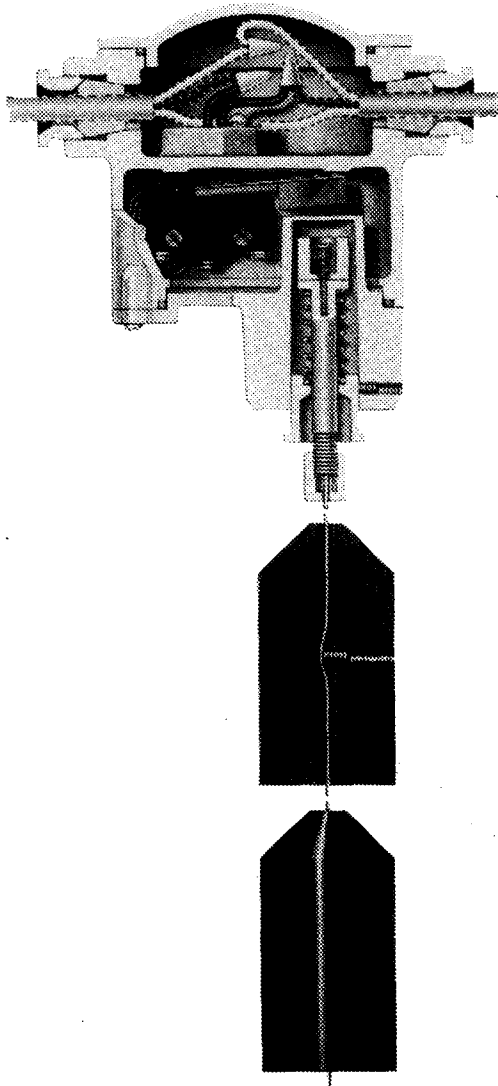


AWS-1 Adjustable Level Control

INSTALLATION AND SERVICING
INSTRUCTIONS FOR MYERS
AWS-1 and AWSU-1
ADJUSTABLE LEVEL
WET SUMP
CONTROL



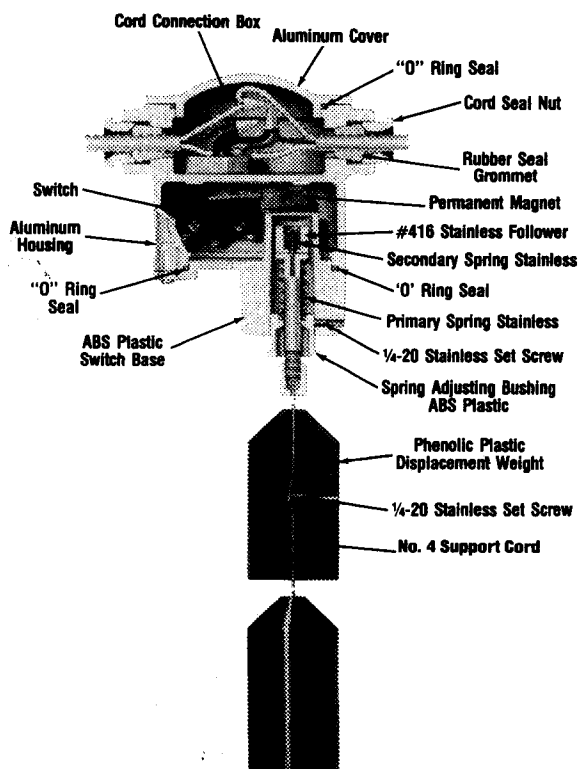
This control is made in two models only. Model AWS-1 is for standard pump down sump service and Model AWSU-1 for pump up or tank fill applications.

Switch can operate any single phase pump direct within rating of switch.

Switch is rated 1 HP—115 volts or 2 HP—230 volts and of course can be used with any size motor as a pilot for magnetic starter. The limitation for pump size is controlled by size wire that can be used in cord nuts. When the AWSU-1 switch is used as pilot only, remote from pump, any size motor can be started.

PACKAGING—Each control is packed separately and includes switch with integral connection box, two displacement weights, 108 inches of No.4 braided nylon support cord and all stainless steel clamp to mount switch to pump discharge pipe or to bracket mounted in tank if used for tank fill operation. Carton is marked with model number and ordering number.

DESCRIPTION—See Fig 1 with call out description of parts. The AWS-1 or AWSU-1 controls are completely sealed with the switch being operated by a permanent magnet.



Any on-off level within the limits of the 108 inch suspension cord can be obtained by adjusting weights on cord.

A 1/4" socket head stainless steel screw holds weights in position on cord. A hex socket wrench is needed to adjust weights. Fig 2.

Switch has integral sealed connection box for connecting pump and power cords and alarm control cords if used. All cords are sealed with rubber bushings compressed with nuts.

This switch with connection box is designed for used in any wet sump where pump is installed remote from power source and a plug in receptacle cannot be used because of dampness.

This switch is ideal for use with pump installed in septic tank to pump effluent.

MOUNTING—The AWS-1 switch is mounted on discharge pipe or on an extension of the discharge pipe as shown in Fig 3, with stainless clamp supplied.

Switch is mounted so that weights hang free and are opposite from sump inlet.

Weights are set on cord so that bottom of lower weight is at least 4" off bottom of sump and top of upper weight is below bottom of inlet pipe.

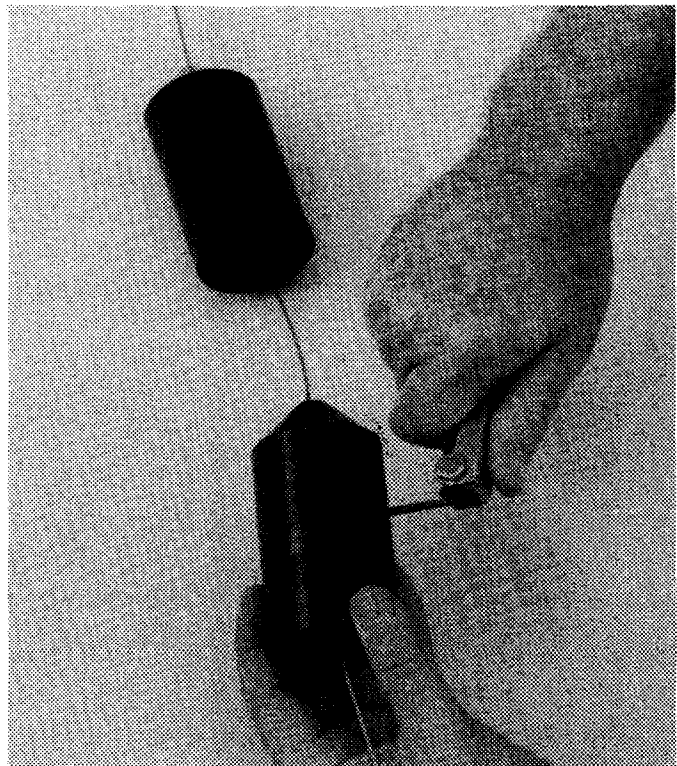


FIG. 1

FIG. 2

Excess length support cord is cut-off flush with bottom of lower weight Fig. 4. After cutting cable, loosen set screw of lower weight and slide weight down $\frac{1}{4}$ " so that end of cord is not exposed.

If frayed end of cord is left below weight, trash may hang up and cause faulty switch operation.

Pump cord is cut for proper length to connect into box and is taped to discharge pipe.

Power cord from remote source is connected into box. #14 power cord can be used for off-set distance of 150 feet on pumps through 2 HP 230 volts.

Allow enough extra power cord so that pump and control can be lifted from sump after union is disconnected without disconnecting wires in box. This allows connection box to be opened and connection made out of sump where working is easier. The excess power cord is coiled and taped to top of pipe or connection box. See Fig 3.

A rubber bushing is supplied so that flat U.F. No. 14/3 or 12/3 cable may be used for power cord.

Generally only two openings in the connection box are used. One for power cord and one for pump cord. The extra openings are for installing alarm or other control on special installations. Solid rubber bushings are used to seal the unused holes.

When the AWSU-1 switch is used as a pilot remote from pump, it is necessary to run only one cord to control from control box remote from tank. This cord can be No. 16-3 conductor and can run several hundred feet if control is used as a pilot for magnetic starter.

Wiring diagrams are given for standard and special installations in these instructions.

SWITCH OPERATION – AWS-1 for pump down applications.

Switch construction is as shown by Fig 1 with the integral connection box.

Switch wires from switch compartment to connection compartment are sealed so if water should leak into connection

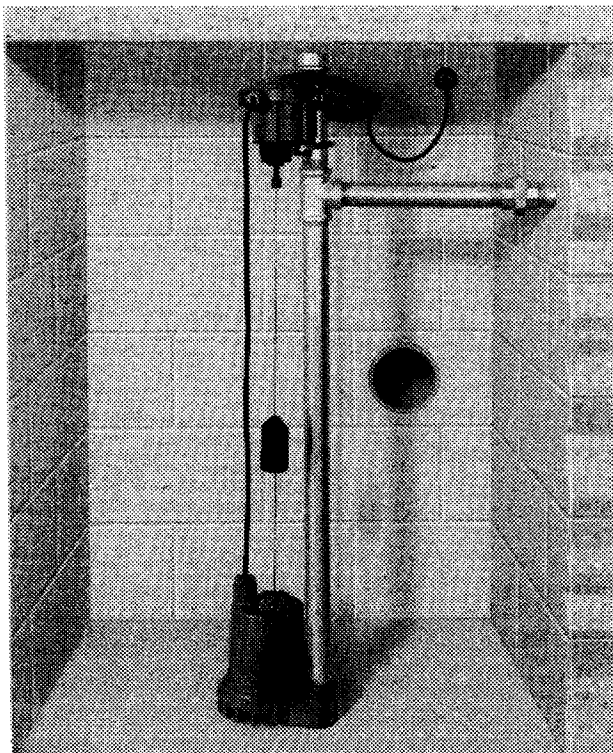


FIG. 3

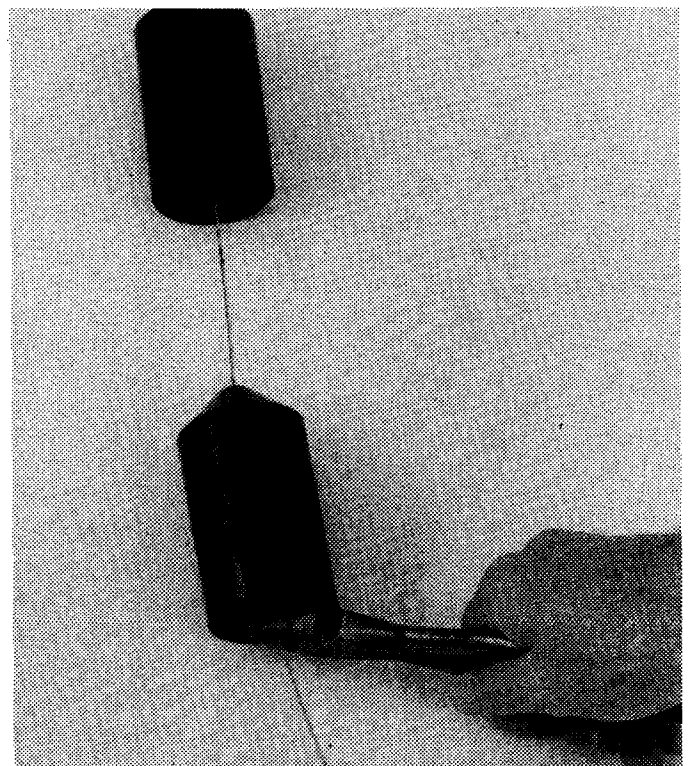


FIG. 4

compartment it will not damage switch.

The lower switch base is of ABS plastic and is same part as used in the Myers ALC control.

The upper housing and connection box is aluminum with baked on epoxy paint for corrosion resistance.

The switch base is held in aluminum housing with stainless steel screws and an "O" ring seal is used between parts. The box cap is aluminum painted with baked on epoxy and held in place with stainless screws. An "O" ring is used to seal cap.

The Phenolic plastic displacement weights are heavier than water but are lighter under water by the weight of water they displace. As the weights do not float, splashing or turbulence in the sump does not cause erratic operation.

In operation, when water rises in the sump, the lower weight becomes submerged and loses some weight by the weight of water it displaces which reduces load on primary spring. As level continues to rise, the upper weight becomes partially submerged and when about 1/2 of upper weight is submerged weight is further reduced and load on spring is further reduced allowing magnetic follower to move up and attract the permanent

magnet attached to switch arm to start pump.

As sump level is pumped down, the reverse operation occurs. First, the upper weight is exposed increasing load on spring and when level draws down until about 1/2 of lower weight is exposed, load is further increased on spring and follower is pulled from magnet stopping pump.

As the position of the displacement weights on the cable does not change their weight, the spacing of the weights will give draw-off required.

OPERATION OF AWSU-1 PUMP UP OR TANK FILL CONTROL—The operation of the AWSU-1 control is just the opposite of the AWS-1 control that is when tank level drops to lower weight level, pump will start and fill tank until upper weight level is reached, stopping pump.

Tank mounting brackets for the AWSU-1 control are not supplied but control can be mounted on pipe attached to tank wall or tank cover.

STARTING PUMP AND CHECKING SWITCH OPERATION AWS-1 CONTROL

1. Install pump and switch as per Fig 3.

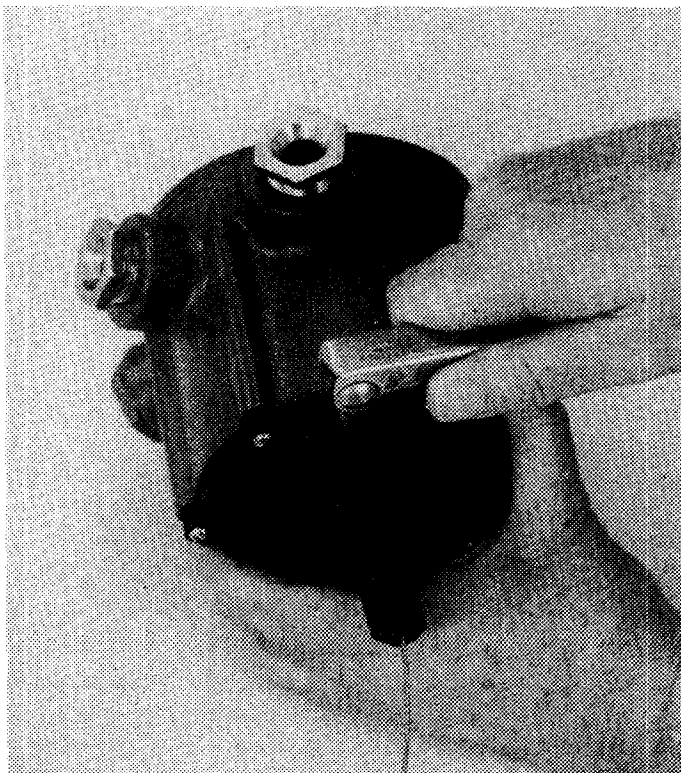


FIG. 5

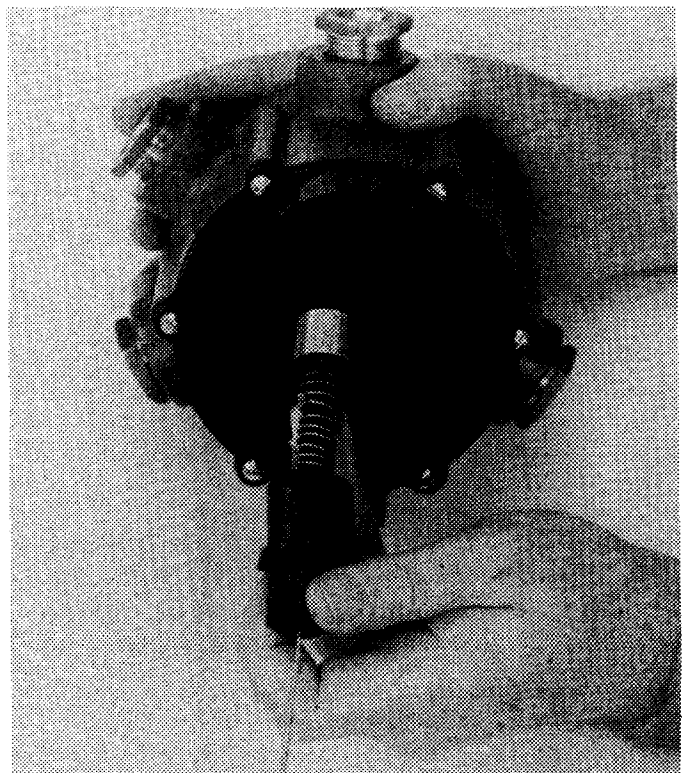


FIG. 6

2. Provide plug on service end of power cord to plug into grounded receptacle or connect directly into separate circuit breaker or fuse box.
3. Codes in some states require that a waterproof disconnect switch be used in the sump between power line and connection box.
4. Turn on power and fill sump with water. If sump is already filled pump should start immediately and pump sump down to lower control, stopping pump.
5. Operate pump through several on-off cycles to check switch operation.

If pump does not start, see other data in these instructions.

CAUTION—Before doing any work on switch or pump be sure power is off at source or in sump if disconnect switch is used. Be sure cord is plugged into a grounded receptacle or is grounded in circuit breaker or fuse box.

CHECK POINTS IF PUMP DOES NOT OPERATE

1. Be sure weights hang free and do not

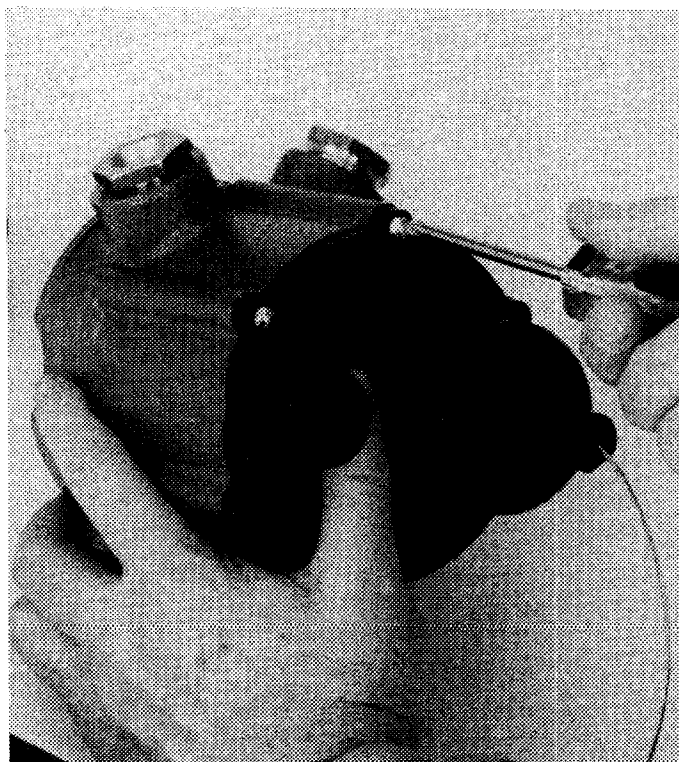


FIG. 7

touch pump or basin walls.

2. Be sure switch body is mounted vertical, and is not twisted on mounting pipe.
3. Be sure bottom of lower displacement weight is at least 4 inches above sump bottom. Any height above sump bottom can be used if larger pumps are used.
4. Be sure support cord does not extend below bottom of lower weight.
5. Be sure excess power cord is not tangled with weights.
6. Check for blown fuse or tripped circuit breaker at power source.
7. Check wiring with wiring diagram.
8. **CAUTION**—Always turn off power before making any checks on pump or switch.
9. Red warning label is attached to connection box cover (to turn off power before removing cover).

DISMANTLING INSTRUCTIONS FOR CLEANING OF PARTS OR REPLACEMENT

1. Loosen set screw that holds spring adjusting bushing Fig 5. Set screw is socket head 1/4" stainless steel. Hex wrench is needed to loosen screw.

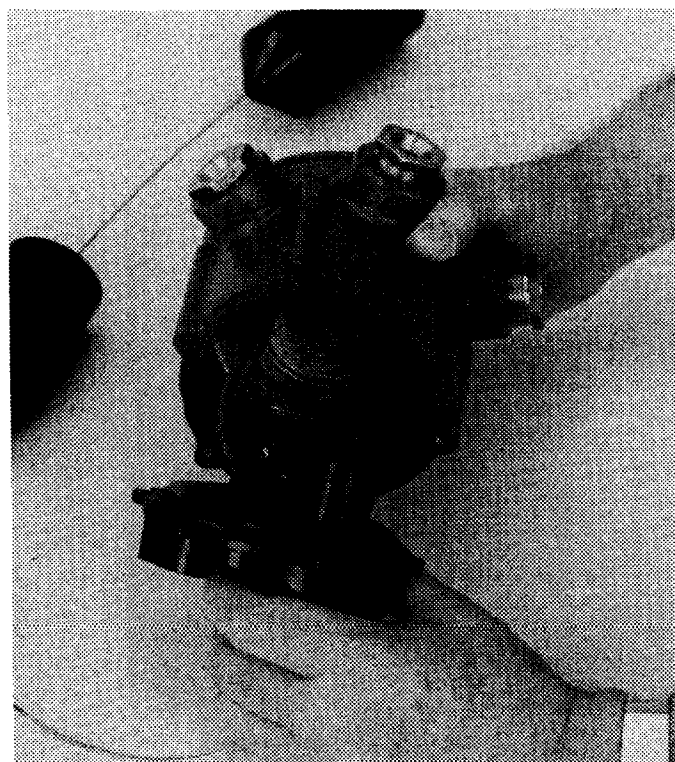


FIG. 8

2. Remove actuating assembly Fig 6. Clean all parts and hole in switch base.
3. Remove screws in switch base. Fig 7.
4. Remove switch and base from aluminum housing. Fig 8.
5. To replace switch and magnet, remove mounting screws and wires from old switch. Connect wires to new switch and mount on bracket with two screws and nuts. Be sure to use lock washers under nuts.

For the AWS-1 pump down switch lead wires are connected to left terminal and to middle terminal. For AWSU-1 pump up switch wires are connected to left terminal and right terminal.

To properly set switch, just snug up on bolts then push up on magnet end of switch body to take slack out of holes. Push on body not on magnet arm. Tighten bolts.

When switch arm is pushed down, magnet face should be flat against plastic face and switch should click on. Now raise switch arm and switch should click off. If switch does not click on and off properly, loosen

screws and move switch for best adjustment.

6. Replace switch base in aluminum housing.

CAUTION—Be sure “O” ring seal is in position and that all wires are tucked behind switch mounting flange, so that they will not interfere with switch arm operation.

7. Replace follower assembly and set spring adjusting bushing. Inner face of bushing flange should be about $\frac{1}{4}$ inch from face of housing Fig 9.
8. Now check switch operation for properly setting spring adjusting bushing.

Use following steps:

- a. Hold switch in vertical position and connect Ohmmeter to the two switch wires.
- b. Set weights about 2 inches apart.
- c. Hold switch vertical and lower switch so that weights will submerge in a bucket of water. When upper weight is about $\frac{1}{2}$ out of water, switch should go on showing completed circuit on ohmmeter. Fig 10.
- d. Now raise up on switch until about $\frac{1}{2}$ of lower weight is out of water and switch

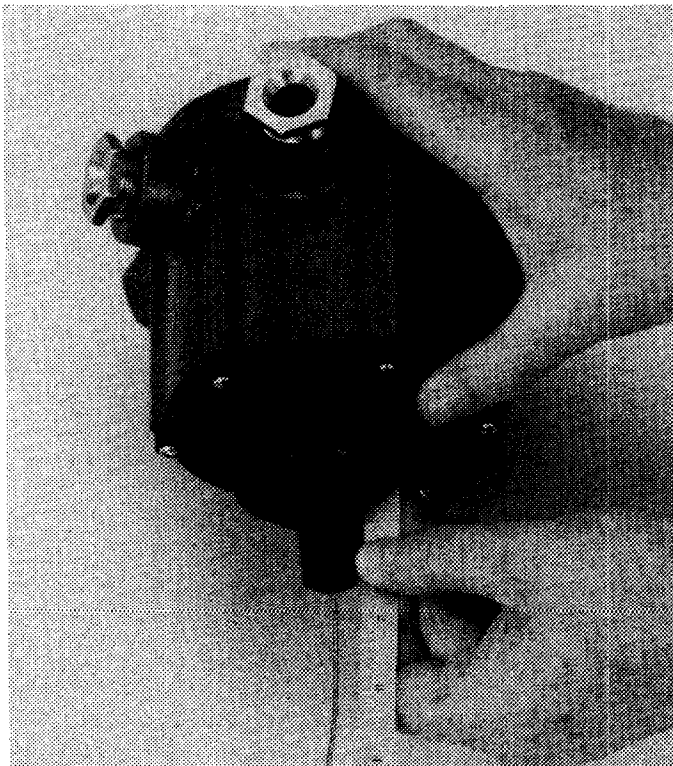


FIG. 9

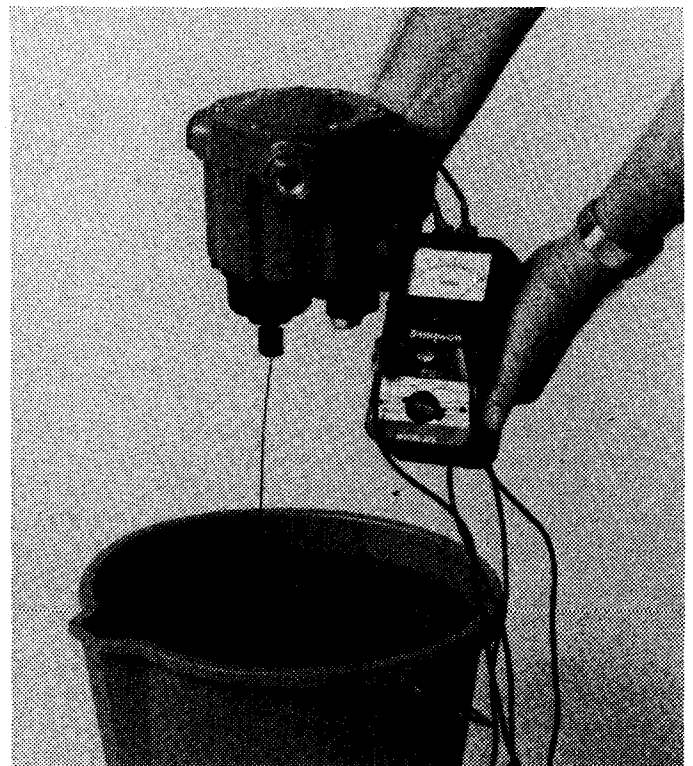


FIG. 10

should turn off showing open circuit on ohmmeter. Fig 11.

- e. If switch comes on when more than $\frac{1}{2}$ of upper weight is submerged, loosen set screw or spring bushing and push bushing in about $\frac{1}{32}$ to $\frac{3}{64}$ and retighten set screw. Turn bushing so that set screw point will not come back into same groove. If switch turns on when less than $\frac{1}{2}$ of upper weight is out of water, loosen set screw and pull bushing out about $\frac{1}{32}$ to $\frac{3}{64}$ inch. Use scale to check before and after measurements as shown in Fig 9. Turn bushing so that set screw point does not come back in same groove. Now tighten screw.

It may take two adjustments to get proper setting.

It may not be possible to get both upper and lower weights to turn on and off at exactly $\frac{1}{2}$ of weight, but slightly above or below $\frac{1}{2}$ on either weight give satisfactory operation as the $\frac{1}{2}$ weight allows for considerable safety factor.

WIRING DIAGRAMS

Wiring diagrams A-B-C-D-E-F show connection for single and three phase operation.

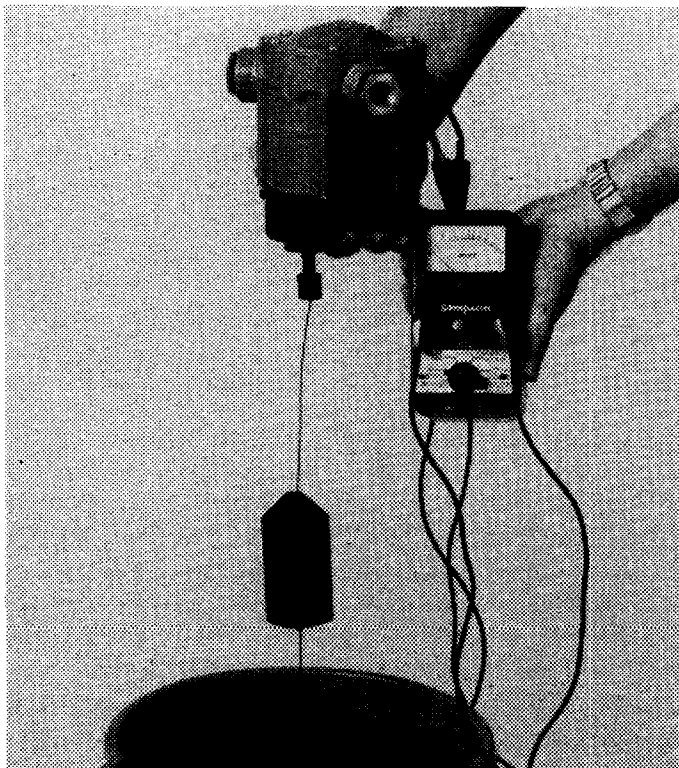


FIG. 11

Wiring diagrams furnished with Duplex control boxes show how controls connect to the remote control box.

Diagram G shows connection when the AWSU-1 switch is installed remote from pump and is used only on a pilot for magnetic starter.

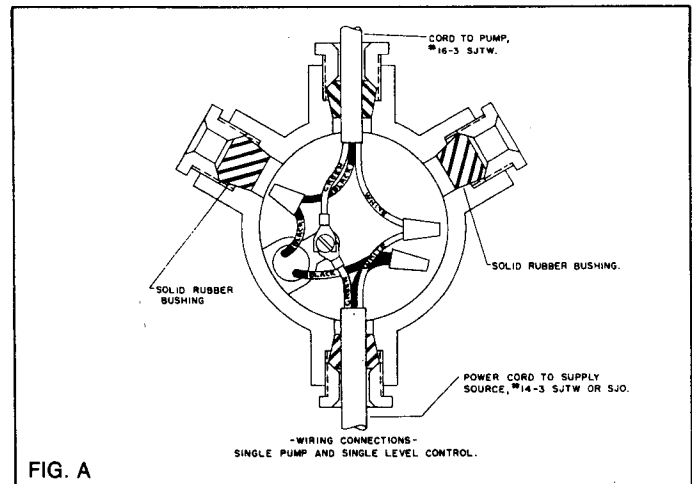


FIG. A

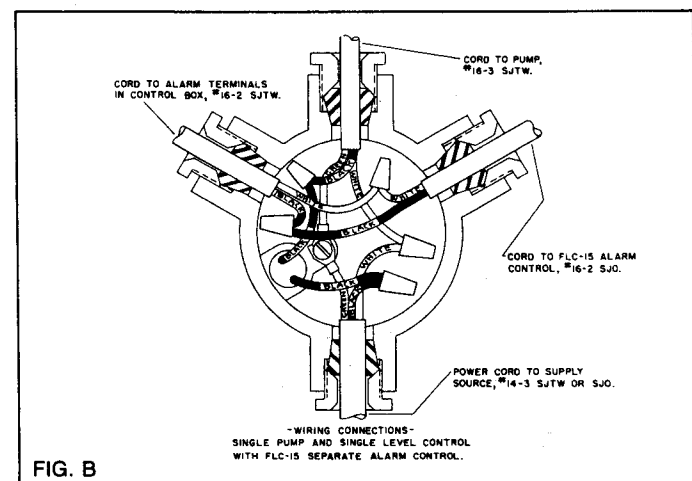


FIG. B

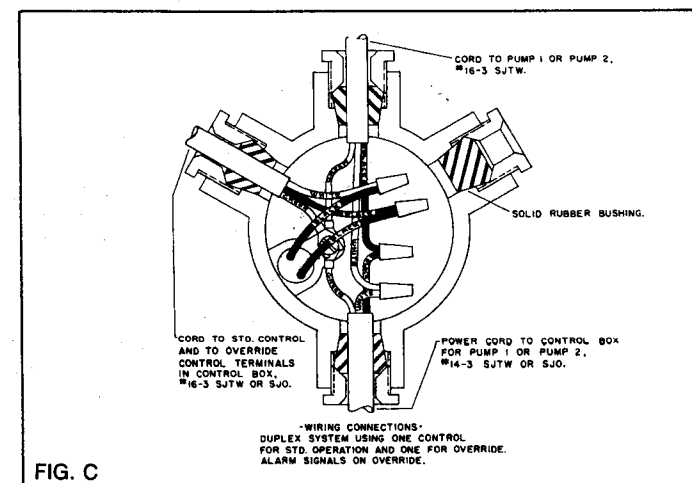


FIG. C

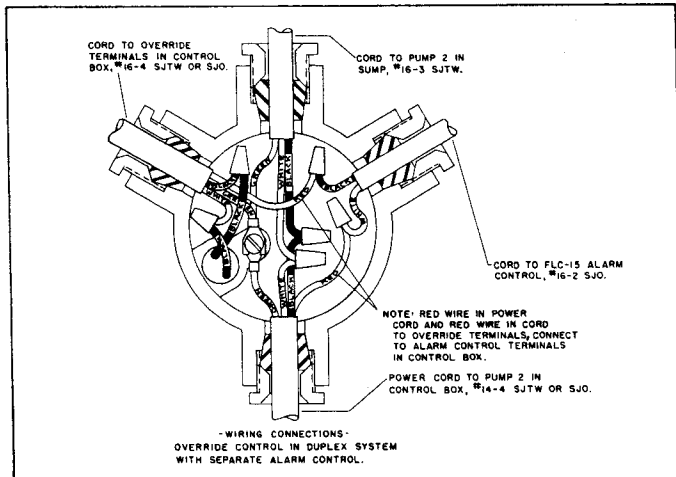


FIG. D

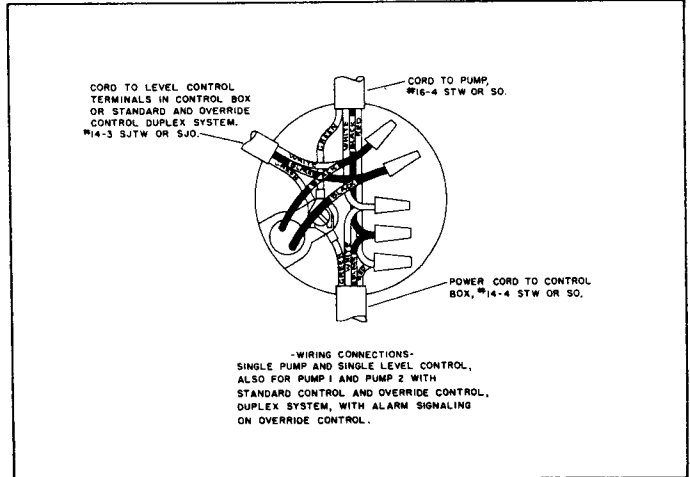


FIG. E

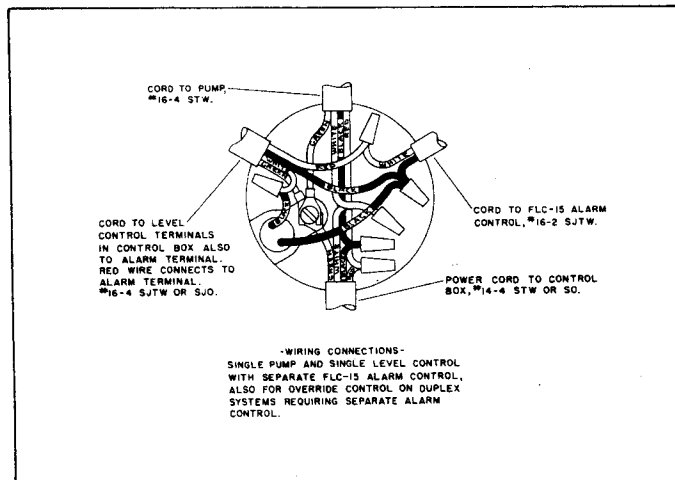


FIG. F

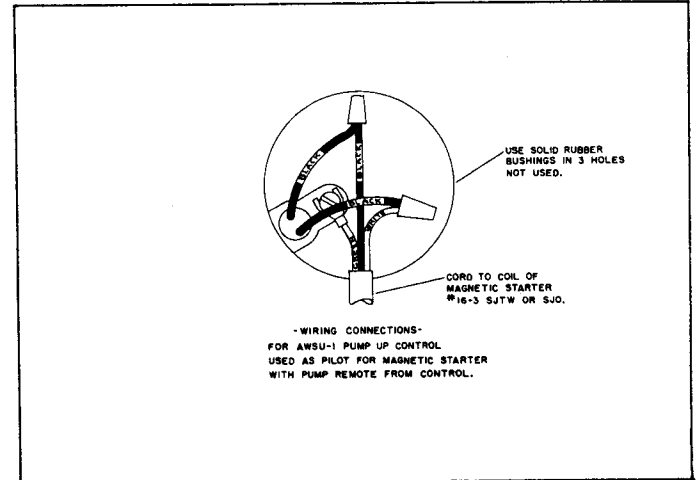


FIG. G

FERRULE & PLUG IDENTIFICATION



23/64 DIA.
16/2, 16/3 CABLE



7/8 DIA.
14/2, 12/2
14/3, 12/3
U.F. CABLE



15/32 DIA.
16/4, CABLE



35/64 DIA.
14/3, 14/4 CABLE



1/2 DIA.
16/2, 16/3, 16/4 CABLE



39/64 DIA.
14/3, 14/4 CABLE
14/2, 12/2, 14/3, 12/3
U.F. CABLE

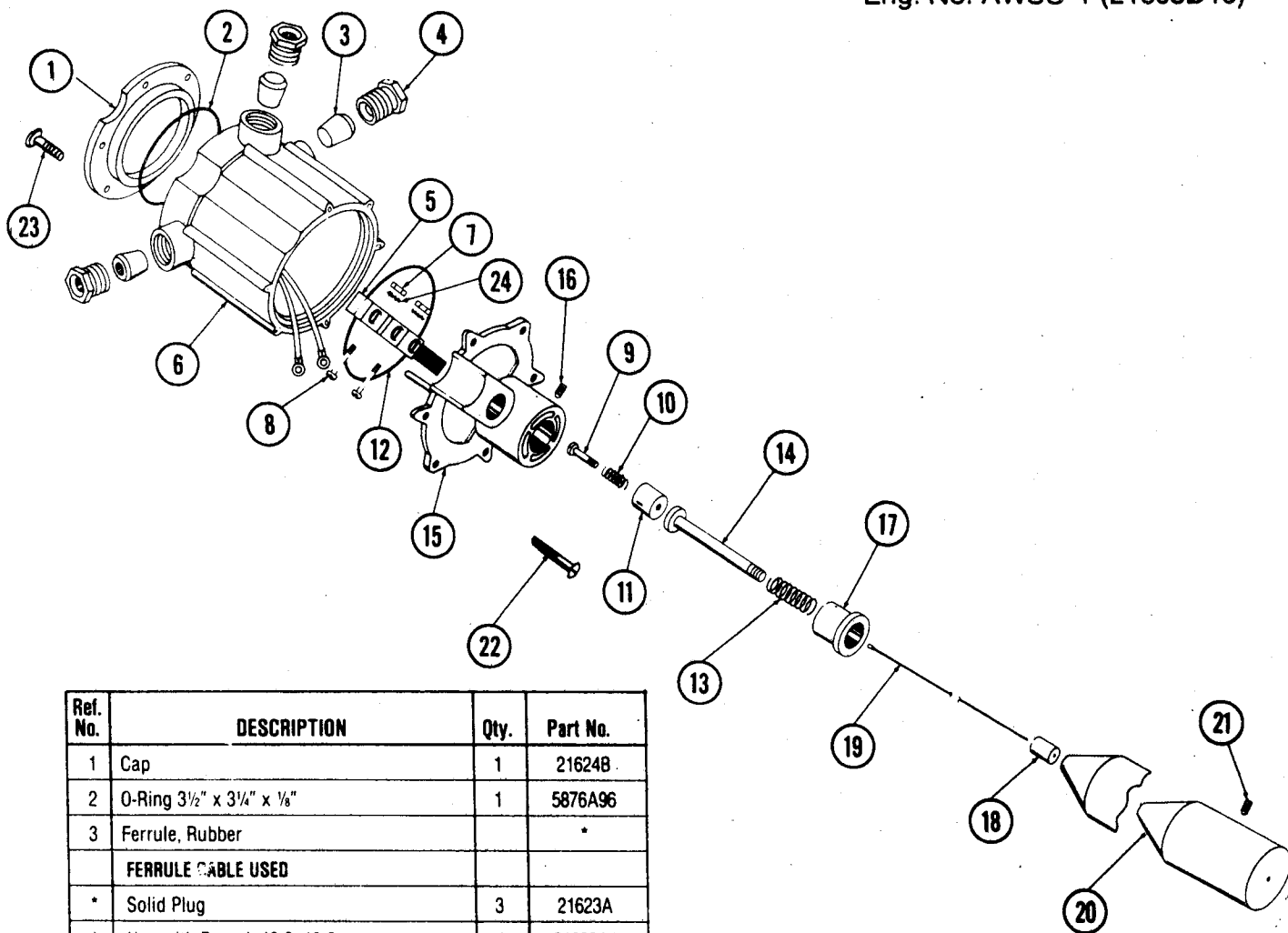
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AWS-1, AWSU-1 Wet Sump Level Control Parts List.

Eng. No. AWS-1 (21603D)
Eng. No. AWSU-1 (21603D10)



Ref. No.	DESCRIPTION	Qty.	Part No.
1	Cap	1	21624B
2	O-Ring 3½" x 3¼" x ⅛"	1	5876A96
3	Ferrule, Rubber		*
FERRULE CABLE USED			
*	Solid Plug	3	21623A
*	Use with Round, 16-2; 16-3	4	21623A1
*	Use with Round, 16-3; 16-4	2	21623A2
*	Use with Round, 14-3; 14-4	1	21623A3
*	Use with UF Flatcable 14-3 or 12-3	2	21623A4
4	Plug ½"	4	21625A
4	Plug ⅜/64"	1	21625A1
5	Switch with Magnet	1	21613A
6	Housing w/Potted Leads	1	21626B
7	Nut, Hex 6-32NC	2	19109A68
8	Screw Mach. 6-32 x 1	2	5434A39
9	Screw Tapping Special 6-20UNC x 1 SST.	1	21616A
10	Spring SST. 9/64" I.D. x ⅜" .015 Wire	1	21617A
11	Follower SST.	1	21618A
12	O-Ring 3⅝" x 3⅜" x ⅛"	1	5876A106
13	Spring SST. 27/64" I.D. x 1¼" .033 Wire	1	21619A
14	Stem	1	21529A
15	Body Plate	1	21530C

Ref. No.	DESCRIPTION	Qty.	Part No.
16	Screw Set SST ¼" x ¼"	1	5013A18
17	Bushing	1	21531A
18	Cap, Cable Holding	1	21532A
19	Cord No. 4 Braided x 108"	1	8194A9
20	Weight Displacement	2	21534A
21	Screw Set SST. ¼" x ⅜"	2	5013A44
22	Screw Mach. SST. 8-32 x ½"	6	5434A40
23	Screw Mach. SST. 10-24 x ½"	6	5434A41
24	Washer, Lock	2	6107A10
	Screw Mach. 10-24 x ¼" (Inside Housing)	1	5434A35
	Clamp, Hose	1	14740A2
	Terminal, Ring, #10 Stud, 16-14 Wire	3	12074A25
	Connector, Solderless	6	15781A1