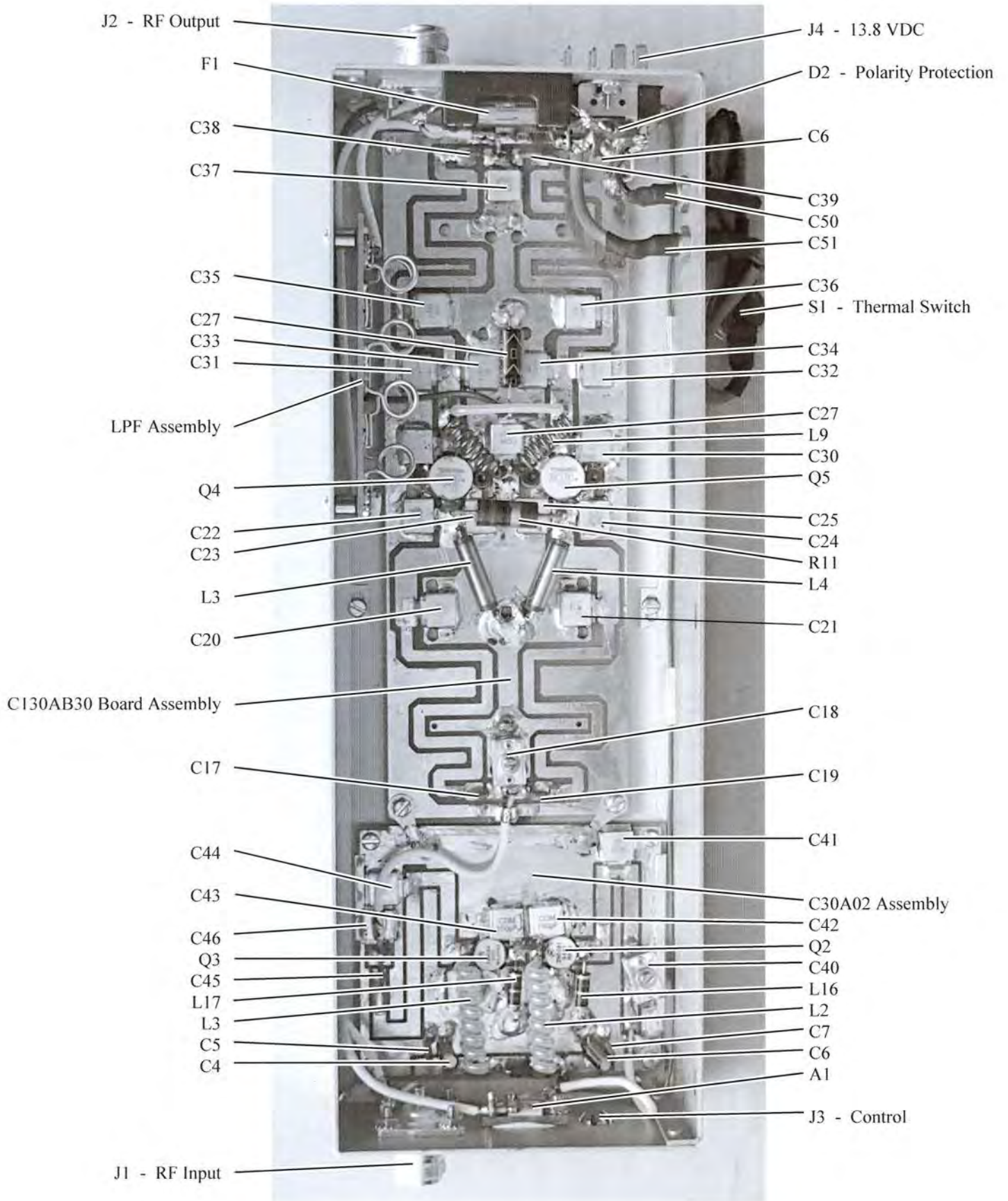
LPF Board	Description	Part Number or Equal
C52-C56	Capacitor, mica chip, 18 pf, 500 vdc.	Cornell MCM01 Type
C53-C54-C55	Capacitor, mica chip, 33 pf, 500 vdc.	Cornell MCM01 Type
L50-L51-L52-L53	Coil, 3 turn.	Henry

C130AB30 Board	Description	Part Number or Equal
C17-C19-C28-C38-C39	Capacitor, ceramic disc, .01 mf, 150 vdc.	Centralab DDM-103
C18	Capacitor, mica trimmer 4-60 pf 175 vdc.	Arco 404
C20-C21-C35-C36	Capacitor, mica chip, 50 pf, 500 vdc.	Cornell MCM01 Type
C22-C23-C24-C25	Capacitor, mica chip, 200 pf, 500 vdc.	Cornell MCM01 Type

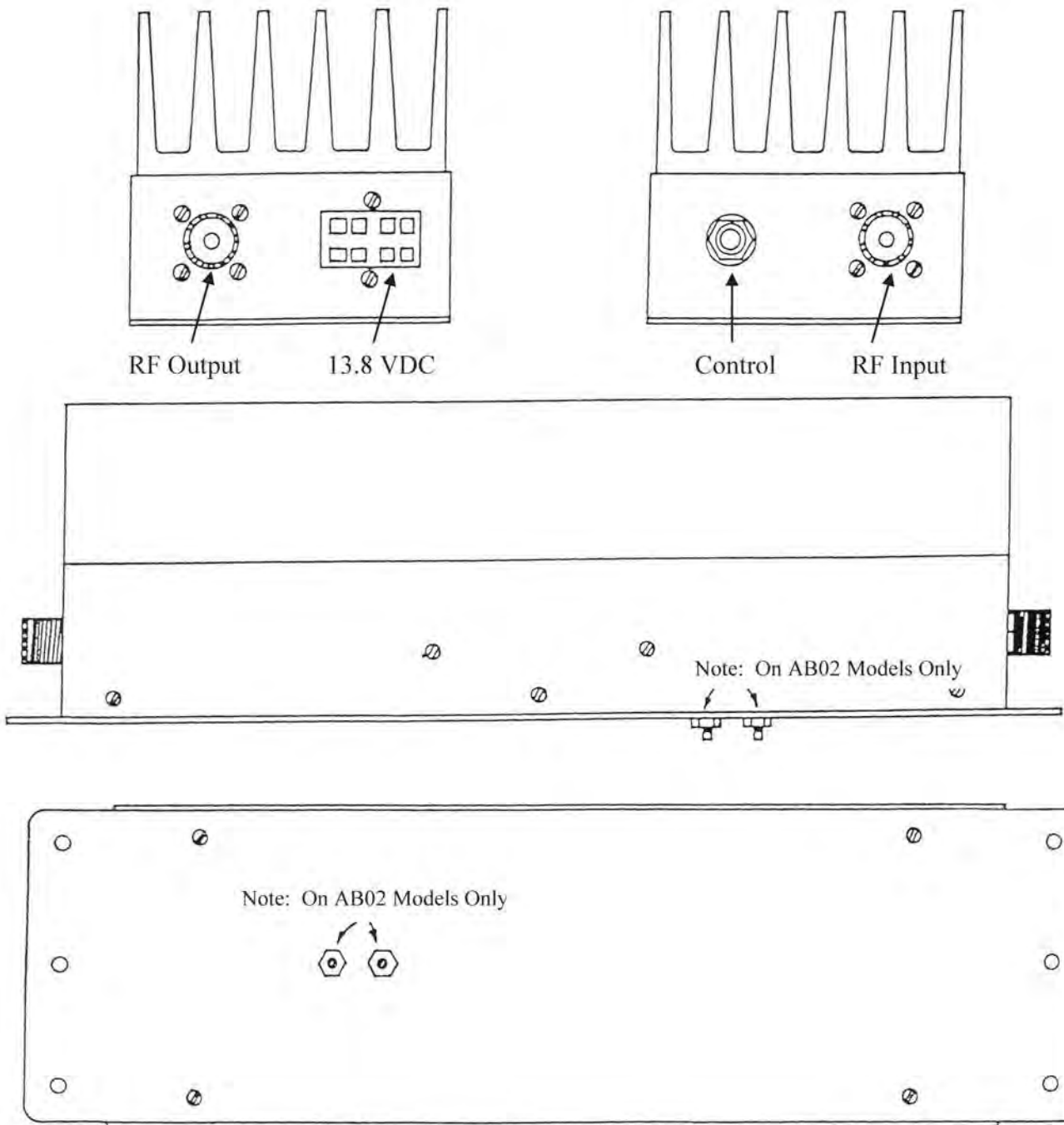
C130AB30 Board (Cont.)	Description	Part Number or Equal
C26	Capacitor, mica chip, 680 pf, 500 vdc.	Cornell MCM01 Type
C27	Capacitor, electrolytic, 220 mf, 25 vdc.	Generic
C31-C32-C33-C34	Capacitor, mica chip, 100 pf, 500 vdc.	Cornell MCM01 Type
C37	Capacitor, mica chip, 35 pf, 500 vdc.	Cornell MCM01 Type
L3-L4	Choke, ferrite, 55 uH, 55 ma.	Miller 4629-RC
L5-L9	Coil, 8T, enamel wire.	Henry
L9 through L16	Resonant inductors, printed on circuit board.	Henry C130AB30 Board
Q4-Q5	Transistor, RF power type.	MRF-247 or 2SC2782A
R11	Resistor, carbon, 20 ohm, 2 watt, 10%.	Generic

C30AB02 Board	Description	Part Number or Equal
C1-C5-C7-C45	Capacitor, ceramic disc, .01 mf, 150 vdc.	Centralab DDM-103
C4-C6	Capacitor, electrolytic, 10 mf, 25 vdc.	Generic
C41	Capacitor, mica chip, 50 pf, 500 vdc.	Cornell MCM01 Type
C42-C43	Capacitor, mica chip, 150 pf, 500 vdc.	Cornell MCM01 Type
C44	Capacitor, mica chip, 200 pf, 500 vdc.	Cornell MCM01 Type
C46	Capacitor, mica chip, 35 pf, 500 vdc.	Cornell MCM01 Type
L7-L8	Resonant inductors, printed on circuit board.	Henry C30AB02 Board
L16-L17	RF Choke, 3.3 uH, 250 ma.	Miller 9250A-332-RC
Q2	Transistor, RF power type.	2N6081
Q3	Transistor, RF power type.	2N6084



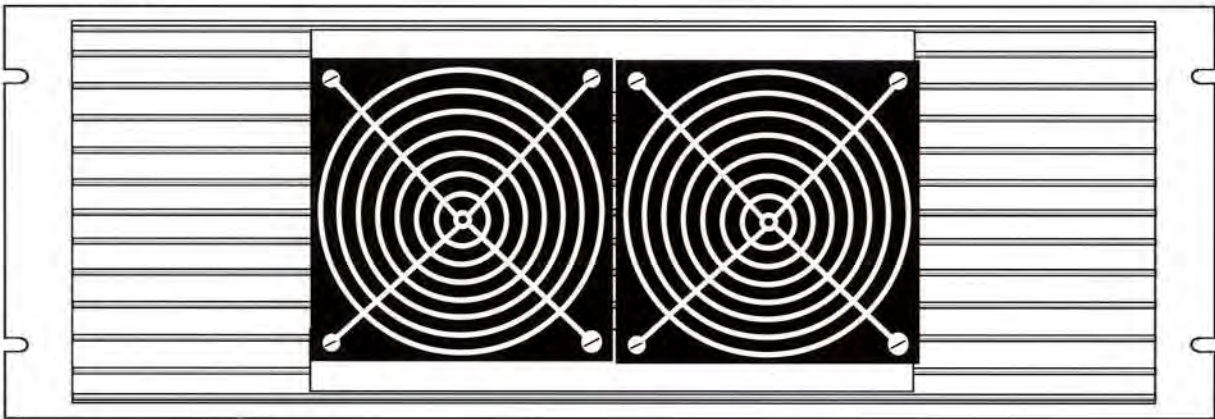


Henry C130AB30 - C130AB10 - C130AB30R - C130AB10R - C130AB02 - C130AB02R Board Layouts

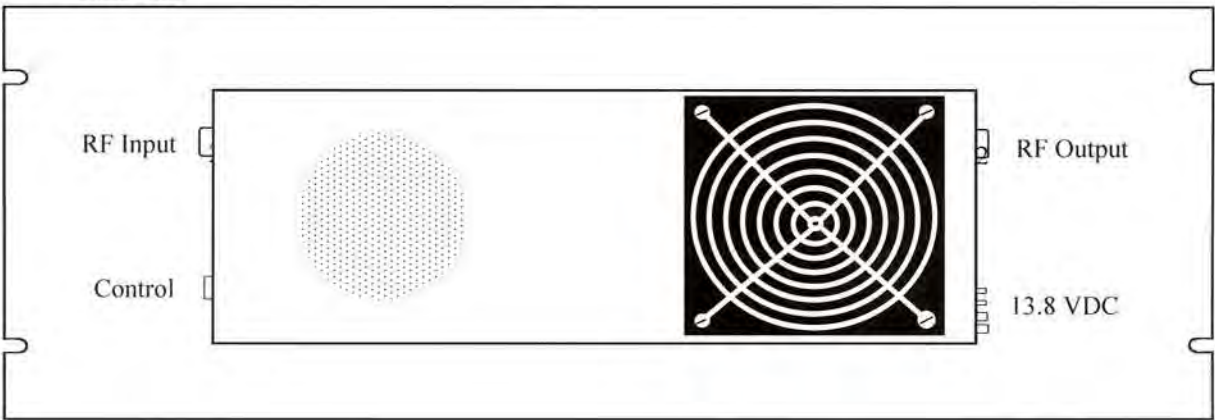


Henry C130AB Series Mobile Package

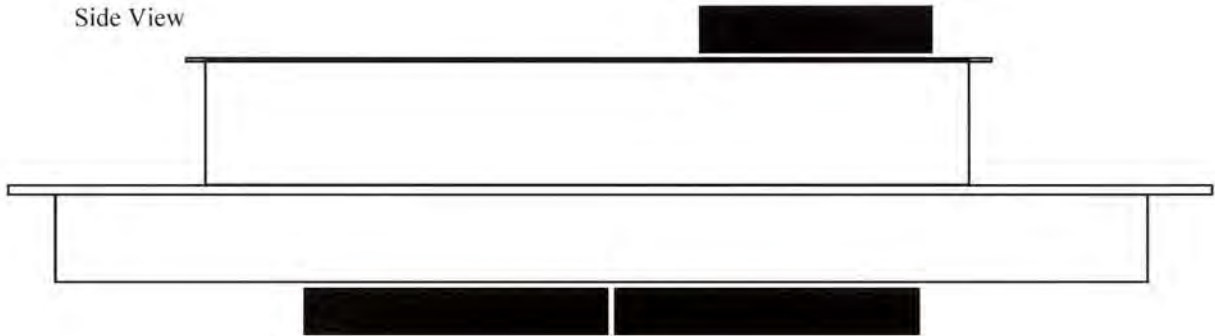
Front View



BackView



Side View



Henry C130AB Series Repeater Package