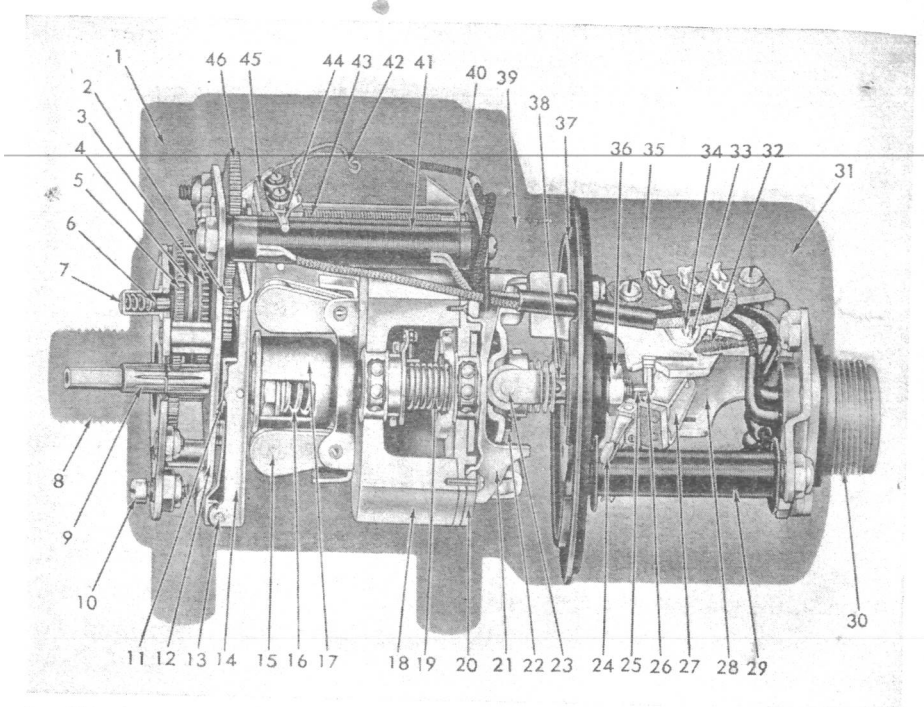
contains a fuse for the system, a power transformer, resistors and condensers, and four vacuum tubes. Figure 392 shows the internal wiring of the amplifier. The amplifier receives electric signals from the control units of the system and amplifies these signals to cause operation of the



ig. 390. A phantom view of the turbo-governor. (1) Housing cover plate; (2) clutch ear; (3) counter-clockwise drive gear; (4) clutch disk; (5) clockwise drive gear; (6) utch-disk shaft; (7) clutch spring; (8) threaded connector; (9) splined governor shaft; 0) clutch-lever adjusting screw; (11) thrust collar; (12) mounting bracket; (13) clutch-ver pivot; (14) clutch lever; (15) flyball weight; (16) governor spring; (17) spring urrel; (18) inertia rotor; (19) torque spring; (20) locking plate; (21) cam plate; (22) uide; (23) cam-roller assembly; (24) potentiometer wiper; (25) push rod; (26) cross-ad; (27) wiper arm; (28) frame assembly; (29) potentiometer winding; (30) connector; 1) accelerator cover; (32) return spring; (33) fulcrum adjustment; (34) wiper-arm vot; (35) terminal block; (36) nut on governor shaft; (37) bearing plate; (38) governor aft; (39) governor housing; (40) declutching extension arm; (41) potentiometer wind-g; (42) collector bar; (43) lead screw; (44) potentiometer wiper; (45) lead-screw nut; 5) lead-screw drive gear. (Courtesy Minneapolis-Honeywell Regulator Co.)

aste-gate motor by energizing one of the waste-gate-motor windings. ne current provided by the amplifier to operate the motor will be her in phase with the line current or 180° out of phase. The phase this output current, which is the same as the phase of the incoming nal, controls the direction of rotation of the waste-gate motor.

The waste-gate motor (Figure 393) is the operating unit which moves

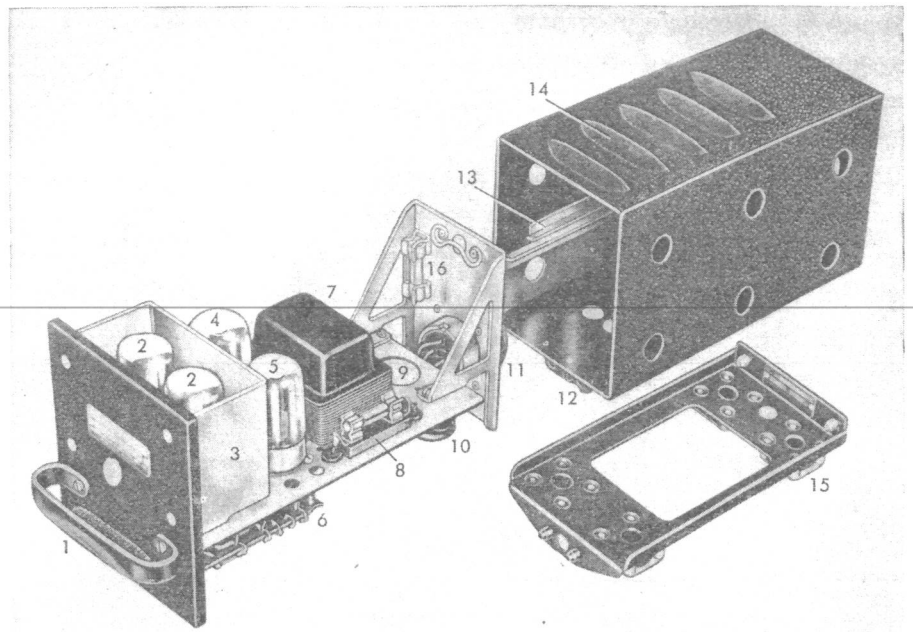


Fig. 391. A turbo-control system amplifier. (1) handle; (2) 705 tubes; (3) Heat Shield; (4) 7 x 4 tube; (5) 7 F 7 tube; (6) resistor card; (7) Power transformer; (8) Fuse; (9) Amplifier phase condenser; (10) shielded grid lead; (11) AN connector; (12) Dzus fastener; (13) guide rails; (14) Louvers; (15) Lord shock mounts; (16) spare fuse. (Courtesy Minneapolis-Honeywell Regulator Company)

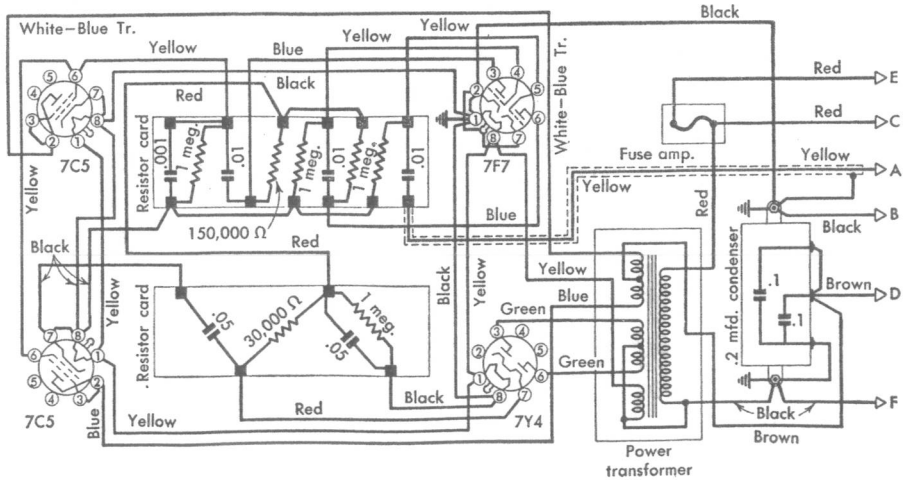


Fig. 392. The internal wiring of the amplifier. (Courtesy Minneapolis-Honeywell Regulator Company)

the turbo-waste gate in response to signals from the control units of the system. It is a two-phase, a-c motor and it transmits power to a crank arm through a train of speed-reduction gears. Figure 395 is a cutaway

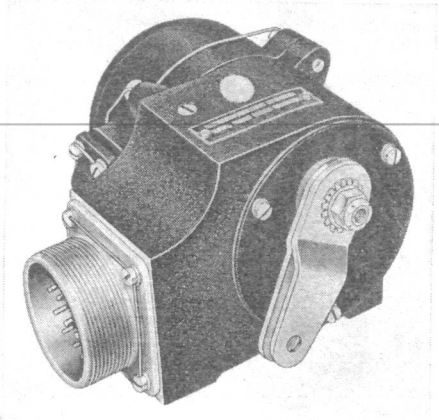


Fig. 393. View of the waste-gate motor showing crank-arm end. (Courtesy Minneapolis-Honeywell Regulator Company)

view of the waste-gate motor. The crank arm of the motor is connected to the waste gate of the turbo-supercharger by a mechanical linkage.

The stator assembly of the motor consists of eight pole pieces, each of which is wound with a coil of wire. Alternate coils are connected in

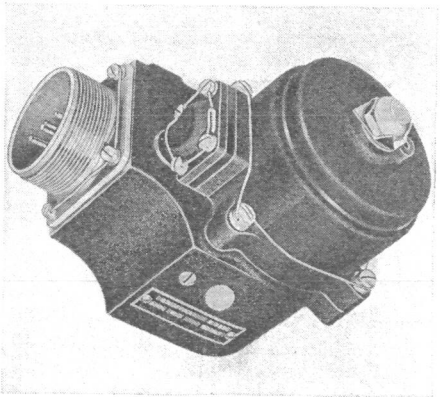


Fig. 394. View of the waste-gate motor showing stator end. (Courtesy Minneapolis-Honeywell Regulator Company)

series. Four of the coils form a fixed or line exciting winding, and four form an amplifying exciting winding. If the coils were numbered in rotation, 1, 3, 5, and 7 would form one winding, and 2, 4, 6, and 8

would form the other. Either set of coils may be used as the line exciting winding depending on the desired rotation of the motor.

The armature is of laminated steel with one brass lamination at each end. It is connected to the armature shaft by means of the clutch mechanism.

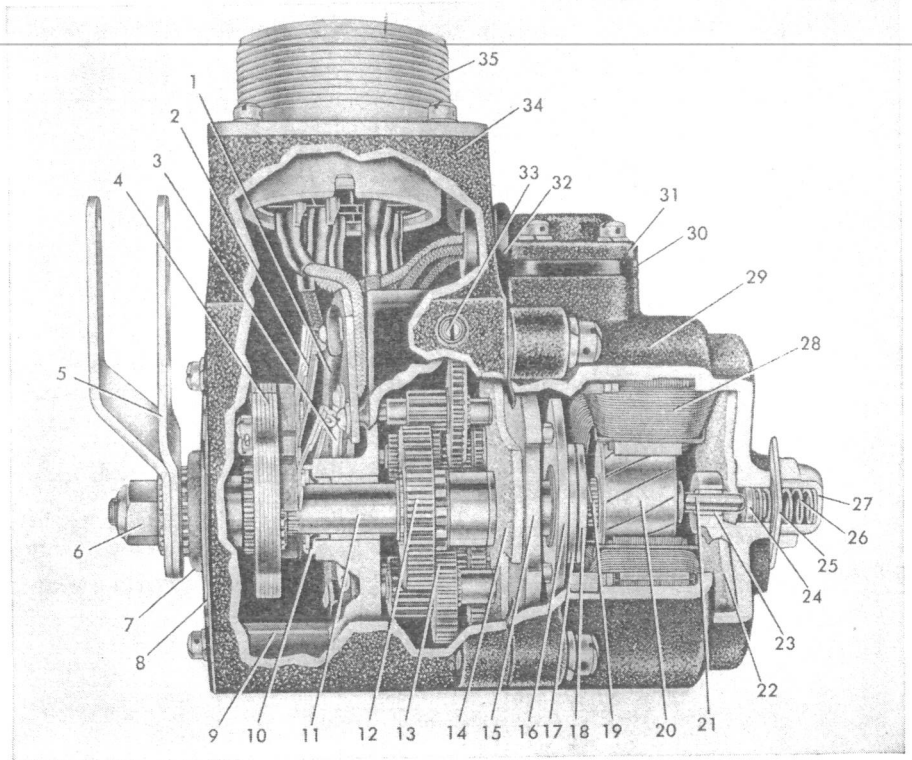


Fig. 395. A cutaway view of the waste-gate motor. (1) Potentiometer winding; (2) potentiometer wiper; (3) collector strip; (4) stop plate; (5) crank arm; (6) castellated nut; (7) dust washer; (8) cover plate; (9) mechanical stop; (10) Neoprene oil seal; (11) output shaft; (12) bull gear; (13) gear train; (14) felt oiler; (15) armature-assembly mounting plate; (16) brake plate; (17) brake disk; (18) clutch disk; (19) clutch spring; (20) armature; (21) armature shaft; (22) felt oiler; (23) sleeve bearing; (24) thrust plug; (25) brake-spring lock washer; (26) brake spring; (27) brake-spring cap; (28) stator coil; (29) stator housing; (30) terminal block; (31) terminal block cover; (32) rubber grommet; (33) oil plug; (34) gear housing; (35) connector. (Courtesy Minneapolis-Honeywell Regulator Company)

The clutch and brake mechanisms (Figure 396) are located together at the drive end of the motor assembly. The clutch is a safety device which prevents damage to the gear train when the potentiometer wiper assembly strikes a mechanical stop. The brake stops the shaft rotation whenever the amplifier phase winding is no longer energized. The