KOHLER® POWER SYSTEMS

TT−748

INSTRUCTIONS
9/90

Split Activator Kit 256425
180−300ROZ Generator Sets

The split activator kit is 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.

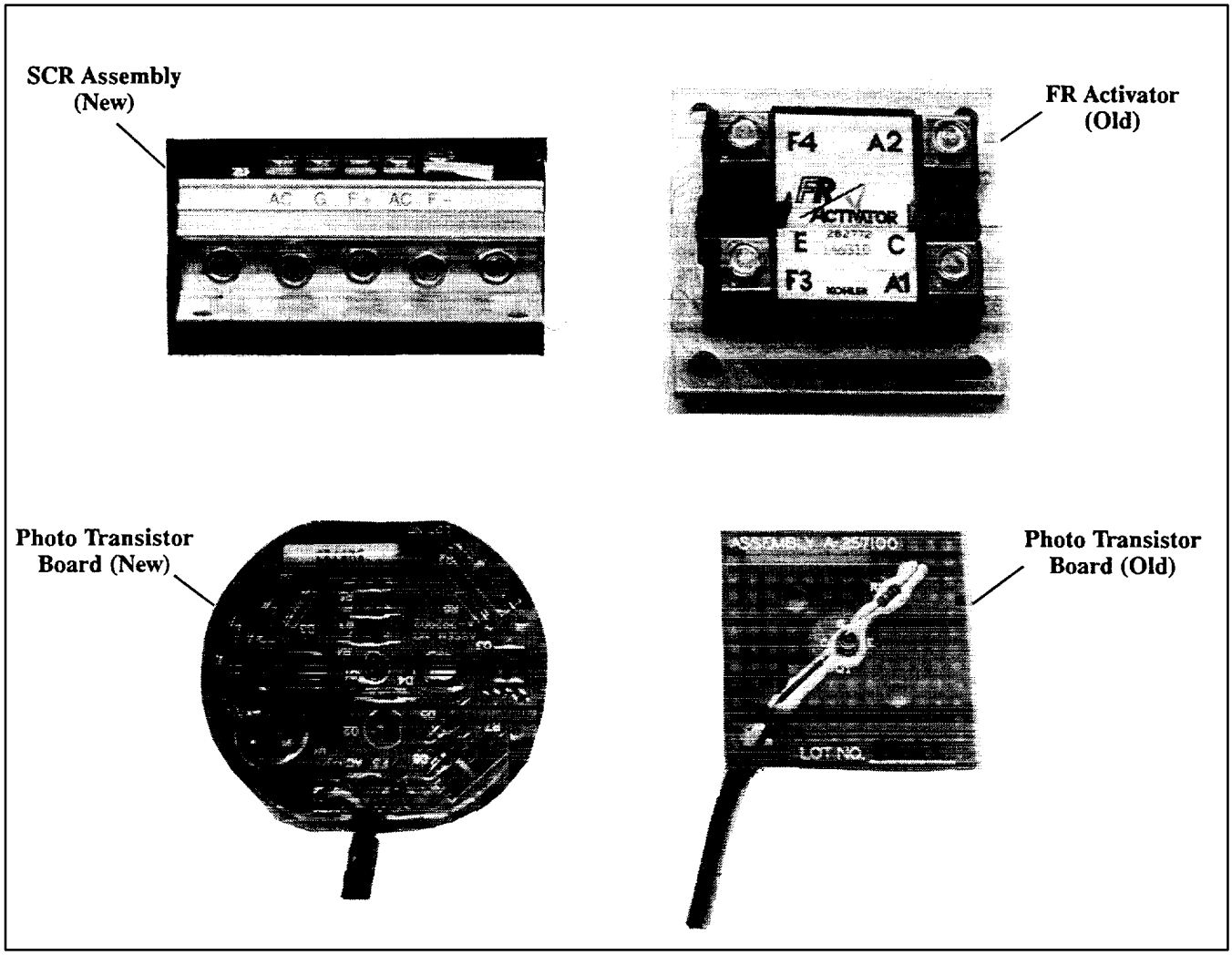

Figure 1. FR Activator Comparison

WARNING

Accidental starting can cause death or serious personal injury. Turn Generator Master Switch to OFF position, disconnect power to battery charger, and remove battery cables (remove negative lead first and reconnect it last) to disable generator set before working on any equipment connected to generator. The generator set can be started by automatic transfer switch or remote start/stop switch unless these precautions are followed.

NOTE

Installation of the split activator kit normally does not require end bracket removal. However, if the generator end bracket is removed, replace end bracket tolerance ring before reassembling the generator set. Replacement tolerance rings are available from Generator Service Parts.

1. Disconnect starting batteries (negative lead first) and power to battery charger (if equipped).

2. Disconnect all controller harnesses and remove junction box and controller. (These components can be removed as one unit.)

3. Remove LED board and housing and disconnect speed sensor leads (if end bracket is being removed). See Figure 2.

4. Remove screws securing photo transistor board and actuator cup.

5. Reach inside generator and remove leads C and E from FR activator.

6. Cut the ties securing leads to rotor shaft. Remove photo transistor board.

7. If end bracket is being removed for kit installation, remove four bolts securing end bracket to stator. Use a pulling tool to loosen end bracket. **Do not attempt to remove end bracket by striking with a hammer. Damage to exciter field magnets will result.** Pull the end bracket/exciter assembly over the exciter armature. Be extremely careful to avoid damaging exciter field magnets.

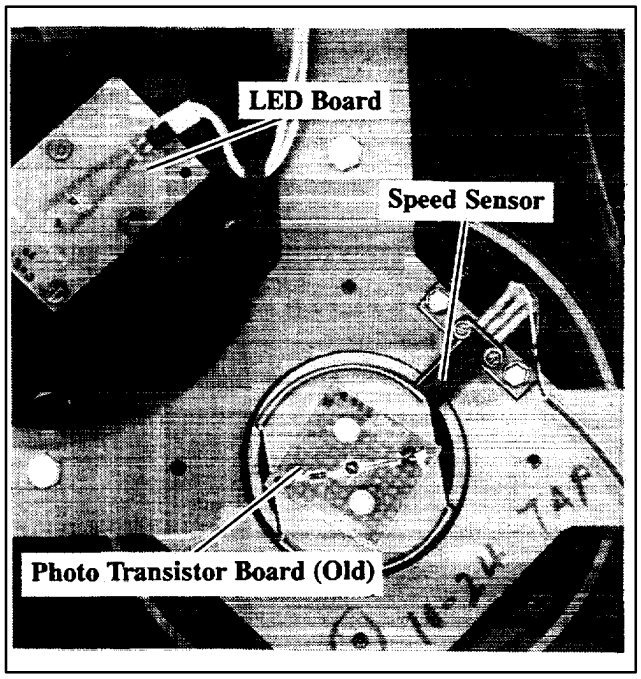

Figure 2. Led Board and Housing

8. Disconnect main field and exciter field leads from FR activator. Remove mounting screws securing FR activator and heat sink to rotor. Remove FR activator and heat sink.

9. Install SCR assembly (A−258939) in position previously occupied by FR activator and heat sink; secure SCR with four screws (X−117−5) and internal tooth lock washers (X−22−9) supplied with kit. SCR heat sink should face engine end of generator as shown in Figure 3.

10. 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 field leads and crimp on terminals (X−285−11).

11. Place photo transistor board lead through actuator cup as shown in Figure 4. Route the photo transistor board lead through hole in rotor shaft and then through exciter laminations to exit near the SCR assembly.

12. Attach photo transistor board (B−292902), insulator (257850), washers (243321) and actuator cup to end of rotor shaft with screws (X−117−5) and internal tooth lock washers (X−22−9) supplied with kit. Torque mounting screws to 10 in. lbs. (1.1 Nm) maximum. Photo transistor board and mounting components should be assembled as shown in Figure 5.

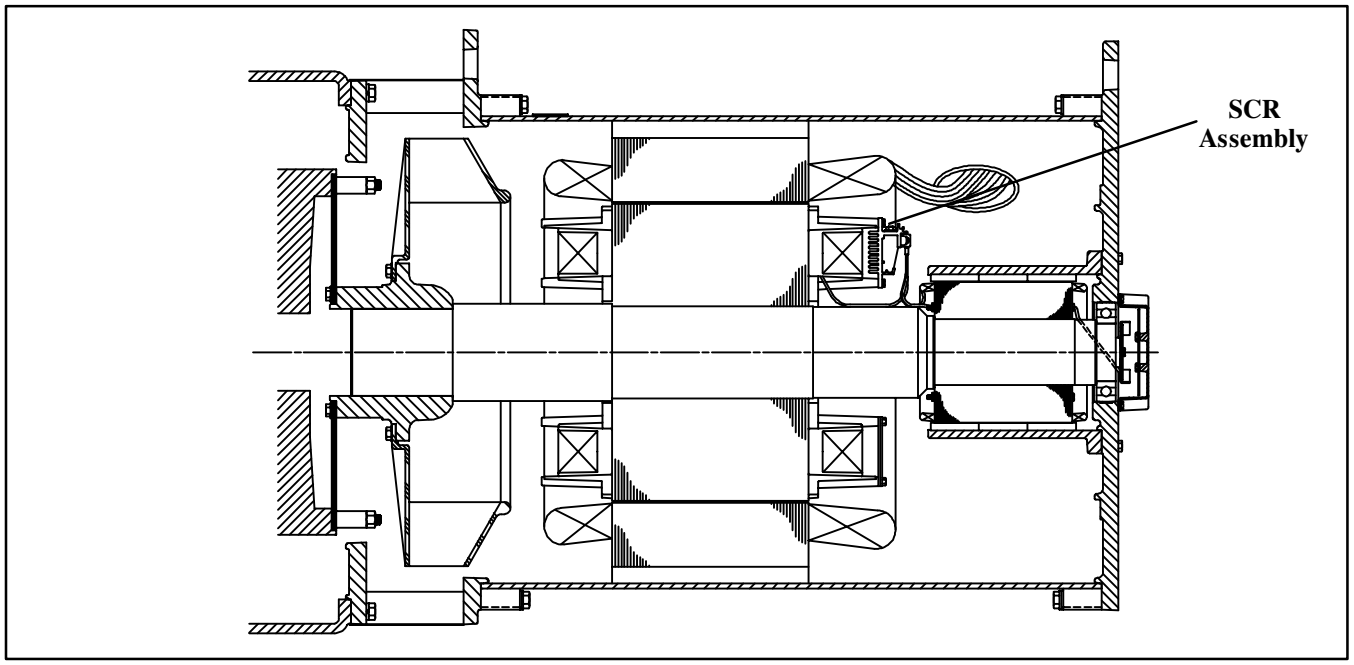

Figure 3. SCR Installation (Alternator Side View)

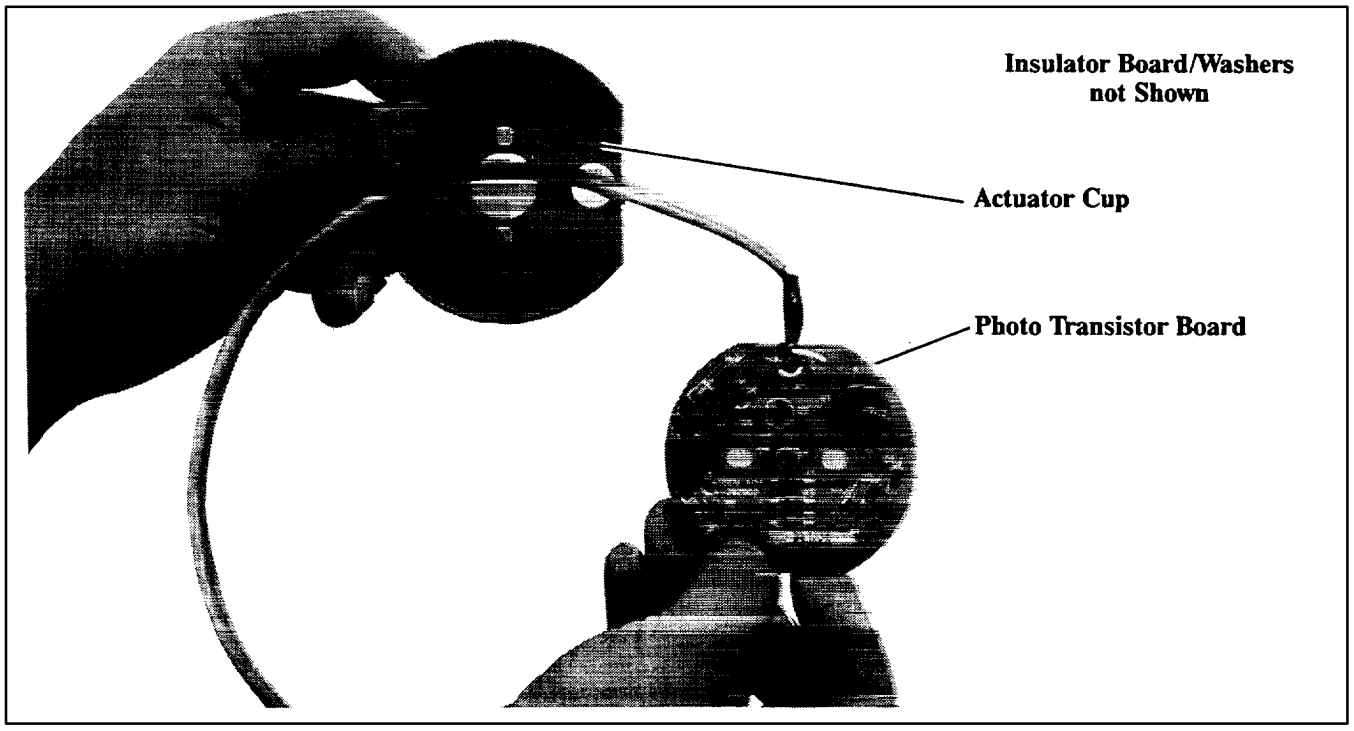

Figure 4. Installing Photo Transistor Board

13. Cut off excess lead wire from photo transistor board; leave enough wire to reach the SCR assembly. Strip 2−3 in. (50−75 mm) of gray insulator jacket from lead. Strip about 1/4 in. (6 mm) of insulation off each wire and crimp on terminal (X−431−25). Before connecting leads to SCR assembly, secure leads to rotor shaft with tie wrap (X−468−7).

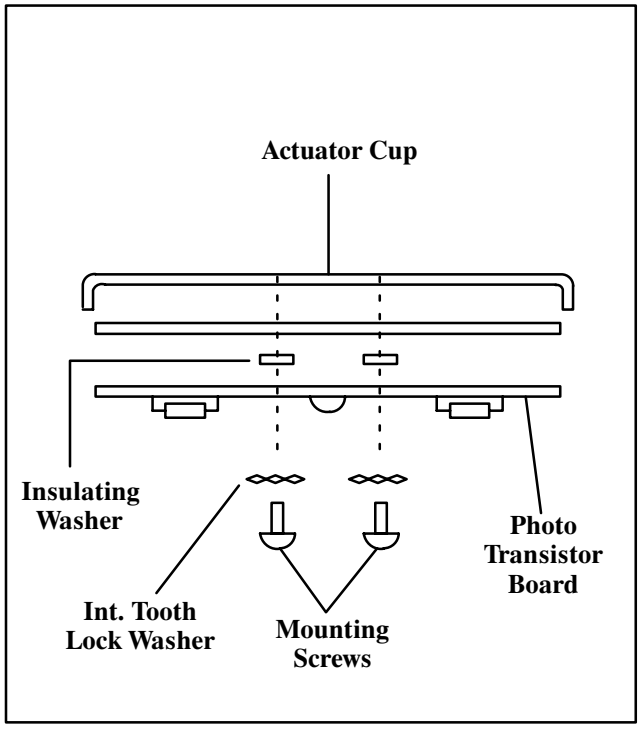

Figure 5. Photo Transistor Board Mounting

14. Connect one rotor field lead to SCR "F−" terminal and remaining rotor field lead to SCR "F+" terminal. See Figure 6. Connect exciter armature leads to SCR "AC" terminals. Connect photo board black wire to SCR "AC" terminal, green wire to "G" terminal, red wire to "F+" terminal, and white wire to remaining "AC" terminal. Tighten SCR assembly terminal screws to secure electrical connections.

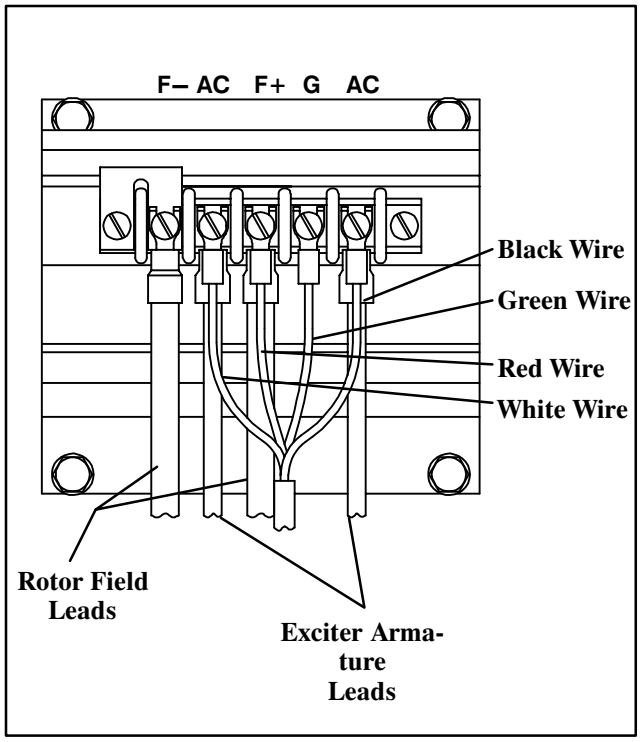

Figure 6. SCR Assembly Wiring

15. Remove four screws and washers securing counterweights to rotor. See Figure 7. Position new counterweight (257562) in parallel with existing counterweights and secure in same position on rotor. (The additional counterweight is necessary to counteract the additional weight of the SCR assembly.) Secure counterweights with original hardware.

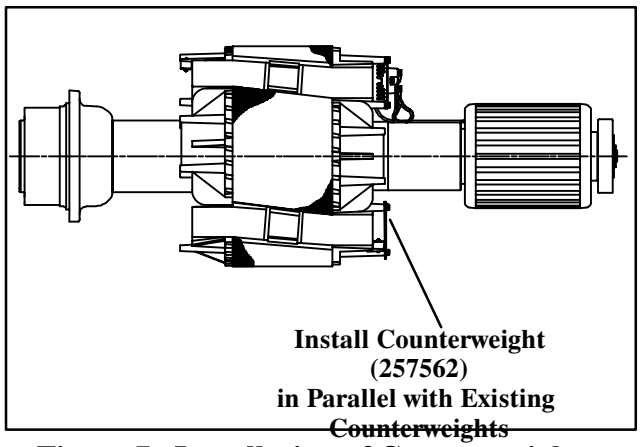

Figure 7. Installation of Counterweight

16. If end bracket was removed to install kit, replace end bracket tolerance ring (available from generator service parts). Since end bracket removal is normally not necessary to install the kit on larger sets, a tolerance ring is not included with the kit.
17. Replace end bracket (if removed) and secure with four bolts. Torque bolts to 80 ft. lbs. (108 Nm).
18. Replace LED board and housing.
19. Reconnect speed sensor leads. Set speed sensor air gap at 0.020 in. (0.508 mm). See Figure 8.
20. Reinstall controller and junction box. Reconnect controller wiring harnesses.
21. Reconnect starting batteries (negative lead last) and power to battery charger (if equipped).

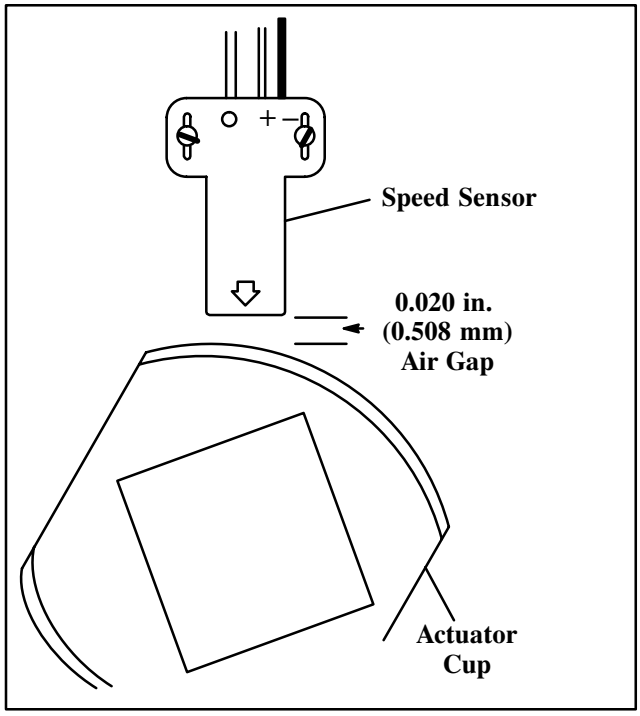

Figure 8. Speed Sensor Air Gap

PARTS LISTING

Description	Qty.	Part No.
SCR Assembly	1	A−258939
Photo Transistor Board	1	B−292902
Screw, HC 10−24 x 5/8	6	X−117−5
Washer, internal tooth 1/4	6	X−22−9
Terminal, spade 1/4	4	X−285−11
Terminal, female 1/4	4	X−431−25
Tie, cable	2	X−468−7
Washer, insulating	2	243321
Counterweight	1	257562
Insulator, board	1	257850