Model DA435PBU
PTO, Belt Driven
Underdeck Compressor

IOWA MOLD TOOLING CO., INC.
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TEL: 515-923-3711
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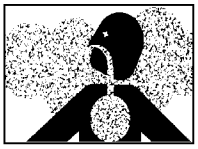
MANUAL PART NUMBER 99900785

PRECAUTIONS

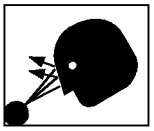
Read before operating your compressor!

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. GENERAL INFORMATION

1-1. INTRODUCTION

This manual provides information on the installation, operation and repair of the IMT DA435PBU PTO, belt driven underdeck 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. These two things can add up to a safer working environment and longer equipment life.

1-2. ORDERING INFORMATION

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

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

SECTION 2. INSTALLATION

2-1. GENERAL

This section deals with the installation of the PTO. The instructions are intended as a guide to assist you with your particular installation. We can not cover every make, model and year of truck manufactured world-wide, so these instructions will provide only general information. Use this information as a guide only.

2-2. PTO INSTALLATION

Power take-off manufacturers provide specific installation instructions for their products. Those instructions should be followed when installing a PTO. Some trucks may require modification of the transmission cross-member to provide clearance and the exhaust pipe may need modification. 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.

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 1/32" to 1/16". 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 AUTOMATIC TRANSMISSION FLUID.

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's. 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 allow it to run for 5 - 10 minutes. Check for leaks, unusual noise and proper operation.

8. Retorque the mounting bolts.

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.

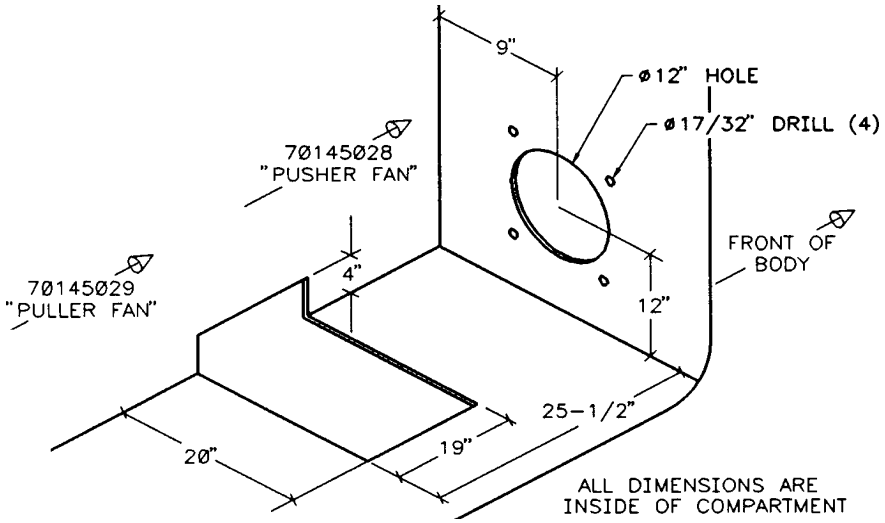
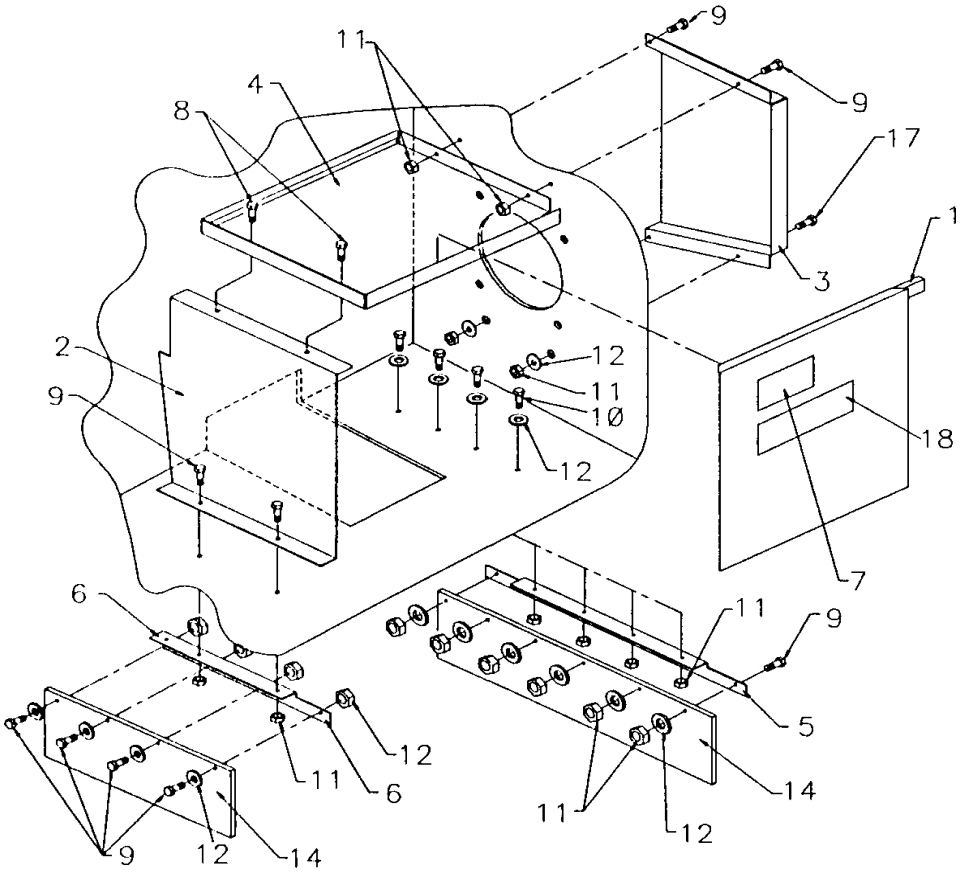


FIGURE B-1. COMPRESSOR COMPARTMENT MODIFICATION



ITEM	PART NO.	DESCRIPTION	QTY
1.	52712363	ACCESS SHROUD	1
2.	52712364	FAN MOUNT SHROUD	1
3.	60118240	FRONT FAN SHROUD	1
4.	60118241	TOP SHELF SHROUD	1
5.	60118242	MOUNTING BRACKET 37"	1
6.	60118245	MOUNTING BRACKET 24"	1
7.	71393877	DECAL-CAUTION SHROUD	1
8.	72060023	CAP SCR 5/16-18X3/4 HHGR5	2
9.	72060026	CAP SCR 5/16-18X1-1/4 HHGR5	15
10.	72060027	CAP SCR 5/16-18X1-1/2 HHGR5	4
11.	72062109	NUT 5/16-18 LOCK	22
12.	72063002	WASHER 5/16 WRT	16
13.	72063078	WASHER 5/16 X 1-1/2 OD	10
14.	89392009	RUBBER 1/4X8	5FT
15.	89392434	WEATHERSTRIP 3/8 BULB	2.5FT
16.	89392881	WEATHERSTRIP 5/8 BULB	2.5FT
17.	72060029	CAP SCR 5/16-18X2 HHGR5	1
18.	71393879	DECAL-DA435PBU IDENT	1REF

FIGURE B-2. COMPRESSOR SHROUD ASSEMBLY (51712365)

2-3. BODY MODIFICATION

The DA435PBU Compressor is designed specifically for installation in an IMT 1296 Fiberglass Tire Service Body mounted on a Ford 7.3 liter Turbo-Diesel with Direct Injection. This does not preclude the compressor from being installed on other body/truck configurations.

The following instructions for modification of a 1296 body may be used as a guide in the modification of other bodies. See Figure B-1 for specific dimensions and Figure B-2 for parts locations..

1. Locate the right-side (passenger-side) bottom compartment. Cut a 19" x 20" rectangular hole in the bottom of this compartment, as shown in Figure B-1.

2. Cut a 12" diameter hole through the front wall (toward truck cab) of the compartment. Using the fan shroud as a template, drill four (4) 17/32" diameter holes as shown in Figure B-1.

3. Position the top shroud and fan mount shroud, items 4 & 2, inside the compartment so the top shroud is flush against the front wall of the compartment and the holes in the top flange of item 2 are aligned with those of item 4. Mark the position of the two holes on the front wall and two holes on the floor of the compartment. Drill 3/8" diameter holes through the fiberglass at these 4 locations.

4. Before securing the shrouds, install the pusher" fan (70145028) to the inside of the front compartment wall using hardware provided.

5. Secure fan mount shroud, item 2, to floor of compartment using items 9 and 11. Be sure to pass the cap screws through the mounting bracket below the compartment.

6. Fasten the top of front fan shroud, item 3, through the front wall and top shroud, item 4, using two 5/16"-18x1-1/4" long cap screws and lock nuts. Secure the bottom two holes using 5/16"x2" long cap screws, flat washers and lock nuts.

7. Fasten the top shroud, item 4, to item 2, using 5/16"x3/4" long cap screws and lock nuts.

8. Install the "puller" fan (70145029) in the rear of the compartment using the hardware provided.

9. Use item 5 as a template to drill four 3/8"diameter holes through the floor of the compartment, as shown. Fasten the bracket, item 5, under the compartment using 5/16"x1-1/2" long cap screws.

10. Cut the rubber strip, item 14, into two lengths which match the lengths of the brackets, items 5 and 6) mounted under the compartment.

11. Mark the rubber strips for hole locations using items 5 and 6 as templates. Drill 5/16" diameter holes at these locations.

12. Mount the strips to the brackets using the hardware shown.

13. Position the access shroud, item 1, and apply the two decals, items7 and 18, as shown in Figure B-2.

14. Install the pressure Switch Kit (51712357), as shown in Figure E-3 of the Parts Section. Attach the pressure switch mounting bracket to the inside rear of the compartment, on the rear wall.

15. Make all electrical connections as shown in this manual.

CAUTION

BE CERTAIN THAT COOLING FANS ARE CONNECTED PROPERLY. INCORRECT FAN ROTATION WILL CAUSE INEFFICIENT COOLING, RESULTING IN OVERHEATING AND DAMAGE TO THE COMPRESSOR.

2-4. UNDER-DECK COMPRESSOR INSTALLATION

Due to the large variety of carrier vehicles, the instructions in this paragraph should be used as a guide only. Refer to Figure C for reference.

1. Position the compressor below the bed of the truck in the desired location. The location selected should provide adequate ventilation while at the same time affording protection against road hazards and dirt.

2. Lift the compressor base into position with the vertical mounting plate flush against the outside of the right hand truck frame channel. Check for belt clearance and approximate drive shaft length.

3. Using the compressor frame as a template, drill fourholes 21/32" diameter through the frame rail.

4. Bolt the compressor base to the frame of the truck using the 5/8" hardware as shown in Figure E-1.

CAUTION

USE ONLY THE 5/8" X 2", GRADE 8 CAP SCREWS, AS PROVIDED, TO MOUNT THE COMPRESSOR BASE TO TRUCK FRAME.

5. Using the appropriate driveshaft with knuckles in place, measure the exact length required, cut off excess shaft and weld in place (1/4" weld all around).

6. Install the driveshaft to the PTO and the compressor, tighten the lock bolts and tie-wire in place.

7. Tighten all bolts.

8. Connect the 3/4" air hose from the compressor to the air tank.

9. Install the engine speed control as shown in the Parts Section and connect the hoses from compressor to speed control

SECTION 3. SPECIFICATIONS & OPERATION

3-1. GENERAL

The IMT DA435PBU air compressor is an underdeck mounted, single stage, air cooled, 4-cylinder, pressure lubricated unit, with a delivery rate of 35 CFM at 1400 RPM.

The compressor is belt driven from the PTO crankshaft, through a magnetic clutch. It is engaged and disengaged by use of an air pressure sensing, electric switch. The pressure switch is preset on factory installed units at approximately 120 PSI to engage, and 150 PSI to disengage.

3-2. SPECIFICATIONS

Bore	2-5/8"
Stroke	2-1/2"
Cylinder Configuration	V4
Displacement	44 CFM*
Delivery	35 CFM*
Lubrication	Oil Pump
Oil Capacity	1-1/3 qts
Cooling	Air
Height	13-3/4"
Width	17"
Length	13-3/4"
Material	Aluminum Alloy
Weight	80 lbs.

* @ 1400 RPM - 100 PSI

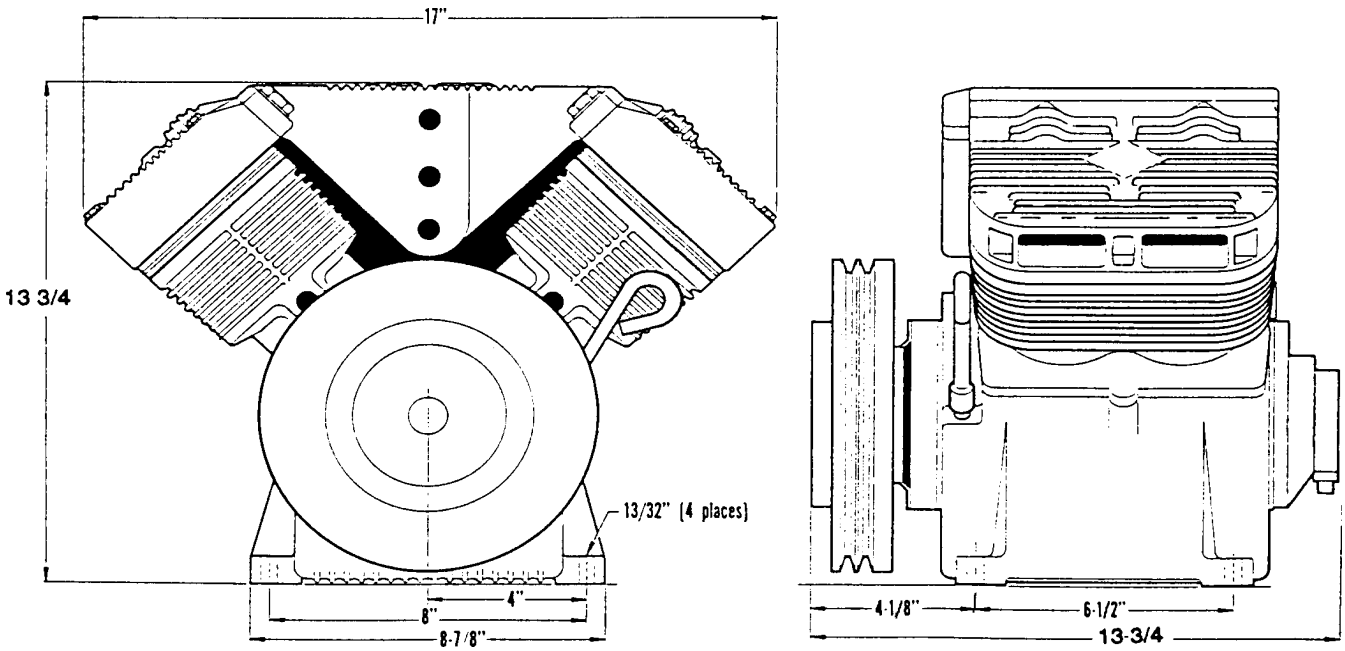


FIGURE C-1. OUTSIDE DIMENSIONS

3-3. BEFORE START-UP

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.

B. Check the air intake filter pads on each head to make certain that they are clean and unobstructed. Dirty filters are a possible cause of reduced air output.

2. The compressor is designed to operate at 1400 RPM. Do not exceed this limit.

3-4. OPERATION

The following system operation and shutdown procedures should be followed to prevent damage and ensure efficient operation.Start the compressor as follows:

1. Ensure the PTO is disengaged and the receiver drain cock is open.

2. Start the truck engine and allow it to idle until it reaches the proper operating temperature (refer to the Owner's Manual).

3. Depress the clutch, engage the PTO and carefully release the clutch pedal.

4. Activate the engine speed control by closing the receiver drain cock. The compressor is now operating and supplying working air.

NOTE

WHEN STARTING THE COMPRESSOR, THE RPM'S WILL AUTOMATICALLY INCREASE DUE TO LOW VOLUME OF AIR IN THE SYSTEM

CAUTION

DO NOT EXCEED THE PROPER OPERATING SPEED FOR YOUR PARTICULAR UNIT.

3-5. SYSTEM SHUTDOWN

System shutdown is accomplished as follows:

1. Allow the compressor to build to maximum pressure and the truck engine will automatically idle down.

2. Place the compressor control valve in the open (off) position.

3. Depress the clutch pedal and disengage the PTO.

4. Open the receiver drain cock and discharge the air in the receiver.

WARNING

FEDERAL LAW PROHIBITS DRIVING THE CARRIER VEHICLE ON PUBLIC ROADS WITH THE RECEIVER FILLED WITH COMPRESSED AIR. ALWAYS DRAIN THE RECEIVER BEFORE MOVING THE VEHICLE.

Section 4. PREVENTIVE MAINTENANCE

4-1. PREVENTIVE MAINTENANCE

Proper maintenance on a regular schedule is essential to keep your unit operating efficiently. Proper maintenance procedures and required service intervals are outlined in this section. Personnel responsible for unit upkeep should become familiar with frequency and type of maintenance required and perform these tasks at recommended intervals.

4-2. LUBRICATION

The only lubrication required is on the carrier vehicle and the compressor itself. The truck Owner's Manual should be consulted for information on the type and frequency of lubrication required.

CAUTION

USE ONLY IMT'S SYNTHETIC COMPRESSOR OIL IN THE COMPRESSOR. THE USE OF ANY OTHER OIL CAUSES EXCESSIVE CARBON BUILDUP AND WILL VOID THE WARRANTY ON THE COMPRESSOR.

4-3. PREVENTIVE MAINTENANCE CHECKLIST

The checklist (Figure D-1) is designed to assist you in keeping your unit in efficient operating condition. Items in this section apply to the unit only. The carrier vehicle should also be inspected regularly (refer to the carrier vehicle's service manual).

ITEM	DESCRIPTION	INTERVAL			
		DAILY	WEEKLY	HOURS/MONTHS 250/3	HOURS/MONTHS 500/6
COMPRESSOR	AIR INTAKE - INSPECT AND CLEAN	■			
	FRAME OIL LEVEL - CHECK	■			
	FRAME OIL - CHANGE (SEE NOTE 1)			■	
	VALVES - INSPECT AND CLEAN				■
	COOLING VANES (FINS - CLEAN			■	
	ELECTRIC CLUTCH - CHECK OPERATION			■	
	OPERATE SAFETY VALVES		■		
	CLEAN SAFETY VALVES			■	
V-BELT DRIVE	BELT TENSION - CHECK		■		
RECEIVER	DRAIN CONDENSATION - MANUAL	■			
	OPERATE SAFETY VALVES		■		
GENERAL	CHECK AND TIGHTEN ALL BOLTS			■	
	CHECK ALL ELECT. CONNECTIONS			■	
	CHECK LUBRICATION			■	
	CHECK AND TIGHTEN ALL VALVES			■	
	CHECK FITTINGS AND HOSES FOR LEAKS	■			
	INSPECT CHECK VALVES - CARBON BUILDUP			■	

Service intervals are listed as hours/months, whichever occurs first.

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.

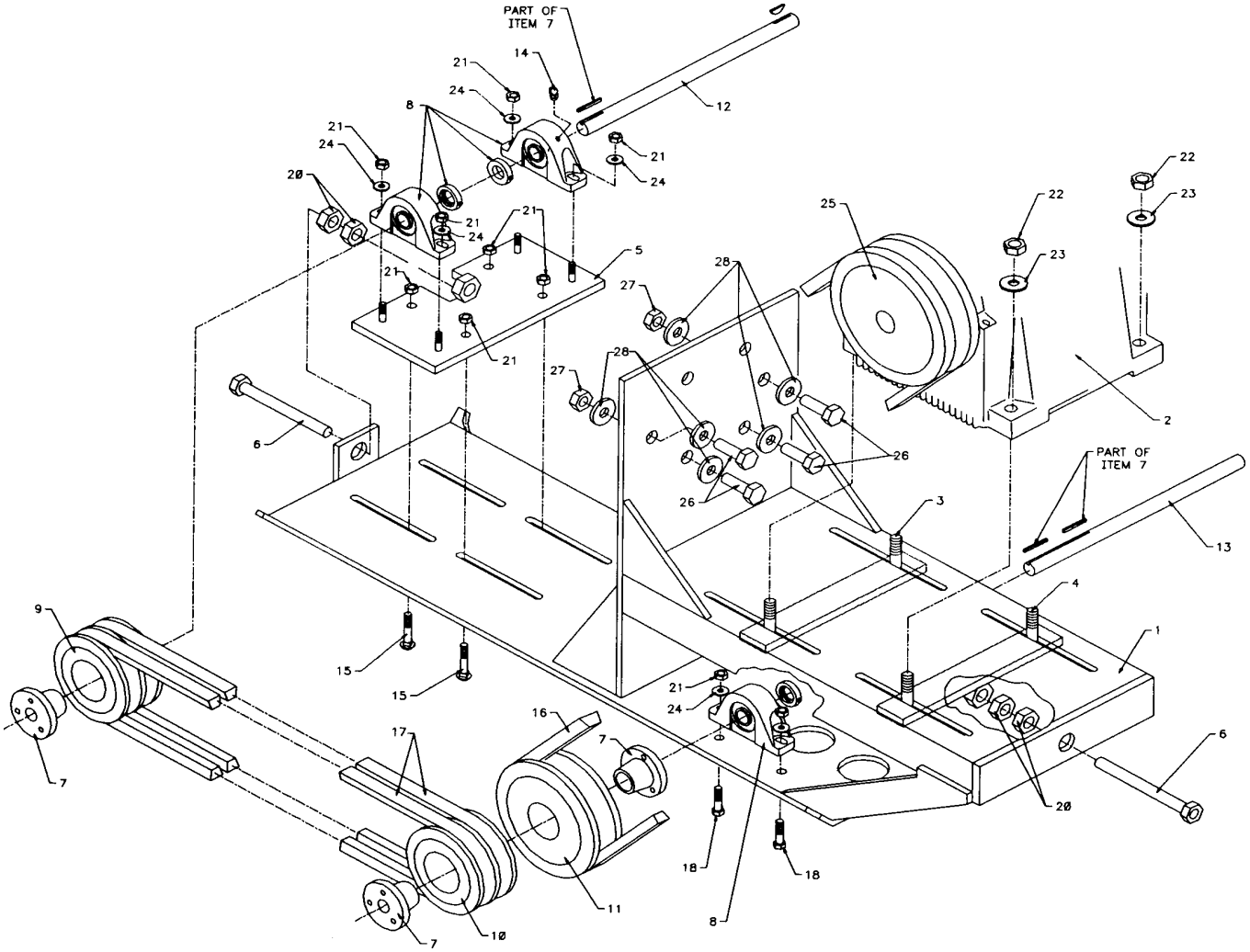
NOTE 1. Under normal operating conditions, oil changes are required every 3 months. When operating in a dirty environment, change the oil more frequently as your particular operating conditions dictate. Oil capacity is 1-1/3 quarts.

FIGURE D-1. PREVENTIVE MAINTENANCE CHECKLIST

SECTION 5. PARTS

5-1. COMPRESSOR PARTS

This section contains the exploded parts drawings with accompanying parts lists for associated assemblies. These drawings are intended to be used in conjunction with the instructions found elsewhere in this manual.



ITEM	PART NO.	DESCRIPTION	QTY
1.	52712354	FRAME-RH MOUNT	1
2.	51711331	COMPRESSOR 35CFM@100PSI	1
3.	52712339	ADJUSTMENT BAR	1
4.	52712340	ADJUSTMENT BAR & NUT	1
5.	52712341	BEARING BRACKET	1
6.	52704923	SCREW-BELT TIGHTENER	2
7.	70056453	BUSHING-SPLIT TAPER	3
8.	70055062	PILLOW BLOCK	4
9.	70056502	PULLEY 4.95" 2-GRV (2BK52H)	1
10.	70056503	PULLEY 4.45" 2-GRV (2BK47H)	1
11.	70056504	PULLEY 6.25" 1-GRV (BK65H)	1
12.	60118209	SHAFT 1-1/4X19	1
13.	60118210	SHAFT 1-1/4X15	1
14.	72053561	ZERK 1/8NPT 90°	4

ITEM	PART NO.	DESCRIPTION	QTY
15.	72601586	CARR BOLT 1/2-13X1-1/2 SQNK	4
16.	70580106	BELT-GATES B40K	1
17.	70580117	BELT-GATES B46 9003-2046	2
18.	72060928	CAP SCR 1/2-13X2-1/4 HHGR5	4
20.	72062007	NUT 3/4-10 HEX	4
21.	72062080	NUT 1/2-13 LOCK	12
22.	72062103	NUT 3/8-16 LOCK	4
23.	72063003	WASHER 3/8 WRT	4
24.	72063005	WASHER 1/2 WRT	8
25.	70056437	PULLEY-CLUTCH 1-GRV	1
26.	72060151	CAP SCR 5/8-11X2 HHGR8	4REF
27.	72062091	NUT 5/8-11 LOCK	4REF
28.	72063007	WASHER 5/8 WRT	4REF

FIGURE E-1. MODEL DA435PBU, RH MOUNT COMPRESSOR (23000145)

FIGURE E-2. AIR COMPRESSOR ASM (51711331-1)

ITEM	PART NO.	DESCRIPTION	QTY
1.	51014947	RING SET - 3 (INCL:2,3)	1
2.	70014599	COMPRESSION RING (PART OF 1)	8REF
3.	70014600	OIL RING (PART OF 1)	4REF
4.	51029283	ROD ASM	4
5.	51029285	PISTON ASM (INCL:88-90)	4
6.	51714023	INSERT ASM	2
7.	7Q073017	O-RING (PART OF 6)	2REF
8.	70029593	INSERT (PART OF 6)	2REF
9.	70029468	SHIM (PART OF 6)	2REF
10.	72066426	BALL .594 (PART OF 6)	2REF
11.	51706913	CRANKCASE/SHAFT ASM (INCL:12-33,91,92,94)	1
12.	51705661	CRANKSHAFT (PART OF 11,INCL:13-17)	1REF
13.	60101269	OIL PUMP COLLAR (PART OF 12)	1REF
14.	60108748	CRANKSHAFT (PART OF 12)	1REF
15.	70055009	CONE BEARING (PART OF 12)	1REF
16.	70055012	CONE BEARING (PART OF 12)	1REF
17.	72066307	ROLL PIN .16X.44 (PART OF 12)	1REF
18.	51705709	FRT HSG ASM (PART OF 11,INCL:19-21)	1REF
19.	60025007	FRT BRG HSG (PART OF 18)	1REF
20.	70055011	CUP BEARING (PART OF 18)	1REF
21.	76039119	SEAL (PART OF 18)	1REF
22.	51705710	REAR BRG HSG ASM (PART OF 11,INCL:23-24)	1REF
23.	60025005	REAR BRG HSG (PART OF 22)	1REF
24.	70055010	CUP BEARING (PART OF 22)	1REF
25.	60025012	CRANKCASE (PART OF 11)	1REF
26.	60120238	OIL SCREEN TUBE (PART OF 11)	1REF
27.	60120289	OIL SCREEN (PART OF 11)	1REF
28.	72053403	PIPE PLUG 3/8NPT (PART OF 11)	1REF
29.	72060025	CAP SCR 5/16-18X1 (PART OF 11)	5REF
30.	72060731	CAP SCR 5/16-18X3/4 (PART OF 11	5REF
31.	72063050	WASHER 5/16 LOCK (PART OF 11)	5REF
32.	72066008	OIL SCREEN CLAMP (PART OF 11)	1REF
33.	76039112	FRT BRG GASKET (PART OF 11)	2REF
34.	60025006	REAR BRG COVER	1
35.	60025193	PULSATION TANK	1
36.	60025194	CYLINDER BLOCK	2
37.	60025492	HEAD	2
38.	60101505	PLUG TRANSFER BUSHING	1
39.	60101507	OIL FILL BREATHER PIPE	1
40.	60106933	CHECK VALVE INSER CAP	2
41.	77044419	COIL	1
42.	7Q072212	O-RING	4
43.	76393107	O-RING	2
44.	70014583	OIL PUMP SPRING	1
45.	70024122	WASHER .33X.50X.03 COPPER	12
46.	70029293	CYL BLOCK SPACER	2
48.	70732444	CLUTCH HARDWARE KIT	1
49.	70039300	PLACARD-SERIAL NUMBER	1
50.	70051006	OIL PUMP	1
51.	70014613	DIPSTICK TUBE	1
52.	70048080	BREATHER .25NPT (PART OF 86)	1REF
53.	70733069	REED VALVE ASM	2
56.	72053403	PIPE PLUG SH	4
57.	72053404	PIPE PLUG	1
58.	72053411	PIPE PLUG 1/8NP	2
60.	72601708	STUD 5/16-18X3-1/2	12
61.	72063001	WASHER 1/4 WRT	12
62.	72062001	NUT 5/16-18 HEX	12
63.	72060063	CAP SCR 7/16-14X1-1/4	4
65.	72060731	SCR 5/16X3/4 SH	4
67.	70048117	AIR INTAKE FILTER	4
68.	72063050	WASHER 5/16 LOCK	1
69.	72063052	WASHER 7/16 LOCK	4
70.	72066267	WOODRUFF KEY .16X.62	1
71.	72661487	DRIVE PIN	1
72.	72066537	J-CLIP .19 VINYL	2
73.	72060270	CAP SCR 1/4-28X1/2	4
74.	72063049	WASHER 1/4 LOCK	4
75.	60107276	CAP-MOD 1/2HEX (PART OF 86)	1REF
78.	72053413	PLUG 3/8NPT SQHD	1
79.	72601060	STUD 5/16-24X2XNC GR5 STL	12
80.	73073030	DIPSTICK ASM	1
81.	76039093	PUMP COVER GASKET	1
82.	76039111	CYL BLOCK GASKET-BOTTOM	2
83.	76392119	CYL BLOCK GASKET	2
84.	76392641	CLY BLOCK GASKET-TOP	2
85.	76392642	HEAD GASKET	2
86.	51705310	BREATHER ASM (INCL52,75)	1
87.	72062036	NUT 5/16-24 HEX	12
88.	72066018	RETAINING RING 5/8 INT (PART OF 5)	8REF
89.	70014627	PISTON PIN (PART OF 5)	4REF
90.	70029062	PISTON (PART OF 5)	4REF
91.	76039092	REAR BRG GASKET .006 (PART OF 11)	1REF
92.	76039094	REAR BRG GASKET (PART OF 11)	1REF
93.	76393085	O-RING (PART OF 6)	2REF
94.	76039144	REAR BRG GASKET (PART OF 11)	4REF
95.	51086080	OIL-1 QT	2REF
96.	77040051	TERMINAL #8SPRSPD 16-14GA	5

CONTINUED ON FOLLOWING PAGE

FIGURE E-2A. AIR COMPRESSOR ASSEMBLY (51711331-2)

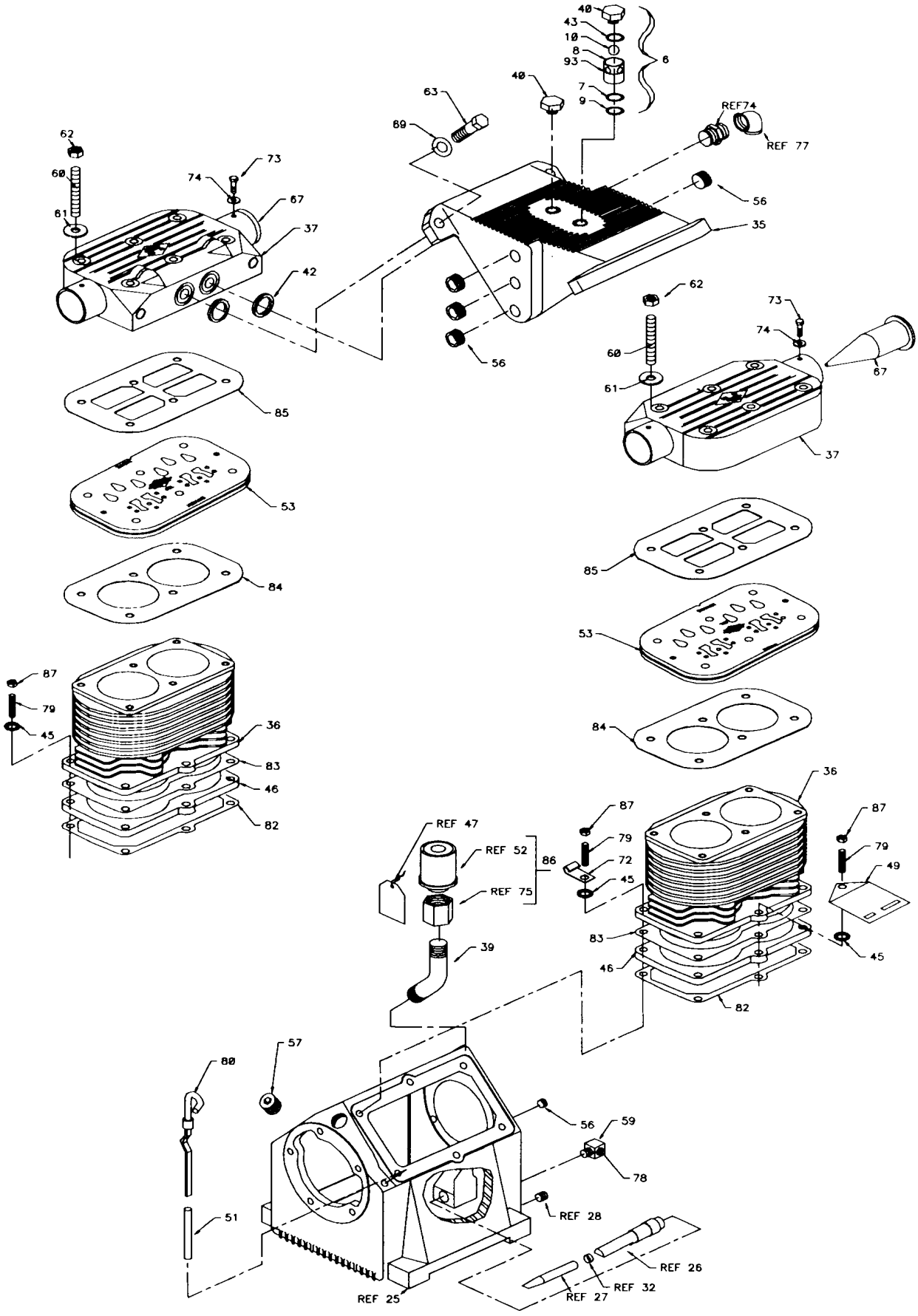


FIGURE E-2B. AIR COMPRESSOR ASSEMBLY (51711331-3)

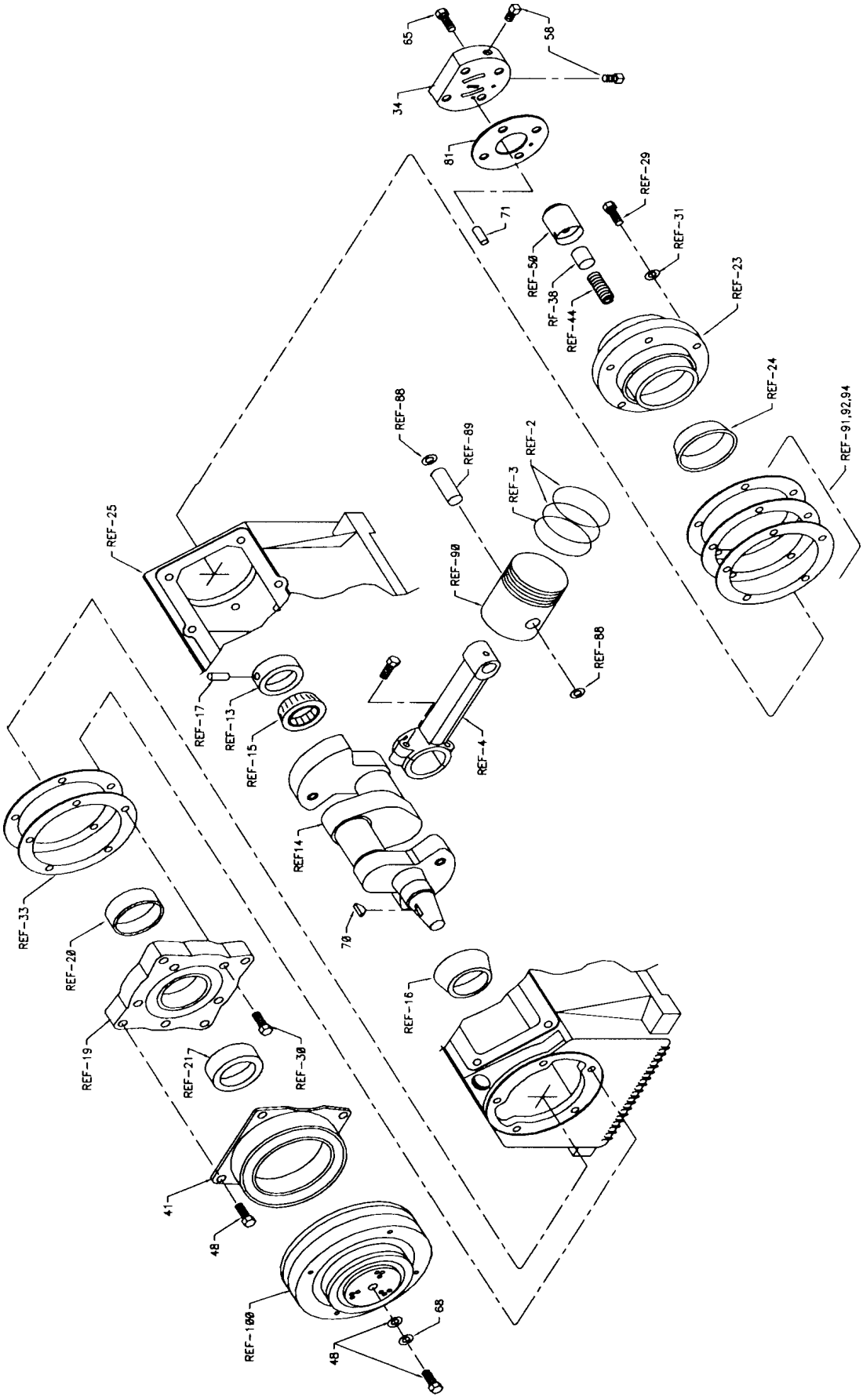
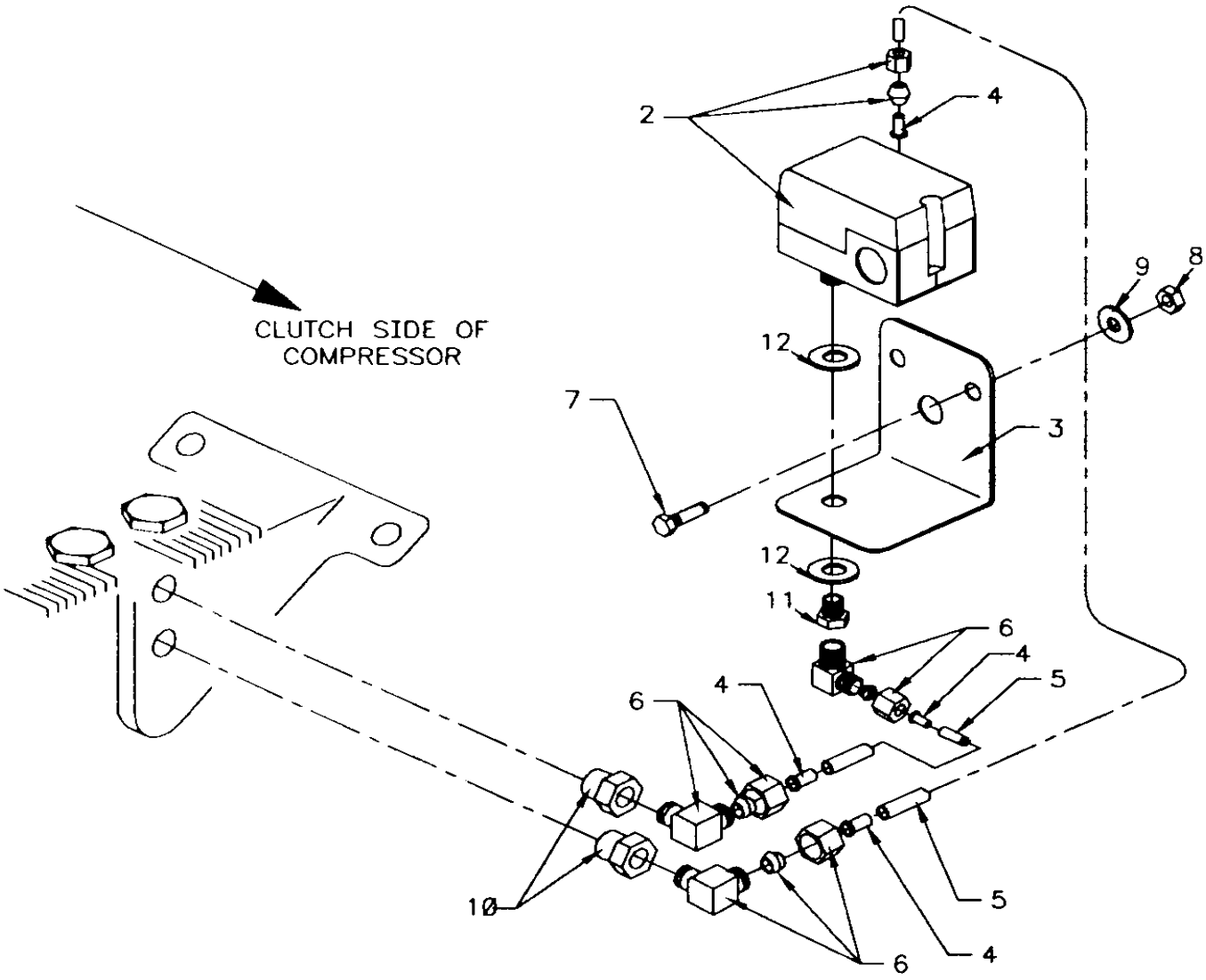


FIGURE E-3. INSTALLATION-PRESSURE SWITCH (51712357)

ITEM	PART NO.	DESCRIPTION	QTY
1.	51712357	KIT-PR SWITCH (INCL:2-13)	1
2.	77041369	PRESSURE SWITCH	1
3.	60119843	MOUNTING BRACKET-PR SW	1
4.	72532952	INSERT	4
5.	89034176	AIR LINE-1/4	5FT
6.	72531042	ELBOW 1/8MPT 1/4CPRSN 90°	3
7.	72060002	CAP SCR 1/4-20X3/4 HHGR5	2
8.	72062104	NUT 1/4 LOCK	2
9.	72063001	WASHER 1/4 WRT	2
10.	72531827	REDUCER BUSHING 3/8-1/8NPT	2
11.	72531826	REDUCER BUSHING 1/4-1/8NPT	1
12.	72063005	WASHER 1/2 WRT	2
13.	99900771	INSTALLATION DWG	1



SECTION 6. REPAIR

6-1. GENERAL

This section describes the disassembly and assembly procedures for the air compressor. In all cases, remove the compressor from the frame, and provide a clean work environment before proceeding with disassembly. Refer to the parts drawing in section 5 of this manual for parts locations.

6-2. PISTON RING REPLACEMENT

1. Remove the pulsation tank.

2. 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.

3. 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.

4. 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.

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

6. 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.

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

8. 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.

9. 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.

10. 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.

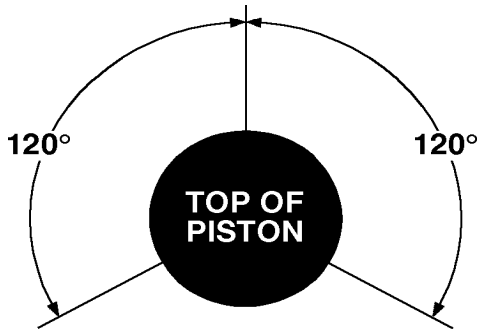


FIGURE F-1. PISTON RING ORIENTATION

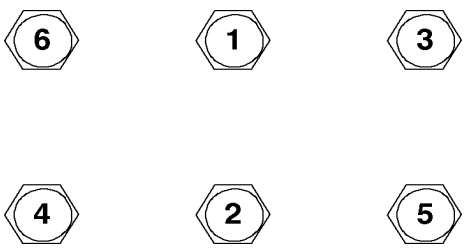


FIGURE F-2. CYL HEAD TORQUE SEQUENCE

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

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

NOTE

INSTALL THE VALVE PLATE WITH THE MARKED SURFACE FACING UP.

13. Install the pulsation tank, and torque to 180 inch-pounds.

14. 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.

6-3. 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 acommon 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 inch-pounds. The bolts should be torqued in a diagonal pattern.

8. Install the air compressor On the frame. Connect the air lines and wiring.

6-4. 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 pulsation tank, both heads, cylinders, and pistons. Refer to the instructions in section 6, paragraph 2.

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 clutch and pulley assembly, 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 inch- pounds. Torque the bolts as shown in the pattern below.

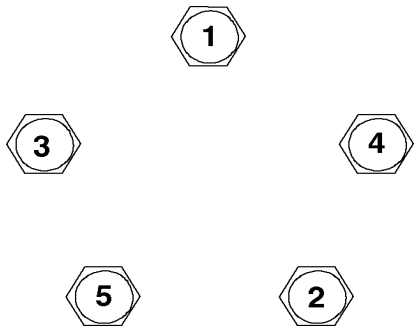


FIGURE F-3. BRG HSG TORQUE SEQUENCE

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 as indicated in section 6, paragraph 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.

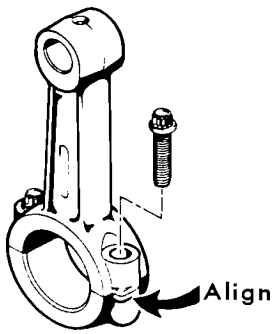


FIGURE F-4. ROD ALIGNMENT

14. Install the pistons, rings, heads and pulsation tank.

6-5. CLUTCH REPLACEMENT

CAUTION

CLUTCH FAILURE MAY BE DUE TO A LEAKING CHECK VALVE. MAKE CERTAIN THAT THE CHECK VALVES ARE FUNCTIONING PROPERLY BEFORE INSTALLING THE NEW CLUTCH. THE CHECK VALVES MAY BE CHECKED BY PRESSURIZING THE TANK AND SHUTTING OFF THE COMPRESSOR. THERE SHOULD BE NO AIR ESCAPING FROM THE UNLOADER VALVE. IF THERE IS AIR ESCAPING, THE CHECK VALVES ARE FAULTY.

The clutch assembly can be removed while the compressor is still on the vehicle. The following procedure should be used.

WARNING

ATTEMPTING TO START THE COMPRESSOR WHILE THE CLUTCH IS BEING REMOVED WILL CAUSE SERIOUS INJURY.

1. Turn on the ignition switch, and move the compressor switch to the on position. This will engage the clutch, and make for easier removal.

2. Remove the bolt in the center of the pulley and insert a 5/8-11 bolt.

3. Tighten the 5/8-11 bolt until the pulley is forced off the crankshaft.

4. Loosen the drive belt and remove the pulley.

NOTE

IF THE DRIVE BELT IS LOOSENED BEFORE THE PULLEY IS LOOSE, IT WILL BE DIFFICULT TO HOLD THE PULLEY STATIONARY WHILE TIGHTENING THE 5/8-11 BOLT.

CAUTION

DO NOT USE A WHEEL PULLER ON THE OUTER RIM OF THE PULLEY. THIS CAN RESULT IN DAMAGE TO THE CLUTCH BEARING.

5. Remove the four (4) bolts holding the coil assembly to the front of the compressor.

To reinstall the clutch:

1. Position the magnetic coil assembly over the front bearing housing and secure the assembly with the 1/4-20 bolts. Torque to 85-120 inch-pounds.

2. Insert the woodruff key into the crankshaft slot.

3. Slide the pulley, spacer, and lock washer onto the end of crankshaft. Be certain that the pulley slot aligns with the woodruff key. Secure them with the 5/16-18 bolts.

4. Rotate the pulley assembly manually to check for interference between the pulley and the coil. If there is interference, disassemble the clutch and repeat the procedure.

5. Install and tighten the drive belts.

6. Connect the coil wire to the air pressure switch.

7. Move the compressor switch in the cab to the on position to activate the clutch. Tighten the center bolt in the pulley.

8. Test the unit for proper operation.

6-6. TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE
LOW OIL PRESSURE	LOW OIL LEVEL
	LOOSE PIPE PLUG ON OIL PUMP COVER
	WORN OR DEFECTIVE OIL PUMP
	CRACK OR SCRATCH ON OILPUMP COVER
NO OIL PRESSURE	DEFECTIVE OIL PUMP
	BLOCKED OIL PASSAGE
	DAMAGED OIL PUMP DRIVE PIN
COMPRESSOR WILL NOT ENGAGE	VEHICLE HOOD CLOSED
	BLOWN FUSE
	DEFECTIVE CLUTCH/BELT
	DEFECTIVE PRESSURE SWITCH
COMPRESSOR ENGAGES BUT WILL WILL NOT PRESSURIZE TANK	AIR LEAK IN PLUMBING
	WORN PISTON RINGS OR VALVE PLATES
	DEFECTIVE CHECK VALVE/VALVES
COMPRESSOR DOES NOT RECOVER PRESSURE AS FAST AS IT SHOULD	DEFECTIVE CHECK VALVE/VALVES
	DIRTY FILTERS
	LOOSE BELT
	AIR LEAK IN PLUMBING
	WORN VALVE PLATES OR PISTON RINGS

FIGURE F-5. TROUBLESHOOTING CHART

SECTION 7. REFERENCE

TORQUE DATA CHART - DOMESTIC

FINE THREAD BOLTS

SIZE (DIA-TPI)	BOLT DIA (INCHES)	TIGHTENING TORQUE SAE J429 GRADE 5 PLAIN (FT-LB)	SAE J429 GRADE 5 PLATED (FT-LB)	SAE J429 GRADE 8 PLAIN (FT-LB)	SAE J429 GRADE 8 PLATED (FT-LB)
5/16-24	0.3125	19	14	27	20
3/8-24	0.3750	35	26	49	35
7/16-20	0.4375	55	41	78	58
1/2-20	0.5000	90	64	120	90
9/16-18	0.5625	120	90	170	130
5/8-18	0.6250	170	130	240	180
3/4-16	0.7500	300	225	420	315
7/8-11	0.8750	445	325	670	500
1-12	1.0000	645	485	995	745
1 1/8-12	1.1250	890	670	1445	1085
1 1/4-12	1.2500	1240	930	2010	1510
1-3/8-12	1.3750	1675	1255	2710	2035
1 1/2-12	1.5000	2195	1645	3560	2670

COARSE THREAD BOLTS

SIZE (DIA-TPI)	BOLT DIA (INCHES)	TIGHTENING TORQUE SAE J429 GRADE 5 PLAIN (FT-LB)	SAE J429 GRADE 5 PLATED (FT-LB)	SAE J429 GRADE 8 PLAIN (FT-LB)	SAE J429 GRADE 8 PLATED (FT-LB)
5/16-18	0.3125	17	13	25	18
3/8-16	0.3750	31	23	44	33
7/16-14	0.4375	49	37	70	52
1/2-13	0.5000	75	57	105	80
9/16-12	0.5625	110	82	155	115
5/8-11	0.6250	150	115	220	160
3/4-10	0.7500	265	200	375	280
7/8-9	0.8750	395	295	605	455
1-8	1.0000	590	445	910	680
1 1/8-7	1.1250	795	595	1290	965
1 1/4-7	1.2500	1120	840	1815	1360
1-3/8-6	1.3750	1470	1100	2380	1780
1 1/2-6	1.5000	1950	1460	3160	2370

When using the torque data in the charts above, the following rules should be observed.

1. Bolt manufacturer's particular specifications should be consulted when provided.

2. Flat washers of equal strength must be used.

3. All torque measurements are given in foot-pounds. To convert to inch-pounds, multiply by 12.

4. Torque values specified are for bolts with residual oils or no special lubricants applied. If special lubricants of high stress ability, such as Never-Seez compound graphite and oil, molybdenum disulphite, collodial copper or white lead are applied, multiply the torque values in the charts by the factor .90. The use of Loctite does not affect the torque values listed above.

5. Torque values for socket-head capscrews are the same as for Grade 8 capscrews.

FIGURE G-1. TORQUE DATA CHART

SINGLE TIRES FOR TRUCKS IN HIGHWAY SERVICE

TIRE SIZE	LOAD RANGE	TIRE LOAD LIMITS AT VARIOUS INFLATION PRESSURES										
		50	55	60	65	70	75	80	85	90	95	100
7.00-20	D	2100	2260	2390	2530	2670	2790					
7.00-20	E	2100	2260	2390	2530	2670	2920	3030	3150			
7.50-20	D	2360	2530	2680	2840	2990	3140					
7.50-20	E	2360	2530	2680	2840	2990	3140	3270	3410	3530		
8.25-20	E	2800	3010	3190	3370	3560	3730	3890	4050			
8.25-20	F	2800	3010	3190	3370	3560	3730	3890	4050	4210	4350	4500
9.00-20	E		3560	3770	4000	4210	4410	4610				
9.00-20	F		3560	3770	4000	4210	4410	4610	4790	4970	5150	
10.00-20	F			4290	4530	4770	4990	5220	5430			
10.00-20	G			4290	4530	4770	4990	5220	5430	5640	5840	6040
11.00-20	F			4670	4940	5200	5450	5690	5920			
11.00-20	G			4670	4940	5200	5450	5690	5920	6140	6370	6590
11.00-22	F			4960	5240	5520	5790	6040	6290			
11.00-22	G			4960	5240	5520	5790	6040	6290	6530	6770	7000

DUAL TIRE FOR TRUCKS IN HIGHWAY SERVICE

TIRE SIZE	LOAD RANGE	TIRE LOAD LIMITS AT VARIOUS INFLATION PRESSURES										
		40	45	50	55	60	65	70	75	80	85	90
7.00-20	D	1840	1980	2100	2220	2340	2450					
7.00-20	E	1840	1980	2100	2220	2340	2450	2560	2660	2760		
7.50-20	D	2070	2220	2350	2490	2620	2750					
7.50-20	E	2070	2220	2350	2490	2620	2750	2870	2990	3100		
8.25-20	E	2460	2640	2800	2960	3120	3270	3410	3550			
8.25-20	F	2460	2640	2800	2960	3120	3270	3410	3550	3690	3820	3950
9.00-20	E		3120	3310	3510	3690	3870	4040				
9.00-20	F		3120	3310	3510	3690	3870	4040	4200	4360	5420	
10.00-20	F			3760	3970	4180	4380	4580	4760			
10.00-20	G			3760	3970	4180	4380	4580	4760	4950	5120	5300
11.00-20	F			4100	4330	4560	4780	4990	5190			
11.00-20	G			4100	4330	4560	4780	4990	5190	5390	5590	5780
11.00-22	F			4350	4600	4840	5080	5300	5520			
11.00-22	G			4350	4600	4840	5080	5300	5520	5730	5940	6140

DEFINITE TIRE INFLATION PRESSURES ARE ESTABLISHED FOR EACH TIRE SIZE DEPENDING UPON THE LOAD IMPOSED ON THE TIRE. FOR GREATER SABILITY, RIDING COMFORT AND PROLONGED TIRE LIFE, TIRES SHOULD BE INFLATED FOR THE LOADS CARRIED. THE "LOAD AND INFLATION TABLE" SHOWN ABOVE, INDICATES THE PROPER INFLATION PRESSURES.

TIRE AND RIM ASSOCIATION STANDARD TIRE LOADS AT VARIOUS INFLATION PRESSURES.
LOAD RANGE LETTERS AND CORRESPONDING PLY RATING
(D=8 PLY, E=10 PLY, F=12 PLY AND G=14 PLY).

FIGURE G-2. TIRE LOAD AND INFLATION PRESSURES

DA435PBU:99900785:

The information within this manual has been compiled and checked but errors do occur. To provide our customers with a method of communicating those errors we have provided the Manual Change Request form below. In addition to error reporting, you are encouraged to suggest changes or additions to the manual which would be of benefit to you. We cannot guarantee that these additions will be made but we do promise to consider them. When completing the form, please write or print clearly. Submit a copy of the completed form to the address listed below.

MANUAL CHANGE REQUEST

DATE	PRODUCT MANUAL	MANUAL PART NO.
SUBMITTED BY		
COMPANY		
ADDRESS		
CITY, STATE, ZIP		
TELEPHONE		

☐ ERROR FOUND

LOCATION OF ERROR (page no.): _____

DESCRIPTION OF ERROR: _____

_____

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☐ REQUEST FOR ADDITION TO MANUAL

DESCRIPTION OF ADDITION: _____

_____

_____

_____

REASON FOR ADDITION: _____

_____

_____

_____

MAIL TO: IOWA MOLD TOOLING Co., Inc.
Box 189,
Garner IA 50438-0189
ATTN: Technical Publications

DA435PBU:99900785:

LIMITED WARRANTY

WARRANTY COVERAGE - Products manufactured by Iowa Mold Tooling Co., Inc. (IMT) are warranted to be free from defects in material and workmanship, under proper use, application and maintenance in accordance with IMT's written recommendations, instructions and specifications as follows:

1. Ninety (90) days; labor on IMT workmanship from the date of shipment to the end user.

2. One (1) year; original IMT parts from the date of shipment to the end user.

IMT's obligation under this warranty is limited to, and the sole remedy for any such defect shall be the repair or replacement (at IMT's option) of unaltered parts returned to IMT, freight prepaid, and proven to have such defect, provided such defect occurs within the above stated warranty period and is reported within fourteen (14) days of its occurence.

IMPLIED WARRANTY EXCLUDED - This is the only authorized IMT warranty and is in lieu of all other express or implied warranties or representations, including any implied warranties of merchantability or fitness for any particular purpose or of any other obligations on the part of IMT.

ITEMS EXCLUDED - The manufacturer gives no warranty on any components purchased by the manufacturer, and such components as are covered only by the warranties of their respective manufacturers.

WARRANTY CLAIMS - Warranty claims must be submitted and shall be processed in accordance with IMT's established warranty claim procedure.

WARRANTY SERVICE - Warranty service will be performed by any IMT distributor authorized to sell new IMT products of the type involved or by any IMT Service Center authorized to service the type of product involved or by IMT in the event of direct sales made by IMT. At the time of requesting warranty service, the purchaser must present evidence of the date of delivery of the product. The purchaser shall pay any premium for overtime labor requested by the purchaser, any charge for making service calls and for transporting the equipment to the place where warranty work is performed.

WARRANTY VOIDED - All obligations of IMT under this warranty shall be terminated:(1) if service other than normal maintenance or normal replacement of service items is performed by someone other than an authorized IMT dealer, (2) if product is modified or altered in ways not approved by IMT.

PURCHASER'S RESPONSIBILITY - This warranty covers only defective material and workmanship. It does not cover depreciation or damage caused by normal wear, accident, improper protection in storage, or improper use. The purchaser has the obligation of performing the care and maintenance duties discussed in IMT's written recommendations, instructions and specifications. Any damage which results because of purchaser's failure to perform such duties shall not be covered by this warranty. The cost of normal maintenance and normal replacement of service items such as filters, belts, etc. shall be paid by the purchaser.

CONSEQUENTIAL DAMAGES - The only remedies the purchaser has in connection with the breach or performance of any warranty on IMT products are those set forth above. In no event will the dealer, IMT or any company affiliated with IMT, be liable for business interruptions, loss of sales and/or profits, rental or substitute equipment, costs of delay or for any other special, indirect, incidental or consequential losses, costs or damages.

REPRESENTATIONS EXCLUDED - IMT products are subject to no expressed, implied or statutory warranty other than herein set forth, and no agent, representative or distributor of the manufacturer has any authority to alter the terms of this warranty in any way whatsoever or to make any representations or promises, express or implied, as to the quality or performance of IMT products other than those set forth above.

CHANGE IN DESIGN - IMT reserves the right to make changes in design or improvements upon its products without imposing any obligation upon itself to install the same upon its products theretofore manufactured.

Effective January, 1985

IOWA MOLD TOOLING CO., INC.
BOX 189, GARNER, IA 50438-0189
TEL: 515-923-3711
TECHNICAL SUPPORT FAX: 515-923-2424