

19A AND 20A LINE MESSAGE REGISTERS

REQUIREMENTS

1. GENERAL

1.01 This section covers the requirements for the 19A and 20A line message registers.

1.02 Whenever this section is reissued, the reason for reissue will be listed in this paragraph. This issue does not affect the Equipment Test List.

1.03 Reference shall be made to Section 020-010-711 covering general requirements and definitions for additional information necessary for the proper application of the requirements listed herein.

1.04 ***Asterisk (*)***: Requirements are marked with an asterisk when to check for them would necessitate dismantling or dismounting of apparatus or would affect the adjustment involved or other adjustments. No check need be made for these requirements unless the apparatus or part is made accessible for other reasons or its performance indicates that such a check is advisable.

1.05 The 19A register (Fig. 1) is a 5-digit, nonresettable, electromagnetic counter arranged for front or panel mounting. If the 19A register is used to replace a KS-14359 counter, a 145A adapter must be used. The 19A register has a one-piece frame and a one-piece pawl which advances the units disc one-half step when the register operates and the remaining half step when it releases. The 19A is similar to the 14-type MOD 2, except it is more compact and is front mounted.

1.06 The 20A register (Fig. 2) is similar to the 19A register, except it is a 2-digit counter with a normally open output contact which closes momentarily during application of each one-hundredth pulse to the counter.

1.07 ***Operate***: A register is said to operate if, when current is applied to its winding, the armature moves toward the core until stopped by the operating pawl and normally open contacts

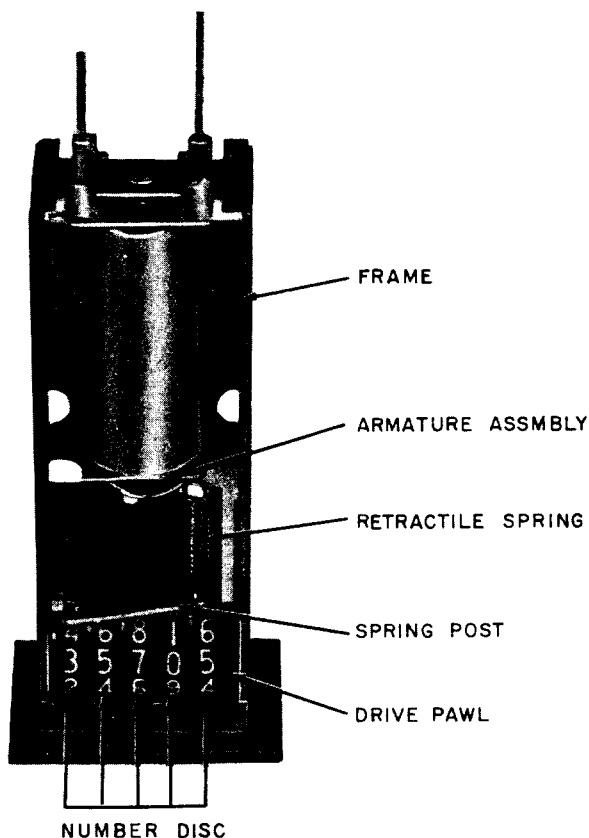


Fig. 1—19A Register With Cover Removed

close, or normally closed contacts open, if contacts are provided. The units disc shall advance one-half digit.

1.08 ***Nonoperate***: When the nonoperate current is applied, the armature shall not move from its unoperated position.

1.09 ***Release***: A register is said to release when the current is reduced from the operate or hold value to the release value and the armature moves away from the core until stopped by the

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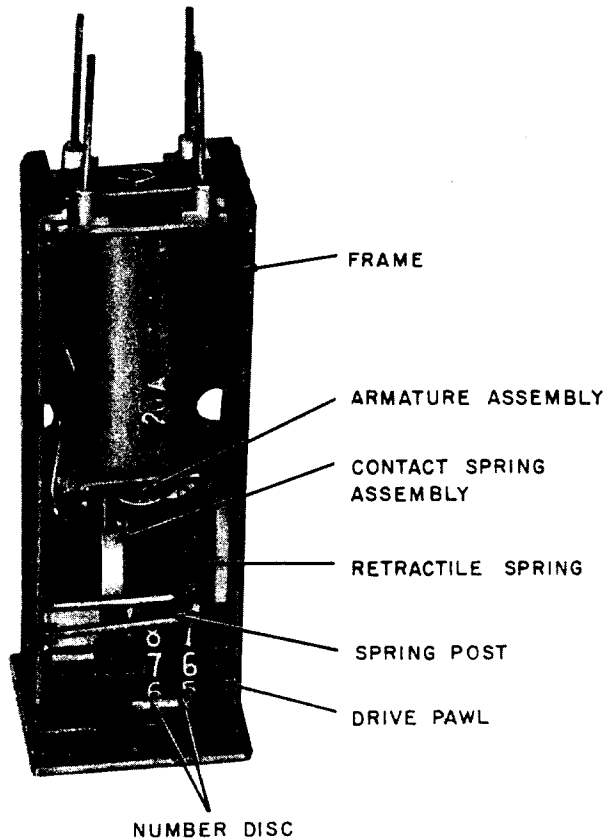


Fig. 2—20A Register With Cover Removed

operating pawl. The normally open contacts will open, and the normally closed contacts will close if contacts are provided. The units disc will advance one-half digit.

1.10 Hold: When the operate current is reduced abruptly to the hold value, the armature shall not move from its operated position.

1.11 To gain access to various parts of the register when checking requirements, it may be necessary to remove the register from the mounting.

1.12 This section contains no adjusting procedures for these registers. Requirements 2.01 through 2.12 specified herein apply only up to and including turnover to the telephone company.

Caution: Do not adjust line message registers. If a line message register does not meet requirements, with the exception of the cover, register mounting, and alignment, replace the register. Only the

message register mounting and alignment may be adjusted.

2. REQUIREMENTS

2.001 List of Gauges

CODE OR SPEC NO.	DESCRIPTION
GAUGES	
70D	50-0-50 gram gauge
70G	50-0-50 gram gauge
92A	0.010-inch nonmagnetic offset thickness gauge
92T	0.005-inch nonmagnetic offset thickness gauge

2.01 Alignment of Number Wheels: With the register in the unoperated position, after having been electrically operated and released, the following requirements shall be met.

- The top of any figure on a number wheel shall not lie above the top edge of the window.
- The bottom of any figure on a number wheel shall not lie below the bottom edge of the window.

These requirements are considered met if a satisfactory check is obtained after each of ten consecutive operations of the register.

Gauge by eye through the window.

2.02 Endplay

- There shall be perceptible endplay between the armature and the frame.

Gauge by eye.

- There shall be a minimum of 0.004-inch endplay between the frame and the number disc.

Use the 92T gauge.

2.03 Register Mounting and Alignment:

Registers shall be mounted approximately level and shall be fastened securely to the mounting plate.

Gauge by eye and feel.

Note: Registers may be mounted in any position for special applications.

To check this requirement, apply light pressure to the register in the horizontal and vertical directions. Do not attempt to turn the register.

2.04 Contact Alignment: Fig. 3, (A)—The contact alignment shall be within the limits indicated in Fig. 3.

Gauge by eye.

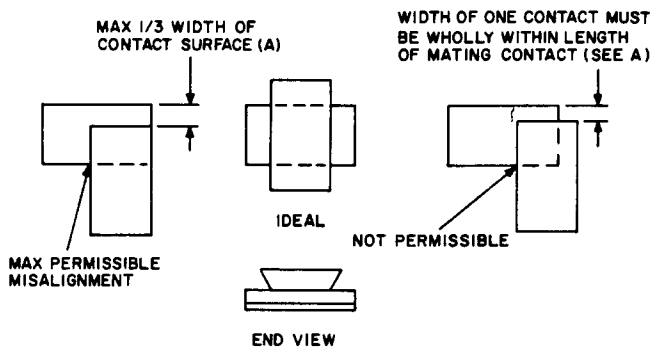


Fig. 3—Alignment of Contacts

2.05 Make Contacts (20A Only): The make contact shall close as the tens disc advances from position 9 to the operate position. The make contact shall open as the tens disc advances from the operate position to 0.

Gauge by eye.

To check this requirement, operate the register mechanically by slowly pushing the armature toward the core. Observe the contact.

2.06 Contact Separation (20A Only): With the armature in the unoperated position, the contact separation of the normally open contacts shall be

Min 0.010 inch

Use the 92A gauge.

2.07 Contact Pressure: With the contacts in the make position, the contact pressure shall be

Min 18 grams

Use the 70D gauge.

2.08 Armature Retractable Spring Tension:

With the armature in the operated position, the tension of the armature retractile spring shall be

Min 35 grams

Use the 70G gauge.

To check this requirement, apply the gauge to the hook on the armature to which the retractile spring is attached. Move the armature to its operated position with the gauge. Then slowly release the tension, and measure the retractile spring tension as the armature leaves its operated position.

2.09 Operated Armature Gap: Fig. 4, (C)—With the armature electrically operated, the gap between the armature and the core at the closest point shall be

Min 0.004 inch

Use the 92T gauge.

2.10 Register Cover Assembly Fit: The register cover (Fig. 4 and 5) assembly shall be held firmly in position on the register.

Gauge by feel.

If cover does not meet the requirements, replace with cover 841063332.

2.11 Armature Operation

- (a) The operating pawl (Fig. 6) shall advance the star wheel and the units wheel by one-half digit when the register is operated.

Gauge by eye.

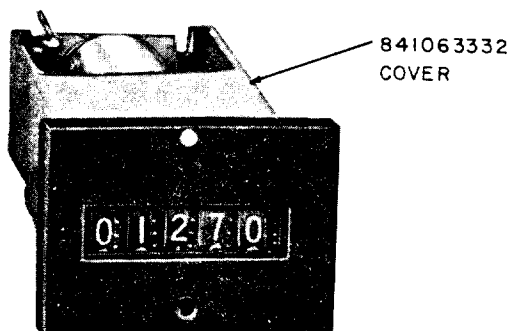


Fig. 4—19A Register With Cover

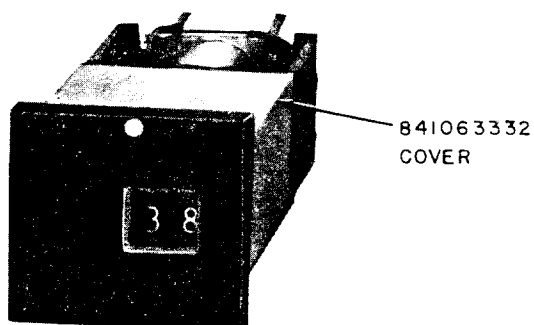


Fig. 5—20A Register With Cover

(b) The operating pawl shall advance the star wheel and the units wheel by one-half digit when the armature is released.

Gauge by eye.

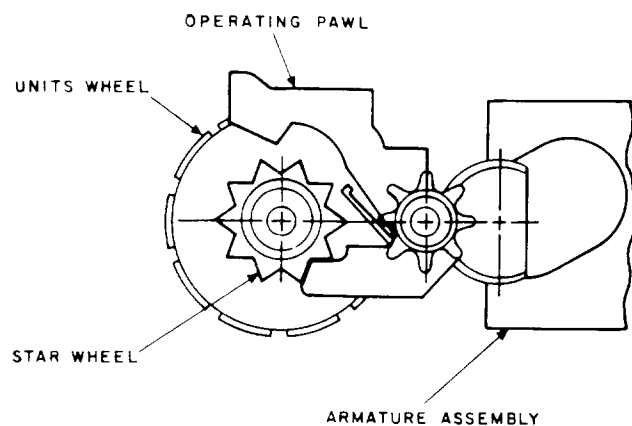


Fig. 6—Operating Pawl in Unoperated Position

3.12 Electrical Requirements: The register shall meet the electrical requirements specified on the circuit requirements table. The requirements shall be applied in the following order: Operate, Hold, Release, and Nonoperate.