

Split Activator Kits 258218 and 258219 20-150RZ/ROZ Standby Generator Sets

These split activator kits are designed to replace the standard one-piece FR activator with the new split FR activator. Although the function of the FR activator remains unchanged, the components of the activator are now distributed between the rotating photo transistor board and the SCR assembly. (Reference Service Bulletin 474.) The SCR assembly occupies the same position

as the old FR activator and still controls current flow to the generator field. However, the command and sensing circuitry to control the SCR is now located on the shaft mounted photo transistor board. Refer to Figure 1 for a comparison between the one-piece and split FR activators. Observe the safety precautions listed with the text when installing the split FR activator kit.

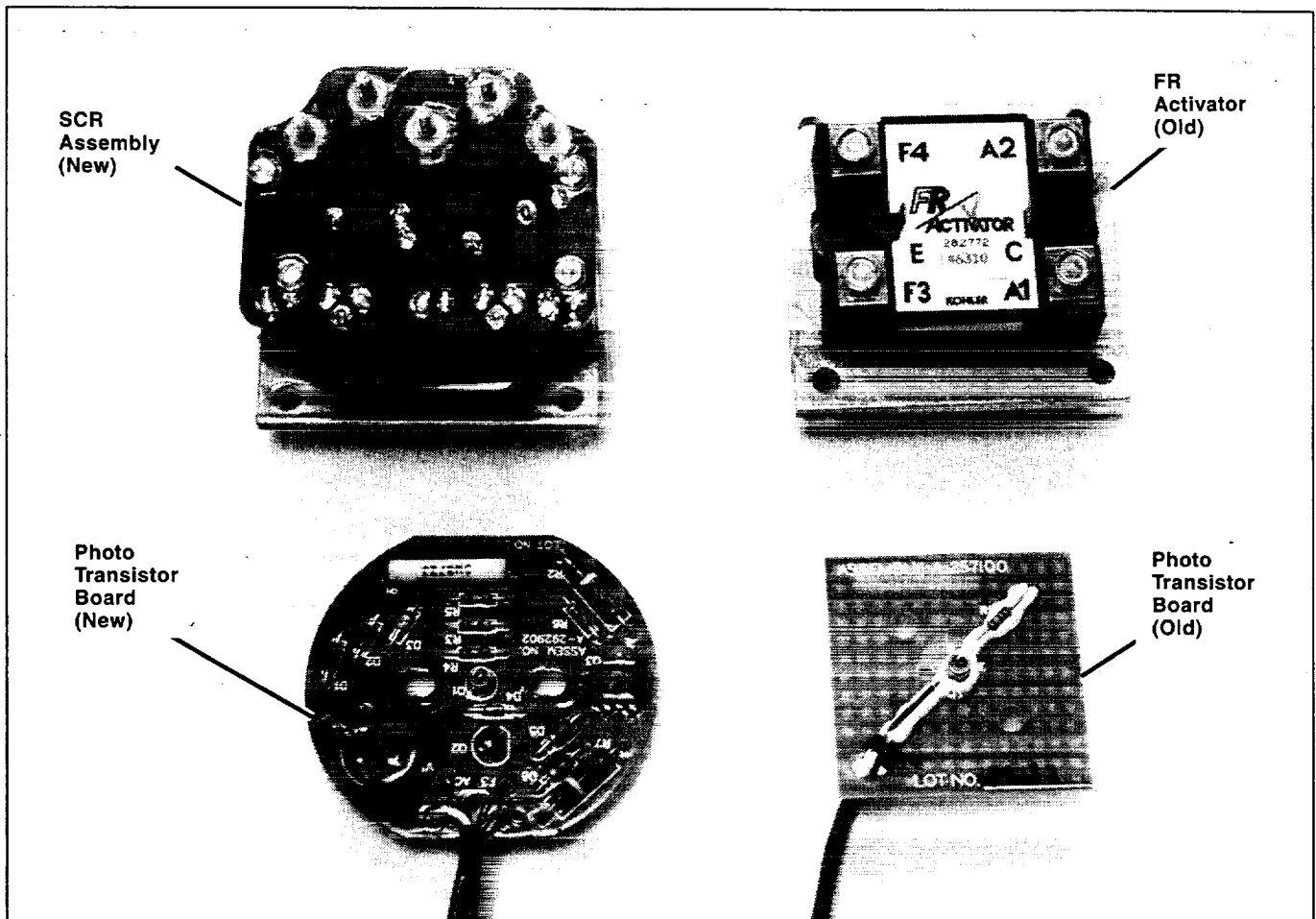


Figure 1. FR Activator Comparison

INSTALLATION

⚠ WARNING

UNIT STARTS WITHOUT NOTICE! Units with automatic transfer switches start automatically. Personal injury or electrocution can result. Turn Generator Master Switch on controller to OFF position, disconnect power to battery charger (if equipped), and remove battery cables (remove negative lead first and reconnect it last) to disable generator set before working on any equipment connected to the generator.

⚠ WARNING

ELECTRICAL SHOCK! The battery can cause electrical burns and shocks. Exercise reasonable care when working near the battery to avoid electrical connections through tools. Remove wristwatch, rings, and any other jewelry.

⚠ WARNING

HOT PIPING! An engine gets hot while running and exhaust system components get extremely hot. Do not work on generator set until unit is allowed to cool.

NOTE

Installation of the split activator in smaller models (20–60 kW) may require removal of the generator end bracket. However, the greater clearance provided on larger sets (80 kW and above) allows split activator installation without end bracket removal. The end bracket tolerance ring must be replaced if the end bracket is removed to install the kit. If the end bracket is not being removed, disregard steps 7 and 8.

1. Disconnect starting batteries (negative lead first) and remove from work area to prevent fire hazard.
2. Disconnect all controller harnesses and remove junction box and controller. (These components can be removed as a unit.)
3. Remove LED board and housing and disconnect speed sensor leads. See Figure 2.

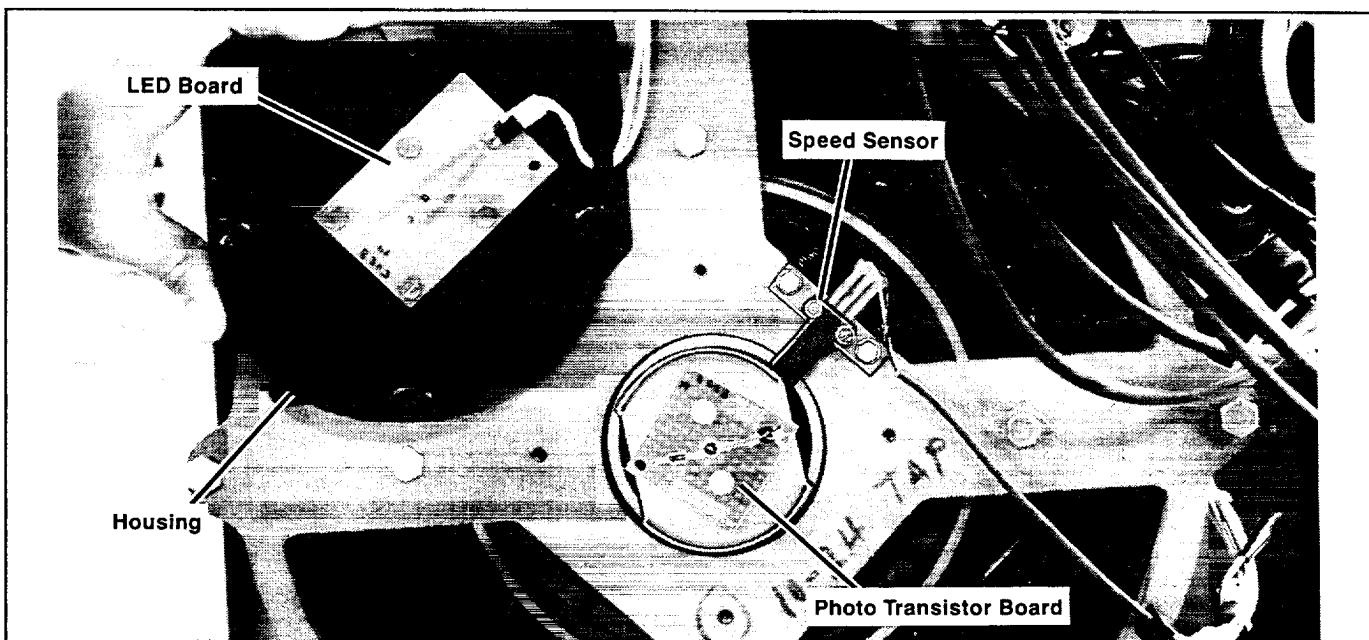


Figure 2. LED Board and Housing

4. Remove screws securing photo transistor board and actuator. Retain screws for installation of new photo transistor board.
5. Reach inside generator and remove leads C and E from FR Activator. This will allow slack when removing end bracket.
6. Cut the ties securing leads to rotor shaft. Remove photo transistor board.
7. Remove four bolts securing end bracket to stator.
8. Use a pulling tool to remove end bracket. See Figure 3.

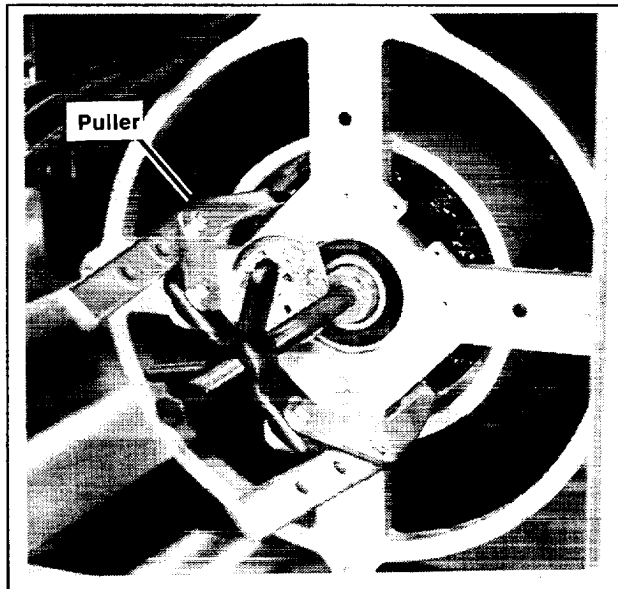


Figure 3. Removing End Bracket

NOTE

Do not attempt to remove end bracket by striking with a hammer. Damage to exciter field magnets will result.

9. Pull the end bracket and exciter field assembly over the exciter armature. Be extremely careful to avoid damaging exciter field magnets.
10. Disconnect main field and exciter field leads from FR activator. Remove mounting screws securing FR activator and heat sink to rotor. (Retain activator mounting screws for installa-

tion of new SCR assembly.) Remove FR activator and heat sink.

11. Install SCR assembly in position previously occupied by FR activator and heat sink; secure with screws retained from step 10. SCR heat sink should face engine end of generator as shown in Figure 4.

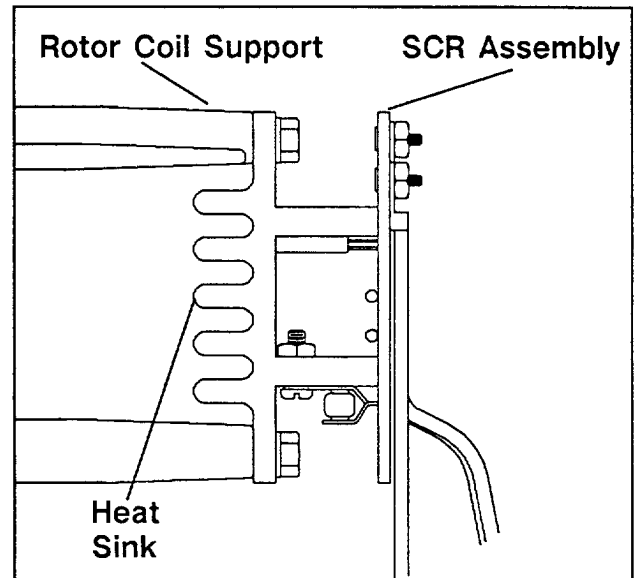


Figure 4. SCR Installation

12. Use a side cutters to remove terminals from exciter field and main field leads. Strip approximately 1/2 in. (12.7 mm) of insulation from exciter field and main field leads and crimp on terminals (X-283-2).
13. Place photo transistor board lead through actuator cup as shown in Figure 5. Route the photo transistor board lead through hole in rotor shaft and then through exciter laminations to exit near the SCR Assembly.
14. Attach photo transistor board (B-292902), insulator (257850), washers (243321) and actuator cup to end of rotor shaft with screws retained from step 4. Torque to 10 in. lbs. maximum (1.1 Nm). Photo transistor board and mounting components should be assembled as shown in Figure 6.
15. Cut off excess lead wire from photo transistor board leaving enough wire to reach the SCR assembly. Strip 2-3 in. (50-75 mm) of gray

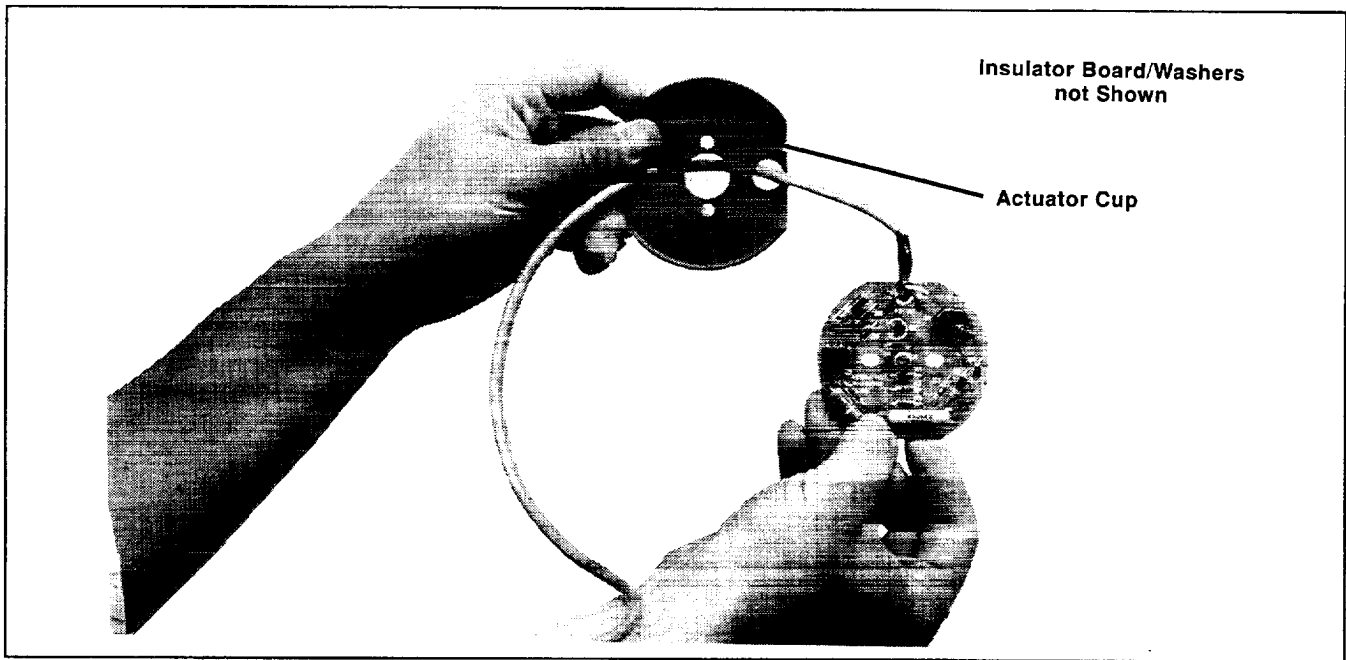


Figure 5. Installing Photo Transistor Board

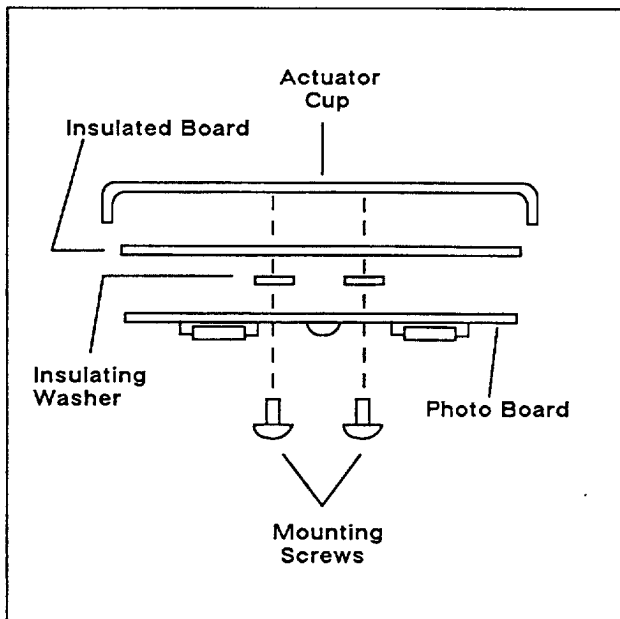


Figure 6. Photo Transistor Board Mounting

insulator jacket from lead. Cut off all exposed uninsulated wire. Strip about 1/4 in. (6 mm) of insulation off each lead and crimp on terminal (X-283-7). Before connecting leads to SCR assembly, secure leads to rotor shaft with tie wrap (X-468-3).

16. Connect one main field lead to SCR "F+" stud and secure with nut (X-71-2). Connect and secure other main field lead to "F-" stud, one exciter field lead to "AC" stud, and remaining exciter field lead to remaining AC stud. Connect photo transistor board white lead to AC stud and secure with stop nut (X-101-22). Repeat procedure with photo board red lead on "F+" stud, green lead on "G" stud, and black lead on remaining "AC" stud. Torque connections to 8 in. lbs. maximum (0.9 Nm). Reference Figure 7 for FR activator wiring schematic.

REASSEMBLY

1. If end bracket was removed to install kit, replace end bracket tolerance ring (257830). Since end bracket removal is normally not necessary to install the split activator on larger sets (80 kW and larger), a tolerance ring is not included with the kits for these models.
2. Replace end bracket (if removed) and secure with four bolts. Torque to 35 ft. lbs (47 Nm).

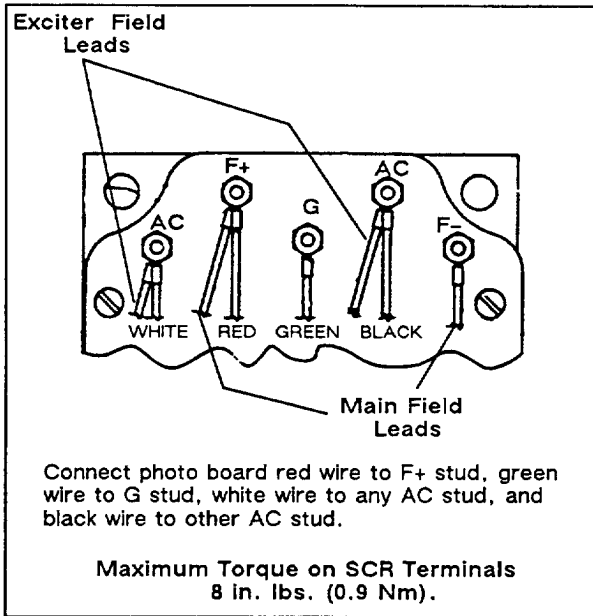


Figure 7. FR Activator Wiring

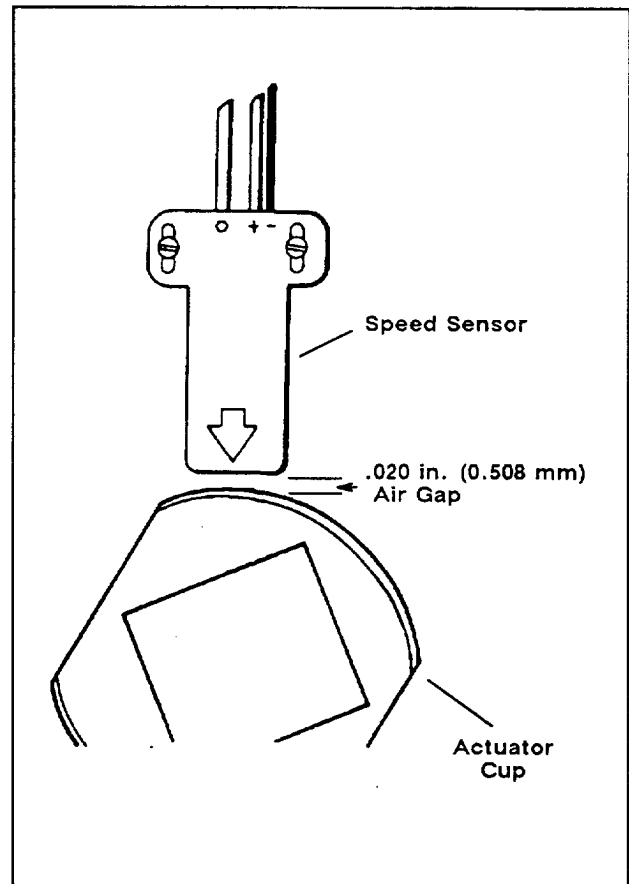


Figure 8. Speed Sensor Air Gap

3. Replace LED board and housing.
4. Reconnect speed sensor leads. Set speed sensor air gap at 0.020 in. (0.508 mm). See Figure 8.
5. Reinstall controller and junction box. Reconnect controller harnesses.
6. Reconnect starting batteries (negative lead last).

PARTS LISTING

Description	Qty.	Kits		
		258218	Common	258219
SCR Assembly	1	A-258767		A-258908
Ring, tolerance	1	257830		
Photo Transistor Board	1		B-292902	
Stop Nut	5		X-101-22	
Terminal	4		X-283-2	
Terminal	4		X-283-7	
Tie Wrap	1		X-468-3	
Nut, hex 6-32	4		X-71-2	
Washer, insulating	2		243321	
Board, insulated	1		257850	