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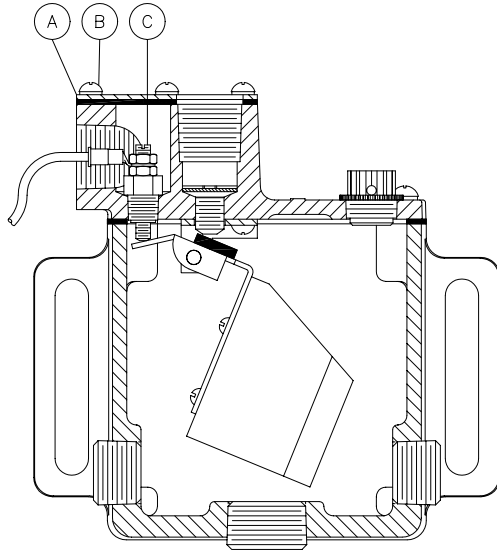
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INSTALLATION INSTRUCTIONS FOR MODEL 512 OIL LEVEL CONTROLLERS WITH ADAPTERS

Note: For fire safe oil level controllers (512-FS) see additional instructions in this work sheet covering installation of fire safe valves.

Figure 1- Side View of 512



I. SWITCH SPECIFICATIONS

Switch Specifications: Case to Ground: 2 AMP, 30 VAC/VDC

Switch Adjustment: Switch adjustment is not recommended. Improper setting may result in damage to engine. Switch is factory set at ½” drop. If adjustment for the application is necessary, refer to figure 1 and follow these instructions:

- Remove the cover of the conduit housing (A) by unscrewing the 6 screws(B).
- Rotate the slotted set screw(C) counter-clockwise to lower the switch trip point 3/16”.
- Rotate the slotted set screw(C) clockwise to raise the switch trip point to a maximum of ½”.
- Attach the wire from the controller to the low tension terminal on the magneto.

NOTE: The switch is not factory adjusted for proper shutdown level.

II. INSTALLATION AND MAINTENANCE INSTRUCTIONS FOR OIL INLET VALVE:

- Connect the oil supply line to the oil inlet on the oil level controller. The minimum recommended supply line is ¼” I.D. The supply line must be clean and it is recommended that it be flushed with solvent before installation.
- It is recommended that the oil supply line is connected using hose barb or tube fittings, using a reliable thread sealant. **Do not use Teflon tape.**
- Connect the oil supply line to the oil supply tank. If there is no existing valve at the tank or the existing supply outlet, a shut-off valve should be placed in the line to prevent oil loss when cleaning the inlet screen or filter.
- The oil inlet valve is adjusted to maintain the oil level at the center of the sight glass. Low or high levels are often caused by two problems:
 1. Excessive oil inlet pressure, which will cause the unit to overfill.
 2. Improper equalizing lines between the crankcase and the controller will also result in improper levels.

Note: 512 models require a minimum of 2’ of head pressure and a maximum of 12’ of oil inlet head pressure.

III. INSTALLATION INSTRUCTIONS FOR UNITS WITH ADAPTERS:

OIL LEVEL CONTROLLERS WITH –1 (Clark MA & CFA) –2 (Clark HMB & TMB), –3 (Clark RA, HRA, HBA, HCA, HLA, TLA), –6 (Cooper-Bessemer GMW), –7 (Cooper-Bessemer GMV), –8 (Cooper-Bessemer GMX), –16 , –16-R, –16-6.25 (Cooper-Bessemer BMV & 275) AND FS OPTIONS

- Remove the visual oil gauge assembly from the engine and replace it with the oil level controller and adapter assembly supplied with a gasket and mounting bolts when applicable.

OIL LEVEL CONTROLLERS WITH –4 (Ingersoll-Rand SVG & KVS), –5 (Ingersoll-Rand KVG) AND FS OPTIONS

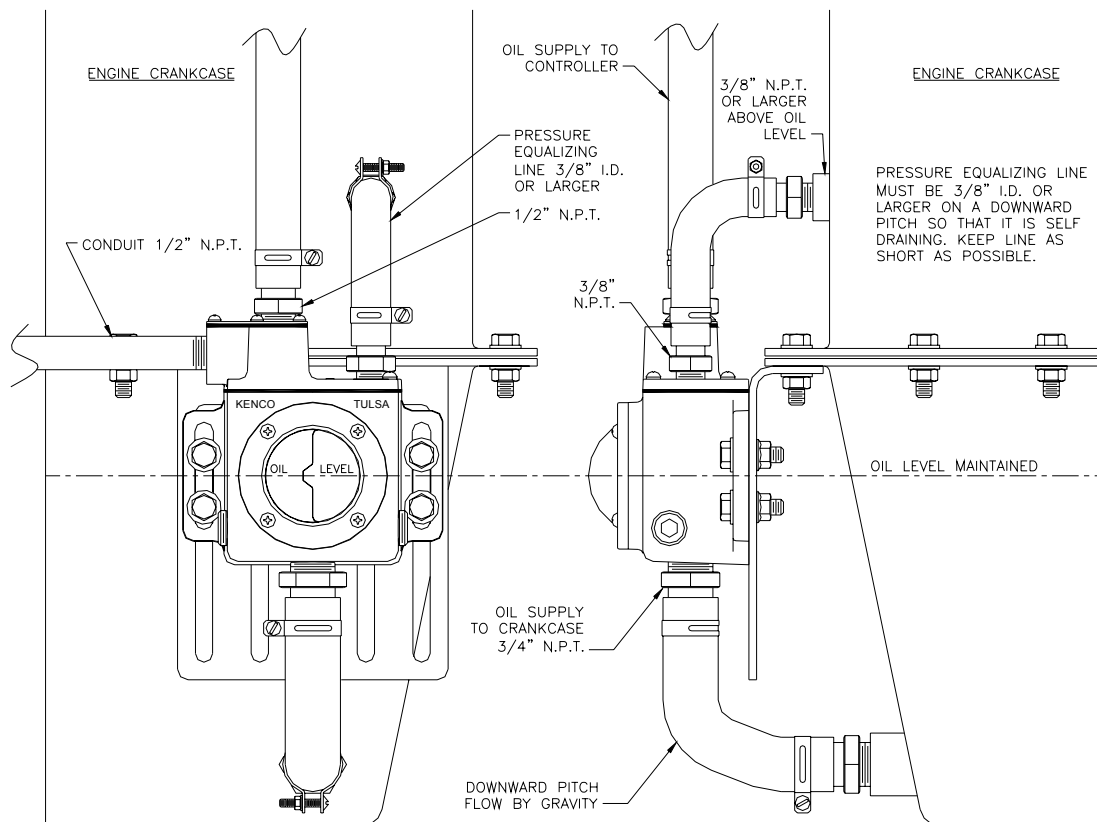
- Remove the visual oil gauge assembly from the engine and replace it with the oil level controller and adapter assembly supplied with a gasket and mounting bolts.
- If the visual oil gauge was vented back to the engine crankcase, remove the vent from the top of the adapter and tie it back to the crankcase with tubing.

Note: It is important to ensure that there are no loops in this line for it must be trap free and self draining.

OIL LEVEL CONTROLLERS WITH –9U (Universal adapter for 512 Oil Level Controllers), –12 (Pole mounted adapter) AND –FS OPTIONS

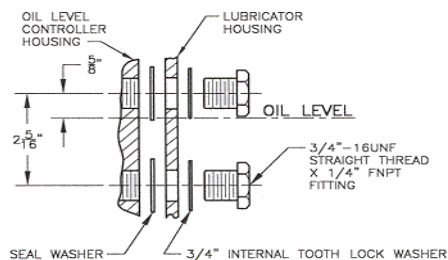
- Set the controller so that the centerline of the sight window corresponds to the desired oil level in the crankcase.
- Mount the controller close to the crankcase and connect the hose from the 3/4" outlet located on the controller to the crankcase.
NOTE: The outlet port on the oil level controller must be located below the oil level in the crankcase.
- An equalizing line must be used between the controller and crankcase in order to equalize the pressure. The tubing must be a minimum of 1/2" I.D. and must be kept under 2 feet. **DO NOT** loop this line. It must be trap free and self draining, with a downward pitch flow by gravity.

Figure 2: Typical Mount of –9U Adapter



OIL LEVEL CONTROLLER WITH –11 AND –11-FS OPTION (for Mechanical Lubricators): See Figure 3

Figure 3



- Drill holes in the lubricator housing as shown, and mount the controller with the inlet located on the top side using the seal washers and mounting bolts provided.
- Place the seal washers between the controller and the lubricator housing.

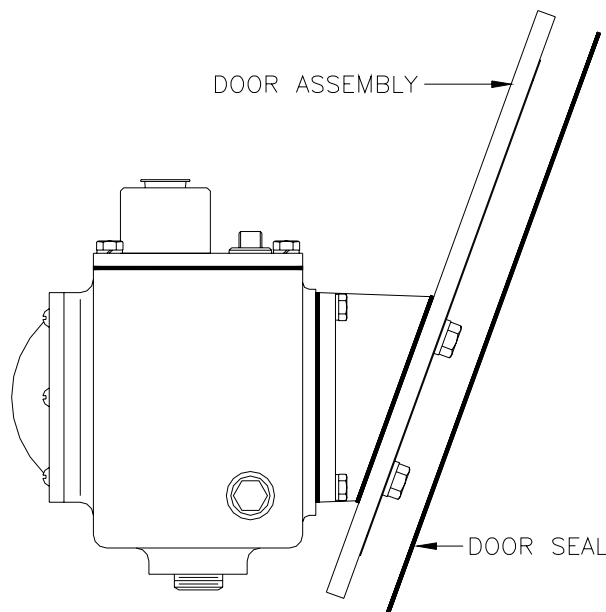
OIL LEVEL CONTROLLER WITH –14 AND –14 –FS OPTION (White Compressor)

- Remove the triangular blind flange located on the compressor and mount the controller assembly in its place.
NOTE: It is important to install a drain line between the drain outlet of the compressor and the controller.

OIL LEVEL CONTROLLER WITH -17 (Waukesha VHP Engines F2895, F3251, F5108, L5790 & L7042), -18 (-17 w/ meter), -27 (for newer Waukesha engines same as -17), -37 (Waukesha P9390), -38 (same as -37 w/ meter), -47 (Waukesha VGF L36 and P 48 Engines) AND -FS OPTIONS

- Remove the cast aluminum inspection door from the engine. Remove the clamp bar from the old door.
- For -17, -18, -37, -38 install the o-ring into the groove of the Kenco door and replace the clamp bar on the back side of the door using the 5/8"-11 bolts and the stat-o-seals supplied by Kenco.
- For -27, install the o-ring into the groove of the Kenco door and replace the clamp bar on the back side of the door using the 7/16" bolts, 7/16" flat washers and the fluorocarbon O-rings supplied by Kenco.
- For -47, mount the inspection door with the bolts, seal washers, and gasket provided.
- For -17, -27, -37, -38, place the controller assembly into the inspection port of the engine and tighten the center bolt(s) down.
- Install oil inlet line into the controller oil valve or the meter inlet port.
- NOTE: For the -18 model, refer to the additional instructions supplied with the 1618 Kenco Low Flow meter.

Figure 4: -Door Assembly for -17, -18, -27, -37, -38, -47



OIL LEVEL CONTROLLER WITH -24 (Ariel Compressor JGB, JGE, JGH, JGK, JGR, JGT, JGV, & JGW) and -48 (Ariel compressor JGC & JGD) AND -FS OPTIONS

- Remove the sight glass located on the crankcase and replace it with the oil controller assembly using the mounting bolts and gasket supplied with the unit.

OIL LEVEL CONTROLLER MODELS 512-A (Arrow C46, C66, C106 and C245), 512-FM (, 512-W, AND 512-W98 AND FS OPTIONS

- Drain oil from the crankcase to a level below the oil gauge

Note: On Fairbanks Morse engines, oil draining can be facilitated by removing the coupling from the engine oil drain and installing a pipe elbow on the nipple. Models ZC 118 and ZC 208 require ½" pipe and models ZC 346, 508, 739 require ¾" pipe. If a banded elbow is used, it will be necessary to file off part of the gauge boss on some engines.

- Remove all parts from the base oil gauge on the engine
- Remove the adapter from the back of the 512 controller and bolt it in place of the base oil gauge
- Mount the front of the controller with the oil inlet connection on top
- Connect hose from the controller to the supply tank

Note: The hose should be self draining toward the controller and without restrictions. Clean any debris from the oil reservoir and hoses before connecting to the controller.

- On Fairbanks Morse and Witte 98 engines without an oil gauge, it will be necessary to use an equalizing line. See instruction for -9 adapter and refer to figure 4 for instructions.

Caution: Controller is made of cast aluminum. Overtightening may strip threads.

OIL LEVEL CONTROLLER MODEL 512-ML AND FS OPTIONS

- Drill holes in the oil controller mounting bracket to match the holes on the lubricator cover plate
- Bolt in place making sure that the cap screws for mounting do not interfere with the lubricator operation
- Connect the ½" pipe connection on the controller to a drain on the lubricator

OIL LEVEL CONTROLLER MODEL 512-SML AND FS OPTIONS

- Remove the four screws on the end of the lubricator with the filler cap
- Bolt the controller in place with four cap screws and lockwashers provided
- Using tubing, connect the ½" pipe connection on the controller to a drain on the lubricator

OIL LEVEL CONTROLLER MODELS 512-AJAX (Ajax, Lufkin made before 1-1-63, Superior and other crosshead type engines, and Tri-Plex pumps with ½" drains) AND 512-L-795 (Arrow L-795) AND FS OPTIONS-See Figures 5 and 6 below.

- Remove the crankcase drain plug and drain all of the oil out of the crankcase.
- Mount controller as shown below: The nipple in the engine drain should be a ¾" heavy nipple.
NOTE: On Fairbanks Morse and Witte 98 engines without an oil gauge, it will be necessary to use an equalizing line. To install an equalizing line, drill a ¼" hole about 4" above the top of the controller in the back of the crankcase. Install ½" tubing and make sure that the line is self draining.
- Fill the crankcase to high level on the dipstick of the engine.
- After oil has entered the controller, rotate the controller on its mounting until the oil level is in the center of the sight glass.
NOTE: The controller must be set vertically after this adjustment. This can be checked with a level placed on the side of the controller.
- Connect the hose from the controller to the supply tank. Be sure to flush the hose with solvent before installing.
- Start the engine and let it run for 30 minutes. On an Ajax engine, the oil level in the controller will drop when the engine is running.
- After the controller has re-established the oil level, connect the switch wire from the controller to the primary ground terminal on the magneto.

Figure 5- 512-Ajax

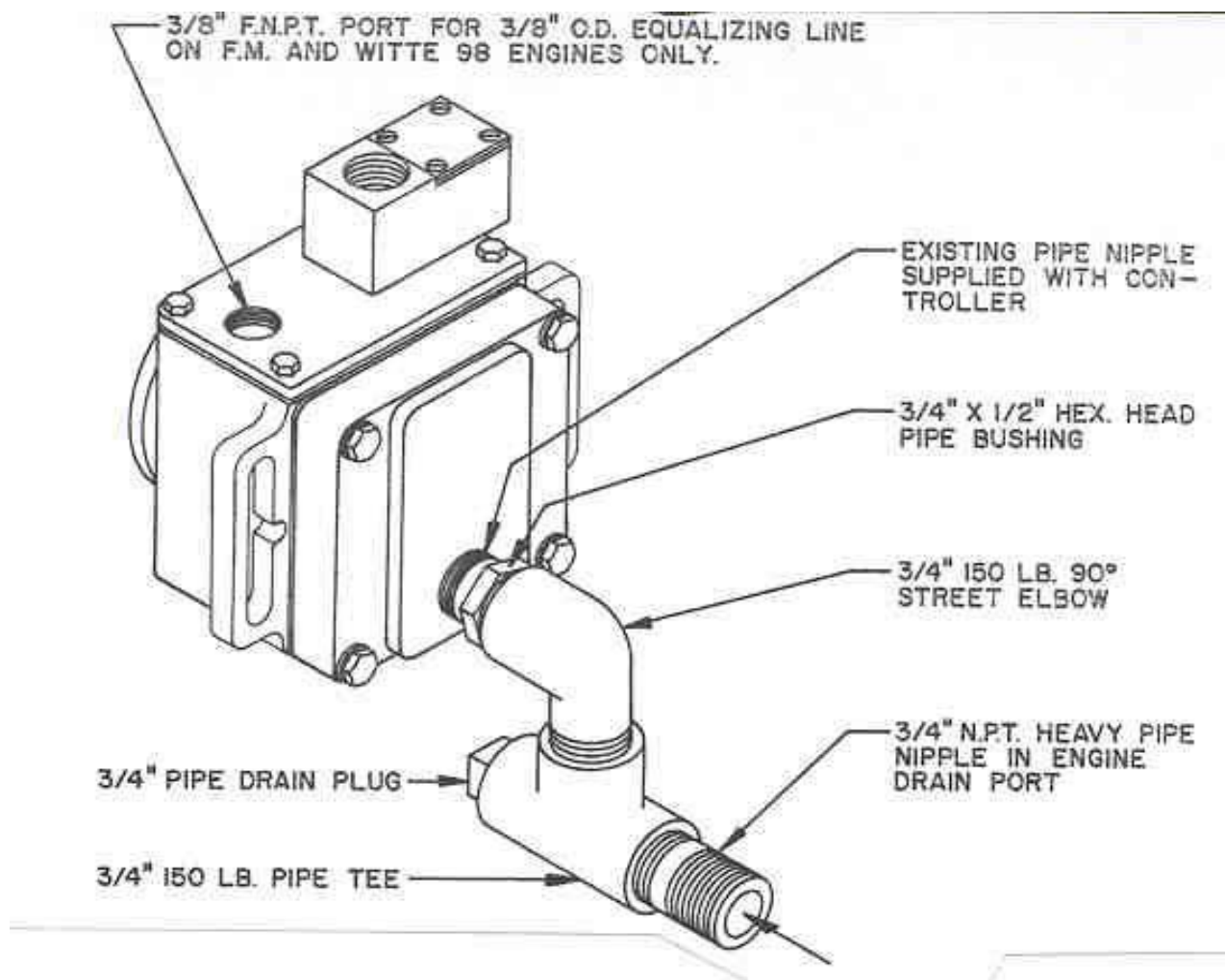
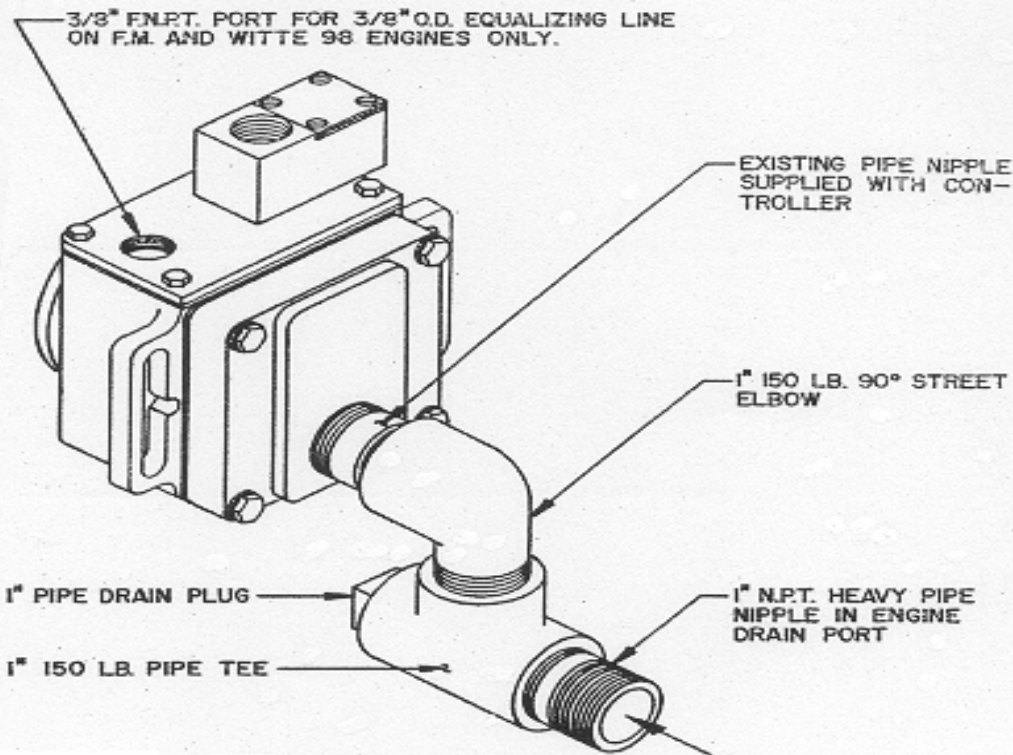


Figure 6- 512-L-795



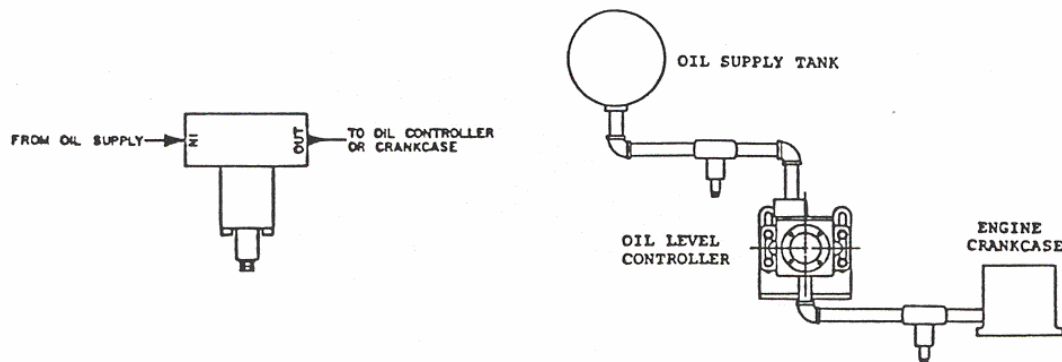
IV. INSTALLATION INSTRUCTIONS FOR FIRE SAFE VALVES (Patent No. 3,877,476): See Figure 7

NOTE: All lines between thermal valves, the supply tanks and the controller must be made of steel. DO NOT use rubber hose. The lines should be 1/2" I.D.

- The eutectic fuse element should always be in a downward position to help the element melt when heat is applied to the valve.
- The 50-FS valve should be installed in the oil supply line as close to the controller as possible. Meters, filters and pressure regulators should be installed between the controller and the 50-FS.
- The 75-FS valve should be located as close to the crankcase as possible and the oil outlet line should be a minimum 3/4" I.D. to insure adequate oil flow to the crankcase.

NOTE: The 75-FS valve is not required when using -FS adapters other than -9 and -12.

FIGURE 7: FIRE SAFE VALVE INSTALLATION



V. START-UP PROCEDURES

- Flush the supply system and supply line with solvent to remove all burrs and construction debris.
- Insure that the oil supply tank is full.
- After the engine has been running for 1 hour, visually check the oil level in the sight glass. The oil level should be in the center of the sight glass.
- With the engine running, check the crankcase oil level. It should be the same as the oil level in the oil controller. If not, check the installation of the equalizing line (if applicable) see instruction for the equalizing line at -9.
- Check all piping connections for leaks and repair as needed.

VI. SIX MONTH SUGGESTED MAINTENANCE PLAN

Oil Valve Service

- Close the oil supply valve and discount the oil inlet supply line.
- Place a pan under the controller to catch the oil from the oil supply line.
- Remove the inlet oil housing and clean the screen.
- Once the screen is clean, reassemble and open the oil supply valve.

Note: Dispose of oil in a proper container.