



# MAINTENANCE INSTRUCTION

## AR10 TRACTION GENERATOR OVERHAUL — DISASSEMBLY

### INTRODUCTION

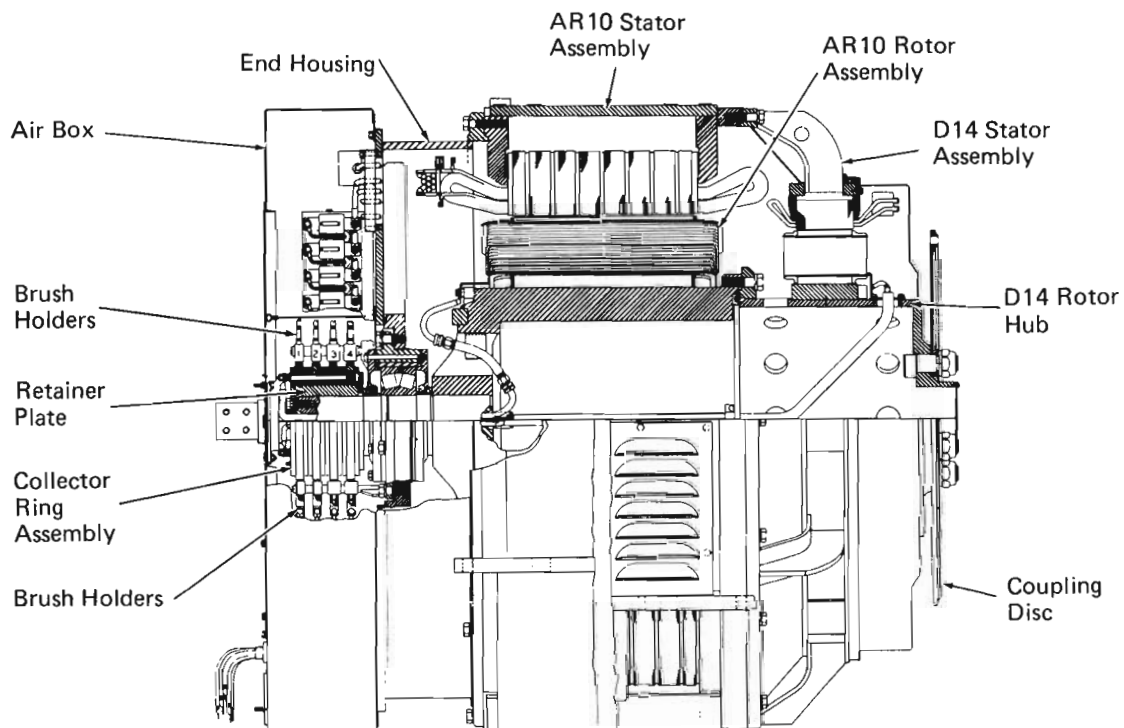
This bulletin contains detailed instructions covering the complete disassembly of traction generators after they have been removed from a locomotive. For information on the AR10 rectifier assemblies see Maintenance Instruction 3317-2.

After the generator is removed, the outside of the generator should be thoroughly cleaned to remove all dirt, oil, and grease that may have accumulated while in service. This will provide cleaner working areas and will prevent dirt from entering the generator during disassembly. The importance of cleanliness cannot be over-emphasized during all phases of work, particularly when handling such vital components as bearing assemblies.

### DISASSEMBLY

Perform disassembly of traction generator, Fig. 1, as follows:

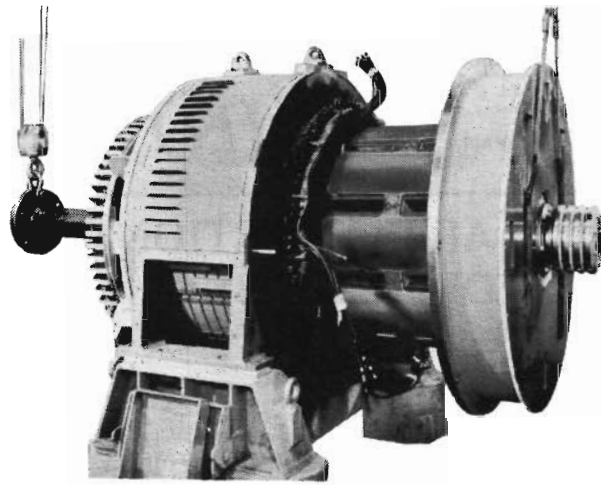
1. Mount the generator on a sturdy stand at a suitable height from the floor.
2. Remove all covers from the generator assembly.
3. Disconnect leads to brush holder and filter assemblies.
4. Remove bolts holding air box to end housing and carefully remove air box.
5. Remove collector ring cover, where used.



18589

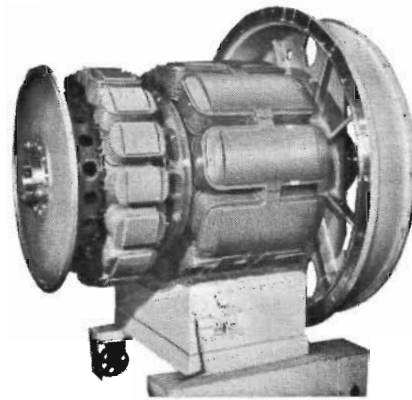
Fig. 1 - AR10 Generator Cross-Section

6. Remove brush holders and bracket assembly.
7. Remove rectifier bank assemblies from end housing assembly.
8. Remove cleat assemblies securing stator leads to end housing.
9. Remove D14 stator closure assembly.
10. Apply arbor fixture, as detailed in File Drawing listed in Service Data, to the spider bore of rotor, and attach a wire cable to the arbor fixture.
11. With the aid of a crane, raise the arbor fixture until the air gap is equal around the circumference of the rotor. With the aid of a second crane and a covered cable, raise the front end until the cable is taut.
12. Remove bolts securing end housing to stator.
13. Insert three 3/4"-10 jack screws equally spaced around the end housing in the bolt holes from which the end housing to stator bolts were removed. Turn jack screws until end housing is separated from stator.
14. Carefully remove the rotor assembly from the stator, Fig. 2, moving it towards the front end of the assembly until it clears the stator assembly and can be rested on a stand, Fig. 3.
15. If necessary, the coupling disc and D14 rotor can be removed from the AR10 rotor.
16. Disconnect leads from collector rings.
17. Remove the four bolts securing the retainer plate to the end of the shaft and remove the retainer plate.
18. Remove the four 3/8"-16 bolts securing the collector rings to the collector ring housing, which are located in the slip ring face between the lead connection terminals.
19. Install four 3/8"-16 puller studs in the bolt holes and secure in collector ring housing.
20. Install puller plate and remove collector ring assembly.
21. Remove puller studs from collector ring assembly and reinstall four 3/8"-16 bolts securing the collector rings to the collector ring housing. Torque bolts to 7 to 9 ft-lbs.



18586

Fig. 2 – Removing Rotor From Stator

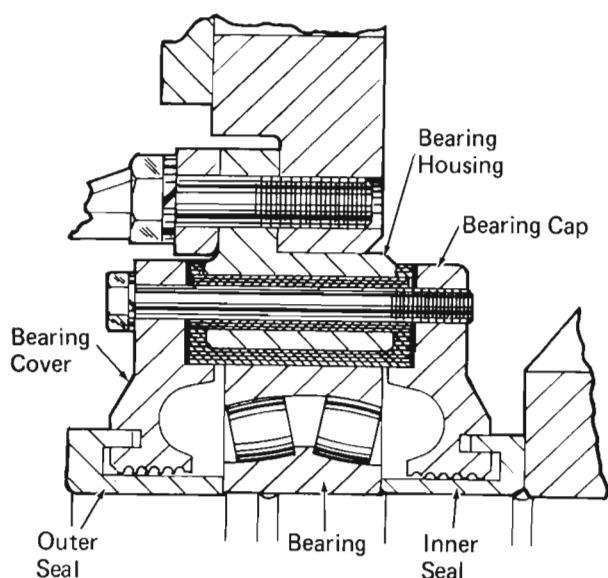


17533

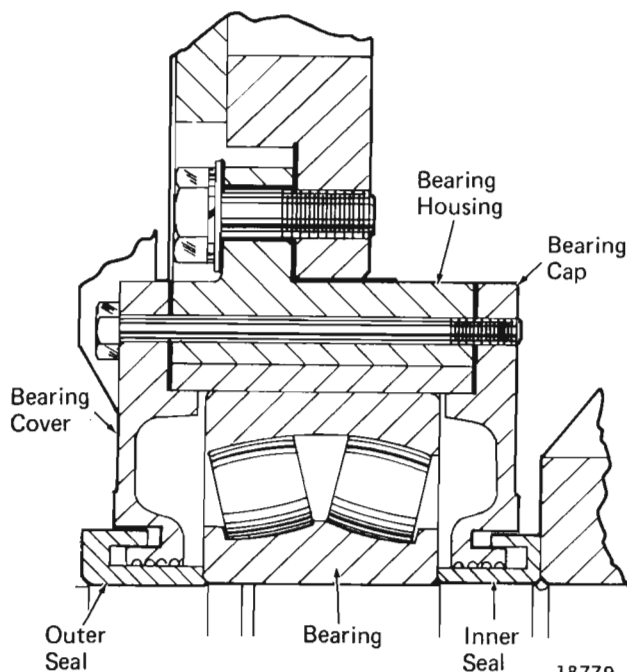
Fig. 3 – Rotor Assembly Removed From Stator

NOTE: All puller tools used to remove the collector ring and the bearing assembly may be fabricated as detailed in File Drawing listed in Service Data.

22. Attach puller studs and puller to outer bearing seal and remove seal, Fig. 4.
23. Remove bearing cover bolts and remove cover.
24. Using a crane and end housing holding fixture, as detailed in File Drawing listed in Service Data, remove end housing and bearing housing from rotor assembly and place in horizontal position with mounting flange down.
25. Remove bolts securing bearing housing to end housing and remove bearing housing, being



Bearing 9427171



Bearing 8004475

Fig. 4 - Bearing Assembly

careful not to damage the insulation on the O.D. of the bearing housing between the end housing and bearing housing.

26. On units equipped with a large bearing, inspect bearing housing sleeve for correct configuration. The latest sleeve is hardened, has

an increased inside diameter, and has been nickel plated to improve resistance to fretting. (See Sec. 2 for sleeve I.D. dimension.)

If sleeve is not the latest configuration press out the old sleeve and replace it with the new design sleeve.

**CAUTION:** Do not wash bearing housing in caustic solution or cob blast the housing bore.

27. Apply puller studs and puller to inner bearing cap and remove cap and bearing. Some rotor shafts have been drilled for float-off bearing removal. The float-off method of bearing removal utilizes a drilled passage in the end of the shaft and a hydraulic pump to force high pressure oil between the bearing and shaft surfaces, releasing the bearing from the shaft. The following procedure should be used for this method of bearing removal.

- a. Be sure the threads and pressure fitting seat are clean in the drilled passage in the shaft.
- b. Screw a 1/8"-27 adapter nipple into the shaft and tighten.
- c. Connect adapter nipple to the hydraulic pump with the high pressure hose assembly. Close screw on pump and operate lever to build up pressure. When pressure becomes high enough, bearing will be released from the shaft and easily removed with use of pulling plate and jackscrews.
- d. Remove hydraulic pump and nipple.

28. Remove bearing inner seal using heating torch and pry bars.

29. Remove bolts securing the D14 stator assembly to the generator stator assembly being sure to support the D14 stator properly. Install 3/4"-10 jack screws and remove the D14 stator assembly.

For generators equipped with D14 alternators, refer to M.I. 3306 for information on the D14 alternator.

WARNING: A rotor assembly involved in a bearing failure that has resulted in heat damage to the insulation on the cables passing through the center of the shaft must have the shaft replaced. The heat resulting from the bearing failure could have reduced the amount of interference fit of the shaft in the spider bore. Do not attempt to pick up or support this assembly with the use of an eye bolt or pad mounted on the end of the shaft.

## SERVICE DATA

### SPECIFICATIONS

#### WEIGHTS

Generator (complete)	16,110 lbs.
AR10 stator	7000 lbs.
AR10 - D14 rotor assembly	6775 lbs.
End housing	900 lbs.

### EQUIPMENT LIST

Hydraulic pump	8309742
End housing holding fixture	File Drawing 753
Arbor fixture	File Drawing 754
Generator bearing puller assembly	File Drawing 755