

## TELEPHONE SETS

### 502, 503, 510, 511, 513, 558, AND 1510 TYPES

### MAINTENANCE

#### I. GENERAL

**1.01** This section is reissued to include information on:

- 1510-type TOUCH-TONE telephone set.
- 503B-61 telephone set.
- 513B-61 telephone set.

**1.02** Maintenance of handsets, dials, and ringers is outlined in sections covering those components.

#### 2. 502, 503, 511, AND 513 TYPES

##### Exclusion Switch and Plunger Unit

Note: In 503B-61 and 513B-61 telephone sets, the exclusion switch is used for switching to data mode.



*Do not perform any field maintenance other than the cleaning of contacts with a 265C tool.*

**2.01** The exclusion plunger shall:

- (a) Remain in the operated position when pulled up to the full extent of its stroke.
- (b) Return to the fully depressed position when handset is placed on the cradle.
- (c) Drop by its own weight from the mid-position to the fully depressed position when the right plunger is depressed.

**2.02** With set housing removed:

- (a) Normally closed contacts of exclusion switch shall have perceptible follow when the switch is operated manually.
- (b) Normally open contacts of exclusion switch shall have a minimum separation of 0.015 inch; gauge by eye. Three thicknesses of good bond paper approximate 0.015 inch.

**2.03** Replace set if it fails to meet these requirements.

#### 3. 510, 513, 558, AND 1510 TYPES

##### 584- and 631-Type Combination Turn and Pushbutton Keys



*Adjust this key only if replacement of the complete telephone set is impracticable.*

**3.01** Use 363 tool to adjust key. Be sure there is adequate light. Pay particular attention to turnbutton contact sequence. If any adjustment is made on the contact springs, recheck all the requirements applying to the key. If springs cannot be adjusted, replace the telephone set.

**3.02** Requirements of the key include:

- (a) Normally closed contacts of the exclusion switch shall have perceptible follow when the switch is operated manually.

- (b) Normally open contacts of the exclusion switch shall have a minimum separation of 0.015 inch, gauge by eye. Three thicknesses of good bond paper approximate 0.015 inch.
- (c) It shall not be possible to make or break the contacts by any side thrust against the plunger in either operated or unoperated position.
- (d) When plunger is fully depressed, there shall be perceptible clearance between bottom pushbutton contact and base of set.
- (e) All springs, including those which make contact when key is normal, shall have perceptible follow (approximately 0.010 inch).
- (f) All normally closed contacts shall break before any normally open contact makes.
- (g) Contacts for turnbutton operation shall not be made or broken by operation of the plunger as a pushbutton.
- (h) Normally closed turnbutton contacts shall have a break of at least 0.015 inch.
- (i) Normally open contacts shall have a break of at least 0.025 inch. The pushbutton contacts shall have a minimum separation of 0.030 inch.

**3.03** Test lamp on the 513B-61 telephone set must meet the following requirements when 24 volts dc is applied to terminals 5 and 8:

- (a) Lamp shall light when key is in clockwise and depressed position.
- (b) Lamp shall not light when key is not operated.

#### **4. 1510 TYPE (TOUCH-TONE)**

**4.01** The 1510F telephone set uses a TOUCH-TONE dial. Do not make field repairs on the dial. If dial is defective, replace it.

**4.02** Check to determine if dial is defective by raising receiver and depressing any button. A combination of two separate tones should be heard. When the button is released, dial tone should break.

Note: A single tone should be heard if two adjacent buttons are depressed.

**4.03** If dial tone does not break, place a 1011B test set across the line terminations and attempt to break dial tone. The cause may be other components in the set or trouble in the central office. Refer to appropriate section for further information on 25-type dials.