

MOTOR-DRIVEN RHEOSTATS

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1. GENERAL

1.1 Scope

1.11 This section covers installation and adjustment of KS-15571 and KS-15743 motor-driven rheostats. These rheostats are used in 301C, 302A, 410A, 410B, and 702C power plants. Figure 1 shows a portion of a typical motor-driven rheostat.

1.2 Associated Information

1.21 Coordinate the information in this section with test of the power plant in Handbook 21.

1.3 Precautions

1.31 Before starting any work on equipment which is in service, consideration should be given to the section in Handbook 0 which covers the following:

- 1.311 Cooperation with the telephone company.
- 1.312 Precautions and safeguards to prevent service interruptions.
- 1.313 Personnel hazards.
- 1.314 General protection of working equipment.

1.32 Before making any tests or adjustments not requiring power, be certain to open the circuit so that equipment associated with the rheostat cannot be started, causing damage to personnel or equipment.

1.33 Some rheostats may be connected to potentials high enough to produce severe shocks. If possible, the source of potential shall be removed from the apparatus before cleaning and lubricating.

1.4 Inspection

1.41 Make an inspection of each rheostat for damage, missing parts, defects, finish, etc. Check that nameplate data agrees with job drawings. If defects are found, originate a J.I.M. in accordance with the Job Clerical Handbook.

1.5 Description

1.51 A small shunt-wound dc motor operates the rheostat contact arm through a speed reducing mechanism. Adjustable limit switches are provided to stop operation of the motor at each end of the contact arm travel or where desired.

2. INSTALLING EQUIPMENT

2.1 Tools

2.11 No special tools are required for installing or adjusting the rheostat. Sufficient tools will be found in tool kits already on the job.

2.2 Supplies

Code	Description
KS-2423	Cloth, Twill Jean
KS-13148 List 1	Paper, Abrasive
R-3250	Trichloroethylene
KS-16326	Oil, Medium Light (220-260 S100)

3. LUBRICATION

3.1 Motor sleeve bearings of the waste-packed type shall be checked and lubricated in accordance with the section in this handbook on Motors and Starters - General using KS-16326 oil.

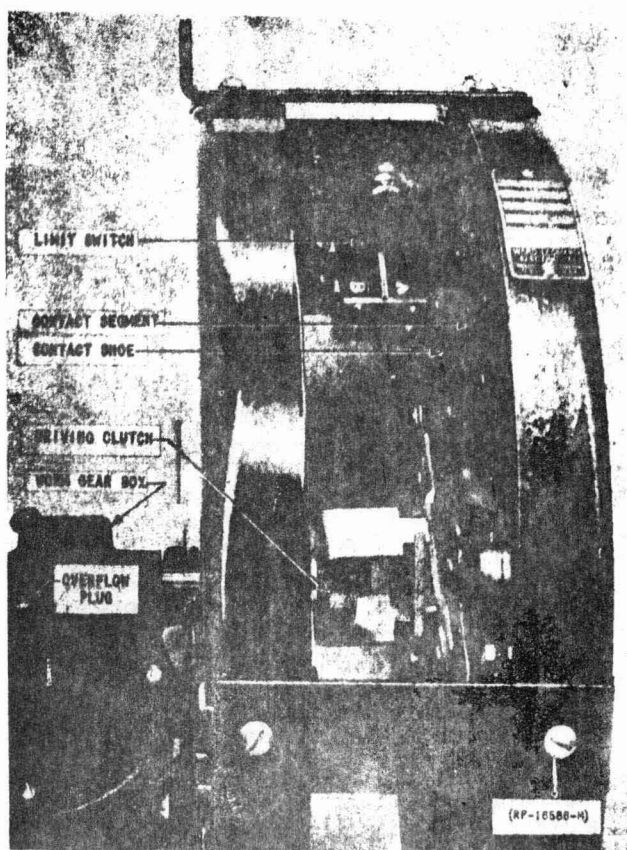


FIG. 1 TYPICAL MOTOR-DRIVEN RHEOSTAT
(PAR. 1.1)

3.11 If no fittings are provided on the motors the bearings are grease packed and require no lubrication at installation.

3.2 Rheostat plate bearings do not require any lubrication.

3.3 Speed reduction gear boxes are filled at the factory with special grease and do not require any lubrication during installation.

3.4 Add one or two drops of KS-16326 oil to limit switch rollers.

4. CONTACT SURFACES

4.1 No lubricant shall be applied to contact surfaces of these rheostats.

4.2 The contact surfaces shall be cleaned when necessary.

4.21 Clean contact segments by wrapping KS-13148 List 1 Abrasive Paper around a block of wood of convenient size. Hold the abrasive paper squarely and firmly against the surface with the block and move the abrasive over the surface to be cleaned. Then wipe surface with a clean KS-2423 cloth moistened with trichloroethylene, after which wipe with a clean dry cloth.

4.22 Clean contact shoes by raising shoe with an orange stick and inserting a strip of KS-13148 List 1 abrasive paper between shoe and associated contact surface, abrasive side toward the shoe. Release shoe and without applying additional pressure withdraw the abrasive. Repeat if necessary. Wipe off any particles deposited on contact surfaces with a clean dry cloth.

NOTE: Contact shoe shall not be lifted for cleaning when associated motor generator is operating. Be sure the control for the motor generator is arranged to prevent starting until the contact shoe has been cleaned.

5. LIMIT SWITCHES

5.1 A limit switch is provided to open the motor circuit at each end of the operating arm travel. The operating point of each switch is adjustable. They are factory set to open when the leading edge of the contact shoe is between the last two contact segments. Limit switch A controls the "all-resistance-out" position (high voltage limit) and switch B controls the "all-resistance-in" (low voltage limit) position. Switch A adjustment will not have to be changed but setting of switch B may have to be adjusted in accordance with test of the power plant in Handbook 21.

5.2 Operation point of limit switch A may be adjusted by turning the screw located near the end of the contact arm. Operation point of switch B may be adjusted by shifting position of the operating lever on the shaft. This operating lever is held to the shaft by setscrews.

6. TIME OF OPERATION

6.1 The time for the contact arm to travel from one end to the other should be

Min. 44 Sec. Max. 76 Sec.

6.2 Check the operation time at some convenient point in the test of the power plant in Handbook 21.

6.3 If operation time is satisfactory then motor torque, driving clutch, bearings and other motor requirements should be considered satisfactory.

6.4 If operating time is not within limits and the trouble cannot be found or remedied originate a J.I.M. in accordance with the Job Clerical Handbook.

7. DRIVING CLUTCH

7.1 The driving clutch shall be adjusted to have necessary frictional force to start and move the operating arm through-out its range.

7.2 If the clutch requires adjustment loosen the screw which tightens the two halves on the shaft. Then screw the clutch against the spring washer which forms a frictional connection with the part to be driven. When properly adjusted the clutch will slip before the motor stalls.

→ Arrowed lines indicate new or changed information.

[Vertical line at side of paragraph indicates requirements.

8. MOTOR

8.1 Refer to the section in this handbook on Motors and Starters - General for information on the motor. This includes brushes, commutator, commutation, noise and vibration and temperature.

Engineer of Installation

Reason for Reissue:

- (1) To change contact cleaning procedure, Par. 4.
- (2) To change minimum operating time, Par. 6.1.
- (3) To indicate contacts shall have no lubrication.

Replaces Section 11 dated 2-19-59.