



Component Manual

**Hydraulic Helm Pump
Model: B24**



**Document No.: MAN00301W
Revision: -**

This manual is subject to change without prior notice.



TABLE OF CONTENTS

1	INTRODUCTION	2
1.1	Description	2
2	INSTALLATION	3
2.1	Mounting	3
2.2	Recommended Oils.....	3
2.2.1	Oils used with Wagner’s model “N” cylinder	3
2.3	Recommended Tubing Sizes.....	5
2.3.1	Tubing for Wagner’s model “N” cylinder.....	5
2.4	Filling.....	5
2.5	Operation Check	6
3	MAINTENANCE AND PARTS LISTS	6
4	TROUBLESHOOTING	7

TABLE OF FIGURES

Figure 1	– B24 Helm Pump Overall Dimensions	4
Figure 2	– Mounting Template	8



1 INTRODUCTION

1.1 Description

Wagner's B24 helm pump is a positive displacement axial piston pump, ideally suited to deliver precise amounts of hydraulic oil at very slow turning rates. The pump is designed to operate in 'non-pressurized' hydraulic systems, requiring only two lines from the helm pump to the cylinder. The pump has sufficient internal capacity to act as a small vented oil reservoir and just filling the helm pump housing with oil is all that is required to get the pump operational.

The pump's displacement is 2.4 cubic inches (39 cubic centimeters) per revolution.

Any number of helm pumps may be connected in parallel in the hydraulic system.

The B24 helm pump is equipped with a lockvalve, which prevents rudder feedback and isolates each helm pump in a multiple station system.

The externally removable shaft seal is held in position by a retainer ring, providing a safeguard against seal 'blow out' due to internal pressure build up.



2 INSTALLATION

2.1 Mounting

The B24 may be mounted at any angle between its vertical and horizontal axis.

- NOTE:
- Refer to Figure 1 for overall dimensions and detailed mounting and connection information.
 - Figure 2 at the end of the manual contains a template to aid in mounting the helm pump.

The B24 can be mounted in front of a dashboard. Four mounting bolts are required. Ensure there is sufficient space between the wheel and the dashboard so that the operator's hands are free to hold the wheel throughout its full turning circle.

When mounting the aluminum body of the helm pump directly onto a steel bulkhead, use plastic spacers between the mounting bolts to prevent electrolysis.

Use a steering wheel with a minimum diameter of 20" with Wagner "B" model steering cylinder.

2.2 Recommended Oils

2.2.1 Oils used with Wagner's model "N" cylinder

Standard ISO grade 32 oil must be used with Wagner model "N" steering cylinders.

WARNING: DO NOT USE TRANSMISSION OIL OR BRAKE FLUID.

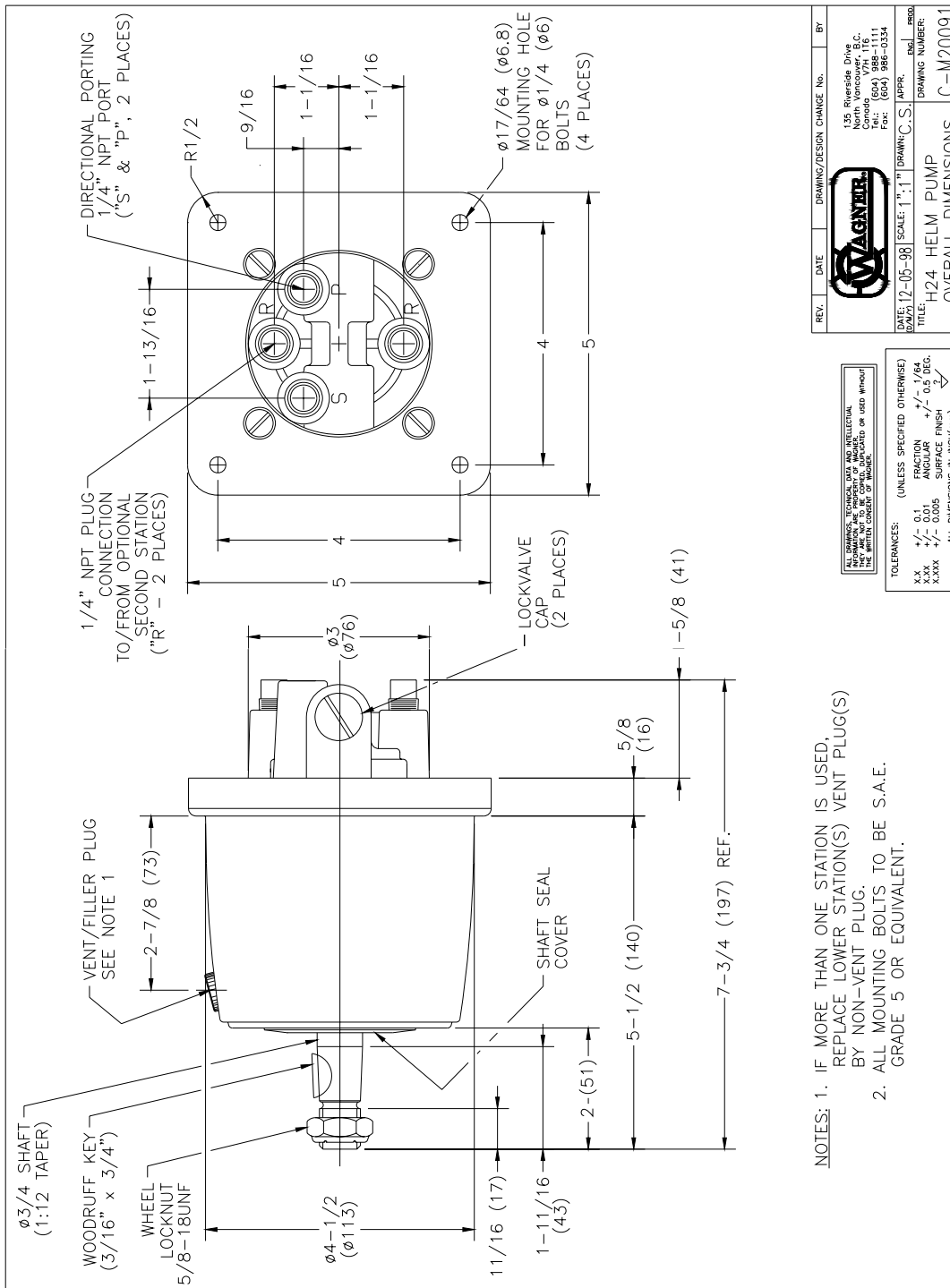


Figure 1 – B24 Helm Pump Overall Dimensions



2.3 Recommended Tubing Sizes

2.3.1 Tubing for Wagner's model "N" cylinder

Seamless hydraulic steel tubing, or copper tubing (minimum working pressure of 1000 PSI (69 BAR) is recommended for Wagner "N" model cylinder.

If the distance between helm and cylinder is less than 50 feet, use 1/2" tubing. Otherwise, use 5/8" tubing.

2.4 Filling

- a) Start filling the helm pump by pouring hydraulic oil into the vent hole using the filler hose and by turning the pump continuously in one direction until the helm feels solid. Then reverse rotation until helm feels solid again.

In multiple station applications, ensure that only the most upper helm pump is fitted with the vented plug supplied with the pump. Lower station(s) should be fitted with the non-vented plug (part number 552006).

- b) Repeat these steps several times, each time exerting some pressure on the wheel when the hardover position is reached. Exerting pressure will allow remaining entrapped air to pass through the lockvalve into the pump housing.

CAUTION: Check oil levels often when filling the system.

Slight stiffness in the system may be caused by trapped air. Frequently turning the helm within the first few days after installation will help to ensure that the last of the air is worked out of the system.



2.5 Operation Check

Upon completion of steering gear and hydraulic system installation the steering gear must be checked to ensure that:

- Steering direction corresponds to the wheel turning direction
- All fittings are tight and no leaks are visible,
- Oil level is full at upper station
- If cylinder isolation valves are installed, valves must be in the open position
- All cylinder/tiller bolts and nuts and the cylinder mounting bolts are securely tightened.

For more detailed information please refer to your steering cylinder manual.

3 MAINTENANCE AND PARTS LISTS

WARNING: ALL INSPECTION AND MAINTENANCE MUST BE PERFORMED WHILE THE VESSEL IS STATIONARY AND NOT UNDERWAY.

The 'H' helm pumps were designed for heavy-duty commercial applications and are virtually maintenance free.

To exchange shaft seal, remove screws from retainer ring and pry out seal (quad-ring). Insert new seal and attached retainer ring. Refill housing with oil. For any other parts, please contact your local dealer.

After initial installation or re-filling of the pump check oil level daily for the first month.

Once a year visually inspect the helm pump for damage, wear, hydraulic leaks and corrosion. If any of the above is apparent, remove helm pump and remedy the problem.



4 TROUBLESHOOTING

WARNING: FAILURE TO CORRECT ANY PROBLEM CAN CAUSE SUDDEN LOSS OF STEERING.

The chart below gives some general solutions for simple problems. If a problem cannot be resolved, contact the factory.

SYMPTOM	CAUSE	CORRECTION
Stiff steering	Steering wheel is undersized	Install larger diameter steering wheel.
	Isolation valves not fully opened.	Open isolation valves fully.
	Tubing size too small.	Use larger size of tubing.
	New rudder stock bearing too tight, or stiff steering mechanism.	Refer to manufacturer's recommendations.
	Binding, misalignment due to incorrect installation.	Correct misalignment.
Steering gear responds very slowly.	Faulty piston seals or rod seals.	Replace seals in cylinder.
	Excessive air trapped in system.	Purge air out of system.

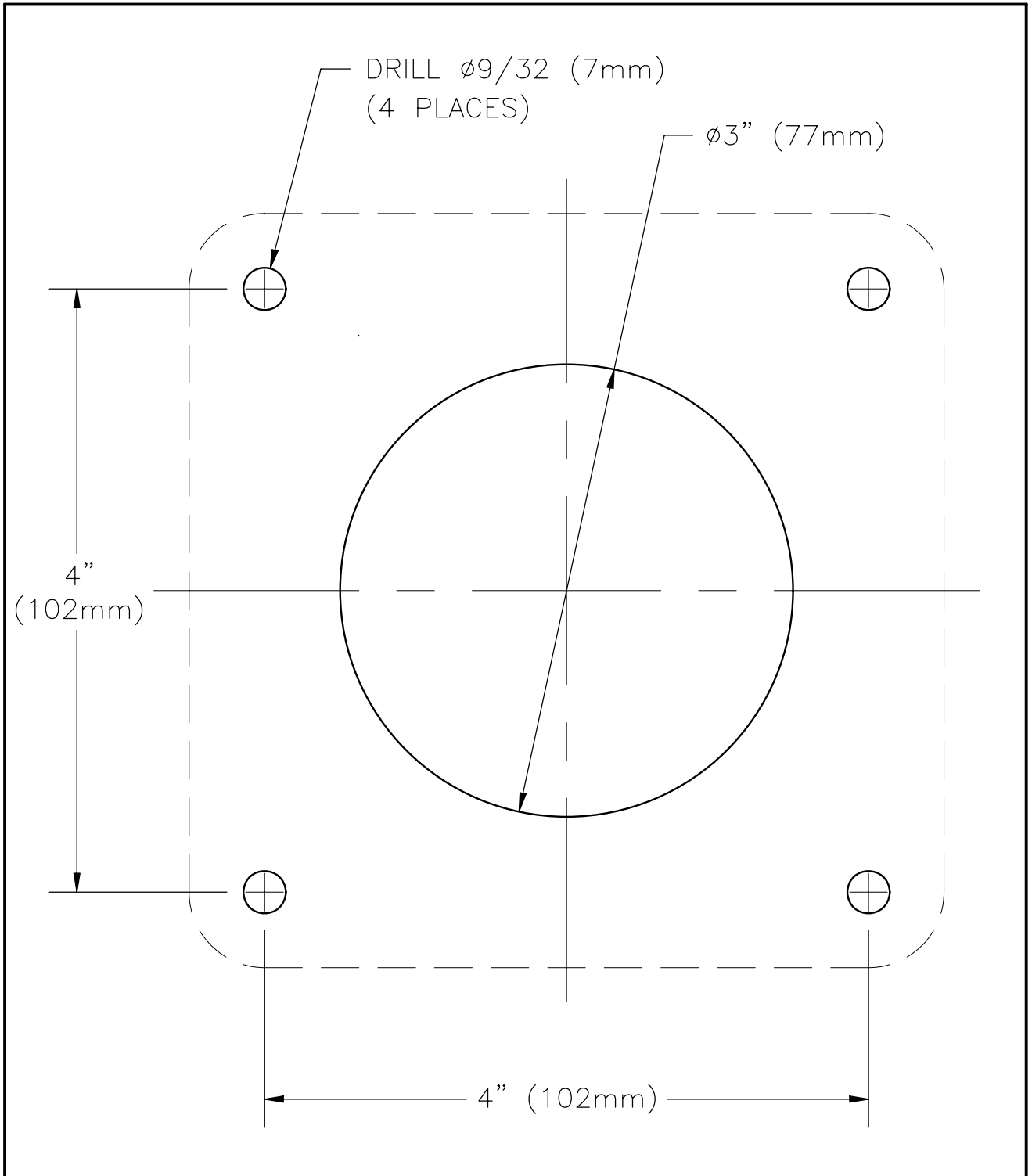


Figure 2 – Mounting Template



This page is intentionally left blank.



This page is intentionally left blank.

