publications engineering

SERVICE BULLETIN

COLLINS RADIO COMPANY

Cedar Rapids, Iowa 52406

COMMUNICATIONS

51S-1/1( ) RECEIVERS

SERVICE BULLETIN NO 5

SUBJECT A: CONVERTS 51S-1A/1AF TO 51S-1/1F

SUBJECT B: CONVERTS 51S-1/1F TO 51S-1A/1AF

51S-1A/1AF Receivers use 28-Vdc primary power. Modification procedure A, in this service bulletin, gives instructions for converting these units for operation from a 115- or 250-Vac power source.

51S-1/1F Receivers are manufactured with a 115- or 230-Vac power supply. Modification procedure B, in this service bulletin, includes instructions required for converting these units for 28-Vdc operation.

The estimated time to complete modification A is 1-1/2 hours and modification B is 1-1/2 hours.

The following modification kits may be obtained from Collins Radio Company, Service Parts Department, Cedar Rapids, Iowa 52406 at the following prices:

POWER SUPPLY TYPE	MODIFICATION KIT NUMBER	UNIT KIT PRICE
115 Vac	606-9038-001	$51.77
230 Vac	606-9038-002	$51.77
28 Vac	554-8355-000	$150.00

NOTE: Prices are subject to change without notice.

Refer to modification kit parts list on page 5 or 6 for individual parts detailed information. Orders for kits should specify the modification kit number, quantity of kits required, and reference 51S-1/1( ) Service Bulletin No 5.

The 51S-1/1A/1F/1AF/1B Receiver Instruction Book, ninth edition, Collins part number 523-0097000, lists the 28-Vdc power supply conversion kit as an accessory item.

MODIFICATION PROCEDURE A (Converts 51S-1A/1AF to 115-/230-Vac operation)

1. Disconnect power cord, and remove cabinet from unit as follows:

   a. Turn receiver upside down on table or bench.

   b. Remove four feet and screw that is midway between rear feet.

   c. Remove two bright-plated screws under lid (unpainted screws either side of lid).

   d. Remove chassis by sliding forward out of cabinet.

   NOTE: In the following step, examine all wires for color code matching. When disconnecting wires, label or tag any that differ from the color code called out in the step.

2. Disconnect the following wires from the 28-Vdc power supply and let the wire ends hang free. See illustration for aid in locating terminals.

WIRE AWG SIZE AND COLOR	WIRE QUANTITY	DISCONNECT FROM
#16 white-red	1	Terminal 1
#16 white-black	1	Terminal 10
#22 white	1	Terminal 8
#22 white-red	3	Terminal 2
#22 white-orange	2	Terminal 4
#22 white-black-red-blue	2 or 3	Terminal 5
#22 white-brown-green	2	Terminal 6

3. If the 28-Vdc power supply has a stiffening arm attached to the side of the chassis, remove the slug rack cover and remove the two screws securing the arm.

4. Remove the four securing screws from the chassis of the 28-Vdc power supply, and lift out the supply.

5. Install the 115-/230-Vac power supply as follows:

   a. Place power supply (547-2693-000) on 51S-1A chassis.

   b. Place one each flat washer (310-0046-000), lockwasher (310-0077-000), and nut (313-0002-000), on the two studs protruding through the chassis from the filter choke L109. Start but do not tighten nuts at this time.

   c. Place one each lockwasher (310-0072-000) and nut (313-0046-000), on the four studs protruding through the chassis from power transformer T6. Start but do not tighten nuts at this time.

   d. Insert screw (343-0169-000) through the power supply chassis hole near fuse F1, and place flat washer (310-0046-000), lockwasher (310-0077-000), and nut (313-0002-000) on screw. Do not tighten nut at this time.

6. Attach power supply stiffening arm to the side of rf tuning unit on top of the chassis, securing with two screws (343-0134-000) and one each washers (310-6340-000) and (310-0278-000), and one nut (313-0132-000). Place the screw heads in the slug rack compartment. Tighten nuts, including those in steps 5.b, 5.c, and 5.d.

7. Cut the cable ties that secure the six sleeved wires on the cable harness located near rear of chassis. Connect the free ends of these wires to the ac power supply as follows (refer to note preceding step 2).

WIRE AWG SIZE AND COLOR	WIRE LOCATION -- SOURCE	CONNECT TO
#22 white-black	Rear chassis	T6-2
#22 white-red	Rear chassis	T6-1
#22 white-green	Rear chassis	T6-9
#22 white-blue	Rear chassis	T6-10
#22 white-orange	Near J10	F1-tip
#22 white	Near J10	F1-side

8. Reconnect the following wires to the 115-/230-Vac power supply that were disconnected from the dc power supply in step 2.

WIRE AWG SIZE AND COLOR	WIRE QUANTITY	CONNECT TO
#22 white	1	Center terminal of 3-terminal strip
#16 white-red	1	Terminal nearest fuse of 3-terminal strip
#16 white-black	1	Other terminal of 3-terminal strip
#16 white-red	3	C182 half-moon terminal
#22 white-orange	2	C182 triangle terminal
#22 white-brown-green	2	T6-7
#22 white-black-red-blue	2 or 3	Pin G of Vector terminal board

9. Cut sleeving (152-1367-000) into two 3/8-inch lengths, and place over the two no 6 studs left protruding in step 5.b.

10. Cut sleeving (152-1371-000) into four 3/8-inch lengths, and place over the four no 8 studs left protruding in step 5.c.

11. Examine chassis for damage, debris, and improper solder connections.

12. Locate 115-Vac power cord (554-7055-000) or 230-Vac power cord (554-7056-000), whichever is applicable. Remove fuse from cord kit and place 1.5-ampere fuse in F1 fuseholder of 115-Vac unit, or 0.75-ampere fuse in 230-Vac unit.

    CAUTION: DO NOT CONNECT 115-VAC UNIT TO 230-VAC POWER SOURCE.

13. Replace cabinet, connect cord selected in step 12 to J10, and plug other end of P10 into ac socket with the round pin as ground.

14. Place 115-/230-Vac label (280-3015-000) adjacent to connector J10 on cabinet.

15. Check unit for proper operation.

MODIFICATION PROCEDURE B (Converts 51S-1/51S-1F to 28-Vdc operation)

1. Disconnect power cord and remove cabinet (refer to step 1 in modification procedure A).

   NOTE: Refer to note in modification procedure A.

2. Disconnect the following wires from the ac power supply.

WIRE AWG SIZE AND COLOR	WIRE QUANTITY	DISCONNECT FROM
#22 white-black	1	T6-2
#22 white-red	1	T6-1
#22 white-green	1	T6-9
#22 white-blue	1	T6-10
#22 white-orange	1	F1-tip
#22 white	1	F1-side

3. Insert free ends of wires, disconnected in step 2, into sleeving (152-1363-000), secure sleeving with tape (435-1019-000), and tie back on cable with same tape.

4. Remove the following wires from ac power supply, and let them hang free (refer to note in modification procedure A).

WIRE AWG SIZE AND COLOR	WIRE QUANTITY	DISCONNECT FROM
#22 white-brown-green	2	T6-7
#22 white-black-red-blue	2 or 3	Vector terminal board-G
#22 white-orange	2	C182
#22 white-red	3	C182
#16 white-black	1	Terminal strip
#16 white-red	1	Terminal strip
#22 white	1	Terminal strip

5. Remove the two screws securing stiffening arm to rf turret assembly above the chassis. Remove the six nuts from the transformer and choke studs that pass through the main chassis. Remove the nut from screw near XF1, and lift out ac power supply.

6. Attach 28-Vdc power supply (547-3930-000) to chassis using four self-tapping screws (330-0736-000) to secure supply to chassis.

7. Connect and solder the following wires to the dc supply (refer to note in modification procedure A). Use illustration for aid in locating terminals.

WIRE AWG SIZE AND COLOR	WIRE QUANTITY	CONNECT TO
#16 white-red	1	Terminal 1
#16 white-black	1	Terminal 10
#22 white	1	Terminal 8
#22 white-red	3	Terminal 2
#22 white-orange	2	Terminal 4
#22 white-brown-green	2	Terminal 6
#22 white-black-red-blue	2 or 3	Terminal 5

8. Examine chassis for damage, debris and improper solder connections. Check that a 6-ampere fuse is installed in fuseholder F1.

9. Power supply outputs are as follows:

TEST POINT TERMINAL	INDICATION
2	+150 Vdc
4	+140 Vdc
6	+28 Vdc
5	-39 Vdc
1	Hot input
10	Ground

NOTE: Power supply is factory-wired for negative ground.

10. Replace unit dust cover, and connect cord (548-8245-000) to J10 and 28 Vdc.

11. Remove 115-/230-Vac power supply input label located adjacent to connector J10 on cabinet. If power rating marking is required, place blank label (074-1446-400) or equivalent over label area and mark it ±28 Vdc.

12. Check unit for proper operation.

PARTS REQUIRED

Modification kit A, 606-9038-001 or 606-9038-002 (Converts 51S-1A/1AF to 115-/230-Vac operation)

COLLINS PART NUMBER	QTY	DESCRIPTION
024-0100-000	1	Bag
152-1367-000	0.1 ft	Sleeving, insulating
152-1371-000	0.2 ft	Sleeving, insulating
280-3015-000	1	Label, power input
310-0046-000	3	Washer, flat no 6
310-0072-000	4	Lockwasher, no 8
310-0077-000	3	Lockwasher, no 6
310-0278-000	2	Lockwasher, no 4

COLLINS PART NUMBER	QTY	DESCRIPTION
310-6340-000	2	Washer, flat no 4
313-0002-000	3	Nut, no 6
313-0046-000	4	Nut, no 8
313-0132-000	2	Nut, no 4
343-0134-000	2	Screw, 4-40
343-0169-000	1	Screw, 6-32
547-2693-000	1	Supply, power, ac

NOTE: The following part is for modification kit 606-9038-001 only.

554-7055-000	1	Kit, power cord, 115 Vac

NOTE: The following part is for modification kit 606-9038-002 only.

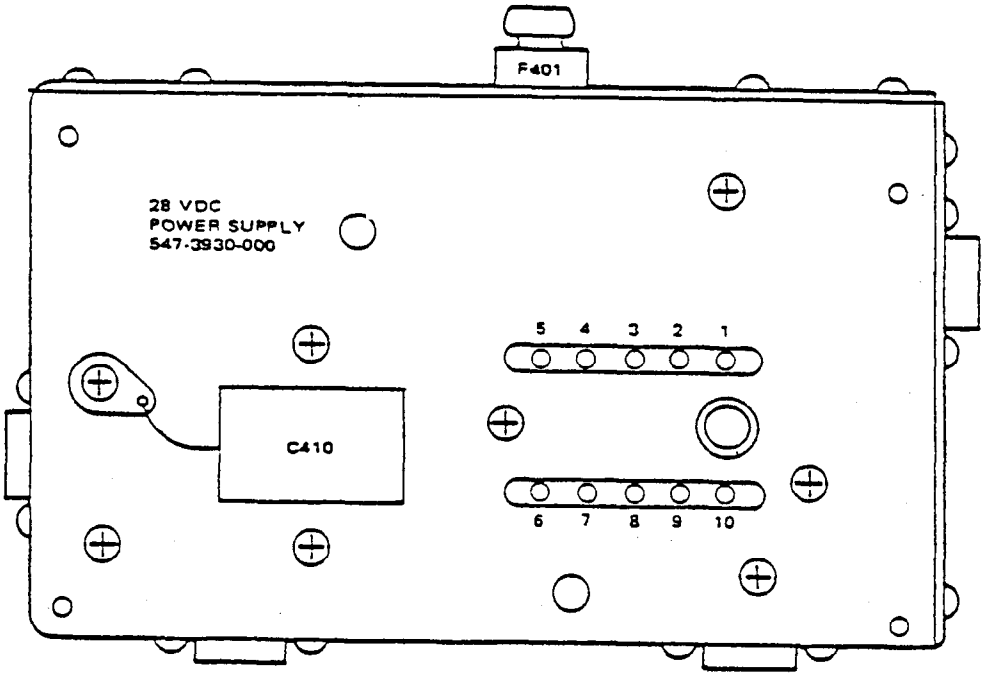
554-7056-000	1	Kit, power cord, 230 Vac

Modification kit B, 544-8355-000 (Converts 51S-1/1F to 28-Vdc operation)

COLLINS PART NUMBER	QTY	DESCRIPTION
024-0100-000	1	Bag
152-1363-000	0.5 ft	Sleeving, insulating
264-4100-000	2	Fuse, 6 A, F1
330-0736-000	4	Screw, tapping, no 6
435-1019-000	3.0 ft	Tape
547-3930-000	1	Supply, power 28 Vdc
548-8245-000	1	Assy, power cord, 28 Vdc

NOTE: The following part is not part of the modification kit and must be ordered in addition to the kit, if required, at a unit price of $0.01 each.

074-1446-400	1	Label, blank



28-Vdc Power Supply, Bottom View, Terminal Location