EO 20-85BB-3

ROYAL CANADIAN AIR FORCE

REPAIR & OVERHAUL INSTRUCTIONS

TANK UNITS

(LIQUIDOMETER)

"REVISION" NOTICE

LATEST REVISED PAGES SUPERSEDE THE SAME PAGES OF PREVIOUS DATE

Insert revised pages into basic publication. Destroy superseded pages.

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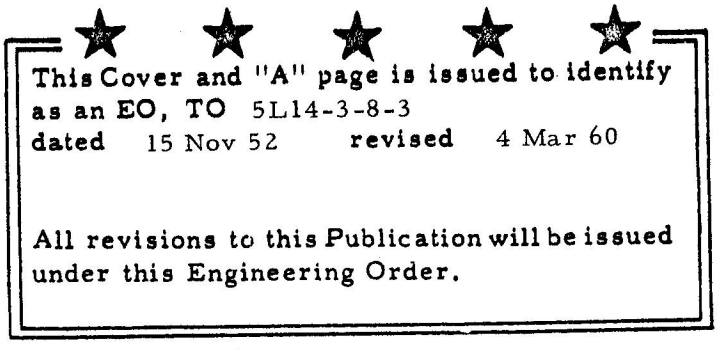
15 NOV 57

Revised 6 May 60

LIST OF RCAF REVISIONS

DATE	PAGE NO	DATE	PAGE NO



IMPORTANT NOTE

This book contains basic overhaul instructions on approximately 100 tank units, together with their component parts such as potentiometers, contactors and warning switches, and necessary internal and external wiring diagrams.

The book is arranged in such a way that you can quickly and easily find any desired information IF you are familiar with the arrangement of the book.

Be sure to read the information on "How to Use this Handbook," paragraphs 1-15 thru 1-24. The thirty seconds it takes to read these paragraphs may save you many minutes or hours of wasted time,

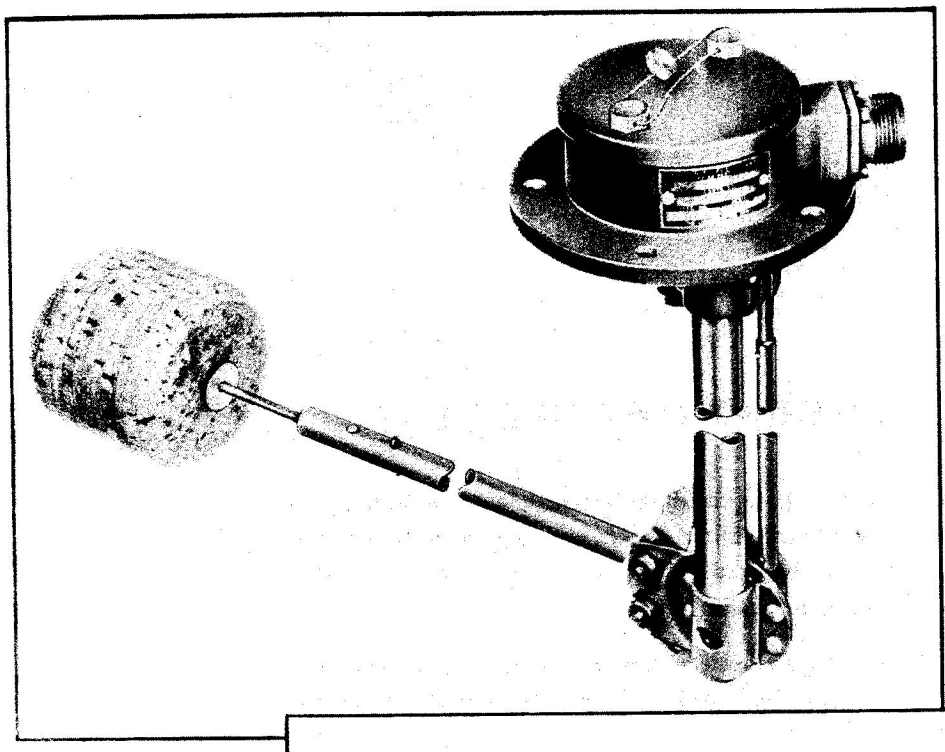


Figure 1-1. Tank Unit, Part No. EA85W-622

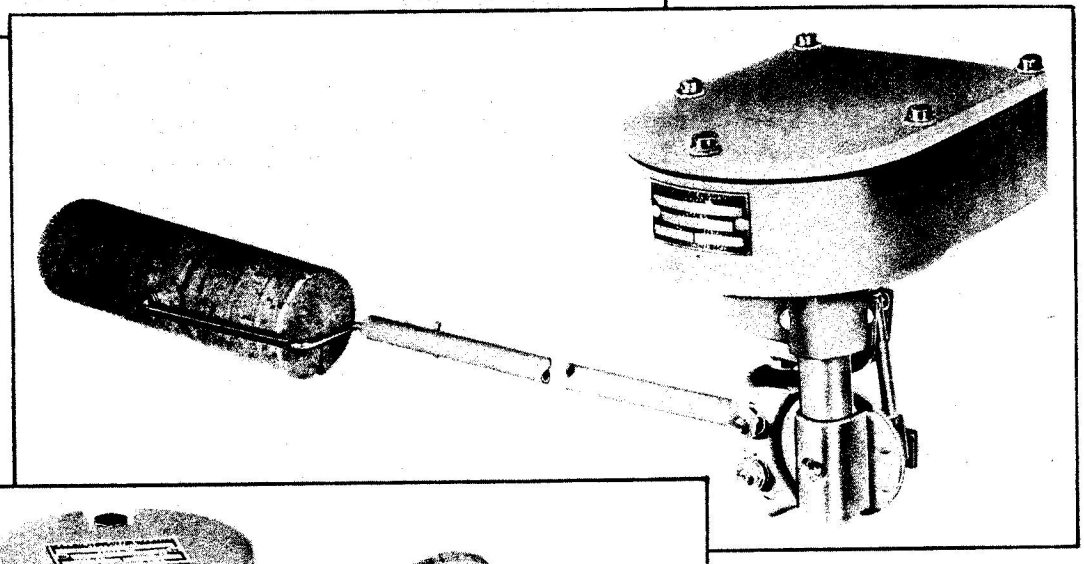


Figure 1-2. Tank Unit. Part No. EA1612-18R-9714

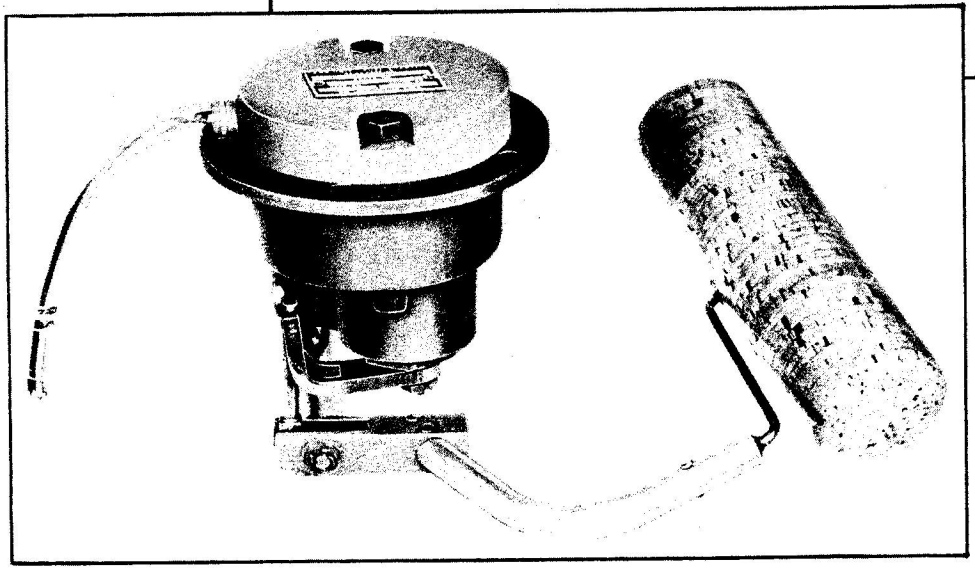


Figure 1-3. Tank Unit, Part No. EA184-491

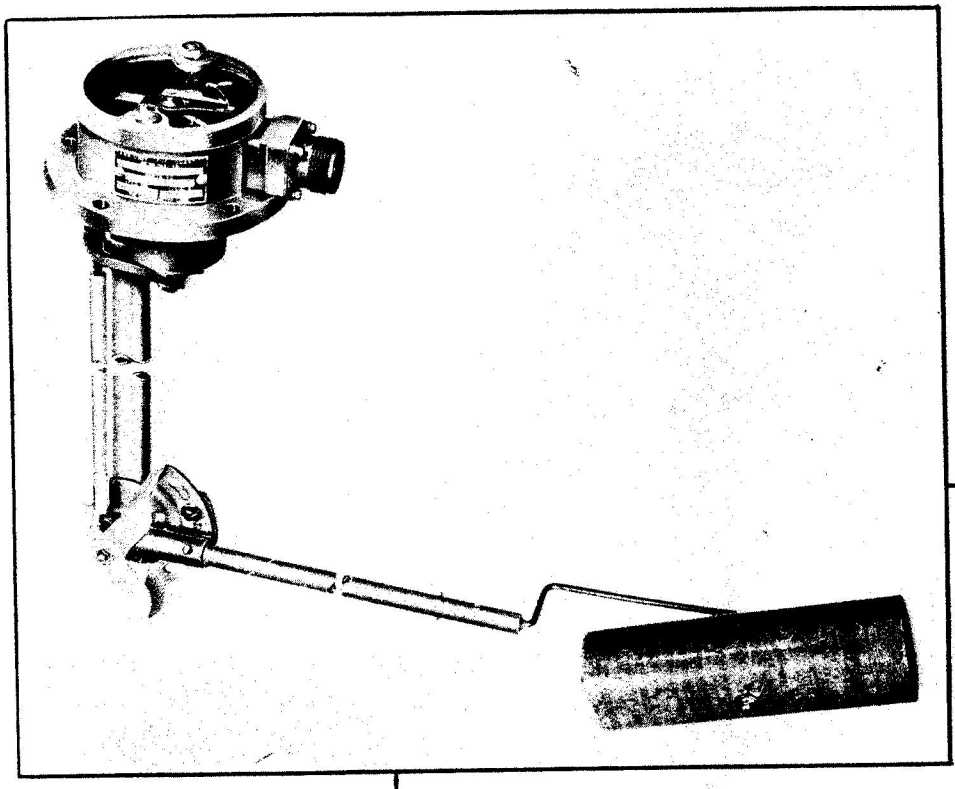


Figure 1-4. Tank Unit, Part No. EA190W-586

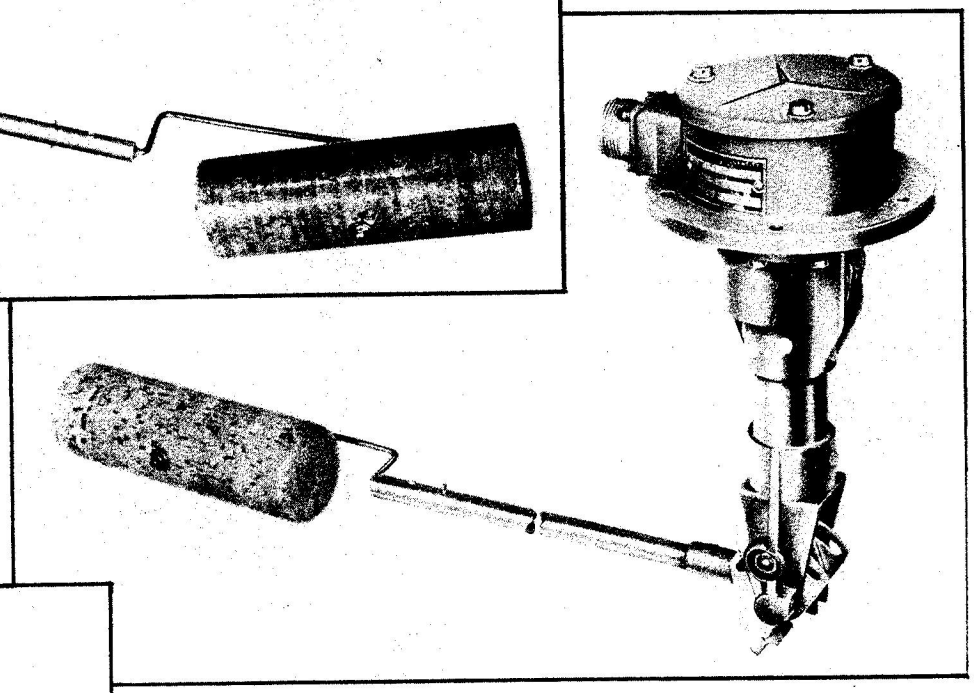


Figure 1-5. Tank Unit, Part No. EA565-444

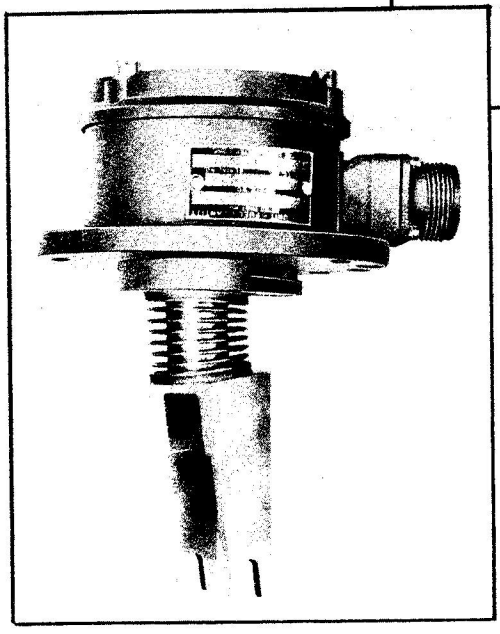


Figure 1-6. Tank Unit, Part No. EA502C-608

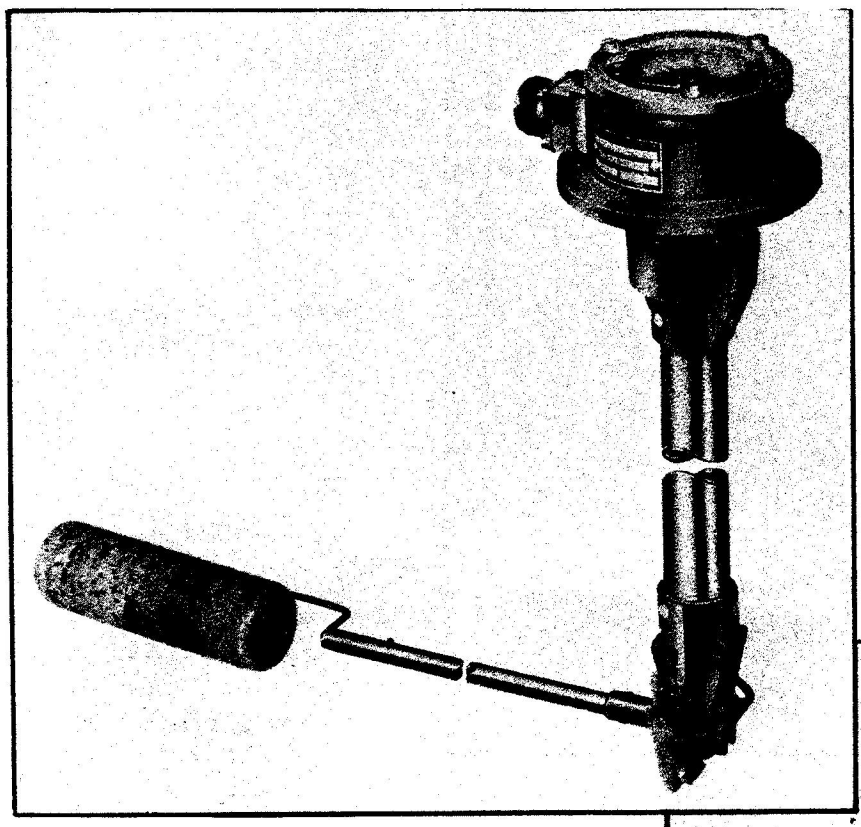


Figure 1-7. Tank Unit, Part No. EA590P-611

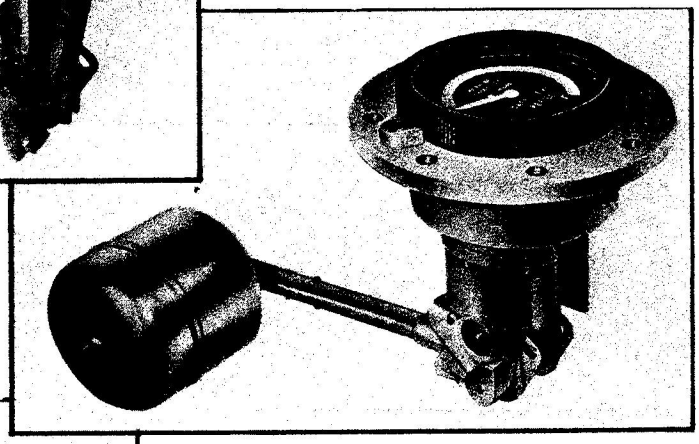


Figure 1-8. Tank Unit, Part No. EA503-729

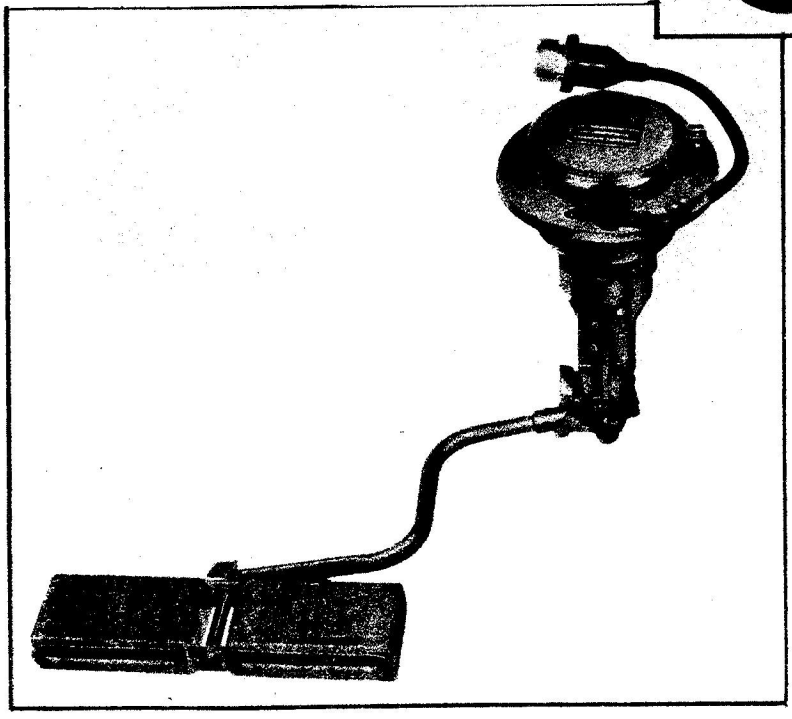


Figure 1-9. Tank Unit, Part No. EA1030-792

TABLE OF CONTENTS

TABLE 1. INDEX OF TANK UNITS AND SPECIFIC DATA SHEETS

TABLE 1. INDEX OF TANK UNITS AND SPECIFIC DATA SHEETS—(Cont.)

SECTION I
INTRODUCTION

1-1. GENERAL.

1-2. This handbook contains basic overhaul instructions for electrical remote-reading and mechanical direct-reading float-operated tank units manufactured by The Liquidometer Corporation, Long Island City 1, N. Y.

1-3. Tank units covered in this handbook are listed in Table I. Typical tank units are shown in figures 1-1 thru 1-9.

1-4. DESCRIPTION.

1-5. Tank units are mounted on the top, side, or bottom of a tank containing fuel or other liquid, as part of a quantity gauging system.

1-6. The electrically operated tank units are connected in circuit with an appropriate indicator and a d-c circuit to make up a complete gauging system.

1-7. The tank unit contains a float and float arm which rises or falls with changes in the level of the liquid being gauged. The float arm is directly and mechanically linked to the contact arm of a potentiometer mounted in the tank unit housing. The potentiometer is electrically connected to the indicator. Any change in the position of the float causes a corresponding change in the voltage fed to the indicator through the potentiometer.

1-8. The indicator contains a magnetized rotor to which a pointer is attached. Surrounding the rotor are magnetic coils connected to the tank unit potentiometer. Variations in current from the tank unit change the electromagnetic strength of the coils and thus determine the position of the rotor.

1-9. By means of certain additional parts, the tank unit can be made to actuate warning lights or bells, fuel transfer pumps, and other auxiliary electrical equipment.

1-10. In some instances, two or more tank units, installed in different tanks, are electrically connected to gauge the total contents of the system. Tank units designed for this purpose are referred to as "totalizing" tank units.

1-11. If a tank is very large, or of an unusual shape, two or more tank units may be required to gauge a single tank. In this case, both tank units are connected to a single indicator. The lowest tank unit actuates the indicator pointer over the lower portion of its dial, the second tank unit controls pointer movement over the second portion of the dial, and so on. Tank units for such systems are called "step type" or "multi-step" units.

1-12. For information on the functions of the gauging system, installation of tanks, and external circuits, see the erection and maintenance manual for specific aircraft.

1-13. The mechanically operated tank units contain a dial with a pointer mechanically linked to the float arm. Quantities are read through the transparent cover of the tank unit housing.

1-14. Some units provide for readings both directly through the transparent housing cover, as well as on a remote, electrically connected indicator. The pointer of these units is mounted on the potentiometer contact arm.

1-15. HOW TO USE THIS HANDBOOK.

1-16. This handbook contains overhaul instructions for a large number of tank units on which most of the overhaul procedures are similar.

1-17. Sections II and III give general overhaul and test instructions applicable to all tank units.

1-18. Detailed information applicable to a specific tank unit will be found on one of the Specific Data Sheets in Section IV. Specific Data Sheets are numbered consecutively—No. 1, No. 2, etc.

1-19. Most of these Specific Data Sheets cover several tank units of similar construction. Part numbers of the tank units covered on each Specific Data Sheet are listed at the head of the sheet.

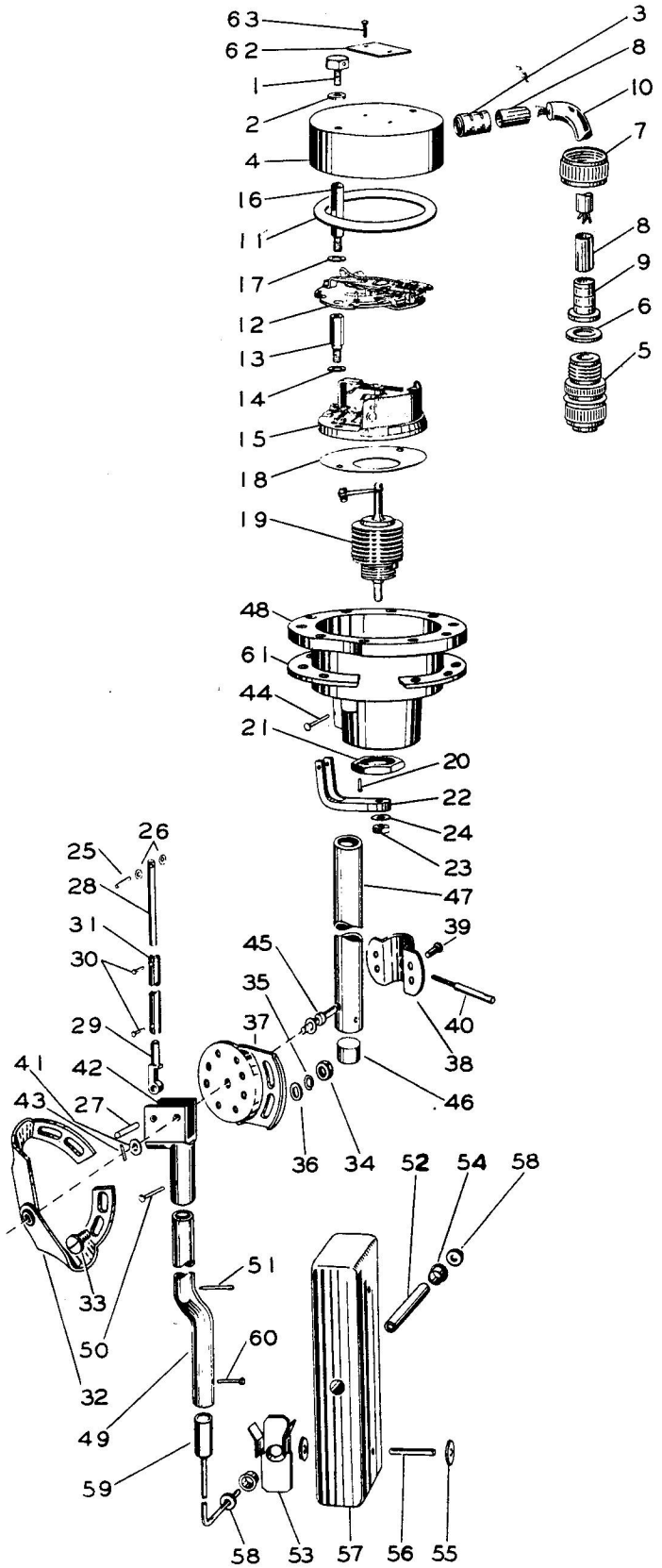
1-20. To find Specific Data Sheet coverage for any tank unit, find the part number of the tank unit in the first column of Table I. Opposite this number will be found the number of the Specific Data Sheet which covers that tank unit. Page numbers of specific data sheets are in consecutive order throughout the book.

1-21. To obtain complete overhaul instructions for any tank unit, first read Sections II and III, which give general overhaul and test instructions, then consult the Specific Data Sheet for the particular tank unit.

1-22. Overhaul steps are given in Section II in the order applicable to most tank units. Each tank unit, however, should be disassembled in the same order as the index numbers assigned to the exploded view on the Specific Data Sheet for that unit.

1-23. Most of the tank units covered in this handbook fall into two general types. On one type (see figures 1-1, 1-2, 1-3, 1-4, and 2-1), the operating rod assembly (28 thru 31, figure 2-1) is outside of the fulcrum pipe (47). On the other type (see figures 1-5, 1-7, 1-8, 1-9, and 2-2), the operating rod (30, figure 2-2) or operating rod assembly is inside the fulcrum pipe (50).

1-24. Wherever necessary in the general overhaul instructions, a procedure is given first for one type and then for the other. The two types are designated as "tank units with outside operating rod" and "tank units with inside operating rod" respectively.



1. Cover screw (2 reqd)
2. Stud washer (2 reqd)
3. Cable connector
4. Cover
5. Connector plug
6. Connector gasket
7. Coupling nut
8. Connector filler (2 reqd)
9. Cable connector
10. Cable
11. Cover gasket
12. Contactor (for breakdown see figure 2-3)
13. Spacer stud (2 reqd)
14. Plain washer (2 reqd)
15. Potentiometer (for breakdown see figure 2-9 or 2-10)
16. Cover stud (2 reqd)
17. Plain washer (2 reqd)
18. Insulation pad
19. Bellows seal assembly (for breakdown see figure 2-4)
20. Rivet
21. Bellows nut
22. Operating arm
23. Nut
24. Plain washer
25. Rod pin
26. Plain washer (2 reqd)
27. Rod link pin
28. Rod extension
29. Rod link
30. Rivet (2 reqd)
31. Operating rod
32. Float arm stop
33. Screw (2 reqd)
34. Nut (2 reqd)
35. Lock washer (2 reqd)
36. Plain washer (2 reqd)
37. Float arm stop bracket
38. Clamp
39. Rivet (4 reqd)
40. String guide
41. Plain washer
42. Fulcrum
43. Locking pin
44. Rivet
45. Fulcrum stud
46. Fulcrum plug
47. Fulcrum pipe
48. Housing
49. Float arm
50. Rivet (2 reqd)
51. Cotter pin
52. Float bushing (2 reqd)
53. Float stop
54. Float bearing
55. Washer (4 reqd)
56. Rod (2 reqd)
57. Float
58. Washer (2 reqd)
59. Float fork
60. Rivet
61. Tank gasket
62. Name plate
63. Rivet (2 reqd)

Figure 2-1. Typical Tank Unit of the Outside Operating Rod Type

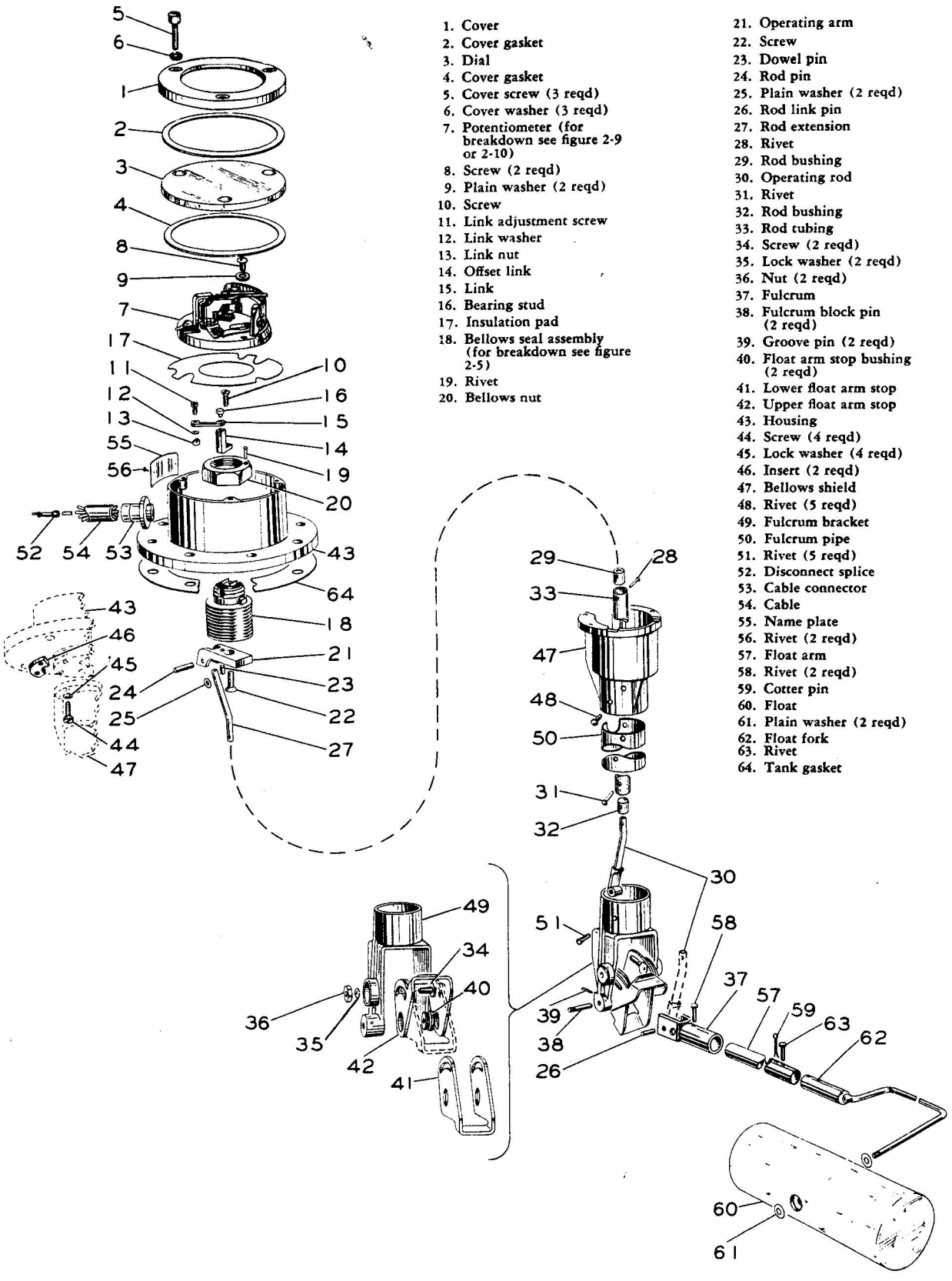


Figure 2-2. Typical Tank Unit of the Inside Operating Rod Type

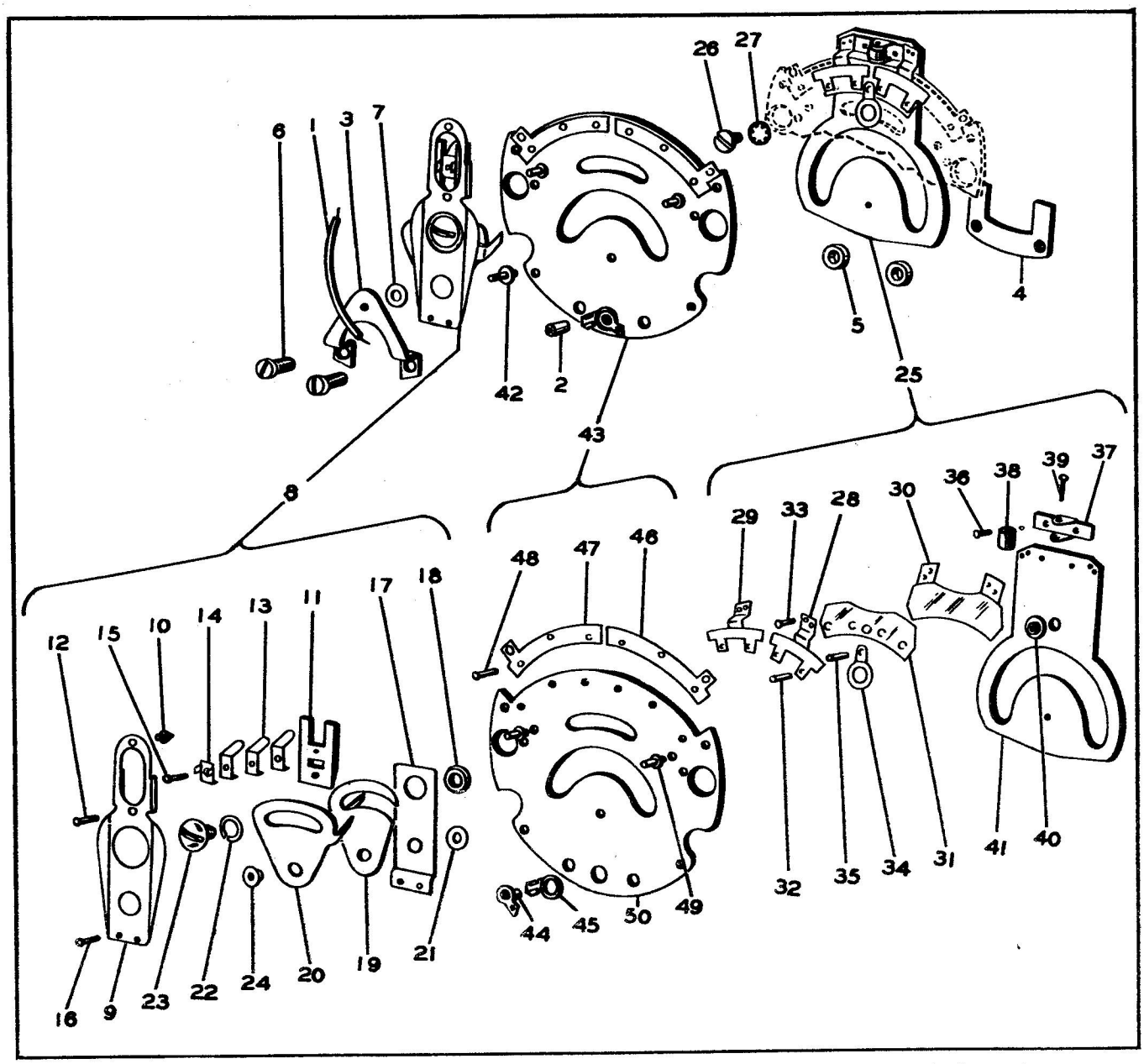
SECTION II
GENERAL OVERHAUL INSTRUCTIONS

Note

Before starting overhaul, be sure to read paragraphs 1-15 thru 1-24 on "How to Use This Handbook."

2-1. DISASSEMBLY.

2-2. See figure 2-1 for typical tank unit of the outside operating rod type, or figure 2-2 for typical tank unit of the inside operating rod type.



1. Wire
2. Insulation tubing
3. Bearing bridge
4. Bearing support
5. Bushing (2 reqd)
6. Screw (2 reqd)
7. Spacer washer
8. Differential fork & contact assembly
9. Upper contact arm
10. Lift point
11. Brush holder
12. Bank pin
13. Brush (3 reqd)
14. Terminal lug
15. Bank pin
16. Bank pin (2 reqd)
17. Differential lock arm
18. Nut
19. Lower differential arm
20. Upper differential arm
21. Plain washer
22. Lock washer
23. Screw
24. Bearing bushing
25. Contact plate assembly
26. Screw
27. Lock washer
28. Right upper contact strip
29. Left upper contact strip
30. Fish paper insulator
31. Plastic insulator
32. Rivet (4 reqd)
33. Escutcheon pin (4 reqd)
34. Terminal lug
35. Rivet
36. Escutcheon pin (2 reqd)
37. Roller bracket
38. Roller
39. Bank pin
40. Insert stud
41. Contact plate
42. Pivot
43. Base assembly
44. Solder lug
45. Solder lug
46. Right lower contact strip
47. Left lower contact strip
48. Escutcheon pin (6 reqd)
49. Stop pin (2 reqd)
50. Base

Figure 2-3. Exploded View of Typical Contactor Assembly

2-3. Disassembly is in the same order as index numbers on exploded view on applicable Specific Data Sheet.

2-4. Tank gasket (61, figure 2-1, or 64, figure 2-2) is removed when unit is taken off tank.

2-5. On tank units having an electrical cable (10, figure 2-1) attached to cover (4) by means of a cable connector (3) which is inserted into the cover and spun over, do not disassemble cable except in emergency. This is a moisture-proof fitting and reassembly is difficult.

2-6. If tank unit contains a contactor (12, figure 2-1), remove this assembly but do not disassemble it except under emergency conditions. This unit is procurable only as an assembly. Exploded view of typical contactor, figure 2-3, is for reference only.

2-7. REMOVAL OF POTENTIOMETER *(15, figure 2-1, or 7, figure 2-2)*. Loosen link adjustment screw on top of bellows seal assembly (19, figure 2-1) or link adjustment screw (11, figure 2-2) and slide it out of slot in potentiometer contact arm assembly (6, figure 2-9).

Note

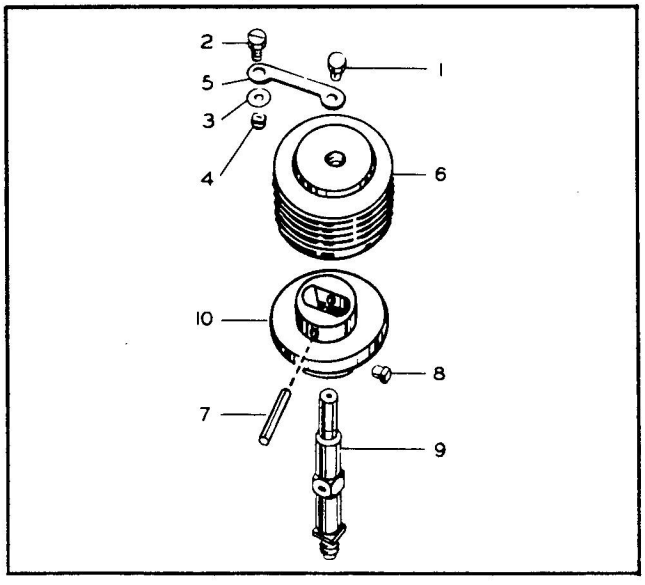
For instructions on overhauling potentiometer, see paragraphs 2-53 thru 2-74.

2-8. REMOVING HOUSING AND BELLOWS SEAL ASSEMBLY *(48 and 19, figure 2-1, or 43 and 18, figure 2-2)*.

2-9. TANK UNITS WITH OUTSIDE OPERATING ROD *(figure 2-1)*:

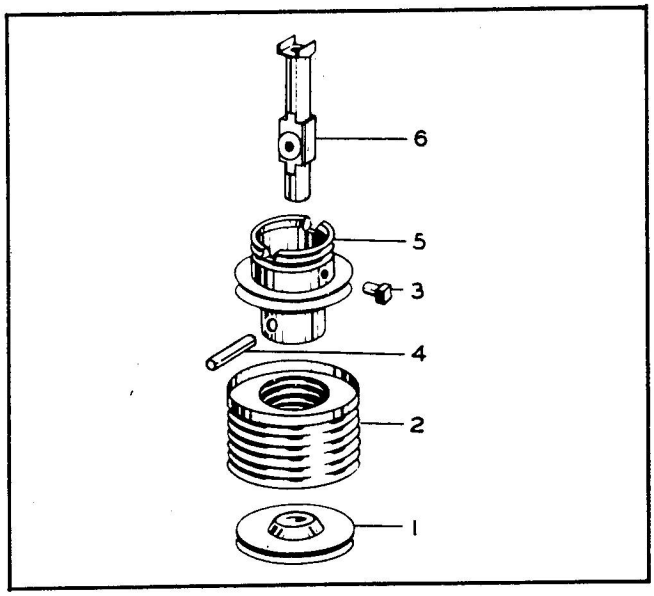
a. Remove operating arm (22) by taking off nut (23) and washer (24).

b. Drill out rivet (20) and remove bellows nut (21). Lift bellows seal assembly (19) out of housing (48).



1. Bearing stud
2. Link adjustment screw
3. Link washer
4. Link nut
5. Link
6. Bellows
7. Pin
8. Locating pin
9. Bellows lever
10. Bellows holder

Figure 2-4. Exploded View of Bellows Seal Assembly Used in Tank Units of the Outside Operating Rod Type



1. Bellows head
2. Bellows
3. Locating pin
4. Pin
5. Bellows holder
6. Bellows lever

Figure 2-5. Exploded View of Bellows Seal Assembly Used in Tank Units of the Inside Operating Rod Type

c. Do not disassemble bellows seal assembly except under emergency conditions. This unit is procurable only as an assembly. Figure 2-4, exploded view of the bellows seal assembly used in tank units of the outside operating rod type, is for reference only.

d. Drill out rivet (44) and removing housing (48) from lower part of tank unit.

2-10. TANK UNITS WITH INSIDE OPERATING ROD *(figure 2-2)*:

a. Remove four insert screws (44), four lock washers (45) and two inserts (46).

b. Hinge housing back, away from float arm, to expose bottom of bellows seal assembly (18).

c. Remove flat head screw (22).

d. Remove housing (43) with bellows seal assembly attached.

e. Drill out rivet (19) and remove bellows nut (20), freeing bellows seal assembly.

f. Do not disassemble bellows seal assembly except under emergency conditions. This unit is procurable only as an assembly. Figure 2-5, exploded view of bellows seal assembly used in tank units of the inside operating rod type, is for reference only.

2-11. REMOVAL OF FLOAT. Where float is held in place by pinching float fork of type shown as item 62, figure 2-2, file off end of float fork to remove float. Some floats are removed by taking out screws or locking pins.

2-12. REMOVING FULCRUM *(42, figure 2-1, or 37, figure 2-2)*.

2-13. TANK UNITS WITH OUTSIDE OPERATING ROD *(figure 2-1)*:

a. Take out two float arm stop screws (33).

b. Drive out rod pin (25) and rod link pin (27) and remove operating rod assembly (28 thru 31).

c. Take out locking pin (43) and slide float arm stop (32) and fulcrum (42) off fulcrum stud (45).

2-14. TANK UNITS WITH INSIDE OPERATING ROD *(figure 2-2):*

a. Remove two hex head screws (34).

b. Knock out two groove pins (39) and drive out two fulcrum block pins (38) from inside.

c. Knock out rod pin (24) and rod link pin (26) and remove fulcrum (37) with attached parts.

Note

Do not disassemble metal floats.

2-14A. DISASSEMBLY OF CONDUIT ASSEMBLIES. On tank units having a conduit assembly (see figure 2-5A) do not disassemble conduit assembly from housing, or receptacle from conduit assembly, unless necessary for repair or replacement of parts. To remove, drill out rivets attaching clamp to housing and separate conduit assembly from housing.

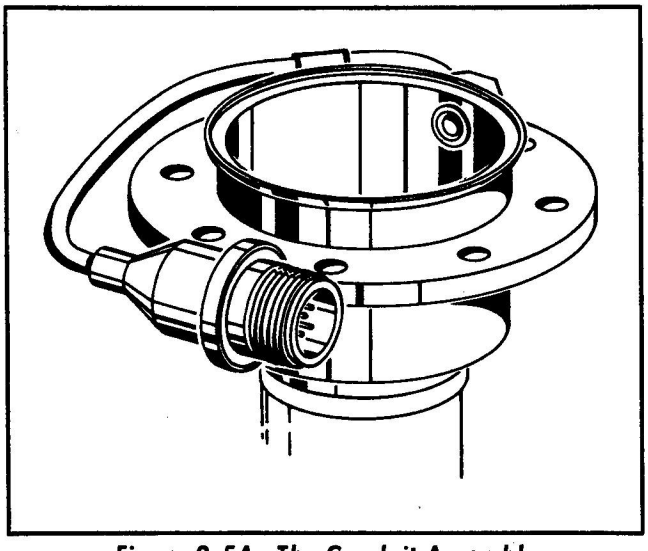


Figure 2-5A. The Conduit Assembly

2-15. CLEANING.

2-16. Remove old solder, flux, or insulating varnish.

2-17. Air-blow parts.

2-18. INSPECTION.

2-19. GENERAL INSPECTION. Check gaskets and operating parts for wear or damage.

2-20. ELECTRICAL INSPECTION. If tank unit has an electrical cable, inspect cable and leads for wear or damage. On units with electrical connector plug (5, figure 2-1), unscrew coupling nut (7) and make sure wires are secured to lugs.

2-21. INSPECTION OF CONTACTOR. Move differential fork and contact assembly (8, figure 2-3) from side to side and check visually to make sure brushes (13) make contact with upper contact strips (28 and 29) and lower contact strips (46 and 47) on both sides of roller (38).

2-22. INSPECTION OF BELLOWS SEAL ASSEMBLY. Inspect assembly for fractures.

2-23. INSPECTION OF FLOAT. Check coating on cork float for cracks or blisters. Check metal float for cracks or defective seams.

2-24. INSPECTION OF FLOAT ARM. Make sure float fork (59, figure 2-1, or 62, figure 2-2) and float arm (49, figure 2-1, or 57, figure 2-2) are not bent out of shape. For correct over-all dimensions of float fork and arm, see general dimension sketch on Specific Data Sheet.

Note

The angular dimensions on general dimension sketches represent position of float arm at top and bottom float arm stop settings, warning switch settings, etc. These settings are explained in Section III. When two tank units are identical except for variations in some dimensions, a single general dimension sketch is used for both, with a table showing differences in dimensions.

2-25. PRE-ASSEMBLY TESTING.

2-26. Test metal floats by immersing in near-boiling water for 3 to 5 minutes and checking for air bubbles indicating leaks.

2-27. Check electrical continuity of leads in cables.

2-28. REPAIR OR REPLACEMENT.

2-29. Replace any parts revealed to be defective by inspection and testing procedures described above.

2-30. Leaks in a metal float can be soldered. First remove any fuel from the float byimmersing in boiling water for about 5 minutes after bubbles have ceased to emerge from leak. Dry float thoroughly before soldering, and be careful not to cause additional leaks while soldering. Use fifty-fifty solder. Floats are made of brass, with a dull nickel finish.

2-30A. On tank units having a conduit assembly, replace conduit assembly, "O" ring and electrical receptacle if this assembly is separated from housing.

2-31. LUBRICATION.

2-32. None required.

2-33. REASSEMBLY.

2-34. Reassembly is the reverse of disassembly, except as noted.

Note

For alignment of float, float fork, and float arm, see general dimension sketch on Specific Data Sheet. Use only rosin core solder or rosin flux on electrical connections; do not use acid solder or acid flux. Coat all soldered connections with insulating varnish, Type IV, Grade BA, Specification MIL-V-1137A, or equivalent.

2-34A. ATTACHING CONDUIT ASSEMBLY TO HOUSING. On tank units having a conduit assembly (see figure 2-5A) proceed as follows to attach conduit assembly to housing:

a. See general dimension sketch on Specific Data Sheet for proper position of conduit assembly.

b. Coat a ½ inch diameter area, both inside and outside around opening in housing with fungicide varnish (Specification MIL-V-173A). Install conduit assembly into housing.

c. Carefully position conduit assembly and housing in a swaging fixture similar to that shown in figure 2-5B.

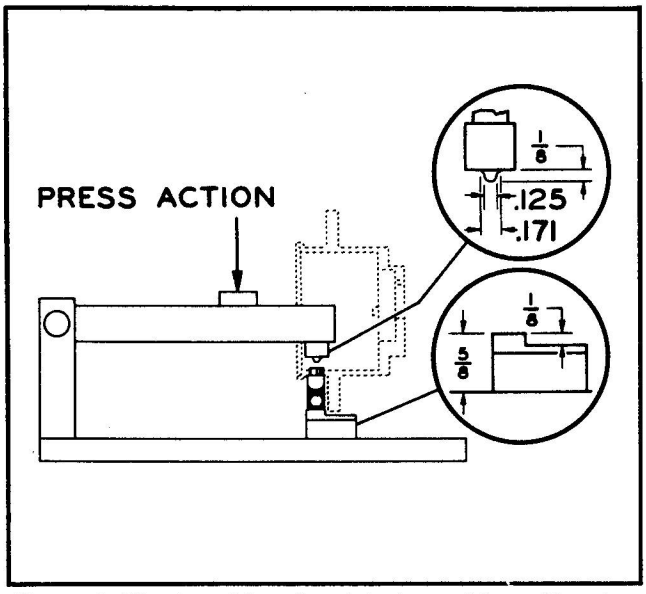


Figure 2-5B. Attaching Conduit Assembly to Housing

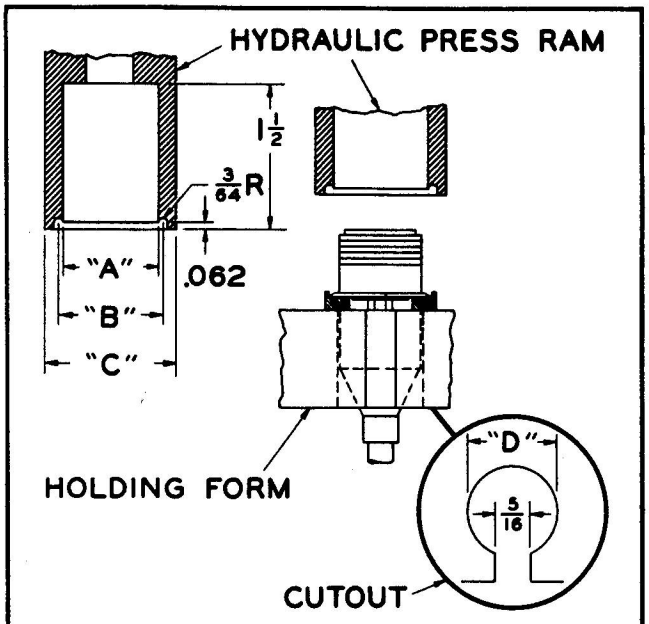
d. Properly install fixture into a hydraulic press and slowly apply a pressure of 1¾ tons. Release pressure and remove assembly from swaging fixture. Inspect for clean, tight swaging. De-burr if necessary.

e. Solder wires to electrical receptacle in accordance with internal wiring diagram given on Specific Data Sheet. Install vinyl sleeving over solder connections. Solder free ends of wire to a small loop of 0.040 inch copper wire. Insert "O" ring into groove in coupling on end of conduit assembly. Pull wires through conduit tubing with a piece of 0.026 inch music wire hooked to the loop, then remove loop from wires.

f. Position receptacle in conduit coupling socket. Receptacle must seat squarely on "O" ring. Gently pull on wires to assist in centering receptacles.

g. Place receptacle and conduit assembly in a holding fixture similar to that shown in figure 2-5C. Install a fixture similar to that shown in figure 2-5C in a hydraulic press, properly position holding form and swage receptacle into coupling shell using a pressure of 1¾ tons.

h. Remove assembled item from holding form and inspect for clean, solid swage. Connection must be pressure tight and turn proof. De-burr if necessary.



LIQUIDOMETER PART NO.	"A"	"B"	"C"	"D"
EA68581	0.760	0.853	1.135	11/16
EA68517	1.025	1.118	1.400	29/32

Figure 2-5C. Attaching Receptacle to Conduit Assembly

2-35. ASSEMBLING LOWER PART OF TANK UNIT.

2-36. TANK UNITS WITH OUTSIDE OPERATING ROD *(figure 2-1)*.

a. Assemble float fork (59) and float arm (49) to fulcrum (42).

b. To attach upper end of operating rod or operating rod assembly (28 thru 31) to operating arm (22), position two washers (26) on each side of operating rod assembly, position rod in fork of operating arm (22), insert rod pin (25) and stake.

c. Place lower end of operating rod assembly in fork in fulcrum (42) and secure by inserting and staking rod link pin (27).

d. Slide float arm stop bracket (37) over fulcrum stud (45) and rivet clamp (38) to bracket.

e. To assemble fulcrum and float arm stop (see figure 2-6), slide fulcrum into float arm stop, position washer at outside of fulcrum, and slip these parts over fulcrum stud. Lock with pin.

2-37. TANK UNITS WITH INSIDE OPERATING ROD *(figure 2-2)*.

a. Assemble float fork (62) and float arm (57) to fulcrum (37).

b. To attach upper end of operating rod or operating rod assembly (27 thru 33) to operating arm (21), position two washers (25) at each side of operating rod assembly, place operating rod assembly in fork of operating arm (21), insert rod pin (24) and stake.

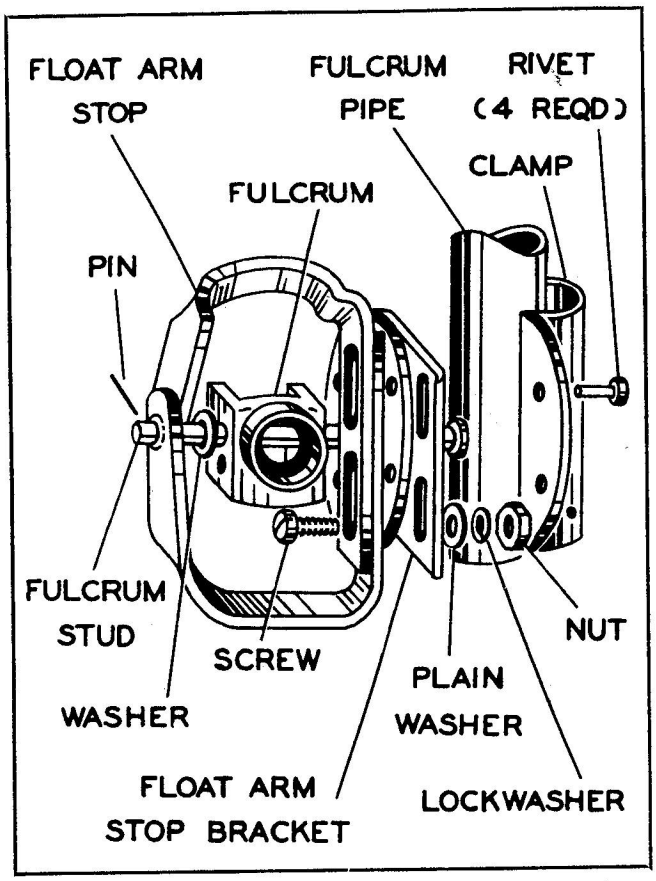


Figure 2-6. Assembling Fulcrum and Float Arm Stop in Tank Units of Outside Operating Rod Type

c. Place lower end of operating rod assembly in fork in fulcrum (37) and secure by inserting and staking rod link pin (26).

d. Assemble bellows shield (47) and fulcrum bracket (49) where applicable.

e. Insert float arm stop assembly (40 thru 42) into fulcrum bracket (49), position fulcrum (37) inside of float arm stops (41 and 42), insert two fulcrum block pins (38) and lock with two groove pins (39).

f. Insert two hex head screws (34) with two lock washers (35) and nuts (36).

2-38. ATTACHING FLOAT. Floats which attach directly to the float arm (57, figure 2-2) are attached by screws. Floats which attach to a float fork (62, figure 2-2) are slid over the fork and held in place by pinching float fork at each side of float.

2-39. ASSEMBLING BELLOWS SEAL ASSEMBLY TO HOUSING.

2-40. TANK UNITS WITH OUTSIDE OPERATING ROD *(figure 2-1)*:

a. Coat contacting surfaces of housing (48) and bellows seal assembly (19) with fungicide varnish, Class 2 of Specification JAN-C-173 or equivalent.

b. Insert threaded end of bellows seal assembly into housing from top, lining up locating pin on side of bellows with keyway in housing.

c. Tighten bellows nut (21). Drill through nut with No. 52 drill and drive in rivet (20).

2-41. TANK UNITS WITH INSIDE OPERATING ROD *(figure 2-2)*:

a. Coat contacting surfaces of housing (43) and bellows seal assembly (18) with fungicide varnish, Class 2 of Specification JAN-C-173 or equivalent.

b. Insert threaded end of bellows seal assembly into bottom of housing, lining up locating pin in side of bellows seal assembly with keyway in housing.

c. Tighten bellows nut (20). Drill through nut with No. 52 drill and drive in rivet (19).

2-42. TESTING SEAL BETWEEN BELLOWS SEAL ASSEMBLY AND HOUSING FOR LEAKAGE *(see figure 2-7)*.

Note

On tank units of the outside operating rod type, before making this test attach fulcrum pipe assembly (45 thru 47, figure 2-1) to housing (48) with rivet (44).

a. Clamp assembled bellows seal asembly and housing into container as shown in figure 2-7.

b. Fill housing half full of kerosene or equivalent.

c. Apply compressed air at 40-50 psi into lower part of container and check for air bubbles indicating leaks.

d. If leaks appear, check for fractures in housing or bellows, or cracks where bellows seal assembly is sealed to housing.

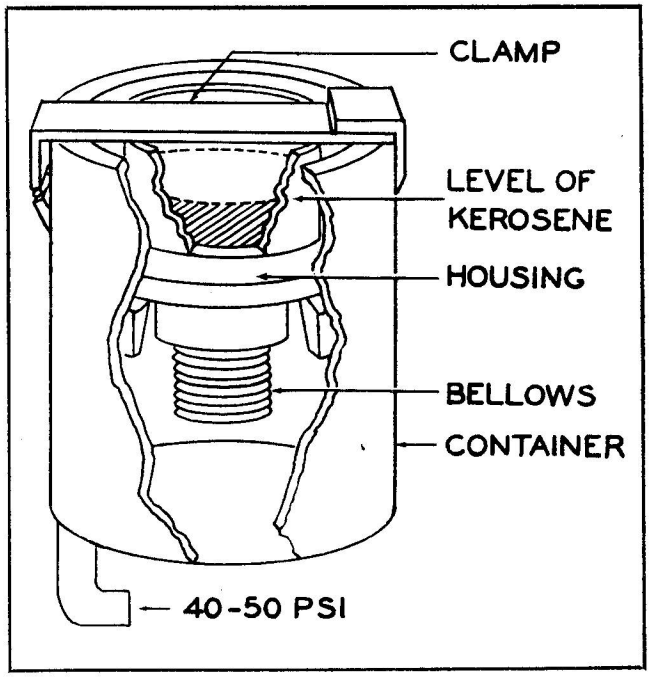


Figure 2-7. Testing Seal Between Bellows Seal Assembly and Housing for Leakage

2-43. ATTACHING OPERATING ARM TO BELLOWS SEAL ASSEMBLY.

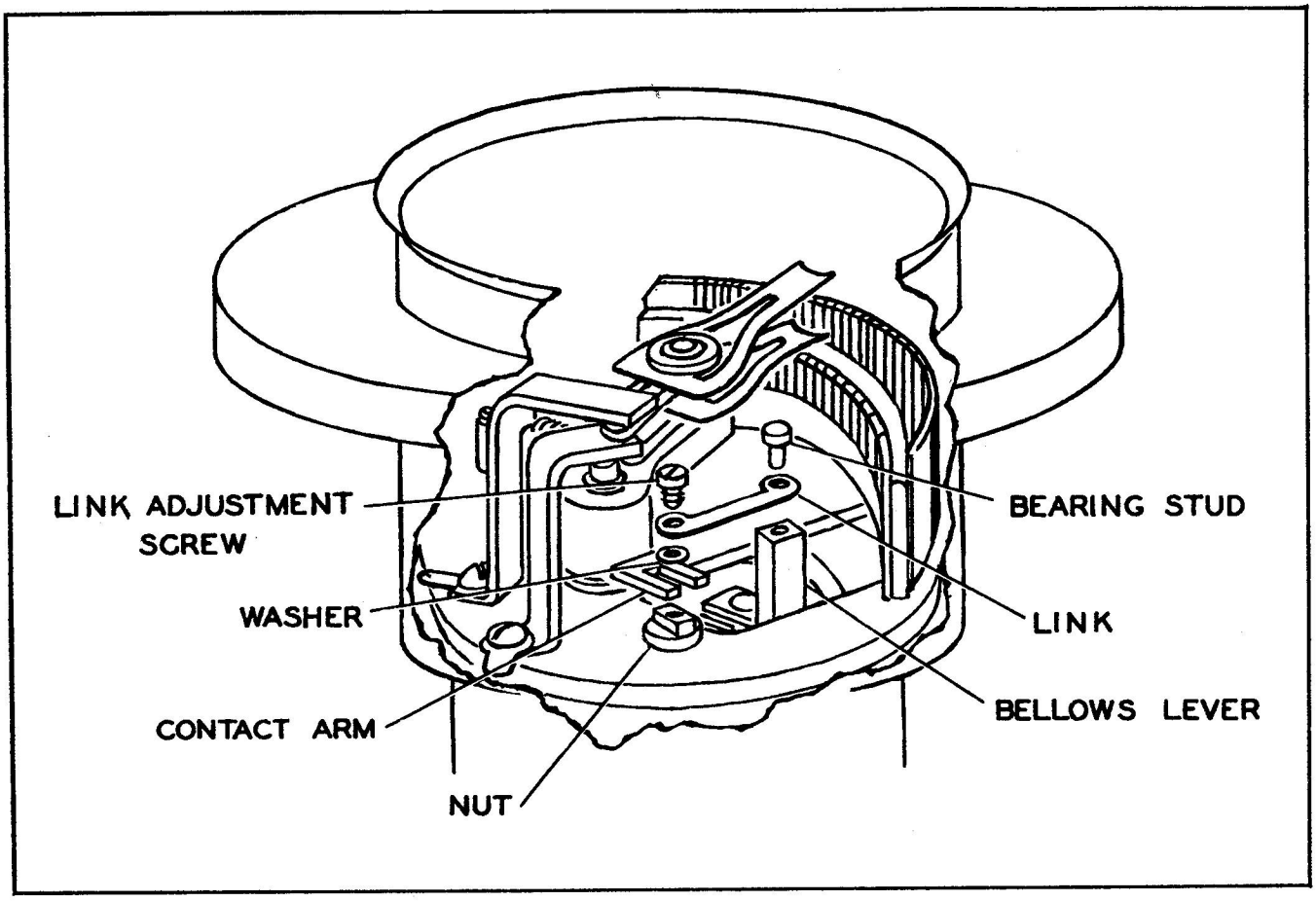


Figure 2-8. Attaching Link to Potentiometer

2-44. TANK UNITS WITH OUTSIDE OPERATING ROD *(figure 2-1)*. Insert threaded shaft at bottom of bellows seal assembly (19) through hole in operating arm (22), install washer (24) and nut (23), and solder over nut.

2-45. TANK UNITS WITH INSIDE OPERATING ROD *(figure 2-2)*. Position operating arm (21) at bottom of bellows seal assembly (18), lining up holes for screw (22) and dowel pin (23). Tighten down screw and stake dowel pin.

2-46. ATTACHING POTENTIOMETER ASSEMBLY *(see figure 2-8)*.

2-47. TANK UNITS WITH OUTSIDE OPERATING ROD *(figure 2-1)*:

a. Assemble bearing stud (1, figure 2-4), link adjustment screw (2), link washer (3), link nut (4) and link (5) to bellows seal assembly.

b. Position potentiometer (15, figure 2-1) in housing, with hole in potentiometer base aligned with bellows lever (9, figure 2-4).

c. Secure potentiometer to housing by means of two spacer studs (13, figure 2-1) or other attaching parts shown on exploded view on Specific Data Sheet.

d. Attach link at center of slot in potentiometer contact arm (see figure 2-8), placing link washer between link and contact arm. Tighten link adjustment screw.

2-48. TANK UNITS WITH INSIDE OPERATING ROD *(figure 2-2)*:

a. Assemble link and its attaching parts (11 thru 16) to bellows seal assembly by means of screw (10).

b. Position potentiometer (7) in housing, with hole in potentiometer base aligned with bellows lever (6, figure 2-5).

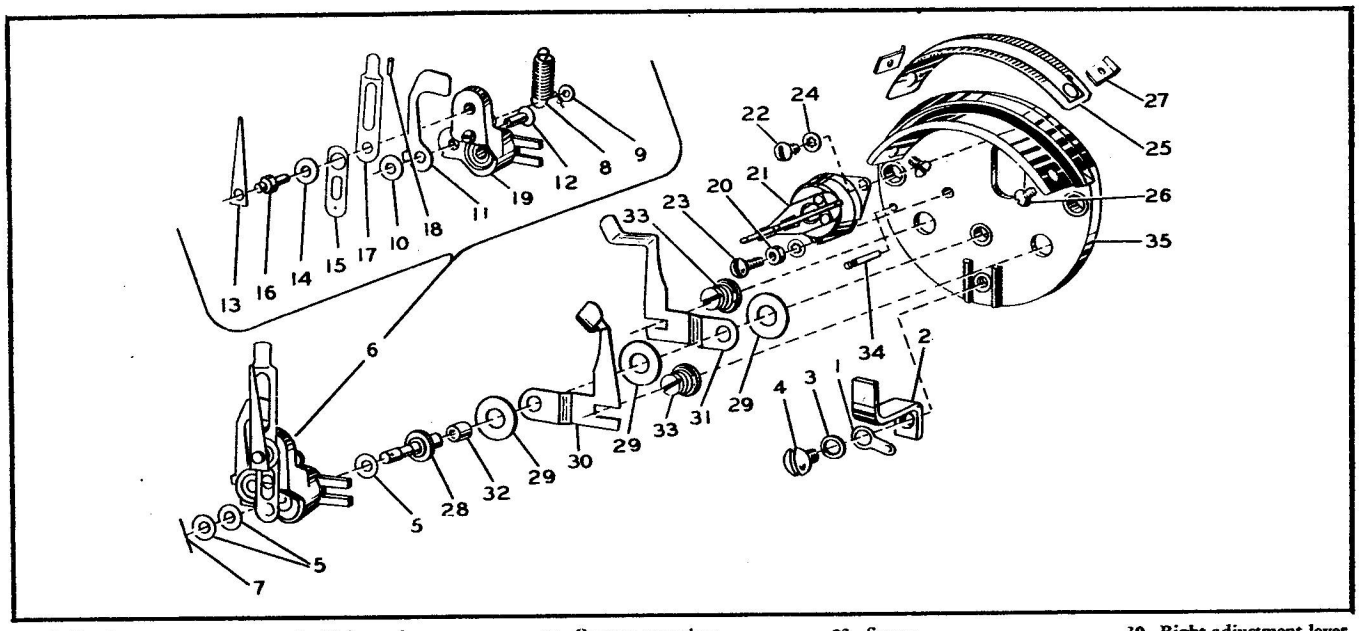
c. Secure potentiometer to housing by means of two screws (8, figure 2-2) and two washers (9), or other attaching parts indicated on Specific Data Sheet.

d. Attach link at center of slot in potentiometer contact arm (see figure 2-8), placing link washer between link and contact arm. Tighten link adjustment screw.

2-49. Install contactor assembly (12, figure 2-1) if applicable.

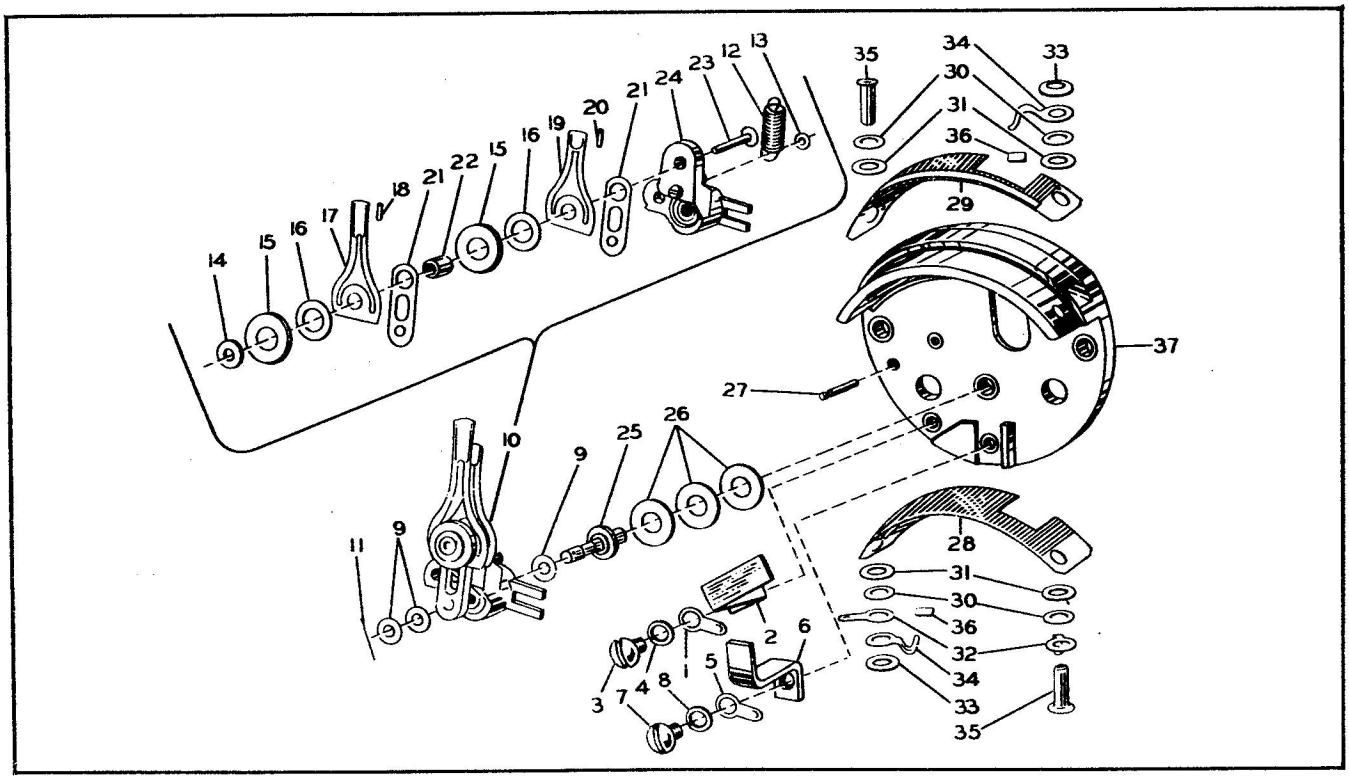
2-50. Make internal wiring connections in accordance with applicable internal wiring diagram on Specfic Data Sheet.

2-51. Make sure all wires are so positioned that they will not interfere with motion of potentiometer contact arm,



1. Solder lug
2. Contact arm contactor
3. Screw
4. Lock washer
5. Plain washer (3 reqd)
6. Contact arm assembly
7. Locking pin
8. Spring
9. Plain washer
10. Cup washer
11. Switch contact arm
12. Eyelet
13. Pointer
14. Cup washer
15. Contact arm blade
16. Rivet stud
17. Contact arm shoe
18. Gold contact
19. Moulded contact arm
20. Ground terminal spacer
21. Warning switch assembly (for breakdown see figure 2-11)
22. Screw
23. Screw
24. Lock washer (2 reqd)
25. Wound resistor
26. Screw (2 reqd)
27. Resistor support (2 reqd)
28. Contact arm shaft
29. Insulating washer (3 reqd)
30. Right adjustment lever
31. Left adjustment lever
32. Insulating bushing
33. Adjustment eccentric (2 reqd)
34. Spring pin
35. Potentiometer base

Figure 2-9. Exploded View of Typical Potentiometer of the Type Having Single Resistance Strip



1. Solder lug
2. Contact arm contactor
3. Screw
4. Lock washer
5. Solder lug
6. Contact arm contactor
7. Screw
8. Lock washer
9. Plain washer (3 reqd)
10. Contact arm assembly
11. Locking pin
12. Spring
13. Plain washer
14. Plain washer
15. Insulating washer (2 reqd)
16. Cup washer (2 reqd)
17. Contact arm shoe
18. Gold contact
19. Contact arm shoe
20. Gold contact
21. Contact arm blade (2 reqd)
22. Insulating tubing
23. Eyelet
24. Moulded contact arm assembly
25. Contact arm shaft
26. Plain washer (3 reqd)
27. Spring pin
28. Inner resistance strip
29. Outer resistance strip
30. Plain washer (4 reqd)
31. Insulating washer (4 reqd)
32. Terminal lug (2 reqd)
33. Cup washer (2 reqd)
34. Stroke adjustment shoe (2 reqd)
35. Eyelet (2 reqd)
36. Solder strip (2 reqd)
37. Potentiometer base

Figure 2-10. Exploded View of Typical Potentiometer of the Type Having Two Resistance Strips

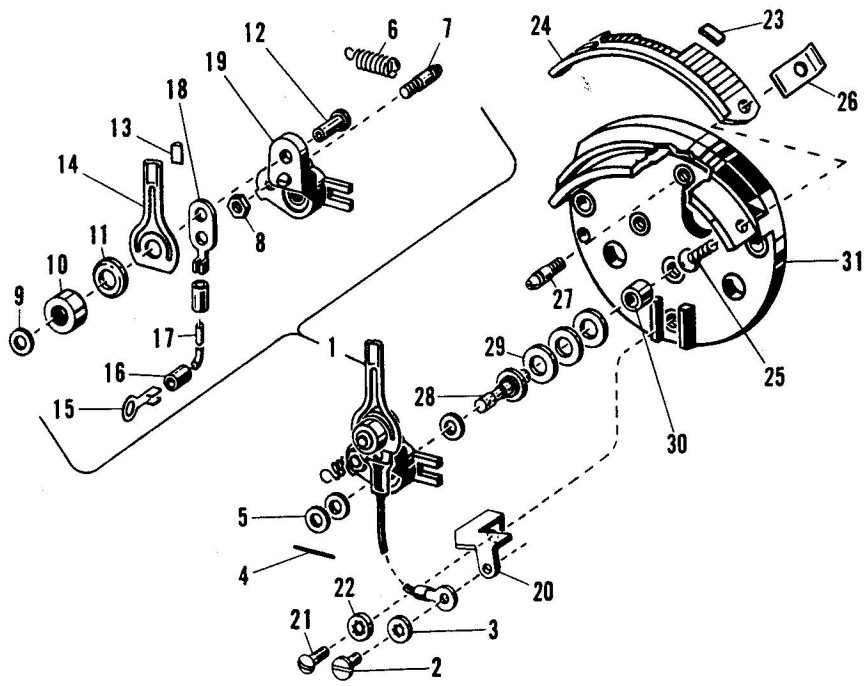
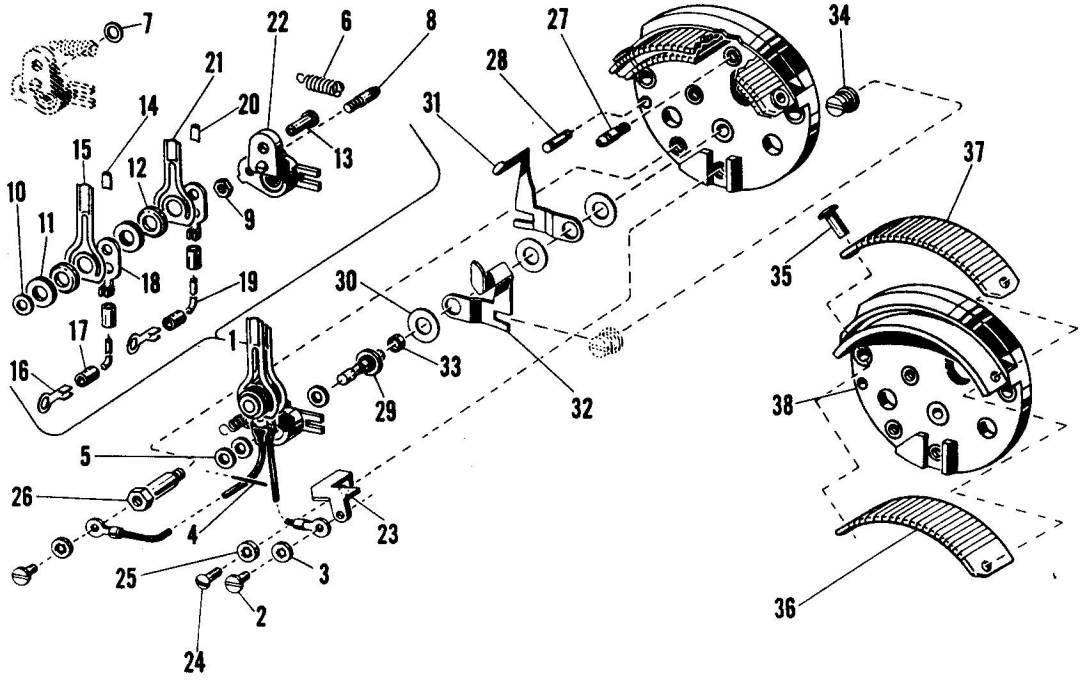


Figure 2-10A. Exploded View of Typical Flexible Contact Arm Lead Type Potentiometer Having a Single Resistance Strip



1. Contact arm assembly
2. Binding head screw (2 reqd)
3. Internal tooth lock washer (2 reqd)
4. Locking pin
5. Washer (3 reqd)
6. Spring
7. Washer
8. Stud
9. Hex nut
10. Flat washer
11. Insulating washer (2 reqd)
12. Cup washer (2 reqd)
13. Eyelet
14. Gold contact
15. Contact arm shoe
16. Solder lug
17. Insulating tube (2 reqd)
18. Lug
19. Sleeve and wire assembly
20. Gold contact
21. Contact arm shoe
22. Moulded contact arm assembly
23. Bracket
24. Round head screw
25. Internal tooth lock washer
26. Stud
27. Stud
28. Spring pin
29. Contact arm shaft
30. Insulating washer
31. Left adjustment lever
32. Right adjustment lever
33. Insulating bushing
34. Eccentric adjustment
35. Eyelet (2 reqd)
36. Resistance strip
37. Resistance strip
38. Potentiometer base

Figure 2-10B. Exploded View of Typical Flexible Contact Arm Lead Type Potentiometer Having Two Resistance Strips

or with differential fork and contact assembly of contactor (8, figure 2-3).

2-52. Install new cover gasket if necessary and replace cover.

2-53. OVERHAUL OF POTENTIOMETER.

2-54. GENERAL.

2-55. The potentiometers shown in figures 2-9, 2-10, 2-10A and 2-10B illustrate most of the features found in the potentiometers used in tank units covered in this handbook.

2-56. There are two types of potentiometers that have a single resistance strip. One is the blade and contactor type (figure 2-9), and the other is the flexible contact arm lead type (figure 2-10A).

2-57. Potentiometers used in totalizing circuits have two matched resistance strips (28 and 29, figure 2-10, or 36 and 37, figure 2-10B). Figure 2-10 illustrates the blade and contactor type and 2-10B illustrates the flexible contact arm lead type.

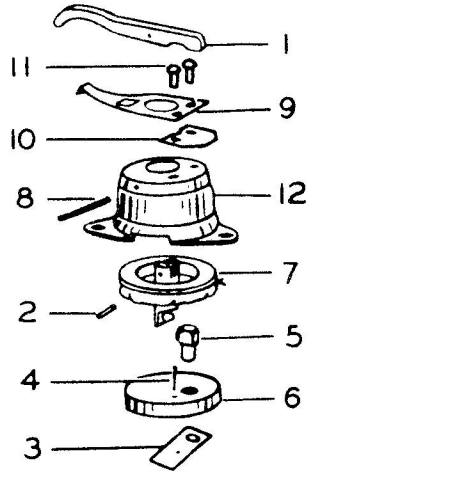
2-58. Some potentiometers contain a warning switch assembly (21, figure 2-9), mounted as shown.

CAUTION

Do not disassemble warning switch assembly except under emergency conditions. Exploded view of warning switch assembly (figure 2-11) is for reference only.

2-59. PRELIMINARY INSPECTION.

2-60. Do not disassemble potentiometer when overhauling tank unit, unless potentiometer is found to be defective.



1. Contact arm
2. Contact arm pin
3. Connection strip
4. Pin
5. Contact
6. Cover
7. Stem
8. Stem shaft
9. Arm return spring
10. Top plate
11. Rivet
12. Housing

Figure 2-11. Exploded View of Warning Switch Assembly

2-61. Inspect resistance strip (25, figure 2-9 or 24, figure 2-10A) or strips (28 and 29, figure 2-10, or 36 and 37, figure 2-10B) for obvious wear or damage.

2-62. Inspect gold contact (18, figure 2-9 or 13, figure 2-10A) or contacts (18 and 20, figure 2-10 or 14 and 20, figure 2-10B) for wear.

2-63. Check contact arm shoe (17, figure 2-9 or 14, figure 2-10A) or shoes (17 and 19, figure 2-10 or 15 and 21, figure 2-10B) for pressure of $1\frac{1}{2}$ oz. $\pm\frac{1}{4}$ oz. against resistance strip. To adjust tension, carefully bend shoe.

2-63A. Check flexible wire leads (see figure 2-10A or 2-10B) for damage and make sure screws are tight.

2-64. Inspect wiring and soldered conections.

2-65. TESTING.

2-66. To test warning switch assembly (21, figure 2-9) depress contact arm (1, figure 2-11) and use a Wheatstone Bridge to make sure switch contacts close.

2-67. Test resistance strip, using the Bridge, between contact points on strip for values shown in "Table of Electrical Data" on Specific Data Sheet. For potentiometers having a single strip, this value is given in a diagram referenced in the column headed "Figure Number of Resistance Value Diagram for Single Strip Potentiometers." For potentiometers having two resistance strips this value is given in the column headed "Total Strip Resistance."

2-68. If resistance is outside tolerances shown on Specific Data Sheet, adjust as follows:

a. Manually pivot friction-fitted contact arm shoe (17, figure 2-9 or 14, figure 2-10A) or shoes (17 and 19, figure 2-10 or 15 and 21, figure 2-10B) to bring resistance to desired value.

b. The desired value should be obtained by adjusting the contact arm shoe. If not, on potentiometers having friction-fitted adjustment levers (30 and 31, figure 2-9) pivot the adjustment levers (30 and 31) to bring resistance to desired value.

c. On potentiometers having friction-fitted stroke adjustment levers (34, figure 2-10, or 31 and 32 figure 2-10B) pivot the adjustment levers until the desired value is obtained.

d. On potentiometers having two resistance strips, values of the two strips must match within 1%.

e. On some potentiometers the resistance strip is tapped at one or more points. In this case, the only resistance that can be adjusted is that between the adjustment lever or stroke adjustment shoe and the nearest fixed contact. See applicable Specific Data Sheet for details.

2-69. DISASSEMBLY. If potentiometer is found to be defective, proceed as follows:

2-70. The following breakdown is for a typical blade and contactor type having a single resistance strip (see figure 2-9).

a. Remove screw (4), lock washer (3), lug (1), and contact arm contactor (2).

b. Take spring (8) off spring pin (34).

c. Take out locking pin (7), two washers (5) and pull contact arm assembly (6) from shaft (28).

d. Take out two screws (26), two supports (27) and remove resistance strip (25).

2-71. The following breakdown is for a typical flexible contact arm lead type having a single resistance strip (see figure 2-10A).

a. Take out screw (2), lock washer (3), screw (21), lock washer (22) and remove bracket (20).

b. Take spring (6) off stud (27).

c. Take out locking pin (4), two washers (5), and pull contact arm assembly (1) from shaft (28).

d. Take out two screws (25), two supports (26) and remove resistance strip (24).

2-72. Disassemble potentiometers having two resistance strips as follows:

a. Disassemble potentiometers of the blade and contactor type in accordance with figure 2-10.

b. Disassemble potentiometers of the flexible contact arm lead type in accordance with figure 2-10B.

2-73. REPAIR OR REPLACEMENT.

2-73A. Replace contact arm assembly (6, figure 2-9; 10, figure 2-10; 1, figure 2-10A or 1, figure 2-10B) if contacts (18, figure 2-9; 18 and 20, figure 2-10; 13, figure 2-10A or 14 and 20, figure 2-10B) are worn or contact arm assembly is defective.

2-73B. Replace warning switch assembly (21, figure 2-9) if it is inoperative. Do not attempt to repair it.

2-73C. Replace resistance strip if it is worn, or cannot be brought within resistance tolerance (see paragraph 2-68). The resistance strips are matched parts on potentiometers having two strips. They should match within 1%, and if they fail to match they should both be replaced. Do not replace one without replacing the other.

2-74. REASSEMBLY.

2-74A. Secure new resistance strip to potentiometer base with fungicidal varnish (Specification MIL-V-172A or equivalent). Use fiberglass brush or equivalent to remove varnish from area at top of strip contacted by contact arm shoe.

CAUTION

Keep coating away from stroke adjustment levers and other contact points.

2-74B. Reassembly of potentiometer is reverse of disassembly. For the blade and contactor type, see figure 2-9 or 2-10; for the flexible contact arm lead type, see figure 2-10A, 2-10B or 2-10C. For correct position of flexible wire and lug, see applicable figure in Specific Data Sheet.

2-74C. For wiring connection within the potentiometer, see Specific Data Sheet for internal wiring diagram of tank unit in which potentiometer is used.

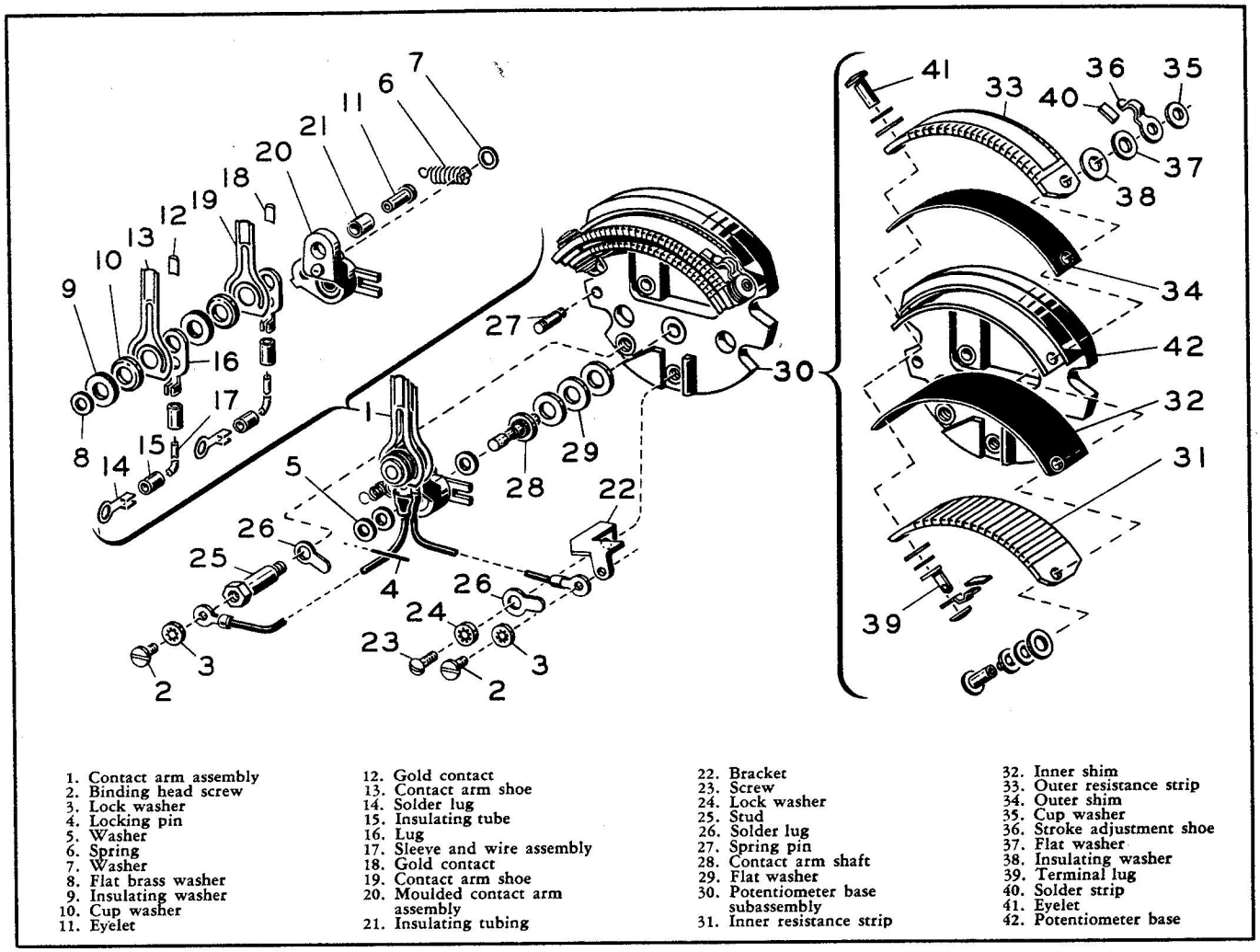


Figure 2-10C. Exploded View of Potentiometer Assembly

SECTION III

TEST PROCEDURES

3-1. DESCRIPTION OF SET-UP STAND.

3-2. For making final adjustments on tank units, a set-up stand similar to that shown in figure 3-1 is needed. The plate stand holds three to five metal plates, as required, which can be set at any desired height, and pivoted out of the way when necssary.

3-3. The mounting bracket is drilled for mounting of tank units, and is pivoted so it can be adjusted for top, side, or bottom mounted tank units.

3-4. Unless otherwise specified in the Specific Data Sheets, top-mounted and bottom-mounted tank units are installed in the mounting bracket in a horizontal position, and side-mounted tank units are installed in a vertical position (see applicable set-up stand diagram in Specific Data Sheet). Height of the adjustable plates is measured up or down from a line drawn horizontally through the pivot point of the tank unit float arm. The pivot point is the center of the fulcrum stud (45, figure 2-1) or fulcrum block pin (38, figure 2-2).

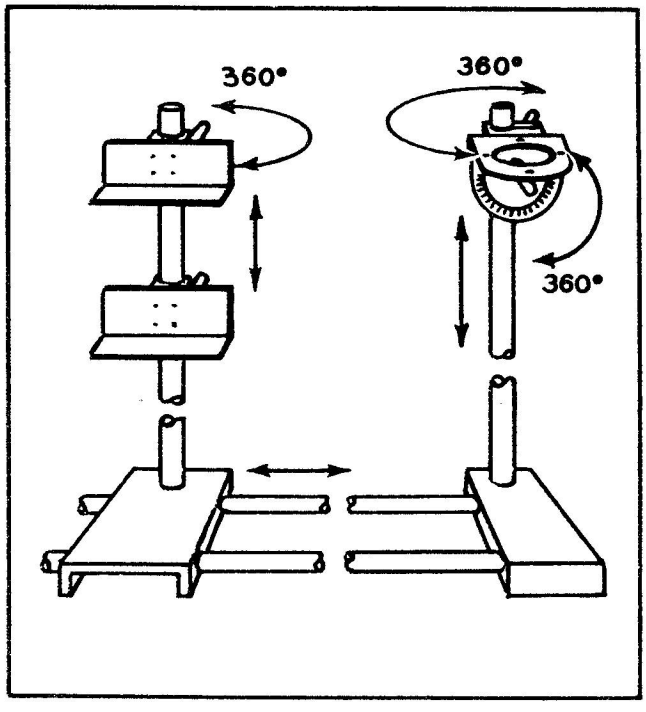


Figure 3-1. Typical Set-Up Stand

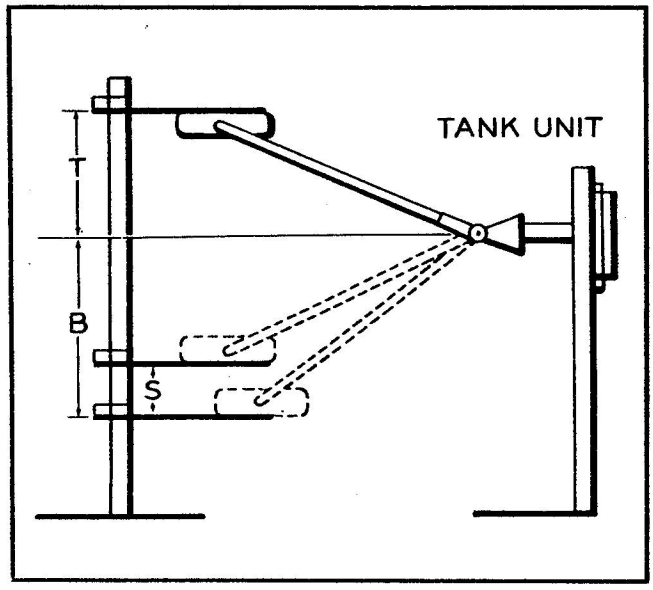


Figure 3-2. Set-Up Stand Diagram Giving Top and Bottom Float Arm Stop Settings and Warning Switch Setting

3-5. ADJUSTING FLOAT ARM STOPS.

3-6. Set plates on set-up stand at dimensions given in applicable set-up stand diagram on Specific Data Sheets (see figure 3-2). In most cases, dimensions are given in tabular form, with dimension "T" representing the setting of the top float arm stop measured upward from the pivot point, and dimension "B" representing the setting of the bottom float arm stop measured downward from the pivot point.

3-7. ADJUSTING FLOAT ARM STOPS ON TANK UNITS WITH OUTSIDE OPERATING ROD *(figure 2-1):*

a. Allow float to rest on plate representing bottom float arm stop setting (dimension "B", figure 3-2).

b. Loosen lower float arm stop screw (33, figure 2-1).

c. Adjust lower portion of float arm stop assembly (32) so it will prevent further downward motion of float arm when float touches lower plate on set-up stand.

d. Tighten lower float arm stop screw.

e. Raise float to plate representing top float arm stop setting (dimension "T", figure 3-2).

Note

Because of differences in float construction, some upper float arm stops are set with the float resting on top of the upper plate on set-up stand, others are set with float held up against bottom of upper plate on set-up stand. Carefully observe position of float in applicable set-up stand diagram on Specific Data Sheet.

f. Loosen upper float arm stop screw, adjust upper part of float arm stop assembly, and retighten screw.

3-8. ADJUSTING FLOAT ARM STOPS ON TANK UNITS WITH INSIDE OPERATING ROD *(figure 2-2):*

a. Loosen two hex-head float arm stop screws (34, figure 2-2). The friction-fitted upper and lower stops (41 and 42) can now be moved together or apart by hand.

b. Allow float to rest on plate representing bottom float arm stop setting (dimension "B," figure 3-2).

c. Position lower float arm stop (41) so it will prevent further downward motion of float arm.

d. Raise float to plate representing top float arm stop setting (dimension "T," figure 3-2).

Note

Because of differences in float construction, some upper float arm stops are set with the float resting on top of the upper plate on set-up stand, others are set with float held up against bottom of upper plate on set-up stand. Carefully observe position of float in applicable set-up stand diagram on Specific Data Sheet.

e. Move float arm stop as required, so upper float arm stop (42) will prevent further upward motion of float arm.

f. Recheck positioning of lower float arm stop.

g. Tighten two hex-head screws.

3-9. FINAL CHECK ON BOTH TYPES OF TANK UNITS. After completing float arm stop adjustment and tightening screws, again check setting of stops to make sure they did not slip out of position while screws were being tightened.

3-10. ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM.

3-11. ADJUSTING STROKE ON NON-TOTALIZING TANK UNITS (POTENTIOMETERS WITH ONE RESISTANCE STRIP) *(See figure 2-9):*

a. Remove cover of tank unit. If there is a contactor assembly, remove screws and set contactor assembly aside without disconnecting wires.

b. Connect tank unit to Type O-1 Field Tester in accordance with applicable field tester wiring diagram on Specfic Data Sheet.

c. Set lower left-hand toggle switch on Field Tester to "N" for tank units used with indicators with 90° circuit, or "T" for tank units used with indicators with 300° circuit. The setting for this toggle switch, designated as switch "D," is given on the field tester wiring diagram on the Specific Data Sheet. This is the only switch on the Type O-1 Field Tester used when testing tank units.

d. Place float on bottom plate of set-up stand and see if indicator needle on Field Tester reads ZERO. Move float to top plate on set-up stand and see if Field Tester indicator reads 90° or 300°, as applicable.

e. If indicator reading is inaccurate at either or both ends of scale, first equalize the error so that the indicator needle will be either inside both end markings by the same distance, or outside both end markings by the same distance. This is done by pivoting the friction-fitted contact arm shoe (17, figure 2-9) with thumb and forefinger.

f. Next, increase or decrease length of contact arm stroke, as required. Loosen link adjustment screw (see figure 2-8) very slightly. To increase length of stroke, tap screw very slightly toward base of contact arm; to decrease length of stroke, tap screw very slightly away from base of contact arm.

g. Move float from bottom to top plate on set-up stand and check indicator reading, changing position of link adjustment screw as required. Tighten link adjustment screw.

h. On potentiometers having adjustment levers (30 and 31, figure 2-9), a final trimming adjustment can be made at either end of scale by turning adjustment eccentric (33) with a screw driver.

i. On potentiometers having stroke adjustment shoes (34, figure 2-10), a final trimming adjustment can be made by pivoting the friction-fitted shoes.

j. Move float slowly from lower to upper plate on set-up stand and see if indicator needle moves smoothly and continuously from ZERO to 90° (or 300°) end of scale.

k. SETTING POINTER. On electric tank units having a dial and pointer inside the housing, the pointer may be inaccurate after the stroke of the potentiometer contact arm has been adjusted. In this case, lift the pointer off its shaft and position it correctly.

3-12. ADJUSTING STROKE AND END OHMAGES ON TOTALIZING TANK UNITS (POTENTIOMETERS WITH TWO RESISTANCE STRIPS) *(see figure 2-10).*

3-13. Potentiometers used in tank units for totalizing systems contain two resistance strips. In adjusting the stroke of the contact arm, it is also necessary to check the resistance between the contact arm and the take-off connection at both the full and empty positions, for both inner and outer resistance strips (figure 3-3). No field tester wiring diagrams are provided for these tank units, as adjustment of end ohmages is a sufficient test.

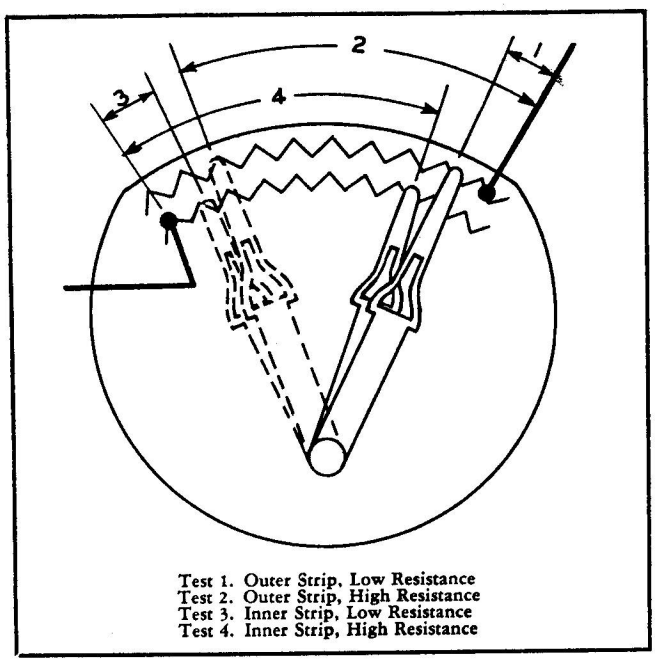


Figure 3-3. End Ohmage Tests on Totalizing Tank Units

Note

Use a bridge to check resistance; an ohmmeter is not sufficiently sensitive.

3-14. The Specific Data Sheet for the particular tank unit gives the position of the float for each of the four tests, and also the pins on the receptacle or plug to which the bridge is connected in making the test. For example, the "Outer Strip, Low Resistance" test will be described as "Float Down, Pins A and D." Tests of the four end ohmage positions are described below, and summarized in Table II.

3-15. OUTER STRIP, LOW RESISTANCE *(Test 1, figure 3-3):*

a. Position float and connect bridge to pins as indicated on Specific Data Sheet.

b. If resistance is greater than that listed on Specific Data Sheet, use thumb and forefinger to pivot the friction-fitted contact arm which rides the outer strip closer to the take-off contact. This contact will be either a stroke adjustment shoe (34, figure 2-10) or an adjustment lever (30, figure 2-9).

c. If resistance is lower than values given, pivot shoe away from take-off.

3-16. OUTER STRIP, HIGH RESISTANCE *(Test 2, figure 3-3):*

a. Position float and connect bridge as indicated on Specific Data Sheet.

b. If resistance is lower than values shown in table, stroke of contact arm assembly must be lengthened; if resistance is above values shown, stroke of contact arm assembly must be shortened.

c. Loosen link adjustment screw (see figure 2-8). To increase length of stroke, tap link adjustment screw very slightly toward base of contact arm assembly; to decrease length of stroke, tap link adjustment screw very slightly away from base of contact arm assembly.

d. When resistance has been brought within tolerance shown in table, tighten link adjustment screw.

e. Recheck resistance at low resistance end, paragraph 3-15.

TABLE II. SUMMARY OF END-OHMAGE TESTS FOR TOTALIZING TANK UNITS.

Test No.	*Resistance Tested*	*Corrective Adjustments*
1.	Outer strip, low resistance	If resistance is too high, pivot contact shoe on outer strip closer to take-off. If resistance is too low, pivot shoe away from take-off.
2.	Outer strip, high resistance	If resistance is too low, lengthen stroke of contact arm assembly. If resistance is too high, shorten stroke of contact arm assembly. Repeat test one.
3.	Inner strip, low resistance	If resistance is too high, pivot lower contact arm shoe closer to take-off connection on lower strip. If resistance is too low, pivot shoe away from take-off.
4.	Inner strip, high resistance	If resistance is too low, lengthen stroke of contact arm assembly; if resistance is too high, shorten stroke of contact arm assembly. Repeat tests 1 thru 4.

3-17. INNER STRIP, LOW RESISTANCE *(Test 3, figure 3-3):*

a. Position float and connect bridge as indicated on Specific Data Sheet.

b. If resistance is too high, pivot lower contact arm shoe closer to take-off connection.

c. If resistance is too low, pivot lower contact arm shoe away from take-off connection.

3-18. INNER STRIP, HIGH RESISTANCE *(Test 4, figure 3-3):*

a. Position float and connect bridge as indicated on Specific Data Sheet.

b. If resistance is too low, lengthen stroke of contact arm assembly (see paragraph 3-16) just enough to bring resistance within tolerance.

c. If resistance is too high, shorten stroke of contact arm assembly just enough to bring resistance within tolerance.

d. If either adjustment is made, recheck resistance at all four positions.

3-19. CONTINUITY TEST. Connect bridge to pins specified for "Outer Strip" resistance test, move float slowly from top to bottom float arm stop plate on set-up stand, and see if pointer on bridge moves slowly and continuously from minimum to maximum resistance. Repeat test on inner strip by connecting bridge across pins indicated for "Inner Strip" resistance test.

3-20. SETTING POINTER. On tank units having a dial and pointer inside the housing, the pointer may be inaccurate after the stroke of the potentiometer contact arm has been adjusted. In this case, lift the pointer off its shaft and position it correctly.

3-21. ADJUSTING STROKE ON STEP-TYPE UNITS.

3-22. The procedure is essentially the same as that described in paragraph 3-11, except that each step-type tank unit moves the indicator pointer only a portion of its total travel. For example, if two tanks are used to gauge a single tank and are connected to a 90° indicator, the lower tank unit might move the indicator needle from zero to 45° and the upper tank unit would then move it from 45° to 90°.

3-23. For step-type tank units, the Specific Data Sheet tells how to set the contact arm stroke for the correct portion of the indicator pointer travel.

3-24. SETTING WARNING SWITCH ASSEMBLY.

3-25. If the tank unit contains a warning switch assembly (21, figure 2-9), the set-up stand diagram (see figure 3-2) will show a dimension "S." This is the position at which the warning switch assembly actuates, turning on a warning light, bell, or other equipment. A table on the Specific Data Sheet gives the value of dimension "S" for each tank unit containing a warning switch.

Note

In most cases, dimension "S" is measured upward from the bottom float arm stop setting position. In some special cases, however, the distance might be measured in some other way. Carefully observe method of measuring dimension "S" in the set-up stand diagram for the specific tank unit being overhauled.

3-26. Set warning switch as follows:

a. Set one of the plates on the set-up stand at the position indicated by the "S" dimension.

b. Connect a 3-volt light to the tank unit as shown in the applicable external wiring diagram on the Specific Data Sheet.

c. Lower float onto the "S" plate and see if light goes on as float touches plate.

Note

On bottom mount tank units, if mounted similar to top mounted units for bench adjustment, warning light should go on as float is raised to plate representing "S" position.

d. If necessary, adjust switch setting by pivoting switch contact arm (11, figure 2-9) in or out. Moving it out, away from potentiometer contact arm assembly, makes light go on sooner; moving it inward makes light go on later.

CAUTION

To avoid damaging warning switch, do not adjust switch contact arm while it is directly over the warning switch. Raise or lower float to move switch contact arm away from switch while making adjustment.

e. After setting position at which light goes on, pivot "S" plate to one side, raise and lower float, and make sure that warning light remains on until float touches bottom "B" plate. If it does not, bend switch contact arm slightly downward, observing caution given above.

3-26. SETTING CONTACTOR ASSEMBLY.

3-27. The contactor assembly is essentially a make-break switch which is used to start or stop fuel transfer pumps or other auxiliary equipment.

3-28. The contactor assembly contains a differential fork and contact assembly (8, figure 2-3) which travels in unison with the potentiometer contact arm, because two projections on the differential arms (19 and 20) straddle the potentiometer contact arm.

3-29. Depending upon the position of the potentiometer contact arm, the brushes (13) on the differential fork and contact assembly contact either the left-hand contact strips (47 and 29) or the right-hand strips (46 and 28).

3-30. As the differential fork and contact assembly moves from one strip to the other, contact is broken as the lift point (10) moves across the roller (38).

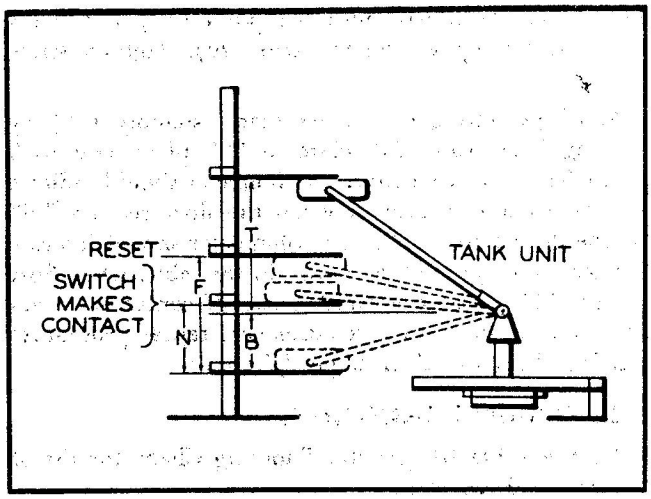


Figure 3-4. Method of Indicating Contactor Assembly Settings on Specific Data Sheet Diagrams

3-31. This transfer from left to right contact strips can be adjusted to take place at any desired point of float travel, by pivoting the contact plate assembly (25), which holds the roller.

3-32. In some installations, the contactor closes a relay when it is at the left of the roller and opens it at the right; on others the reverse is true. For functions of the contactor assembly and external circuits, see the aircraft erection and maintenance manual.

3-33. An ohmmeter or bridge is used to test the functioning of the contactor assembly. A table on the Specific Data Sheet indicates which pins on the receptacle or plug should be connected, and which pin should be grounded, when the float is "below control position" and "above control position."

3-34. The control position is indicated by dimension "N" (see figure 3-4) and an accompanying table, for tank units having a contactor assembly.

3-35. Set the contactor assembly as follows:

a. Install contactor assembly in tank unit, making sure the two differential arms (19 and 20, figure 2-3) straddle the potentiometer contact arm assembly. Allow sufficient side play so that upper contact arm (9) can rise freely when lift point (10) passes over roller. Distance between differential arms can be adjusted, on most contactors, by loosening screw (23).

b. Set one plate on set-up stand at position indicated by "N" dimension on set-up stand diagram and accompanying table; set another plate at the "F" dimension if one is given in table.

Note

Methods of measuring "N" and "F" dimensions vary on different tank units. Carefully observe method of measuring these dimensions on set-up stand diagram for the specific tank unit being overhauled.

c. Place float on "N" plate and move it slowly to "F" plate. The differential fork and contact assembly (8) should move slightly when the float touches "F" indicating engagement of projection of the differential arm (20) by potentiometer contact arm. Return float slowly to "N" plate. Fork and contact assembly (8) should move slightly when float touches "N" indicating engagement of projection of differential arm (19) by potentiometer contact arm.

Note

Length of travel required between "N" and "F" plates determines distance between differential arm projections. Changing distance between projections will cause switch to operate either sooner or later.

d. If fork and contact assembly (8) does not show the required slight movement, or shows excessive movement indicating engagement of differential arm projections prior to float reaching either "N" or "F", the differential arms must be adjusted. Perform the following steps "e" and "f". If fork and contact assembly operation is satisfactory continue setting procedure beginning at step "h".

e. Place float on "N" plate and loosen screw (23) slightly to permit adjustment of assembly (8). Using two screw drivers (see figure 3-5) move the differential arms (19 and 20) to change distance between two arm projections. Increase distance between projections if assembly (8) indicated excessive movement in step "c", above. Decrease distance if assembly did not give required slight movement when float was raised and lowered between "F" and "N".

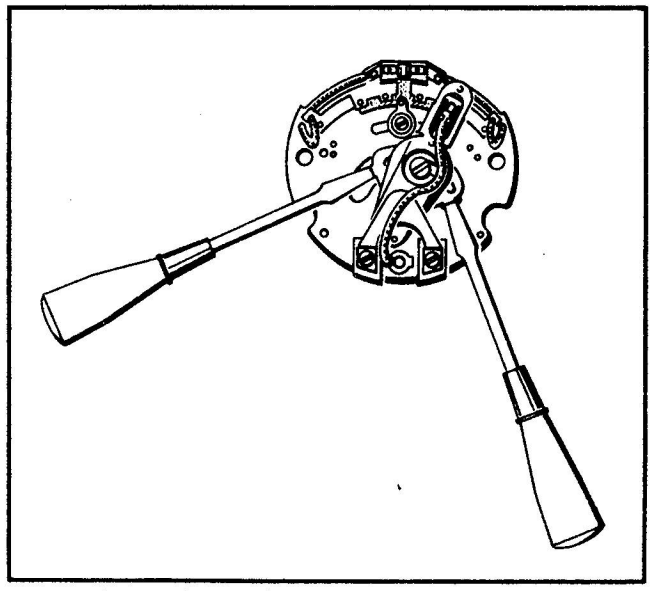


Figure 3-5. Adjusting Differential Arms on Contractor Assembly

f. Before tightening screw (23) note position of arm assembly (8) relative to base assembly (43). If arm assembly is to either side of center point of base assembly by an appreciable amount center the arm (8). Centering must be accomplished without disturbing the differential arms (19 and 20) performed in preceding step. While carefully holding two screw drivers in position

shown in figure 3-5 to prevent movement of differential arms use thumb to position arm assembly (8) to center of base assembly (43).

g. Tighten screw (23) and recheck setting of arms (19 and 20) in accordance with step "c" above.

h. Use an ohmmeter or bridge to check operation of contactor assembly. With float above "N" position see if pins are connected or grounded as indicated in "Above N Position" column of table. With float below "N" position check connections as indicated in "Below N Position" column of table.

i. Place float on "N" plate of set-up stand.

j. Loosen screw (26) and move contact plate assembly (25) until lift point (10) of assembly (9) is resting on roller (38) of plate assembly (25). Continue moving plate assembly slowly until lift point (10) just snaps onto the left upper contact strip (29). Tighten screw (26).

k. Check setting of contact plate assembly (25) by moving float from "N" plate to "F" plate, and back again. The properly connected ohmmeter should indicate the connection or ground when the float reaches "N" on the downward stroke. The ohmmeter should indicate connection or ground, as shown in the table, when float reaches "F" plate on upward stroke. If contactor assembly does not meet these requirements repeat procedures outlined in steps "c" through "j" above.

3-36. TROUBLE SHOOTING.

3-37. See Table III, Trouble Shooting Chart, for list of troubles and remedies.

TABLE III. TROUBLE SHOOTING CHART

Trouble	*Probable Cause*	*Remedy*
Float will not go completely to full or empty position	Float arm stops incorrectly adjusted	Adjust float arm stops (paragraphs 3-5 thru 3-9)
	Bent float arm or float fork	Repair or replace. See general dimension drawing on specific data sheet for correct length and shape of float arm
Inaccurate indicator reading	Incorrect stroke adjustment	Adjust stroke (paragraphs 3-10 thru 3-19)
	Incorrect resistance value of potentiometer resistance strip	Test ohmage of strip (paragraphs 2-67 to 2-68). Reset stroke adjustment shoe or lever, or replace resistance strip (paragraphs 2-72 thru 2-74)
	Stroke adjustment shoe or lever incorrectly set	Test ohmage of resistance strip (paragraphs 2-67 and 2-68). Adjust stroke adjustment shoe or lever
	Worn pivot bearing hole in fulcrum, or worn fulcrum block pin	Replace fulcrum or pin
	Short or break in circuit	Check circuits, using internal wiring diagram on specific data sheet
	Broken resistance strip in potentiometer	Replace resistance strip (paragraphs 2-72 thru 2-74), or potentiometer
	Potentiometer contact arm not contacting resistance strip	Repair or replace contact arm assembly (paragraphs 2-63 and 2-70), or replace potentiometer
	Stroke adjustment shoe or lever not contacting resistance strip	Repair or replace shoe or lever, or replace potentiometer
	Resistance strip incorrectly grounded	Check circuits
Fuel leaks into tank unit housing	Fractured bellows seal assembly	Replace bellows seal assembly (paragraphs 2-39 thru 2-42)
	Leak between bellows seal assembly and tank unit housing	Reseat bellows seal assembly (paragraphs 2-39 thru 2-42)
Warning light, bell, etc., not actuated at correct point	Warning switch incorrectly adjusted	Adjust warning switch (paragraphs 3-24 thru 3-26)
Warning light, bell, etc., not actuated	Warning switch inoperative	Actuate switch manually and see if it makes and breaks circuit. If it does, bend switch contact arm to make contact as described in paragraphs 3-26d and 3-26e. If it does not, replace switch assembly (paragraph 2-71)
Fuel pump or other auxiliary equipment not actuated at proper time	Contactor improperly adjusted	Adjust contactor (paragraphs 3-26 thru 3-35)
Fuel pump or other auxiliary equipment not actuated	Contact arm on contactor not touching contact strips	Bend contact arm into place, or replace contactor
	Broken connection in contactor	Check wiring, using internal wiring diagram in specific data sheet
	Contactor inoperative	Replace contactor
Second or later steps in multi-step stystem inaccurate or inoperative	Transfer switch in first tank unit improperly set	Set transfer switch as described in specific data sheet for the specific tank unit
	Transfer switch in first tank unit inoperative	Replace transfer switch or potentiometer

SECTION IV
SPECIFIC DATA SHEETS

Overhaul and test procedures for the tank units included in this section are substantially the same as the procedures given in Sections II and III, except as noted on each Specific Data Sheet.

For list of tank units covered in each specific data sheet, see Table I, Index of Tank Units and Specific Data Sheets.

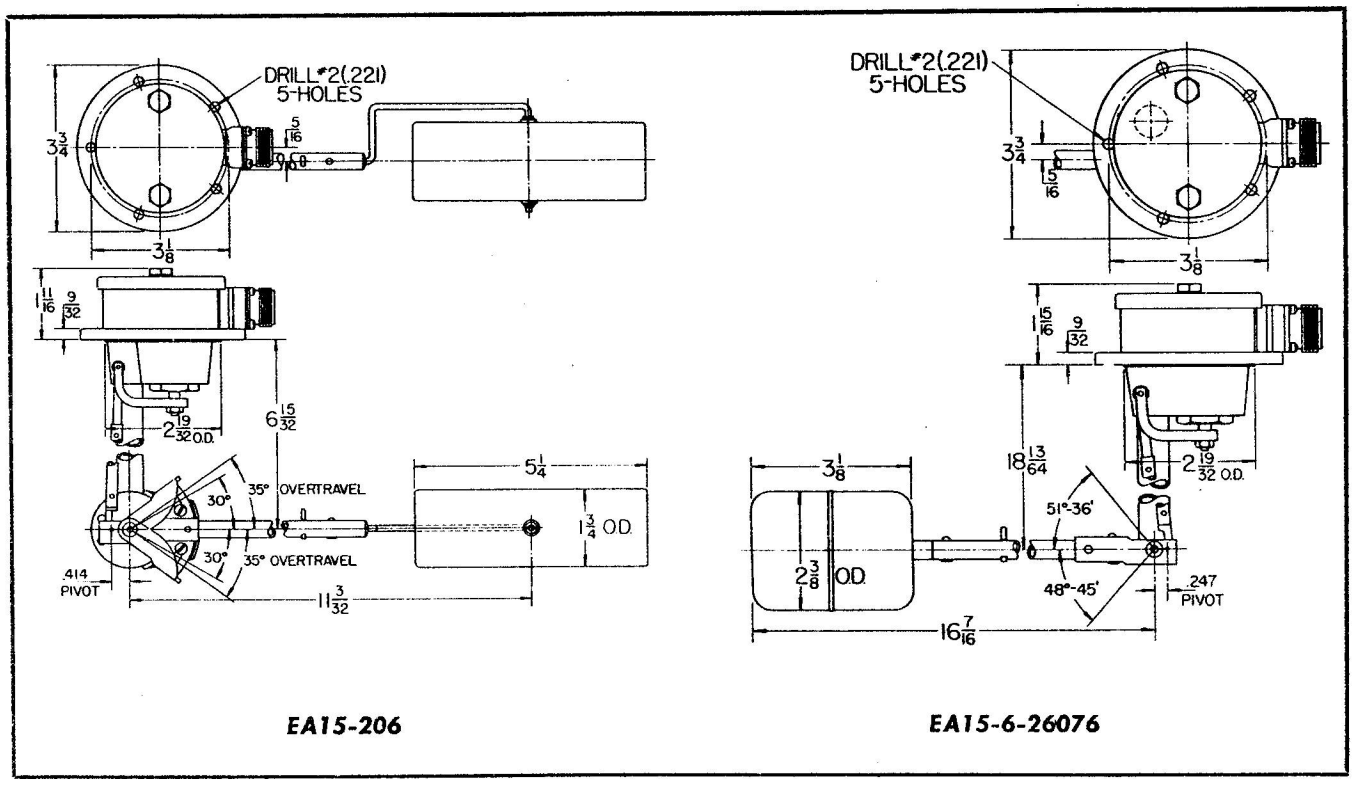
SPECIFIC DATA SHEET NO. 1

Tank units covered in this Specific Data Sheet are of the outside operating rod type and are as follows:

EA15-206	EA84AW-307	EA84AW-396R	EA85A-742
EA15-6-26076	EA84AW-308	EA84AW-397	EA85W-622
EA65-4222324	EA84AW-396L	EA85A-574	EA85W-702
EA65W-613			

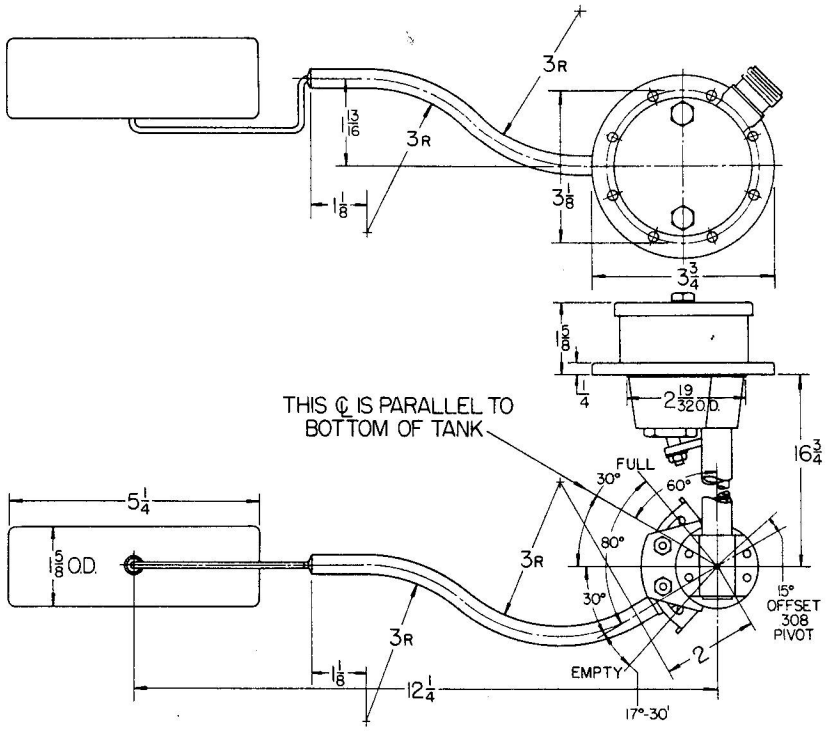
Voltage	28v dc
Dimensions	see figure 4-2

Figure 4-1. Table of Leading Particulars

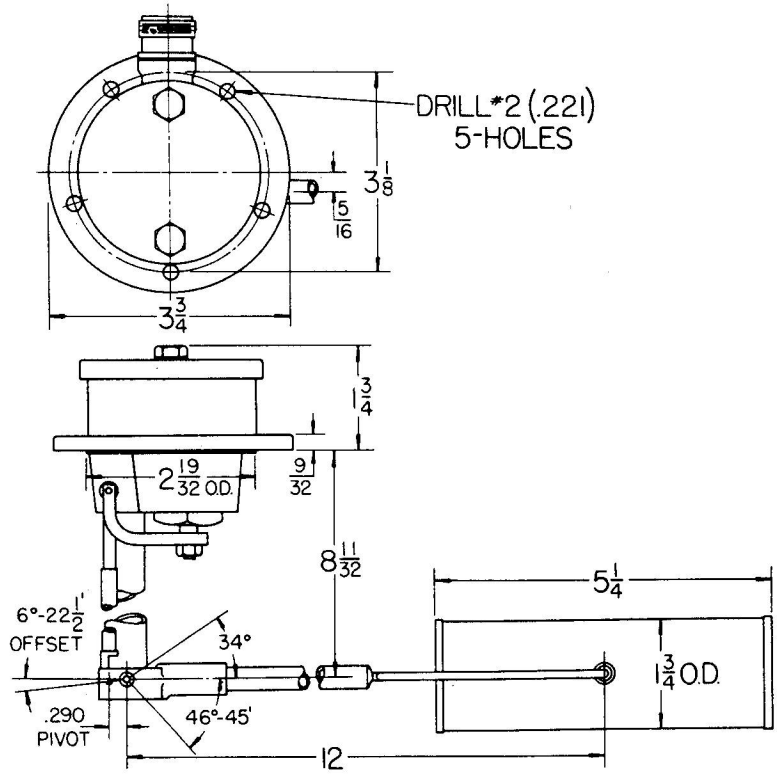


EA15-206 EA15-6-26076

Figure 4-2 (Sheet 1 of 4 Sheets). General Dimensions

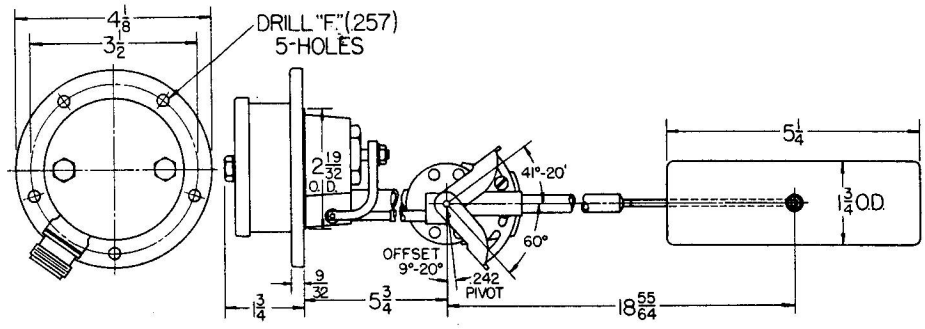


EA65-4222324

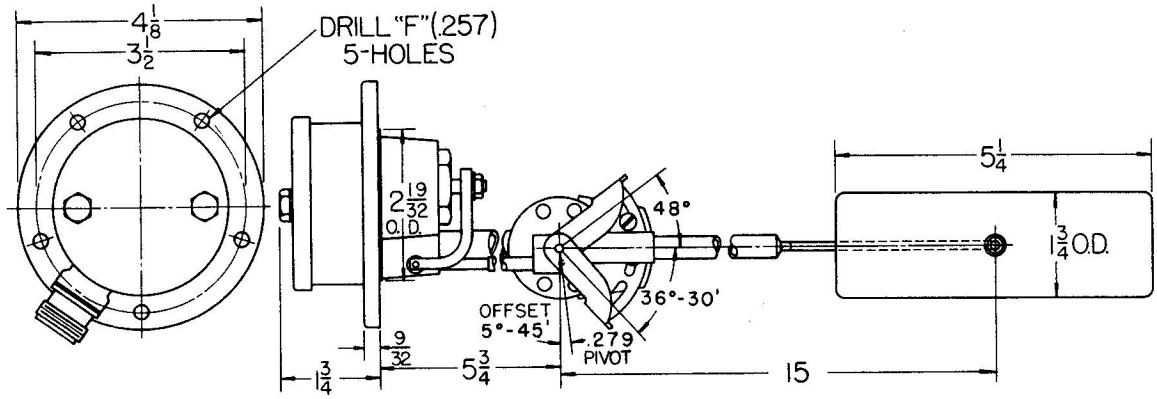


EA65W-613

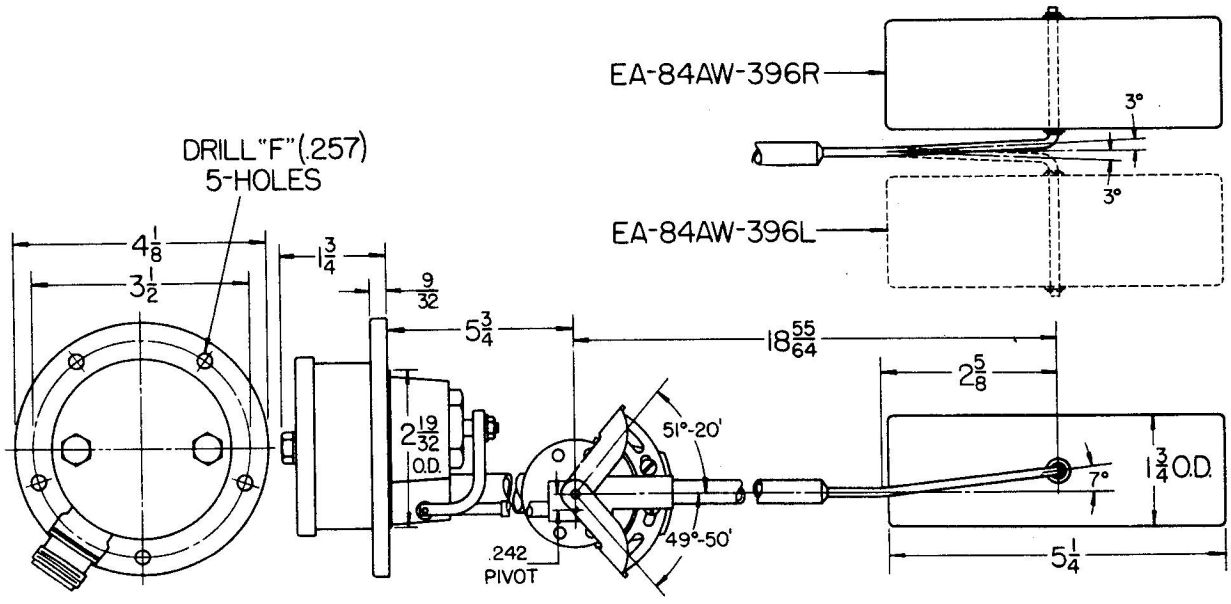
Figure 4-2 (Sheet 2 of 4 Sheets). General Dimensions



EA84AW-307

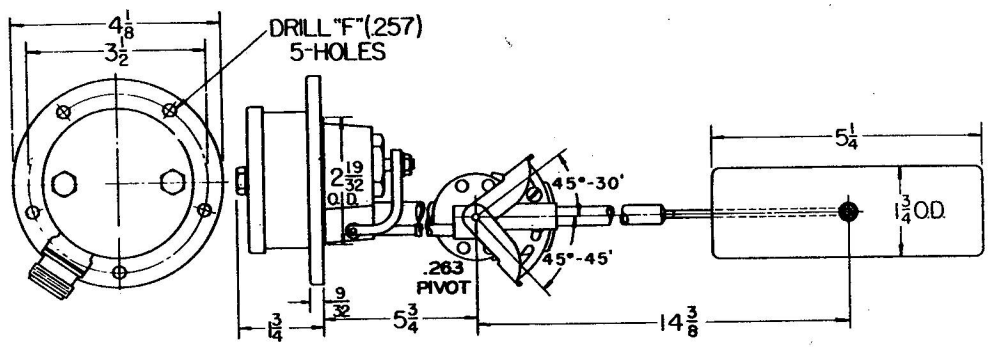


EA84AW-308

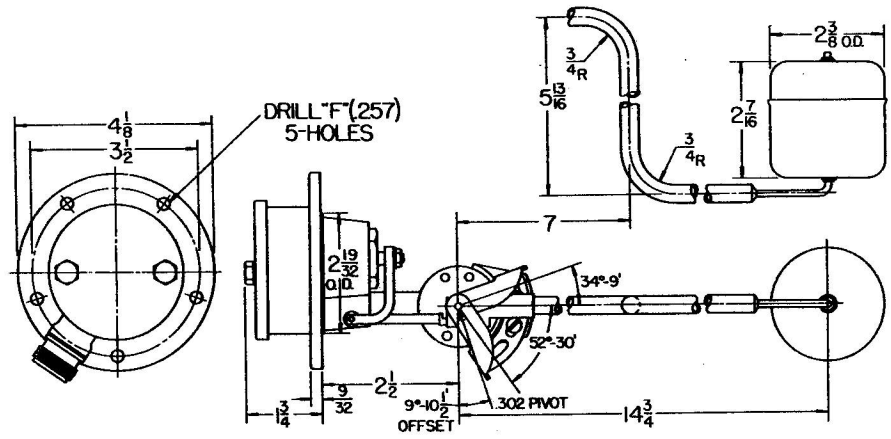


EA84AW-396L and EA84AW-396R

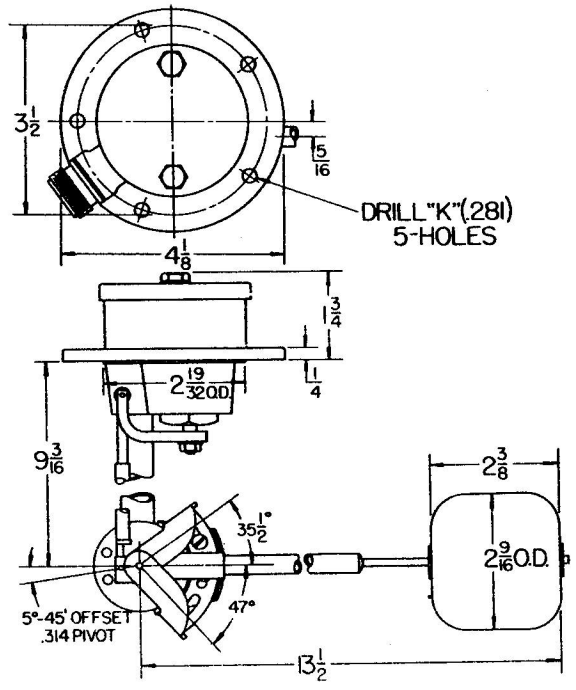
Figure 4-2 (Sheet 3 of 4 Sheets). General Dimensions



EA84AW-397

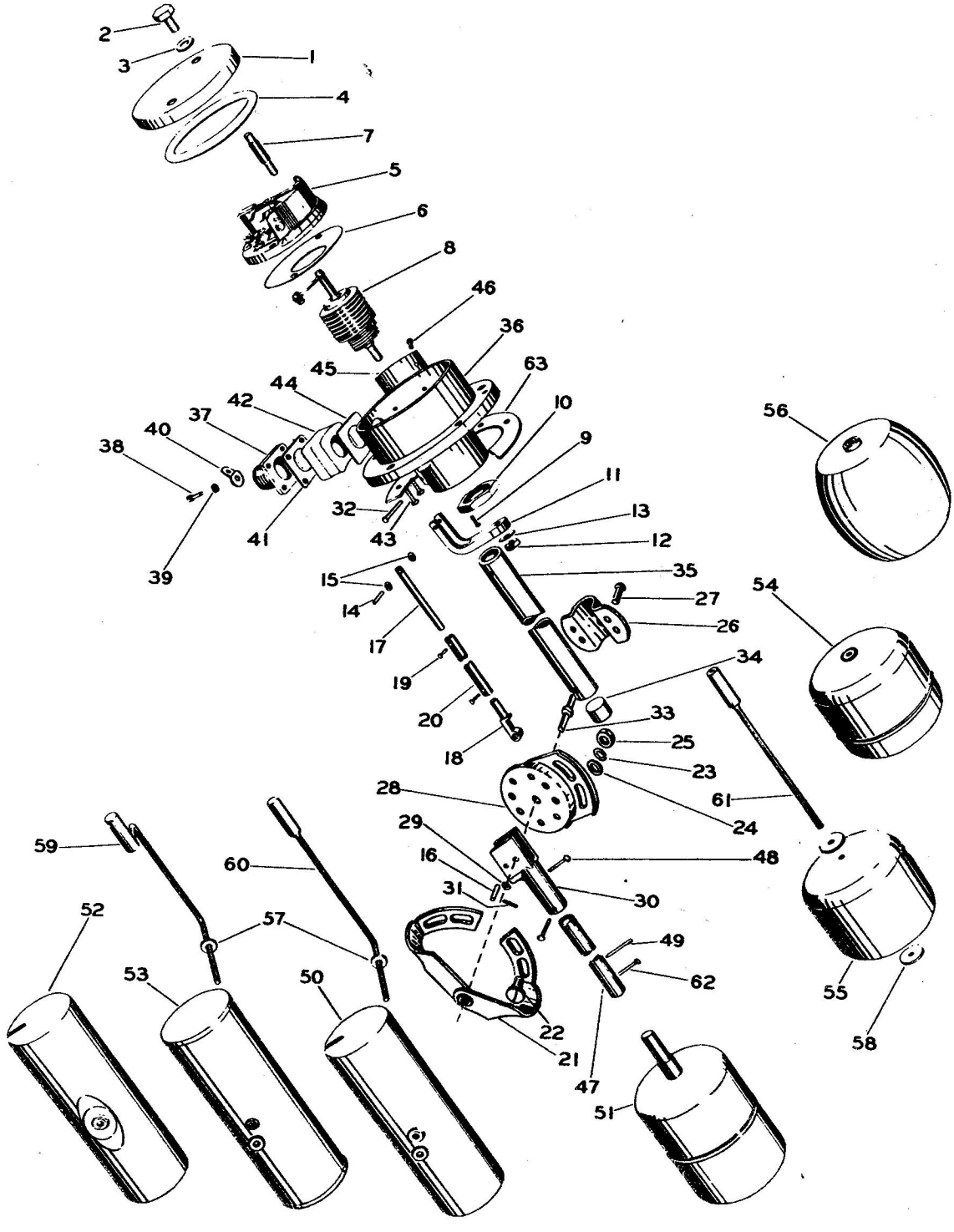


EA85A-574 and EA85A-742



EA85W-622 and EA85W-702

Figure 4-2 (Sheet 4 of 4 Sheets). General Dimensions



1. Cover
2. Cover screw (2 reqd)
3. Cover washer (2 reqd)
4. Cover gasket
5. Potentiometer (for breakdown see figure 2-9 or 2-10)
6. Insulation pad
7. Cover stud (2 reqd)
8. Bellows seal (for breakdown see figure 2-4)
9. Rivet
10. Bellows nut
11. Operating arm
12. Nut
13. Washer
14. Rod pin
15. Washer (2 reqd)
16. Rod link pin
17. Rod extension
18. Rod link
19. Rivet (2 reqd)
20. Operating rod
21. Float arm stop
22. Screw (2 reqd)
23. Lock washer (2 reqd)
24. Plain washer (2 reqd)
25. Nut (2 reqd)
26. Clamp
27. Rivet (4 reqd)
28. Float arm stop bracket
29. Plain washer
30. Fulcrum
31. Locking pin
32. Rivet
33. Fulcrum stud
34. Fulcrum plug
35. Fulcrum pipe
36. Housing
37. Connector receptacle
38. Screw (4 reqd)
39. Lock washer (4 reqd)
40. Solder lug
41. Receptacle gasket
42. Mounting block
43. Screw (2 reqd)
44. Gasket
45. Name plate
46. Rivet (2 reqd)
47. Float arm
48. Rivet (2 reqd)
49. Cotter pin
50. Float
51. Float
52. Float
53. Float
54. Float
55. Float
56. Float
57. Plain washer (2 reqd)
58. Plain washer (2 reqd)
59. Float fork
60. Float fork
61. Float fork
62. Rivet
63. Tank gasket

Figure 4-3. Exploded View of Tank Unit

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-3.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-3.

Follow general disassembly instructions given in paragraphs 2-1 thru 2-9, and 2-11 thru 2-13. For disassembly of potentiometer, see paragraphs 2-69 thru 2-74.

CLEANING.

See paragraphs 2-15 thru 2-17.

INSPECTION.

See paragraphs 2-18 thru 2-24. For inspection of potentiometer see paragraphs 2-59 thru 2-64.

PRE-ASSEMBLY TESTING.

See paragraphs 2-25 thru 2-27. For tests of potentiometer, see paragraphs 2-65 thru 2-68, also Table of Electrical Data, figure 4-4, and resistance value diagrams referenced in that table.

Tank Units	*Figure No. of Resistance Value Diagram*	*Figure No. of Internal Wiring Diagram*	*Figure No. of Field Tester Wiring Diagram*
EA15-206	4-5	4-7	4-14
EA15-6-26076	4-5	4-7	4-15
EA65-4222324	4-6	4-8	4-16
EA65W-613	4-6	4-9	4-17
EA84AW-307	4-6	4-9	4-17
EA84AW-308	4-6	4-9	4-17
EA84AW-396L	4-6	4-9	4-17
EA84AW-396R	4-6	4-9	4-17
EA84AW-397	4-6	4-9	4-17
EA85A-574	4-5	4-7	4-14
EA85A-742	4-5	4-7	4-14
EA85W-622	4-5	4-10	4-18
EA85W-702	4-5	4-10	4-18

Figure 4-4. Table of Electrical Data

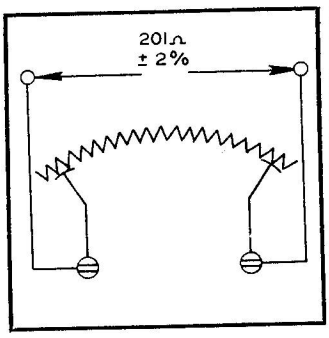


Figure 4-5. Resistance Value Diagram

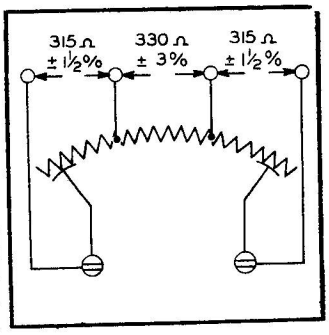


Figure 4-6. Resistance Value Diagram

REPAIR OR REPLACEMENT.

See paragraphs 2-28 thru 2-30. For repair of potentiometer, see paragraphs 2-69 thru 2-74.

LUBRICATION.

None required.

REASSEMBLY.

Follow general instructions given in paragraphs 2-33 thru 2-36, 2-38 thru 2-40, 2-42 thru 2-44, 2-46, 2-47, and 2-49 thru 2-52.

Items 59 thru 61. Align float forks (59 thru 61), float arm (47) and floats (50 thru 56) to correspond to general dimension drawing, figure 4-2, for specific tank unit.

Item 55. Use larger washer (58) when connecting float (55) to float arm.

Item 5. Connect wires according to internal wiring diagram for specific tank unit. See Table of Electrical Data, figure 4-4, for figure number of internal wiring diagram.

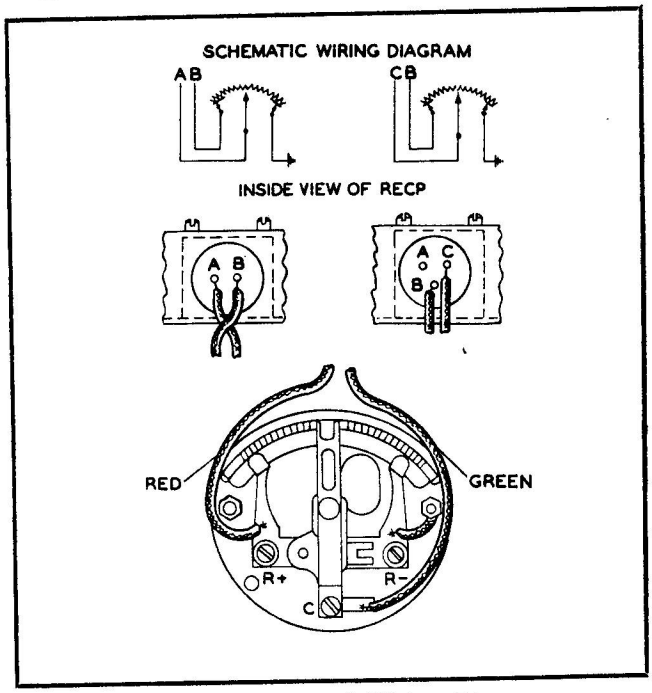


Figure 4-7. Internal Wiring Diagram

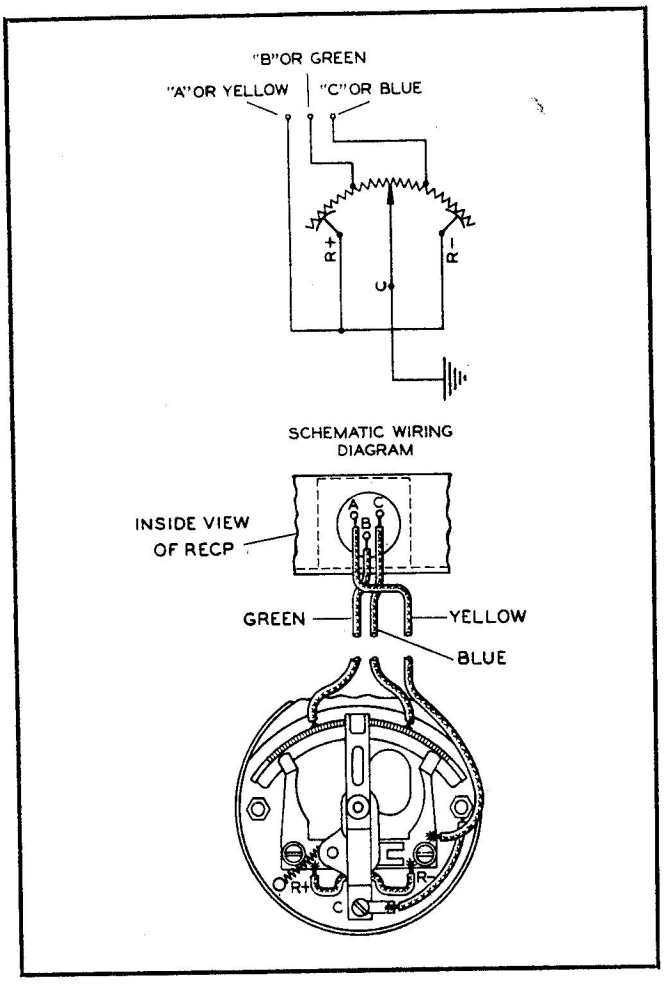


Figure 4-8. Internal Wiring Diagram

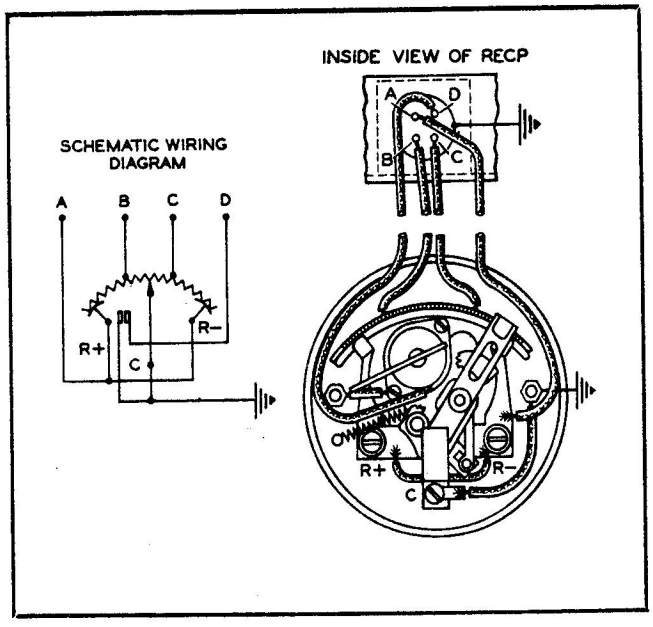


Figure 4-9. Internal Wiring Diagram

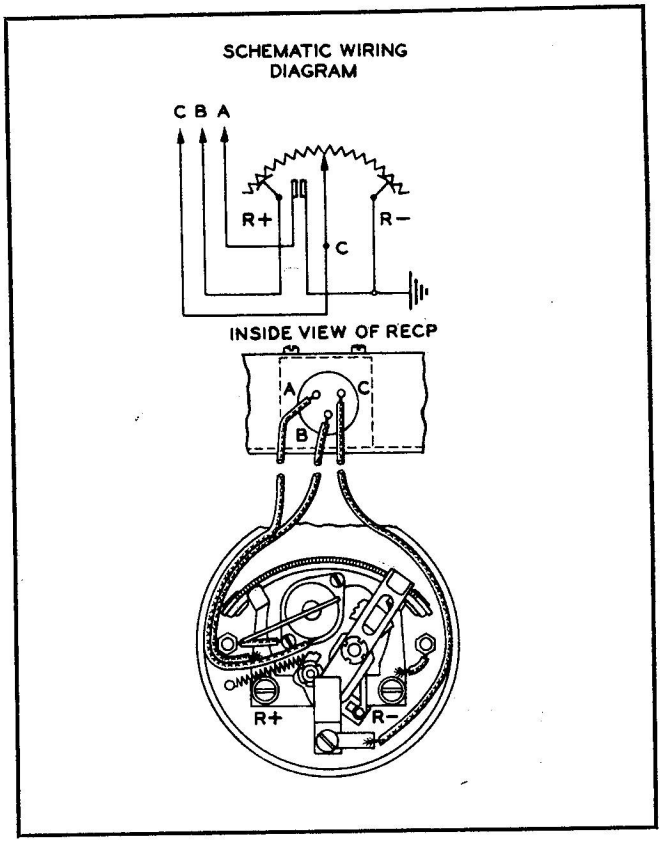


Figure 4-10. Internal Wiring Diagram

TEST PROCEDURE.

ADJUSTING FLOAT ARM STOPS. See paragraphs 3-5 thru 3-7, also 3-9. Use figure and dimensions indicated for the specific tank unit in Table of Set-Up Stand Dimensions, figure 4-11.

Tank Unit	*Figure No. of Set-Up Stand Diagram*	*"T" Top Float Arm Stop Setting*	*"B" Bottom Float Arm Stop Setting*	*"S" Warning Switch Setting*
EA15-206	4-12	6-27/64	6-27/64	None
EA15-6-26076	4-12	13-15/32	13	None
EA65-4222324	4-12	12-13/16	4½	None
EA65W-613	4-12	7-19/32	9⅝	†
EA84AW-307	4-13	13-5/16	17-3/16	⅜ min.*
EA84AW-308	4-13	9-13/16	12-1/16	†
EA84AW-396L	4-13	15.6	15.285	1.3
EA84AW-396R	4-13	15.6	15.285	1.3
EA84AW-397	4-13	11.125	11.175	4
EA85A-574	4-13	9-15/32	12⅞	None
EA85A-742	4-13	9¼	12½	None
EA85W-622	4-12	8.00	10.250	11-9/32
EA85W-702	4-12	8.00	10.250	11-9/32

* Set as close to bottom as possible.

† Setting is made after installation in aircraft in accordance with specifications contained in aircraft erection and maintenance manual.

Figure 4-11. Table of Set-Up Stand Dimensions

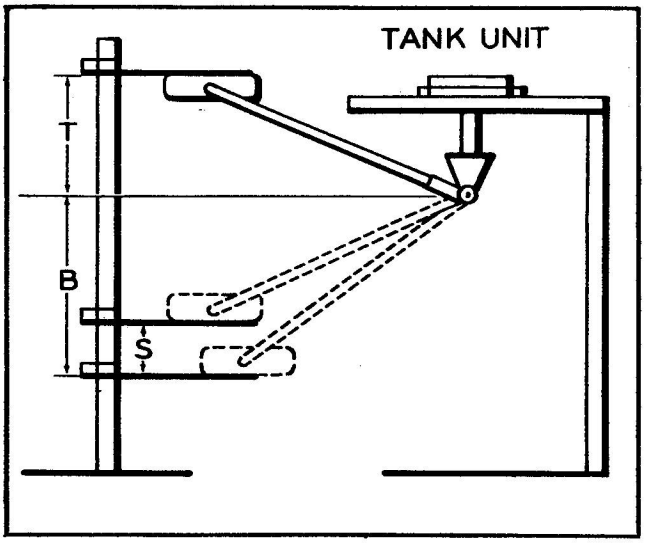


Figure 4-12. Set-Up Stand Diagram

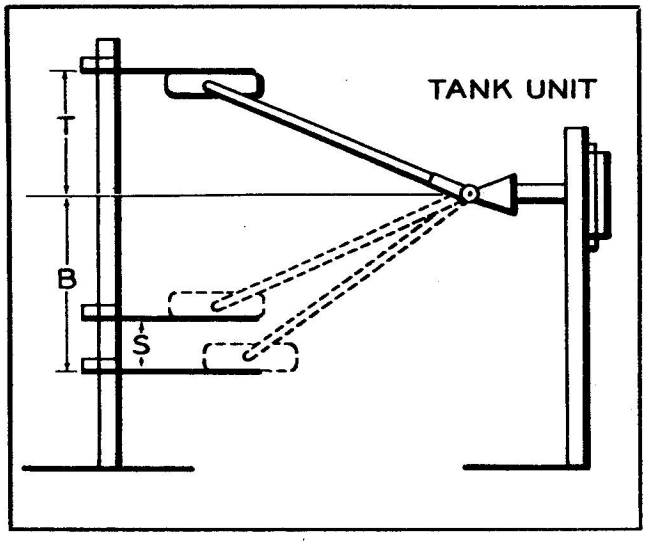


Figure 4-13. Set-Up Stand Diagram

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM. See paragraph 3-11, using field tester wiring diagram referenced in Table of Electrical Data, figure 4-4.

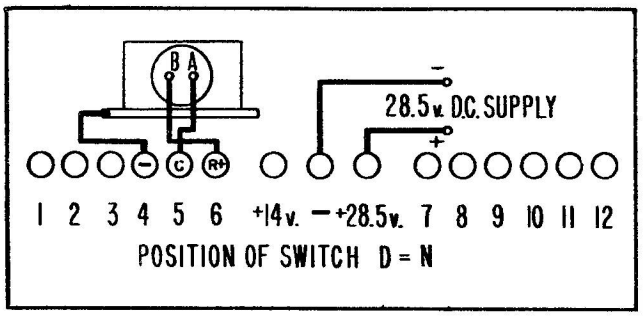


Figure 4-14. Field Tester Wiring Diagram

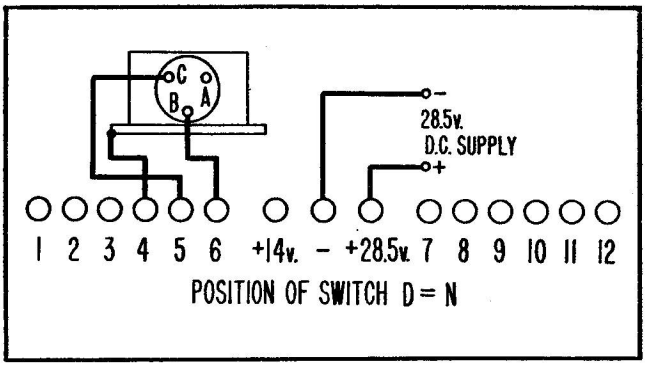


Figure 4-15. Field Tester Wiring Diagram

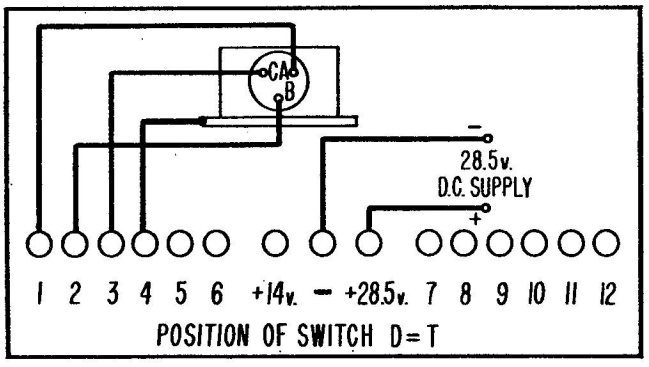


Figure 4-16. Field Tester Wiring Diagram

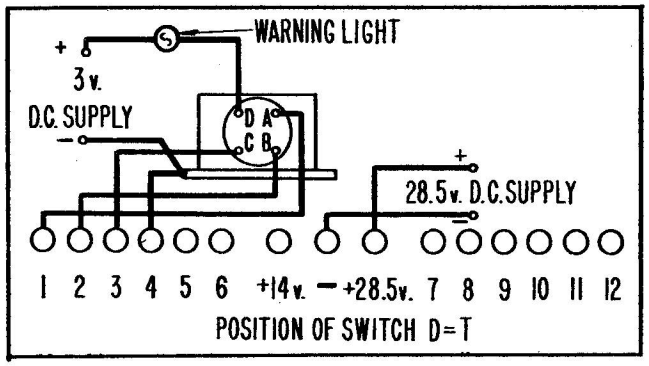


Figure 4-17. Field Tester Wiring Diagram

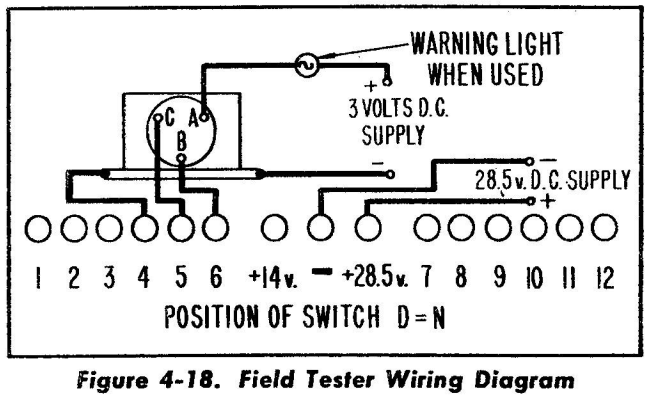


Figure 4-18. Field Tester Wiring Diagram

SETTING WARNING SWITCH ASSEMBLY. See paragraphs 3-24 thru 3-26. Consult Table of Set-Up Stand Dimensions, figure 4-11, for switch setting of the specific tank unit.

SPECIFIC DATA SHEET NO. 2

Tank units covered in this Specific Data Sheet are of the outside operating rod type and are as follows:

EA15-219949	EA85-P47A
EA228-10	EA85WC-943
EA228B-11	EA85WC-943A

Voltage	28v dc
Dimensions	see figure 4-20

Figure 4-19. Table of Leading Particulars

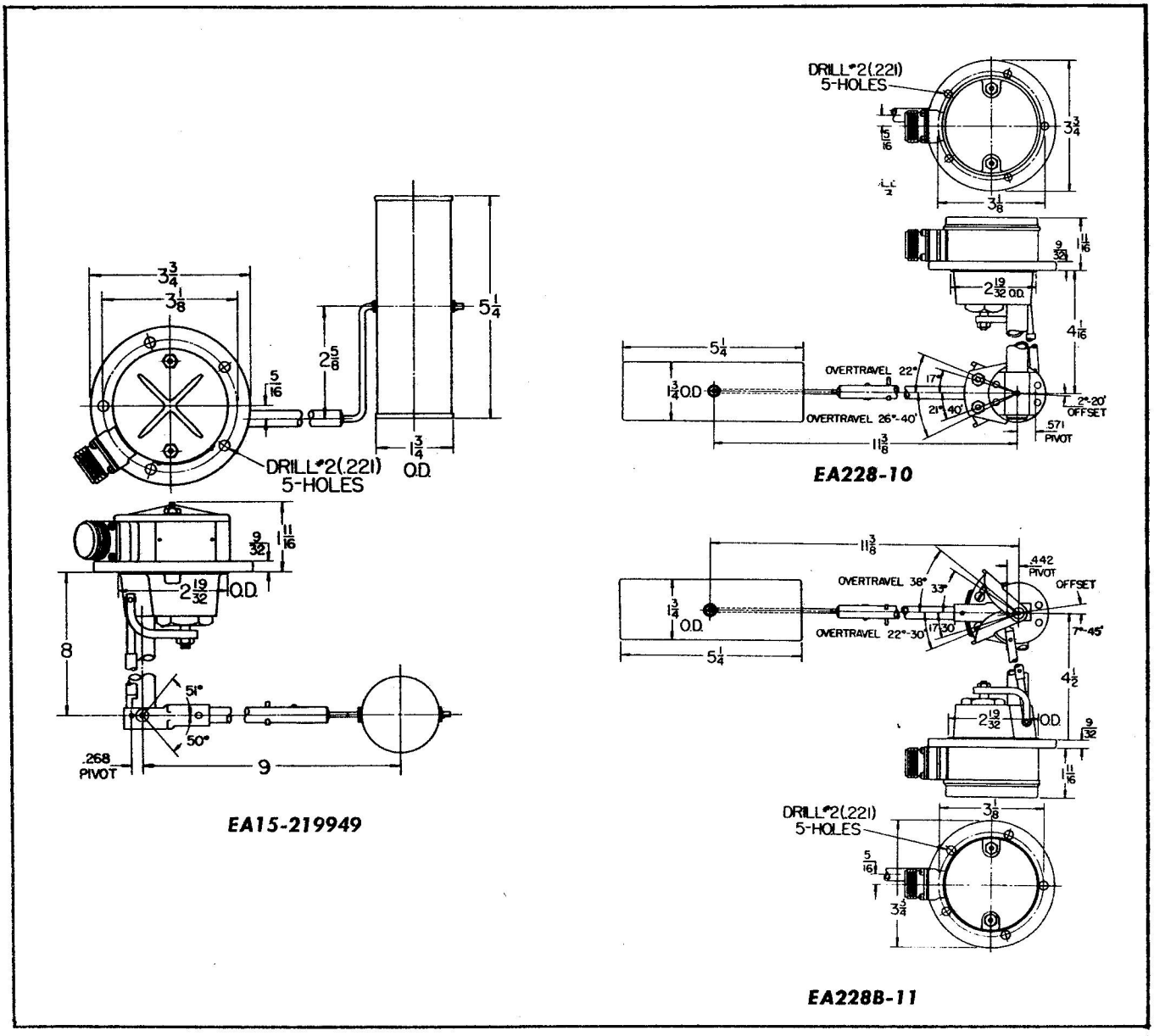
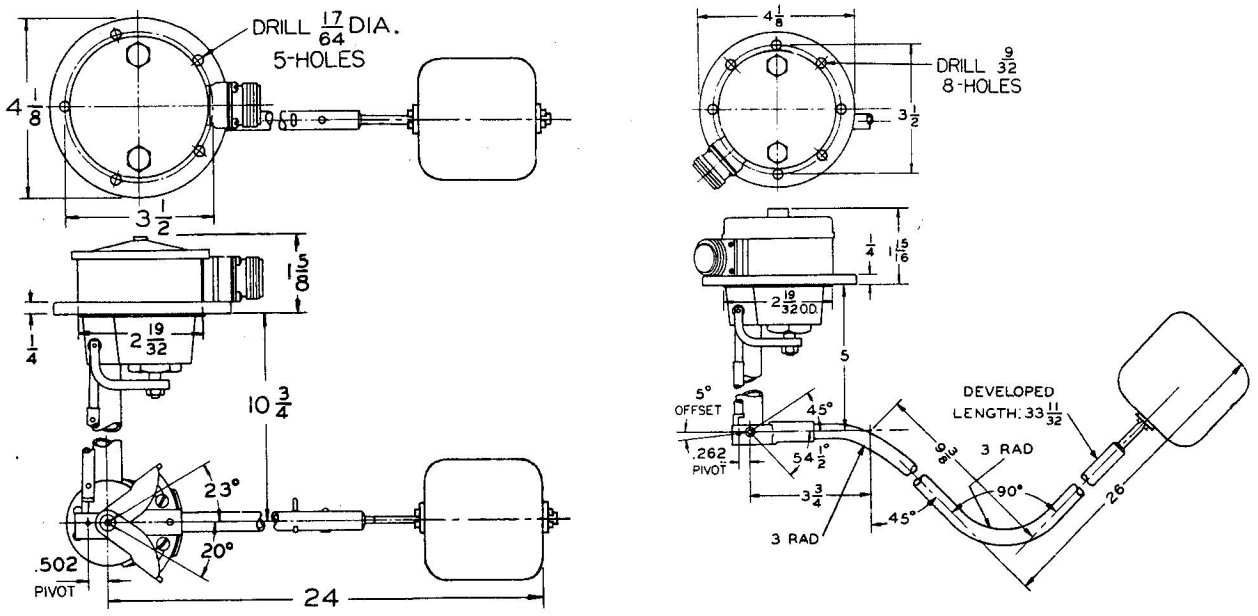


Figure 4-20 (Sheet 1 of 2 Sheets). General Dimensions



EA85-P47A *EA85WC-943 and EA85WC-943A*

Figure 4-20 (Sheet 2 of 2 Sheets). General Dimensions

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-21.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-21.

Follow general disassembly instructions given in paragraphs 2-1 thru 2-9, and 2-11 thru 2-13. For disassembly of potentiometer, see paragraphs 2-69 thru 2-74.

CLEANING.

See paragraphs 2-15 thru 2-17.

INSPECTION.

See paragraphs 2-18 thru 2-24. For inspection of potentiometer, see paragraphs 2-59 thru 2-64.

PRE-ASSEMBLY TESTING.

See paragraphs 2-25 thru 2-27. For tests of potentiometer, see paragraphs 2-65 thru 2-68, also Table of Electrical Data, figure 4-22, and resistance value diagrams referenced in that table.

Note

On potentiometers having two resistance strips, ohmage of the two strips must match within 1%.

REPAIR OR REPLACEMENT.

See paragraphs 2-28 thru 2-30. For repair of potentiometer, see paragraphs 2-69 thru 2-74.

LUBRICATION.

None required.

LEGEND FOR FIGURE 4-21

1. Cover
2. Cover
3. Cover
4. Hex nut (2 reqd)
5. Cap nut (2 reqd)
6. Lock washer (2 reqd)
7. Plain washer (2 reqd)
8. Cover washer (2 reqd)
9. Cover gasket
10. Cover gasket
11. Contactor (for breakdown see figure 2-3)
12. Hex nut (2 reqd)
13. Lock washer (2 reqd)
14. Potentiometer (for breakdown see figure 2-9 or 2-10)
15. Cover stud (2 reqd)
16. Cover stud (2 reqd)
17. Insulation pad
18. Bellows seal assembly (for breakdown see figure 2-4)
19. Rivet
20. Bellows nut
21. Operating arm
22. Hex nut
23. Plain washer
24. Rod pin
25. Plain washer (2 reqd)
26. Rod link pin
27. Rod extension
28. Rod link
29. Rivet (2 reqd)
30. Operating rod
31. Float arm stop
32. Screw (2 reqd)
33. Lock washer (2 reqd)
34. Plain washer (2 reqd)
35. Hex nut (2 reqd)
36. Float arm stop bracket
37. Clamp
38. Rivet (4 reqd)
39. Plain washer
40. Fulcrum
41. Locking pin
42. Rivet
43. Fulcrum stud
44. Fulcrum plug
45. Fulcrum pipe
46. Housing
47. Receptacle
48. Screw (4 reqd)
49. Lock washer (4 reqd)
50. Solder lug
51. Receptacle gasket
52. Mounting block
53. Screw (2 reqd)
54. Gasket
55. Name plate
56. Rivet (2 reqd)
57. Float arm
58. Float arm
59. Rivet (2 reqd)
60. Cotter pin
61. Float
62. Float
63. Float
64. Float
65. Plain washer (2 reqd)
66. Plain washer (2 reqd)
67. Float fork
68. Float fork
69. Float fork
70. Float fork
71. Rivet
72. Tank gasket

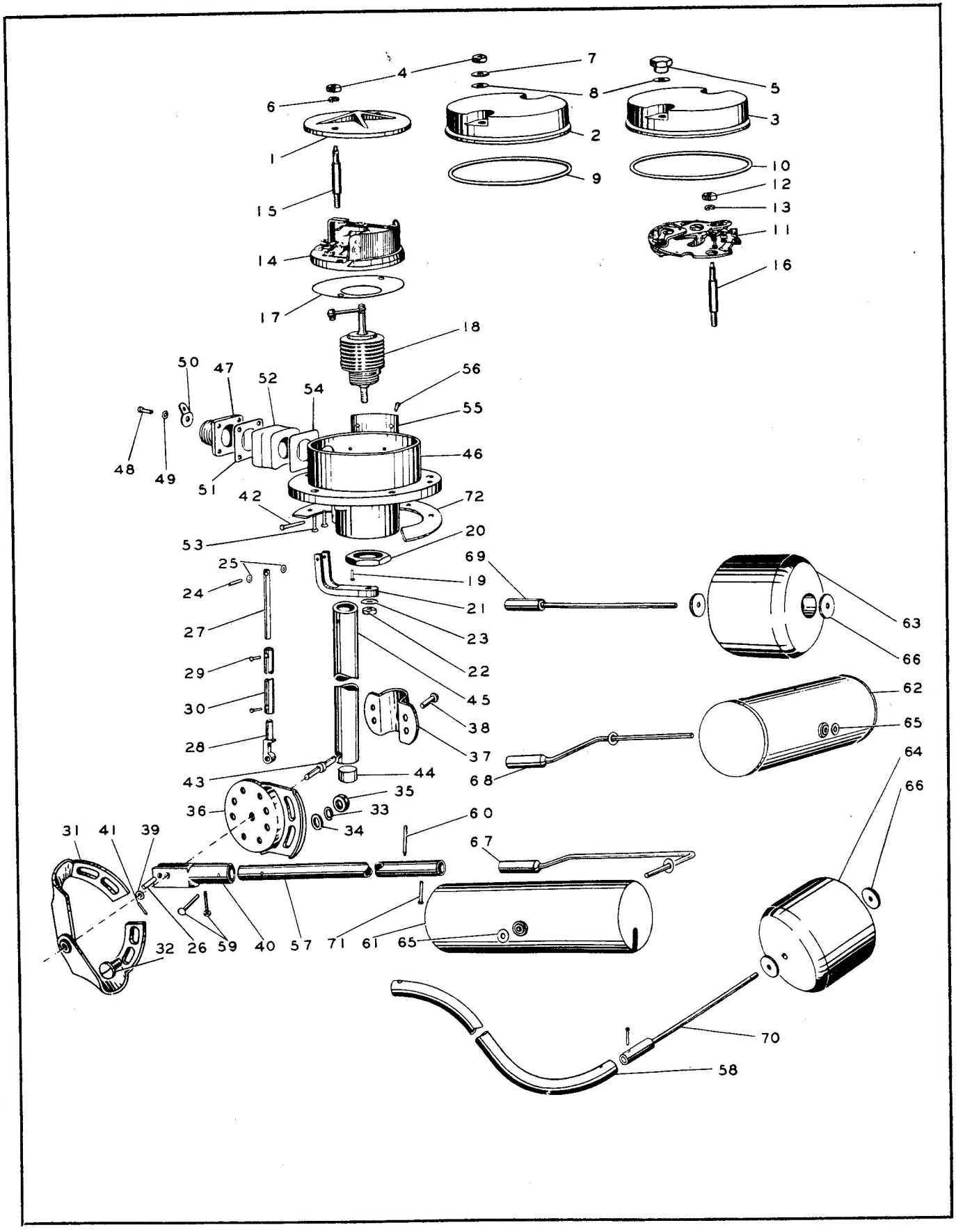


Figure 4-21. Exploded View of Tank Unit

Tank Units	Figure No. of Res Value Diagram, One-Strip Potentiometers	Resistance Tolerances, Two-Strip Potentiometers (in ohms)					Fig. No. of Internal Wiring Diagram	Fig. No. of Field Tester Wiring Diagram
		Total Strip Resistance*	Outer Resistance Strip		Inner Resistance Strip			
			Float Up	Float Down	Float Down	Float Up		
EA15-219949	4-23		not applicable		not applicable		4-24	4-30
EA228-10		125.8 ± 3%	A-C / 0-1	A-C / 83.7 ± 3%	B-C / 0-1	B-C / 83.7 ± 3%	4-25	
EA228B-11		125.8 ± 3%	A-Gnd / 16.8 ± 3%	A-Gnd / 100.5 ± 3%	B-C / 16.8 ± 3%	B-C / 100.5 ± 3%	4-26	
EA85-P47A	4-23		not applicable		not applicable		4-24	4-30
EA85WC-943	4-23		not applicable		not applicable		4-26A	4-30A
EA85WC-943A	4-23		not applicable		not applicable		4-26A	4-30A

* Resistance of inner and outer strips must match within 1%.

Figure 4-22. Table of Electrical Data

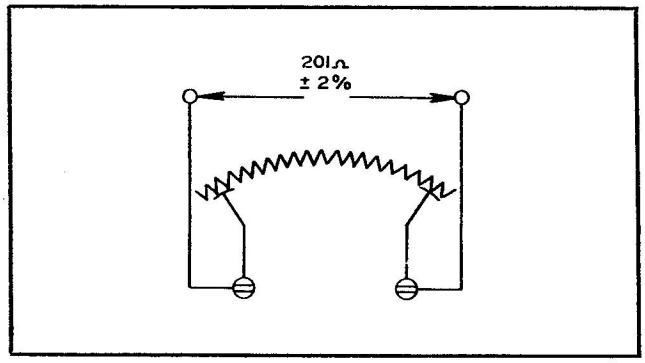


Figure 4-23. Resistance Value Diagram

REASSEMBLY.

Follow general instructions given in paragraphs 2-33 thru 2-36, 2-38 thru 2-40, 2-42 thru 2-44, 2-46, 2-47, and 2-49 thru 2-52.

Items 57 thru 70. Align float fork (67, 68, 69, or 70), float arm (57 or 58) and float (61, 62, 63, or 64) to correspond to general dimension drawing, figure 4-20, for the specific tank unit.

Items 11 and 14. Connect wires according to internal wiring diagram for specific tank unit. See Table of Electrical Data, figure 4-22, for figure number of internal wiring diagram.

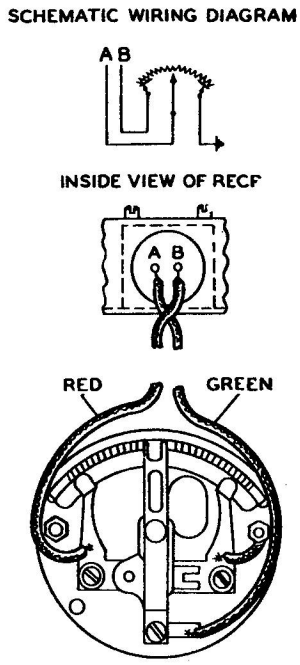


Figure 4-24. Internal Wiring Diagram

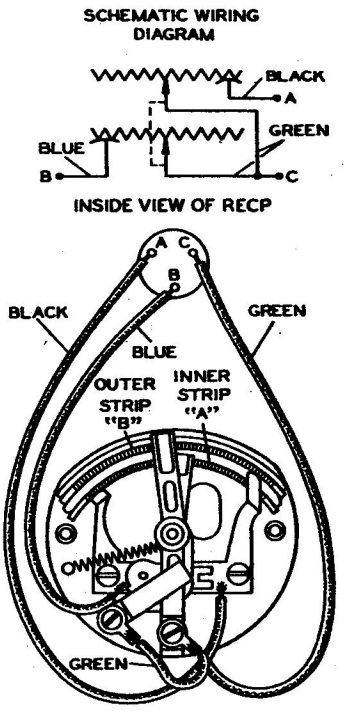


Figure 4-25. Internal Wiring Diagram

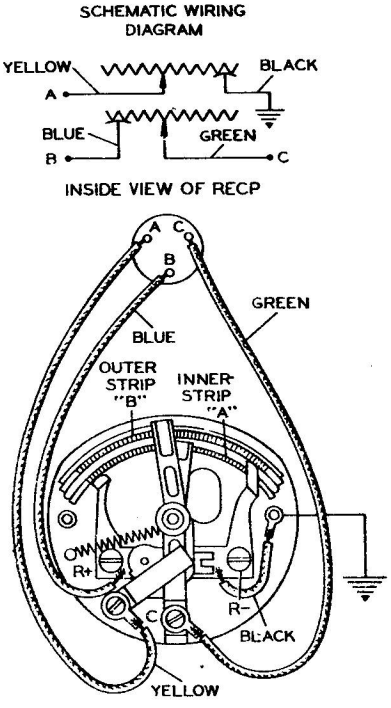


Figure 4-26. Internal Wiring Diagram

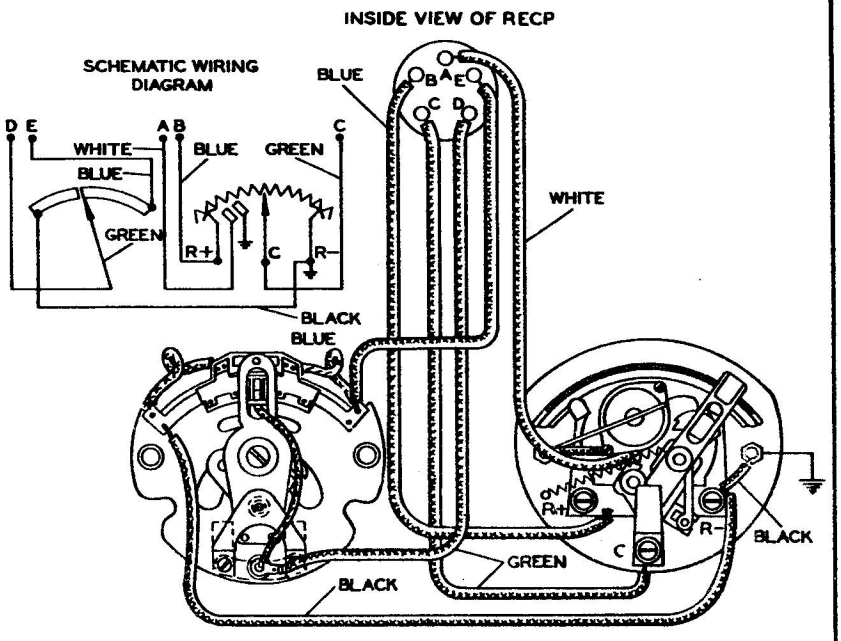


Figure 4-26A. Internal Wiring Diagram

TEST PROCEDURE.

ADJUSTING FLOAT ARM STOPS. See paragraphs 3-5 thru 3-7, also 3-9. Use figure and dimensions indicated in Table of Set-Up Stand Dimensions, figure 4-27.

Note

Tank Unit No. EA85WC-943 has no float arm stops, but dimensions shown in figure 4-27 are used in setting stroke of potentiometer.

Tank Unit	*Figure No. of Set-Up Stand Diagram*	*Float Arm Stop Setting "T" Top Float Arm Stop Setting*	*"B" Bottom Float Arm Stop Setting*
EA15-219949	4-28	7⅞	7-49/64
EA228-10	4-29	see diagram	see diagram
EA228B-11	4-29	see diagram	see diagram
EA85-P47A	4-28	10-11/32	9-7/32
EA85WC-943	4-28	28-9/16	17⅞
EA85WC-943A	4-28	28-9/16	17⅞

Figure 4-27. Table of Set-Up Stand Dimensions (in Inches)

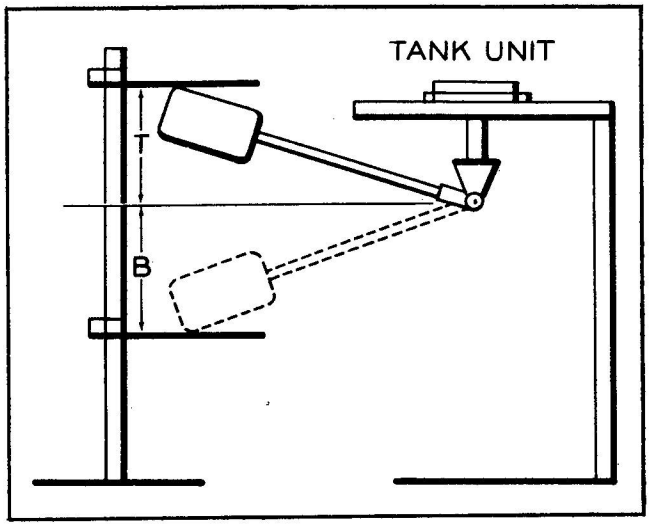


Figure 4-28. Set-Up Stand Diagram

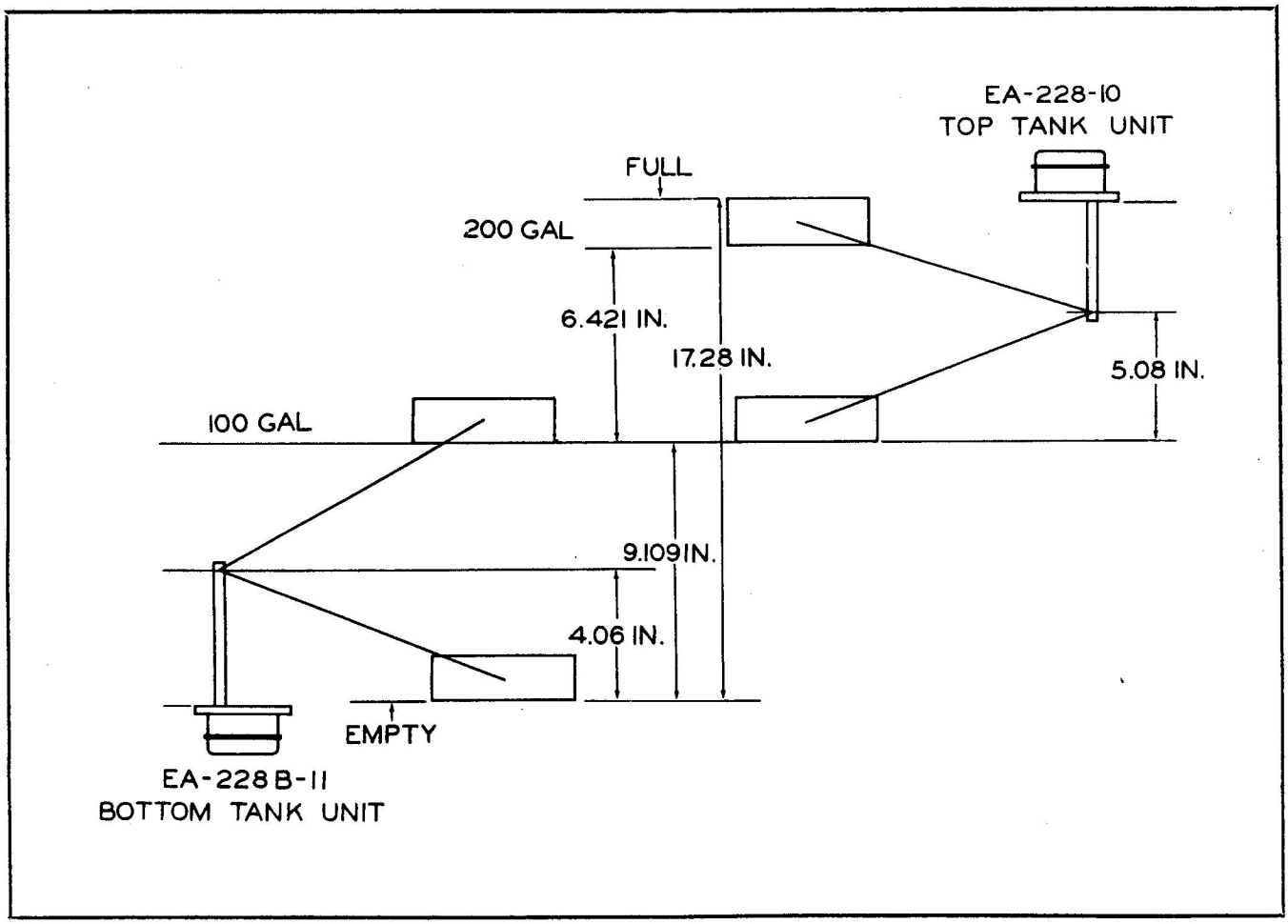


Figure 4-29. Set-Up Stand Diagram

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM. (1) For potentiometers with one resistance strip, see paragraph 3-11 and use field tester wiring diagram referenced in Table of Electrical Data, figure 4-22.

(2) For potentiometers with two resistance strips, see paragraphs 3-12 thru 3-20. Consult Table of Electrical Data, figure 4-22, for resistance tolerances, float positions, and ohmmeter connections for adjusting end ohmages.

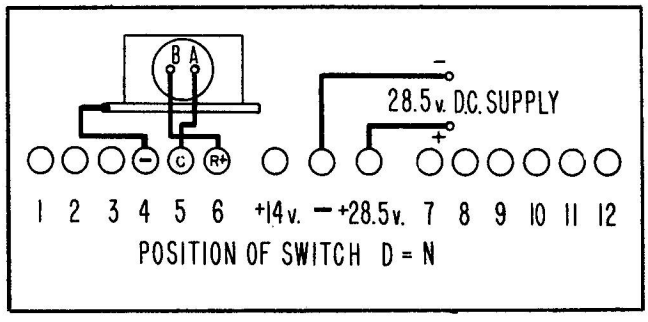


Figure 4-30. Field Tester Wiring Diagram

SETTING WARNING SWITCH AND CONTACTOR ON TANK UNITS NO. EA85WC-943 and EA85WC-943A. These settings are made after installation in aircraft, in accordance with specifications contained in aircraft erection and maintenance manual.

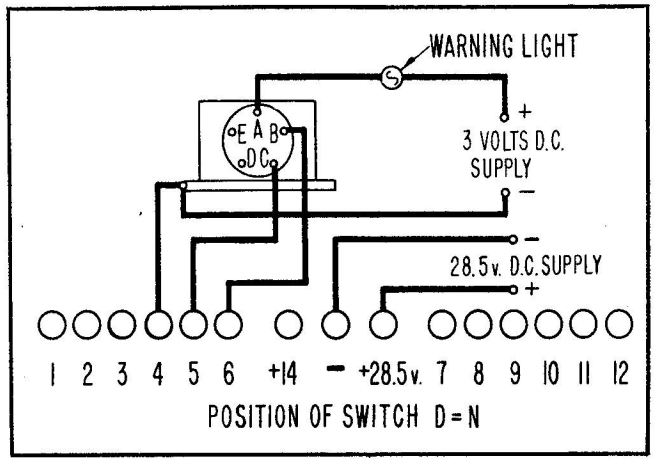


Figure 4-30A. Field Tester Wiring Diagram

SPECIFIC DATA SHEET NO. 3

Tank units covered in this Specific Data Sheet are of the outside operating rod type and are as follows:

EA16-168159
EA16-168159-1
EA1611-515
EA1612-18R-9714

Voltage	28v dc
Dimensions	see figure 4-32

Figure 4-31. Table of Leading Particulars

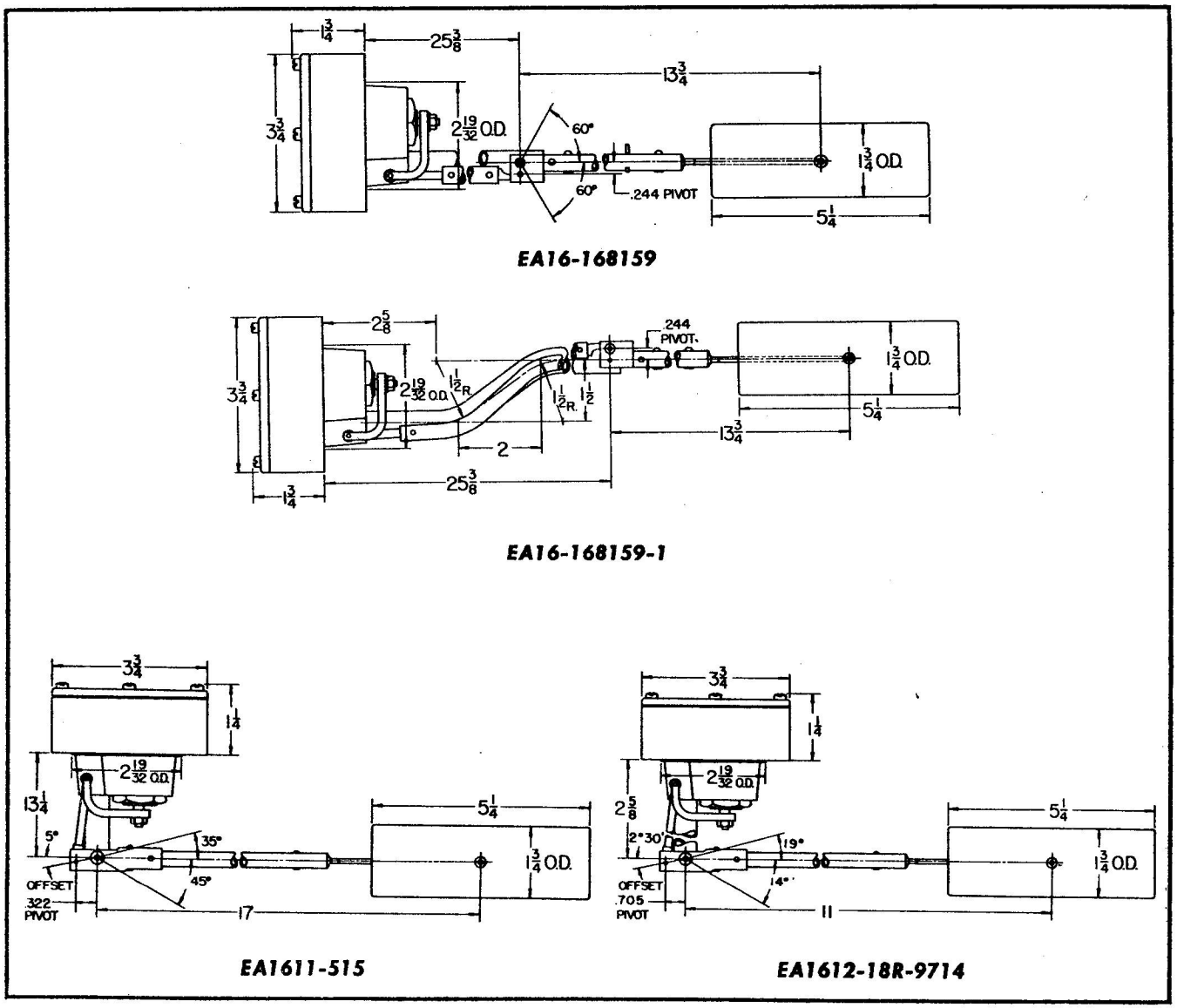
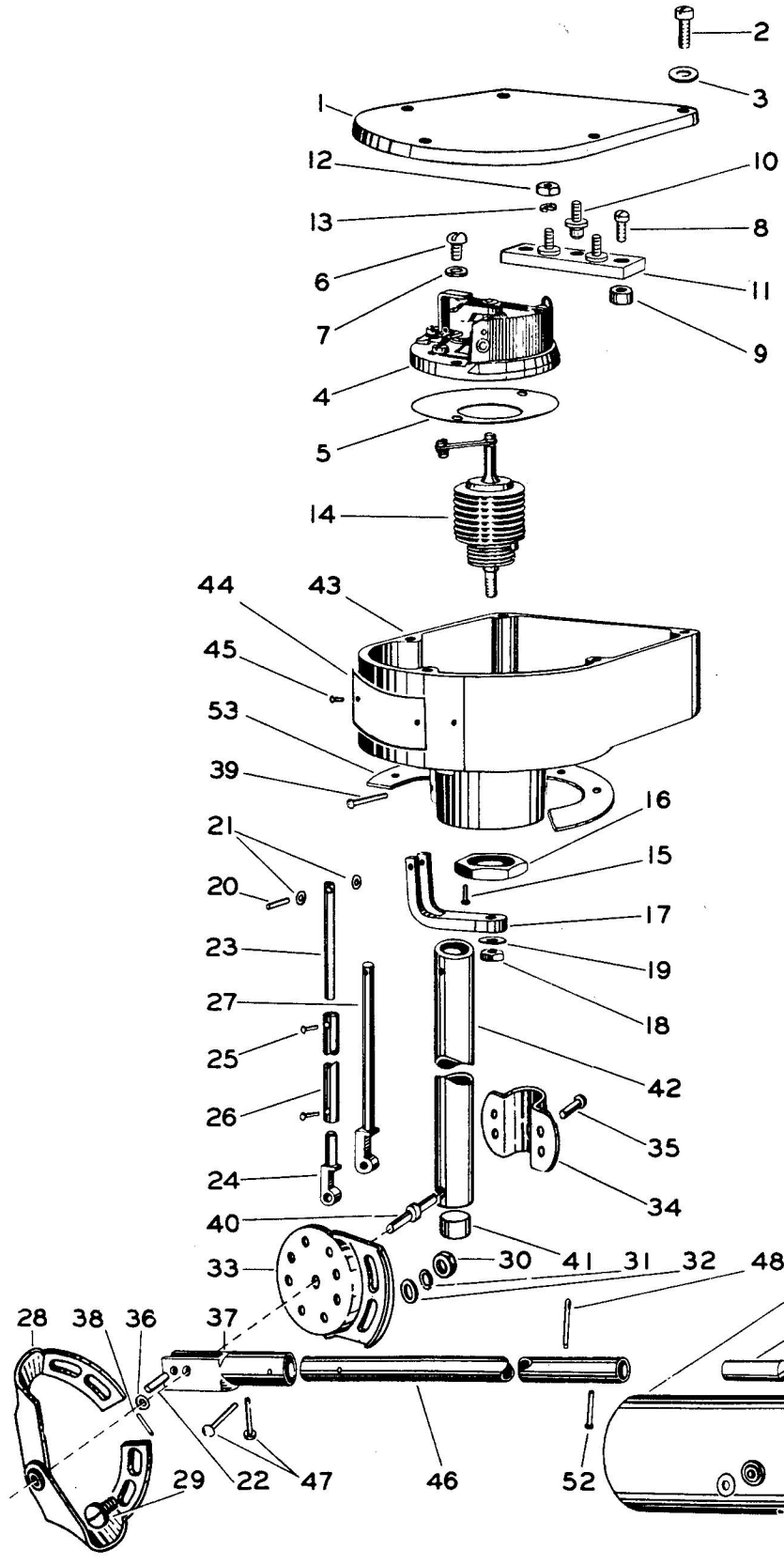


Figure 4-32. General Dimensions



1. Cover
2. Cover screw (5 reqd)
3. Cover washer (5 reqd)
4. Potentiometer (for breakdown see figure 2-9 or 2-10)
5. Insulation pad
6. Screw (2 reqd)
7. Lock washer (2 reqd)
8. Screw (2 reqd)
9. Spacer (2 reqd)
10. Terminal stud (3 reqd)
11. Terminal block
12. Nut (3 reqd)
13. Lock washer (3 reqd)
14. Bellows seal assembly (for breakdown see figure 3-4)
15. Rivet
16. Bellows nut
17. Operating arm
18. Nut
19. Plain washer
20. Rod pin
21. Plain washer (2 reqd)
22. Rod link pin
23. Rod extension
24. Rod link
25. Rivet (2 reqd)
26. Operating rod
27. Operating rod
28. Float arm stop
29. Screw (2 reqd)
30. Nut (2 reqd)
31. Lock washer (2 reqd)
32. Plain washer (2 reqd)
33. Float arm stop bracket
34. Clamp
35. Rivet (4 reqd)
36. Plain washer (2 reqd)
37. Fulcrum
38. Locking pin
39. Rivet
40. Fulcrum stud
41. Fulcrum plug
42. Fulcrum pipe
43. Housing
44. Name plate
45. Rivet (2 reqd)
46. Float arm
47. Rivet (2 reqd)
48. Cotter pin
49. Float
50. Plain washer (2 reqd)
51. Float fork
52. Rivet
53. Tank gasket

Figure 4-33. Exploded View of Tank Unit

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-33.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-33.

Follow general disassembly instructions given in paragraphs 2-1 thru 2-9, and 2-11 thru 2-13. For disassembly of potentiometer, see paragraphs 2-69 thru 2-74.

CLEANING.

See paragraphs 2-15 thru 2-17.

INSPECTION.

See paragraphs 2-18 thru 2-24. For inspection of potentiometer see paragraphs 2-59 thru 2-64.

PRE-ASSEMBLY TESTING.

See paragraphs 2-25 thru 2-27. For tests of potentiometer, see paragraphs 2-65 thru 2-68, also Table of Electrical Data, figure 4-34, and resistance value diagrams referenced in that table.

Tank Unit	*Figure No. of Res Value Diagram, One-Strip Potentiometer*	*Figure No. of Internal Wiring Diagram*	*Figure No. of Field Tester Wiring Diagram*
EA16-168159	4-35	4-36	4-40
EA16-168159-1	4-35	4-36	4-40
EA1611-515	4-35	4-36	4-41
EA1612-18R-9714	4-35	4-36	4-41

Figure 4-34. Table of Electrical Data

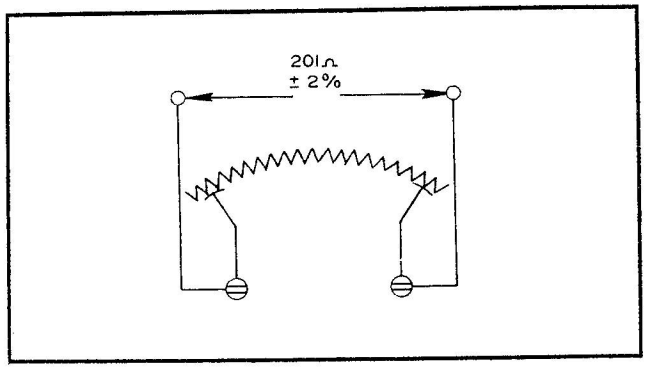


Figure 4-35. Resistance Value Diagram

REPAIR OR REPLACEMENT.

See paragraphs 2-28 thru 2-30. For repair of potentiometer, see paragraphs 2-69 thru 2-74.

LUBRICATION.

None required.

REASSEMBLY.

Follow general instructions given in paragraphs 2-33 thru 2-36, 2-38 thru 2-40, 2-42 thru 2-44, 2-46, 2-47, and 2-49 thru 2-52.

Items 46 thru 52. Align float fork (51), float arm (46) and float (49) to correspond to general dimension drawing, figure 4-32, for specific tank unit.

Item 4. Connect wires according to internal wiring diagram for specific tank unit. See Table of Electrical Data, figure 4-34, for figure number of internal wiring diagram.

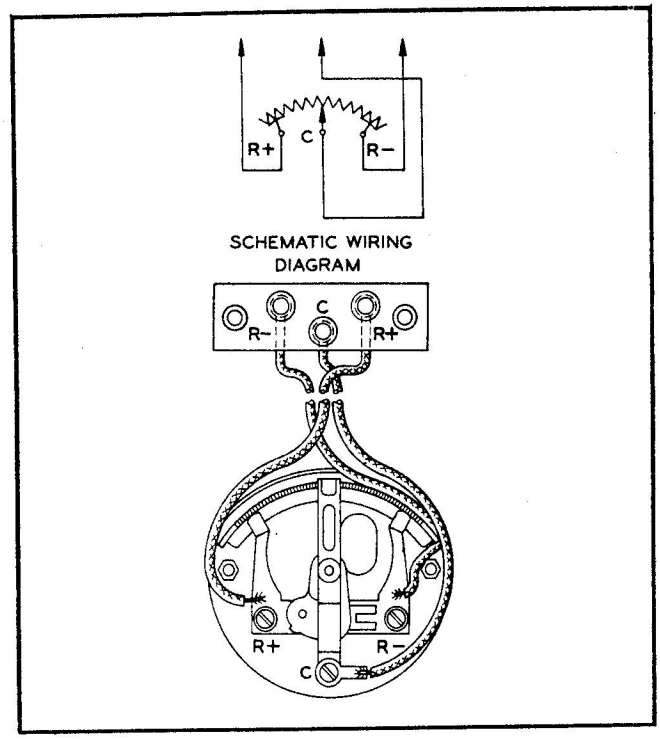


Figure 4-36. Internal Wiring Diagram

TEST PROCEDURE.

ADJUSTING FLOAT ARM STOPS. See paragraphs 3-5 thru 3-7, also 3-9. Use figure and dimensions indicated for specific tank unit in Table of Set-Up Stand Dimensions, figure 4-37.

Tank Unit	*Figure No. of Set-Up Stand Diagram*	*Float Stop Setting*	
		Top Float Arm Stop Setting	*Bottom Float Arm Stop Setting*
EA16-168159	4-38	12-25/32	12-25/32
EA16-168159-1	4-38	12-25/32	12-25/32
EA1611-515	4-39	10⅝	12⅞
EA1612-18R-9714	4-39	4-29/64	3-17/32

Figure 4-37. Table of Set-Up Stand Dimensions (in Inches)

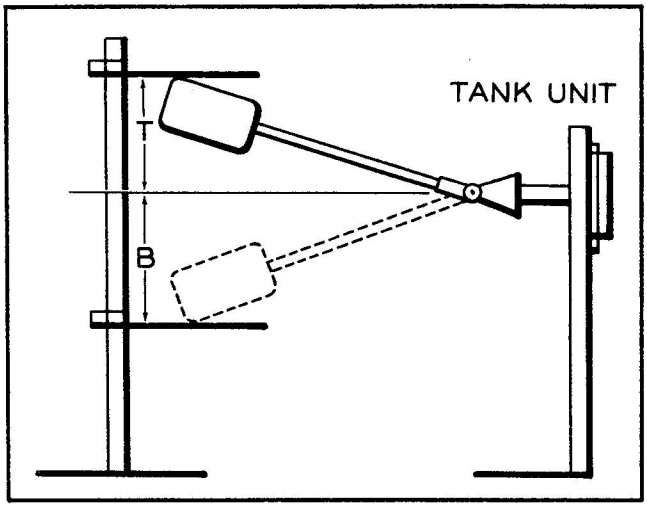


Figure 4-38. Set-up Stand Diagram

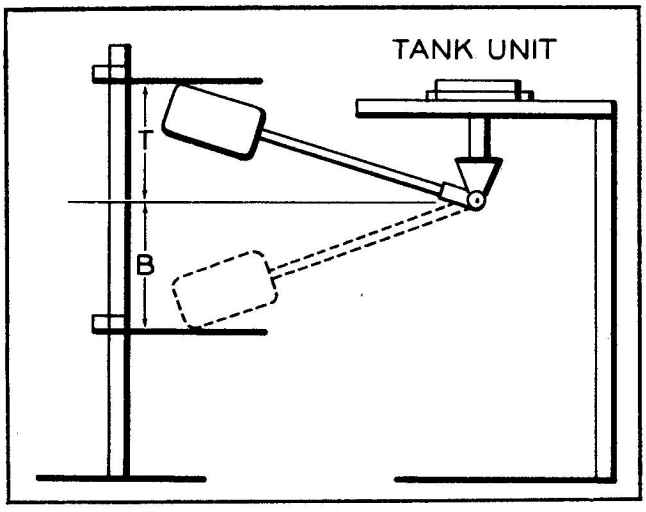


Figure 4-39. Set-up Stand Diagram

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM. See paragraph 3-11, using field tester wiring diagram referenced in Table of Electrical Data, figure 4-34.

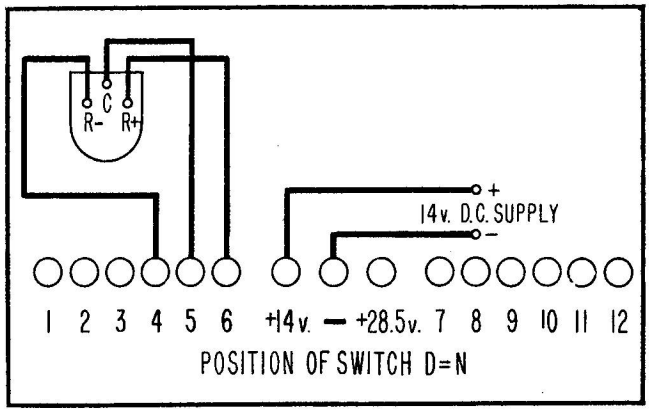


Figure 4-40. Field Tester Wiring Diagram

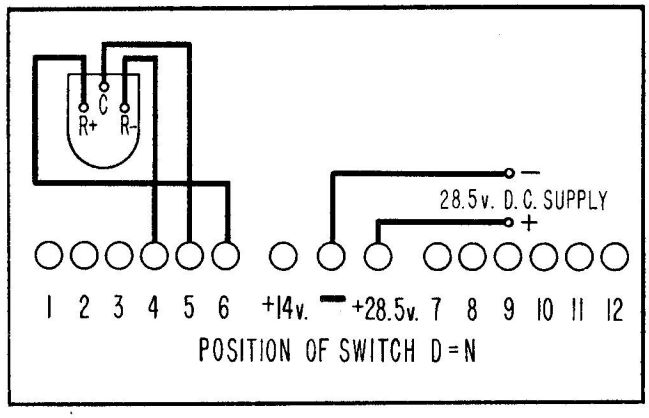


Figure 4-41. Field Tester Wiring Diagram

SPECIFIC DATA SHEET NO. 4

Tank units covered in this Specific Data Sheet are of the outside operating rod type and are as follows:

EA18B-621
EA18B-692
EA18B-692M
EA378A-545M
EA378A-546M
EA380-548AM
EA380-548M
EA380C-1441
EA380C-548ABM
EA380C-548AM
EA381-549AM
EA381-549M

Voltage	28v dc
Dimensions	see figure 4-43

Figure 4-42. Table of Leading Particulars

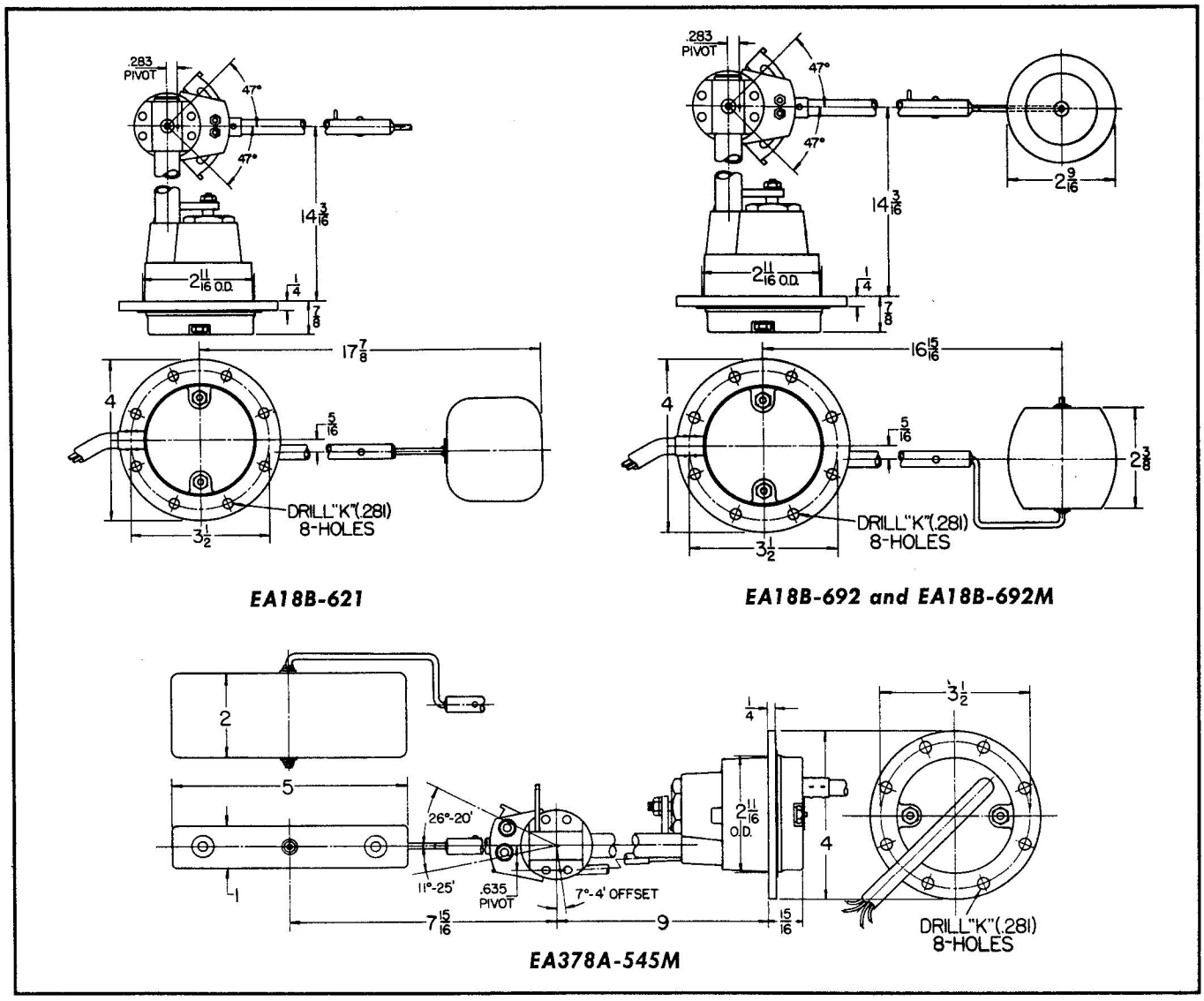
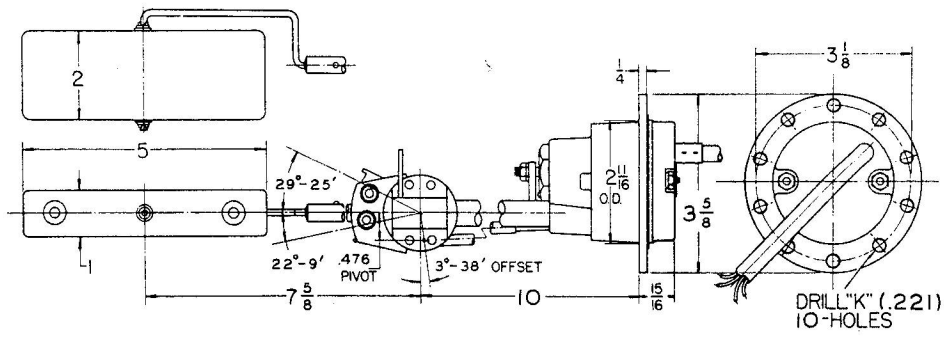
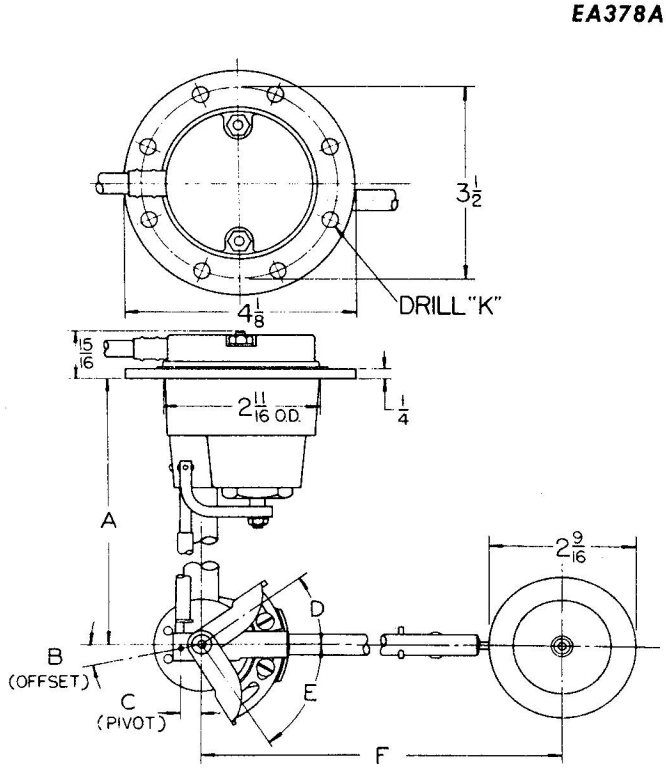


Figure 4-43 (Sheet 1 of 2 Sheets). General Dimensions

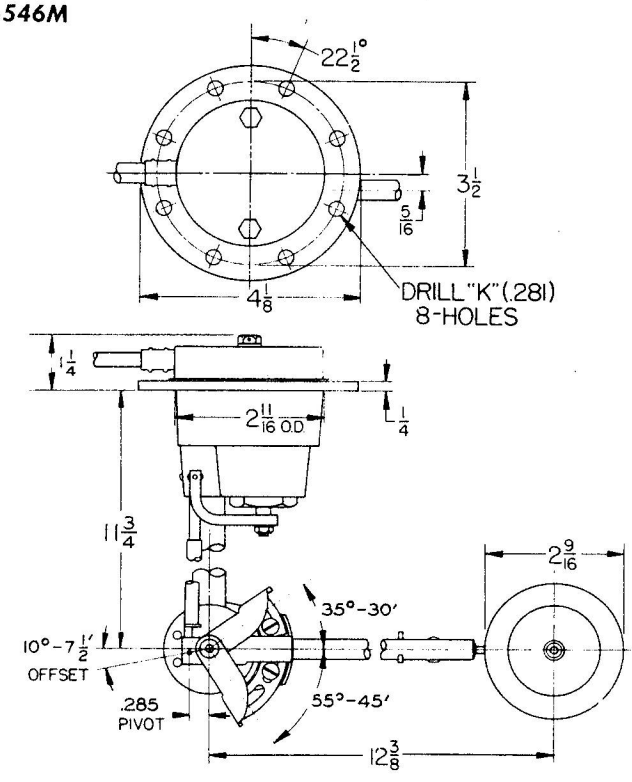


EA378A-546M



EA380-548AM
EA380-548M

EA381-549AM
EA381-549M



EA380C-1441
EA380C-548ABM
EA380C-548AM

TABLE OF DIMENSIONS

	EA380-548AM *EA380-548M*	*EA381-549AM* *EA381-549M*
Number of holes on housing flange ("K")	8 (.281)	5 (.221)
A	11¾	16¼
B (Pivot offset)	10°—7½'	1° — 15'
C (Pivot)	0.285	0.242
D	35° — 30'	60° — 5'
E	55° — 45'	37° — 48'
F	12⅜	14⅝

Figure 4-43 (Sheet 2 of 2 Sheets). General Dimensions

1. Tank gasket
2. Hex nut
3. Cover screw
4. Washer
5. Terminal lug
6. Electrical connector plug
7. Gasket
8. Cable conector filler
9. Cable connector
10. Cable connector
11. Connector coupling nut
12. Cable
13. Flexible plastic hose
14. Cable connector filler
15. Wire cap
16. Bushing
17. Nameplate
18. Rivet
19. Cable connector
20. Cable connector
21. Cover
22. Cover
23. Cover
24. Cover gasket
25. Cover gasket
26. Contactor assembly
27. Mounting stud
28. Washer
29. Potentiometer assembly
30. Potentiometer assembly
31. Stud
32. Stud
33. Flat washer
34. Insulating pad
35. Float
36. Washer
37. Washer
38. Float bushing
39. Float bearing
40. Float
41. Float stop
42. Float bushing
43. Float bearing
44. Float bushing
45. Rod
46. Washer
47. Float
48. Hex nut
49. Lock washer
50. Flat washer
51. Binding head screw
52. Washer
53. Float stop bushing
54. Float stop outer arm
55. Float stop inner arm
56. Locking pin
57. Flat washer
58. Hex nut
59. Flat washer
60. Cotter pin
61. Rivet
62. Float fork bushing
63. Float fork
64. Float fork
65. Float fork
66. Float fork
67. Bellows arm
68. Operating rod pin
69. Washer
70. Operating rod link pin
71. Link
72. Rivet
73. Operating rod extension
74. Rivet
75. Operating rod
76. Top mounting fulcrum
77. Brs rivet
78. Float arm
79. Float string guide
80. Float stop clamp
81. Rivet
82. Float stop bracket
83. Rd hd rivet
84. Fulcrum stud
85. Fulcrum bushing
86. Cotter pin
87. Fulcrum pipe plug
88. Fulcrum pipe plug
89. Fulcrum pipe
90. Bellows seal assembly
91. Rd hd rivet
92. Bellows holder nut
93. Housing

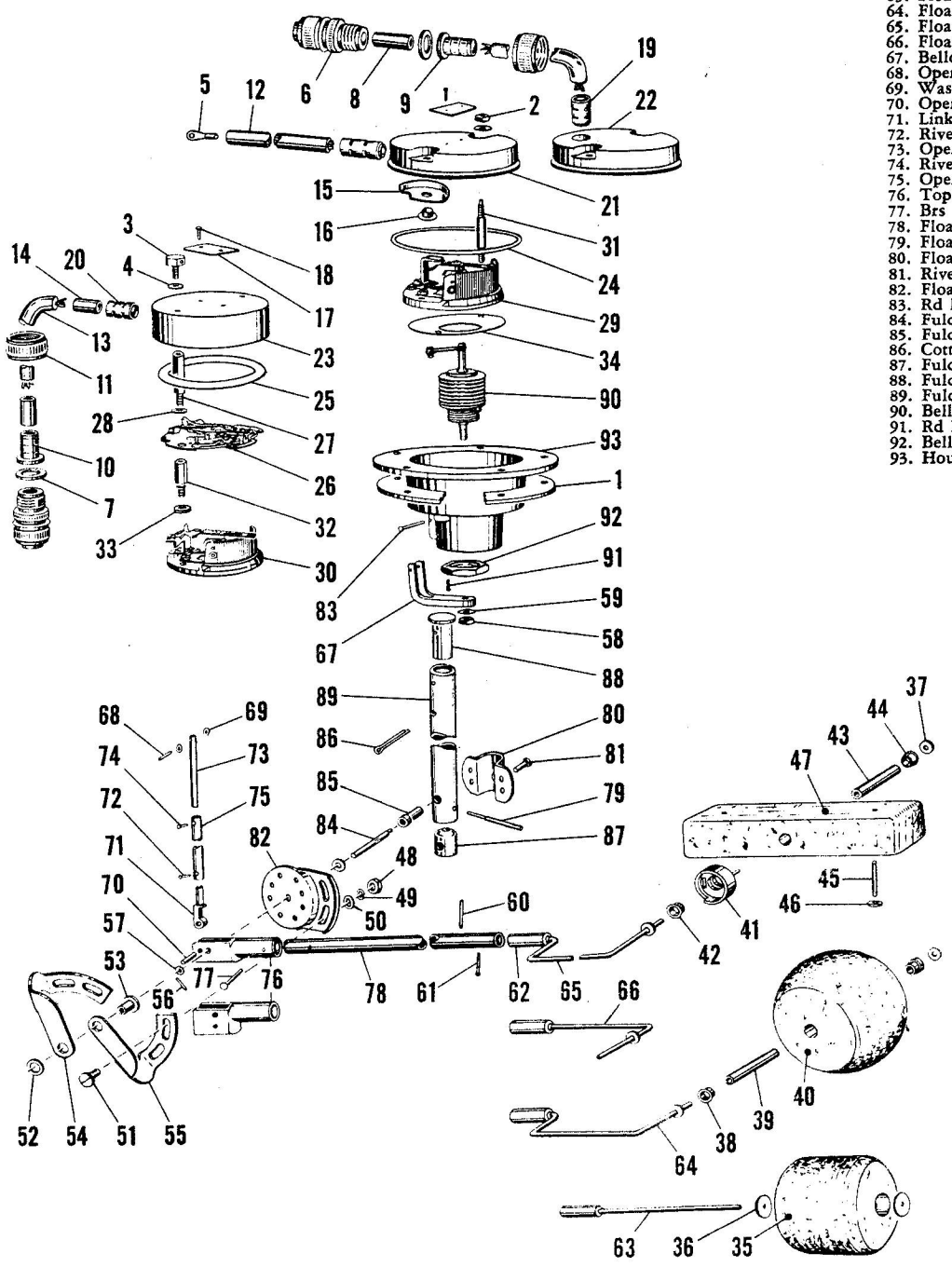


Figure 4-44. Exploded View of Tank Units

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-44.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-44.

Follow general disassembly instructions given in paragraphs 2-1 thru 2-9, and 2-11 thru 2-13. For disassembly of potentiometer, see paragraphs 2-69 thru 2-72.

Item 15. File off bushing (16) and remove wire cap (15).

Items 41 thru 47. Do not disassemble float assembly except in emergencies.

CLEANING.

See paragraphs 2-15 thru 2-17.

INSPECTION.

See paragraphs 2-18 thru 2-24. For inspection of potentiometer, see paragraphs 2-59 thru 2-64.

PRE-ASSEMBLY TESTING.

See paragraphs 2-25 thru 2-27. For tests of potentiometer, see paragraphs 2-65 thru 2-68, also Table of Electrical Data, figure 4-45, and resistance value diagrams referenced in that table.

Note

On potentiometers having two resistance strips, values of the two strips must match within 1%.

REPAIR OR REPLACEMENT.

See paragraphs 2-28 thru 2-30. For repair of potentiometer, see paragraphs 2-73 thru 2-74.

LUBRICATION.

None required.

Tank Unit	*Figure No. of Res Value Diagram, One-Strip Potentiometers*	*Resistance Tolerances, Two-Strip Potentiometers (in ohms)*					*Figure No. of Internal Wiring Diagram*	*Figure No. of Field Tester Wiring Diagram*
		*Total Strip Resistance**	*Outer Res Strip*		*Inner Res Strip*			
			Float Up A-D	*Float Down A-D*	*Float Down B-C*	*Float Up B-C*		
EA18B-621	4-46	not applicable					4-48	4-54
EA18B-692 EA18B-692M	4-46	not applicable					4-48	4-54
EA378A-545M		18.7 ± 3%	0-0.5	14.0 ± 3%	0-0.5	14.0 ± 3%	4-48A	
EA378A-546M		18.7 ± 3%	0-0.5	14.0 ± 3%	0-0.5	14.0 ± 3%	4-48A	
EA380-548AM		43.9 ± 3%	0-1.0	43.9 ± 3%	0-1.0	43.9 ± 3%	4-48A	
EA380-548M		43.9 ± 3%	0-1.0	48.0 ± 3%	0-1.1	48.0 ± 3%	4-48A	
EA380C-1441		43.9 ± 3%	0-1.0	43.9 ± 3%	0-1.0	43.9 ± 3%	4-47	
EA380C-548ABM		43.9 ± 3%	0-1.0	43.9 ± 3%	0-1.0	43.9 ± 3%	4-47	
EA380C-548AM		43.9 ± 3%	0-1.0	43.9 ± 3%	0-1.0	43.9 ± 3%	4-47A	
EA381-549AM		45.1 ± 3%	0-1.0	45.1 ± 3%	0-1.0	45.1 ± 3%	4-48A	
EA381-549M		52.0 ± 3%	0-1.0	39.5 ± 3%	0-1.0	39.5 ± 3%	4-48A	

* Resistance of inner and outer strips must match within 1%.

Figure 4-45. Table of Electrical Data

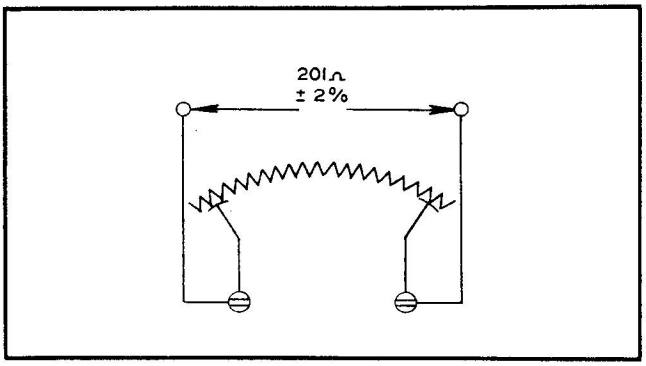


Figure 4-46. Resistance Value Diagram

REASSEMBLY.

Follow general instructions given in paragraphs 2-33 thru 2-36, 2-38 thru 2-40, 2-42 thru 2-44, 2-46, 2-47, and 2-49 thru 2-52.

Items 35, 40, 47, 63 thru 66 and 78. Align float forks (63, 64, 65 or 66), float arm (78) and floats (35, 40 or 47) to correspond to general dimension drawing, figure 4-43, for the specific tank unit.

Items 26 and 29. Connect wires according to internal wiring diagram for specific tank unit. See Table of Electrical Data, figure 4-45, for figure number of internal wiring diagram. Wire and lug positions are shown in figures 4-54A and 4-54B.

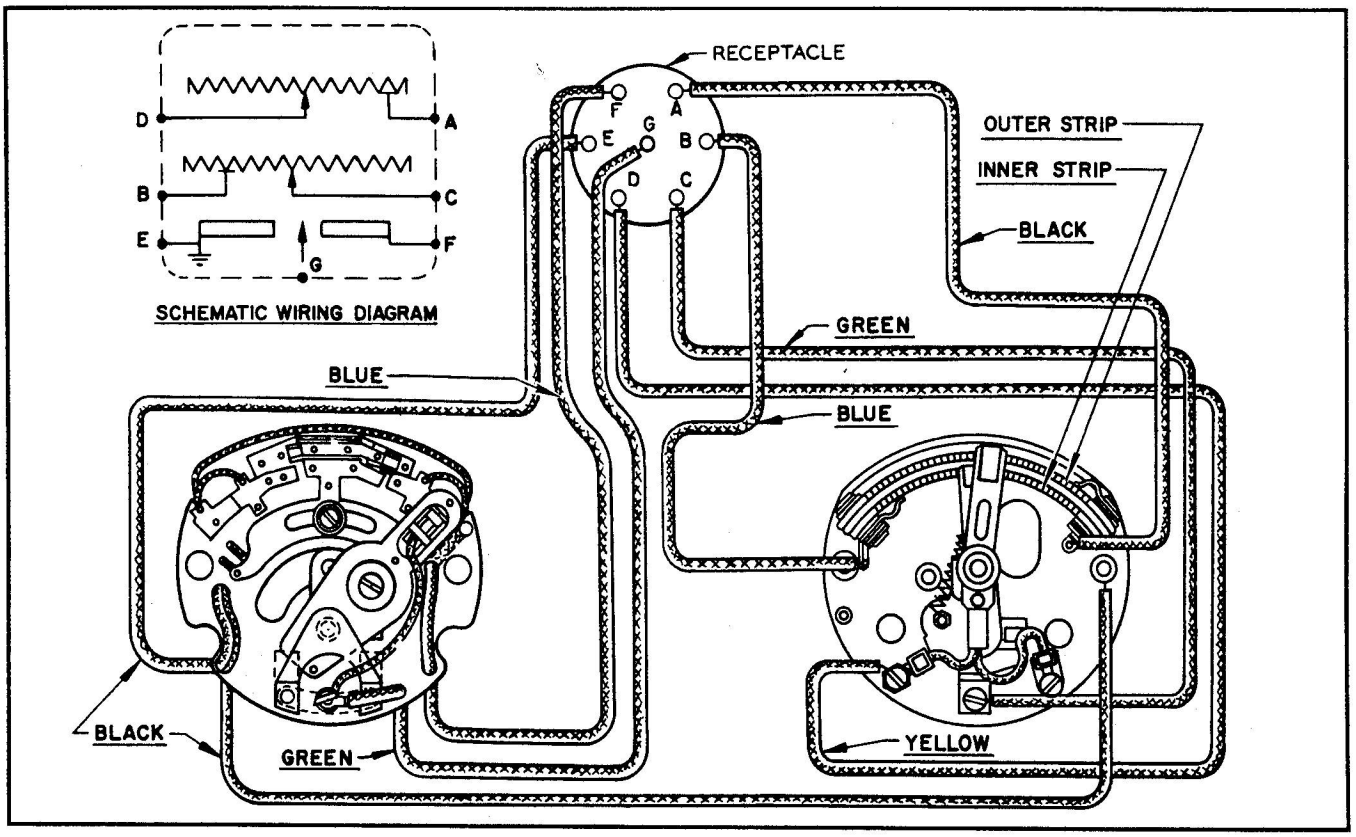


Figure 4-47. Internal Wiring Diagram for Tank Units EA380C-1441 and EA380C-548ABM

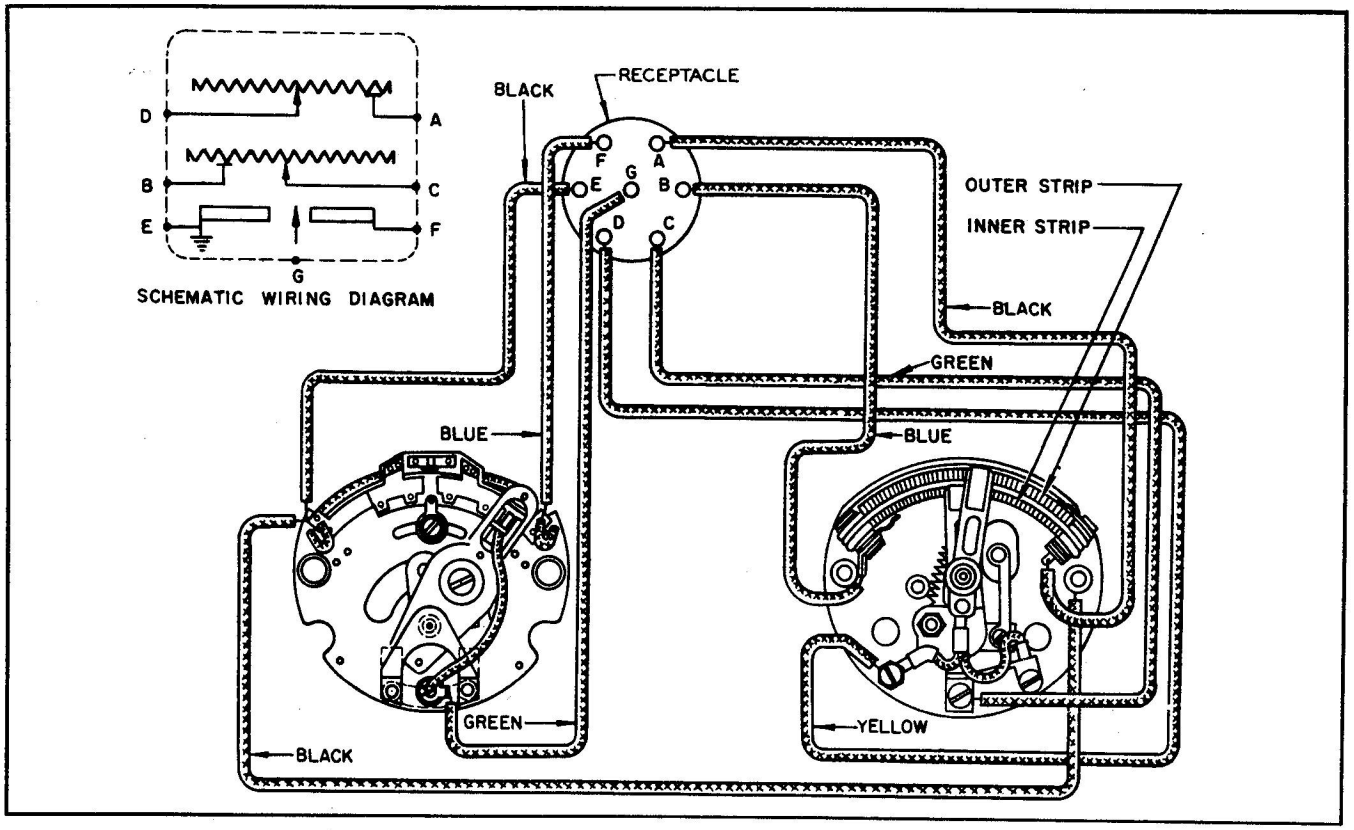


Figure 4-47A. Internal Wiring Diagram for EA380C-548AM Tank Unit

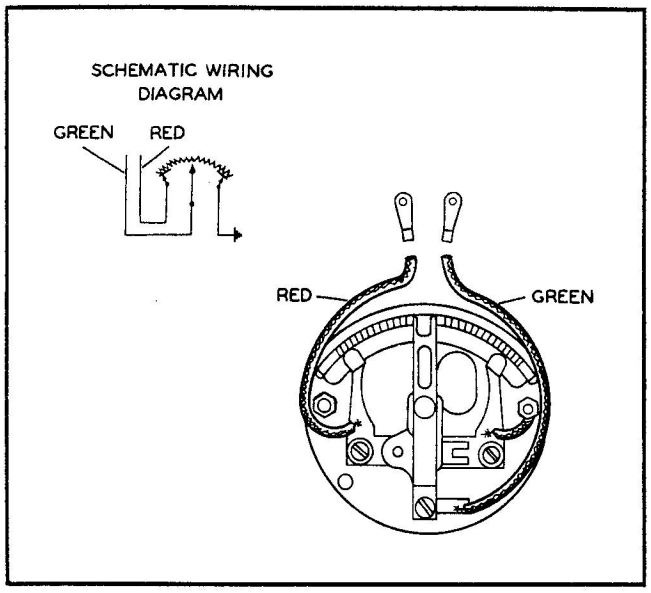


Figure 4-48. Internal Wiring Diagram for EA18B-621 and EA18B-692 Tank Units

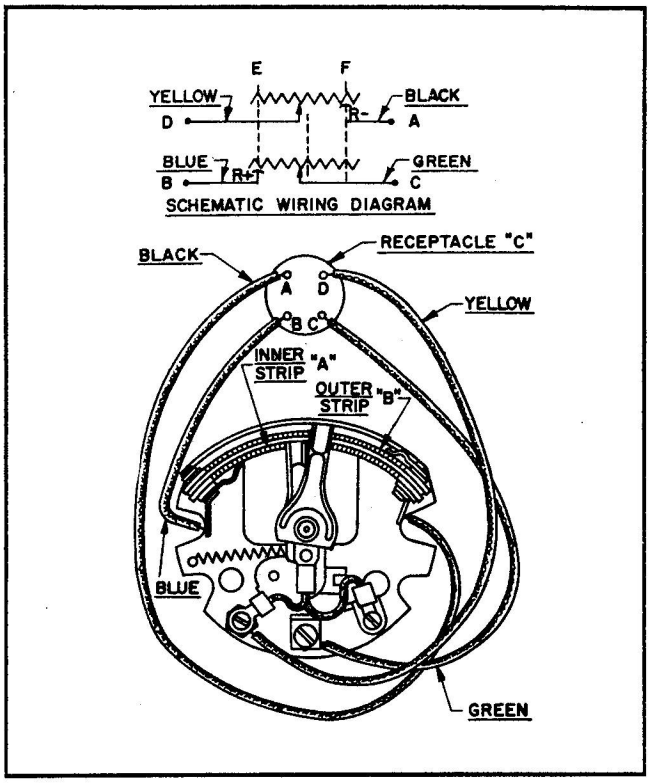


Figure 4-48A. Internal Wiring Diagram for EA378A-545M, EA378A-546M, EA380-548AM, EA380-548M, EA381-549AM and EA381-549M Tank Units

TEST PROCEDURE.

ADJUSTING FLOAT ARM STOPS. See paragraphs 3-5 thru 3-7, also 3-9. See figure and dimensions indicated in Table of Set-Up Stand Dimensions, figure 4-49.

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM.

(1) For potentiometers with one resistance strip, see paragraph 3-11 and use field tester wiring diagrams referenced in Table of Electrical Data, figure 4-45.

(2) For potentiometers with two resistance strips, see paragraphs 3-12 thru 3-19. Consult Table of Electrical Data, figure 4-45, for resistance tolerances, float positions, and bridge connections for adjusting end ohmages.

SETTING CONTACTOR. See paragraphs 3-26 thru 3-35, Consult Table of Set-Up Stand Dimensions, figure 4-49, for contactor setting of the specific tank unit. Method of measuring position at which contactor actuates is shown in figures 4-34 and 4-53B, Set-Up Stand Diagrams.

		Float Arm Stop Setting					*Bridge Test of Contactor*	
		"T"	*"B"*	*"N"*	*"F"*	*"F_1"*		
Tank Unit	*Figure No. of Stand-Up Diagram*	*Top Float Arm Stop Setting*	*Bottom Float Arm Stop Setting*	*Pump On*	*Pump Off*	*Pump Off*	*Float Above "N"*	*Float Below "N"*
EA18B-621	4-50	12-7/16	13-3/4					
EA18B-692	4-50	12-17/32	14-11/32					
EA18B-692 EA18B-692M	4-51	13-1/4	13-11/16					
EA378A-545M	4-52	3-15/16	2-1/4					
EA378A-546M	4-52	3-15/16	3-3/8					
EA380-548AM	4-53	7-1/32	11-11/32					
EA380-548M	4-53	7-1/32	11-11/32					
EA380C-1441	4-53A	7-1/32	11-11/32	1-15/32	2-31/32	1-29/32		
EA380C-548ABM	4-53A	7-1/32	11-11/32	1-15/32	2-31/32	1-29/32	Pins G and F Connected	Pin G Grounded
EA380C-548AM	4-53B	7-1/32	11-11/32	1-15/32	2-31/32		Pins G and F Connected	Pin G Grounded
EA381-549AM	4-53	13-15/16	11-7/16					
EA381-549M	4-53	13-15/16	11-7/16					

Figure 4-49. Table of Set-Up Stand Dimensions (in inches)

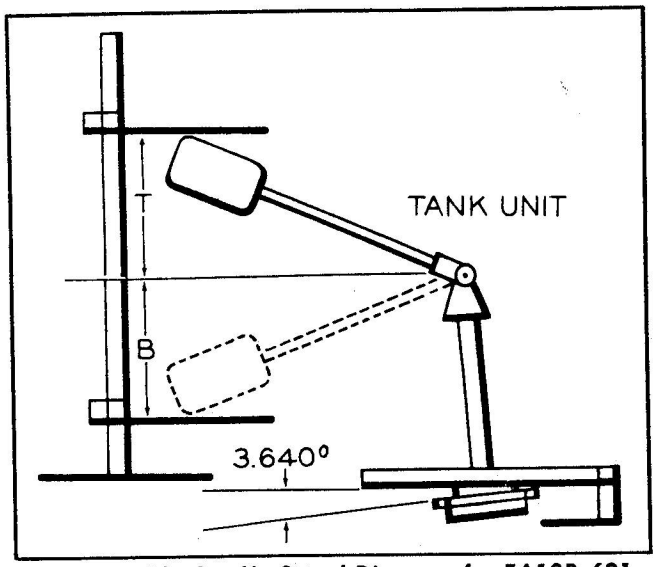


Figure 4-50. Set-Up Stand Diagram for EA18B-621 and EA18B-692(F84E) Tank Units

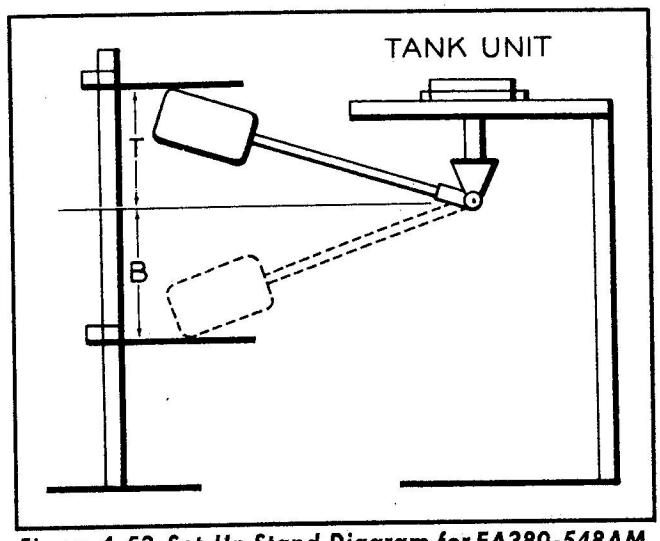


Figure 4-53. Set-Up Stand Diagram for EA380-548AM, EA380-548M, EA381-549AM and EA381-549M Tank Units

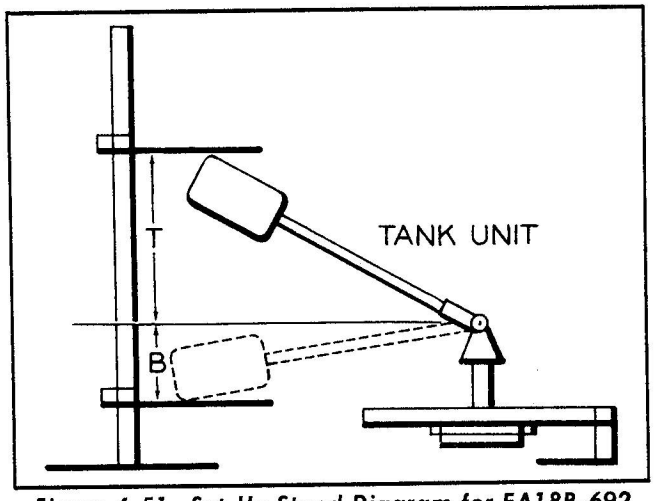


Figure 4-51. Set-Up Stand Diagram for EA18B-692 (F84G) Tank Unit

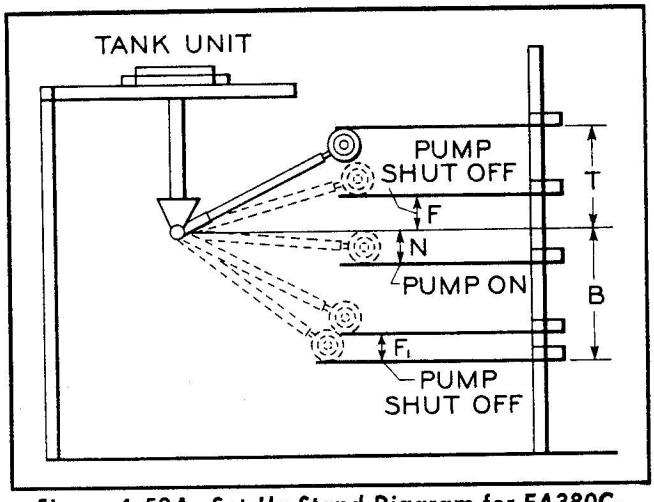


Figure 4-53A. Set-Up Stand Diagram for EA380C-1441 and EA380C-548ABM Tank Units

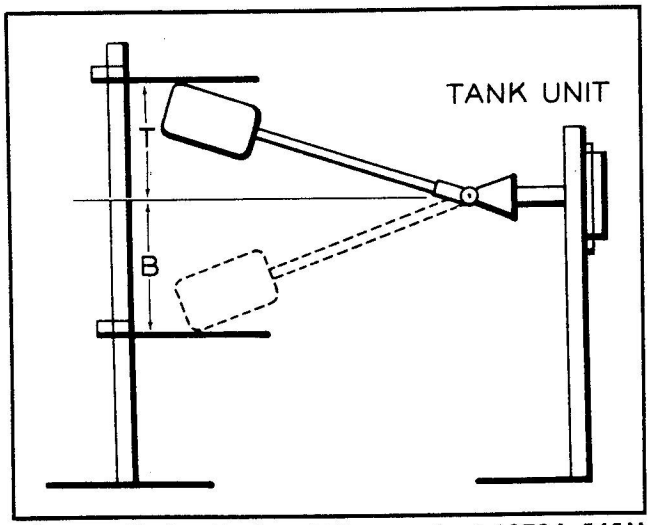


Figure 4-52. Set-Up Stand Diagram for 1A378A-545M and EA378A-546M Tank Units

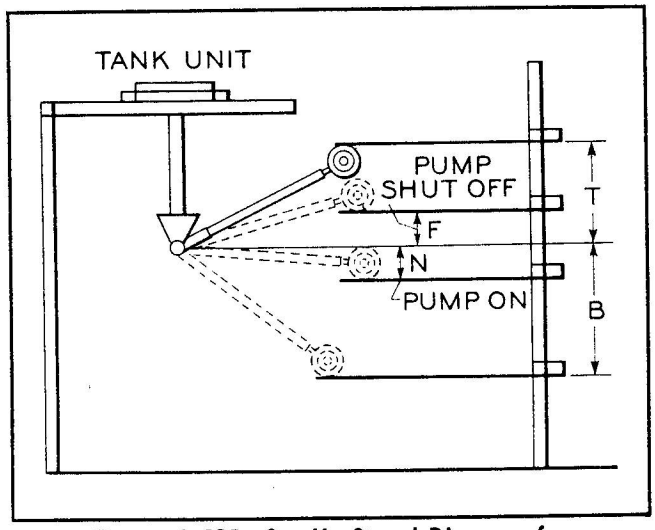


Figure 4-53B. Set-Up Stand Diagram for EA380C-548AM Tank Unit

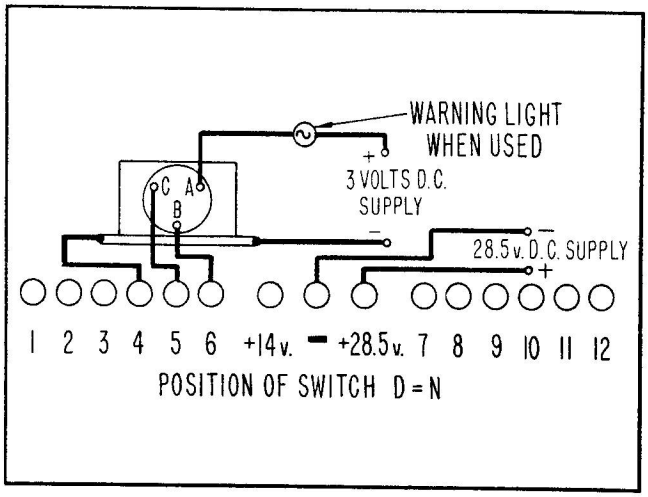


Figure 4-54. Field Tester Wiring Diagram for EA18B-621 and EA18B-692 Tank Units

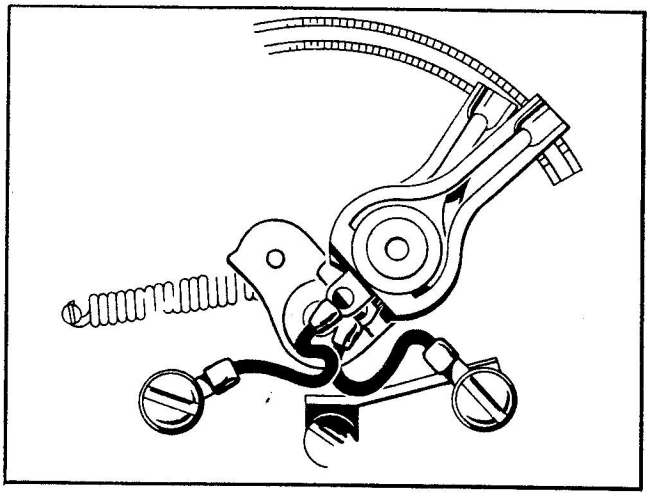


Figure 4-54A. Position of Wire and Lug for EA378A-545M, EA378A-546M, 380-548AM, EA380-548M, EA381-549AM and EA381-549M, Tank Units

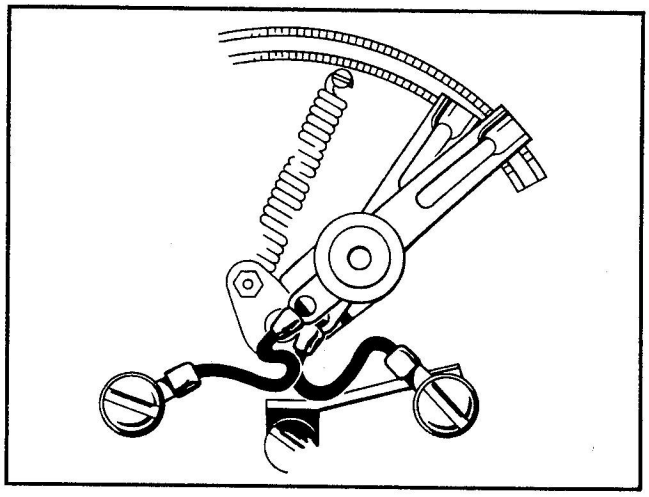


Figure 4-54B. Position of Wire and Lug for EA380C-1441, EA380C-548ABM and EA380C-548AM Tank Units

SPECIFIC DATA SHEET NO. 5

Tank units covered in this Specific Data Sheet are of the outside operating rod type and are as follows:

EA184-491 EA184W-492

Voltage	28v dc
Rating of warning switch	0.035 amp at 28 v 0.200 amp at 3 v
Dimensions	see figure 4-56

Figure 4-55. Table of Leading Particulars

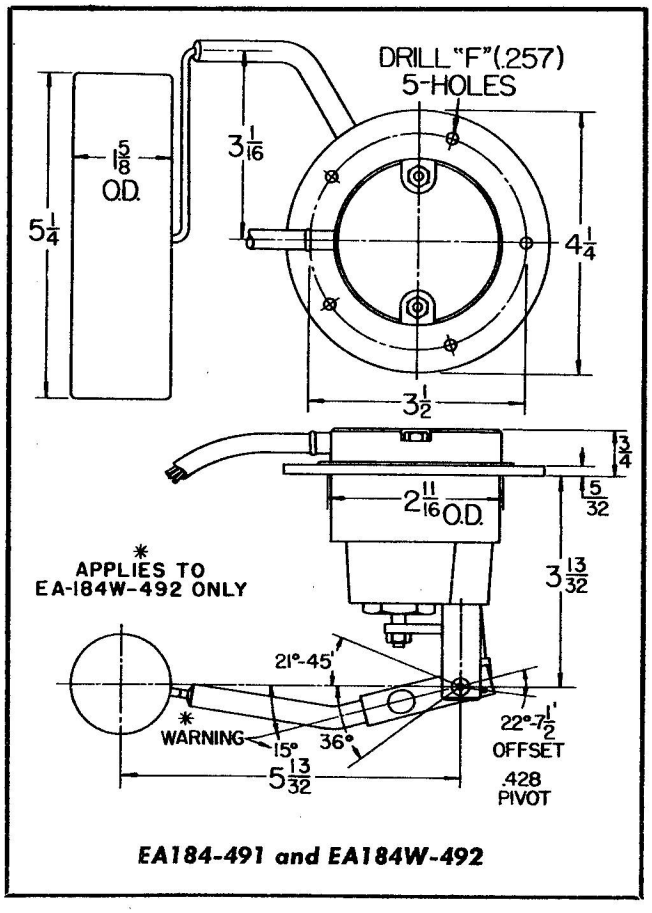


Figure 4-56. General Dimensions

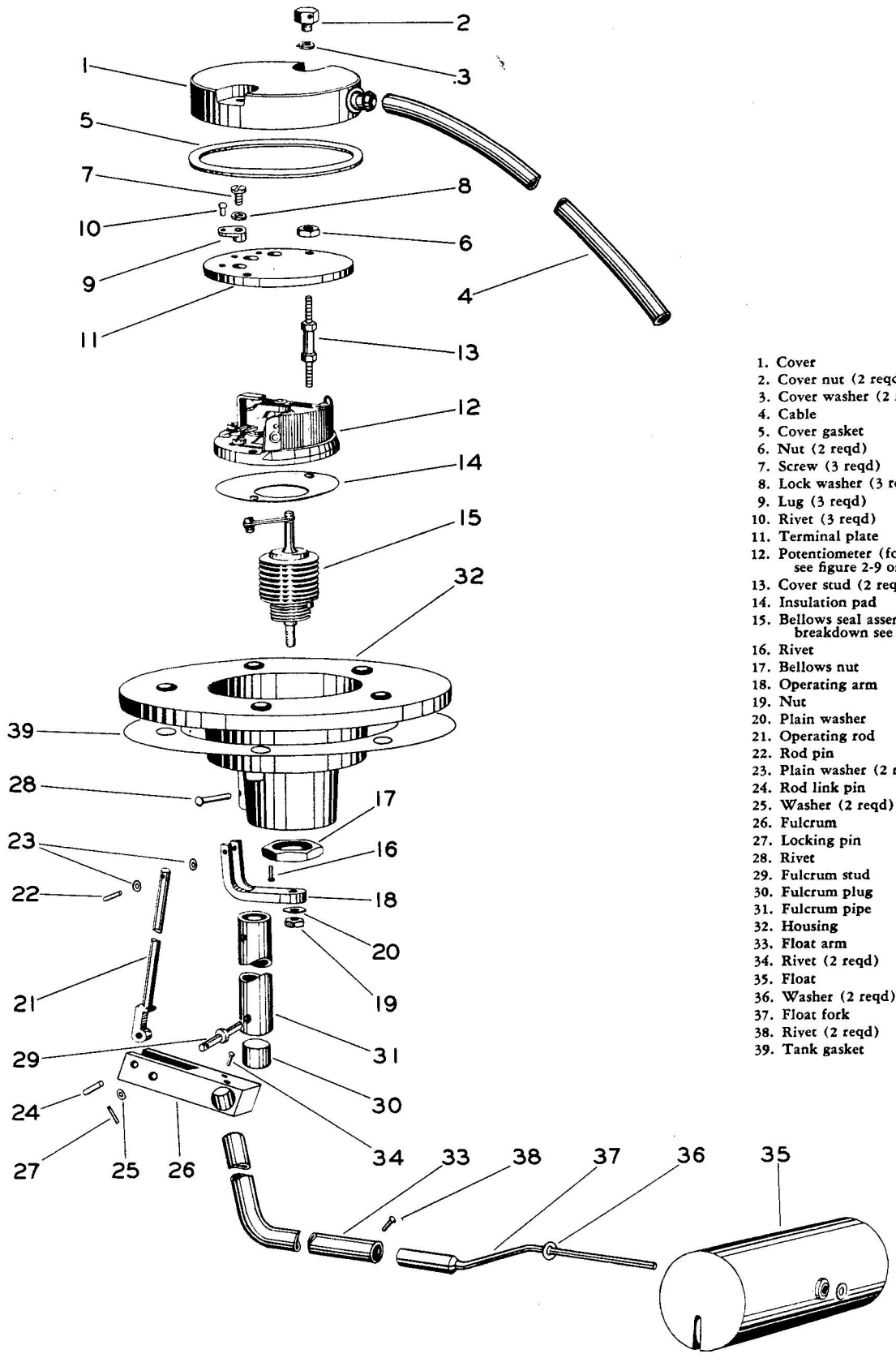


Figure 4-57. Exploded View of Tank Unit

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-57.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-57.

Follow general disassembly instructions given in paragraphs 2-1 thru 2-9, and 2-11.

Item 26. To remove fulcrum (26, figure 4-57), take out rod link pin (24) and pivot operating rod (21) out of slot in fulcrum. Remove locking pin (27) and slide fulcrum (26) off fulcrum stud (29).

Note

There are no float arm stops on tank units covered in this Specific Data Sheet.

CLEANING.

See paragraphs 2-15 thru 2-17.

INSPECTION.

See paragraphs 2-18 thru 2-24. For inspection of potentiometer see paragraphs 2-59 thru 2-64.

PRE-ASSEMBLY TESTING.

See paragraphs 2-25 thru 2-27. For tests of potentiometer, see paragraphs 2-65 thru 2-68, also Table of Electrical Data, figure 4-58.

Tank Unit	*Figure No. of Resistance Value Diagram, One-Strip Potentiometers*	*Figure No. of Internal Wiring Diagram*	*Figure No. of Feld Tester Wiring Diagram*
EA184-491	4-59	4-60	4-64
EA184W-492	4-59	4-61	4-64

Figure 4-58. Table of Electrical Data

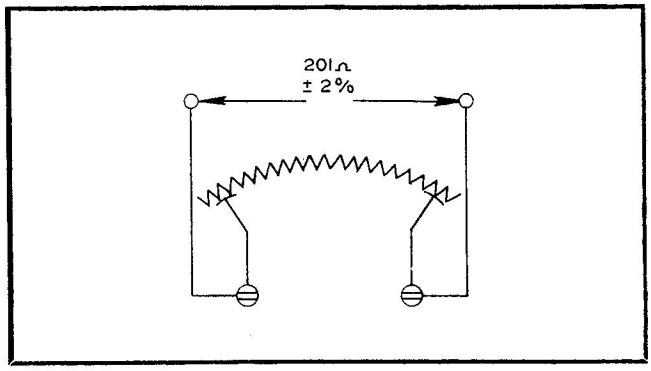


Figure 4-59. Resistance Value Diagram

REPAIR OR REPLACEMENT.

See paragraphs 2-28 thru 2-30. For repair of potentiometer, see paragraphs 2-69 thru 2-74.

LUBRICATION.

None required.

REASSEMBLY.

Follow general instructions given in paragraphs 2-33 thru 2-36, 2-38 thru 2-40, 2-42 thru 2-44, 2-46, 2-47, and 2-49 thru 2-52.

Items 33, 35, and 37. Align float arm (33), float fork (37) and float (35) to correspond to general dimension drawing, figure 4-56.

Item 12. Connect wires according to internal wiring diagram for specific tank unit. See Table of Electrical Data, figure 4-58, for figure number of internal wiring diagram.

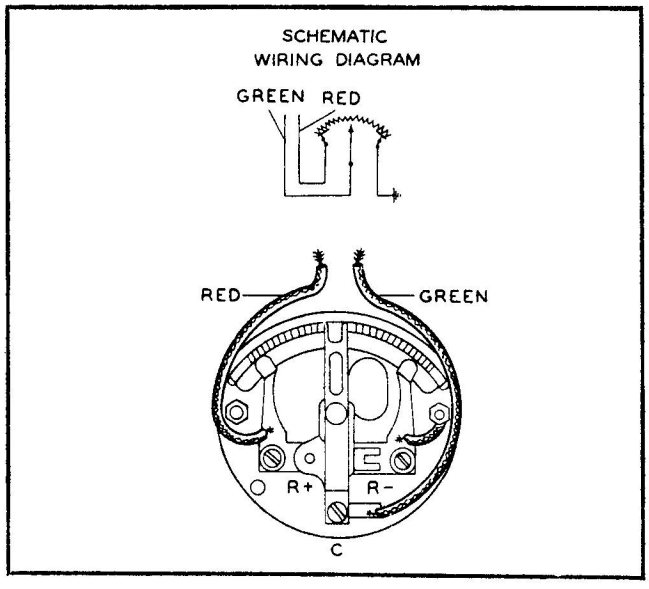


Figure 4-60. Internal Wiring Diagram

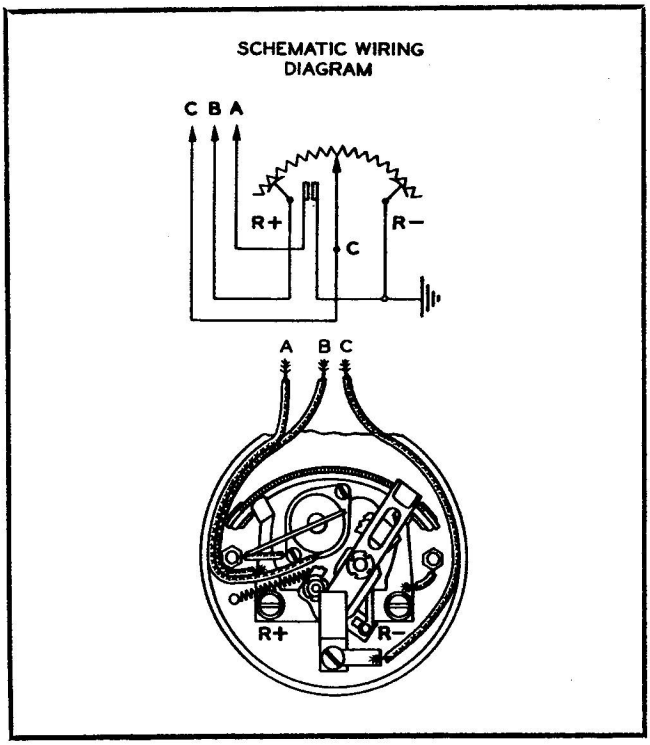


Figure 4-61. Internal Wiring Diagram

TEST PROCEDURE.

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM. Adjust set-up stand according to Table of Set-Up Stand Dimensions, figure 4-62, and set-up stand diagram referenced in that table. There are no float arm stops to adjust, but these dimensions represent limits of float arm travel when unit is installed in tank, and are necessary in adjusting stroke of potentiometer contact arm. For stroke adjustment procedure, see paragraph 3-11 and use field tester wiring diagram referenced in Table of Electrical Data, figure 4-58.

Tank Unit	*Fig. No. of Set-Up Stand Diagram*	*T Upper Limit of Float Travel*	*B Bottom Limit of Float Travel*	*S Warning Switch Setting*
EA184-491	4-63	2-13/16	4	None
EA184W-492	4-63	2-13/16	4	1-13/16

Figure 4-62. Table of Set-Up Stand Dimensions (in Inches)

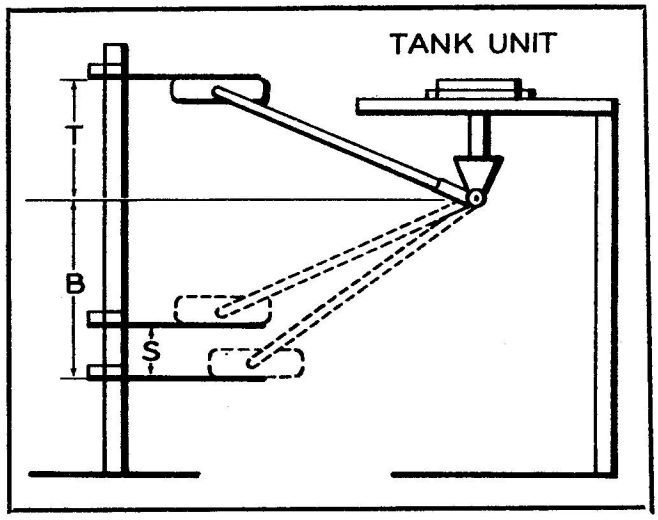


Figure 4-63. Set-Up Stand Diagram

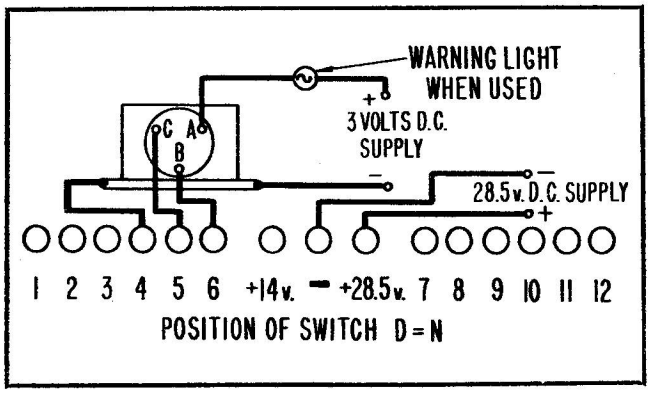


Figure 4-64 Field Tester Wiring Diagram

SETTING WARNING SWITCH. See paragraphs 3-24 thru 3-26. Consult Table of Set-Up Stand Dimensions, figure 4-62, for switch setting of the specific tank unit.

SPECIFIC DATA SHEET NO. 6

Tank units covered in this Specific Data Sheet are of the outside operating rod type and are as follows:

EA190W-586

Voltage	28v dc
Rating of warning switch	0.035 amp at 28v 0.200 amp at 3v
Dimensions	see figure 4-66

Figure 4-65. Table of Leading Particulars

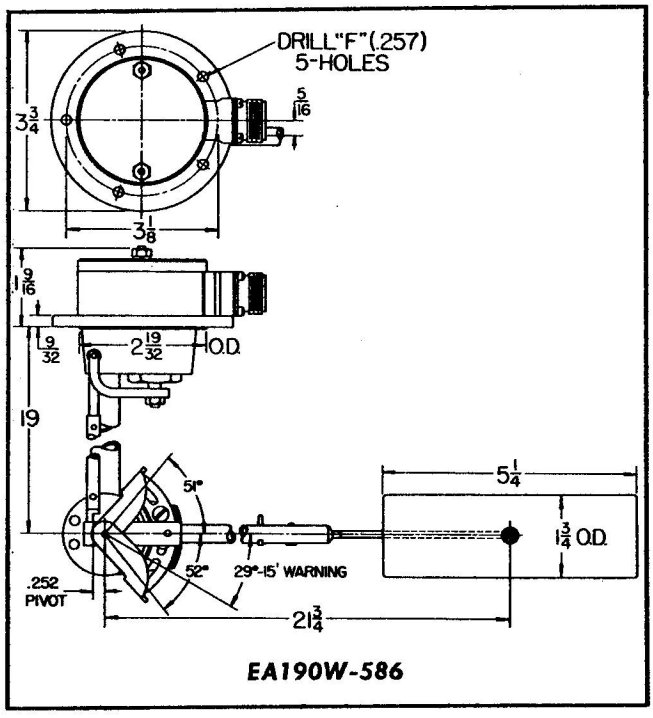


Figure 4-66. General Dimensions

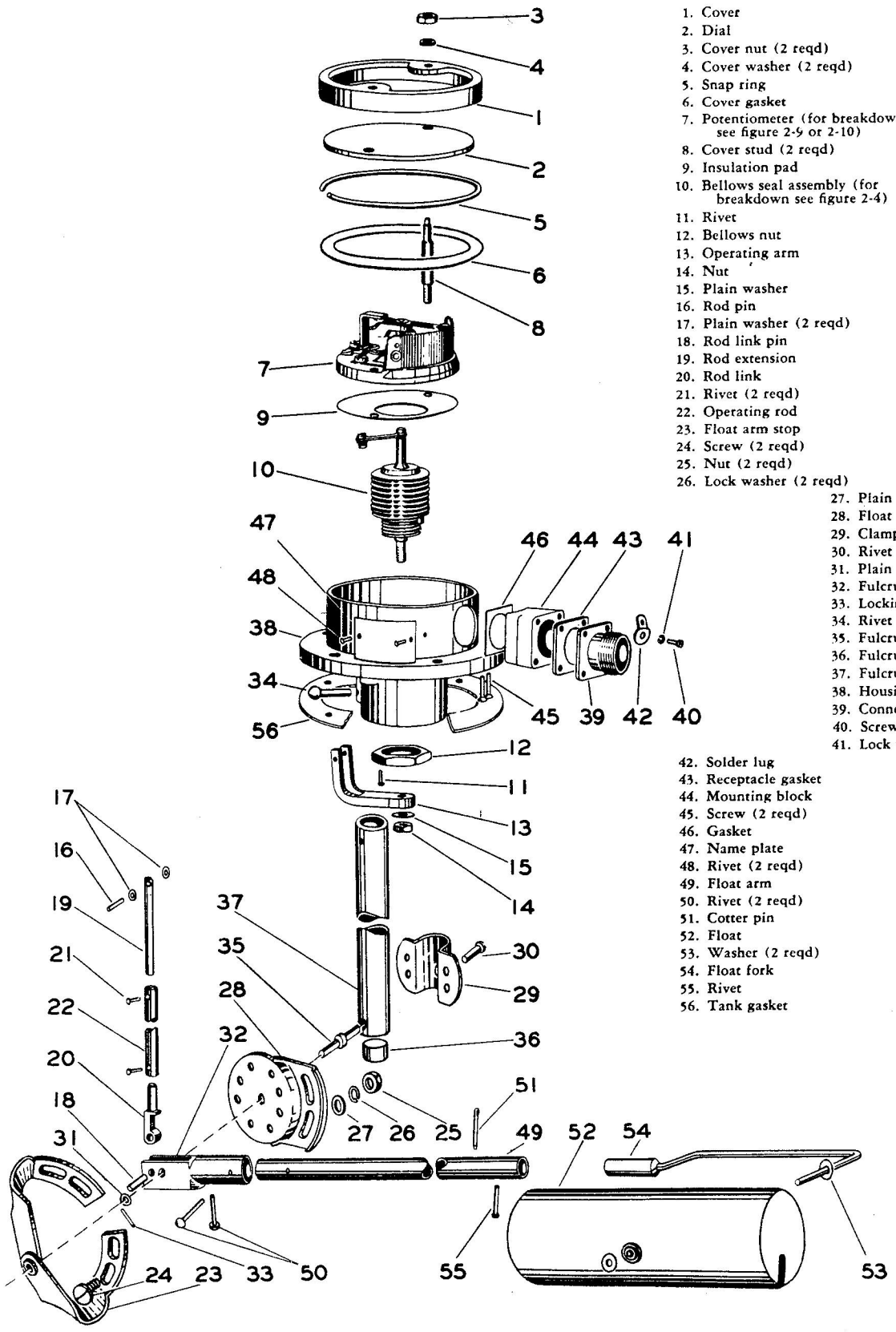


Figure 4-67. Exploded View of Tank Unit

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-67.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-67.

Follow general disassembly instructions given in paragraphs 2-1 thru 2-9, and 2-11 thru 2-13. For disassembly of potentiometer, see paragraphs 2-69 thru 2-74.

CLEANING.

See paragraphs 2-15 thru 2-17.

INSPECTION.

See paragraphs 2-18 thru 2-24. For inspection of potentiometer see paragraphs 2-59 thru 2-64.

PRE-ASSEMBLY TESTING.

See paragraphs 2-25 thru 2-27. For tests of potentiometer, see paragraphs 2-65 thru 2-68, also Table of Electrical Data, figure 4-68, and resistance value diagrams referenced in that table.

Tank Unit	*Figure No. of Resistance Value Diagram, One-Strip Potentiometers*	*Figure No. of Internal Wiring Diagram*	*Figure No. of Field Tester Wiring Diagram*
EA190W-586	4-69	4-70	4-73

Figure 4-68. Table of Electrical Data

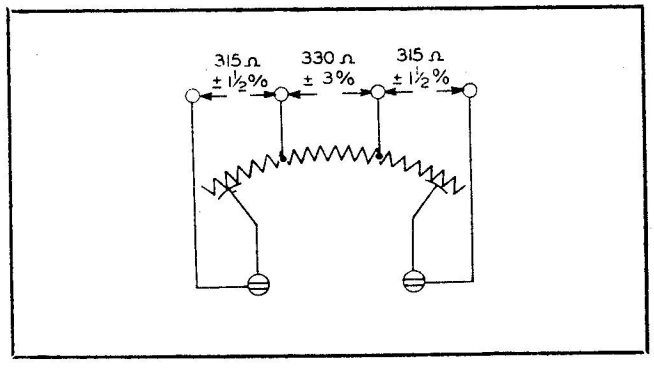


Figure 4-69. Resistance Value Diagram

REPAIR OR REPLACEMENT.

See paragraphs 2-28 thru 2-30. For repair of potentiometer, see paragraphs 2-69 thru 2-74.

LUBRICATION.

None required.

REASSEMBLY.

Follow general instructions given in paragraphs 2-33 thru 2-36, 2-38 thru 2-40, 2-42 thru 2-44, 2-46, 2-47, and 2-49 thru 2-52.

Items 49 thru 55. Align float arm (49), float fork (54) and float (52) to correspond to general dimension drawing, figure 4-66.

Item 7. Connect wires according to internal wiring diagram for specific tank unit. See Table of Electrical Data, figure 4-68, for figure number of internal wiring diagram.

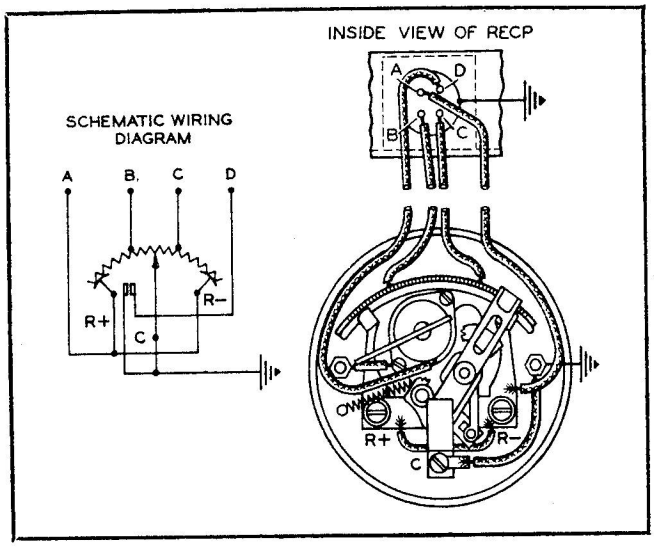


Figure 4-70. Internal Wiring Diagram

TEST PROCEDURE.

ADJUSTING FLOAT ARM STOPS. See paragraphs 3-5 thru 3-7, also 3-9. Use figure and dimensions indicated for specific tank unit in Table of Set-Up Stand Dimensions, figure 4-71.

Tank Unit	*Fig. No.*	*"T" Top Float Arm Stop Setting*	*"B" Bottom Float Arm Stop Setting*	*"S" Warning Switch Setting*
EA190W-586	4-72	17.75	18.0	6.5

Figure 4-71. Table of Set-Up Stand Dimensions (in Inches)

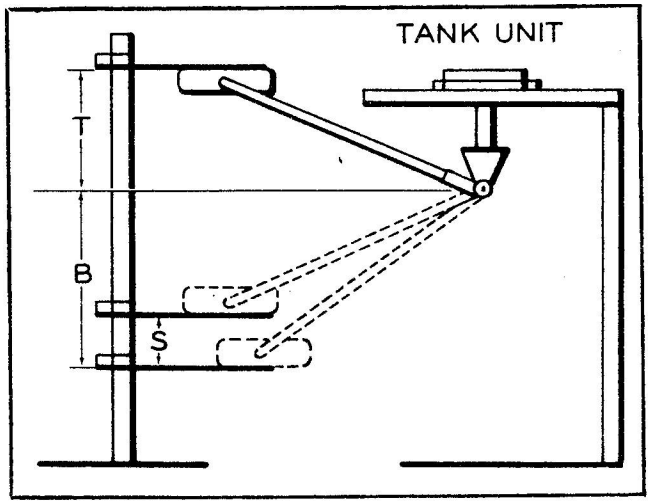


Figure 4-72. Set-Up Stand Diagram

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM. See paragraph 3-11, using field tester wiring diagram referenced in Table of Electrical Data, figure 4-68.

SETTING WARNING SWITCH ASSEMBLY. See paragraphs 3-24 thru 3-26. Consult Table of Set-Up Stand Dimensions, figure 4-71, for switch setting of the specific tank unit.

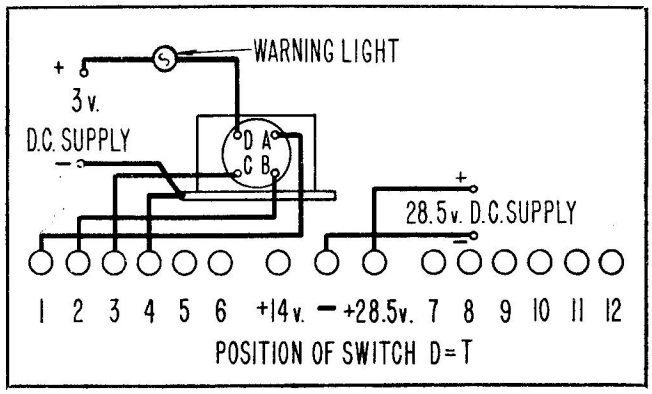


Figure 4-73. Field Tester Wiring Diagram

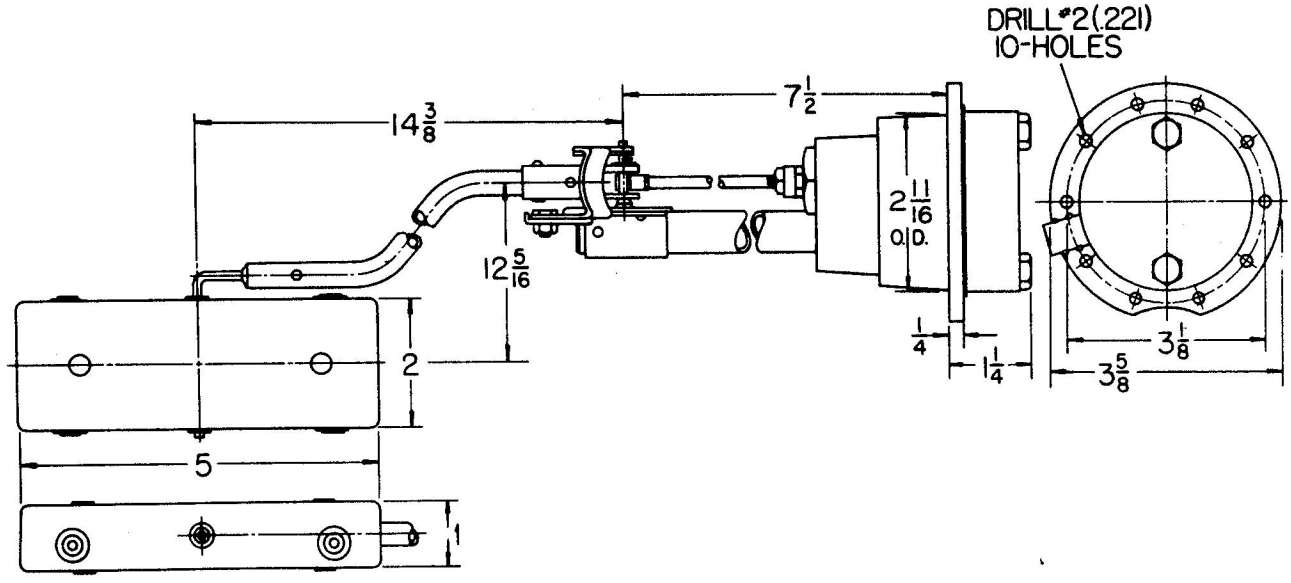
SPECIFIC DATA SHEET NO. 7

Tank units covered in this Specific Data Sheet are of the outside operating rod type and are as follows:

EA379A-1440
EA379A-547AM
EA379AC-547AM
EA379AC-547M

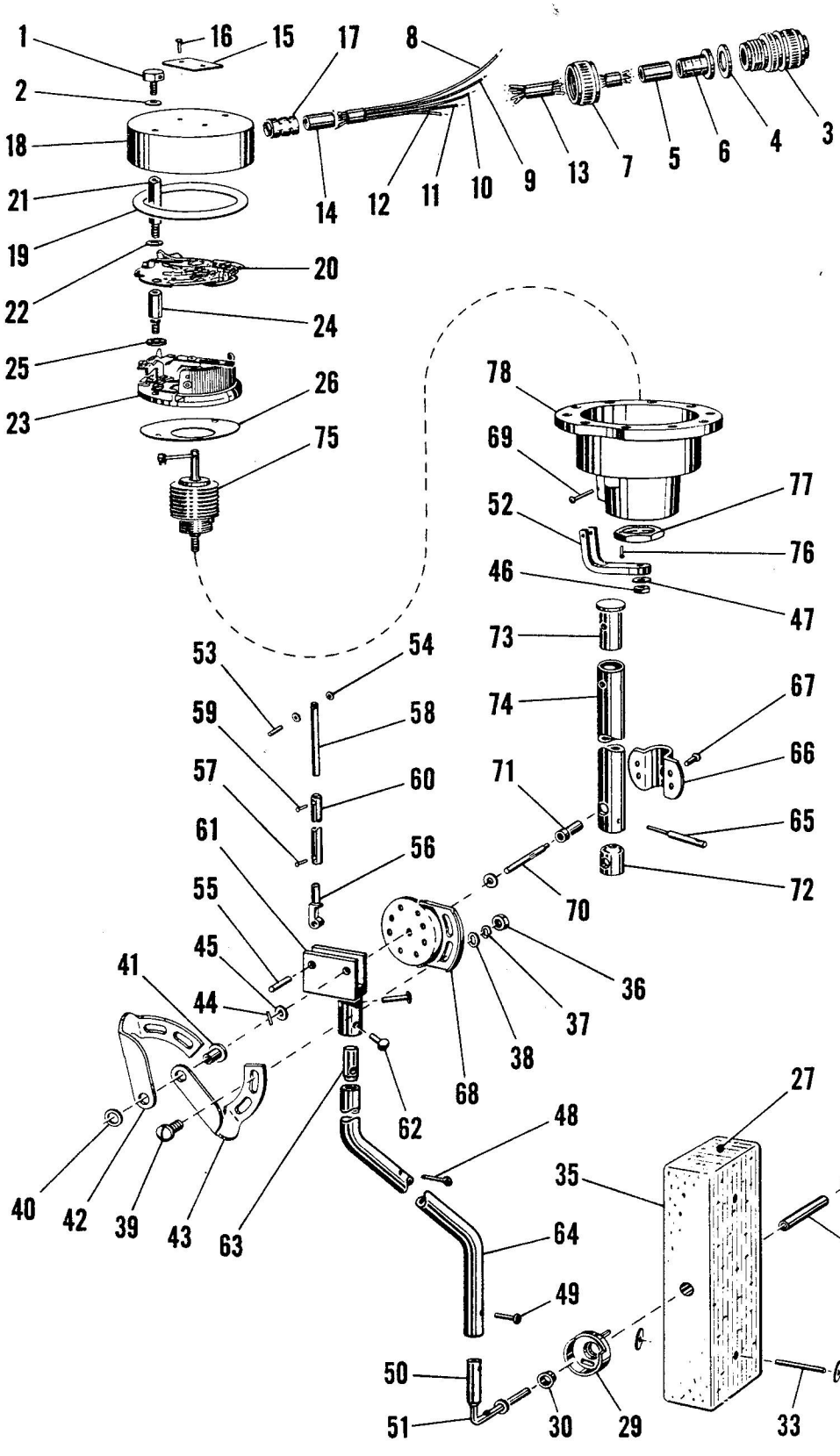
Voltage	28v dc
Dimensions	see figure 4-75

Figure 4-74. Table of Leading Particulars



EA379A-1440, EA379A-547AM, EA379AC-547AM and EA379AC-547M

Figure 4-75. General Dimensions



1. Housing cover screw
2. Washer
3. Electrical receptacle
4. Gasket
5. Cable connector filler
6. Cable connector
7. Connector coupling nut
8. Blue connection wire 19 in. lg.
9. Blue connection wire 20 in. lg.
10. Yellow connection wire 19 in. lg.
11. Yellow connection wire 20 in. lg.
12. Black connection wire 19 in. lg.
13. Cable
14. Cable connector filler
15. Nameplate
16. Rivet
17. Cable connector
18. Cover
19. Gasket
20. Contactor assembly
21. Stud
22. Washer
23. Potentiometer assembly
24. Stud
25. Flat washer
26. Insulating pad
27. Float assembly
28. Washer
29. Float stop
30. Float bushing
31. Float bearing
32. Float bushing
33. Rod
34. Washer
35. Float
36. Hex nut
37. Lock washer
38. Flat washer
39. Binding head screw
40. Washer
41. Float stop bushing
42. Float stop outer arm
43. Float stop inner arm
44. Locking pin
45. Flat washer
46. Hex nut
47. Flat washer
48. Cotter pin
49. Rivet
50. Bushing
51. Float fork arm
52. Bellows arm
53. Float stop inner arm
54. Washer
55. Operating rod link pin
56. Operating rod link
57. Rivet
58. Operating rod extension
59. Rivet
60. Operating rod
61. Fulcrum
62. Brass rivet
63. Float arm plug
64. Float arm
65. String guide
66. Float stop clamp
67. Rd hd rivet
68. Float stop bracket
69. Rd hd rivet
70. Fulcrum stud
71. Fulcrum stud bushing
72. Fulcrum plug
73. Fulcrum plug
74. Fulcrum pipe
75. Bellows seal assembly
76. Rd hd rivet
77. Bellows holder nut
78. Housing

Figure 4-76. Exploded View of Tank Units

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-76.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-76.

Follow general disassembly instructions given in paragraphs 2-1 thru 2-9, and 2-11 thru 2-13. For disassembly of potentiometer, see paragraphs 2-69 thru 2-72.

Items 28 thru 35. Do not disassemble float assembly except in emergency.

CLEANING.

See paragraphs 2-15 thru 2-17.

INSPECTION.

See paragraphs 2-18 thru 2-24. For inspection of potentiometer see paragraphs 2-59 thru 2-64.

PRE-ASSEMBLY TESTING.

See paragraphs 2-25 thru 2-27. For tests of potentiometer, see paragraphs 2-65 thru 2-68, also Table of Electrical Data, figure 4-77.

Note

On potentiometers having two resistance strips, values of the two strips must match within 1%.

Resistance Tolerances (in Ohms)

Tank Unit	*Total Strip Resistance*	*Outer Resistance Strip*		*Inner Resistance Strip*		*Figure No. of Internal Wiring Diagram*
		Float Up Low Res A-C	*Float Down High Res A-C*	*Float Down Low Res B-C*	*Float Up High Res B-C*	
EA379A-1440	28.6 ± 3%	0-0.5		0-0.5		4-78A
EA379A-547AM*	28.6 ± 3%	0-0.5		0-0.5		4-78A
EA379AC-547AM*	28.6 ± 3%	0-0.5		0-0.5		4-79
EA379AC-547M**	38.3 ± 3%	0-0.5	28.6 ± 3%	0-0.5	28.6 ± 3%	4-78

* Although the potentiometer in these tank units is a single strip potentiometer, adjustment of end ohmages is necessary because this unit is used in a totalizing circuit.

** Resistance of inner and outer strip must match within 1%.

Figure 4-77. Table of Electrical Data

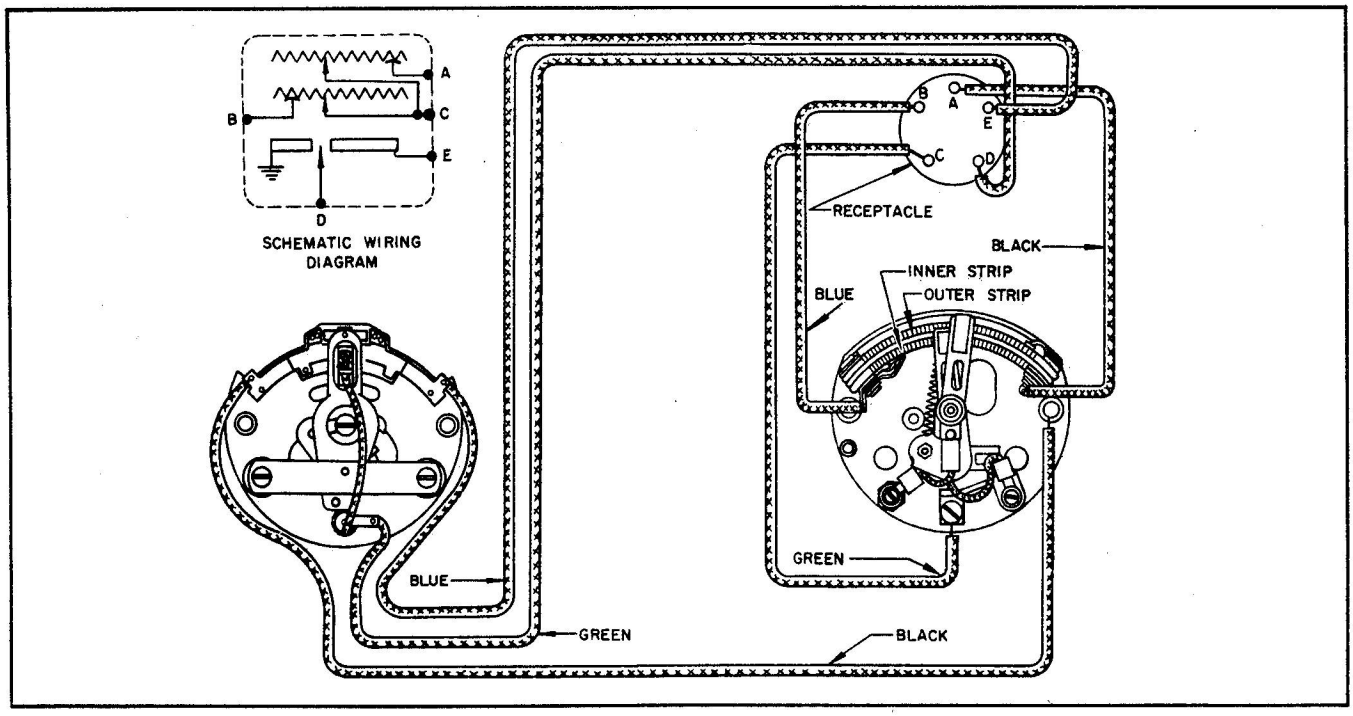


Figure 4-78. Internal Wiring Diagram for EA379AC-547M Tank Unit

REPAIR OR REPLACEMENT.

See paragraphs 2-28 thru 2-30. For repair of potentiometer, see paragraphs 2-73 thru 2-74.

LUBRICATION.

None required.

REASSEMBLY.

Follow general instructions given in paragraphs 2-33 thru 2-36, 2-38 thru 2-40, 2-42 thru 2-44, 2-46, 2-47, and 2-49 thru 2-52.

Items 35, 51 and 64. Align float arm (64), float fork (51) and float (35) to correspond to general dimension drawing, figure 4-75, for the specific tank unit.

Items 20 and 23. Connect wires accordign to internal wiring diagram for specific tank unit. See Table of Electrical Data, figure 4-77, for figure number of internal wiring diagram. Wire and lug positions are shown in figure 4-81B and 4-81C.

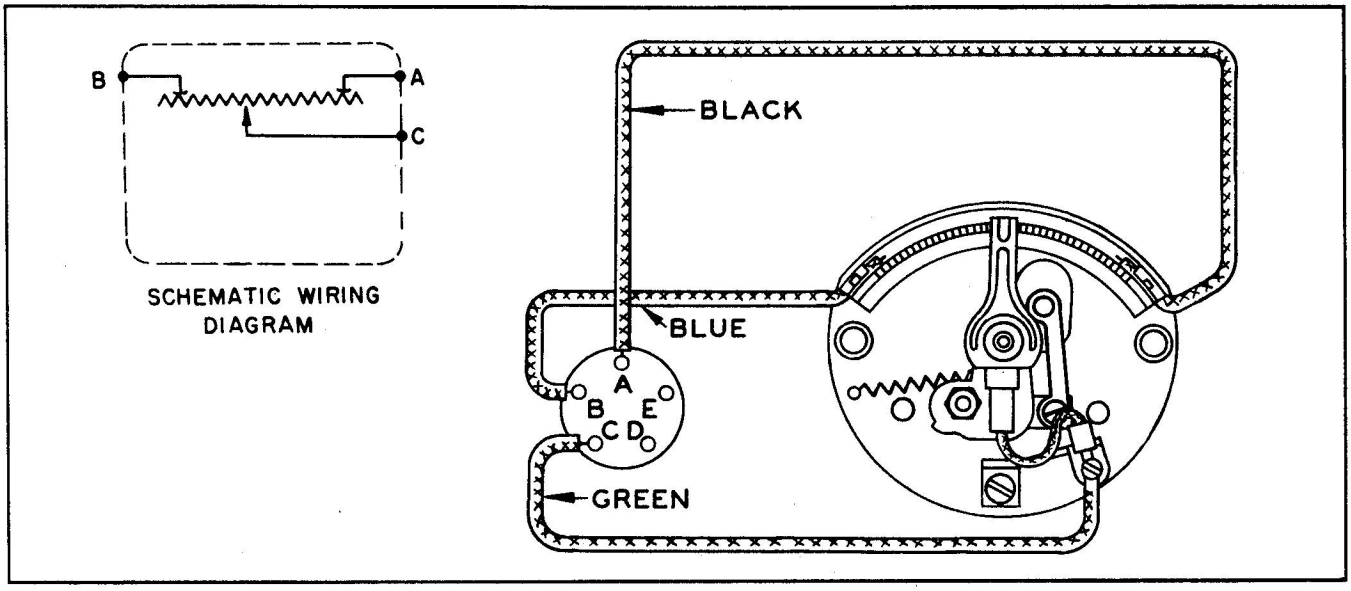


Figure 4-78A. Internal Wiring Diagram for Tank Units EA379A-1440 and EA379A-547AM

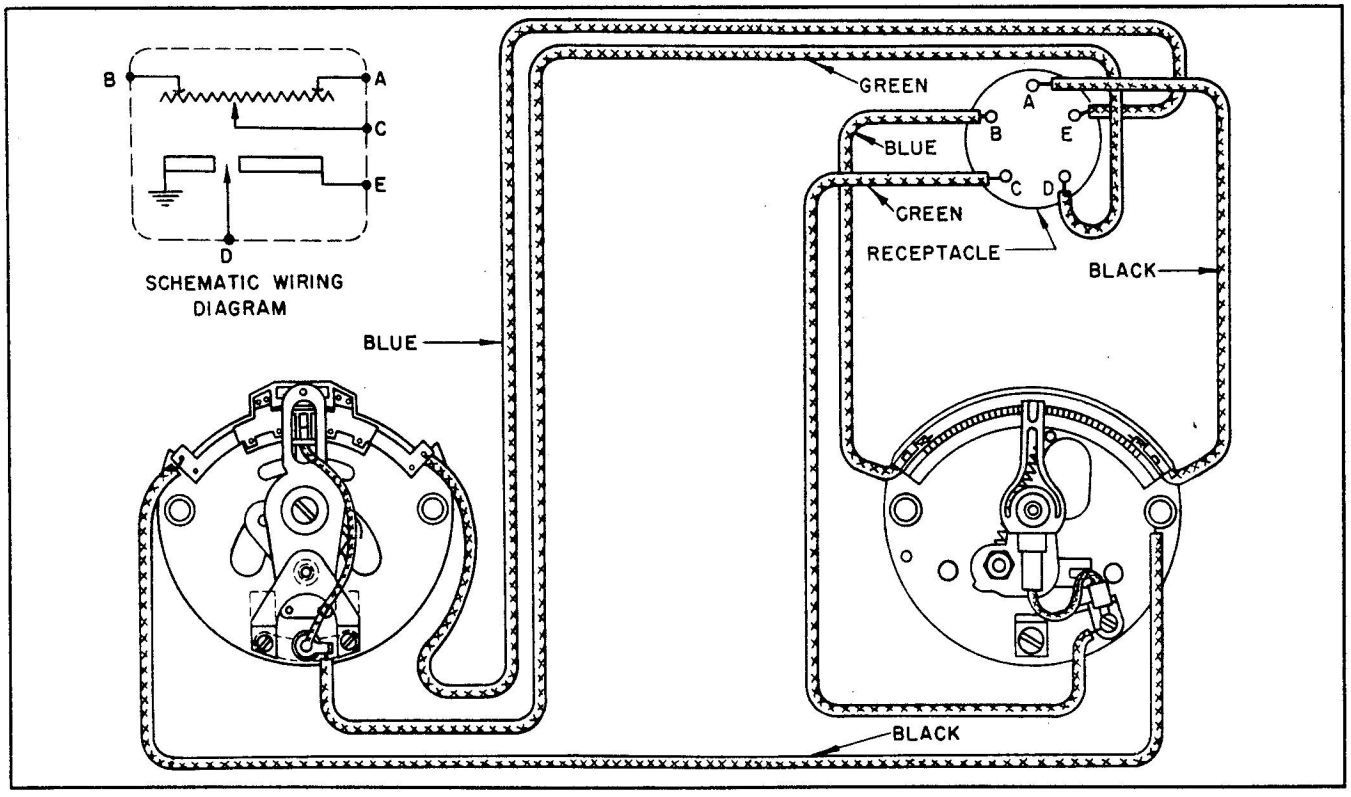


Figure 4-79. Internal Wiring Diagram for EA379AC-547AM Tank Unit

TEST PROCEDURE.

ADJUSTING FLOAT ARM STOPS. See paragraphs 3-5 thru 3-7, also 3-9. Use dimensions indicated for the specific aircraft in Table of Set-Up Stand Dimensions, figure 4-80, and Set-Up Stand Diagrams, figures 4-81 and 4-81A.

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM. See paragraphs 3-10 thru 3-19. Consult Table of Electrical Data, figure 4-77, for resistance tolerances, float positions, and end ohmages.

SETTING CONTACTOR. See paragraphs 3-26 thru 3-35. Consult Table of Set-Up Stand Dimensions, figure 4-80 and figure 4-81A for contactor setting of the specific tank unit. Method of measuring position at which contactor actuates is shown in figure 4-81A, Set-Up Stand Diagram.

Model	*Ship*	*"T" Top Float Arm Stop Setting*	*"B" Bottom Float Arm Stop Setting*	*Dimension "N"*	*Bridge Test of Contactor*		*Dimension "F"*
					Float Above N	*Float Below N*	
F86A	1 thru 341	4 3/8	3 1/2	2 3/8	Pins D and E connected	Pin D grounded	1/2 (max.)
F86A	342 and up	4 3/8	3-5/32	2-11/16	Pins D and E connected	Pin D grounded	1/2 (max.)
F86E	1 thru 35	4 3/8	3-5/32	2-11/16	Pins D and E connected	Pin D grounded	1/2 (max.)
F86E	36 and up	4 1/2	3-1/32	2-13/16	Pins D and E connected	Pin D grounded	1/2 (max.)
F86F	All	4 1/2	3-1/32	2-13/16	Pins D and E connected	Pin D grounded	1/2 (max.)

Figure 4-80. Table of Set-Up Stand Dimensions (in Inches) for Tank Units No. EA379AC-547AM and EA379AC-547M

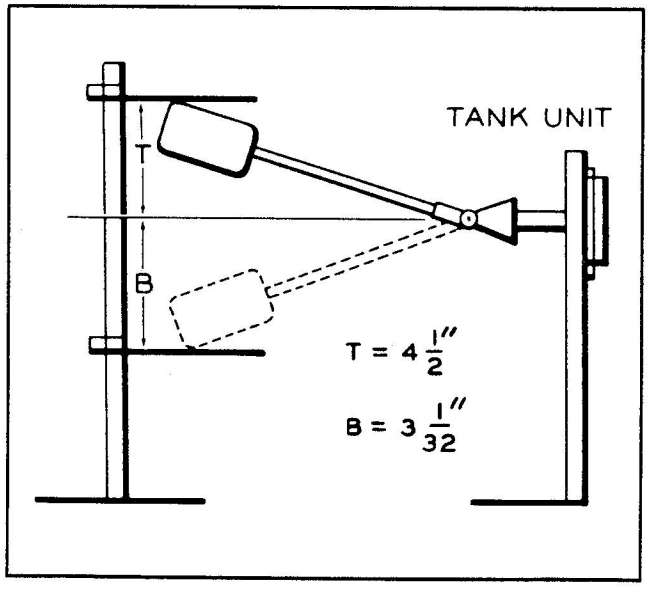


Figure 4-81. Set-Up Stand Diagram, with Dimensions for 379A-1440 and EA379A-547AM Tank Units

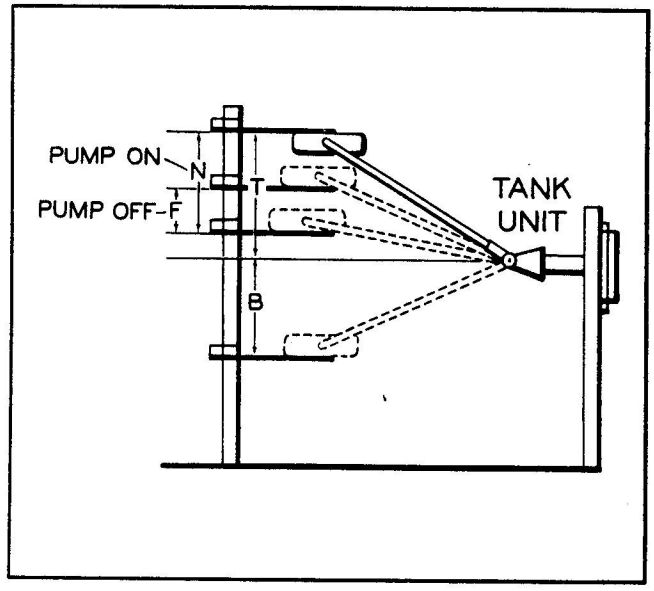


Figure 4-81A. Set-Up Stand Diagram for EA379AC-547AM and EA379AC-547M Tank Units

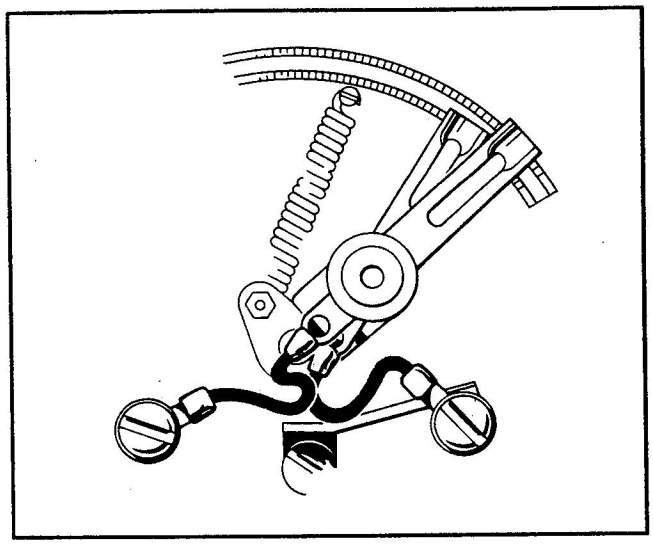


Figure 4-81B. Position of Wire and Lug for EA379AC-547M Tank Unit

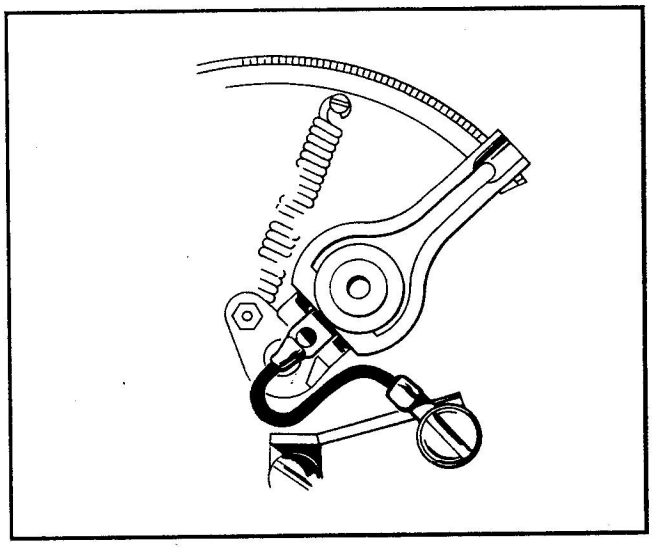


Figure 4-81C. Position of Wire and Lug for EA379A-1440, EA379A-547AM and EA379AC-547AM Tank Units

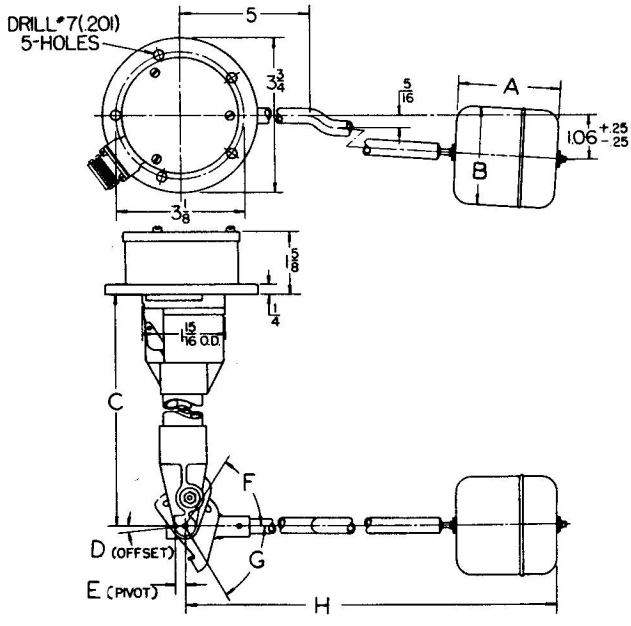
SPECIFIC DATA SHEET NO. 8

Tank units covered in this Specific Data Sheet are of the outside operating rod type and are as follows:

EA515-544	EA565-444	EA565AC-552L	EA565P-676
EA515-677	EA565-791	EA565AC-552R	EA565PC-442
EA515A-670	EA565A-766L	EA565B-446	EA565W-269
EA515B-607	EA565A-766R	EA565BC-446	EA565W-553
EA515W-648	EA565A-767	EA565BP-447	EA565WP-675
EA515WC-647	EA565A-768	EA565C-245	EA584AC-752L
EA515BC-310	EA565AC-550	EA565C-443	EA584AC-752R
EA533-665	EA565AC-551	EA565P-414	EA588AP-639

Voltage	28v dc
Rating of warning switch	0.035 amp at 28v 0.200 amp at 3v
Dimensions	see figure 4-83

Figure 4-82. Table of Leading Particulars

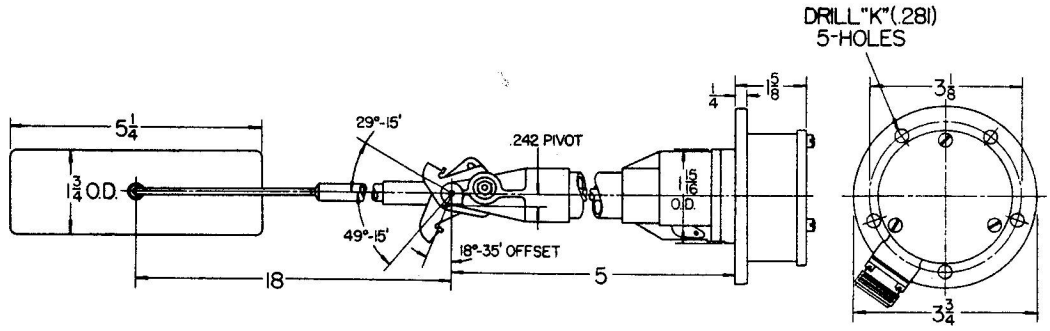


EA515-544 and EA515-677

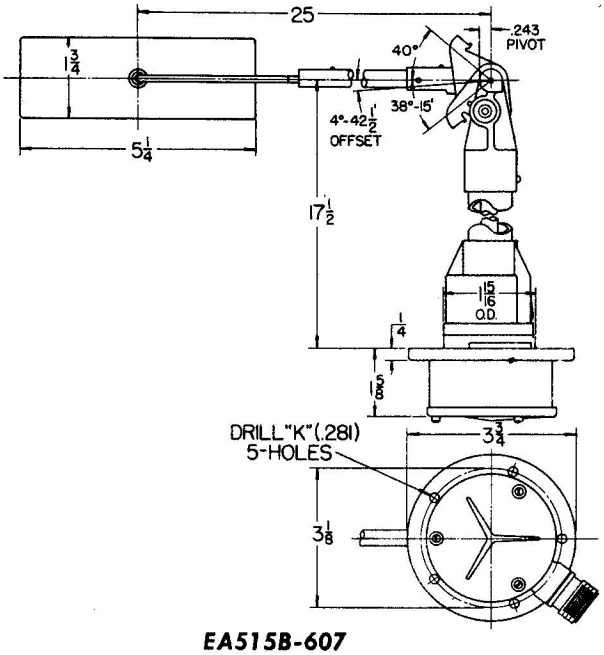
TABLE OF DIMENSIONS

	EA515-544	*EA515-677*
Shape of float arm	Straight	Off-set
A	3⅛ in.	2-7/16 in.
B	2⅜ in.	2⅜ in.
C	17-29/32 in.	18-15/32 in.
D (Pivot offset)	2° - 20′	6° - 27′
E (Pivot)	0.180 in.	0.199 in.
F	57° - 30′	41° - 45′
G	58° - 30′	60°
H	20½ in.	18-7/16 in.

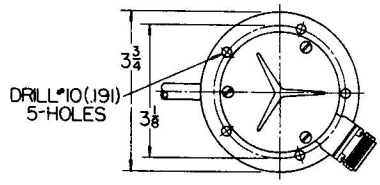
Figure 4-83 (Sheet 1 of 9 Sheets). General Dimensions

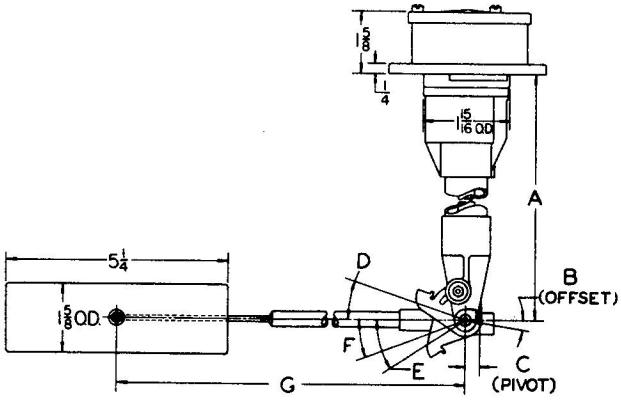


EA515A-670



EA515B-607



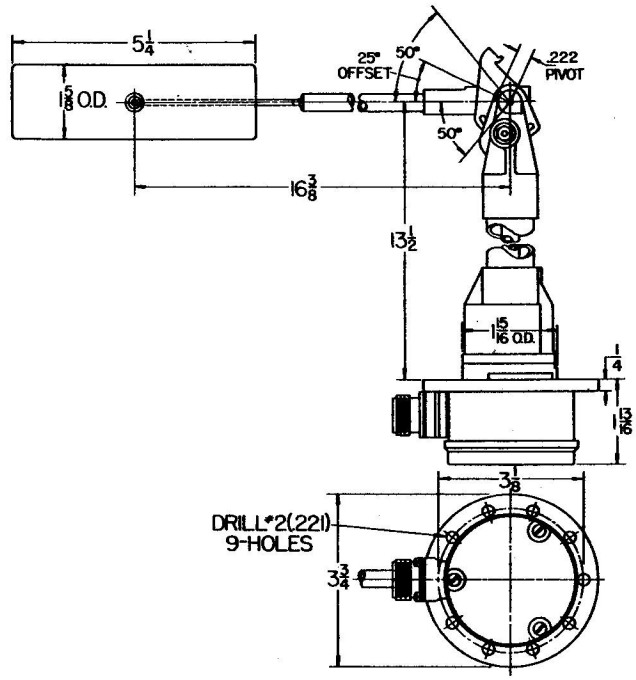


EA515W-648 and EA515WC-647

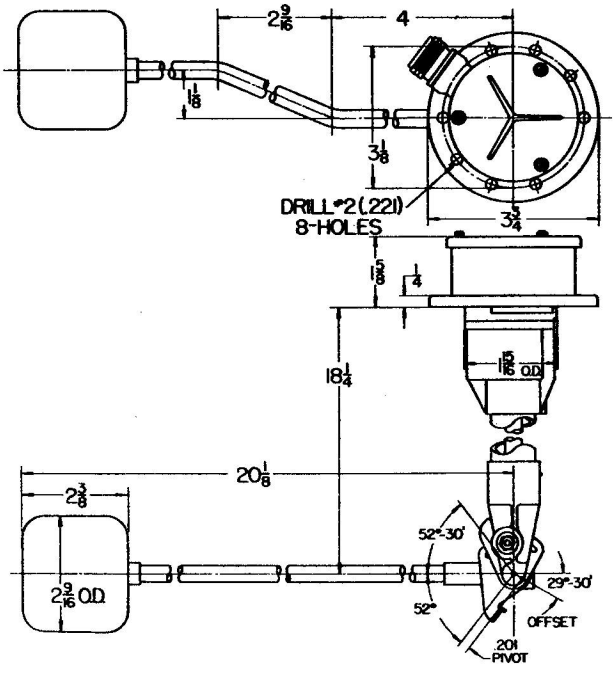
TABLE OF DIMENSIONS

	EA515W-648	*EA515WC-647*
A	8 in.	7⅛ in.
B (Pivot offset)	8° - 51½'	0° - 21'
C (Pivot)	0.329	0.916
D	24°	10° - 13'
E	37°	9° - 17'
F	21°	As close to bottom as possible
G	16-11/16 in.	31 in.

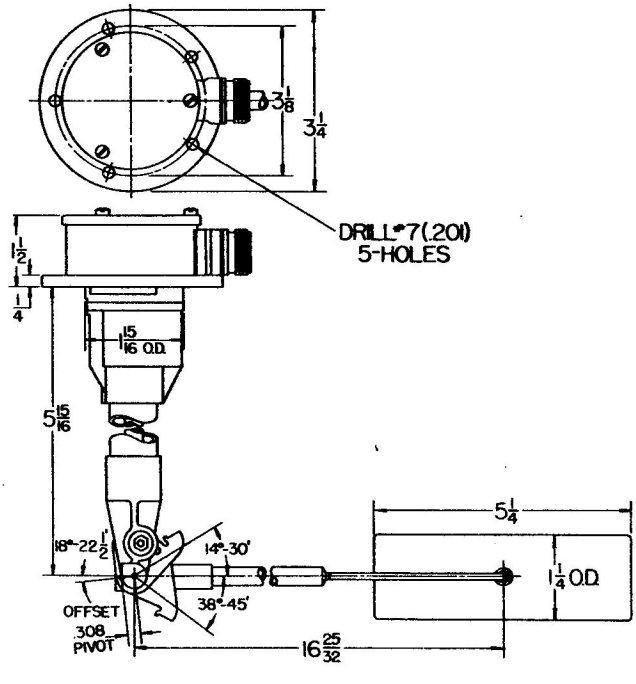
Figure 4-83 (Sheet 2 of 9 Sheets). General Dimensions



EA529BC-310

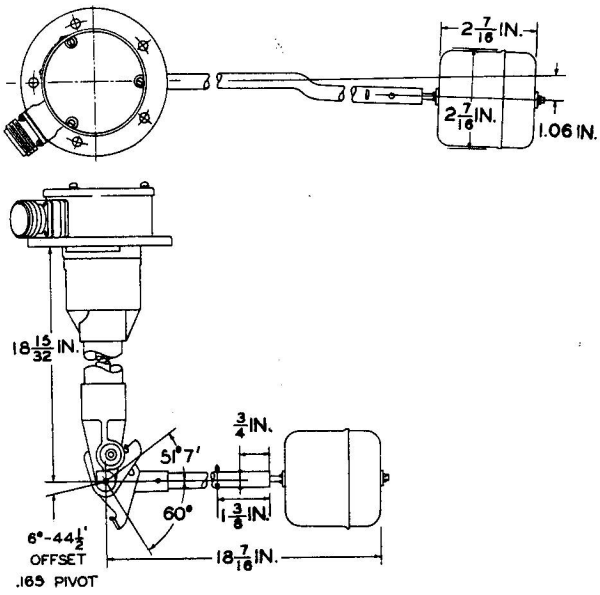


EA533-665

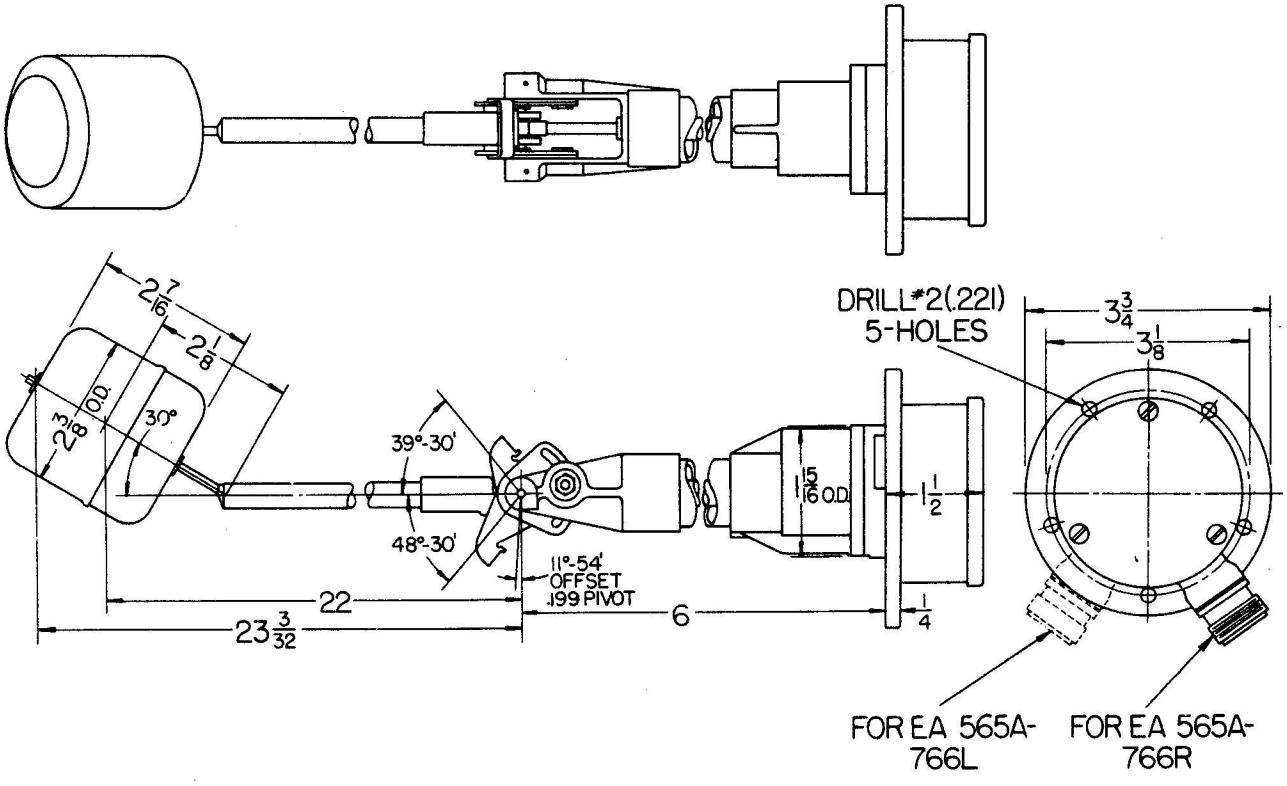


EA565-444

Figure 4-83 (Sheet 3 of 9 Sheets). General Dimensions

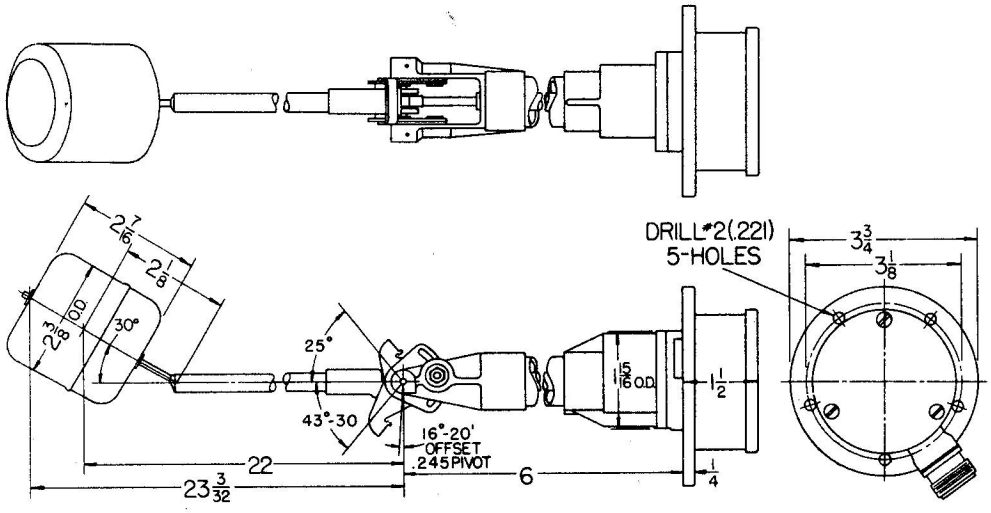


EA565-791

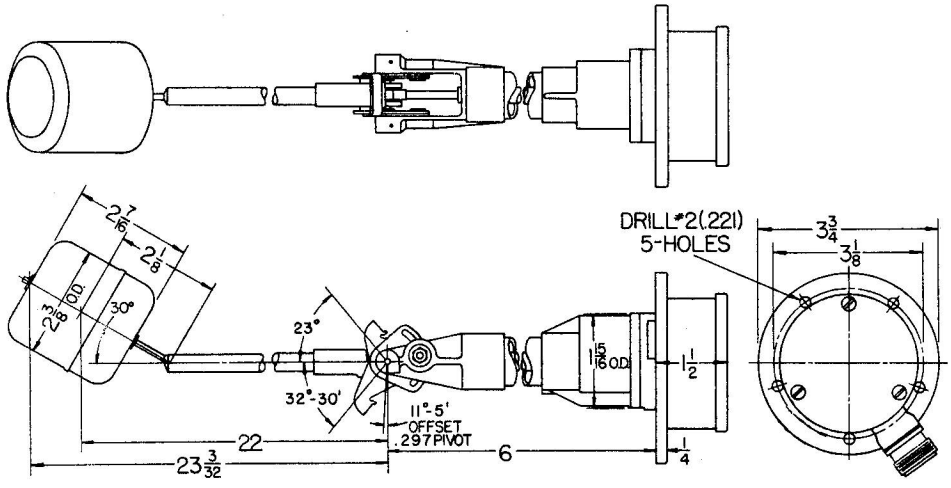


EA565A-766L and EA565A-766R

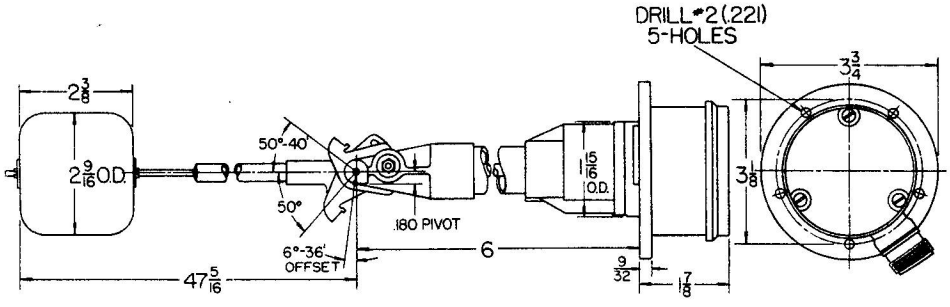
Figure 4-83 (Sheet 4 of 9 Sheets). General Dimensions



EA565A-767

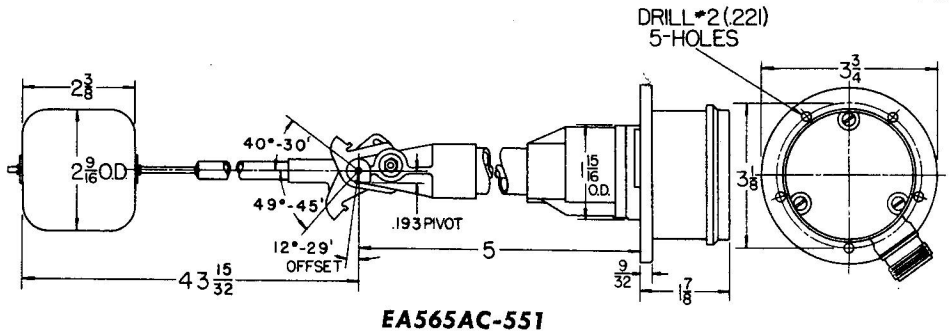


EA565A-768

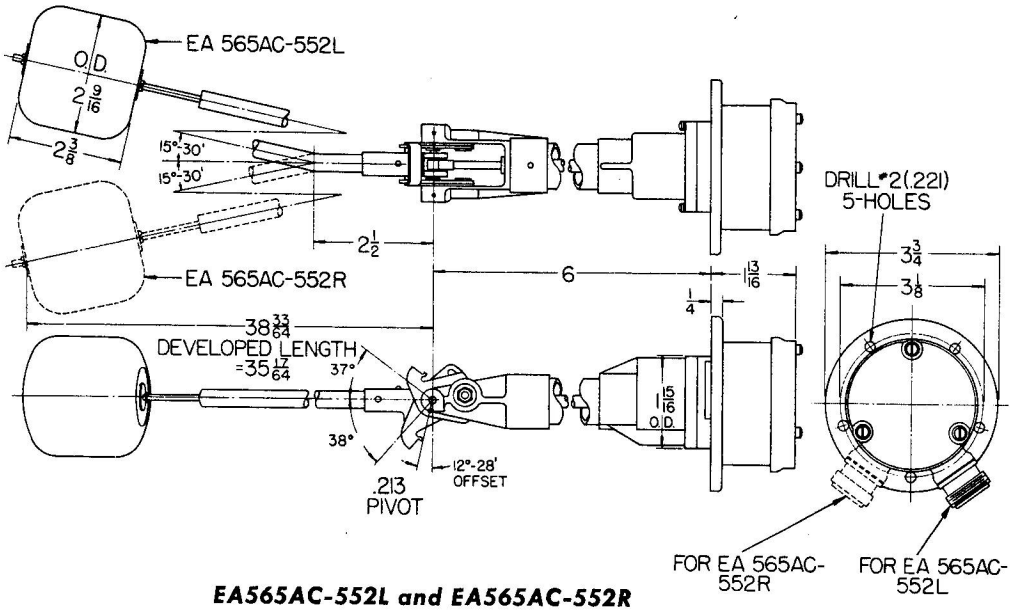


EA565AC-550

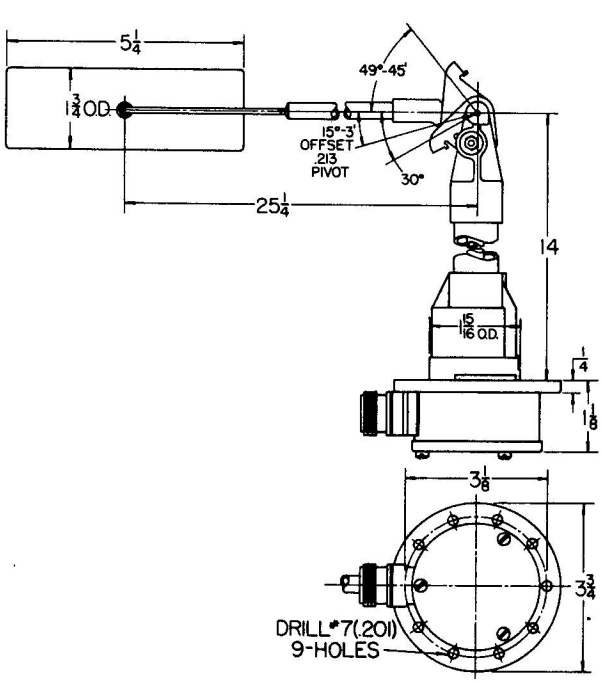
Figure 4-83 (Sheet 5 of 9 Sheets). General Dimensions



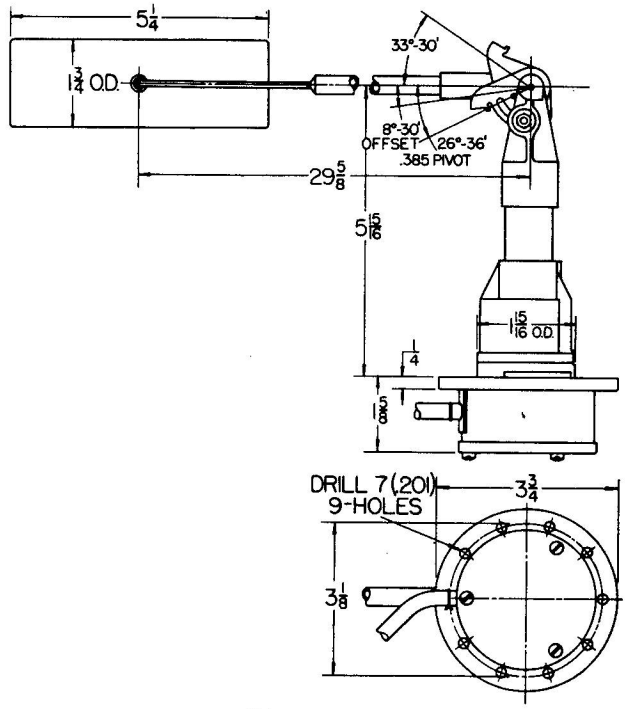
EA565AC-551



EA565AC-552L and EA565AC-552R



EA565B-446 and EA565BC-446



EA565BP-447

Figure 4-83 (Sheet 6 of 9 Sheets). General Dimensions

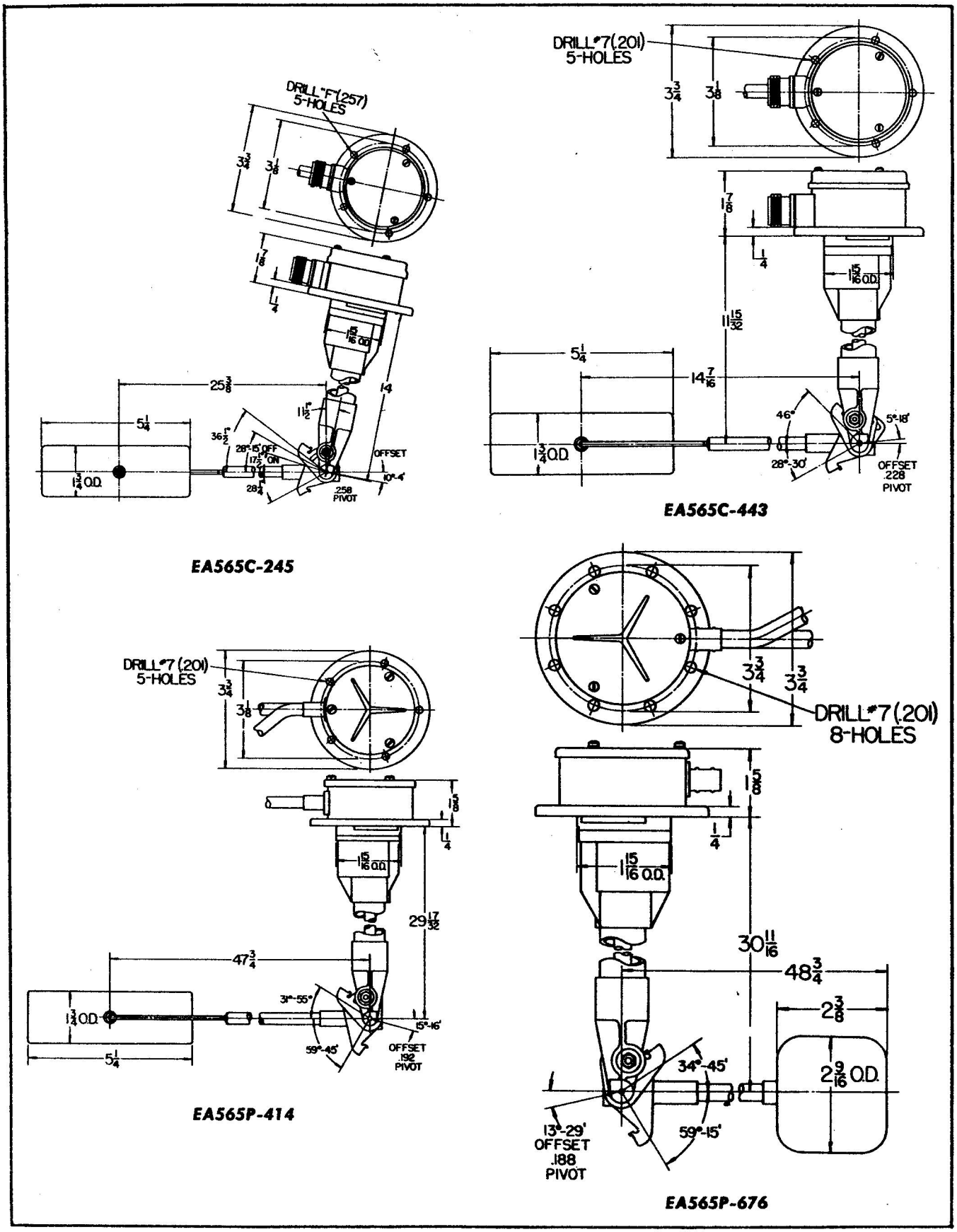
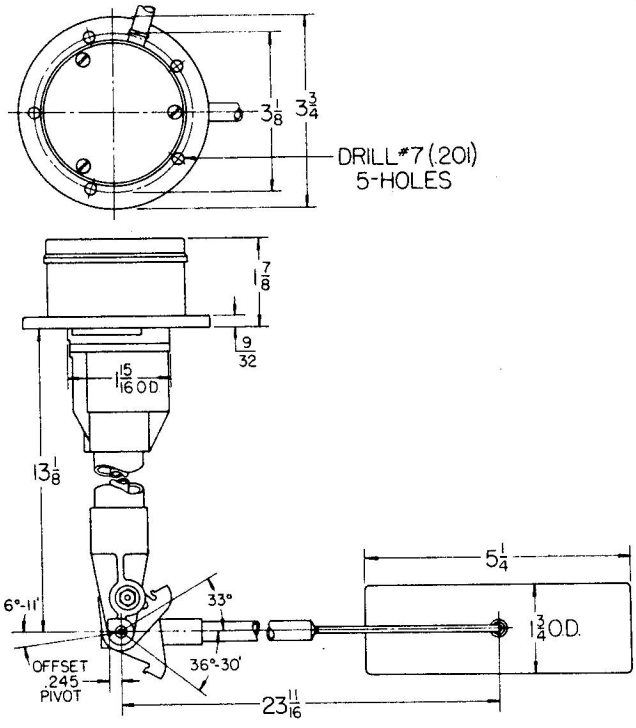
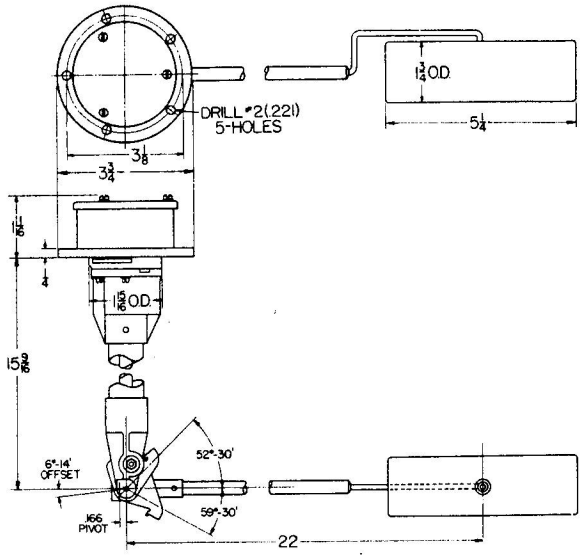


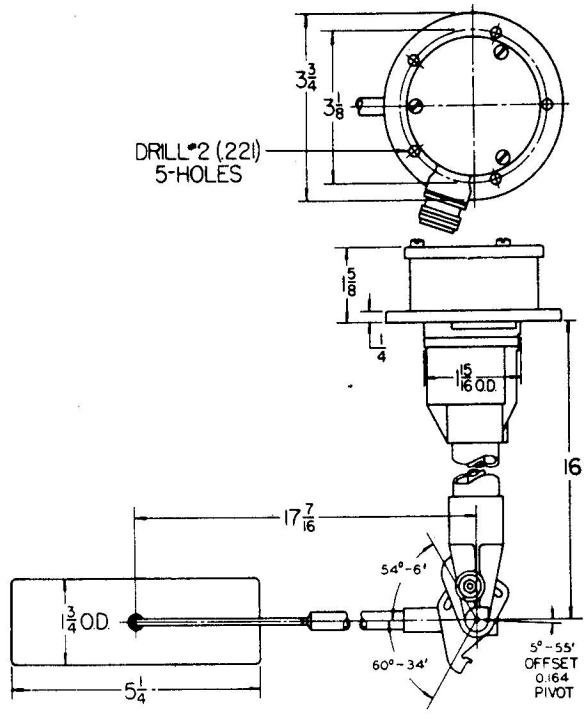
Figure 4-83 (Sheet 7 of 9 Sheets). General Dimensions



EA565PC-442

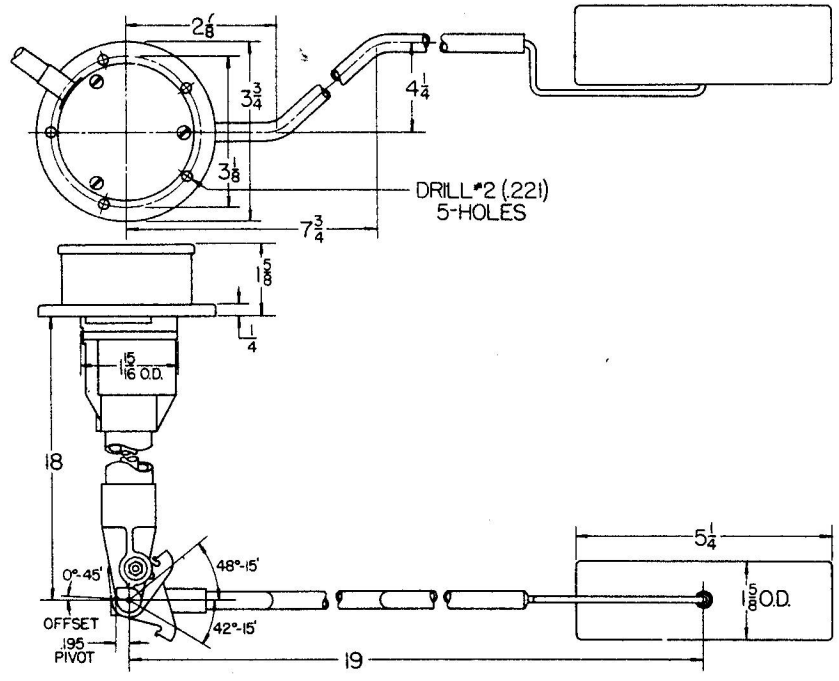


EA565W-269

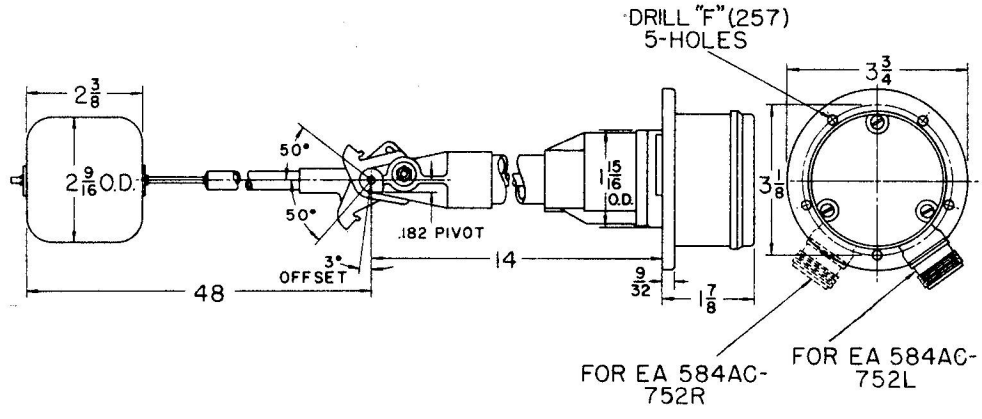


EA565W-553

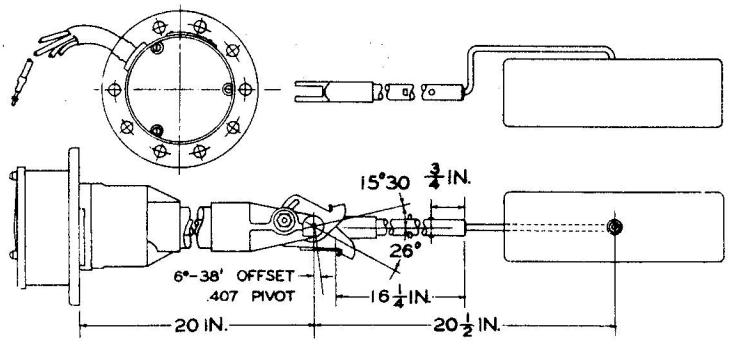
Figure 4-83 (Sheet 8 of 9 Sheets). General Dimensions



EA565WP-675



EA584AC-752L and EA584A-752R



EA588AP-639

Figure 4-83 (Sheet 9 of 9 Sheets). General Dimensions

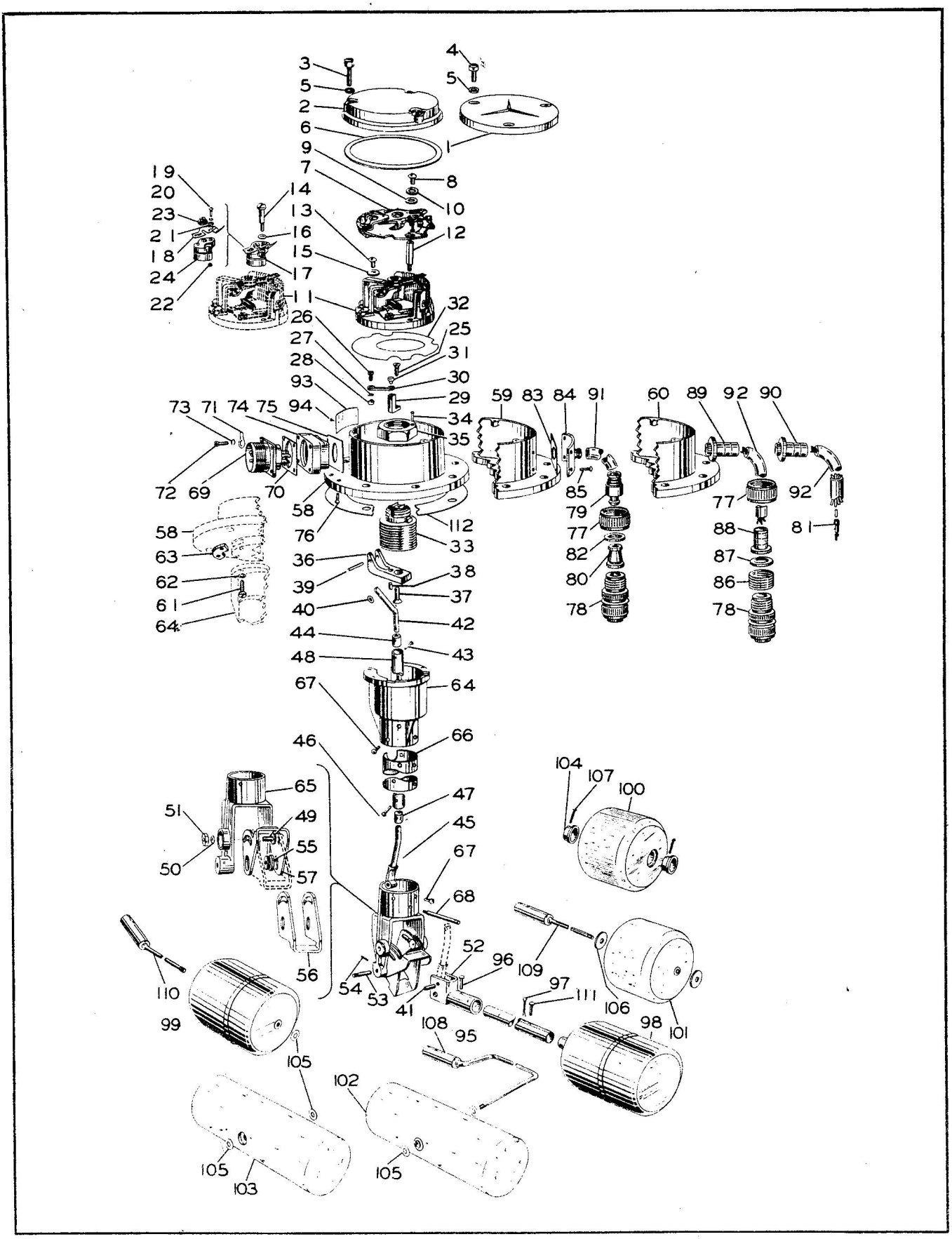


Figure 4-84. Exploded View of Tank Unit

LEGEND FOR FIGURE 4-84

1. Cover
2. Cover
3. Cover screw (3 reqd)
4. Cover screw (3 reqd)
5. Cover washer (3 reqd)
6. Cover gasket
7. Contactor (for breakdown see figure 2-3)
8. Screw (2 reqd)
9. Plain washer (2 reqd)
10. Lock washer (2 reqd)
11. Potentiometer (for breakdown see figures 2-9, 2-10 or 2-10C)
12. Cover stud (2 reqd)
13. Screw (2 reqd)
14. Transfer switch screw
15. Plain washer (2 reqd)
16. Plain washer
17. Transfer switch
18. Lifter
19. Screw
20. Lock washer
21. Plain washer
22. Special nut
23. Eccentric
24. Transfer switch base
25. Screw
26. Link adjustment screw
27. Link washer
28. Link nut
29. Offset link
30. Link
31. Bearing stud
32. Insulation pad
33. Bellows seal assembly (for breakdown see figure 2-5)
34. Rivet
35. Bellows nut
36. Operating arm
37. Screw
38. Dowel pin
39. Rod pin
40. Plain washer (2 reqd)
41. Rod link pin
42. Rod extension
43. Rivet
44. Rod bushing
45. Operating rod link
46. Rivet
47. Rod bushing
48. Operating rod
49. Screw (2 reqd)
50. Lock washer (2 reqd)
51. Nut (2 reqd)
52. Fulcrum
53. Fulcrum block pin (2 reqd)
54. Groove pin (2 reqd)
55. Float arm stop bushing (2 reqd)
56. Lower float arm stop
57. Upper float arm stop
58. Housing
59. Housing
60. Housing
61. Screw (4 reqd)
62. Lock washer (4 reqd)
63. Insert (2 reqd)
64. Bellows shield
65. Fulcrum bracket
66. Fulcrum pipe
67. Rivet (10 reqd)
68. String guide
69. Connector receptacle
70. Receptacle gasket
71. Solder lug
72. Screw (4 reqd)
73. Lock washer (4 reqd)
74. Mounting block
75. Gasket
76. Screw (2 reqd)
77. Coupling nut
78. Connector plug
79. Line fitting
80. Grommet
81. Disconnect splice (4 reqd)
82. Rubber washer
83. Gasket
84. Conduit fitting
85. Rivet (4 reqd)
86. Adaptor
87. Gasket
88. Cable connector
89. Cable connector
90. Cable connector
91. Tubing
92. Cable
93. Name plate
94. Rivet (2 reqd)
95. Float arm
96. Rivet (2 reqd)
97. Cotter pin
98. Float
99. Float
100. Float
101. Float
102. Float
103. Float
104. Float bushing (2 reqd)
105. Plain washer (2 reqd)
106. Plain washer (2 reqd)
107. Rivet (2 reqd)
108. Float fork
109. Float fork
110. Float fork
111. Rivet
112. Tank gasket

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-84.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-84.

Follow general disassembly instructions given in paragraphs 2-1 thru 2-8, 2-10 thru 2-12, and 2-14.

CLEANING.

See paragraphs 2-15 thru 2-17.

INSPECTION.

See paragraphs 2-18 thru 2-24. For inspection of potentiometer, see paragraphs 2-59 thru 2-64.

PRE-ASSEMBLY TESTING.

See paragraphs 2-25 thru 2-27. For tests of potentiometer, see paragraphs 2-65 thru 2-68, also Table of Electrical Data, figure 4-85, and resistance value diagrams referenced in that table.

Note

On potentiometers having two resistance strips, ohmage of the two strips must match within 1%.

Tank Unit	Figure No. of Resistance Value Diagram, One-Strip Potentiometers	Resistance Tolerances, Two-Strip Potentiometers (in Ohms)					Figure No. of Internal Wiring Diagram	Figure No. of Field Tester Wiring Diagram
		Total Strip Resistance*	Outer Resistance Strip		Inner Resistance Strip			
			Float Up	Float Down	Float Down	Float Up		
EA515-544	4-86						4-89	4-111
EA515-677	4-86						4-89	4-112
EA515A-670	4-86						4-89	4-111
EA515B-607	4-86						4-89	4-111
EA515W-648	4-86						4-90	4-113
EA515WC-647	4-86						4-91	4-114
EA529BC-310		52 ohms ±3%	D-Gnd 0-1	D-Gnd 36.6±3%	B-C 0-1	B-C 36.6±3%	4-92	
EA533-665		50 ohms ±3%	A-C 16.8±3%	A-C 117-9±3%	B-C 16.8±3%	B-C 117.9±3%	4-93	
EA565-444	4-87						4-94	4-115
EA565-791	4-87						4-94	4-115
EA565A-766L	4-87						4-94	4-115
EA565A-766R	4-87						4-94	4-115
EA565A-767	4-87						4-94	4-115
EA565A-768	4-87						4-94	4-115
EA565AC-550	4-87						4-95	4-116
EA565AC-551	4-87						4-95	4-116
EA565AC-552L	4-87						4-95	4-116
EA565AC-552R	4-87						4-95	4-116
EA565B-446	4-87						4-94	4-115
EA565BC-446	4-87						4-99A	4-116
EA565BP-447	4-87						4-94	4-115
EA565C-245	4-87						4-96	4-117
EA565C-443	4-87						4-97	4-116
EA565P-414	4-87						4-94	4-115
EA565P-676	4-87						4-94	4-115
EA565PC-442	4-87						4-97	4-116
EA565W-269	4-87						4-98	4-118
EA565W-553	4-87						4-98	4-118
EA565WP-675	4-87						4-98	4-118
EA584AC-752L	4-87						4-95	4-116
EA584AC-752R	4-87						4-95	4-116
EA588AP-639	4-88						4-99	4-119

* Resistance of inner and outer strip must match within 1%.

Figure 4-85. Table of Electrical Data

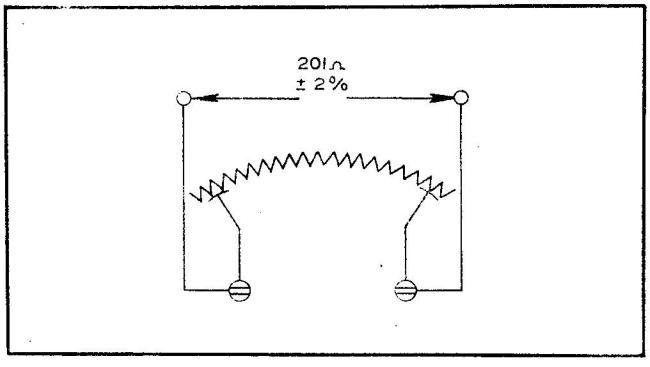


Figure 4-86. Resistance Value Diagram

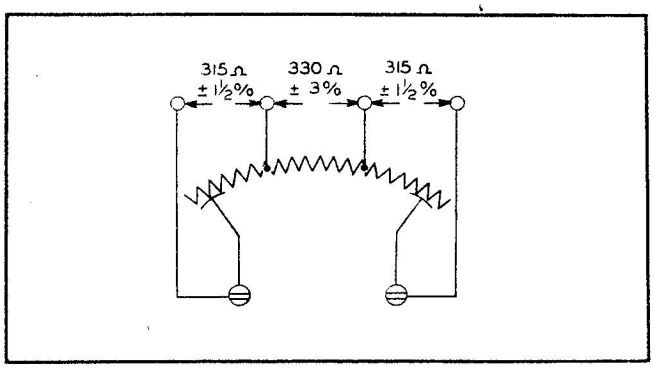


Figure 4-87. Resistance Value Diagram

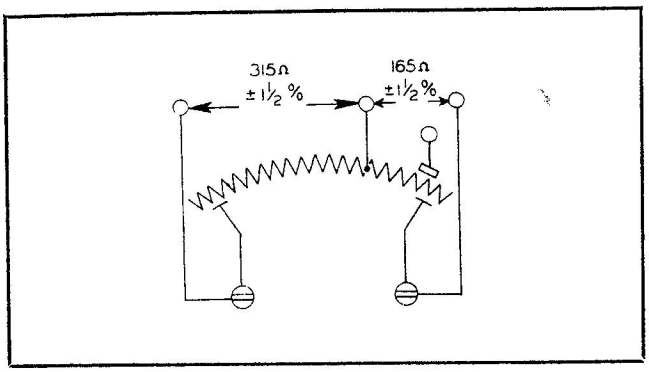


Figure 4-88. Resistance Value Diagram

REPAIR OR REPLACEMENT.

See paragraphs 2-28 thru 2-30. For repair of potentiometer, see paragraphs 2-69 thru 2-74.

LUBRICATION.

None required.

REASSEMBLY.

Follow general instructions given in paragraphs 2-33 thru 2-35, 2-37 thru 2-39, 2-41 thru 2-43, 2-45, 2-46, and 2-48 thru 2-52.

Items 95 thru 111. Align float arm (95), float fork (108, 109, or 110) and float (98, 99, 100, 101, 102, or 103) to correspond to general dimension drawing, figure 4-83, for specific tank unit.

Items 7 and 11. Connect wires according to internal wiring diagram for specific tank unit. See Table of Electrical Data, figure 4-85, for figure number of internal wiring diagram.

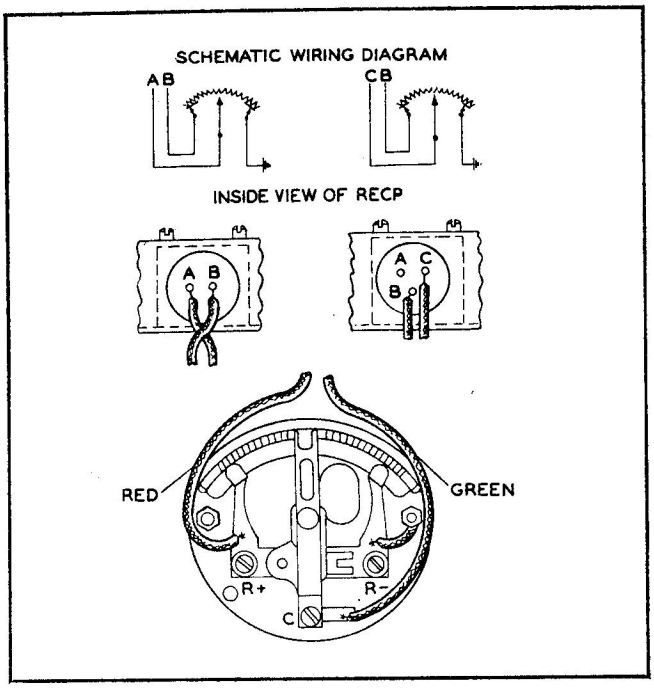


Figure 4-89. Internal Wiring Diagram

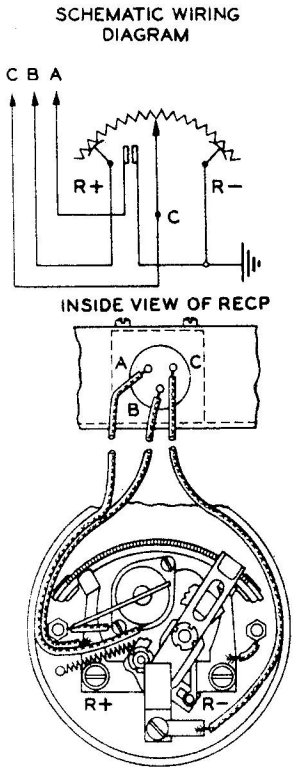


Figure 4-90. Internal Wiring Diagram

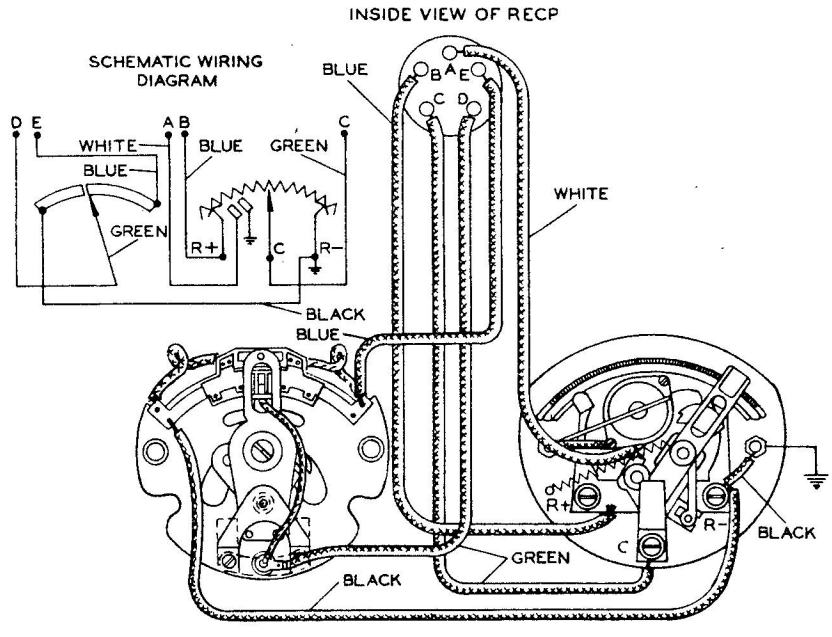


Figure 4-91. Internal Wiring Diagram

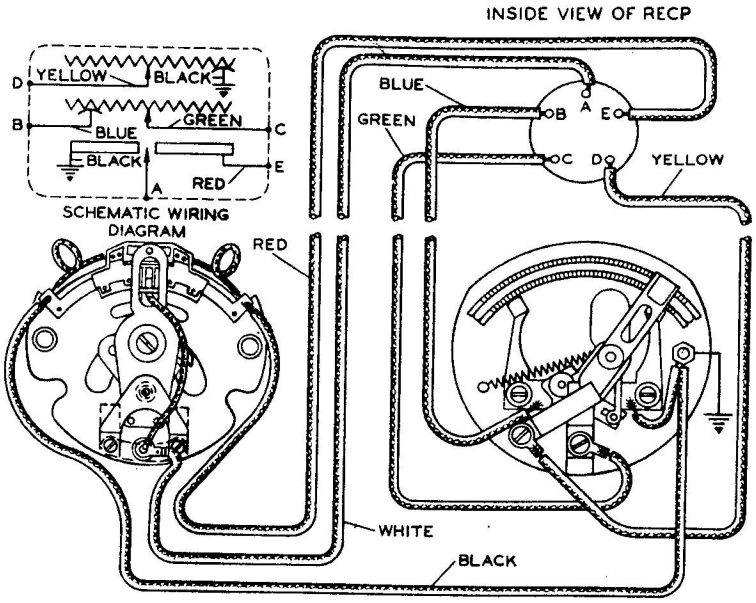


Figure 4-92. Internal Wiring Diagram

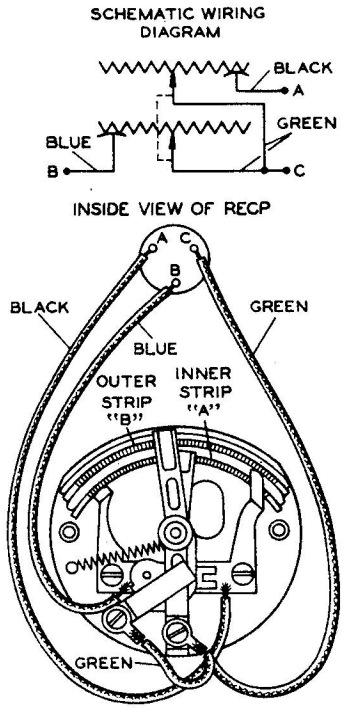


Figure 4-93. Internal Wiring Diagram

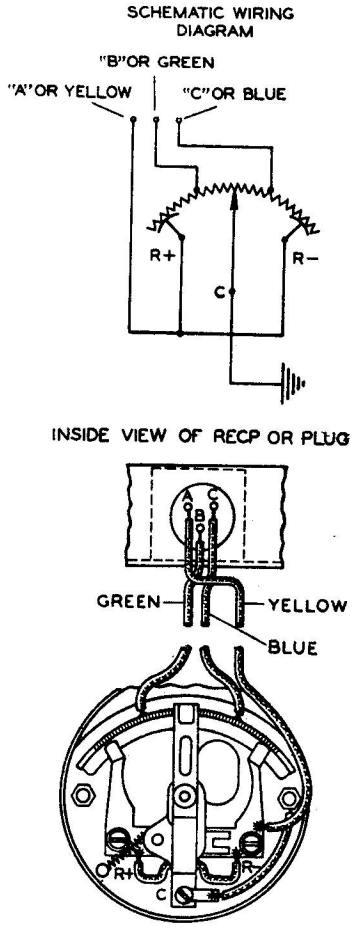


Figure 4-94. Internal Wiring Diagram

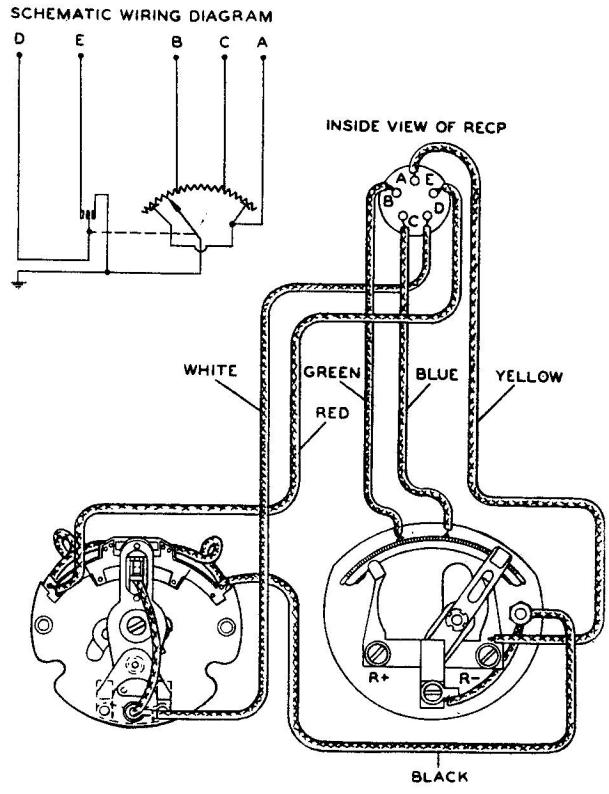


Figure 4-95. Internal Wiring Diagram

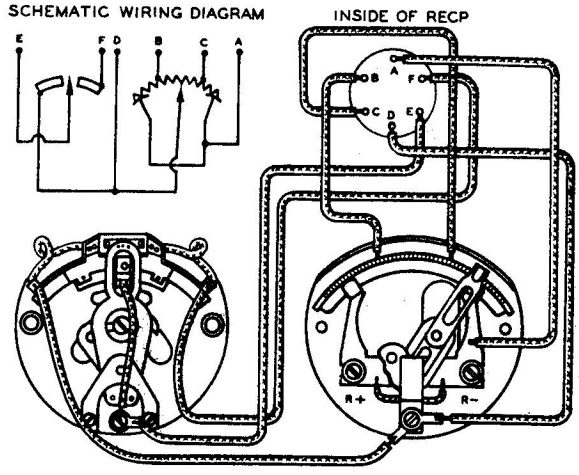


Figure 4-96. Internal Wiring Diagram

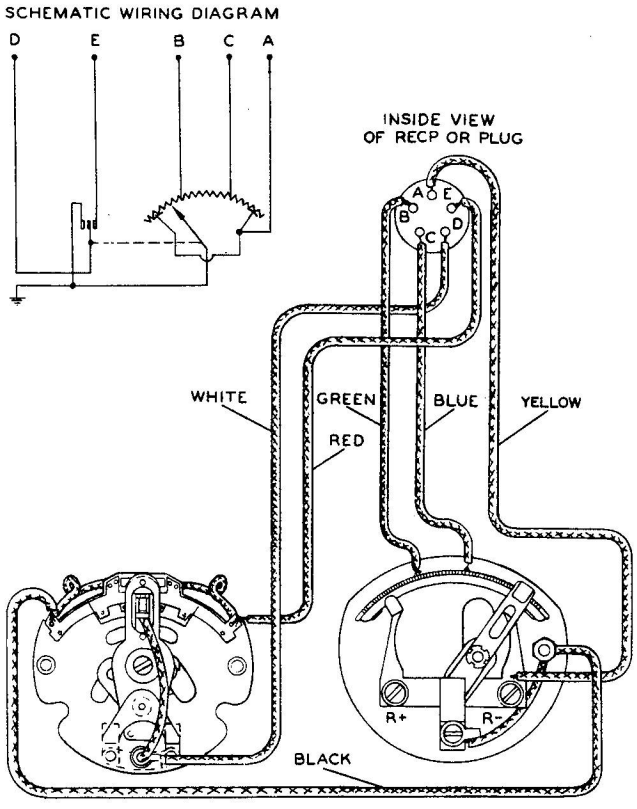


Figure 4-97. Internal Wiring Diagram

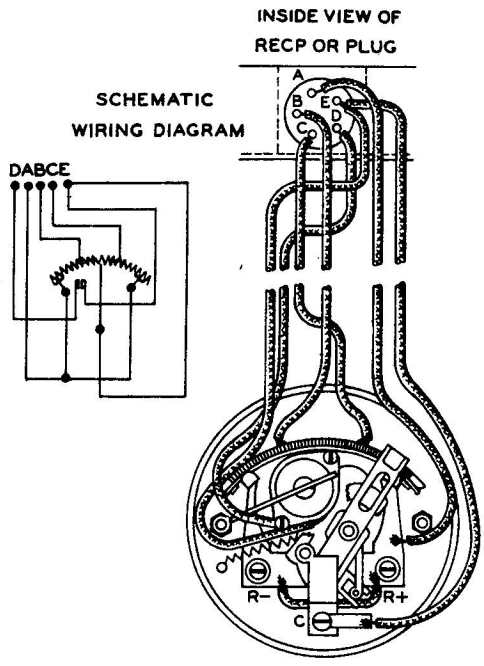


Figure 4-98. Internal Wiring Diagram

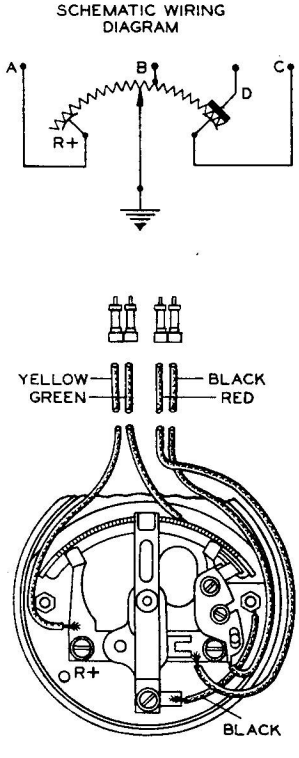


Figure 4-99. Internal Wiring Diagram

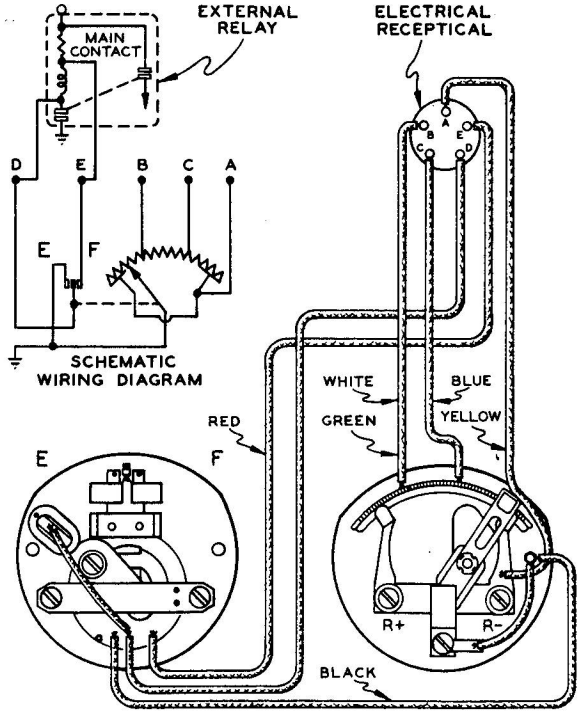


Figure 4-99A. Internal Wiring Diagram

Figure 4-100. Table of Set-Up Stand Dimensions (in Inches)

Tank Units	Figure No. of Set-Up Stand Diagram	Float Arm Stop Setting		Switch Setting	Contactor Setting			
		T—Top Float Arm Stop Setting	B—Bottom Float Arm Stop Setting	S—Warning Switch Setting	"N" Dimension	Ohmmeter Test of "N" Position		"P" Dimension
						Float Above "N"	Float Below "N"	
EA515-544	4-101	12.562	17.625					
EA515-677	4-101	12.98	16.40					
EA515A-670	4-102	9-11/16	14½					
EA515B-607	4-103	16-15/16	16⅜					
EA515W-648	4-101	7-21/32	10-15/16	4-9/64				
EA515WC-647	4-104	6⅜	5⅞	7/32*	1½	Pins D and E connected	Pin D grounded to housing	¾+¼—0
EA529BC-310	4-105	13-7/16	13-7/16		9-1/16***	Pins A and E are connected	Pin A grounded to housing	12-5/16***
EA533-665	4-101	16½	16⅜					
EA565-444	4-101	5-3/32	11⅜					
EA565-791	4-106	11.812	16.375					
EA565A-766L	4-107	14.01	16.06					
EA565A-766R	4-107	14.01	16.06					
EA565A-767	4-107	7.14	15.13					
EA565A-768	4-107	8.70	11.25					
EA565AC-550	4-108	37.156	36.812		½ min	Pin D grounded to housing	Pins D and E connected	5
EA565AC-551	4-108	29.00	33-23/32		½ min	Pin D grounded to housing	Pins D and E connected	4
EA565AC-552L	4-108	22.640	28.703		½ min	Pin D grounded to housing	Pins D and E connected	3½
EA565AC-552R	4-108	22.640	28.703		½ min	Pin D grounded to housing	Pins D and E connected	3½
EA565B-446	4-103	20-13/32	13½					
EA565BC-446	4-105	20-13/32	13½		10-11/16***	Pin D grounded to housing	Pins D and E connected	¼***
EA565BP-447	4-101	5½	17-9/16††					
EA565C-245	4-109	15.625	11.687		17.562	Pins E and F connected	Pins D and E connected	22.687
EA565C-443	4-104	11¼	7¾		⅞	Pin D grounded to housing	Pins D and E connected	
EA565P-414	4-101	27.875	43.8125					
EA565P-676	4-101	28-19/32	42-11/32					
EA565PC-442	4-104	14	15		11.75			
EA565W-269	4-101	18-5/16	19-27/32	22 approx**				
EA565W-553	4-101A	See fig. 4-101A	See fig. 4-101A	See fig. 4-101A				
EA565WP-675	4-110	15⅝	14⅛†††	21±2-5/16				
EA584AC-752L	4-108	36.25	36.93		5	Pin D grounded to housing	Pins D and E connected	½ min
EA584AC-752R	4-108	36.25	36.93		5	Pin D grounded to housing	Pins D and E connected	½ min
EA588AP-639	4-102	5½	9⅞					

* Set warning switch as close to bottom as possible.

** Approximate setting. After installation in aircraft, adjust switch to actuate when indicator pointer is at 100-gallon mark.

*** Measured to center of float.

†† In checking dial calibration, pointer should read "FULL" when float is 1 in. above "B" plate on set-up stand.

††† In checking dial calibration, pointer should read "EMPTY" when float is ½ in. above "B" plate on set-up stand.

TEST PROCEDURE.

ADJUSTING FLOAT ARM STOPS. See paragraphs 3-5, 3-6, 3-8, and 3-9. Use figure and dimensions indicated for the specific tank unit in Table of Set-Up Stand Dimensions, figure 4-100.

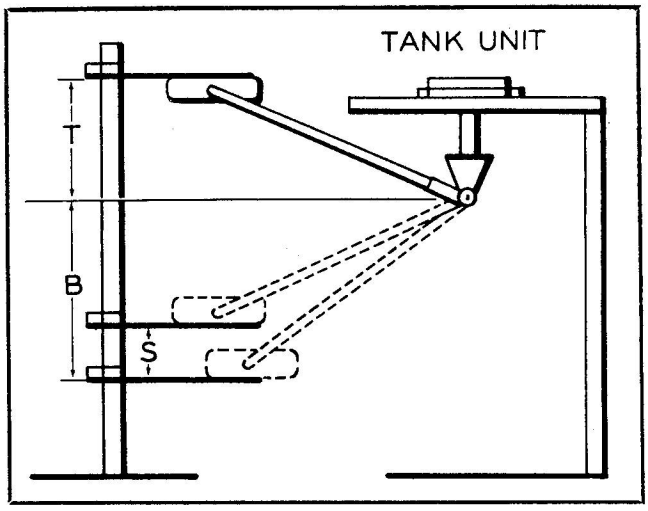


Figure 4-101. Set-Up Stand Diagram

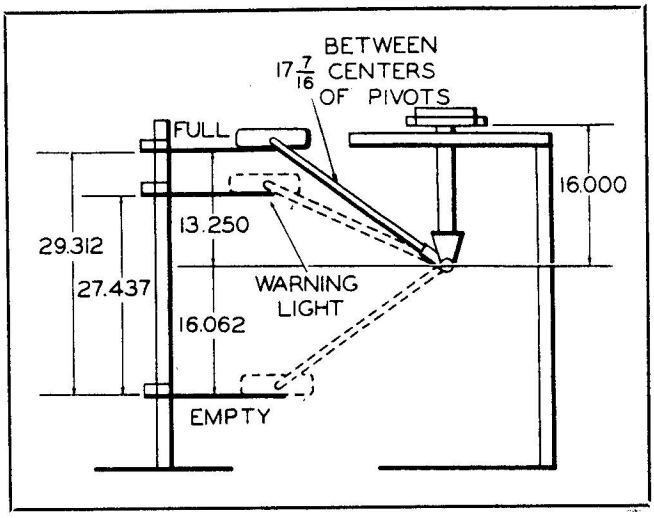


Figure 4-101A. Set-Up Stand Diagram

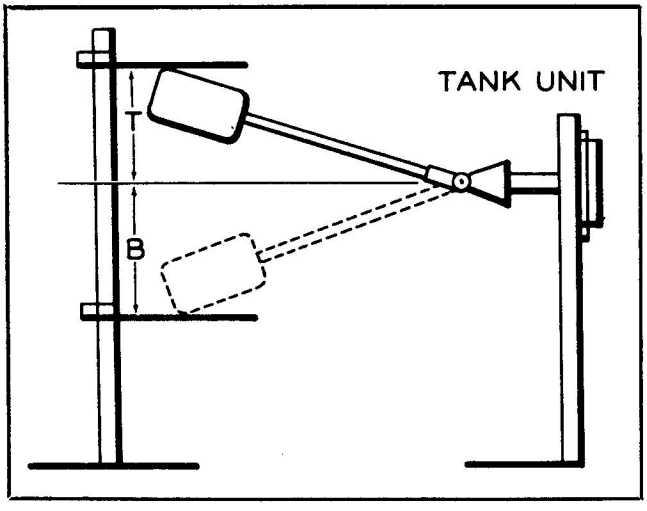


Figure 4-102. Set-Up Stand Diagram

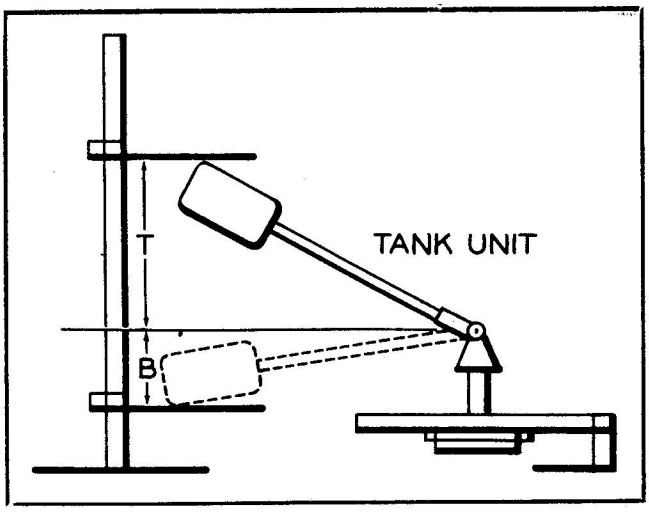


Figure 4-103. Set-Up Stand Diagram

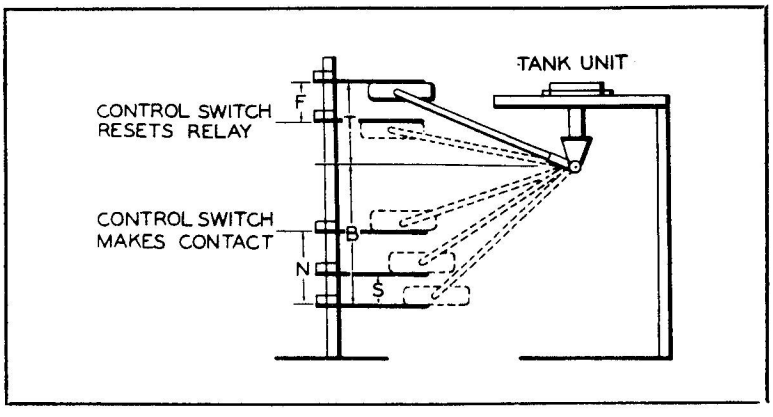


Figure 4-104. Set-Up Stand Diagram

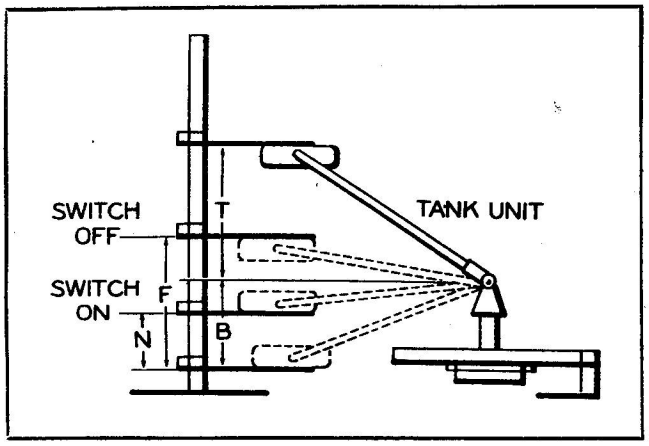


Figure 4-105. Set-Up Stand Diagram

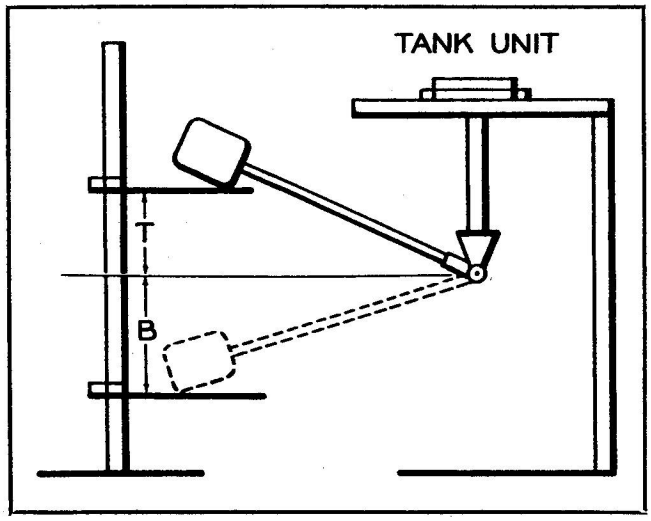


Figure 4-106. Set-Up Stand Diagram

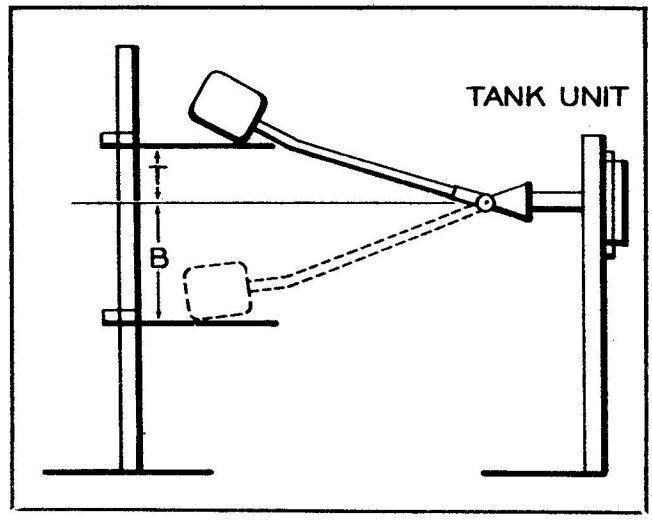


Figure 4-107. Set-Up Stand Diagram

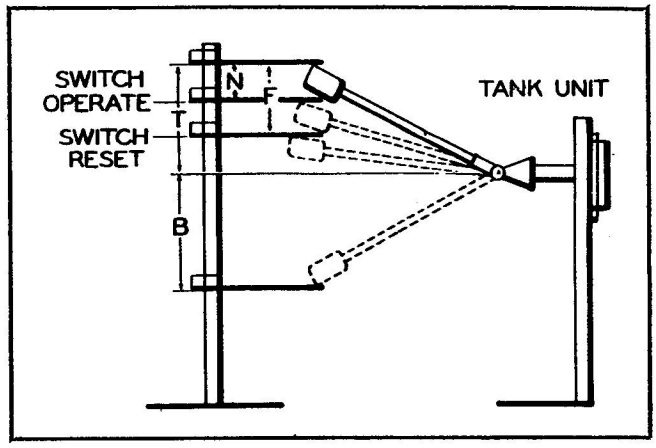


Figure 4-108. Set-Up Stand Diagram

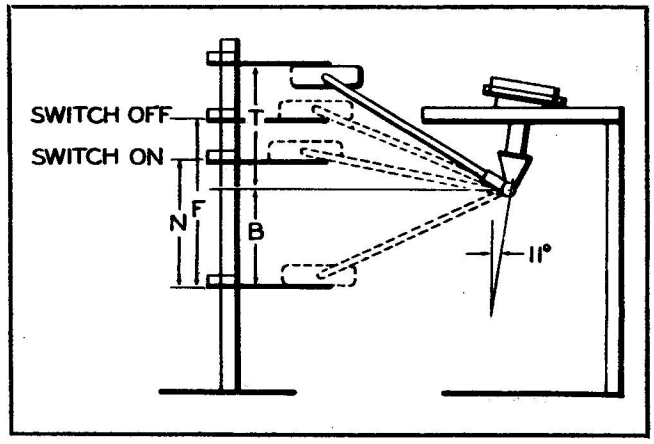


Figure 4-109. Set-Up Stand Diagram

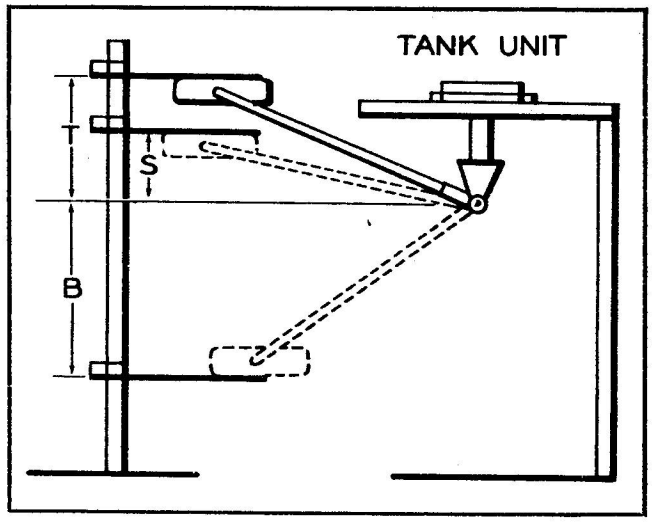


Figure 4-110. Set-Up Stand Diagram

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM.

Note

For tank unit No. EA588AP-639, see special instructions in paragraph (3) below.

(1) For potentiometers with one resistance strip, see paragraph 3-11 and use field tester wiring diagram referenced in Table of Electrical Data, figure 4-85.

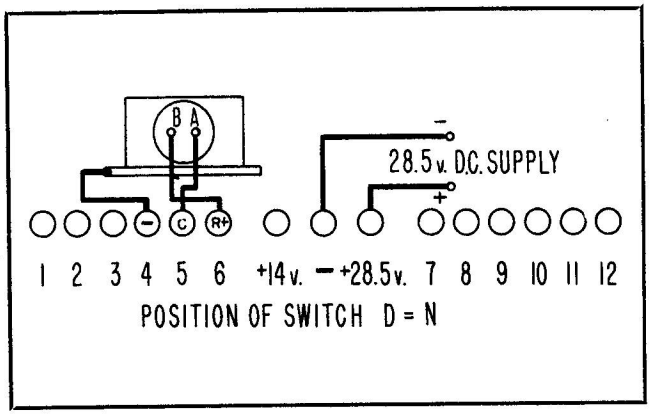


Figure 4-111. Field Tester Wiring Diagram

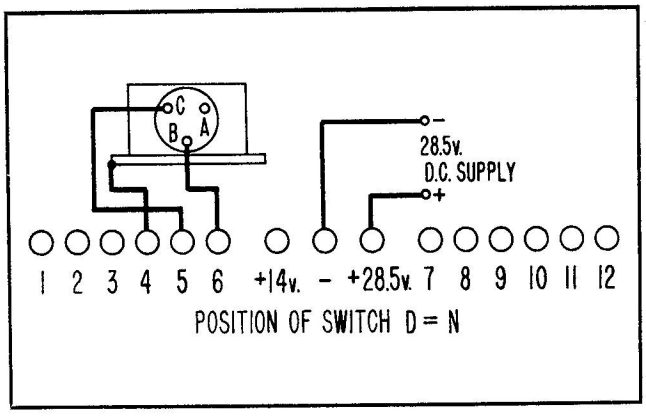


Figure 4-112. Field Tester Wiring Diagram

(2) For potentiometers with two resistance strips, see paragraphs 3-12 thru 3-20. Consult Table of Electrical Data, figure 4-85, for resistance tolerances, float positions, and ohmmeter connections for adjusting end ohmages.

(3) ADJUSTING STROKE AND SETTING TRANSFER SWITCH ON TANK UNIT EA588AP-639. This is the lower tank unit in a two-step system; the upper unit is EA589DP-640. Connect both units to the field tester as shown in figure 4-119. With screwdriver, turn eccentric (23, figure 4-84) on the transfer switch (17) of tank unit EA588AP-639 to move the lifter (18) as far to the right as possible. Set lower left-hand toggle switch on field tester to "T" position. Adjust stroke of contact arm on EA588AP-639 potentiometer so that indicator pointer on field tester moves

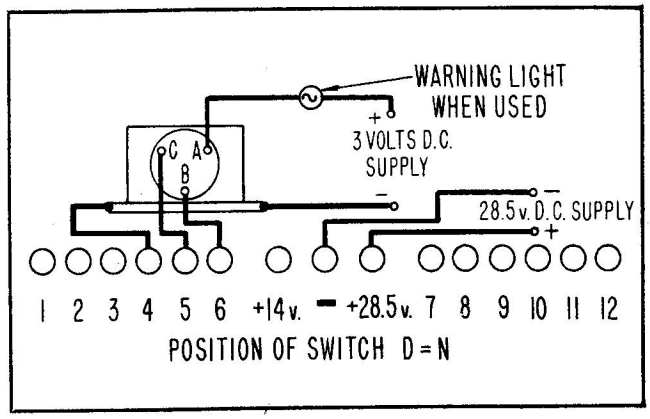


Figure 4-113. Field Tester Wiring Diagram

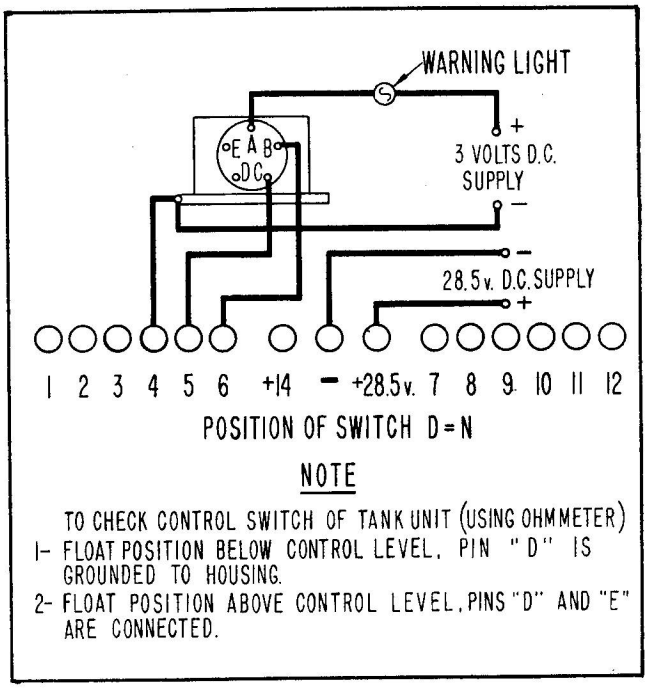


Figure 4-114. Field Tester Wiring Diagram

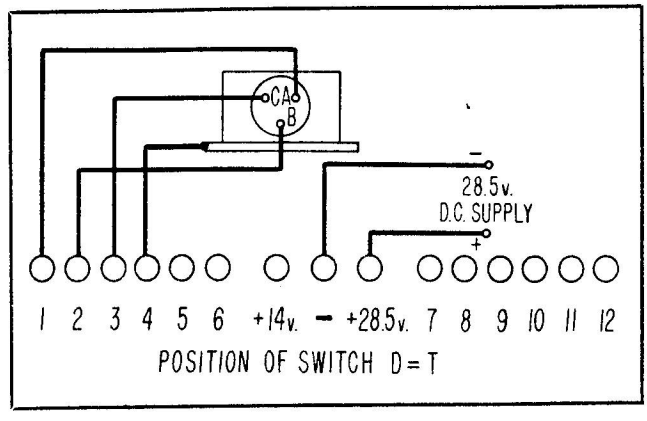


Figure 4-115. Field Tester Wiring Diagram

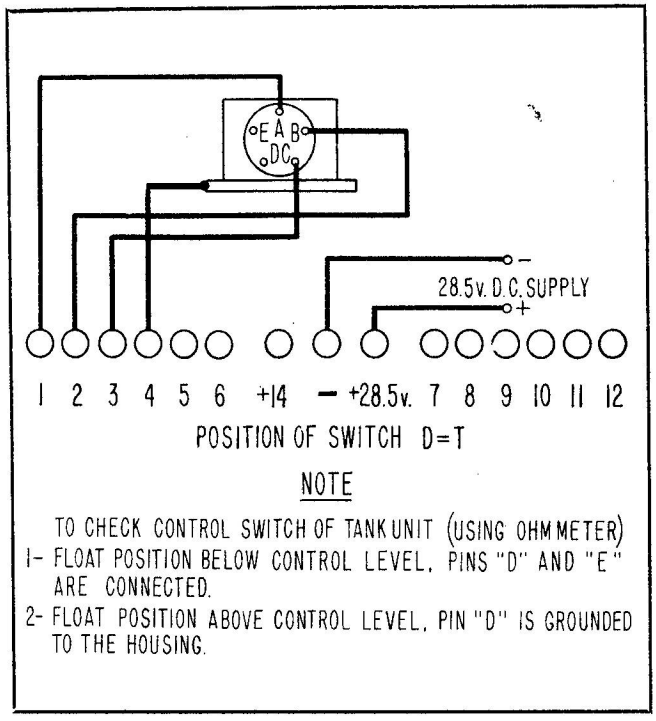


Figure 4-116. Field Tester Wiring Diagram

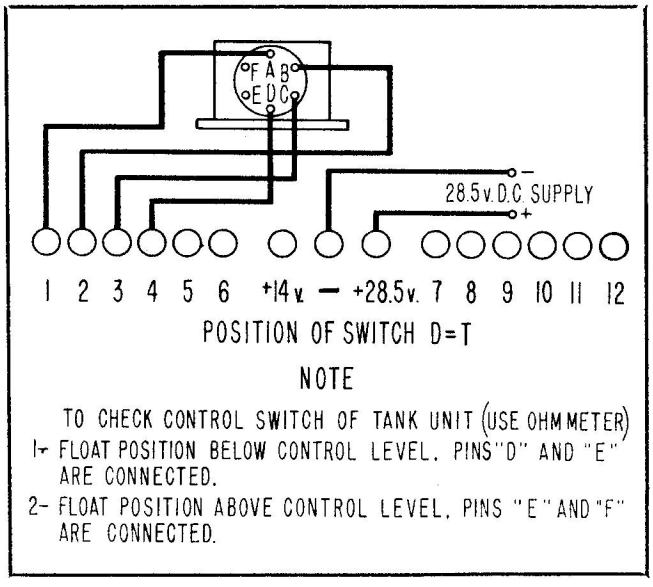


Figure 4-117. Field Tester Wiring Diagram

from zero to 150° when float is moved from bottom to top float arm setting for EA588AP-639. Adjust eccentric (23) so that lifter (18) raises contact arm off resistance strip just as float reaches upper float arm stop setting. As an ohmmeter test of transfer switch action, connect ohmmeter across pin B and Ground. As float approaches upper stop, resistance reading will approach 165 ohms. When float reaches upper stop and switch actuates, reading will be infinity. After setting switch, adjust stroke of upper tank unit to move indicator pointer from 150° to 300°.

SETTING WARNING SWITCH. See paragraphs 3-24 thru 3-26. Consult Table of Set-Up Stand Dimensions, figure 4-100, for switch setting of specific tank unit.

SETTING CONTACTOR. See paragraphs 3-26 thru 3-35. Consult Table of Set-Up Stand Dimensions, figure 4-100, for contactor setting of the specific tank unit.

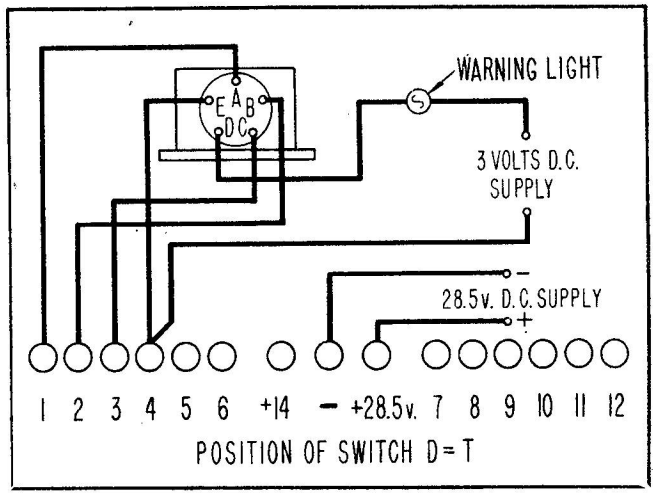


Figure 4-118. Field Tester Wiring Diagram

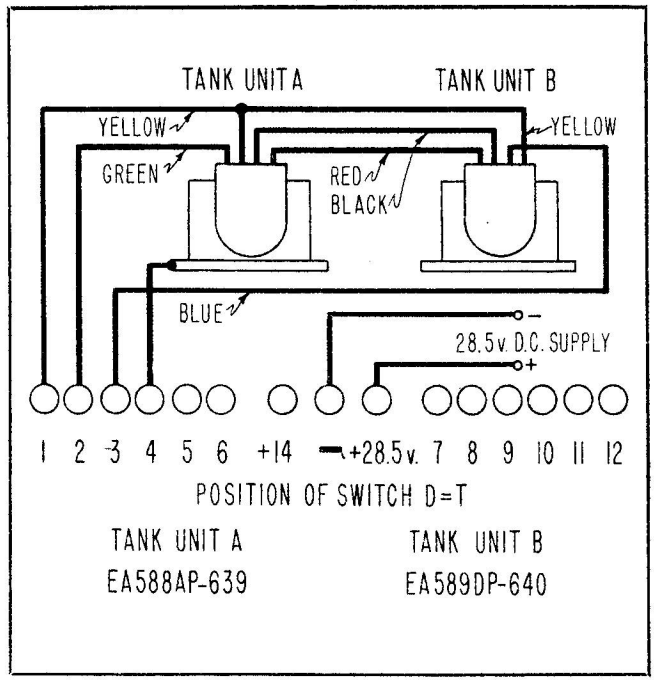


Figure 4-119. Field Tester Wiring Diagram

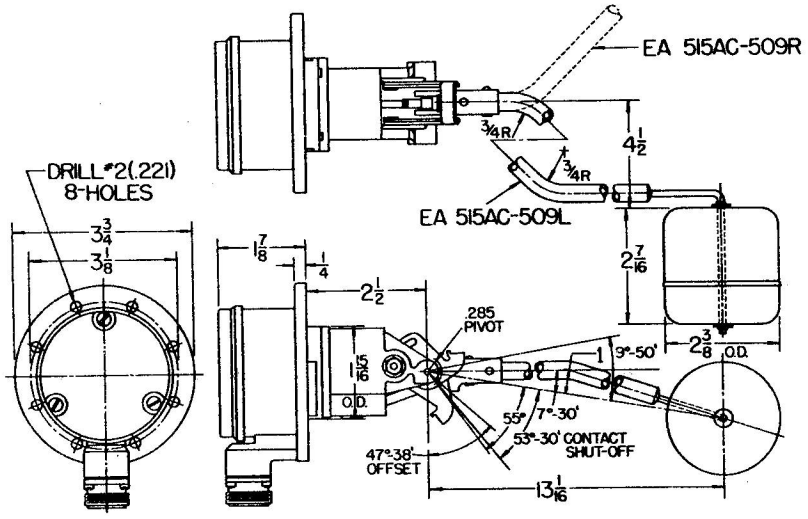
SPECIFIC DATA SHEET NO. 9

Tank units covered in this Specific Data Sheet are of the inside operating rod type and are as follows:

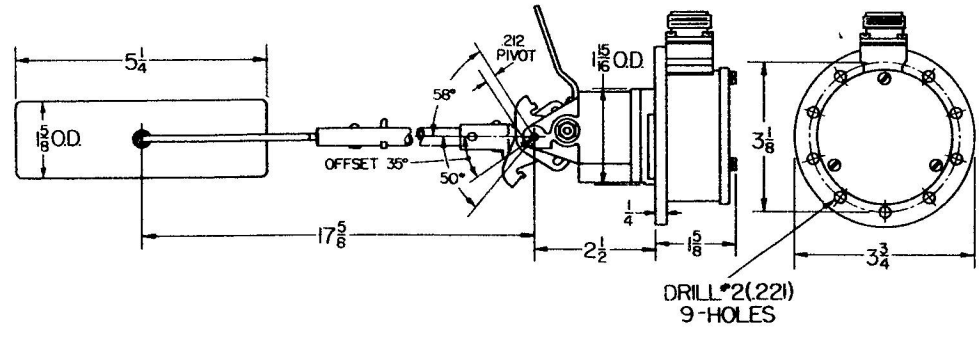
EA515AC-509L	EA528A-738	EA584A-681	EA584BC-540R
EA515AC-509R	EA528AW-737	EA584A-787	EA584BC-764
EA524A-309	EA565C-445	EA584BC-540	

Voltage	28v dc
Rating of warning switch	0.035 amp at 28v 0.200 amp at 3v
Dimensions	see figure 4-121

Figure 4-120. Table of Leading Particulars

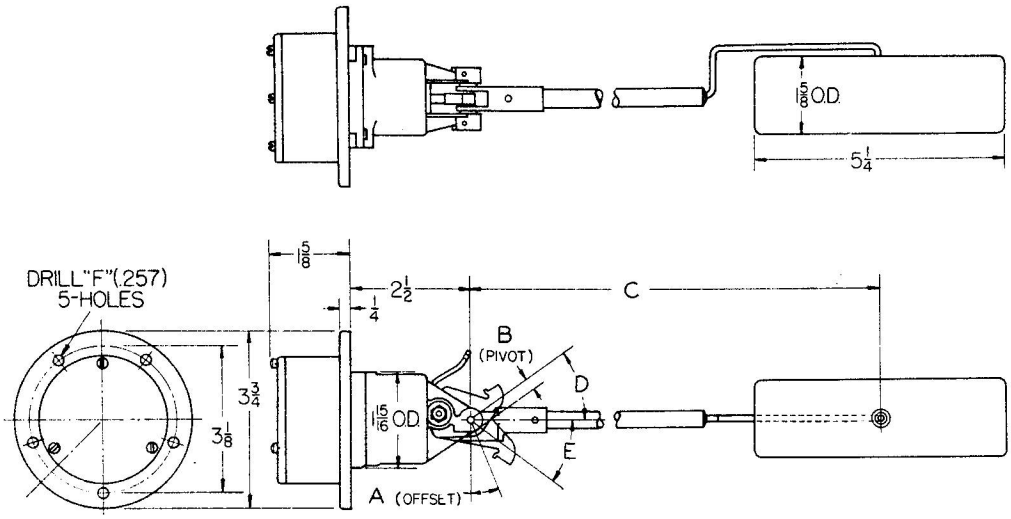


EA515AC-509L and EA515AC-509R



EA524A-309

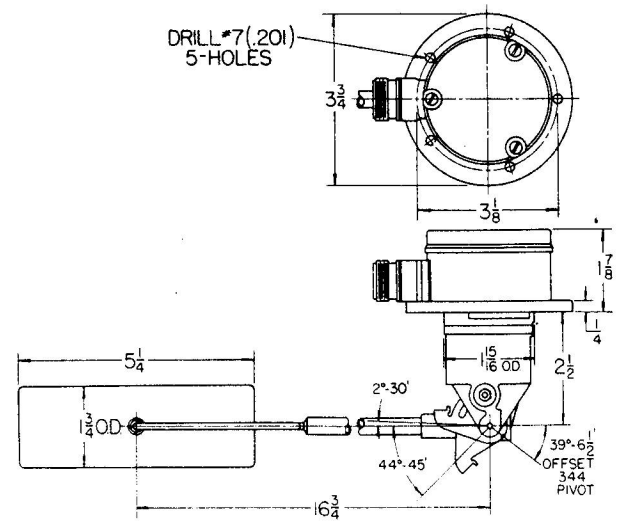
Figure 4-121 (Sheet 1 of 4 Sheets). General Dimensions



EA528A-738 and EA528AW-737

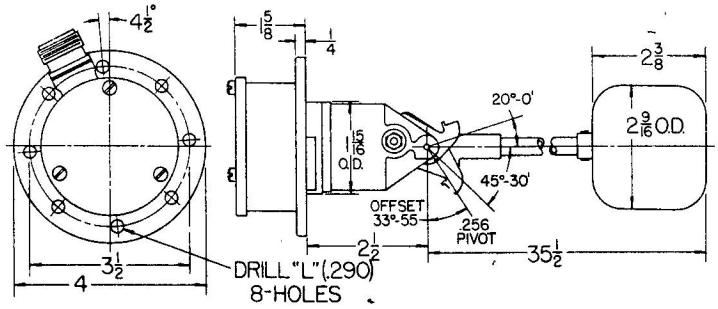
TABLE OF DIMENSIONS

	EA528A-738	*EA528AW-737*
A (Pivot offset)	17° - 25′	25° - 30′
B (Pivot)	0.295 in.	0.252 in.
C	10-9/16 in.	11-9/16 in.
D	29° - 48′	28° - 13′
E	24° - 38′	36° - 37′

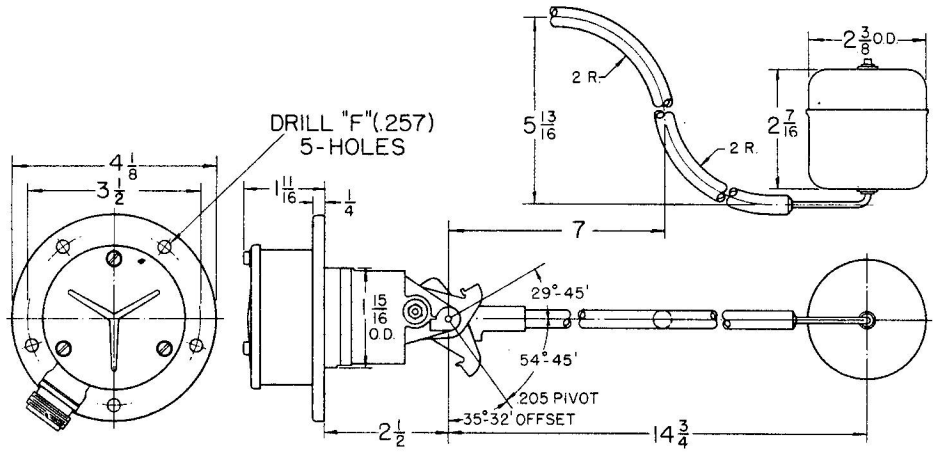


EA565C-445

Figure 4-121 (Sheet 2 of 4 Sheets). General Dimensions

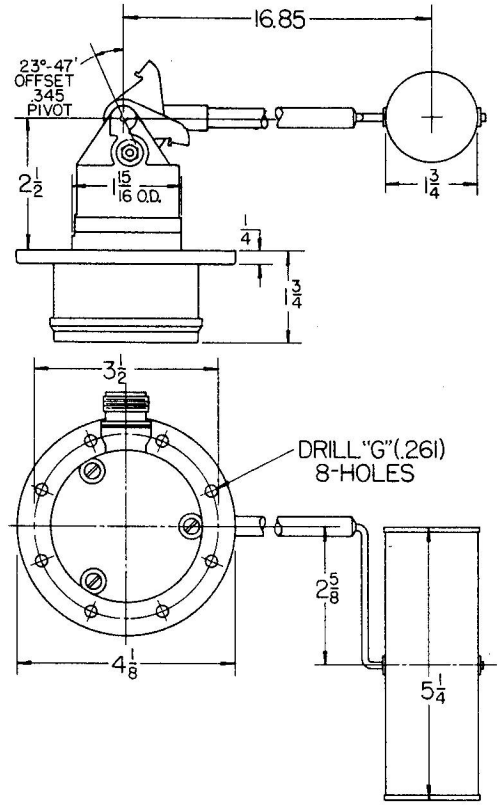


EA584A-681



EA548A-787

Figure 4-121 (Sheet 3 of 4 Sheets). General Dimensions

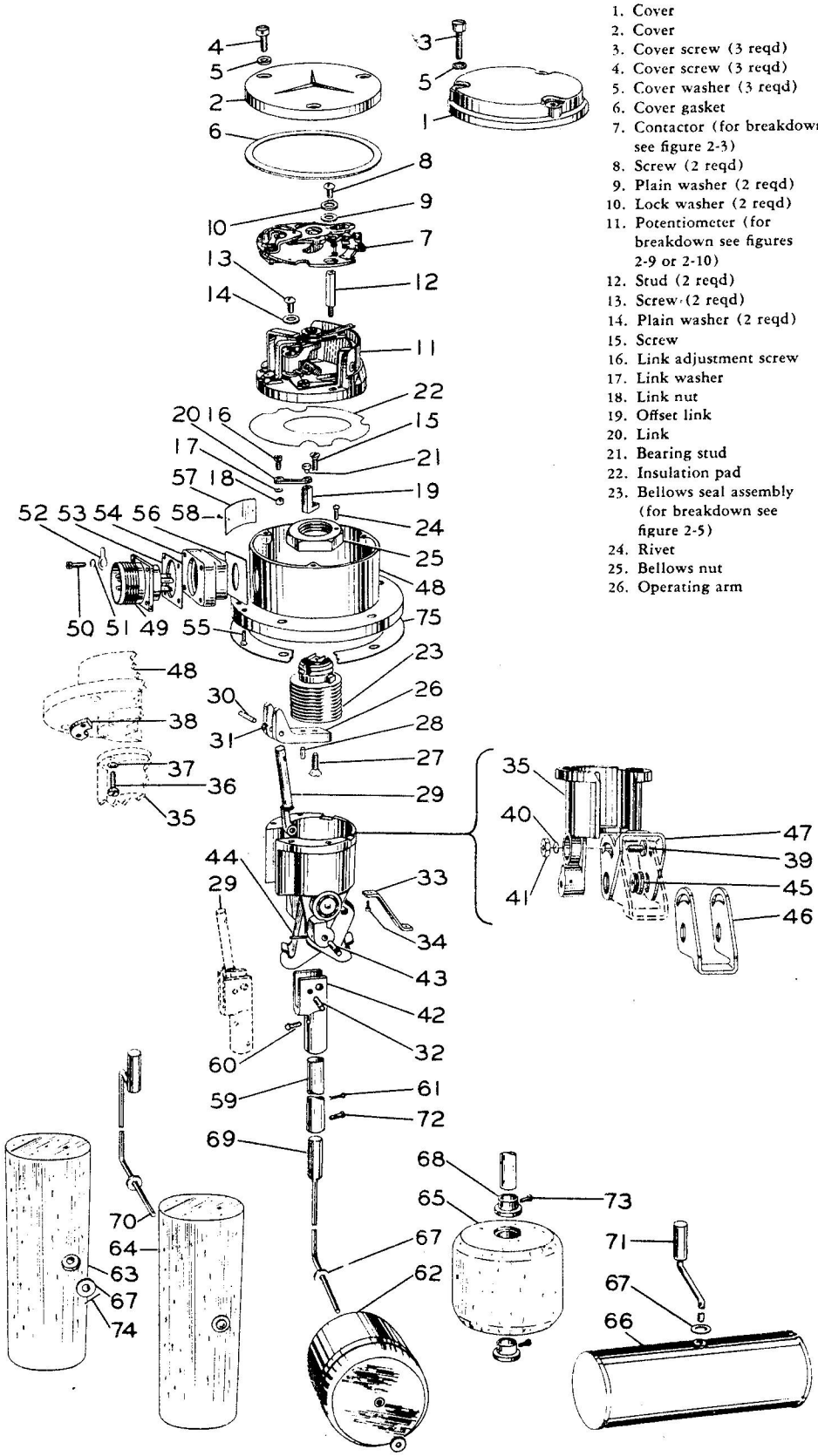


EA584BC-540, EA584BC-540R, and EA584BC-764

Note

Dimensions of these three units are identical except for setting of float arm stops and contactor. For correct settings for each unit, see Table of Set-Up Stand Dimensions, figure 4-133.

Figure 4-121 (Sheet 4 of 4 Sheets). General Dimensions



1. Cover
2. Cover
3. Cover screw (3 reqd)
4. Cover screw (3 reqd)
5. Cover washer (3 reqd)
6. Cover gasket
7. Contactor (for breakdown see figure 2-3)
8. Screw (2 reqd)
9. Plain washer (2 reqd)
10. Lock washer (2 reqd)
11. Potentiometer (for breakdown see figures 2-9 or 2-10)
12. Stud (2 reqd)
13. Screw (2 reqd)
14. Plain washer (2 reqd)
15. Screw
16. Link adjustment screw
17. Link washer
18. Link nut
19. Offset link
20. Link
21. Bearing stud
22. Insulation pad
23. Bellows seal assembly (for breakdown see figure 2-5)
24. Rivet
25. Bellows nut
26. Operating arm
27. Screw
28. Dowel pin
29. Operating rod
30. Rod pin
31. Washer (2 reqd)
32. Rod link pin
33. String guide
34. Screw (2 reqd)
35. Fulcrum bracket
36. Screw (4 reqd)
37. Lock washer (4 reqd)
38. Insert (2 reqd)
39. Screw (2 reqd)
40. Lock washer (2 reqd)
41. Nut (2 reqd)
42. Fulcrum
43. Fulcrum block pin (2 reqd)
44. Groove pin (2 reqd)
45. Float arm stop bushing (2 reqd)
46. Lower float arm stop
47. Upper float arm stop
48. Housing
49. Connector receptacle
50. Screw (4 reqd)
51. Lock washer (4 reqd)
52. Solder lug
53. Receptacle gasket
54. Mounting block
55. Screw (2 reqd)
56. Gasket
57. Name plate
58. Rivet (2 reqd)
59. Float arm
60. Rivet (2 reqd)
61. Cotter pin
62. Float
63. Float
64. Float
65. Float
66. Float
67. Plain washer (2 reqd)
68. Float bushing (2 reqd)
69. Float fork
70. Float fork
71. Float fork
72. Rivet
73. Rivet (2 reqd)
74. Locking pin
75. Tank gasket

Figure 4-122. Exploded View of Tank Unit

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-122.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-122.

Follow general disassembly instructions given in paragraphs 2-1 thru 2-8, 2-10 thru 2-12, and 2-14.

CLEANING.

See paragraphs 2-15 thru 2-17.

INSPECTION.

See paragraphs 2-18 thru 2-24. For inspection of potentiometer, see paragraphs 2-59 thru 2-64.

PRE-ASSEMBLY TESTING.

See paragraphs 2-25 thru 2-27. For tests of potentiometer, see paragraphs 2-65 thru 2-68, also Table of Electrical Data, figure 4-123, and resistance value diagrams referenced in that table.

Note

On potentiometers having two resistance strips, ohmage of the two strips must match within 1%.

Tank Unit	*Figure No. of Res Value Diagram, One-Strip Potentiometers*	*Resistance Tolerances, Two-Strip Potentiometers (in ohms)*					*Figure No. of Internal Wiring Diagram*	*Figure No. of Field Tester Wiring Diagram*
		*Total Strip Resistance**	*Outer Resistance Strip*		*Inner Resistance Strip*			
			Float Up	*Float Down*	*Float Down*	*Float Up*		
EA515AC-509L	4-124						4-126	4-138
EA515AC-509R	4-124						4-126	4-138
			A-D	A-D	B-C	B-C		
EA524A-309		44.5±3%	0-1	29.6±3%	0-1	29.6±3%	4-127	
			A-D	A-D	B-C	B-C		
EA528A-738		125.8±3%	0-1	83.7±3%	0-1	83.7±3%	4-127	
			A-C	A-C	B-C	B-C		
EA528AW-737		130.0±3%	16.8±3%	100.5±3%	16.8±3%	100.5±3%	4-128	
EA565C-445	4-125						4-129	4-139
EA584A-681	4-125						4-130	4-140
EA584A-787	4-125						4-130	4-140
EA584BC-540	4-125						4-131	4-139
EA584BC-540R	4-125						4-131	4-139
EA584BC-764	4-125						4-132	4-141

* Resistance of inner and outer strip must match within 1%.

Figure 4-123. Table of Electrical Data

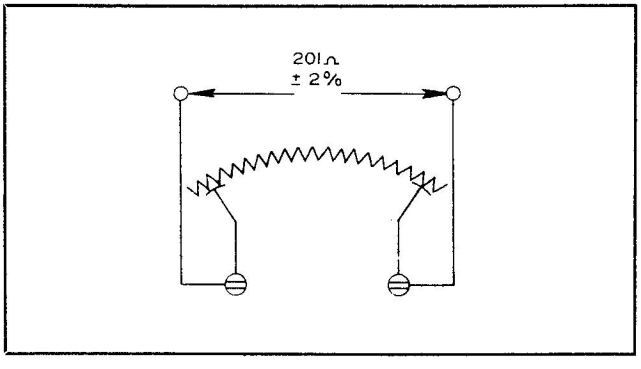


Figure 4-124. Resistance Value Diagram

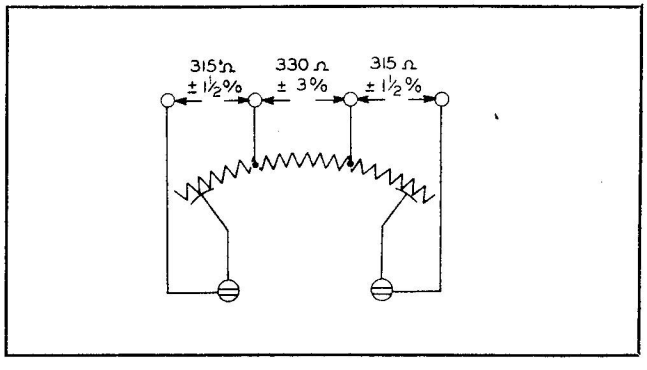


Figure 4-125. Resistance Value Diagram

REPAIR OR REPLACEMENT.

See paragraphs 2-28 thru 2-30. For repair of potentiometer, see paragraphs 2-69 thru 2-74.

LUBRICATION.

None required.

REASSEMBLY.

Follow general instructions given in paragraphs 2-33 thru 2-35, 2-37 thru 2-39, 2-41 thru 2-43, 2-45, 2-46, and 2-48 thru 2-52.

Items 59 thru 74. Align float arm (59), float fork (69, 70, or 71) and float (62, 63, 64, 65, or 66) to correspond to general dimension drawing, figure 4-121, for the specific tank unit.

Items 7 and 11. Connect wires according to internal wiring diagram for specific tank unit. See Table of Electrical Data, figure 4-123, for figure number of internal wiring diagram.

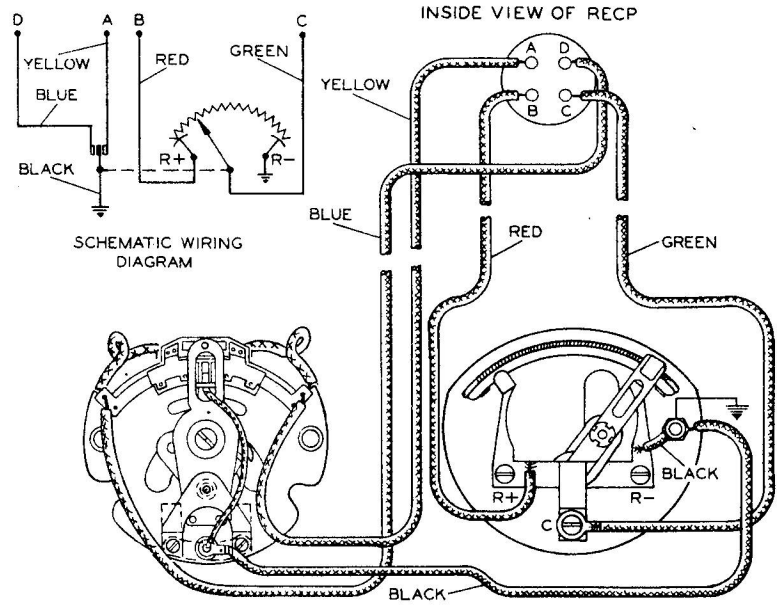


Figure 4-126. Internal Wiring Diagram

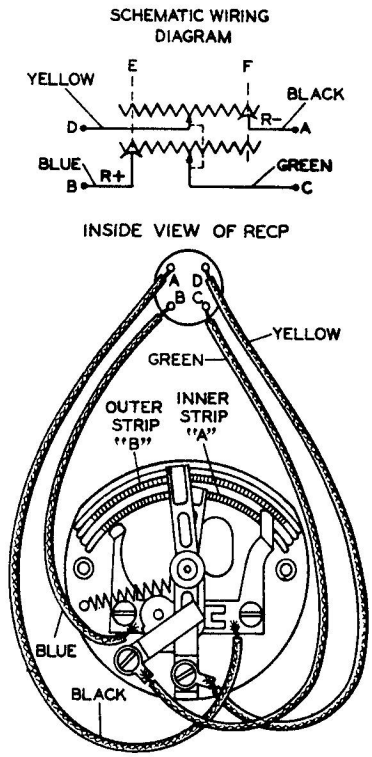


Figure 4-127. Internal Wiring Diagram

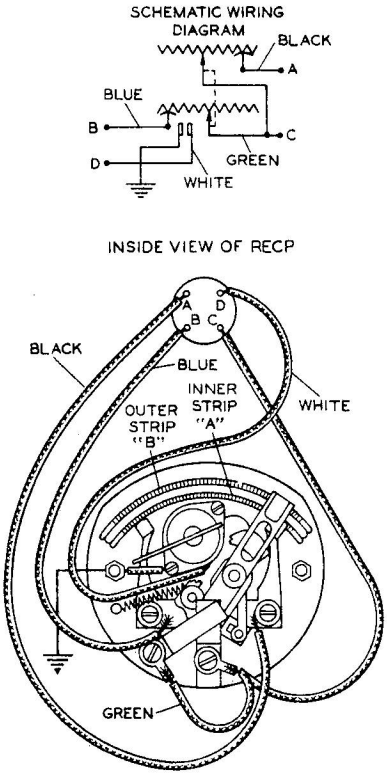


Figure 4-128. Internal Wiring Diagram

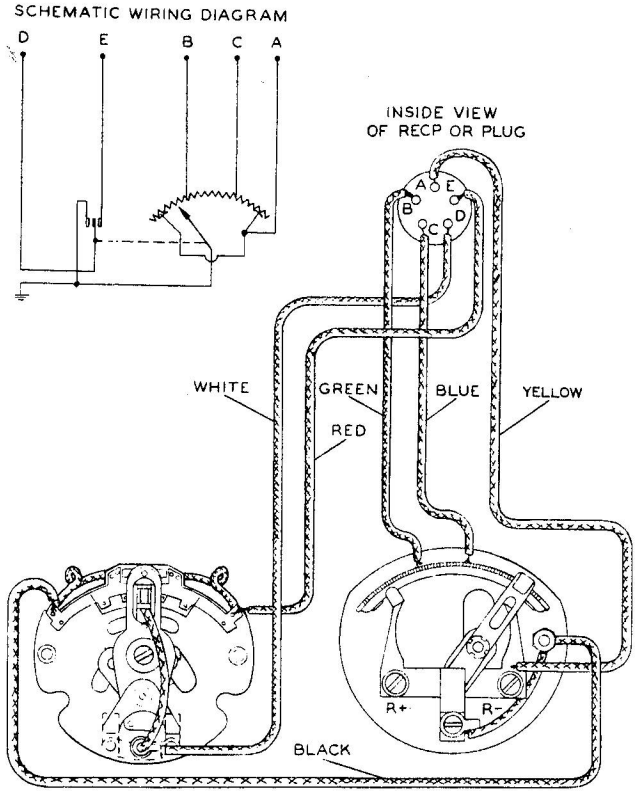


Figure 4-129. Internal Wiring Diagram

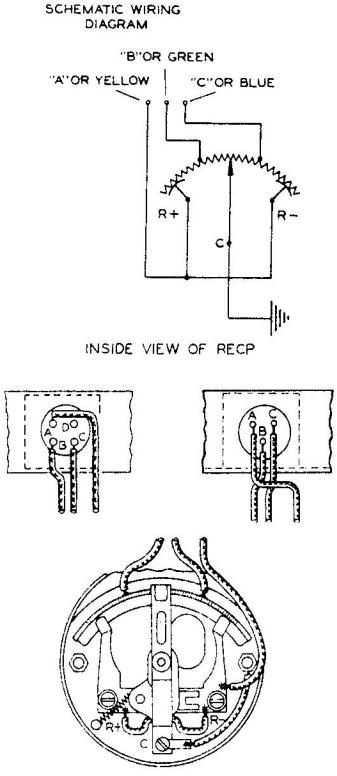


Figure 4-130. Internal Wiring Diagram

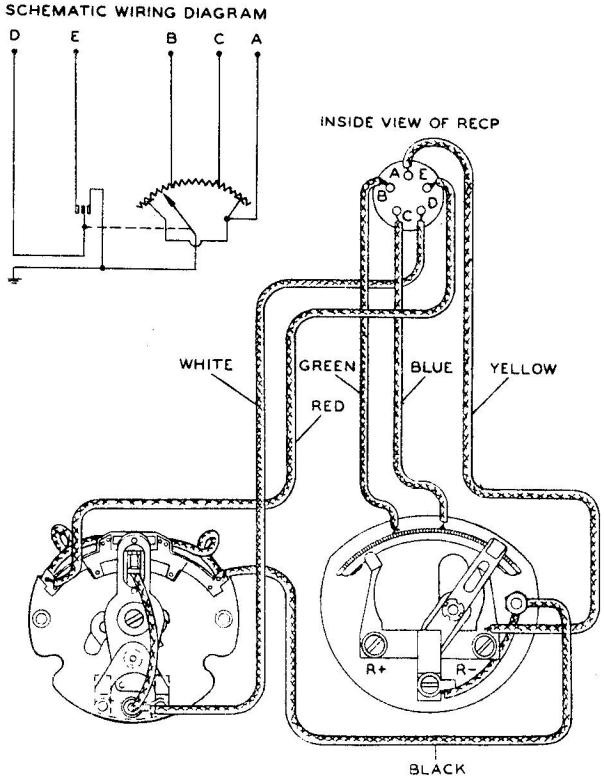


Figure 4-131. Internal Wiring Diagram

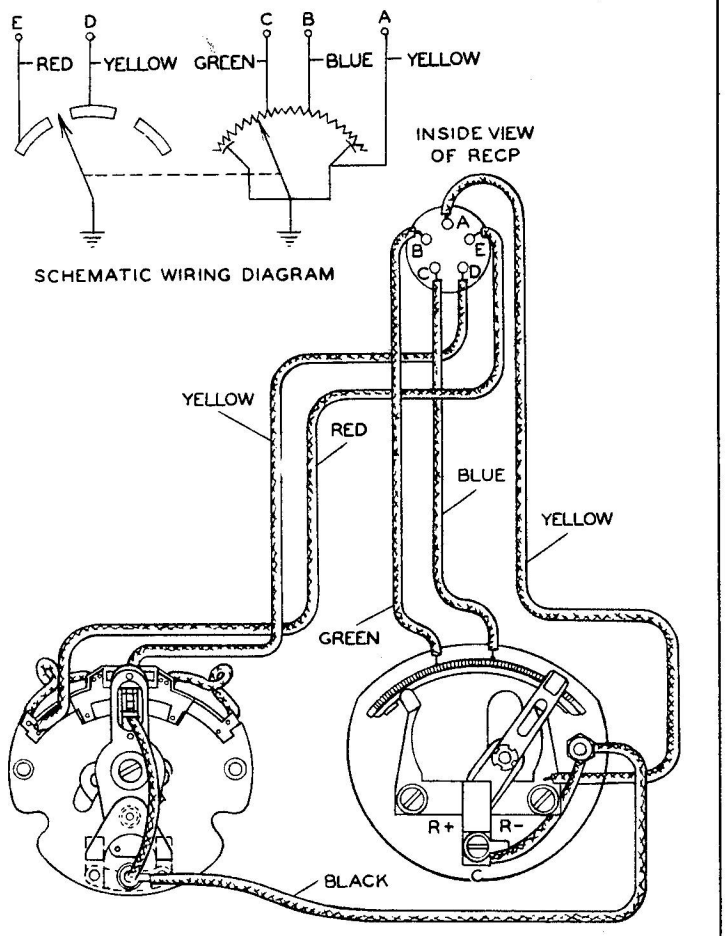


Figure 4-132. Internal Wiring Diagram

TEST PROCEDURE.

ADJUSTING FLOAT ARM STOPS. See paragraphs 3-5, 3-6, 3-8, and 3-9. Use figure and dimensions indicated for the specific tank unit in Table of Set-Up Stand Dimensions, figure 4-133.

Tank Unit	Figure No. of Set-Up Stand Diagram	Float Arm Stop Setting		S Warning Switch Setting	Contactor Setting			
		T, Top Float Arm Stop Setting	B, Bottom Float Arm Stop Setting		"N" Dimension	Ohmeter Test of "N" Position		"F" Dimension
						Float Above "N"	Float Below "N"	
EA515AC-509L	4-134	8.63	7.97*		0.45 in.†	Pins A and D connected	Pin D grounded	
EA515AC-509R	4-134	8.63	7.97*		0.45 in.†	Pins A and D connected	Pin D grounded	
EA524A-309	4-135	15-27/32	14-7/32					
EA528A-738	4-135	6-1/16	5-7/32					
EA528AW-737	4-135	6-9/32	7¼	**				
EA565C-445	4-136	1.625	12.6875		⅞	Pin D grounded	Pins D and E connected	
EA584A-681	4-135	13-11/64	25-31/32					
EA584A-787	4-135	8½	13¼					
EA584BC-540	4-137	12-9/16	2⅛		2-7/32	Pin D grounded	Pins D and E connected	
EA584BC-540R	4-137	12-9/16	2⅛		5-31/32	Pin D grounded	Pins D and E connected	9¾
EA584BC-764	4-137	12-9/16	2½		5-31/32	Pin D grounded	Pin E grounded	

* Set stroke from point ¼ in. above bottom float arm stop setting.

** Setting is made after installation in aircraft, in accordance with specifications contained in aircraft erection and maintenance manual.

† Switch shuts off at this position.

Figure 4-133. Table of Set-Up Stand Dimensions (in Inches)

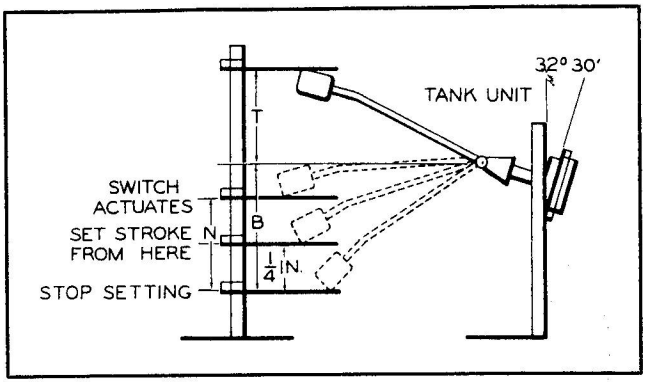


Figure 4-134. Set-Up Stand Diagram

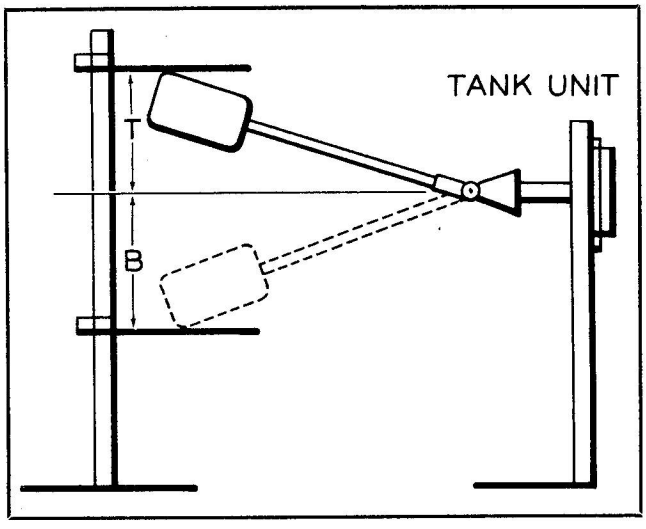


Figure 4-135. Set-Up Stand Diagram

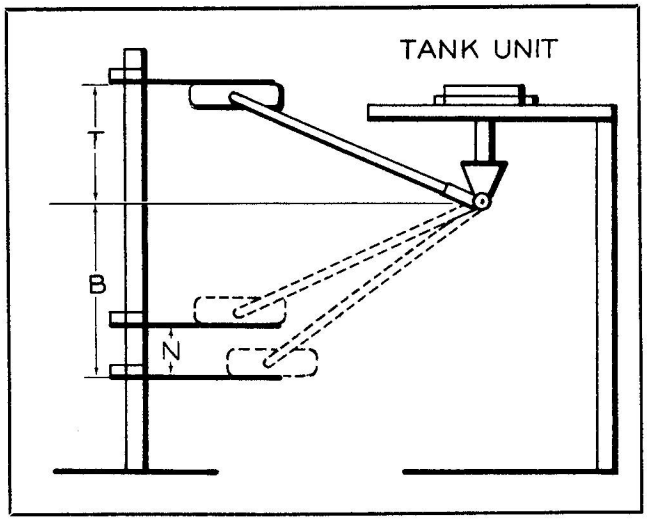


Figure 4-136. Set-Up Stand Diagram

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM.

(1) For potentiometers with one resistance strip, see paragraph 3-11 and use field tester wiring diagram referenced in Table of Electrical Data, figure 4-123.

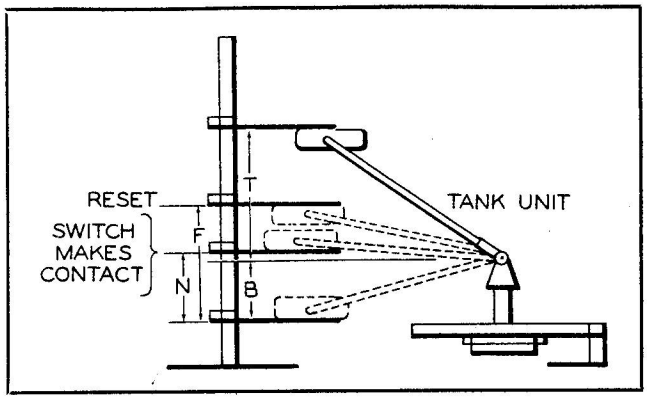


Figure 4-137. Set-Up Stand Diagram

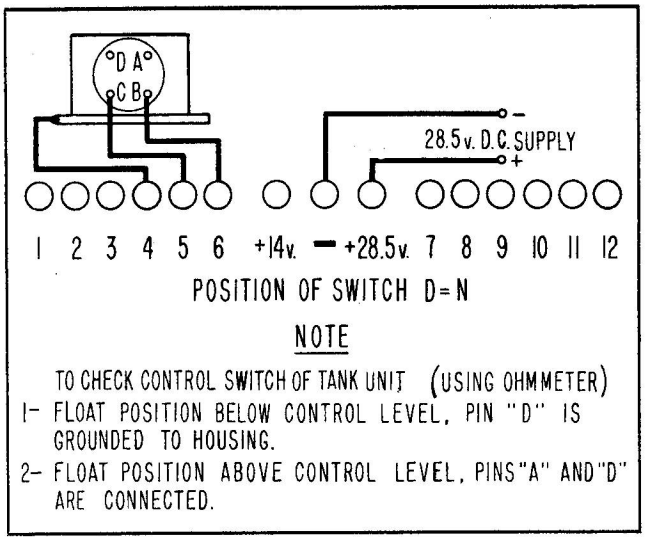


Figure 4-138. Field Tester Wiring Diagram

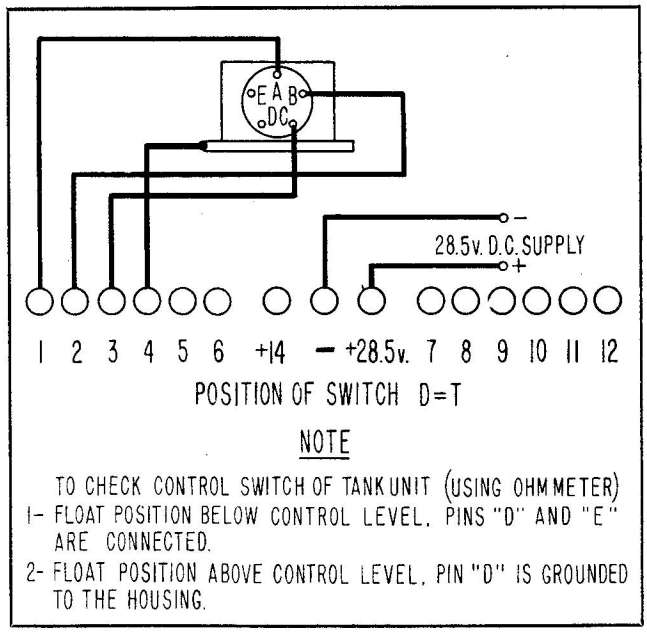


Figure 4-139. Field Tester Wiring Diagram

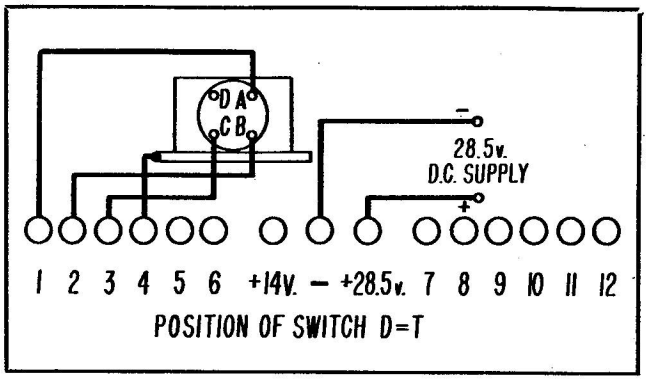


Figure 4-140. Field Tester Wiring Diagram

(2) For potentiometers with two resistance strips, see paragraphs 3-12 thru 3-20. Consult Table of Electrical Data, figure 4-123, for resistance tolerances, float positions, and ohmmeter connections for adjusting end ohmages.

SETTING WARNING SWITCH. Tank unit No. EA528AW-737 is the only unit listed on this Specific Data Sheet which contains a warning switch. This switch is set after the tank unit is installed in the aircraft, in accordance with the aircraft erection and maintenance manual.

SETTING CONTACTOR. See paragraphs 3-26 thru 3-35. Consult Table of Set-Up Stand Dimensions, figure 4-133, for contactor setting of the specific tank unit.

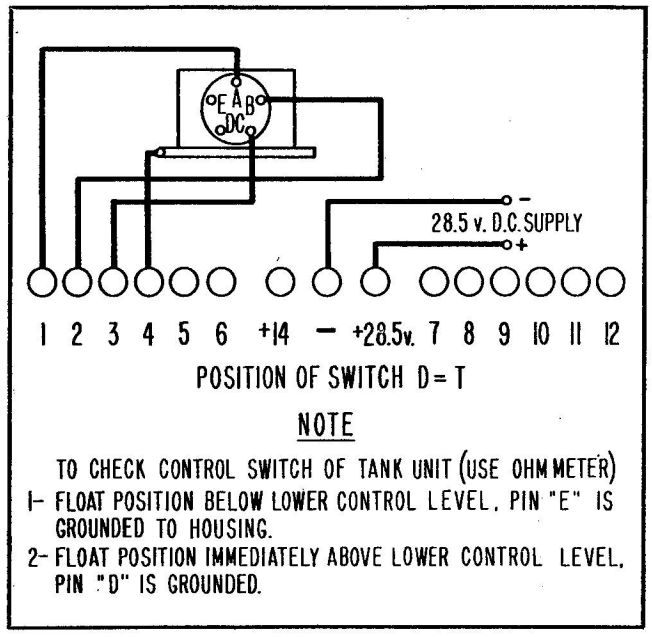


Figure 4-141. Field Tester Wiring Diagram

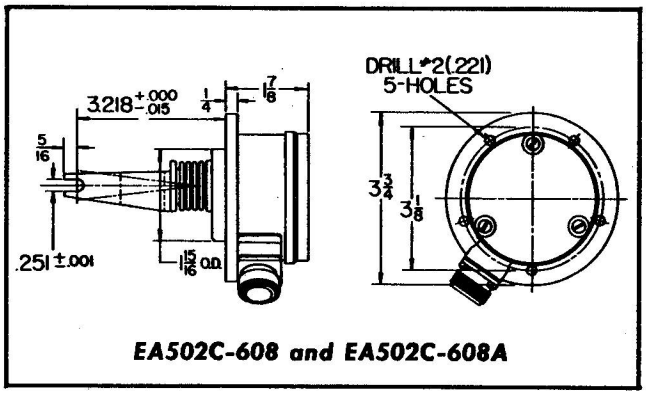
SPECIFIC DATA SHEET NO. 10

Tank units covered in this Specific Data Sheet do not have a float, float arm, or operating rod assembly, being connected mechanically to a float system otherwise provided. Tank units covered in this Specific Data Sheet are as follows:

EA502C-608 EA502C-608A

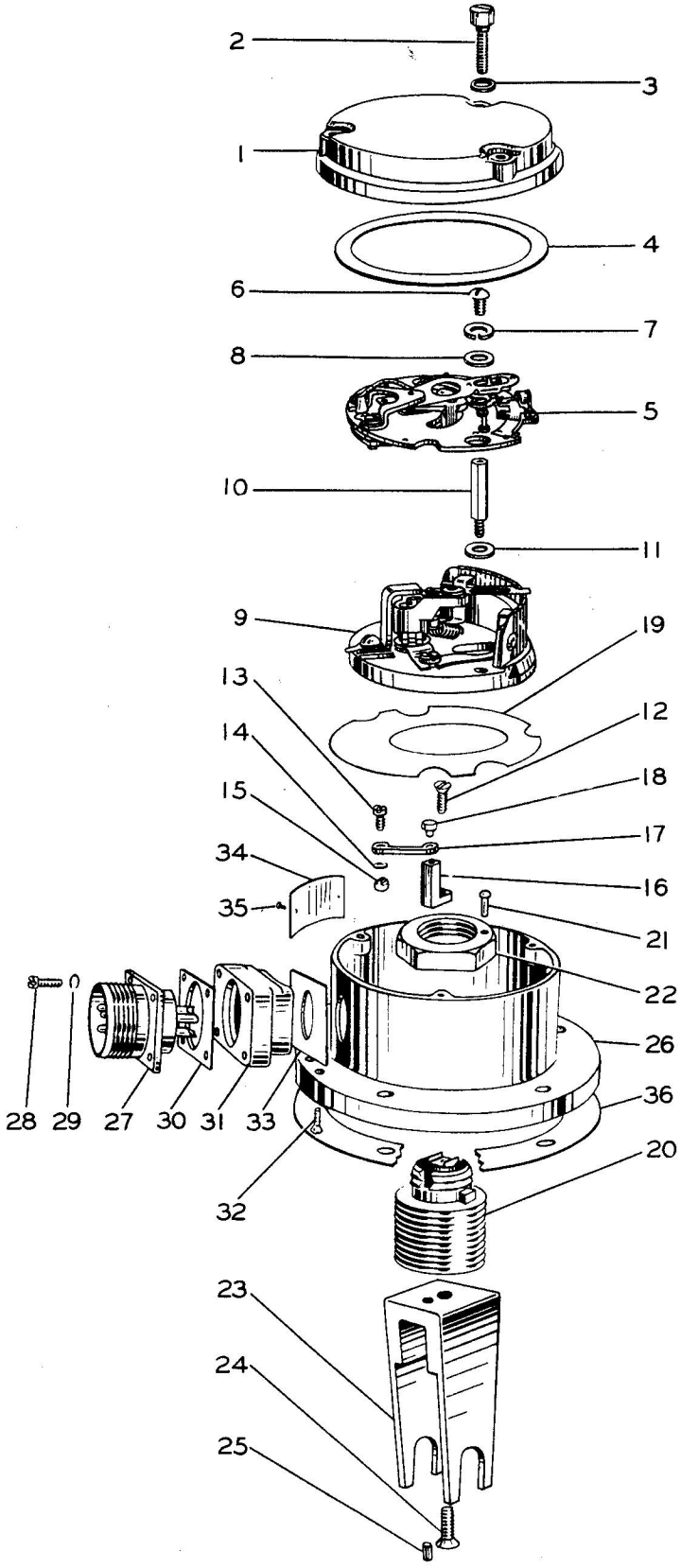
Voltage	28v dc
Dimensions	see figure 4-143

Figure 4-142. Table of Leading Particulars



EA502C-608 and EA502C-608A

Figure 4-143. General Dimensions, EA502C-608 and EA502C-608A



1. Cover
2. Cover screw (3 reqd)
3. Cover washer (3 reqd)
4. Cover gasket
5. Contactor (for breakdown see figure 2-3)
6. Screw (2 reqd)
7. Lock washer (2 reqd)
8. Plain washer (2 reqd)
9. Potentiometer (for breakdown see figure 2-9)
10. Cover stud (2 reqd)
11. Plain washer (2 reqd)
12. Screw
13. Link adjustment screw
14. Link washer
15. Link nut
16. Offset link
17. Link
18. Bearing stud
19. Insulation pad
20. Bellows seal assembly (for breakdown see figure 2-5)
21. Rivet
22. Bellows nut
23. Bellows arm
24. Screw
25. Dowel pin
26. Housing
27. Connector receptacle
28. Screw (4 reqd)
29. Lock washer (4 reqd)
30. Receptacle gasket
31. Mounting block
32. Screw (2 reqd)
33. Gasket
34. Name plate
35. Rivet (2 reqd)
36. Tank gasket

Figure 4-144. Exploded View of Tank Unit

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-144.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-144.

Follow general disassembly instructions given in paragraphs 2-1 thru 2-8, and 2-10c thru 2-10f.

CLEANING.

See paragraphs 2-15 thru 2-17.

INSPECTION.

See paragraphs 2-18 thru 2-22. For inspection of potentiometer, see paragraphs 2-59 thru 2-64.

PRE-ASSEMBLY TESTING.

See paragraph 2-27. For tests of potentiometer, see paragraphs 2-65 thru 2-68, also Table of Electrical Data, figure 4-145, and resistance value diagrams referenced in that table.

Tank Units	*Figure No. of Resistance Value Diagram, One-Strip Potentiometers*	*Figure No. of Internal Wiring Diagram*	*Figure No. of Field Tester Diagram*
EA502C-608	4-146	4-147	4-148
EA502C-608A	4-146	4-147	4-148

Figure 4-145. Table of Electrical Data

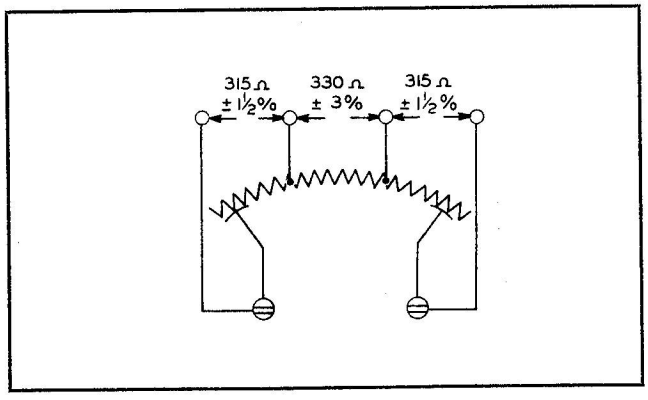


Figure 4-146. Resistance Value Diagram

REPAIR OR REPLACEMENT.

See paragraphs 2-28 and 2-29. For repair of potentionmeter see paragraphs 2-69 thru 2-74.

LUBRICATION.

None required.

REASSEMBLY.

Follow general instructions given in paragraphs 2-33, 2-34, 2-39, 2-41, 2-42, 2-43, 2-45 (in this instance, instructions refer to attaching bellows arm (item 23, figure 4-144) instead of operating arm), 2-46, and 2-48 thru 2-52.

Items 5 and 9. Connect wires according to internal wiring diagram for specific tank unit. See Table of Electrical Data, figure 4-145, for figure number of internal wiring diagram.

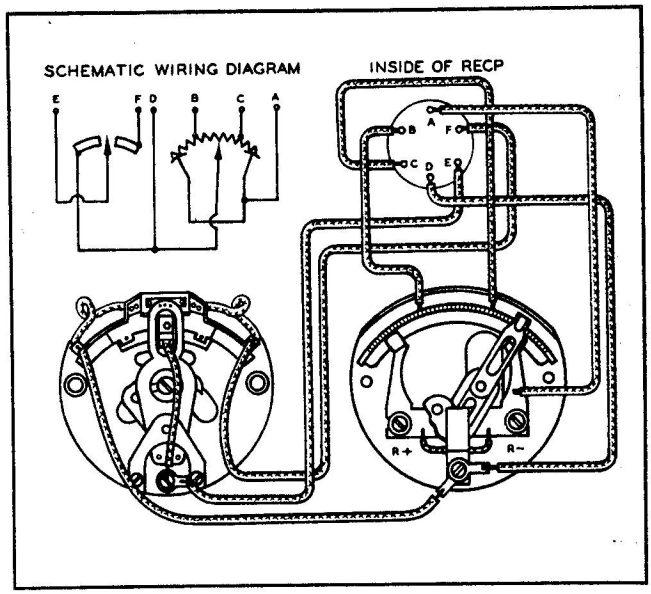


Figure 4-147. Internal Wiring Diagram

TEST PROCEDURE.

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM. See paragraph 3-11 and use field tester wiring diagram referenced in Table of Electrical Data, figure 4-145. Instead of using a set-up stand, displace bellows arm (item 23, figure 4-144) mechanically to "Empty" and "Full" positions indicated in figure 4-150 and in Table of Stroke Setting Positions, figure 4-149.

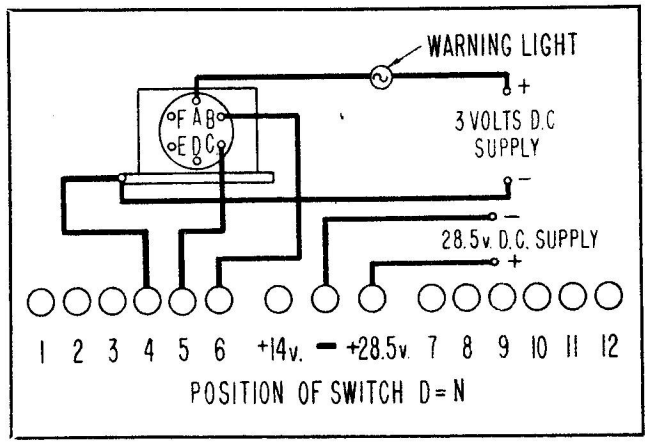


Figure 4-148. Field Tester Wiring Diagram

Tank Unit	*"E" Dimension (Empty)*	*"F" Dimension (Full)*
EA502C-608	Bellows arm 5/16 in. below mechanical center	Bellows arm 5/16 in. above mechanical center.
EA502C-608A	Bellows arm .2188 in. below mechanical center.	Bellows arm .3281 in. above mechanical center.

Figure 4-149. Table of Stroke Setting Positions

SETTING CONTACTOR. Contactor is adjusted after tank unit is installed in aircraft, in accordance with specifications given in aircraft erection and maintenance manual.

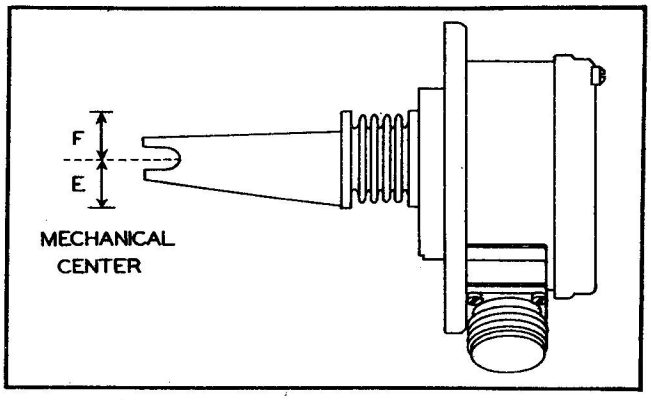


Figure 4-150. Stroke Setting Position Diagram

SPECIFIC DATA SHEET NO. 11

Tank units covered in this Specific Data Sheet are of the inside operating rod type and are as follows:

EA589DP-640	EA821-798
EA590P-611	EA828-799

Voltage	28v dc
Dimensions	see figure 4-152

Figure 4-151. Table of Leading Particulars

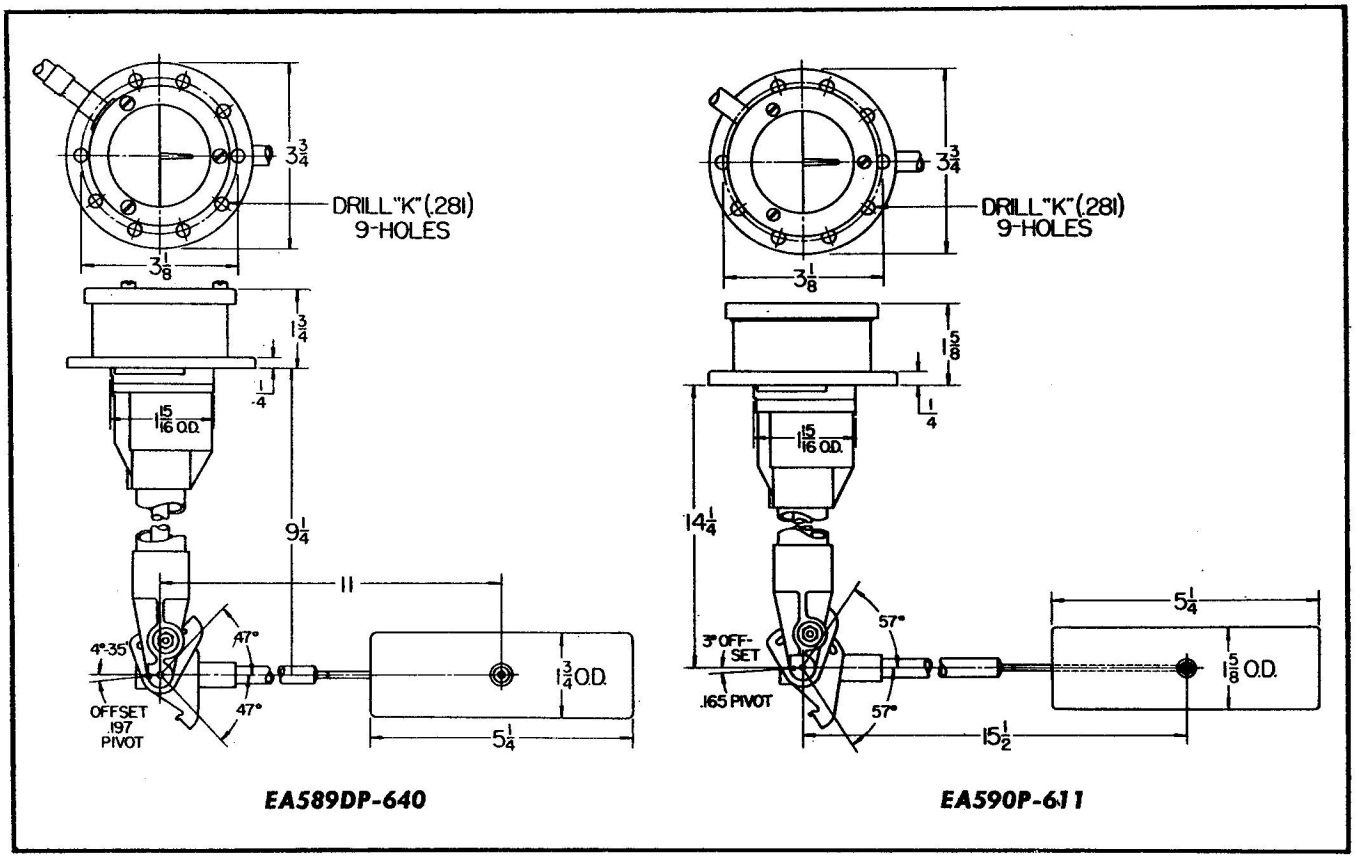


Figure 4-152 (Sheet 1 of 2 Sheets). General Dimensions

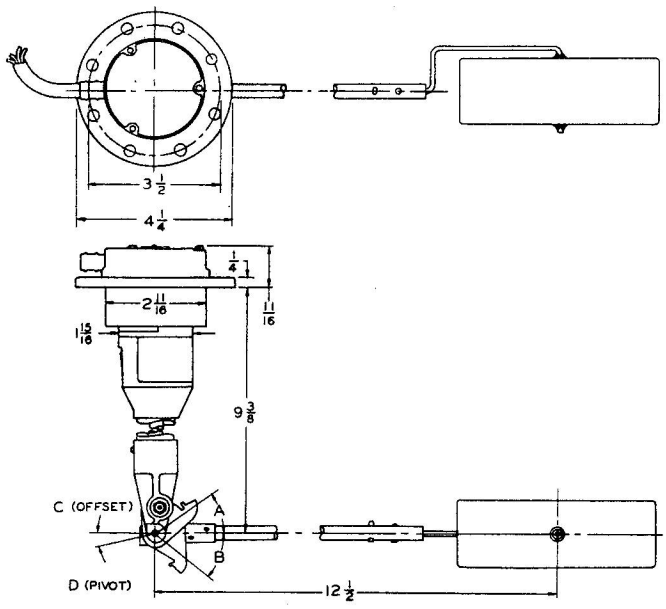


TABLE OF DIMENSIONS

	EA821-798	*EA828-799*
A	27°	15°
B	35°-30′	43°-45′
C	8°-39′	18°-36½′
D	0.290	0.314

EA821-798 and EA828-799

Figure 4-152 (Sheet 2 of 2 Sheets). General Dimensions

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-153.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-153.

Follow general disassembly instructions given in paragraphs 2-1 thru 2-8, 2-10 thru 2-12, and 2-14.

CLEANING.

See paragraphs 2-15 thru 2-17.

INSPECTION.

See paragraphs 2-18 thru 2-24. For inspection of potentiometer, see paragraphs 2-59 thru 2-64.

Tank Unit	*Figure No. of Res Value Diagram, One-Strip Potentiometers*	*Resistance Tolerances, Two-Strip Potentiometers (in ohms)*					*Figure No. of Internal Wiring Diagram*	*Figure No. of Field Tester Wiring Diagram*
		*Total Strip Resistance**	*Outer Resistance Strip*		*Inner Resistance Strip*			
			Float Up	*Float Down*	*Float Down*	*Float Up*		
EA589DP-640	4-155	—	—	—	—	—	4-157	4-161
EA590P-611	4-156	—	—	—	—	—	4-158	4-162
EA821-798	—	102.6±3%	A-C 0-1	A-C 74.4±3%	B-C 0-1	B-C 74.4±3%	4-158A	—
EA828-799	—	125.8±3%	A-D 16.8±3%	A-D 109.8±3%	B-C 16.8±3%	B-C 109.8±3%	4-158B	—

* Resistance of inner and outer strip must match within 1%.

Figure 4-154. Table of Electrical Data

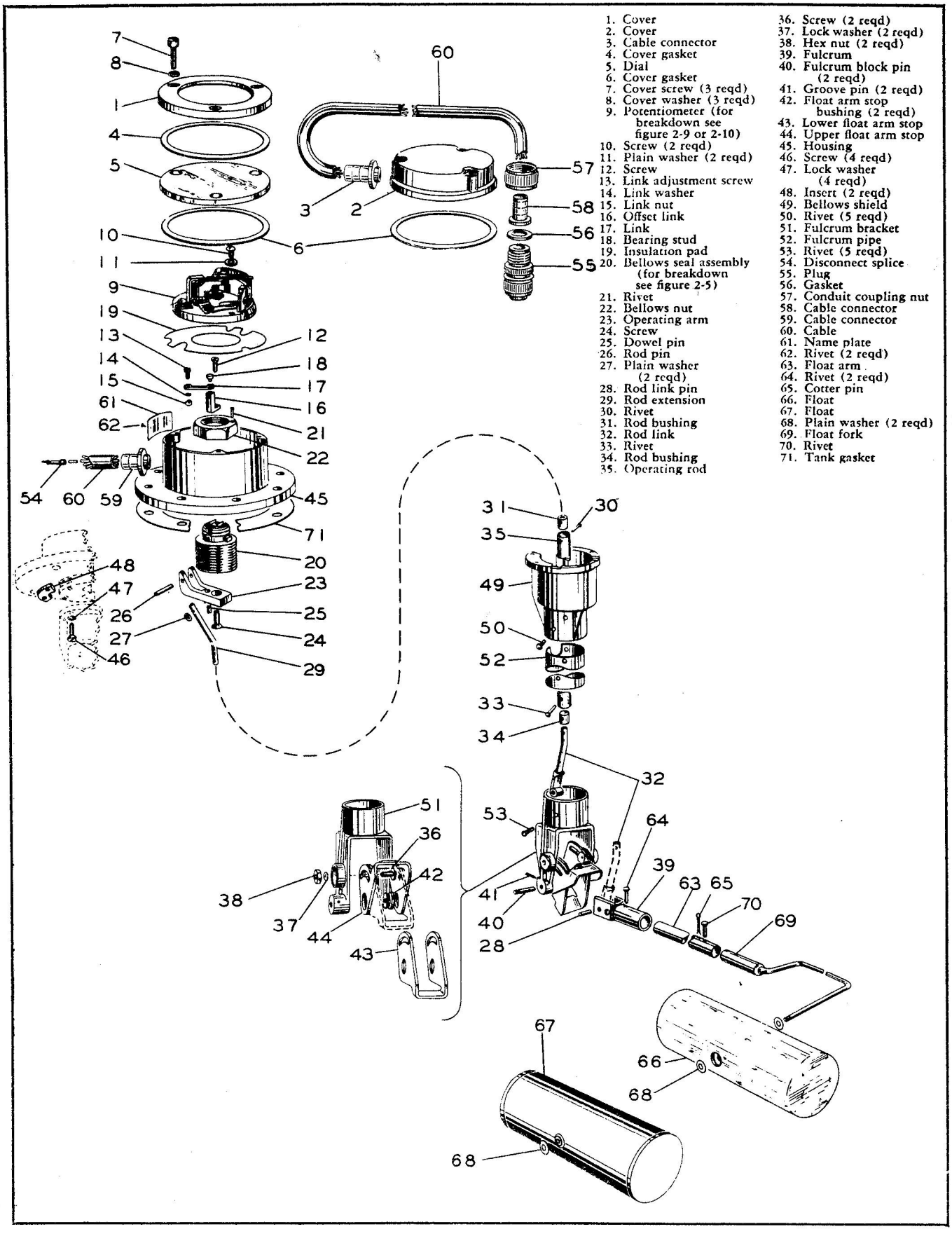


Figure 4-153. Exploded View of Tank Unit

PRE-ASSEMBLY TESTING.

See paragraphs 2-25 thru 2-27. For tests of potentiometer, see paragraphs 2-65 thru 2-68, also Table of Electrical Data, figure 4-154, and resistance value diagrams referenced in that table.

REPAIR OR REPLACEMENT.

See paragraphs 2-28 thru 2-30. For repair of potentiometer, see paragraphs 2-69 thru 2-74.

LUBRICATION.

None required.

REASSEMBLY.

Follow general instructions given in paragraphs 2-33 thru 2-35, 2-37 thru 2-39, 2-41 thru 2-43, 2-45, 2-46, and 2-48 thru 2-52.

Items 63 thru 70. Align float arm (63), float fork (69), and float (66 or 67) to correspond to general dimension drawing, figure 4-152, for specific tank unit.

Items 40 and 41. Tank Units No. EA589DP-640 and EA590P-611 use two fulcrum block pins (40) and two groove pins (41). Tank Units No. EA821-798 and EA828-799 use one of each.

Item 9. Connect wires according to internal wiring diagram for specific tank unit. See Table of Electrical Data, figure 4-154, for figure number of internal wiring diagram.

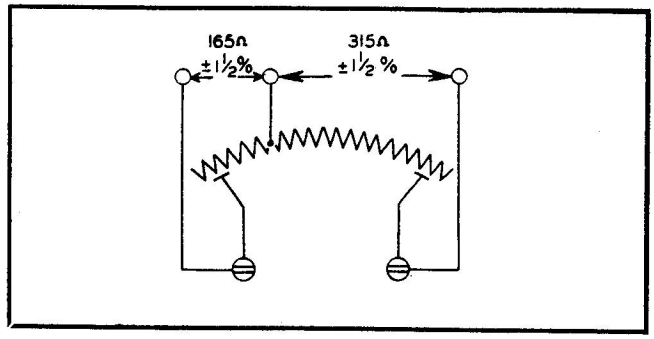


Figure 4-155. Resistance Value Diagram

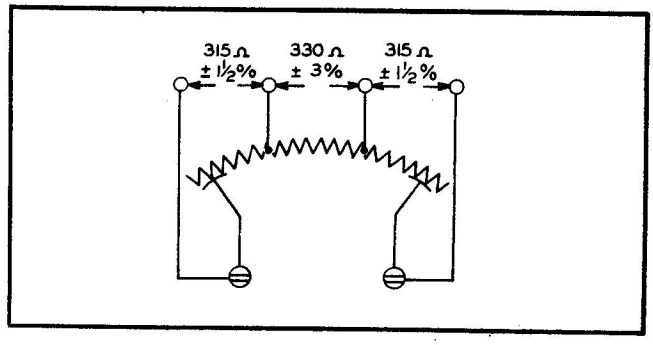


Figure 4-156. Resistance Value Diagram

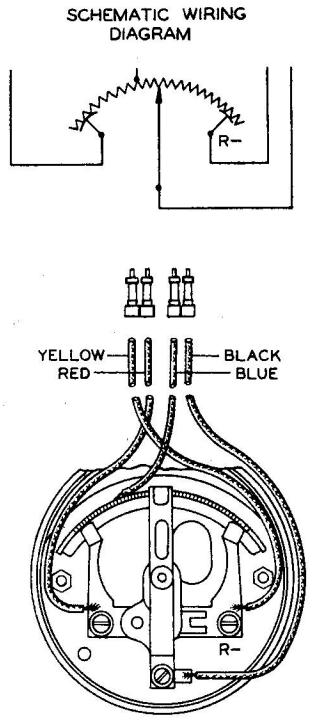


Figure 4-157. Internal Wiring Diagram

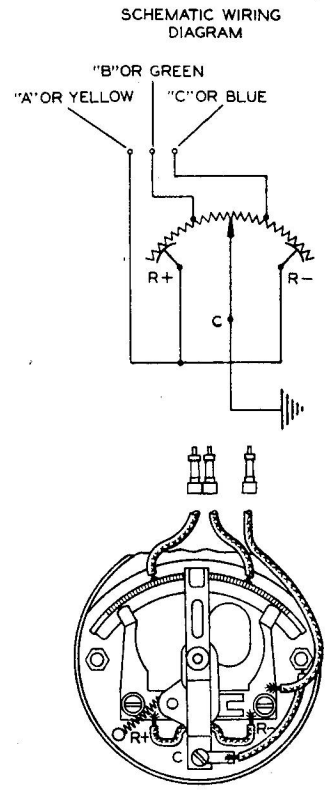


Figure 4-158. Internal Wiring Diagram

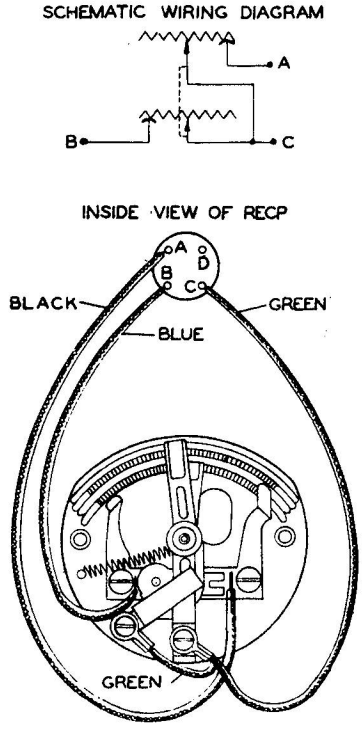


Figure 4-158A. Internal Wiring Diagram

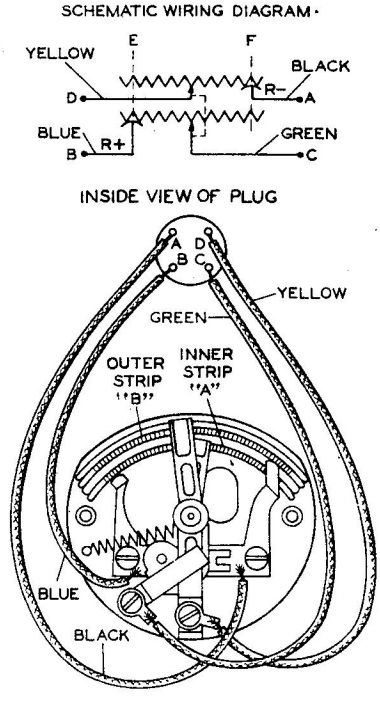


Figure 4-158B. Internal Wiring Diagram

TEST PROCEDURE.

ADJUSTING FLOAT ARM STOPS. See paragraphs 3-5, 3-6, 3-8 and 3-9. Use figure and dimensions indicated for the specific tank unit in Table of Set-Up Stand Dimensions, figure 4-159.

Tank Unit	Figure No. of Set-Up Stand Diagram	Float Arm Stop Setting T Top Float Arm Stop Setting	Float Arm Stop Setting B Bottom Float Arm Stop Setting
EA589DP-640	4-160	8-27/32	8-27/32
EA590P-611	4-160	13⅞	13⅞
EA821-798	4-160	6.75	7.81
EA828-799	4-160	4.00	9.37

Figure 4-159. Table of Set-Up Stand Dimensions (in Inches)

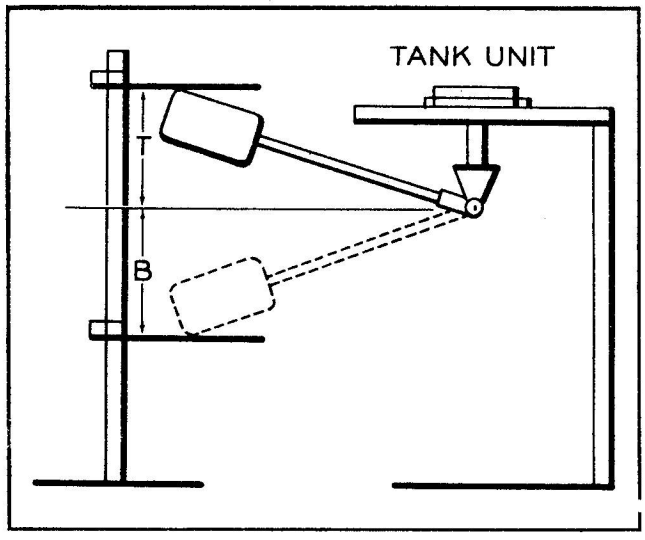


Figure 4-160. Set-Up Stand Diagram

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM. See paragraph 3-11 and use field tester wiring diagram referenced in Table of Electrical Data, figure 4-154.

ADJUSTING STROKE ON TANK UNIT NO. EA589DP-640. This is the upper unit in a two-step system; the lower unit is No. EA588AP-639. To adjust contact arm stroke on tank unit No. EA589DP-640, connect both units to field tester as shown in figure 4-161. Raise float of lower unit, EA588AP-639, to its top float arm stop position, so that transfer switch contained in that unit will connect EA589DP-640 into the indicator circuit of the field tester. Adjust stroke of EA589DP-640 so that as its float is moved from bottom to top float arm stop position, indicator pointer on field tester will move from 150° to 300°.

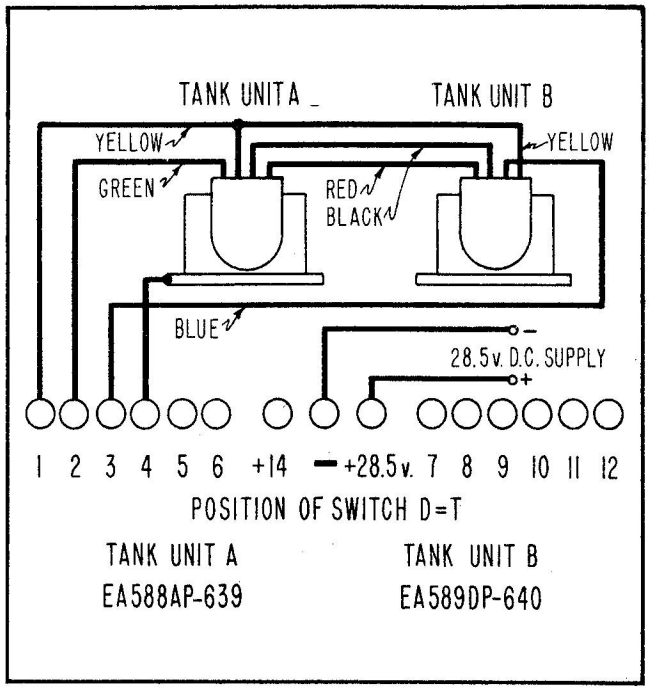


Figure 4-161. Field Tester Wiring Diagram

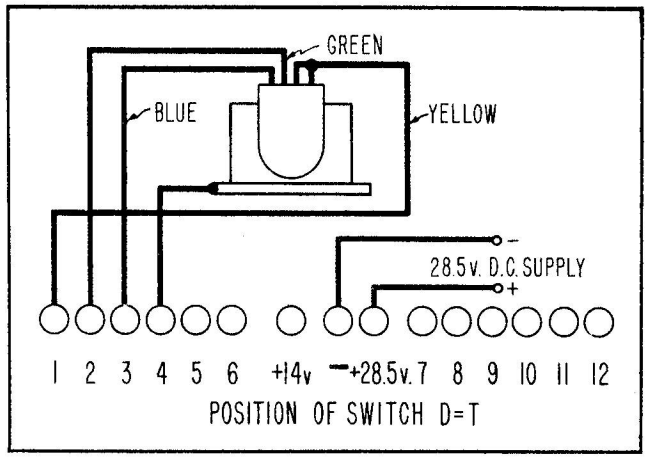


Figure 4-162. Field Tester Wiring Diagram

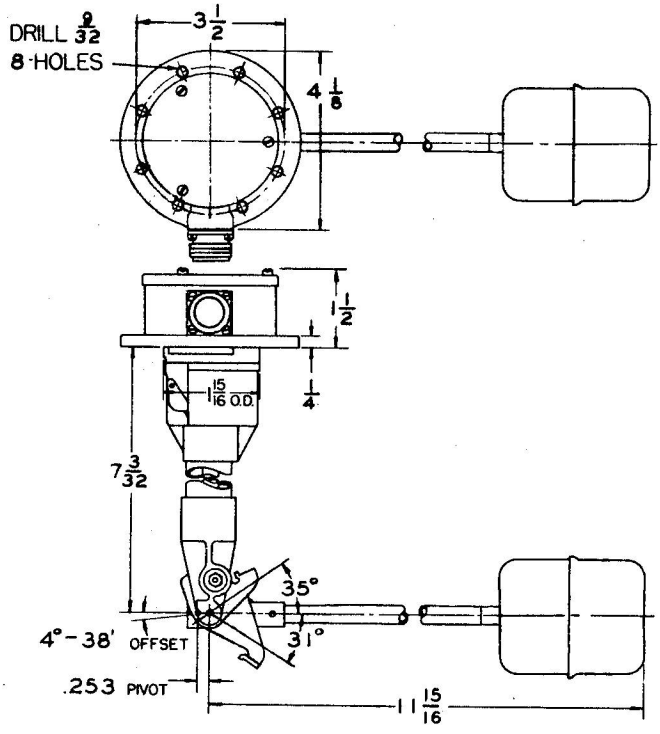
SPECIFIC DATA SHEET NO. 12

Tank units covered in this Specific Data Sheet are of the inside operating rod type and are as follows:

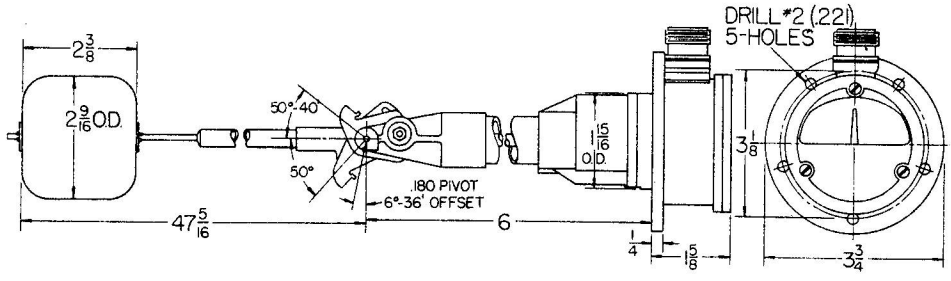
EA584-786 EA590A-479
EA590A-478 EA590A-480L
EA590A-480R

Voltage	28v dc
Dimensions	see figure 4-164

Figure 4-163. Table of Leading Particulars

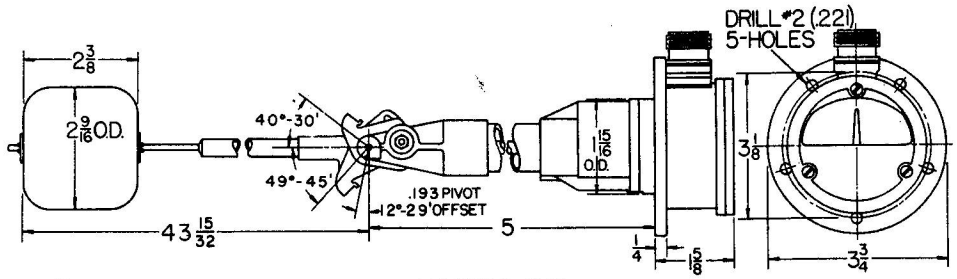


EA584-786

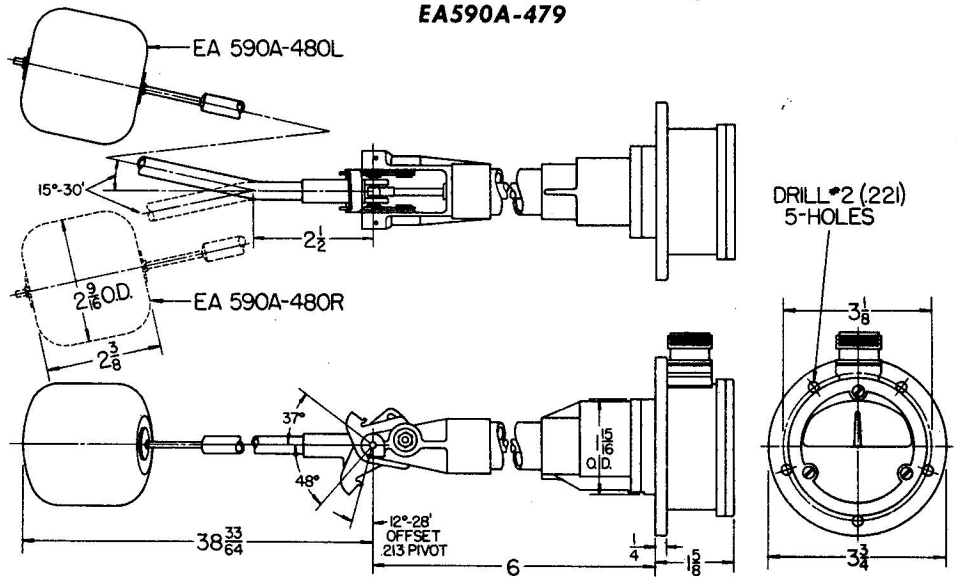


EA590A-478

Figure 4-164. (Sheet 1 of 2 Sheets). General Dimensions



EA590A-479



EA590A-480L and EA590A-480R

Figure 4-164 (Sheet 2 of 2 Sheets). General Dimensions

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-165.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-165.

Follow general disassembly instructions given in paragraphs 2-1 thru 2-8, 2-10 thru 2-12, and 2-14.

CLEANING.

See paragraphs 2-15 thru 2-17.

INSPECTION.

See paragraphs 2-18 thru 2-24. For inspection of potentiometer, see paragraphs 2-59 thru 2-64.

PRE-ASSEMBLY TESTING.

See paragraphs 2-25 thru 2-27. For tests of potentiometer, see paragraphs 2-65 thru 2-68, also Table of Electrical Data, figure 4-166, and resistance value diagrams referenced in that table.

REPAIR OR REPLACEMENT.

See paragraphs 2-28 thru 2-30. For repair of potentiometer, see paragraphs 2-69 thru 2-74.

LUBRICATION.

None required.

REASSEMBLY.

Follow general instructions given in paragraphs 2-33 thru 2-35, 2-37 thru 2-39, 2-41 thru 2-43, 2-45, 2-46, and 2-48 thru 2-52.

Items 64 thru 71. Align float arm (64), float fork (70) and float (67 or 68) to correspond to general dimension drawing, figure 4-164, for specific tank unit.

Items 40 and 41. Tank unit No. EA584-786 uses one fulcrum block pin (40) and one groove pin (41). Other tank units on this Specific Data Sheet use two of each.

Item 9. Connect wires according to internal wiring diagram for pecific tank unit. See Table of Electrical Data, figure 4-166, for figure number of internal wiring diagram.

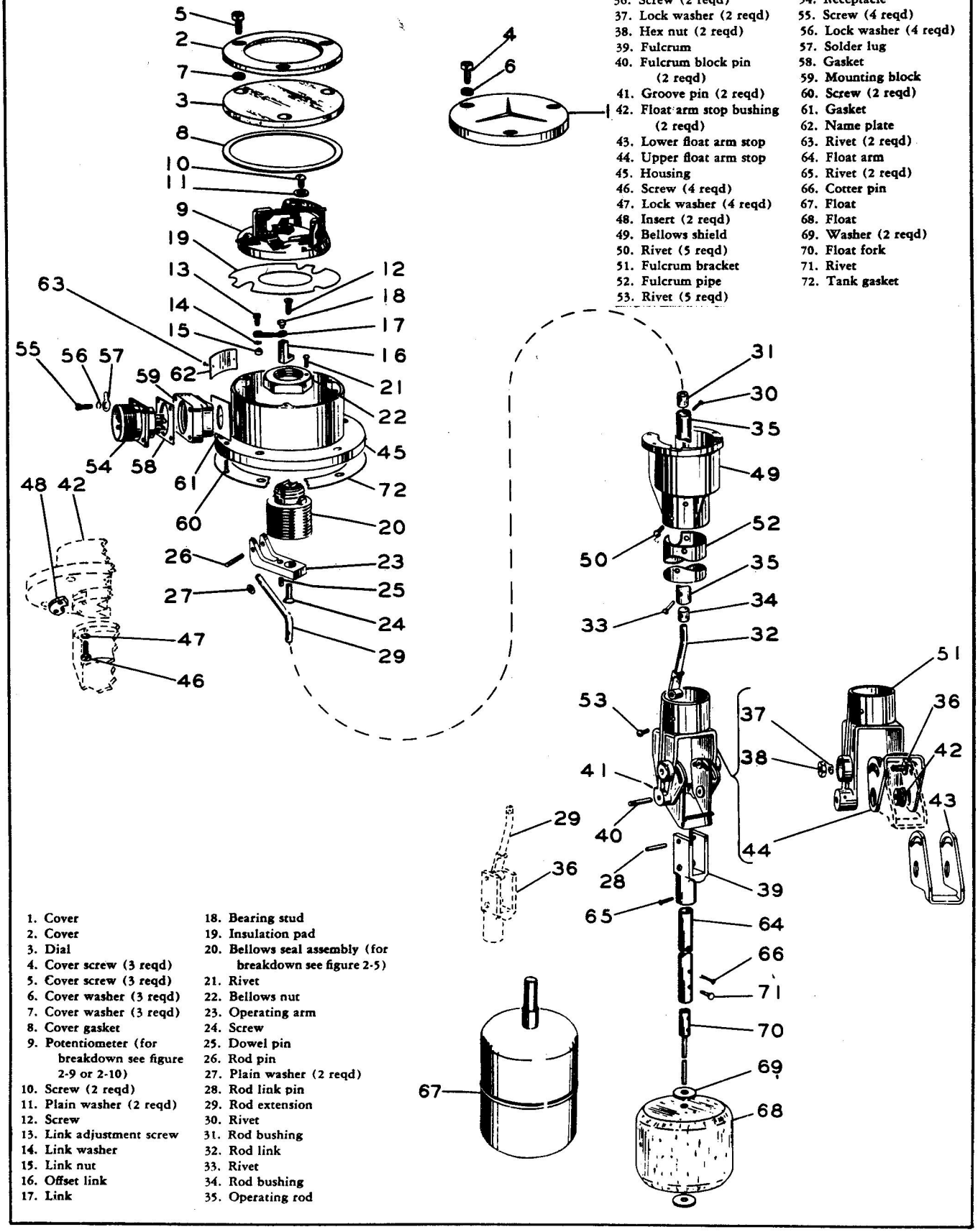


Figure 4-165. Exploded View of Tank Unit

Tank Unit	Figure No. of Res Value Diagram, One-Strip Potentiometers	Figure No. of Internal Wiring Diagram	Figure No. of Field Tester Wiring Diagram
EA584-786	4-167	4-168	4-171
EA590A-478	4-167	4-168	4-171
EA590A-479	4-167	4-168	4-171
EA590A-480L	4-167	4-168	4-171
EA590A-480R	4-167	4-168	4-171

Figure 4-166. Table of Electrical Data

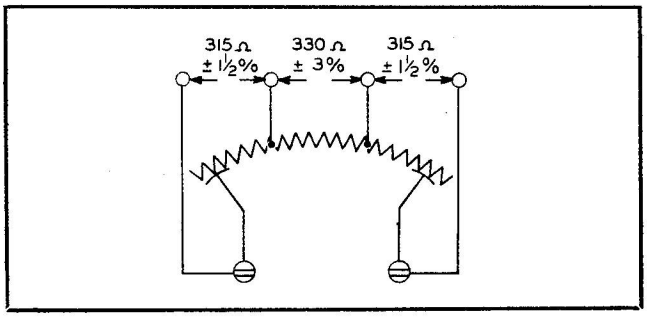


Figure 4-167. Resistance Value Diagram

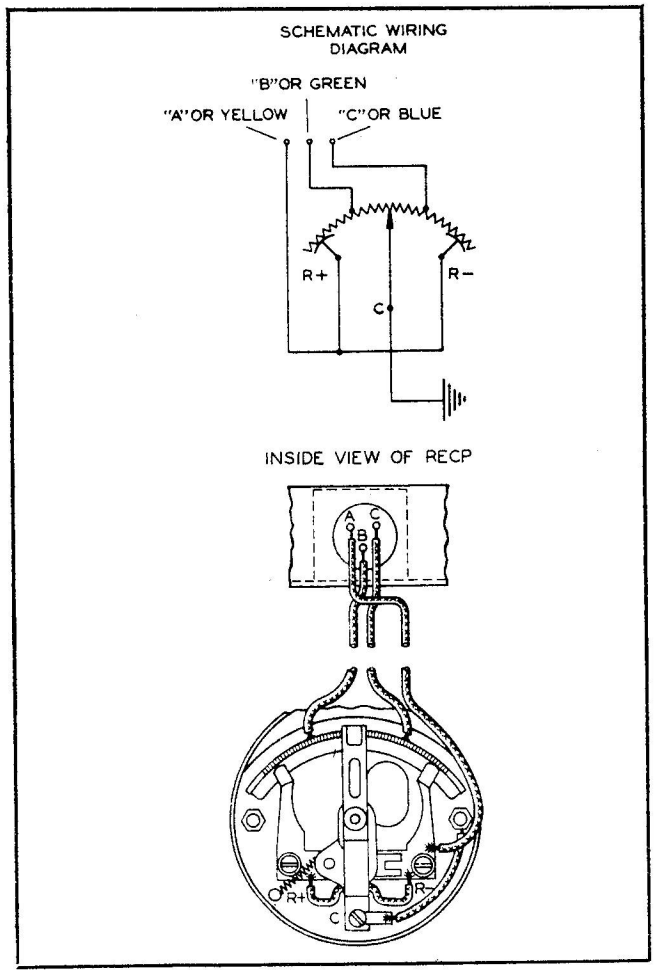


Figure 4-168. Internal Wiring Diagram

TEST PROCEDURE.

ADJUSTING FLOAT ARM STOPS. See paragraphs 3-5, 3-6, 3-8 and 3-9. Use figure and dimensions indicated for the specific tank unit in Table of Set-Up Stand Dimensions, figure 4-169.

Tank Units	Figure No. of Set-Up Stand Diagram	Float Arm Stop Setting T Top Float Arm Stop Setting	Float Arm Stop Setting B Bottom Float Arm Stop Setting
EA584-786	4-170	7⅜	6-15/16
EA590A-478	4-170A	37.156	36.812
EA590A-479	4-170A	29	33-23/32
EA590A-480L	4-170A	22.640	28.703
EA590A-480R	4-170A	22.640	28.703

Figure 4-169. Table of Set-Up Stand Dimensions (in Inches)

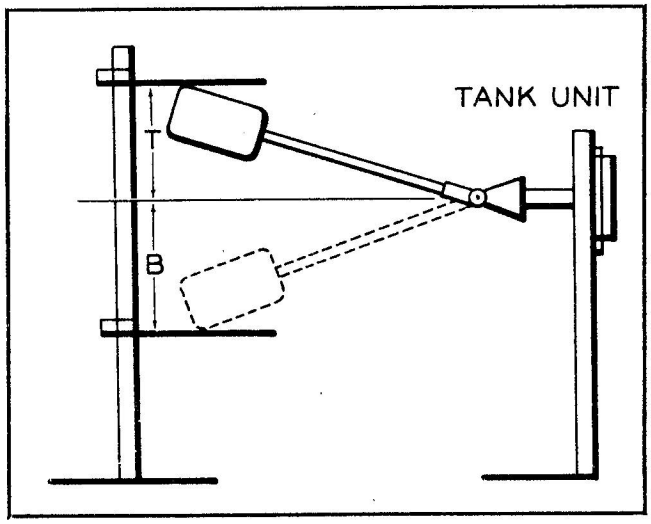


Figure 4-170. Set-Up Stand Diagram

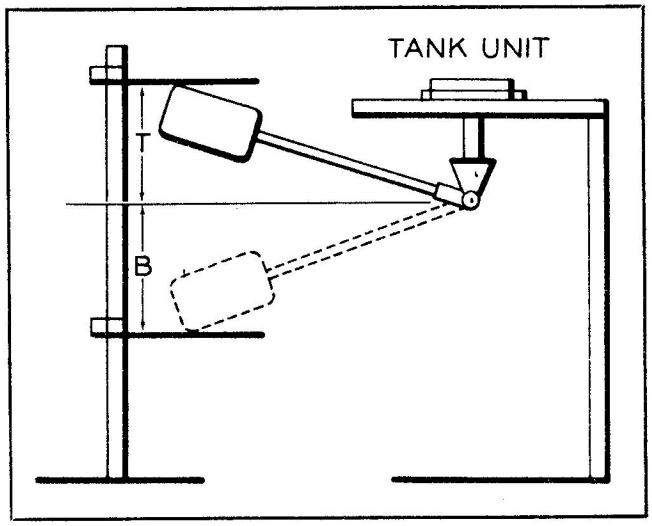


Figure 4-170A. Set-Up Stand Diagram

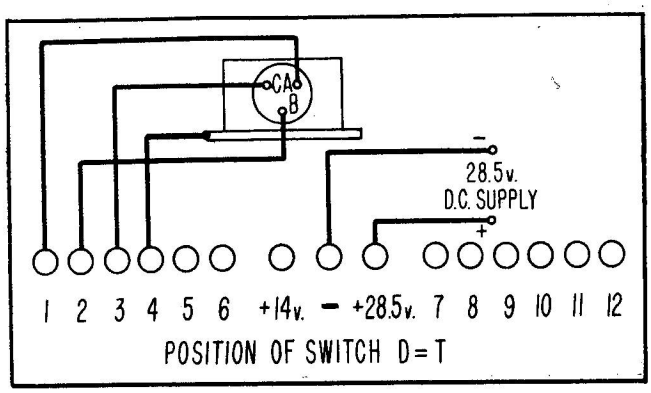


Figure 4-171. Field Tester Wiring Diagram

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM. See paragraph 3-11 and use field tester wiring diagram referenced in Table of Electrical Data, figure 4-166.

SPECIFIC DATA SHEET NO. 13

Tank units covered in this Specific Data Sheet are of the inside operating rod type and are as follows:

EA592A-328 EA592A-594

Voltage	28v dc
Dimensions	see figure 4-173

Figure 4-172. Table of Leading Particulars

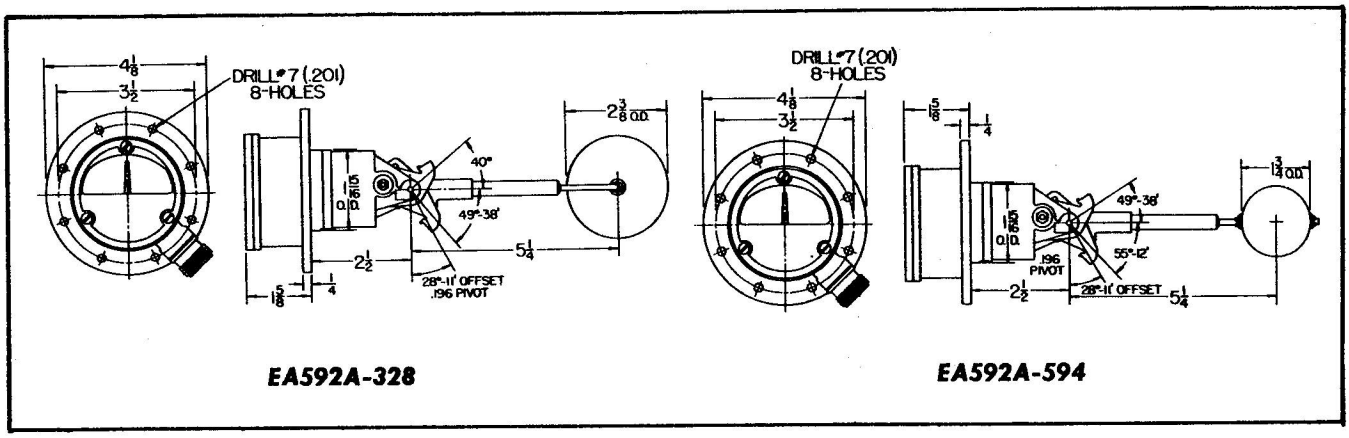
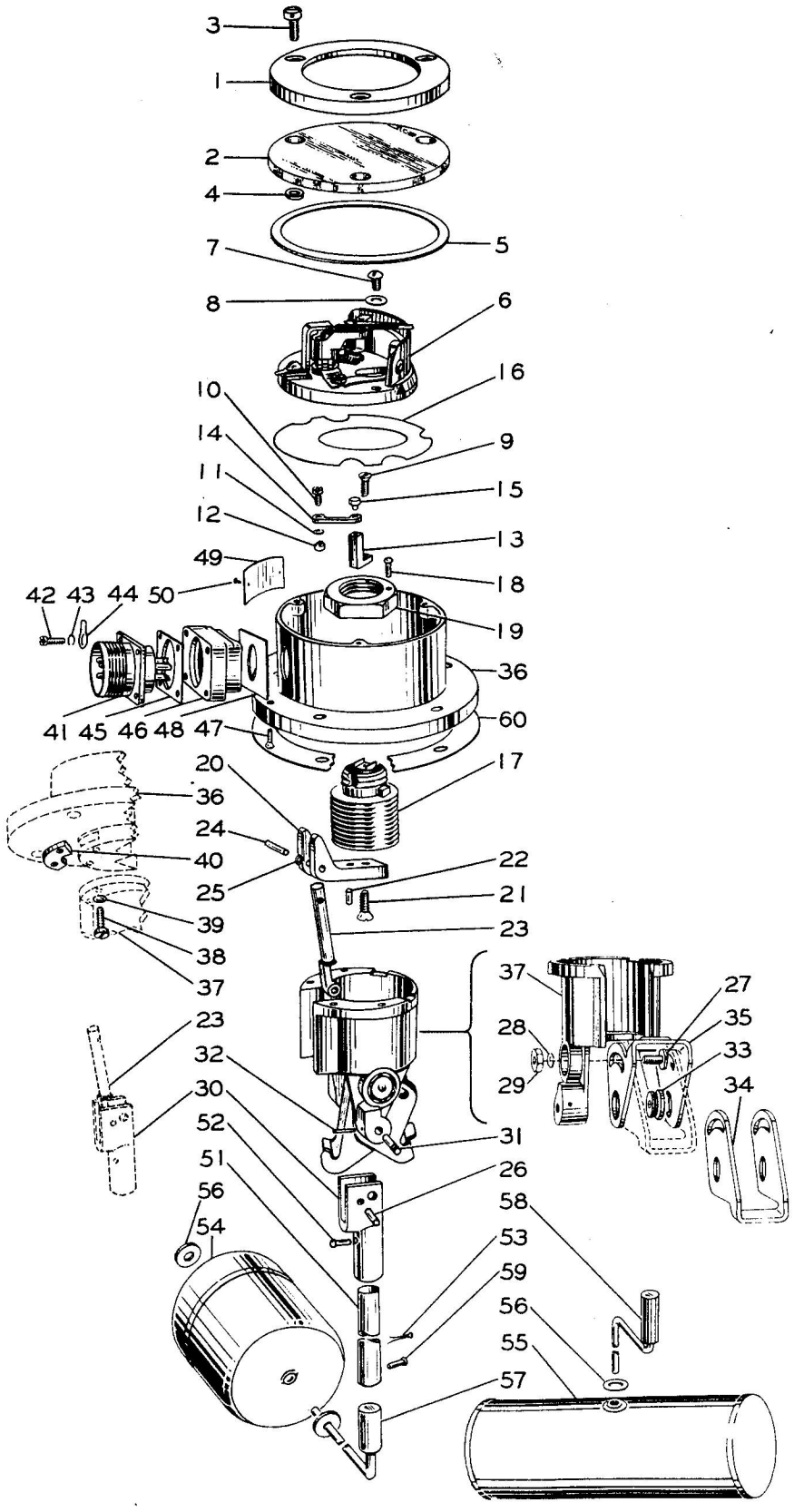


Figure 4-173. General Dimensions



1. Cover
2. Dial
3. Cover screw (3 reqd)
4. Cover washer (3 reqd)
5. Cover gasket
6. Potentiometer (for breakdown see figure 2-9 or 2-10)
7. Screw (2 reqd)
8. Plain washer (2 reqd)
9. Screw
10. Link adjustment screw
11. Link washer
12. Link nut
13. Offset link
14. Link
15. Bearing stud
16. Insulation pad
17. Bellows seal assembly (for breakdown see figure 2-5)
18. Rivet
19. Bellows nut
20. Operating arm
21. Screw
22. Dowel pin
23. Operating rod
24. Rod pin
25. Plain washer (2 reqd)
26. Rod link pin
27. Screw (2 reqd)
28. Lock washer (2 reqd)
29. Nut (2 reqd)
30. Fulcrum
31. Fulcrum block pin (2 reqd)
32. Groove pin (2 reqd)
33. Float arm stop bushing (2 reqd)
34. Lower float arm stop
35. Upper float arm stop
36. Housing
37. Fulcrum bracket
38. Screw (4 reqd)
39. Lock washer (4 reqd)
40. Insert (2 reqd)
41. Connector receptacle
42. Screw (4 reqd)
43. Washer (4 reqd)
44. Solder lug
45. Receptacle gasket
46. Mounting block
47. Screw (2 reqd)
48. Gasket
49. Name plate
50. Rivet (2 reqd)
51. Float arm
52. Rivet (2 reqd)
53. Cotter pin
54. Float
55. Float
56. Plain washer (2 reqd)
57. Float fork
58. Float fork
59. Rivet
60. Tank gasket

Figure 4-174. Exploded View of Tank Unit

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-174.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-174.

Follow general disassembly instructions given in paragraphs 2-1 thru 2-8, 2-10 thru 2-12, and 2-14.

CLEANING.

See paragraphs 2-15 thru 2-17.

INSPECTION.

See paragraphs 2-18 thru 2-24. For inspection of potentiometer, see paragraphs 2-59 thru 2-64.

PRE-ASSEMBLY TESTING.

See paragraphs 2-25 thru 2-27. For tests of potentiometer, see paragraphs 2-65 thru 2-68, also Table of Electrical Data, figure 4-175, and resistance value diagrams referenced in that table.

Tank Unit	*Figure No. of Res Value Diagram, One-Strip Potentiometers*	*Figure No. of Internal Wiring Diagram*	*Figure No. of Field Tester Wiring Diagram*
EA592A-328	4-176	4-177	4-180
EA592A-594	4-176	4-177	4-180

Figure 4-175. Table of Electrical Data

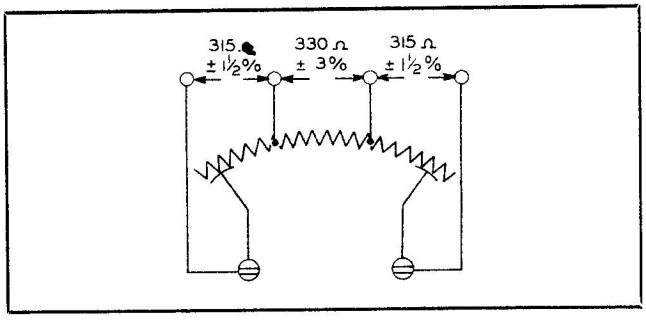


Figure 4-176. Resistance Value Diagram

REPAIR OR REPLACEMENT.

See paragraphs 2-28 thru 2-30. For repair of potentiometer, see paragraphs 2-69 thru 2-74.

LUBRICATION.

None required.

REASSEMBLY.

Follow general instructions given in paragraphs 2-33 thru 2-35, 2-37 thru 2-39, 2-41 thru 2-43, 2-45, 2-46, and 2-48 thru 2-52.

Items 51 thru 59. Align float arm (51), float fork (57 or 58) and float (54 or 55) to correspond to general dimension drawing, figure 4-173, for specific tank unit.

Item 6. Connect wires according to internal wiring diagram for specific tank unit. See Table of Electrical Data, figure 4-175, for figure number of internal wiring diagram.

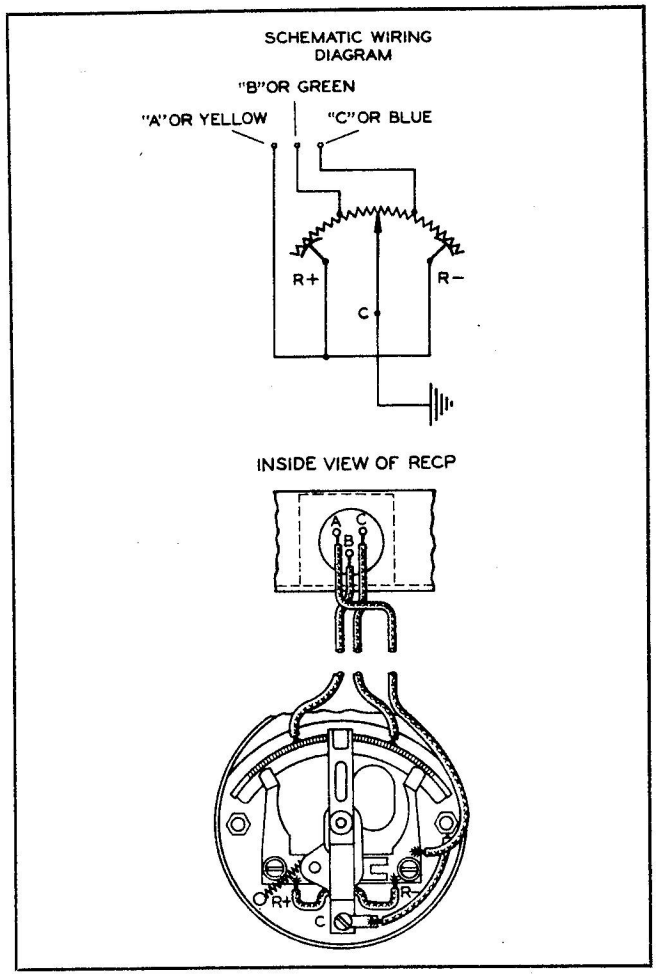


Figure 4-177. Internal Wiring Diagram

TEST PROCEDURE.

ADJUSTING FLOAT ARM STOPS. See paragraphs 3-5, 3-6, 3-8 and 3-9. Use figure and dimensions indicated for the specific tank unit in Table of Set-Up Stand Dimensions, figure 4-178.

Tank Units	*Figure No. of Set-Up Stand Diagram*	*T Top Float Arm Stop Setting*	*B Bottom Float Arm Stop Setting*
EA592A-328	4-179	4-9/16	5-3/16
EA592A-594	4-179	4⅞	5-3/16

Figure 4-178. Table of Set-Up Stand Dimensions (in Inches)

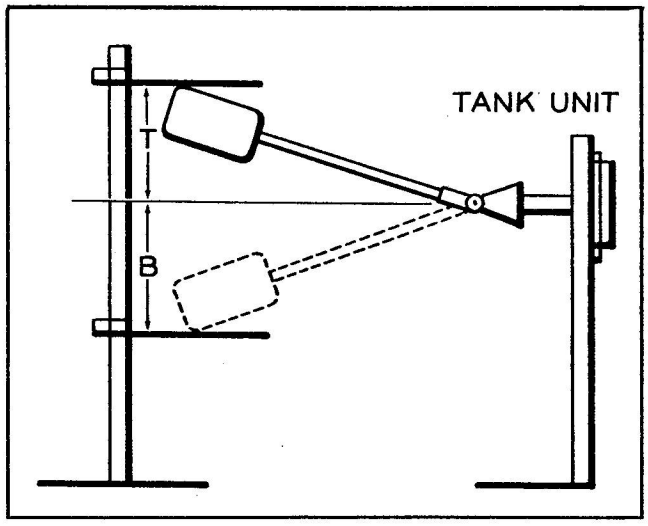


Figure 4-179. Set-Up Stand Diagram

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM. See paragraph 3-11 and use field tester wiring diagram referenced in Table of Electrical Data, figure 4-175.

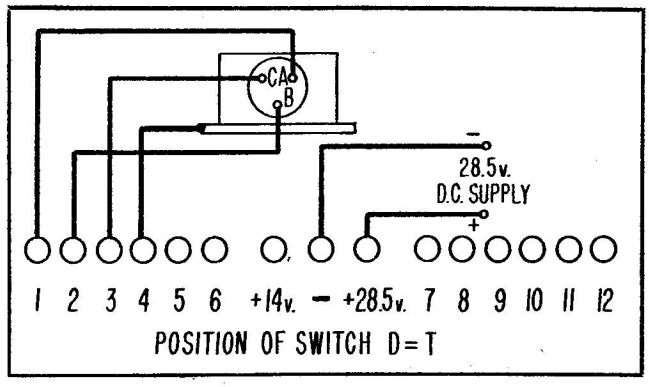


Figure 4-180. Field Tester Wiring Diagram

SPECIFIC DATA SHEET NO. 14

The tank unit covered in this Specific Data Sheet is similar in construction to tank units of the inside operating rod type, except that this one is a mechanically-operated, direct-reading tank unit without electrical connections. The float arm is linked to the pointer through a mechanical movement. The tank unit covered in this Specific Data Sheet is:

EA503-729

Voltage	Mechanical only
Dimensions	See figure 4-182

Figure 4-181. Table of Leading Particulars

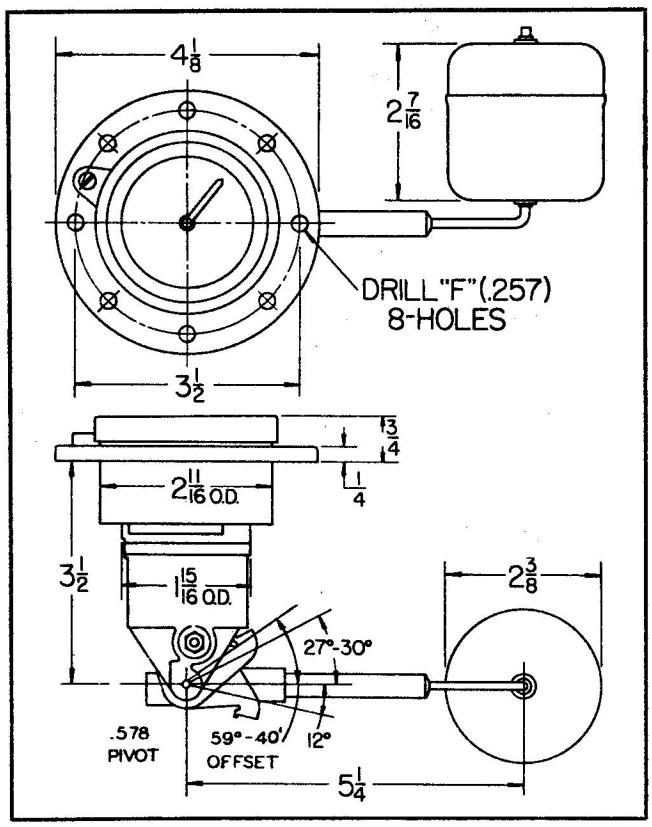


Figure 4-182. General Dimensions, Tank Unit No. EA503-729

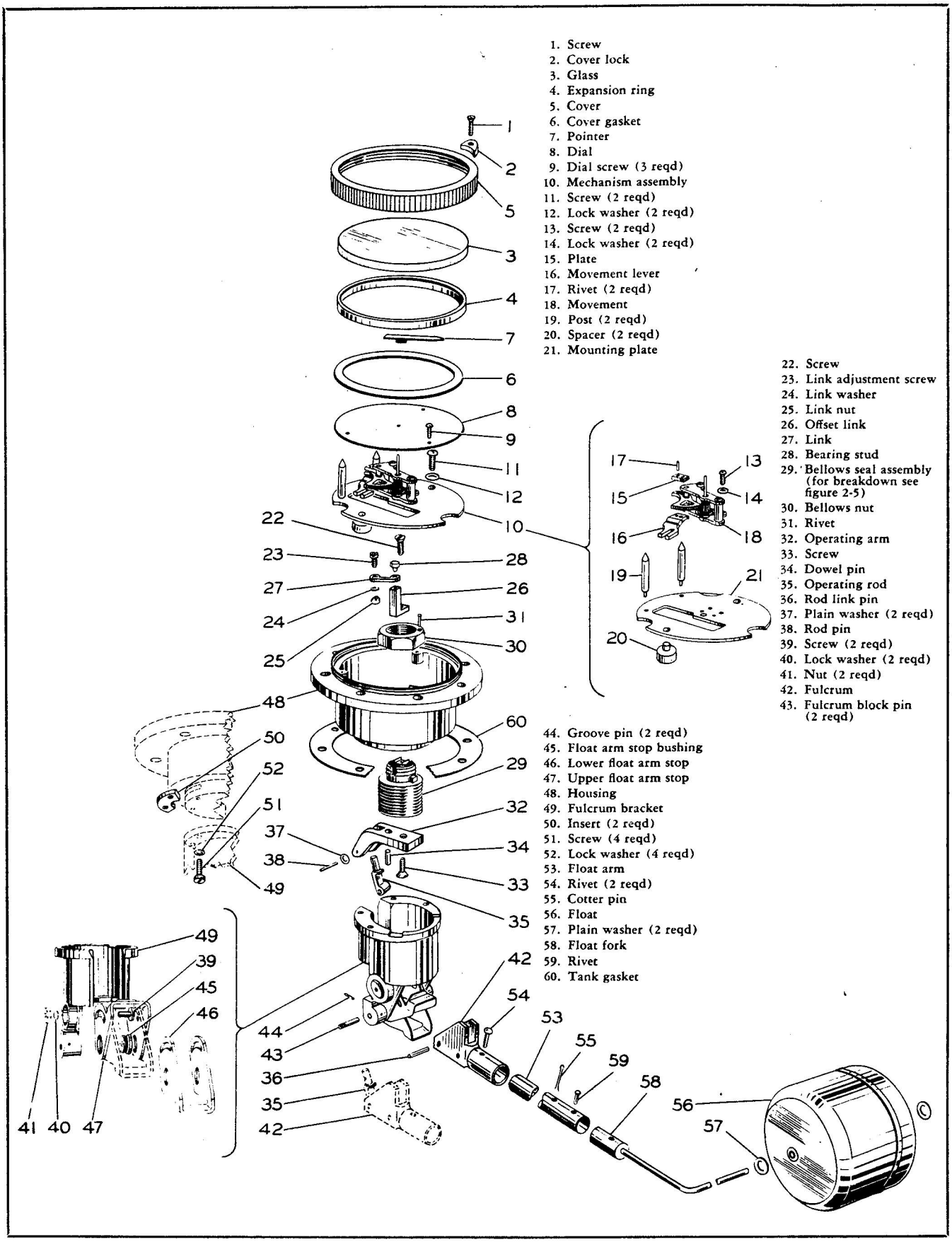


Figure 4-183. Exploded View, Tank Unit No. EA503-729

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-183.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-183.

Follow general disassembly instructions given in paragraphs 2-1 through 2-4, 2-8, 2-10 thru 2-12, and 2-14.

Item 18. Do not disassemble movement. It is procurable only as an assembly.

CLEANING.

See paragraphs 2-15 thru 2-17.

INSPECTION.

See paragraphs 2-18, 2-19, and 2-22 thru 2-24.

Item 18. Inspect hairspring in movement. Replace movement if spring is defective.

PRE-ASSEMBLY TESTING.

See paragraphs 25 and 26.

REPAIR OR REPLACEMENT.

See paragraphs 2-28 thru 2-30.

LUBRICATION.

None required.

REASSEMBLY.

Follow general instructions given in paragraphs 2-33 thru 2-35, 2-37 thru 2-39, 2-41 thru 2-43, 2-45, and 2-52.

Item 10. Method of attaching movement is similar to attachment of potentiometer (paragraph 2-48), except that link (item 27, figure 4-183) is attached to slot in movement lever (16) instead of to potentiometer wiper arm.

Items 53 thru 59. Align float arm (53), float fork (58) and float (56) to correspond to general dimension drawing, figure 4-182.

TEST PROCEDURE.

ADJUSTING FLOAT ARM STOPS. See paragraphs 3-5, 3-6, 3-8 and 3-9. Use figure and dimensions given in Table of Set-Up Stand Dimensions, figure 4-184.

Tank Unit	*Figure No. of Set-Up Stand Diagram*	*T Top Stop Setting (Dial Reads "Full")*	*B Bottom Stop Setting (Dial Reads "Empty")*	*N Position of Float When Dial Reads "Refill"*
EA503-729	4-185	2-11/16	2¼	1¾

Figure 4-184. Table of Set-Up Stand Dimensions (in Inches)

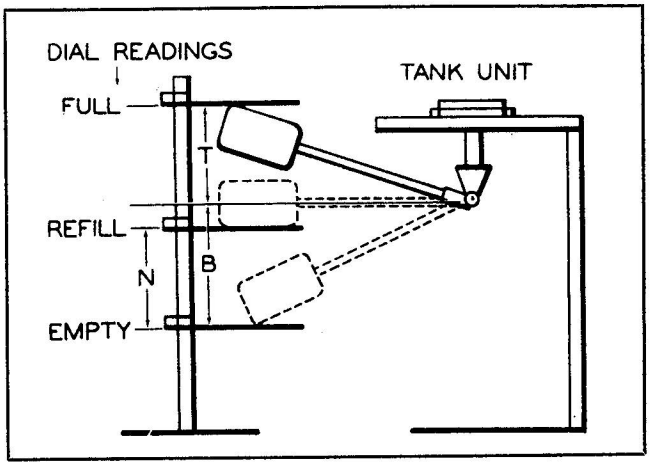


Figure 4-185. Set-Up Stand Diagram

ADJUSTING STROKE OF POINTER. Move pointer from top to bottom plate on set-up stand and see if pointer moves from "Full" to "Empty." If pointer is inaccurate at either end of dial, first equalize the error so that pointer will be either inside the "Empty" and "Full" marks by the same distance, or outside the "Empty" and "Full" marks by the same distance. To do this, lift pointer off its shaft and reposition it.

Next increase or decrease length of pointer travel, as required. Slightly loosen link adjustment screw (item 23, figure 4-183). To increase length of stroke, tap screw very slightly toward base of movement lever (16); to decreased length of stroke, tap screw very slightly away from base of movement lever. Tighten link adjustment screw and again check position of pointer when float is held at "Empty" and "Full" positions.

SPECIFIC DATA SHEET NO. 15

Tank units covered in this Specific Data Sheet are of the inside operating rod type and are as follows:

EA1030-792	EA1030-795
EA1030-792M	EA1030-795M
EA1030-793	EA1030-796
EA1030-793M	EA1030-796M
EA1030-794	EA1030-797
EA1030-794M	EA1030-797M

Voltage	28v dc
Dimensions	see figure 4-187

Figure 4-186. Table of Leading Particulars

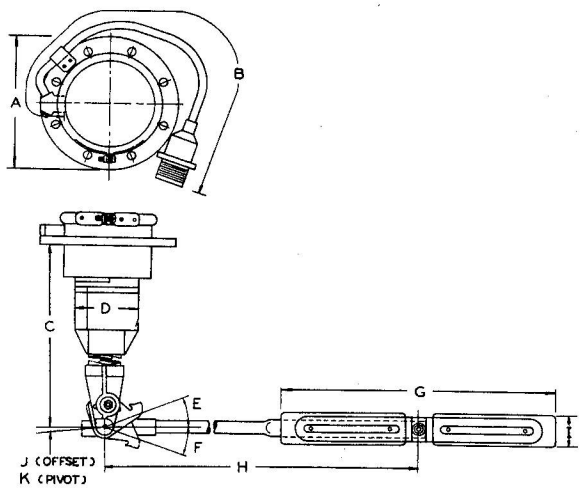
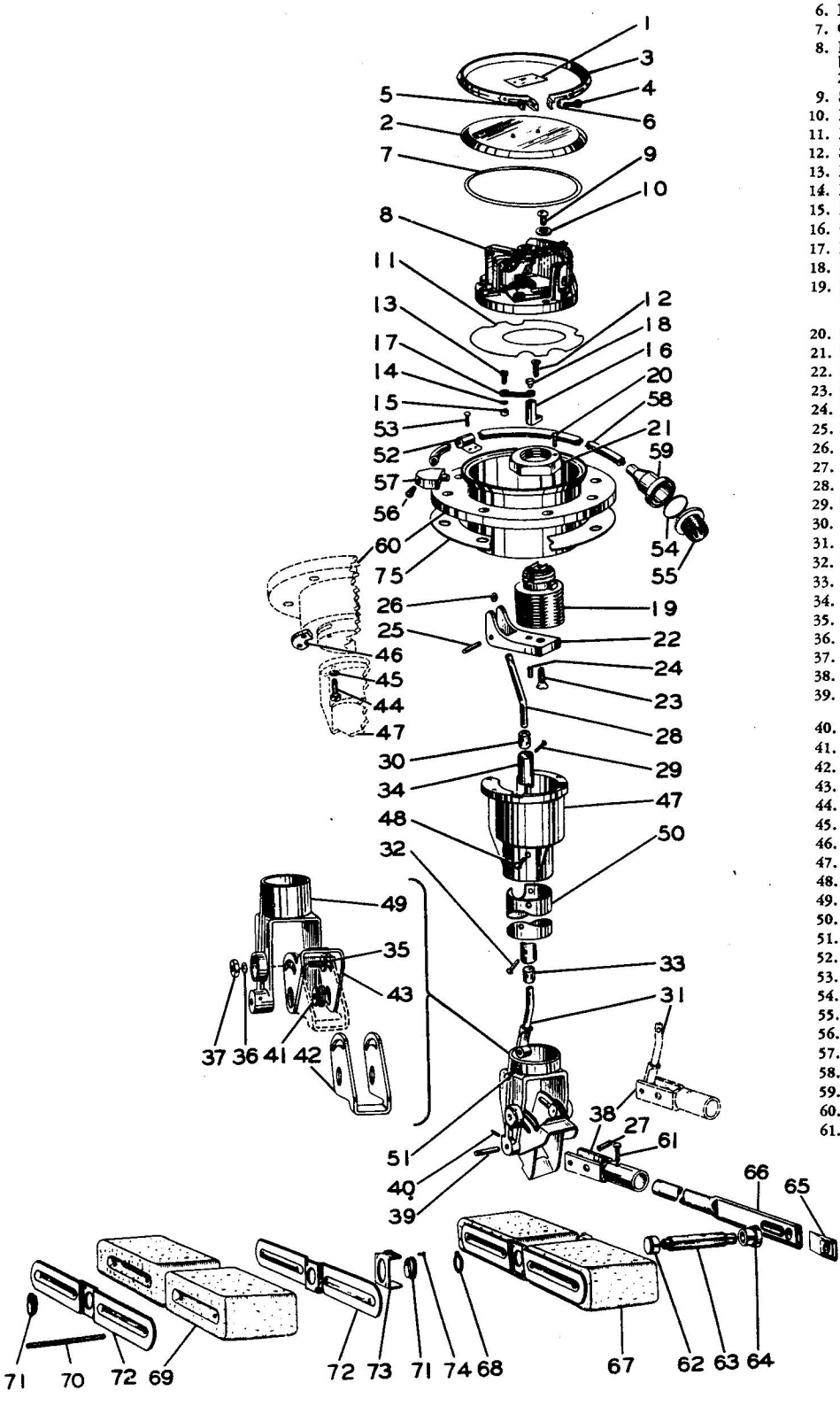


TABLE OF GENERAL DIMENSIONS (in Inches)

Tank Units	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J Pivot Offset*	*K Pivot*
EA1030-792	4-5/16	9¾ ± ¼	6-1/16	1-15/16	37°-59′	8°-51′	7½	8⅛	1	7°-51′*	0.387
EA1030-792M	4-5/16	9¾ ± ¼	6-1/16	1-15/16	37°-59′	8°-51′	7½	8⅛	1	7°-51′*	0.387
EA1030-793	4-5/16	9¾ ± ¼	6-1/16	1-15/16	37°-59′	8°-51′	7½	8⅛	1	7°-51′*	0.387
EA1030-793M	4-5/16	9¾ ± ¼	6-1/16	1-15/16	37°-59′	8°-51′	7½	8⅛	1	7°-51′*	0.387
EA1030-794	4-5/16	10½ ± ¼	5⅝	1-15/16	20°-12′	13°-48′	8¼	11	1	1°-13′	0.510
EA1030-794M	4-5/16	10½ ± ¼	5⅝	1-15/16	20°-12′	13°-48′	8¼	11	1	1°-13′	0.510
EA1030-795	4-5/16	10½ ± ¼	5⅝	1-15/16	20°-12′	13°-48′	8¼	11	1	1°-13′	0.510
EA1030-795M	4-5/16	10½ ± ¼	5⅝	1-15/16	20°-12′	13°-48′	8¼	11	1	1°-13′	0.510
EA1030-796	4-5/16	9½ ± ¼	5⅝	1-15/16	20°-39′	19°-14′	8¼	11	1	5°-26′	0.438
EA1030-796M	4-5/16	9½ ± ¼	5⅝	1-15/16	20°-39′	19°-14′	8¼	11	1	5°-26′	0.438
EA1030-797	4-5/16	9½ ± ¼	5⅝	1-15/16	20°-39′	19°-14′	8¼	11	1	5°-26′	0.438
EA1030-797M	4-5/16	9½ ± ¼	5⅝	1-15/16	20°-39′	19°-14′	8¼	11	1	5°-26′	0.438

* Above horizontal.

Figure 4-187. General Dimensions



1. Name Plate
2. Cover
3. Ring
4. Screw
5. Nut
6. Lock washer
7. O-ring
8. Potentiometer (for breakdown see figure 2-9, 2-10 or 2-10C
9. Screw (2 reqd)
10. Plain washer (2 reqd)
11. Insulation pad
12. Screw
13. Link adjustment screw
14. Link washer
15. Link washer
16. Offset link
17. Link
18. Bearing stud
19. Bellows seal assembly (for breakdown see figure 2-5)
20. Rivet
21. Bellows nut
22. Operating arm
23. Screw
24. Dowel pin
25. Rod pin
26. Plain washer (2 reqd)
27. Rod link pin
28. Rod extension
29. Rivet
30. Rod bushing
31. Operating rod link
32. Rivet
33. Rod bushing
34. Operating rod
35. Screw (2 reqd)
36. Lock washer (2 reqd)
37. Nut (2 reqd)
38. Fulcrum
39. Fulcrum block pin (2 reqd)
40. Groove pin (2 reqd)
41. Float arm stop bushing
42. Lower float arm stop
43. Upper float arm stop
44. Screw (4 reqd)
45. Lock washer (4 reqd)
46. Insert (2 reqd)
47. Bellows shield
48. Drilled rivet (5 reqd)
49. Fulcrum bracket
50. Fulcrum pipe
51. Drilled rivet (5 reqd)
52. Clamp
53. Rivet (2 reqd)
54. O-ring packing
55. Electrical receptacle
56. Plug
57. Conduit tube connection
58. Connecting tube
59. Connect socket coupling
60. Housing
61. Rivet (2 reqd)
62. Retaining collar
63. Float shaft
64. Float bushing
65. Float arm plug
66. Float arm
67. Float assembly
68. Snap ring
69. Float (2 reqd)
70. Float bushing (4 reqd)
71. Float bearing (2 reqd)
72. Float bracket (2 reqd)
73. Float stop
74. Rivet (2 reqd)
75. Tank gasket

Figure 4-188. Exploded View of Tank Unit

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-188.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-188.

Follow general disassembly instructions given in paragraphs 2-1 thru 2-8, 2-10 thru 2-12, and 2-14.

Item 67. Do not disassemble float assembly except in an emergency.

CLEANING.

See paragraphs 2-15 thru 2-17.

INSPECTION.

See paragraphs 2-18 thru 2-24. For inspection of potentiometer, see paragraphs 2-59 thru 2-64.

PRE-ASSEMBLY TESTING.

See paragraphs 2-25 thru 2-27. For tests of potentiometer, see paragraphs 2-65 thru 2-68, also Table of Electrical Data, figure 4-189.

Note

On potentiometers having two resistance strips, ohmage of the two strips must match within 1%.

REPAIR OR REPLACEMENT.

See paragraphs 2-28 thru 2-30. For repair of potentiometer, see paragraphs 2-69 thru 2-74.

LUBRICATION.

None required.

REASSEMBLY.

Follow general instructions given in paragraphs 2-33 thru 2-35, 2-37 thru 2-39, 2-41 thru 2-43, 2-45, 2-46, and 2-48 thru 2-52.

Items 52 thru 60. Assemble conduit assembly by following general dimension drawing for the specific tank unit.

Items 61 thru 74. Align float arm (66) and float assembly (67) to correspond to general dimension drawing, figure 4-187, for the specific tank unit.

Item 8. Connect wires according to internal wiring diagram for specific tank unit. See Table of Electrical Data, figure 4-189, for figure number of internal wiring diagram.

		Resistance Tolerances for Two-Strip Potentiometers (in Ohms)				
		Outer Resistance Strip		*Inner Resistance Strip*		*Figure No. of Internal Wiring Diagram*
Tank Unit	*Total Strip Resistance**	*Float Up*	*Float Down*	*Float Down*	*Float Up*	
EA1030-792	20.1±3%	A-D	A-D	B-C	B-C	4-190
EA1030-792M	20.1±3%	0-0.5	20.1±3%	0-0.5	20.1±3%	4-191A
EA1030-793	20.1±3%	A-D	A-D	B-C	B-C	4-190
EA1030-793M	20.1±3%	0-0.5	20.1±3%	0-0.5	20.1±3%	4-191A
EA1030-794	31.8±3%	A-D	A-D	B-C	B-C	4-190
EA1030-794M	31.8±3%	0-0.5	31.8±3%	0-0.5	31.8±3%	4-191A
EA1030-795	31.8±3%	A-D	A-D	B-C	B-C	4-190
EA1030-795M	31.8±3%	0-0.5	31.8±3%	0-0.5	31.8±3%	4-191A
EA1030-796	31.8±3%	A-D	A-D	B-C	B-C	4-190
EA1030-796M	31.8±3%	0-0.5	31.8±3%	0-0.5	31.8±3%	4-191A
EA1030-797	31.8±3%	A-D	A-D	B-C	B-C	4-191
EA1030-797M	31.8±3%	0-0.5	31.8±3%	0-0.5	31.8±3%	4-191B

* Resistance of inner and outer strip must match within 1%.

Figure 4-189. Table of Electrical Data

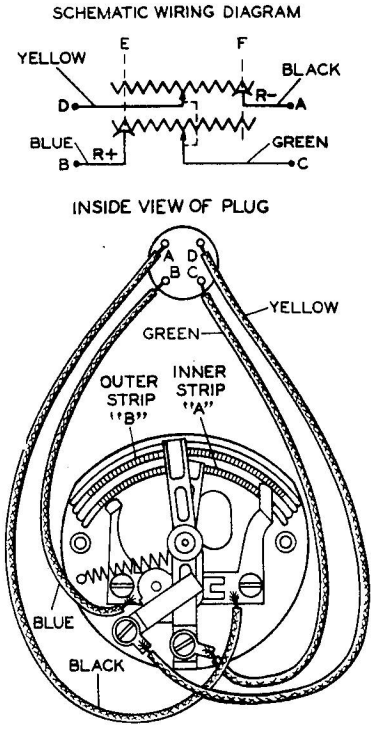


Figure 4-190. Internal Wiring Diagram

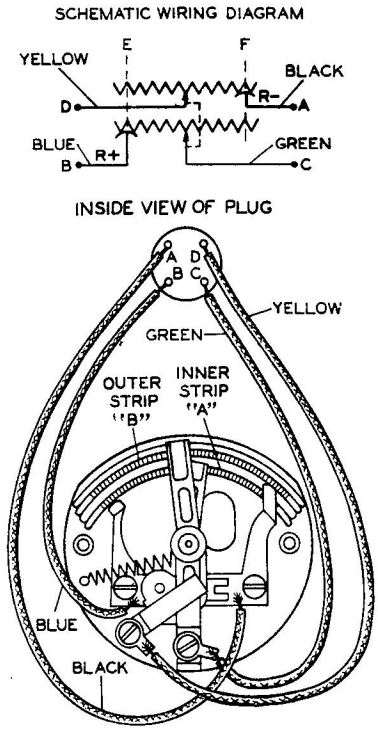


Figure 4-191A. Internal Wiring Diagram

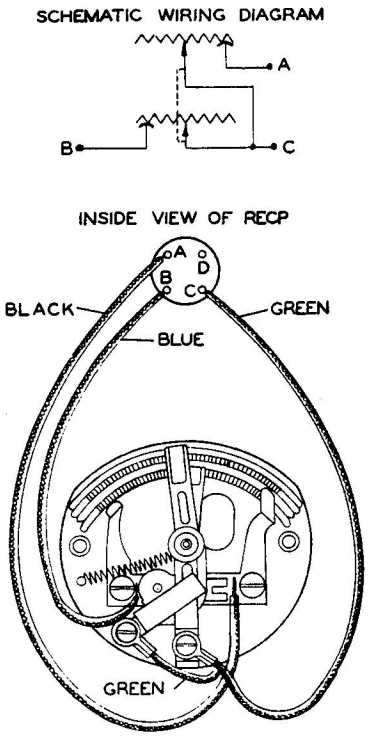


Figure 4-191. Internal Wiring Diagram

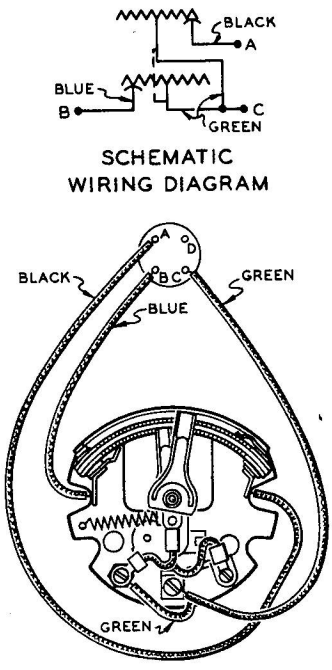


Figure 4-191B. Internal Wiring Diagram

TEST PROCEDURE.

ADJUSTING FLOAT ARM STOPS. See paragraphs 3-5, 3-6, and 3-9, using dimensions given in figure 4-192. Each tank unit can be adjusted separately by following dimensions given for its top and bottom float arm stop settings. Figures given in pounds, with accompanying dimensions, are for calibrating dial of indicator. If end ohmages are correctly adjusted (see next paragraph), no further test of tank unit is necessary.

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM. See paragraph 3-12. Consult Table of Electrical Data, figure 4-189, for resistance tolerances, float positions, and ohmmeter connections for adjusting end ohmages.

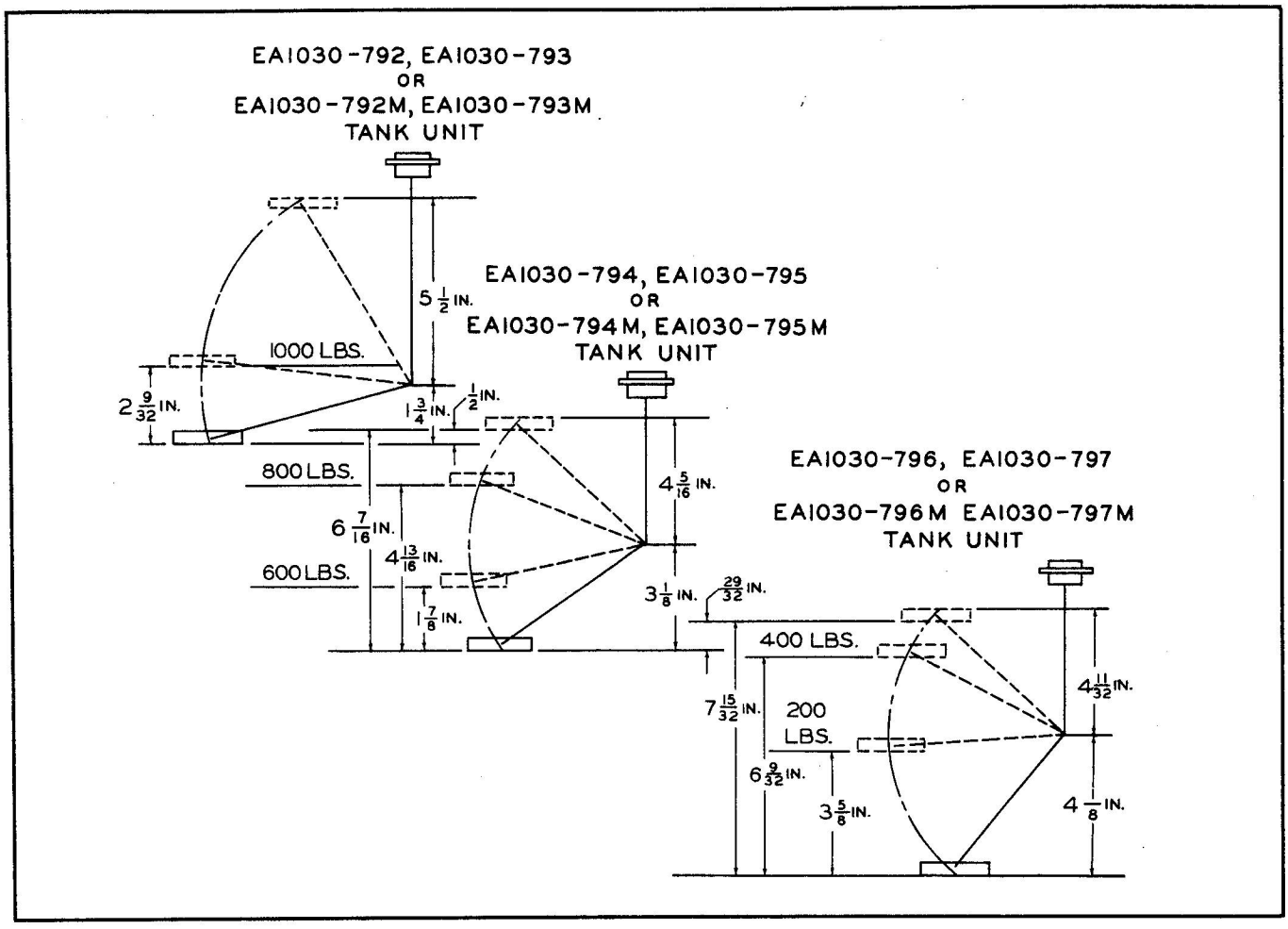


Figure 4-192. Set-Up Stand Diagram

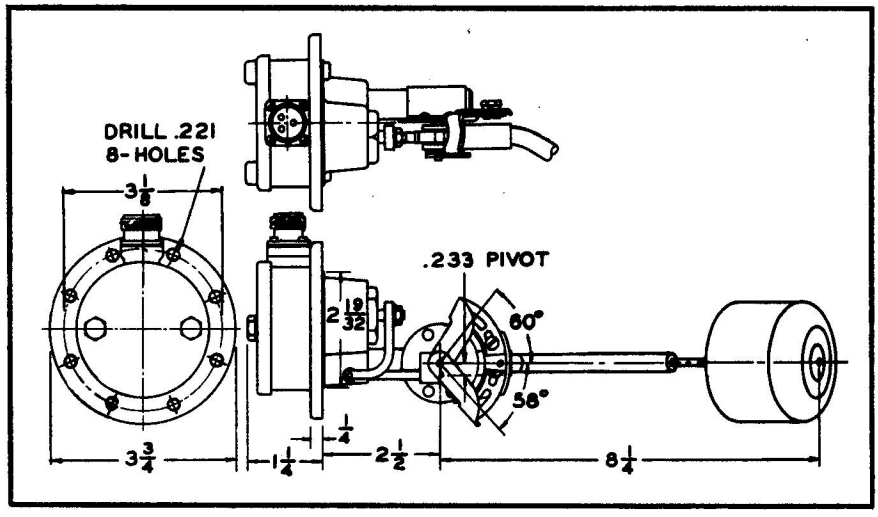
SPECIFIC DATA SHEET NO. 16

Tank units covered in this Specific Data Sheet are of the outside operating rod type and are as follows:

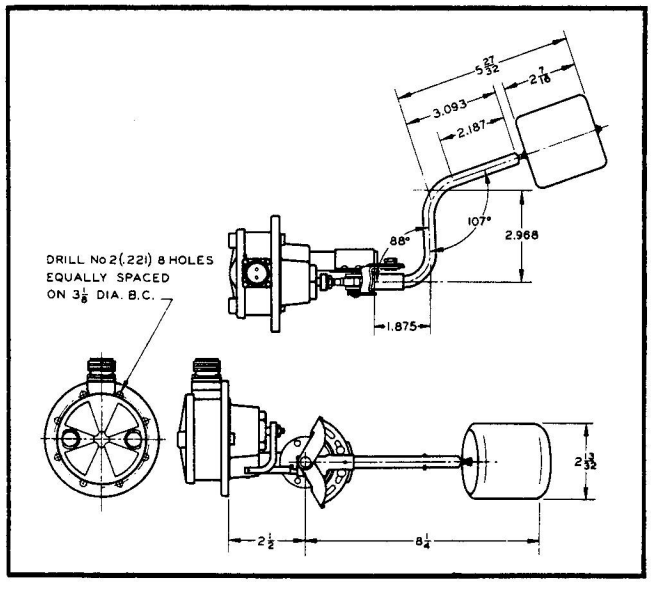
EA15A-1407
EA15A-628039A
EA15B-628026

Voltage	28V dc
Dimensions	see figure 4-194

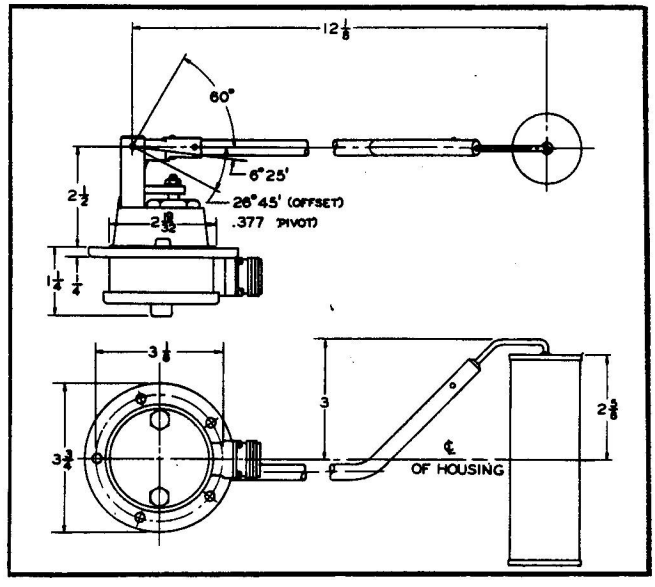
Figure 4-193. Table of Leading Particulars



EA15A-628039A



EA15A-1407



EA15B-628026

Figure 4-194. General Dimensions

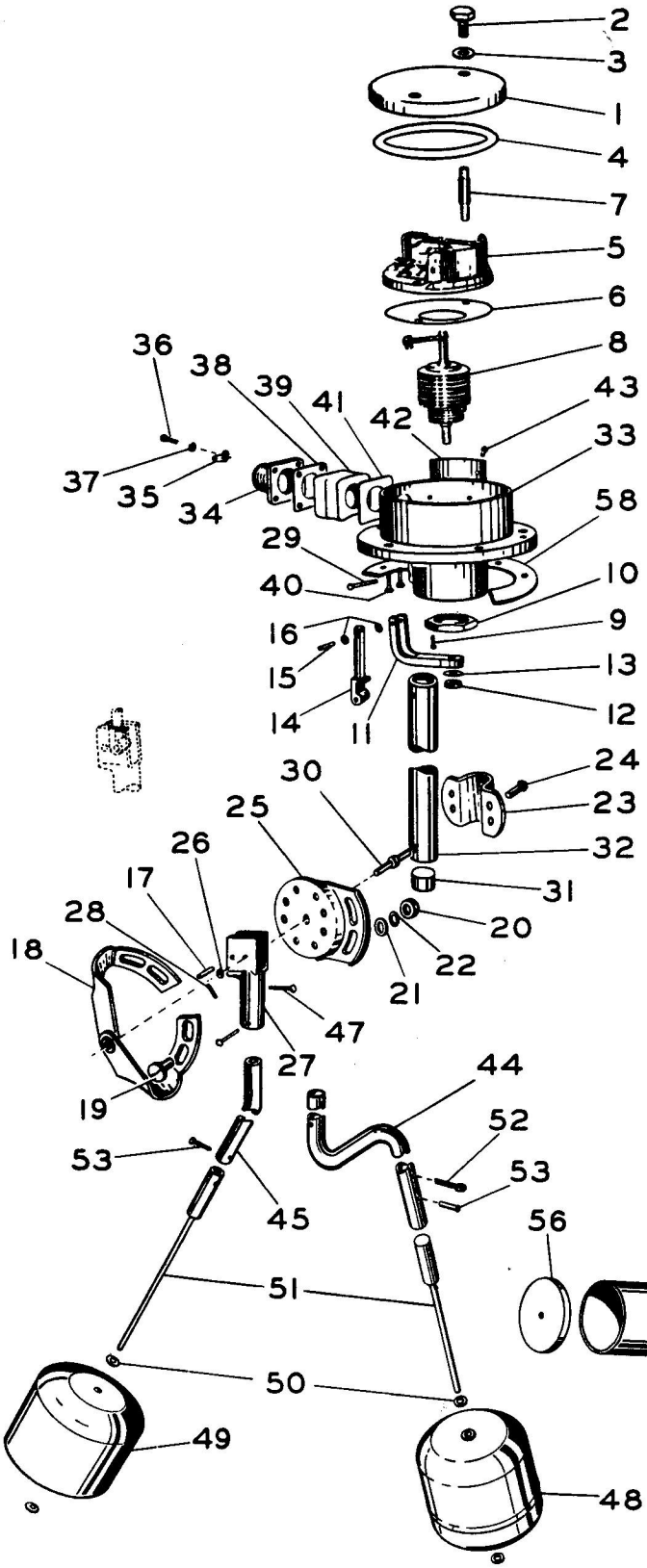


Figure 4-195. Exploded View of Tank Unit

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-195.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-195.

Follow general disassembly instructions given in paragraphs 2-1 thru 2-9, and 2-11 thru 2-13. For disassembly of potentiometer, see paragraphs 2-69 thru 2-74.

Items 18 thru 26 are not used on tank unit No. EA15B-628026.

CLEANING.

See paragraphs 2-15 thru 2-17.

INSPECTION.

See paragraphs 2-18 thru 2-24. For inspection of potentiometer see paragraphs 2-59 thru 2-64.

PRE-ASSEMBLY TESTING.

See paragraphs 2-25 thru 2-27. For tests of potentiometer, see paragraphs 2-65 thru 2-68, also Table of Electrical Data, figure 4-196, and resistance value diagrams referenced in that table.

Tank Unit	*Figure No. of Resistance Value Diagram*	*Figure No. of Internal Wiring Diagram*	*Figure No. of Field Tester Wiring Diagram*
EA15A-1407	4-197	4-202A	4-202
EA15A-628039A	4-197	4-198	4-202
EA15B-628026	4-197	4-198	4-202

Figure 4-196. Table of Electrical Data

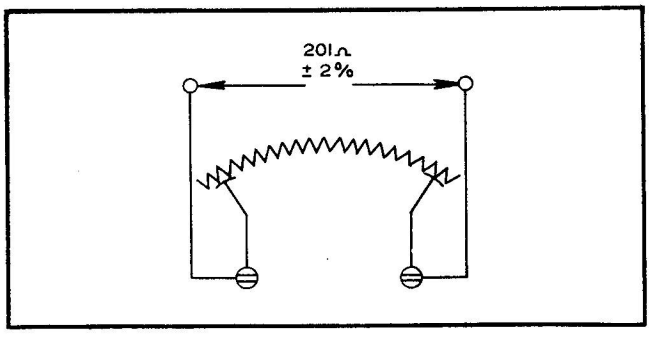


Figure 4-197. Resistance Value Diagram

REPAIR OR REPLACEMENT.

See paragraphs 2-28 thru 2-30. For repair of potentiometer, see paragraphs 2-69 thru 2-74.

REASSEMBLY.

Follow general instructions given in paragraphs 2-33 thru 2-36, 2-38 thru 2-40, 2-42 thru 2-44, 2-46, 2-47, and 2-50 thru 2-52.

Items 44 thru 57. Align float fork (51 or 55), float arm (44, 45 or 46), and float to correspond to general dimension drawing, figure 4-194, for the specific tank unit.

Item 5. Connect wires according to internal wiring diagram for specific tank unit. See Table of Electrical Data, figure 4-196, for figure number of internal wiring diagram.

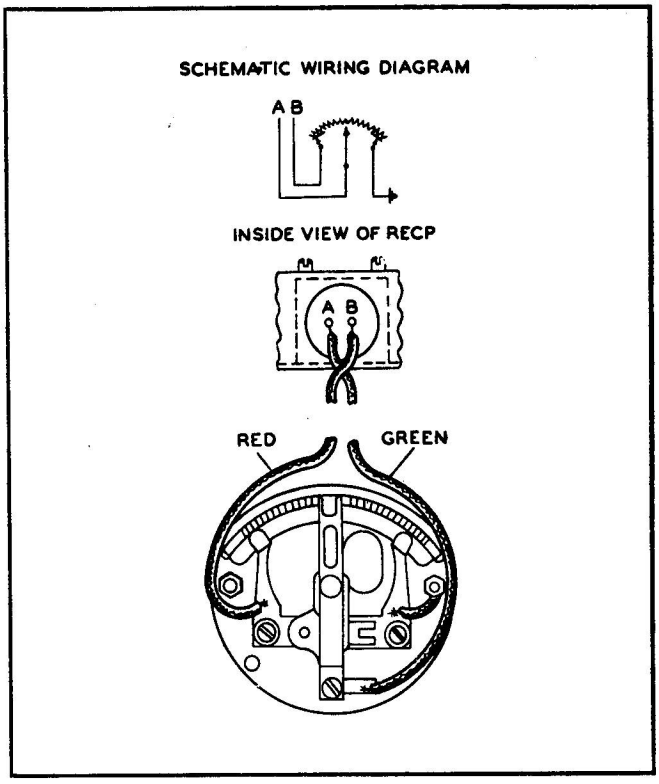


Figure 4-198. Internal Wiring Diagram

TEST PROCEDURE.

ADJUSTING FLOAT ARM STOPS. See paragraphs 3-5 thru 3-7, also 3-9. Use figure and dimensions indicated for the specific tank unit in Table of Set-Up Stand Dimensions, figure 4-199.

Tank unit No. EA15B-628026 does not have float arm stops, but dimensions given in figure 4-199 represent limits of float arm travel when unit is installed in tank, and are necessary in adjusting stroke of poten-

Tank Unit	*Figure No. of Set-Up Stand Diagram*	*"T" Top Float Arm Stop Setting*	*"B" Bottom Float Arm Stop Setting*
EA15A-1407	4-200	7-9/16	7-7/16
EA15A-628039A	4-200	7-9/16	7-7/16
EA15B-628026	4-201	2-15/64	11 3/8

Figure 4-199. Table of Set-Up Stand Dimensions (in Inches)

tiometer contact arm. Note that this unit, a bottom-mount unit, is mounted in the set-up stand like a top-mount unit for convenience in making adjustments. The "T" dimension in figure 4-201 is the upper travel limit in the set-up stand, but becomes the bottom travel limit when tank unit is mounted at the bottom of the tank.

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM. See paragraph 3-11 and use field tester wiring diagram referenced in Table of Electrical Data, figure 4-196.

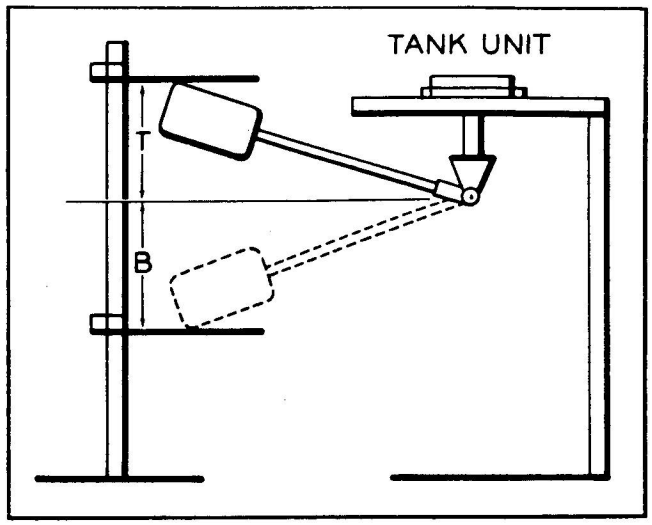


Figure 4-201. Set-Up Stand Diagram

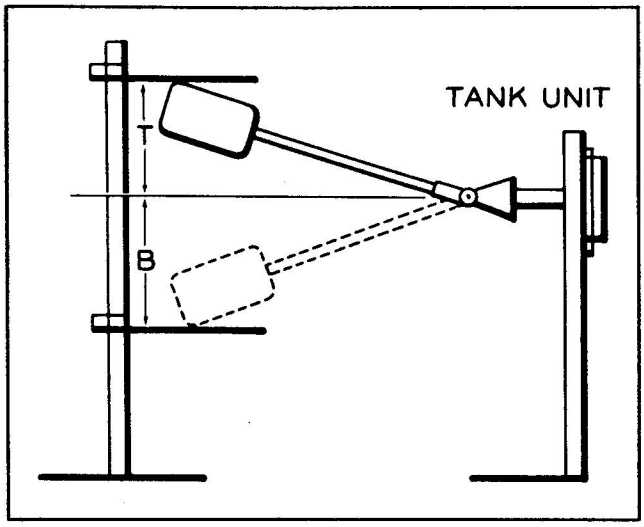


Figure 4-200. Set-Up Stand Diagram

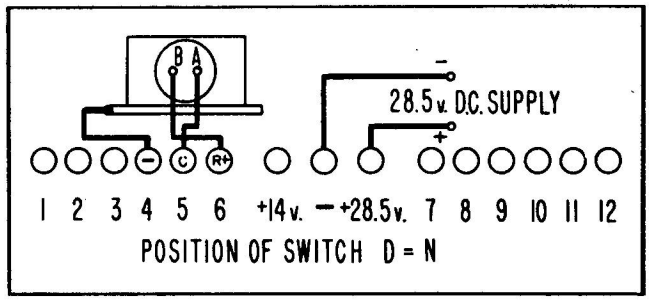


Figure 4-202. Field Tester Wiring Diagram

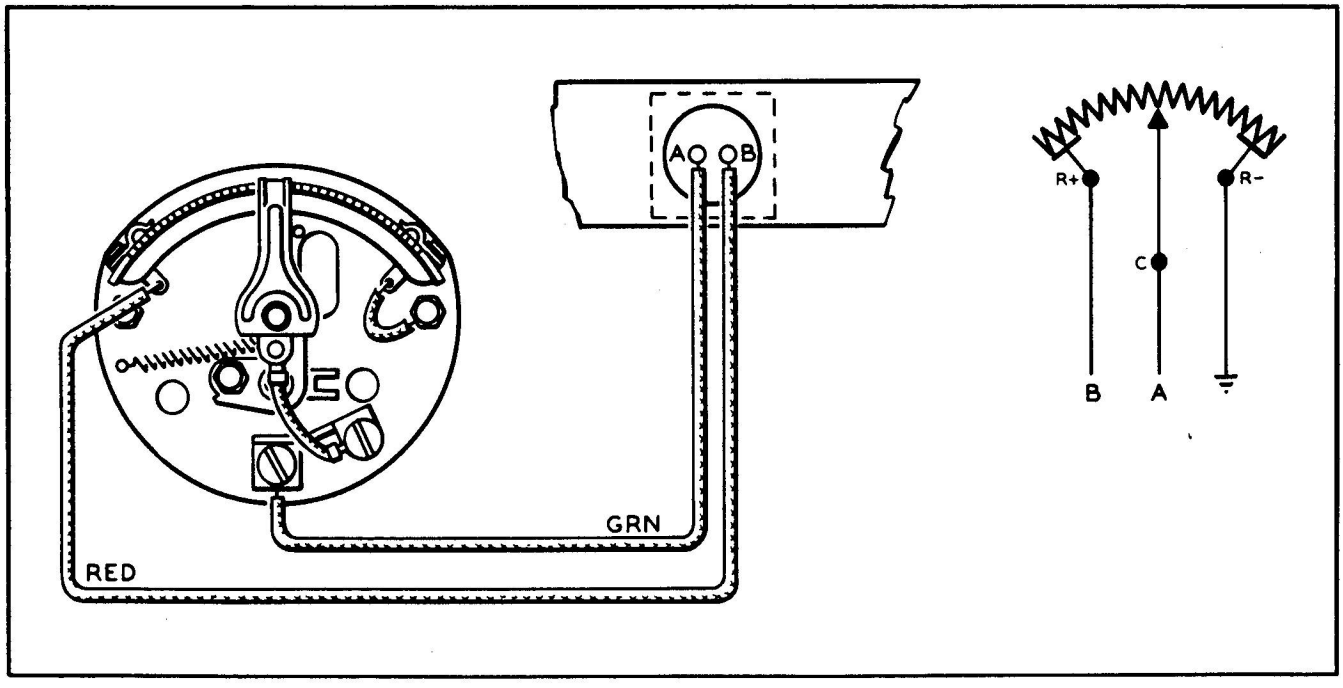


Figure 4-202A. Internal Wiring Diagram for EA15A-1407

SPECIFIC DATA SHEET NO. 17

Tank units covered in this Specific Data Sheet are of the inside operating rod type and are as follows:

EA591B-539

Voltage	28v dc
Dimensions	see figure 4-204

Figure 4-203. Table of Leading Particulars

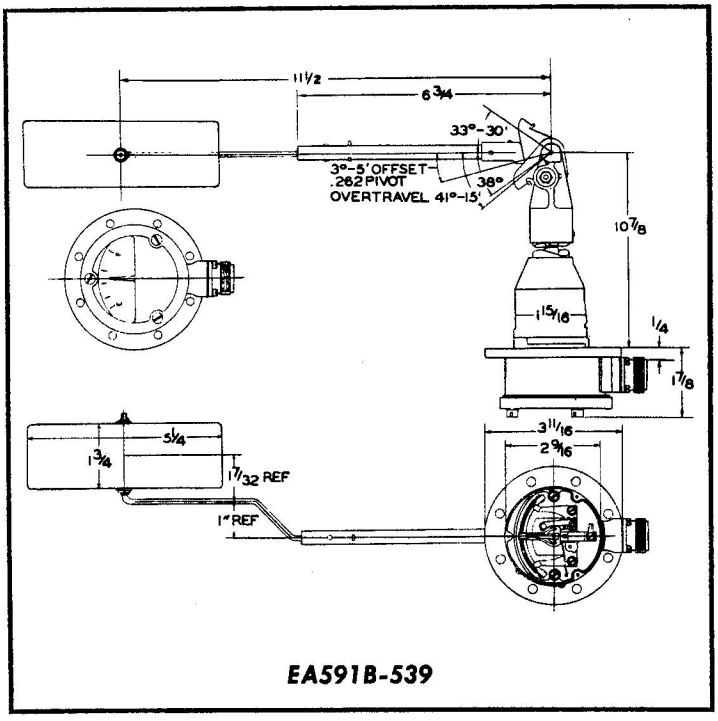


Figure 4-204. General Dimensions

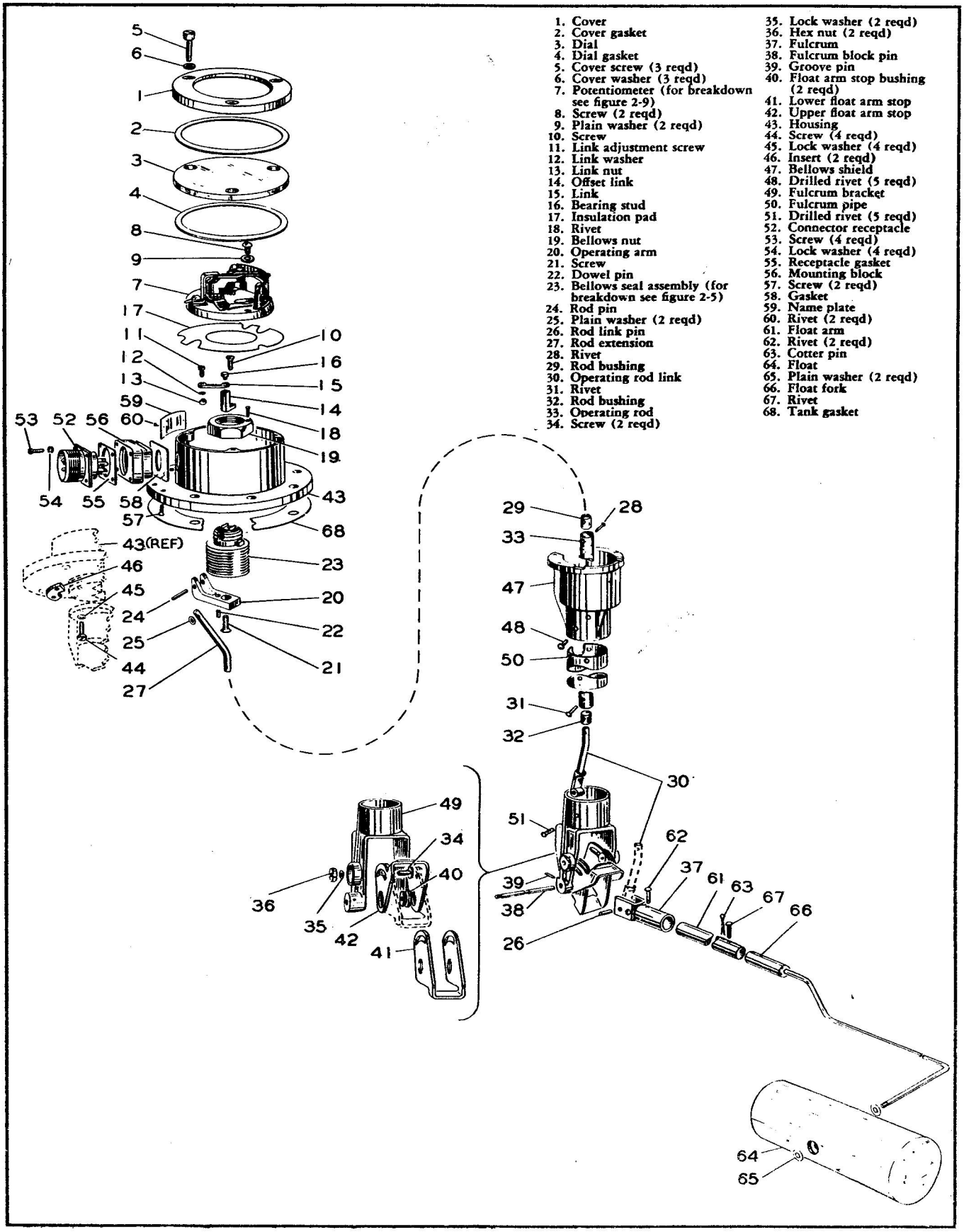


Figure 4-205. Exploded View of Tank Unit

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-205.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-205.

Follow general disassembly instructions given in paragraphs 2-1 thru 2-8, 2-10 thru 2-12, and 2-14.

CLEANING.

See paragraphs 2-15 thru 2-17.

INSPECTION.

See paragraphs 2-18 thru 2-24. For inspection of potentiometer, see paragraphs 2-59 thru 2-64.

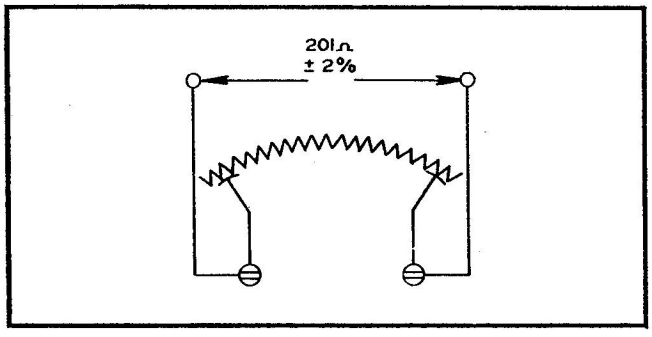


Figure 4-206. Resistance Value Diagram

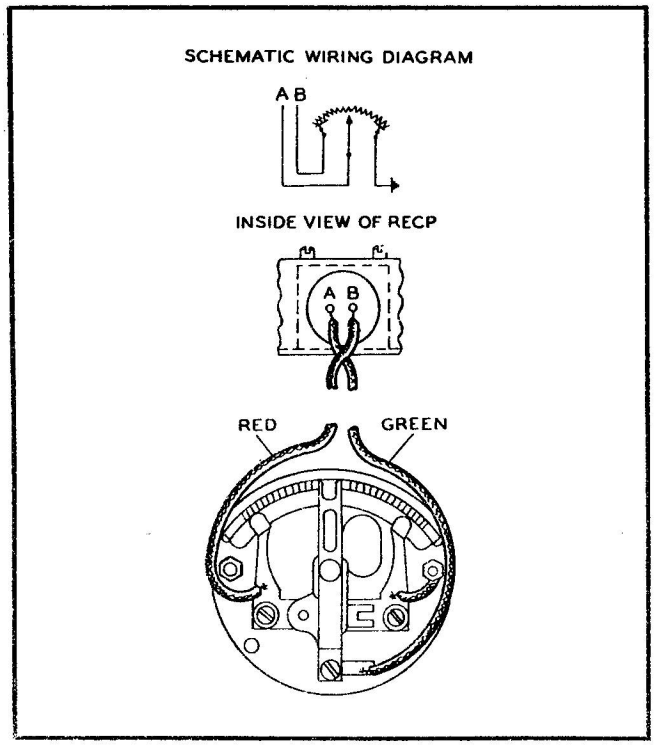


Figure 4-207. Internal Wiring Diagram

PRE-ASSEMBLY TESTING.

See paragraphs 2-25 thru 2-27. For tests of potentiometer, see paragraphs 2-65 thru 2-68, also figure 4-206.

REPAIR OR REPLACEMENT.

See paragraphs 2-28 thru 2-30. For repair of potentiometer, see paragraphs 2-69 thru 2-74.

LUBRICATION.

None required.

REASSEMBLY.

Follow general instructions given in paragraphs 2-33 thru 2-35, 2-37 thru 2-39, 2-41 thru 2-43, 2-45, 2-46, and 2-48 thru 2-52.

Items 61 thru 67. Align float arm (61), float fork (66) and float (64) to correspond to general dimension drawing, figure 4-204.

Item 7. Connect wires according to Internal Wiring Diagram, figure 4-207.

TEST PROCEDURE.

ADJUSTING FLOAT ARM STOPS. See paragraphs 3-5, 3-6, 3-8 and 3-9. Use dimensions given in Set-Up Stand Diagram, figure 4-208. Lower stop is set at position marked "Overtravel."

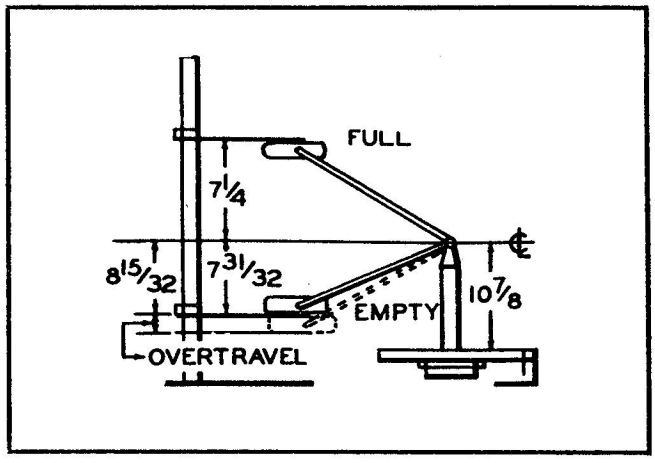


Figure 4-208. Set-Up Stand Diagram (Dimensions in Inches)

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM. See paragraph 3-11 and use field tester wiring diagram, figure 4-209. Set lower stop on set-up stand to position marked "Empty" in figure 4-208.

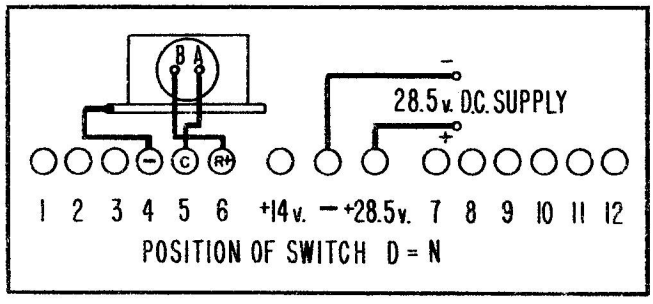


Figure 4-209. Field Tester Wiring Diagram

SPECIFIC DATA SHEET NO. 18

Tank units covered in this Specific Data Sheet are of the inside operating rod type and are as follows:

EA515-320	EA585A-694L
EA515B-695	EA585A-694R

Voltage	28v dc
Dimensions	see figure 4-211

Figure 4-210. Table of Leading Particulars

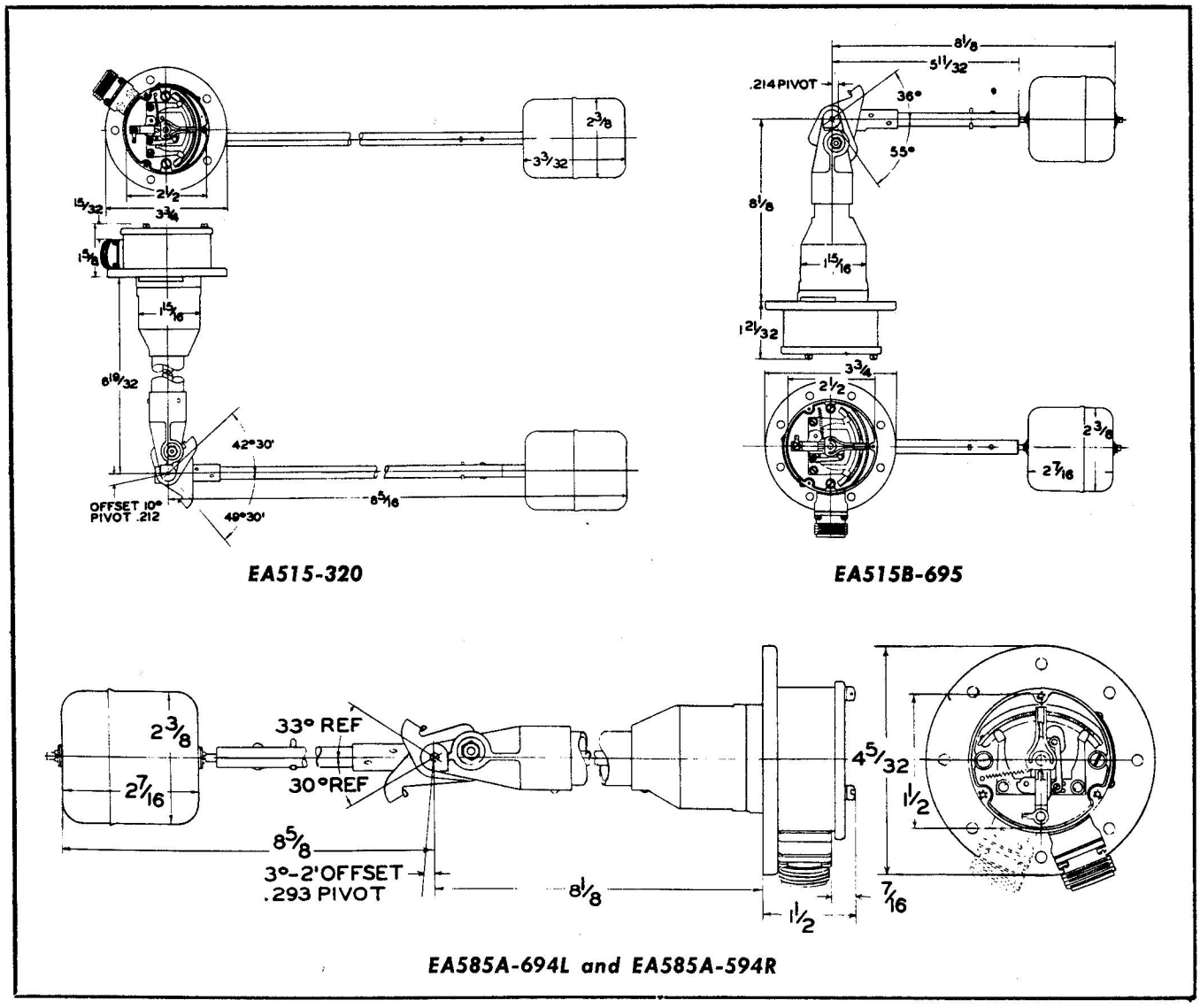
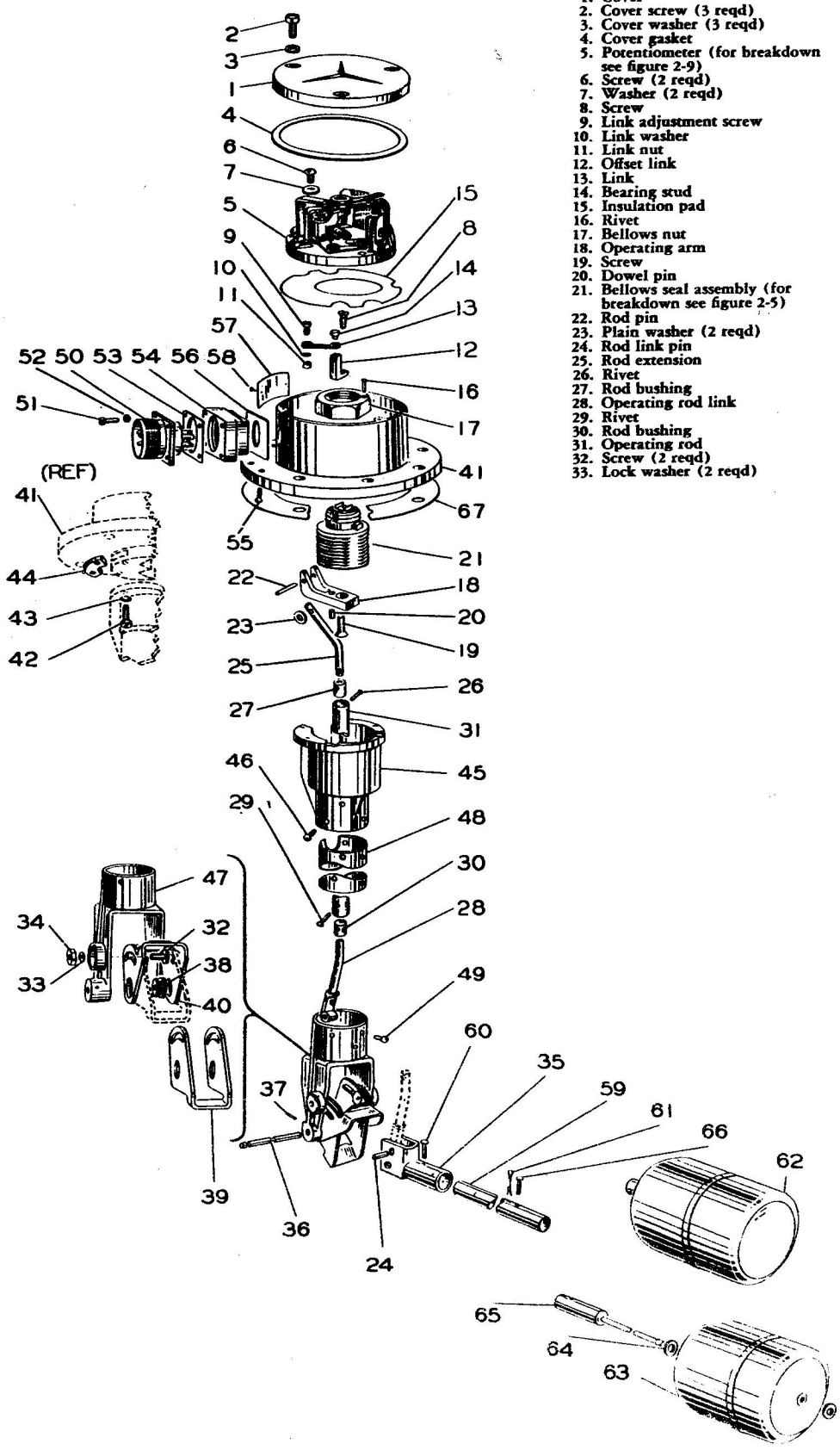


Figure 4-211. General Dimensions



1. Cover
2. Cover screw (3 reqd)
3. Cover washer (3 reqd)
4. Cover gasket
5. Potentiometer (for breakdown see figure 2-9)
6. Screw (2 reqd)
7. Washer (2 reqd)
8. Screw
9. Link adjustment screw
10. Link washer
11. Link nut
12. Offset link
13. Link
14. Bearing stud
15. Insulation pad
16. Rivet
17. Bellows nut
18. Operating arm
19. Screw
20. Dowel pin
21. Bellows seal assembly (for breakdown see figure 2-5)
22. Rod pin
23. Plain washer (2 reqd)
24. Rod link pin
25. Rod extension
26. Rivet
27. Rod bushing
28. Operating rod link
29. Rivet
30. Rod bushing
31. Operating rod
32. Screw (2 reqd)
33. Lock washer (2 reqd)
34. Hex nut (2 reqd)
35. Fulcrum
36. Fulcrum block pin
37. Groove pin
38. Float arm stop bushing (2 reqd)
39. Lower float arm stop
40. Upper float arm stop
41. Housing
42. Screw (4 reqd)
43. Lock washer (4 reqd)
44. Insert (2 reqd)
45. Bellows shield
46. Drilled rivet (5 reqd)
47. Fulcrum bracket
48. Fulcrum pipe
49. Drilled rivet (5 reqd)
50. Connector receptacle
51. Screw (4 reqd)
52. Lock washer (4 reqd)
53. Receptacle gasket
54. Mounting block
55. Screw (2 reqd)
56. Gasket
57. Name plate
58. Rivet (2 reqd)
59. Float arm
60. Rivet (2 reqd)
61. Cotter pin
62. Float
63. Float
64. Plain washer (2 reqd)
65. Float fork
66. Rivet
67. Tank gasket

Figure 4-212. Exploded View of Tank Unit

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-212.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-212.

Follow general disassembly instructions given in paragraphs 2-1 thru 2-8, 2-10 thru 2-12, and 2-14.

CLEANING.

See paragraphs 2-15 thru 2-17.

INSPECTION.

See paragraphs 2-18 thru 2-24. For inspection of potentiometer, see paragraphs 2-59 thru 2-64.

PRE-ASSEMBLY TESTING.

See paragraphs 2-25 thru 2-27. For tests of potentiometer, see paragraphs 2-65 thru 2-68, also Table of Electrical Data, figure 4-213, and resistance value diagrams referenced in that table.

Tank Unit	*Figure No. of Res. Value Diagram*	*Figure No. of Internal Wiring Diagram*	*Figure No. of Field Tester Wiring Diagram*
EA515-320	4-214	4-215	4-220
EA515B-695	4-214	4-215	4-220
EA585A-694L	4-214	4-215	4-220
EA585A-694R	4-214	4-215	4-220

Figure 4-213. Table of Electrical Data

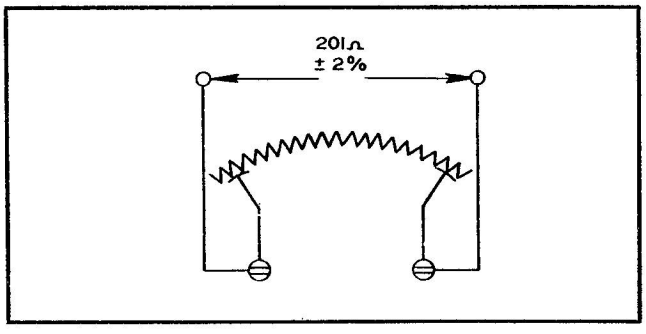


Figure 4-214. Resistance Value Diagram

REPAIR OR REPLACEMENT.

See paragraphs 2-28 thru 2-30. For repair of potentiometer, see paragraphs 2-69 thru 2-74.

LUBRICATION.

None required.

REASSEMBLY.

Follow general instructions given in paragraphs 2-33 thru 2-35, 2-37 thru 2-39, 2-41 thru 2-43, 2-45, 2-46, and 2-48 thru 2-52.

Items 58 thru 66. Align float arm (59), float fork (65) and float (62 or 63) to correspond to general dimension drawing, figure 4-211, for specific tank unit.

Item 5. Connect wires according to internal wiring diagram for the specific tank unit. See Table of Electrical Data, figure 4-213, for figure number of internal wiring diagram.

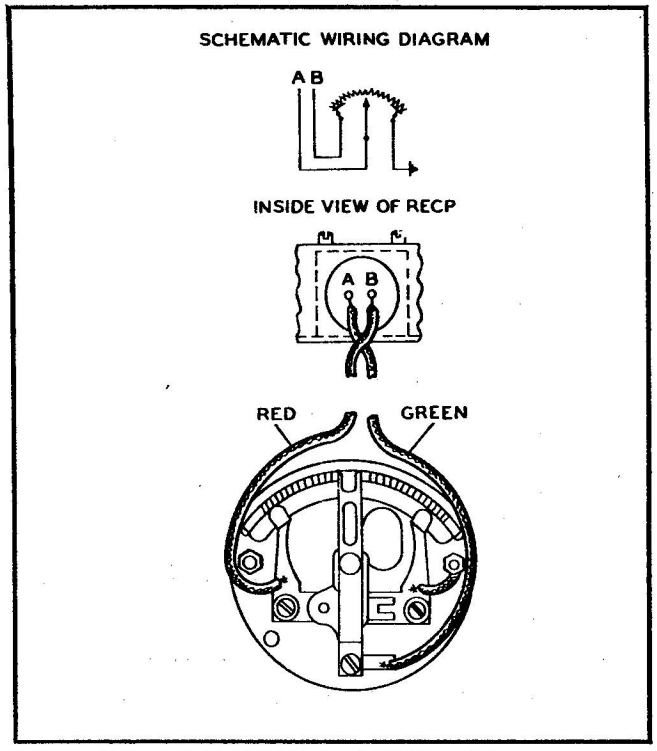


Figure 4-215. Internal Wiring Diagram

TEST PROCEDURE.

ADJUSTING FLOAT ARM STOPS. See paragraphs 3-5, 3-6, 3-8 and 3-9. Use figure and dimensions indicated for the specific tank unit in Table of Set-Up Stand Dimensions, figure 4-216.

Tank Unit	*Figure No. of Set-Up Stand Diagram*	*Float Arm Stop Setting T Top Float Arm Setting*	*B Bottom Float Arm Stop Setting*
EA515-320	4-217	6-5/16	6-7/8
EA515B-695	4-218	5-10/32	7-3/16
EA585A-694L	4-219	6-1/32	5-5/8
EA585A-694R	4-219	6-1/32	5-5/8

Figure 4-216. Table of Set-Up Stand Dimensions

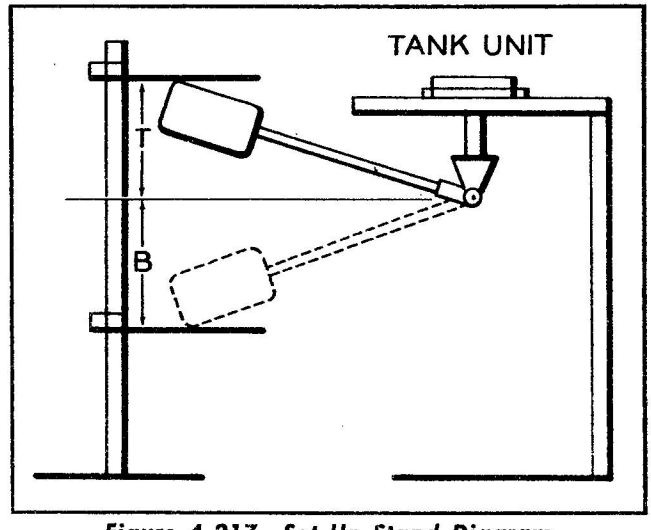


Figure 4-217. Set-Up Stand Diagram

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM. See paragraph 3-11 and use field tester wiring diagram referenced in Table of Electrical Data, figure 4-213.

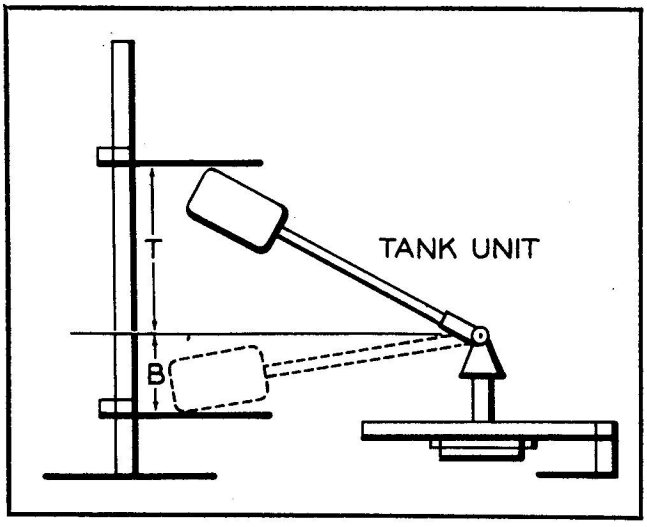


Figure 4-218. Set-Up Stand Diagram

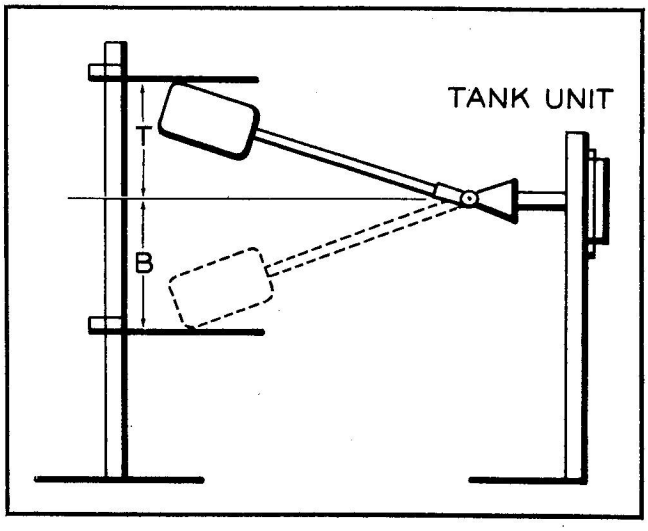


Figure 4-219. Set-Up Stand Diagram

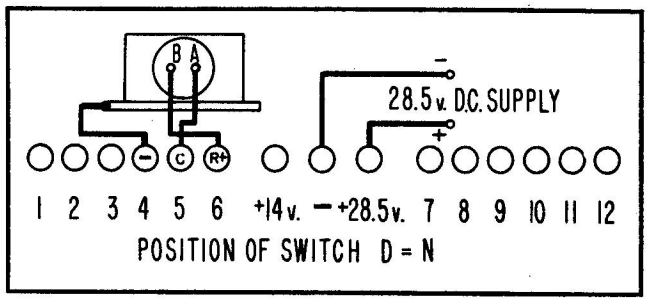


Figure 4-220. Field Tester Wiring Diagram

SPECIFIC DATA SHEET NO. 19

Tank units covered in this Specific Data Sheet are of the inside operating rod type and are as follows:

EA584A-1361	EA584A-815L	EA584A-852L
	EA584A-815R	EA584A-852R

Voltage	28V dc
Dimensions	see figure 4-222

Figure 4-221. Table of Leading Particulars

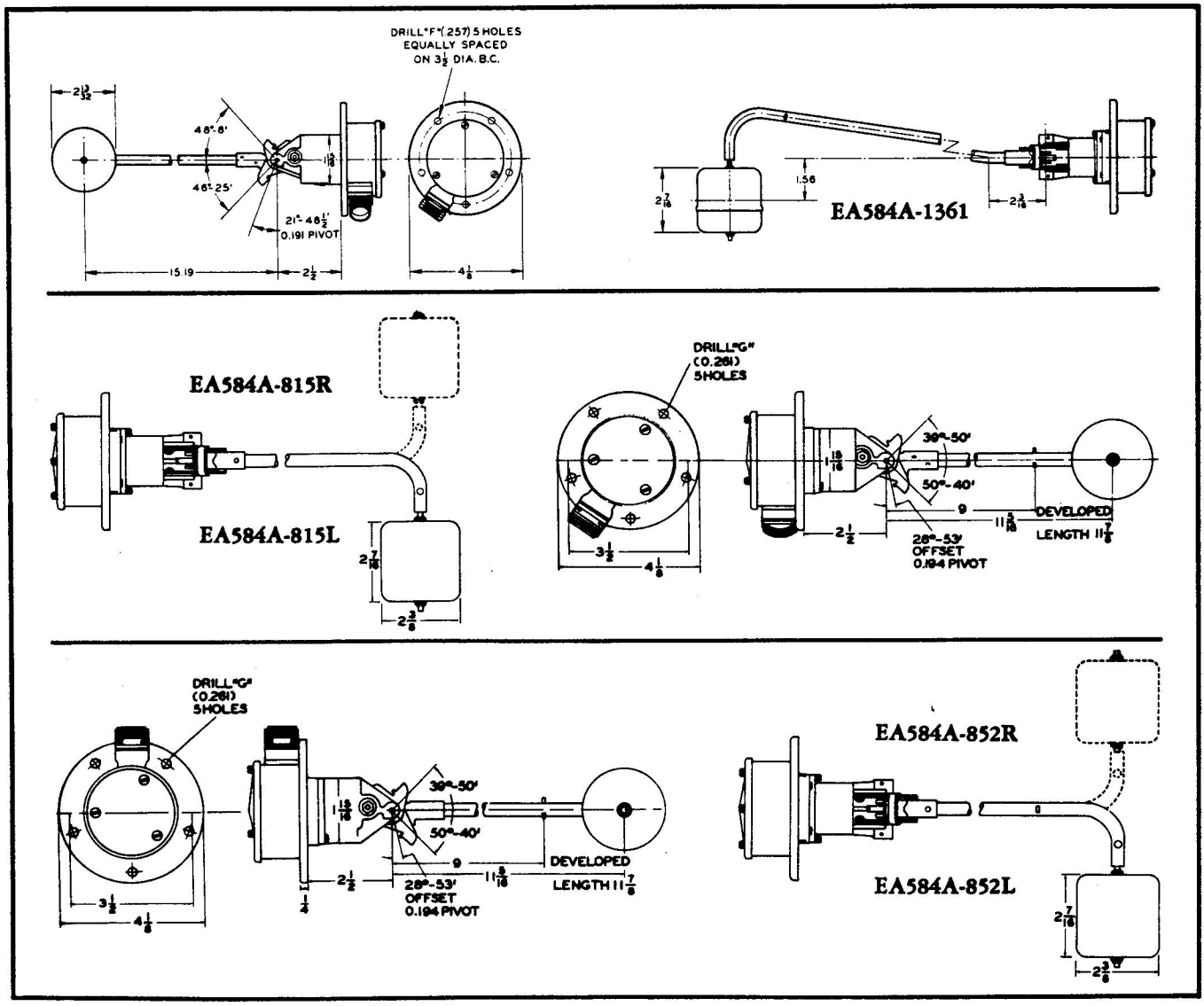


Figure 4-222. General Dimensions

1. Housing cover
2. Cover screw
3. Cover washer
4. Cover gasket
5. Potentiometer assembly
6. Round head screw
7. Flat washer
8. Flat head screw
9. Link screw
10. Link washer
11. Link nut
12. Offset link
13. Link
14. Bearing stud
15. Insulation pad
16. Round head rivet
17. Bellows holder nut
18. Operating arm
19. Flat head screw
20. Dowel pin
21. Bellows seal assembly
22. Operating rod
23. Operating rod pin
24. Brass washer
25. Operating rod link pin
26. Fulcrum bracket
27. Monel screw
28. Spring lock washer
29. Housing insert
30. Hex head screw
31. Hexagon nut
32. Lock washer
33. Fulcrum assembly
34. Bushing
35. Fulcrum
36. Fulcrum
37. Fulcrum block pin
38. Groove pin
39. Float arm stop bushing
40. Lower side mount stop
41. Upper side mount stop
42. Tank unit housing
43. Electrical connector receptacle
44. Screw
45. Spring lock washer
46. Solder lug
47. Connector block
48. Mounting block
49. Screw
50. Mounting block gasket
51. Name plate
52. Rivet
53. Float arm
54. Rivet
55. Cotter pin
56. Float
57. Plain washer
58. Float fork
59. Aluminum rivet
60. Tank gasket

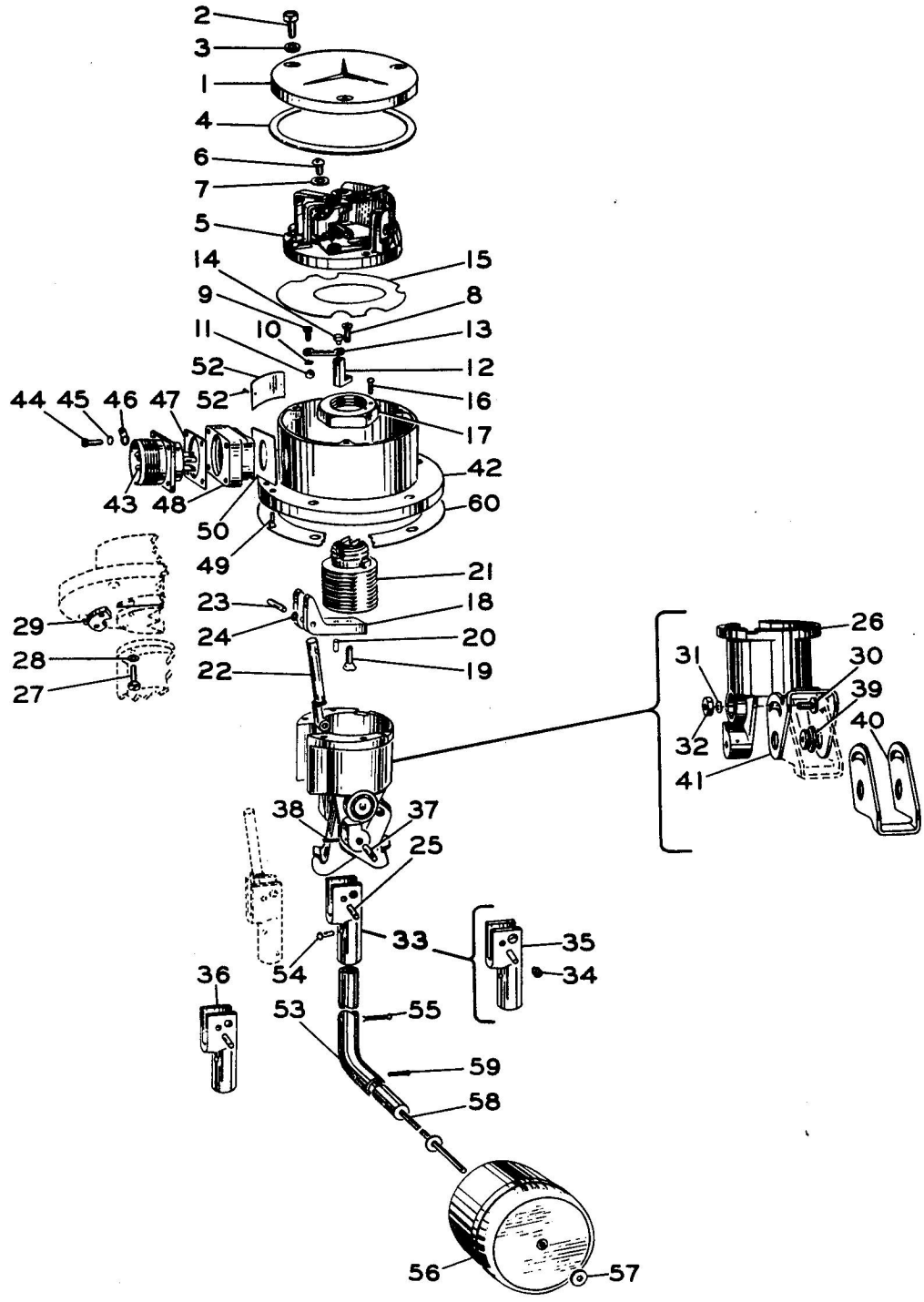


Figure 4-223. Exploded View of Tank Unit

NOTE

Figure 4-224 in Section iv page 133 should be as shown below

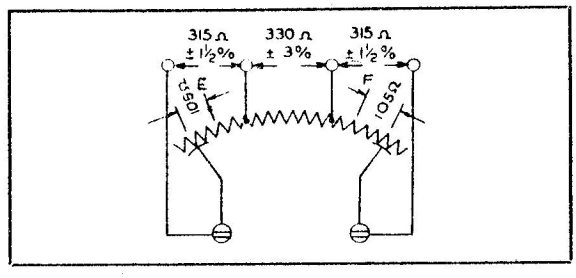


Figure 4-224 Resistance Value Diagram

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-223.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-223.

Follow general disassembly instructions given in paragraphs 2-1 thru 2-8, 2-10 thru 2-12, and 2-14.

CLEANING.

See paragraphs 2-15 thru 2-17.

INSPECTION.

See paragraphs 2-18 thru 2-24. For inspection of potentiometer, see paragraphs 2-59 thru 2-64.

PRE-ASSEMBLY TESTING.

See paragraphs 2-25 thru 2-27. For tests of potentiometer, see paragraphs 2-65 thru 2-68, also Resistance Value Diagram, figure 4-224.

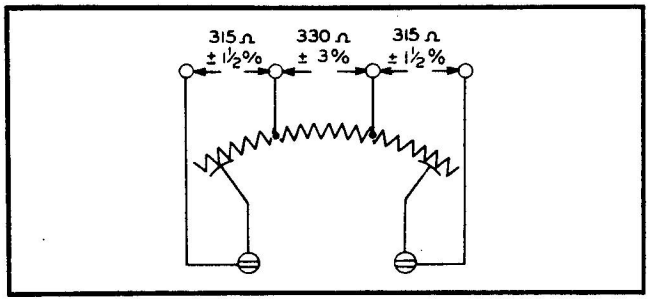


Figure 4-224. Resistance Value Diagram

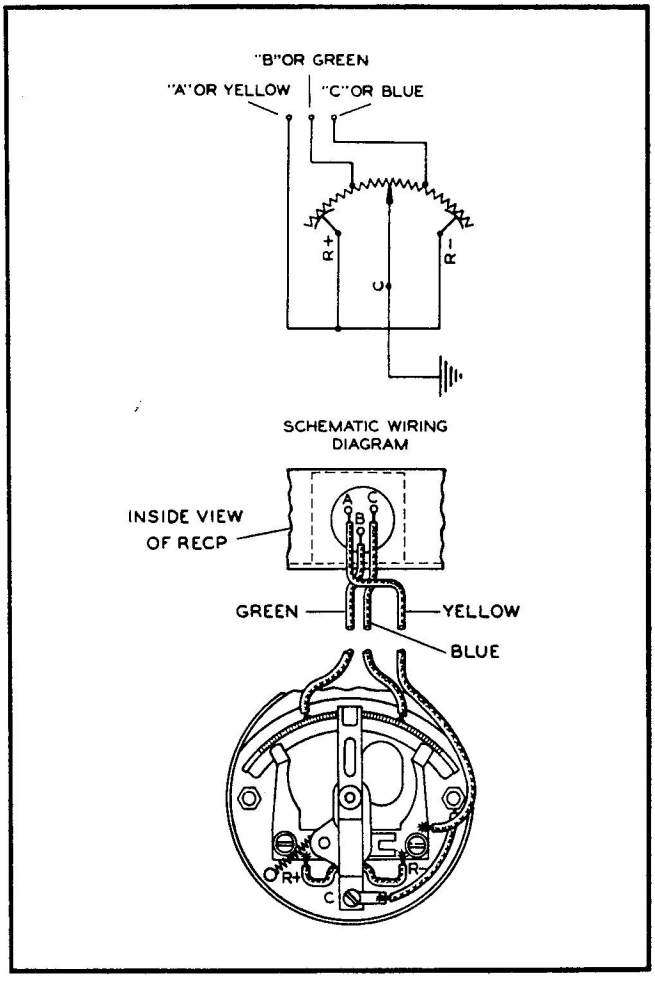


Figure 4-225. Internal Wiring Diagram

REPAIR OR REPLACEMENT.

See paragraphs 2-28 thru 2-30. For repair of potentiometer, see paragraphs 2-69 thru 2-74.

LUBRICATION.

None required.

REASSEMBLY.

Follow general instructions given in paragraphs 2-33 thru 2-35, 2-37 thru 2-39, 2-41 thru 2-43, 2-45, 2-46, and 2-48 thru 2-52.

Item 52 thru 57. Align float arm (52), float fork (57), and float (55) to correspond to general dimension drawing, figure 4-222, for the specific tank unit.

Item 5. Connect wires according to internal wiring diagram, figure 4-225.

TEST PROCEDURE.

ADJUSTING FLOAT ARM STOPS. See paragraphs 3-5, 3-6, 3-8 and 3-9. Use dimensions indicated in Set-Up Stand Diagrams, figure 4-226 and 4-227A.

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM. See paragraph 3-11 and use field tester wiring diagram, figure 4-227.

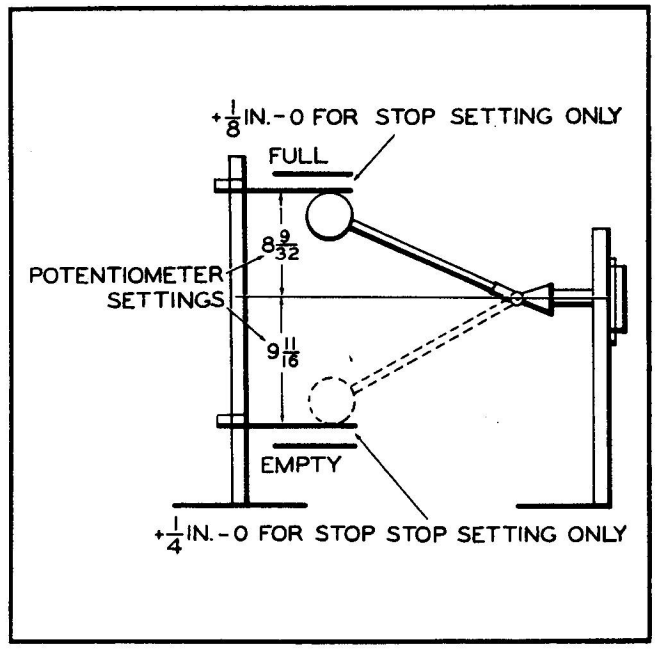


Figure 4-226. Set-Up Stand Diagram for EA584A-815L/R and EA584A-852L/R

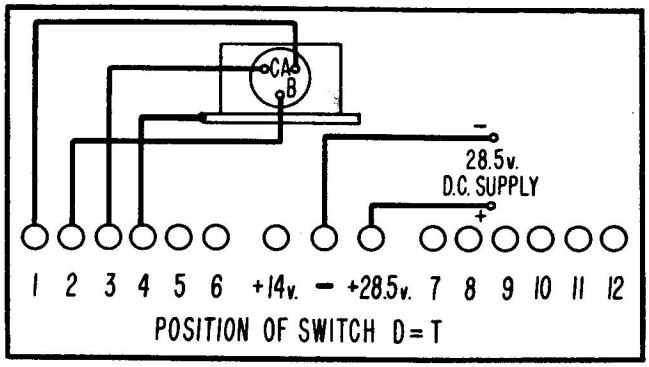


Figure 4-227. Field Tester Wiring Diagram

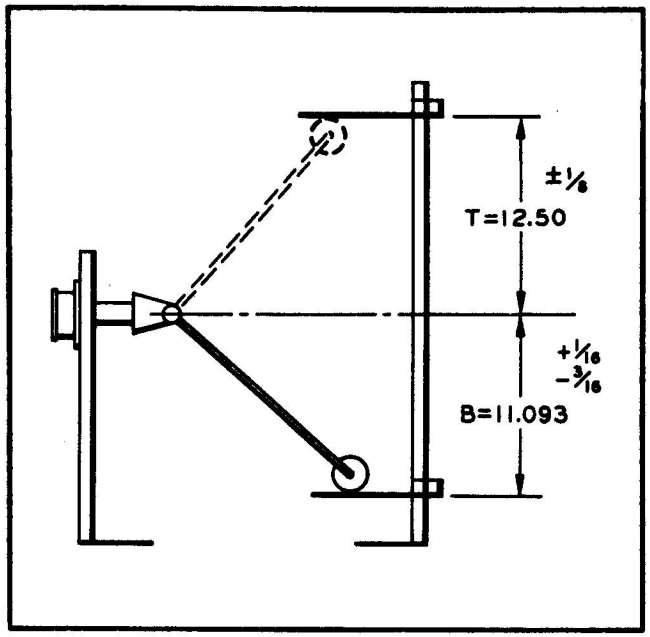


Figure 4-227A. Set-Up Stand Diagram for EA584A-1361

SPECIFIC DATA SHEET NO. 20

Tank units covered in this Specific Data Sheet are of the inside operating rod type and are as follows:

EA1060B-818A
EA1060B-819A
EA1060B-822A
EA1060B-823A
EA1060B-870
EA1060B-875

Voltage	28v dc
Dimensions	see figure 4-229

Figure 4-228. Table of Leading Particulars

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-231.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-231.

Follow general disassembly instructions given in paragraphs 2-1 thru 2-8, 2-10 thru 2-12, and 2-14.

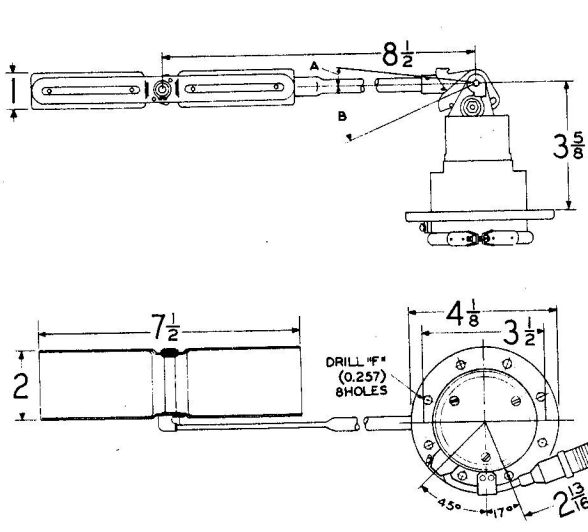
Item 25. do not disassemble float assembly except in an emergency.

CLEANING.

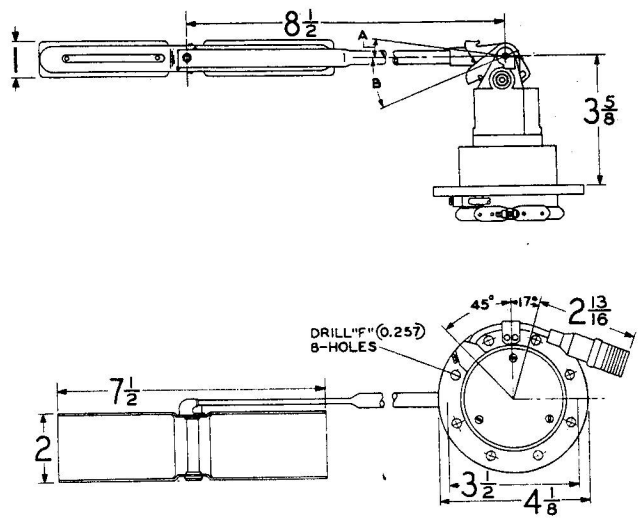
See paragraphs 2-15 thru 2-17.

INSPECTION.

See paragraphs 2-18 thru 2-24. For inspection of potentiometer, see paragraphs 2-59 thru 2-64.



EA1060B-818A and EA1060B-870



EA1060B-823A and EA1060B-875

TABLE OF DIMENSIONS

	EA1060B-818A	*EA1060B-870*	*EA1060B-823A*	*EA1060B-875*
A	7°-36′	13°-1′	7°-36′	13°-1′
B	21°-34′	17°-41′	21°-34′	17°-41′

Figure 4-229 (Sheet 1 of 2). General Dimensions

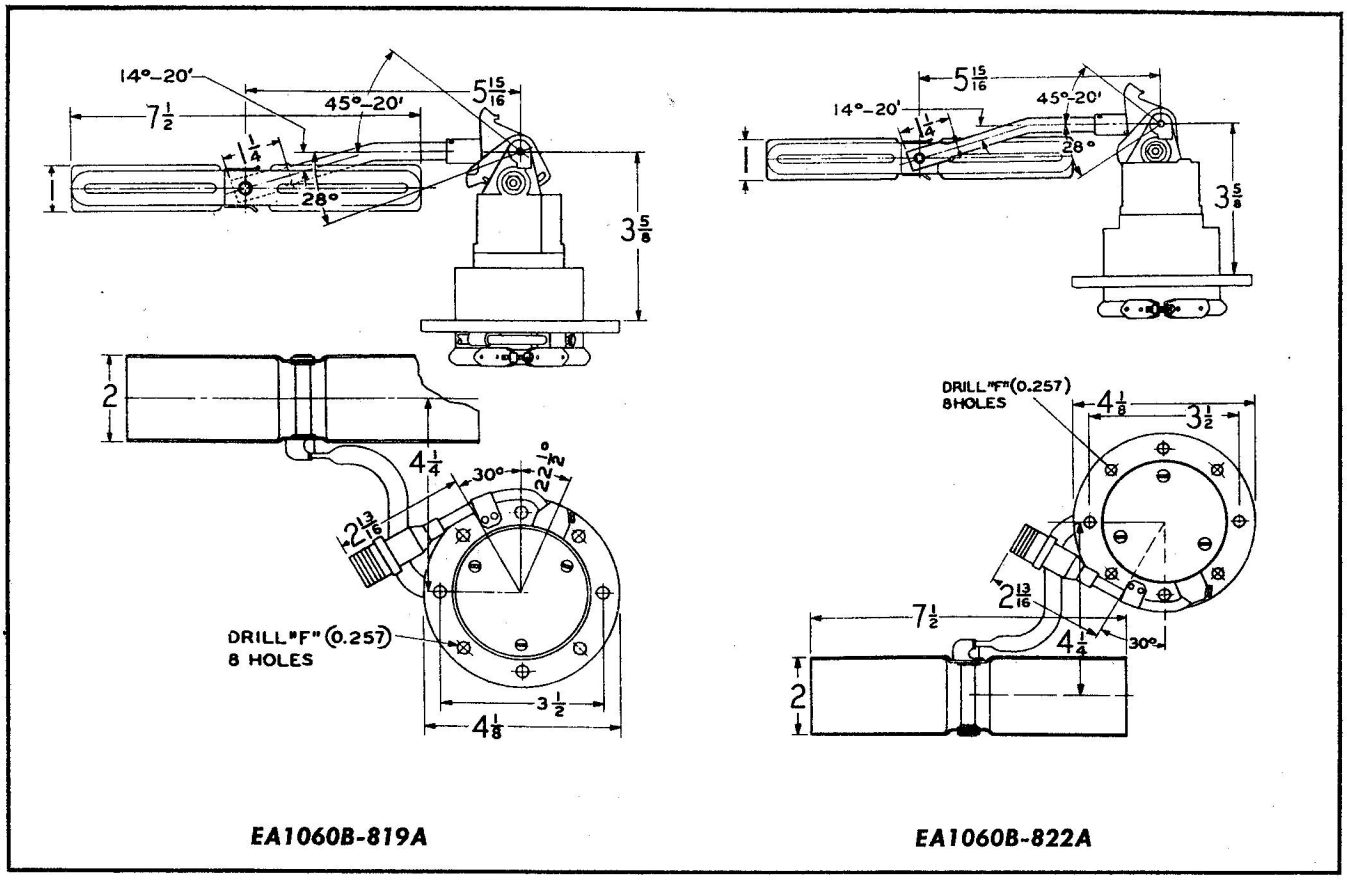


Figure 4-229 (Sheet 2 of 2). General Dimensions

PRE-ASSEMBLY TESTING.

See paragraphs 2-25 thru 2-27. For tests of potentiometer, see paragraphs 2-65 thru 2-68. Test dc resistance between taps in accordance with table, figure 4-230.

REPAIR OR REPLACEMENT.

See paragraphs 2-28 thru 2-30. For repair of potentiometer, see paragraphs 2-69 thru 2-74.

LUBRICATION. None required.

REASSEMBLY.

Follow general instructions given in paragraphs 2-33 thru 2-35, 2-37 thru 2-39, 2-41 thru 2-43, 2-45, 2-46, and 2-48 thru 2-52.

Items 2 and 66 thru 72. Assemble conduit assembly by following general dimension drawing, figure 4-229, for the specific tank unit.

Align float arm (58 or 59) and float assembly (25) to correspond to general dimension drawing, figure 4-229, for the specific tank unit.

Tank Unit	*Resistance Between Taps* ±2%
EA1060B-818A	56.4 ohms
EA1060B-819A	57.1 ohms
EA1060B-822A	92.8 ohms
EA1060B-823A	56.4 ohms
EA1060B-870	60.6 ohms
EA1060B-875	60.6 ohms

Figure 4-230. Table of Resistance Values

Item 13. Install clip in a position that will hold connecting wire against side of housing.

Item 14. Connect wires according to internal wiring diagram, figure 4-232.

TEST PROCEDURE.

ADJUSTING FLOAT ARM STOPS. See paragraphs 3-5, 3-6, 3-8 and 3-9, referring to the specific tank unit in Table of Set-Up Stand Dimensions, figure 4-233. Also check length of float arm against dimensions given in the appropriate figure.

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM.

a. With tank unit in a set-up stand (figure 4-234) adjusted to dimensions given in figure 4-233, connect a Kelvin Wheatstone Resistance Bridge (No. 638R, Shallcross Manufacturing Co., Collingdale, Pa., or equivalent) across pins A and B of the tank unit electrical receptacle.

b. With float at the empty position, see if resistance is within the tolerances listed in table, figure 4-235.

c. See paragraph 3-15, b and c.

d. Raise float to upper limit and see if resistance is within tolerances given for full position. If it is, no further adjustment is necessary.

e. See paragraph 3-16, b, c and d.

f. Recheck resistance at empty position, making further adjustments as required.

1. Tank gasket
2. Plug
3. Name plate
4. Ring Assembly
5. Screw
6. Nut
7. Lock washer
8. Clamp ring lug
9. Rivet
10. Clamp ring
11. Cover
12. "O"-Ring
13. Clip
14. Potentiometer assembly (for breakdown see fig. 2-9)
15. Screw
16. Washer
17. Insulating pad
18. Screw
19. Screw
20. Washer
21. Nut
22. Link
23. Bearing stud
24. Offset link
25. Float assembly
26. Snap ring
27. Float bearing
28. Float bracket
29. Float stop
30. Rivet
31. Float bearing
32. Float bracket
33. Float bushing
34. Float
35. Pin
36. Fulcrum block pin
37. Screw
38. Washer
39. Insert
40. Operating rod link pin
41. Washer
42. Nut
43. Lock washer
44. Screw
45. Float stop bushing
46. Topmount lower stop
47. Topmount upper stop
48. Fulcrum bracket
49. Operating rod link
50. Operating rod pin
51. Fulcrum
52. Fulcrum
53. Rivet
54. Retainer collar
55. Float shaft
56. Float bushing
57. Float arm plug
58. Float arm
59. Float arm
60. Rivet
61. Bellows holder nut
62. Bellows arm
63. Screw
64. Dowel pin
65. Bellows seal assembly (for breakdown see fig. 2-5)
66. Receptacle
67. "O"-Ring
68. Connecting socket coupling
69. Clamp
70. Rivet
71. Conduit tube
72. Conduit tube connection
73. Housing

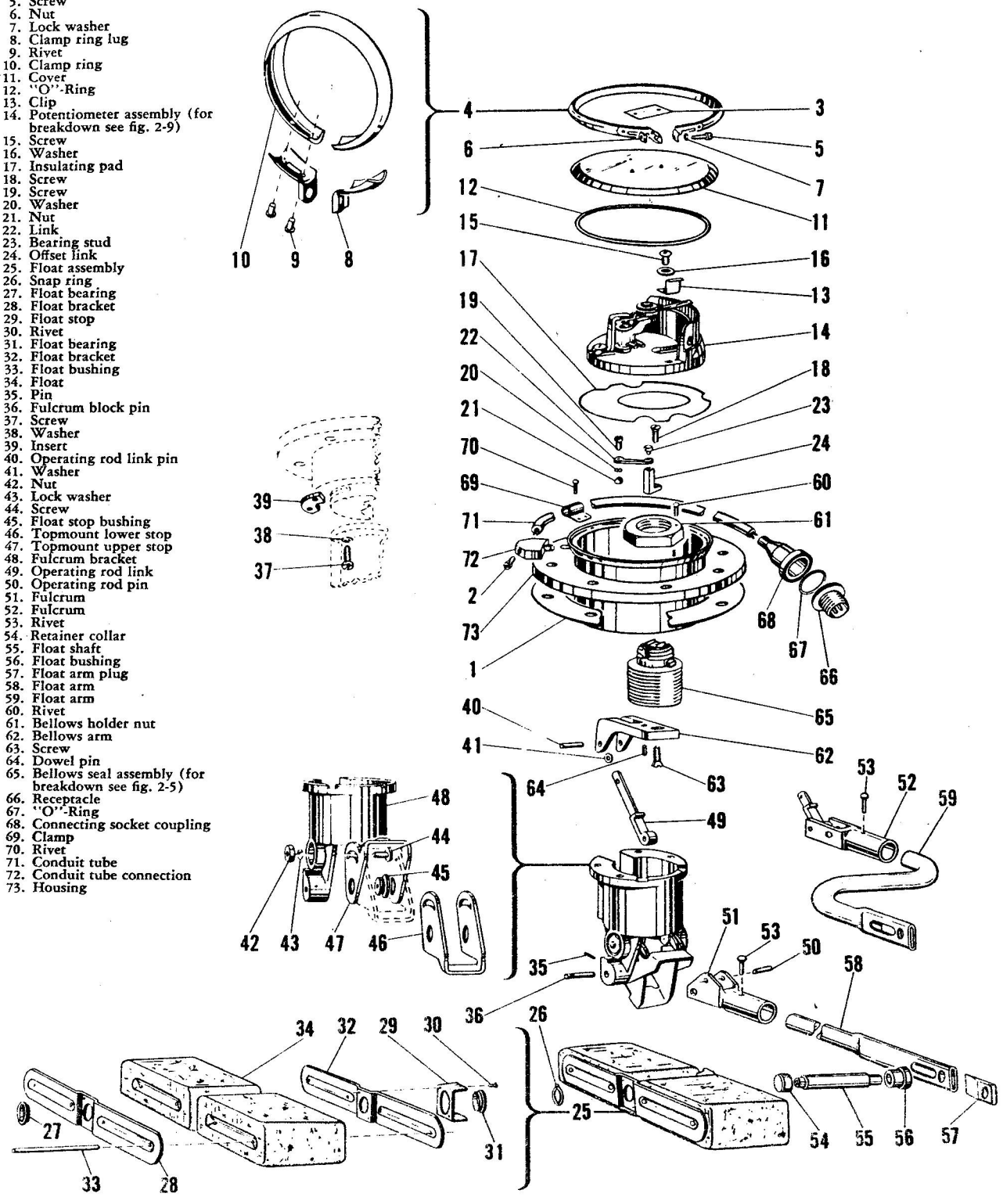


Figure 4-231. Exploded View of Tank Units

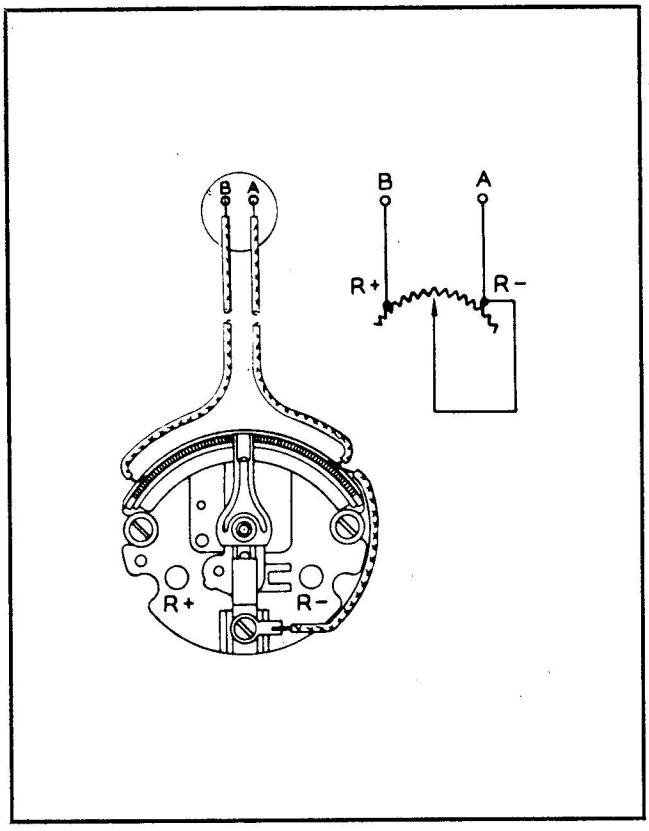


Figure 4-232. Internal Wiring Diagram

Tank Unit	*"T"*	*"B"*
EA1060B-818A	5.250	3.625
EA1060B-819A	7.000	2.875
EA1060B-822A	6.812	2.875
EA1060B-823A	5.250	3.625
EA1060B-870	5.500	3.093
EA1060B-875	5.500	3.093

Figure 4-233. Table of Set-Up Stand Dimensions

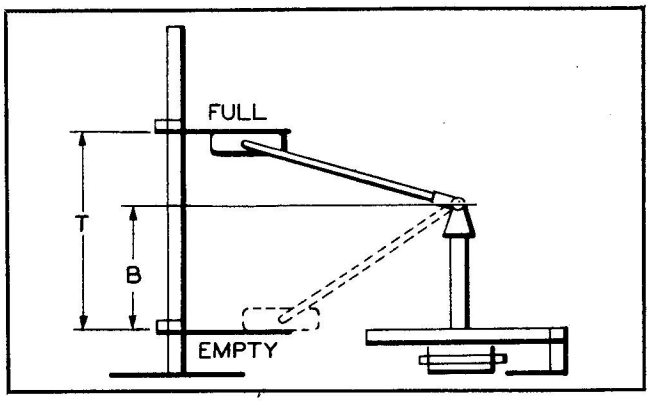


Figure 4-234. Set-Up Stand Diagram

Tank Unit	*Float at Empty Position Resistance Limits (in Ohms)* Minimum	Maximum	*Float at Full Position Resistance Limits (in Ohms)* Minimum	Maximum
EA1060B-818A	0	0.9	53.58	59.22
EA1060B-819A	0	0.9	54.24	59.96
EA1060B-822A	0	1.4	89.1	96.5
EA1060B-823A	0	0.9	53.58	59.22
EA1060B-870	0	1.0	58.5	62.5
EA1060B-875	0	1.0	58.5	62.5

Figure 4-235. Resistance Tolerances for Stroke Adjustment

SPECIFIC DATA SHEET NO. 21

Tank units covered in this Specific Data Sheet are of the inside operating rod type and are as follows:

EA1060B-820A
EA1060W-1362A
EA1060W-821A
EA1060W-821AB
EA1060W-873
EA1060W-873A

Voltage	28V dc
Dimensions	see figures 4-237 and 4-247A

Figure 4-236. Table of Leading Particulars

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-238.

DISASSEMBLY.

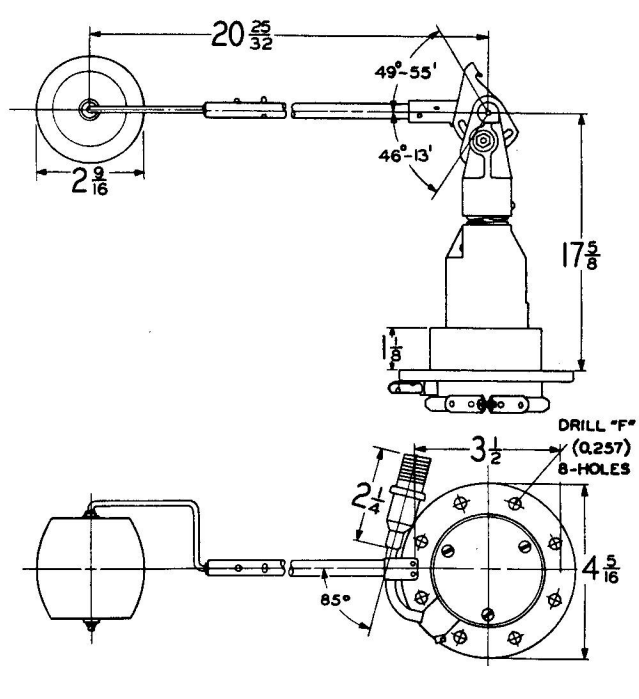
Disassembly is in the same order as index numbers assigned to exploded view, figure 4-238.

Follow general disassembly instructions given in paragraphs 2-1 thru 2-8, 2-10 thru 2-12, and 2-14.

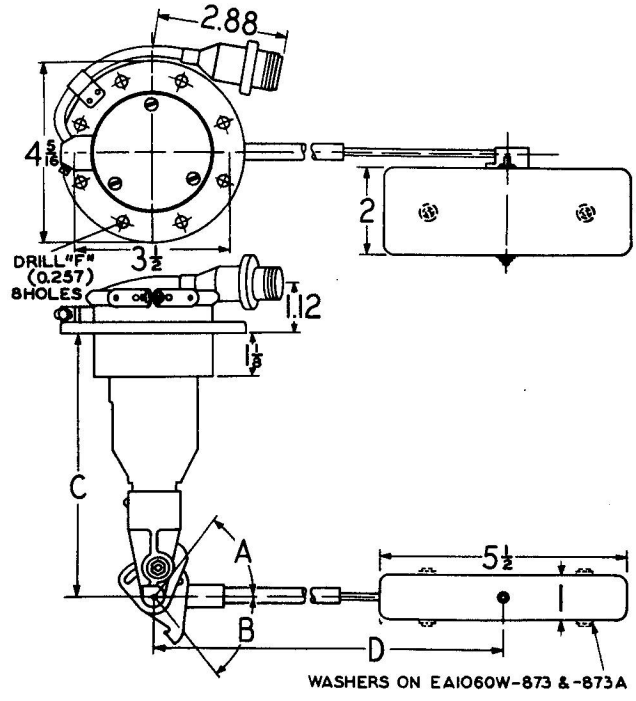
Item 14. Disassembly of potentiometer in tank unit EA1060B-820A is similar to that shown in figure 2-9, except that EA1060B-820A potentiometer does not have adjustment levers (30 and 31) or switch (21) and switch contact arm (11). For disassembly of potentiometer in tank units EA1060W-821A, EA1060W821AB, EA1060W-873 and EA1060W-873A, see figure 4-239.

CLEANING.

See paragraphs 2-15 thru 2-17.



EA1060B-820A



EA1060W-821A EA1060W-873 & EA1060W-873A

TABLE OF DIMENSIONS

	EA1060W-821A	EA1060W-873	EA1060W 873A
A	42°-3'	47°-42'	47°-10'
B	57°-6'	41°-30'	47°-10'
C	14 1/4	14.66	14.66
D	14-5/32	15.00	15.00

Figure 4-237. General Dimensions

1. Tank gasket
2. Name plate
3. Ring assembly
4. Fillister head screw
5. Nut
6. Lock washer
7. Ring clamp lug
8. Rivet
9. Clamp ring
10. Cover
11. "O" ring
12. Clip
13. Potentiometer assembly
14. Round head screw
15. Flat washer
16. Insulating pad
17. Flat head screw
18. Screw
19. Washer
20. Nut
21. Link
22. Bearing stud
23. Offset link
24. Float
25. Washer
26. Float bushing
27. Float bearing
28. Float
29. Float stop
30. Float bushing
31. Float bearing
32. Float bushing
33. Rod
34. Washer
35. Float
36. Pin
37. Fulcrum pin
38. Screw
39. Washer
40. Insert
41. Operating rod pin
42. Washer
43. Hex nut
44. Lock washer
45. Hex screw
46. Float stop bushing
47. Topmount lower stop
48. Topmount upper stop
49. Bellows shield
50. Drilled rivet
51. Fulcrum bracket
52. Rivet
53. Fulcrum pipe
54. Cotter pin
55. Rivet
56. Float fork bushing
57. Float fork
58. Float fork
59. Float fork
60. Float fork
61. Operating rod link pin
62. Operating rod extension
65. Operating rod
63. Rivet
64. Operating rod bushing
66. Rivet
67. Operating rod bushing
68. Operating rod
69. Fulcrum
70. Round head
71. Float arm
72. Clamp
73. Round head rivet
74. Round head screw
75. Lock washer
76. Plug
77. Electrical receptacle
78. "O" ring
79. Blue connection wire
80. Green connection wire
81. Black connection wire
82. White connection wire
83. Conduit assembly
84. Connecting socket coupling
85. Connecting socket coupling
86. Conduit tube connection
87. Conduit tube
88. Block
89. Flat head screw
90. Round head rivet
91. Bellows holder nut
92. Bellows arm
93. Flat head screw
94. Dowel pin
95. Bellows seal assembly
96. Housing

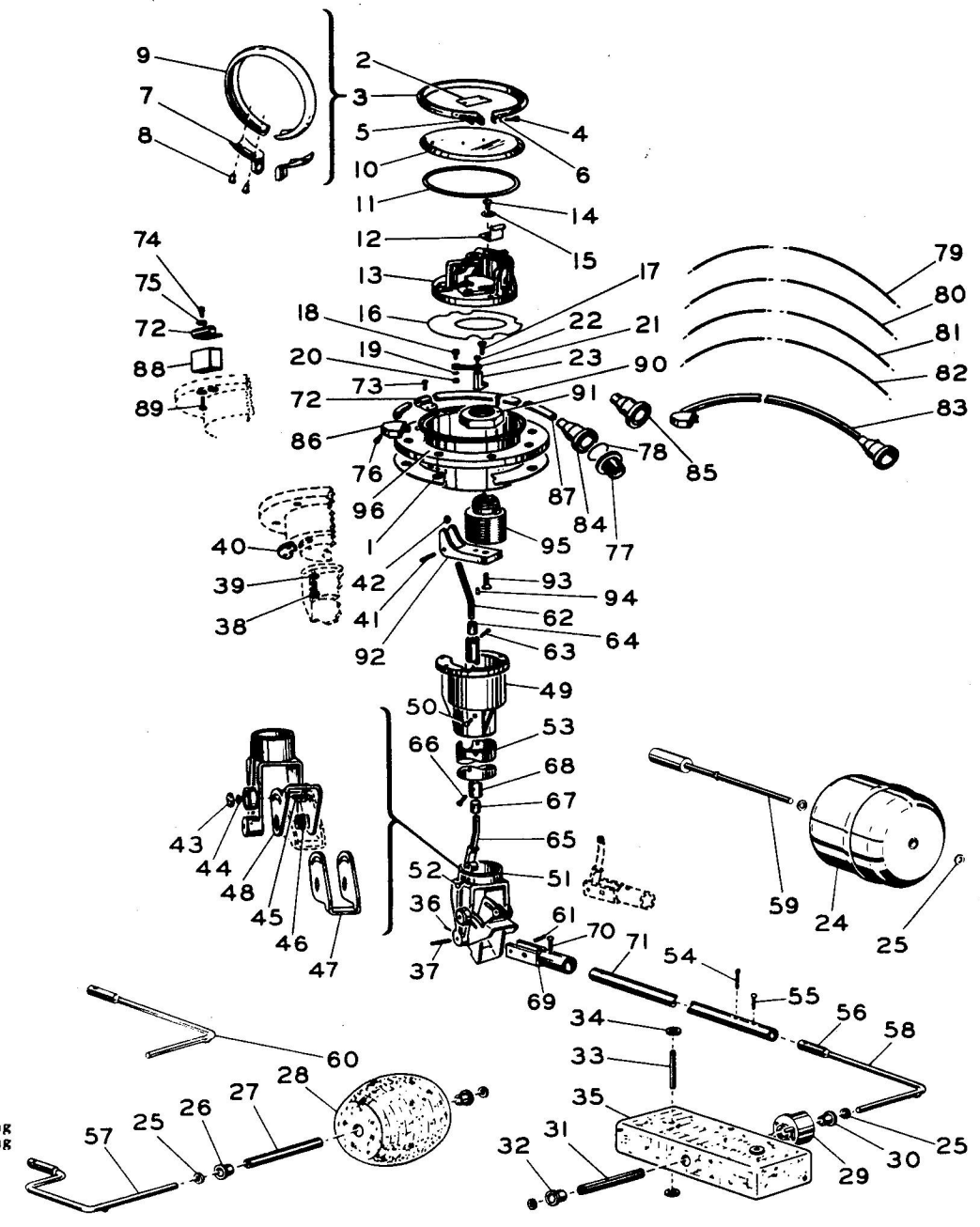
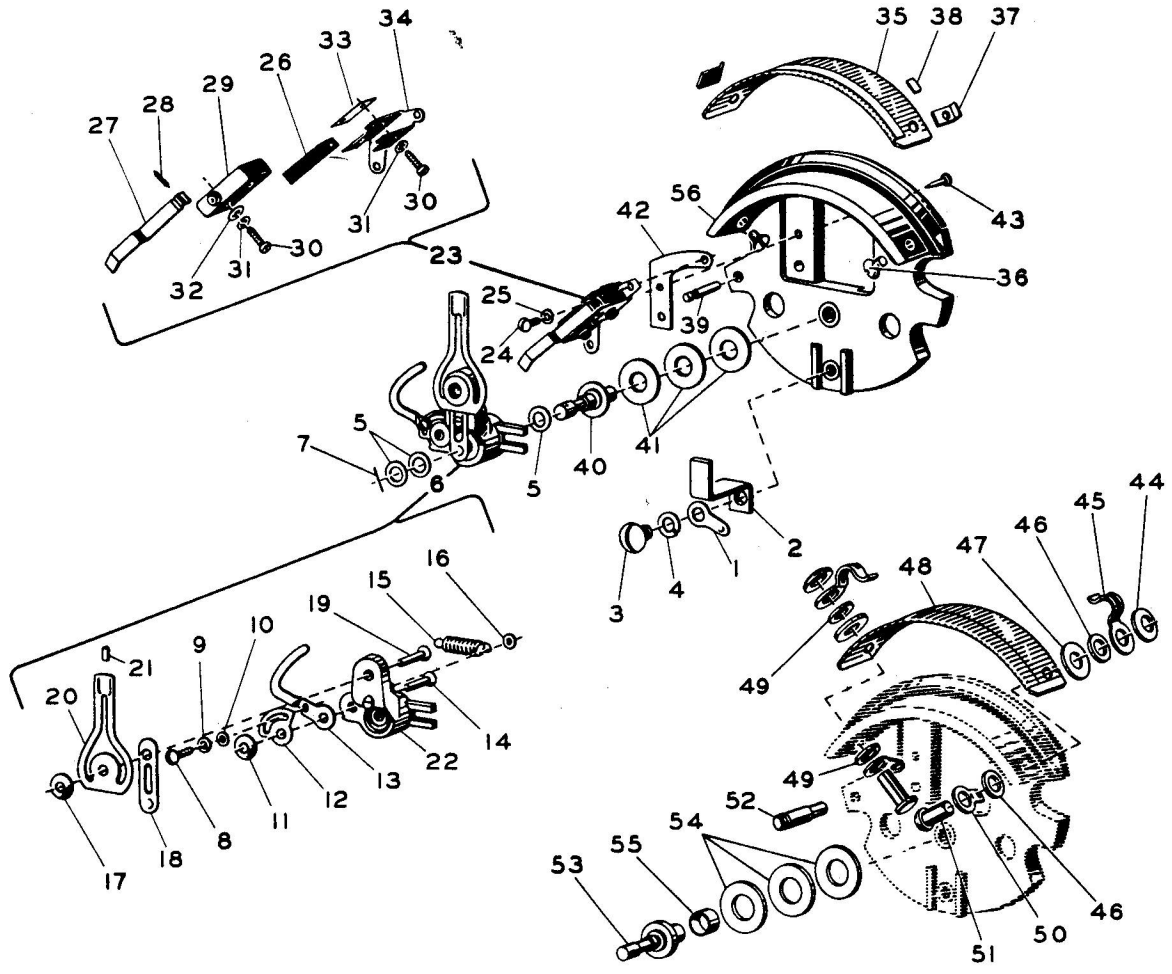


Figure 4-238. Exploded View of Tank Units



1. Solder lug
2. Contact arm contactor
3. Machine screw
4. Lock washer
5. Plain washer
6. Contact arm assembly
7. Pin
8. Screw
9. Spring lock washer
10. Flat washer
11. Cup washer
12. Clamp washer
13. Switch contact arm
14. Eyelet
15. Spring
16. Plain washer
17. Cup washer
18. Contact arm blade
19. Eyelet
20. Contact arm shoe
21. Gold contact
22. Moulded contact arm assembly
23. Switch assembly
24. Machine screw
25. Spring lock washer
26. Insulating strip
27. Switch arm
28. Pin
29. Microswitch
30. Machine screw
31. Spring lock washer
32. Flat washer
33. Nut
34. Bracket
35. Wound resistor
36. Machine screw
37. Resistor support
38. Solder strip
39. Spring pin
40. Contact arm shaft
41. Washer
42. Base plate
43. Escutcheon pin
44. Cup washer
45. Stroke adjustment shoe
46. Washer
47. Insulation washer
48. Wound resistor
49. Washer
50. Terminal lug
51. Eyelet
52. Spring pin
53. Contact arm shaft
54. Insulating washer
55. Insulating bushing
56. Potentiometer base

Figure 4-239. Potentiometer Assembly for Tank Units EA1060W-821A, EA1060W-821AB, EA1060W-873 and EA1060W-873A

INSPECTION.

See paragraphs 2-18 thru 2-24. For inspection of potentiometer, see paragraphs 2-59 thru 2-64.

PRE-ASSEMBLY.

See paragraphs 2-24 thru 2-27. For tests of potentiometer, see paragraphs 2-65 thru 2-68. Test dc resistance between taps in accordance with table, figure 4-240A.

REPAIR OR REPLACEMENT.

See paragraphs 2-28 thru 2-30. For repair or potentiometer, see paragraphs 2-69 thru 2-74. If switch (29, figure 4-239) is defective, replace it. Repair is not practical.

LUBRICATION. None required.

REASSEMBLY.

Follow general instructions given in paragraphs 2-33

thru 2-35, 2-37 thru 2-39, 2-41 thru 2-43, 2-45, 2-46, and 2-48 thru 2-52.

Assemble float arm (71), float fork (57 thru 60) and float (28 or 35) to correspond to general dimension drawings figure 4-237 or 4-247A, for the specific tank unit.

Items 72 thru 88. Assemble conduit assembly by following general dimension drawing for the specific unit and the general instructions in paragraph 2-34A.

Use figure 4-240 to determine the proper lengths of plastic insulated (.038-.042 O.D.) copper wire for conduit assemblies. Use Liquidometer part number shown in figure 4-240, or equivalent.

Wire Part No.	*Length (inches)*
EA7967-17	8½
EA7967-18	9
EA7964-19	9½
EA7964-22, EA7968-22, EA7969-22	11
EA7964-26, EA7967-26, EA799-26	13

Figure 4-240. Conduit Wire Lengths

Item 13. Install clip in a position that will hold connecting wire against side of housing.

Item 14. Connect wires according to internal wiring diagram for the specific tank unit, figures 4-241, 4-242, 4-243 and 4-247C.

Tank Unit	*Resistance Between Taps* ±2%
EA1060B-820A	333.7 ohms
EA1060W-1362A	201 ohms
EA1060W-821A	386.7 ohms
EA1060W-821AB	386.7 ohms
EA1060W-873	445.6 ohms
EA1060W-873A	426.0 ohms

Figure 4-240A. Table of Resistance Values

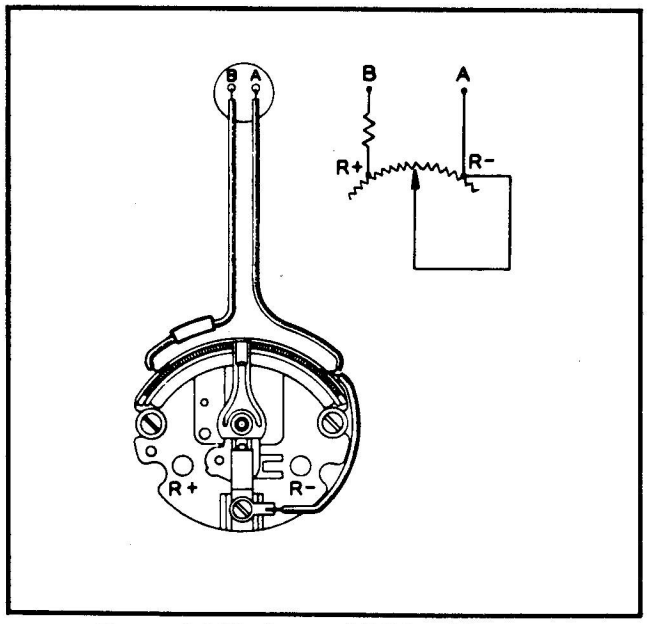


Figure 4-241. Internal Wiring Diagram, EA1060B-820A Tank Unit

TEST PROCEDURE.

ADJUSTING FLOAT ARM STOPS. See paragraphs 3-5, 3-6, 3-8 and 3-9. Use figure and dimensions indicated for the specific tank unit in Table of Set-Up Stand Diagrams, figure 4-244.

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM.

a. With tank unit in a set-up stand adjusted to dimensions given in the appropriate set-up stand diagram

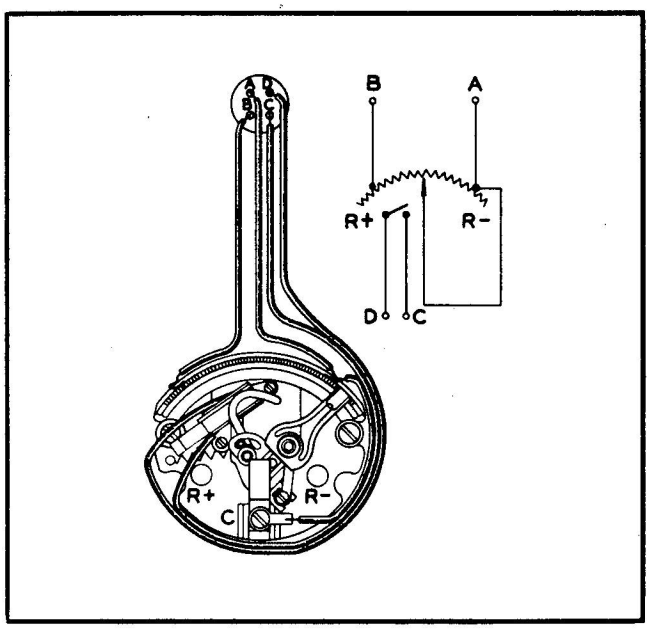


Figure 4-242. Internal Wiring Diagram, Tank Units, EA1060W-821A and EA1060W-821AB

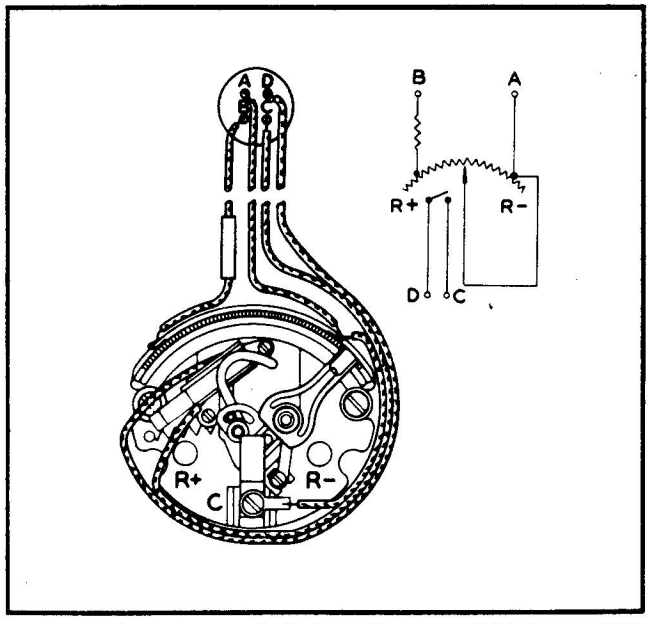


Figure 4-243. Internal Wiring Diagram, EA1060W-873 and EA1060W-873A Tank Units

(see figure 4-244), connect a Kelvin Wheatstone Resistance Bridge (No. 638R, Shallcross Manufacturing Co., Collingdale, Pa., or equivalent) across pins A and B of tank unit electrical receptacle. Attach tank unit EA1060W-1362A to a Type 01 field tester as shown in figure 4-247D and test in accordance with paragraph 3-11.

b. With float at the empty position, see if resistance is within the tolerances listed in table, figure 4-247.

c. See paragraph 3-15, b and c.

Tank Unit	*Figure Number Of Set-Up Stand Diagram*
EA1060B-820A	4-245
EA1060W-1362A	4-246A
EA1060W-821A	4-246
EA1060W-821AB	4-247B
EA1060W-873	4-246
EA1060W-873A	4-246

Figure 4-244. Table of Set-Up Stand Diagrams

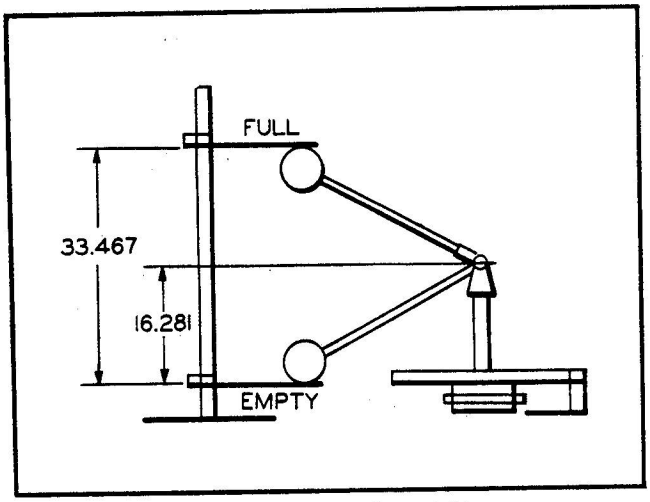


Figure 4-245. Set-Up Stand Diagram

d. Raise float to upper limit and see if resistance is within the tolerances given for full position. If it is, no further adjustment is necessary.

e. See paragraph 3-16 b, c and d.

f. Recheck resistance at empty position, making further adjustments as required.

SETTING WARNING SWITCH.

a. Attach 3-volt warning light or ohmmeter to pins C and D of tank unit electrical receptacle.

b. Place float on "S" level of set-up stand (figures 4-246 and 4-247B). Warning light should go on at this point on downward stroke and remain lighted throughout remainder of downward movement of float to empty position. Check for continuity at contact.

c. To position switch contact arm (13, figure 4-239) for proper contact, loosen screw (8) and move arm to correct position on clamp washer (12). If contact is not properly made, bend contact arm to correct position.

CAUTION

Care should be taken when bending the contact arm to avoid damaging other parts of the switch or potentiometer.

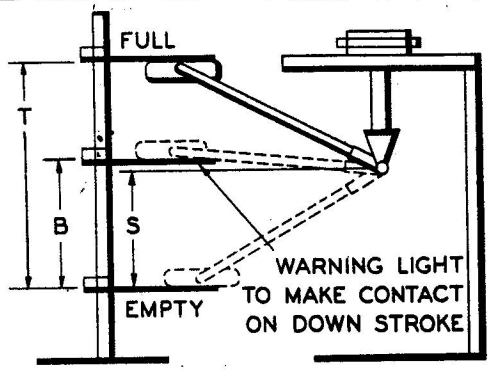


TABLE OF DIMENSIONS

Tank Unit	*"T"*	*"B"*	*"S"*
EA1060W-821A	22.00	14.00	12.00
EA1060W-873	23.00	12.50	11.50
EA1060W-873A	22.03	12.50	10.44

Figure 4-246. Set-Up Stand Diagram

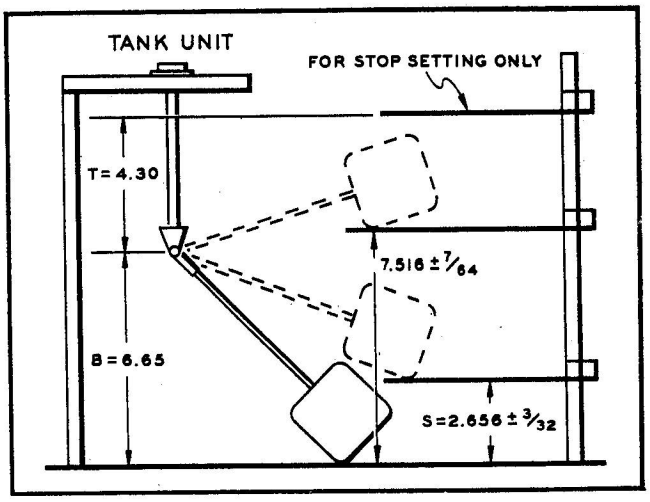


Figure 4-246A. Set-Up Stand Diagram for EA1060W-1362A

Tank Unit	*Float at Empty Position Resistance Limits (in Ohms) Minimum*	*Maximum*	*Float at Full Position Resistance Limits (in Ohms) Minimum*	*Maximum*
EA1060B-820A	9.0	14.0	322.9	347.3
EA1060W-821A	23.76	28.0	381.7	404.5
EA1060W-873	32.0	40.6	433.1	457.9
EA1060W-873A	32.0	40.6	414.2	437.8

Figure 4-247. Resistance Tolerances

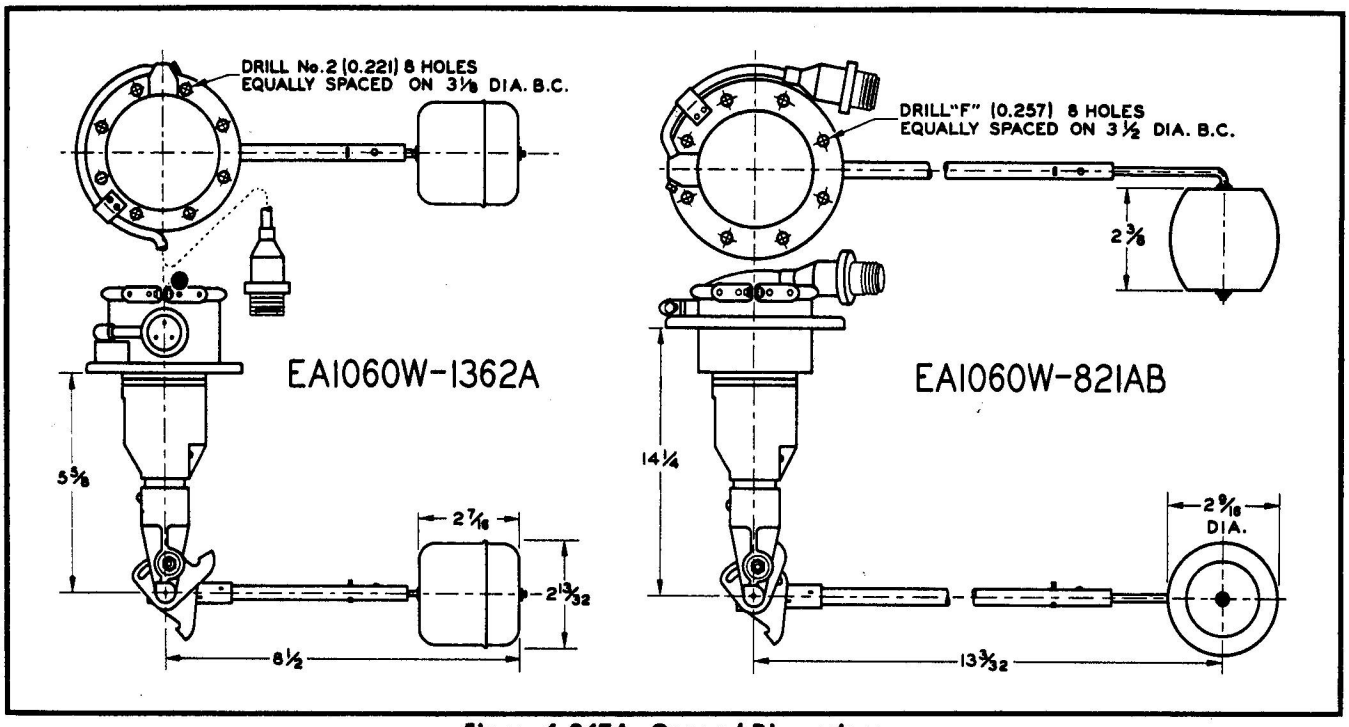


Figure 4-247A. General Dimensions

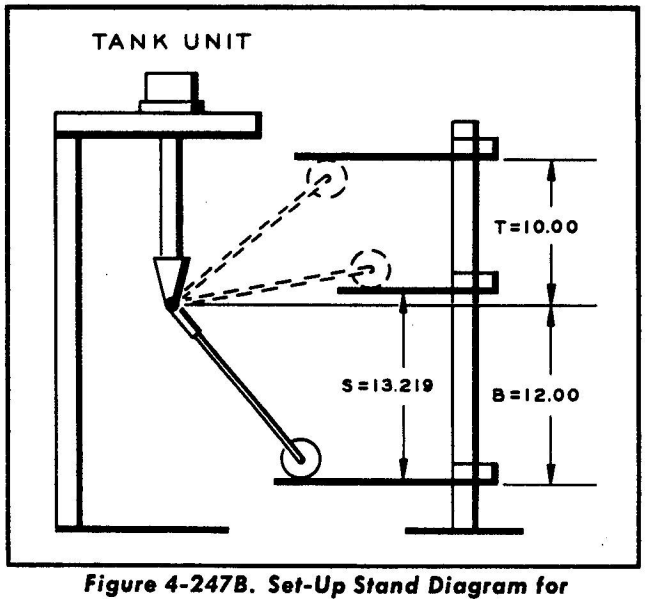


Figure 4-247B. Set-Up Stand Diagram for EA1060W-821AB

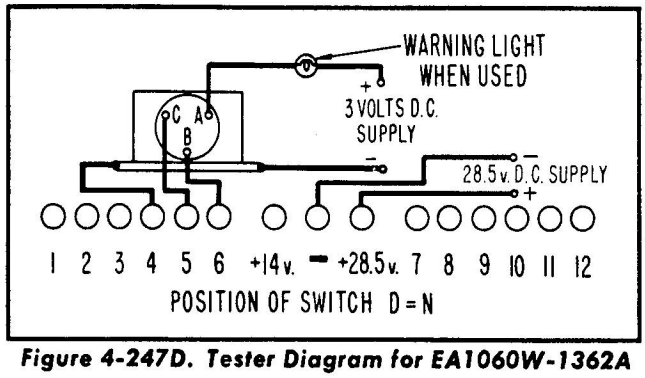


Figure 4-247D. Tester Diagram for EA1060W-1362A

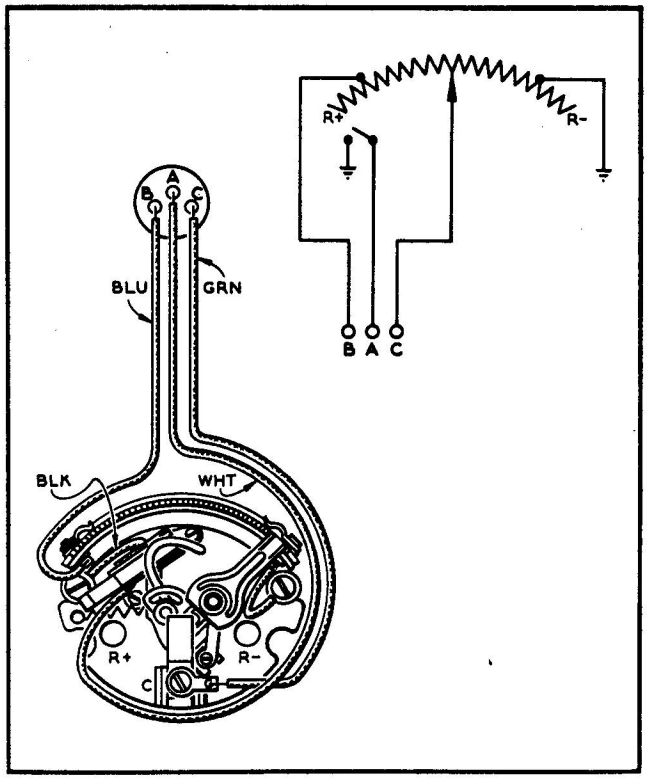


Figure 4-247C. Internal Wiring Diagram for EA1060W-1362A

SPECIFIC DATA SHEET NO. 22

Tank units covered in this Specific Data Sheet are of the inside operating rod type and are as follows:

EA1061B-817A
EA1061B-824A
EA1061B-869
EA1061B-876

Voltage	28v dc
Dimensions	see figure 4-249

Figure 4-248. Table of Leading Particulars

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-250.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-250.

Follow general disassembly instructions given in paragraphs 2-1 thru 2-8, 2-10 thru 2-12, and 2-14.

Item 25. Do not disassemble float assembly, except in an emergency.

CLEANING.

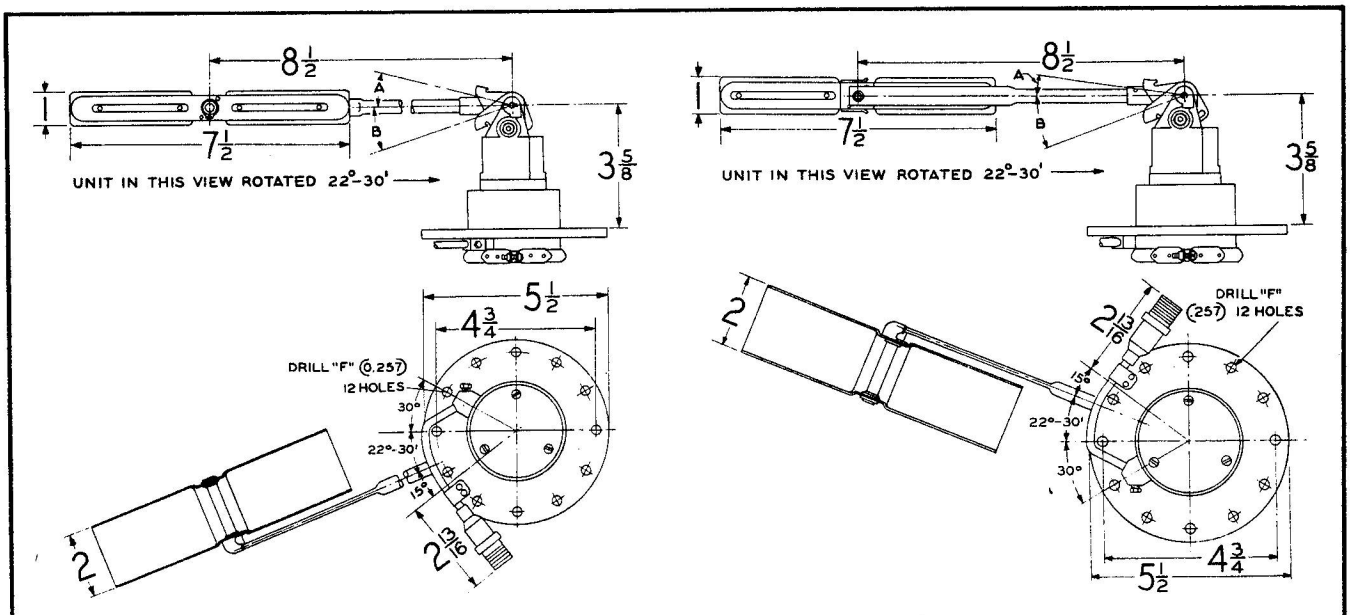
See paragraphs 2-15 thru 2-17.

INSPECTION.

See paragraphs 2-18 thru 2-24. For inspection of potentiometer, see paragraphs 2-59 thru 2-64.

PRE-ASSEMBLY TESTING.

See paragraphs 2-25 thru 2-27. For tests of potentiometer, see pargraphs 2-65 thru 2-68, also Table of Resistance Values, figure 4-251.



EA1061B-817A and EA1061B-869 *EA1061B-824A and EA1061B-876*

TABLE OF DIMENSIONS

	EA1061B-817A	*EA1061B-824A*	*EA1061B-869*	*EA1061B-876*
"A"	7°-36'	6°-45'	4°-2'	4°-2'
"B"	23°-24'	21°-34'	24°-28'	24°-28'

Figure 4-249. General Dimensions

1. Tank gasket
2. Plug
3. Name plate
4. Ring assembly
5. Screw
6. Nut
7. Lock washer
8. Clamp ring lug
9. Rivet
10. Clamp ring
11. Cover
12. "O"-Ring
13. Clip
14. Potentiometer assembly (for breakdown see fig. 2-9)
15. Screw
16. Washer
17. Insulating pad
18. Screw
19. Screw
20. Washer
21. Nut
22. Link
23. Bearing stud
24. Offset link
25. Float assembly
26. Snap ring
27. Float bearing
28. Float bracket
29. Float stop
30. Rivet
31. Float bearing
32. Float bracket
33. Float bushing
34. Float
35. Pin
36. Fulcrum block pin
37. Screw
38. Washer
39. Insert
40. Operating rod pin
41. Washer
42. Nut
43. Lock washer
44. Screw
45. Float stop bushing
46. Topmount lower stop
47. Topmount upper stop
48. Fulcrum bracket
49. Operating rod link
50. Operating rod pin
51. Fulcrum
52. Rivet
53. Retainer collar
54. Float shaft
55. Float bushing
56. Float arm plug
57. Float arm
58. Rivet
59. Bellows holder nut
60. Bellows arm
61. Screw
62. Dowel pin
63. Bellows seal assembly (for breakdown (see fig. 2-5)
64. Receptacle
65. "O"-Ring
66. Connecting socket coupling
67. Clamp
68. Screw
69. Lock washer
70. Conduit tube
71. Conduit tube connection
72. Block
73. Screw
74. Housing

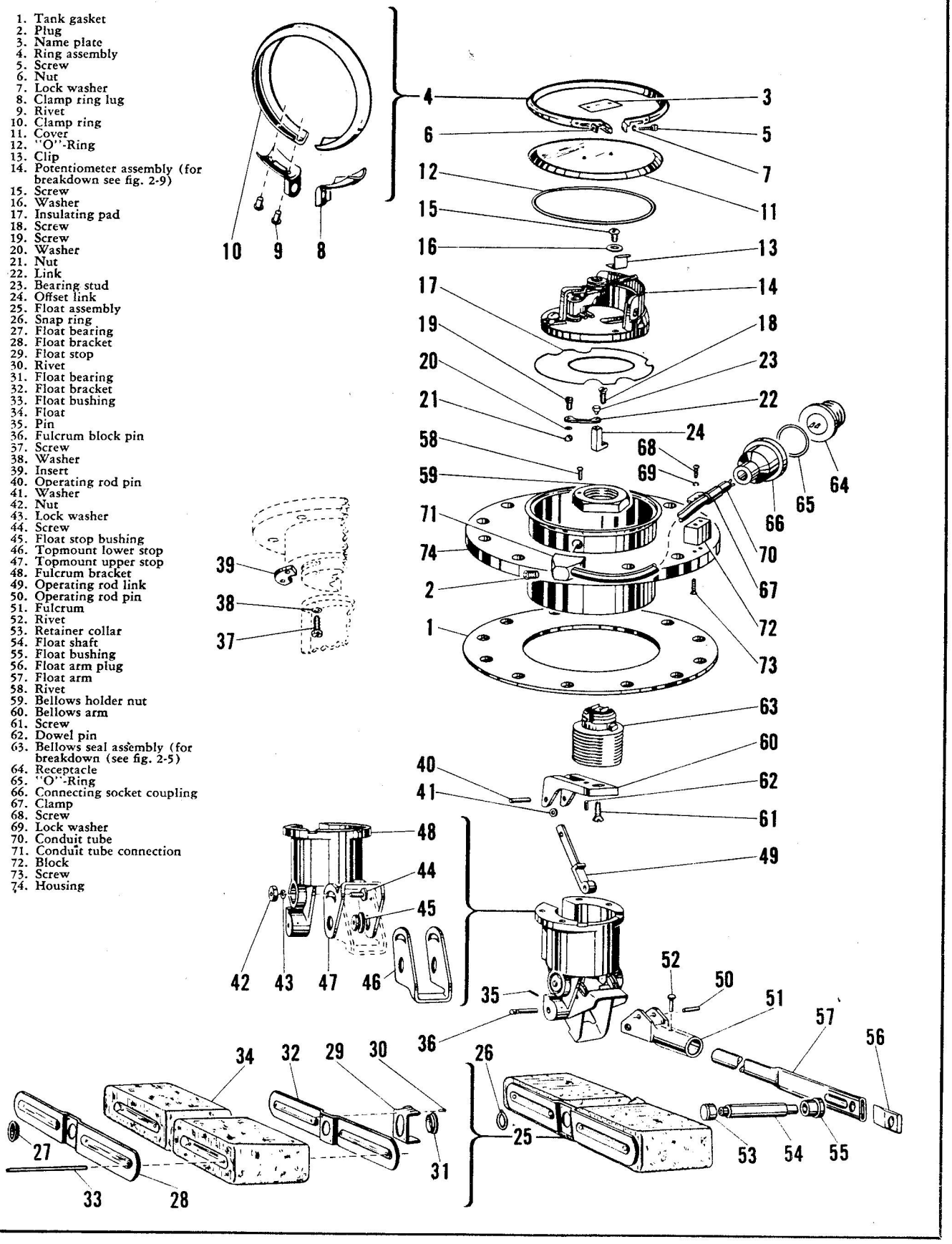


Figure 4-250. Exploded View of Tank Units

REPAIR OR REPLACEMENT.

See paragraphs 2-28 thru 2-30. For repair of potentiometer, see paragraphs 2-69 thru 2-74.

LUBRICATION.

None required.

Tank Unit	*Resistance Between Taps* ±2%
EA1061B-817A	69.0 ohms
EA1061B-824A	69.0 ohms
EA1061B-869	41.78 ohms
EA1061B-876	41.78 ohms

Figure 4-251. Table of Resistance Values

REASSEMBLY.

Follow general instructions given in paragraphs 2-33 thru 2-35, 2-37 thru 2-39, 2-41 thru 2-43, 2-45, 2-46, and 2-48 thru 2-52.

Items 64 thru 71. Assemble conduit assembly by following general dimensions drawing, figure 4-249, for the specific tank unit.

Align float arm (57) and float assembly (25) to correspond to general dimension drawing, figure 4-249, for the specific tank unit.

Item 13. Position clip so it will hold connecting wire against side of housing.

Item 14. Connect wires according to internal wiring diagram, figure 4-252.

TEST PROCEDURE.

ADJUSTING FLOAT ARM STOPS. See paragraphs

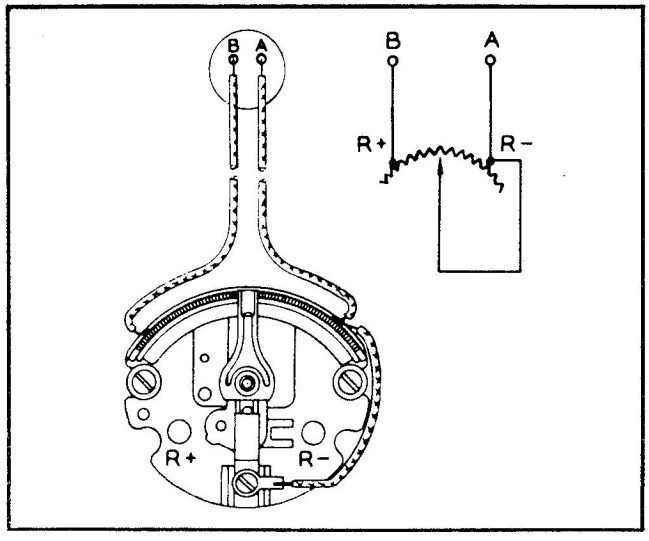


Figure 4-252. Internal Wiring Diagram

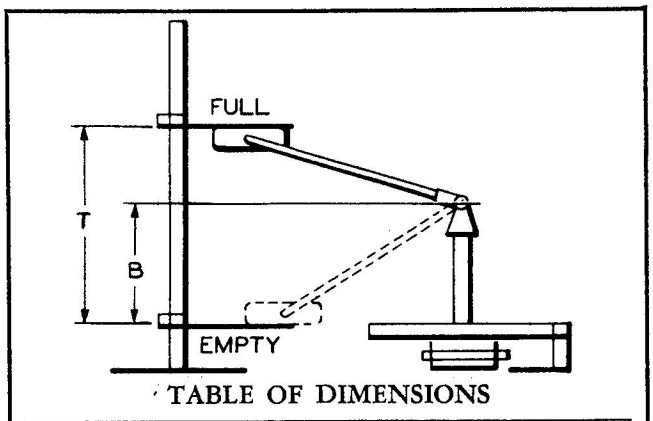


TABLE OF DIMENSIONS

Tank Unit	*"T"*	*"B"*
EA1061B-817A	5.125	3.625
EA1061B-824A	5.125	3.625
EA1061B-869	5.120	4.020
EA1061B-876	5.120	4.020

Figure 4-253. Set-Up Stand Diagram

3-5, 3-6, 3-8 and 3-9, using dimensions given in figure 4-253. Also check length of float arm against dimension given in figure 4-249.

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM.

a. With tank unit in a set-up stand adjusted to dimensions given in figure 4-253, connect a Kelvin Wheatstone Resistance Bridge (No. 638R, Shallcross Manufacturing Co., Collingdale, Pa., or equivalent) across pins A and B of tank unit electrical receptacle.

b. With float at the empty position, see if resistance is within the tolerances listed in table, figure 4-254.

c. See paragraph 3-15, b and c.

d. Raise float to upper limit and see if resistance is within the tolerances given for full position. If it is, no further adjustment is necessary.

e. See paragraph 3-16, b, c and d.

f. Recheck resistance at empty position, making further adjustments as required.

	Float at Empty Position Resistance Limits (in Ohms)		*Float at Full Position Resistance Limits (in Ohms)*	
Tank Unit	*Minimum*	*Maximum*	*Minimum*	*Maximum*
EA1061B-817A	0	1.0	65.55	72.45
EA1061B-824A	0	1.0	65.55	72.45
EA1061B-869	0	1.0	40.5	43.0
EA1061B-876	0	1.0	40.5	43.0

Figure 4-254. Resistance Tolerances for Stroke Adjustment

All data deleted from page 148

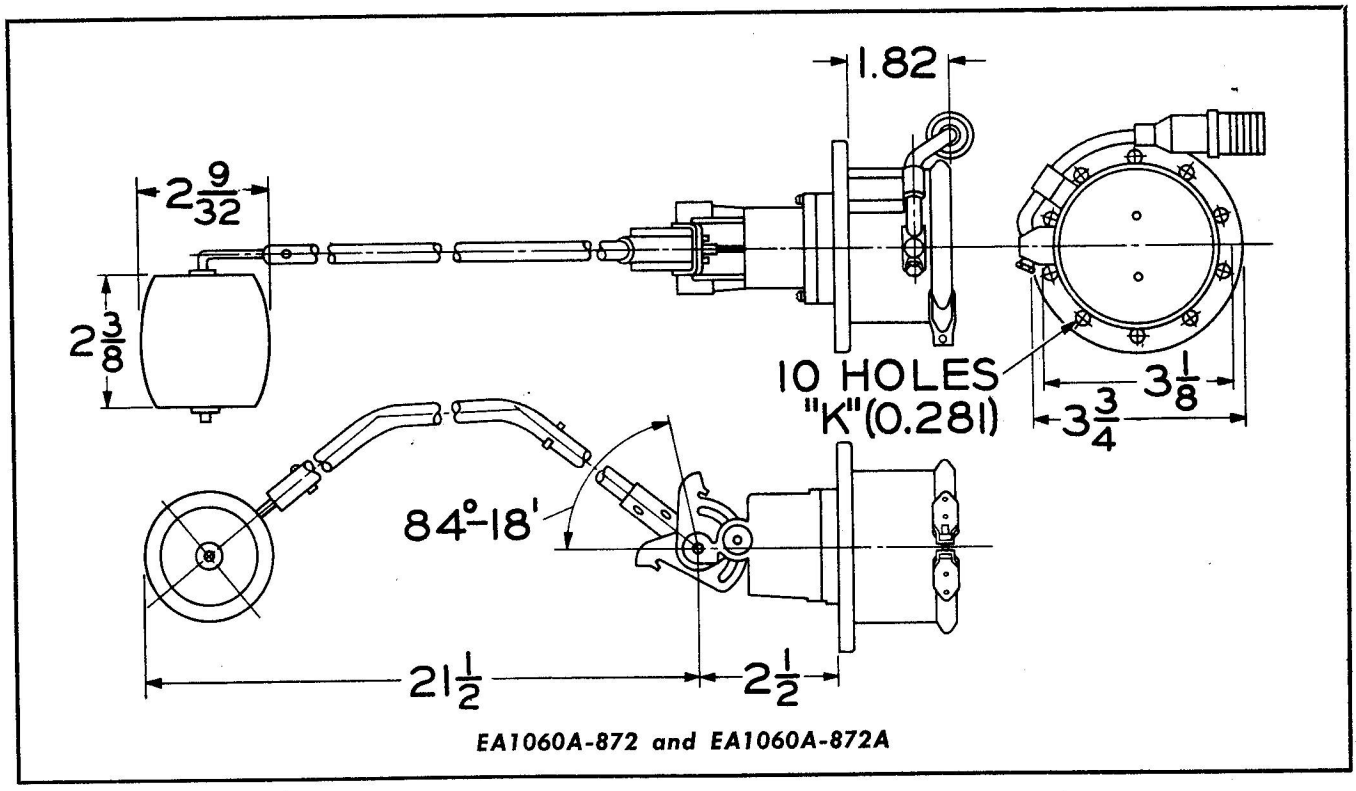
SPECIFIC DATA SHEET NO. 23

Tank units covered in this Specific Data Sheet are of the inside operating rod type and are as follows:

EA1060A-872 EA1060A-872A

Voltage	28v dc
Dimensions	see figure 4-256

Figure 4-255. Table of Leading Particulars



EA1060A-872 and EA1060A-872A

Figure 4-256. General Dimensions

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-257.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-257.

Follow general disassembly instructions given in paragraphs 2-1 thru 2-8, 2-10 thru 2-12, and 2-14.

CLEANING.

See paragraphs 2-15 thru 2-17.

INSPECTION.

See paragraphs 2-18 thru 2-24. For inspection of potentiometer, see paragraphs 2-59 thru 2-64.

PRE-ASSEMBLY TESTING.

See paragraphs 2-25 thru 2-27. For tests of potentiom-

1. Tank gasket
2. Plug
3. Name plate
4. Ring assembly
5. Screw
6. Nut
7. Lock washer
8. Clamp ring lug
9. Rivet
10. Clamp ring
11. Cover
12. "O"-Ring
13. Clip
14. Potentiometer assembly (for breakdown see fig. 2-9)
15. Screw
16. Washer
17. Insulating pad
18. Screw
19. Screw
20. Washer
21. Nut
22. Link
23. Bearing stud
24. Offset link
25. Washer
26. Float bushing
27. Float bearing
28. Float
29. Pin
30. Fulcrum pin
31. Screw
32. Washer
33. Insert
34. Operating rod pin
35. Washer
36. Nut
37. Washer
38. Screw
39. Float arm stop bushing
40. Topmount lower stop
41. Topmount upper stop
42. Fulcrum bracket
43. Operating rod
44. Operating rod link pin
45. Cotter pin
46. Rivet
47. Float fork bushing
48. Float fork
49. Fulcrum
50. Rivet
51. Float arm
52. Rivet
53. Bellows holder nut
54. Bellows arm
55. Screw
56. Dowel pin
57. Bellows seal assembly (for breakdown see fig. 2-5)
58. Receptacle
59. "O"-Ring
60. Connecting socket coupling
61. Clamp
62. Screw
63. Lock washer
64. Conduit tube
65. Conduit tube connection
66. Block
67. Screw
68. Housing

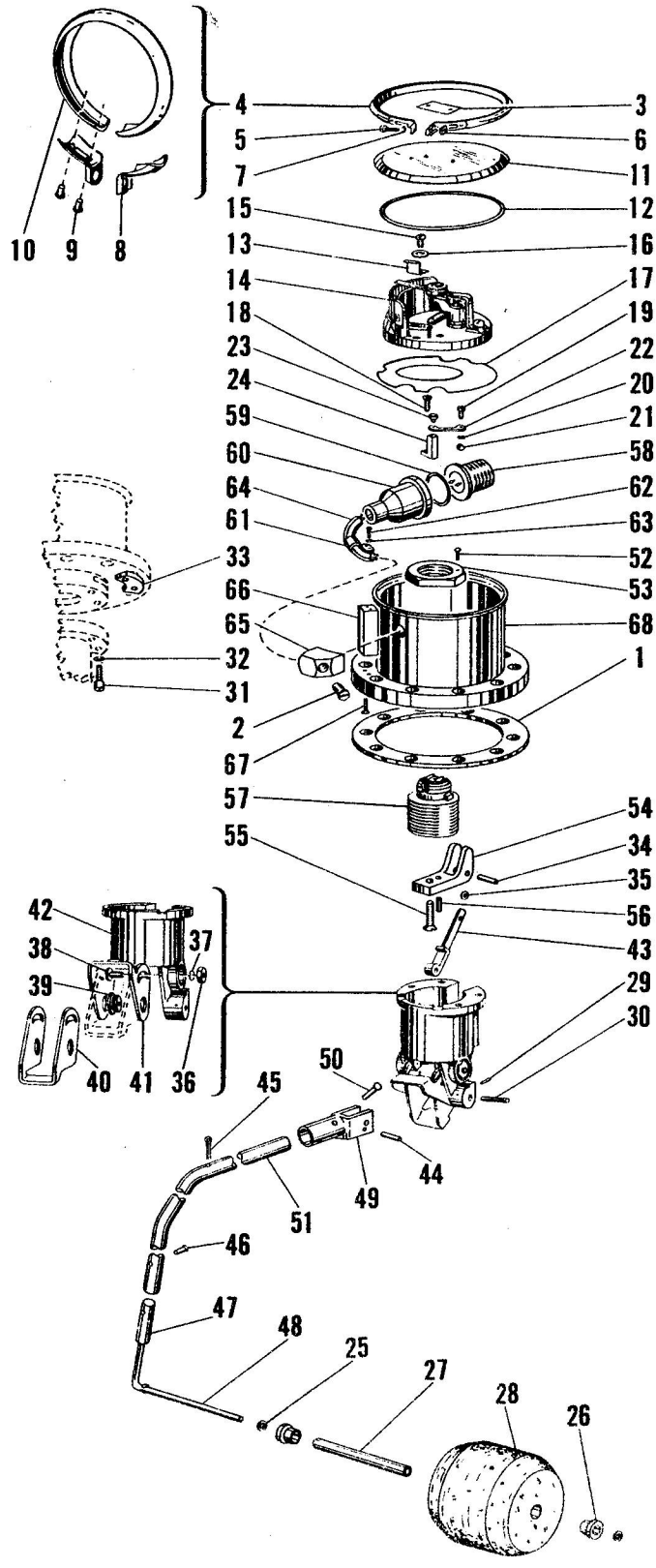


Figure 4-257. Exploded View of Tank Units

Tank Unit	Resistance Between Taps ±2%
EA1060A-872	237.3 ohms
EA1060A-872A	237.3 ohms

Figure 4-258. Table of Resistance Values

eter, see paragraphs 2-65 thru 2-68, also Table of Resistance Values, figure 4-258.

REPAIR OR REPLACEMENT.

See paragraphs 2-28 thru 2-30. For repair of potentiometer, see paragraphs 2-69 thru 2-74.

LUBRICATION.

None required.

REASSEMBLY.

Follow general instructions given in paragraphs 2-33 thru 2-35, 2-37 thru 2-39, 2-41 thru 2-43, 2-45, 2-46, and 2-48 thru 2-52.

Items 2 and 58 thru 67. Assemble conduit assembly by following general dimension drawing, figure 4-256, for the specific tank unit.

Align float fork (48), float arm (51) and float (28) to correspond to general dimension drawing, figure 4-256, for the specific tank unit.

Item 13. Position clip so it will hold connecting wire against side of housing.

Item 14. Connect wires according to internal wiring diagram, figure 4-259.

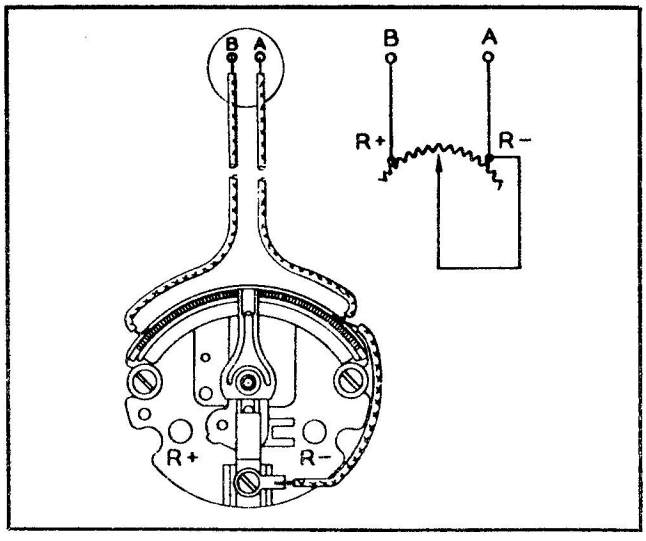


Figure 4-259. Internal Wiring Diagram

Tank Unit	Float at Empty Position Resistance Limits (in Ohms) Minimum	Maximum	Float at Full Position Resistance Limits (in Ohms) Minimum	Maximum
EA1060A-872	0	7.0	231.2	243.4
EA1060A-872A	0	3.5	231.2	243.4

Figure 4-260. Resistance Tolerances for Stroke Adjustment

TEST PROCEDURE.

ADJUSTING FLOAT ARM STOPS. See paragraphs 3-5, 3-6, 3-8 and 3-9, using dimensions given in figure 4-256.

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM.

a. With tank unit in a set-up stand adjusted to dimensions given in figure 4-261, connect a Kelvin Wheatstone Resistance Bridge (No. 638R, Shallcross Manufacturing Co., Collingdale, Pa., or equivalent) across pins A and B of tank unit electrical receptacle.

b. With float at the empty position, see if resistance is within the tolerances listed in table, figure 4-260.

c. See paragraphs 3-15, b and c.

d. Raise float to upper limit and see if resistance is within the tolerances given for full position. If it is, no further adjustment is necessary.

e. See paragraph 3-16, b, c and d.

f. Recheck resistance at empty position, making further adjustments as required.

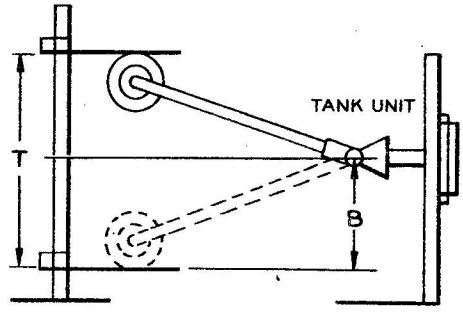


TABLE OF DIMENSIONS

	"T"	"B"
EA1060A-872	31.282	17.167
EA1060A-872A	29.937	15.875

Figure 4-261. Set-Up Stand Diagram

SPECIFIC DATA SHEET NO. 24

Tank units covered in this Specific Data Sheet are of the inside operating rod type and are as follows:

EA1060B-871 EA1060B-874

Voltage	28v dc
Dimensions	see figure 4-263

Figure 4-262. Table of Leading Particulars

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-264.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-264.

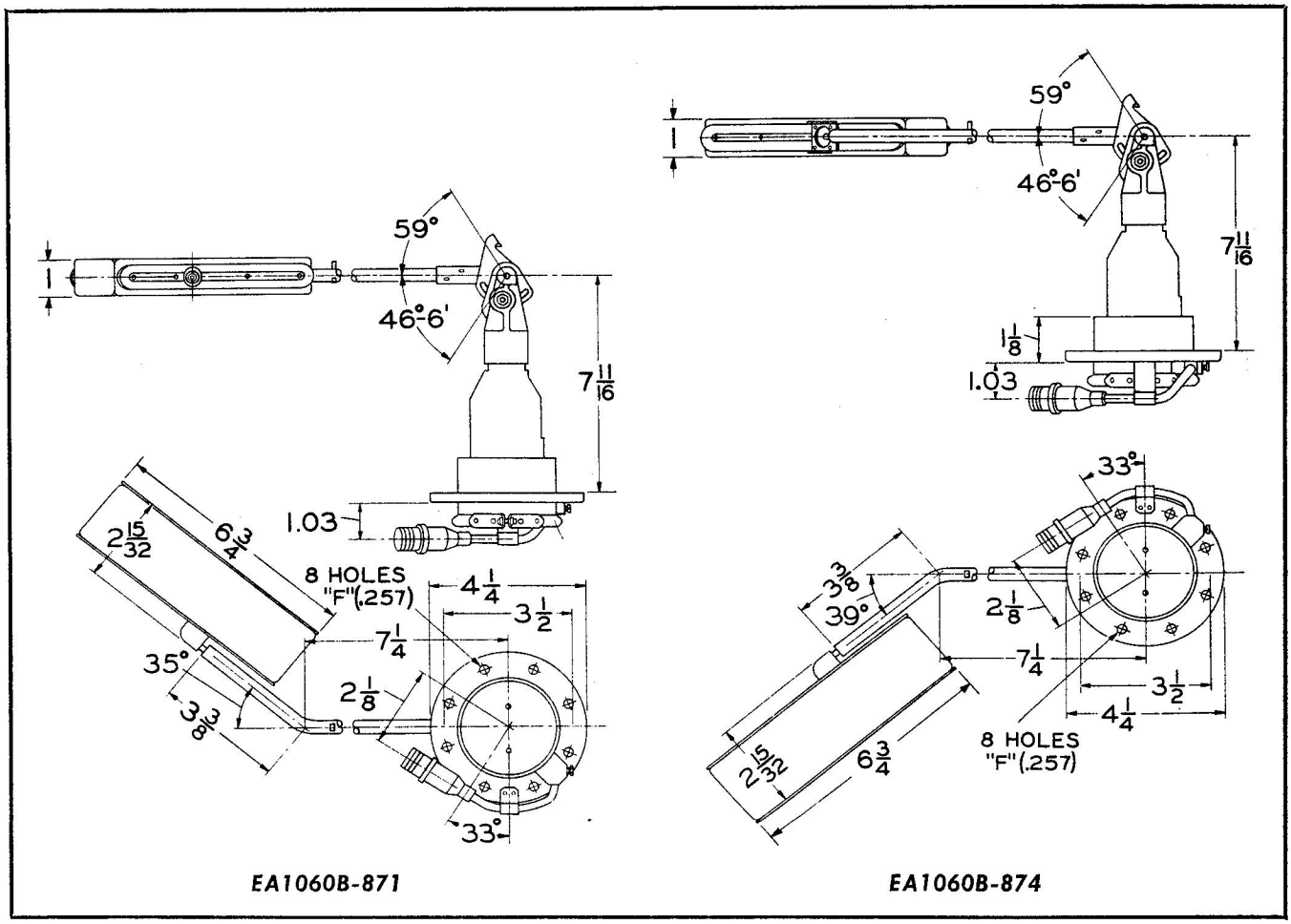


Figure 4-263. General Dimensions

1. Tank gasket
2. Plug
3. Name plate
4. Ring assembly
5. Screw
6. Nut
7. Lock washer
8. Clamp ring lug
9. Rivet
10. Clamp ring
11. Cover
12. "O"-Ring
13. Clip
14. Potentiometer assembly (for breakdown see fig. 2-9)
15. Screw
16. Washer
17. Insulating pad
18. Screw
19. Screw
20. Washer
21. Nut
22. Link
23. Bearing stud
24. Offset link
25. Float assembly
26. Locking pin
27. Washer
28. Float bracket
29. Float stop
30. Rivet
31. Bracket
32. Bushing
33. Float bushing
34. Float bearing
35. Float
36. Pin
37. Fulcrum pin
38. Screw
39. Washer
40. Insert
41. Operating rod pin
42. Washer
43. Nut
44. Washer
45. Screw
46. Float stop bushing
47. Topmount lower stop
48. Topmount upper stop
49. Bellows shield
50. Rivet
51. Fulcrum bracket
52. Rivet
53. Fulcrum pipe
54. Operating rod link pin
55. Operating rod extension
56. Rivet
57. Operating rod bushing
58. Operating rod link
59. Rivet
60. Operating rod bushing
61. Operating rod
62. Cotter pin
63. Rivet
64. Float fork bushing
65. Float fork
66. Rivet
67. Bushing
68. Fulcrum
69. Float arm
70. Rivet
71. Bellows holder nut
72. Bellows arm
73. Screw
74. Dowel pin
75. Bellows seal assembly (for breakdown see fig. 2-5)
76. Receptacle
77. "O"-Ring
78. Connecting socket coupling
79. Clamp
80. Screw
81. Lock washer
82. Conduit tube
83. Conduit tube connection
84. Block
85. Screw
86. Housing

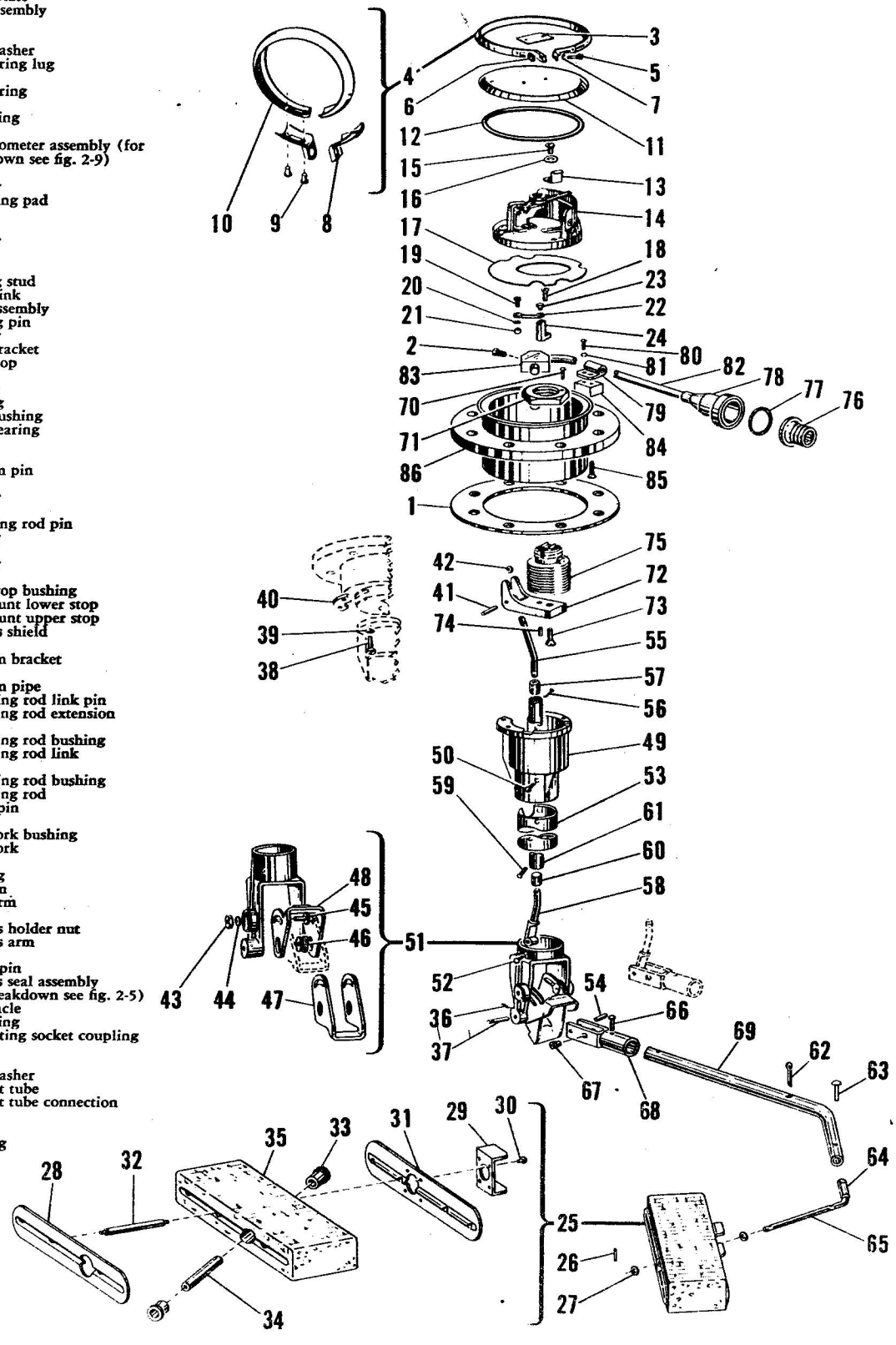


Figure 4-264. Exploded View of Tank Units

Tank Unit	Resistance Between Taps ±2%
EA1060B-871	156.1 ohms
EA1060B-874	100.1 ohms

Figure 4-265. Table of Resistance Values

Follow general disassembly instructions given in paragraphs 2-1 thru 2-8, 2-10 thru 2-12, and 2-14.

CLEANING.

See paragraphs 2-15 thru 2-17.

INSPECTION.

See paragraphs 2-18 thru 2-24. For inspection of potentiometer, see paragraphs 2-59 thru 2-64.

PRE-ASSEMBLY TESTING.

See paragraphs 2-25 thru 2-27. For tests of potentiometer, see paragraphs 2-65 thru 2-68, also Table of Resistance Values, figure 4-265.

REPAIR OR REPLACEMENT.

See paragraphs 2-28 thru 2-30. For repair of potentiometer, see paragraphs 2-69 thru 2-74.

LUBRICATION.

None required.

REASSEMBLY.

Follow general instructions given in pargraphs 2-33 thru 2-35, 2-37 thru 2-39, 2-41 thru 2-43, 2-45, 2-46, and 2-48 thru 2-52.

Items 76 thru 85. Assemble conduit assembly by following general dimension drawing, figure 4-263 for the specific tank unit.

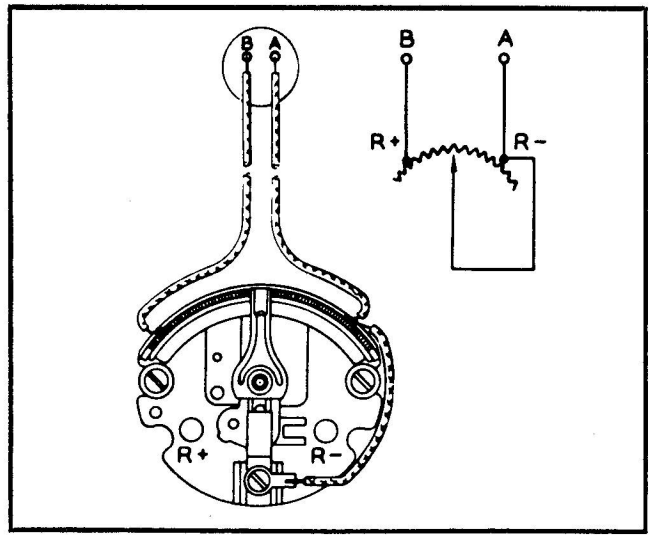


Figure 4-266. Internal Wiring Diagram

Tank Unit	Float at Empty Position Resistance Limits (in Ohms) Minimum	Maximum	Float at Full Position Resistance Limits (in Ohms) Minimum	Maximum
EA1060B-871	0	1.5	151.7	160.9
EA1060B-874	0	1.0	97.0	103.0

Figure 4-267. Resistance Tolerances

Align float arm (69) and float assembly (25) to correspond to general dimension drawing, figure 4-263, for the specific tank unit.

Item 13. Position clip so it will hold connecting wire against side of housing.

Item 14. Connect wires according to internal wiring diagram, figure 4-253.

TEST PROCEDURE.

ADJUSTING FLOAT ARM STOPS. See paragraphs 3-5, 3-6, 3-8 and 3-9, using dimensions given in figure 4-268. Also check length of float arm against dimension given in figure 4-263.

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM.

a. With tank unit in a set-up stand adjusted to dimensions given in figure 4-268, connect a Kelvin Wheatstone Resistance Bridge (No. 638R, Shallcross Manufacturing Co., Collingdale, Pa., or equivalent) across pins A and B of tank unit electrical receptacle.

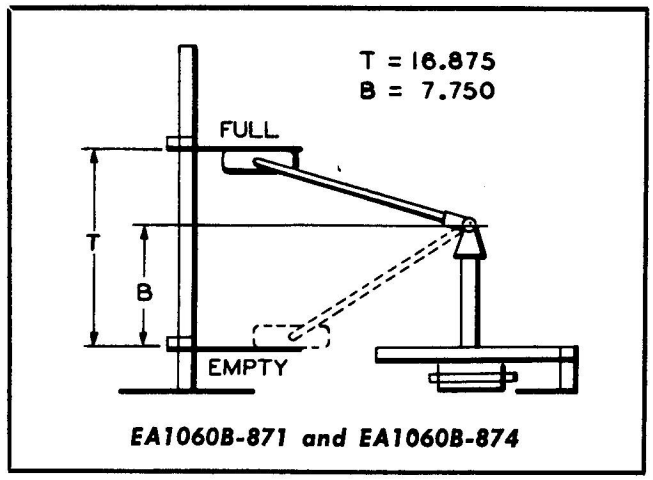
b. With float at the empty position, see if resistance is within the tolerances listed in table, figure 4-267.

c. See paragraph 3-15, b and c.

d. Raise float to upper limit and see if resistance is within the tolerances given for full position. If it is, no further adjustment is necessary.

e. See paragraph 3-16, b, c and d.

f. Recheck resistance at empty position, making further adjustments as required.



EA1060B-871 and EA1060B-874

Figure 4-268. Set-Up Stand Diagram

SPECIFIC DATA SHEET NO. 25

Tank units covered in this Specific Data Sheet are of the inside operating rod type and are as follows:

EA565P-991
EA565W-1311
EA565W-1345

Voltage	28V dc
Dimensions	see figure 4-270

Figure 4-269. Table of Leading Particulars

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-271.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-271, except as noted below. Attaching parts such as screws, nuts, washers and rivets are listed immediately following the parts they attach.

Follow general disassembly instructions given in paragraphs 2-1 thru 2-5, 2-7, 2-8, 2-10 thru 2-12 and 2-14.

Item 5. Do not disassemble float assembly, except under emergency conditions.

Item 15. Refer to potentiometer overhaul instructions, paragraph 2-53, for removal of warning switch from potentiometer assembly.

CLEANING.

Refer to paragraphs 2-15 thru 2-17.

INSPECTION.

Refer to paragraphs 2-18 thru 2-20 and 2-22 thru 2-24. See figure 4-270 for dimensions.

Item 15. Inspect potentiometer in accordance with paragraphs 2-59 thru 2-64.

Items 29, 31, 43 and 44. Make sure that all pins are free from tool marks, scratches and burrs.

Items 73 and 79. Inspect pins in electrical receptacle for damage.

PRE-ASSEMBLY TESTING.

Refer to paragraphs 2-25 thru 2-27.

Item 15. Test potentiometer in accordance with paragraphs 2-65 thru 2-68. Use figure 4-272 for d-c resistance value.

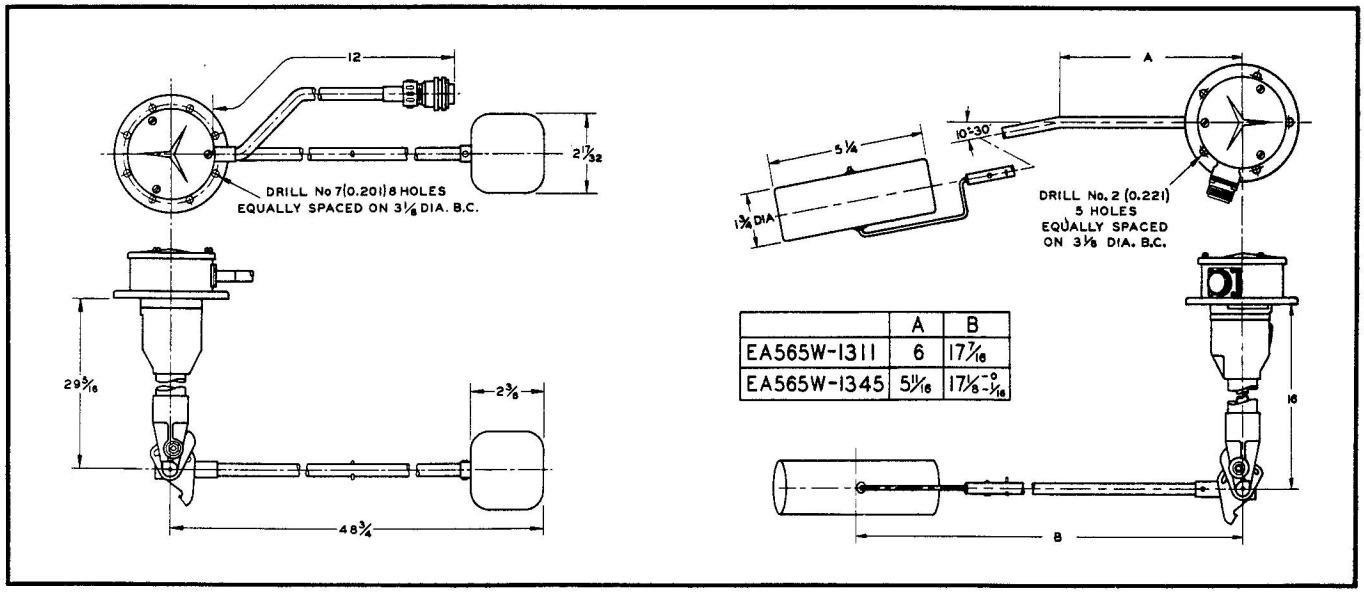
REPAIR OR REPLACEMENT.

Refer to paragraphs 2-28 thru 2-29.

Item 15. Refer to paragraphs 2-69 thru 2-73 for repair of potentiometer assembly, or replacement of warning switch.

LUBRICATION.

None required.



	A	B
EA565W-1311	6	17 7/16
EA565W-1345	5 11/16	17 1/8 -0 -1/16

Figure 4-270. General Dimensions

1. Tank gasket
2. Float
3. Countersunk head rivet
4. Float bushing
5. Float assembly
6. Washer
7. Float bushing
8. Float bearing
9. Float weight
10. Float
11. Cover
12. Cover screw
13. Stud cover washer
14. Cover housing gasket
15. Potentiometer assembly
16. Machine screw
17. Flat washer
18. Insulating pad
19. Screw
20. Screw
21. Washer
22. Nut
23. Link
24. Bearing stud
25. Offset link
26. Housing insert
27. Flat washer
28. Machine screw
29. Operating rod pin
30. Flat washer
31. Operating rod link pin
32. Operating rod extension
33. Rivet
34. Operating rod bushing
35. Operating rod
36. Operating rod link
37. Rivet
38. Operating rod bushing
39. Fulcrum assembly
40. Bushing
41. Top mounting fulcrum
42. Fulcrum
43. Groove pin
44. Fulcrum block pin
45. Top mount stop assembly
46. Hex nut
47. Lock washer
48. Hex screw
49. Float arm stop bushing
50. Upper stop
51. Lower stop
52. Cotter pin
53. Float arm
54. Float arm plug
55. Seal wire
56. Machine screw
57. Float arm
58. Rivet
59. Rivet
60. Float fork bushing
61. Float fork
62. Bellows shield
63. Drilled rivet
64. Fulcrum bracket
65. Drilled rivet
66. Fulcrum pipe
67. Rivet
68. Nut
69. Bellows arm
70. Dowel pin
71. Flat head screw
72. Bellows seal assembly
73. Electrical connector plug
74. Conduit coupling nut
75. Cable connector
76. Gasket
77. Cable
78. Cable connector
79. Connector receptacle
80. Fillister head screw
81. Spring lock washer
82. Solder lug
83. Receptacle gasket
84. Mounting block
85. Flat head screw
86. Mounting block gasket
87. Name plate
88. Round head rivet
89. Housing

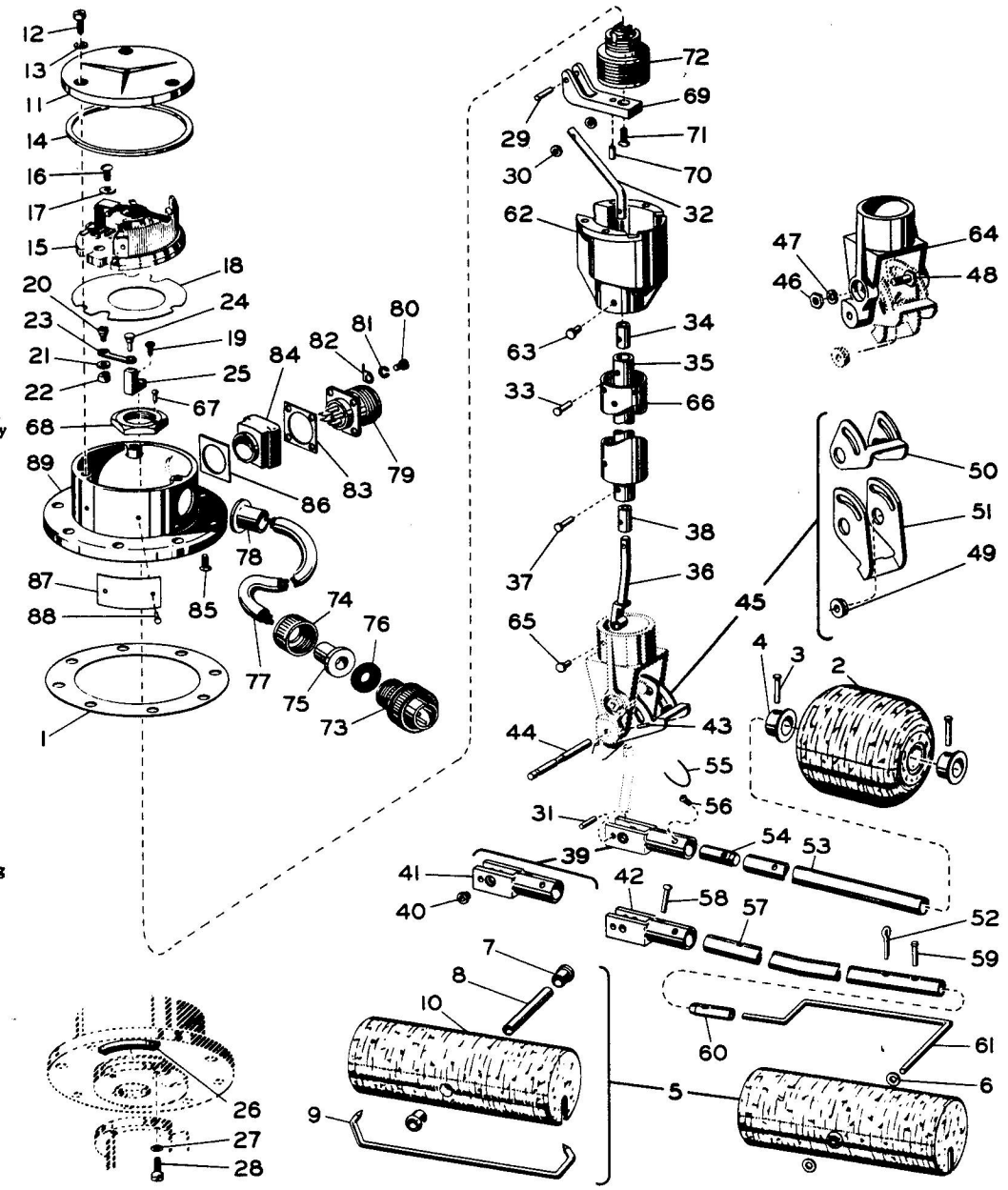


Figure 4-271. Exploded View of Tank Units

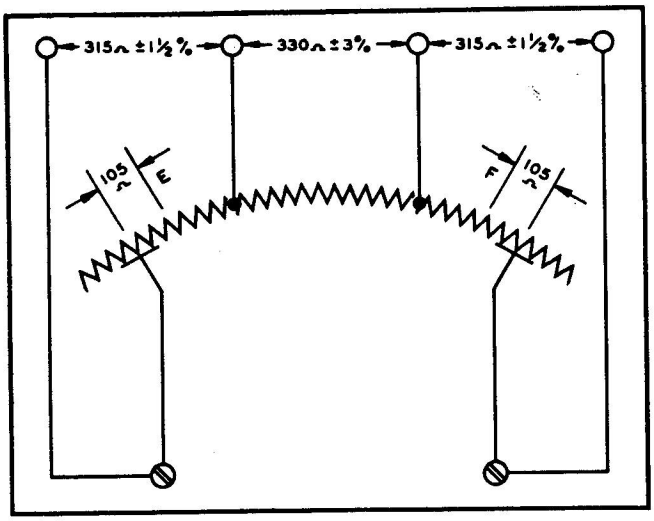


Figure 4-272. Resistance Values

REASSEMBLY.

Follow general instructions given in paragraphs 2-33 thru 2-35, 2-37 thru 2-39, 2-41 thru 2-43, 2-45, 2-46, 2-48, 2-50 thru 2-52 and instructions given below. Use figure 4-270 for dimensions.

Item 78. Coat area around hole in housing with fungicide varnish (Specification MIL-V-173A), insert connector (78) into housing and spin over using a hydraulic press, with 1½ ton pressure. See paragraph 2-34A.

Item 61. Align float fork (61) and float (2 and 5) to correspond to general dimension drawing, figure 4-270.

Item 68. After tightening bellows nut, drill through nut with a No. 53 (.059) drill into flange of housing to a depth of ⅛ in. Drive in rivet (67).

Use a solvent specified in Federal Specification P-S-661b, or equivalent, in testing seal between housing (89) and bellows seal assembly (72).

Item 71. Coat threads of screw with Glyptal (Specification MIL-V-1137A) before attaching link assembly (20 thru 25) to bellows seal assembly (72).

Item 26. Inserts must be free from burrs.

Item 15. Follow general instructions given in paragraph 2-74 in reassembly of potentiometer. Use figure 4-279 for potentiometer in EA565W-1311 and EA565W-1345.

Connect wires according to internal wiring diagram, figures 4-273 or 4-274. Position all wires so that they will not interfere with motion of contact arm assembly.

Item 28. Safety wire (Specification AN995N32) the four screws.

Item 48. Upset exposed threads on screws.

TEST PROCEDURE.

ADJUSTING FLOAT ARM STOPS. See paragraphs 3-1 thru 3-6 and 3-8 thru 3-9. Use a set-up stand similar to that shown in figure 3-1. Adjust dimensions of stops to values shown in figure 4-275 or 4-276.

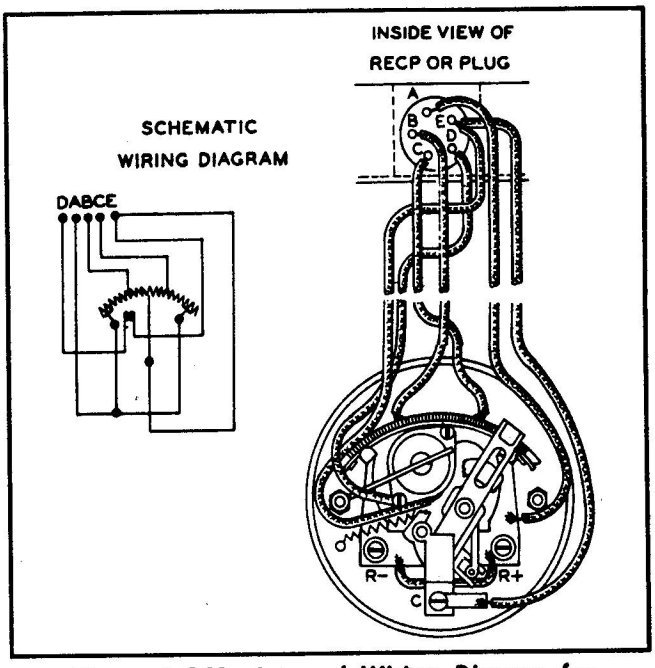


Figure 4-273. Internal Wiring Diagam for EA1060W-1311 and EA1060W-1345

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM.

a. Install tank unit in set-up stand and make sure that stops are adjusted to values shown in figure 4-275 or 4-276.

b. Follow general instructions given in paragraphs 3-10 or 3-11.

c. Use connection diagram, figure 4-277, to connect tank units EA565W-1311 and EA565W-1345 to Type 0-1 Field Tester. Use figure 4-278 for EA565P-991.

SETTING WARNING SWITCH. Follow general instructions given in paragraphs 3-24 thru 3-26. Set plate "S" at dimension given in figure 4-276.

Note

If necessary, the float arm (53) of EA565P-991 may be disengaged for storage or shipment by removal of screw (56).

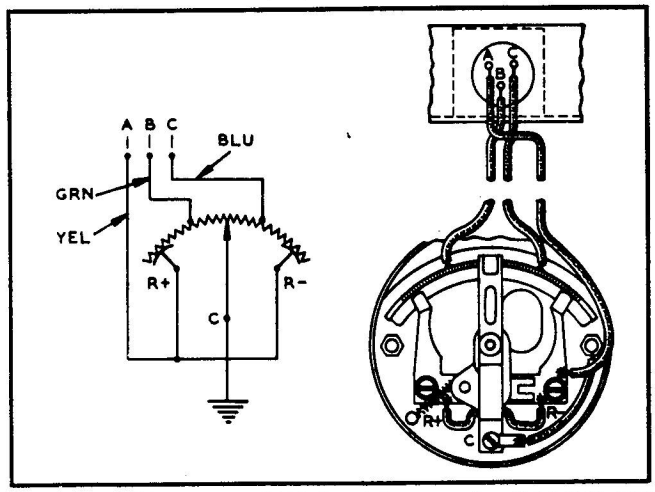


Figure 4-274. Internal Wiring Diagram for EA565P-991

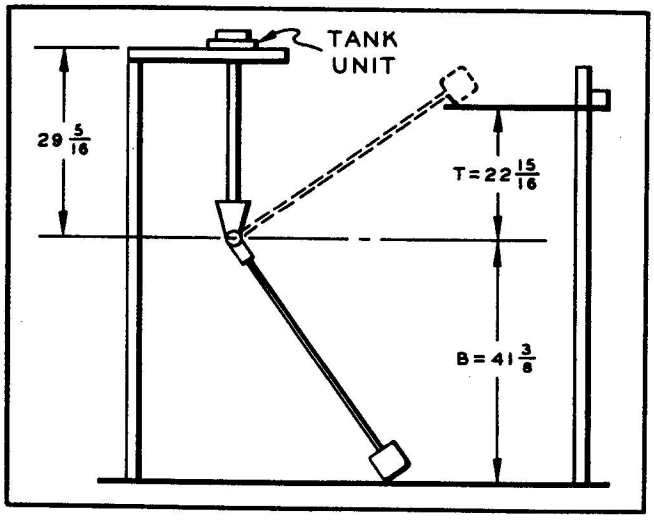


Figure 4-275. Set-Up Stand Dimensions for EA565P-991

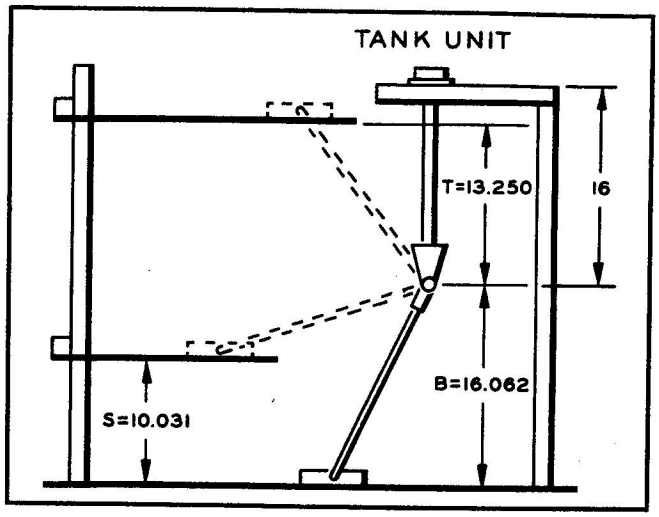


Figure 4-276. Set-Up Stand Dimensions for EA565W-1311 and EA565W-1345

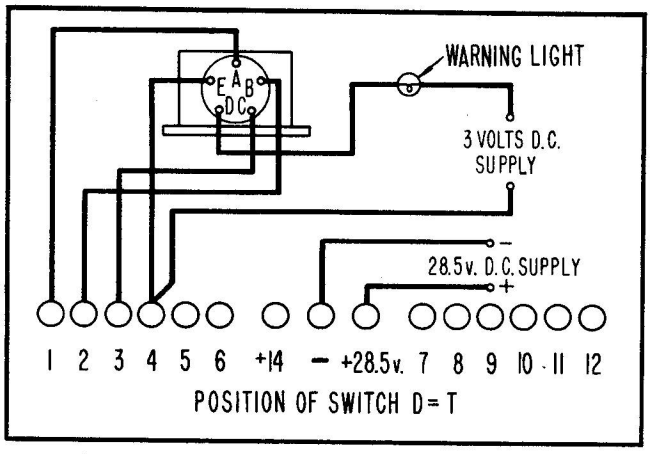


Figure 4-277. Field Tester Connection Diagram for EA565W-1311 and EA565W-1345

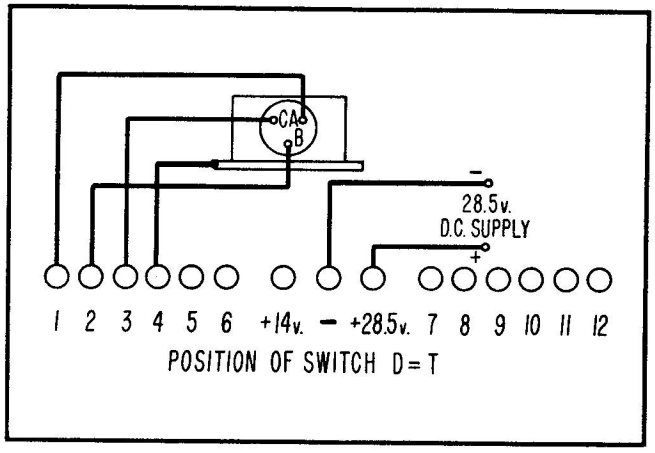
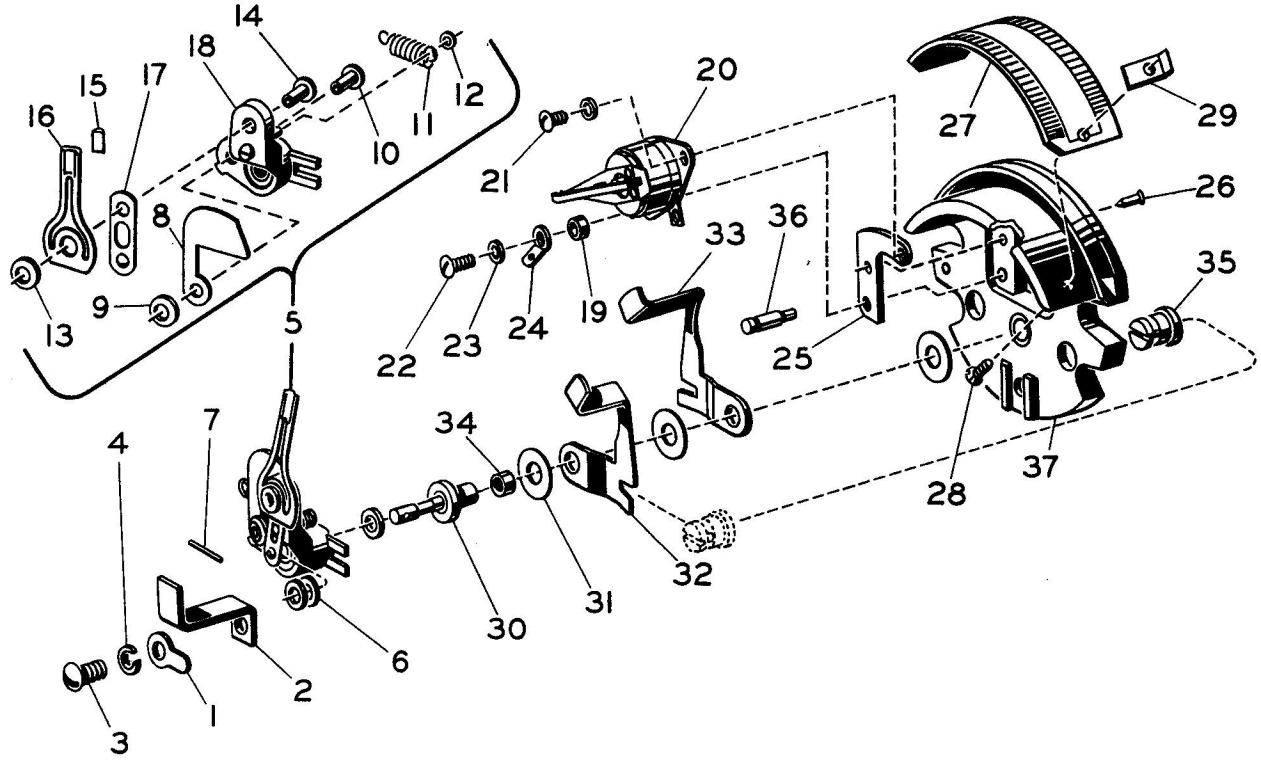


Figure 4-278. Field Tester Connection Diagram for EA565P-991



1. Solder lug
2. Contact arm contactor
3. Machine screw
4. Lock washer
5. Contact & switch arm assembly
6. Flat washer
7. Pin
8. Switch contact arm
9. Washer
10. Eyelet
11. Spring
12. Flat washer
13. Cup washer
14. Eyelet
15. Gold contact
16. Contact arm shoe
17. Contact arm blade
18. Moulded contact arm assembly
19. Ground terminal spacer
20. Warning switch assembly
21. Round head screw
22. Round head screw
23. Lock washer
24. Solder lug
25. Base plate
26. Escutcheon pin
27. Wound resistor
28. Flat head screw
29. Resistor support
30. Contact arm shaft
31. Insulating washer
32. Adjustment lever
33. Adjustment lever
34. Insulating bushing
35. Adjustment eccentric
36. Spring pin
37. Potentiometer base

Figure 4-279. Exploded View of Potentiometer Assembly EA1502SC-33

SPECIFIC DATA SHEET NO. 26

Tank units covered in this Specific Data Sheet are of the inside operating rod type and are as follows:

EA1062A-997A EA1062A-998A

Dimensions	see figure 4-281

Figure 4-280. Table of Leading Particulars

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-282.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-282, except as noted below. Attaching parts such as screws, nuts, washers and rivets are listed immediately following the parts they attach.

Follow general disassembly instructions given in paragraphs 2-1 thru 2-4, 2-7, 2-8, 2-10, 2-12 and 2-14.

Item 1. Take off truark snap ring to remove float assembly from float shaft. Do not disassemble float assembly except under emergency conditions.

Item 18. Do not disassemble hose connection assembly.

CLEANING.

Refer to paragraphs 2-15 thru 2-17.

INSPECTION.

Refer to paragraphs 2-18 thru 2-20 and 2-22 thru 2-24. See figure 4-281 for dimensions.

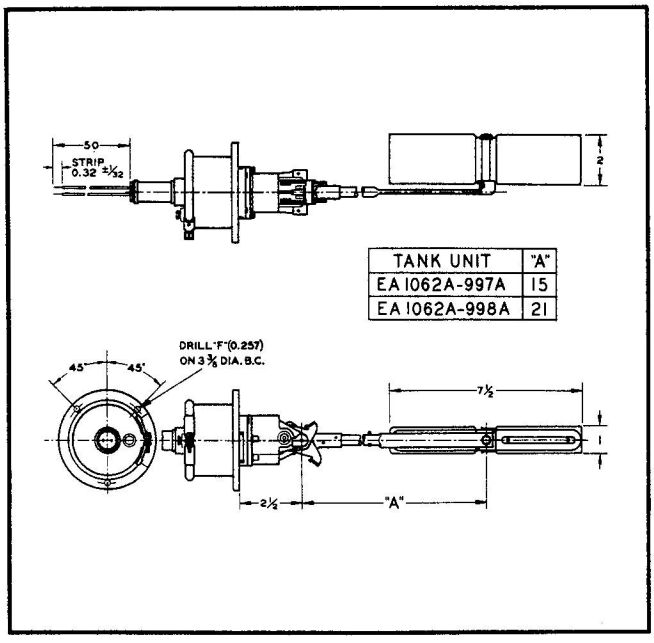


Figure 4-281. General Dimensions

Item 21. Inspect potentiometer in accordance with paragraphs 2-59 thru 2-64.

Items 38, 40 and 41. Make sure that all pins are free from tool marks, scratches and burrs.

PRE-ASSEMBLY TESTING.

Item 18. Check electrical continuity of leads.

Item 21. Test potentiometer in accordance with paragraphs 2-65 thru 2-68. Use figure 4-283 for d-c resistance value.

REPAIR OR REPLACEMENT.

Refer to paragraphs 2-28 and 2-29.

Item 21. Refer to paragraphs 2-69 thru 2-73 for repair of potentiometer assembly.

LUBRICATION.

None required.

REASSEMBLY.

Follow general instructions given in paragraphs 2-33 thru 2-35, 2-37 thru 2-39, 2-41 thru 2-43, 2-45, 2-46, 2-48, 2-50 thru 2-52 and instructions given below. Use figure 4-281 for dimensions.

Item 60. After tightening bellows nut, drill through nut with a No. 53 (.059) drill into flange of housing to a depth of 1/8 in. Drive in rivet (59).

Use a solvent specified in Federal Specification P-S-661b, or equivalent, in testing seal between housing (67) and bellows seal assembly (64).

Item 62. Coat threads of screw with Glyptal (Specification MIL-V-1137A) before attaching bellows arm (61) to bellows seal assembly (64).

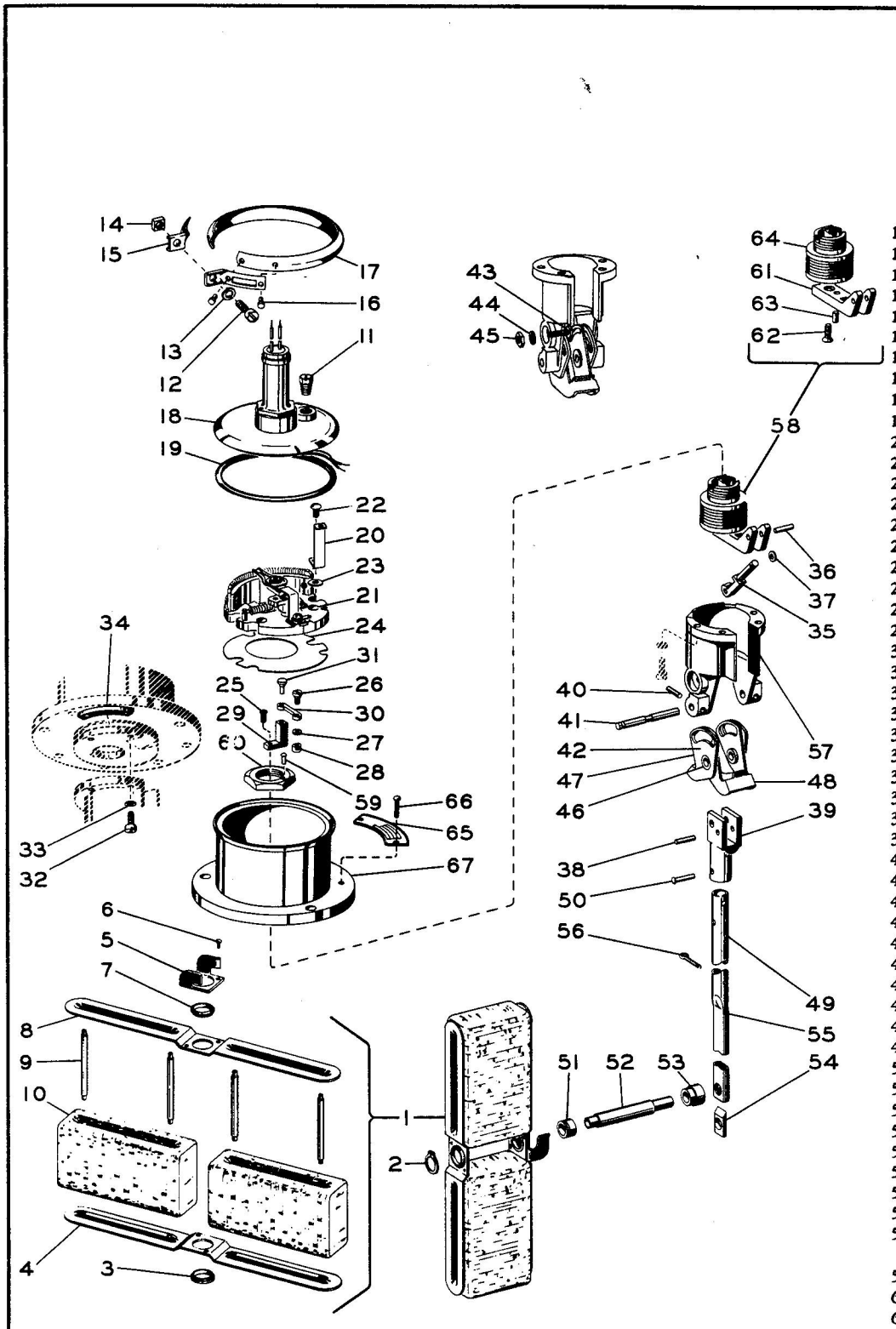
Item 34. Inserts must be free from burrs.

Item 1. Float assemblies, Part Nos. EA85063-4 and EA85063A-4 are interchangeable. Secure float assembly on float shaft (52) by installing truark snap ring (2).

Align float arm (49) and float assembly (1) to correspond to general dimension drawing, figure 4-281, for the specific tank unit.

Item 21. Follow general instructions given in paragraph 2-74 in reassembly of potentiometer.

Item 20. Install wire holder under screw (22) when installing potentiometer (21). Position of wire holder is shown in figures 4-284 and 4-285.



1. Float assembly
2. Truark snap ring
3. Float bearing
4. Float bracket
5. Float stop
6. Rivet
7. Float bearing
8. Float bracket
9. Float bushing
10. Float
11. Plug
12. Screw
13. Lock washer
14. Nut
15. Clamp ring lug
16. Rivet
17. Clamp ring
18. Cover and hose assembly
19. "O" ring
20. Wire holder
21. Potentiometer assembly
22. Round head screw
23. Flat washer
24. Insulating pad
25. Screw
26. Link screw
27. Link washer
28. Link nut
29. Offset link
30. Link
31. Bearing stud
32. Screw
33. Lock washer
34. Housing insert
35. Operating rod
36. Operating rod pin
37. Flat washer
38. Operaitng rod link pin
39. Fulcrum
40. Groove pin
41. Fulcrum block pin
42. Float arm stop assembly
43. Hex head screw
44. Lock washer
45. Hex nut
46. Float arm stop bushing
47. Sidemount upper stop
48. Sidemount lower stop
49. Float arm assembly
50. Rivet
51. Retaining collar
52. Float shaft
53. Float bushing
54. Float arm plug
55. Float arm
56. Cotter pin
57. Fulcrum bracket
58. Bellows arm and seal assembly
59. Rivet
60. Bellows holder nut
61. Bellows arm
62. Screw
63. Dowel pin
64. Bellows seal assembly
65. Plate name
66. Rivet
67. Tank unit housing

Figure 4-282. Exploded View of Tank Units

Tank Unit	Resistance Between Taps ± 3%
EA1062A-997A	444.44 ohms
EA1062A-998A	869.56 ohms

Figure 4-283. Resistance Values

Connect wires according to wiring diagram, figure 4-284 or 4-285. Cover the two leads to cover with a 5½ in. piece of insulation tubing and run tubing thru both holes in wire holder (20) and wire holder in connection assembly (18).

Item 32. Safety wire (Specification AN995N32) the four screws.

Item 43. Upset exposed threads on screws.

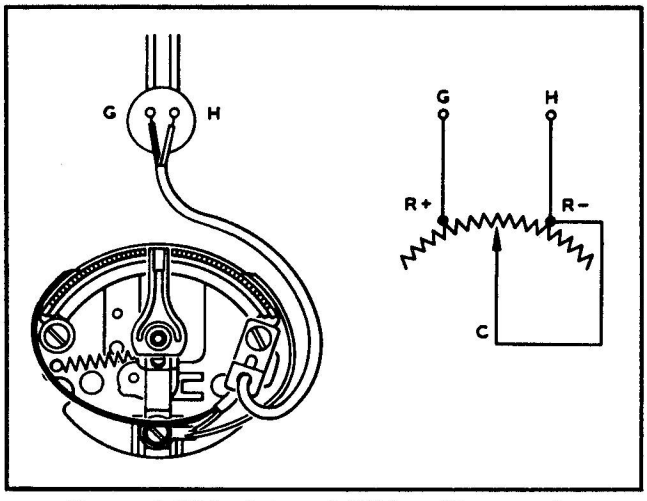


Figure 4-284. Internal Wiring Diagram for Tank Unit EA1062A-997A

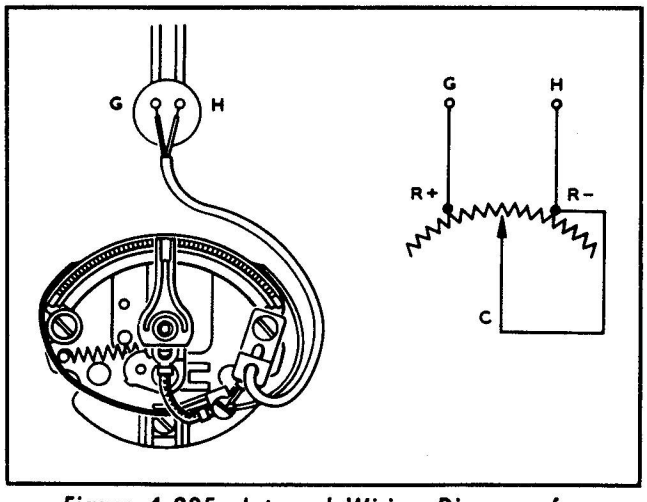


Figure 4-285. Internal Wiring Diagram for Tank Unit EA1062A-998A

TEST PROCEDURE.

ADJUSTING FLOAT ARM STOPS. See paragraphs 3-1 thru 3-6 and 3-8 thru 3-9. Use a set-up stand similar to that shown in figure 3-1. Adjust dimensions of stops to values shown in figure 4-286.

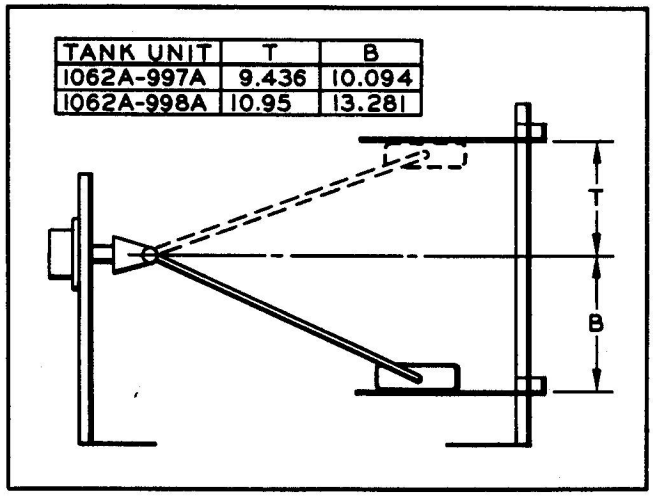


Figure 4-286. Set-Up Stand Diagram

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM.

a. Install tank unit in set-up stand and make sure that stops are adjusted as shown in figures 4-286.

b. Connect a Kelvin-Wheatstone Resistance Bridge (No. 638R, Shallcross Manufacturing Co., or equivalent) across leads G and H of tank unit.

c. Rest float on set-up stand plate adjusted for empty position and check resistance.

d. If resistance value is not within tolerances shown in "Empty" column of figure 4-287, pivot the friction-fitted contact arm of the potentiometer to adjust resistance. Refer to paragraph 3-15, b and c.

e. Raise float to underside of set-up stand plate adjusted for full position and check resistance.

Tank Unit	Float At Empty Position Resistance Limits (in ohms) Minimum	Maximum	Float At Full Position Resistance Limits (in ohms) Minimum	Maximum
EA1062A-997A	0	6.6	431.1	457.8
EA1062A-998A	0	8.7	843.5	895.7

Figure 4-287. Resistance Tolerances

f. If resistance value is not within tolerances given in "Full" column of figure 4-287, adjust the contact arm assembly in accordance with instructions given in paragraph 3-16, b, c, and d.

Note

Do not remove adjustment screw (26, figure 4-282). Always tighten screw before checking stroke.

g. Recheck resistance at empty position. If any adjustment is required repeat test at full position.

LEAK TEST.

Leak test the completely assembled tank unit as specified in paragraph 3-38.

SPECIFIC DATA SHEET NO. 27

Tank units covered in this Specific Data Sheet are of the outside operating rod type and are as follows:

EA1612A-18R-9715

Voltage	28v dc
Dimensions	see figure 4

Figure 4-55. Table of Leading Particulars

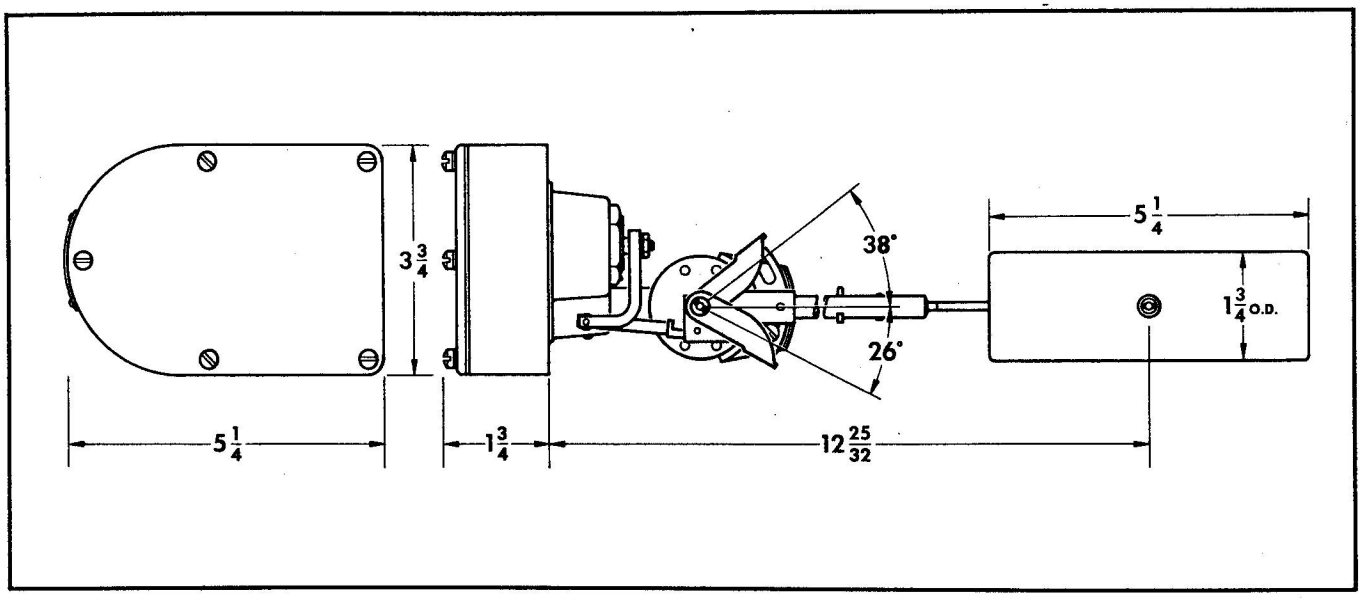


Figure 4-287. General Dimensions

Note

Item numbers mentioned below correspond to those in exploded view, figure 4-288.

DISASSEMBLY.

Disassembly is in the same order as index numbers assigned to exploded view, figure 4-288.

Follow general disassembly instructions given in paragraphs 2-1 thru 2-9, and 2-11 thru 2-13. For disassembly of potentiomter, see paragraphs 2-69 thru 2-74.

CLEANING.

See paragraphs 2-15 thru 2-17.

INSPECTION.

See paragraphs 2-18 thru 2-24. For inspection of potentiometer see paragraphs 2-59 thru 2-64.

PRE-ASSEMBLY TESTING.

See paragraphs 2-25 thru 2-27. For tests of potentiometer, see paragraphs 2-65 thru 2-68. (See figure 4-289.)

REPAIR OR REPLACEMENT.

See paragraphs 2-28 thru 2-30. For repair of potentiometer, see paragraphs 2-69 thru 2-74.

LUBRICATION.

None required.

REASSEMBLY.

Follow general instructions given in paragraphs 2-33 thru 2-36, 2-38 thru 2-40, 2-42 thru 2-44, 2-46, 2-47, and 2-49 thru 2-52.

Items 36 thru 47. Align float fork (46), float arm (36) and float (16).

Item 6. Connect wires according to internal wiring diagram for specific tank unit. See figure 4-290 for internal wiring diagram.

TEST PROCEDURE.

ADJUSTING FLOAT ARM STOPS. See paragraphs 3-5 thru 3-7, also 3-9. Use figure and dimensions indicated for specific tank unit. Set-up Stand Dimensions, figure 4-291.

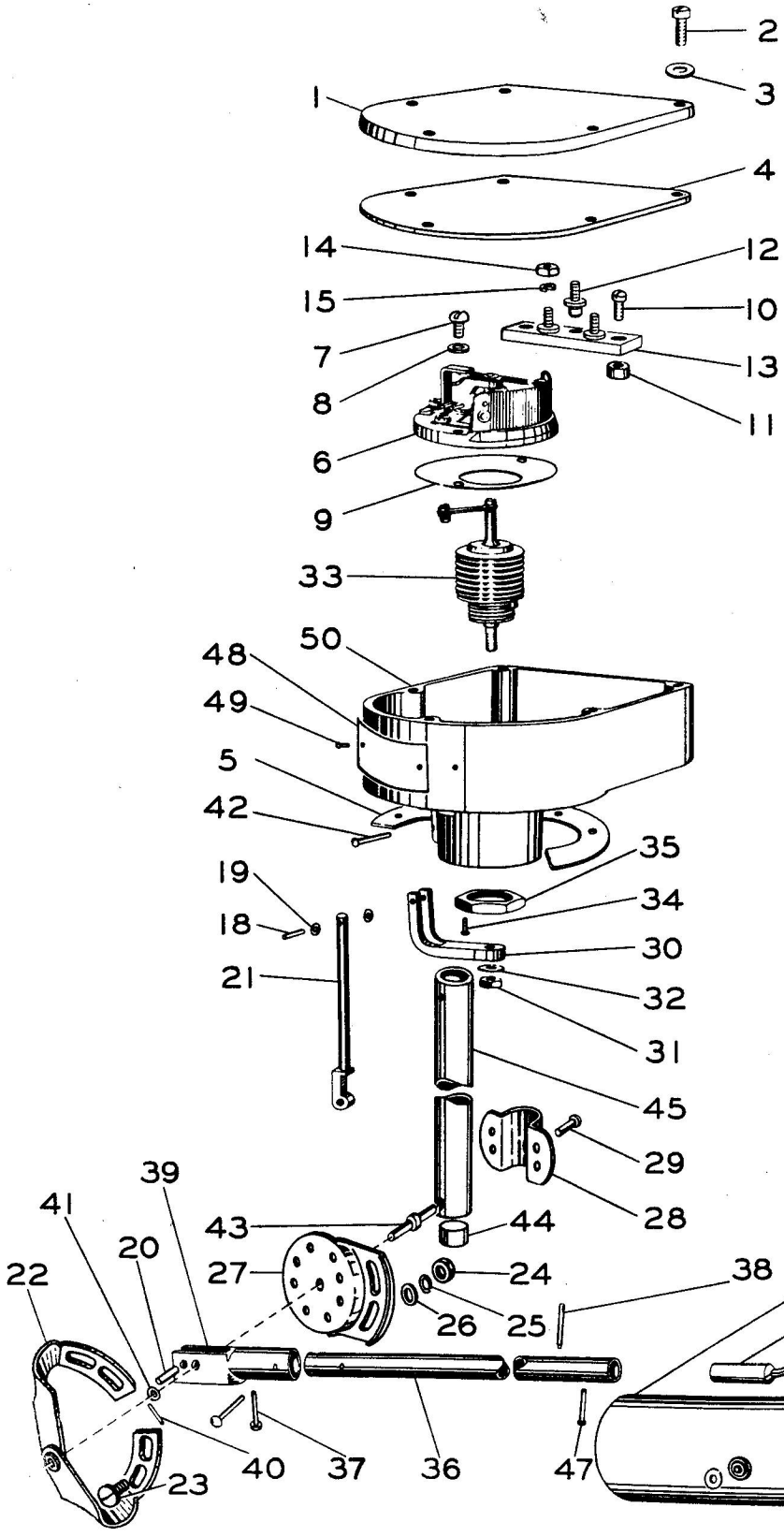


Figure 4-288. Exploded View of Tank Unit

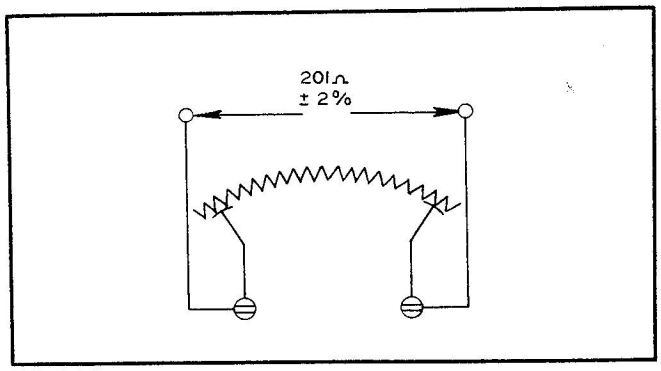


Figure 4-289. Resistance Value Diagram

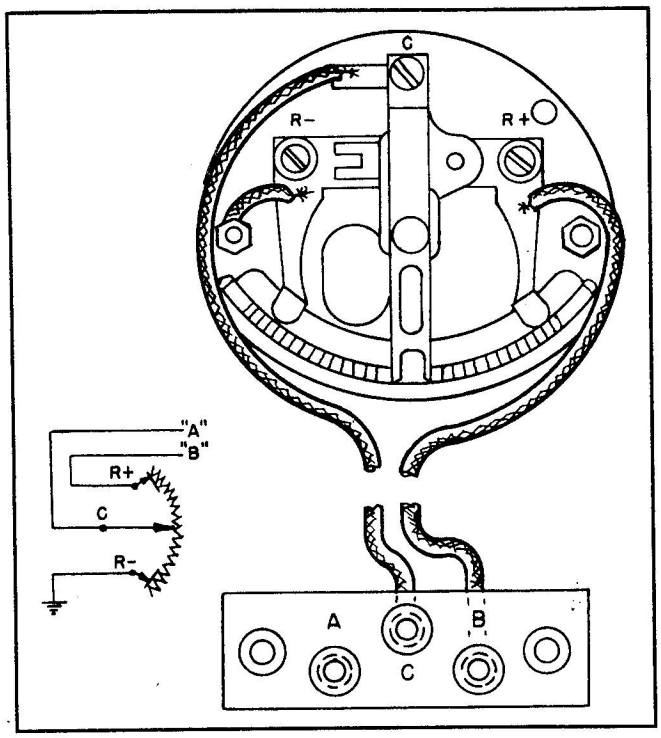


Figure 2-290. Internal Wiring Diagram

ADJUSTING STROKE OF POTENTIOMETER CONTACT ARM. See paragraph 3-11, using field tester wiring diagram figure 4-292.

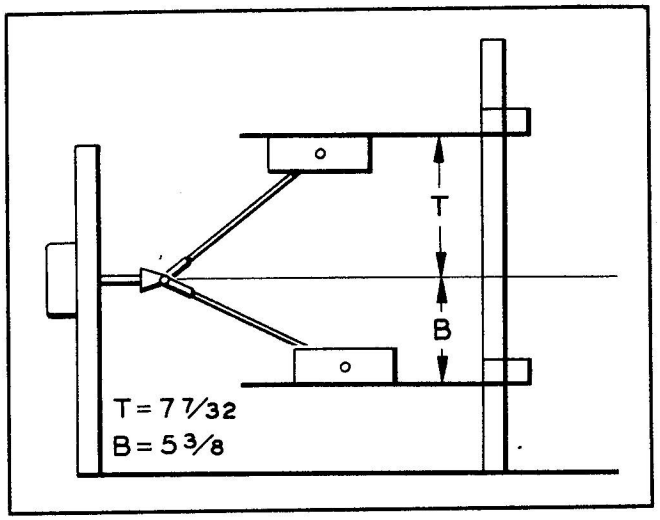


Figure 4-291. Set-up Stand Diagram

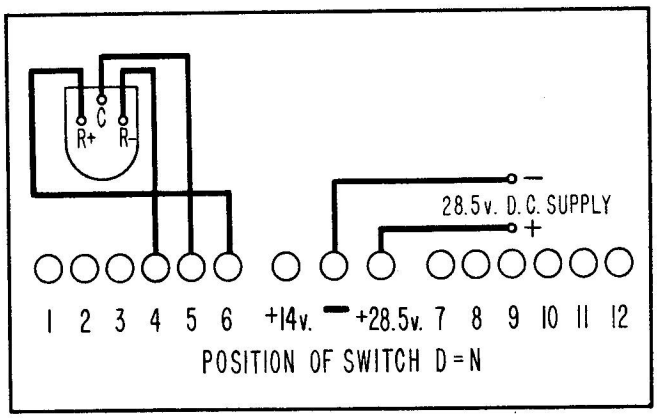


Figure 4-292. Field Tester Wiring Diagram