

BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

SECTION G81.270.1
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AT&T Co Standard

STRAND DYNAMOMETER

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1. GENERAL

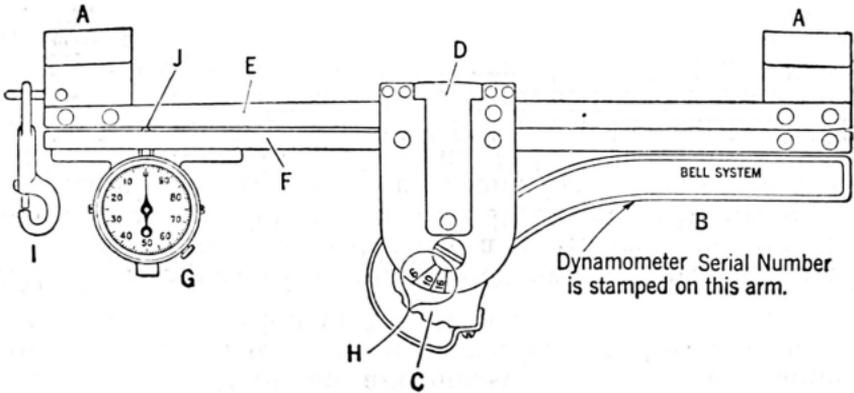
- 1.01 This section describes the strand dynamometer and covers its care and maintenance.
- 1.02 This section replaces Issue 1 of Section G81.270. Information on the use of the strand dynamometer is contained in Section G51.124.2.

2. DESCRIPTION

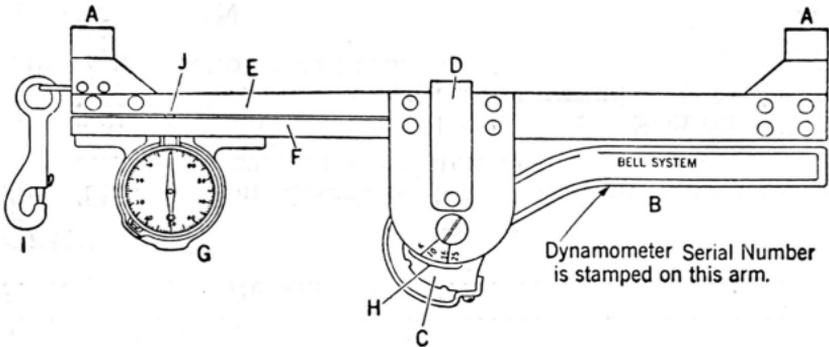
2.01 The strand dynamometer is a device intended for measuring tension in 6M, 10M, and 16M strand. When required it may also be calibrated for use on 25M strand. The strand dynamometer consists essentially of a means for deflecting the strand out of line and measuring the force tending to restore the strand to a straight line. This restoring force is a measure of the tension in the strand.

2.02 Two styles of dynamometer are in use. The earlier design is equipped with a lever cam having three notches, one each for use on 6M, 10M, and 16M strand. The later design has a two-notch cam, one for use on 6M and 10M strands and another for 16M strand. In both styles of dynamometer, the 16M notch is also used for measuring tension in 25M strand when the tool has been calibrated for that strand size. The two styles of dynamometer are shown in the following illustrations.

STRAND DYNAMOMETER WITH 3 - NOTCH CAM



STRAND DYNAMOMETER WITH 2 - NOTCH CAM



- "A" Hooks by which dynamometer is hung on strand.
- "B" Cam Handle which is pulled down to operate cam "C".
- "C" Cam at end of handle which lifts plunger "D".
- "D" Cam Plunger for pushing strand out of line.
- "E" Top bar of dynamometer.
- "F" Bottom bar of dynamometer.
- "G" Indicator showing dynamometer dial readings.
- "H" Lines showing different handle positions for various sizes of strand.
- "I" Snap hook for attaching dynamometer to loop in hand line.
- "J" Plunger of indicator.

2.03 Each strand dynamometer is furnished in a metal carrying case which also contains a line thermometer and a calibration table or calibration curves.

3. CARE AND MAINTENANCE

3.01 The dynamometer is a delicate instrument and should be treated as such. Do not drop it or jar it in any manner, either in or out of the carrying case. When working aloft, the dynamometer should preferably be raised and lowered with a hand line, taking care to keep it from swinging against the pole or being jarred in any other manner.

3.02 Do not set the dynamometer down in dirt or sand. Take particular care to keep dirt, oil, grease, and other foreign matter away from the indicator plunger.

3.03 Keep the dynamometer in its carrying case when not in actual use. Do not place a dynamometer in a case which contains a calibration chart or calibration curves having a serial number differing from that on the dynamometer.

3.04 Do not use the dynamometer on strand sizes for which it is not calibrated unless specific instructions are obtained. Do not overload the dynamometer by using it for tensions exceeding 10,000 pounds.

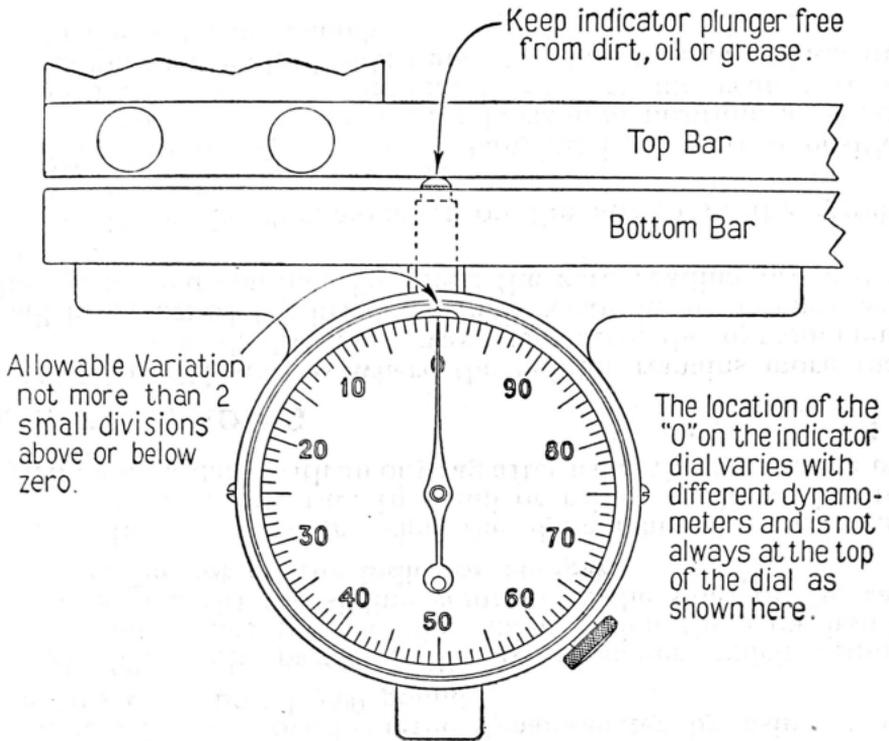
3.05 The only parts of the dynamometer which require oiling are (a) the pins about which the cam handle revolves and, (b) the sliding contacts at the sides of the **cam plunger**. **Do not oil the indicator plunger.**

3.06 In dry weather, wipe the dynamometer occasionally with an oily rag. In damp or rainy weather, wipe the dynamometer daily with an oily rag after using the dynamometer.

4. ZERO READING

4.01 In all instances where the pointer remains more than two small divisions away from zero, the dynamometer shall be returned for inspection and repair in accordance with the established routine. To check the zero reading proceed as follows:

- (1) Place the dynamometer on the strand in the regular manner.
- (2) With the dynamometer hanging in a vertical position and the cam handle in a horizontal position, as shown in Paragraph 2.02, the dial pointer should read zero or within two small divisions above or below zero, as indicated in the following sketch.



- (3) If the dial pointer is more than two small divisions above or below the zero line, work the cam handle back and forth (to the proper strand notch and return) several times.
- (4) If no change takes place, look for dirt or other foreign matter between the indicator plunger and the top bar. Should any be found, remove it and recheck the zero reading.
- (5) If the dial pointer is still more than two small divisions above or below the zero line do not use the dynamometer; it should be returned for recalibration. Do not disassemble the indicator or attempt its readjustment.

5. REPAIR AND RECALIBRATION

5.01 If a dynamometer requires repair or recalibration, it should be returned in its carrying case in accordance with local instructions.