JACKS

513, 514, 545, AND 556 TYPES

REPAIR

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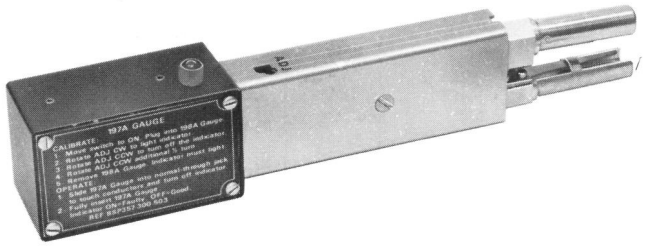

Fig. 1—197A Gauge

1. GENERAL

1.01 This section provides a procedure for the repair of 513, 514, 545, and 556 type jacks.

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 The 197A (Fig. 1) gauge provides a means for applying a calibrated, fixed amount of force to the conductive spring in 513-, 514-, 545-, or 556-type jacks and a circuit which indicates the status of the spring in the jack being tested. The circuit also permits testing jacks that are in service without interrupting or changing the signal characteristics.

1.04 The 197A gauge consists of a twin coaxial plug device which contains a calibrated spring on the side of one plug. When pushed into a finger of a 513-, 514-, 545-, or 556-type jack, the spring on the plug applies a fixed force to the jack spring. The pressure applied is such that the contact between the jack spring and the center conductor of the jack may be broken only if the jack spring tension is out of certain prescribed limits. Note that a weak spring may still adequately provide continuity through the jack. The fact that it can be pushed out of position by this device acts only as an indicator of possible, and perhaps probable, failure in the future. The remaining plug on the device was designed so that it will not affect the jack spring while under pressure from the spring on the first plug. The second plug mechanically provides only for the proper alignment of the device as it is pushed into a jack.

1.05 Since the jack spring is hidden within the jack, its response to the pressure of the introduced spring can not be directly observed. The circuit, (see Fig. 2), in the gauge illuminates a light emitting diode (LED) when the jack spring tension is out of limits and extinguishes the LED when the jack spring tension is within limits. This provides a visual indication of the status of the jack spring.

1.06 When the gauge is pushed into a jack that has a weak or a faulty spring, the transmission

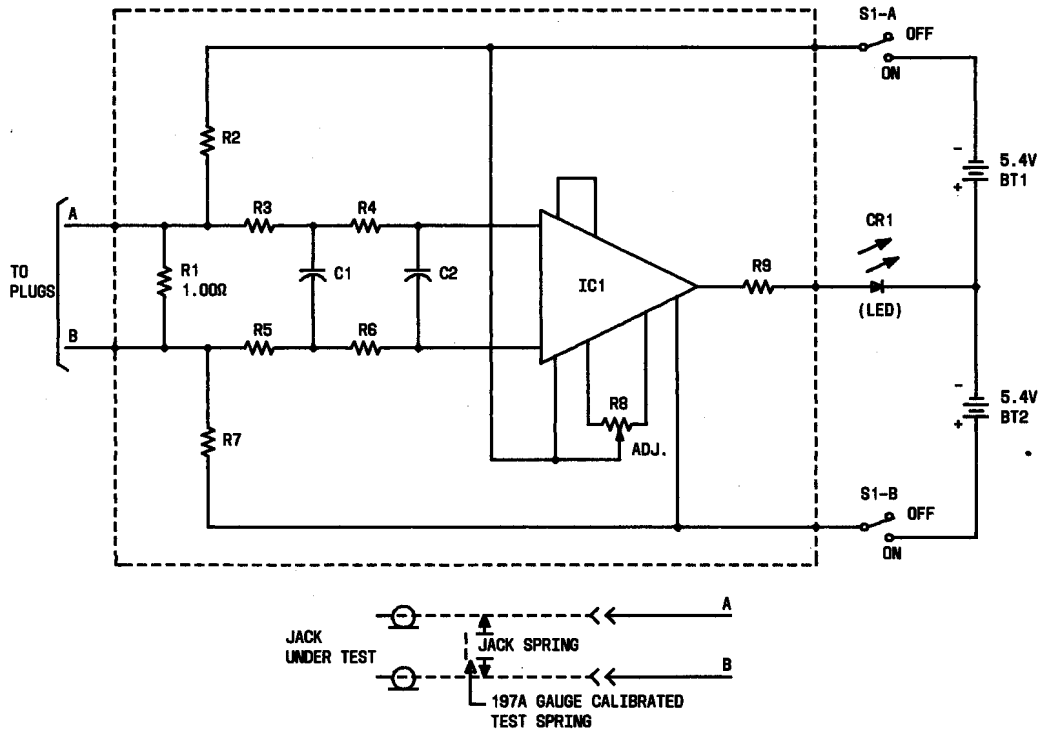

Fig. 2—Application of Circuit in the 197A Gauge

path through the jack is broken. Since jacks on either an in-service or out-of-service basis may be tested, a means for shunting the jack during the test is required. The circuit provides for this requirement. When the device is plugged into a jack while in service and if the jack is faulty, transmission continuity is guaranteed by the test circuit. In such a case, the signal will pass from one jack center conductor through passive elements in the circuit and back to the second center conductor without changing its characteristics.

1.07 The 197A gauge circuitry must be calibrated properly prior to each use. Periodically the gauge spring should be checked to ensure that it is applying the specified force to jack springs. It should not require adjustment, but if adjustment becomes necessary, it can be done readily. The 198A (Fig. 3) gauge is required for calibrating and adjusting the gauge circuit and spring. Abbreviated calibration and operating procedures for the 197A gauge are shown on the gauge battery box cover.

1.08 The only routine maintenance required for the circuitry used in the 197A gauge is replacement of batteries. The batteries used in the 197A gauge are Mallory TR114R mercury battery stacks. The two batteries in the gauge should be replaced after 7 to 10 hours of operation. If an estimation of operating time is not available, a measurement of battery voltage may be made while the gauge is on and has been on for 15

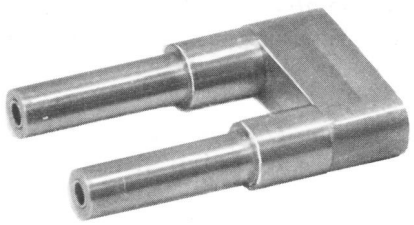

Fig. 3—198A Gauge

minutes, with its LED illuminated. The batteries must be replaced if either battery voltage is then measured to be less than 4.0 volts. The voltage measurement may be made with a KS-14510 voltmeter or equivalent. Remove the battery box cover to make the measurement on the batteries while they are in place in the circuit. After battery replacement, the gauge must be recalibrated to ensure that it is in proper working order. The batteries must be removed from the 197A gauge whenever it is anticipated that the gauge is not to be used for a period of about one month or longer.

1.09 For calibration and operating procedures, see Section 357-300-503.

2. LIST OF TOOLS AND GAUGES

CODE OR SPEC NO.	DESCRIPTION
—	3-Inch C Screwdriver
197A	Gauge

3. REPAIR METHOD

3.01 *513A, F, and G; 545A and B Jack Repair (Jack Out of Service)*

(1) Obtain the 841458383 replacement sleeve and block assembly.

(2) From the rear of the panel, using the C screwdriver, remove the two jack mounting screws and remove the jack with cables attached far enough to the rear of the panel to permit disassembling the jack.

(3) Remove the rear cover screw (if the jack has a rear cover) and slide the cover off the jack over the cables.

(4) Remove the front cover screw and slide the cover off the jack over the cables.

(5) Remove the flathead screw that retains the sleeve to the body assembly.

(6) Hold the jack sleeve assembly in one hand and pull the jack body assembly (attached to cables) out of the sleeves with the other hand.

Warning: Do not bend or in any way distort the spring tines on the body assembly.

(7) Discard the sleeve assembly and the normal spring contact block assembly which is contained between the two sleeves and the end plate.

(8) Take the replacement part, 841458383, and hold it so as to prevent movement of the normal spring block assembly and insert a twin plug such as a 372A plug in the sleeve assembly.

Note: This compresses the contact spring and prevents snagging it on the jack center conductors when they are reassembled in the sleeves.

(9) Reassemble the body in the sleeves by compressing the spring tines so that they fit inside the sleeves.

Warning: Do not bend the tines by applying excessive force.

(10) With the springs inside the sleeves, push the body in until the springs contact the plug ends.

(11) Remove the 372A plug and slide the body assembly all the way into the sleeve assembly.

(12) Remount the flathead screw that secures the sleeve to the body.

(13) Remount the front and rear covers with their respective screws.

(14) Remount the jack on the panel.

(15) Test the jack with the 197A gauge to make certain a satisfactory repair has been made.

(16) Restore the jack to service.

3.02 *513B, C, E, H, and J Jack Repair (Jack out of Service)*

(1) Obtain replacement part P-12B007 Block Assembly.

(2) From the rear of the panels using the C screwdriver, remove the two jack mounting screws and remove the jack with cables attached far enough to the rear of the panel to permit disassembling the jack.

(3) Remove the rear cover screw (if the jack has a rear cover) and slide the cover off the jack over the cables.

(4) Remove the front cover screw and slide the cover off the jack over the cables.

(5) Remove the flathead screw that retains the sleeve to the body assembly.

(6) Hold the jack sleeve assembly in one hand and pull the jack body assembly (attached to cables) out of the sleeves with the other hand.

Warning: Do not bend or in any way distort the spring tines on the body assembly.

(7) Remove the block assembly from between the two sleeves by sliding it to the rear and discard it.

(8) Retain the sleeve assembly and assemble the replacement part P-12B007 in the sleeves.

(9) Take the replacement part P-12B007 and hold it so as to prevent movement of the normal spring block assembly and insert a twin plug such as a 372A plug in the sleeve assembly.

Note: This compresses the contact spring and prevents snagging it on the jack center conductors when they are reassembled in the sleeves.

(10) Reassemble the body in the sleeves by compressing the spring tines so that they fit inside the sleeves.

Warning: Do not bend the tines by applying excessive force.

(11) With the springs inside the sleeves, push the body in until the springs contact the plug ends.

(12) Remove the 372A plug and slide the body assembly all the way into the sleeve assembly.

(13) Remount the flathead screw that secures the sleeve to the body.

(14) Remount the front and rear covers with their respective screws.

(15) Remount the jack on the panel.

(16) Test the jack with the 197A gauge to make certain a satisfactory repair has been made.

(17) Restore the jack to service.

3.03 *514A Jack Repair (Jack Out of Service)*

(1) Obtain the 841458375 replacement sleeve and block assembly.

(2) From the rear of the panel, using the C screwdriver, remove the two jack mounting screws and remove the jack with the cables attached far enough to the rear of the panel to permit disassembling the jack.

(3) Remove the rear cover screw and slide the rear cover back over the cables.

(4) Remove the two screws holding the front cover and slide the cover back over the cables.

(5) Remove the small flathead screw holding the center sleeve to the body.

(6) Hold the jack sleeve assembly in one hand and pull the jack body assembly (attached to cables) out of the sleeves with the other hand.

Warning: Do not bend or in any way distort the spring tines on the body assembly.

(7) Discard the sleeve assembly and the normal spring contact block assembly which is contained between the two sleeves and the end plates.

(8) Take the replacement part, 841458375, and hold it so as to prevent movement of the normal spring block assembly and insert a twin plug such as a 372A plug in the sleeve assembly.

Note: This compresses the contact spring and prevents snagging it on the jack center conductors when they are reassembled in the sleeves.

(9) Reassemble the body in the sleeves by compressing the spring tines so that they fit inside the sleeves.

Warning: Do not bend the tines by applying excessive force.

(10) With the springs inside the sleeves, push the body in until the springs contact the plug ends.

(11) Remove the plugs and slide the body assembly all the way into sleeve assembly.

(12) Remount the flathead screw that secures the sleeve to the body.

(13) Remount the front and rear covers with their respective screws.

(14) Remount the jack on the panel.

(15) Test the jack with the 197A gauge to make certain a satisfactory repair has been made.

(16) Restore the jack to service.

3.04 *514B, C, D, and E Jack Repair (Jack Out of Service)*

(1) Obtain repair part P-12B007.

(2) From the rear of the panel, using the C screwdriver, remove the two jack mounting screws and remove the jack with the cables attached far enough to the rear of the panel to permit disassembling the jack.

(3) Remove the rear cover screw and slide the rear cover back over the cables.

(4) Remove the two screws holding the front cover and slide the cover back over the cables.

(5) Remove the small flathead screw holding the center sleeve to the body.

(6) Hold the jack sleeve assembly in one hand and pull the jack body assembly (attached to cables) out of the sleeves with the other hand.

Warning: Do not bend or in any way distort the spring tines on the body assembly.

(7) Remove the block assembly from the sleeve assembly by sliding it to the rear and discard it.

(8) Retain the sleeve assembly and assemble the replacement part P-12B007 in the sleeves.

(9) Take the replacement part P-12B007 and hold it so as to prevent movement of the normal spring block assembly and insert a twin plug such as a 372A plug in the sleeve assembly.

Note: This compresses the contact spring and prevents snagging it on the jack center conductors when they are reassembled in the sleeves.

(10) Reassemble the body in the sleeves by compressing the spring tines so that they fit inside the sleeves.

Warning: Do not bend the tines by applying excessive force.

(11) With the springs inside the sleeves, push the body in until the springs contact the plug ends.

(12) Remove the plugs and slide the body assembly all the way into sleeve assembly.

(13) Remount the flathead screw that secures the sleeve to the body.

(14) Remount the front and rear covers with their respective screws.

(15) Remount the jack on the panel.

(16) Test the jack with the 197A gauge to make certain a satisfactory repair has been made.

(17) Restore the jack to service.

3.05 *556A, B, C, D, E, and F Jack Repair (Jack Out of Service)*

(1) Obtain replacement block and sleeve assembly 841458391.

Note: If both sides of a jack are faulty, order 2 replacement parts.

(2) From the rear of the panel, using a C screwdriver, remove the four jack mounting screws and remove the jack with cables attached far enough to the rear of the panel to permit disassembling the jack.

(3) If only one side of jack is faulty, mark the faulty side.

(4) Remove the rear cover screw and slide cover back over cables.

(5) Mark and then unsolder and disconnect leads attached to the jack terminals on the faulty side or sides.

(6) Remove the screw on the rear of the jack that retains the faulty side or if both sides are faulty remove both screws.

(7) Pull the sleeve assembly on the faulty side or sides free of the brass spacer attached to the cables.

(8) Remove the cover screw and the cover from the sleeve assembly.

(9) Remove the small flathead screw securing the sleeve to the body.

(10) Hold the jack sleeve assembly in one hand and pull the jack body assembly (attached to cables) out of the sleeves with the other hand.

Warning: Do not bend or in any way distort the spring tines on the body assembly.

(11) Discard the sleeve assembly and the normal spring contact block assembly which is contained between the two sleeves and the end plate.

(12) Take the replacement part, 841458391, and hold it so as to prevent movement of the normal spring block assembly and insert a twin plug such as a 372A plug in the sleeve assembly.

Note: This compresses the contact spring and prevents snagging it on the jack center conductors when they are reassembled in the sleeves.

(13) Reassemble the body in the sleeves by compressing the spring tines so that they fit inside the sleeves.

Warning: Do not bend the tines by applying excess force.

(14) With the springs inside the sleeves, push the body in until the springs contact the plug ends.

(15) Remove the 372A plug and slide the body assembly all the way into the sleeve assembly.

(16) Remount the flathead screw that secures the sleeve to the body.

(17) Remount the front and rear covers with their respective screws.

(18) Remount repaired side(s) in the spacer.

(19) Resolder all leads to the respective terminals of the replacement part(s).

(20) Remount the rear cover.

(21) Remount the jack on the panel.

(22) Test the jack with the 197A gauge to make certain a satisfactory repair has been made.

(23) Restore the jack to service.