

# SERVICE BULLETIN

**EQUIPMENT TYPE** 516E-1

**BULLETIN NO.** 1

**DATE** 9-12-58

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**SUBJECT: Modification for use with Positive Ground**

The 516E-1 DC Power Supply is a transistorized power supply and was designed for use with 12 volt negative ground systems. This unit was designed for a negative ground system since the automobile industry standardized on a negative ground system. Request have been received for the use of the 516E-1 power supply in automobiles having positive ground systems. This bulletin outlines the modification of this unit so that it may be used with a positive ground system.

**MODIFICATION PROCEDURE:**

1. Remove power input cover from unit.
2. Paint over + and - sign on 12-14 volt input terminals.
3. Paint a + sign near post, beneath terminal 1 of TB1, which had been - sign, on 12-14 volt input terminal.
4. Paint a - sign near post, beneath terminal 8 of TB1, which had been + sign, on 12-14 volt input terminal.
5. Remove top cover from cabinet.
6. Remove four screws holding capacitor tray and remove tray from cabinet so as to gain access to terminal board.
7. Unsolder white orange wire connected to terminal 2 of T2 (large transformer in center of chassis). This wire will be reconnected in subsequent step.

8. Solder a length of no. 14 white wire (439 1550 00) from terminal 2 of T2 to a nearby ground lug.
9. Unsolder all transistor leads from terminal board.
10. Remove nuts holding transistors and remove all transistors from cabinet.
11. Enlarge center mounting hole of transistors on cabinet to a 5/16 inch diameter. Remove burrs from these enlarged holes.

**CAUTION:** It is very important that the transistors and mica washers are thoroughly greased with only silicone grease in the following steps. Improper installation on these transistors will cause them to heat excessively or become grounded and fail.

12. Using silicone grease (005 1210 00) paint the mounting side of all transistors.
13. Install insulated mica washer (542 5313 002) onto each transistor mounting stud. Cover these mica washers with silicone grease.
14. Carefully replace transistors and mica washers onto cabinet.
15. Install insulated phenolic shoulder washer (542 5312 002) onto each stud.
16. Place solder lug (304 8000 00) on each stud (collector of transistor) securing with nuts and washers originally removed.

*Address any inquiries concerning this Bulletin to:*

17. Resolder transistor wiring as follows:

Transistor	Yellow lead	Green lead
Q1	Terminal 21	Terminal 19
Q2	Terminal 21	Terminal 16
Q3	Terminal 13	Terminal 12
Q4	Terminal 13	Terminal 9
Q5	Terminal 6	Terminal 4
Q6	Terminal 3	Terminal 1

18. Jumper the solder lugs installed on studs of Q1, Q2, Q3, and Q4 using a length of no. 14 buss wire (421 1420 00) and solder.

19. Jumper the solder lugs installed on studs of Q5 and Q6 using a length of no. 14 buss wire (421 1420 00) and solder.

20. Connect and solder white orange wire (removed from terminal 2 of T2 in step 7) to solder lug of Q1.

21. Unsolder grounded end of R22, 470 ohm 2 watt resistor connected to terminal 7 of terminal board, and connect it to solder lug of Q5.

22. Connect and solder a length of no. 14 white with red tracer wire (439 1553 00) from solder lug of Q5 to either terminal of L3. L3 is located directly under terminal 13 of terminal board.

23. A no. 14 white brown wire is connected from one side of L3 to terminal 8 of terminal board. Clip this wire at L3 and connect it to ground lug where R22 was originally grounded.

24. Reverse the polarity of electrolytic capacitor C1. C1 is located directly under terminals 3 and 4 of terminal board.

25. Reverse the polarity of electrolytic capacitor C10. C10 is located beside and connected to L3.

26. Check wiring using schematic diagram, figure 1, for reference.

27. Replace capacitor mounting tray onto cabinet making certain terminal lugs and wiring mounted on studs of transistors are not grounded.

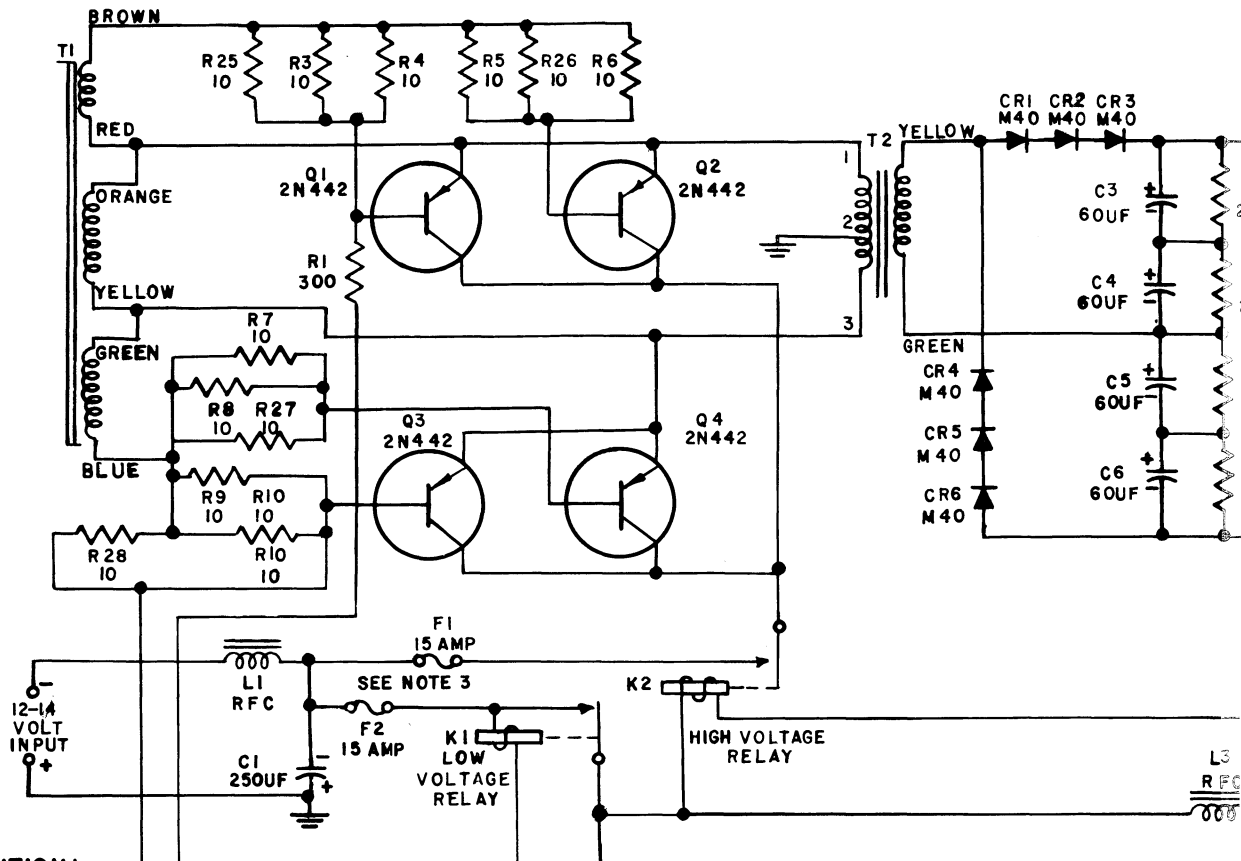
28. Replace top cover and input cover onto unit using original hardware.

PARTS REQUIRED:

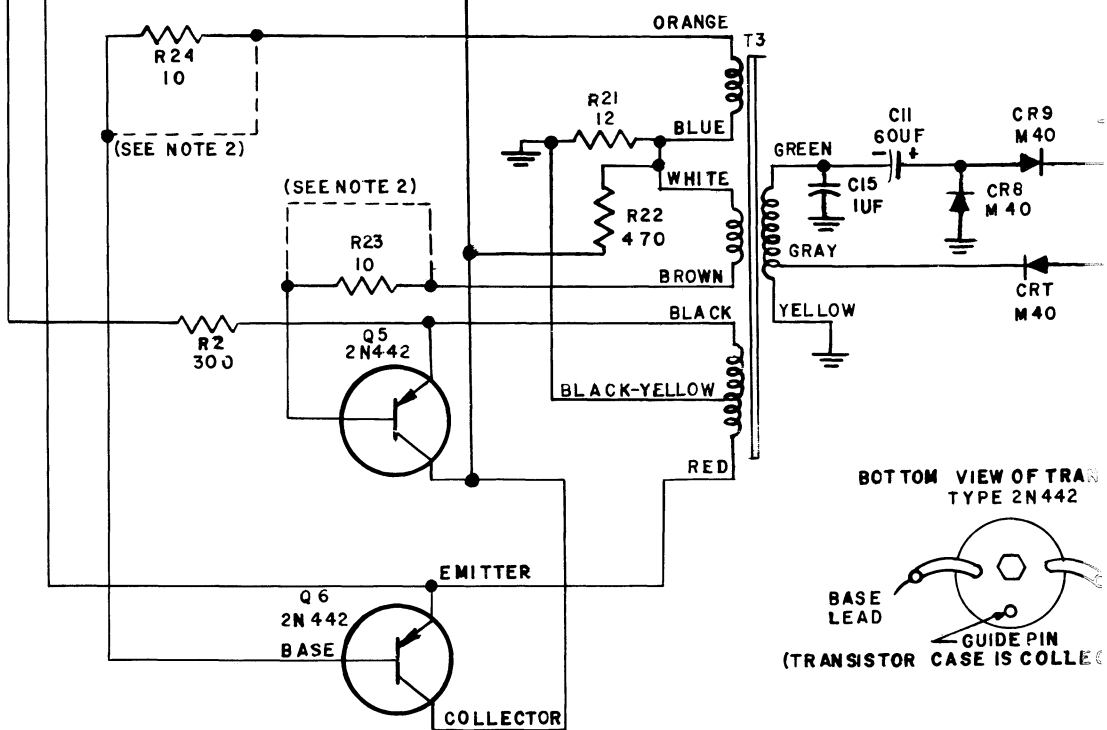
Modification Kit 544 6179 00 Price: \$13.06

Qty.	Description	Collins Part Number
6	Washer, phenotic	542 5312 002
6	Washer, Mica	542 5313 002
1	Lubricant, Silicone	005 0210 00
1	Wire, #14 buss (ft)	421 1420 00
2	Wire, #14 White (ft)	439 1550 00
2	Wire, #14 White/Red (ft)	439 1553 00
6	Lug, Solder	304 8000 00

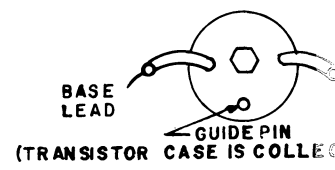
The above kit may be obtained by ordering from Collins Radio Company, Service Parts Department, Cedar Rapids, Iowa, after March 15, 1959, at the price indicated. All orders for this kit should make reference to 516E-1 Service Bulletin 1.



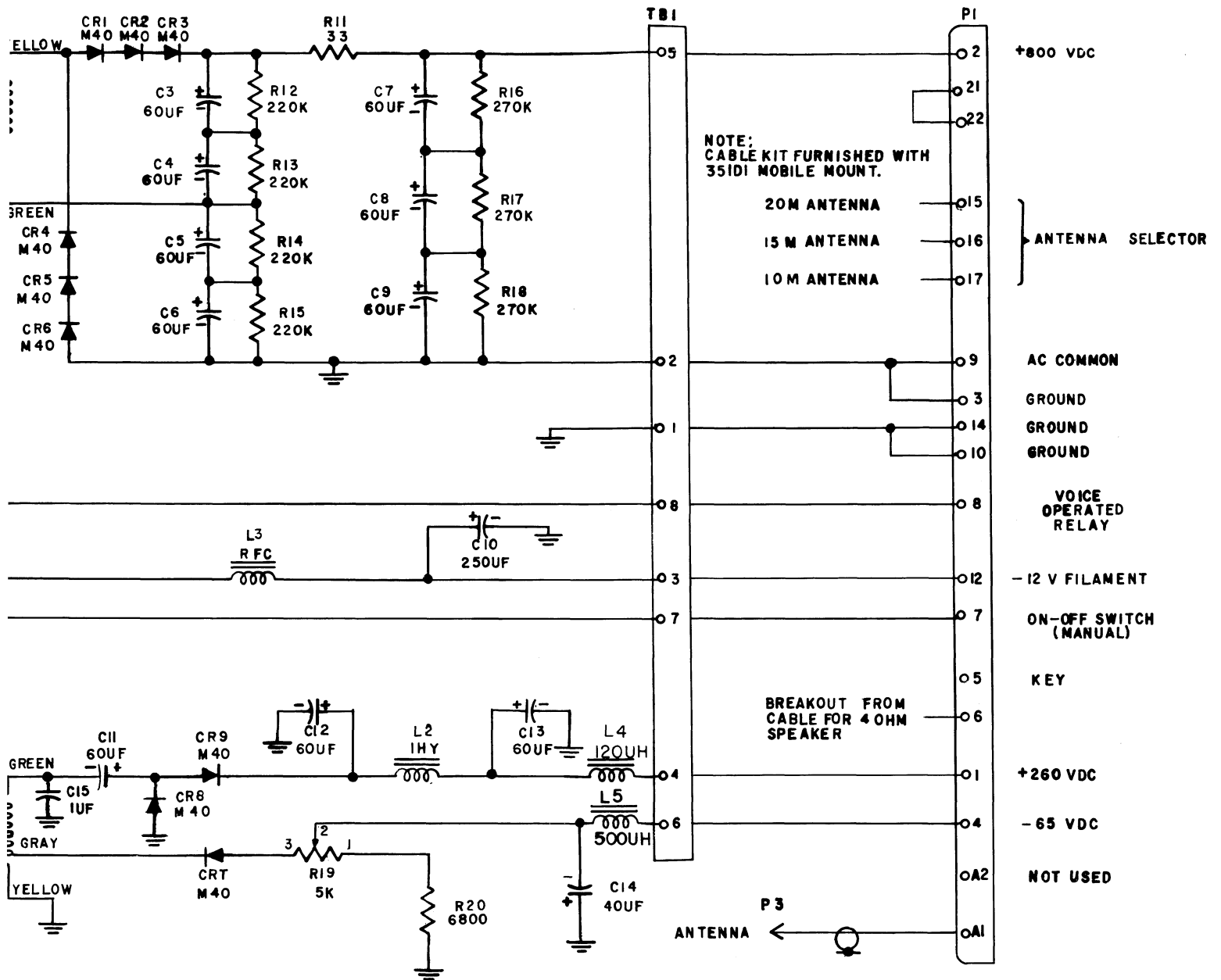
**CAUTION!**  
SEE NOTE 1



**BOTTOM VIEW OF TRANSISTOR TYPE 2N442**



(TRANSISTOR CASE IS COLLECTOR)



NOTE:  
CABLE KIT FURNISHED WITH  
351D1 MOBILE MOUNT.

20M ANTENNA  
15 M ANTENNA  
10 M ANTENNA  
} ANTENNA SELECTOR

AC COMMON  
GROUND  
GROUND  
GROUND

VOICE OPERATED RELAY

-12 V FILAMENT

ON-OFF SWITCH (MANUAL)

KEY

BREAKOUT FROM CABLE FOR 4 OHM SPEAKER

+260 VDC

-65 VDC

NOT USED

ANTENNA ←

BOTTOM VIEW OF TRANSISTOR  
TYPE 2N442



NOTE 1. FAILURE TO MAKE PROPER POLARITY CONNECTIONS  
MAY DESTROY TRANSISTORS. POSITIVE INPUT  
MUST BE GROUND.

2. R23 R24 BY PASSED WHEN 2N442 USED IN PLACE  
OF 2N 278.

3. SLO BLO FUSES NOT RECOMMEND, AS TRANSISTOR  
DAMAGE MAY RESULT.

Figure 1. 516 E-1 12-Volt DC Power Supply,  
Schematic Diagram, Modified for Positive Ground.