

TYPE 65--(--)-410 HANDSET

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1 GENERAL DESCRIPTION

1.1 The type 65 handset consists of a molded housing, comprising a handle and two screw-on caps, which contains a high quality carbon granule type transmitter at one end and a ring armature receiver at the other. A four wire cord is used to provide separate electrical circuits for the hermetically sealed transmitter and receiver units.

1.2 The molded housing is designed so that the

transmitter unit, which operates efficiently in any position, is correctly located close to the mouth of the user when the receiver is placed to the ear.

1.3 The handset is available molded in black bakelite, with either a coiled or straight cord, or in black or colored plastic, with a matching color of coiled cord, in the same range of colors as the various telephone housings.

2 TECHNICAL DESCRIPTION

2.1 The carbon granule transmitter unit has a rising response, relative to the 1000 cps nominal level of 53 db above 1 millivolt with a sound input pressure of 28 dynes/sq.cm. from -3 db at 200 cps to +3 db at 4000 cps. The peak thermal noise output is 12.7 millivolts for an aged unit. The operating current is 30 to 75 milliamperes dc and the nominal dc resistance is 45 ohms. Pressure type electrical connections are used.

2.2 The ring armature receiver has a response of ± 3 db, relative to the 1000 cps nominal level of 73 db above the sound output reference pressure of (1 dyne/sq.cm.)² per watt of electrical power, over the range of 400 to 2000 cps and +3 to -5 db over the range of 2000 to 3200 cps. An input power of 1

milliwatt at any frequency between 500 and 2500 cps will not produce any distortion or rattling. The nominal impedance is 150 ohms at 1000 cps. Screw connector terminals are fitted and a varistor shunt across them protects users from high level acoustic shocks and the magnet from abnormal line surges.

2.3 The plastic type of handset handle has an acoustic baffle in the form of a ball of cotton inserted through the receiver cavity into the stem. Its purpose is to reduce the acoustic coupling from the receiver to the transmitter, which are both vented to the handle cavity, that would otherwise impair the clarity of reception. The bakelite type of handle has adequate built-in acoustic baffling.

3 TESTING

3.1 Thorough testing of both the transmitter and receiver units requires the use of special test equipment. However, a suspected faulty unit can be adequately checked for maintenance purposes by direct comparison with, or substitution by, a known good unit.

3.2 Faulty transmitter units will usually show up

by causing noise in the circuit or low transmission levels. A dc ohmmeter test is not a reliable check on the condition of a carbon type transmitter.

3.3 Faulty receiver units will usually show up by causing distortion due to a loose or damaged diaphragm or faulty varistor, or having no output due to an open circuit coil or shorted varistor.

4 DISASSEMBLY AND ASSEMBLY

4.1 The exploded view of Fig. 4-1 shows all the component parts of the handset. Disassembly and assembly procedures are given in the following paragraphs. Note that the cord holder is part of the handle molding in the bakelite type of handset and the cotton ball (9) is not required.

4.2 DISASSEMBLY

- a: Unscrew the receiver cap (1) from the handle (10) in an anticlockwise direction.
- b: Tilt the receiver unit (2) out of the handle then loosen the two terminal screws (3) and disconnect the wires.
- c: Remove the cotton ball (9) from inside the stem of the handle.
- d: Unscrew the transmitter cap (4) from the handle and remove the transmitter unit (5).
- e: Lift the transmitter holder (6) out of the handle then loosen the two terminal screws (7) and disconnect the wires.

- c: Place the transmitter unit (5) inside the transmitter cap (4) then screw the cap onto the handle in a clockwise direction.
- d: Insert the cotton ball (9) into the stem of the handle through the receiver cavity.
- e: Connect one white wire to each terminal on the receiver unit (2), tighten the terminal screws (3) then place the unit in its cavity and screw the receiver cap (1) onto the handle in a clockwise direction.

4.3 ASSEMBLY

- a: Insert the handset cord (8) through the small hole in the end of the handle (10) feeding the two white wires through the stem. Fit the cord holder (11) into the grooves in the side of the transmitter cavity and press the bush of the cord into the slot of the holder.
- b: Connect the red wire to the outer contact terminal and the black wire to the center contact terminal of the transmitter holder (6) and tighten the screws (7). Locate the transmitter holder in the handle cavity with the tab on the holder in one of the smaller notches in the cavity wall.

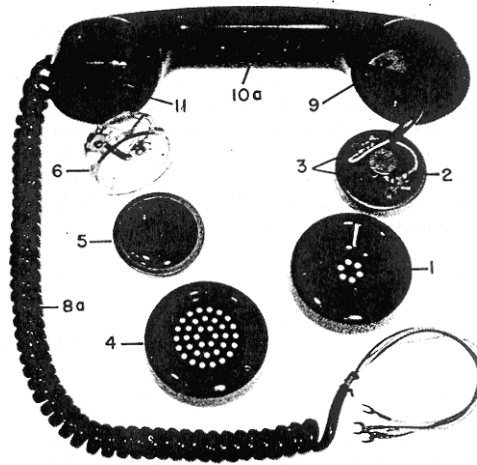


Fig. 4-1 COMPONENT PARTS - EXPLODED VIEW

5 PART NUMBERS

5.1 The complete code number required to specify a particular handset assembly consists of four parts. The method of forming this number is shown below. Refer to section M1A-COL of the manual for complete listing of colors and corresponding code identifying numbers.

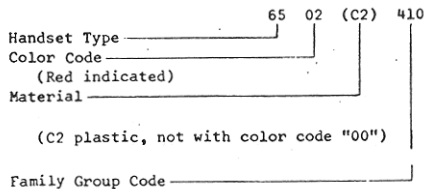


Table 5-1 REPLACEABLE PARTS

Item	Description	Number	Use Qty
1	Receiver Cap	79289-*	1
2	Receiver Unit c/w item 3	75547	1
3	Terminal Screw	75386	4
4	Transmitter Cap	79290-*	1
5	Transmitter Unit	75555	1
6	Transmitter Holder c/w it. 7	75384-2	1
8	Handset Cord (Coiled)	1005**(7)650	1
9	Cotton Ball	79545	1
10	Handle	79250-*	1

5.2 The various component parts of the handset are listed in Table 5-1. The item numbers shown in the list correspond with those used to identify the various parts in the exploded view of Fig. 4-1.

* Replace by color code suffix from series 1-16.
 ** Replace by color code number from series 00-16.

TYPE 69--(-)410 HANDSET

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1 GENERAL DESCRIPTION

1.1 The type 69 handset consists of a molded housing, comprising a handle and two screw-on caps, which contains a high quality carbon granule type transmitter at one end and a ring armature receiver at the other. A push button switch is mounted in the stem of the housing. Either a five or six conductor coiled cord may be provided with the unit.

1.2 The molded housing is designed so that the transmitter unit, which operates efficiently in any position, is correctly located close to the mouth of the user when the receiver is placed to the ear.

1.3 The handset and cord are available in the same range of colors as the telephone housings.

2 TECHNICAL DESCRIPTION

2.1 The carbon granule transmitter unit has a rising response, relative to the 1000 cps nominal level of 53 db above 1 millivolt with a sound input pressure of 28 dynes/sq.cm. from -3 db at 200 cps to +3 db at 4000 cps. The peak thermal noise output is 12.7 millivolts for an aged unit. The operating dc resistance is 45 ohms. Pressure type electrical connections are used.

nominal impedance is 150 ohms at 1000 cps. Screw connector terminals are fitted and a varistor shunt across them protects users from high level acoustic shocks and the magnet from abnormal line surges.

2.3 The push button switch is wired to separate cord conductors from the transmitter and receiver units for independent connection to the external circuits.

2.2 The ring armature receiver has a response of +3 db, relative to the 1000 cps nominal level of 73 db above the sound output reference pressure of (1 dyne/sq.cm.)² per watt of electrical power, over the range of 400 to 2000 cps and +3 to -5 db over the range of 2000 to 3200 cps. An input power of 1 milliwatt at any frequency between 500 and 2500 cps will not produce any distortion or rattling. The

2.4 A ball of cotton, inserted into the stem of the handle through the receiver cavity, forms an acoustic baffle. Its purpose is to reduce the acoustic coupling from the receiver to the transmitter, which are both vented to the handle cavity, that would otherwise impare the quality of reception.

3 TESTING

3.1 Thorough testing of both the transmitter and receiver units requires the use of special test equipment. However, a suspected faulty unit can be adequately checked for maintenance purposes by direct comparison with, or substitution by, a known good unit.

by causing noise in the circuit or low transmission levels. A dc ohmeter test is not a reliable check on the condition of a carbon type transmitter.

3.2 Faulty transmitter units will usually show up

3.3 Faulty receiver units will usually show up by causing distortion due to a loose or damaged diaphragm or faulty varistor, or having no output due to an open circuit coil or shorted varistor.

4 DISASSEMBLY AND ASSEMBLY

4.1 The exploded view of Fig. 4-1 shows all the component parts of the handset. Disassembly and assembly procedures are given below.

4.2 DISASSEMBLY

- a: Unscrew the receiver cap (1) from the handle (10) in an anticlockwise direction.
- b: Tilt the receiver unit (2) out of the handle then loosen the two terminal screws (3) and disconnect the wires.
- c: Remove the cotton ball (9) from inside the stem of the handle.
- d: Unscrew the transmitter cap (4) from the handle and remove the transmitter unit (5).
- e: Lift the transmitter holder (6) out of the handle then loosen the two terminal screws (7) and disconnect the wires.
- f: Remove the two cap screws (16) and remove the escutcheon (14), plunger bar (17), membrane (13) and restoring spring (15).
- g: Lift the switch assembly (12) out of the handle then loosen the two terminal screws and disconnect the wires.



Fig. 4-1 COMPONENT PARTS - EXPLODED VIEW

4.3 ASSEMBLY

The parts of the handset may be conveniently re-assembled in the reverse order from that given for disassembly. The following points should be specially noted.

- a: The cord conductors must be reconnected as shown in the wiring diagrams of Fig. 4-2.
- b: The transmitter holder must be replaced in its cavity with the tab on the holder in one of the smaller notches in the cavity wall.
- c: The parts of the push button switch must be replaced in the following order:
 - 1) Switch Assembly
 - 2) Membrane Assembly
 - 3) Restoring Spring - Tips resting on membrane
 - 4) Plunger Bar
 - 5) Escutcheon
 - 6) Cap Screws

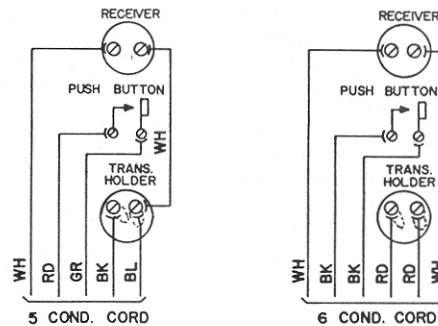
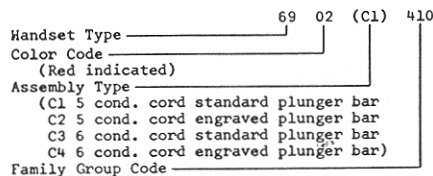


Fig. 4-2 WIRING DIAGRAMS

5 PART NUMBERS

5.1 The complete code number required to specify a particular handset assembly consists of four parts. The method of forming this number is shown below. Refer to section MIA-COL of the manual for complete listing of colors and corresponding code identifying numbers.



5.2 The various component parts of the handset are listed in Table 5-1. The item numbers shown in the list correspond with those used to identify the various parts in the exploded view of Fig. 4-1.

Note: Standard plunger bar is engraved "ITT-KELLOGG"
 Special engraving may occupy 1" long by 9/32" high.

Table 5-1 REPLACEABLE PARTS

Item	Description	Number	Qty
1	Receiver Cap	79289-*	1
2	Receiver Unit c/w item 3	75547	1
3&7	Terminal Screw	75386	4
4	Transmitter Cap	79290-*	1
5	Transmitter Unit	75555	1
6	Transmitter Holder c/w item 7	75384	1
8a	Handset Cord (5 Cond.)	1018** () 650	1
b	Handset Cord (6 Cond.)	1019** () 650	
9	Cotton Ball	79545	1
10	Handle	84495-*	1
12	Switch Assembly	80032	1
13	Membrane Assembly	80036	1
14	Escutcheon	80033-2	1
15	Restoring Spring	80035	1
16	Fl. Hd. Cap Screw	80040	2
17a	Plunger Bar - Standard	84498-*	1
b	Plunger Bar - Engraved	84498-Ø	

* Replace by color code suffix from series 1-16.
 ** Replace by color code number from series 00-16.
 Ø Replace by color code suffix from series 21-36 and specify engraving required.