



**Olympic Azimuth Drive HD3 & SD1
360 Degree Marine Propulsion Drive**



The Olympic HD3 & SD1 allows for positive propeller thrust in a full 360-degree arc. The direction of rotation can be changed quickly, and a full rotation can be achieved in as fast as 3 seconds, allowing maximum maneuverability of the vessel.

Specifically designed for rugged commercial use, the Olympic HD3 & SD1 is backed by a limited warranty.

Table of Contents

1.0	MOUNTING THE OLYMPIC AZIMUTH DRIVE.....	2
2.0	INPUT SHAFT	3
3.0	LUBE OIL SYSTEM:.....	3
4.0	STEERING HYDRAULICS FOR ENGINE DRIVEN PUMPS.....	4
5.0	STEERING HYDRAULICS, POWER UNIT.....	5
6.0	REMOTE STEERING CONTROL, MECHANICAL LINKAGE SYSTEM	6
7.0	REMOTE STEERING CONTROL, ELECTRICAL CONTROL SYSTEM.....	6
8.0	PROPELLER.....	6



INSTALLATION INSTRUCTIONS:

1.0 MOUNTING THE OLYMPIC AZIMUTH DRIVE

- 1.1 Check strength of the hull where the Olympic Drive is to be mounted. Careful consideration must be given to thrust force that will be applied in all directions to hull bottom. Some form of reinforcing must be built into the hull around the “Olympic” mounting ring to spread thrust force and reduce any “oil can” movement in bottom plate. Reinforcing, of course, will depend on design of vessel but has in the past taken the form of extra structural stiffeners and frames built in around drive ring or extra heavy bottom plates installed between frames where mounting ring is positioned
- 1.2 Locate exact position of mounting ring in hull. First, bolt mounting ring to the Olympic flange (leave out neoprene gasket) and lower the whole assembly into the hull. Position the Olympic Drive assembly so the drive input shaft is: (1) parallel with engine PTO output shaft and (2) centered slightly offset from engine PTO output shaft. The best offset dimension range will give a universal drive shaft angle of 3 degree or less (a slight angle is required to allow the universal roller bearings to roll and self lubricate). The drive shaft will efficiently work with an angle up to 5 degrees, but its life span will be reduced.

Tack weld ring in position, unbolt and remove the Olympic Drive and complete welding of the ring to the hull using good welding practice to ensure the ring does not warp.

Note: refer to attached drawing (B-0440) on the drive shaft alignment

- 1.3 Fit neoprene seal (supplied with the “Olympic Drive”) to drive mounting flange using a good grade of bedding compound.
- 1.4 Carefully lower the Olympic Drive into mounting ring so that bolt holes line up and input drive shaft lines up with the center line of engine crank shaft.
- 1.5 Bolt the Olympic Drive to mounting ring using $\frac{1}{2}$ ” x 1 $\frac{1}{2}$ ” N.C. grade 8 cap screws with flat and lock washers. Tighten them evenly to prevent distortion to drive flange to a torque of 80 to 85 ft. lbs.



2.0 INPUT SHAFT

- 2.1 Input shaft must only rotate clockwise (when views towards the input coupling side of the drive); driving shaft or flywheel must rotate counterclockwise (when viewed towards driving shaft).
- 2.2 Install a Spicer series 1480 drive shaft (not supplied with the drive) between drive coupling and engine clutch. The Olympic Drive input coupling is equipped with a standard S.A.E. flange. This drive line must be equipped with a slip joint which should be located at engine end of shaft. It is important that the universal drive shaft angle not exceed 5 degrees and that both PTO and Olympic Drive shafts be parallel to one another.

Note 1:

Refer to attached drawing (B-0440) on drive shaft alignment.

Note 2:

Your local universal joint specialist will be able to give you advice in selecting the right series 1480 Spicer universal joints, drive tube and slip joint, to adapt the Olympic Drive to your engine clutch output shaft. The shaft assembly number most common used on the west coast is No. 908048 (length number). Your universal joint specialist will also be able to dynamically balance shaft assembly before you install it.

3.0 Lube Oil System:

- 3.1 Install an 4 liter or larger lube oil reservoir tank (not supplied with the drive) in an easily accessible location above the Olympic Drive so that working oil level in the tank will provide 1-2 P.S.I more oil pressure at the propeller shaft seal relative to outside water pressure. For example, if your propeller shaft is 4 feet below the water line your reservoir oil level should be 3 to 5 feet above the water line.

Note 1:

Refer to attached piping drawing.

Note 2:

A low oil level alarm (not supplied with drive) is highly recommended. It can be easily tied in with your engine alarm system.

- 3.2 Plumb in lube oil reservoir tank using #12 single wire braid hose for vent line connecting $\frac{3}{4}$ " port on top of drive to the top of reservoir tank and #12 single wire braid hose for oil line connecting the $\frac{3}{4}$ " port on top of drive to bottom of the



reservoir tank. These two hoses should be installed with an even slope upwards to the reservoir tank so that air trapped in system can easily pass up to tank.

Note 1:

Refer to attached piping drawing

- 3.3 Mount a standard 0-200 P.S.I. lube oil pressure gauge (not supplied with drive) in wheelhouse control console and connect it to 1/4" 'T' fitting on left side (when facing the input coupling) of drive.

Note 1:

Refer to attached piping drawing

- 3.4 Fill drive and reservoir tank with S.A.E. 80-90 w gear oil or synthetic 50 w gear oil. System capacity is 25 liters for Olympic Drive plus extra for reservoir tank and connecting hoses.

Note:

It is extremely important when running drive for first time, after filling system with new lube oil, to continuously check oil level in reservoir tank and top it up until all trapped air has been circulated out of system. Lube oil pressure should be 140-180 P.S.I. when cold and 10-20 P.S.I. when hot with the engine running at 1800 RPM.

4.0 Steering Hydraulics for Engine Driven Pumps

- 4.1 Mount Vickers hydraulic pump on engine auxiliary drive.

- 4.2 Install hydraulic steering oil reservoir tank and oil filter in an easily accessible location. Max operating Steering Oil temp 160° F (71° C).

Note:

The oil filter is directional and must be mounted the right way.

- 4.3 Fabricate a suitable oil cooler to be installed in hydraulic steering oil return line, between drive and oil filter. Whether this oil cooler is built outside the hull using steel channels or pipes or inside hull using hull plate as a heat exchanger it must have a minimum of 150 sq. inches of surface area (Canada & Northern USA) directly exposed to sea water. In warmer water conditions add additional channel lengths to maintain an oil temp below 160° F (71° C).

Note:

Refer to attached piping drawing (B-0318A)



4.5 Plumb in steering hydraulic system using a good grade of pipe tube suitable for a 1750 PSI system. Ensure system is well flushed and clean before filling with hydraulic oil.

Note:

Refer to attached piping drawing (B-0318A)

4.6 Fill steering system with ISO 32 Hydraulic oil

4.7 When running system for the first time after filling with new oil, check the reservoir tank oil level and top it up until all air has been bled out of system.

Note:

The hydraulic pressure relief settings of the Vickers hydraulic pumps supplied by Olympic Drives are as follows:

HD3 Olympic Drive (V20F pump)1750 PSI

SD1 & UD2 Drives (V10F pump)1200 PSI

5.0 Steering Hydraulics, Power Unit

5.1 Mount hydraulic power unit in an easily accessible protected location near the Olympic Drive. Ensure there is adequate air circulation for cooling of the oil reservoir. Max operating Steering Oil temp 160° F (71° C).

5.2 Plumb in steering hydraulic system using a good grade of pipe tube suitable for a 2500 PSI system. Ensure system is well flushed and clean before filling with hydraulic oil.

Note:

Refer to attached hydraulic schematic

5.4 Fill steering system with ISO 32 Hydraulic oil.

5.5 Mount the motor starter panel near the power unit. Connect the motor starter to the power unit following the attached motor starter instructions (A308614-01).

5.6 Connect temperature and low-level alarm to motor starter and alarm system.

5.6 When running system for the first time after filling with new oil, check the reservoir tank oil level and top it up until all air has been bled out of system.

Note:



The hydraulic pressure relief settings of the Power Unit supplied by Olympic Drives is 1600 PSI unless otherwise stated.

6.0 Remote Steering Control, Mechanical Linkage System

6.1 Mechanical remote control (only). Connect remote mechanical steering system (not supplied with drive) to steering stub shaft on top of drive, (or gear box if supplied). This stub shaft, which controls the built in hydraulic steering system, requires very little force to turn; about the same as an automobile power steering wheel. For every 360 degree turn of steering stub shaft the lower drive housing will also rotate 360 degrees. Maximum rate of steering speed is approximately one turn in 3 seconds using the Vickers pumps mentioned in 4.7.

7.0 Remote Steering Control, Electrical Control System

7.1 See PMC Steering Control Manual if applicable.

8.0 Propeller

8.1 The propeller must have four blades and be right hand (RH) rotation

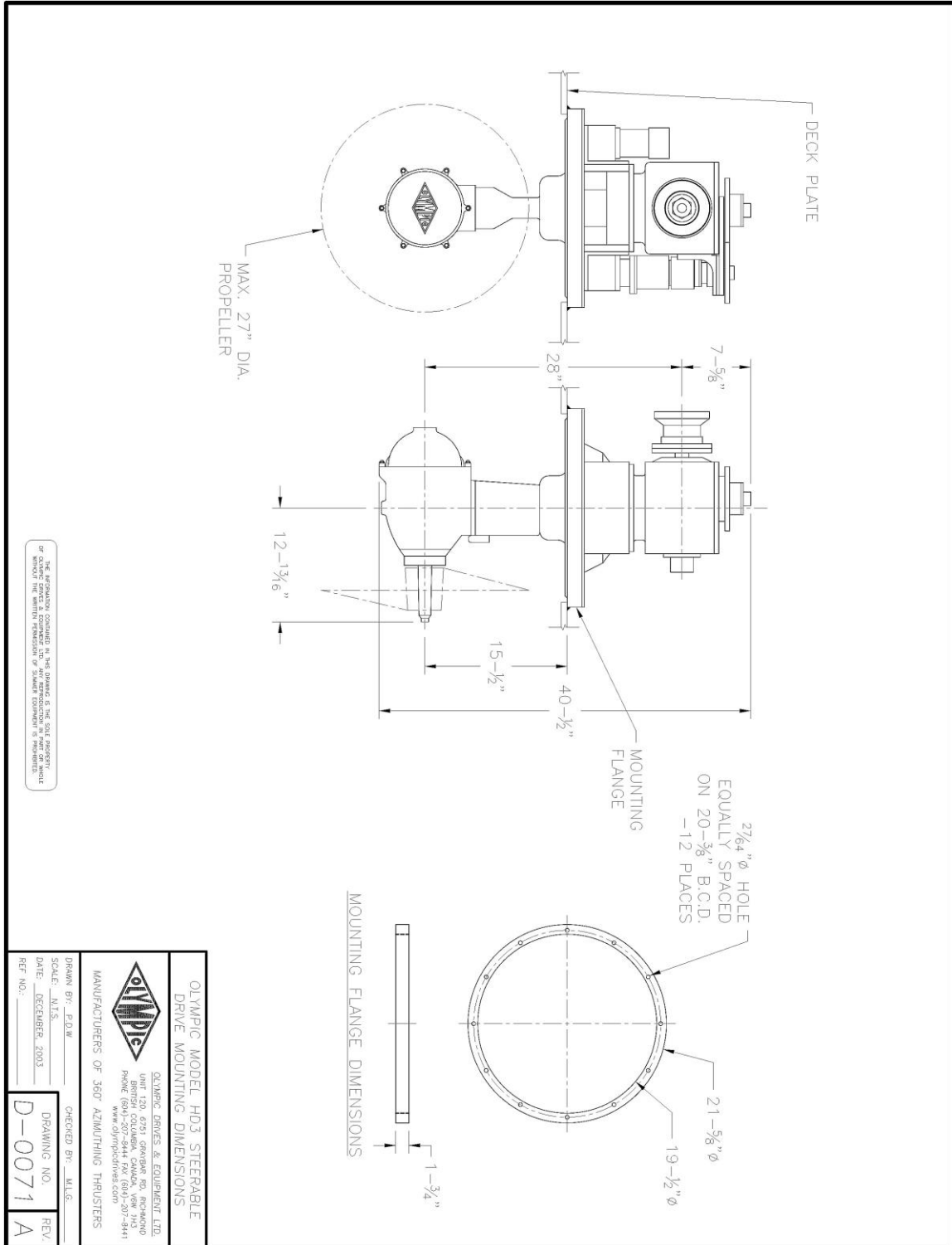
8.2 Propeller hub must be machined to fit inside rope cutter guard that protects propeller shaft seal. Propeller suppliers in the Pacific North West and BC Canada, where there is a large population of Olympic Drives, are familiar with this machine hub.

8.3 Fit propeller using standard marine practice. Ensure that it is not riding the key during installation and remember it is good practice to use 'never seize' on threads before fitting nut.

8.4 When removing propeller always use a wheel puller with a little heat applied to hub if it resists.

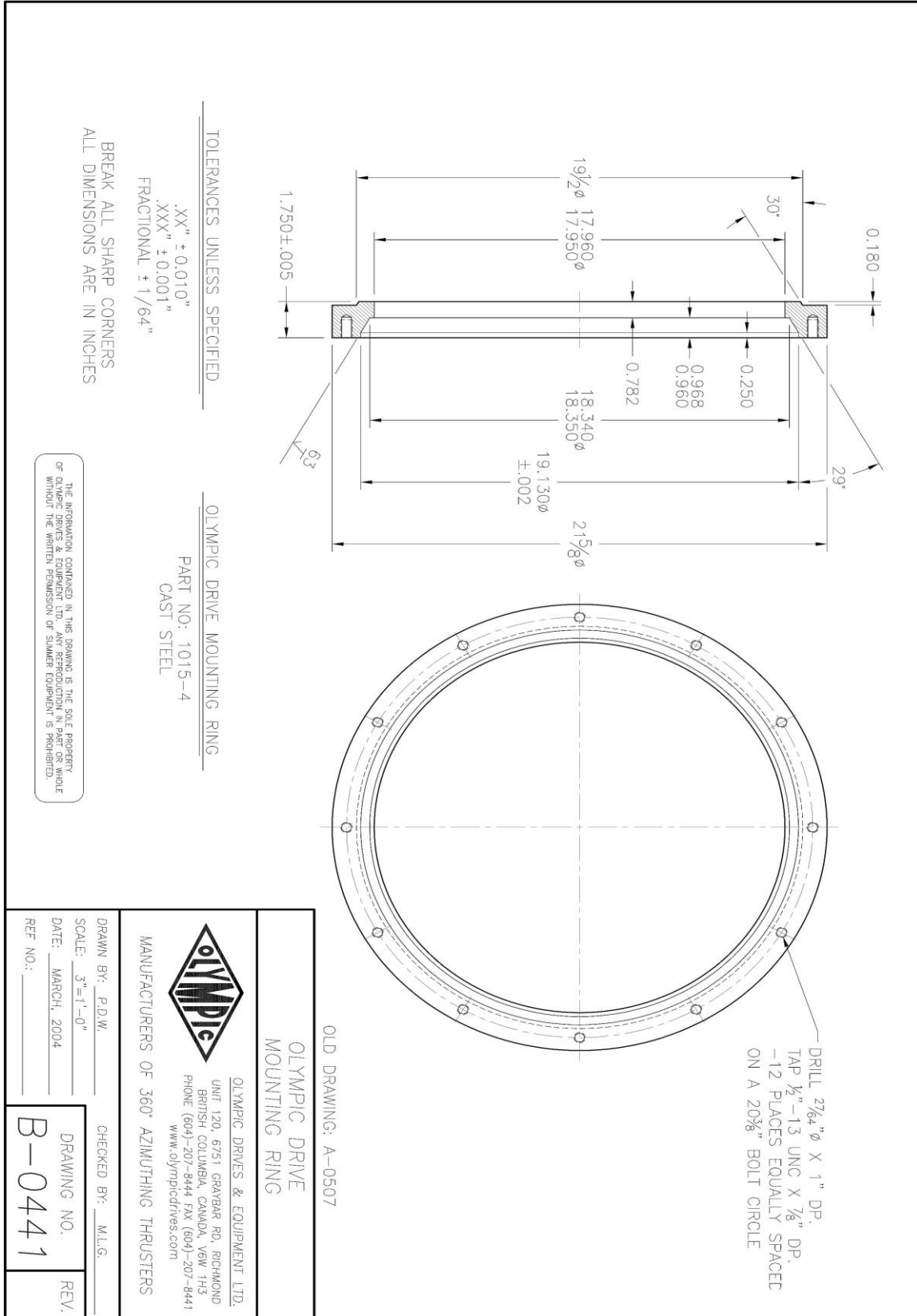


HD3_Mounting_Dimensions_D-0071A_Model



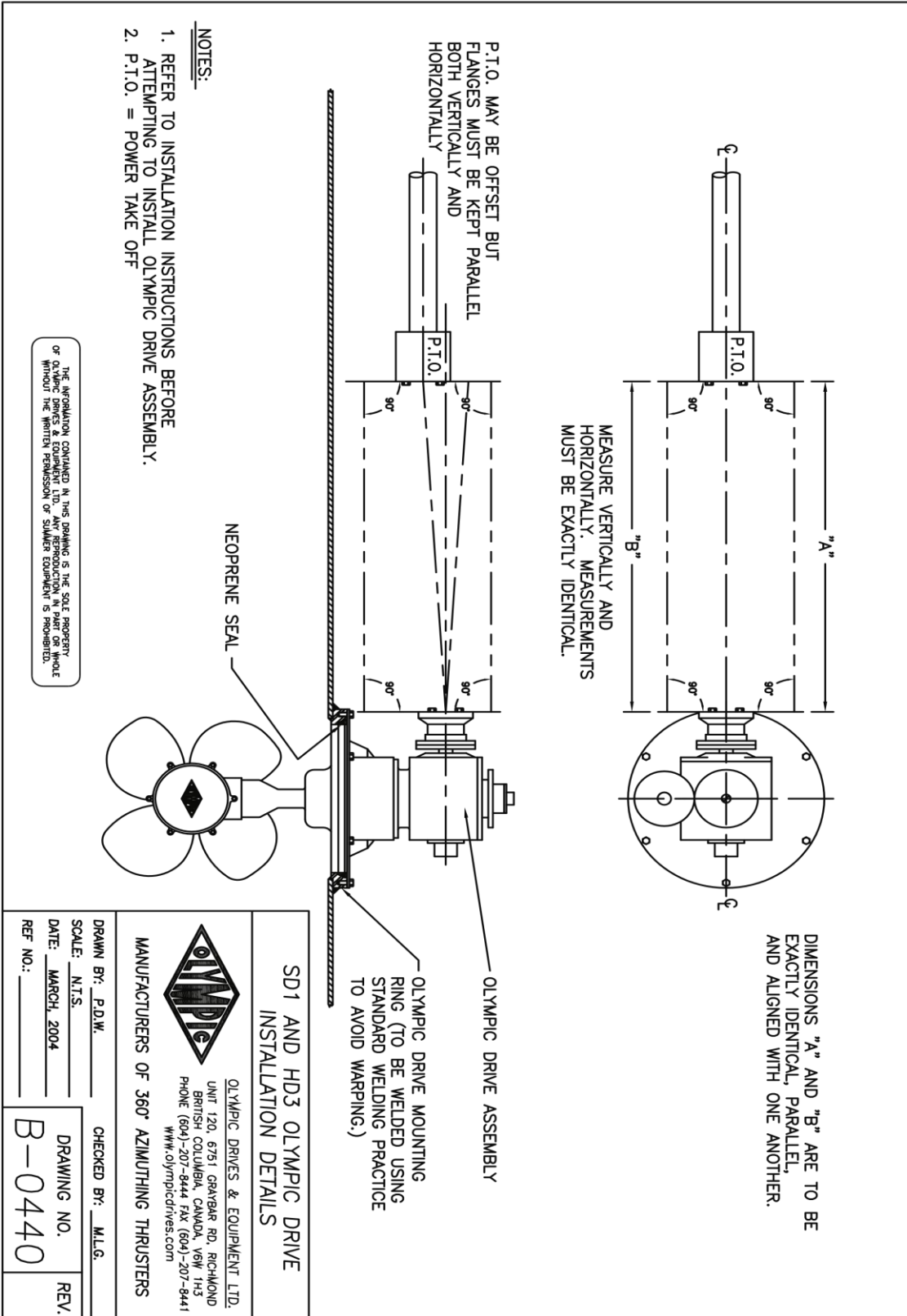


Olympic_Mounting_Ring_B-0441_Layout



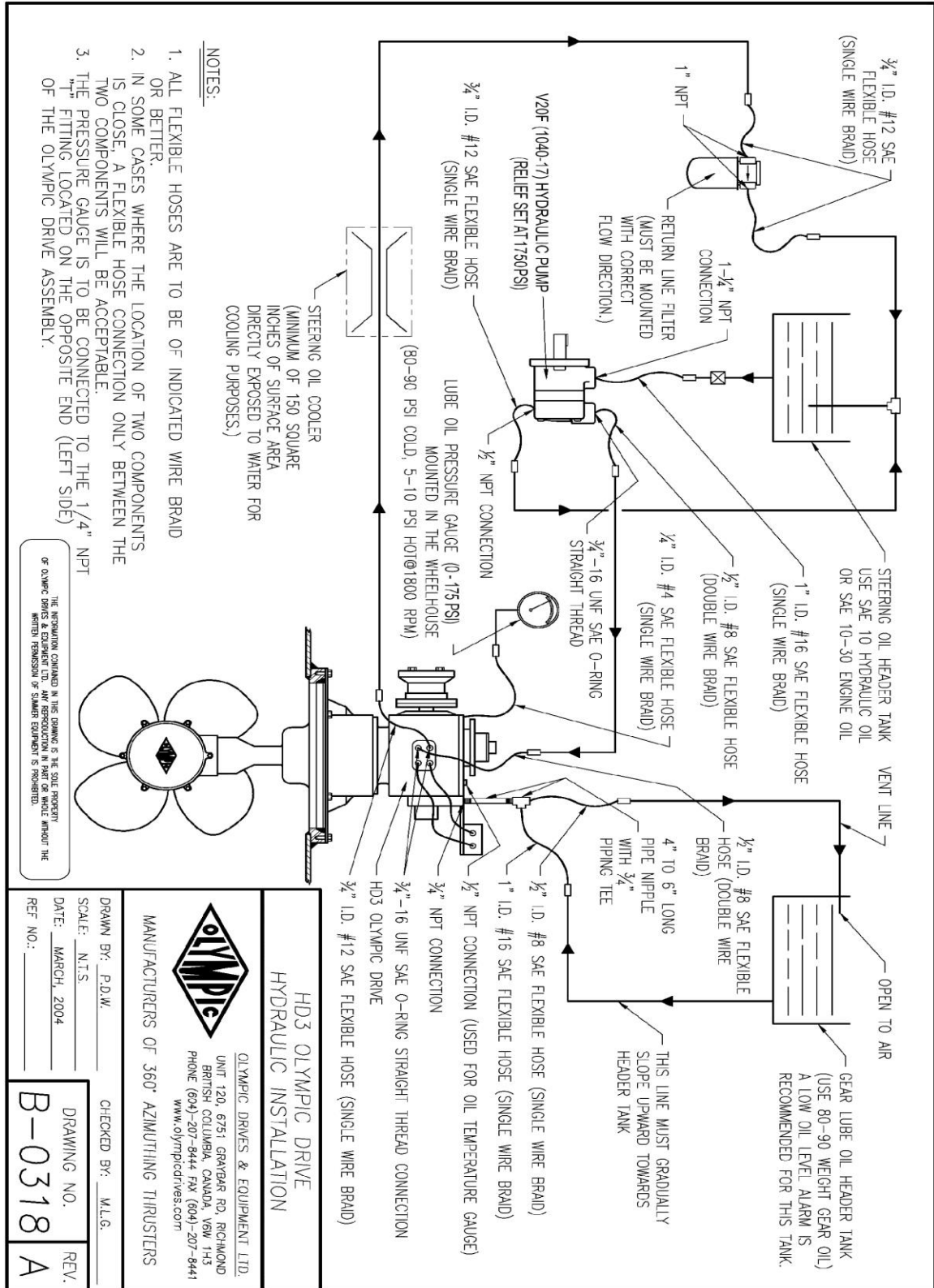


Olympic Drive Installation Drawing B-0440



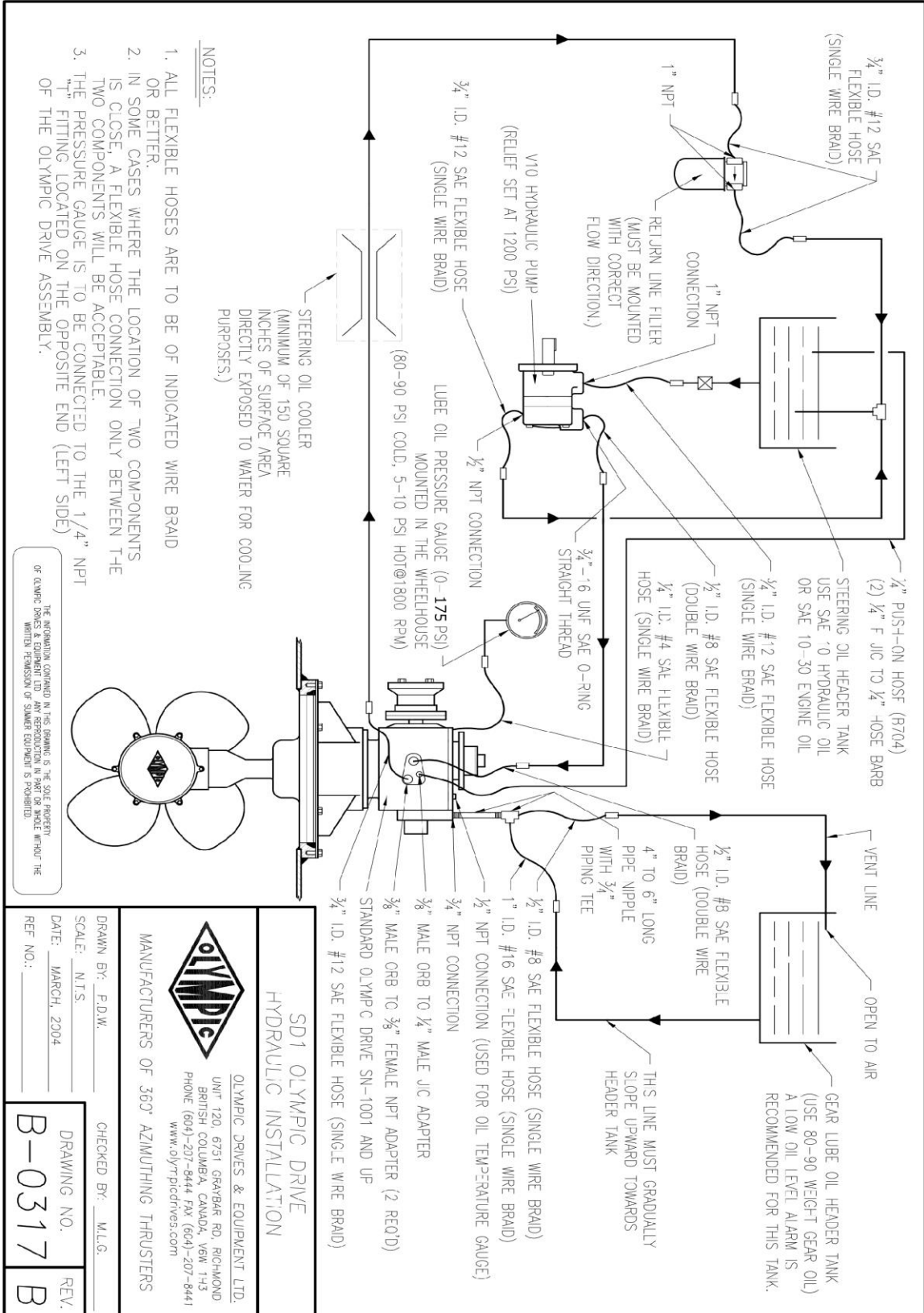


HD3 Piping Drawing



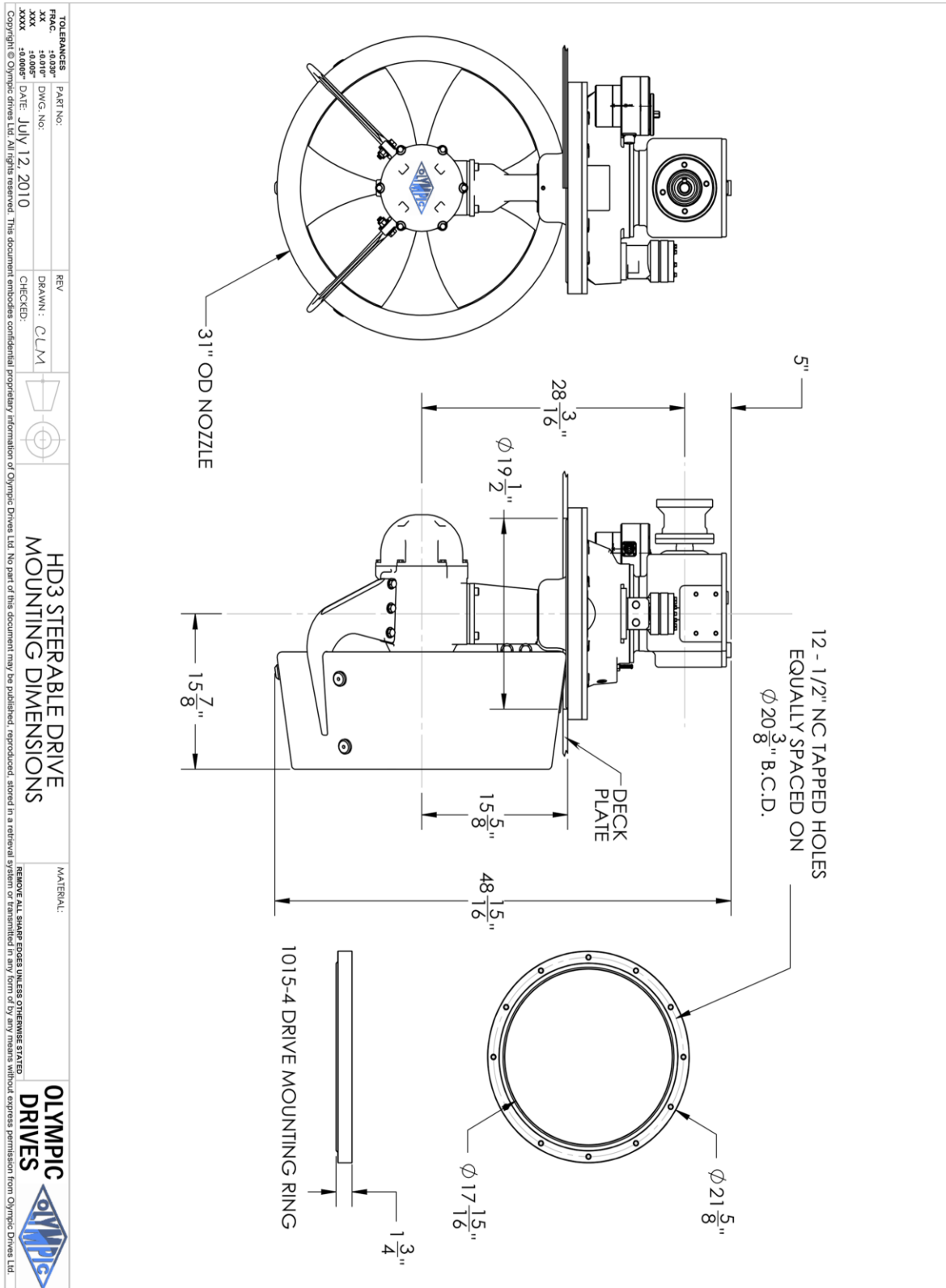


SD1 Piping Drawing





HD3 Mounting Dimensions





Maintenance Schedule

Daily Operations:

1. Check Z-Drive oil level (Header Tank).
2. Monitor lubrication oil pressure gauge.

Every Month or 200 Hours:

1. Inspect power steering motor for wear or leakage.
2. Inspect all hydraulic lines and fittings; tighten or replace as required.

Every Six Months or 1000 Hours: (whichever comes first)

3. Monthly inspection plus below;
4. Drain and replace lube oil and filter (if applicable). Maintain oil level 3 inches (7.6 cm) from the top of the tank.
5. Inspect zinc anodes and replace as required.

Every 5 years or 6000 Hours: (whichever comes first)

1. Overhaul the Z-Drive replacing all bearings and seals.
2. Inspect all components for wear and replace as required.
3. Flush lube and steering oil systems.

The oil changes are dependent on the type of oil used, so check with the oil for recommendation.