

BELL SYSTEM PRACTICES
Teletypewriter Stations

SECTION P36.541
Issue 2, May, 1954
AT&T Co Standard

NO. 15 TELETYPEWRITER
MAINTENANCE INSPECTIONS AND TESTS

1. GENERAL

- 1.01 This section specifies the procedures for carrying out the field maintenance of the No. 15 teletypewriter.
- 1.02 This section is reissued to drop the material from the addendum, to eliminate some steps which field experience indicates should be left out, to add several precautionary items, and to change the rating from Provisional Standard to Standard.
- 1.03 Reference should be made to the Checking List (or index) of these Practices for information regarding the sections covering general cleaning procedures, lubrication, apparatus requirements and adjustments, etc.
- 1.04 When it is necessary to make any adjustment, time will be saved and the best adjustment obtained if all adjustments affected are checked in the order specified in the Apparatus Requirements and Adjusting Procedures, and readjustments made as required.
- 1.05 Troubles following maintenance visits have been noted in some cases to be due to the methods of carrying out the maintenance work. The instructions in this section have been arranged with the view of avoiding such troubles and it is therefore important that the Practices be very carefully followed.

2. ROUTINE MAINTENANCE PROCEDURES

- 2.01 The periodic cleaning, lubrication and inspection work should be carried out in the order shown. This work should be confined to the items specified except for the correction of any condition noted, not mentioned herein, which in the judgment of the repairman will cause trouble before the next regular inspection. In this connection, avoid readjustments or parts replacements which are not considered essential.

- (1) Obtain the necessary authority for the release of the apparatus unless the work is being done out of hours. In case the service is to be interrupted during the inspection period, proper authority should also be obtained for the release of the circuit.
- (2) Disconnect the power.
- (3) Remove cover.
- (4) Clean, lubricate and inspect in accordance with the detail procedure given under Part 3.
- (5) Reconnect the power.
- (6) Check the adjustment of the rectifier, if employed.
- (7) If a motor-generator set is employed start and stop it, watching its performance carefully. If it fails to start normally or does not run quietly, investigate and clear the trouble.
- (8) If excessive sparking of the teletypewriter motor brushes is now observed, clean the commutator.
- (9) For governed type motors, observe the condition of the governor slip rings. If there is pitting or wear, clean the governor rings and brushes. Replace if necessary.
- (10) If motor is of governed type, check speed after it has run for at least 3 minutes. If the speed is as much as 15 spots in 10 seconds, either fast or slow, or if the speed is variable, examine the governor contacts and replace them if necessary.
- (11) Make final check of speed, if motor is of governed type, with machine running open, and adjust if required.
- (12) Replace cover and wipe off cover and glass.
- (13) Check Items 2 to 5, inclusive, under Paragraph 4.01 to determine that the machine is functioning properly.
- (14) Refer to BSP Section P30.002. Make tolerance check ← test where applicable. Measure orientation range on local test to check condition of teletypewriter. If receiving only, measure on line, or arrange for test with testboard. If the orientation range is unsatisfactory, inspect the line relay for adjustment and condition. If required clean the contacts and adjust the relay. Do not disturb range finder ← setting unless necessary.
- (15) Make such additional tests as may be required by auxiliary features provided, for example, station sets employed for TWX use.
- (16) If range finder has been disturbed lock the range finder in the correct position.

- (17) Check to see that line test key is in line position.
- (18) Notify attendant that machine is again ready for service, or, if out of hours, **place machine in normal condition for the usual start of service.**

3. DETAILS OF CLEANING, LUBRICATING AND INSPECTING

3.01 The detailed items to be covered in the cleaning, lubricating and inspecting are given in the paragraphs below.

(A) Cleaning

3.02 The cleaning should ordinarily be confined to the items shown.

- (1) Clean out the top of the keyboard around the line test key with a dry cloth.
- (2) Wipe off the frame around the keyboard with a dry cloth.
- (3) Wipe off the lower carriage track, the rear carriage track and the ribbon oscillator slide bar with a dry cloth.
- (4) Clean the type if found to be gummed or dirty.
- (5) Clean the key caps if these are found to be excessively dirty.
- (6) For governed type motors clean the motor brushes and the brush holders.

(B) Lubrication

3.03 After all cleaning has been completed lubricate the machine in the order shown below. Apply an amount of lubricant just sufficient for the purpose so that it will not be necessary to wipe off any excess oil or grease, as this tends to work dirt and grit into bearing surfaces.

- (1) Apply oil to all points requiring lubrication with oil (including points requiring "oil-grease-oil"). Complete this before applying any grease.
- (2) Apply grease to all points requiring lubrication with grease (including points requiring "oil-grease-oil").
- (3) Now apply oil to all points where the combination of "oil-grease-oil" is specified.
- (4) After the lubrication has been completed, the selector armature or armature lever and the magnet cores should be cleaned by drawing between them a piece of KS-7187 paper or equivalent. In the same manner clean the stopping surfaces of the armature front and backstops on pulling magnets.

(C) Inspection

3.04 During the processes of cleaning and lubricating, observe the condition of the machine with respect to the following points in so far as can be observed without any dismantling and detailed checks or disturbance of adjustments. Such items as are likely to cause trouble before the next scheduled inspection should be corrected.

- (1) Worn parts, loose parts, parts out of place, parts obviously out of adjustment, or likely to cause trouble.
- (2) Red or rust colored deposit indicates wear which should be investigated and, if necessary, the parts replaced. If the parts are not worn sufficiently to require replacing, special care should be taken in lubricating to see that the oil or grease gets into the bearing parts.
- (3) Bent parts or elongated springs should be investigated and replaced if found abnormal. Do not elongate or cut a spring to adjust the tension. Use a new spring.

3.05 Check the following specific items to make certain that they are in satisfactory condition:

- (1) Platen, for wear.
- (2) Motor pinion and main gear, for wear, alignment and adjustment.

4. TROUBLE VISIT INSPECTIONS

4.01 When a machine is visited on account of a trouble report, the following items should be checked after the trouble has been cleared or during the process of clearing it.

- (1) Speed, if motor is of governed type, after at least 3 minutes of operation unless motor is already warm. Should be steady under load. Adjust if required.
- (2) The printing of all type, for alignment. ←
- (3) Appearance of copy, for strength of printing blow, condition of ribbon and left-hand margin. There should be no embossing of letters on the back of copy for single-copy work nor on the last copy of multiple-copy work. (Embossing of punctuation marks is permissible.)
- (4) All functions for correct operation, including margin signal bell if used.
- (5) Ribbon feeding and reversing mechanism, for correct operation.
- (6) If it has been necessary to measure orientation range be sure to lock range finder in correct position after test is completed. (See Item 16 in Paragraph 2.01.)