



An Oshkosh Corporation Company

CAS40PL, CAS40PL-CW

40 CFM/100 PSIG HYDRAULIC, (OPTIONAL) COLD-WEATHER, CLOSED OR OPEN CIRCULATION RECIPROCATING COMPRESSOR

INSTALLATION, OPERATION, MAINTENANCE AND PARTS MANUAL

NOTE

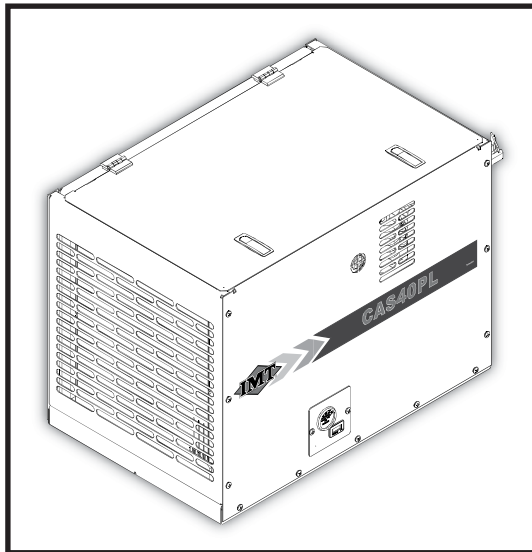
This publication contains the latest information available at the time of preparation. Every effort has been made to ensure accuracy.

Iowa Mold Tooling Co., Inc. reserves the right to make design change modifications or improvements without prior notification.

NOTE

Use only IMT Reciprocating Compressor Oil and Genuine IMT Parts. Inspect and replace damaged components before operation. Substituting non-IMT oil or non-genuine IMT filter components **WILL VOID THE COMPRESSOR WARRANTY!**

**KEEP THE MANUAL
WITH THE VEHICLE**



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Read this manual before installing, operating or servicing this equipment. Failure to comply with the operation and maintenance instructions in this manual will **VOID THE EQUIPMENT WARRANTY.**

NOTE

Making unauthorized modifications to the system components **WILL VOID THE WARRANTY!**

Always inform IMT before beginning any changes to the CAS40PL systems.

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SECTION 1:

! SAFETY

1.1 ! GENERAL INFORMATION

The products provided by IMT® Mfg., Inc. are designed and manufactured for safe operation and maintenance. But it is ultimately the responsibility of the users and maintainers for safe use of this equipment. Part of this responsibility is to read and be familiar with the contents of this manual before operation or performing maintenance actions.

! IMPORTANT

It is mandatory that all operators read this manual before operating or servicing the CAS40PL system. Failure to do so could result in death, bodily injury or damage to equipment.

! DANGER

DO NOT OPERATE IN AN ENCLOSED SPACE WITHOUT ADEQUATE VENTILATION.

Running any combustion engine in an enclosed space without adequate ventilation may result in carbon monoxide (CO) poisoning and may cause overheating, which may result in fire and/or explosion.

Carbon monoxide (CO) build-up may cause death!

Overheating may result in fire and/or explosion resulting in injury/death and equipment damage.

Consult IMT for recommendations when mounting combustion engine driven IMT equipment in an enclosed space.

1.2 ! INTERNATIONAL WARNING SYMBOL



The international warning symbol (shown above) is used on all decals, labels and signs that concern information pertaining to bodily harm.

When you see the international warning symbol, pay extremely careful attention, and follow the given instructions or indications to avoid any possible hazard.

1.3 ! DANGERS, WARNINGS, CAUTIONS AND NOTES

These boxes are labeled clearly with the title block listing either Danger, Warning, Caution, or other non-safety issue. They draw attention to specific issues that are pertinent to the safe and correct operation of the machine.

The symbols shown and defined in **Section 1: Safety** are used throughout this manual and on the machine to call attention to, and identify, possible hazards.

1.3.1 ! DANGERS

! DANGER

Identifies actions or conditions which will cause death, severe injury, or equipment damage or destructive malfunctions.

- Keep tools or other conductive objects away from live electrical parts.
- Never touch electrical wires or components while the machine is operating. They can be sources of electrical shock.

1.3.2 ! WARNINGS

! WARNING

Identifies actions or conditions which may cause death, severe injury, or equipment damage or destructive malfunctions.

- **DO NOT EVER** use this compressor as a breathing air source. IMT disclaims any and all liabilities for damage or loss due to fatalities, personal injuries resulting from the use of a IMT compressor to supply breathing air.



- **DO NOT** perform any modifications to this equipment without prior factory approval.
- **DO NOT** operate the compressor or any of its systems if there is a known unsafe condition. Disable the equipment by disconnecting it from its power source. Install a lock-out tag to identify the equipment as inoperable to other personnel.
- **DO NOT** operate the compressor with any bypass or other safety systems disconnected or rendered inoperative.
- **DO NOT** operate the equipment while you are under the influence of alcohol or drugs.
- **DO NOT** operate the equipment while you are feeling ill.
- **DO NOT** attempt to service the equipment while it is operating.
- Before performing maintenance, or replacing parts, relieve the entire system pressure, after the system has blown down, by opening a service valve which will vent all pressure to the atmosphere. After that, remove any remaining residual pressure by slowly opening the fill cap. Remove all electrical power.

NOTE

Slowly remove fill cap to vent compressor sump pressure.

- **DO NOT** use the compressor for purposes other than for which it is intended. High pressure air can cause serious and even fatal injuries.
- **DO NOT** operate the compressor outside of its specified pressure and speed ratings. (See **Section 2: Specifications** or refer to the equipment data plate.).
- **DO NOT** use flammable solvents or cleaners for cleaning the compressor or its parts.
- **DO NOT** operate the compressor in areas where flammable, toxic, corrosive fumes, or other damaging substance can be ingested by the compressor intake.
- Keep arms, hands, hair and all other body parts, and clothing away from fans, drive shafts, and other moving parts.
- **DO NOT** wear jewelry, unbuttoned cuffs, ties, or loose-fitting clothing when you are working near moving/rotating parts.
- **ALWAYS** confine long hair when working near moving/rotating parts.
- **NEVER** operate the equipment while wearing a headset to listen to music or the radio.
- Wear personal protective equipment such as gloves, work shoes, and eye and hearing protection as required for the task at hand.
- **DO NOT** operate the compressor with any guards removed or damaged, or other safety devices inoperative.
- **DO NOT** operate the compressor in enclosed or confined spaces where ventilation is restricted or closed-off.
- Ensure that hoses connected to service valves are fitted with correctly sized and rated flow limiting devices which comply with applicable codes. Pressurized broken or disconnected hoses can whip, causing injuries or damage.
- **DO NOT** use tools, hoses, or equipment that have maximum ratings below that of this compressor.
- Keep metal tools, and other conductive objects away from live electrical components.
- Before performing maintenance or repair operations on the compressor, ensure that all power has been removed and been locked out to prevent accidental application.
- **DO NOT** assume that because the compressor is in a STOPPED condition that hydraulic power has been removed.
- Use this compressor only to compress atmospheric air. Use of this equipment as a booster pump and/or to compress any other gaseous or aerosol substance constitutes improper use. It can also cause damage or injuries. Such misuse will also void the warranty.
- Install, operate, and maintain this equipment in full compliance with all applicable OSHA, other Federal, state, local codes, standards, and regulations.
- When lifting objects, be aware of proper lifting



techniques to avoid injury.

- **ALWAYS** read and follow safety related precautions found on containers of hazardous substances.

1.3.3 ▲ CAUTIONS

▲ CAUTION
Identifies actions or conditions which will or can cause injuries, equipment damage or mal-functions.

- Check all safety devices for proper operation on a routine basis.
- Ensure that no tools, rags, or other objects are left on compressor drive systems or near intakes.
- Keep the equipment clean when performing maintenance or service actions. Cover openings to prevent contamination.
- **DO NOT** operate the compressor if cooling air is not available (fan/cooler not operating) or if lubricant levels are below their specified minimum levels.
- Ensure all plugs, hoses, connectors, covers, and other parts removed for maintenance actions are replaced before applying power to the compressor.
- Avoid touching hot surfaces and components.
- Ensure that electrical wiring, terminals; hoses and fittings are kept in serviceable condition through routine inspections and maintenance. Replace any damaged or worn components.

1.3.4 ▲ NOTES

NOTE
Additional information (or existing information) which should be brought to the attention of operators/maintainers affecting operation, maintenance, or warranty requirements.

Note boxes are usually listed to convey and give focus to a distinct piece of information, which is not directly related to a safety issue, but is necessary to understand machine function and operation. Special note referrals in the

manual may be contained in a box titled with an IMPORTANT banner, as shown below, and may also contain the WARNING symbol, should the information be linked to a safety issue:

▲ IMPORTANT
Additional, CRUCIAL information (or existing information) which should be brought to the attention of operators / maintainers affecting operation, maintenance, or warranty requirements.

1.4 ▲ SAFETY DECALS

Safety decals are placed onto, or located near, system components that can present a hazard to operators or service personnel. All pertinent decals listed in **Section 7.11, Decal Identification/Locations**, are located near a component which is subject to respect in terms of safety precautions. Always heed the information noted on the safety decals.

▲ WARNING
DO NOT REMOVE OR COVER ANY SAFETY DECAL. Replace any safety decal that becomes damaged or illegible.

1.5 ♻️ DISPOSING OF MACHINE FLUIDS

Always dispose of machine fluids under the guidance of all applicable local, regional and/or federal law.

IMT® encourages recycling when allowed. For additional information, consult the container label of the fluid in question.



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SECTION 2: SPECIFICATIONS

2.1 GENERAL INTRODUCTION

The tables and figures in this section list the specifications (including operational, output and dimensional) of the overall machine. Contact the IMT® Service Department if additional specifications are needed that cannot be found

in this manual.

Refer to **Figure 2-1** for general machine component locations. For additional information, including measurement specifications, refer to **Figure 3-1** (installation and dimensions diagram) in **Section 3, Installation**.

TABLE 2A: SPECIFICATIONS

GENERAL SYSTEM INFORMATION		SPECIFICATION							
CFM Rating @ 100 psi:	30 ⁱ				40 ⁱⁱ				
Air Pressure (psi):	100	125	150	175	100	125	150	175	
Hydraulic flow (gpm):	8.25	8.25	8.25	9.0	10	10	10	10	
Hydraulic pressure (psig):	2300	2450	2575	2600	2300	2470	2550	2600	
NOTE: Compressor adjustment should be set in accordance with rated RPMs.									
ⁱ 30 CFM = 690 COMPRESSOR RPM									
ⁱⁱ 40 CFM = 1100 COMPRESSOR RPM									
COMPRESSOR									
GENERAL SYSTEM INFORMATION		SPECIFICATION							
Type:	Two-stage, two cylinder, reciprocating								
Compressor oil reservoir capacity:	3 quarts								
Air inlet system:	Dry-type, dual stage								
Drive coupling:	Direct drive, coupled								
Hydraulic motor:	Gear type								
PACKAGE									
Main frame:	Formed powder-coated steel with a bolt-down provision								
Electrical supply:	12V Standard; 24V Optional (with convertor)								
Electrical connections:	Weatherpack								
Enclosure:	Aluminum, powder-coated								
Cooler:	Hydraulic oil cooler/radiator core — electric fan								
Package connections:	Discharge air — 3/4" JIC male								
(Refer to <i>Figures 3-1</i> and <i>3-2</i> in Section 3)	Hydraulic supply — 3/4" 37° JIC male								
	Hydraulic return — 1" 37° JIC male								
	Load sense line (closed center only) — 1/4" 37° JIC male								
	+12VDC								
	Motor case drain 3/8" 37° JIC male								
Continued on next page									

**TABLE 2A: SPECIFICATIONS**

GENERAL SYSTEM INFORMATION	SPECIFICATION
PACKAGE (continued)	
Dimensions:	Length — 32.50"
	Width — 21.00"
	Height — 23.94"
Weight:	245 lbs.(dry; add 10-12 lbs for full wet machine weight)
CONTROLS	
Hydraulic pressure relief:	3000 PSIG
Hydraulic solenoid valve (for automatic load control):	12 or 24V
Air pressure switch (for automatic load control):	Pre-set at factory

TABLE 2B: CAP SCREW TIGHTENING TORQUE VALUES

SIZE	GRADE	LUBRICATED
1/4 - 20 UNC	5	6 ft-bs
5/16 - 18 UNC	5	13 ft-lbs
3/8 - 16 UNC	5	23 ft-lbs
1/2 - 13 UNC	5	55 ft-lbs
3/4 - 10 UNC	5	200 ft-lbs

TABLE 2C: COMPRESSOR TORQUE VALUES

BOLTS SIZE	GRADE	TORQUE (ft.-lb.)	POSITION
1/4-20	5	8	Side Plate Bolts
1/4-28	8	11.76	HP Valve Nut
3/8-16	5	26	Cylinder to Base Bolts
3/8-24	8	33.8	Connecting Rod Bolts
5/16-18	5	17	Head to Cylinder
	5	10	LP & HP Valve Hold Down Covers
	5	17	End Cover/Discharge Manifold Bolts
5/16-24	8	21.3	LP Valve Nut



Figure 2-1: Machine Main Component Locations



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SECTION 3: INSTALLATION

3.1 MACHINE PACKAGE RECEIPT / INSPECTION

Upon receipt of the machine package, inspect the exterior of the shipping crate for signs of shipping/transit damage. Any damage should be reported immediately to the shipping company.

NOTE

Before fully unpacking the unit, inspect the component parts, supports and loose-packed parts to ensure that there have been no internal movements of assemblies or components, which may have been damaged during shipment.

Should any damage be discovered during package inspection, contact the shipping company immediately.

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3.2 GENERAL INSTRUCTIONS

This section provides general guidance for locating and preparing the CAS40PL compressor package for operation. Each installation is unique and can be affected by location, ventilation, and other factors such as electrical and hydraulic power supply availability and location.

DISCLAIMER

DO NOT install this system in any enclosed space without first contacting IMT.

⚠ WARNING

Install, operate, and maintain this equipment in full compliance with all applicable OSHA, other Federal, state, local codes, standards, and regulations.

⚠ WARNING

Before performing maintenance or repair operations on the compressor, ensure that all power has been removed and locked out to prevent accidental start-up.

DO NOT assume that because the compressor is in a STOPPED condition that power has been removed.

⚠ WARNING

DO NOT perform any modifications to this equipment without prior factory approval.

⚠ WARNING

DO NOT use plastic pipe, or incorrectly rated piping or hose. Incorrectly rated connection material can fail and cause injury or equipment damage.

⚠ WARNING

DO NOT operate the compressor in enclosed or confined spaces where ventilation is restricted or closed off.

NOTE

Install electrical components (circuit breakers, pressure switches, toggle switches, etc.) in locations where exposure to water or moisture will be most minimized.

NOTE

In order to prevent accidental damage to vehicle components (fuel tanks, lines, brake lines, wiring harnesses), note their location before drilling any holes.



3.3 DETERMINING THE CAS40PL UNIT MOUNTING LOCATION

When determining the location to mount the CAS40PL unit, the following criteria must be taken into consideration:

- The mounting surface must be level and able to accommodate the four (4) mounting bolts and isolators of the base frame. Refer to **Figure 3-1** or **Figure 3-2** for layout of mounting hole slots' locations.

IMPORTANT

Mounting surface must be able to bear the weight of the machine (255-260 lbs, wet).

- Mount the machine with a minimum of four (4) mounting locations (refer to **Figure 3-1** or **3-2**).
- The location must allow for the machine dimensions, and additional space requirements for minimum cooling, maintenance and access. Refer to **Figure 3-3** to determine the additional minimum space requirement measurements.
- The external gauges/display must be easily visible to the operator.

It is recommended, for most installations, to mount the compressor on the driver's side of the vehicle. The unit should be situated in such a manner that the fan (rear) and hydraulic cooler (front) are not obstructed. Do not place the compressor in any location where it can ingest exhaust fumes, dust or debris.

NOTE

When considering external system layout hoses refer to Section 7.19, **Hose Guide** for proper routing and mounting practices.

3.4 HYDRAULIC SYSTEM OVERVIEW

IMPORTANT

IMT® highly recommends consulting a hydraulic supply expert for specifying the correct hydraulic supply components for vehicle side integration (including oil reservoir size, hydraulic pressure relief, hose size, etc.) for your application.

IMPORTANT

Contaminated hydraulic fluid allowed to enter the pump will cause malfunction of the pump controls. Hydraulic system hoses must be flushed and cleaned prior to being connected to the unit.

Refer to **Figure 3-1** or **Figure 3-2** for hydraulic pump system connections.

Please take into consideration the following:

- The hydraulic flow and pressure requirements of the system.
- A continuous hydraulic load is necessary when compressor is running.
- The duty cycle and ambient operating temperatures.
- Other hydraulic equipment which may share that same hydraulic supply system (IMT recommends a dedicated pump and hydraulic circuit).

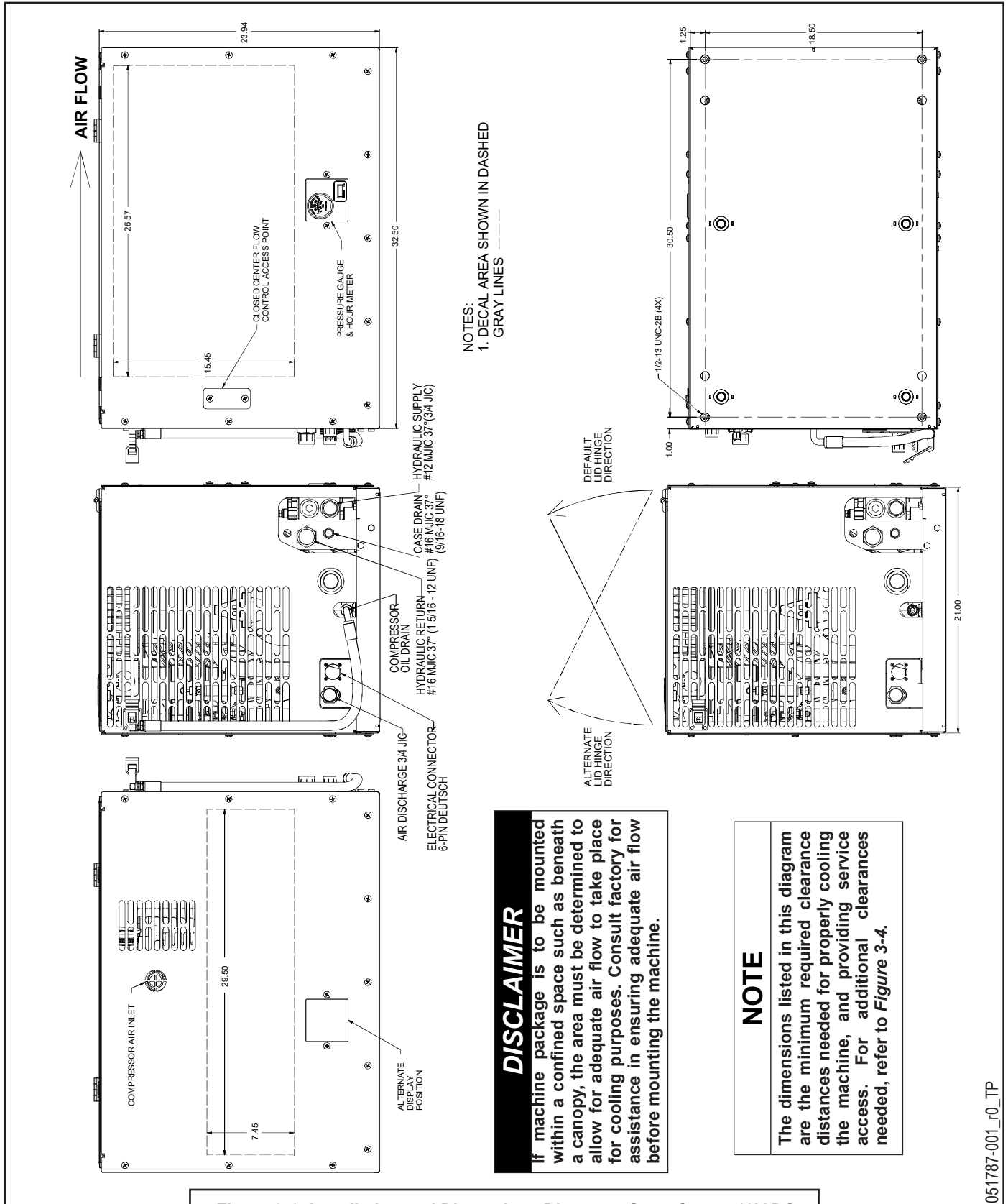
⚠ WARNING

Follow all applicable safety recommendations as outlined in Section 1: **Safety of this manual**.

⚠ WARNING

Improperly, or non-connected lines may cause harm, and will damage the equipment.

The hydraulic hoses must be run to the machine. Verify that hoses are hooked up properly to ensure proper flow. Also, verify that the hoses are laid out properly so that no chafing or kinking of the hoses is possible. Refer to **Section 7.19, Hose Installation Guide**, for assistance with proper hose layout and connecting functions.



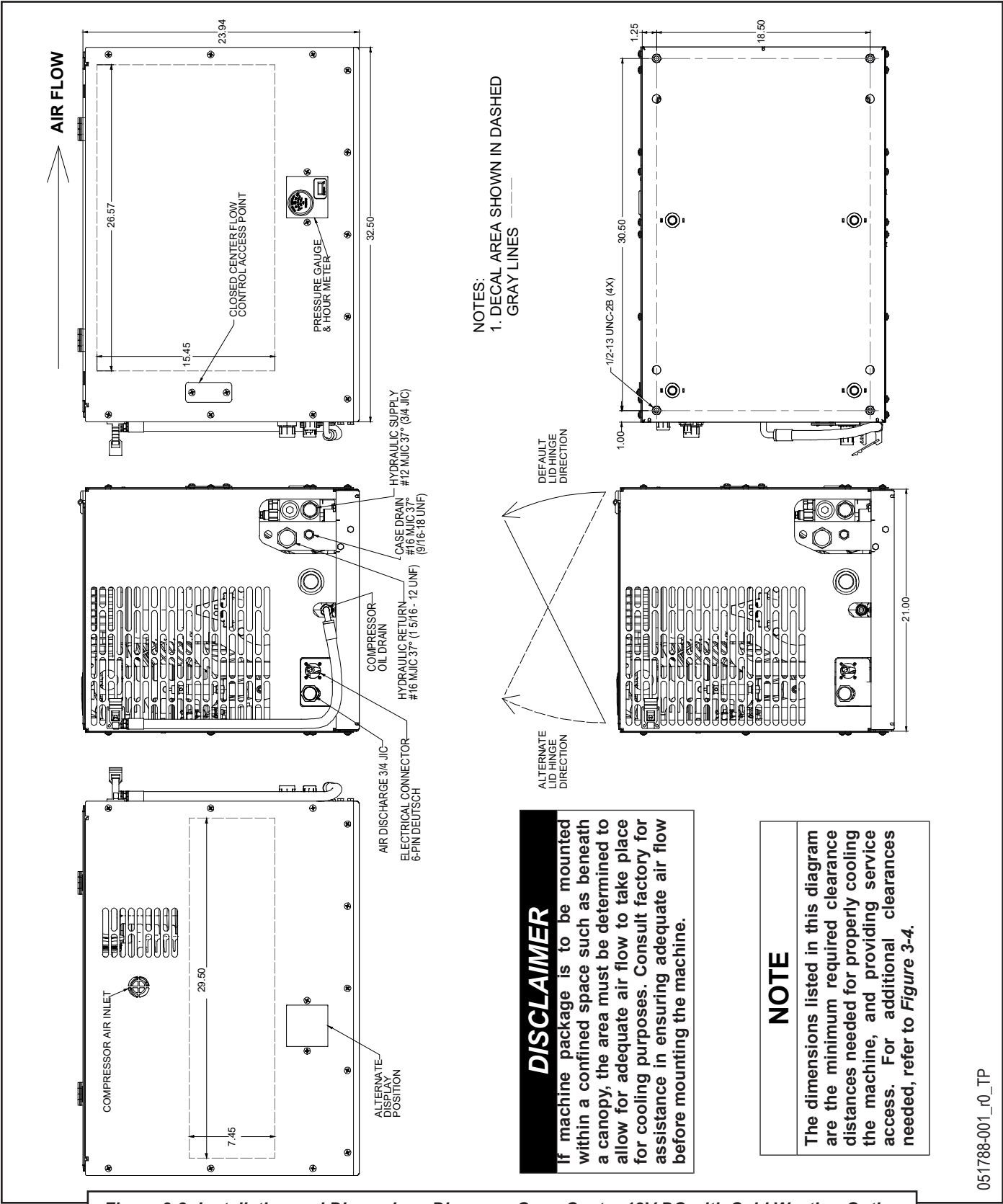
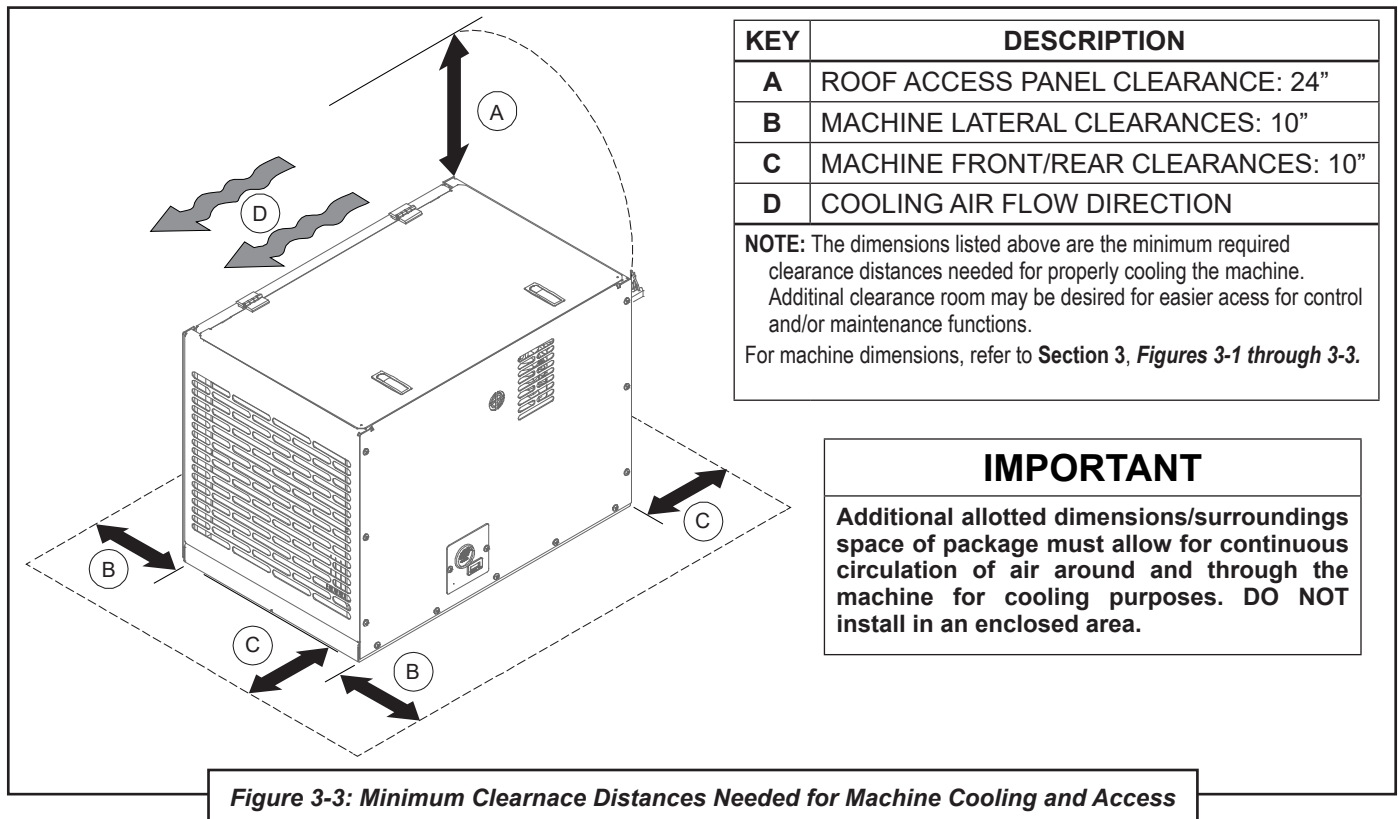


Figure 3-2: Installation and Dimensions Diagram - Open Center 12V DC with Cold Weather Option



NOTE

The temperature of the hydraulic oil should not exceed 160°F due to the rating of the IMT-supplied hydraulic motor.

3.4.1 HYDRAULIC SYSTEM FILTRATION

IMT recommends using a 10 micron oil filter on the hydraulic oil return line. Flow rating of the filter must be equal to, or greater than, the maximum GPM at which the system will be operated.

IMPORTANT

Use only a filter that is specifically intended for hydraulic systems.

3.4.2 HYDRAULIC OIL RESERVOIR

3.4.2.1 DETERMINING RESERVOIR SIZE

In a conventional hydraulic system, minimum tank size, in gallons, should be equal to the maximum GPM flow rate, times two (x 2).

3.4.2.2 DETERMINING RESERVOIR SHAPE

The reservoir structure should be tall and narrow rather than shallow and broad (**Figure 3-4**). A tall, narrow tank is recommended because:

1. The oil level is well above suction line opening, avoiding the possibility of drawing air into the pump due to a vortex or "whirlpool" effect within the tank during operation flow.
2. Allows for better oil level tolerance level of the system if vehicle operates at an unusual (slightly off level) vehicle angle.
3. To keep return flow well below the surface so it does not break the surface and cause aeration (cavitation) of the oil.



3.4.2.3 MANDATORY RESERVOIR FEATURES

- The reservoir should incorporate the following design features:
- In terms of location of the reservoir tank within the hydraulic system, note that the hydraulic pump's inlet line (suction line out from the reservoir to the pump) should be located near the bottom of the tank, well below the oil level. The suction line should protrude a minimum of two (2") inches into the reservoir to keep it away from potential contaminant surface buildup.

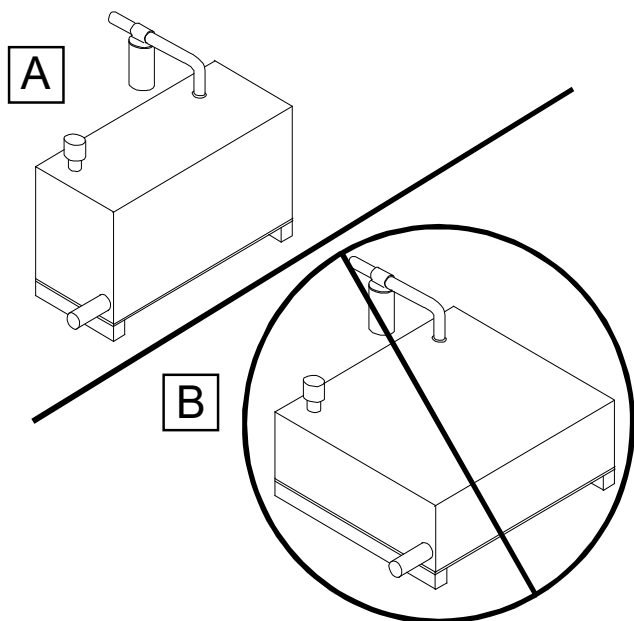


Figure 3-4: Reservoir Design Shape

KEY	DESCRIPTION
A	PREFERRED SHAPE: TALL AND NARROW
B	SHAPE TO AVOID: BROAD AND SHALLOW

- A baffle or baffles should be included to prevent sloshing, or centrifugal motion of the oil; the goal is to break up direct flow of the oil from the return point to the suction point. This allows for the cooling action contact with the tanks' inner surfaces, and promote separation of any air or contaminants that interact with the flowing oil.
- An ideal baffle design would position several

(but not too many) baffles to promote an 'S' shape flow within the reservoir, as viewed from above. The area of the end gaps should be at least twice the area of the suction line diameter.

- A drain port with plug, situated at the lowest point of the reservoir, is needed to assure complete draining. It should be installed using an adapter or housing which does not protrude above the inner surface of the floor of the tank. It should be visible and accessible for removal, with sufficient space available for catching the waste oil.
- If the return line entrance to the tank is located near the top, it should be extended downward within the tank to minimize foaming and aeration of the circulating oil. This extends oil integrity, which in turn helps to maintain system performance and reliability.
- An in-line filter on the return line is needed to protect the system against contaminants being introduced into the oil. The filter should be mounted externally from the reservoir in a location that allows for easy of service access.
- A breather and fill cap is needed at the oil fill port, which needs to be located above the system oil level. The breather cap acts to both filter air that is drawn into the reservoir as the oil level diminishes, and bleeds air out as the level is regained. This maintains constant atmospheric pressure in the air volume within the reservoir.
- A sight-glass provides a direct visual indication of the oil level without having to open, or otherwise access, the reservoir.

3.4.2.4 RECOMMENDED RESERVOIR OPTIONS

Although not essential for an adequately functioning reservoir, the following components will contribute to maximize the hydraulic system's efficiency and maintain a quality operational level.

- Magnetic Drain Plug: Attracts and concentrates ferrous contaminants at the drain plug source for easier accessibility and removal when cleaning tank interior.



- **Temperature Gauge:** Located in approximation to, or built in to, the sight glass assembly allows for temperature reading at a glance.
- **Filler Port Strainer:** Prevents large contaminant particles from blending with system oil when adding new oil.
- **Return Line Diffuser:** is a (splash) plate that reduces velocity of oil flow before return oil stream merges with the main reservoir oil volume.
- **Reservoir Heater:** For those systems that are exposed to cold climate ambients, having the ability to preheat the hydraulic oil prior to start up will make for easier startups, and reduce the strain of warming up the system under adverse cold conditions.

3.4.2.5 RESERVOIR FEATURES TO AVOID

A strainer used to screen the suction line is not recommended for systems designed for mobile equipment use. Having equipment that likely experiences long suction lines, cold startups and non-tracked or infrequent maintenance practices may cause this strainer to potentially promote system strain (cavitation) than prolong fluid integrity through filtration.

A pressurized reservoir is not recommended for vehicles, as its complexity invites too much potential for loss of system reliability if it is not properly maintained.

3.4.2.6 RECOMMENDED HYDRAULIC SYSTEM SPECIFICATIONS

WARNING
Do not operate machine without hydraulic system completely assembled.

Refer to **Figure 3-1** or **Figure 3-2**.

Flow controller is optional to reduce flow if necessary. Consult IMT®.

HYDRAULIC LINES

The following is a minimum requirement and NO quick disconnects may be used. Lines are to be kept as straight and short as possible.

- **Pressure port = Standard, #12, 3/4" hose (located at manifold block)**
- **Load sense = #4 JIC = 1/4" hose (Used for closed center system only)**
- **Pressure relief/case drain = #6 JIC = 3/8" hose**
- **Hydraulic suction = Standard, #16, 1" hose**

3.4.3 STANDARDS GUIDELINES

- Hydraulic pressure relief factory set at **3200 psi**.

3.5 INSTALLATION

3.5.1 MACHINE LOCATION

It is vital to locate the machine so that there is no restriction of cooling air through the enclosure (Refer to **Figure 3-3**). Cooling air enters the enclosure at the rear (cooler) package end of the machine, passes through the cooler and exits through vents in the upper sides and the front.

3.5.2 CLEARANCES

Refer to **Figure 3-3**. Ensure that adequate surrounding clearance space exists around the machine to allow for adequate cooling ventilation through the canopy shroud, unobstructed service access, and a clear view of the control panel. An approximate recommendation of ten (10) inches clearance, minimum, is needed for proper cooling circulation, plus any additional service access room included where needed.

3.5.3 MACHINE STABILIZATION AND GROUNDING

Refer to **Figure 3-1** or **3-2** for machine mounting footprint dimensions. Machine should be mounted to vehicle using four (4) 1/2" bolts; length determined by depth of bed, and 1/2" washers. Ensure that the mounting surface is level and capable of handling the weight of the package, and also affords at least the minimum adequate space to accommodate service and ventilation.



3.5.4 SERVICE CONNECTIONS

Refer to **Figure 3-1** or **Figure 3-2**. Service connections are conveniently grouped at the lower rear section of the unit in the base frame.

3.5.5 ELECTRICAL CONNECTIONS

Refer to **Figure 3-1** or **Figure 3-2**. Connect the electrical supply connector, located at the connection port panel end of the unit. This system is offered with 12V DC circuits.

3.5.6 HYDRAULIC SUPPLY CIRCUIT

Refer to the proper hydraulic flow schematic drawing (**Section 7.17** or **7.18**) that matches the machine model build. It is recommended that the compressor unit possesses a separate pump/flow/return hydraulic circuit to other hydraulic equipment. This is to prevent the possibility of pressure/flow drops that may occur if other hydraulically-powered equipment is activated during compressor operation, which may in turn, cause the compressor to stall out. Alternatively, use of a diverter valve will permit hydraulics to power different equipment selectively.

3.5.7 ROUTING

Refer to **Figure 3-1** or **Figure 3-2**, and the electrical and wiring diagrams (**Sections 7.18** and **7.19**). Ensure that all supply hoses and electrical wiring are correctly specified, adequately supported, and do not touch or rest on any sharp edges. Wiring should be protected with split loom to prevent corrosion, and consequential loss due to down time.

3.5.8 HYDRAULIC SYSTEM REQUIREMENTS

Refer to **Sections 7.17** and **7.18** for hydraulic system schematic layouts and components. The following requirements should be taken into consideration before installing the hydraulic system:

- The hydraulic flow and pressure requirements of the air compressor.
- A continuous hydraulic load is necessary when the compressor is running.

- The duty cycle and ambient operating temperatures.
- Other hydraulic equipment which may share the same hydraulic supply system (IMT recommends a dedicated pump and hydraulic circuit).

3.6 CONNECTING THE HYDRAULIC SUPPLY AND RETURN

Refer to **Figure 3-1** or **Figure 3-2** for hydraulic supply and return hose location connections and layout routing. Use correctly rated hoses (3000 PSI minimum) to securely connect both supply (3/4" J.I.C. 37° male) and return connectors (1" J.I.C. 37° male).

NOTE

IMT recommends:

- **SUPPLY HOSE:** 3/4" J.I.C., 3000 PSI
- **RETURN HOSE:** 1" J.I.C., 500 PSI
- **CASE DRAIN:** 3/8" J.I.C., 500 PSI (load sense 1/4" JIC 3000 PSI; closed-center only)

3.7 CONNECTING THE AIR SUPPLY

Refer to **Figure 3-1** or **Figure 3-2** for service air discharge port location. Connect the service valve. Connect the air discharge line to the 3/4" JIC male connector.

IMPORTANT

Ensure that the air discharge hose is properly rated for high temperature.

3.7.1 AIR RESERVOIR TANK INSTALLATION

The IMT® CAS40PL air compression system will require the additional installation of an air tank/receiver, to be incorporated downstream of the unit's service air output. This tank will serve as a reservoir for accumulated air pressure, allowing for constant pressure availability for direct service needs. IMT recommends the following criteria when determining the design of the receiver air tank installation:



TANK SPECIFICATIONS

- 19 Gallon minimum capacity (recommended).
- ASME-rated and compliant to applicable standards (200 psig minimum).
- Supplied with an adequately-rated relief valve.
- Supplied with a moisture drain.

CONNECTION HOISING AND SERVICE VALVE SPECIFICATIONS

- Hose must be flexible; with steel-braided reinforcement.
- Rated for high temperature (450°F minimum).
- Pressure-rated for 200 psig (minimum).

MOUNTING SPECIFICATIONS

- If the air tank is to be permanently mounted, IMT recommends a mounting with no less than four (4) mounting/securing points.
- Tank should be mounted level.
- Service air out port of tank readily accessible, or piped/hosed for such availability.
- Drain is readily available, or piped/hosed for such is readily accessible.
- Tank drain function must have auto-drain, petcock, or valve that allows for tank to be purged of moisture while tank is pressurized/ or when the system is running.

The above listed features should serve as a minimum checklist of what to include when installing the reservoir portion of the compression system. However, if additional assistance is needed for designing the air tank-side of the service out operation, consult the IMT Service Department.



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SECTION 4: OPERATION

4.1 GENERAL INFORMATION

The IMT CAS40PL compressor has a comprehensive array of controls and indicators. Understanding the correct operation of the system will help you to understand and recognize when it is operating optimally. The information in the Operation Section will help the operator to recognize and interpret the readings, which will call for service or indicate the beginning of a malfunction.

4.2 OPERATING CONDITIONS

1. Operate only in well-ventilated areas.
2. Ensure there are no obstructions of cooling air intakes and outlets around the machine.

IMPORTANT

Be sure to leave sufficient room around the machine for cooling air circulation during operation. There must be a minimum of ten (10) inches clearance for the cooler intake, and ten (10) inches for the sides and rear. Heated air must be diverted or vented away from the intake.

3. Do not leave anything resting on top of the machine. Hot exhaust air will generate high heat and must not be restricted.
4. Operate machine with the top cover closed.
5. Refer to specifications for operating parameters.
6. Recommended: **DO NOT** exceed maximum operating angle of 15° incline.

4.3 INITIAL (FIRST-TIME) START-UP

IMPORTANT

If start-up and shut-down procedures are not followed, damage to the system and its components may occur.

NOTE

Flow control needs to be set by the installer for closed center units.

The compressor has been factory-tested. The air and hydraulic valves have been adjusted to the specified operating settings. The crankcase has been factory-filled with oil, but needs to be checked in order to ensure proper oil level before initial start-up. Note also that the vehicle needs to be parked on level surface so the oil level can be properly checked. Refer to **Section 5.4.3 Compressor System Lubrication**, for the correct lubricant type, and for the location of the sight glass and oil fill port.

The following steps apply to the first time start-up after the machine installation. Check the oil, as per the previous paragraph. Add oil if necessary. Refer to **Figure 5-2** in **Section 5.4.3.1** for unit check locations, and **Figure 4-1** for instrumentation.

1. Ensure all service outlets are closed.
2. Ensure that the PTO ON/OFF switch is in the ON position (fully engaged).
3. Apply hydraulic power.
4. Check for hydraulic supply or return leaks and correct if required.
5. Allow air pressure to build up in the receiver tank.

The compressor will now operate automatically. It will continue to run until the pressure reaches the factory set-point (100-175 psig). At this point the compressor unit will switch off and the hydraulic flow will be redirected back to the supply tank; any air in the compressor will be vented to the atmosphere. The accumulated pressure in the receiver tank is maintained by the check valve fitted to the compressor outlet connection.

For a closed center system, the solenoid valve will be turned to the OFF position, causing the load sense line to adjust the piston pump to



provide less flow, or no flow, to prevent "Dead Heading" Hydraulic Pressure.

When a demand is applied to the unit the receiver tank pressure drops until it reaches the low pressure set-point. The compressor then automatically restarts and repeats this cycle in response to service demands and receiver tank pressure.

6. Move the PTO ON/ OFF switch to the OFF position.

NOTE

Ensure that the service valve is closed and compressor has stopped.

4.3.1 ROUTINE START-UP PROCEDURE

IMPORTANT

If start-up and shut-down procedures are not followed, damage to the system and its components may occur.

Refer to **Figure 5-2** in **Section 5.4.3.1** for unit check locations, and **Figure 4-1** for instrumentation.

1. Ensure all service outlets are closed.
2. Ensure that the PTO ON/OFF switch is in the ON position (fully engaged).
3. Apply hydraulic power.
4. Check for hydraulic supply or return leaks and correct if required.
5. Allow air pressure to build up in the receiver tank.
6. Move the PTO ON/ OFF switch to the OFF position.

NOTE

Ensure that the service valve is closed and compressor has stopped.

4.3.2 ROUTINE SHUTDOWN PROCEDURE (FIRST AND ROUTINE)

IMPORTANT

If start-up and shut-down procedures are not followed, damage to the system and its components may occur.

IMPORTANT

Do not stop the engine suddenly! Stop the engine after approximately five (5) minutes of unloaded idling.

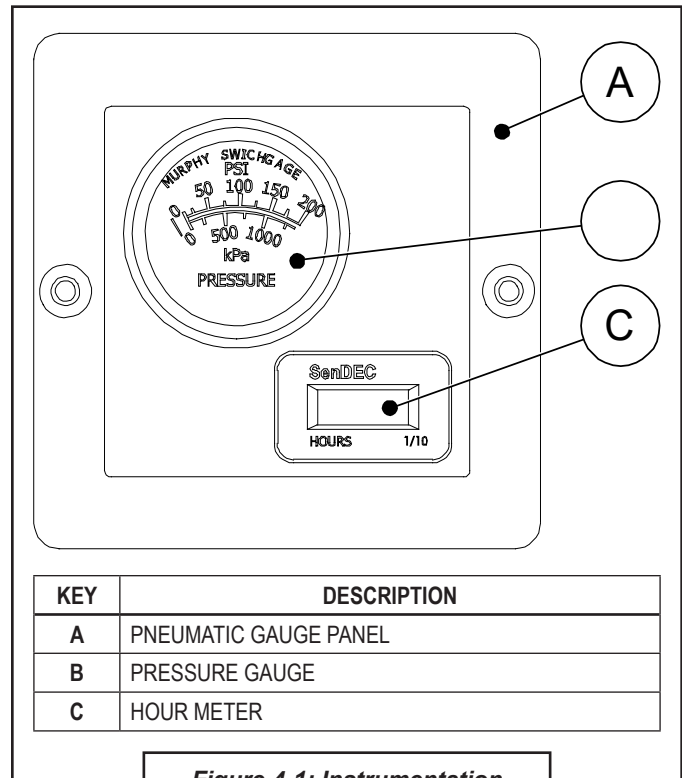


Figure 4-1: Instrumentation

1. Close service valve.
2. Allow compressor system to unload and cool down for approximately five (5) minutes.
3. Shut off hydraulic power supply.

4.4 EXTREME CONDITION OPERATION

When operating in extreme hot or cold conditions, extra attention should be given to any indications that could lead to a serious problem. Machine review and maintenance check schedules should be more frequent than the normal suggestions given in **Section 5, Table 5A, Routine Maintenance Schedule**.




SECTION 5: MAINTENANCE

5.1 GENERAL INFORMATION


The IMT CAS40PL requires routine maintenance to ensure its proper functioning and that its operational life is not prematurely shortened. This section contains general maintenance instructions for normal operating conditions.
NOTE: Maintenance actions should be performed more frequently in excessively dusty environments, or where the equipment will be exposed to extreme temperature variations.

 **WARNING**

DO NOT perform any modifications to this equipment without prior factory approval.

 **WARNING**


Install, operate, and maintain this equipment in full compliance with all applicable OSHA, other Federal, state, local codes, standards, and regulations.

 **WARNING**

Before performing maintenance:
Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. If machine is hot, allow package to cool before removing any panel.
NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:
Always use lock out safety procedures and clearly tag the start-up instrumentation against accidental system start-ups during maintenance.

 **WARNING**

DO NOT attempt to service the equipment while it is operating.

 **WARNING**

DO NOT touch electrical wires, wire harnesses, terminals, or other components when power is applied to the compressor unit.

 **WARNING**

Keep metal tools, and other conductive objects away from live electrical components.

5.2 MACHINE MAINTENANCE SCHEDULE

Refer to **Table 5A: Routine Maintenance Schedule**. A routine maintenance schedule based on time and/or hours logged, is given in **Table 5A**. The intervals are determined from machine usage under typical operation conditions. However, the operator must be aware that operating conditions will vary depending on such things as specific customer requirements, environmental temperatures and cleanliness of the ambient air. With this in mind, the specifications given in **Table 5A** should be used as a guideline instead of a fixed agenda. A safe approach to routine maintenance would be to perform the given maintenance task more frequently under harsher conditions.

IMT® provides a routine maintenance parts list in **Section 7, Table 7A**. Should a non-routine part need replacement or servicing, peruse the various parts list illustrations in **Section 7** to help determine the exact part and part number in question. Our parts and service departments are ready to assist in identifying and/or replacing non-routine parts.

For assistance in obtaining routine maintenance or replacement parts, consult **Section 7.1, Parts Ordering Procedure**, and **Table 7A: Recommended Spare Parts List**.

**NOTE**

Follow the prescribed periodic maintenance (PM) schedule as recommended. Perform the required PM schedule at recommended intervals. Failure to follow this prescribed periodic maintenance at the recommended intervals will impair the equipment safety, performance characteristics, shorten the compressor's life, and will negatively affect the warranty coverage of this equipment.

Please take a moment to become acquainted with the following service schedule. For assistance in obtaining routine maintenance or replacement parts, consult **Section 7.1, Parts Ordering Procedure**, and **Table 7A: Recommended Spare Parts List**.

5.3 REPLACEMENT PARTS

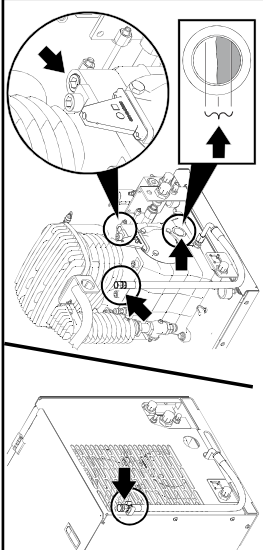
Replacement parts should be purchased through your local IMT® representative or where the compressor system was purchased.

If, for any reason, parts are not available in this manner, they can be purchased through IMT directly.

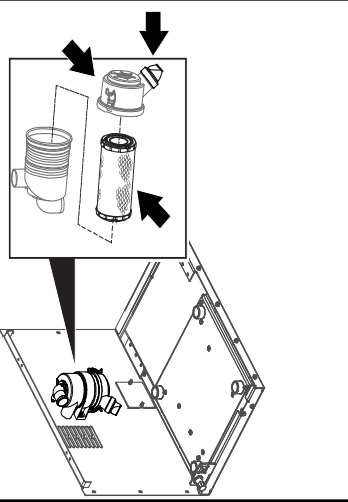
Iowa Mold Tooling Co., Inc.**500 Highway 18 West****Garner, Iowa 50438****Phone: 641.923.3711****Fax: 641.923.2424****www.imt.com****NOTE**

If additional spare parts are being stored for future use, make certain that they are stored in proper containers that allow for protection against contamination, and kept in a clean area of moderate temperature reading. For information on storing the machine package for periods of non-use, consult Section 5.7, Long Term Storage.

**TABLE 5A: ROUTINE MAINTENANCE SCHEDULE**

		MAINTENANCE INTERVALS Hourly or Calendar Period - whichever comes first	Daily Maintenance	Weekly Maintenance	Every 500 Hours or Annually	TABLE 5B: ROUTINE REPLACEMENT PARTS KITS *		
						KEY #	DESCRIPTION	QTY
▲ WARNING Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. If machine is hot, allow package to cool before removing any panel. NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY: Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.						1	Kit, Compressor Service - Initial 50 Hours ^{xx}	1
						2	Kit, Compressor Service - 500 Hours ^{xx}	1
		* If working in dusty or dirty conditions, reduce the recommended time intervals between servicing by half for engine and compressor oil replacement, and engine and compressor filter servicing. ^{xx} For detailed kit content descriptions refer to Section 7, Table 7A . Also Refer to Section 7, Table 7A for full replacement parts listing, including separate components, non-routine items, and options.				PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.		
KEY	TASK DESCRIPTION	ACTION TO TAKE				REFERENCE:		
1	Before starting, check compressor crankcase oil level.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	 <p>PROCEDURE: Ensure vehicle is situated on a level surface before checking oil level. Add oil if necessary. Refer to Section 5.4.3.</p> <p>REFERENCE:</p> <ul style="list-style-type: none"> Compressor Oil Fill Port [▲] Oil Drain Hose [▲] Oil Drain Hose Anchor Clip [▼] Compressor Sight Glass & Acceptable Oil Range (1/4 - 3/4 of sight glass) [▲] 		
2	Check for any loose bolts and/or loose connections.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Tighten if necessary.		
	Check for leaks.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Visually note any leaks or evidence of leaks around the compressor unit and hose connections. Tighten any loose connection point where needed. Repair or replace any damaged part.		
4	Inspect and clean the air discharge system.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Check/drain air reservoir daily, or more frequently, depending on working environment conditions.		
5	After starting, check pressure gauge for correct operating pressure.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Refer to Section 2.1 , and Section 5.4.2 .		
6	Clean dust and foreign matter from the compressor oil cooler core.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Consult Section 5.4.5 for procedure on cleaning the cooler core (external and internal).		
						Continued on Next Page		

**TABLE 5A: ROUTINE MAINTENANCE SCHEDULE**

TABLE 5B: ROUTINE REPLACEMENT PARTS KITS *			
KEY #	DESCRIPTION	ORDER #	QTY
1	Kit, Compressor Service - Initial 50 Hours ^{xx}	71417219	1
2	Kit, Compressor Service - 500 Hours ^{xx}	71417220	1
* If working in dusty or dirty conditions, reduce the recommended time intervals between servicing by half for engine and compressor oil replacement, and engine and compressor filter servicing.			
^{xx} For detailed kit content descriptions refer to Section 7, Table 7A . Also Refer to Section 7, Table 7A for full replacement parts listing, including separate components, non-routine items, and options.			
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			
KEY	TASK DESCRIPTION	MAINTENANCE INTERVALS Hourly or Calendar Period - whichever comes first	ACTION TO TAKE
7	Remove, inspect, and clear air intake filter if necessary ^x .	Daily Maintenance Weekly Maintenance Every 500 Hours or Annually	 <p>REFERENCE:</p> <ul style="list-style-type: none"> Air Filter Element [↗] Dust Evacuator Valve [↕] Air Filter Housing Cover [↘] <p>PROCEDURE: Consult Section 5.4.4 for procedure on how to inspect and/or change the air intake filter.</p>
8	Inspect and clean the compressor valves.	^{xx}	Consult the IMT Service Department for maintenance procedure for the compressor valves.
9	Change the compressor crankcase oil.		Consult Section 5.4.3 for procedure on changing the crankcase oil.
10	Check the hoses for damage or other signs of deterioration.		Consult Sections 7.13 through 7.16 for assistance with hose replacement.
11	Check the wiring for damage or deterioration and ensure that connections are secure.		Refer to Sections 7.18 and 7.19 (Electrical System Wiring Diagram) for wire system route connections.
^x Air filters inspection performed weekly (change if needed); air filters change interval is yearly, or sooner depending upon inspection.			
^{xx} Valves should be removed from the cylinder heads every 500 hours or annually (whichever comes first) and examined for cleanliness and carbon formation (build-up).			



5.4 PARTS REPLACEMENT AND ADJUSTMENT PROCEDURES

⚠ WARNING

Follow all applicable safety recommendations as outlined in Section 1: Safety of this manual.

⚠ WARNING

Before performing maintenance:

Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. If machine is hot, allow package to cool before removing any panel.

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.

⚠ WARNING

DO NOT use tools, hoses, or equipment that have maximum ratings below that of this compressor.

⚠ WARNING

DO NOT use flammable solvents or cleaners for cleaning the compressor or its parts.

NOTE

Wear appropriate protective (eye and hearing protection) equipment and clothing when operating or maintaining this equipment. DO NOT wear jewelry, loose clothing; and long hair should be restrained with headband or safety hat.

NOTE

Keep the equipment clean when performing maintenance or service actions. Cover openings to prevent contamination.

NOTE

When using compressed air to clean the components, the nozzle pressure should not exceed 15 PSIG.

5.4.1 REMOVING PANELS FOR MACHINE MAINTENANCE ACCESS

Although most of the routine maintenance procedures can be accessed from either outside of the compressor package or via the top roof access panel, some procedures will require the temporary removal of one or both side panels in order to freely service the maintenance item. Consult **Figure 5-1** and the proper panel removal sub-section listed below to remove the desired panel.

⚠ WARNING

Before performing maintenance:

Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. If machine is hot, allow package to cool before removing any panel.

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.

5.4.1.1 REMOVING LONG-SIDE PANELS FOR MAINTENANCE ACCESS

Consult **Figure 5-1** and the following procedures to remove a side panel for maintenance access.

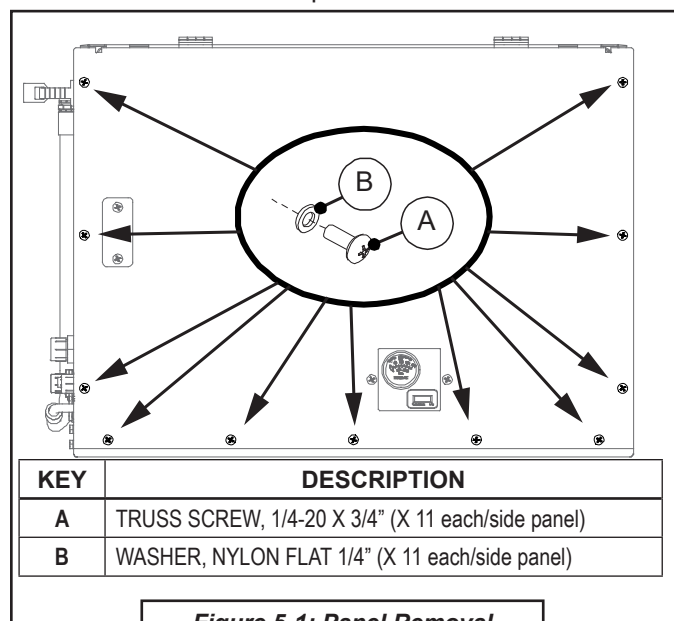


Figure 5-1: Panel Removal



1. With a #2 bit Phillips head screwdriver remove the eleven (11) 1/4-20 x 3/4" truss screws [A] and the eleven (11) 1/4" nylon flat washers [B] from the panel side to be accessed.
2. Remove panel from the frame and set aside.
3. Retain screws and washers for re-assembly.

5.4.1.2 REPLACING LONG-SIDE PANELS

Refer to **Figure 5-1** and the following procedure:

1. Align the mounting holes in the drive assembly access panel to the mounting holes on the drive assembly side of the machine.
2. With a #2 bit Phillips head screwdriver, loosely replace the eleven (11) 1/4" nylon flat washers [B], and the eleven (11) 1/4-20 x 3/4" truss screws [A] sets.
3. Tighten the screws into position.

5.4.2 CHECKING PRESSURE READING

Perform a visual inspection each time the compressor is started to ensure that the pressure gauge is operating normally. Allow the compressor to warm up, and verify that the pressure gauge is within its recommended range. Such inspections will minimize the possibility of damage or an unsafe condition from occurring. Refer to **Section 2: Specifications**.

NOTE

If equipped with an LED display, ensure that the pressure reading is NOT randomly changing numbers, but is increasing steadily, with the pressure increase in the air tank.

5.4.3 COMPRESSOR SYSTEM LUBRICATION

NOTE

When inspecting the oil level, ensure that the oil fill sight glass does not contain any cracks or pits.

The compressor is fully charged at the factory with IMT Reciprocating Compressor Oil. This

section gives details on checking and changing the compressor oil.

The compressor oil level sight glass is accessible from the outside of the canopy.

5.4.3.1 CHECKING THE OIL LEVEL

Refer to **Figure 5-2**. Check oil level daily (preferred), or at least every week, and top off, if necessary. To ensure a proper oil level the compressor unit must be located on a level surface. Oil is filled via the fill port [B]. If low, fill the oil level until the sight glass is 1/4 to 3/4 full. **DO NOT** overfill.

IMPORTANT

To maintain warranty, IMT® compressor oil must be used. **DO NOT** substitute compressor oil.

CAUTION

DO NOT mix oil types, weights, or brands. Mixing oil types can cause equipment damage or failure.

NOTE

Used oil should be disposed of within the guidelines of all applicable local, regional, and/or federal laws.

5.4.3.2 CHANGING THE COMPRESSOR OIL

WARNING

Before performing maintenance:

Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. If machine is hot, allow unit to cool before removing any panel.

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.

Refer to **Figure 5-2** and the following procedure:

1. Place a container (of at least three [3] quarts

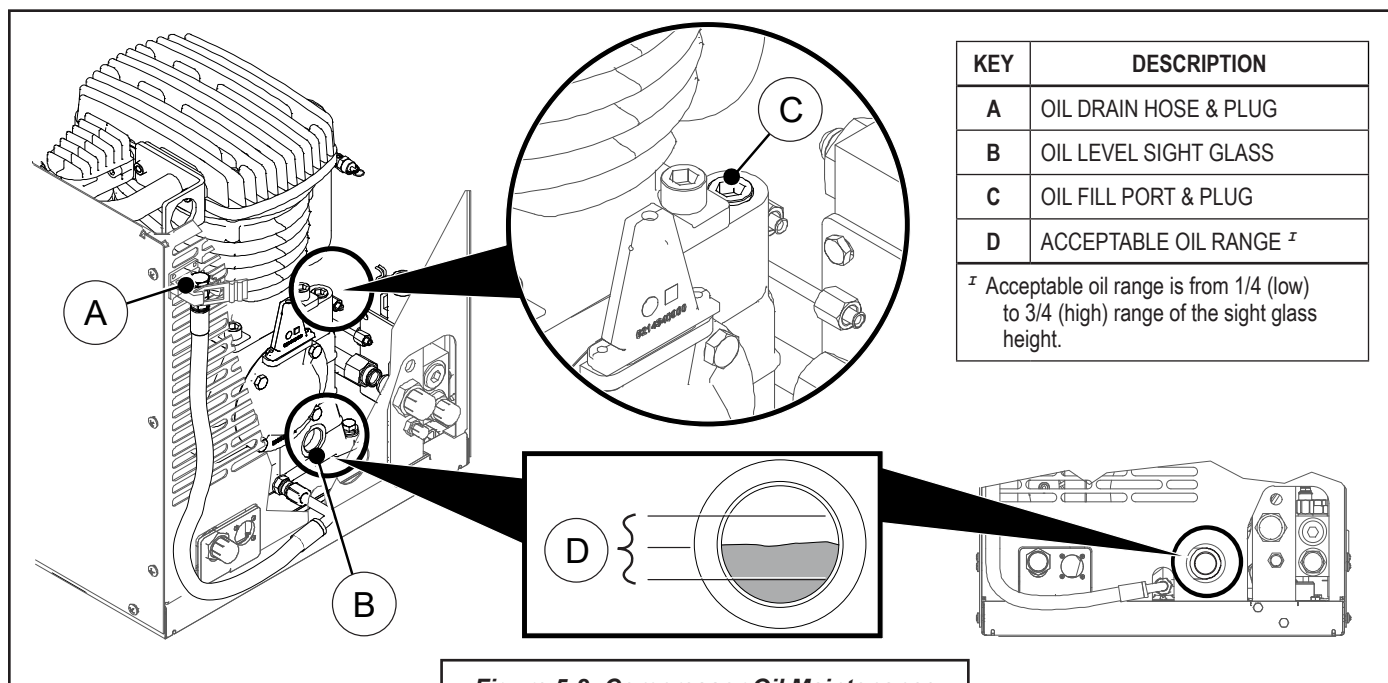


Figure 5-2: Compressor Oil Maintenance

- capacity) below the level of the compressor unit, within reach of the drain hose end [A].
2. Disengage the oil drain hose from hose drain securing clamp.
 3. Using male hex wrench remove plug from the end of the hose.
 4. Thoroughly drain the used oil into the container.
 5. Replace the plug on the drain hose and tighten, then return the hose to the clamp.
 6. At the oil fill port [C], remove the port plug then fill crankcase with a full charge of IMT® reciprocating oil to the proper level indicated by the sight glass reading [B], to an acceptable level [D]. **DO NOT OVERFILL.**
 7. Replace plug on the oil fill port [C], and tighten.

Plugged air filters can cause high oil consumption and reduced delivery quantity! Change the filter more often when running in dusty conditions.

WARNING

Before performing maintenance:

Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual. If machine is hot, allow unit to cool before removing any panel.

WARNING

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.

5.4.4 AIR FILTER MAINTENANCE

Depending on the degree of contamination of the air taken in, regularly and carefully inspect the air filter on (at least) a weekly basis. The air filter elements should be replaced approximately every 500 operating hours or sooner, depending upon inspection.

5.4.4.1 INSPECTING THE AIR FILTER

The compressor air filter is accessible via the hinged roof panel. To check and/or replace the air filter, refer to **Figure 5-3** and the following procedure:

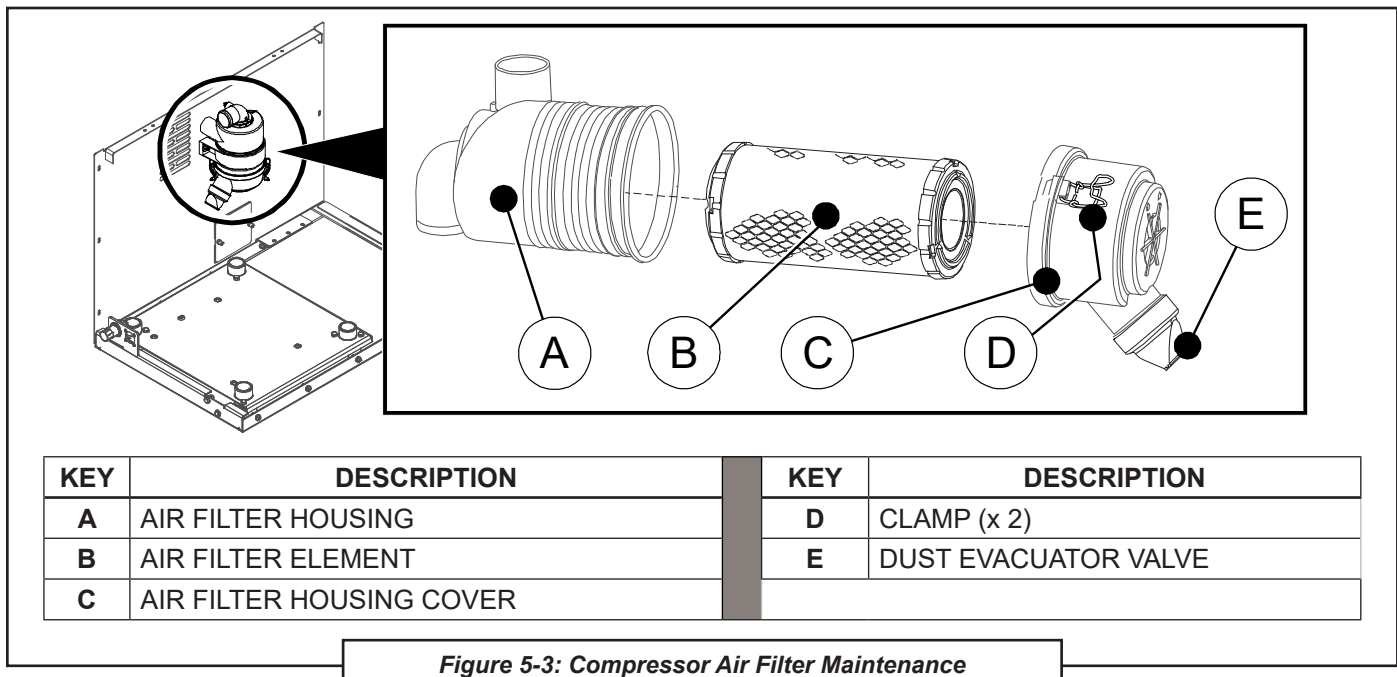


Figure 5-3: Compressor Air Filter Maintenance

1. With the machine off, locate the air filter assembly, which is mounted on the inside of the front panel.

NOTE

Wipe off any soil or debris from the filter cover and housing base before accessing the air filter element.

2. The housing cover is secured to the base with two clamps [D]. Dis-engage each clamp.
3. Grasp the cover [C]; remove it by pulling it away from the housing [A].
4. Remove the air filter [B] by pulling it outward to disengage it from its seating ring.
5. Visually and carefully inspect the air filter element, including between the pleats, for soiling, damage, signs of wear and/or tears in the filter material. If the element is intact, replace the element for further use. If damaged, **DO NOT** reuse the air filter element; replace with new filter element.

5.4.4.2 REPLACING THE AIR FILTER ELEMENT

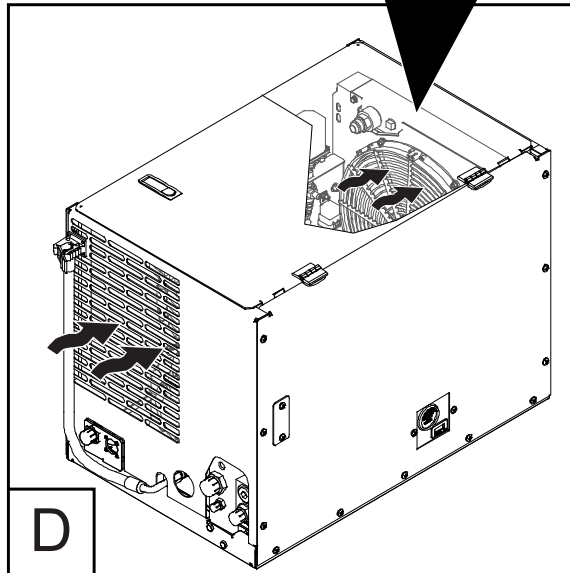
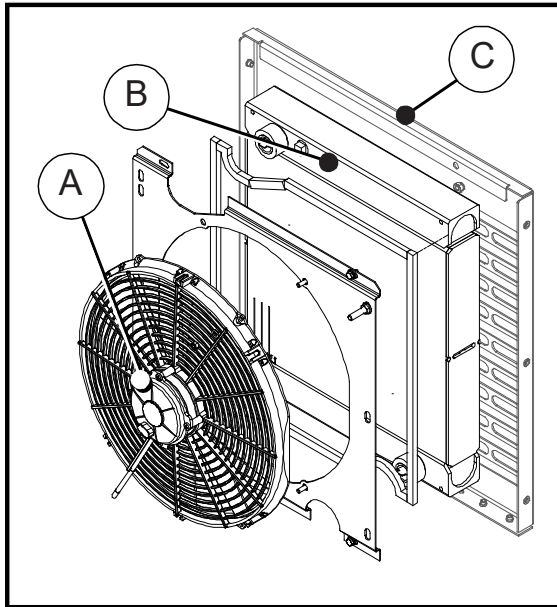
The air filter element is replaced either at the

routine scheduled interval (refer to **Table 5A: Routine Maintenance Schedule**), or if it has failed the inspection process laid forth in **Section 5.4.4.1**. When it is time to replace the air filter element, order replacement element available within kit no. **71417220**. Once obtained, refer to **Figure 5-3** and the following procedure to service the air filter.

1. Review the safety guidelines in **Section 5.4.4**; then follow steps #1 through #4 given in **Section 5.4.4.1**, to remove the air filter element.
2. Seat the new (or cleaned) air filter [B] in position snugly onto the mount at the base of the air filter housing [A].
3. Replace the end cover [C] into position over the air filter base [A], and secure into place by engaging the two clamps [D].
4. Dispose of the worn air filter within the guidelines of all applicable local, regional and/or federal laws.

5.4.5 COOLER CORE MAINTENANCE

Refer to **Figure 5-4**. Periodically leaves, paper, or other debris can get wedged into the vents on the side panels of the enclosure. The cooler core within the enclosure can trap foreign matter that passes through the vents as well. Opening



KEY	DESCRIPTION
A	COOLER FAN & MOTOR ASSEMBLY
B	OIL COOLER
C	COOLER (CANOPY) PANEL
D	DIRECTION OF COOLING AIR FLOW

Figure 5-4: Typical Cooler Assembly

the roof panel and checking that the cooler is clean and free from debris will ensure that the CAS40PL package operates safely within the temperature limits described in **Section 2, Specifications** of this manual.

Should the core become clogged, you can use low pressure compressed air to blow through the fins from the inside of the canopy to clean it out. You may need to remove the fan from the shroud in order to reach parts of the core. **DO NOT** use high pressure air or a pressure washer.

If the cooler has become internally clogged, it may need to be flushed or replaced. Consult the IMT® Service Department.

5.4.6 COUPLING ALIGNMENT

There is no need to adjust the compressor unit/hydraulic motor alignment; Alignment is achieved via the motor-to-unit adapter. In the case where the drive coupling element needs to be serviced (refer to **Section 5.4.7**), alignment is automatically achieved by securing the motor to the unit via the motor adapter.

However, in the case where the coupling element needed to be replaced, or if the alignment is such that there is excessive machine vibration, etc., there is a hub alignment check that should be performed once that maintenance has been accomplished. Refer to **Section 5.4.7.3** for drive coupling hub alignment check procedure.

5.4.7 REPLACING THE DRIVE COUPLING

WARNING

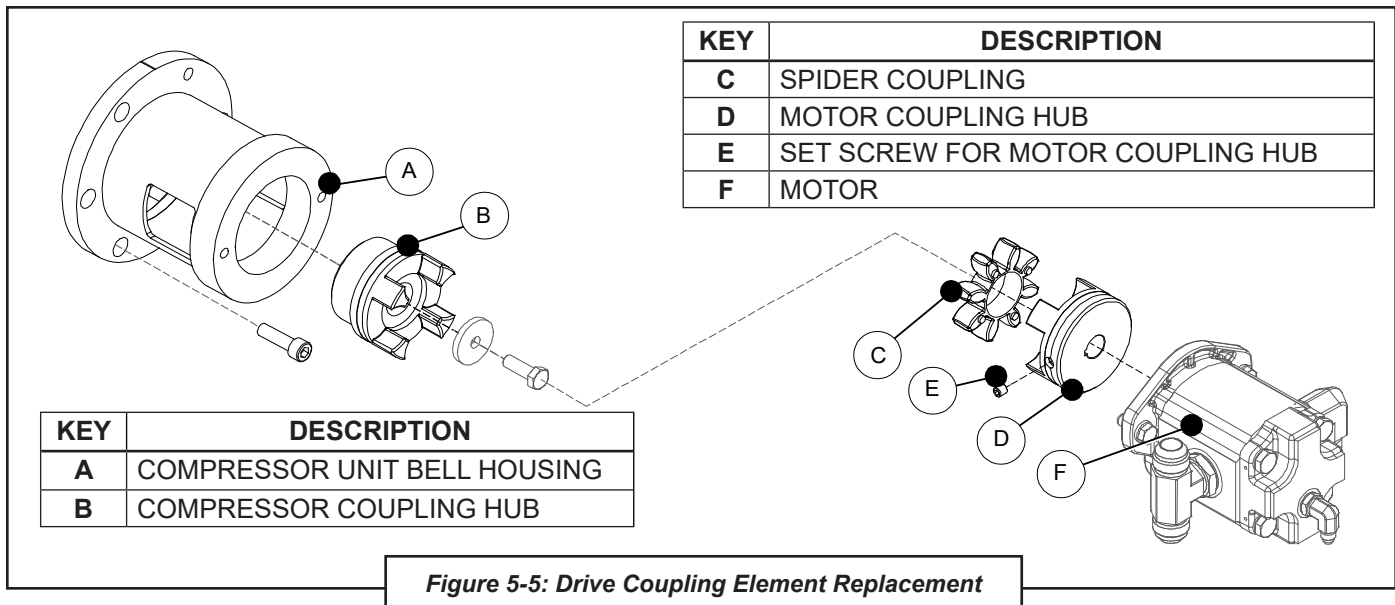
Before performing maintenance:

Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual.

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.

With proper care of the machine, the drive coupling should normally last indefinitely.



However, it may become worn or the element may rupture and need to be replaced. To replace the drive coupling element, order replacement no. **71417229**, and follow the procedure below.

IMPORTANT

It is important to remember that the drive coupling contains wear elements that will eventually fail. Operator must ensure that the assembly is enclosed to avoid injury in case of a failure.

NOTE

Alignment checks should not be necessary, as the machine is factory-set. However, when performing a coupling element replacement, proper sizing and offset measurements must be properly set and checked to avoid damage to machine and/or coupling.

TOOLS REQUIRED

TORQUE WRENCH	ALLEN SOCKETS
MEDIUM STRENGTH REMOVABLE LOCTITE®	CALIPERS / FEELER GAUGES
ALIGNMENT TOOLS (i.e, straight edge, dial indicator, shims, etc).	

5.4.7.1 REPLACING THE DRIVE COUPLING ELEMENT

Refer to **Figure 5-5**.

1. Remove the screw from the coupling cover and slide cover away from the compressor unit to access the drive coupling assembly.

⚠ CAUTION

Cover will be under spring tension; use care when removing the cover.

2. Remove the two cap screws and lock washers that secure the motor to the motor mount.
3. Carefully extract the motor from the mount, pulling directly outward; this will separate the coupling assembly.
4. Remove the spider coupling element.
5. Carefully wipe the coupling halves with a clean cloth, and place the new element into position on the compressor coupling half.
6. Re-insert the motor with the motor-side coupling half to mate with the coupling element and compressor coupling half. Note that the motor coupling may need to be rotated slightly by hand to achieve coupling and element alignment.
7. Re-install the two 3/8" cap screws and lock washer sets to secure the motor to the motor mount.
8. Before torquing the bolts, perform an alignment check on the hubs (refer to



Section 5.4.7.3).

5.4.7.2 COUPLING ASSEMBLY

The following method is used for a full reinstallation of a drive coupling system. For performing an element change only, refer to **Section 5.4.7.1**.

1. Install and mate coupling hub bore with driving shaft. Hub should be installed with the hub body toward the driving unit (see **Figure 5-5** for typical mounting component arrangement).
2. Position hub on mating shaft. Ideal hub position is with the pocket face of the hub flush with the end of mating shaft. Overhung hubs should have a minimum shaft engagement equal to the hub bore diameter.
3. With hub properly positioned, torque clamping fastener to recommended seating torque. The manufacturer recommends using medium strength removable LOCTITE® for bore & key way setscrew. (see **Figure 5-6** for proper bore & key way setscrew seating torques).
4. Repeat steps #2 and #3 for the driven shaft hub.
5. Move driven and driving equipment together until proper distance between hubs is achieved (assembly gap can be used as reference when unable to measure distance between hubs. See **Figure 5-6** for proper distance between hubs and assembly gap).
6. Ensure driven unit is aligned to driving unit, within couplings allowable misalignment.

ANGULAR ALIGNMENT

Measure the assembly gap between hubs in (4) locations 90° apart the measurement range should not exceed the angular limit listed in **Figure 5-6**.

PARALLEL ALIGNMENT

Place a straight edge square on the outer diameter of both hubs in (4) locations 90° apart; the maximum gap should not exceed the offset limit listed in **Figure 5-6**.

5.4.7.3 HUB ALIGNMENT CHECK

To ensure alignment, refer to **Figure 5-6** and the following procedure:

1. Place a straight edge square on the outer diameter of both halves in locations 90° apart.
The maximum gap should not exceed the offset limit as given in **Figure 5-6**.
2. Once this gap is satisfactory, torque screws to 14 ft-lbs (19.0 Nm).

5.4.7.4 COUPLING MAINTENANCE

Perform the checks and tasks listed below to keep the CAS40PL coupling in proper working order.

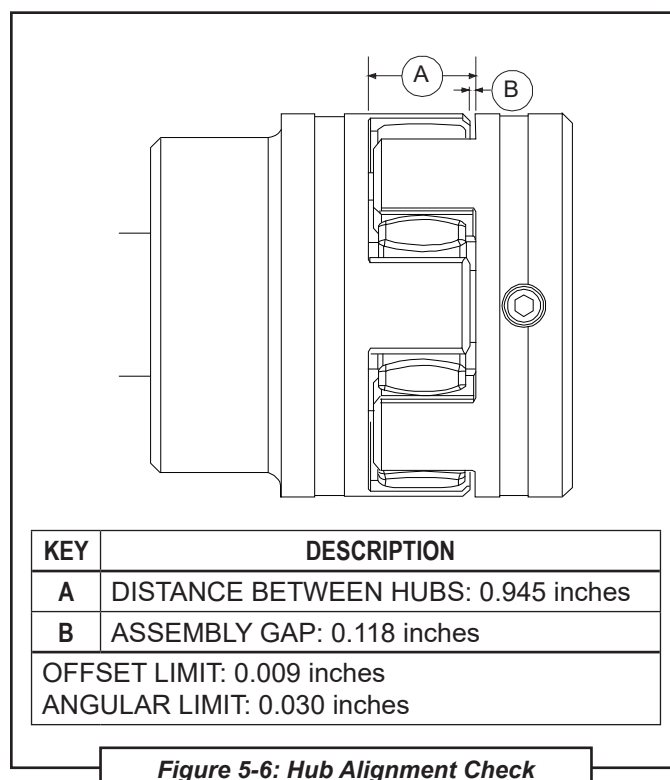


Figure 5-6: Hub Alignment Check

- Keep coupling components free of dust and dirt.
- Make sure that the coupling is not in contact with any non-rotating surfaces.
- Verify application data and review torque specifications, mis-alignment and service factors. If further assistance is needed please contact the IMT® Service Department.



⚠ IMPORTANT

Hubs that are modified or machined by the customer are not covered under the standard warranty terms. Any modifications to instructions and/or coupling characteristics may result in a premature failure.

If modifications are made by the customer, it is recommended that the customer adheres to IMT's machining standards to ensure proper operation.

end may work itself loose over time. Check all the hose fittings to see that there is no visible leakage.

5.5 SERVICING THE SYSTEM FUSES AND RELAYS

⚠ DANGER

The system fuse will need to be replaced if blown when tripped. When changing a fuse, or dealing directly with any function of the electrical system maintenance, always be aware of the safety warnings given in Section 1, Safety.

5.4.8 CHECKING HOSES AND WIRING

To maximize the accessible work space needed for compressor unit maintenance, both side panels (drive assembly access panel and instrumentation panel) must be removed.

Consult **Section 5.4.1, Removing Panels for Machine Maintenance Access** to remove the drive assembly access side panel.

Hoses and wires are routed away from potential pinch points, heat sources, and other hazards. However, when service is performed on a machine, it can become necessary to cut zip ties, which can allow hoses and wires to become exposed to some hazards within the enclosure. Verify that no hoses or wires are near fan blades, sharp edges, or other pinch points.

Hoses and wires should perform for the service life of the product. Occasionally, a plug or hose

⚠ WARNING

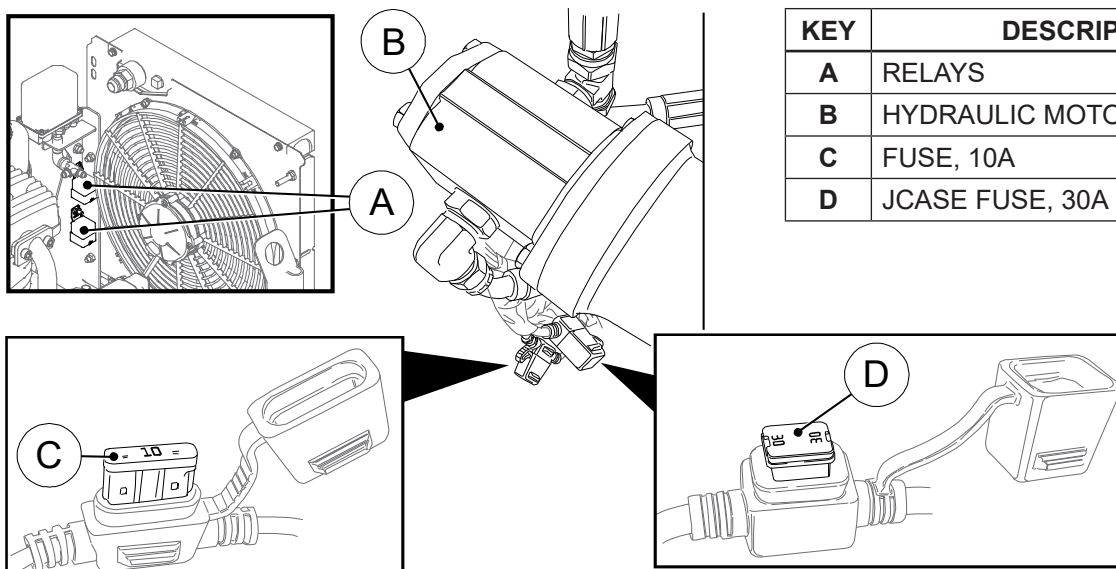
Before performing maintenance:

Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual.

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.

To access the machine area where the fuses are located, the long-side canopy panel must be removed. Consult **Section 5.4.1, Removing Panels for Machine Maintenance Access** to



KEY	DESCRIPTION
A	RELAYS
B	HYDRAULIC MOTOR (reference)
C	FUSE, 10A
D	JCASE FUSE, 30A

Figure 5-7: Fuse and Relay Locations

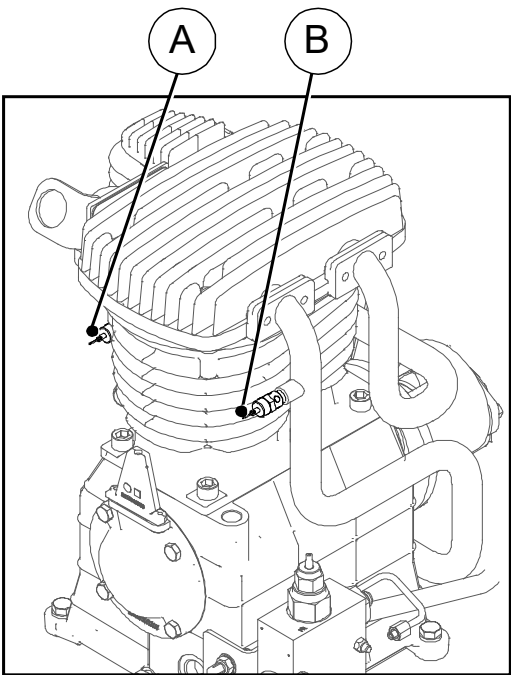


remove the drive assembly-side access side panel.

Consult **Figure 5-7.** for the locations of the fuses. IMT® recommends using a fuse removal tool, though pliers will suffice, when removing the fuse.

5.6 PRESSURE (SAFETY) RELIEF VALVES

Refer to **Figure 5-8.** Although the pressure (safety) relief valves have a reset ring at the cap, **DO NOT** test the valves by pulling on their reset rings. The pressure relief valves require no safety testing. Should one prove faulty per indications given in the **Troubleshooting Guide (Section 6.2)**, replace the valve.



KEY	DESCRIPTION
A	RELIEF VALVE - 200 PSIG (15 BAR; 217 PSIG)
B	RELIEF VALVE - 65 PSIG (4.5 BAR)

Figure 5-8: Compressor Relief Valves

NOTE

If valves vent excessively more than once, replace valve.

5.7 LONG TERM STORAGE

Parts can wear out over time, regardless of the degree of usage. If storing the CAS40PL unit for long periods of time, prepare the unit by doing the following:

- De-pressurize the air tank and open the drain valve on the tank.
- Cover with a waterproof secured tarp or plastic sheet to prevent the accumulation of dust, but leave the bottom open for air circulation. The covering should allow for easy removal for in-storage maintenance.
- Whenever possible, store in a sheltered area to minimize exposure to the elements.
- While in storage, every two (2) to three (3) months rotate the compressor and motor by hand to prevent flat spots on the bearings that will lead to premature failure.

At the end of the storage period, follow the unpacking, general, and start-up procedures. If the unit has been stored for more than eighteen (18) months, the IMT® Service Department should be consulted before restarting the compressor.

NOTE

IMT does not recommend outside storage.



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SECTION 6: TROUBLESHOOTING

6.1 GENERAL INFORMATION

This troubleshooting guide has been compiled from operational and test data. It lists malfunctions, fault conditions, possible causes, and suggested corrective actions for the most common types of problems that may occur. However, **DO NOT** assume that these are the only problems that may occur. All available data concerning a troubleshooting issue should be systematically analyzed before undertaking any repairs or component replacement procedures. While this table is intended to be comprehensive - it is possible for malfunctions or problems to occur that are not listed.

A detailed visual inspection is worth performing for almost all problems, and may avoid unnecessary additional damage to the machine. The procedures which can be performed in the least amount of time and with the least amount of removal or disassembly of parts, should be performed first. Always remember to:

1. Check for any loose or broken wires.
2. Check for damaged hoses or pipes.
3. Check for parts damaged by heat or an electrical short circuit, usually noticeable by discoloration or a burnt odor.

Should the problem persist after making the recommended check, consult your nearest IMT® representative or the IMT, Inc. Service Department.

⚠ WARNING

Install, operate, and maintain this equipment in full compliance with all applicable OSHA, other Federal, state, local codes, standards, and regulations.

⚠ WARNING

Before performing maintenance:

Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual.

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

Always clearly tag the start-up instrumentation against accidental system start-ups during maintenance.

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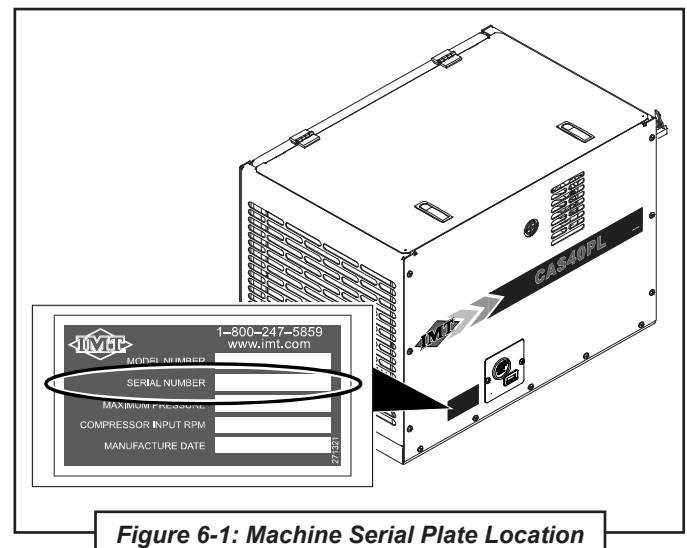


Figure 6-1: Machine Serial Plate Location



6.2 TROUBLESHOOTING GUIDE

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
Compressor will not start	PTO/hydraulics not engaged	Ensure hydraulics engaged.
	Compressor switch OFF	Turn switch ON.
	10A fuse blown	Check and replace fuse if necessary (Section 5.5).
	Compressor pressure switch stuck	Replace; consult Service Department for reset instructions.
	Diverter valve not operating	Check power and ground/replace valve.
	Hydraulic motor stalled	Switch OFF and attempt to turn the motor by hand to restart—replace if this fails.
	No hydraulic GPM or pressure	Check hydraulic circuit.
	Hydraulic relief valve set too low	Check with pressure gauge and reset.
	Power unit speed is too low	Check and correct.
	Hydraulic line obstructed	Check hoses for kinks, crimping, or damage.
	Low hydraulic oil level	Check and refill.
	Faulty relay [‡]	Check for presence of power - if present, replace relay.
Compressor runs slow	Hose/connection leaks	Check for leaks or damage/repair (Sections 7.11 and 7.12 , hose routing, and the electrical and hydraulic oil diagrams, Section 7.14 , 7.15 and 7.16).
	Low hydraulic flow/pressure	Check and reset. Refer to Sections 7.15 , 7.16 and 7.17 for flow regulator location and hose replacement info.
	Hydraulic motor or pump worn	Replace.
	Low hydraulic oil level	Check and refill.
	Hydraulic relief valve set too low	Check and reset.
	Hydraulic oil line restriction	Check for blockages, kinks, or other obstructions.
Compressor excessively hot (NOTE: Compressor normally runs at high temperatures of ~450° F.)	Cooling fan not operating	Check/power ground to fan motor on wiring diagram, Section 7.14).
	Insufficient clearance or ventilation	Relocate unit for better ventilation/circulation.
	Low compressor oil level	Refill to correct level (Section 5.4.3 and Figure 5-2).
	Soiled compressor cylinder cooling fins	Clean.
	Soiled air intake filters	Replace air filter element (Section 5.4.4).
	Faulty compressor valves	Inspect and replace.
Low output air	Air filters soiled or plugged	Replace air filter element (Section 5.4.4).
	Air line leak	Inspect and replace hose or tighten connections.
	Discharge valve stuck	Remove and clean, or replace.
	Faulty compressor valves	Inspect and replace.
	Compressor RPM too slow	Check hydraulic circuit.
	Safety/relief valve leak	Replace valve.
[‡] Compressor will not turn on if fan relay is not functioning/tripped. A restart should reset, but if not, the component (fuse or relay) that may need to be replaced. Refer to Section 5.5 for relay location and part confirmations.		
Continued on next page		



6.2 TROUBLESHOOTING GUIDE

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
Low air pressure	Air filters soiled/plugged	Replace air filter element (Section 5.4.4).
	Pressure switch setting too low	May need to be replaced or reset; consult Service Department for reset instructions.
	Air line leak	Inspect and replace hose or tighten connections.
	Air consumption exceeds capacity	Check applied demand on supply air.
	Faulty compressor valves	Inspect and replace.
	Defective air pressure switch / transducer	Refer to Section 5.4.2 and Section 7.7 or Section 7.8 . Replace if necessary. (See Figure 2-1 , callout [B])
	Discharge valve soiled or stuck	Remove and clear, or replace.
	Blown head gasket	Replace.
Abnormal pressure fluctuations	Air line leak	Inspect and replace hose or tighten connections.
	Pressure switch incorrectly set	May need to be replaced or reset; consult Service Department for reset instructions.
	Pressure switch faulty	Replace; consult Service Department for reset instructions.
	Hydraulic supply problems	Refer to <i>Compressor runs slow</i> section of this table.
Pressure relief valve(s) open continuously	Defective air pressure gauge	Refer to Section 5.4.2 . Replace if necessary.
	Damaged, worn, or leaking valve	Replace valve.
	Pressure switch set too high	May need to be replaced or reset; consult Service Department for reset instructions.
Compressor cycles too frequently	Air line leak	Inspect and replace hose or tighten connections.
	Pressure switch differential setting is too small	May need to be replaced or reset; consult Service Department for reset instructions.
	Pressure switch faulty	Replace; consult Service Department for reset instructions.
	Excessive moisture in receiver tank	Drain tank; check/drain on more frequent interval to prevent moisture build-up.
	Discharge air valve leaking	Replace.
	Pressure switch faulty (if it does not remove power from the solenoid valve)	Replace; consult Service Department for reset instructions.
Compressor will not shut OFF or unload	Solenoid valve does not operate (no power to solenoid valve)	Replace solenoid valve; refer to Section 7.9 or 7.10 .
	Air line leak	Inspect and replace hose or tighten connections.
Oil in discharge air	Air intake restricted	Replace air filter element (Section 5.4.4).
	Compressor crankshaft overfilled	Drain to correct level.
	Compressor crankcase has oil with the wrong viscosity	Drain crankcase and refill with the correct oil (Section 5.4.3.2).
	Restricted crankcase breather	Clean or replace breather.
	Worn piston rings	Replace rings.
	Piston rings incorrectly installed	Reinstall.

Continued on next page



6.2 TROUBLESHOOTING GUIDE

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
Oil in discharge air (continued)	Worn or scored cylinder	Replace cylinder and rings.
Knocking sound from compressor	Crankcase oil level low	Check; refill to correct level (Section 5.4.3).
	Worn main bearing	Replace bearings and/or shaft.
	Worn connecting rod	Replace connecting rod.
	Excessive crank case end movement	Replace crank shaft bearings.
	Piston contacting piston plate	Inspect, repair, replace valves and piston.
	Worn piston wrist pin	Replace piston and pin.



SECTION 7: ILLUSTRATED PARTS LIST

7.1 PARTS ORDERING INFORMATION

Part orders should be placed through the distributor from whom the unit was purchased. If for any reason parts cannot be obtained in this manner, contact the factory directly at the address or phone numbers below.

When ordering parts always indicate the Serial Number of the machine package. This can be obtained from the Bill of Lading for the machine package, or from the unit's serial number plate. See **Figure 7-1** for location of machine package serial plate. **Consult Table 7A: Recommended Spare Parts List** on the next page for a listing of replacement parts.

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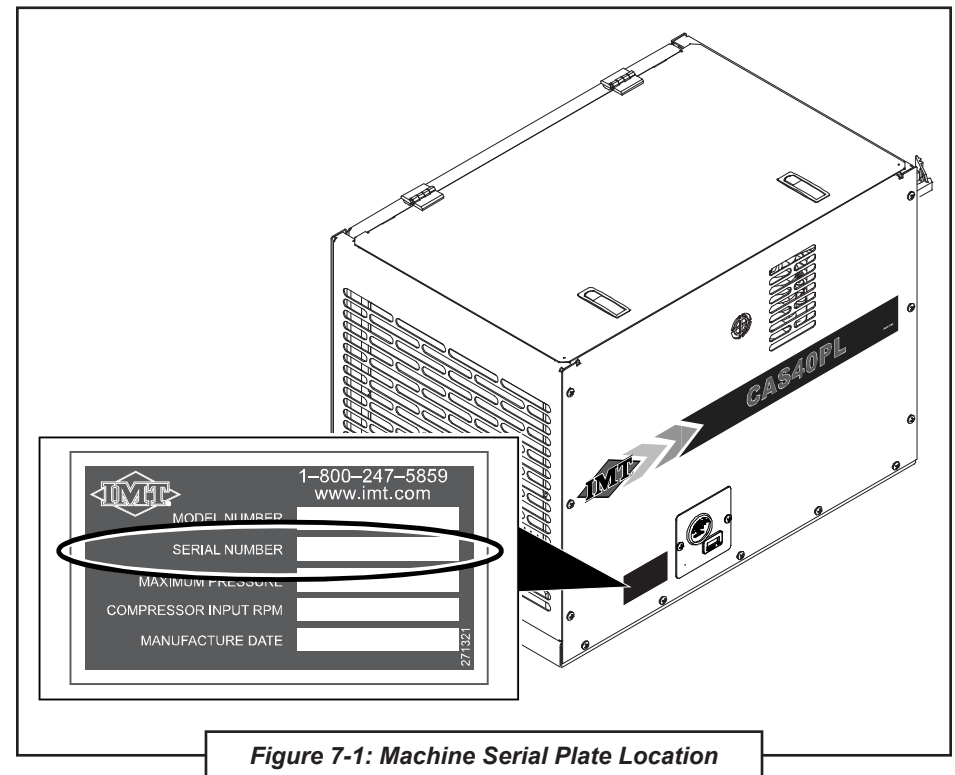


Figure 7-1: Machine Serial Plate Location

**TABLE 7A: RECOMMENDED SPARE PARTS LIST**

KEY NO.	DESCRIPTION	IMT PART NUMBER	QTY
1	Kit, Compressor Service - Initial 50 Hours (Contains: 1 gallon reciprocating oil, IMT no. 71417223)	71417219	1
2	Kit, Compressor Service - 500 Hours (Contains: 1 gallon IMT reciprocating oil, IMT no. 71417223; 1 Air Filter Element, IMT no. 71417222)	71417220	1
3	Filter, Full Assembly; Air Intake Receiver Compressor Replacement ^x	71417221	1
4	Filter, Air Intake Receiver Compressor Element (only)	71417222	1
5	Oil, Compressor Reciprocating ^{xx}	71417223	1
6	Piston, Compressor	71417224	1
7	Valve, Compressor	71417225	1
8	Gasket Set, Compressor	71417226	1
9	Hose, Replacement(s)	ⁱⁱⁱ	1
10	Fuse, ATO 10 Amp Red	77041906	1
11	Fuse, JCASE 30 Amp	71417227	1
12	Valve, Relief (65 PSI; low pressure)	71417228	1
13	Valve, Relief (200 PSI; high pressure)	73540467	1
14	Element, Drive Coupling Replacement	71417229	1
15	Kit, Isolator	71417230	1
16	Kit, Acoustical Insulation	90490426	1
17	Valve, Solenoid Replacement	^{iv}	1
18	Regulator, Flow Replacement	^v	1
^x Air filter replacement includes the air filter housing, and primary air filter element (IMT no. 71417222).			
^{xx} Use only IMT® Reciprocating Oil and Genuine IMT Parts. Inspect and replace damaged components before operation. Substituting non-IMT oil or non-Genuine IMT filter components WILL VOID THE COMPRESSOR WARRANTY!			
ⁱⁱⁱ If a hose needs to be replaced, refer to Sections 7.11 or 7.12 for hose identification.			
^{iv} Refer to Section 7.9 [A] for Solenoid Valve (manifold) identification and order information.			
^v Refer to Section 7.9 [B] for Pressure Relief valve (manifold) replacement, or flow regulator (manifold) replacement.			
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			



IMPORTANT

The above table listing contains items that require maintenance on a routine basis, and also those parts that may require maintenance over the course of the compressor package’s performance schedule. Although this recommended list is proffered as a comprehensive guide to replacement parts, damage may occur to the machine beyond the scope of this listing.

Should any part of the compressor package that is not listed in Table 7A become damaged or inoperable, use the various sub-sections in Section 7 to best locate and identify the damaged part(s).

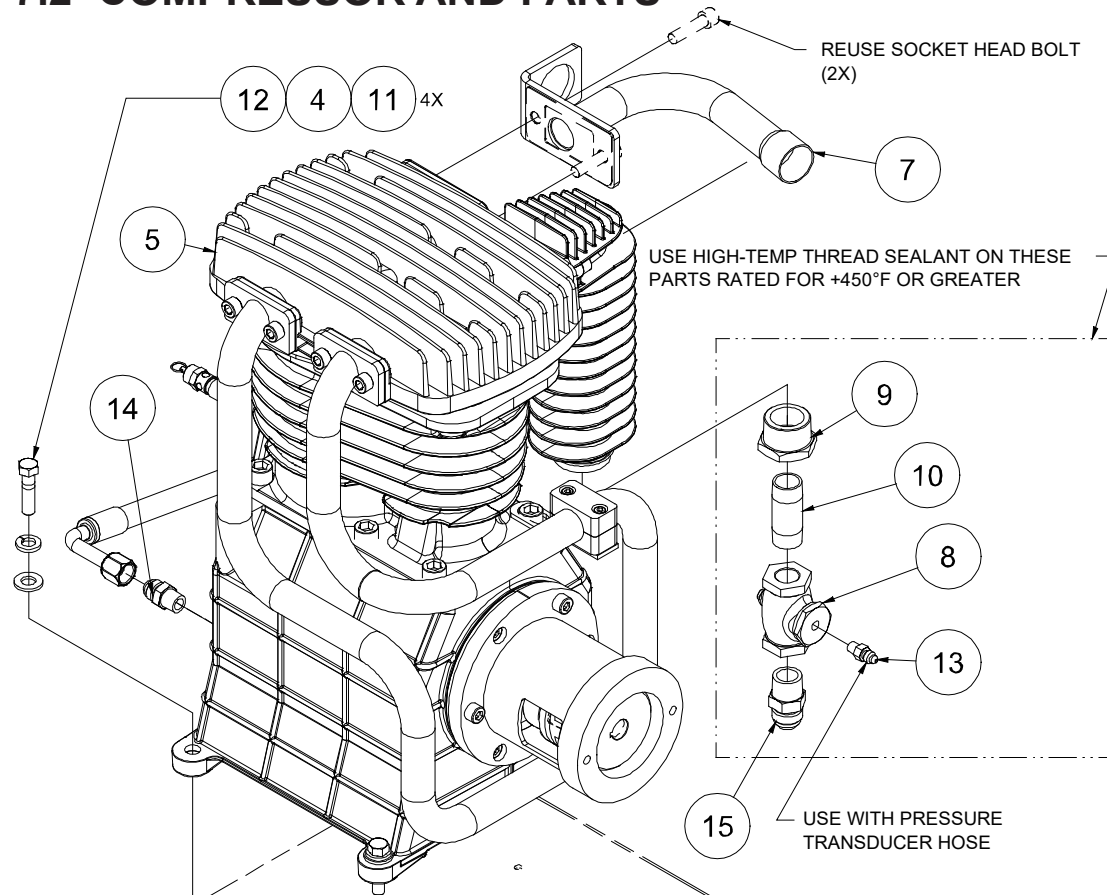
IMPORTANT

If additional spare parts are being stored for future use, ensure that they are stored in proper containers that allow for protection against contamination, and kept in a clean area of moderate temperature reading. For information on storing the machine package for periods of non-use, consult Section 5.7, Long Term Storage.

NOTES

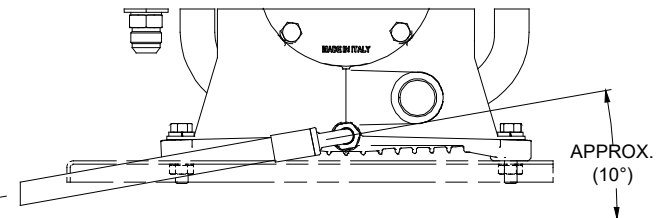
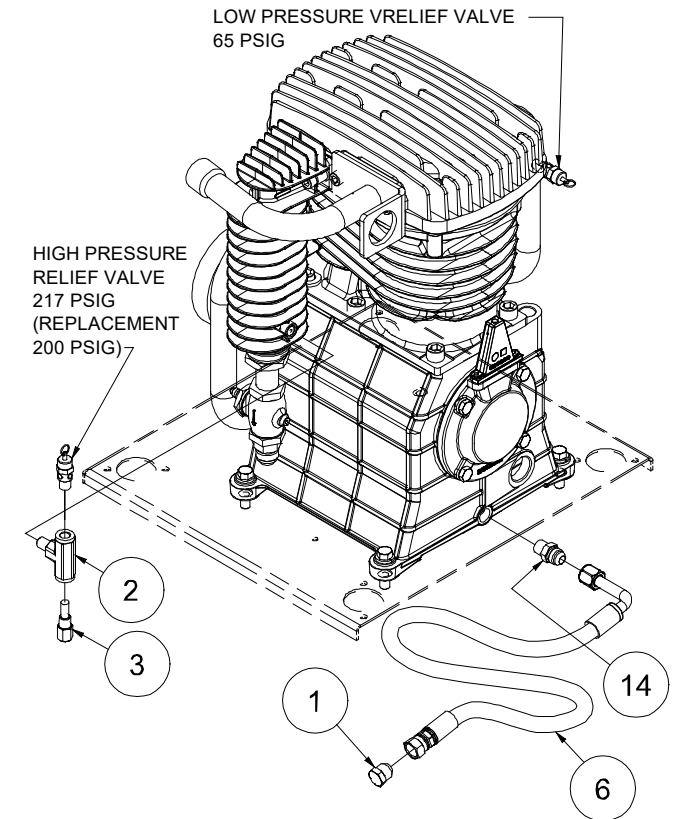


7.2 COMPRESSOR AND PARTS



NOTES:

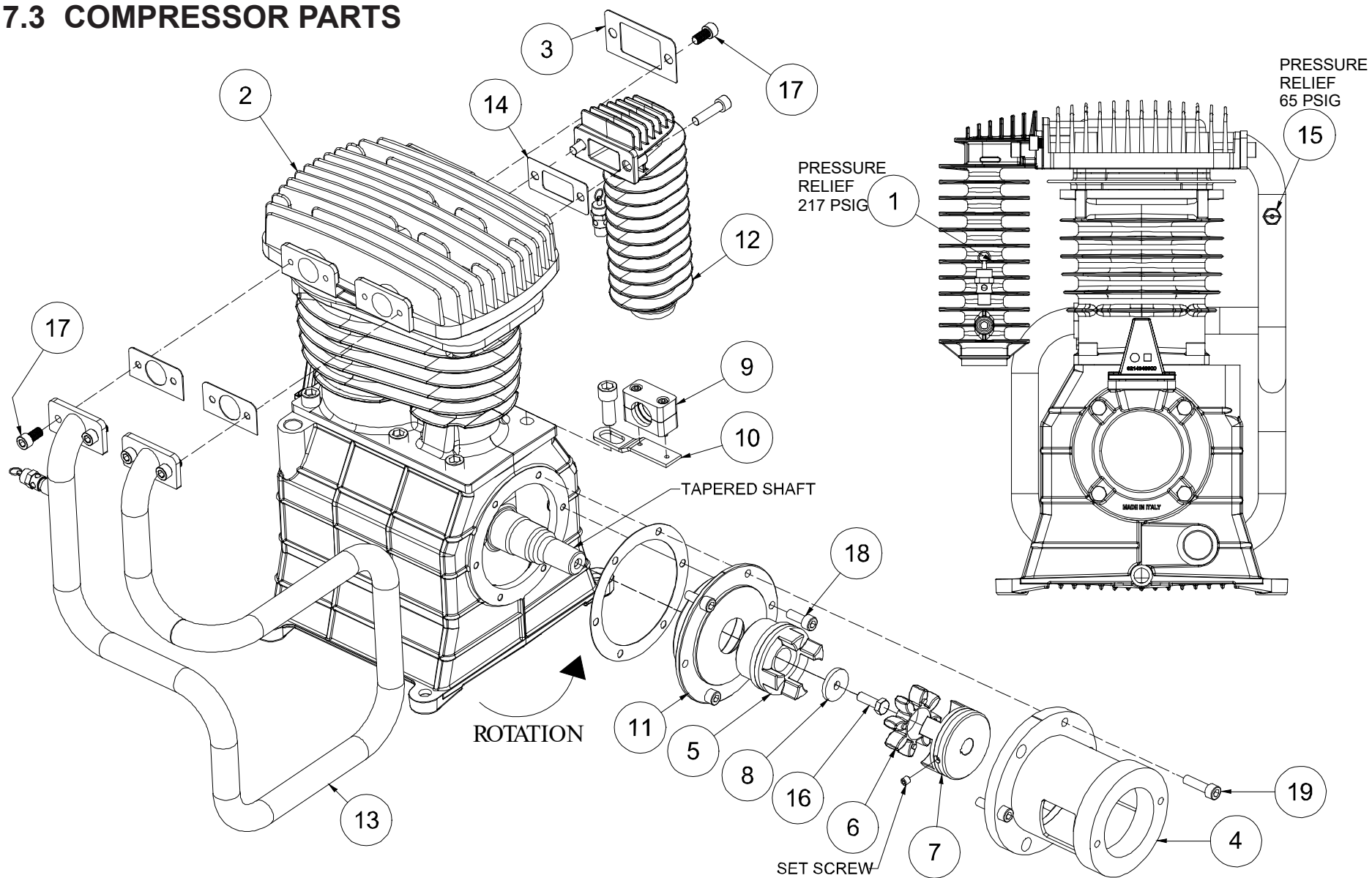
1. USE LOCTITE 567 THREAD SEALANT WITH PTFE OR EQUIVALENT SEALANT ON ALL MALE PIPE THREADS.
2. LUBRICATE ALL ELASTOMERIC SEALS/GASKETS/O-RINGS BEFORE TIGHTENING.
3. ALL BOLTS TO BE TORQUED TO THEIR RESPECTIVE SAE TORQUE SPECIFICATIONS, FOR THEIR GRADES AND SIZES, UNLESS OTHERWISE SPECIFIED.





7.2 COMPRESSOR AND PARTS			
ITEM	DESCRIPTION	IMT PART NUMBER	QTY
1	PLUG, MALE 37 JIC 08		1
2	TEE, 1/4" NPT MALE BRANCH		1
3	ORIFICE, FILTER .032 DIA., 1/4 FPT X 1/4 MPT		1
4	WASHER, LOCK 1/2 GRADE 8		4
5	COMPRESSOR, PARTS DD AL	70735274	1
6	HOSE, COMPRESSOR OIL DRAIN DD		1
7	ELBOW, INTAKE WITH LIFT BAIL	71417359	1
8	VALVE, CHECK 3/4 BRASS W/ 1/8 OUTLET SIDE PORT	73540707	1
9	BUSHING, RED STEEL 1 1/4 x 3/4		1
10	NIPPLE, PIPE GALV 3/4X2 1/2		1
11	CAP SCREW, HEX GR8 7/16-14 x 1.75		4
12	WASHER, FLAT METRIC M12		4
13	CONNECTOR, 37FL/MPT #04 x 1/8		1
14	CONNECTOR, 37FL/MPT #08 x 3/8		1
15	CONNECTOR, 37FL/MPT #12 x 3/4		1
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

7.3 COMPRESSOR PARTS





7.3 COMPRESSOR PARTS

ITEM	DESCRIPTION	IMT PART NUMBER	QTY
1	VALVE, RELIEF 200 PSI 1/4 NPT MALE (REPLACEMENT) [‡]	73540467	1
2	COMPRESSOR, TWO-STAGE PISTON 40CFM-175PSI	70047016	1
3	GASKET, AIR INLET	70535085	1
4	HOUSING, BELL HYD MOTOR TO COMPRESSOR	70580243	1
5	HUB, COUPLING COMPRESSOR DD	70580244	1
6	SPIDER, COUPLING DD	70580245	1
7	HUB, COUPLING MOTOR DD	70580246	1
8	WASHER, HUB RETAINER	-	1
9	BLOCK, CLAMPING PIPE	71417360	1
10	BRACKET, CLAMPING BLOCK	71417361	1
11	HOUSING, BEARING FRONT	70055411	1
12	AFTERCOOLER, DISCHARGE	70048270	1
13	TUBE, MID-STAGE COOLING	70535087	1
14	GASKET, DISCHARGE AFTERCOOLER	70535086	1
15	VALVE, RELIEF 65 PSI 1/4 NPT MALE	71417228	1
16	CAP SCREW, HEX 10mm 1.5 x 30	-	1
17	CAP SCREW, S.H. M10 1.5 X 20MM	-	6
18	CAP SCREW, S.H. M10x1.5 x 25mm	-	3
19	CAP SCREW, S.H. M10x1.5 x 35MM	-	3

[‡] If replacing this relief valve, it must be replaced with a valve rated between 200 and 217 PSI.

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.



7.4 DISPLAY AND GAUGE ASSEMBLY

APPROXIMATELY
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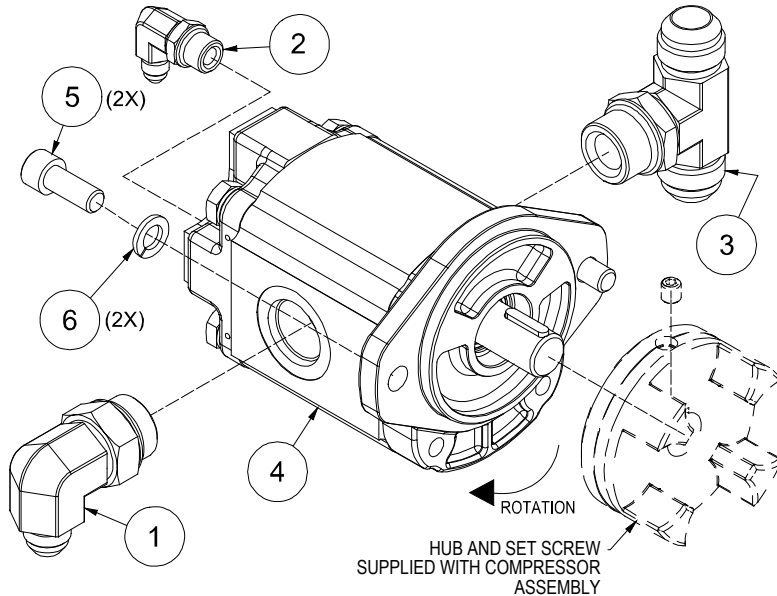
ITEM	DESCRIPTION	IMT PART NUMBER	QTY
1	GAUGE, AIR PRESSURE w/ SWITCH	70048247	1
2	PANEL, GAUGE MECHANICAL	-	1
3	TEE, PIPE GALV 1/4 x 1/4 x 1/8	-	1
4	CONNECTOR, 37FL/MPT #04 x 1/4	-	1
5	METER, PANEL HOUR AC/DC	77042124	1
6	DRAIN, CABLE-PULL 1/4"NPT	-	1

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.

NOTES:
1. USE LOCTITE 567 THREAD SEALANT WITH PTFE OR EQUIVALENT SEALANT ON ALL MALE PIPE THREADS.



7.5A MOTOR AND DRIVE PARTS - OPEN CENTER



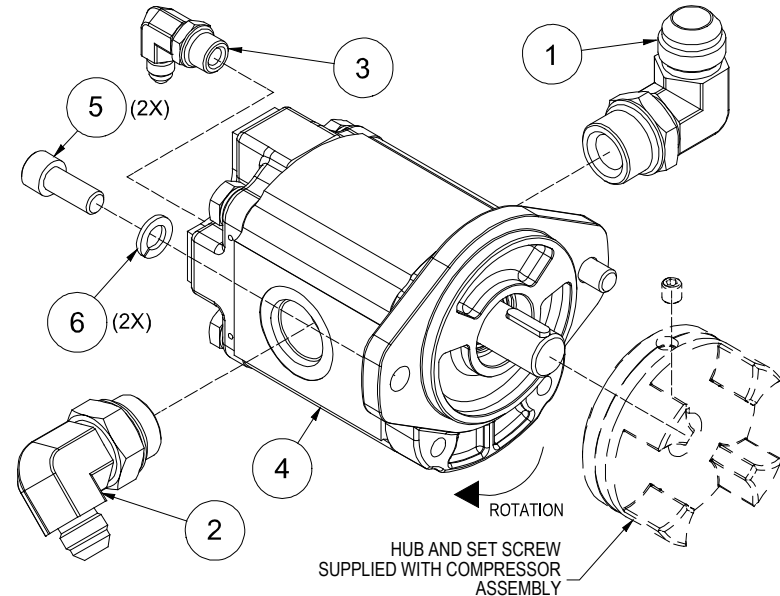
ASSEMBLY DRAWING STANDARD NOTES:

1. LUBRICATE ALL ELASTOMERIC SEALS/GASKETS/O-RINGS BEFORE TIGHTENING.
2. ALL BOLTS TO BE TORQUED TO THEIR RESPECTIVE SAE TORQUE SPECIFICATIONS, FOR THEIR GRADES AND SIZES, UNLESS OTHERWISE SPECIFIED.

ITEM	DESCRIPTION	IMT PART NUMBER	QTY
1	ELBOW, 90 DEG #8 MJIC x #12 MSAE	-	1
2	ELBOW, 90 DEG #4 MJIC x #6 MSAE	-	1
3	TEE, JIC/JIC/SAE #12	-	1
4	MOTOR, HYDRAULIC 32CC 3/4 SHAFT	73511474	1
5	SCREW, SCKT HD M10-1.5 x 25mm ZINC PLT.	-	2
6	WASHER, LOCK METRIC M10	-	2

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.

7.5B MOTOR AND DRIVE PARTS - CLOSED CENTER



ASSEMBLY DRAWING STANDARD NOTES:

1. LUBRICATE ALL ELASTOMERIC SEALS/GASKETS/O-RINGS BEFORE TIGHTENING.
2. ALL BOLTS TO BE TORQUED TO THEIR RESPECTIVE SAE TORQUE SPECIFICATIONS, FOR THEIR GRADES AND SIZES, UNLESS OTHERWISE SPECIFIED.

ITEM	DESCRIPTION	IMT PART NUMBER	QTY
1	ELBOW, 90 DEG #12 MJIC x #12 MSAE	-	1
2	ELBOW, 90 DEG #8 MJIC x #12 MSAE	-	1
3	ELBOW, 90 DEG #4 MJIC x #6 MSAE	-	1
4	MOTOR, HYDRAULIC 32CC 3/4 SHAFT	73511474	1
5	SCREW, SCKET HD M10-1.5 x 25mm ZINC PLT	-	2
6	WASHER, LOCK METRIC M10	-	2

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.

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7.6 HYDRAULIC COOLER & PARTS - 12V WITH THRML / GAUGES (SHOWN)

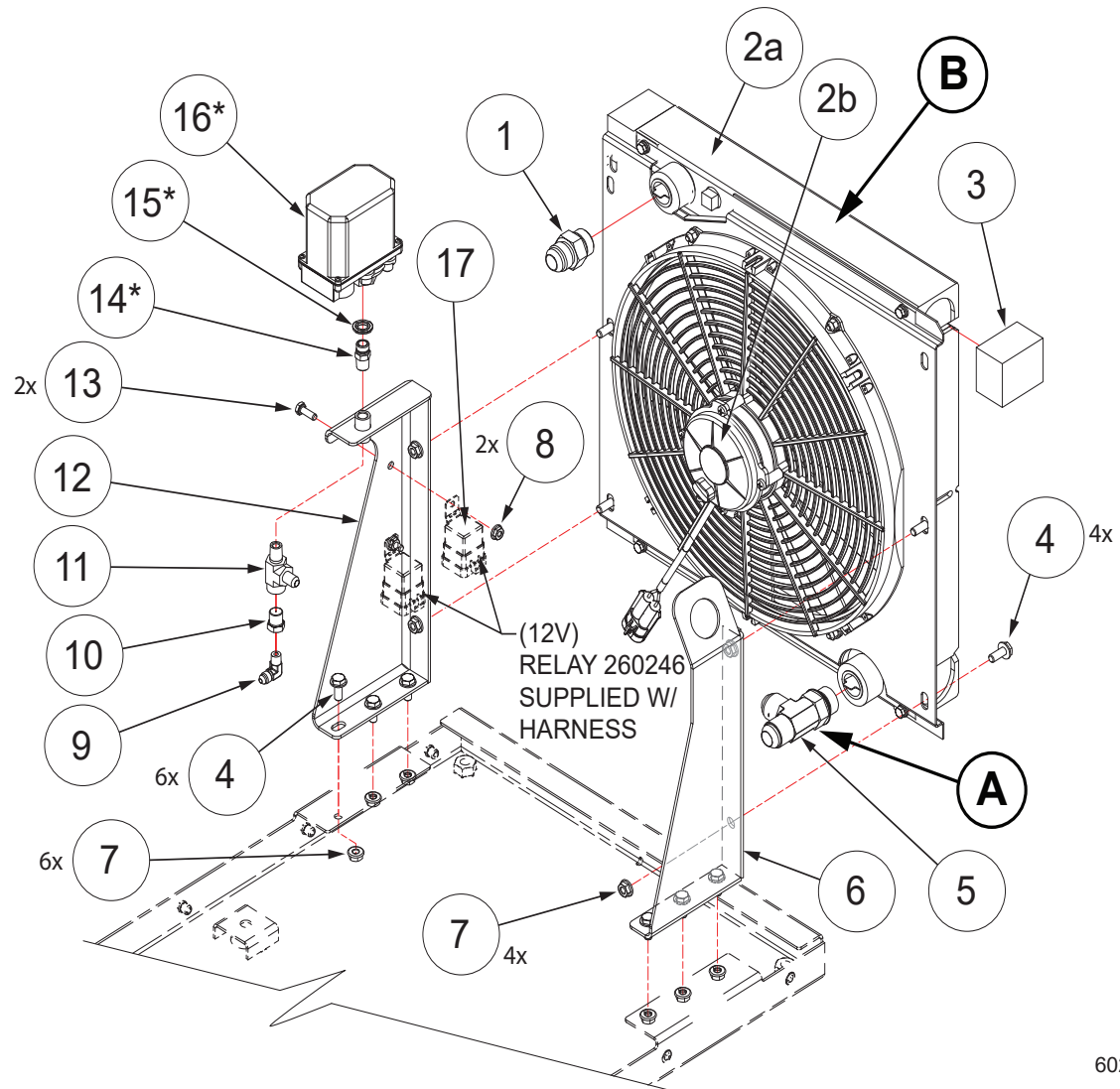
NOTES:

1. USE LOCTITE 567 THREAD SEALANT WITH PTFE OR EQUIVALENT SEALANT ON ALL MALE PIPE THREADS.

2. LUBRICATE ALL ELASTOMERIC SEALS/GASKETS/O-RINGS BEFORE TIGHTENING.

3. ALL BOLTS TO BE TORQUED TO THEIR RESPECTIVE SAE TORQUE SPECIFICATIONS, FOR THEIR GRADES AND SIZES, UNLESS OTHERWISE SPECIFIED.

4. SLIDE COOLER MOUNTING BRACKETS TOWARD BOTTOM OF COOLER BEFORE TIGHTENING NOTED FASTENERS.



6020239-0011D_r3

**7.6 HYDRAULIC COOLER & PARTS - 12V WITH THRML / GAUGES**

ITEM	DESCRIPTION	IMT PART NUMBER	QTY
1	CONNECTOR, #12 MSAE x #12 MJIC	-	1
B	COOLER, OIL ASSY CAS40PL (NOTE: Includes both 2a and 2b Sub Assemblies below)	71417119	1
2a	<i>OIL COOLER SUB ASSEMBLY ONLY</i>	73052187	1
2b	<i>FAN / MOTOR SUB ASSEMBLY ONLY</i>	73052188	1
3	KIT, ACOUSTICAL INSULATION CAS40PL	90490426	1
4	SCREW, SER WASH 5/16-18 x 0.75	-	1
5	CONNECTOR, (Varies for Thermal, or No Thermal Models)	SEE ITEM (A) BELOW	1
6	BRACKET, COOLER MOUNTING RIGHT CAS40PL	71417362	2
7	NUT, HEX FLANGE 5/16-18	71417202	1
8	NUT, HEX FLANGE 1/4-20	71415896	2
9	ELBOW, 37FL/90M #04 x 1/8	-	6
10	ORIFICE, .63 HEX x 1/8F x 1/4M x 0.031	-	4
11	TEE, 1/4 MPT x 1/4 FPT x 1/4 MJIC	-	2
12	BRACKET, COOLER / SENSOR MOUNTING LEFT CAS40PL	71417364	4
13	CAPSCREW, HEX GR5 1/4-20 x 0.75	-	6
14	ADAPTER*	(Varies - Call Service)	4
15	WASHER, SEALING*	(Varies - Call Service)	1
16	SWITCH, PRESSURE NO/NC*	(Varies - Call Service)	1
17	12V RELAY (NOTE: Relay supplied with harness)	77041900	1
A	(For System w/ Thermal) TEE, MJIC, O-RING RUN 3/4	SEE DIAGRAM - p 7-10 (ITEM A)	1
A	(For System w/o Thermal) CNNCTR, O-RING 3/4 x 3/4 JIC	SEE DIAGRAM - p 7-10 (ITEM A)	1

* Items with asterisk denote pressure switch components. Pressure switches may come from multiple vendors, which will include: Pressure Switch, Adapter, and Seal (as required).

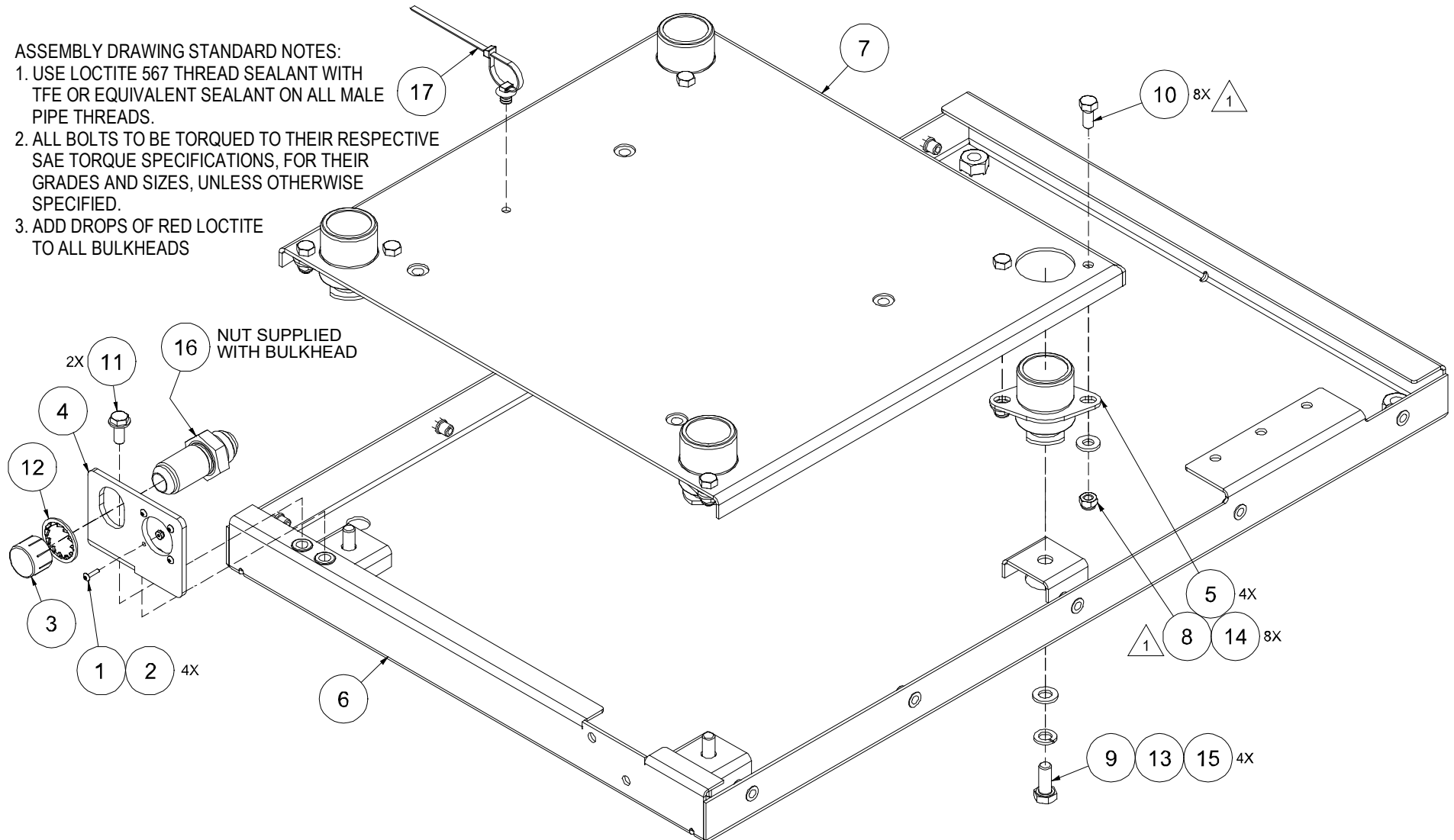
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.



7.7 FRAME ASSEMBLY

ASSEMBLY DRAWING STANDARD NOTES:

1. USE LOCTITE 567 THREAD SEALANT WITH TFE OR EQUIVALENT SEALANT ON ALL MALE PIPE THREADS.
2. ALL BOLTS TO BE TORQUED TO THEIR RESPECTIVE SAE TORQUE SPECIFICATIONS, FOR THEIR GRADES AND SIZES, UNLESS OTHERWISE SPECIFIED.
3. ADD DROPS OF RED LOCTITE TO ALL BULKHEADS

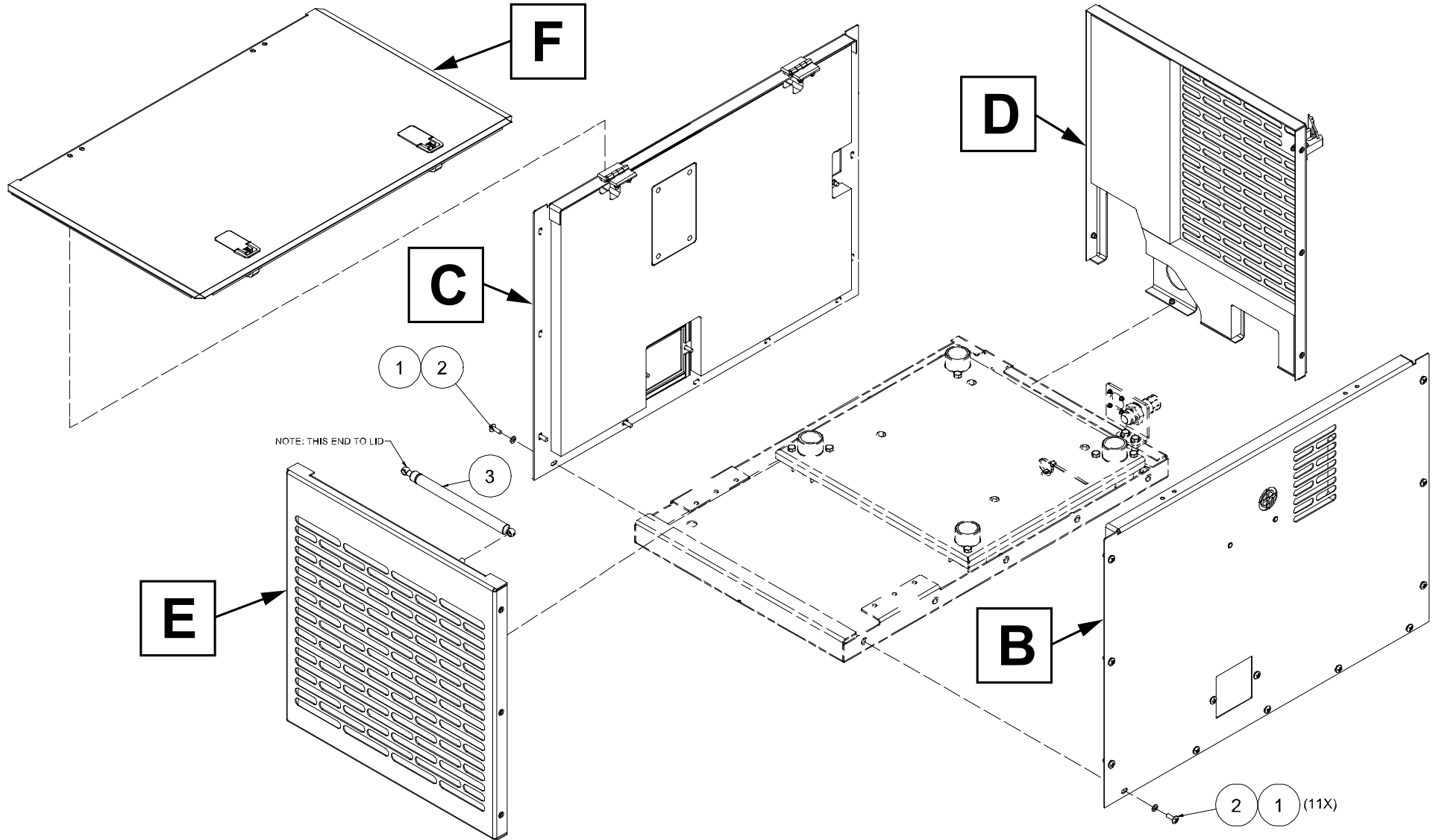




7.7 FRAME ASSEMBLY			
ITEM	DESCRIPTION	IMT PART NUMBER	QTY
1	SCREW, TRUSS #4-40 X 1/2	-	4
2	NUT, HEX LOCKING #4-40 UNC	-	4
3	CAP, FEMALE JIC SHIPPING #12 1 1/16-12	-	1
4	BRACKET, AIR DISCHARGE / 6-PIN	71417365	1
5	ISOLATOR, HYD MINI 50 SH 66 LBS MAX	70661790	4
6	BASE, ISOLATED INTERNALS	71417366	1
7	PLATE, ISOLATED MOUNTING	71417367	1
8	NUT, HEX LOCKING 5/16-18	72062416	8
9	CAP SCREW, HEX 10mm 1.5 x 25	-	4
10	CAP SCREW, HEX GR8 5/16-18 x 0.75	-	8
11	SCREW, SER WASH 5/16-18 x 0.75	71415898	2
12	WASHER, INTERNAL TOOTH 1 INCH	-	1
13	WASHER, LOCK METRIC M10	-	4
14	WASHER, FLAT METRIC M8	-	8
15	WASHER, FLAT METRIC M10	-	4
16	BULKHEAD, MJIC x MJIC #12	-	1
17	TIE, CABLE PUSH MOUNT WITH UMBRELLA	-	1
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			



7.8 FRAME AND CANOPY - 1 OF 3 (ASSEMBLY PART A)



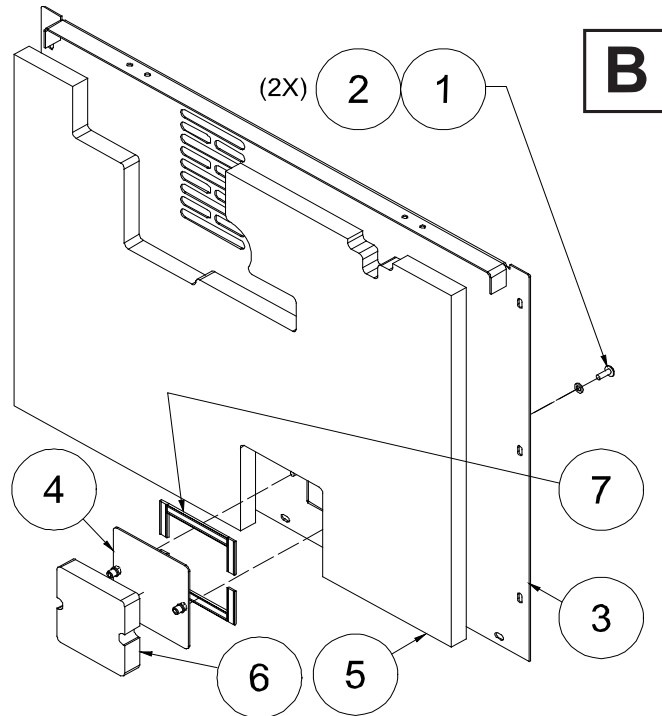
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7.8 FRAME AND CANOPY - 1 OF 3 (ASSEMBLY PART A)			
ITEM	DESCRIPTION	IMT PART NUMBER	QTY
1	WASHER, NYLON FLAT 1/4	72063300	22
2	SCREW, TRUSS 1/4-20 X 3/4 SS	72063301	22
3	GAS SPRING, 6 STROKE, 10#	70661784	1
	ID, CANOPY ASSY B (See page 7-14)	B	1
	ID, CANOPY ASSY C (See page 7-14)	C	1
	ID, CANOPY ASSY D (See page 7-14)	D	1
	ID, CANOPY ASSY E (See page 7-14)	E	1
	ID, CANOPY ASSY F (See page 7-14)	F	1
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

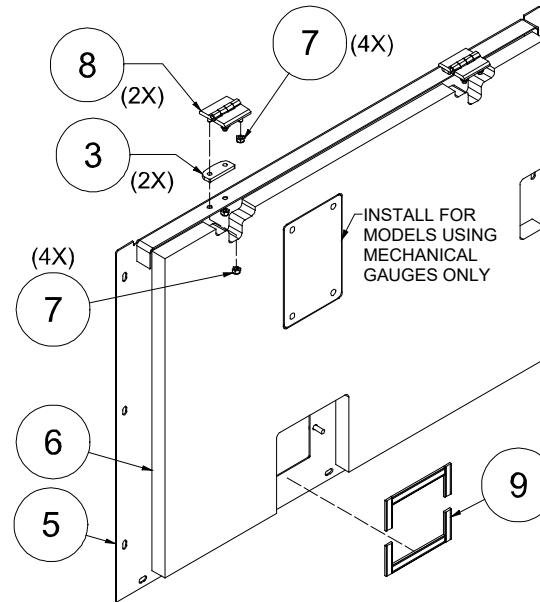


7.8 FRAME AND CANOPY - 2 OF 3 (ASSEMBLY PARTS B - C)



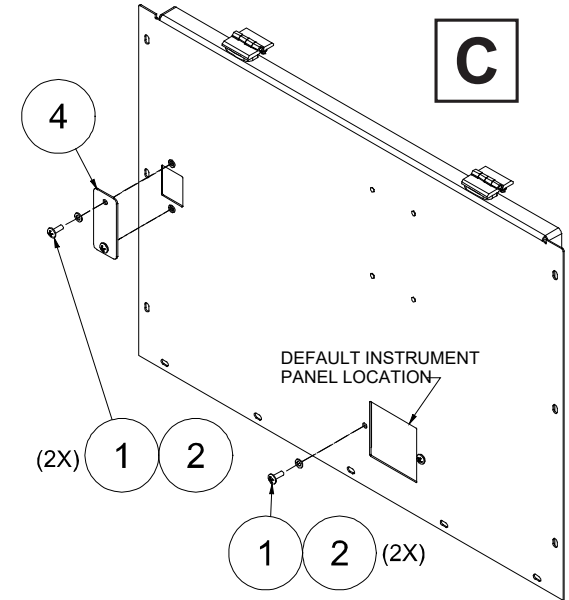
ITEM	DESCRIPTION	IMT PART NUMBER	QTY
1	WASHER, NYLON FLAT 1/4	72063300	2
2	SCREW, TRUSS 1/4-20 X 3/4 SS	72063301	2
3	PANEL, FRONT SIDE	70029645	1
4	PANEL, GAUGE BLANK	70029646	1
5	KIT, ACOUSTICAL INSULATION	90490426	1
6	KIT, ACOUSTICAL INSULATION	90490426	1
7	GASKET, SEAL AND TRIM	71417084	1.333 ft

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.



ITEM	DESCRIPTION	IMT PART NUMBER	QTY
1	WASHER, NYLON FLAT 1/4	72063300	4
2	SCREW, TRUSS 1/4-20 X 3/4 SS	72063301	4
3	SPACER, HINGE 277866	70661789	2
4	PANEL, HYDRAULIC MANIFOLD SERVICE	71417368	1
5	PANEL, BACK SIDE	70029647	1
6	KIT, ACOUSTICAL INSULATION	90490426	1
7	NUT, LOCK, M6 X 1.0 PITCH	72062421	8
8	HINGE, 2" X 2", BLACK	71416172	2
9	GASKET, SEAL AND TRIM	71417084	1.333 ft

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.

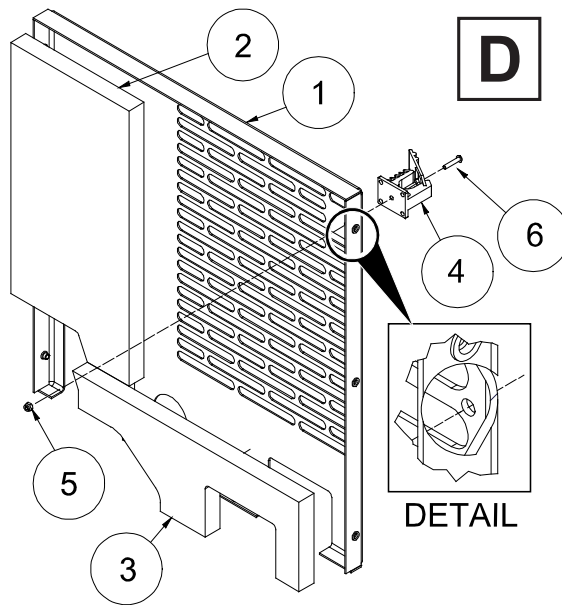


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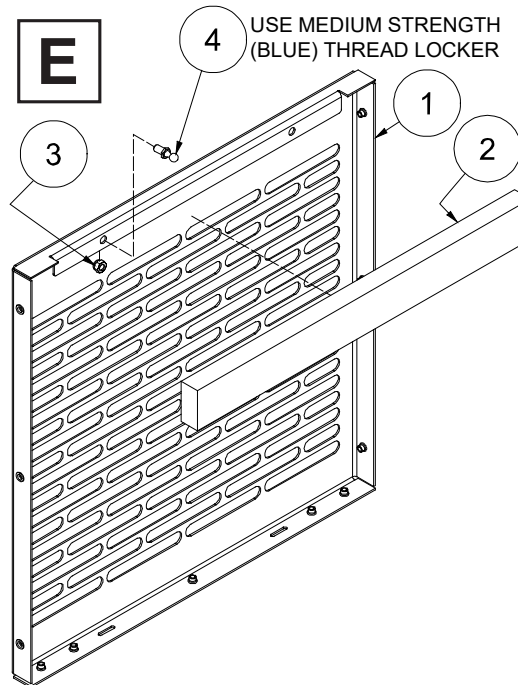


7.8 FRAME AND CANOPY - 3 OF 3 (ASSEMBLY PARTS D - F)



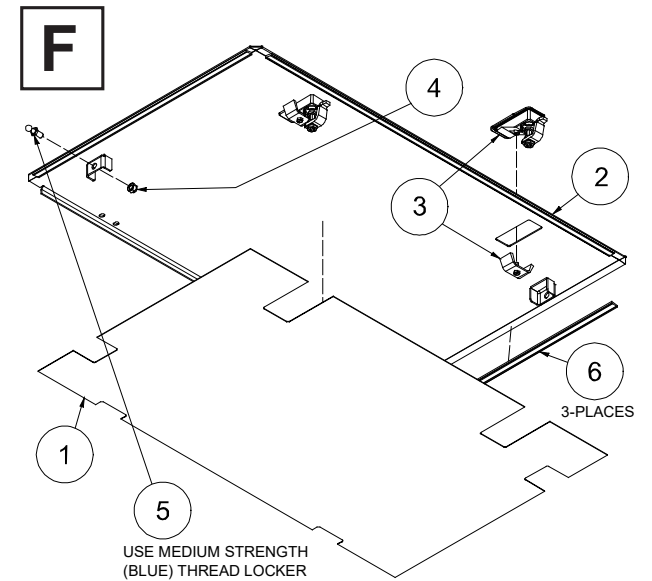
ITEM	DESCRIPTION	IMT PART NUMBER	QTY
1	PANEL, COMP SIDE	71417156	1
2	KIT, ACOUSTICAL INSLTN	90490426	1
3	KIT, ACOUSTICAL INSLTN	90490426	1
4	CLAMP, HOSE 5/8" TO 1 3/8" RUBBER	-	1
5	NUT, HEX LOCKING #10-24	72062420	1
6	SCREW, MACH #10-24 X 3/4	72602192	1
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

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ITEM	DESCRIPTION	IMT PART NUMBER	QTY
1	PANEL, COOLER SIDE	70029648	1
2	KIT, ACSTC INSULATION	90490426	1
3	NUT, HEX LCKNG 5/16-18 UNC	72062416	1
4	STUD, BALL, .39DIA. X .55LG. ¹	72602179	1
¹ Use medium strength (blue) threadlocker.			
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

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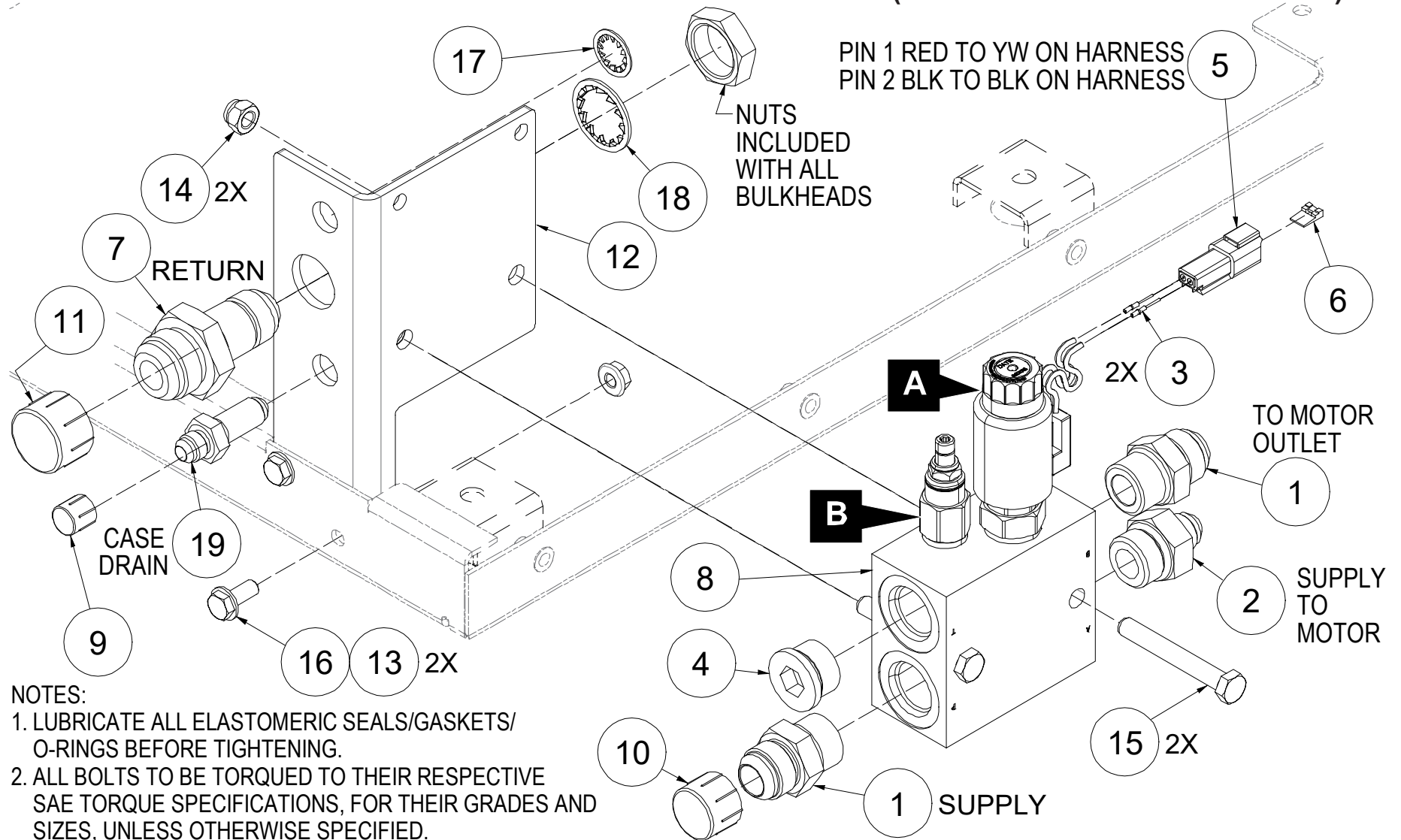


ITEM	DESCRIPTION	IMT PART NUMBER	QTY
1	INSLTN, HEAT SHIELD	90490426	1
2	PANEL, ROOF AL	70029649	1
3	LATCH, CAM LIFT-TURN	71417355	2
4	NUT, HX LCKG 5/16-18 UNC	72062416	1
5	STUD, BALL, .39DIA. X .55LG. ¹	72602179	1
6	GASKET, SEAL AND TRIM	71417084	5.417 ft
¹ Use medium strength (blue) threadlocker.			
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

6030180ID-001_r2_F



7.9 HYDRAULIC MANIFOLD ASSEMBLY - 12VDC OPEN CENTER (STANDARD & COLD WEATHER)



NOTES:

1. LUBRICATE ALL ELASTOMERIC SEALS/GASKETS/O-RINGS BEFORE TIGHTENING.
2. ALL BOLTS TO BE TORQUED TO THEIR RESPECTIVE SAE TORQUE SPECIFICATIONS, FOR THEIR GRADES AND SIZES, UNLESS OTHERWISE SPECIFIED.
3. ADD DROPS OF RED LOCTITE TO ALL BULKHEADS

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7.9 HYDRAULIC MANIFOLD ASSEMBLY - 12VDC OPEN CENTER (STANDARD & COLD WEATHER)			
ITEM	DESCRIPTION	IMT PART NUMBER	QTY
1	CONNECTOR, O-RING 3/4 x 3/4 JIC	-	2
2	CONNECTOR, #12 MSAE x #8 MJIC	-	1
3	TERMINAL, DEUTSCH #0460-215-16141	-	2
4	PLUG, SAE O-RING #12	72535067	1
5	CONNECTOR, 2 PIN MALE DEUTSCH	-	1
6	WEDGELOCK,DEUTSCH W2P	-	1
7	BULKHEAD, 1 1/16 - 12UNF x 1 5/16 - UNF	-	1
8	MANIFOLD, HYDRAULIC SOFT SHIFT	51735120	1
9	CAP, FEMALE JIC SHIPPING #6 9/16-18	-	1
10	CAP, FEMALE JIC SHIPPING #12 1 1/16-12	-	1
11	CAP, FEMALE JIC SHIPPING #16 1 5/16-12	-	1
12	BRACKET, HYD MANIFOLD ISOLATED INTERNALS	71417369	1
13	NUT, HEX FLANGE 5/16-18	71417202	2
14	NUT, HEX LOCKING 3/8-16	71416255	2
15	CAP SCREW, HEX GR5 3/8-16 x 2.75	-	2
16	SCREW, SER WASH 5/16-18 x 0.75	71415898	2
17	WASHER, LOCK INTERNAL TOOTH 9/16 INCH	-	1
18	WASHER, INTERNAL TOOTH 1 INCH	-	1
19	BULKHEAD, MJIC x MJIC #6	-	1
A	Solenoid: For solenoid replacement, consult the IMT Service Department.		
B	Pressure Relief: For pressure relief replacement, consult the IMT Service Department.		
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			



7.10 DECAL IDENTIFICATION/LOCATIONS - 1 OF 2

WARNING
Rotating parts can cause severe injury.
Stay away while engine and compressor are in operation.

WARNING
Connect air hoses in full compliance with federal, state and local codes.
Safety devices should be tested in accordance with manufacturer's recommendations.

CAUTION
Equipment starts automatically.
For service and repair on this equipment, contact:
YOUR AUTHORIZED IMT DEALER
Visit our dealer locator: www.imt.com

WARNING
High pressure hydraulic system.
Do not search for pinhole leaks with the hand or any other part of the body, as subcutaneous injection or amputation may result.
Use a large piece of paper instead.

WARNING
Hot parts can cause severe burns.
Do not touch any internal surfaces while operating or just after stopping.

WARNING
Do not touch any internal surfaces while operating or just after stopping.

WARNING
Read the operator's manual before starting this unit.
Failure to adhere to instructions can result in personal injury.
Replacement manuals can be obtained from
Vansly Manufacturing
1-800-521-4417
www.vansly.com

IMT
RECIPROCATING COMPRESSOR OIL
IMT premium reciprocating compressor oil is recommended for this unit. Use of different oil will void warranty. Do not mix oil types. Cap is self-sealing. No pipe dope is required.
(800) 247-5858 Order # 89086220 1-GAL

WARNING
Cancer and Reproductive Harm
www.P65Warnings.ca.gov

WARNING
DO NOT REMOVE OR COVER ANY SAFETY DECAL. Replace any safety decal that becomes damaged or illegible.

WARNING
Do not remove caps, plugs, or other components when compressor is running or pressurized.
Stop compressor and relieve all internal pressure before doing so.

WARNING
Do not use air from this compressor for breathing purposes or processing consumables except in full compliance with federal, state and local codes.

WARNING
Do not operate without fan guard in place.

ITEM	DESCRIPTION	IMT PART NUMBER	QTY
1	DECAL, READ MANUAL ¹	70490443	1
2	DECAL, HOT PARTS ¹	70490444	1
3	DECAL, ROTATING PARTS ¹	70490445	1
4	DECAL, CONNECT AIR HOSE ¹	70490446	1
5	DECAL, IMT SERVICE/REPAIR	70392962	1
6	DECAL, CAUTION AUTO START ¹	70399431	1
7	DECAL, HYDRAULIC HIGH PRESSURE ¹	70490447	1
8	DECAL, DO NOT REMOVE CAPS ¹	70490448	1
9	DECAL, DO NOT USE AIR ¹	70490449	1
10	DECAL, IMT OIL RECIPROCATING COMP ¹	70490450	1
11	DECAL, WARN-CANCER REPRO, HARM ¹	70490451	1
12	DECAL, DO NOT REMOVE GUARD	70490452	1

¹ This decal is included with decal safety sheet - 95724529. Contact IMT for details.

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.

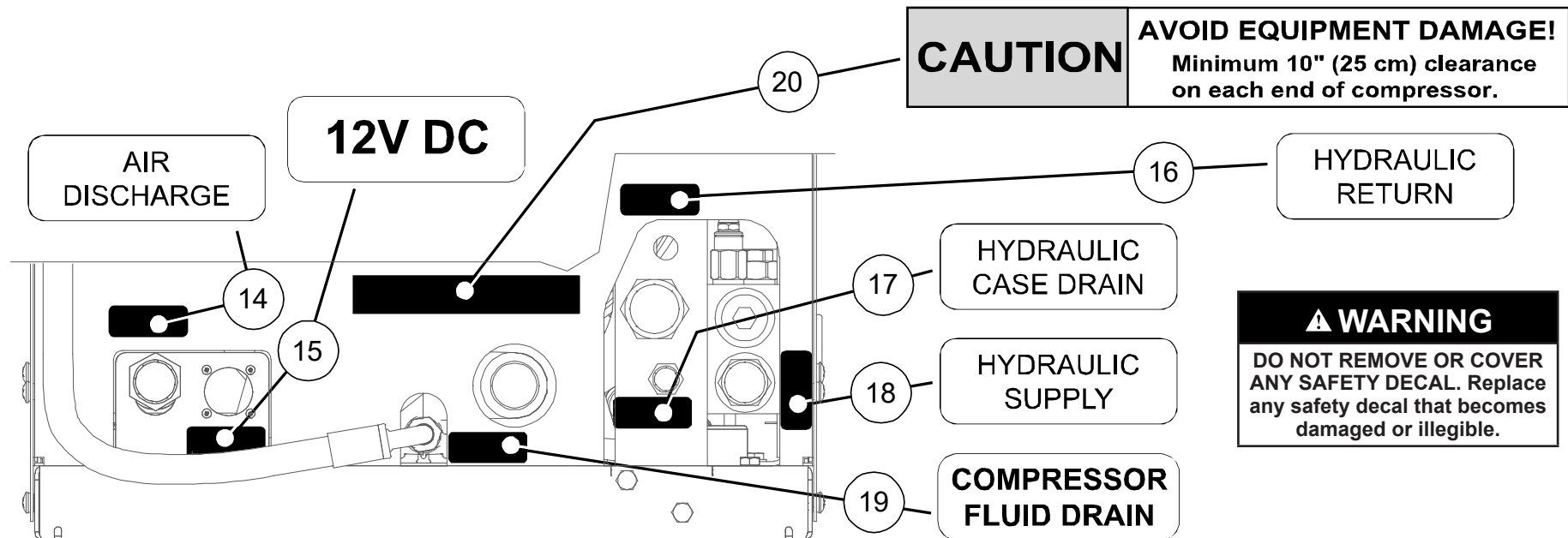
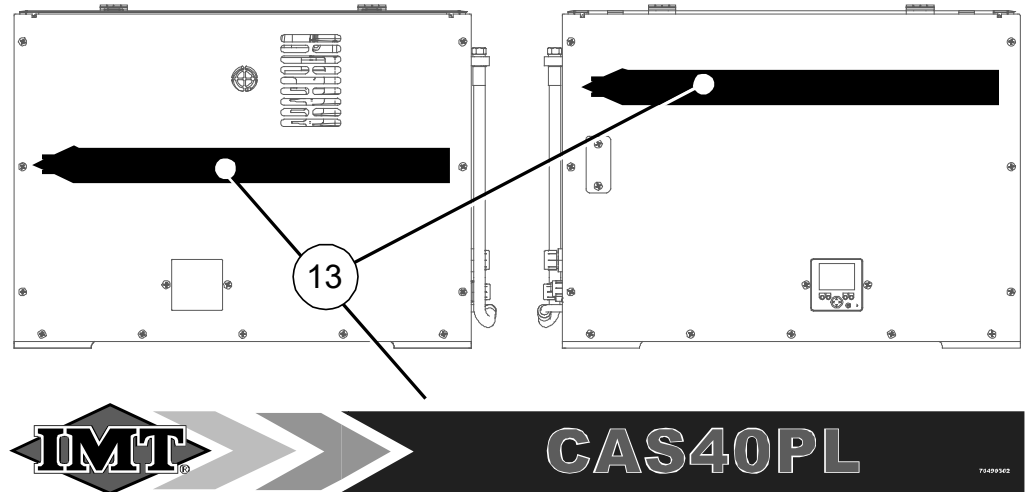


7.10 DECAL IDENTIFICATION/LOCATIONS - 2 OF 2

ITEM	DESCRIPTION	IMT PART NUMBER	QTY
13	DECAL, LOGO, IMT CAS40PL [‡]	70490302	2
14	DECAL, AIR DISCHARGE	70490454	1
15	DECAL, 12VDC	70490455	1
16	DECAL, HYDRAULIC RETURN	70490456	1
17	DECAL, HYDRAULIC CASE DRAIN	70490457	1
18	DECAL, HYDRAULIC SUPPLY	70490458	1
19	DECAL, COMPRESSOR FLUID DRAIN	70490459	1
20	DECAL, AVOID EQUIPMENT DAMAGE	70490460	2

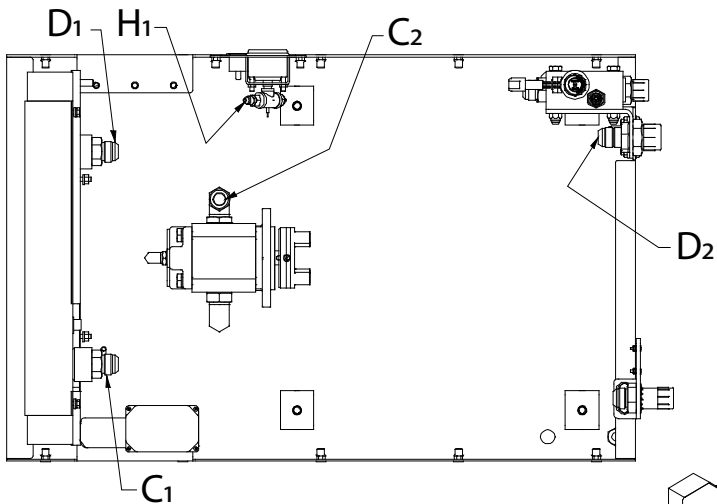
[‡] Decal shown is for model CAS40PL. For other models, contact IMT for details.

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.



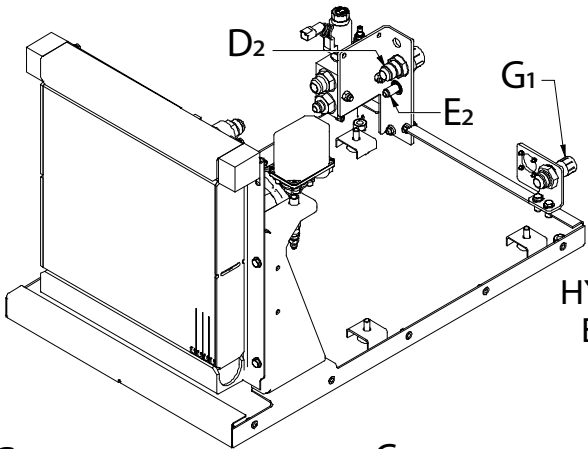
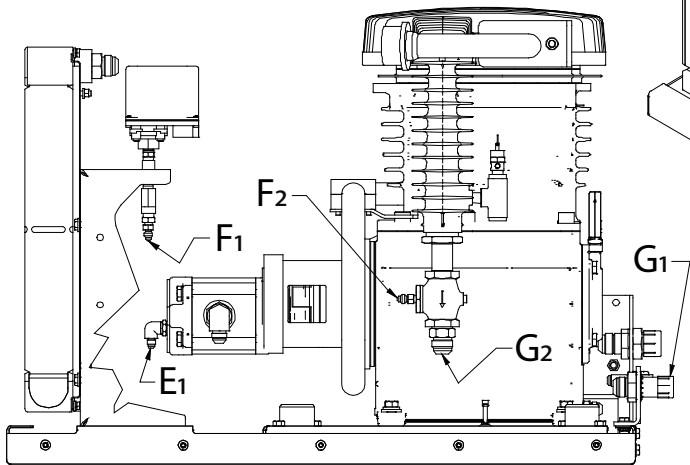


7.11 HOSE AND TUBE ROUTING - OPEN CENTER 12V, NO THERMAL, WITH GAUGES

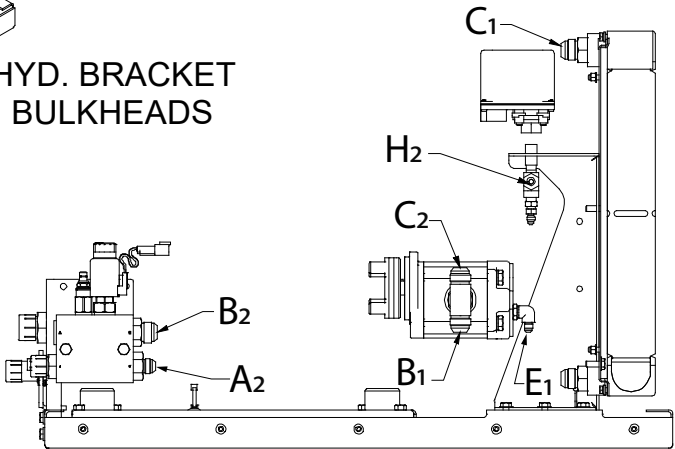
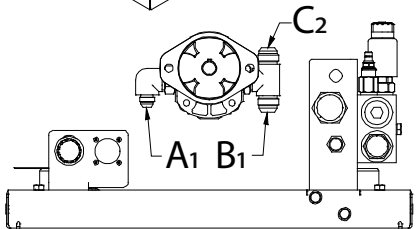


HOSE AND TUBE ROUTING INSTRUCTIONS					
ITEM	IMT PART NUMBER	DESCRIPTION	QTY	START	END
1	-	HOSE, HYDRAULIC MOTOR IN DD	1	A ₁	A ₂
2	-	HOSE, HYDRAULIC MANF TO MOTOR OUT DD	1	B ₁	B ₂
3	-	HOSE, HYDRAULIC MOTOR TO COOLER	1	C ₁	C ₂
4	-	HOSE, HYDRAULIC COOLER OUT	1	D ₁	D ₂
5	-	HOSE, HYDRAULIC MOTOR CASE DRAIN DD	1	E ₁	E ₂
6	-	HOSE, ASSY 1/4 PRESS GAGE	1	F ₁	F ₂
7	-	HOSE, ASSY 5/8 ID DSCH TEFLON	1	G ₁	G ₂
8	-	HOSE, ASSY 1/4 ID PRESS SW TO PRESS GAGE	1	H ₁	H ₂

PLEASE NOTE: WHEN ORDERING
PARTS, INDICATE MACHINE SERIAL
NUMBER.



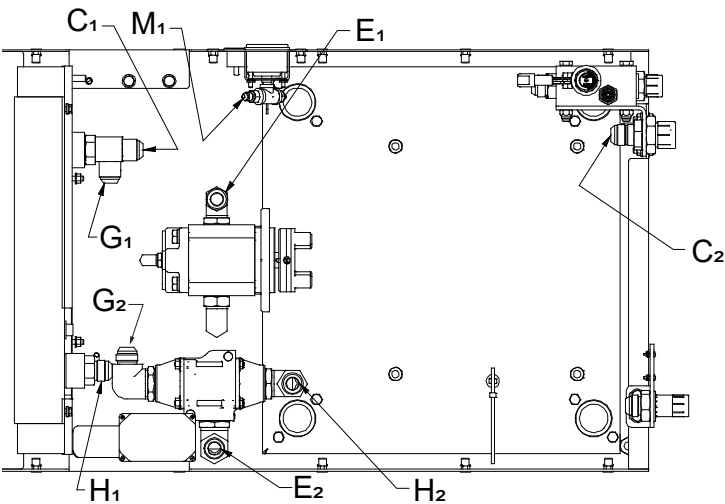
HYD. BRACKET
BULKHEADS



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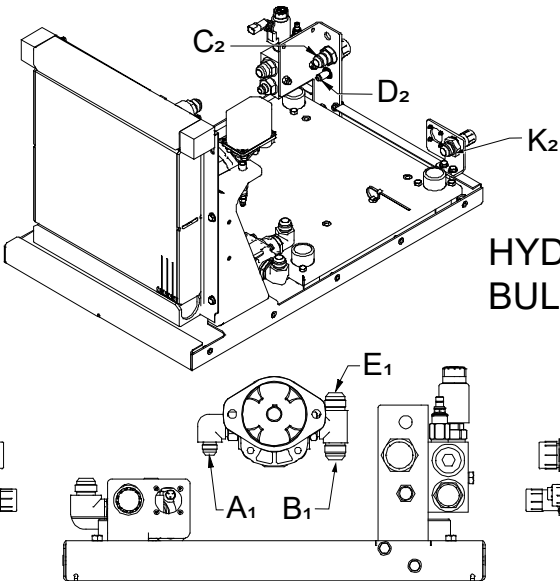
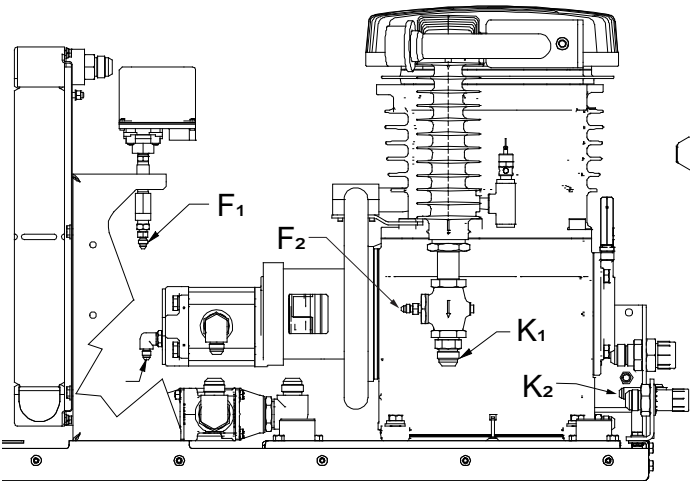


7.12 HOSE AND TUBE ROUTING - OPEN CENTER 12V, THERMAL & GAUGES

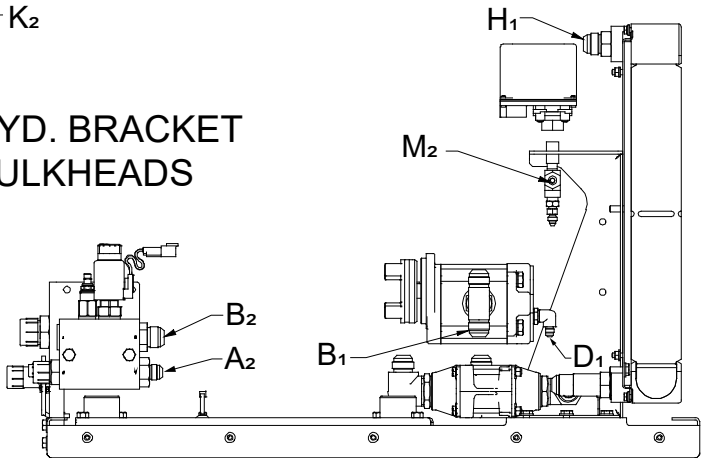


ITEM	IMT PART NUMBER	DESCRIPTION	QTY	START	END
1	-	HOSE, HYDRAULIC MOTOR IN DD	1	A ₁	A ₂
2	-	HOSE, HYDRAULIC MANF TO MOTOR OUT DD	1	B ₁	B ₂
3	-	HOSE, HYDRAULIC COOLER OUT	1	C ₁	C ₂
4	-	HOSE, HYDRAULIC MOTOR CASE DRAIN DD	1	D ₁	D ₂
5	-	HOSE, HYDR MOTOR TO THERM VLV 3/4 IN	1	E ₁	E ₂
6	-	HOSE, ASSY 1/4 PRESS GAGE	1	F ₁	F ₂
7	-	TUBE, HYDR THRML VLV TO CLR INLET 3/4 IN	1	G ₁	G ₂
8	-	TUBE, CLR INLET (TEE) TO HYDR THRML VLV 3/4 IN	1	H ₁	H ₂
9	-	HOSE, ASSY 5/8 ID DSCH TEFLON	1	K ₁	K ₂
10	-	HOSE, ASSY 1/4 ID PRESS SW TO PRESS GAGE	1	M ₁	M ₂

PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.



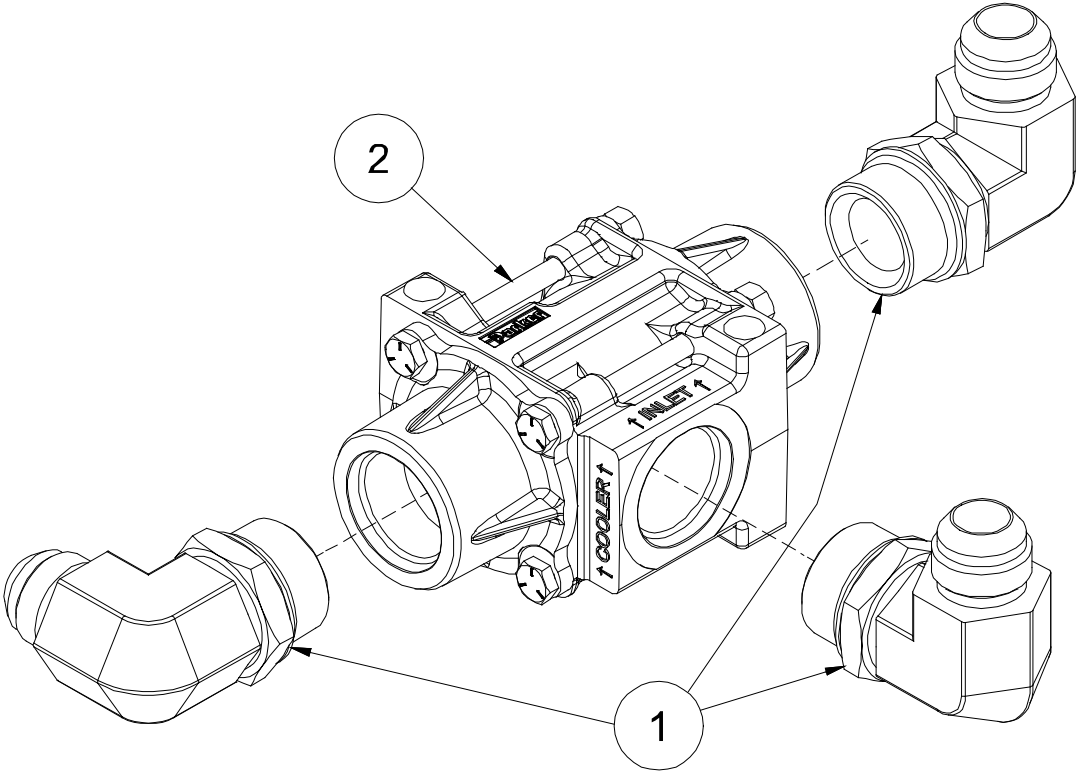
HYD. BRACKET BULKHEADS



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7.13 HYDRAULIC THERMAL VALVE ASSEMBLY



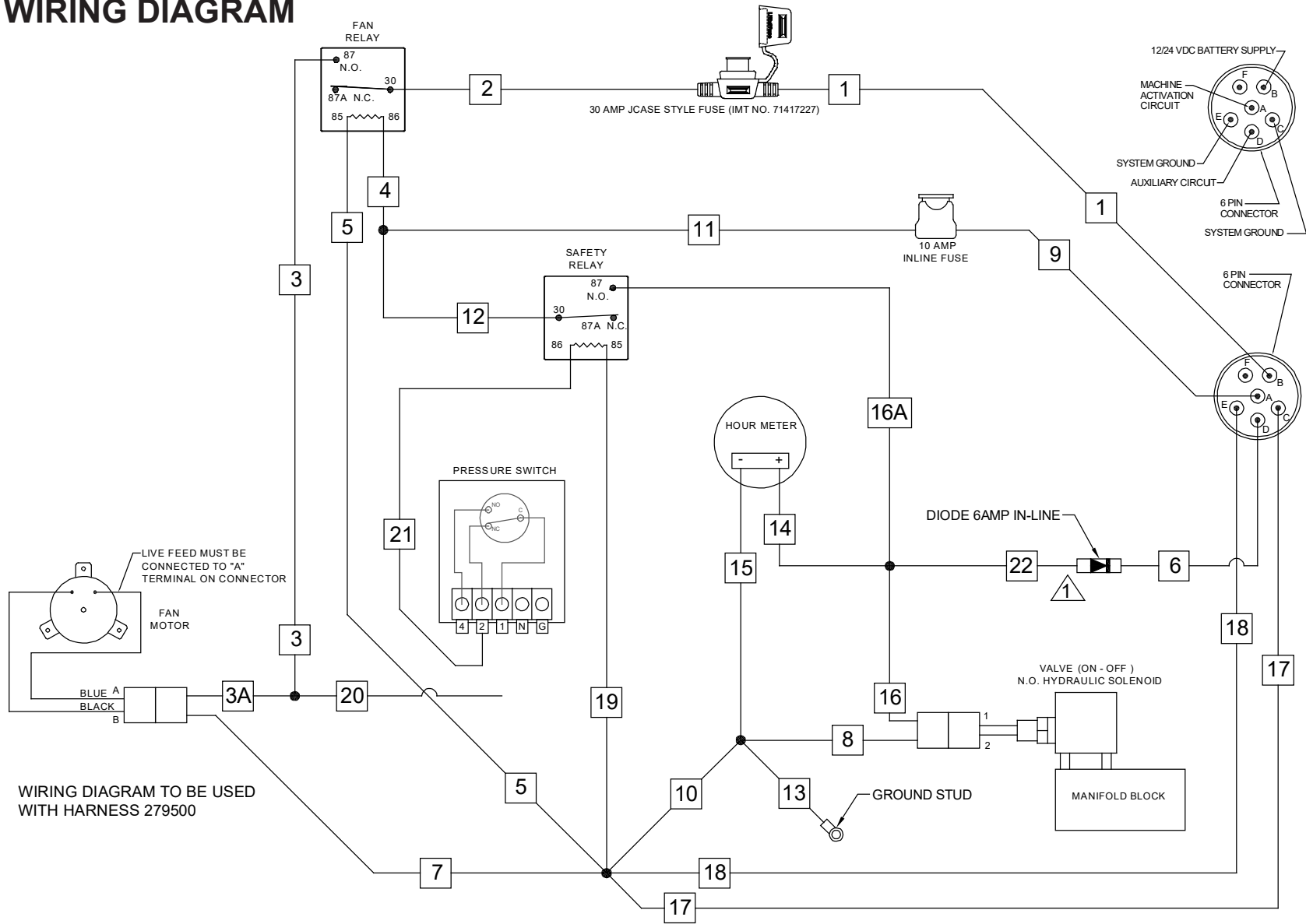
ASSEMBLY DRAWING STANDARD NOTES:

1. LUBRICATE ALL ELASTOMERIC SEALS/GASKETS/
O-RINGS BEFORE TIGHTENING.

ITEM	DESCRIPTION	IMT PART NUMBER	QTY
1	ELBOW, 90 DEG #12 MJIC x #16 MSAE	-	3
2	VALVE, THERMAL BYPASS 1" SAE 50PSI 100 DEG	73540600	1
PLEASE NOTE: WHEN ORDERING PARTS, INDICATE MACHINE SERIAL NUMBER.			

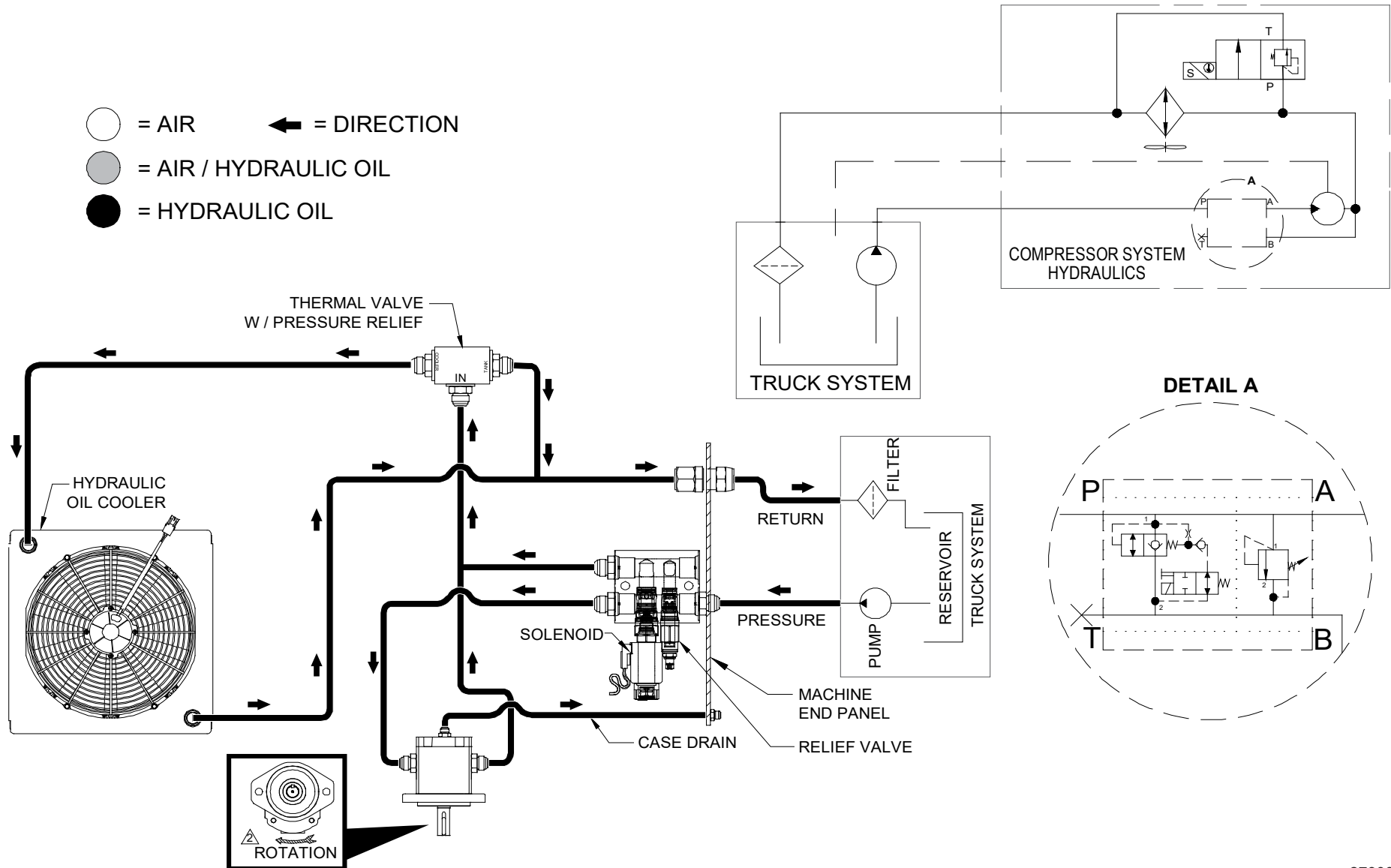


7.14 WIRING DIAGRAM



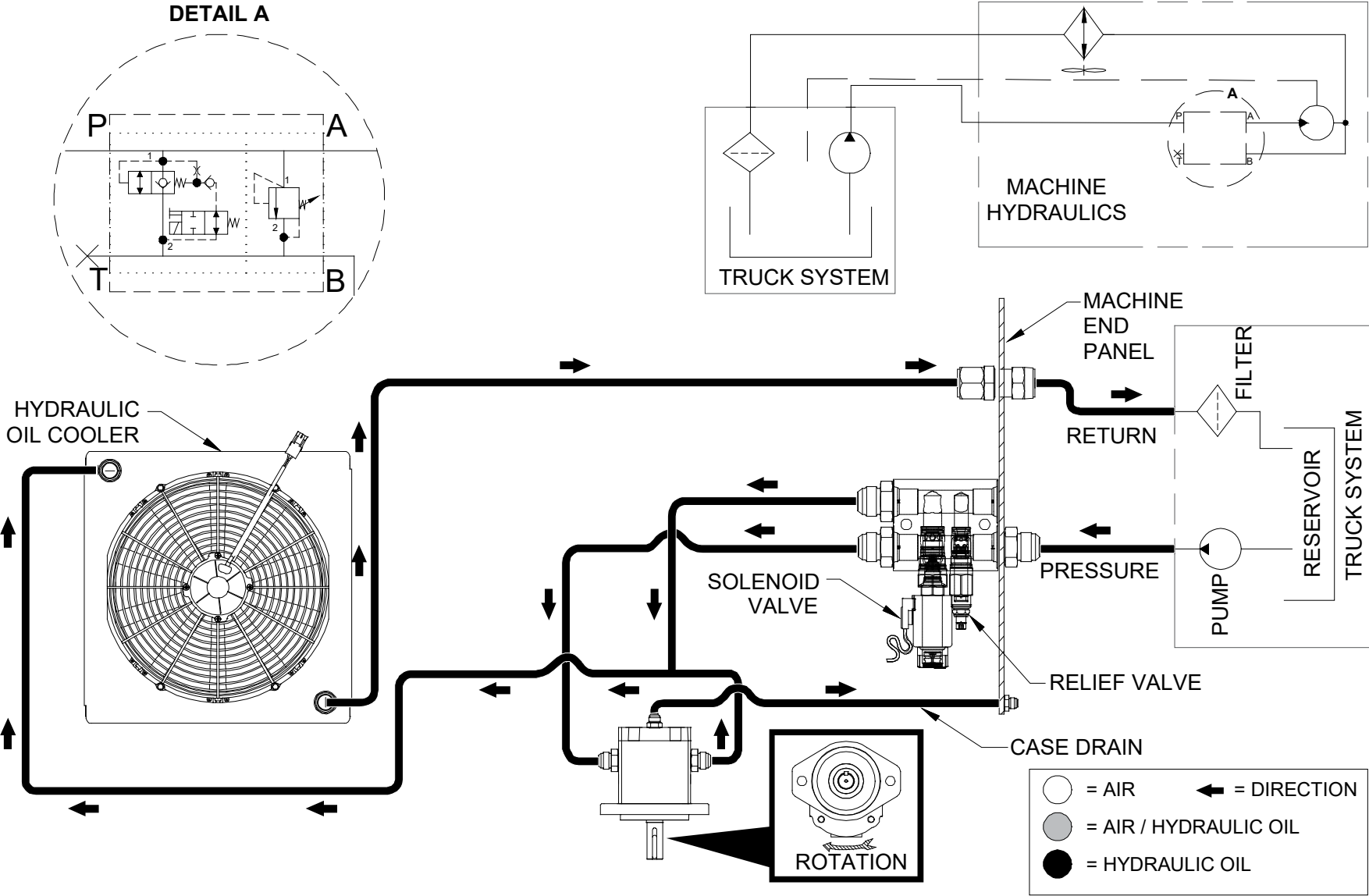


7.15 HYDRAULIC OIL FLOW SCHEMATIC DIAGRAM - OPEN CENTER, WITH THERMAL VALVE



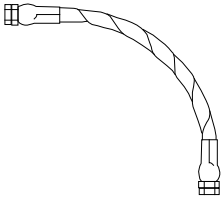
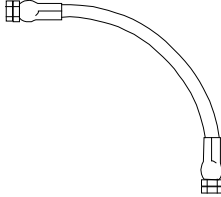
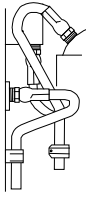
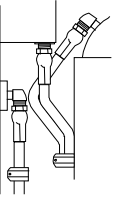
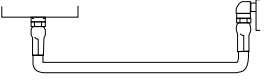

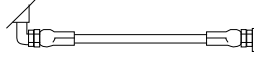

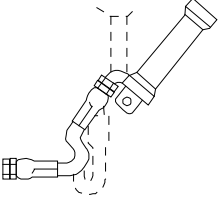
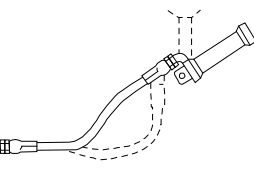
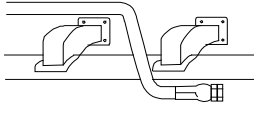
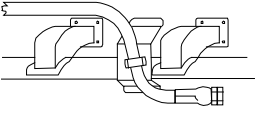


7.16 HYDRAULIC OIL FLOW SCHEMATIC DIAGRAM - OPEN CENTER





7.17 HOSE INSTALLATION GUIDE

HOSE LAYOUT CONSIDERATION	WRONG	RIGHT	HOSE LAYOUT CONSIDERATION	WRONG	RIGHT
1. Hose is weakened when installed in twisted position. Pressure in twisted hose tends to loosen fitting connections. Design so that machine motion produces bending rather than twisting.			4. Use elbows or other adapters as necessary to eliminate excess hose length and to insure neater installation for easier maintenance.		
2. Ample bend radius should be provided to avoid collapsing of line and restriction of flow.			5. When hose assembly is installed in a flexing application, remember that metal hose fittings are not part of the flexible portion. Allow ample free length for flexing.		
3. Exceeding minimum bend radius will greatly reduce hose assembly life.			6. When properly routing, use clamps to secure the hose in its proper position.		

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Specifications subject to change without prior notice

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