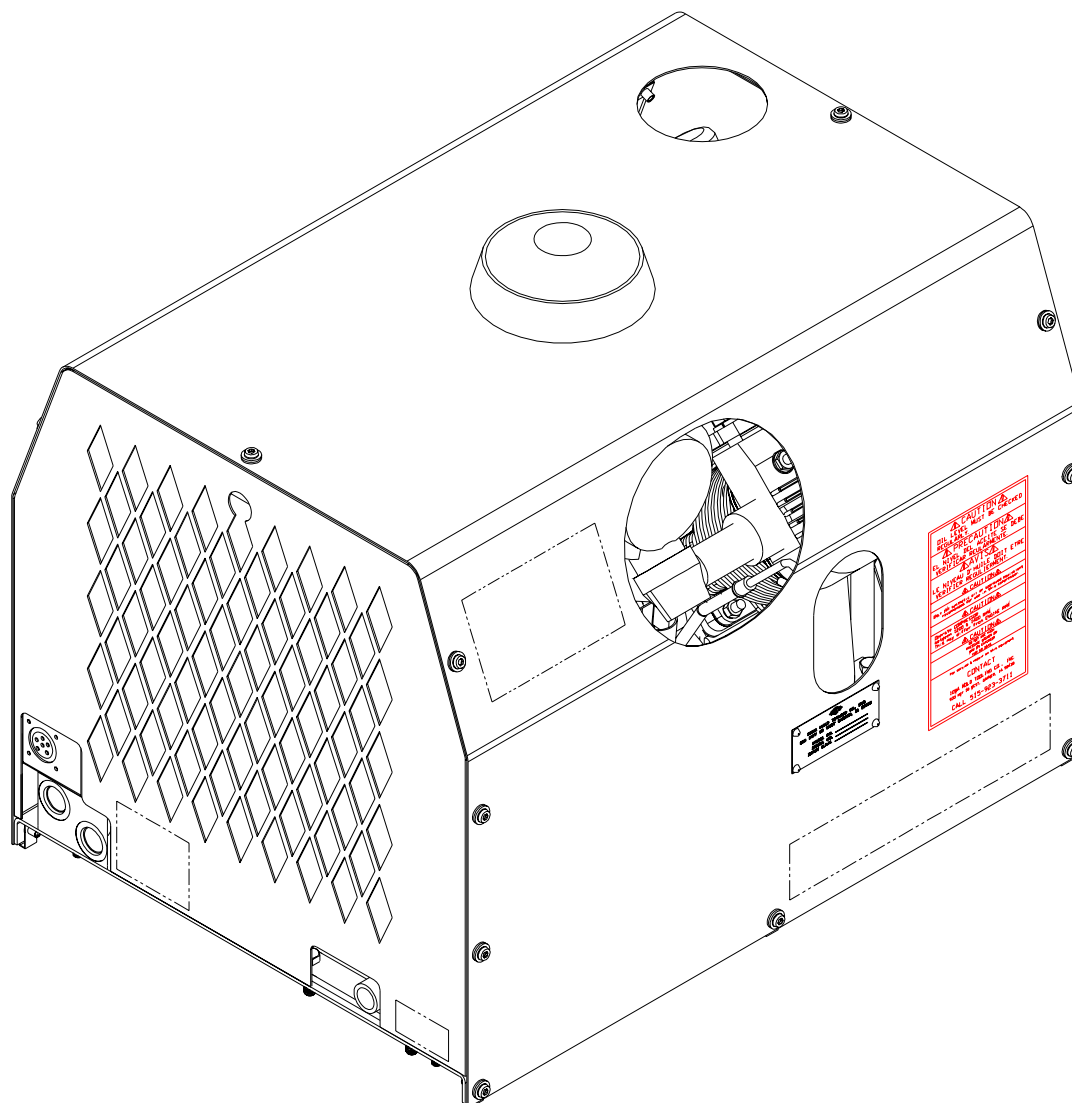


MODEL CAS435HA AIR COMPRESSOR

Reference 20013-002

EFFECTIVE SERIAL #:THP-19934-1005



IOWA MOLD TOOLING

BOX 189, 500 HWY 18 WEST, GARNER, IA 50438

TEL: 641-923-3711

TECHNICAL SUPPORT FAX: 641-923-0097

MANUAL PART NO. 99903795

Iowa Mold Tooling Co., Inc. is an Oshkosh Corporation company.

REVISIONS LIST

DATE	LOCATION	DESCRIPTION OF CHANGE
20060118	4-6	ADDED 70734066 PART NUMBER TO COMPRESSOR ASSEMBLY DRAWING
20080214	ALL	ECN 10421 - REMOVED DIAMOND AIR LOGO, DA435 NAME FROM PRODUCT. REPLACED WITH CAS435.
20130612	4-6	UPDATED PART NUMBER 303500M TO 308148 PER ENGINEERING MARK-UP.

PRECAUTIONS

READ BEFORE OPERATING COMPRESSOR





DANGER

EXPLODING TANK WILL CAUSE DEATH, SERIOUS INJURY OR PROPERTY DAMAGE

- Drain air tank after each use to prevent moisture build-up and corrosion which leads to tank failure.
- Assure that tank and compressor relief valves work properly, and are at correct pressure settings.
- DO NOT modify or repair air tank.
- NEVER drive vehicle with pressure in air tank.

71393886



Failure to follow operating and maintenance procedures as outlined in this manual could result in equipment damage, personal injury or death. Follow all maintenance procedures and intervals.



Do not use air from this compressor for breathing or food processing. Air from this compressor will cause severe injury or death if used for breathing or food processing.



Maintenance must be performed only by trained and qualified personnel, using correct tools, specified torques and approved replacement parts.



Hot oil under pressure can cause severe injury or death. Shut down, let cool and relieve pressure in compressor before servicing.



All electrical components and cable wiring must be installed and grounded in accordance with NFPA, national electrical codes and applicable state and local codes.



Do not overfill the compressor with oil. Use correct quantity of manufacturer's lubricant. Repair leaks and clean spills immediately.



Before removing guards or servicing the compressor, disconnect all power supplies. Display warning signs and lock out electrical circuits.



Compressors generate high temperatures. Do not touch or otherwise come in contact with hot surfaces. Doing so can cause severe personal injury.



All guards must be in position and secure before and during operation.

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SECTION 1. INTRODUCTION AND SPECIFICATIONS

1-1. INTRODUCTION

This manual provides information on the installation, operation and repair of the IMT Model CAS435HA Hydraulic Air Compressor.

Three means are used throughout this manual to gain the attention of operating and service personnel. They are NOTES, CAUTIONs and WARNINGs and are defined as follows:

NOTE

A NOTE IS USED TO EITHER CONVEY ADDITIONAL INFORMATION OR TO PROVIDE FURTHER EMPHASIS FOR A PREVIOUS POINT.

CAUTION

A CAUTION IS USED WHEN THERE IS THE STRONG POSSIBILITY OF DAMAGE TO THE EQUIPMENT OR PREMATURE EQUIPMENT FAILURE.

WARNING

A WARNING IS USED WHEN THERE IS THE POTENTIAL FOR PERSONAL INJURY OR DEATH.

Operate this equipment with respect and service it regularly for a safer working environment and longer equipment life.

1-2. ORDERING INFORMATION

When placing orders or requesting assistance, refer to the information below:

1-3. GENERAL INFORMATION

The IMT CAS435HA air compressor is a single stage, air cooled, 4-cylinder, pressure lubricated, hydraulically driven unit, with a delivery rate of 35 CFM at 100 PSI.

CAUTION

OPERATING THE COMPRESSOR AT PRESSURES ABOVE 150 PSI WILL SHORTEN THE SERVICE LIFE AND VOID THE WARRANTY.

1-4. SPECIFICATIONS

Power Source	Hydraulic Motor
Bore	2-5/8"
Stroke	2-1/2"
Cylinder Configuration	V4
Dimensions	26-1/2"L x 19-1/8"H* x 19-3/4"W
Displacement	44 CFM**
Delivery	35 CFM**
Cooling	Air
Fan Diameter	14-1/8"
Operating Speed	1400 RPM maximum
Lubrication	Oil Pump
Oil Capacity	1-1/3 qts
Weight	200 lbs.
Reservoir requirement	12 Gallon minimum
Normal GPM @1400rpm	9.3 GPM
Normal Operating PSI	1850 PSI
Maximum PSI	2400 PSI

* Add 2-5/8" to height for air filter cap.

** @ 1400 RPM - 100 PSI

TO BE COMPLETED BY DEALER

CHASSIS INFORMATION	
TRANSMISSION MAKE:	MODEL:
PTO NUMBER:	PTO %:
COMPRESSOR AND HYDRAULIC PUMP INFORMATION	
COMPRESSOR MODEL:	SERIAL NUMBER:
PUMP MAKE:	MODEL:
RESERVOIR CAPACITY:	ENGINE RPM:

NOTES

[illegible]

SECTION 2. INSTALLATION

2-1. GENERAL

This section pertains to the installation of the IMT CAS435HA compressor, PTO and pump. The instructions are intended as a guide to assist you with your particular installation. These instructions will provide only general information.

2-2. PTO AND PUMP INSTALLATION

The pump may either be installed directly on the PTO (see Figure B-1) or, as an optional method, it may be driven by a driveline (see Figure B-2).

2-2-1. PTO INSTALLATION

Power take-off manufacturers provide specific installation instructions for their products. Those instructions should be followed when installing a PTO. Check with the PTO manufacturer's representative for specific instructions regarding your particular make, model and year of vehicle. The following instructions are a guide in this application.

1. If the vehicle is new, drain the transmission oil into a clean container for reuse. If the vehicle is used, drain and dispose of the transmission oil properly.

2. Temporarily install the PTO with the proper gaskets and only two studs. Snug the PTO down and check the backlash for maximum allowance of .006" to .012". If the backlash is excessive, remove gaskets and check backlash again until it is corrected.

3. Remove the PTO and apply Permatex® to the gaskets. If the holes for the studs are tapped through the transmission housing, apply Permatex to the studs and tighten them down. Make certain that the studs do not interfere with the transmission gears.

CAUTION

AVOID CONTACT OF PERMATEX WITH TRANSMISSION FLUID.

Registered Trademark of Permatex Co., Inc., Kansas City, Kansas

4. Install the PTO and gaskets. Torque the nuts to 30 - 35 ft-lbs (4.14 - 4.84 kg-m) for a 6-bolt PTO and 45 - 50 ft-lbs (6.22 - 6.91 kg-m) for 8-bolt PTO. Recheck the backlash.

5. Install the shifter cable to suit conditions. Always allow for a slight overshift on lever or knob to ensure the PTO is fully disengaged.

CAUTION

IT IS IMPORTANT THAT ADEQUATE SPACE BE ALLOWED FOR FULL ENGAGEMENT OF THE PTO. MODIFY THE EXHAUST OR OTHER OBSTRUCTIONS AS NEEDED.

CAUTION

AVOID SHARP BENDS IN THE SHIFTER CABLE. ALL BENDS SHOULD HAVE AT LEAST A 6" RADIUS. TIGHTER BENDS WILL CAUSE DIFFICULT OPERATION OF THE SHIFTER KNOB.

6. Replace the transmission oil. If the PTO is located below the transmission oil level, an additional quantity of oil will be required.

7. Start the engine, engage the PTO and check for proper PTO rotation. Allow it to run for 5 - 10 minutes. Check for leaks, unusual noise and proper operation.

8. Retorque the mounting bolts.

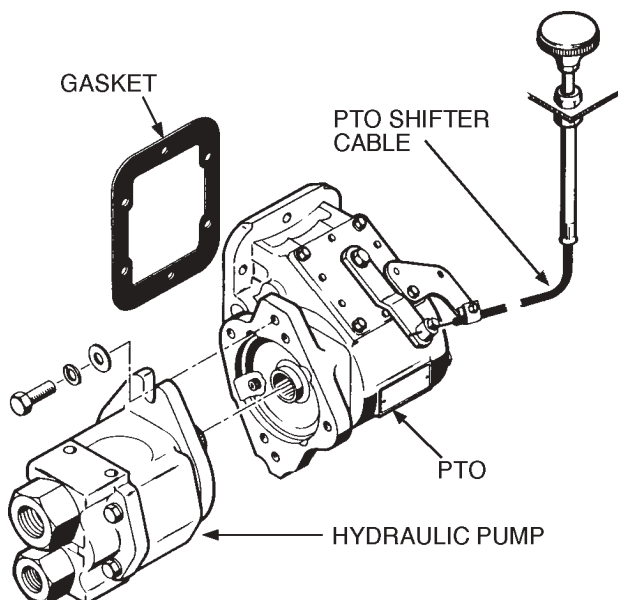


FIGURE B-1. PTO INSTALLATION

2-2-2. DRIVELINE AND PUMP INSTALLATION

The pump may be driven as shown in Figure B-2 as an optional method to the one shown in Figure B-1. The following steps are a guide in this application.

NOTE

BEFORE INSTALLING DRIVELINE, REFER TO PARAGRAPH 2-4 FOR PROPER DRIVELINE INSTALLATION TECHNIQUES.

1. Install the PTO (refer to Paragraph 2-2-1).
2. Loosely bolt the pump mounting bracket (A) to the adjustable bracket (B) in Figure B-2.
3. Bolt the adjustable bracket to the frame at a point that will not exceed 48" (122cm) from the PTO and will not cause a joint angle greater than 3°.
4. Check the pump rotation and install pump, pump end yoke and PTO end yoke.
5. Size, cut and weld the driveline to the necessary length. Ensure driveline balance and run out meet specification. Allow 1" (2.54cm) extra for PTO end yoke.
6. Install driveline in phase with proper operating angle calculations, lock set screws and grease U-joints and mating spline.
7. Ensure all mounting bolts are tight.

2-3. COMPRESSOR INSTALLATION

See Installation Kit Drawing in the Parts Section for specific installation and parts information.

WARNING

THE DRIVELINE INSTALLER MUST INSPECT THE FINAL POSITION OF THE DRIVELINE TO DETERMINE WHETHER ITS LOCATION PROVIDES SUFFICIENT PROTECTION TO AN OPERATOR, OR OTHER PERSONNEL, FROM HAZARDS ASSOCIATED WITH A ROTATING DRIVELINE. IF PROTECTION IS INSUFFICIENT, THE INSTALLATION OF A GUARD IS REQUIRED. IF YOU ARE UNSURE OF METHODS TO GUARD A ROTATING DRIVELINE, CALL IOWA MOLD TOOLING CO., INC. FOR INSTRUCTIONS. FAILURE TO DO SO MAY RESULT IN SERIOUS INJURY OR DEATH.

! DANGER



**CONTACT WITH A ROTATING DRIVELINE
WILL CAUSE
DEATH OR SERIOUS INJURY
KEEP AWAY**

- Keep clear of rotating drive shaft.
- Never work on or near an installed power take-off or driveline with the engine running.

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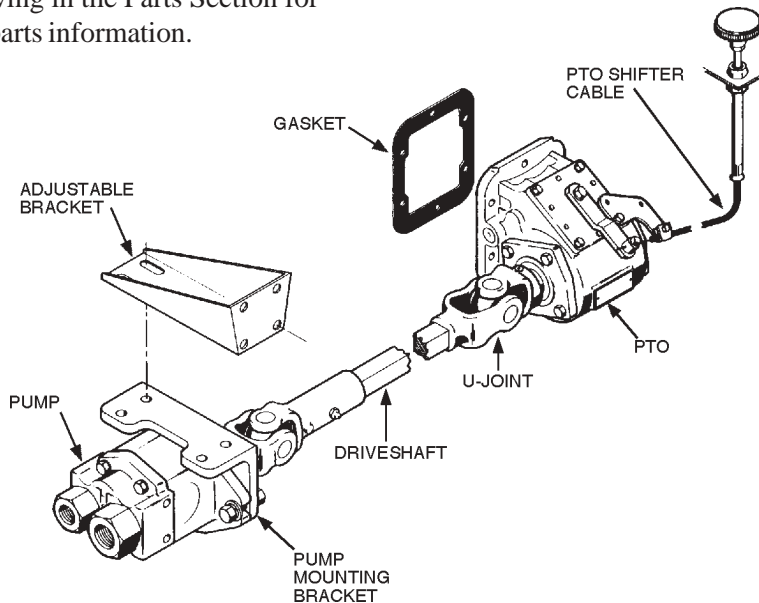


FIGURE B-2. DRIVELINE & PUMP INSTALLATION

2-4. DRIVELINE INSTALLATION TECHNIQUES

2-4-1. U-JOINT OPERATING ANGLES

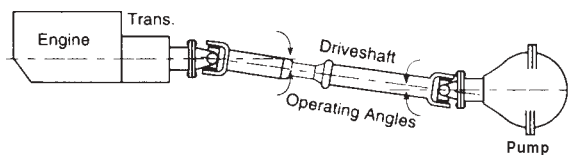
Every U-joint that operates at an angle creates vibration.

U-joint operating angles are probably the most common cause for driveline vibration in vehicles that have been reworked or that have had auxiliary equipment installed.

When reworking a chassis or installing a new driveshaft in a vehicle, make sure that you follow the basic rules that apply to u-joint operating angles, as follows:

1. U-joint operating angles at each end of a shaft should always be at least 1° .
2. U-joint operating angles on each end of a driveshaft should always be equal within 1° of each other.
3. U-joint operating angles should not be larger than 3° . If more than 3° , make sure they do not exceed the maximum recommended angles for the RPM at which they will be operating.

A u-joint operating angle is the angle that occurs at each end of a driveshaft when the output shaft of the transmission and the input shaft of the pump are not in line. See figure.

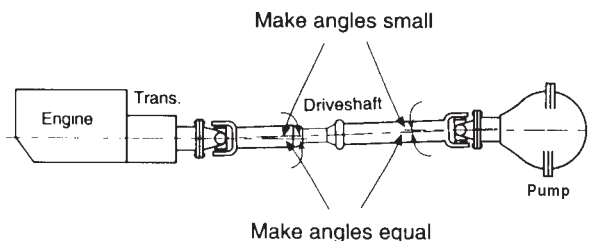


The connecting driveshaft operates with an angle at each u-joint. It is that angle that creates a vibration.

REDUCING AND CANCELING VIBRATION

A key point to remember about u-joint operating angles: To reduce the amount of vibration, the angles on each end of a driveshaft should always be **SMALL**.

To cancel an angle vibration, the u-joint operating angles need to be **EQUAL** within 1° at each end of a shaft. See figure.



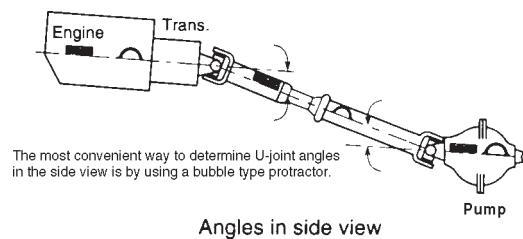
2-4-2. SINGLE PLANE AND COMPOUND U-JOINT OPERATING ANGLES

There are two types of u-joint operating angles, single plane and compound.

SINGLE PLANE

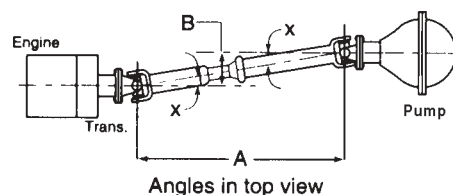
Single plane angles occur when the transmission and pump components are in line when viewed from either the top or side, but not both.

Determine the u-joint operating angle in an application where the components are in line when viewed from the top, but not in line when viewed from the side, is as simple as measuring the slope of the components in the side view, and adding or subtracting those slopes to determine the angle. See figure.



These angles should be **SMALL** and equal within 1° .

Determine the u-joint operating angles on a shaft that is straight when viewed from the side and offset when viewed from the top requires the use of a special chart (See accompanying chart). In this type of application, the centerlines of the connected components must be parallel when viewed from the top, as shown. These angles should also be **SMALL** and equal within 1° . See figure.



Look at the angle chart and note that the smaller the offset, the smaller the resultant angle.

To reduce the possibility of vibration, keep any offset between connected points to a minimum.

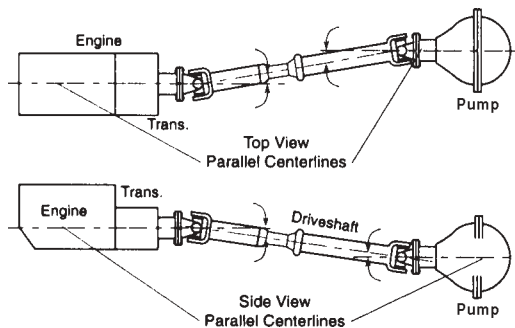
There are two things which can be done to make certain single plane angles are **SMALL** and **EQUAL**:

Make sure that the transmission and pump are mounted so that their centerlines are parallel when viewed from both the side and the top.

Make sure the offset between them is small in both views.

COMPOUND ANGLES

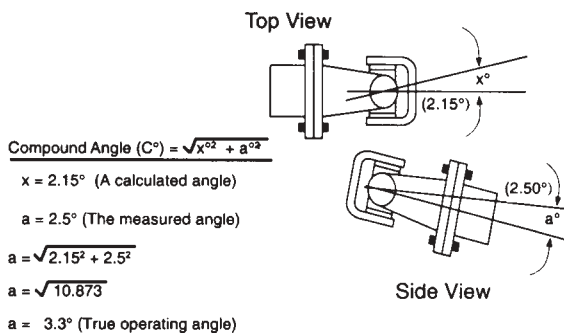
Compound u-joint operating angles occur when the transmission and pump are not in line when viewed from both, the top and side. Their centerlines, however, are parallel in both views. See figure.



TRUE U-JOINT OPERATING ANGLE

The true u-joint operating angle, which must be calculated for each end of the shaft with compound angles, is a combination of the u-joint operating angle in the top view, as determined from the chart, and the measured u-joint operating angle in the side view.

To determine the true u-joint operating angle for one end of a shaft, (compound angle C° in the formula shown in figure below) insert the u-joint operating angle measurement obtained in the side view and the u-joint operating angle obtained from the chart into the formula.



Do the same for the other end of the shaft. Compare the resultant calculated u-joint operating angle for

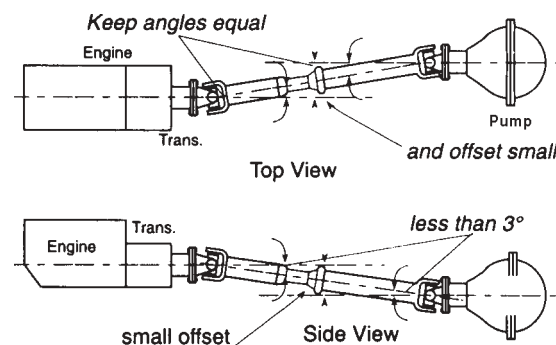
each end. They should be **EQUAL** within 1° . If they are not, the driveshaft will vibrate.

2-4-3. ELIMINATING COMPOUND ANGLE INDUCED VIBRATIONS

Compound u-joint operating angles are one of the most common causes for driveline vibration. To avoid these problems, remember these important considerations:

When setting up an application that requires compound u-joint operating angles, always keep the centerlines of the transmission and pump parallel in both views.

Always keep the offset between their horizontal and vertical centerlines small.



NOTE

CENTERLINES OF TRANSMISSION AND AXLE MUST BE PARALLEL IN BOTH TOP AND SIDE VIEWS TO USE THIS METHOD OF DETERMINING TRUE U-JOINT OPERATING ANGLE. CONTACT IMT TECHNICAL SUPPORT IF YOU HAVE AN APPLICATION WHICH CANNOT BE INSTALLED WITH THEIR CENTERLINES PARALLEL.

2-4-4. ANGLE SIZE

The magnitude of a vibration created by a u-joint operating angle is proportional to the size of the u-joint operating angle. IMT recommends true u-joint operating angles of 3° or less.

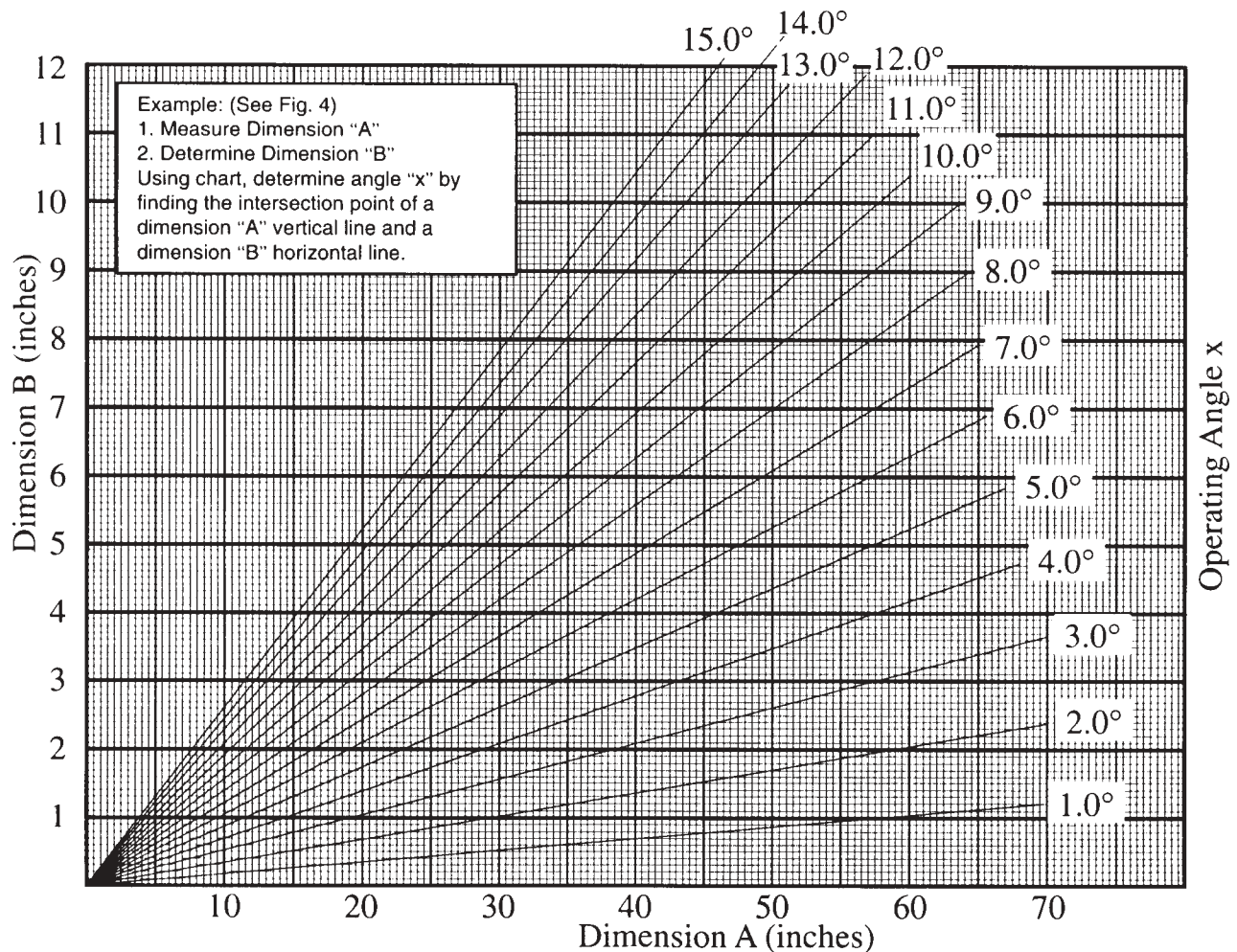
Obtain the true u-joint operating angle, as explained above, and if it is greater than 3°, compare it to the following chart.

The angles shown on the chart are the MAXIMUM u-joint operating angles recommended by IMT and are directly related to the speed of the driveshaft. Any u-joint operating angle greater than 3° will lower u-joint life and may cause vibration. Remember to check maximum safe driveshaft RPM as recommended by the driveshaft manufacturer.

DRIVESHAFT RPM	MAXIMUM OPERATING ANGLE
5000	3.2°
4500	3.7°
4000	4.2°
3500	5.0°
3000	5.8°
2500	7.0°
2000	8.7°
1500	11.5°

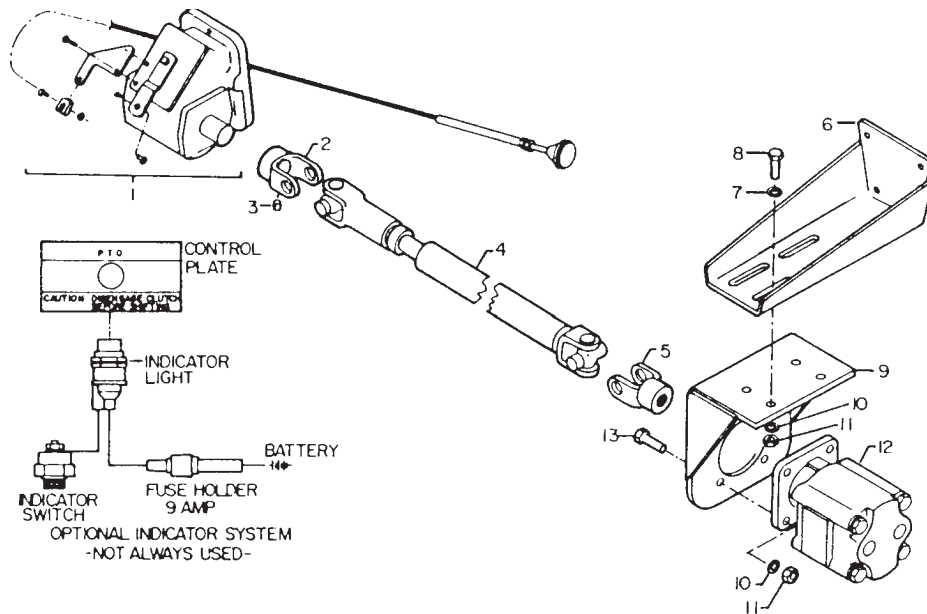
ANGLE CHART

FOR DRIVESHAFTS HAVING AN ANGLE IN THE TOP VIEW



2-5 DRIVELINE MOUNTING OPTION (31701761)

ITEM	PART NO.	DESCRIPTION	QTY
1.		POWER TAKE-OFF	REF
2.	70058146	END YOKE	1
3.	72060578	SET SCR 3/8-16X3/8 HH	1
4.	70058195	DRIVESHAFT ASM	1
5.	70058094	END YOKE	1
6.	60101988	MOUNTING BRACKET	1
7.	72063005	WASHER 1/2 WRT	4
8.	72060093	CAP SCR 1/2-13X1/2 HHGR5	4
9.	52703382	PUMP MOUNTING BRACKET	1
10.	72063053	WASHER 1/2 LOCK	8
11.	72062004	NUT 1/2-13 HEX	8
12.		HYDRAULIC PUMP	REF
13.	72060094	CAP SCR 1/2-13X1-3/4 HHGR5	4



WARNING

THE INSTALLER OF THE DRIVELINE MUST INSPECT THE FINAL POSITION OF THE DRIVELINE TO DETERMINE WHETHER ITS LOCATION PROVIDES SUFFICIENT PROTECTION TO AN OPERATOR, OR OTHER PERSONNEL, FROM HAZARDS ASSOCIATED WITH A ROTATING DRIVELINE. IF PROTECTION IS INSUFFICIENT, THE INSTALLATION OF A GUARD IS REQUIRED. IF YOU ARE UNSURE OF METHODS TO GUARD A ROTATING DRIVELINE, CALL IOWA MOLD TOOLING CO., INC. FOR INSTRUCTIONS. FAILURE TO DO SO MAY RESULT IN SERIOUS INJURY OR DEATH.

! DANGER



CONTACT WITH A ROTATING DRIVELINE
WILL CAUSE
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KEEP AWAY

- Keep clear of rotating drive shaft.
- Never work on or near an installed power take-off or driveline with the engine running.

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2-6 REPAIR KITS

GASKET KIT (51393217)

76039092	GASKET-REAR BRG HSG .006	2
76039093	GASKET-PUMP COVER	1
76039094	GASKET-REAR BRG HSG .010	2
76039111	GASKET-CYL BLOCK BOTTOM	2
76039112	GASKET-FRT BRG HSG	2
76039119	SEAL	1
76039143	GASKET-REAR BRG HSG .015	2
76039144	GASKET-REAR BRG HSG .020	2
76392119	GASKET-CYL BLOCK	2
76392641	GASKET-REED VALVE/CYL	2
76392642	GASKET-REED VALVE/HEAD	2

PISTON RING SET (51014947)

70014599	COMPRESSION RING	8
70014600	OIL RING	4

CRANKSHAFT KIT (51705743)

51705742	CRANKSHAFT ASM(INCL: KEY & CRANK)	1
70055010	BEARING-REAR CUP	1
70055011	BEARING-FRT CUP	1
70055012	BEARING-FRT CONE	1
70055009	BEARING-REAR CONE	1
72066307	DRIVE PIN	1
60101269	OIL PUMP COLLAR	1

SECTION 3. OPERATION

3-1. GENERAL

Each compressor is bench tested under load at the factory to ensure proper break-in and operation. While it is not necessary to follow any break-in procedure, the following checks should be made before putting the unit into service, as well as, periodically during use.

1. Before start-up:

A. Check the oil level in the compressor crankcase with the dipstick on the unit. If oil is needed, use only IMT's synthetic compressor oil. Always check compressor oil level with the truck and compressor on level ground.

B. Check the air intake filter to make certain that it is clean and unobstructed. A dirty filter is a possible cause of reduced air output.

C. Avoid operating the compressor package when the side-to-side or front-to-rear tilt is greater than 20 degrees.

2. With the compressor engaged:

Adjust engine speed to ensure that compressor speed does not exceed 1400 RPM (max) under load. Crack open air discharge valve until air pressure drops to 140 PSI and maintains this pressure without cycling. Doing so simulates a maximum load condition.

If engine speed increase is required, readjust air discharge valve to 140 PSI after speed has been increased. Repeat until appropriate compressor RPM (NOT engine) is achieved.

To check the compressor RPM, use a phototach on the drive coupling through the air cleaner access hole. A hydraulic flow meter can be used but is not as accurate.

3-2. OPERATION

To use the compressor, start the vehicle engine and engage the compressor by operating the compressor switch.

The system will now function automatically. It will engage the hydraulic solenoid when the air pressure is below 120 psi, and disengage when the air pressure reaches 150 psi.

CAUTION

OPERATING THIS UNIT IN EXCESS OF 1400 RPM, WILL VOID THE WARRANTY, AND WILL SHORTEN THE NORMAL SERVICE LIFE OF THE COMPRESSOR.
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SECTION 4. MAINTENANCE & PARTS

4-1. GENERAL

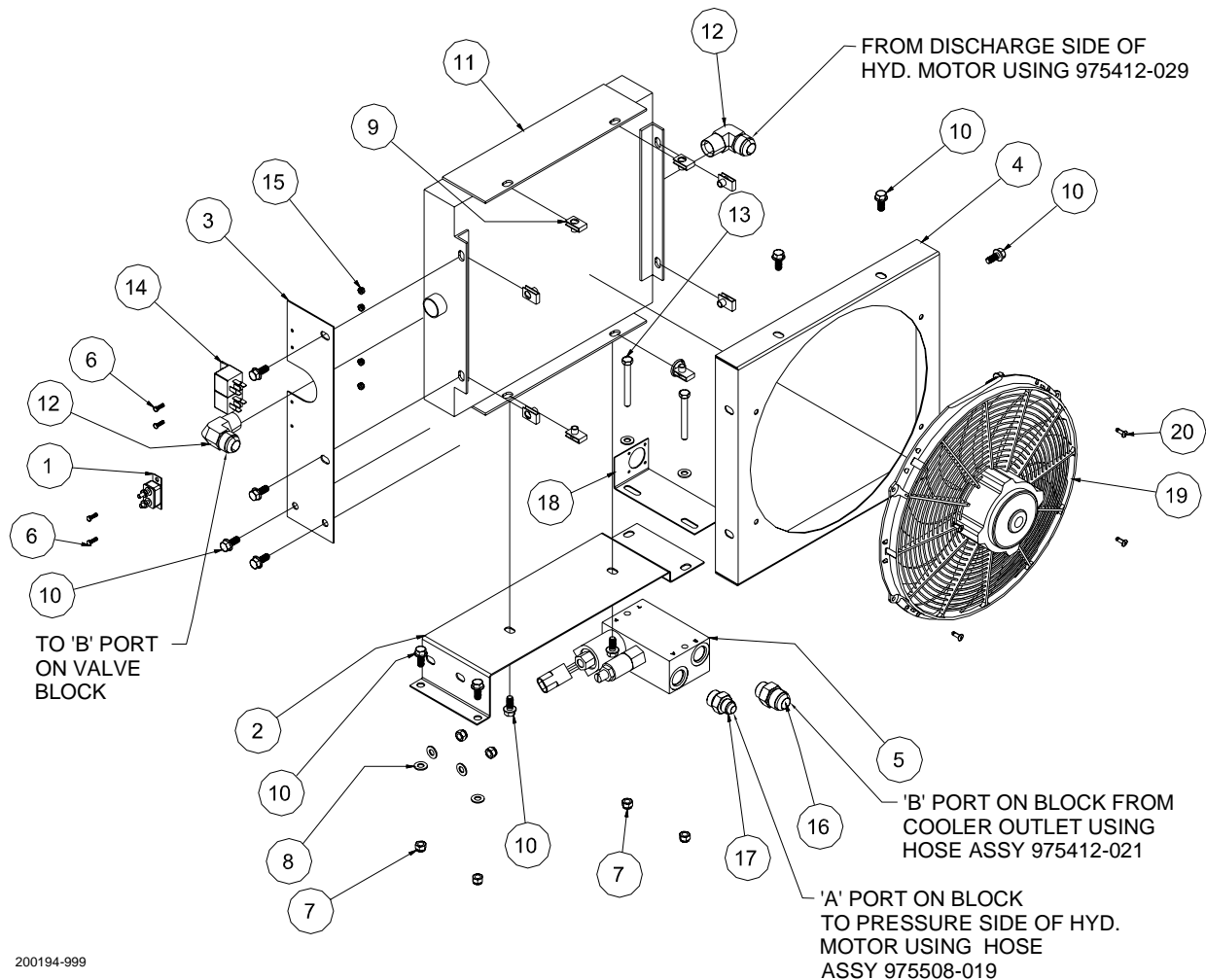
The following table provides list of routine maintenance items, including service intervals. The remainder of Section 4 includes a part lists and assembly drawings of the compressor.

MAINTENANCE OPERATION	SERVICE INTERVALS			
	DAILY	WEEKLY	250/3	500/6
INSPECT DRIVE COUPLING FOR WEAR				
AIR CLEANER - CHANGE				
AIR INTAKE - INSPECT				
CRANKCASE OIL LEVEL - CHECK, ADD IF NEEDED				
CRANKCASE OIL - CHANGE (SEE NOTE 1)				
CHECK CYLINDER HEAD STUD TORQUE (SEE NOTE 2)				
COOLING VANES (FINS) - CLEAN				
AIR RECEIVER - DRAIN CONDENSATION				
RECEIVER SAFETY VALVES - CHECK OPERATION				
CHECK ALL ELECTRICAL CONNECTIONS				
CHECK FITTINGS AND AIR LINES FOR LEAKS				
<p>Service intervals are listed as hours/months, whichever occurs first.</p> <p>Use only IMT's synthetic compressor oil. The use of any other oil causes excessive carbon buildup, and will void the warranty on the compressor.</p> <p>NOTE 1. Under normal operating conditions, oil changes are required every 3 months. When operating in a dirty environment, change the oil and air filter more frequently as your particular operating conditions dictate. Oil capacity is 1-1/3 quarts.</p> <p>NOTE 2. Cylinder head stud torque MUST be checked after the initial 8-10 hours of operation. The compressor must be cold (room temperature) before retorquing of studs. Torque studs to 240 in-lbs plus or minus 10 in-lbs.</p>				

FIGURE D-1. ROUTINE MAINTENANCE CHECKLIST

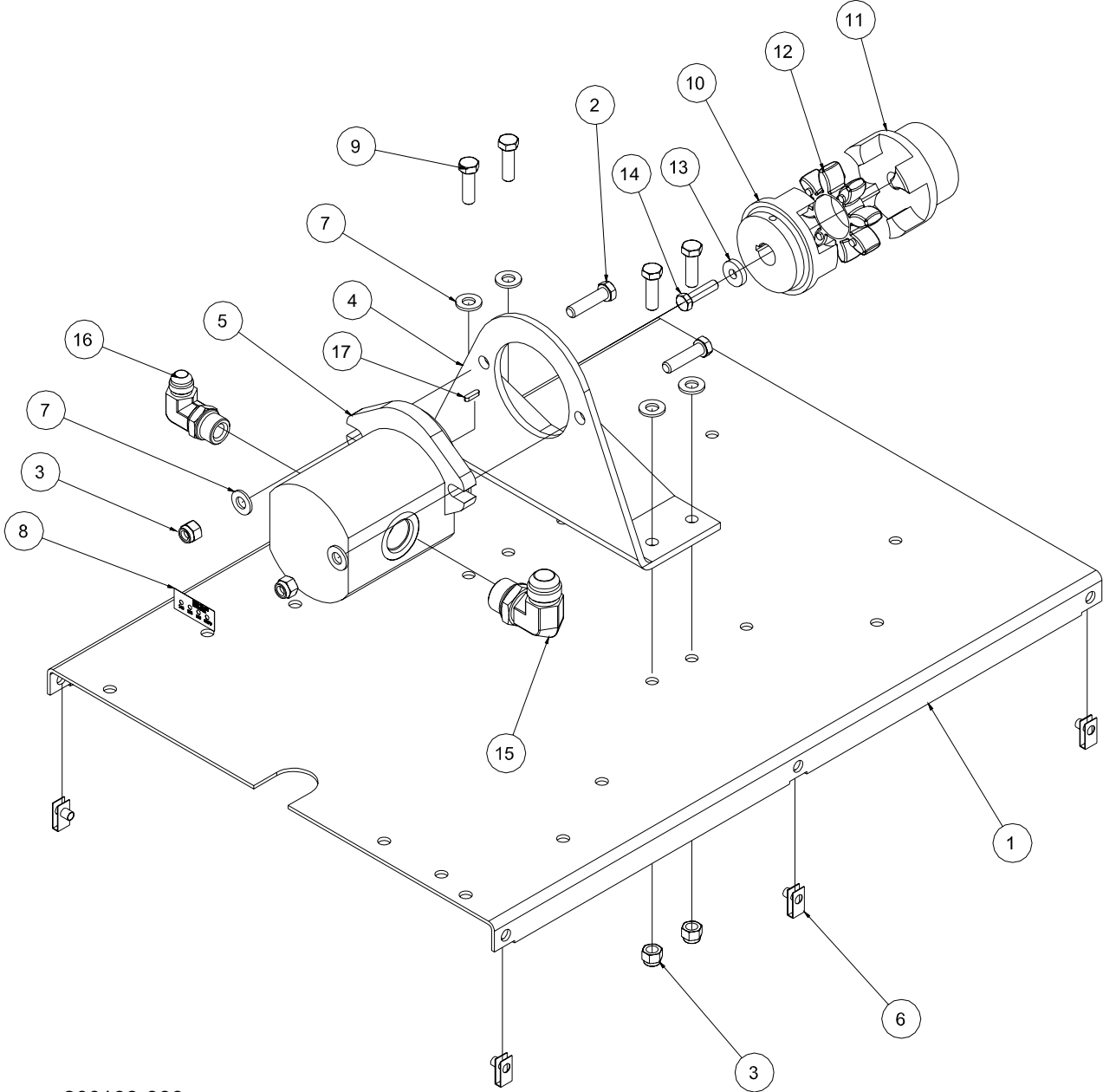
OIL COOLING SYSTEM

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	300909-025	BREAKER, 25 AMP CIRCUIT
2	1	301432	SUPPORT, OIL CLR 35-175 RS (REV 1)
3	1	301433	BRACKET, OIL CLR SIDE 35/100 (REV 2)
4	1	301434	SHROUD, OIL CLR FAN ASSY 13 (REV 1)
5	1	80061-12	BLOCK, HYD VALVE 10GPM 12V SAE10 FITTINGS
-	-	305245	COIL, 10 GPM VALVE BLOCK
-	-	305246	VALVE, 10 GPM VALVE BLOCK
-	-	305247	BLOCK, 10 GPM VALVE BLOCK
-	-	305248	VALVE/COIL ASSY, 10 GPM VALVE BLOCK
6	4	929102-050	BOLT, HEX GR5 #6-32 X 1/2
7	6	924305-166	NUT, NYLOC GR5 5/16-18
8	6	938605-071	WASHER, FLAT GR5 5/16
9	8	961505-140	NUT, TINNEMAN 5/16-18
10	12	929705-075	BOLT, WHIZLOCK GR5 5/16-18 X 3/4
11	1	300836	COOLER, OIL 13 X 12
12	2	960212-075	ELBOW, 3/4 JIC X 3/4 MNPT
13	2	929105-275	BOLT, HEX GR5 5/16-18 X 2 3/4
14	2	300211	RELAY, POWER
15	4	973700-063	NUT, HEX NYLOC GR2 #6-32
16	1	970512-088	CONNECTOR, 3/4 MJIC X -10 MSAE
17	1	970508-088	CONNECTOR, 1/2 MJIC X -10 MSAE
18	1	305244	BRACKET, DEUTSCH CONNECTOR
19	1	301577	FAN, PUSHER 13" 19 AMP
20	4	943104-038	RIVET, POP 1/4 X 3/8 ALUMINUM
NS	1	975412-029	HOSE ASSY, H145 3/4 X 29 SXS
NS	1	975412-021	HOSE ASSY, H145 3/4 X 22 SXS
NS	1	975508-019	HOSE ASSY, H145 1/2 X 19 SXE

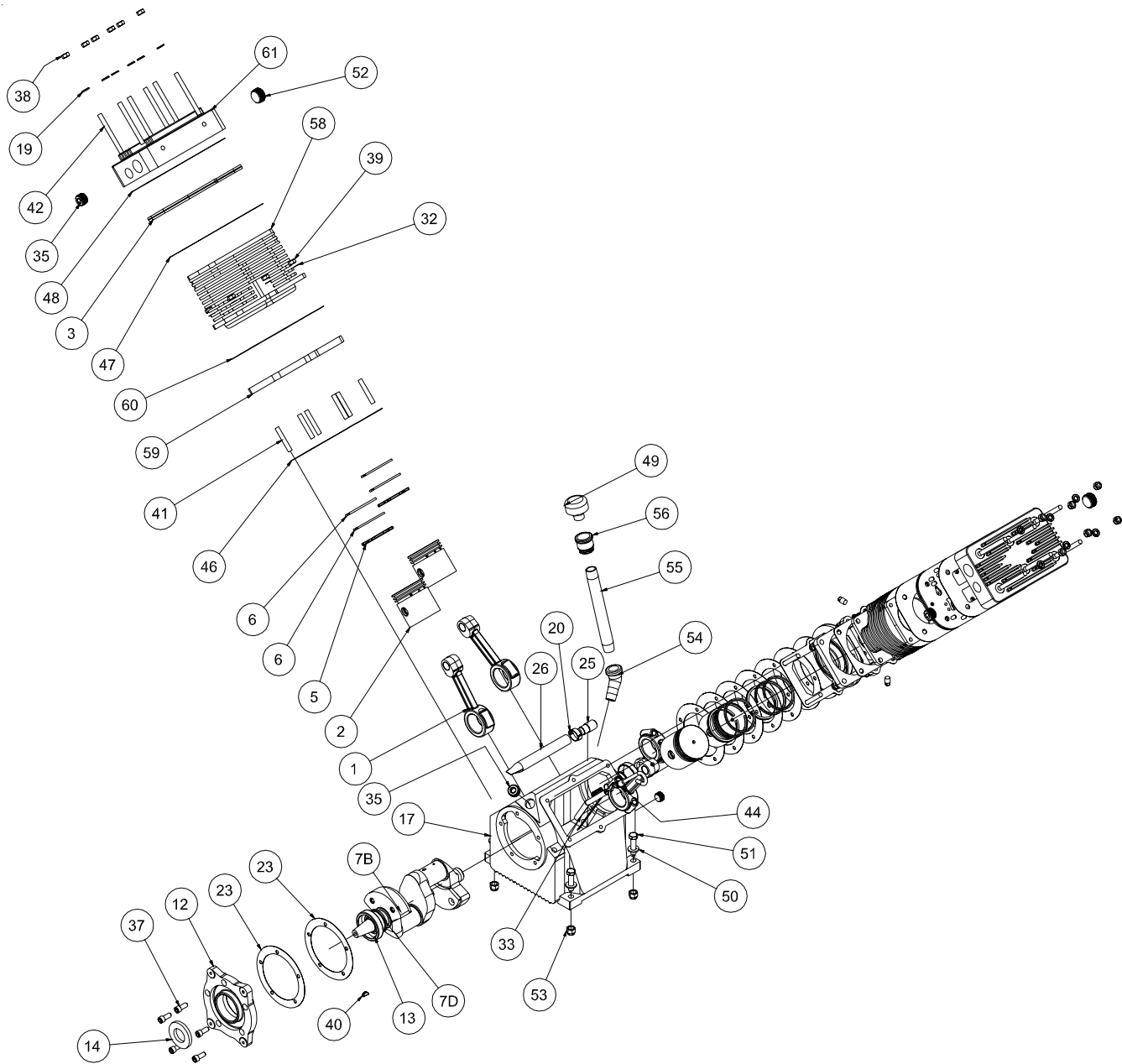


COMPRESSOR & MOTOR SYSTEM

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	301405	BASE, 35 RECIP IMT (REV 4)
2	2	929806-150	BOLT, HEX GR8 3/8-16 X 1 1/2
3	6	925506-198	NUT, NYLOC GR8 3/8-16
4	1	301248	BRACKET, HYD MOTOR MTG (REV 3)
5	1	301665	MOTOR, 1.58 CIR SAE "A" 3/4 ROUND SIDE PORT
6	6	961504-090	NUT, TINNEMAN 1/4-20
7	6	938206-071	WASHER, FLAT GR8 3/8
8	1	301593	DECAL, TEMP. HYD.-140 F30
9	4	929806-125	BOLT, HEX GR8 3/8-16 X 1 1/4
10	1	301266	HUB, DRIVE COUPLING R38 3/4
11	1	301265	HUB, COMPR COUPLING 35/175 (RECIP W/TAPER BORE)
12	1	301267	SPIDER, DRIVE COUPLING R38
13	1	301628	WASHER, HUB RECIP
14	1	929405-125	BOLT, HEX GR8 5/16-24 X 1 1/4
15	1	970412-106	ELBOW, HYD 3/4 MJIC X -12 MSAE
16	1	970408-088	ELBOW, HYD 1/2 MJIC X -10 MSAE
17	1	921103-075	KEY, 3/16 X 3/4 RD



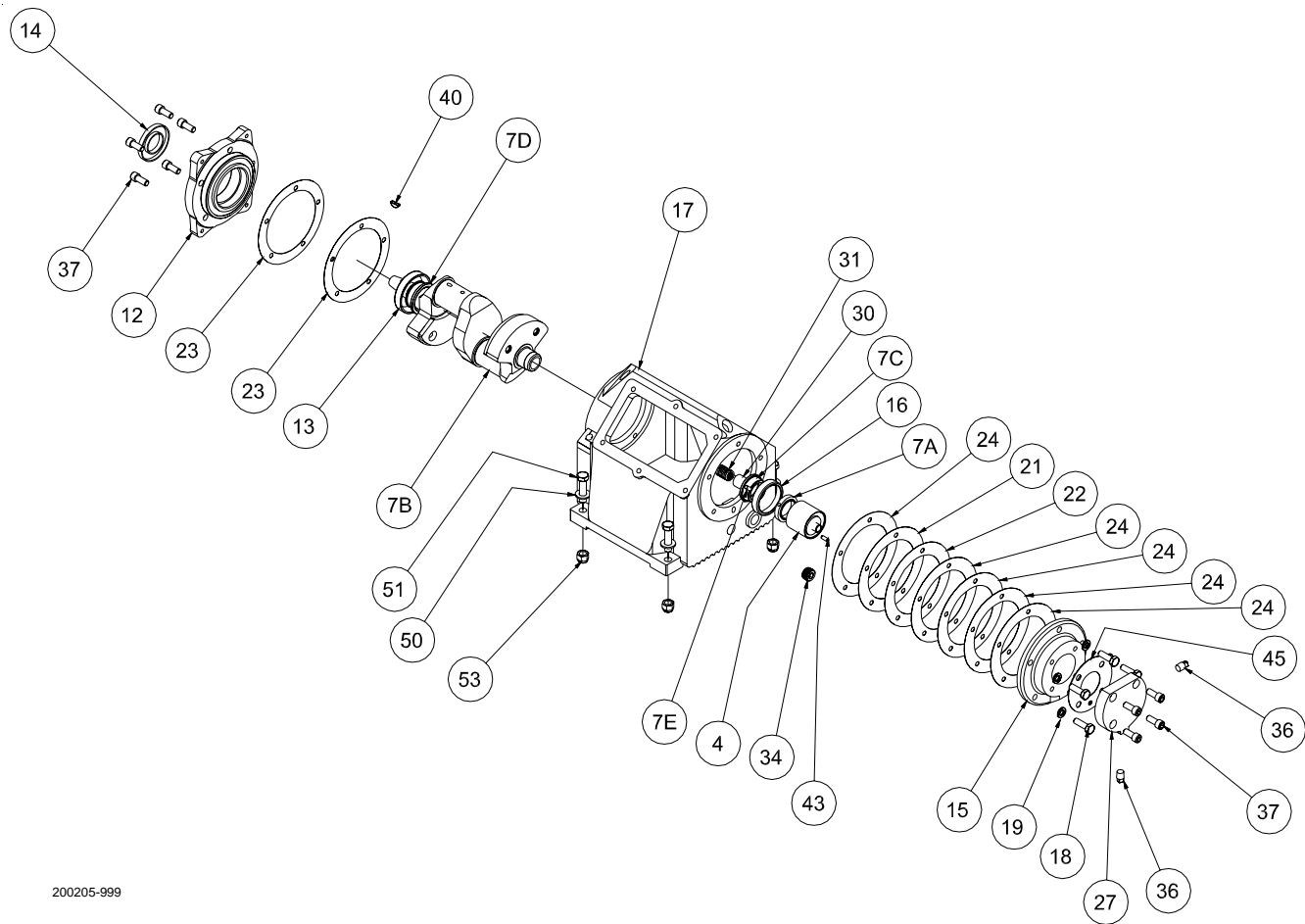
COMPRESSOR ASSEMBLY



200205-999

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COMPRESSOR ASSEMBLY



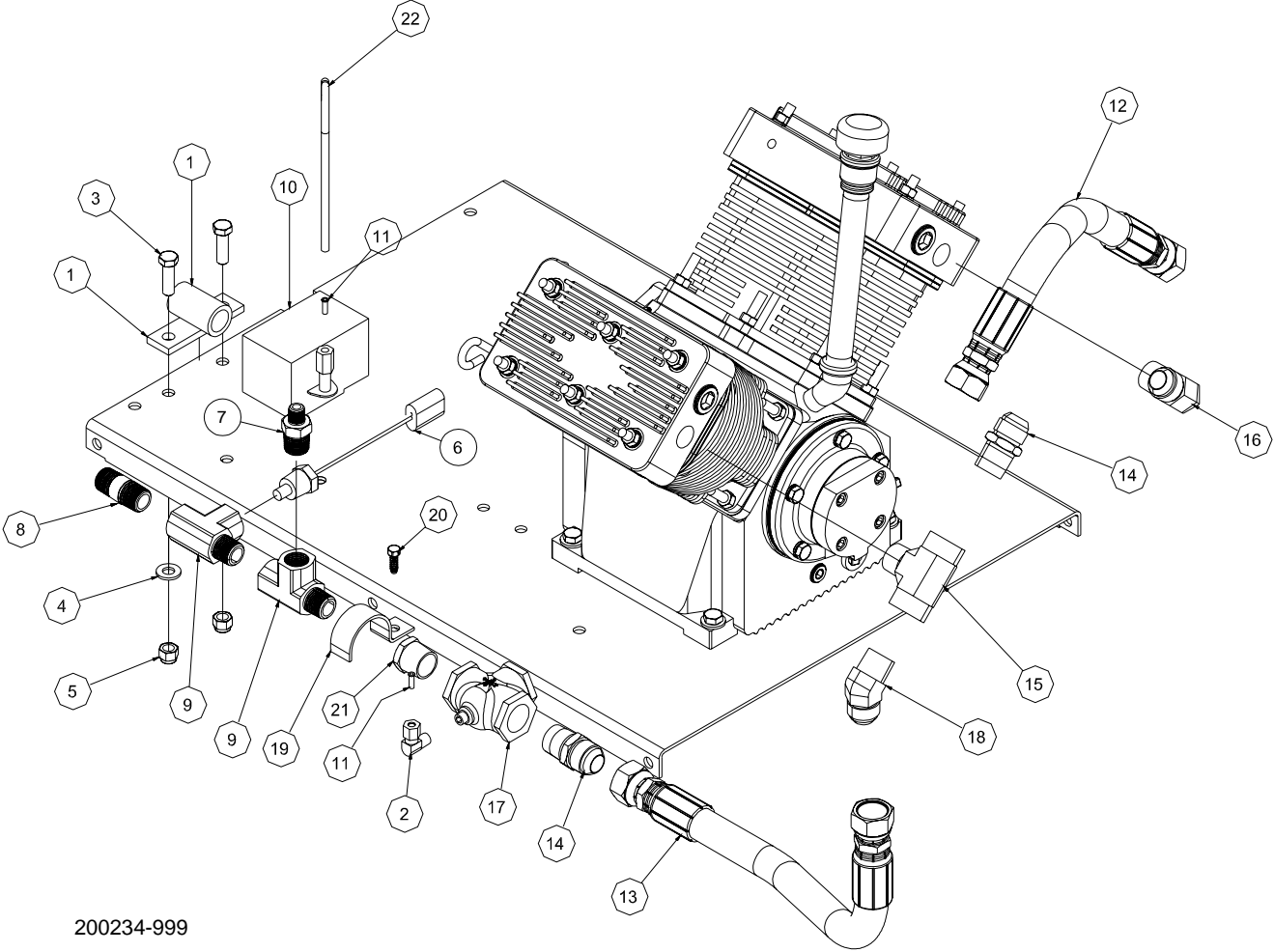
200205-999

COMPRESSOR ASSEMBLY

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
		70734066	COMPRESSORASSEMBLY, COMPLETE
1	4	51029283	ROD, ASM CONNECTING HD950
2	4	51029285	PISTON, ASM HD750-HD950
3	2	70733069	VALVE ASSY, REED CAS435EL/EAR/HAR
4	1	70051006	PUMP, OIL 37TRC-2
5	4	70014600	RING, OIL MUSKEGON
6	8	70014599	RING, COMPRSN MUSKEGON
7	1	51705661	ASSY, CRANKSHAFT
7A	1	60101269	COLLAR, OIL PUMP HD750/950/1250
7B	1	60108748	CRANKSHAFT, HD1250
7C	1	70055009	BEARING, CONE L44649
7D	1	70055012	BEARING, CONE LM67048
7E	1	72066307	PIN, ROLL .16 X .44
12	1	60025007	HOUSING, FRONT BEARING HD750/950
13	1	70055011	BEARING, CUP LM67010
14	1	76039119	SEAL, GREASE -CHI 01 12551
15	1	60025005	HOUSING, REAR BEARING HD750/950
16	1	70055010	BEARING, CUP
17	1	60025012	CRANKCASE, MACH V-4 COMPR
18	5	929105-100	BOLT, HEX GR5 5/16-18 X 1
19	17	938005-078	WASHER, LOC GR5 5/16
20	1	72066008	CLAMP, OIL SCREEN 1720
21	1	76039092	GASKET, REAR BEARING HOUSING .006 THK
22	1	76039094	GASKET, REAR BEARING HOUSING .010 THK
23	2	76039112	GASKET, FRONT BEARING HOUSING
24	5	76039144	GASKET, REAR BEARING HOUSING .020 THK
25	1	60101270	TUBE, OIL SCREEN
26	1	70014610	SCREEN, OIL HD750
27	1	60025006	COVER, REAR BEARING HOUSING COMPR
30	1	60101505	BUSHING, PLUNGER TRANSFER HD750
31	1	70014583	SPRING, OIL PUMP 19TRC63-74
32	12	70024122	WASHER, CU .33X .50X .03
33	1	70143153	TUBE, DIPSTICK HD1154
34	1	902915-015	PLUG, PIPE 3/8 RECESSED ZINC
35	3	902915-020	PLUG, PIPE 1/2 RECESSED ZINC
36	2	900000-005	PLUG, PIPE SQR HD 1/8 GAL
37	9	930005-075	BOLT, SOC HD GR5 5/16-18 X 3/4
38	12	925205-273	NUT, HEX GR5 5/16-18
39	12	925805-273	NUT, HEX GR5 5/16-24 ZINC
40	1	72066267	KEY, WOODRUFF .16 X .62
41	12	72601060	STUD, 5/16-24 X 2 NC GR5 STL
42	12	72601708	STUD, 5/16 X 3 1/2
43	1	72661487	PIN, DRIVE LOCK .16 X .44
44	1	73731843	DIPSTICK, ASM-HD1154
45	1	76039093	GASKET, PUMP COVER QAS 30
46	2	76039111	GASKET, CYL BLOCK BOTTOM
47	2	76392641	GASKET, REED VALVE/CYL HD1154
48	2	76392642	GASKET, REED VALVE/HD HD1154
49	1	70143495	CAP, BREATHER ANTI SPLASH BFFL
50	4	938206-071	WASHER, FLAT GR8 3/8
51	4	929806-150	BOLT, HEX GR8 3/8-16 X 1 1/2
52	2	902915-030	PLUG, PIPE 3/4 RECESSED ZINC
53	4	925506-198	NUT, NYLOC GR8 3/8-16
54	1	903315-020	ELBOW, PIPE 45° STREET 1/2
55	1	922108-070	NIPPLE, PIPE 1/2 X 7 GAL SCH40
56	1	971612-050	BUSHING, BELL RED 3/4 X 1/2
57	1	70039300	PLACARD, AIR COMPR MODEL # (NOT SHOWN)
58	2	70029292	CYLINDER BLOCK-CASTING MACHINE
59	2	70029293	SPACER-CYLINDER BLOCK HD950
60	2	76392119	GASKET-CYL BLOCK HD950
61	2	308148	HEAD, COMPRESSOR MACHINING

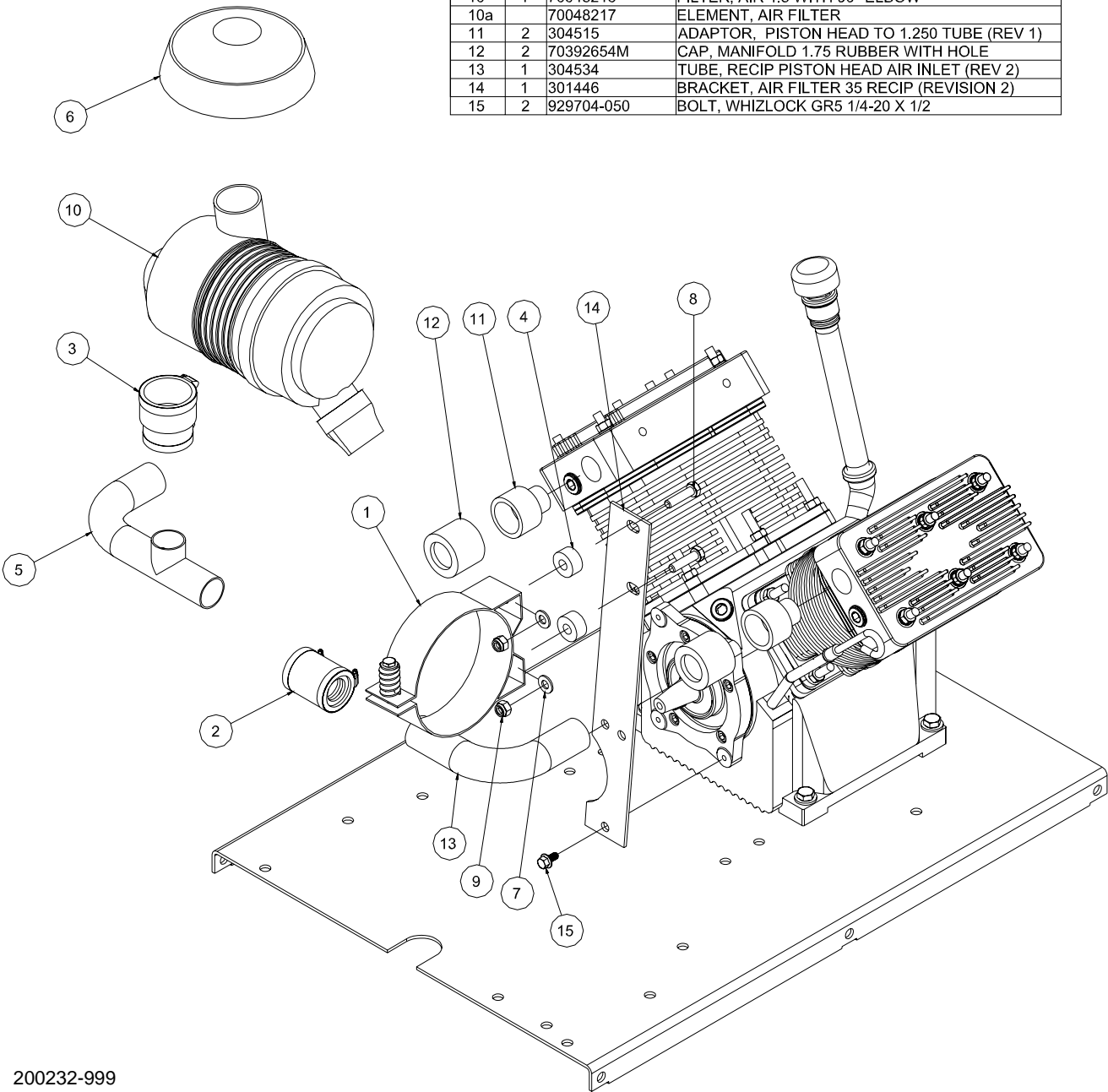
AIR DISCHARGE SYSTEM

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	303202	BRACKET, SERVICE AIR LINE RS 35/175
2	1	975104-012	ELBOW, COMPRSN 1/4 TUBE X 1/8 MNPT
3	2	929806-125	BOLT, HEX GR8 3/8-16 X 1 1/4
4	2	938206-071	WASHER, FLAT GR8 3/8
5	2	925506-198	NUT, NYLOC GR8 3/8-16
6	1	301578	SWITCH, TEMP 325 N.O.
7	1	961608-025	NIPPLE, HYD HEX RED 1/2 X 1/4
8	1	922108-025	NIPPLE, PIPE 1/2 X 2 1/2 LG
9	2	964808-050	TEE, PIPE 1/2F X 1/2M X 1/2F
10	1	77041369	SWITCH, PRESSURE WITH UNLOADER F
11	2	975200-025	INSERT, COMPRSN FITTING 1/2 BRASS
12	1	305268	HOSE, ASSY SS .750 SHORT
13	1	305269	HOSE, ASSY SS .750 LONG
14	2	960112-075	CONNECTOR, 3/4 MJIC X 3/4 MNPT
15	1	961912-075	TEE, MB 3/4 F X 3/4 F X 3/4 M
16	1	960212-075	ELBOW, 3/4 JIC X 3/4 MNPT
17	1	301142	VALVE, CHECK 3/4
18	1	960012-075	ELBOW, HYD 45° 3/4 MJIC X 3/4 MNPT
19	1	301928-125	CLAMP, CONDUIT 1 1/4"(FITS 1 1/2 O.D.)
20	1	934504-075	SCREW, SELF TAP 1/4 X 3/4
21	1	907603-020	BUSHING, RED 3/4 X 1/2 GAL
22	1	300964-004	TUBE, TEFLON 1/4



200234-999

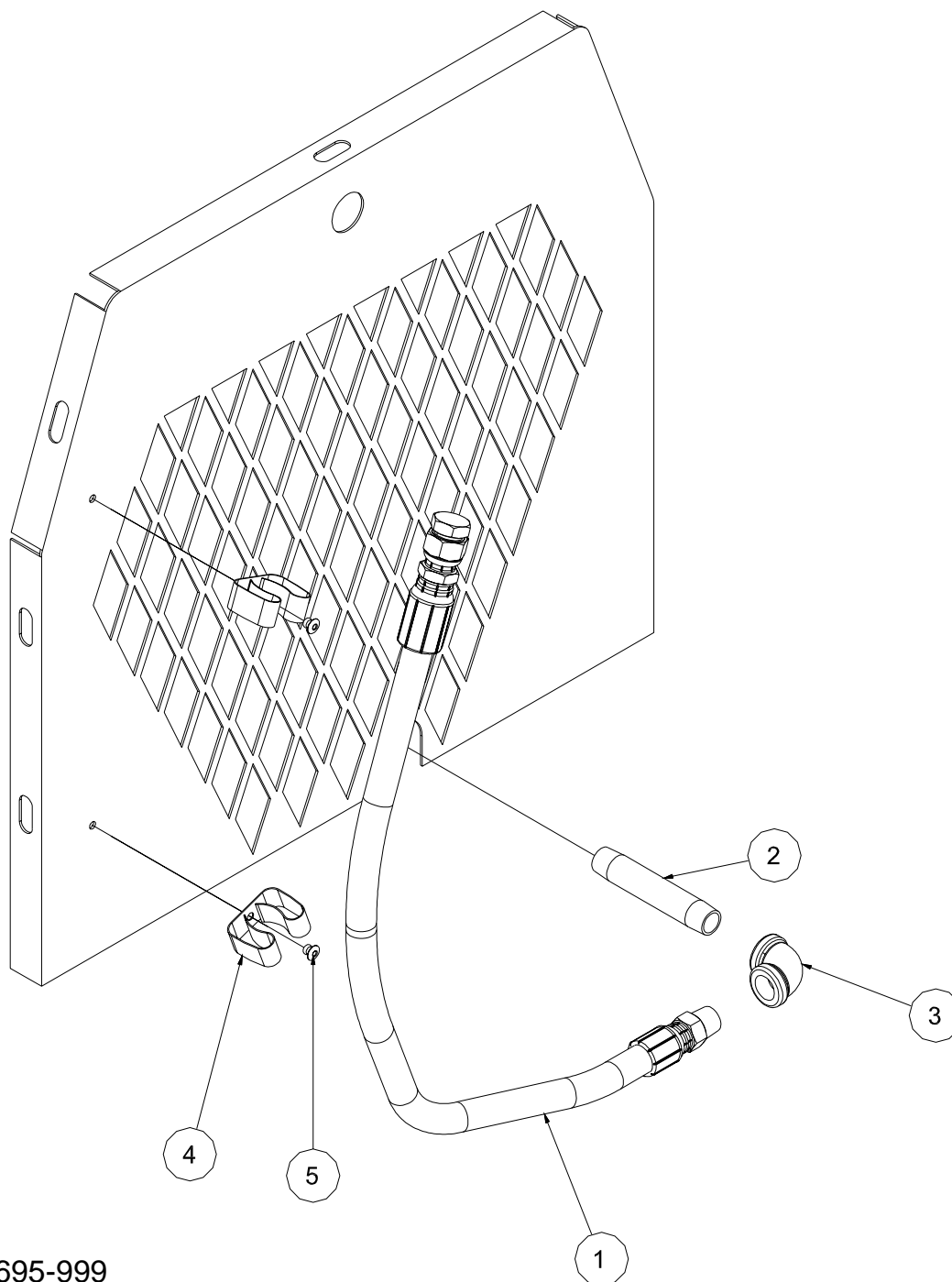
AIR INLET SYSTEM



Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	300855	BAND, AIR FILTER MTG 4.8
2	1	301418	SLEEVE, 1 1/4 I.D.
3	1	301417	SLEEVE, 1 3/4 I.D. X 1 1/4 I.D.
4	2	301602	ISOLATOR, AIR FILTER MTG
5	1	304566	TUBE, RECIP PISTON HEAD FILTER INLET (REV 1)
6	1	70048223	CAP, AIR FILTER 4.8
7	2	938605-071	WASHER, FLAT GR5 5/16
8	2	929105-125	BOLT, HEX GR5 5/16-18 X 1 1/4
9	2	924305-166	NUT, NYLOC GR5 5/16-18
10	1	70048215	FILTER, AIR 4.8 WITH 90° ELBOW
10a		70048217	ELEMENT, AIR FILTER
11	2	304515	ADAPTOR, PISTON HEAD TO 1.250 TUBE (REV 1)
12	2	70392654M	CAP, MANIFOLD 1.75 RUBBER WITH HOLE
13	1	304534	TUBE, RECIP PISTON HEAD AIR INLET (REV 2)
14	1	301446	BRACKET, AIR FILTER 35 RECIP (REVISION 2)
15	2	929704-050	BOLT, WHIZLOCK GR5 1/4-20 X 1/2

OIL DRAIN KIT

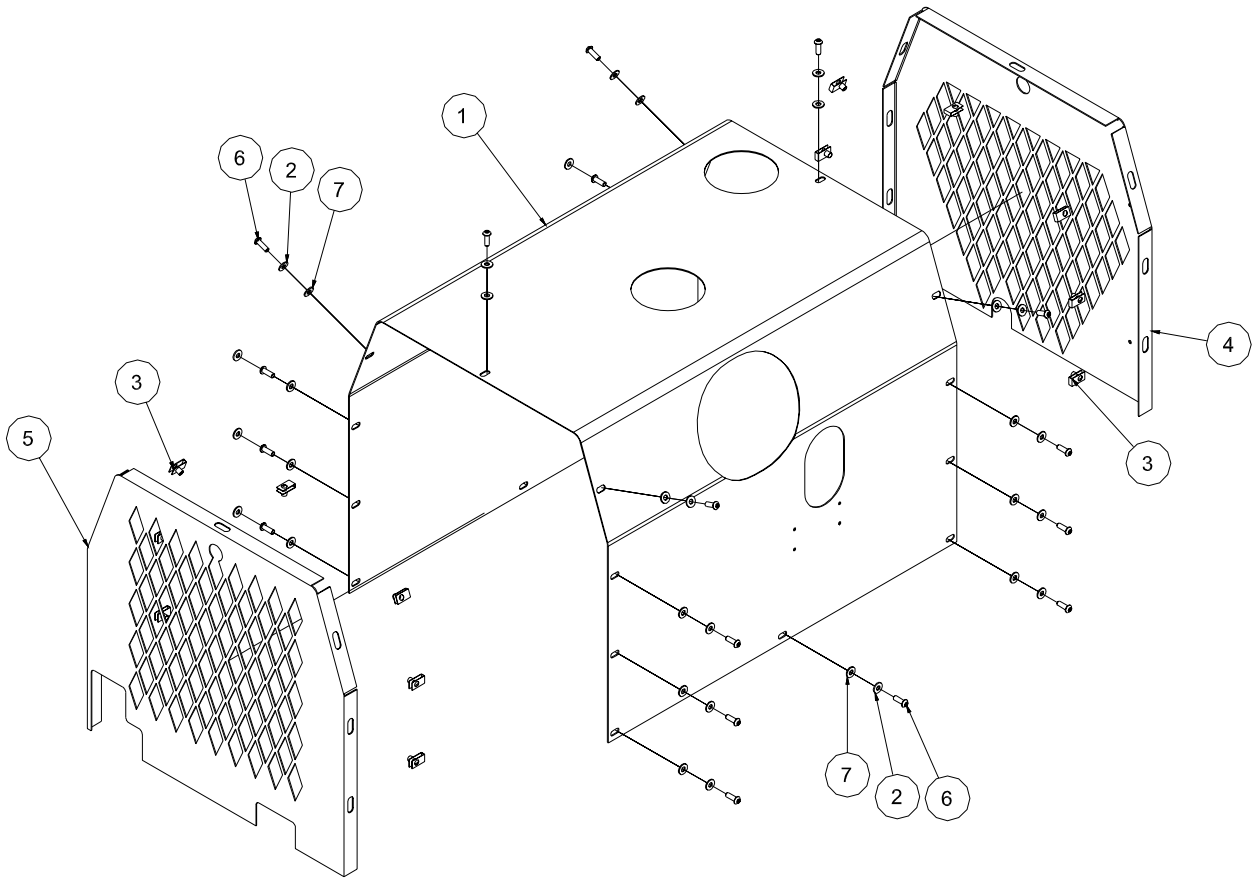
Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	302614	HOSE, 1/2" W/3/8"NPTX1/2"FJIC X 24" (REVISION 1)
2	1	922106-035	NIPPLE, PIPE 3/8 X 3 1/2 GAL SCH40
3	1	901515-015	ELBOW, PIPE 3/8 GAL 150PSI
4	2	302613	CLIP, 1/2" HYD HOSE HOLDER
5	2	943103-025	RIVET, POP 3/16 X 1/2 ALUMINUM



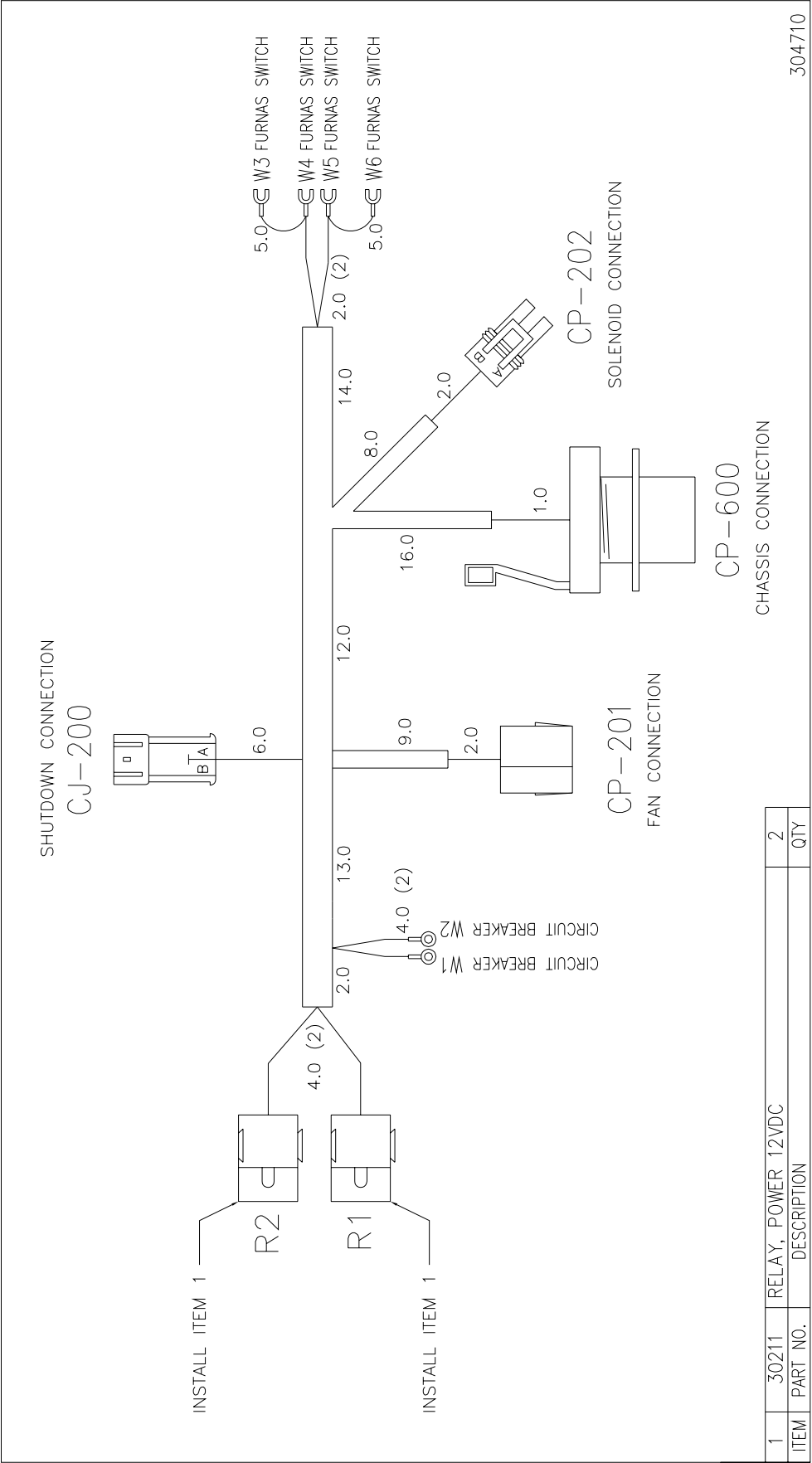
60695-999

CANOPY SYSTEM

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	304832	CANOPY, RECIP 05
2	20	977004-062	WASHER, NYLON 1/4 X .06 X .62
3	14	961504-090	NUT, TINNEMAN 1/4-20
4	1	301436	PANEL, END RECIPROCATING (REV 3)
5	1	301435	PANEL, END OIL COOLER RECIPROC (REV 4)
6	20	983904-075	BOLT, BTNHD SS STAR-DRIVE 1/4-20 X 3/4
7	20	984004-071	WASHER, FLAT WIDE 1/4 SS
NS	1	304710	HARNESS, WIRE THP 35-100 DEUTSCH



COMPRESSOR WIRING DIAGRAM
(304710)



COMPRESSOR WIRING DIAGRAM (304710)

LOCATOR CODE: CJ-200				PACKARD: 15300002		
TERM: 12048159				SEAL: 12015323		
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
A	BLK	16	SHTDWN OUT	TO	R2	85
B	YLW	16	SWITCHED PWR	TO	SPL C	—

LOCATOR CODE: CP-201				SPAL: SFL17100016		
TERM: AMP 42100-2				SEAL: —		
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
A	RED	14	FAN PWR	TO	R1	87
B	BLK	14	CHASSIS GND	TO	SPL B	—

LOCATOR CODE: CP-202				PACKARD: 12015792		
TERM: 12124580				SEAL: 12010293		
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
A	BLK	16	CHASSIS GND	TO	SPL B	—
B	YLW	16	SOLENOID PWR	TO	W5	—

LOCATOR CODE: CP-600				DUETSCH: HD10-6-12P		
TERM: 0460-204-12141				CAVITY PLUG: —		
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
A	YLW	14	SWITCHED PWR	TO	SPL C	—
B	RED	14	BATTERY PWR IN	TO	W2	—
C	GRN	16	PTO GND	TO	R1	86
D	ORG	16	SPD CTL PWR OUT	TO	W5	—
E	BLK	14	CHASSIS GND	TO	SPL B	—
F	—	—	—	TO	—	—

LOCATOR CODE: R1				RELAY SOCKET: WAYTEK 75281		
TERM: WAYTEK 31073				RELAY: BOSCH 0 332 209 138		
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
30	RED	14	BATTERY PWR IN	TO	W1	—
87	RED	14	FAN PWR	TO	CP-201	A
87A	—	—	—	TO	—	—
86	GRN	16	PTO GND	TO	CP-600	C
85	BLU	16	SWITCHED PWR	TO	SPL C	—

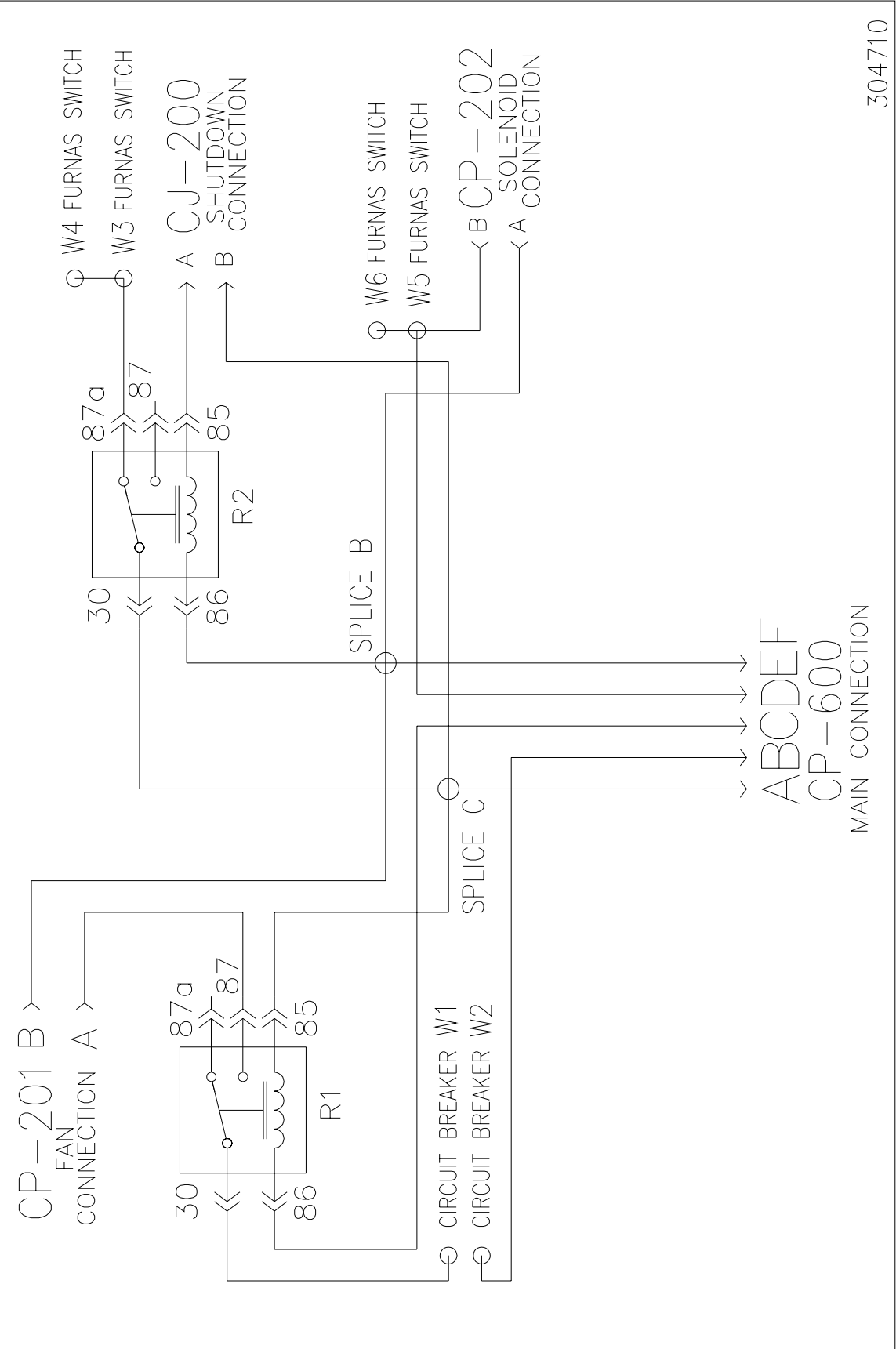
LOCATOR CODE: R2				RELAY SOCKET: WAYTEK 75281		
TERM: WAYTEK 31073				RELAY: BOSCH 0 332 209 138		
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
30	YLW	16	SWITCHED PWR	TO	SPL C	—
87	—	—	—	TO	—	—
87A	YLW	16	SWITCHED PWR	TO	W3	—
86	BLK	16	CHASSIS GND	TO	SPL B	—
85	BLK	16	SHTDWN OUT	TO	CJ-200	A

LOCATOR CODE: —				SPLICE B		
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
—	BLK	14	CHASSIS GND	TO	CP-201	B
—	BLK	14	CHASSIS GND	TO	CP-600	E
—	BLK	16	CHASSIS GND	TO	CP-202	A
—	BLK	16	CHASSIS GND	TO	R2	86

LOCATOR CODE: —				SPLICE C		
CAVITY	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
—	BLU	16	SWITCHED PWR	TO	R1	85
—	YLW	14	SWITCHED PWR	TO	CP-600	A
—	YLW	14	SWITCHED PWR	TO	CJ-200	B
—	YLW	16	SWITCHED PWR	TO	R2	30

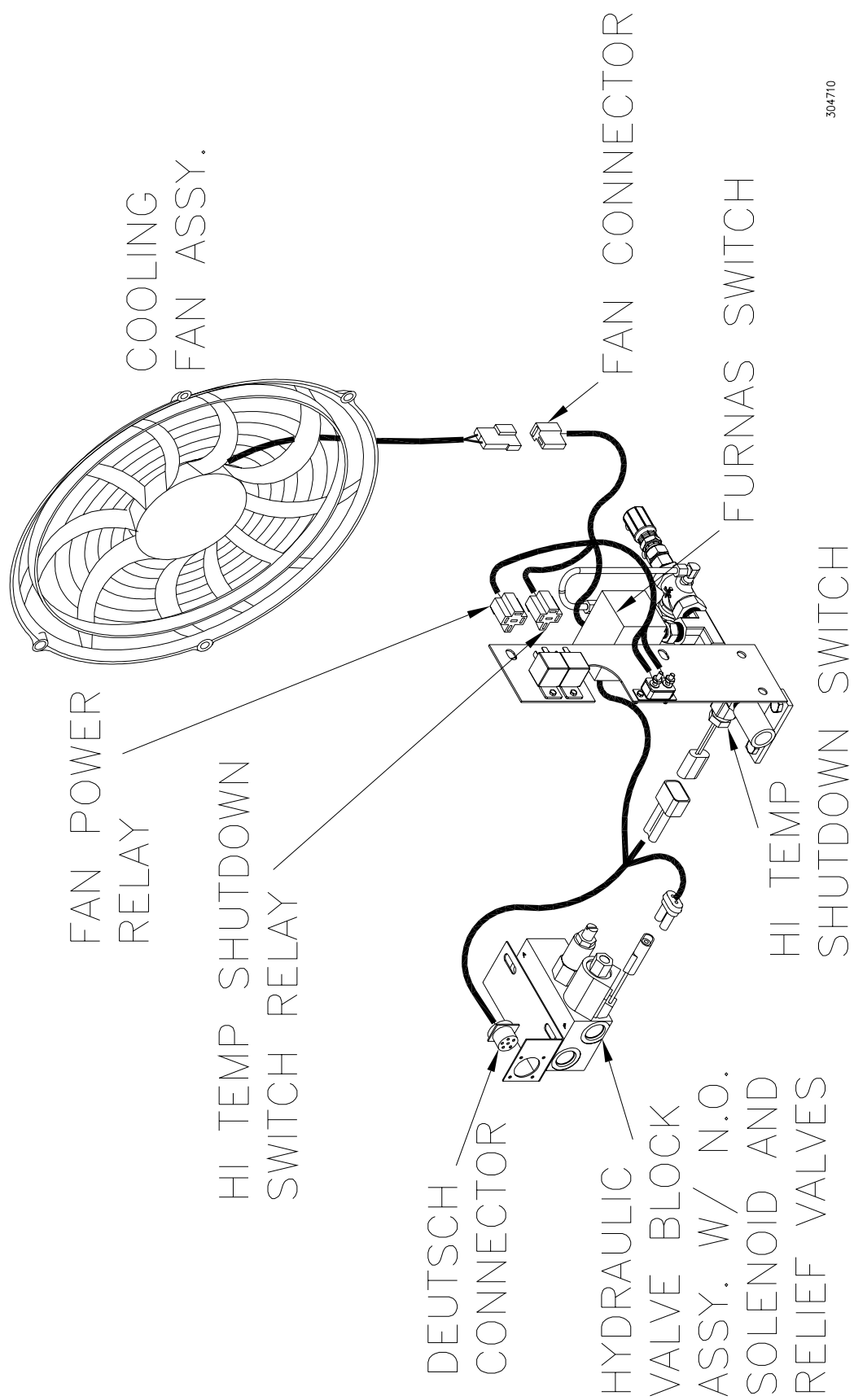
LOCATOR CODE: Wx				WAYTEK: 31503 (16-14 #10 RING)		
				* WAYTEK: 31528 (16-14 #10 SPADE)		
				** WAYTEK: 32528 (12-10 # 10 SPADE)		
WIRE	COLOR	GA.	PRINT LABEL	TO	CON-SPLC	CAVITY
W1	RED	14	BATTERY PWR IN	TO	R1	30
W2	RED	14	BATTERY PWR IN	TO	CP-600	B
*W3	YLW	14	SWITCHED PWR	TO	W4	—
**W4	YLW	16	SWITCHED PWR	TO	R2	87A
**W5	ORG	16	SPD CNTL PWR	TO	CP-600	D
*W6	YLW	14	SPD CNTL PWR	TO	W5	—

COMPRESSOR WIRING DIAGRAM (304710)



304710

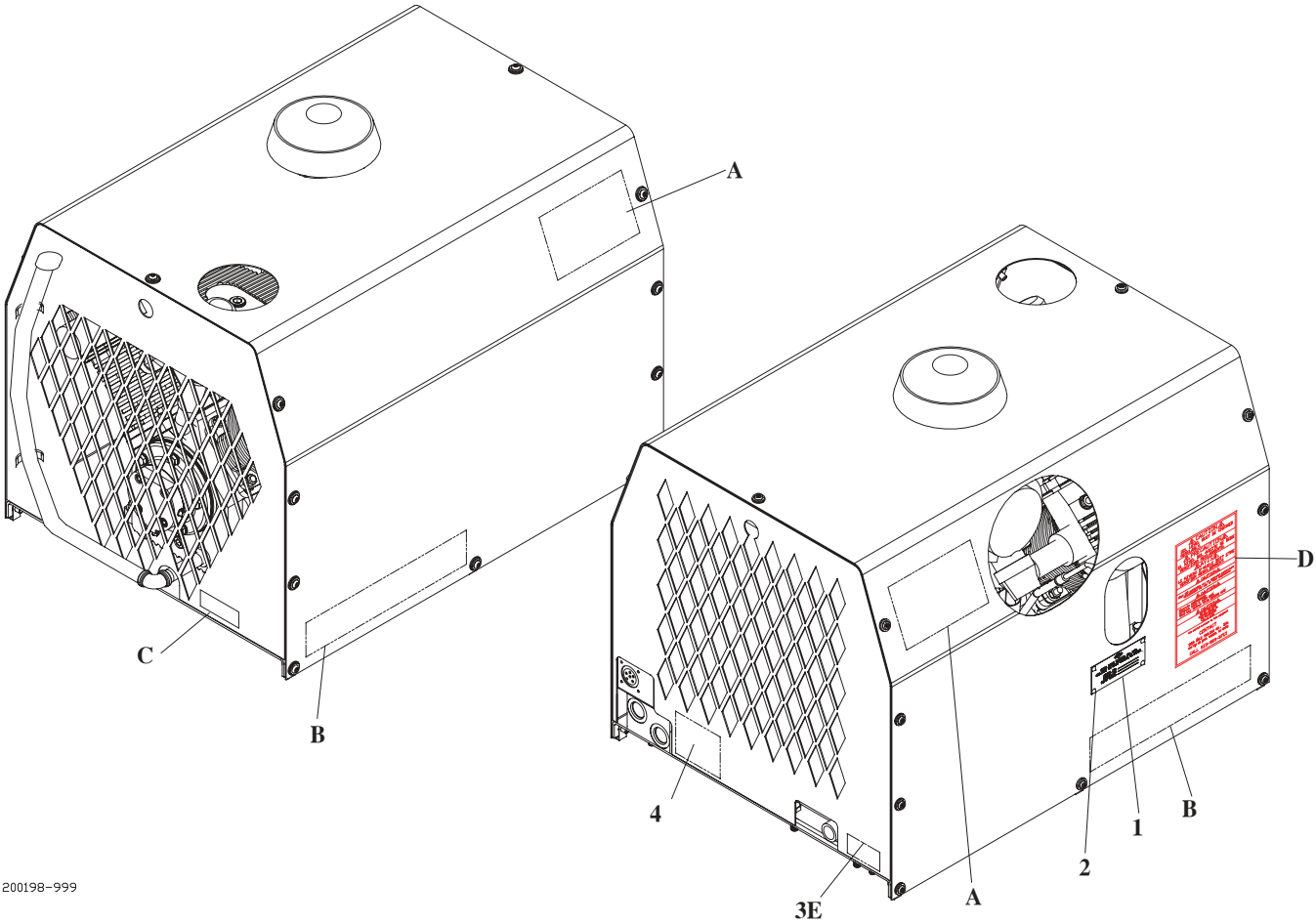
COMPRESSOR WIRING DIAGRAM (304710)



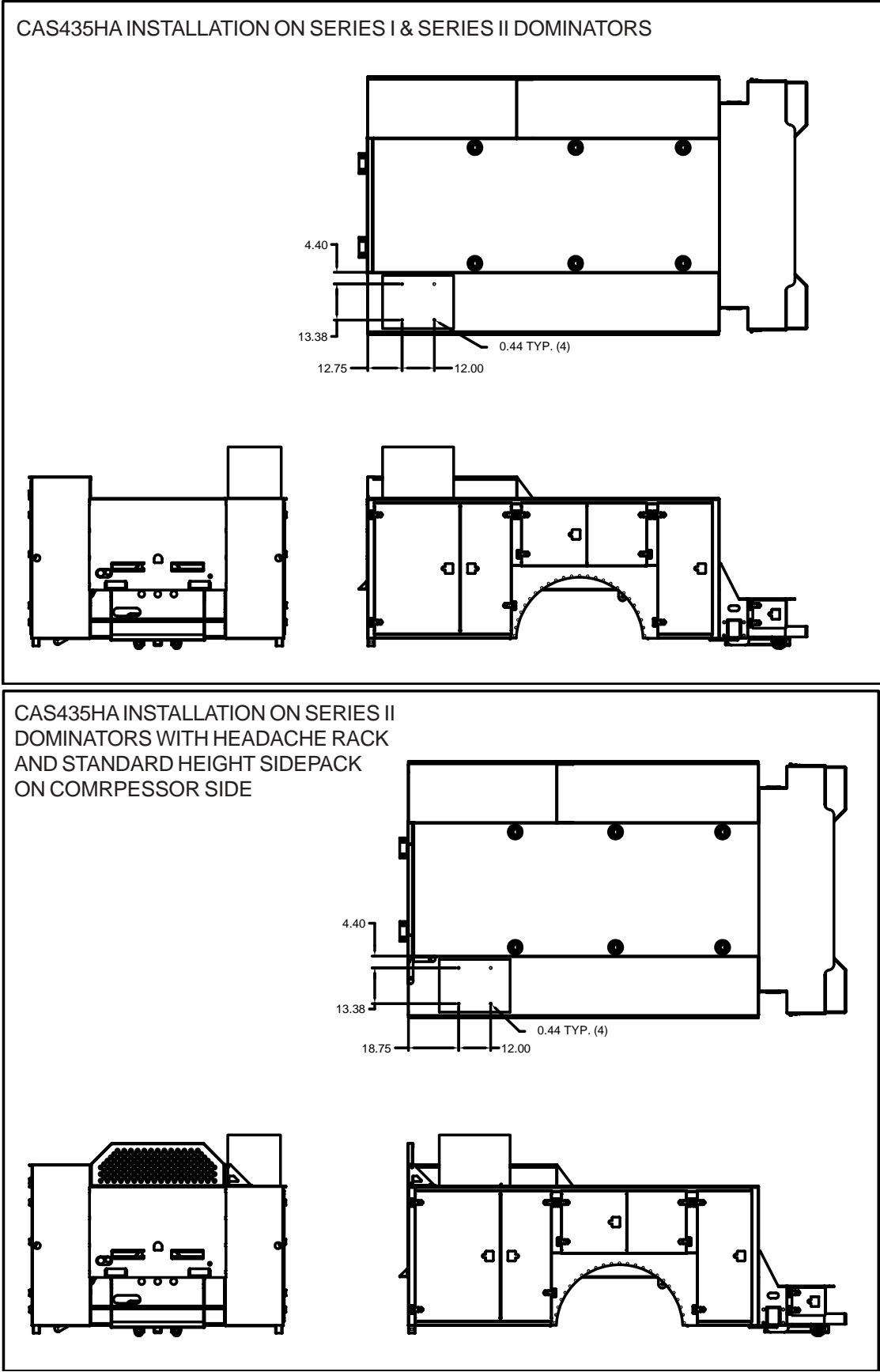
304710

DECAL PLACEMENT

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	301480	PLATE, IMT SERIAL # - IMT SERIES
2	4	943102-018	RIVET, 1/8 X GRPRNG 3/16 TO 1/8
3	1	80015	KIT, DECAL IMT RECIP W/O SERIAL
3A			
3B	2	70397126	DECAL, CAS
3C	1	300913	DECAL, OIL DRAIN
3D	1	301634	DECAL, COMBO
3E	1	302265	DECAL, AIR
3F	1	300042	DECAL, WARNING CONNECT AIR *(IN HOSE REEL COMPARTMENT)*
3G	1	300041	DECAL, WARNING FAN GUARD *(INSIDE CANOPY)*
3H	1	301442	DECAL, DRIVE COUPLING *(INSIDE CANOPY)*
3I	1	300040	DECAL, DANGER BREATHING AIR *(IN HOSE REEL COMPARTMENT)*
4	1	305252	DECAL, VALVE BLOCK 80061-12

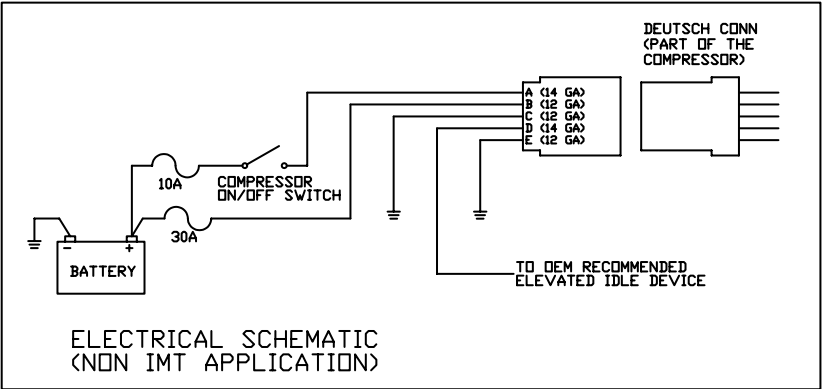
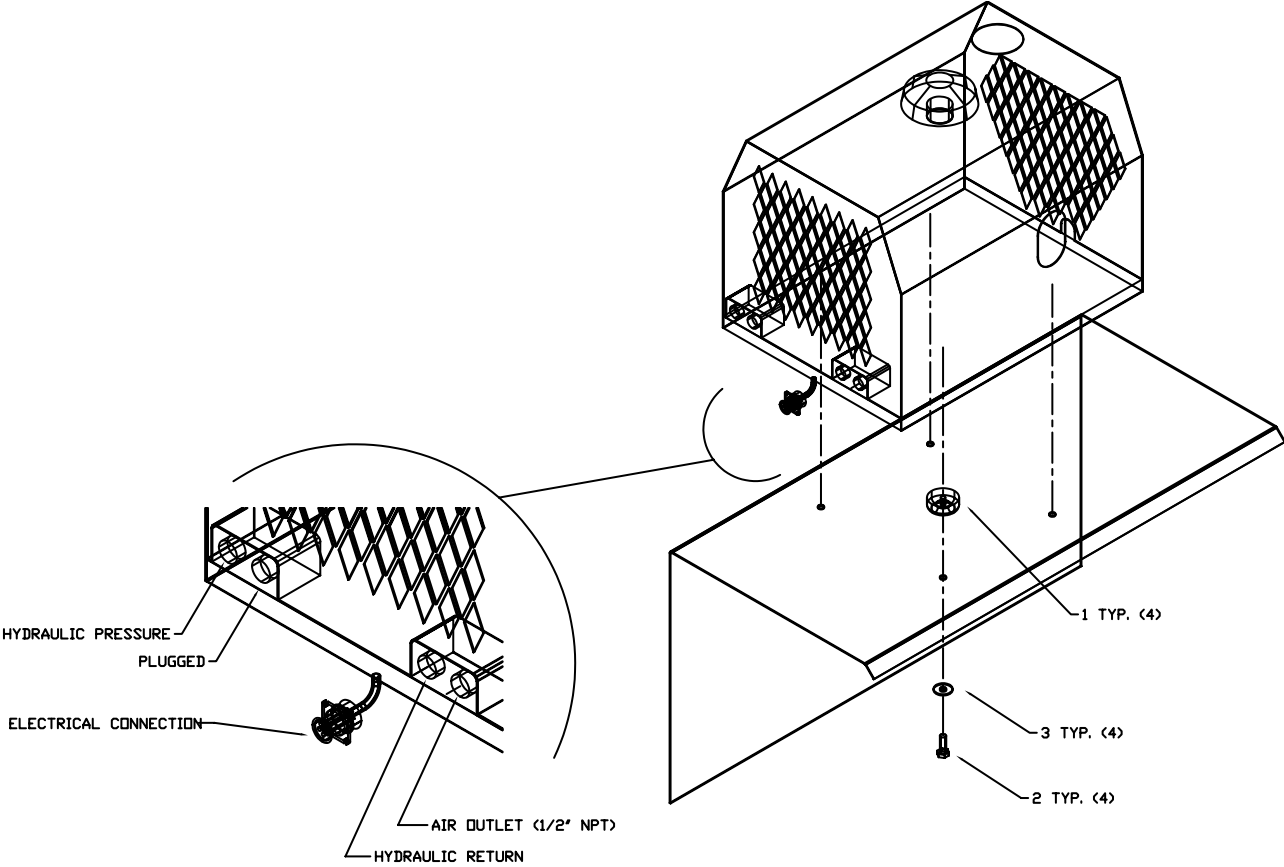


CAS435HA MOUNTING LOCATIONS
(99903712)



INSTALLATION KIT (51712642)
(EFFECTIVE 3-15-05)
(INSTALLATION DWG 99901281 SHOWN)

ITEM	PART NO.	DESCRIPTION	QTY
1.	76391527	BUMPER-RUBBER	4
2.	929106200	BOLT 3/8-16X2 HHGR5	4
3.	938206107	WASHER 3/8 FLAT GR8	4



COMPRESSOR HARNESS CHART

Effective March 15, 2005, the connectors in the harnesses used on the CAS435HA were upgraded. The old and new connectors are not interchangeable, so for replacement parts, the correct harness and/or jumper must be ordered.

Use the following chart to determine the correct harness and/or jumper.

If your CAS435HA connector looks like Connector A:



and your body connector looks like this:



No jumper is needed.

and your body connector looks like this:



Use jumper # 77441160.

If you are not using an IMT body and your connector looks like Connector A, use jumpers 301581 and 301607.

COMPRESSOR HARNESS CHART, CONTINUED

If your CAS435HA connector looks like Connector B:



and your body connector looks like this:



Use jumper # 77441158.

and your body connector looks like this:



No jumper is needed.

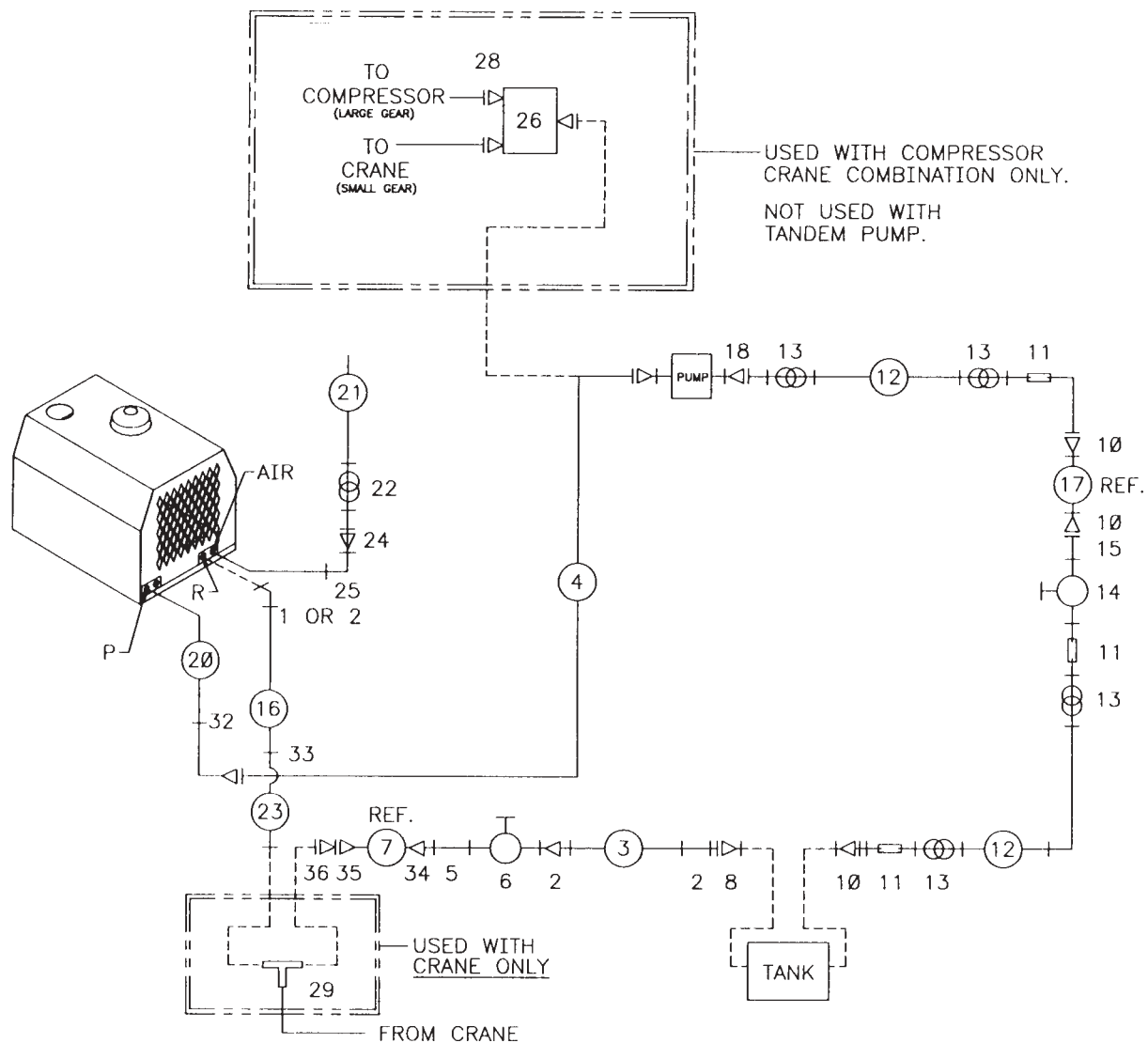
If you are not using an IMT body and your connector looks like Connector B, use jumper 77441157.

HYDRAULIC INSTALLATION

NOTE: Items listed are for reference only on a typical service body. For specific information on IMT service bodies, please see the service body manual.

- | | | | |
|-----|---------------------------------|-----|----------------------------|
| 1. | ELBOW 3/4NPT #12MJIC | 14. | GATE VALVE 1NPT |
| 2. | ADAPTER 3/4MPT #12MJIC | 15. | PIPE NIPPLE 1NPTXCL |
| 3. | HOSE ASM 3/4" | 16. | HOSE ASM 3/4" |
| 4. | HOSE ASM 1/2" | 17. | FILTER ASM 100-MESH |
| 5. | PIPE NIPPLE 3/4NPT X CL | 18. | BEAD NIPPLE #16MSTR 1" 45° |
| 6. | GATE VALVE 3/4NPT | 20. | HOSE ASM 1/2X35 |
| 7. | HYD FILTR 25MIC 1-1/4FPT | 21. | HOSE 3/4 300# |
| 8. | REDUCER BUSHING 1-1/4 3/4 | 22. | HOSE CLAMP SAE#12 |
| 9. | ELBOW #8MJIC #8FJIC (NOT SHOWN) | 23. | HOSE ASM 3/4X72FF |
| 10. | REDUCER BUSHING 1-1/4 1 | 24. | BARB NIPPLE 3/4MPT 3/4HOSE |
| 11. | BARB NIPPLE 1MPT 1HOSE | 25. | STREET ELBOW 3/4NPT 90° |
| 12. | HOSE 1" 100R4 | 32. | UNION BULKHDD #8JIC |
| 13. | HOSE CLAMP 1" 2-BOLT | 33. | UNION BULKHDD #12JIC |
| | | 34. | RED BUSHING 1-1/4 3/4NPT |
| | | 35. | ADAPTER 1-1/4MPT #16MJIC |
| | | 36. | ADAPTER #12MJIC #16FJIC |

REFERENCE DRAWING



RECOMMENDED SPARE PARTS LIST

Model CAS435HA Air Compressor

ASSEMBLY DESIGNATION	ITEM NO.	PART NO.	DESCRIPTION	QTY	CODE	SHELF LIFE (MO)	ORDER QTY
200194-999	OIL COOLING SYSTEM						
	1	300909-025	CIRCUIT BREAKER 25A	1	C	N/A	
	11	300836	OIL COOLER 12X13.5	1	C	N/A	
	14	300211	RELAY-POWER	2	C	N/A	
	19	301577	FAN PUSHER	1	C	N/A	
	N/A	80009	CONTROLS-HYDRAULIC	1	C	N/A	
200193-999	COMPRESSOR & MOTOR SYSTEM						
	5	301665	MOTOR-HYDRAULIC	1	C	N/A	
200234-999	AIR DISCHARGE SYSTEM						
	N/A	301605	TUBE ¾ AIR DISCHARGE	1	P	N/A	
	6	301578	SWITCH-TEMP	1	C	N/A	
	10	77041369	PRESSURE SWITCH W/UNLOADER	1	C	N/A	
200232-999	AIR INLET SYSTEM						
	10a	300854	REPLACEMENT AIR FILTER ELEMENT	1	C	N/A	
200205-999	COMPRESSOR ASSEMBLY						
	3	70733069	REED VALVE ASM	2	W	N/A	
	4	70051006	OIL PUMP	1	C	N/A	
	5	70014600	OIL RING	4	W	N/A	
	6	70014599	COMPRESSION RING	8	W	N/A	
	7	51705661	CRANKSHAFT ASM	1	W	N/A	
	7e	72661487	DRIVE PIN	1	C	N/A	
	30	60101505	BUSHING, PLUNGER TRANSFER	1	C	N/A	
	31	70014583	OIL PUMP SPRING	1	W	N/A	
	32	70024122	WASHER .33X.5X.03 COPPER	12	W	N/A	
	45	76039093	PUMP COVER GASKET	1	C	N/A	
	46	76039111	CYL BLOCK GASKET-BOTTOM	2	C	N/A	
	47	76392641	REED VALVE/CYL GASKET	2	C	N/A	
	48	76392642	REED VALVE/HEAD GASKET	2	C	N/A	
	49	70143495	BREATHING CAP	1	C	N/A	
	58	70029292	CYLINDER BLOCK	2	C	N/A	
	59	70029293	CYL BLOCK SPACER	2	W	N/A	
	60	76392119	CYLINDER BLOCK GASKET	2	C	N/A	
200233-999	CANOPY SYSTEM						
		304710	HARNESS	1	C	N/A	
51712642	INSTALLATION KIT						
	1	76391527	BUMPER-RUBBER	4	W	N/A	
	2	938206107	WASHER 3/8 FLAT GR8	4	W	N/A	
	3	929106200	BOLT 3/8-16X2 HHGR5	4	W	N/A	
	HYDRAULIC INSTALLATION KIT						
	17	51709743	FILTER ASM 100-MESH	1	P	N/A	
	7	73052091	HYD FILTER 25/MIC-1 ¼ FPT	1	P	N/A	

For additional instructions, see DOMINATOR INSTALLATION MANUAL, IMT Part Number 99901223.

SECTION 5. REPAIR

5-1. GENERAL

This section describes the disassembly and assembly procedures for the air compressor. In all cases, remove the compressor from the vehicle before proceeding with disassembly and repair within a clean environment. Refer to the parts drawing in section 4 of this manual for parts locations.

5-2. PISTON RING REPLACEMENT

1. Unscrew the head bolts and remove the heads.

NOTE

A RUBBER FACED Mallet WILL HELP WHEN REMOVING THE HEAD. TAP THE SIDES OF THE HEAD CAREFULLY UNTIL THE HEAD IS LOOSE. LIFT OFF THE HEADS.

2. Remove the cylinder bolts. Tap the sides of the cylinder several times to break it loose from the gasket. Rock the cylinder back and forth and lift until it is free. Lift it off the pistons.

3. Use a single edged razor blade, or sharp putty knife, to remove the old gasket material.

CAUTION

DO NOT ALLOW THE GASKET MATERIAL TO FALL INTO THE CRANKCASE. DO NOT NICK THE HEAD, CYLINDER, OR CRANKCASE MATING FACES WHILE REMOVING THE OLD GASKET. REMOVE ALL OF THE OLD GASKET MATERIAL TO PROVIDE A SMOOTH, CLEAN SURFACE FOR THE NEW GASKET. FAILURE TO FOLLOW THIS PROCEDURE MAY RESULT IN THE NEED TO RESEAL THE UNIT LATER.

4. Hone the cylinder to break the glaze and to remove the buildup at the top of the cylinders.

5. Measure the inside diameter of the cylinder for roundness and excessive wear. The bore should be 2.625" (0.0025" tolerance). If the bore is oversized, the cylinder must be replaced.

6. With a ring expander, remove the compression and oil rings.

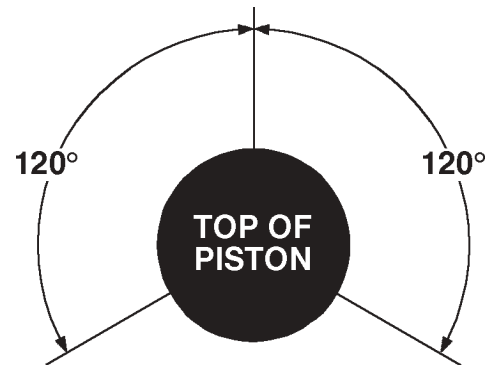
7. With the ring expander, install the new ring kit. Make certain that the oil ring is on the bottom and the beveled inside edge of the compression ring is toward the top of the piston.

8. Position the cylinder base gasket on the crankcase. Use a few drops of oil to hold it in position. Install the cylinder block spacer and gasket on the crankcase.

9. Rotate the rings so that the gaps of the three rings are 120° apart. Lightly lubricate the inside of the cylinder. Rotate the crankshaft so that a piston is at the top of the stroke. Compress the rings with a ring compressor, and slide the cylinder over the piston. Repeat for the other piston.

CAUTION

DO NOT LUBRICATE THE RINGS. USE A LIGHT LUBRICANT, SUCH AS WD-40 ONLY, ON THE CYLINDER WALLS. OILING THE RINGS WILL PREVENT THEM FROM SEATING AND CAUSE EXCESSIVE OIL CONSUMPTION.



**FIGURE E-1.
PISTON RING ORIENTATION**



**FIGURE E-2.
CYLINDER HEAD TORQUE SEQUENCE**

10. Slide the cylinder down until it mates with the crankcase. Start all cylinder mounting bolts, until they are snug. Torque the bolts to 180 in-lbs in the sequence shown. Do not torque to the full 180 in-lbs all at once, but in 25-50 in-lb increments.

11. Position the gaskets and valve plate on top of the cylinder. Position the head on the cylinder and turn studs finger tight. Torque the studs/nuts to 240 in-lbs in 25-50 pound increments per Figure E-2.

NOTE

INSTALL THE VALVE PLATE WITH THE MARKED SURFACE FACING UP.

12. Install the compressor, connect the wiring and the air lines. Test the unit.

NOTE

IF PRESSURE FAILS TO BUILD AND THE COMPRESSOR IS EXCESSIVELY NOISY, CHECK THE VALVE PLATE. IT MAY HAVE BEEN INSTALLED UPSIDE DOWN.

5-3. OIL PUMP REPLACEMENT

1. Remove the bolts and lift off the pump cover.
2. With a single edged razor blade, or sharp putty knife, remove the old gasket material. Take care not to damage the machined surfaces.
3. Lift the pump out of the cavity.
4. Position a new gasket on the rear bearing housing.
5. Insert the pump into the cavity. Position the pump slightly to one side, using a common screwdriver. Wedge the pump into position so that it partially compresses the spring. Note that the driver pin and slot in pump must be in line.
6. Place the pump cover into position and start two bolts (bolts must be diagonally opposed). Strike the pump cover with a rubber faced mallet to jar the pump loose. When the tension spring can be felt against the pump cover, the pump is loose.
7. Insert the two remaining bolts and torque to 180 in-lbs. The bolts should be torqued in a diagonal pattern.
8. Install the air compressor in the vehicle. Connect the air lines and wiring.

5-2

5-4. CRANKSHAFT AND BEARING REPLACEMENT

If it is necessary to replace the crankshaft, related components must also be replaced. Replace both bearings, both races, the key, pump collar and pump drive pin.

NOTE

DEPENDING ON THE CONDITION OF THE CRANKSHAFT, BEARING MAY BE REPLACED WITHOUT REPLACING THE CRANKSHAFT. REPLACE THE BEARING RACES WHENEVER THE BEARINGS ARE REPLACED.

1. Remove the heads, cylinders, and pistons.
2. Remove the bolts on the connecting rods, and lift them out. Reassemble the connecting rods to be certain that the matched parts remain together on the same crankshaft journals.
3. Remove the pump cover, oil pump, sleeve, spring, and rear bearing housing.
4. Remove the hydraulic motor hub (#301266), and the front bearing housing.
5. Pull the crankshaft from the crankcase.
6. Remove all gasket material with a single edged razor blade, or sharp putty knife.

CAUTION

DO NOT GOUGE THE MACHINED SURFACES WHEN REMOVING THE GASKETS. THIS MAY CAUSE LEAKS.

7. Press the bearing races out of the bearing housing.
8. Press the tapered roller bearings off of the crankshaft if only the bearings are being replaced. If the crankshaft is to be replaced, discard the entire assembly.
9. Press the new bearings into position.

NOTE

THE CRANKSHAFT SHOULD HAVE NEW BEARINGS INSTALLED. IF NOT, PRESS THE NEW BEARINGS INTO POSITION ON THE CRANKSHAFT.

10. Generously oil the front bearing race and install the front bearing housing with gasket. Torque the bolts to 180 in-lbs. Torque the bolts as shown in the pattern below.

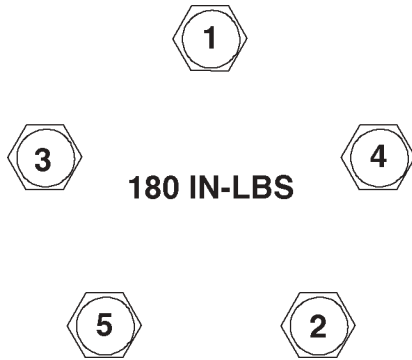


FIGURE E-3. BEARING HOUSING TORQUE SEQUENCE

11. Slide the crankshaft into the crankcase. Generously lubricate the bearing race and install the rear bearing housing and gaskets.

NOTE

GASKET KITS ARE SUPPLIED WITH TWO (2) EACH OF .006, .010, .015, AND .020 GASKETS. USE THESE REAR BEARING GASKETS IN ANY COMBINATION AND QUANTITY TO LIMIT ALL PLAY FRONT TO REAR, BUT STILL ALLOW THE CRANKSHAFT TO TURN FREELY.

12. Install the oil pump (See paragraph 5-3).

13. Install the connecting rods. Thoroughly oil the crankshaft and rods before installing them. When installing the rods, make certain that the tabs are aligned on the same side of the rod as shown below.

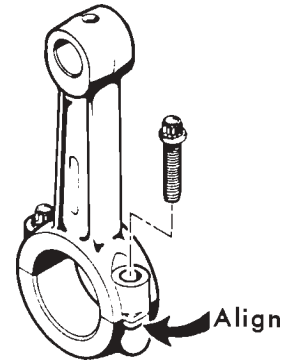


FIGURE E-4. ROD ALIGNMENT

14. Install the pistons, rings, and heads.

5-5. TROUBLESHOOTING

LOW OIL PRESSURE	LOW OIL LEVEL
	LOOSE PIPE PLUG ON OIL PUMP COVER
	WORN OR DEFECTIVE OIL PUMP
	CRACK OR SCRATCH ON OIL PUMP COVER
NO OIL PRESSURE	DEFECTIVE OIL PUMP
	BLOCKED OIL PASSAGE
	DAMAGED OIL PUMP DRIVE PIN
COMPRESSOR WILL NOT ENGAGE	NO POWER SUPPLIED TO COMPRESSOR
	INTERNAL CIRCUIT BREAKER TRIPPED
	PTO SWITCH NOT ENGAGED
	DEFECTIVE PRESSURE SWITCH OR UNDERHOOD SWITCH
COMPRESSOR ENGAGES BUT WILL NOT PRESSURIZE TANK	COMPRESSOR RELIEF VALVE ENGAGED
	AIR LEAK IN PLUMBING
	WORN PISTON RINGS OR VALVE PLATES
COMPRESSOR DOES NOT RECOVER PRESSURE AS FAST AS IT SHOULD	DIRTY FILTER
	AIR LEAK IN PLUMBING
	WORN VALVE PLATES OR PISTON RINGS

FIGURE E-5. TROUBLESHOOTING CHART