

OPW 61SO-BYOT VALVE INSTALLATION INSTRUCTIONS

For Dual Point/Conventional Installations

IMPORTANT: Please read these assembly and installation instructions completely and carefully before starting.



GENERAL INSTRUCTIONS

The OPW 61SO-BYOT Conventional Overfill Prevention Valve is designed to be installed in the fill riser pipe of service station underground storage tanks. It is designed to close when the liquid level is within 8" of tank capacity to help prevent accidental or intentional overfilling.

A small bypass valve will allow draining of the delivery hose at 5 gallons per minute until the liquid level is within 3" of tank capacity. Above this level, the bypass valve closes.

IMPORTANT

Read these assembly and installation instructions completely and carefully prior to starting. Check to make sure all parts have been provided. Use only the parts supplied, substitution of parts may cause product failure.

Failure to follow instructions may cause improper product operation or premature failure which may cause storage tank overfill. An overfilled storage tank may create hazardous conditions and/or environmental contamination.

CAUTION

Do not remove elastic band from around float until instructed to do so, as damage to valve may result.

WARNING

Failure to properly connect delivery hose and elbow or disconnecting a liquid-filled delivery hose or elbow will result in an extremely hazardous spill. This may result in personal injury, property damage, fire, explosion, and water and soil pollution.

Make sure all connections, hose and elbow, between storage tank and transport are securely coupled. Only use elbows that securely lock to the tight fill adaptor.

Make sure the lip seal and/or all gaskets in the delivery elbow are properly in place to prevent an overfilled tank.

Do not operate with damaged or missing parts which prevent tight connections.

Normal operation: Hose "Kick" and reduced flow means tank is full.

Close transport delivery valve and drain hose into tank before disconnecting any hose fitting.

Overfilled Tank: Failure of the hose to drain signals an overfilled tank. Do Not Disconnect any delivery hose fitting until the liquid level in the tank has been lowered to allow the hose to drain into the tank. Attention: In the event you are splashed, remove all wet clothing immediately. Do not go into an enclosed area and stay away from ignition sources.

IMPORTANT

Determine if the underground storage tank is equipped with a ball float vent-valve, similar to the OPW 53VM. To permit proper operation of OPW 61SO, the ball float vent-valve nipple **MUST NOT EXTEND** more than 6" into the tank. If it does, either remove the ball float vent-valve or adjust the installation of the 61SO by adding the difference between 6" and the actual installed length of the ball float vent-valve nipple to Dimension "A" in STEP 2.

WARNING

OPW products should be used in compliance with applicable federal, state and local laws and regulations. Product selection should be based on physical specifications and limitations and compatibility with the environment and material to be handled. **OPW MAKES NO WARRANTY OF FITNESS FOR A PARTICULAR USE.**

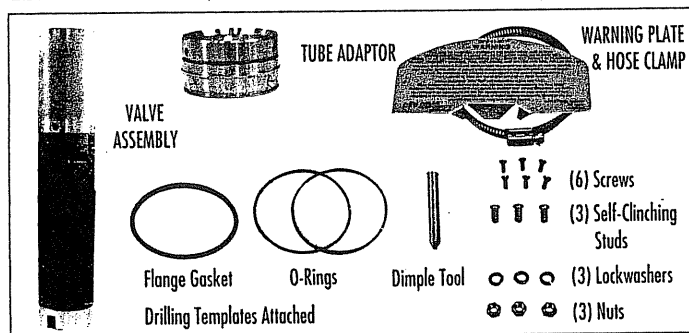
TOOLS NEEDED FOR INSTALLATION AND ASSEMBLY

1. Drill
2. A new or sharp 3/16" drill bit
3. A new or sharp 5/16" drill bit
4. Tape measure
5. Hacksaw or cut-off saw, fine tooth; 24 teeth/inch
6. Fine half round file
7. Common bearing grease
8. Screwdriver - flat blade
9. 1/2" wrench or socket
10. Masking tape
11. Hammer

WARNING

USING ELECTRICALLY OPERATED EQUIPMENT NEAR GASOLINE OR GASOLINE VAPORS MAY RESULT IN FIRE OR EXPLOSION, CAUSING PERSONAL INJURY AND PROPERTY DAMAGE. CHECK TO ASSURE THE WORKING AREA IS FREE FROM SUCH HAZARDS, AND USE PROPER PRECAUTIONS.

PACKING LIST



NOTE: If this valve is to be installed with Coaxial Stage I drop tube assemblies, you must contact your OPW Distributor and order the OPW 61SOC-BYOT Coaxial Overfill Valve Installation Kit. (Instructions for installing the coaxial version of this valve are located on the back side of this instruction sheet.)

DUAL POINT/CONVENTIONAL INSTALLATIONS

Remove the tight fill cap and adaptor and the existing drop tube from the tank riser pipe. If the existing drop tube is to be used, make sure it meets the guidelines specified in STEP 1.

STEP 1 CHECK DROP TUBE

The drop tube can only be used if:

- The tube is in good serviceable condition without holes, cracks, bends, corrosion, etc.
- Tube wall thickness must be at least .052 thick.
- Flange must be free of corrosion and structurally sound.
- I.D. of tube must fit over the "tube adaptor" and fit snugly against the O-ring for proper seal.

WARNING

DROP TUBES WITH .052" WALL OR GREATER MUST BE USED FOR THE OPW 6150-BYOT TO FUNCTION PROPERLY. USING TUBING WITH A LESSER WALL MAY RESULT IN THE SHUT-OFF VALVE DISCONNECTING DURING OPERATION.

STEP 2 MEASURE

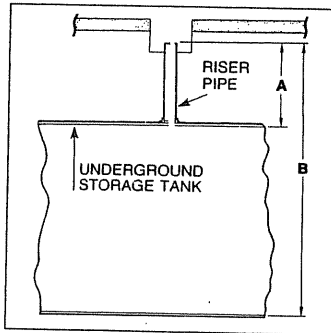
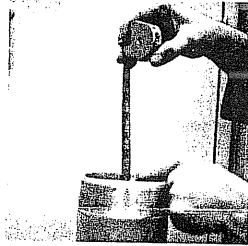
Using a tape measure, measure the distance from the top of the riser pipe to the inside of the tank (Dimension "A").

For new construction, make the measurement of Dimension "A" after the spill container and pipe nipple have been installed.

Next, measure the distance from the top of the riser to the bottom of the tank (Dimension "B").

For riser pipe configurations other than that shown, consult installation drawing or use other necessary means to obtain upper tube "cut length" dimension.

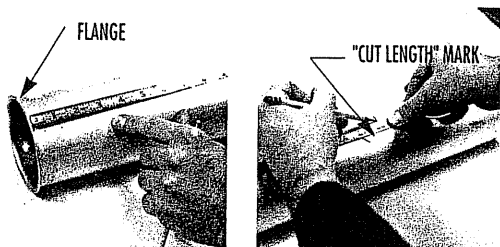
IMPORTANT: Inspect the riser pipe for any foreign material. Overspray from tank relining or any burrs inside of pipe must be removed prior to installation. Failure to have an unobstructed riser pipe may prevent proper installation or operation of the valve.



TOP TO BOTTOM:
FIGURES 2A and 2B.

STEP 3 MARK THE TUBE "CUT LENGTH"

Mark the upper tube length by measuring down from the flange and marking the tube at the "cut length" dimension obtained in STEP 2.



LEFT TO RIGHT:
FIGURES 3A and 3B.

STEP 4 CUT THE TUBE

Slide the provided hose clamp over the end of the drop tube so that its outside edge is aligned with the mark made in STEP 3. Tighten securely.

Using the clamp as a guide, carefully saw through the drop tube, rotating the tube as sawing progresses will help minimize runout. Remove the clamp and save for later operations. See Figure 4A.

CAUTION: DO NOT use a pipe or tubing cutter to cut the upper drop tube. This may damage the tube, causing it to be out of round and thereby prohibiting assembly of the unit.

CAUTION: DO NOT use the hose clamp supplied if a power cutoff saw is used. Use the "cut line" of the drilling template to reference the location of the cut.

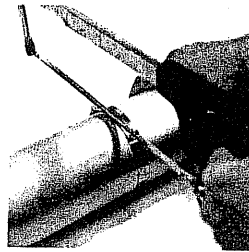
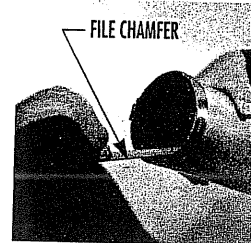
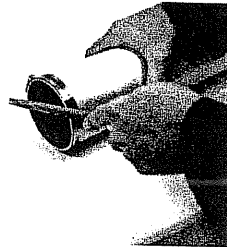


FIGURE 4A.

STEP 5 FILE THE UPPER TUBE

File the end of the tube square if needed. Remove any burrs caused by the sawing operation.

File a chamfer on the inside of the tube to provide a good lead-in for installing O-ring later.

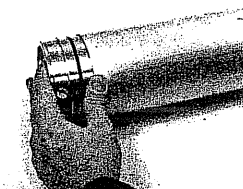
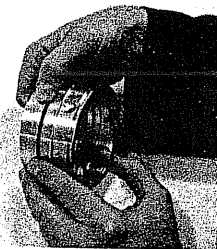


LEFT TO RIGHT:
FIGURES 5A and 5B.

STEP 6 INSTALL TUBE ADAPTOR

Generously apply grease to one of the O-rings supplied and install in the tube adaptor O-ring groove located farthest away from the pre-drilled and threaded holes.

Apply grease to the inside diameter of the upper tube and insert the tube adaptor. Push the tube adaptor and O-ring into the drop tube until the end of the drop tube seats squarely against the outside shoulder of the tube adaptor.



LEFT TO RIGHT:
FIGURES 6A and 6B.

STEP 7 SECURE THE "UPPER TUBE TEMPLATE"

Locate and cut out the "Upper Tube Template (A)" supplied in this instruction sheet.

Align the bottom edge of the template with the joint made by the end of the upper tube and tube adaptor shoulder as shown in Figure 7A. Using masking tape, secure the template to the tube.

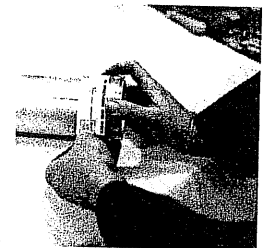


FIGURE 7A.

STEP 8 \diamond DRILL THE UPPER TUBE

With the template in place, carefully pilot drill (3) 3/16" holes through the drop tube and tube adaptor at the locations marked on the template.

Next, drill (3) 5/16" holes through at the same location as the 3/16" holes above. Remove any burrs with a file.



IMPORTANT: A 5/16" drill bit must be used. Do not substitute any other size bit.

Remove the tape and template and proceed to STEP 9.

FIGURE 8A.

STEP 9 \diamond INSTALL SELF-CLINCHING STUDS

Install the (3) self-clinching studs, lockwashers and nuts provided, with the nuts and lockwashers to the inside of the tube. Tighten securely with a 1/2" wrench or socket. Use only the self-clinching studs supplied with the unit. Recommended seating torque is 150 inch-lbs. Do not over tighten.



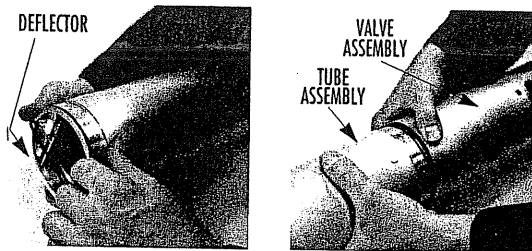
FIGURE 9A.

STEP 10 \diamond INSTALL TUBE ASSEMBLY TO VALVE ASSEMBLY

Grease the remaining O-ring and install in the remaining O-ring groove on the outside diameter of the tube adaptor. See FIGURE 10A.

With the half round file, chamfer the inside edge of the tube that is attached to the over-fill valve.

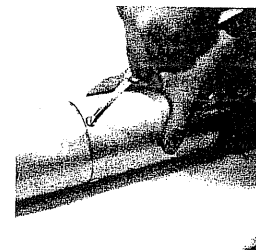
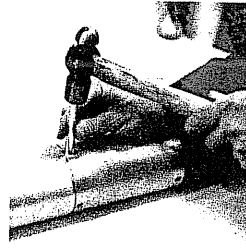
Insert the upper tube assembly into the valve assembly. Make sure the deflector in the tube adaptor aligns directly over the main poppet located in the valve assembly. The screw hole pattern will only align one way. Push the tube assembly into the valve assembly until the two seat against each other. Again be sure that the (3) holes align and the deflector is located over the main poppet. If not, rotate until proper hole alignment is achieved.



LEFT TO RIGHT: FIGURES 10A and 10B.

STEP 11 \diamond DIMPLE TUBE AND INSTALL SCREWS

Using the dimple tool supplied, hammer and countersink the (3) holes. Install the (3) supplied flathead screws and tighten securely. Use only the stainless steel screws supplied with the kit.



LEFT TO RIGHT: FIGURES 11A and 11B.

STEP 12 \diamond DRILL AND INSTALL LOWER TUBE

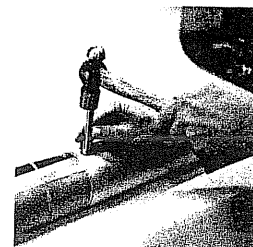
Locate and cut out the "Lower Tube Template (B)."

With the end of the lower tube cut and filed square, secure the lower tube template to the tube.

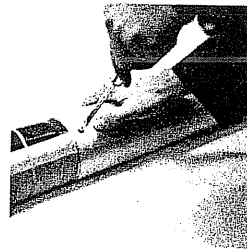
Drill (3) 3/16" holes through the lower tube at the positions marked on the template. Remove any burrs with a file. Remove the drilling template.

Slide the drilled end of the lower tube onto the bottom of the valve. The 3/16" drilled holes in the tube should again align with the threaded holes in the bottom of the valve.

Again, hammer and countersink the holes with the dimple tool. Install the (3) remaining flathead screws into the dimpled joint and tighten securely. Use only the stainless steel locking screws supplied with the kit. The screw heads must be flush or below the outside surface of the lower drop tube.



TOP TO BOTTOM, LEFT TO RIGHT: FIGURES 12A, 12B, and 12C.



STEP 13 \diamond CUT DROP TUBE AT 45° ANGLE

Measuring from the underside of the tube flange, mark the overall length of the drop tube a minimum distance of B minus 6" or as per local codes or requirements. Determine dimension B from the measurements taken in STEP 2, Figure 2B. Saw off the excess material at an angle of 45 degrees and remove sharp burrs.

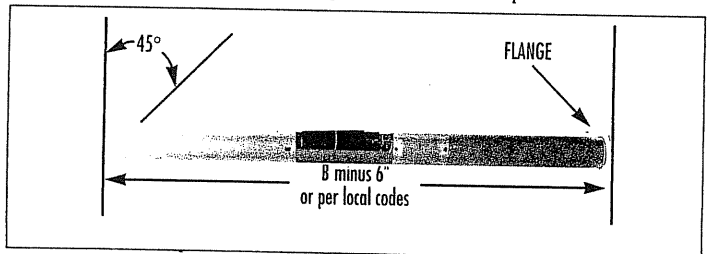


FIGURE 13A.

STEP 14 \diamond REMOVE ELASTIC BAND

IMPORTANT: Remove the elastic band securing the float to the valve body. The float will move into an outward position.

STEP 15 \diamond INSERT DROP TUBE

IMPORTANT: Inspect the riser pipe for any foreign material. Overspray from tank relining or any burrs inside the pipe must be removed prior to installation. Failure to have an unobstructed riser pipe may prevent proper installation or operation of the valve.

Hold the float down into the valve body and insert the end of the overflow valve into the riser pipe. The float will swing out into the operating position as it passes into the tank. **DO NOT FORCE INTO THE RISER.**

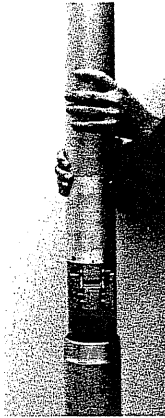


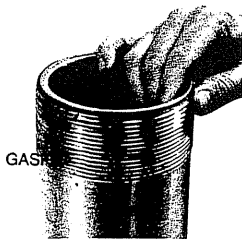
FIGURE 15A.

Failure to follow the assembly and installation instructions or use of excessive force to install the OPW 61SO-BYOT will VOID THE WARRANTY!

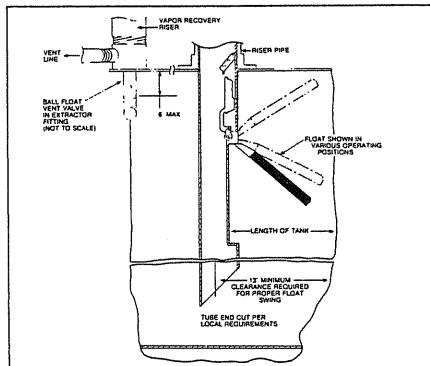
Difficulty in removing the existing fill tube (if there is one) means there may be an obstruction in the riser pipe. Look for burrs, deformations, excess tank lining material or other projections that may interfere with easy insertion of the OPW 61SO. If welded, seamed pipe has been used for the riser, the internal weld bead may interfere with the OPW 61SO and prevent installation. If the OPW 61SO won't slip in easily, DON'T FORCE IT! Damage to the valve may result if excess force is used. Examine the riser pipe carefully, determine the nature of the obstruction and take appropriate steps to remove it.

CAUTION: No obstruction can be within 13" from the center of the riser pipe or the valve will not operate properly.

Insert the drop tube all the way into the tank until the flange and gasket seat onto the riser pipe. The float will swing out into the operating position as it passes into the tank. Make sure that the float is aligned with the length of the tank. The length of the tank can easily be determined by locating other manholes or pump boxes that are installed around other fittings, etc. that are attached to the top of the underground tank. Look into the drop tube and align the deflector with the length of the tank. **CAUTION:** No obstruction can be within 13" from the center of the riser pipe or the valve will not operate properly.



LEFT TO RIGHT: FIGURES 16A and 16B.



STEP 17 \diamond HOSE CLAMP

Slide hose clamp used in STEP 4 over riser pipe. Clamp should be loose and move freely.

STEP 18 \diamond ALIGN VALVE

Reinstall the tight fill adaptor and tighten. Make sure that the valve does not rotate while tightening the adaptor by observing the position of deflector. The valve must remain aligned with the length of the tank as in STEP 16. Repeat this step as necessary to assure proper alignment of the valve.

STEP 19 \diamond INSTALL WARNING PLATE

Position warning plate against riser pipe approximately 1" below the adaptor. Slide clamp over warning plate ears so they are located between clamp and riser pipe. Tighten clamp securely. The valve is now fully installed and in operating position.

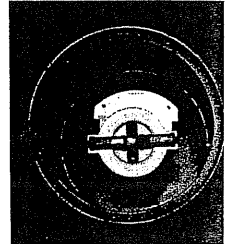


FIGURE 19A.

STEP 20 \diamond VALVE REMOVAL

The valve can be removed for tank leak testing, inspection, etc., like any ordinary drop tube. Reinstall per the above instructions.

PREVENTIVE MAINTENANCE

No maintenance is required for the valve for normal operating condition. It is advisable, though, to periodically inspect the valve for damage and freedom of movement of the float. It is also advisable to check the bolted connections of the upper drop tube. Be sure that the seam at the valve has not loosened and the upper tube end aligned with the face of the adaptor. Please leave these instructions and maintenance procedures with the owner/operator of the station.

PRODUCT WARRANTY

All OPW parts and products are thoroughly inspected and tested from the time raw material is received at our plant until the product is completed. We guarantee that all products are free from defects in materials and workmanship for a period of one year from the date of shipment. Any products that may prove defective within said one year period will, at OPW's option, be promptly repaired or replaced or credit given for future orders. This warranty shall not apply to any product which has been altered in any way, which has been repaired by any party other than an authorized OPW service representative or when such failure is due to misuse or conditions of use. OPW shall have no liability for special or consequential damages to any party, and shall have no liability for labor costs, freight costs or any other cost or charges in excess of the amount of the invoice for the products.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, AND SPECIFICALLY THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

OPW reserves the right to change specifications at any time without incurring obligations.

OPW[®]

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CUT TEMPLATES ALONG DOTTED LI

ARROW MUST POINT TOWARDS FLANGE

PLEASE READ INSTRUCTIONS FIRST

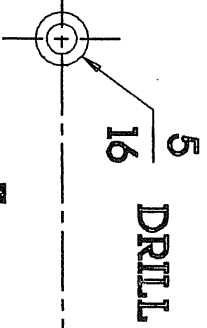
OPW UPPER TUBE TEMPLATE

TEMPLATE "A"

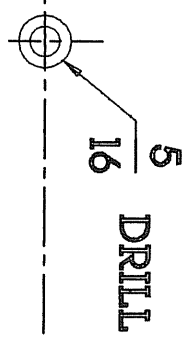
TAPE HERE SECOND

TAPE HERE FIRST

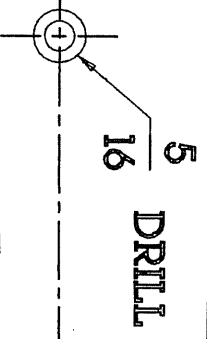
REFERENCE LINE



END OF TUBE ↓



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TAPE HERE SECOND

TAPE HERE FIRST

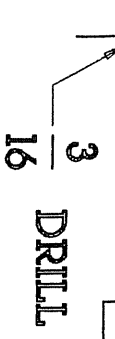


TEMPLATE "B"

OPW LOWER TUBE TEMPLATE

PLEASE READ INSTRUCTIONS FIRST

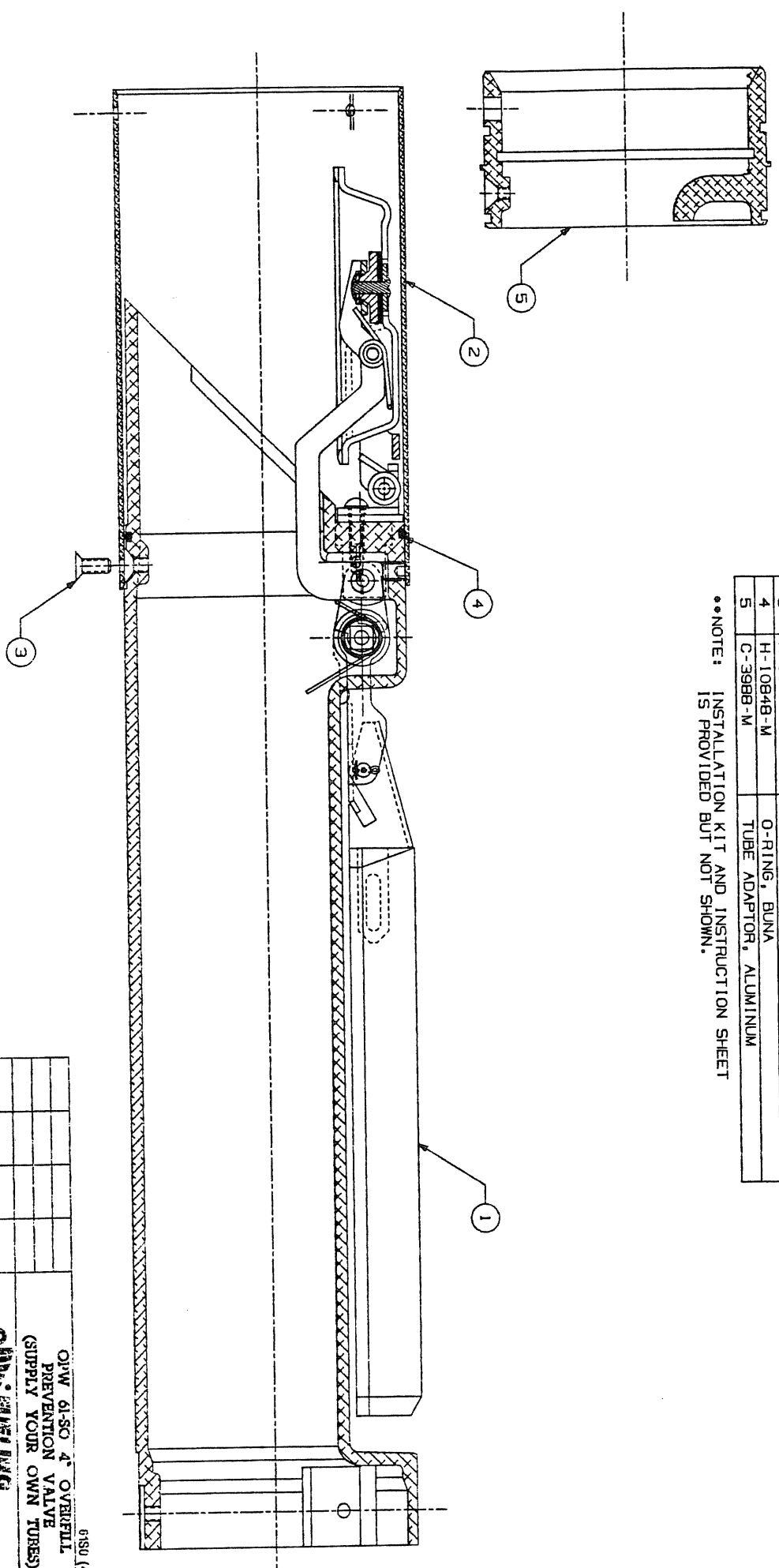
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1	E-404-A C-3583 H-10840-M H-10843-M H-12251-RE C-3549 H-12145-M C-4019-M C-3546-M H-10860-M H-10882-M H-10856-M H-10863-M C-3582 H-10862-M H-10844-M H-10856-M H-10835-M H-10858-M H-10857-M	BODY, CAST ALUMINIUM MAIN POPPET & LINK S/A CRANK, DIE CAST ZINC LINK, STAINLESS STEEL RIVET, STAINLESS STEEL POPPET/SEAL S/A, ALUM-VITON TORSION SPRING, SST CARRIER, SST BRACKET, STAINLESS STEEL PIN, STAINLESS STEEL SECONDARY POPPET SPRING, SST WASHER, ALUMINIUM RIVET, STAINLESS STEEL CARRIER-SECONDARY POPPET S/A RIVET, STAINLESS STEEL CARRIER, ALUMINIUM WASHER, ALUMINIUM SECONDARY POPPET, ACETAL RESIN DISC, VITON WASHER, ALUMINIUM
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(A)	H-11020-M H-10853-M H-12985-M	1. LIFT SPRING, SST MAIN SPRING, SST BLEED POPPET, ACETAL RESIN
2	H-6386-M H-5770-M C-3741 C-3740 C-3707-M H-12257-M H-5000-M H-11480-M H-5000-M H-10839-M H-10834-M H-10874-M	SNAP RING, BRYLM. COPPER ROUND HEAD SCREW, SST (2 REQ'D.) FLOAT MECHANISM S/A FLOAT/BRAKLET S/A (ALUM./RUBBER) FLOAT PIVOT, ALUMINIUM RIVERT, SST COTTER PIN, SST (1 REQ'D.) SET SCREW, SST COTTER PIN, SST (1 REQ'D.) CRANK ACTUATOR, ACETAL RESIN CAM, ACETAL RESIN SPRING LIMIT, ALUMINIUM TUBE, ALUMINIUM
3	C-3989-M H-10932-M	SCREW, SST (3 REQ'D.)
4	H-10848-M	O-RING, Buna
5	C-3988-M	TUBE ADAPTOR, ALUMINIUM

••NOTE: INSTALLATION KIT AND INSTRUCTION SHEET IS PROVIDED BUT NOT SHOWN.



SUPPLEMENT 6180 (BYOT)
UNLESS OTHERWISE SPECIFIED
Tolerances On Dimensions

Letter	Rev. No.	Date	Drawn By	Checked By	Approved
-A-	20823	1-04-80	LLM	LLM	REM
REL	20517	8-12-94	LLM	LLM	REM

OPW PUMPING COMPONENTS
6180 (48V)
OW 6180 4" OVERFILL
PREVENTION VALVE
(SUPPLY YOUR OWN TUBES)
SCALE FULL
DATE 10-21-82