

## Operator's Manual

**Hydraulic Power Pack # M404-310-P used on 310 Series Tilt-To-Load Drum Tumblers  
with Serial Number 186037 to 419861**

### **Maintenance info for Hydraulic Pump**

Recommended oil is petroleum based Dexron III ATF or equivalent (non-synthetic).

Change oil yearly.

### **Recommended Operating Conditions:**

- Oil Temperature Range: 10°F to 170°F (-25°C to 77°C)
- Operating Temperature: 50°F to 130°F (10°C to 54°C)

### **Oil Viscosity:**

- Optimum 100 to 350 SUS (Cst = .22 X SUS – 135/SUS)
- Minimum 100 SUS at Operating
- Maximum Start Up 4000 SUS

### **Recommended Filtration:**

- 10 micron nominal or better

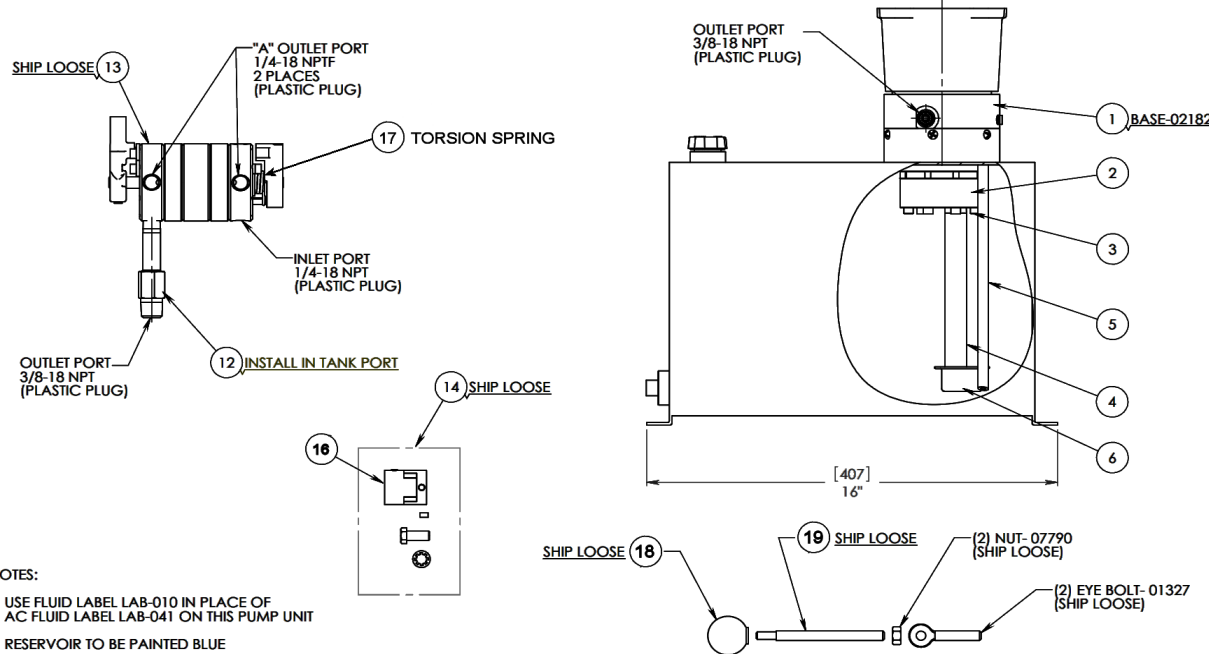
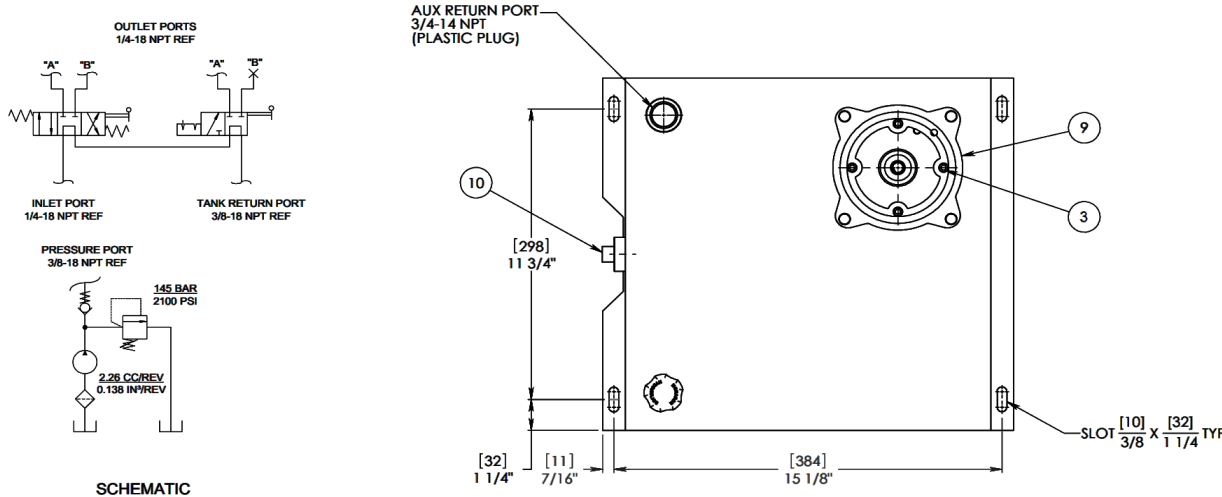
The system should not be disassembled in the field for maintenance.  
These are pass or fail components.

If the valve or pump fails it will need to be replaced due to wear on components.

The root cause for the failure needs to be taken into account to avoid  
contaminating the new components or to avoid exposing them to the same fail  
parameters.

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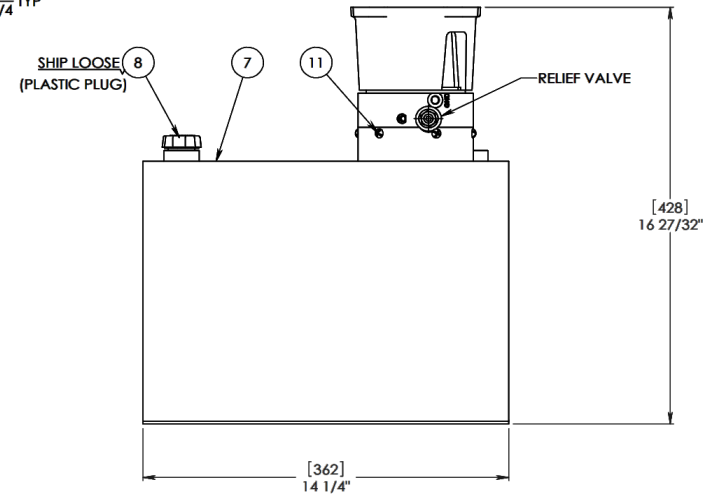


**NOTES:**

2. USE FLUID LABEL LAB-010 IN PLACE OF AC FLUID LABEL LAB-041 ON THIS PUMP UNIT

1. RESERVOIR TO BE PAINTED BLUE

ITEM	QTY.	PART #	DESCRIPTION
1	1	M12526-P	BASE ASM, M404, MOD. STD MTR
2	1	M12533-270-P	PUMP ASM, GEAR CODE 270, 310
3	8	M07818-P	SHCS, 1/4-20 X 3
4	1	M13016-07.75-P	TUBE, SUCTION, 1/2 NPT, NYLON
5	1	M01479-10-P	TUBE, RETURN, 1/8 NPT, NYLON
6	1	M13015-P	RESERVOIR, RECTANGULAR, 310
7	1	M14082-P	FILTER, SUCTION, 1/2", MON
8	1	M01143-P	PLUG, BREATHER, FILLER MON
9	1	M01615-P	HOUSING, PUMP/ MOTOR ADAPTER
10	1	M01075-P	PLUG, PIPE, SQ HEAD, 5/8, MON
11	6	M07703-P	SCREW, 10-24 X 3/8 TF
12	1	M01319-P	ADAPTER, PUMP VALVE, 3-3/8
13	1	M07381-P	VALVE, 3-4 WAY, 456, 310
14	1	M17079-P	PARTS KIT, MON, 456, 310
15	1	LAB-010	LABEL, USE DEXRON A.T.F. ONLY
16	1	M18002-P	COUPLING ASM, 5/8 TO 7/16, MON
17	2	M00018-P	SPRING, TORSION, MON
18	2	M01157-P	BALL, PLASTIC, HANDLE, MON
19	2	M01326-P	ROD, 4"L, VALVE HANDLE, MON



- WAS 6-2416		DESCRIPTION		SIZE: D
REV				REV BY: -
DESCRIPTION: PUMP UNIT, M-404-0131, VERT MT, AC		CUSTOMER: MORSE MFG		REV DATE: -
NON-SPECIFIED TOLERANCES: .XX ± .010 .XXX ± .005 FRACT. ± 1/32 ANGLES ± 1/2°		DATE: 7/18/2007	DRAWN BY: ALC	EWR: 12031
THIS PRINT IS THE PROPERTY OF MONARCH HYDRAULICS INC., AND IS NOT TO BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO OUR INTEREST		MONARCH HYDRAULICS INC. GRAND RAPIDS, MI USA		REV: -
BREAK EDGES .005-.010 REMOVE BURRS		DRAWING #: M-404-0131		
[MILLIMETER] INCH	DO NOT SCALE	SHEET 1 OF 1		