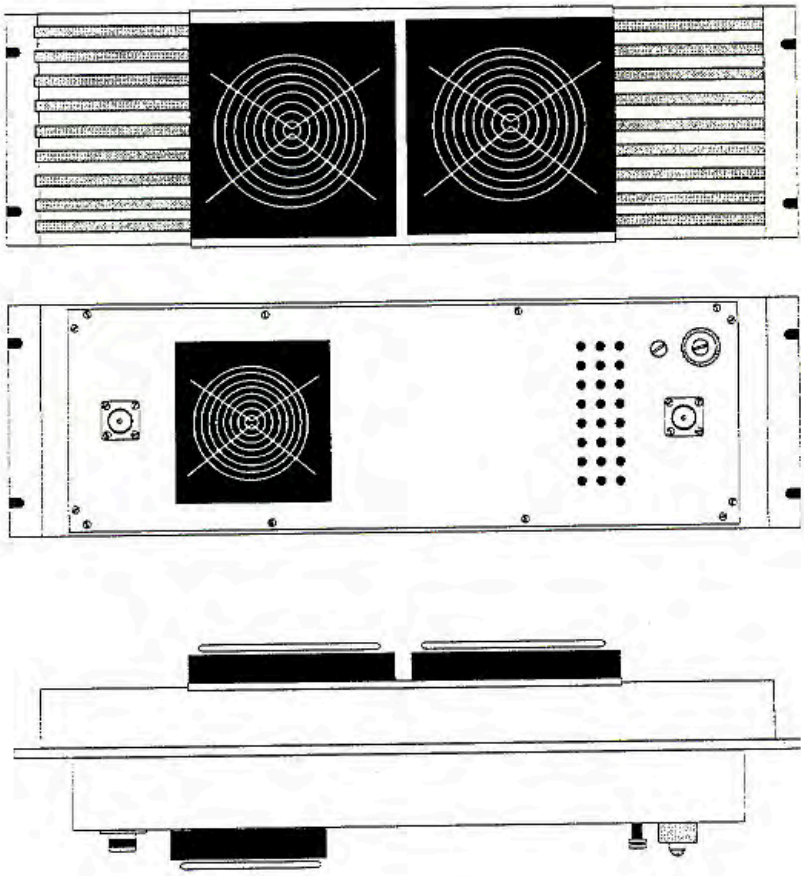


C250AB Series
Operating and Maintenance Manual

HIGH BAND VHF
RF POWER AMPLIFIERS

HENRY RADIO, INC.

2050 S. Bundy Drive Los Angeles, CA 90025 USA 310-820-1234 310-826-7790 fax

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 examination, with all transportation charges prepaid to our factory, within 1 year from the date of sale to the original purchaser. Provided that our evaluation discloses, in our judgement, 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 warrant any vacuum tube used in their equipment. These are warranted by the tube manufactuer. Warranty claims must include proof of the date of purchase. The warranty does not extend to damage or failure caused by transportation damage, misuse, neglect, accident, incorrect installation, acts of nature, or to equipment modified or repaired without our prior approval.

This warranty does not include incidental or consequential damages and the Henry Radio warranty disclaims any liability for any 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 desireable without obligation to install such improvements in its previously sold products.

C250AB Series of VHF Power Amplifiers

SPECIFICATIONS

RF Output Power:	250 watts minimum.
RF Input Power:	5 watts nominal (c250AB02 models). 10 watts nominal (C250AB10 models). 30 watts nominal (C250AB30 models).
Frequency Range:	136 - 174 MHz (4 MHz tuned bandwidth).
Input/Output Impedance:	50 ohms nominal.
Harmonic Suppression:	80 dB nominal.
Mode:	Class C (for FM operation).
RF Connectors:	N type (female) or UHF type (female).
Duty Cycle:	Continuous at rated output (/R or /P models).
Cooling:	Built-in DC fans with thermostat control (/R or /P).
Power Requirements:	13.8 VDC, negative ground, 45 amps maximum.
Dimensions:	19" wide x 14.5" high x 8" deep (/R or /P models).
Shipping Weight:	15 pounds (/R and /P).
Relay:	Bypass dropout (/R), none (/P).
Options:	AC power supply (110 or 220 VAC).
Warranty:	1 year parts and labor.

Made in the USA

INSTALLATION NOTES

INTRODUCTION

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

The amplifier was tested and tuned at our factory at the operating frequency specified when the order was placed. A description of the frequency and test results is included on an enclosed test sheet. These tests were made into a 50 ohm dummy load.

The installer is responsible to provide the following items:

A 50 ohm antenna tuned to the operating frequency - - An operating location with proper ventilation to prevent overheating - - Output coax to connect the amplifier and antenna that can handle 250+ watts at VHF frequencies (RG142/RG400 or heliax) without overheating - - An operating location protected from environmental hazards such as water, heat, pests, or dust - - A stable drive signal at the input jack of the amplifier adjusted to a proper power level.

INSTALLATION

Connect the amplifier to a 13.8 VDC power supply capable of supplying at least 50 amps of power in continuous service for base operation. You must use a wire gauge large enough to prevent voltage drop at high current levels (a minimum of 8 guage).

Connect your radio or transmitter/repeater to the RF input connector on the amplifier using 50 ohm coax cable.

Connect the amplifier to your antenna or a 50 ohm dummy load on your test bench.

Install a through-line wattmeter in the output cable (either a Bird 43 or equal). Turn on the power source and the transmitter or radio.

Slowly increase the power from your transmitter until the output power of the amplifier reaches the desired level - as shown on the wattmeter.

If you do not have a wattmeter, an alternate method is to use the performance figures shown on the supplied test sheet to approximate the output.

At the operating power level, reverse the wattmeter element and confirm that the reflected power is near zero. If the reflected power is greater than 10% of the output power, your antenna is not properly tuned and you may damage the amplifier!

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

SERVICE AND REPAIR

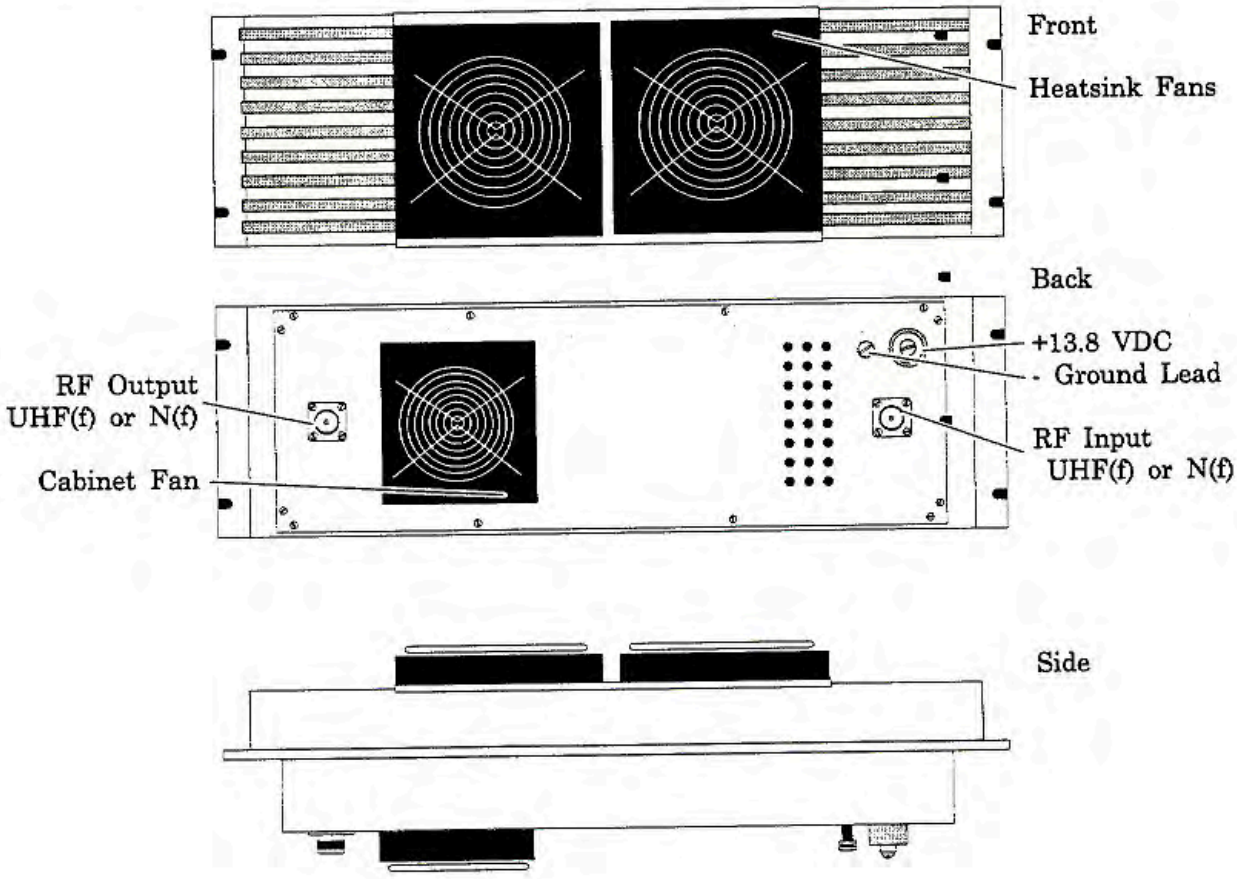
Should it be necessary to return the amplifier for warranty or non-warranty repair, pack it very carefully to prevent shipping damage.

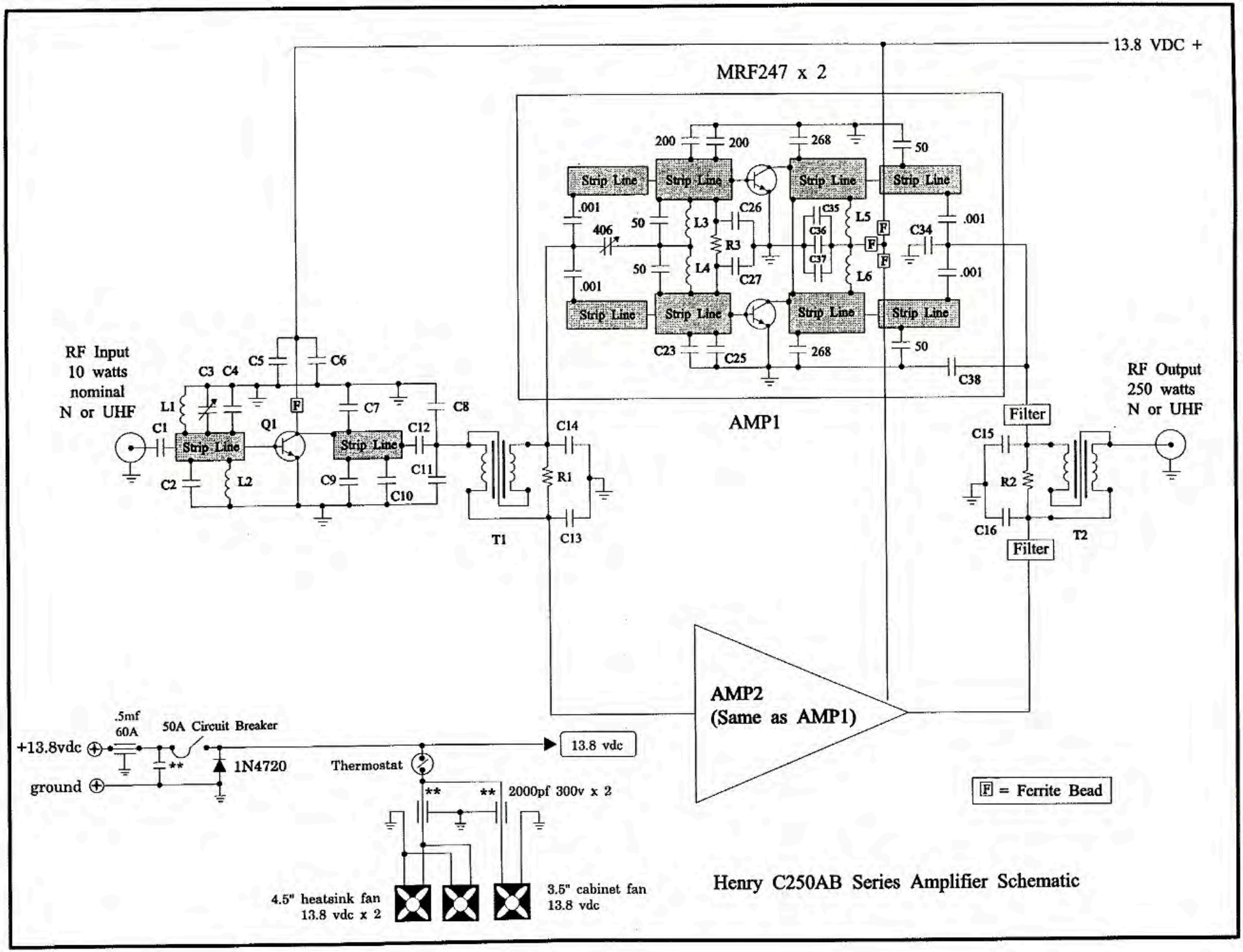
Be certain to include a written description of the problem, your operating frequency, and any special instructions.

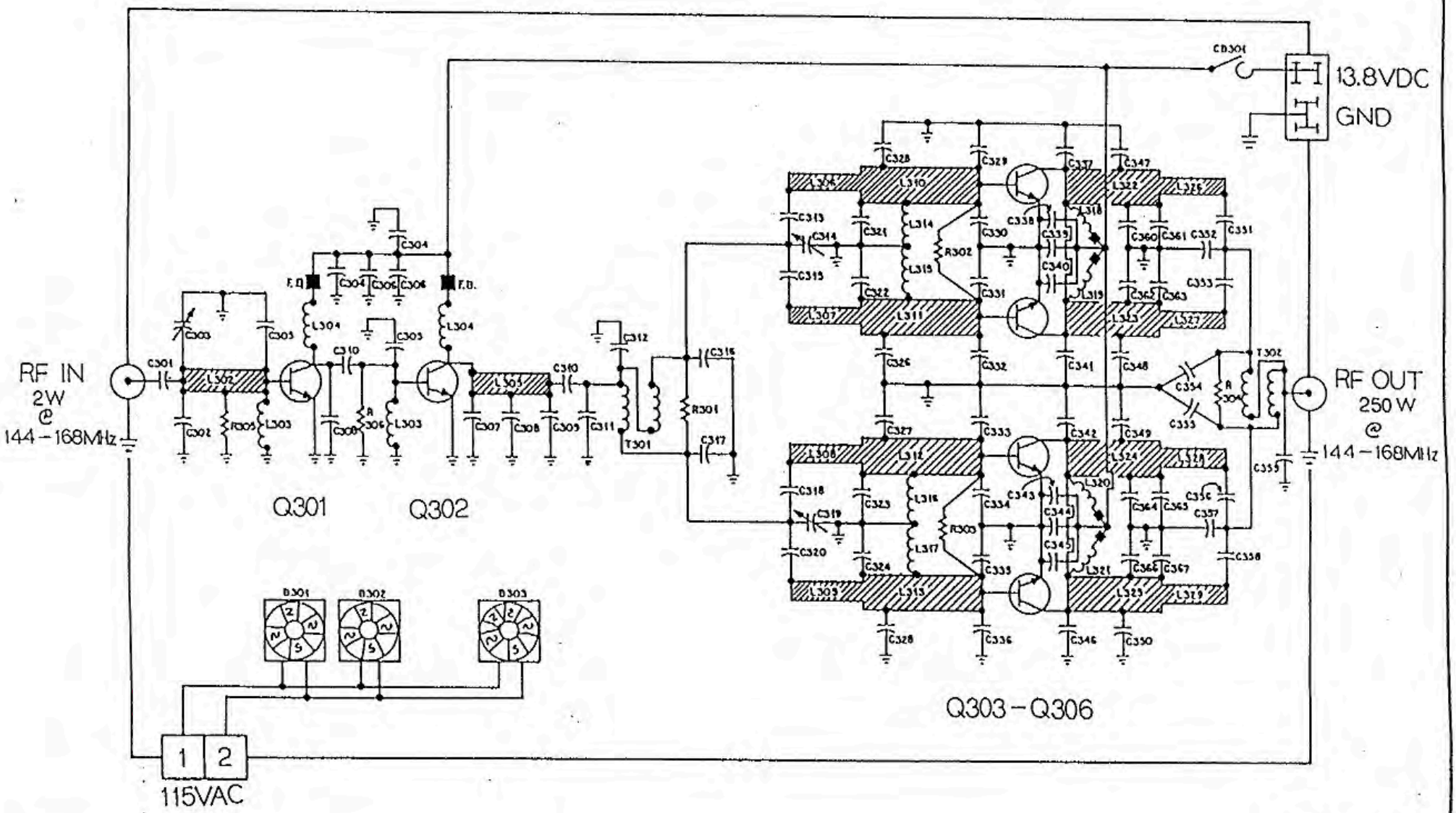
It is wise to call first to make sure it is necessary to return the equipment.

Henry C250AB Series Chassis Diagram

Repeater/Paging Configuration



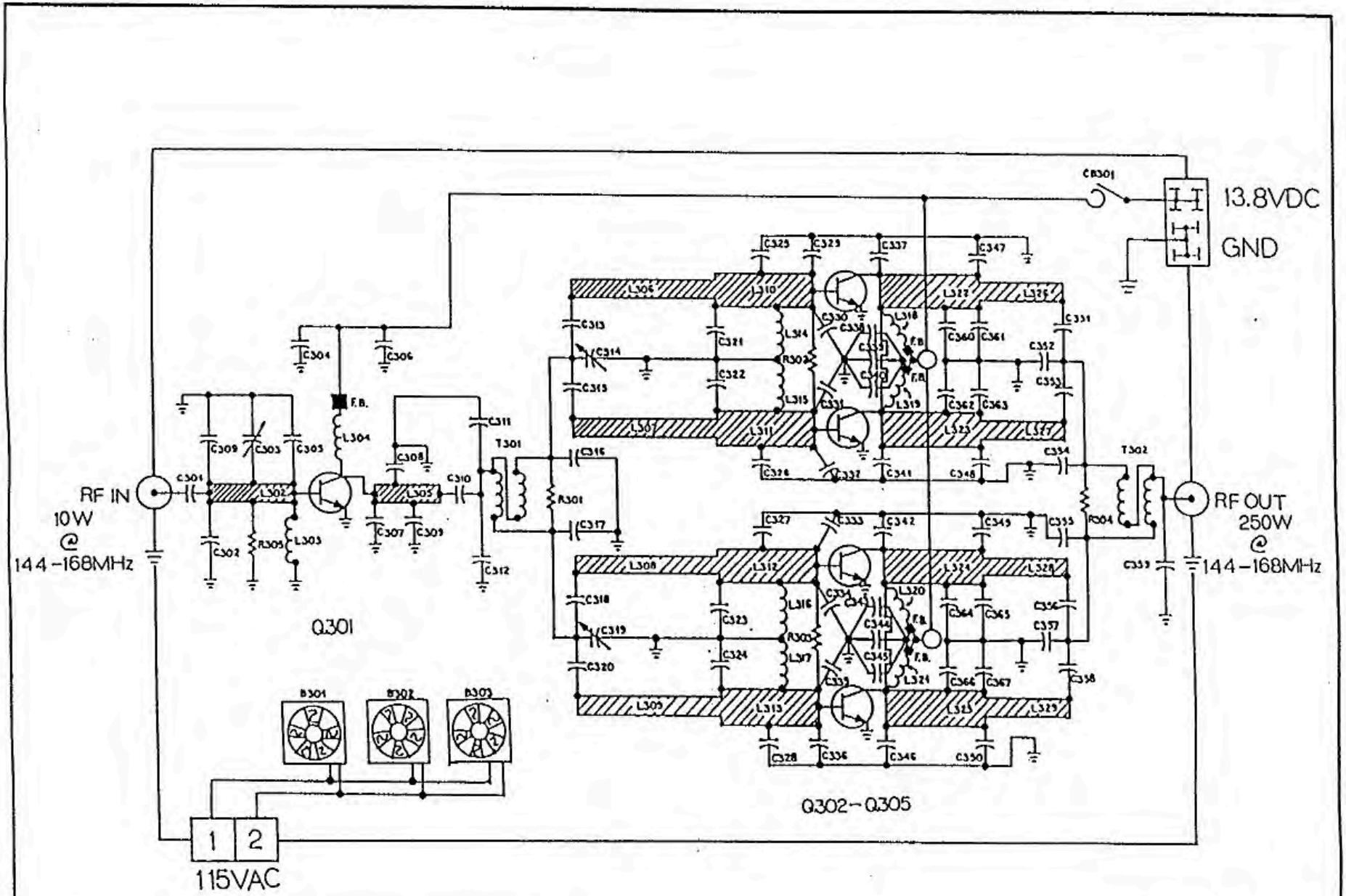

13.8 VDC +
MRF247 x 2
200
200
268
50
Strip Line
Strip Line
Strip Line
Strip Line
.001
C26
C35
L5
.001
406
50
L3
C36
C34
R3
C37
50
L4
C27
L6
.001
.001
Strip Line
Strip Line
Strip Line
Strip Line
C23
C25
268
50
C38
AMP1
RF Input
10 watts
nominal
N or UHF
C3
C4
C5
C6
L1
C1
Q1
C7
C8
C12
Strip Line
Strip Line
C2
L2
C9
C10
C11
T1
C14
R1
C13
Filter
C15
R2
C16
T2
Filter
RF Output
250 watts
N or UHF
AMP2
(Same as AMP1)
.5mf
60A
50A Circuit Breaker
+13.8vdc
ground
**
1N4720
Thermostat
13.8 vdc
** **
2000pf 300v x 2
4.5" heatsink fan
13.8 vdc x 2
3.5" cabinet fan
13.8 vdc
F = Ferrite Bead
Henry C250AB Series Amplifier Schematic



HENRY C250AB02R SCHEMATIC DIAGRAM

08-04-94

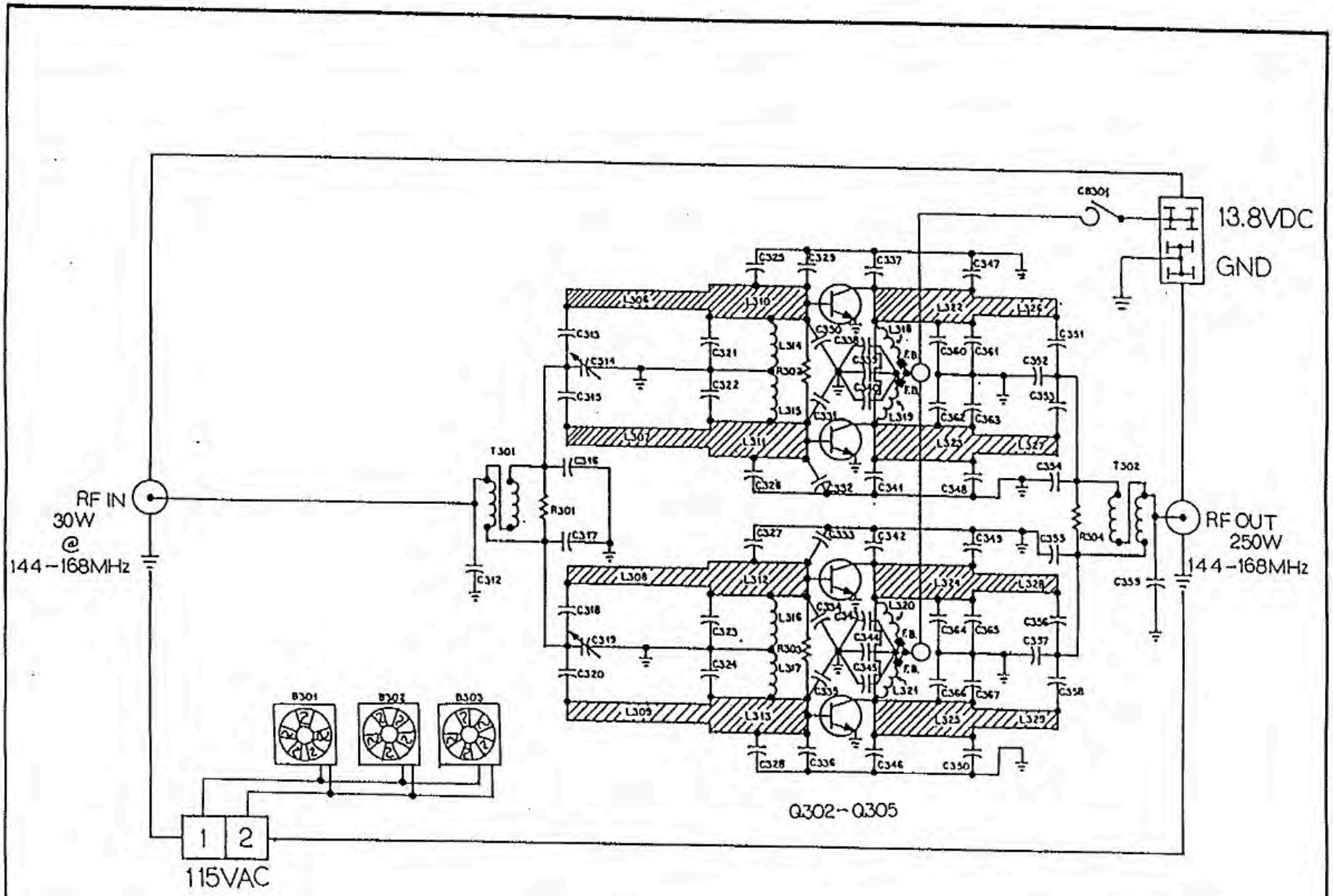
HENRY ELECTRONICS INC.
2050 SOUTH BUNDY DRIVE
LOS ANGELES CA 90025



HENRY C250AB10R · SCHEMATIC DIAGRAM

08-04-94 pvp

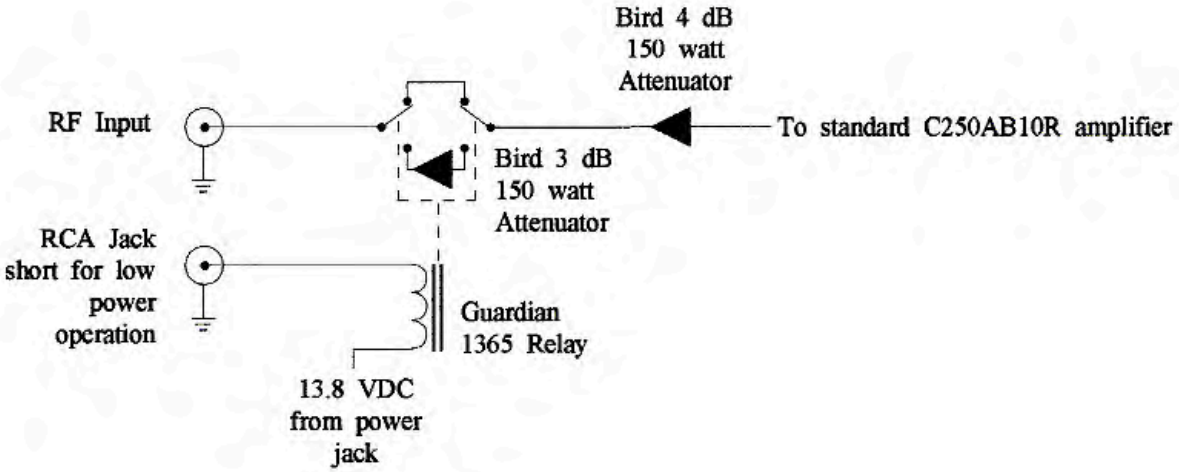
HENRY ELECTRONICS INC
2050 SOUTH BUNDY DRIVE
LOS ANGELES CA 90025



HENRY C250AB30R · SCHEMATIC DIAGRAM

08-04-94 pvp

HENRY ELECTRONICS INC
2050 SOUTH BUNDY DRIVE
LOS ANGELES CA 90025



Modification to Standard Henry C250ABSeries
Power Amplifier for Low/High Power Operation