CAS45RS and CAS45RS-CW

45 CFM / 150 PSIG HYDRAULIC-DRIVEN, OPEN CENTER, 12V & 24V, (OPTIONAL) COLD-WEATHER, ROTARY SCREW COMPRESSOR

INSTALLATION, OPERATION, MAINTENANCE AND PARTS MANUAL

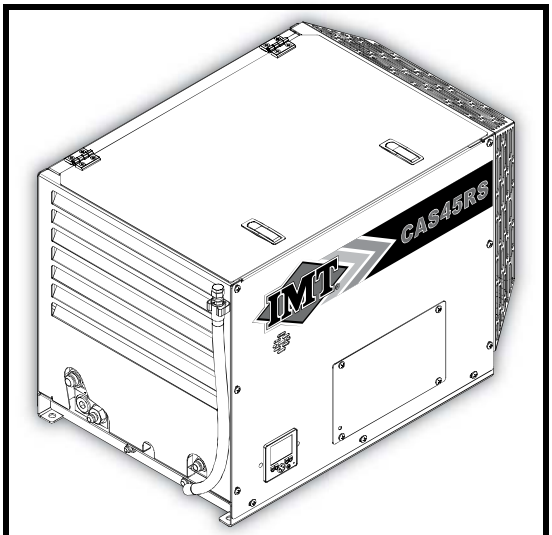
NOTE

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 Vanair Vanguard™ Premium Synthetic Oil and Genuine Vanair Parts. Inspect and replace damaged components before operation. Substituting non-Vanair oil or non-genuine Vanair 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 Vanair Manufacturing, Inc., before beginning any changes to the CAS45S system.

P/N 99906316

rev0

Effective Date:

JANUARY 2018

NOTICE TO CUSTOMER

This manual is the final version and some of the information and specifications are subject to change without notice.

TABLE OF CONTENTS

Continued on next page...

SECTION 3: INSTALLATION (CONTINUED)

SECTION 4: OPERATION 15

SECTION 5: MAINTENANCE 21

Continued on next page...

SECTION 5: MAINTENANCE (CONTINUED)

SECTION 6: TROUBLESHOOTING 33

SECTION 7: ILLUSTRATED PARTS LIST 37

Continued on next page...

SECTION 7: ILLUSTRATED PARTS LIST (CONT.)

SECTION 1: ⚠ SAFETY

1.1 GENERAL INFORMATION

The products provided by Iowa Mold Tooling Co., 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.

1.2 ⚠ 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.

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.

1.2.1 ⚠ 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.

1.2.2 ⚠ 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 an 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 by-pass 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, or corrosive fumes, or other damaging substance can be ingested by the compressor intakes.
- Keep arms, hands, hair and 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.

1.2.3 ⚠ CAUTIONS

⚠ CAUTION
Identifies actions or conditions which will or can cause injuries, equipment damage or malfunctions.

- 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.

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

1.3 ⚠ 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 7.10, Decals** 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.

1.4 ♻ 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

TABLE 2A: IMT® CAS45RS & CAS45RS-CW SPECIFICATIONS	
GENERAL SYSTEM INFORMATION	**SPECIFICATION**
RATINGS	
Capacity (CFM @ 150 psig):	45
Air pressure rating (psig):	150
Speed of compressor (RPM @ 100 psig):	4500
Hydraulic motor RPM	4500
Hydraulic flow (gpm @ 120°F hydraulic oil temperature):	11.0
Hydraulic pressure (psig @ 100/150 compressor psig):	2150 @ 100 / 2550 @ 150 II
Maximum compressor oil temperature	240°F
Maximum hydraulic oil temperature	160°F
COMPRESSOR	
Type:	Encapsulated, Oil-injected, Rotary Screw
Compressor oil tank capacity:	4 U.S. Quarts (3.7L)
Compressor overheating protection:	Shut Down at 240°F
Air inlet system:	Dry-type, Single Stage Filter
Drive coupling:	Direct Drive, Flex Jaw Coupling
Hydraulic motor:	Gear Type
PACKAGE	
Main frame:	Formed Aluminum with Bolt-down Provision
Electrical supply:	12V Standard; 24V Optional
Electrical connections:	Deutsch 6-pin Round
Supply connections (customer hook-up):	Hydraulic: Oil In = #12 3/4", 37° JIC
	Hydraulic: Oil Out = #16 1", 37° JIC
	Case Drain: #6 3/8" JIC
	Air Out: #12 3/4" JIC
	Electrical: 12V DC (Standard) 24V DC (Optional)

I Refer to **Section 3.4, Hydraulic System Requirements**, for additional speed requirement information.

II Hydraulic relief valve setting is 3200 psi. Recommended hydraulic system pressure: 2600 psi continuous, 3000 psi intermittent.

Table continued on next page

TABLE 2A: IMT® CAS45RS & CAS45RS-CW SPECIFICATIONS

GENERAL SYSTEM INFORMATION	SPECIFICATION
PACKAGE (continued)	
Enclosure:	Sheet Metal with Service Access
Cooler:	Hydraulic Oil Cooler/Radiator Core - Electric Fan
Dimensions:	33.6" L x 21.00" W x 22.81" H
Weight:	196 lbs (dry)
NOTE: For cold weather machines: Cracking Pressure : 50 PSI	
NOTE: Shift Temperature: 100°F	
NOTE: For machine installation clearances, refer to *Figure 3-2, Minimum Installation Clearances*, in Section 3, Installation.	
NOTE: Specifications are subject to change without notice.	

TABLE 2B: PRIME LUBRICANT CHARACTERISTICS

Viscosity	178 SUS at 100°F (38°C)
Flash point	457°F (236°C)
Pour Point	-49°F (-45°C)
Contains	Rust and Oxidation Inhibitors and Detergents

TABLE 2C: RECOMMENDED TORQUE SPECIFICATIONS

TYPE DESCRIPTION:		 SAE 5 3 line ID marks		 SAE 8 6 line ID marks	
Bolt Diameter	**Thread / inch**	**Dry**	**Oiled**	**Dry**	**Oiled**
1/4	20	8	6	12	9
5/16	18	17	13	25	18
3/8	16	30	23	45	35
1/2	20	90	65	120	90

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.

Access the roof panel to inspect the component parts and supports. Remove manual from inside of canopy.

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

3.2 GENERAL INSTRUCTIONS

This section provides general guidance for locating and preparing the IMT® CAS45RS 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.

⚠ WARNING

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

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

⚠ WARNING

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

⚠ WARNING

Do not install in any enclosed space without first contacting IMT.

⚠ WARNING

Grounding must consist of a minimum two (2) gauge wire between the instrument panel, the machine, and the truck chassis.

NOTE

Although much of the information given in this installation section is detailed, these guidelines should be considered as referential material only, due to the diverse possibilities of the end user's vehicle make, model and year, and the unit model specifications.

NOTE

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

NOTE

Contact IMT® at
(641) 923.3711
Fax: (641) 923-2424
www.imt.com
to report missing items, incorrect part numbers, or other discrepancies.

3.3 DETERMINING THE COMPRESSOR UNIT MOUNTING LOCATION

When determining the location to mount the CAS45RS unit, the following criteria must be taken into consideration:

- Refer to **Section 3.5, Installation**. The location must allow for the machine dimensions (***Figures 3-3A*** through ***3-3D***), and additional space requirements for minimum cooling, access and maintenance.
- The mounting surface must be level and able to accommodate the four [4] mounting bolts of the base frame. Refer to ***Figures 3-3A*** through ***3-3D*** for mounting hole location dimensions.
- The mounting surface must be able to support the units weight (196 lbs.).
- The external 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 intake side (front) are not obstructed. Do not place the compressor in any location where it can intake exhaust fumes, dust or debris.

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 ***Figures 3-3A*** through ***3-3D*** 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 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 7.16, Hose Installation Guide,** for assistance with proper hose layout and connecting functions.

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

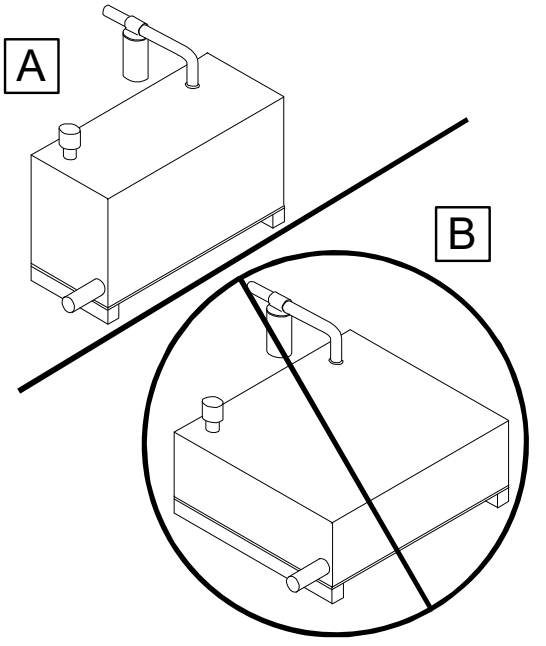
3.4.2.1 DETERMINING RESERVOIR SIZE

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 3-1***). 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.



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

Figure 3-1: Reservoir Design Shape

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.
- 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.
- A 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 (splash) plate reduces velocity of oil flow before return oil stream merges with the main reservoir oil volume.
- A 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.

3.4.3 RECOMMENDED HYDRAULIC SYSTEM SPECIFICATIONS

⚠ WARNING

Do not operate machine without hydraulic system completely assembled.

Refer to ***Figures 3-3A*** through ***3-3D***.

- 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

3.4.4 STANDARDS GUIDELINES

- Hydraulic pressure relief factory set at 3200 psi.

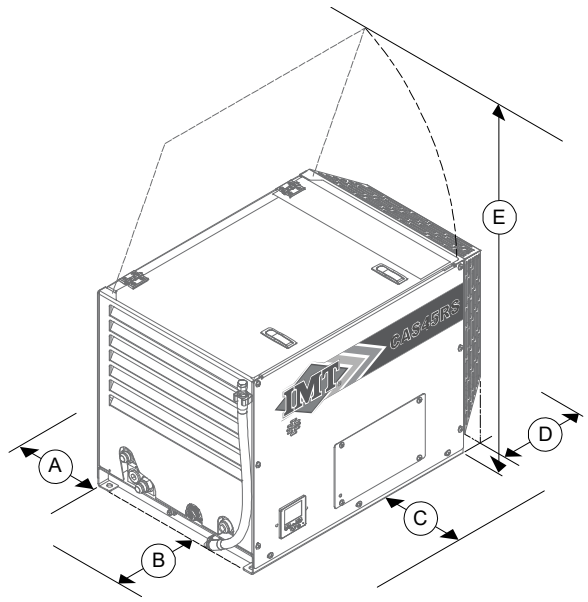
3.5 INSTALLATION

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 3-2***). 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 3-2***. 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.



KEY	DESCRIPTION
A	BACK SIDE CLEARANCE = 10” MINIMUM
B	LEFT SIDE CLEARANCE = 10” MINIMUM
C	FRONT SIDE CLEARANCE = 10” MINIMUM [I]
D	RIGHT SIDE CLEARANCE = 10” MINIMUM
E	TOP SIDE (OVER HEAD) CLEARANCE = 42.63” MINIMUM, FOR (OPENED) HOOD ACCESS

[I] The front (control panel) side may need additional clearance for both access to the service panel there, and/or access to view the controller panel.

Figure 3-2: Minimum Installation Clearances

3.5.3 MOUNTING

Mounting surface or support should be adequate for the weight of the machine (196 lbs.), and should be level for normal operation. Mounting holes are located in the frame footing for four (4) 1/2” hold down bolts.

3.5.4 SERVICE CONNECTIONS

Refer to ***Figure 3-3A*** through ***3-3D***. Service connections are conveniently grouped at the lower rear section of the unit in the base frame.

3.5.5 ELECTRICAL CONNECTIONS

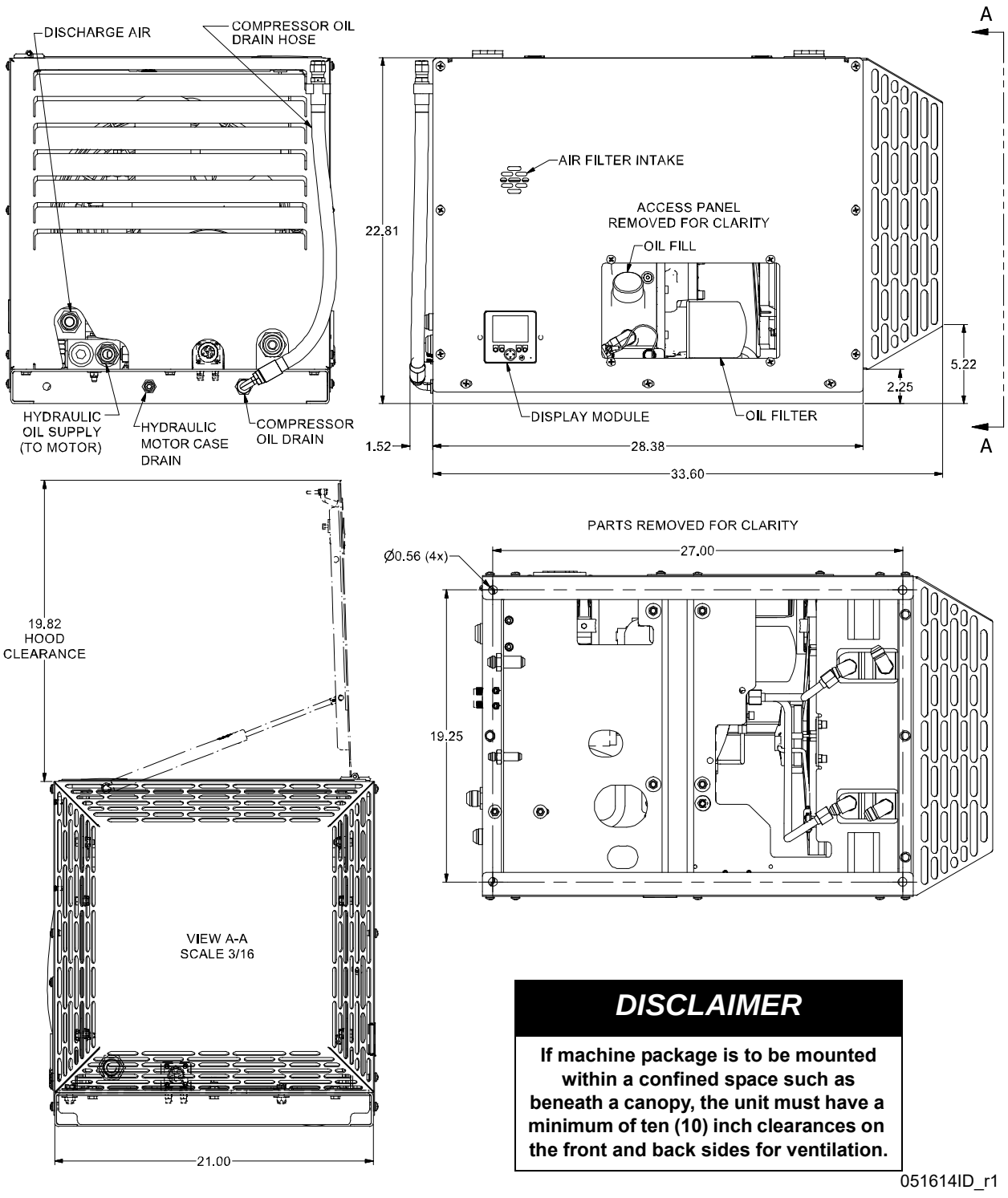
Refer to ***Figure 3-3A*** through ***3-3D***. This system is offered with either 12V DC or 24V DC circuits.

3.5.6 HYDRAULIC SUPPLY CIRCUIT

Refer to schematic drawings in **Sections 7.15A** through **7.15D**. 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

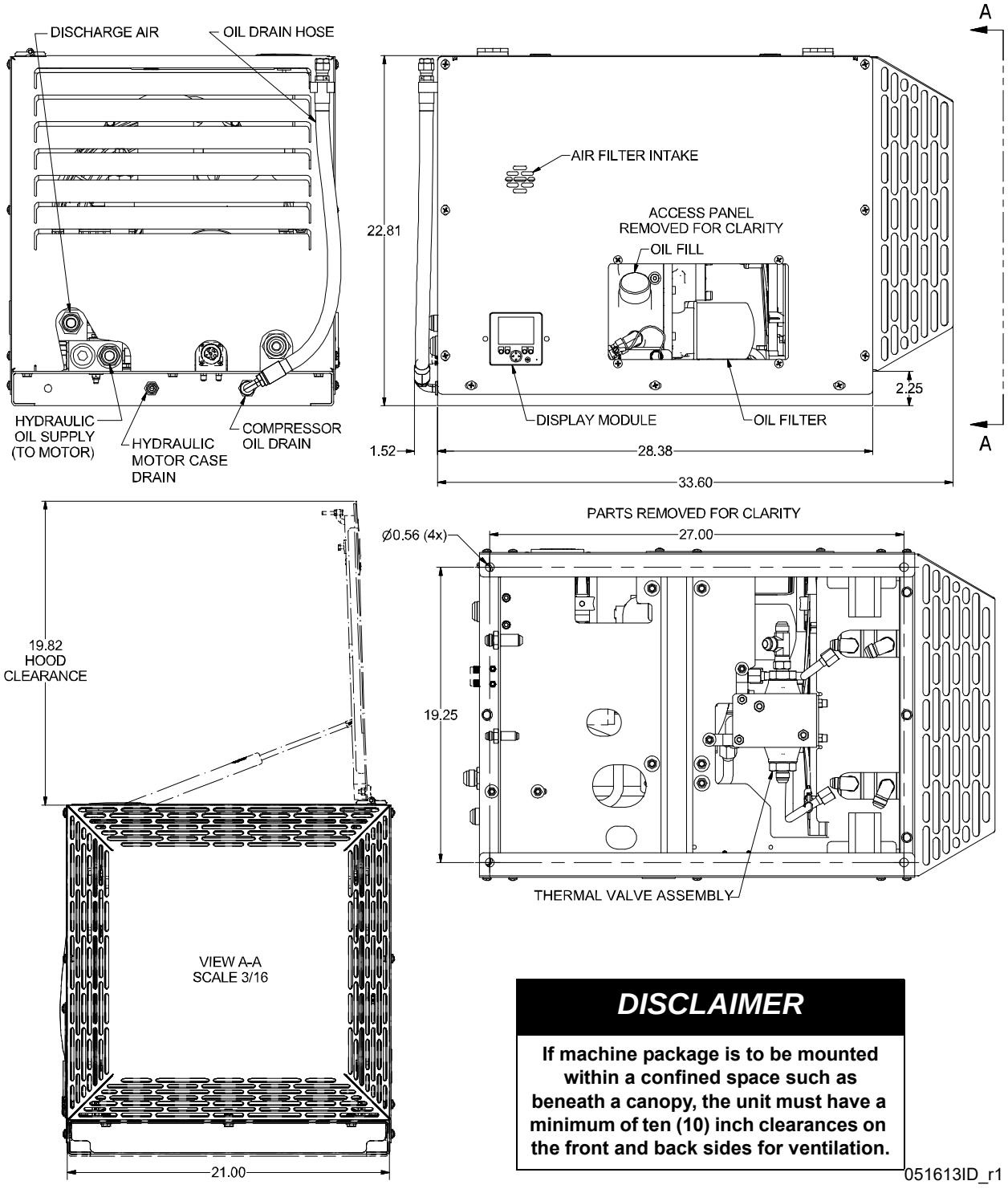
Refer to ***Figures 3-3A*** through ***3-3D***, and the wiring diagram. Ensure that all supply hoses and electrical wiring are correctly specified, adequately supported, and do not touch or rest on any sharp edges. Wiring should be protected with split loom to prevent corrosion, and consequently, loss due to down time.



DISCLAIMER

If machine package is to be mounted within a confined space such as beneath a canopy, the unit must have a minimum of ten (10) inch clearances on the front and back sides for ventilation.

Figure 3-3A: Dimension Diagram - CAS45RS Open Center Without Thermal Valve



DISCLAIMER

If machine package is to be mounted within a confined space such as beneath a canopy, the unit must have a minimum of ten (10) inch clearances on the front and back sides for ventilation.

Figure 3-3B: Dimension Diagram - CAS45RS Open Center With Thermal Valve

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SECTION 4: OPERATION

4.1 GENERAL INFORMATION

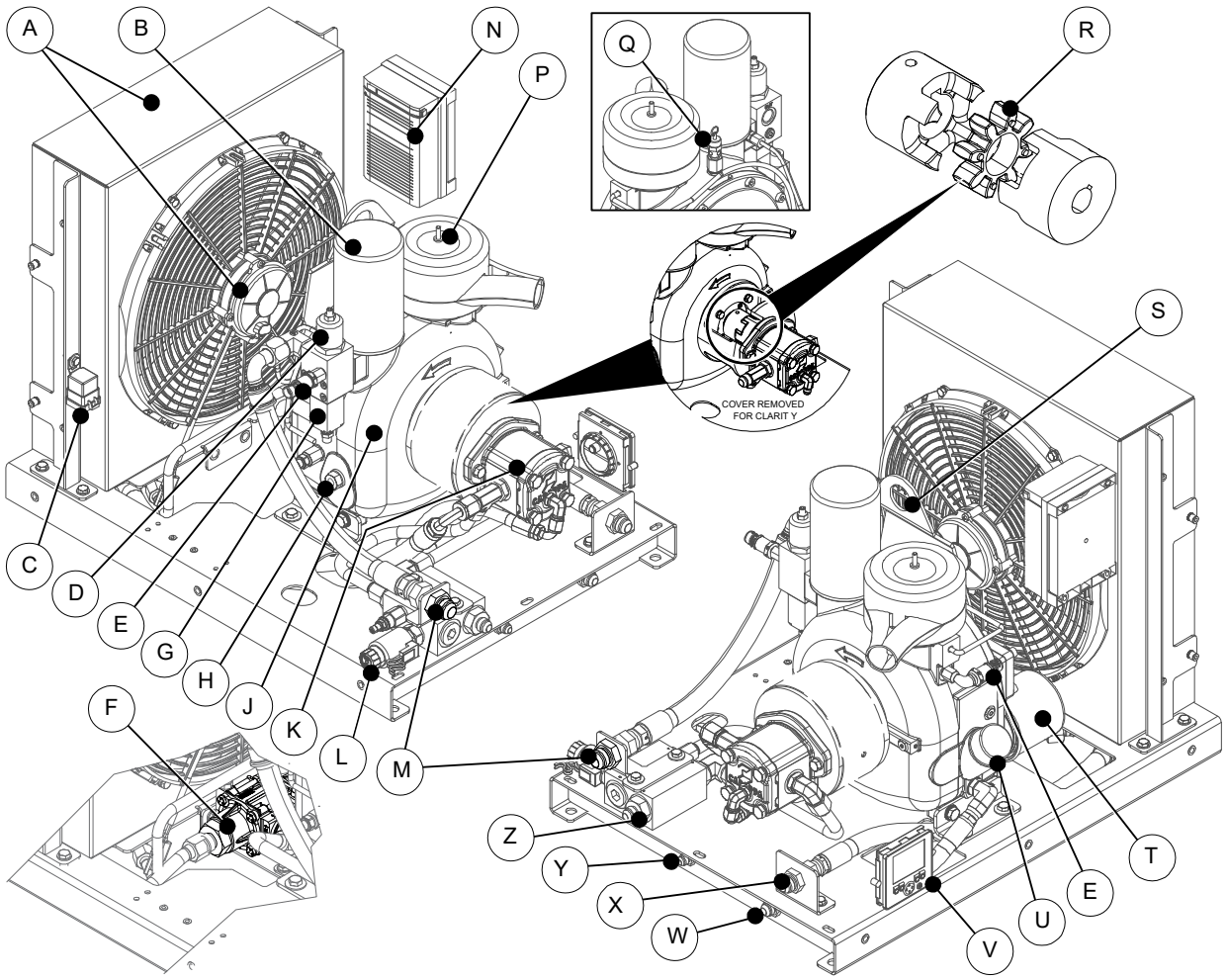
A comprehensive array of controls and safety systems are built into the CAS45RS hydraulic compressor system. Refer to ***Figure 4-1*** for a general overview to identify and locate the system's main components. Becoming familiar with the functional instrumentation, as given in **Section 4.2, Purpose of Controls**, will help the operator recognize and interpret the readings or malfunctions which will call for service or indicate the beginning of a problem.

IMPORTANT

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

4.2 PURPOSE OF CONTROLS

CONTROL OR INDICATOR	PURPOSE
Discharge Air Pressure Screen	Continuously monitors service line discharge air pressure. Will activate shut-down if over-pressure occurs.
Discharge Air Temperature Screen	Continuously monitors service line discharge temperature. Will activate shut-down if over-temperature occurs.
Hour Meter Screen	Indicates accumulated hours of operation for planning and logging service schedules.
Fault Reset Screen	Fault message appears if over temperature or over pressure condition is encountered. Button must be pressed to clear.
Oil Fill/Level Plug	Check/fill compressor oil level.
Minimum Pressure/Check Valve	Maintains minimum operating pressure and prevents back flow when unloaded/shutdown.
Pressure Transducer	Controls operating pressure; prevents loaded start.
Inlet Solenoid Valve	Opens/closes inlet valve in response to pressure transducer.
Air Inlet Valve	Opens/closes in response to air demand and acts as check valve upon unload/ shutdown to prevent oil blow back into filter.
Hydraulic Pressure Relief Valve	Relieves hydraulic pressure to return line in event of hydraulic over-pressure condition.
Hydraulic Solenoid Valve	Responds to activation circuit to direct flow to compressor motor or to return line.
Air Pressure Relief Valve	Opens sump pressure to atmosphere in case of air over-pressure condition.



KEY	DESCRIPTION	KEY	DESCRIPTION
A	COOLER AND FAN ASSEMBLY	N	CONTROLLER MODULE
B	COMPRESSOR SEPARATOR ELEMENT	P	COMPRESSOR AIR FILTER HOUSING
C	RELAY	Q	COMPRESSOR PRESSURE RELIEF V ALVE
D	MINIMUM PRESSURE VALVE	R	DRIVE COUPLING ELEMENT
E	PRESSURE TRANSDUCER (x 2)	S	LIFTING BAIL
F	THERMAL VALVE ASSEMBLY [I]	T	COMPRESSOR OIL FILTER ELEMENT
G	AIR INLET CONTROL SOLENOID	U	COMPRESSOR OIL FILL PORT / CAP
H	COMPRESSOR SIGHT GLASS	V	CONTROLLER DISPLAY PANEL
J	COMPRESSOR UNIT	W	COMPRESSOR OIL DRAIN
K	HYDRAULIC MOTOR	X	HYDRAULIC OIL RETURN (TO TANK)
L	SOLENOID (12V or 24V)	Y	HYDRAULIC MOTOR CASE DRAIN
M	DISCHARGE AIR OUTLET	Z	HYDRAULIC OIL SUPPLY (TO MOTOR)

[I] Thermal valve is included only with specified thermal valve option machines.

Figure 4-1: Main Machine Component Locations

4.3 NORMAL OPERATION

Following is an overview of the normal operation of the IMT® CAS45RS hydraulic compressor system from start-up to shut-down. This overview of a typical sequence of events may not cover all situations.

IMPORTANT

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

4.3.1 INITIAL START-UP PROCEDURE: PRE-CHECKS

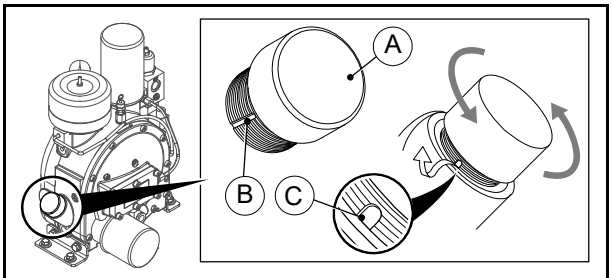
Following are step-by-step instructions for the initial start-up of the CAS45RS hydraulic compressor system:

1. Ensure the compressor is positioned on a level surface so that the proper amounts of oil can be added, if required.
2. Unit should be bolted down.

⚠ WARNING

Do not rely on hoses to hold the module in position.

3. Ensure all hose connections are tight and wiring connections correct and tight.



KEY	DESCRIPTION
A	RED COMPRESSOR FILL CAP
B	FILL CAP BLEED VENT GROOVE
C	Open/crack cap **slightly** to allow bleed vent to relieve pressure

Figure 4-2: Pressure Relief

4. Check compressor oil level (refer to ***Figures 4-2*** and ***4-3***).

NOTE

An alternate compressor oil level check can be accomplished via the compressor sight glass. Refer to Table 5A, Key #1, in Section 5, Maintenance for details.

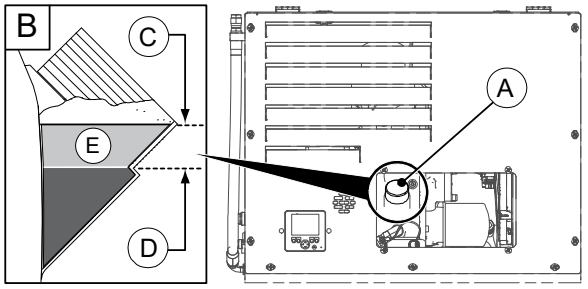
⚠ WARNING

DO NOT remove caps, plugs and/or other components when compressor is running or pressurized. Stop compressor and de-pressurize system prior to maintenance of system. Relieve the entire system pressure by opening the service valve, which will vent all pressure to the atmosphere.

Wear personal protective equipment such as gloves, work boots, and eye and hearing protection as required for the task at hand.

Add or drain if necessary to accomplish the recommended compressor oil level.

5. Ensure hydraulic oil to pump inlet, and prime if necessary.
6. Ensure service valve on compressor is closed.
7. Engage hydraulic system (PTO or hydraulic supply) and allow hydraulic oil to circulate back to tank. When solenoid is activated, oil should quickly circulate to the hydraulic motor on the compressor, and start producing air.
8. Check for leaks.
9. Refer to ***Figure 4-5***. Press the START button on the Controller, and wait for the Main Screen (default is the Pressure Screen). Check pressure and temperature screens. Pressure may need adjustment to achieve desired operating pressure. Refer to **Section 5, Table 5A: Routine Maintenance Schedule**.
10. Partly open service valve to load compressor and allow to warm up. Monitor temperature; The ideal



KEY	DESCRIPTION
A	COMPRESSOR OIL FILL CAP (RED)
B	OIL FILL PORT (cut-away view with cap removed)
C	HIGH LEVEL MARK (top of thread/port)
D	LOW LEVEL MARK (bottom thread of port) [I]
E	ACCEPTABLE OIL LEVEL RANGE

[I] When level is low, add oil as needed. NOTE: DO NOT mix different types of oil; mixing different types of oil will void the warranty. For complete oil change maintenance, refer to *Table 5A in Section 5, Maintenance*.

Figure 4-3: Compressor Oil Check

operating temperature should be between 180°F (82°C) and 220°F (104°C); approximately 100 degrees over ambient temperature. **NOTE:** May be higher in high ambient conditions.

11. Cycle compressor on/off with service valve to ensure operation is working.
12. Close service valve.
13. Disengage hydraulic system.
14. Allow all air to vent to atmosphere. Check compressor oil level and top off if necessary. Inspect for and correct any leaks; tighten any loose fittings.

4.3.2 ROUTINE START-UP PROCEDURE

IMPORTANT

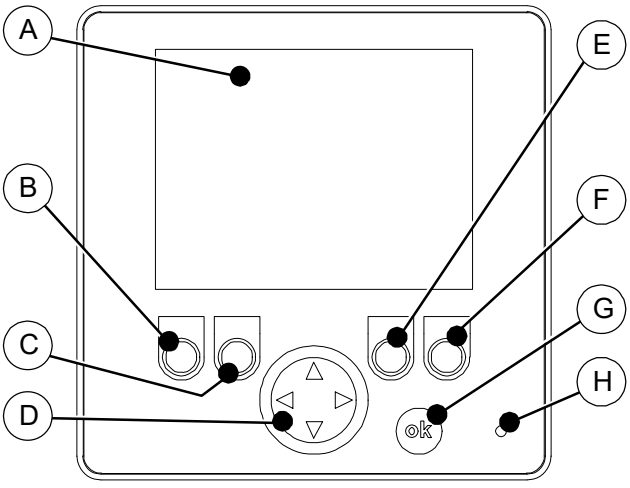
If start-up and shut-down procedures are not followed, damage to the system and its components may occur.

1. Ensure the compressor is positioned on a level surface so that the proper amounts of oil can be added, if required.
2. Close the air service valve.
3. Engage the hydraulic system (PTO or hydraulic supply). This will activate the compressor.
4. Allow machine to warm up for several minutes before operating.

4.3.3 ROUTINE SHUT-DOWN PROCEDURE

IMPORTANT

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



KEY	DESCRIPTON	PURPOSE
A	DISPLAY SCREEN	Displays functional attributes of chosen controller task.
B	START BUTTON	Starts the machine.
C	STOP BUTTON	Cuts off power / stops the machine immediately.
D	NAVIGATION PAD	Where applicable, allows for sub-navigation on multiple line function screens.
E	DATA BUTTON	Shows the Data screen on the display.
F	ESCAPE BUTTON	Takes the operation back to the initial start screen (see *Figure 4-5*).
G	"OK" CONTROL BUTTON	Takes the operation back to the initial start screen (see *Figure 4-5*).
H	LED INDICATOR	When lit (green) indicates panel is in operating state.

Figure 4-4: Operation Control Panel

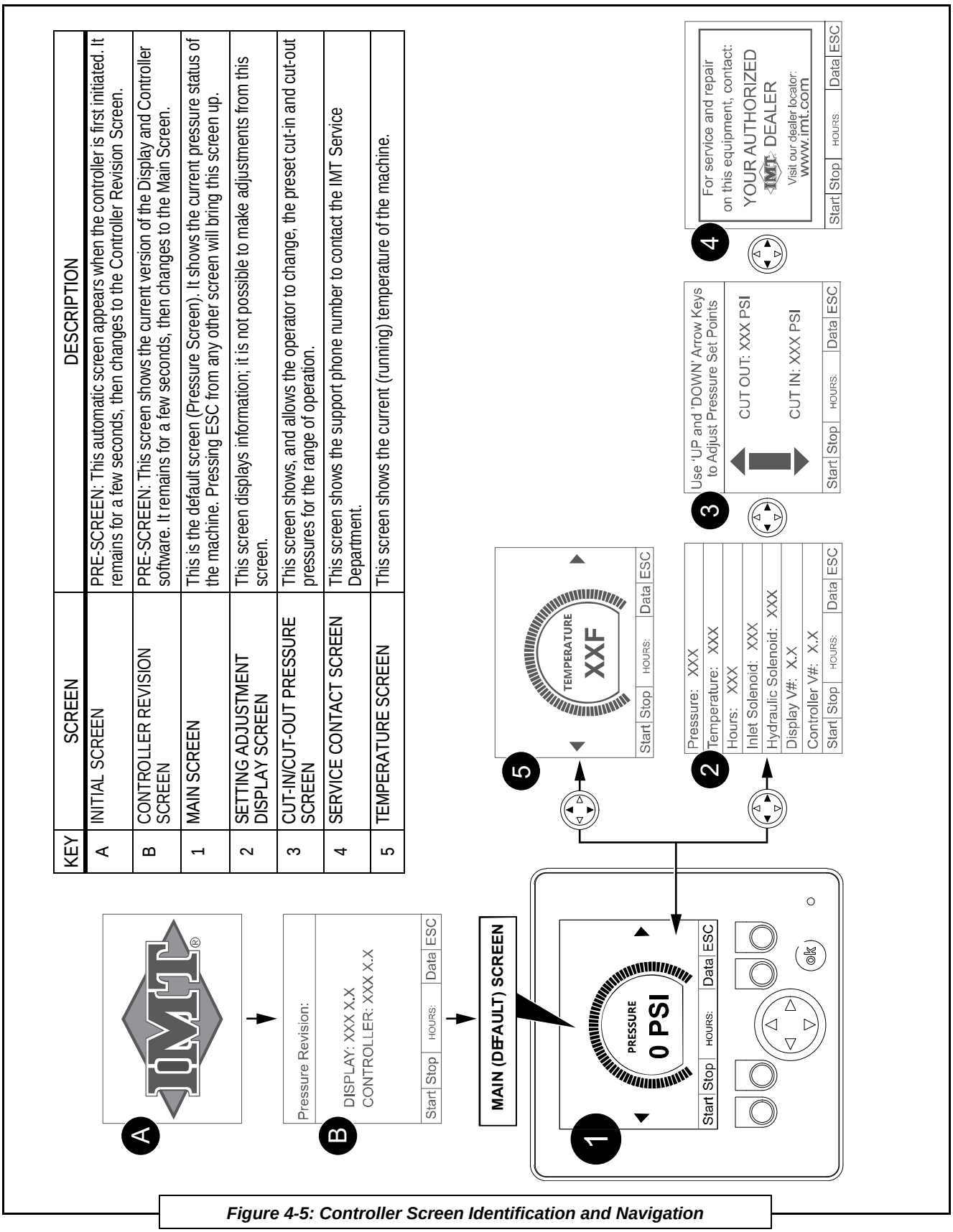


Figure 4-5: Controller Screen Identification and Navigation

IMPORTANT

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

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

4.3.4 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 for the cooler intake, and ten (10) inches for the sides and rear. Heated air must be able to vent away from the intake.

3. Do not leave anything resting on top of the machine. Hot cooling 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.

4.3.5 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

A good maintenance program is the key to long compressor life. This section contains a program that, when adhered to, should keep the compressor in top operating condition. However, it should be understood that these intervals are for normal operation in a good clean environment. More frequent inspections, oil changes and general maintenance should be carried out in dusty environments, high ambient temperatures, heavy load applications or extended light load conditions.

Follow the prescribed periodic maintenance schedules given in **Table 5A: Routine Maintenance Schedule**, in this section as recommended. Failure to follow the prescribed periodic maintenance at the recommended intervals will impair the package safety, performance characteristics, shorten the package's life, and will negatively affect the warranty coverage of the package.

IMPORTANT

It is important to keep in mind that operating the compressor package in a severe environment may require *more frequent* service intervals than prescribed in the periodic maintenance schedule.

Before starting the compressor system, inspect the machine package for any suspect condition that may cause a safety hazard or hamper operation. Replace damaged components with Genuine IMT® Replacement Parts.

⚠ WARNING

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

⚠ WARNING

DO NOT remove caps, plugs and/or other components when compressor is running or pressurized. Stop compressor and de-pressurize system prior to maintenance of system.

Wear personal protective equipment such as gloves, work shoes, and eye and hearing protection as required for the task at hand.

⚠ WARNING

DO NOT work on any electrical components unless the battery is disconnected.

⚠ WARNING

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 package safety, performance characteristics, shorten the package's life, and will negatively affect the warranty coverage of the package.

⚠ CAUTION

Compressors and drive motors generate heat and create hot surfaces. Use caution when operating or servicing the compressor system. Some surfaces and components may be hot.

IMPORTANT

It is important that the compressor oil be of the recommended type and that it is inspected and replaced together with the oil filter and air filters, and (when necessary) the coalescer separator in accordance with this manual.

IMPORTANT

DO NOT mix oils of different types. Use only original IMT® equipment filters. Mixing of different types of oils, or using non-IMT equipment filters will VOID THE WARRANTY.

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.**

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.

NOTE

For assistance when ordering new replacement parts, consult *Section 7.1, Parts Ordering Procedure*, and Table 7A: Recommended Spare Parts List.

Iowa Mold Tooling Co., Inc.

500 Highway 18 West

Garner, Iowa 50438

Phone: 641.923.3711

Fax: 641.923.2424

www.imt.com

800.247.5958

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 5.4.8.2, Long Term Storage*.

TABLE 5A: ROUTINE MAINTENANCE SCHEDULE

⚠ 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.

MAINTENANCE INTERVALS
Hourly, Calendar Period or Controller Message- whichever comes first

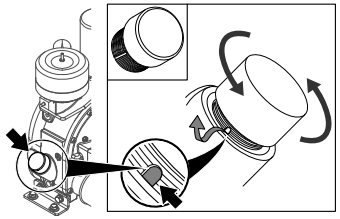
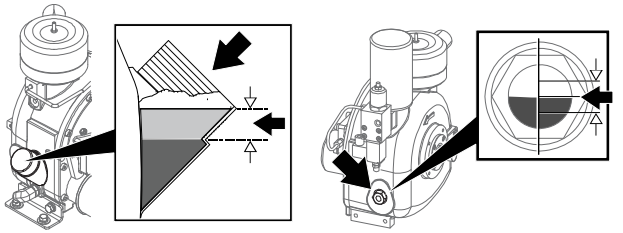
TABLE 5B: ROUTINE REPLACEMENT KIT ORDER INFORMATION [I]

KEY NO.	DESCRIPTION	PART NO.	QTY
1	Oil, Rotary Screw Compressor (gallon) [II]	89086222	1
2	Element, Replacement for Compressor Air Filter	70048253	1
3	Element, Replacement for Compressor Oil Filter	70048252	1
4	Element, Replacement for Compressor Separator	70048251	1

[I] 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.

[II] Use only IMT Rotary Screw Oil and Genuine IMT Parts. Substituting non-IMT oil or non-IMT genuine filter components will VOID THE COMPRESSOR WARRANTY! Inspect and replace damaged components before operation. Compressor system fill capacity is approximately four (4) quarts of oil.

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

KEY	TASK DESCRIPTION	After 8 Hours or Daily	After Initial 50 Hours	After 500 Hours or Annually	ACTION TO TAKE / REFERENCE
1	Before starting, check compressor oil level. **⚠CAUTION** BEFORE REMOVING THE CAP: Pressure relief - In order to remove any residual air in the sump, first crack the fill cap [↘] slightly until the vent groove [↖] shows above the thread line of the cap for a few seconds. This will bleed any remaining air pressure to atmosphere. 	●	●	●	NOTE: Ensure vehicle is situated on a level surface before checking oil level. Add oil if necessary. REFERENCE: • Optimal Oil Level [←] [I] • Oil Fill Port [↙] • Sight Glass [↘]  [I] Optimal oil level: AT PORT - lies in the area between the bottom of the threaded portion of the oil fill port and the edge of the oil fill port rim. AT SIGHT GLASS - lies between 1/4 and 3/4 intervals of the visible (glass) area; both give the same level of the sump. ORDER: • Replacement oil no. 89086222 (gallon container).
2	Check for any leaks or loose bolts.	●	●	●	Tighten if necessary.
3	After starting, check pressure reading for correct operating pressure.	●	●	●	Allow compressor to warm up, and verify that the levels are all within their recommended ranges. Refer to Section 2, Specifications, for pressure operating range.
4	Check for leaks.	●	●	●	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.
5	Inspect ventilation openings	●	●	●	Ensure openings are not blocked or clogged with debris. Clear any congestion from the machine ventilation areas before operating the machine.

Continued on next page

TABLE 5A: ROUTINE MAINTENANCE SCHEDULE

⚠ 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.

MAINTENANCE INTERVALS
Hourly, Calendar Period or Controller Message- whichever comes first

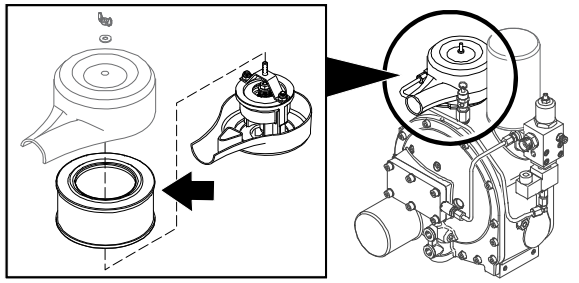
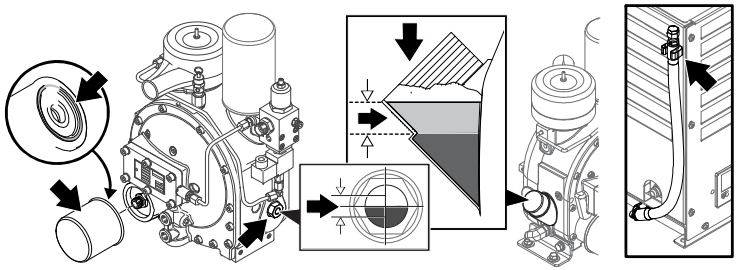
TABLE 5B: ROUTINE REPLACEMENT KIT ORDER INFORMATION [I]

KEY NO.	DESCRIPTION	PART NO.	QTY
1	Oil, Rotary Screw Compressor (gallon) [II]	89086222	1
2	Element, Replacement for Compressor Air Filter	70048253	1
3	Element, Replacement for Compressor Oil Filter	70048252	1
4	Element, Replacement for Compressor Separator	70048251	1

[I] 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.

[II] Use only IMT Rotary Screw Oil and Genuine IMT Parts. Substituting non-IMT oil or non-IMT genuine filter components will VOID THE COMPRESSOR WARRANTY! Inspect and replace damaged components before operation. Compressor system fill capacity is approximately four (4) quarts of oil.

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

KEY	TASK DESCRIPTION	After 8 Hours or Daily	After Initial 50 Hours	After 500 Hours or Annually	ACTION TO TAKE / REFERENCE
6	clean and inspect the compressor air intake filter	•	•	•	REFERENCE: • Air Filter Element [⬅] Replace if membrane is worn, contains tears or pinholes, or if filter is damaged. For details on ordering and changing the compressor air filter, refer to Key #8 in this table. 
7	Change compressor oil and oil filter element **⚠IMPORTANT** Refer to the CAUTION note instruction in Key #1 before removing the fill port cap. NOTE: The compressor oil is the key to a long useful life of the air compressor system. Dirt and other foreign matter can be introduced into the compressor system through the air intake. A clean air filter will ensure that the compressor is protected.		•	•	REFERENCE: • Oil Filter Element [⬊] • Oil Filter Seal Ring [⬈] • Oil Level Sight Glass [⬈] • Oil Drain Hose [⬉] • Oil Fill Port [⬇] • Optimal Oil Level [➡] [I]  [I] Optimal oil level: AT PORT - lies in the area between the bottom of the threaded portion of the oil fill port and the edge of the oil fill port rim. AT SIGHT GLASS - lies between 1/4 and 3/4 intervals of the visible (glass) area; both give the same level of the sump. ORDER: • For initial 50 hour interval, order compressor oil filter replacement element no. 70048252, and replacement oil no. 89086222 (gallon container). *PROCEDURE CONTINUED ON NEXT PAGE...*

Continued on next page

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TABLE 5A: ROUTINE MAINTENANCE SCHEDULE

⚠ 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.

MAINTENANCE INTERVALS
Hourly, Calendar Period or Controller Message- whichever comes first

TABLE 5B: ROUTINE REPLACEMENT KIT ORDER INFORMATION [I]

KEY NO.	DESCRIPTION	PART NO.	QTY
1	Oil, Rotary Screw Compressor (gallon) [II]	89086222	1
2	Element, Replacement for Compressor Air Filter	70048253	1
3	Element, Replacement for Compressor Oil Filter	70048252	1
4	Element, Replacement for Compressor Separator	70048251	1

[I] 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.

[II] Use only IMT Rotary Screw Oil and Genuine IMT Parts. Substituting non-IMT oil or non-IMT genuine filter components will VOID THE COMPRESSOR WARRANTY! Inspect and replace damaged components before operation. Compressor system fill capacity is approximately four (4) quarts of oil.

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

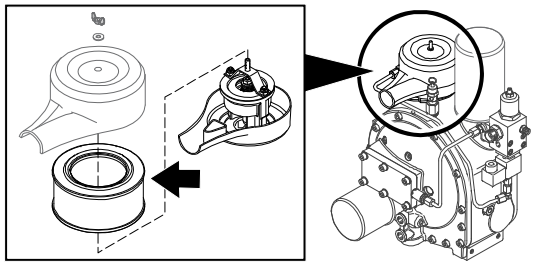
KEY	TASK DESCRIPTION	After 8 Hours or Daily	After Initial 50 Hours	After 500 Hours or Annually	ACTION TO TAKE / REFERENCE
7	CONTINUED FROM PREVIOUS PAGE: Change compressor oil and oil filter element NOTE: The compressor oil is the key to a long useful life of the air compressor system. Dirt and other foreign matter can be introduced into the compressor system through the air intake. A clean air filter will ensure that the compressor is protected.		•	•	*Continued from previous page...* ORDER (continued): • For topping off compressor oil reservoir, order replacement oil no. 89086222 (gallon container). • For 500 hour interval, order compressor oil filter replacement element no. 70048252, replacement oil no. 89086222 (gallon container), air filter replacement element no. 70048253, and separator replacement element no. 70048251. PROCEDURE: Drain compressor. Remove worn oil filter. Coat surface of sealing ring on new filter element replacement with compressor oil before mounting into place; hand tighten, and then with a filter wrench, turn filter body an additional 1/2 to 3/4 turn to secure. Replace the cap on the oil drain tube and re-secure capped end to clamp on the canopy. Refill compressor with new oil; compressor oil fill is approximately four (4) quarts. Discard used oil under guidance of acceptable refuge/recycle laws. Run compressor for approximately five (minutes) and recheck oil level; fill as needed if necessary.
8	Replace intake air filter		I	•	REFERENCE: • Air Filter Element [⬅] ORDER: • Air filter replacement element no. 70048253. Air filter is serviced at the 500 service intervals, annually, or if prompted by the control panel indication. In extreme ambient operation conditions At the 500 hour or annual intervals, replace air filter regardless of condition.  *PROCEDURE CONTINUED ON NEXT PAGE...*

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TABLE 5A: ROUTINE MAINTENANCE SCHEDULE

⚠ 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.

MAINTENANCE INTERVALS
Hourly, Calendar Period or Controller Message- whichever comes first

TABLE 5B: ROUTINE REPLACEMENT KIT ORDER INFORMATION [I]

KEY NO.	DESCRIPTION	PART NO.	QTY
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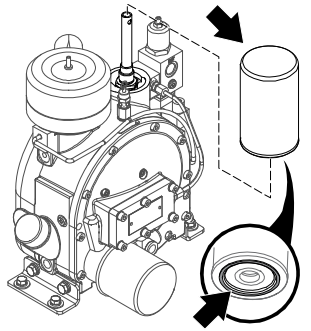
2	Element, Replacement for Compressor Air Filter	70048253	1
3	Element, Replacement for Compressor Oil Filter	70048252	1
4	Element, Replacement for Compressor Separator	70048251	1

[I] 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.

[II] Use only IMT Rotary Screw Oil and Genuine IMT Parts. Substituting non-IMT oil or non-IMT genuine filter components will VOID THE COMPRESSOR WARRANTY! Inspect and replace damaged components before operation. Compressor system fill capacity is approximately four (4) quarts of oil.

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

KEY	TASK DESCRIPTION	After 8 Hours or Daily	After Initial 50 Hours	After 500 Hours or Annually	ACTION TO TAKE / REFERENCE
8	CONTINUED FROM PREVIOUS PAGE: Replace intake air filter		I	•	*Continued from previous page...* Unscrew wing nut and remove it, along with the washer. Pull the housing cover upward to disengage from the housing base. Pull filter upward to disengage from the base. Discard worn filter under proper refuge law. NOTE: If cleaning, DO NOT tear the filter membrane. For air inlet service or replacement, consult the IMT Service Department.
9	Replace separator element			•	REFERENCE: • Separator Element [↘] • Element Seal Ring [↗] [I] ORDER: • Separator replacement element no. 70048251. For compressor oil drain hose location refer to Key #8 of this Table. [I] Coat surface of sealing ring on coalescer filter element with compressor oil before mounting into place. Compressor oil fill is approximately four (4) quarts. 
10	Inspect exterior of front-mounted oil cooler			•	Clear away any debris from the cooler cores both within the enclosure and the exterior; clean if necessary. If core becomes clogged, use a low pressure auxiliary air source to blow through the fins from inside the canopy (arrow direction) to clean it out. The fan may need to be removed from the shroud in order to reach parts of the core. Do not use high pressure air or a pressure washer.

5.4 PARTS REPLACEMENT AND ADJUSTMENT PROCEDURES

Procedures and schedule intervals can be found in Table 5A: Routine Maintenance Schedule for routine maintenance items. Though many components on the machine will not require maintenance throughout the productive lifespan of the compressor, some parts are suseptable to wear on an indeterminable basis, due to the many factors involved with day to day operation.

Parts and component group assemblies found to be most prone to indiscernible wear factors can be readily identified in this section, and also by perusing the component listing found in **Table 7A: Recommended Spare Parts List**. For parts not identified in this section, nor in Table 7A, refer to the itemize diagrams found in **Section 7: Illustrated Parts List** to determine the item's identification and part number.

Replacement parts should be purchased through your local IMT® representative or where the IMT CAS45RS hydraulic compressor was purchased. If, for any reason, parts are not available in this manner, they can be purchased through IMT directly.

⚠ WARNING

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

⚠ CAUTION

Compressors and engines generate heat and create hot surfaces. Use caution when operating or servicing equipment. Some surfaces and components may be hot.

⚠ CAUTION

Always wear personal protective equipment such as gloves, safety shoes or boots, eye, and hearing protection as required for the task at hand.

⚠ WARNING

DO NOT remove caps, plugs and/or other components when compressor is running or pressurized. Stop compressor and de-pressurize system prior to maintenance of system. Relieve the entire system pressure by opening the air tank drain/ vent valve, which will vent all pressure to the atmosphere.

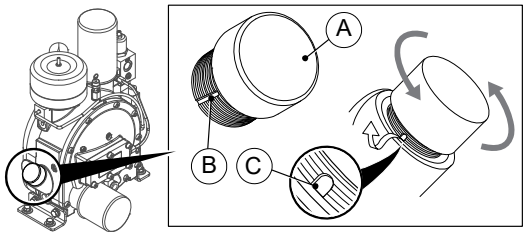
Wear personal protective equipment such as gloves, work boots, and eye and hearing protection as required for the task at hand.

Refer to *Figure 5-1*. Open fill cap SLOWLY; contents may be under pressure. Loosen cap only enough to allow top of cap vent to relieve any possible residual pressure before removing cap all the way.

5.4.1 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



KEY	DESCRIPTION
A	RED COMPRESSOR FILL CAP
B	FILL CAP BLEED VENT GROOVE
C	Open/crack cap **slightly** to allow bleed vent to relieve pressure

Figure 5-1: Pressure Relief

alignment check that should be performed once that maintenance has been accomplished. Refer to **Section 5.7.4.1** for drive coupling hub alignment check procedure.

5.4.2 SETTING THE MINIMUM PRESSURE VALVE

⚠ WARNING

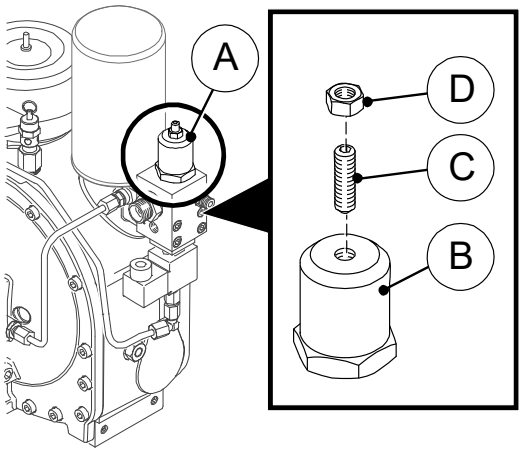
Before performing maintenance: Shut down machine, relieve all system pressure and lock out all power, as per the Safety Section of this manual.

NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:

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

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

1. Start the machine and allow it to assume idle speed.
2. Start the compressor and allow it to accumulate pressure build-up.
3. Using the electronic display as a guide, adjust the grub screw [**C**] until minimum pressure level is achieved.
4. Tighten the lock nut [**D**] to secure the grub screw at the proper minimum pressure level.



KEY	DESCRIPTION
A	MINIMUM PRESSURE VALVE
B	VALVE BODY
C	GRUB SCREW (COMPLETE)
D	LOCK NUT

For pressure valve repair kit, consult the IMT Service Department.

Figure 5-2: Minimum Pressure Valve Adjustment

5.4.3 COMPRESSOR THERMAL VALVE

The thermal valve controls the hydraulic oil temperature and permits for rapid hydraulic oil warm up. The valve commences to pass a portion of the oil through the cooler at 100°F (37.8°C), and is fully open at 125°F (51.7°C). The valve is preset, and cannot be adjusted. If maintenance is required due to a faulty or failing valve, the complete valve should be replaced. Consult the IMT Parts Department to obtain a replacement valve.

5.4.4 SERVICING THE SYSTEM CIRCUIT BREAKER, FUSE AND RELAY

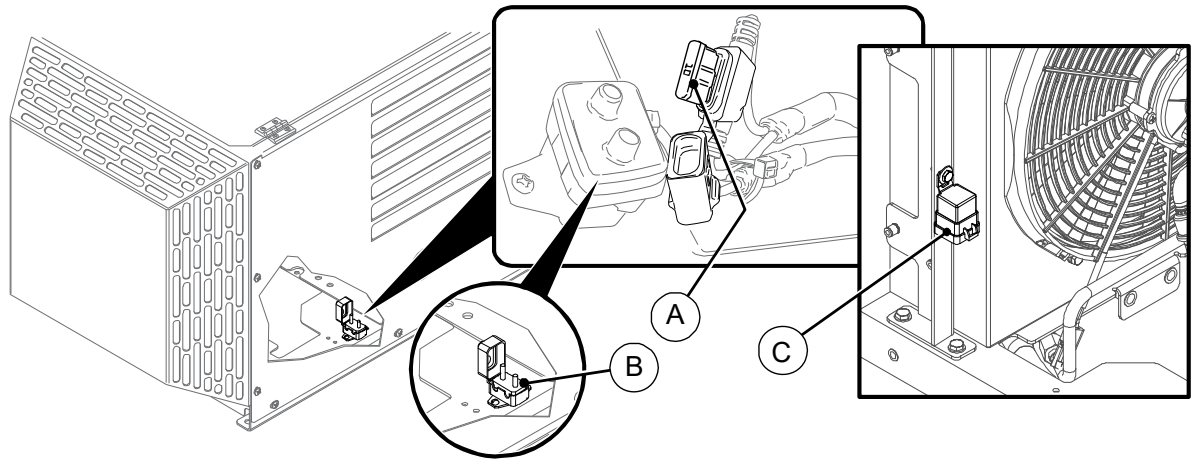
Consult ***Figure 5-3***. for the locations of the fuses and circuit breaker. IMT recommends using a fuse removal tool, though pliers will suffice, when removing the fuse.

⚠ DANGER

Fuses 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.*

5.4.5 SAFETY SHUTDOWN SYSTEMS

Protection for over-pressure and/or over-temperature is provided. If either condition should occur, the diverter valve should activate to divert hydraulic fluid back to the tank and the compressor will stop. A screen will appear on the control panel that will need to be reset to run.



KEY	DESCRIPTION	KEY	DESCRIPTION
A	FUSE, 10A WITH BOOT	C	RELAY, NO/NC WEATHERPROOF WITH RESISTOR
B	BREAKER, 40A WITH STUDS & BOTT		

Figure 5-3: Fuse, Circuit Breaker, and Relay Locations

IMPORTANT

Reason(s) for shutdown should be investigated before pressing reset.

5.4.6 PRESSURE RELIEF VALVE

Although the pressure relief valve has a reset ring at the cap, **DO NOT** test the pressure relief valve by pulling on the reset ring. The pressure relief valve requires no safety testing. If faulty, replace the valve (refer to symptoms and recommendations given in the Troubleshooting Guide in **Section 6**).

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 ruptured and need to be replaced. To replace the drive coupling, order replacement element no. 277764, and follow the procedure below.

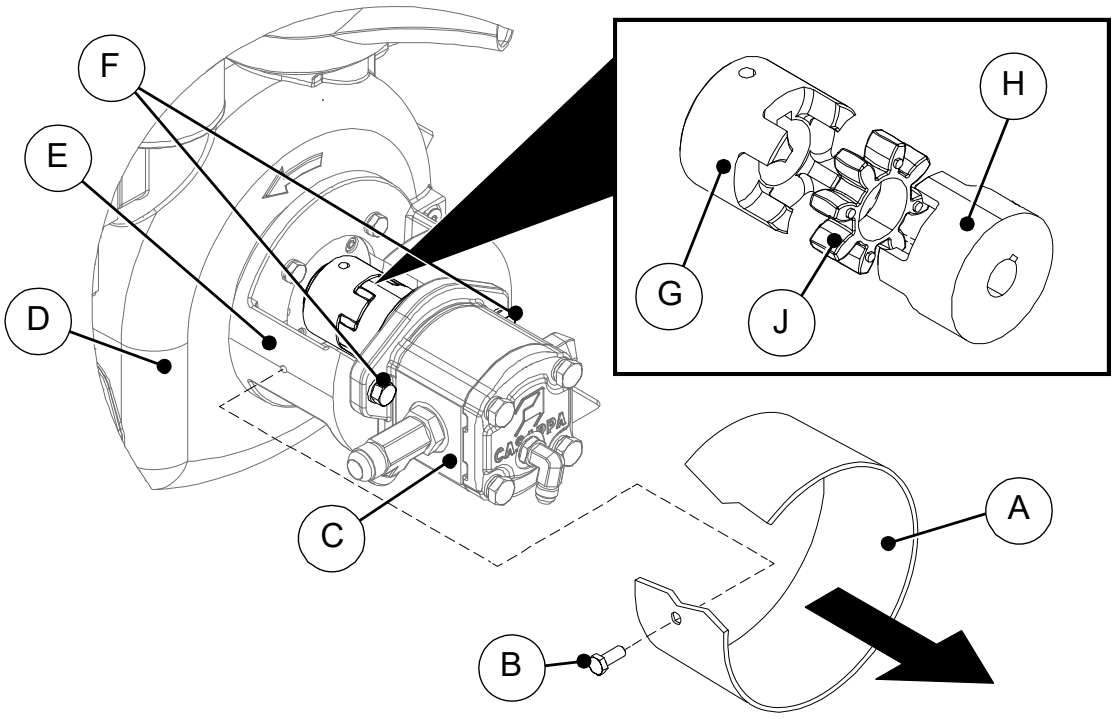
NOTE

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.

⚠ 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.

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



KEY	DESCRIPTION	KEY	DESCRIPTION
A	DRIVE COUPLING COVER	F	CAPSCREW SETS (3/8”-16 x 1.5, & 3/8” lock washers)
B	COVER SCREW (x 1)	G	COUPLING - COMPRESSOR HALF
C	HYDRAULIC MOTOR	H	COUPLING - MOTOR HALF
D	COMPRESSOR UNIT	J	SPIDER COUPLING ELEMENT
E	MOTOR MOUNT		

Figure 5-4: Drive Coupling Element Replacement

5.4.7.1 REPLACING THE DRIVE COUPLING ELEMENT

Refer to ***Figure 5-4***.

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 capscrews 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” capscrews and lock washer sets to secure the motor to the motor mount.

8. Before torquing the bolts, perform an alignment check on the hubs. (see **Section 5.4.7.1**).

5.4.7.2 COUPLING ASSEMBLY

The following method is used for a full re-installation 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 5-5*** for proper bore & key way setscrew seating torques).
4. Repeat steps 2 through steps 4 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 5-5*** 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 5-5***.

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 5-5***.

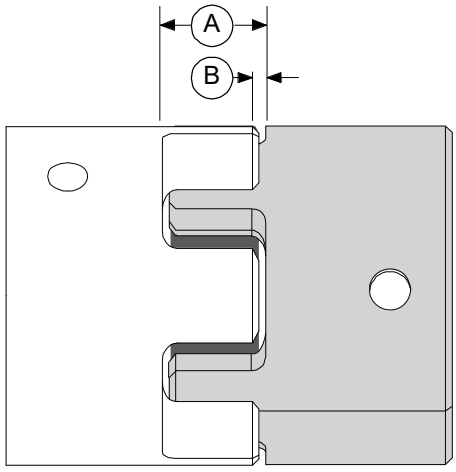
5.4.7.3 HUB ALIGNMENT CHECK

To ensure alignment, refer to ***Figure 5-***5 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 5-5***.
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 CAS45RS coupling in proper working order.



KEY	DESCRIPTION
A	DISTANCE BETWEEN HUBS: 0.683 inches
B	ASSEMBLY GAP: 0.078 inches
OFFSET LIMIT: 0.009 inches ANGULAR LIMIT: 0.030 inches	

Figure 5-5: 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.

5.4.8 STORAGE AND INTERMITTENT USE

5.4.8.1 INTERMITTENT USE

Check the hoses for signs of deterioration such as visible surface cracks, stiffness or discoloration.

5.4.8.2 LONG TERM STORAGE

Cover the unit with a tarp or plastic to prevent the accumulation of dust, but leave the bottom open for air circulation.

Storage area should be a dry, maintained environment; note that humid storage environment could lead to surface rust on the hub and bore of the coupling.

Ensure that the coupling element is free of oil.

SECTION 6: TROUBLESHOOTING

6.1 GENERAL INFORMATION

The information contained in this section has been compiled from field report data and factory experience. It contains symptoms and usual causes 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 the trouble should be systematically analyzed before undertaking any repairs or component replacement procedures.

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 loose wiring.
2. Check for damaged piping.
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 Service Department. Make sure to have the machine serial number readily available to help expedite assistance. Refer to ***Figure 6-1*** for machine, motor and compressor serial number plate and serial number locations.

Iowa Mold Tooling Co., Inc.

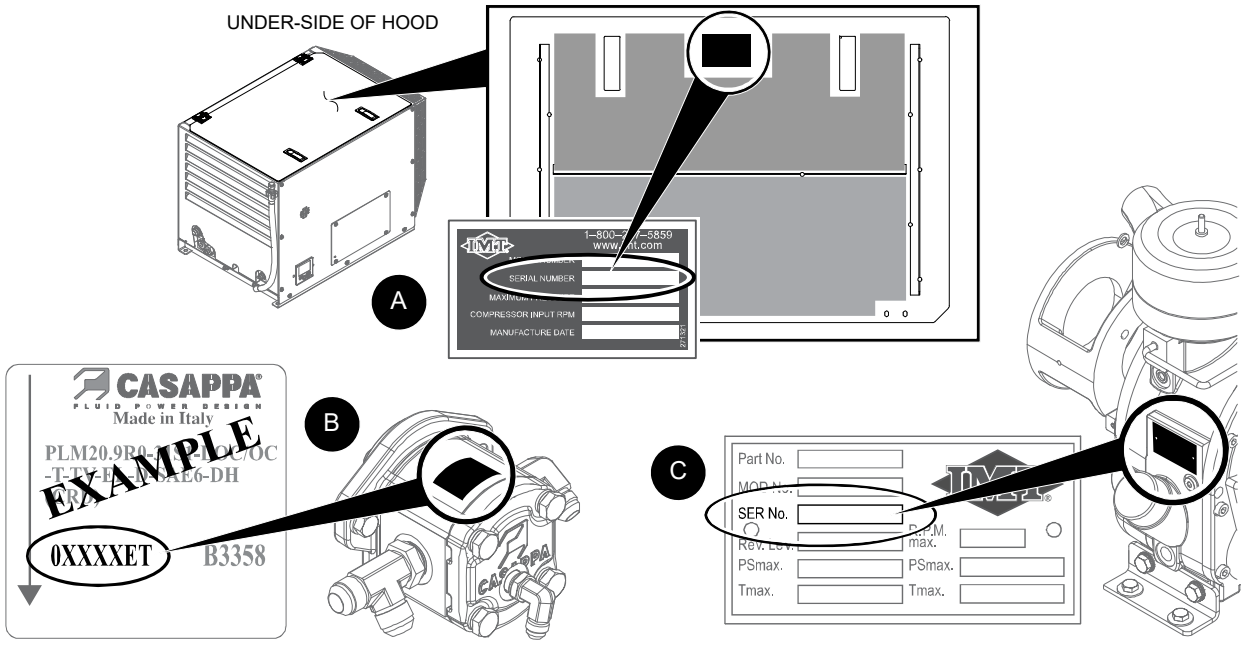
500 Highway 18 West
Garner, Iowa 50438
Phone: 641.923.3711
Fax: 641.923.2424
www.imt.com
800.247.5958

⚠ WARNING

Before starting, performing maintenance, or replacing parts, relieve the entire system pressure by opening a service valve, which will vent all pressure to the atmosphere.

⚠ WARNING

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.
NOTE THAT THE SYSTEM CAN BE STARTED REMOTELY:
Install a lock-out tag to identify the equipment as inoperable to other personnel to prevent accidental application.



KEY	DESCRIPTION	KEY	DESCRIPTION
A	TYPICAL MACHINE SERIAL PLATE / SERIAL NUMBER LOCATION	C	TYPICAL COMPRESSOR UNIT SERIAL PLATE / SERIAL NUMBER LOCATION
B	HYDRAULIC MOTOR SERIAL PLATE / SERIAL NUMBER LOCATION		

Figure 6-1: Serial Plate / Serial Number Locations

6.2 TROUBLESHOOTING GUIDE

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
Compressor shuts down with air demand present	Compressor discharge temperature switch is open	Cooling air flow is insufficient; clean cooler and check for proper ventilation.
		Low fluid sump level; add fluid.
		Fan not operating. Check power and/or ground.
	Plugged oil filter	Replace oil filter.
	Dirty cooler core (exterior)	Clean cooler core.
	Contaminated cooler core (interior)	Remove and clean cooler core. Consult service department for recommended flushing procedure.
	Hydraulic pressure and flow incorrect	Adjust and reset.

Continued on next page

6.2 TROUBLESHOOTING GUIDE

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
Compressor will not build up pressure	Air demand is too great	Check service lines for leaks or open valves. Too much air demand.
	Dirty air filter	Check the filter and clean or change element if required.
	Defective pressure transducer	Replace pressure transducer.
	Motor does not speed up	Check hydraulic flow and pressure and adjust if necessary.
	Service valve wide open	Close service valve.
	Solenoid valve stuck	Replace solenoid valve.
Compressor over pressures	Defective pressure transducer	Replace pressure transducer; Contact factory service department.
	Inlet valve jammed	Free or replace valve.
	Solenoid valve not energized or faulty	Check for power. Replace if necessary.
	Defective safety valve	Replace safety valve.
	Plugged coalescer	Replace coalescer.
Insufficient air delivery	Plugged air filter	Replace air filter.
	Plugged coalescer	Replace coalescer element.
	Motor speed too low	Check hydraulic flow and pressure and adjust if necessary.
	Inlet valve stuck	Free or replace inlet valve. Order rebuild kit if necessary.
	Minimum pressure / check valve malfunctioning	Rebuild or replace check valve.
Oil carryover	Oil level overfull	Drain to proper level.
	Plugged oil scavenge line	Contact the IMT® Service Department.
	Discharge pressure too low	Check minimum pressure valve and adjust. Replace if necessary.
	Defective coalescer	Replace coalescer element.
	Overspeed	Adjust hydraulic flow to maintain compressor RPM speed.
Compressor overheating	Insufficient oil	Check oil level and fill to proper level.
	Restricted cooling air flow	Reposition machine to assure proper air flow.
	Fan not operating	Check ground connection and ensure proper connection.
		Check circuit breaker.
		Check for short in wires.
		Check fan motor.

Continued on next page

6.2 TROUBLESHOOTING GUIDE

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
Compressor overheating (continued)	Plugged oil filter	Replace oil filter.
	Contaminated cooler core	Remove and clean cooler core. Consult service department for recommended flushing procedure.
	Pressure set too high	Contact factory service department.
	Unit running too fast	Check hydraulic flow and pressure and adjust if necessary.
	Thermal valve	Faulty valve; replace thermal valve.
System retains pressure after shutdown	Solenoid valve stuck	Should be no power to solenoid valve.
		Replace solenoid valve.
	Leak back from air line	Check minimum pressure valve for leaks.
Compressor stalls	Insufficient hydraulic system pressure flow. This can occur if another hydraulically activated component is used off same pump system. Activating the secondary component may drop hydraulic supply system pressure/flow and leave insufficient for compressor.	**NOTE:** Even a momentary drop in supply hydraulic supply pressure/flow may initiate compressor blowdown to commence. Check setting on supply pressure system relief valve. Check to ensure adequate pressure/ flow. Check if other systems are activated off same supply.
	Pressure relief valve set too low	Contact factory service department.
	Leak in seals on pressure relief valve.	Remove and check seals or fit new valve cartridge.
	Air pressure set too high for hydraulic system.	Adjust pressure to reduce air pressure.
	Leak in solenoid valve cartridge (directional flow control valve) on manifold.	Remove and check seals or fit new valve cartridge.
	Check over-pressure or over-temperature	Adjust if necessary.

SECTION 7: ILLUSTRATED PARTS LIST

7.1 PARTS ORDERING PROCEDURE

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 compressor unit 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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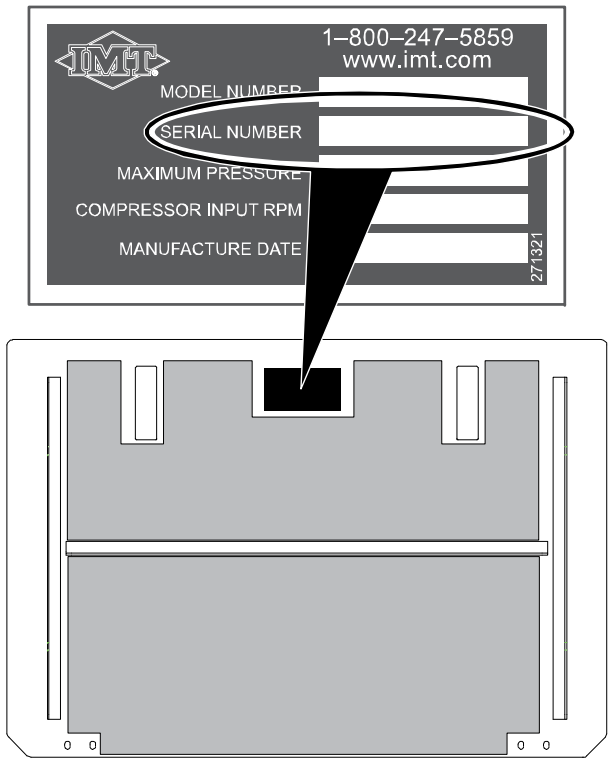


Figure 7-1: Machine Package Serial Number Plate / Serial Number Location

TABLE 7A: RECOMMENDED SPARE PARTS LIST

KEY NO.	IMT PART NUMBER	DESCRIPTION	QUANTITY
		ROUTINE SERVICE COMPONENTS	
1	**89086222**	Oil, Rotary Compressor (gallon) [I]	1
2	**70048253**	Element, Replacement for Air Filter	1
3	**70048252**	Element, Replacement for Compressor Oil Filter	1
4	**70048251**	Element, Replacement for Separator	1
		NON-ROUTINE SERVICE COMPONENTS	
5	**77040769**	Breaker, Circuit with Studs (40A)	1
6	**77041900**	Relay, NO/NC Weatherproof with Resistor	1
7	[II]	Coupling, Replacement Spider Drive	1
8	[II]	Option, Cold Weather	1
9	[II]	Shaft Seal, Compressor Replacement	1
10	[III]	Hoses, Replacement	-
11	[IV]	Fuse, 10A	2

[I] Use only IMT® Rotary Screw Oil and Genuine IMT Parts. Substituting non-IMT oil or non-genuine IMT filter components WILL VOID THE COMPRESSOR WARRANTY! Inspect and replace damaged components before operation. Compressor system fill capacity is approximately four (4) quarts of oil.

[II] For component replacement details consult the IMT Service Department.

[III] For hose replacement(s) refer to the hose and tube assembly sub-sections (Section 7.6 or Section 7.7, respectively) to obtain replacement hose part order numbers.

[IV] Replacement fuses can sometimes be found at local vendor carriers, such as automobile supply stores, hardware stores, etc.

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 pro-offered 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

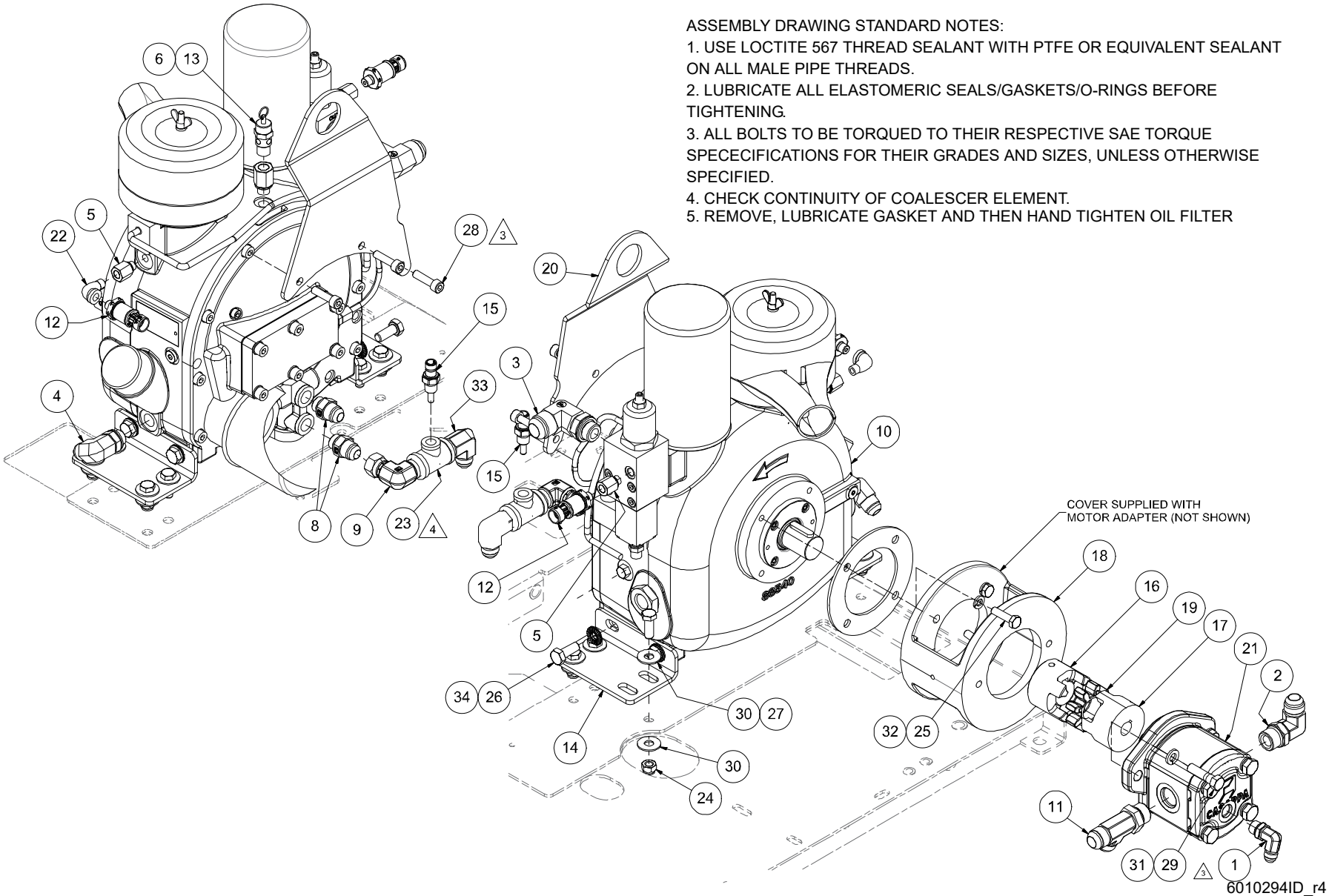
If additional spare parts are being stored for future use, ensure that they are stored in proper containers that allow for protection against contamination, and kept in a clean area of moderate temperature reading. For information on storing the machine package for periods of non-use, consult *Section 5.4.8, Long Term Storage*.

NOTES

7.2 COMPRESSOR AND PARTS

ASSEMBLY DRAWING STANDARD 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 SPECECIFICATIONS FOR THEIR GRADES AND SIZES, UNLESS OTHERWISE SPECIFIED.
4. CHECK CONTINUITY OF COALESCER ELEMENT.
5. REMOVE, LUBRICATE GASKET AND THEN HAND TIGHTEN OIL FILTER

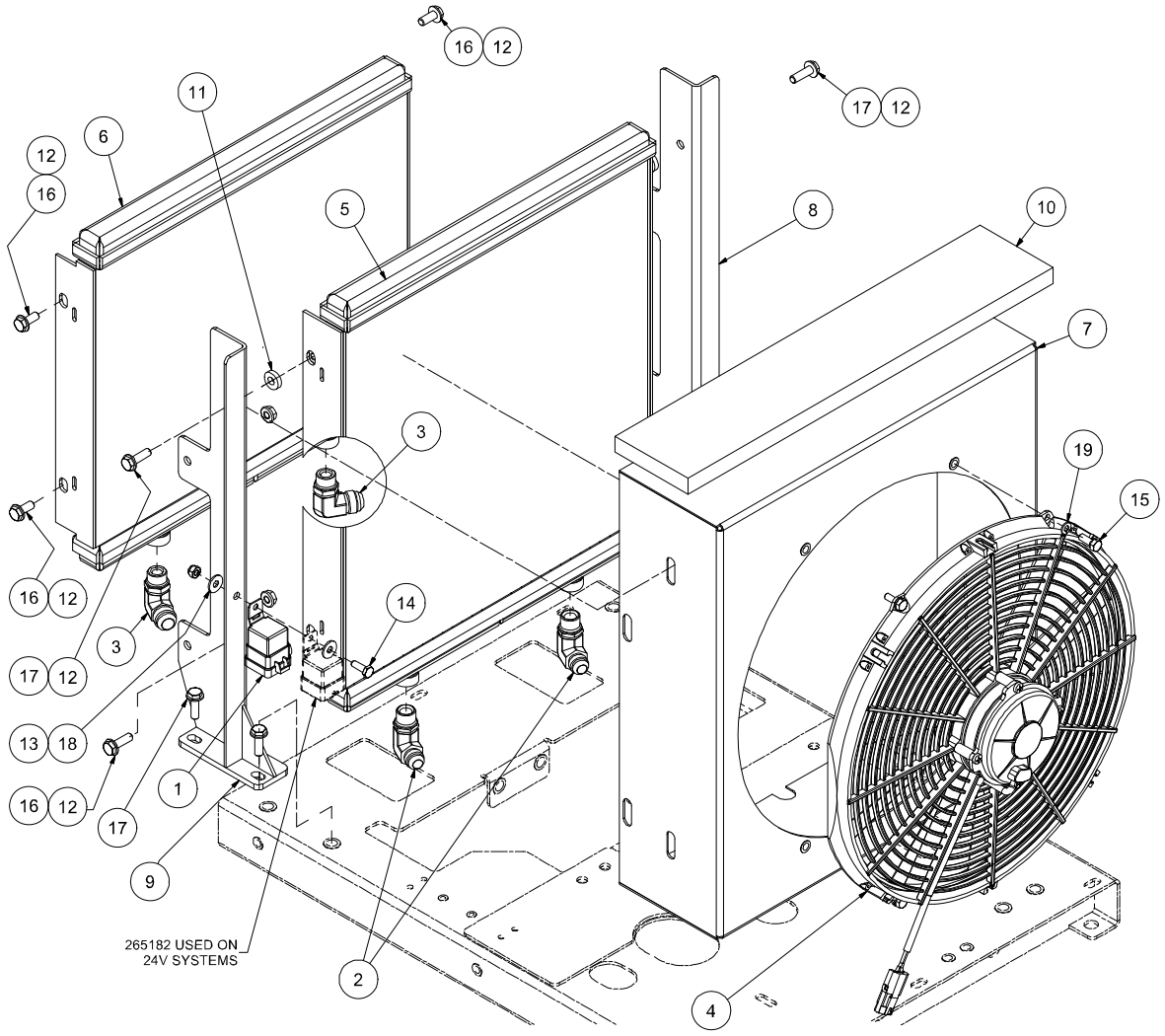


7.2 AIR END ASSEMBLY - CAS45RS

KEY NO.	DESCRIPTION	IMT PART NUMBER	QTY	KEY NO.	DESCRIPTION	IMT PART NUMBER	QTY
1	ELBOW, 90 DEG #6 MJIC x #6 MSAE		1	18	MOUNT, HYDRAULIC MOTOR		1
2	ELBOW, 90 DEG #10 MJIC x #10 MSAE		1	19	COUPLING, SPIDER		1
3	ELBOW, 90 DEG 3/4 MJIC X 1/2 BSPP		1	20	BRACKET, LIFTING		1
4	ELBOW,90 DEG. 1/2 MJIC X 3/8 MBSPP ADJ		1	21	MOTOR, HYDRAULIC 9CC	73511426	1
5	ADAPTER, FEMALE PIPE x BSPP 1/8		2	22	ELBOW, PIPE STREET 1/8		1
6	ADAPTER,FEMALE PIPE x BSPP 1/4		1	23	TEE, PIPE GALV 1/2 x 1/2 x 1/4		1
7	PLUG,MALE BSPP W/SEAL 1/4		1	24	NUT, HEX LOCKING 3/8-16		7
8	ADAPTER, M-JIC 1/2 x BSPP 3/8		2	25	CAPSCREW, HEX 8mm 1.25 x 30		4
9	ELBOW,1/2MPT X 1/2FJIC SWVL 90		1	26	CAPSCREW, HEX 10mm 1.5 x 25		4
10	COMPR & PART VANAIR 31 EMC, 12VDC STD SHAFT		1	27	CAPSCREW, HEX GR5 3/8-16 x 1		7
11	TEE, 7/8-14 SAE X 5/8 JIC X 5/8 JIC		1	28	CAPSCREW,S.H. M8 x 1.25 x30 mm LONG		3
12	TRANSDUCER,PRESS 1/8NPT 200PSI -40 to 125 C	77040767	2	29	CAPSCREW, HEX GR8 3/8-16 x 1.5		2
13	VALVE, RELIEF 225 PSI 1/4 NPT MALE	73540626	1	30	WASHER, FLAT 3/8		14
14	BRACKET, COMPRESSOR MOUNTING		2	31	WASHER, LOCK 3/8		2
15	THERMISTOR,TEMP 1/4 NPT	77040768	1	32	WASHER, LOCK METRIC M8		4
16	COUPLING, HALF COMPRESSOR SIDE		1	33	ELBOW, 37FL/90M #08 x 1/2		1
17	COUPLING, HALF HYDR MOTOR SIDE		1	34	WASHER, 3/8ID X 13/16OD NORD-LOCK		4

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

7.3 COOLER ASSEMBLY (NO THERMAL VALVE)



KEY NO.	DESCRIPTION	PART NUMBER	QTY
1	RELAY,NO/NC WEATHERPROOF w/ RESISTOR	77041900	1
2	ELBOW, 90 DEG #8 MJIC x #8 MSAE		2
3	ELBOW, 90 DEG #10 MJIC x #8 MSAE		2
4	FAN AND MOTOR ASSY.SUCKER (PULLER)	51724557	1
5	COOLER, OIL 60-85 CFM SAE O-RING (REPLACES 51724560)	51727425	1
6	COOLER,OIL NK40 SAE O-RING	76490104	1
7	SHROUD, FAN MOUNTING CAS45RS		1
8	BRACKET, RIGHT COOLER MOUNTING CAS45RS ALUM		1
9	BRACKET, LEFT COOLER MOUNTING CAS45RS ALUM		1
10	FOAM, SOUND INSULATION COOLER SHROUD		1
11	SPACER, CAS45RS COOLER		4
12	NUT, HEX FLANGE 5/16-18		8
13	NUT, HEX LOCKING 1/4-20		1
14	CAPSCREW, HEX GR5 1/4-20 x 0.75		1
15	CAPSCREW, HEX GR8 1/4-20 x 0.75		4
16	SCREW, SER WASH 5/16-18 x 0.75		4
17	SCREW, SER WASH 5/16-18 x 1		8
18	WASHER, FLAT 1/4		2
19	WASHER, LOCK 1/4		4

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

ASSEMBLY DRAWING STANDARD 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.

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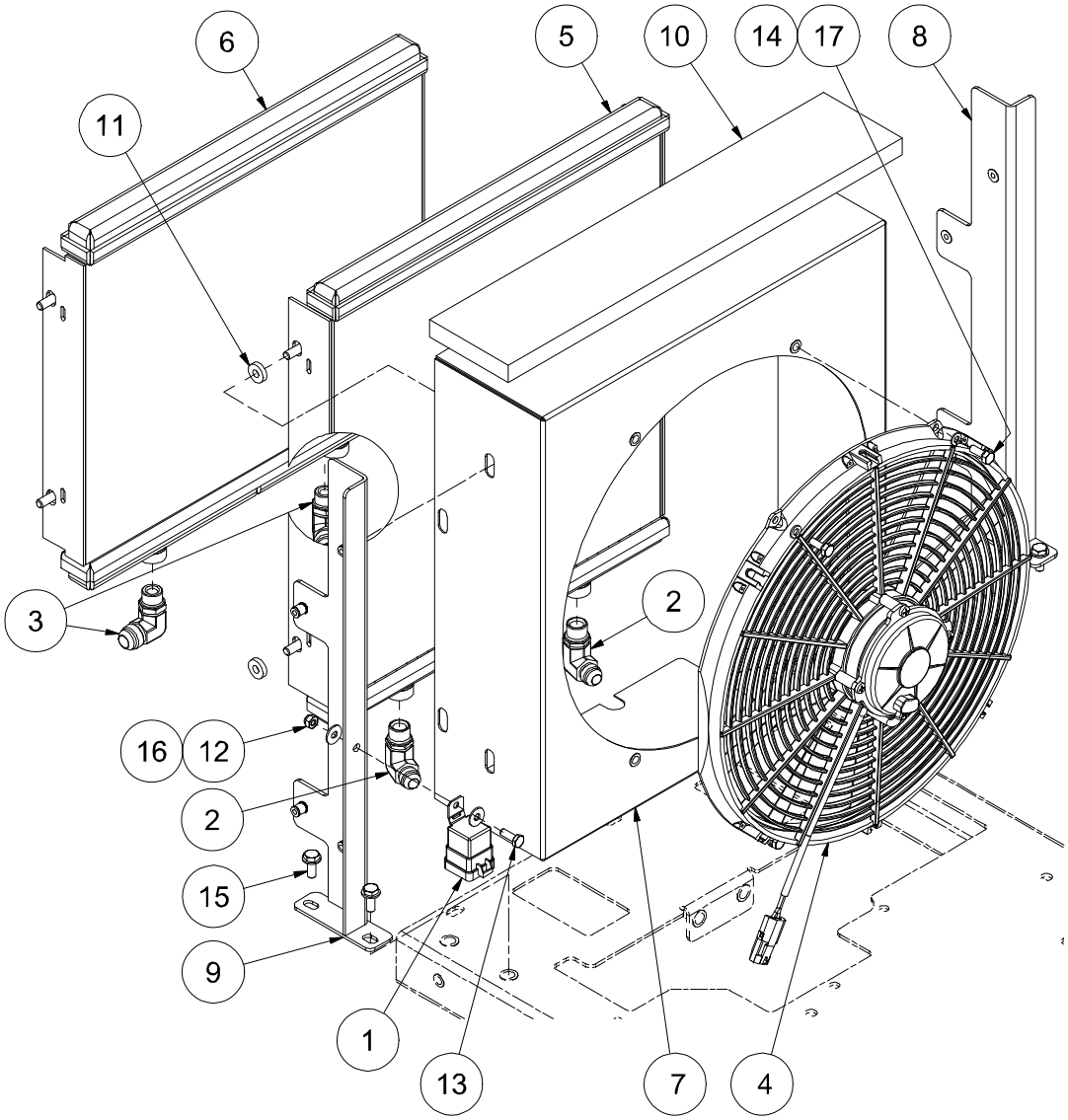
7.4 COOLER ASSEMBLY (WITH THERMAL VALVE)



KEY NO.	DESCRIPTION	PART NUMBER	QTY
1	RELAY, NO/NC WEATHERPROOF w/RESISTOR	77041900	1
2	ELBOW, 90 DEG #8 MJIC x #8 MSAE		2
3	ELBOW, 90 DEG #10 MJIC x #8 MSAE		2
4	FAN AND MOTOR ASSY.	51724557	1
5	COOLER, OIL 60-85 CFM SAE O-RING (REPLACES 51724560)	51727425	1
6	COOLER, OIL NK40 SAE O-RING	76490104	1
7	SHROUD, FAN MOUNTING		1
8	BRACKET, RIGHT COOLER MOUNTING		1
9	BRACKET, LEFT COOLER MOUNTING		1
10	FOAM, SOUND INSULATION COOLER SHROUD		1
11	SPACER, NYLON RS45 COOLER		4
12	NUT, HEX LOCKING 1/4-20		1
13	CAPSCREW, HEX GR5 1/4-20 x 0.75		1
14	CAPSCREW, HEX GR8 1/4-20 x 0.75		4
15	SCREW, SER WASH 5/16-18 x 0.75		12
16	WASHER, FLAT 1/4		2
17	WASHER, LOCK 1/4		4

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

ASSEMBLY DRAWING STANDARD 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. CHECK CONTINUITY OF COALESCER ELEMENT.
5. REMOVE, LUBRICATE GASKET AND THEN HAND TIGHTEN OIL FILTER.
6. DISCARD METAL RING FROM FITTING, LEAVE O-RING.

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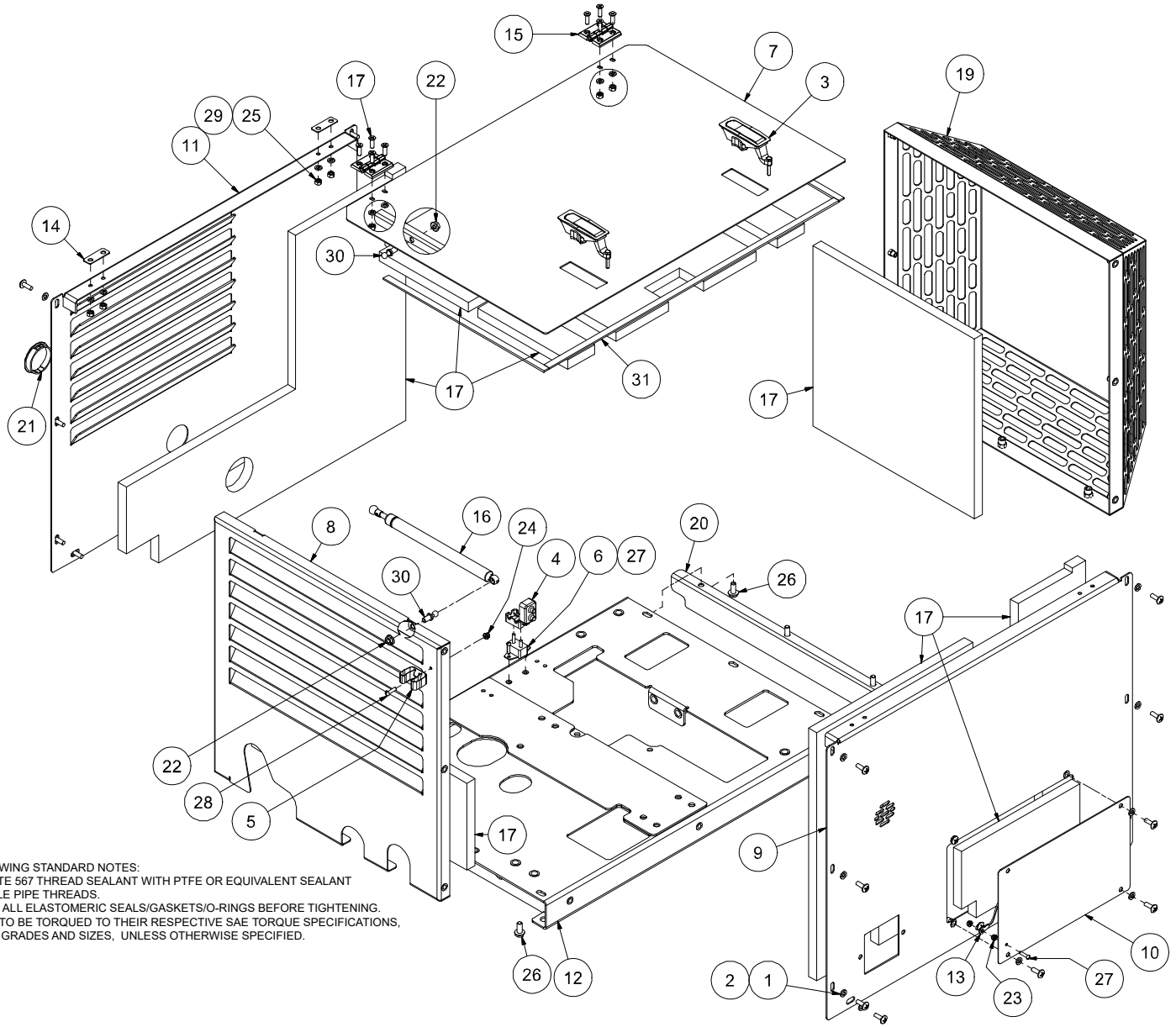
7.5 FRAME AND CANOPY ASSEMBLY



ASSEMBLY DRAWING STANDARD 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.

6030150ID_r3

7.5 FRAME AND CANOPY ASSEMBLY

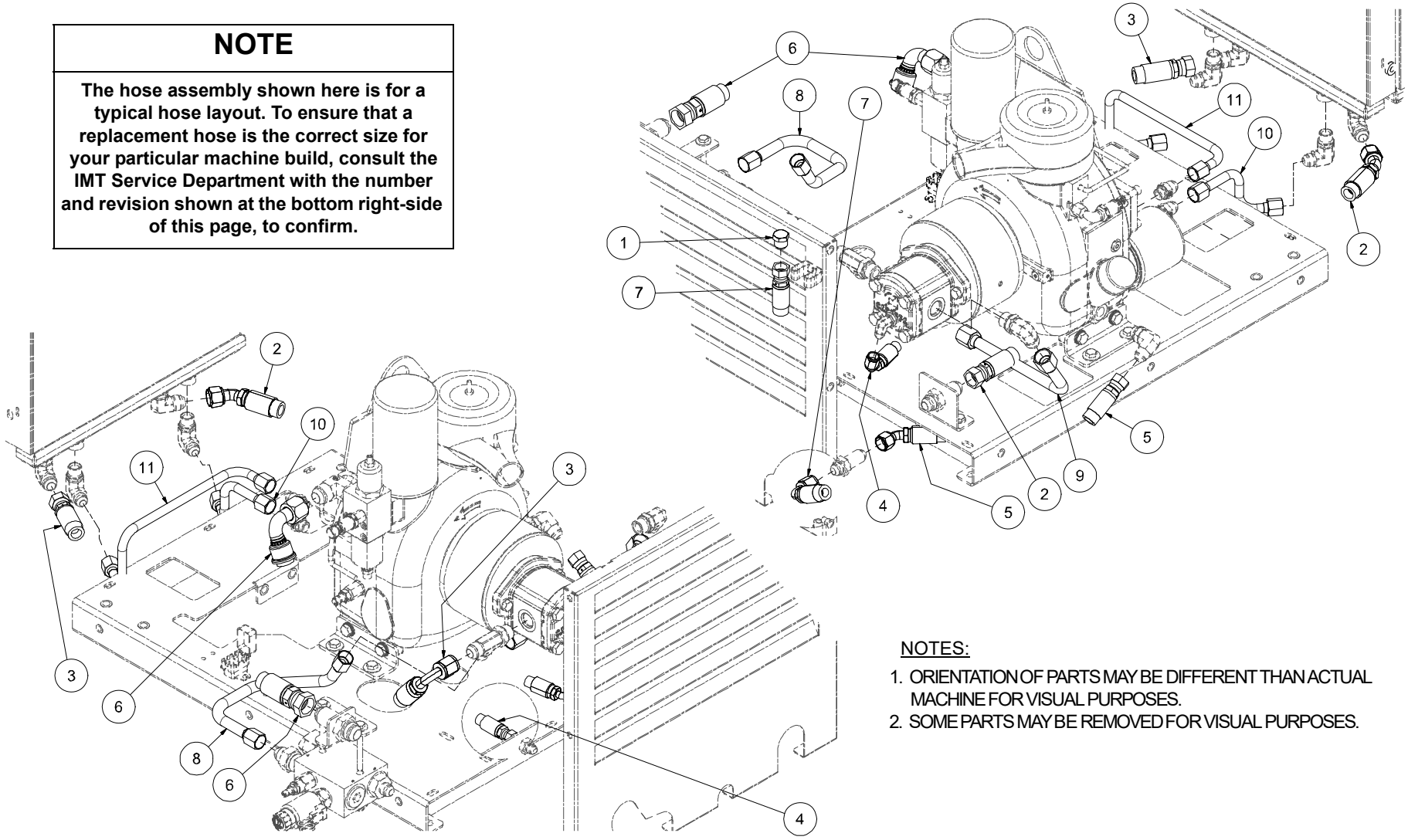
KEY NO.	DESCRIPTION	PART NUMBER	QTY	KEY NO.	DESCRIPTION	PART NUMBER	QTY
1	WASHER, NYLON FLAT 1/4		22	17	SCREW, MACHINE M6-1.0 X 20mm		8
2	SCREW, TRUSS 1/4-20 X 3/4 SS		22	18	FOAM, SOUND INSULATION RS45		1
3	LATCH, SENTRY PANEL	51724525	2	19	PANEL, CONE OF SHAME	71416801	1
4	BOOT, CIRCUIT BREAKER COVER	77040770	1	20	PANEL, FRAME COVER RS45	71416802	1
5	CLIP, TOOL ZINC 3/4 TO 1-1/8		1	21	PLUG, PANEL 2.00 INCH ID CLEAR		1
6	BREAKER,CIRCUIT W/STUDS 40AMP	77040769	1	22	NUT, HEX FLANGE 5/16-18		2
7	PANEL, HOOD RS45	71416796	1	23	NUT, HEX LOCKING #8-32		2
8	PANEL, FRONT	71416797	1	24	NUT, HEX LOCKING #10-24		1
9	PANEL, RIGHT	71416798	1	25	NUT, HEX METRIC 6mm x 1		8
10	PANEL, OIL FILTER ACCESS	71416799	1	26	SCREW, SER WASH 5/16-18 x 0.75		6
11	PANEL, LEFT	71416800	1	27	SCREW, ROUND HD #8-32 X 0.75		3
12	FRAME, RS45 ALUMINUM		1	28	SCREW, MACHINE #10-24 X 3/4		1
13	CABLE, SAFETY CATCH ACCESS PANEL		1	29	WASHER, LOCK METRIC M6		8
14	SPACER, HINGE		2	30	STUD, BALL, .39DIA. X .55LG.		2
15	HINGE, ROOF PANEL		2	31	GASKET, SEAL AND TRIM		5.4 ft
16	GAS SPRING, 6 STROKE, 20#		1				

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

7.6 HOSE & TUBE ASSEMBLY - OPEN CENTER; NO THERMAL VALVE

NOTE

The hose assembly shown here is for a typical hose layout. To ensure that a replacement hose is the correct size for your particular machine build, consult the IMT Service Department with the number and revision shown at the bottom right-side of this page, to confirm.



NOTES:

1. ORIENTATION OF PARTS MAY BE DIFFERENT THAN ACTUAL MACHINE FOR VISUAL PURPOSES.
2. SOME PARTS MAY BE REMOVED FOR VISUAL PURPOSES.

6120300ID_r1

7.6 HOSE & TUBE ASSEMBLY - OPEN CENTER; NO THERMAL VALVE

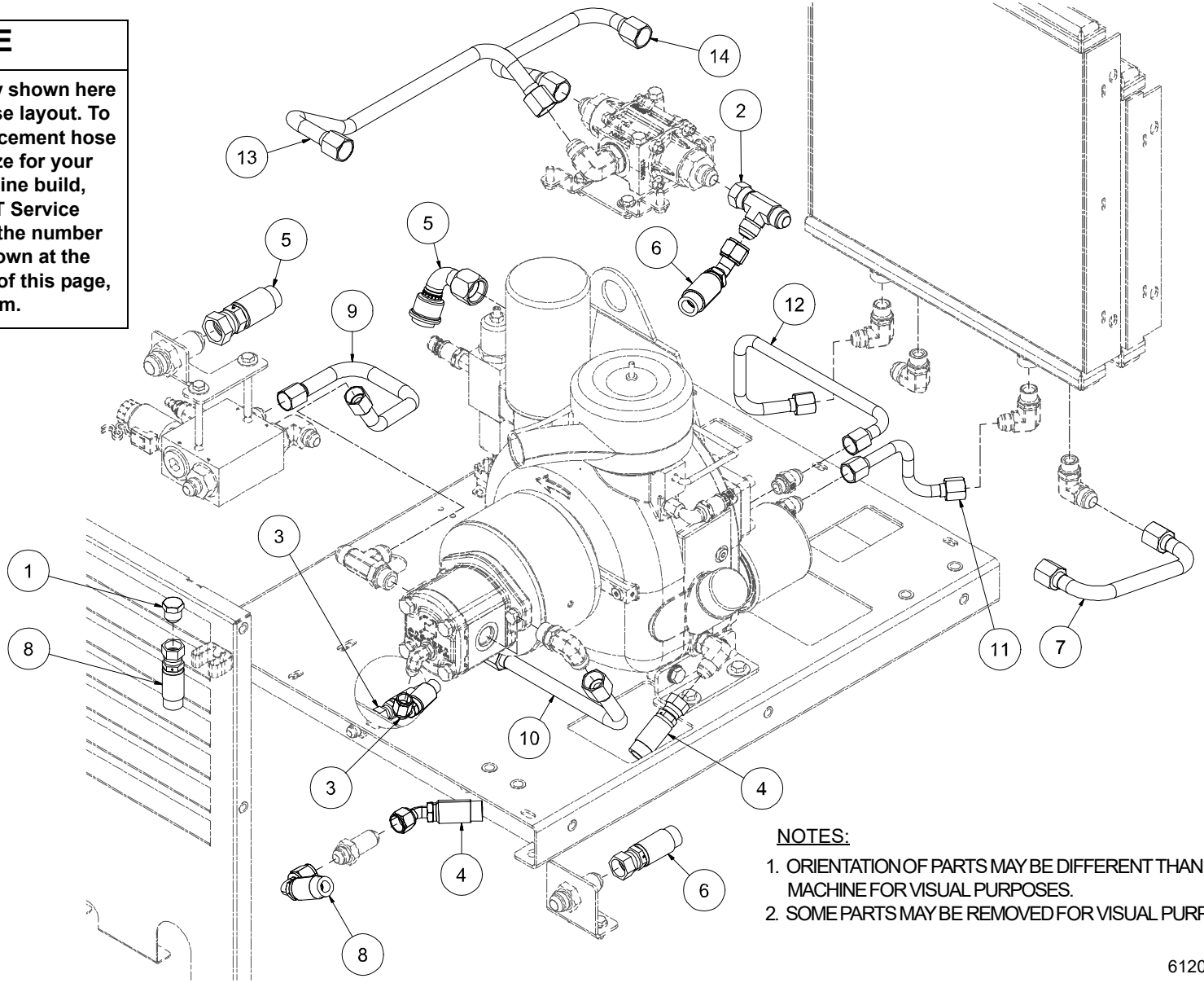
KEY NO.	DESCRIPTION	PART NUMBER	QTY
1	PLUG, MALE 37 JIC 08		1
2	HOSE, HYD OIL COOLER RETURN CAS45RS REV.2		1
3	HOSE, HYD OIL COOLER SUPPLY CAS45RS REV.1		1
4	HOSE, HYD MOTOR CASE DRAIN CAS45RS		1
5	HOSE, COMPR OIL DRAIN CAS45RS		1
6	HOSE, DISCHARGE AIR CAS45RS		1
7	HOSE, EXTERNAL COMPR OIL DRAIN CAS45RS		1
8	TUBE, HYDR MOTOR LP SIDE CAS45RS		1
9	TUBE, HYDR MOTOR SUPPLY CAS45RS		1
10	TUBE, COMPR OIL COOLER SUPPLY CAS45RS		1
11	TUBE, COMPR OIL COOLER RETURN CAS45RS		1

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

7.7 HOSE & TUBE ASSEMBLY - OPEN CENTER; WITH THERMAL VALVE

NOTE

The hose assembly shown here is for a typical hose layout. To ensure that a replacement hose is the correct size for your particular machine build, consult the IMT Service Department with the number and revision shown at the bottom right-side of this page, to confirm.



NOTES:

1. ORIENTATION OF PARTS MAY BE DIFFERENT THAN ACTUAL MACHINE FOR VISUAL PURPOSES.
2. SOME PARTS MAY BE REMOVED FOR VISUAL PURPOSES.

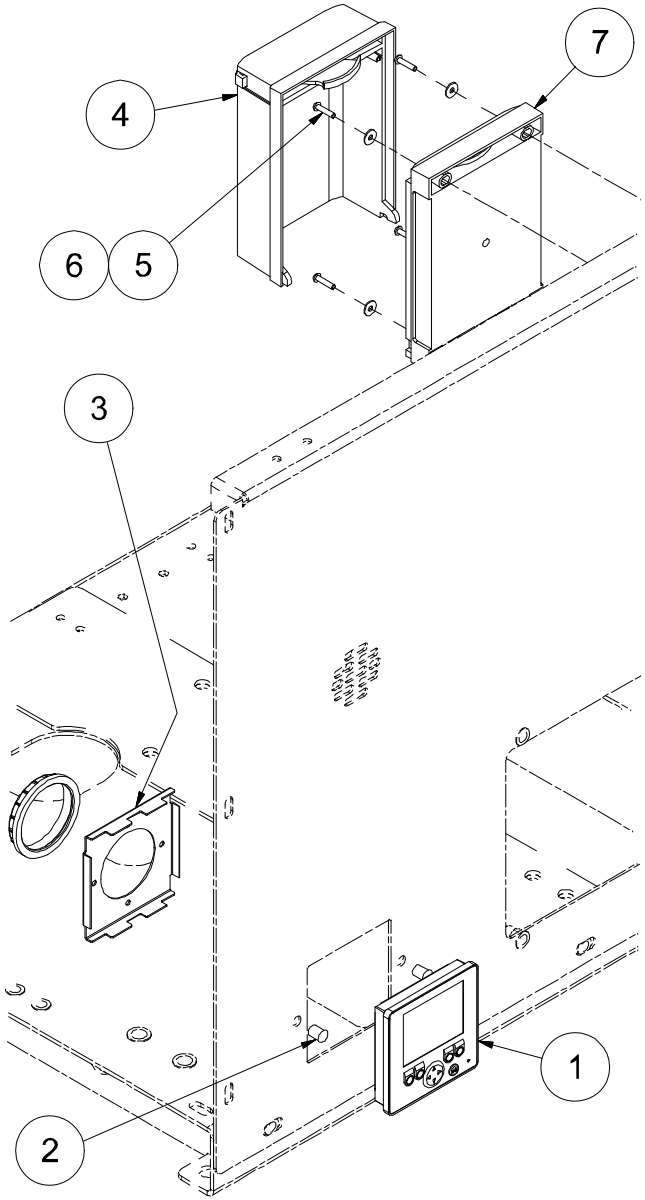
6120301ID_r1

7.7 HOSE & TUBE ASSEMBLY - OPEN CENTER; WITH THERMAL VALVE

KEY NO.	DESCRIPTION	PART NUMBER	QTY
1	PLUG, MALE 37 JIC 08		1
2	TEE, RUN SWIVEL 5/8		1
3	HOSE, HYD MOTOR CASE DRAIN		1
4	HOSE, COMPR OIL DRAIN		1
5	HOSE, DISCHARGE AIR		1
6	HOSE, HYDR OIL RETURN		1
7	TUBE, COOLER TO THERMAL VALVE RETURN		1
8	HOSE, EXTERNAL COMPR OIL DRAIN		3
9	TUBE, HYDR MOTOR LP SIDE		1
10	TUBE, HYDR MOTOR SUPPLY		1
11	TUBE, COMPR OIL COOLER SUPPLY		1
12	TUBE, COMPR OIL COOLER RETURN		1
13	TUBE, THERMAL VALVE SUPPLY		1
14	TUBE, HYD OIL COOLER SUPPLY		1

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

7.8 DISPLAY AND CONTROLLER ASSEMBLY

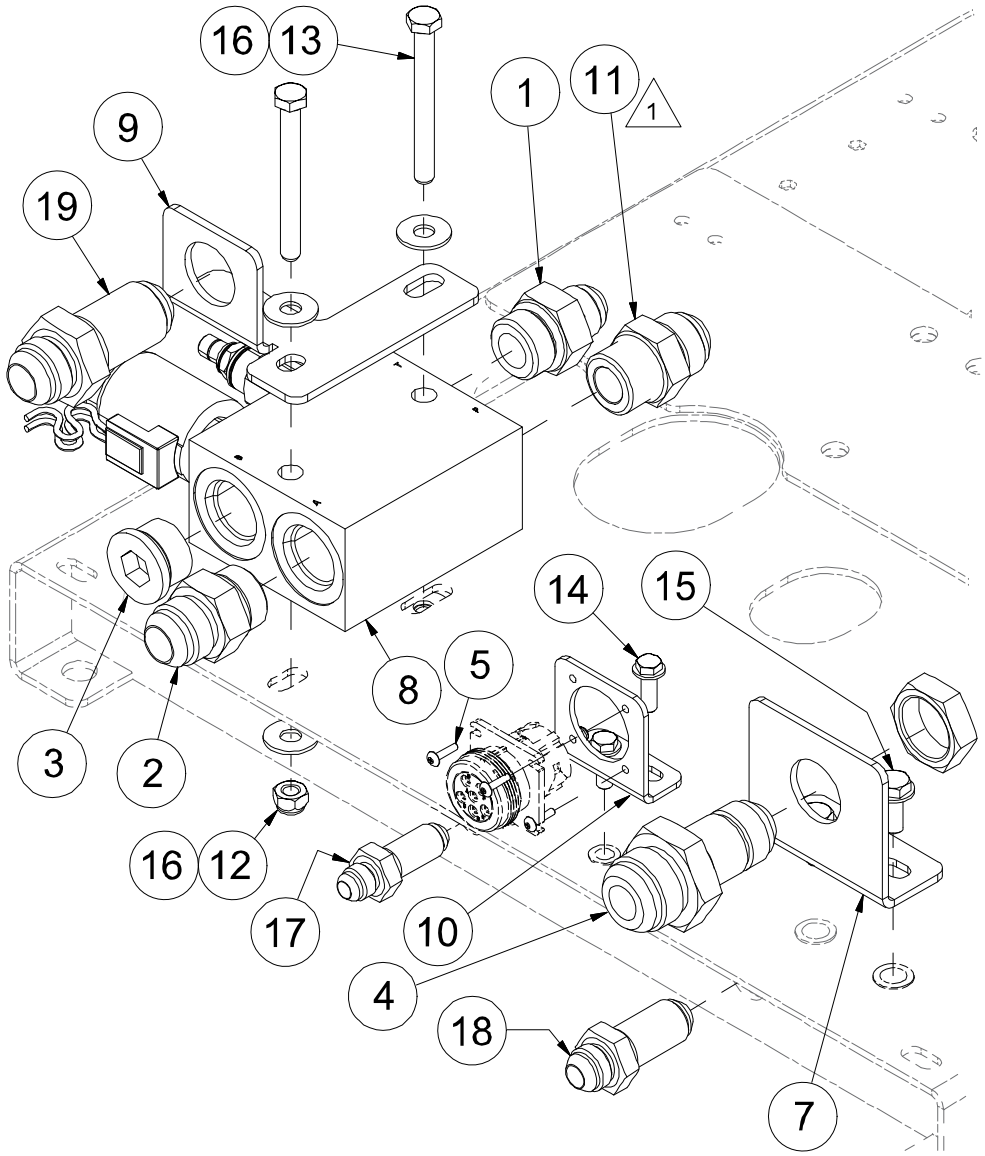


KEY NO.	DESCRIPTION	PART NUMBER	QTY
1	DISPLAY,COLOR 2.8 INCH	77735118	1
2	PLUG, HOLE 3/8 DIA, WH		2
3	BRACKET, MOUNTING 2.8 INCH DISPLAY		1
4	COVER, BASIC CONTROLLER		1
5	SCREW,MACHINE #6-32 X 5/8		4
6	WASHER, FLAT #6		4
7	CONTROLLER, BASIC	77735119	1

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

6120302ID_r2

7.9 HYDRAULIC MANIFOLD ASSEMBLY - OPEN CENTER



KEY NO.	DESCRIPTION	PART NUMBER	QTY
1	CONNECTOR, #12 MSAE x #10 MJIC		1
2	CONNECTOR, #12 MSAE x #12 MJIC		1
3	PLUG, SAE O-RING #12		1
4	BULKHEAD, 1 1/16 - 12UNF x 1 5/16 - UNF		1
5	SCREW, TRUSS #4-40 X 1/2		4
6	NUT, HEX LOCKING #4-40 UNC		4
7	BRACKET, HYDRAULIC RETURN CAS45RS		1
8	MANIFOLD, HYDRAULIC SOFT SHIFT	51735120	1
9	BRACKET, AIR DISCHARGE CAS45RS		1
10	BRACKET, 6 PIN CONNECTOR CAS45RS		1
11	VALVE, CHECK 3/4 MSAE x 3/4 MJIC 85 PSI CRACKING		1
12	NUT, HEX LOCKING 5/16-18		2
13	CAPSCREW, HEX GR5 5/16-18 x 3		2
14	SCREW, SER WASH 1/4-20 x 0.75		2
15	SCREW, SER WASH 5/16-18 x 0.75		2
16	WASHER, FLAT 5/16		4
17	BULKHEAD, MJIC x MJIC #6		1
18	BULKHEAD, MJIC x MJIC #8		1
19	BULKHEAD, MJIC x MJIC #12		1

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

ASSEMBLY DRAWING STANDARD NOTES:

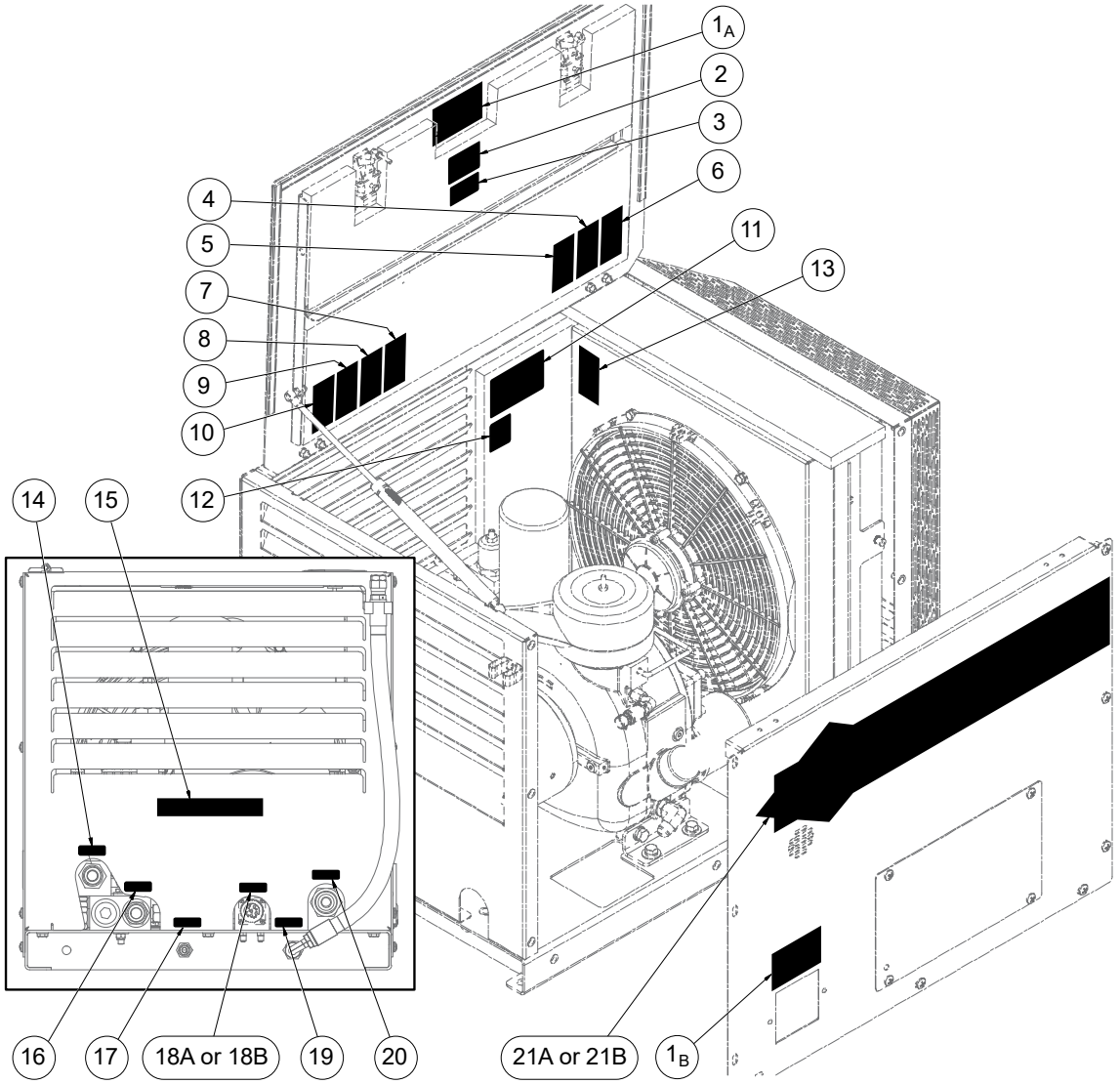
1. USE LOCTITE 567 THREAD SEALANT WITH PTFE OR EQUIVALENT SEALANT ON ALL MALE PIPE THREADS.

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

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

6120331ID_1

7.10 DECALS - PART 1 OF 2



REFER TO PART 2 FOR INDIVIDUAL DECAL VISUAL IDENTIFICATIONS

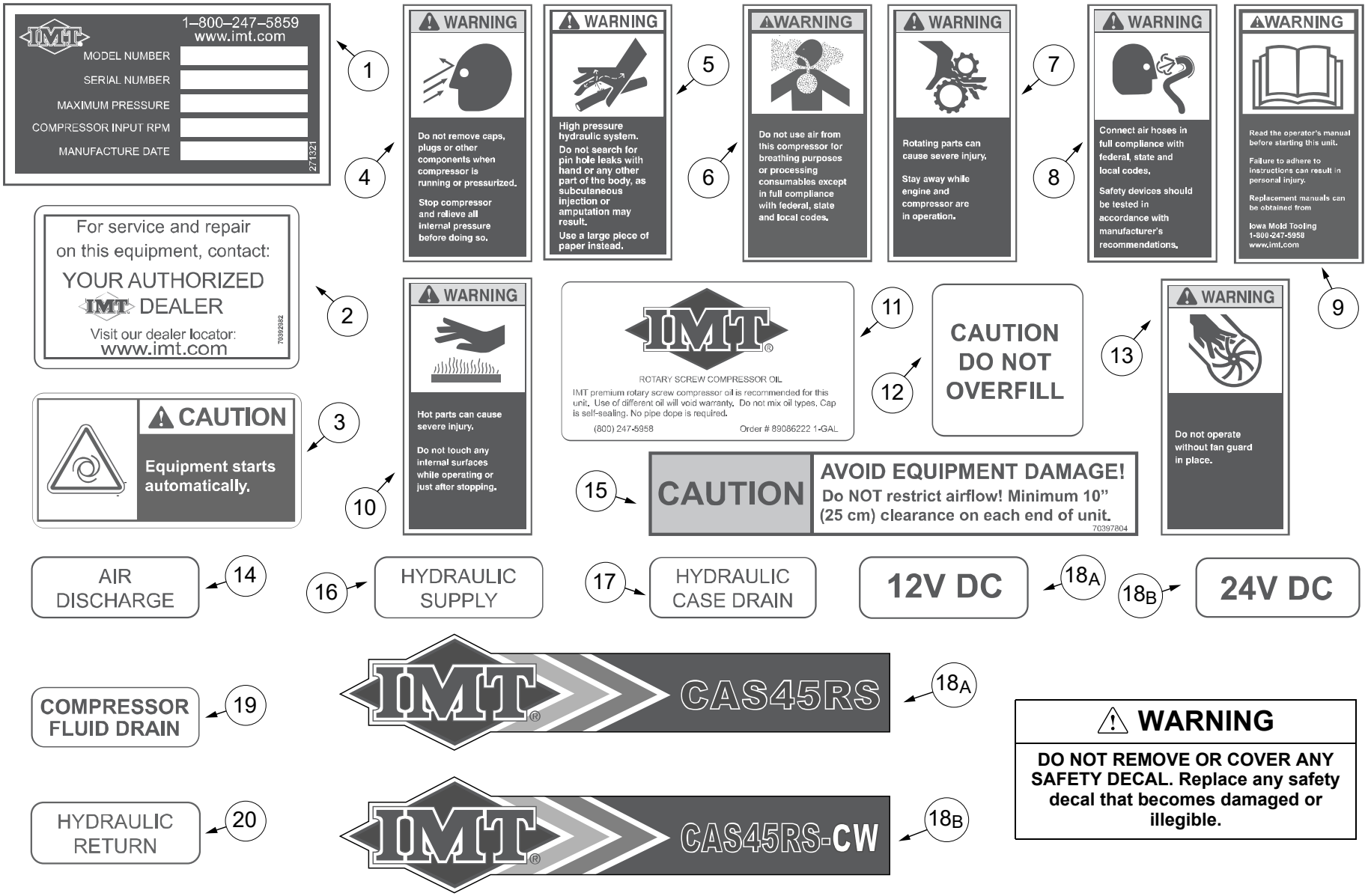
KEY NO.	DESCRIPTION	PART NUMBER	QTY
1	TAG, HYDRAULIC COMPR INFO REV-3 QC CELL	71416139	1
2	IMT SERVICE / REPAIR	70392982	1
3	DECAL, CAUTION AUTO-START II		2
4	DECAL, WARNING PLUGS		1
5	DECAL, WARNING HIGH PRESSURE		1
6	DECAL, WARNING AIR		1
7	DECAL, ROTATING PARTS		1
8	DECAL, CONNECT AIR HOSE		1
9	DECAL, WARNING READ MANUAL		1
10	DECAL, HOT PARTS		1
11	DECAL, OIL SCREW COMP		1
12	DECAL, LABEL DO NOT OVERFILL		1
13	DECAL, WARNING FAN GUARD		1
14	DECAL, LABEL AIR DISCHARGE		1
15	DECAL, AIR FLOW RESTRICTION		1
16	DECAL, LABEL HYDRAULIC SUPPLY		1
17	DECAL, CASE DRAIN		1
18A	DECAL, LABEL 12V DC		1
18B	DECAL, LABEL 24V DC		1
19	DECAL,COMPRESSOR FLUID DRAIN		1
20	DECAL, HYDRAULIC RETURN		1
21A	DECAL, IMT CAS45RS LOGO		1
21B	DECAL, IMT CAS45RS-CW LOGO		1

I Typical machine serial plate location: either point 1A or 1B.

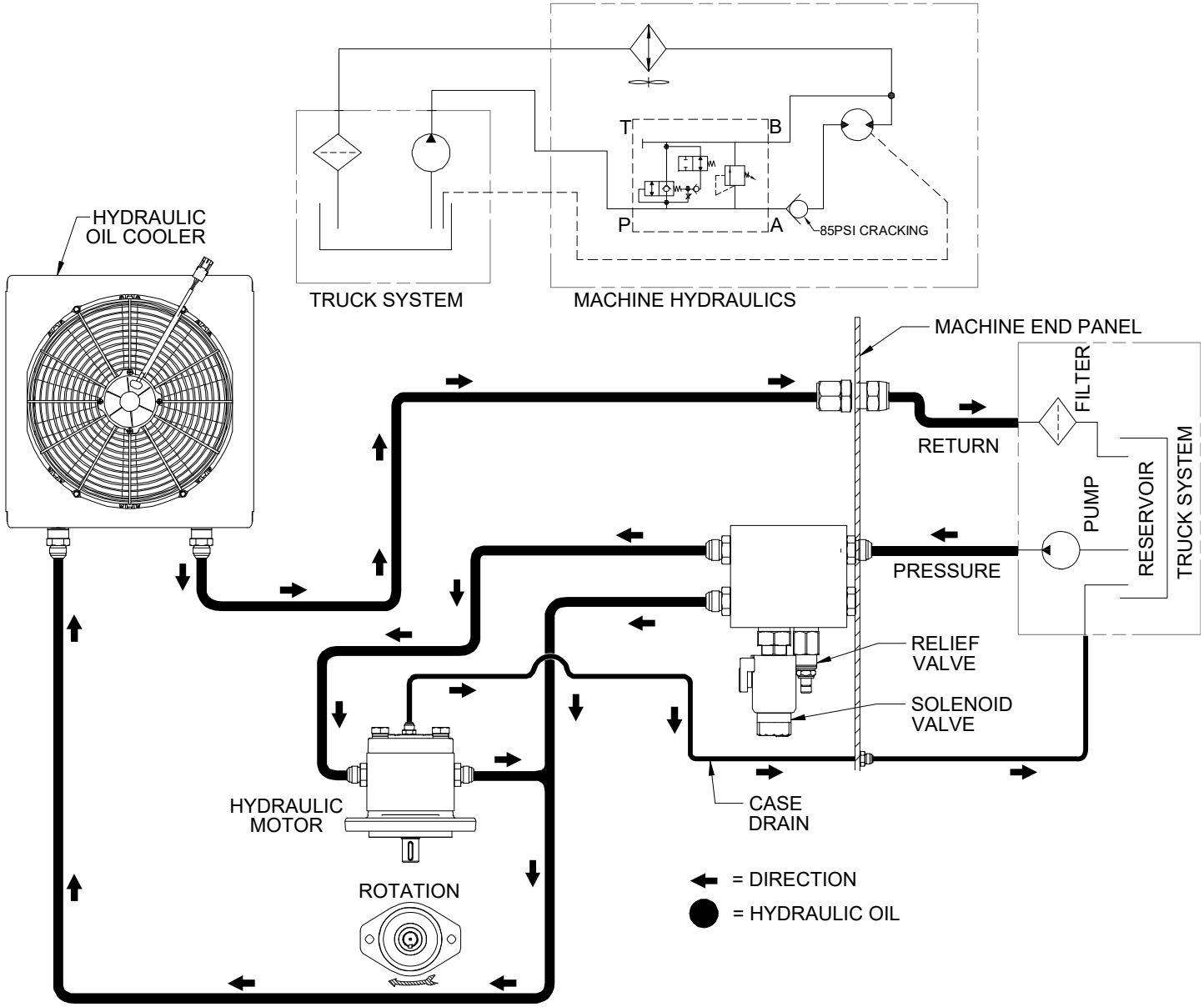
II A loose decal is included with machine documentation for placement on vehicle when package is installed. IMT recommends this decal to be placed near, and in clear sight of, the vehicle's ignition.

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

7.10 DECALS - PART 2 OF 2



7.11A SCHEMATIC DIAGRAM - HYDRAULIC OIL FLOW, OPEN CENTER



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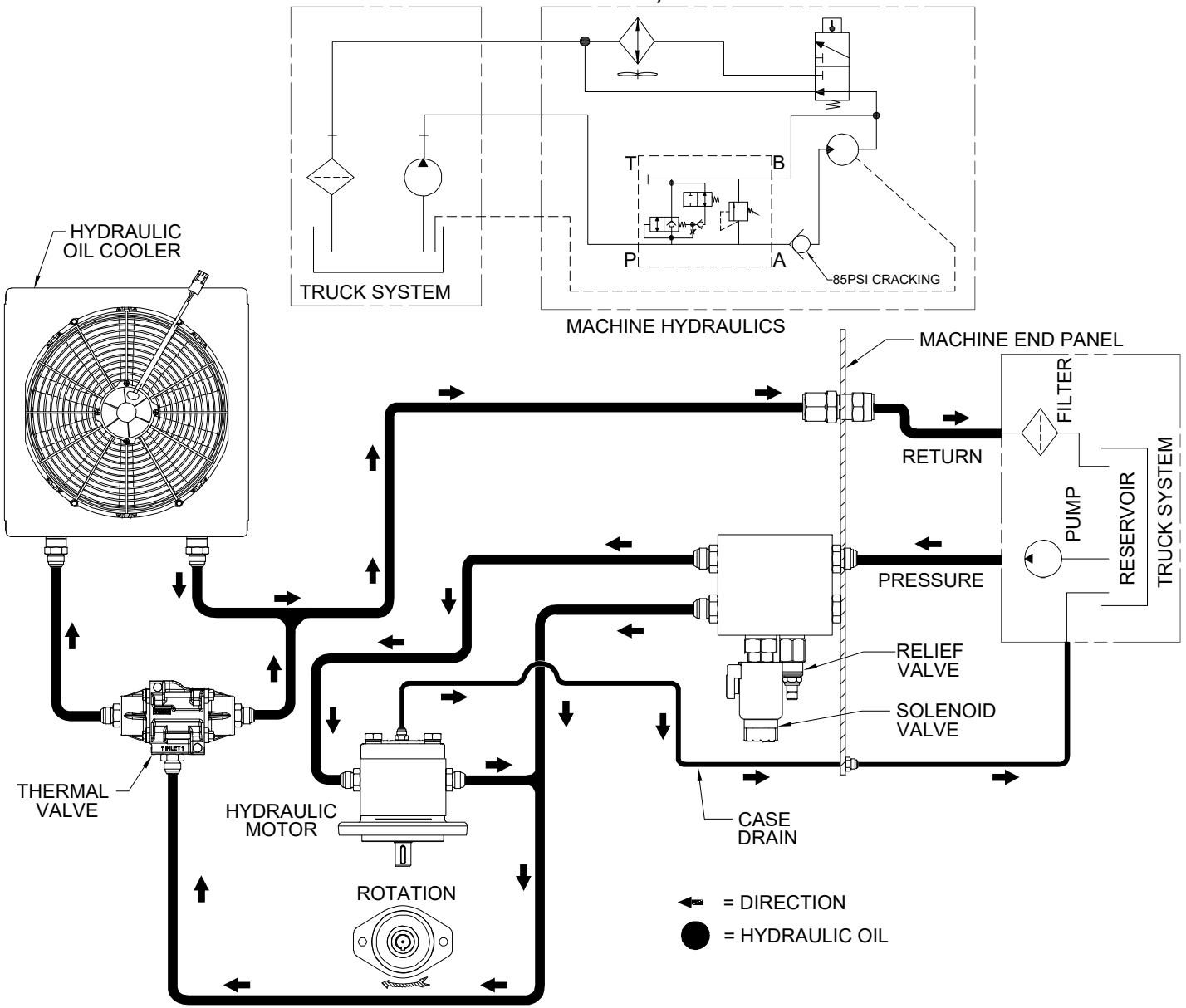
7.11B SCHEMATIC DIAGRAM - HYDRAULIC OIL FLOW, OPEN CENTER WITH THERMAL VALVE



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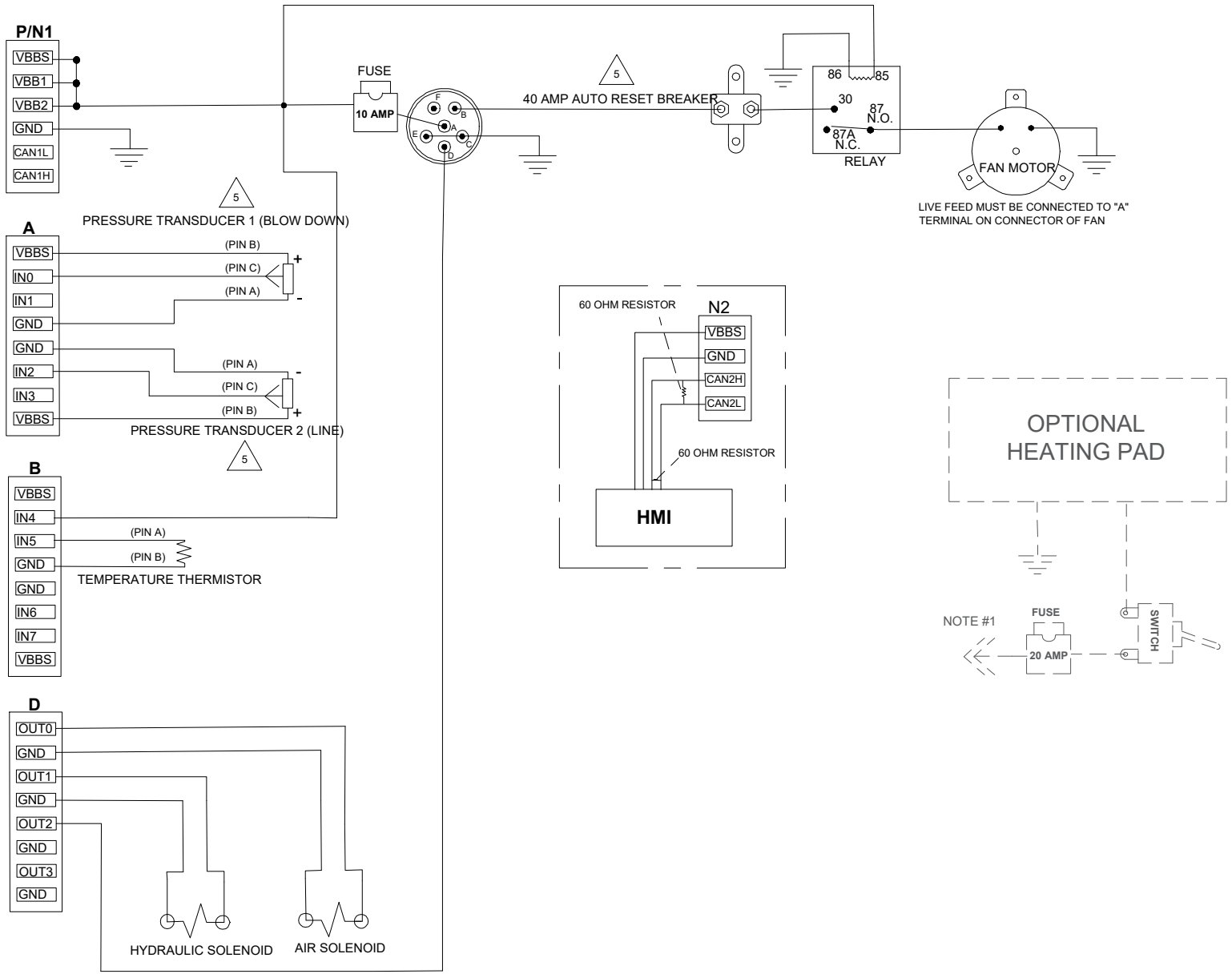
7.12 ELECTRICAL SCHEMATIC



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7.13 HOSE INSTALLATION GUIDE

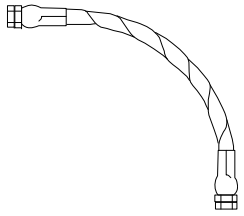
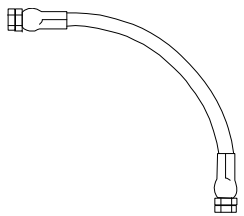
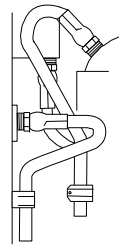
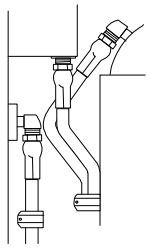
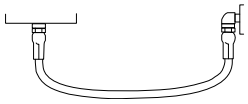
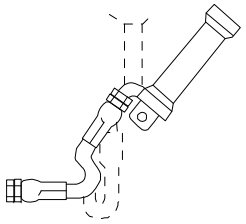
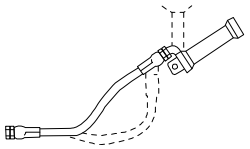
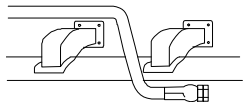
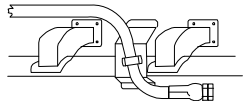
HOSE LAYOUT CONSIDERATION	WRONG	RIGHT	HOSE LAYOUT CONSIDERATION	WRONG	RIGHT
1. Hose is weakened when installed in twisted position. Pressure in twisted hose tends to loosen fitting connections. Design so that machine motion produces bending rather than twisting.			4. Use elbows or other adapters as necessary 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.		

TABLE 7C: MAINTENANCE TRACKING LOG

DATE	DESCRIPTION OF MAINTENANCE	PART(S) REPLACED	DATE	DESCRIPTION OF MAINTENANCE	PART(S) REPLACED

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IOWA MOLD TOOLING CO., INC.

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