



PARTS LIST OPERATING AND SERVICE MANUAL

MH-C2 HYDRAPAK

**MOBILE
HYDRAULIC COOLING
SYSTEM**

**30 G.P.M. – 3500 PSI
(5000 PSI optional)**

**HYD-7-600
Version: 01
September 17, 2014**

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INTRODUCTION

YOUR KEY TO TROUBLE FREE SERVICE

Thank you for investing in Gardner Denver® quality. The Gardner Denver® reputation for rugged dependability has been earned by over 50 years of service in demanding, industrial operations where downtime cannot be tolerated and efficient performance is expected.

Your Gardner Denver® Hydrapak is a precision engineered cooling system that has been carefully manufactured and thoroughly tested at the state-of-the-art Gardner Denver® Manufacturing Facility in Sedalia, Missouri.

As with other precision machinery, there are several relatively simple installation, operation and maintenance procedures that you must observe to assure optimum cooler performance. There is no guesswork in the manufacture of your highly advanced Gardner Denver® Hydrapak and there must be none in preparing the cooler to get the job done in the field.

The purpose of this manual is to help you properly install, operate and maintain your Gardner Denver® Hydrapak. It is essential that you review all sections of this manual in preparation for installing your Hydrapak. Follow the instructions carefully and you will be rewarded with trouble-free Gardner Denver® service year in and year out.

IMPORTANT GARDNER DENVER® TELEPHONE NUMBERS

YOUR AUTHORIZED GARDNER DENVER DISTRIBUTION

NAME:	_____
TELEPHONE:	_____
FAX:	_____
CONTACT:	_____

THANKS FOR THE PRIVILEGE OF SERVING YOU WITH DEPENDABLE GARDNER DENVER QUALITY.

**MAINTAIN HYDRAPAK RELIABILITY AND PERFORMANCE
WITH GENUINE GARDNER DENVER® PARTS AND SUPPORT SERVICES**

Factory genuine parts, manufactured to design tolerances, are developed for optimum dependability - - - specifically for your Hydrapak. Design and material innovations are born from years of experience with hundreds of different applications. When you specify factory genuine parts you are assured of receiving parts that incorporate the most current design advancements manufactured in our state-of-the-art factory under exacting quality standards.

Your AUTHORIZED DISTRIBUTOR offers all the backup you require. A worldwide network of authorized distributors provides the finest product support in the industry.

INSTRUCTIONS FOR ORDERING REPAIR PARTS

For pricing, and ordering information contact your nearest AUTHORIZED FACTORY DISTRIBUTOR. When ordering parts, specify Hydrapak **MODEL** and **SERIAL NUMBER** (see nameplate on unit).

Rely upon the knowledge and experience of you AUTHORIZED DISTRIBUTOR and let them assist you in making the proper parts selection for your Hydrapak.

To Contact Gardner Denver® or locate your local distributor:

Visit: www.contactgd.com/mobile

or

call: (217)222-5400

FOREWORD

Gardner Denver® Hydrapak are the product of advanced engineering and skilled manufacturing. To be assured of receiving optimum service from this machine, the owner must exercise care in its operation and maintenance. This book is written to give the operator and maintenance department essential information for day-to-day operation, maintenance and adjustment. Careful adherence to these instructions will result in economical operation and minimum downtime.



Danger indicate a hazardous situation that, if not avoided, will result in death or serious injury.



Warning indicate a hazardous situation that, if not avoided could result in death or serious injury.



Caution indicate a hazardous situation that, if not avoided, could result in minor or moderate injury.

NOTICE

Notice indicates information considered important but not hazard related.

SAFETY INSTRUCTIONS



Failure to observe these SAFETY INSTRUCTIONS could result in death or serious injury.

- Do not work under the vehicle when engine and/or PTO are running.
- Do not work on the hydraulic system when engine and/or PTO is running.
- Do not go near oil leaks when engine is running.
 - High pressure oil easily punctures skin causing serious injury, infection or death.
 - If injured, seek emergency medical help immediately.
 - Immediate surgery is required to remove oil.
- Do not use finger or skin to check for leaks.
- Lower load and/or relieve hydraulic pressure before loosening fittings.
- Do not operate unit without all body panels and guards in place. Never bypass safety devices.



Failure to observe these notices could result in damage to equipment.

- Stop the PTO and engine if any repairs or adjustments on or around the Hydrapak are required.
- Ensure proper rotation of blower prior to start-up. Failure to do so may result in damage to the hydraulic pump.

SECTION 1

EQUIPMENT CHECK

Before uncrating, check the packing slip carefully to be sure all the parts have been received. All accessories are listed as separate items on the packing slip, and small important accessories such as relief valves can be overlooked or lost. After every item on the packing slip has been checked off, uncrate carefully. Register a claim with the carrier for lost or damaged equipment.



Customers are cautioned to provide adequate protection, warning and safety equipment necessary to protect personnel against hazards involved in installation and operation of this equipment in the system or facility.

STORAGE

Your Gardner Denver® Hydrapak was packaged at the factory with adequate protection to permit normal storage for up to six (6) months.

If the unit is to be stored under adverse conditions or for extended periods of time, the following additional measures should be taken to prevent damage.

1. Store the cooler in a clean, dry, heated (if possible) area.
2. Make certain inlet and discharge air ports are tightly covered to prevent foreign material from entering the hydraulic system.
3. All hydraulic fittings are zinc coated but should also be protected against rust and corrosion.
4. In high humidity or corrosive environments, additional measures may be required to prevent corrosion of an hub and aluminum control block.

SECTION 2 INSTALLATION

MOUNTING

Drilling clearance holes for ½" bolt size is required to mount the Hydrapak (see bolt pattern on page 11). Mounting hardware includes rubber isolation washers, flat washers, lock washers, and hex nuts.

HYDRAULIC HOSES & FITTINGS



All high pressure hoses & fittings must have a working pressure rating equal to or higher than the hydraulic system relief valve setting.



- Suction line rotation must not rise above the oil level height in reservoir at any location. This may cause severe hydraulic pump cavitation which will reduce the hydraulic pump life
- Do not use thread tape or sealant on hydraulic fittings as this can contaminate hydraulic system.

NOTICE

SUCTION LINE SIZING & ROUTING

- Pressure drop calculations must be performed on the specific system and corresponding tractor unit to insure acceptable suction conditions.
- The routing of the suction line must be done to avoid excessive pressure drop. Elbows, reducers, and line rises above the bottom of Hydrapak reservoir will cause excessive pressure drop in suction line.
- The maximum recommended vacuum at the hydraulic pump inlet is 5" Hg. For gear pumps and 2" Hg. for piston pumps.
- The suction hose must be capable of operating under 28" Hg. Vacuum.

Special attention should be given to applications utilizing a double suction or large diameter piping. When excessive loading or insufficient support of the suction piping exists, reservoir fatigue fractures, loss of oil, and decreased hose life are likely to occur.

1. For double suction applications, if weight and length of pipe work (fittings) is excessive, shorten the piping to reduce vibration and add support brackets to compensate for the added weight. Additional support brackets should be attached to a common point with the Hydrapak so that flexing of the truck frame and vibration does not induce additional stress on the Hydrapak.
2. . On direct coupled double suction piping, if mounting conditions do not accommodate additional support brackets, consider line mounting a pipe "Y" to fill the need for a double suction. When line mounting the "Y", a single section of large diameter hose can be fitted to the reservoir suction fitting leading into the "Y" downstream. Appropriately sized piping can then exit the "Y" and lead into the pump inlet sections. Always make sure the "Y" pipe is supported and consideration is given to the remaining points.

3. Hoses must have proper support near the Hydrapak to reduce loading from hose and fluid weight. Unsupported hoses pull on the welded connection fittings of the reservoir and may result in reservoir stress fractures and shortened hose life.
4. Proper installation of the hoses should include a slight bend in the hoses near the connections. This allows them to flex, reduce vibration stress and hose shrinkage under load.
5. All hoses should use the largest bend radius possible to reduce pressure drop and loading. Always follow the hose manufacturer's recommendations for hose duty and bend radius. If an excessively tight bend is required, consider using a section of rigid pipe such as a street 90 with increased pipe diameter.

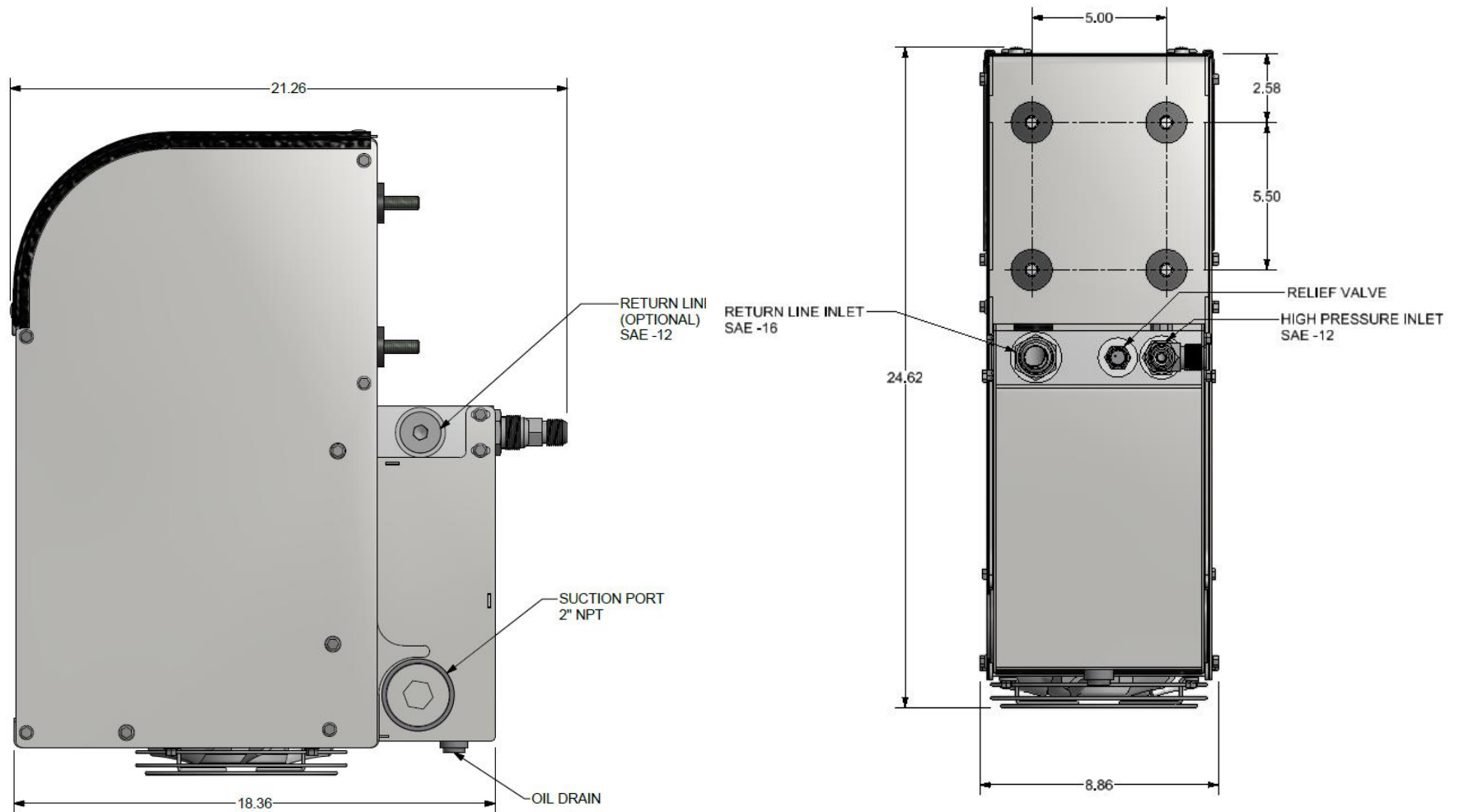


FIGURE 2-1 – AIR FLOW DIRECTION AND OUTLINE

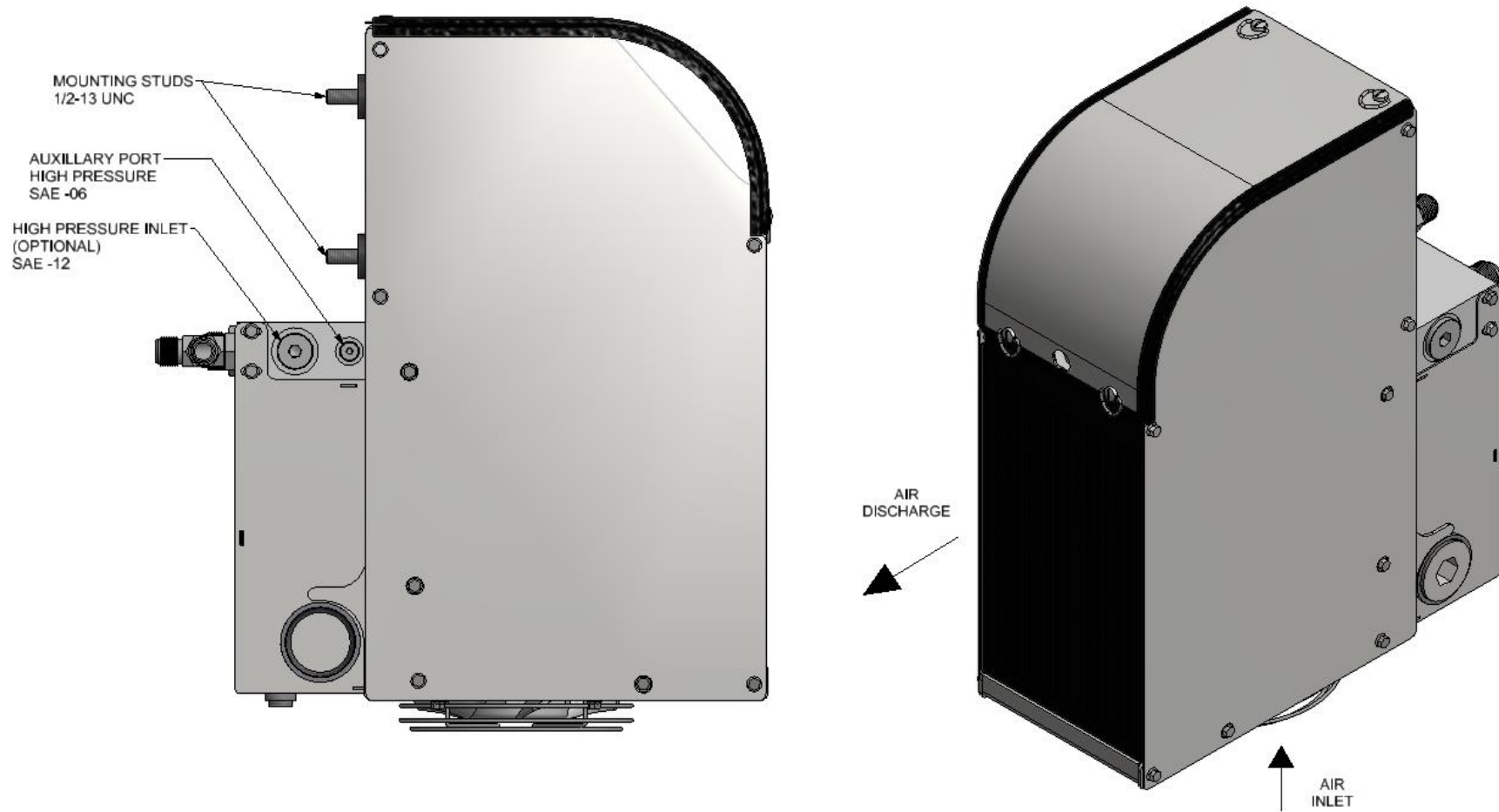


FIGURE 2-2 – AIR FLOW DIRECTION AND OUTLINE

SECTION 3

INITIAL STARTUP PROCEDURE

This startup procedure should be followed during the initial installation and after any shutdown periods or after the Hydrapak has been worked on or moved to new location.

NOTICE

Two people are required for initial start up procedure.
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CAUTION
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- | |
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| <ul style="list-style-type: none">• Ensure all hydraulic connections to Hydrapak are tight before performing initial startup procedure.• Ensure Hydrapak is in level position so oil level in sight glass is accurate |
|--|

1. Remove Hydrapak lid to access in-tank filter. Remove cap and filter element.
2. Fill reservoir with Shell Tellus π T series ISO 32 hydraulic oil (or equivalent) until oil appears in sight glass.
3. Replace filter element and cap.
4. Slowly raise clutch while engine is running to engage P.T.O. and pump to draw some oil from reservoir into suction line. Stop after a couple seconds.
5. Disengage P.T.O. (press clutch all the way in). Repeat steps 1-4 until oil level does not drop while the P.T.O is engaged.
6. Check entire hydraulic system for leaks.

NOTICE

- | |
|---|
| <ul style="list-style-type: none">• Do not over fill oil in reservoir. Doing so may create excessive pressure inside reservoir and result in oil leaks and/or filter damage.• A minimum system operating pressure of 1300 psi is recommended. Operating below 1300 psi may result in undesired 'surging' of fan motor and reduced performance. |
|---|

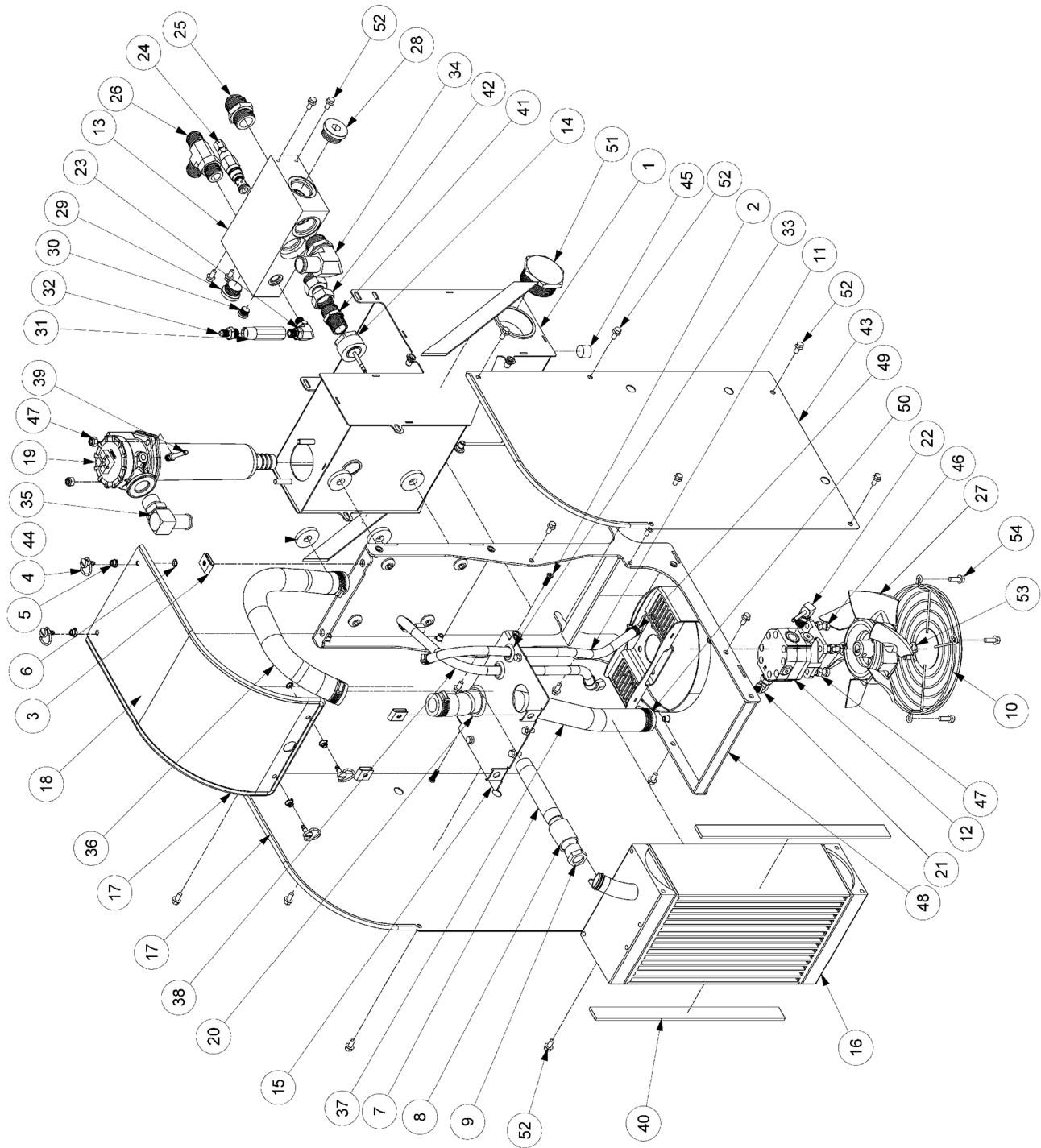
SECTION 4

MAINTENANCE

1. Change hydraulic oil and filter every 6 months
2. Check oil level each week with system OFF. Oil should be visible in lower ½ of sight glass.
3. Visually check the system each week i all fittings, hoses, and Hydrapak mounting.
4. Grease P.T.O. / Pump spline every 3 months (grease every month for high duty cycle applications)

NOTICE
An oil analysis program is recommended.

SECTION 5
PARTS LIST – MH-C2



See page 15 for Parts List.

Order by Part Number and Description. Reference Numbers are for your convenience only.

Ref. No.	Description	Qty.	MODEL	MODEL	MODEL
			704010100	704010104	704010100
			704010102	704010105	
			704010103		
			MH-C2	MH-C2	MH-C2
1	RESERVOIR	1	CC1118064	CC1118064	CC1118064
2	SCREW	2	BB1126663	BB1126663	BB1126663
3	RECPTACLE, 1/ 4 TURN	4	BB1126665	BB1126665	BB1126665
4	STUD, 1/ 4 TURN.....	4	BB1128040	BB1128040	BB1128040
5	SPRING	4	BB1126667	BB1126667	BB1126667
6	RETAINER, 1/ 4 TURN.....	4	BB1126666	BB1126666	BB1126666
7	NIPPLE.....	1	63G7S	63G7S	63G7S
8	COUPLING	1	64BK5S	64BK5S	64BK5S
9	GAUGE-OIL LEVEL SIGHT GLASS	1	40P11	40P11	40P11
10	FAN GUARD.....	1	VP1118159	VP1118159	VP1118159
11	HOSE	1	310030226	310030226	310030226
12	FAN MOTOR	1	300001228	300001228	300001228
13	CONTROL BLOCK.....	1	VP1118079	BB1121067	BB1121067
14	CHECK VALVE, BYPASS	1	304059203	304059203	304059203
15	PLATE, TOP HEAT EXCHANGER	1	CC1118158	CC1118158	CC1118158
16	OIL COOLER.....	1	VP1118076	VP1118076	VP1118076
17	EDGE TRIM.....	6.80 ft	VP1118156	VP1118156	VP1118156
18	LID.....	1	VP1119238	VP1119238	VP1119238
*19	FILTER, IN-TANK.....	1	VP1118077	VP1118077	VP1118077
20	GROMMET	1	VP1118154	VP1118154	VP1118154
21	FITTING, HYD ELBOW.....	1	302095219	302095219	302095219
22	FITTING, HYDHOSE BARB ELBOW	1	302183205	302183205	302183205
23	FITTING, HYD ELBOW.....	1	302099201	302099201	302099201
24	RELIEF VALVE.....	1	303000008	303000008	BB1132940
25	FITTING, HYD ADAPTER.....	1	302065207	302065207	302065207
26	FITTING, HYD TEE.....	1	302005200	302005200	302005200
27	FAN.....	1	VP1118078	VP1118078	VP1118078
28	FITTING, HYD PLUG.....	1	302123205	302123205	302123205
29	FITTING, HYD PLUG.....	1	302123204	302123204	302123204
30	FITTING, HYD PLUG.....	1	302123203	302123203	302123203
31	FLOW CONTROL.....	1	VP11180891	VP11180891	VP11180891
32	FITTING, HYD ADAPTER.....	1	302065234	302065234	302065234
33	GROMMET	2	VP118153	VP118153	VP118153
34	FITTING, HYDHOSE BARB ELBOW	1	302183200	302183200	302183200
35	FITTING, HYDHOSE BARB ELBOW	1	302183206	302183206	302183206
36	HOSE	1	310030223	310030223	310030223
37	HOSE	1	310030224	310030224	310030224
38	HOSE ASSEMBLY.....	1	407021218	407021219	407021219
39	FITTING, HYDHOSE BARB	1	302170206	302170206	302170206
40	STRIP, FOAM	6.00 ft	VP1118157	VP1118157	VP1118157
41	FITTING, HYD ADAPTER.....	1	305061200	305061200	305061200
42	FITTING, HYD ADAPTER.....	1	302065235	302065235	302065235
43	SIDE PANEL	2	BB1119224	BB1119224	BB1119224
44	WASHER, RUBBER ISOLATOR	4	VP1118151	VP1118151	VP1118151
45	FITTING, PLUG	1	64AC5	64AC5	64AC5
46	SCREW	4	75A10Z	75A10Z	75A10Z
47	NUT	6	236105400	236105400	236105400
48	FRAME ASSEMBLY.....	1	CC1118050	CC1118050	CC1118050
49	HOSE CLAMP	2	299070218	299070218	299070218
50	HOSE CLAMP	4	299070207	299070207	299070207
51	FITTING PLUG	1	VP1118083	VP1118083	VP1118083
52	SCREW	24	75LM47S	75LM47S	75LM47S
53	RETAINING RING	2	244010200	244010200	244010200
54	SCREW	4	75LM48S	75LM48S	75LM48S

* FILTER ELEMENT FOR ITEM 19 ÷ VP1119226



WARRANTY

HYDRAPAK COOLING SYSTEM

GENERAL PROVISIONS AND LIMITATIONS

Gardner Denver®, Inc. (the "Company") warrants to each original retail purchaser ("Purchaser") of its products from the Company or its authorized distributor that such products are, at the time of delivery to the Purchaser, made with good material and workmanship. No warranty is made with respect to:

1. Any product which has been repaired or altered in such a way, in the Company's judgment, as to affect the product adversely.
2. Any product which has, in the Company's judgment, been subject to negligence, accident, improper storage, or improper installation or application.
3. Any product which has not been operated or maintained in accordance with the recommendations of the Company.
4. Components or accessories manufactured, warranted and serviced by others.
5. Any reconditioned or prior owned product.

Claims for items described in (4) above should be submitted directly to the manufacturer.

WARRANTY PERIOD

The Company's obligation under this warranty is limited to repairing or, at its option, replacing, during normal business hours at an authorized service facility of the Company, any part which in its judgment proved not to be as warranted within the applicable Warranty Period as follows.

HYDRAPAK COOLING SYSTEMS

Hydrapak coolers, consisting of all parts within, are warranted for 12 months from date of initial use or 18 months from date of shipment to the first purchaser, whichever occurs first. Any disassembly or partial disassembly of the Hydrapak, or failure to return the "unopened" Hydrapak per Company instructions, will be cause for denial of warranty.

LABOR TRANSPORTATION AND INSPECTION

The Company will provide labor, by Company representative or authorized service personnel, for repair or replacement of any product or part thereof which in the Company's judgment is proved not to be as warranted. Labor shall be limited to the amount specified in the Company's labor rate schedule.

Labor costs in excess of the Company rate schedules caused by, but not limited to, location or inaccessibility of equipment, or labor provided by unauthorized service personnel is not provided for by this warranty.

Transportation of Company's choice, within the continental United States, is covered by this warranty for replacement of any blower which in the Company's judgment proved not to be as warranted. For user locations outside the continental United States, the Company will provide transportation, by the carrier of its choice, to and from the nearest Authorized Distributor and the Company's designated facility. The Company may require the return of any blower or part claimed not to be as warranted to one of its facilities as designated by the Company, transportation prepaid by Purchaser, to establish a claim under this warranty.

Replacement parts provided under the terms of the warranty are warranted for the remainder of the Warranty Period of the product upon which installed to the same extent as if such parts were original components thereof.

DISCLAIMER

THE FOREGOING WARRANTY IS EXCLUSIVE AND IT IS EXPRESSLY AGREED THAT, EXCEPT AS TO TITLE, THE COMPANY MAKES NO OTHER WARRANTIES, EXPRESSED, IMPLIED OR STATUTORY, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

THE REMEDY PROVIDED UNDER THIS WARRANTY SHALL BE THE SOLE, EXCLUSIVE AND ONLY REMEDY AVAILABLE TO THE PURCHASER AND IN NO CASE SHALL THE COMPANY BE SUBJECT TO ANY OTHER OBLIGATIONS OR LIABILITIES. UNDER NO CIRCUMSTANCES SHALL THE COMPANY BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, EXPENSES, LOSSES OR DELAYS HOWSOEVER CAUSED.

No statement, representation, agreement, or understanding, oral or written, made by any agent, distributor, representative, or employee of the Company which is not contained in this Warranty will be binding upon the Company unless made in writing and executed by an officer of the Company.

This warranty shall not be effective as to any claim which is not presented within 30 days after the date upon which the product is claimed not to have been as warranted. Any action for breach of this warranty must be commenced within one year after the date upon which the cause of action occurred.

Any adjustment made pursuant to this warranty shall not be construed as an admission by the Company that any product was not as warranted.



For additional information, contact your local representative or visit:
www.contactgd.com/blowers

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Member



Please recycle after use.