Model DA435EL

Underhood Air Compressor

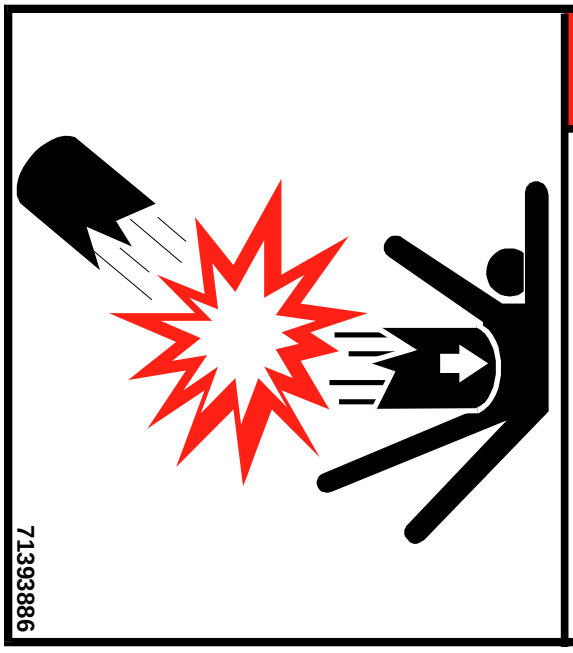
(Replaces Models HD950 & HD1250)

IOWA MOLD TOOLING CO., INC.
BOX 189, 500 HWY 18 WEST, GARNER, IA 50438
TEL: 641-923-3711
TECHNICAL SUPPORT FAX: 641-923-2424

MANUAL PART NUMBER 99900678

PRECAUTIONS

Read before operating your 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.

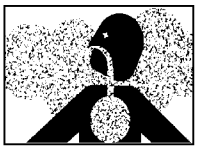
Failure to follow operating and maintenance procedures as outlined in this manual could result in equipment damage, personal injury or death. Follow all maintenance procedures and intervals.

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

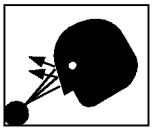
All electrical components and cable wiring must be installed and grounded in accordance with NFPA, national electrical codes and applicable state and local codes.

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

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



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.



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

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

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

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SECTION 1. SPECIFICATIONS

1-1. GENERAL

The IMT DA435EL air compressor is an underhood, engine mounted, single stage, liquid cooled, 4-cylinder, pressure lubricated unit, with a delivery rate of 35 CFM at 1400 RPM.

The compressor is belt driven from the engine 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.

CAUTION

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

1-2. 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	Water
Height	13-1/2"
Width	15"
Length	13-7/8"
Material	Aluminum Alloy
Weight	87 lbs.

* @ 1400 RPM - 100 PSI

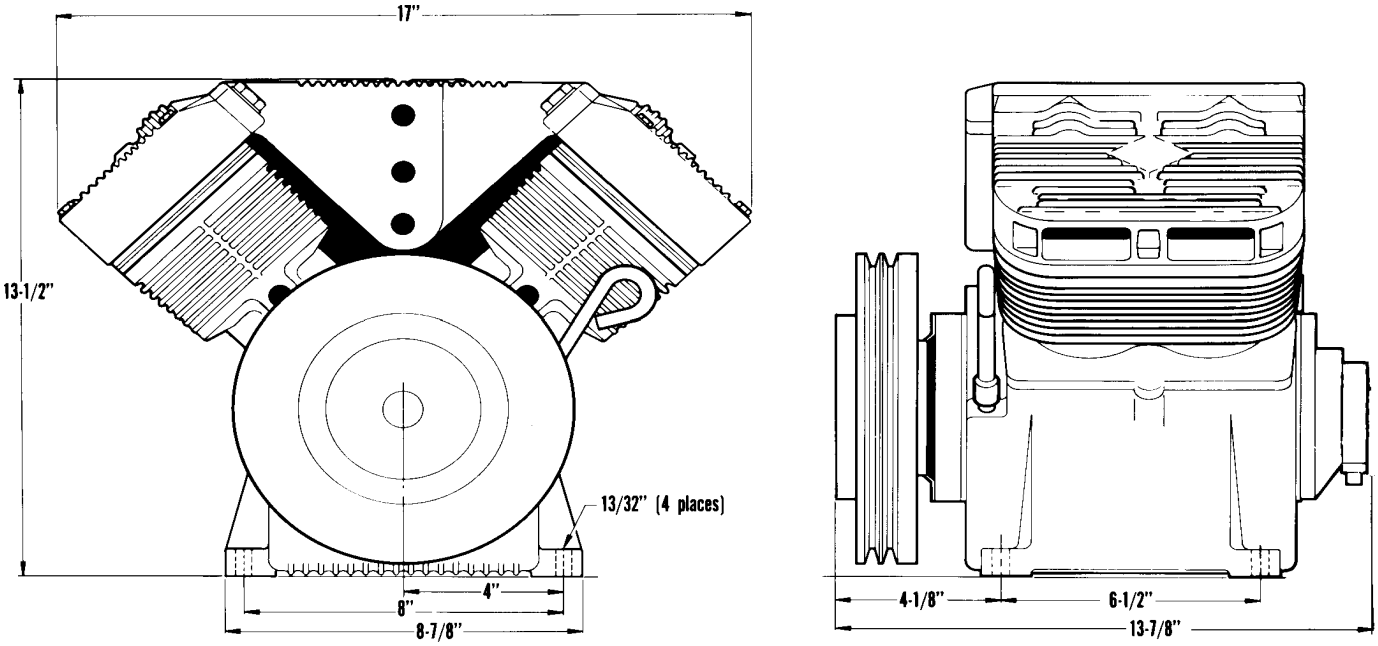

FIGURE A-1. OUTSIDE DIMENSIONS

SECTION 2. INSTALLATION

2-1. GENERAL

This section pertains to the installation of the IMT DA435EL compressor and related components. Because installations will vary somewhat, dependent on the chassis, it will describe the installation in general terms only.

2-2. AIR COMPRESSOR

Each installation will differ dependent on the chassis make, model, year of manufacture, and optional equipment. Refer to the mounting kit for specific information relating to your application.

2-3. UNDERDASH SWITCH

The installation kit will include the correct bracket for the installation of the compressor, power switch and the engine speed control. The bracket may house switches for other functions, depending on the total system.

1. Drill mounting holes in the underside of the dash. It may be possible to utilize existing holes.

2. Install the switch, or switches, needed for your installation.

3. Route the needed wiring harness to the rear of the bracket and connect to the proper switches.

4. Securely fasten the assembled switch bracket to the dash with bolts, nuts, and washers provided.

NOTE

IF THE DASHBOARD IS PLASTIC, THE GROUND WIRE MUST BE CONNECTED TO CHASSIS GROUND. THE PLASTIC DASHBOARD IS NOT CONDUCTIVE AND WILL NOT PROVIDE A GROUND.

5. Connect the positive side of the compressor switch to the power switch. Connect the other side of the switch to the underhood safety switch and the indicator lamp.

6. Install the throttle cable mounting bracket to the underside of the dash, near the switch bracket. Install the cable and connect to the carburetor linkage. Make certain that there is enough free play to allow the engine to return to normal idle.

2-4. UNDERHOOD SWITCH

The purpose of the underhood switch is to prevent the compressor from running unless the vehicle's hood is raised. This will ensure sufficient air flow to the compressor during operation.

1. Select a location for the mercury switch that will provide protection for the glass envelope and keep the switch contacts open when the hood is closed. The mercury should not be in contact with the contacts to accomplish this.

2. Drill a 1/16 inch hole in the desired location and install the switch bracket. Install the switch in the bracket. Connect one lead to the underdash switch, the other to the compressor pressure switch. When wired properly, the switch in the cab must be "ON" and the hood must be raised in order for the compressor to operate.

CAUTION

WARRANTY ON THE COMPRESSOR WILL BE VOID IF THE UNDERHOOD SAFETY SWITCH IS NOT USED. FAILURE TO USE THIS SWITCH WILL ALLOW THE COMPRESSOR TO OPERATE WITH THE HOOD CLOSED AND WILL CAUSE OVERHEATING.

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.

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

2. With the compressor engaged:
   On units having the automatic speed control option, check the engine RPM for proper setting (1400 RPM max.) under compressor load.

3-2. OPERATION

To use the compressor, raise the hood to provide adequate ventilation, start the vehicle engine, and engage the compressor by operating the compressor switch in the cab. On systems without automatic engine speed control, adjust the engine RPM with the manual throttle cable to maintain the proper RPM setting while the compressor is pumping.

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

NOTE

ON UNITS WITH MANUAL ENGINE SPEED CONTROL, THE ENGINE RPM WILL INCREASE WHEN THE COMPRESSOR CLUTCH DISENGAGES.

CAUTION

THIS UNIT IS EQUIPPED WITH AN UNDERHOOD SAFETY SWITCH WHICH REQUIRES THAT THE HOOD BE RAISED WHILE THE COMPRESSOR IS IN OPERATION. THIS IS INSTALLED TO ENSURE THAT THE UNIT HAS ADEQUATE VENTILATION, AND THAT THE UNIT IS NOT INADVERTANTLY LEFT ON WHEN NOT IN USE AND THE VEHICLE IS IN MOTION. BYPASSING THIS SAFETY DEVICE, OR OPERATING THIS UNIT IN EXCESS OF 1400 RPM, WILL VOID THE WARRANTY, AND WILL SHORTEN THE NORMAL SERVICE LIFE OF THE COMPRESSOR.

NOTES

Section 4. MAINTENANCE & PARTS

4-1. GENERAL

The following table is a list of routine maintenance items, including service intervals. It also includes a parts list and assembly drawing of the compressor.

MAINTENANCE OPERATION	SERVICE INTERVALS			
	DAILY	WEEKLY	250/3	500/6
AIR INTAKE - INSPECT AND CLEAN		■		
CRANKCASE OIL LEVEL - CHECK, ADD IF NEEDED	■			
CRANKCASE OIL - CHANGE (SEE NOTE 1)			■	
CHECK CYLINDER HEAD BOLT TORQUE (SEE NOTE 2)		■		
COOLING VANES (FINS) - CLEAN			■	
SAFETY VALVES - CHECK OPERATION		■		
SAFETY VALVES - CLEAN			■	
BELT TENSION - CHECK		■		
ELECTRIC CLUTCH - CHECK OPERATION			■	
AIR RECEIVER - DRAIN CONDENSATION	■			
RECEIVER SAFETY VALVES - CHECK OPERATION		■		
TIGHTEN AND CHECK ALL VALVES			■	
CHECK ALL ELECTRICAL CONNECTIONS			■	
CHECK FITTINGS AND AIR LINES FOR LEAKS	■			
INSPECT CHECK VALVES FOR PROPER OPERATION		■		
INSPECT CHECK VALVES FOR 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.

NOTE 2. Cylinder head bolt torque MUST be checked after the initial 8-10 hours of operation. The compressor must be cold (room temperature) before retorquing of bolts. Torque bolts to 180 in-lbs plus or minus 10 in-lbs.

FIGURE D-1. ROUTINE MAINTENANCE CHECKLIST

DA435EL UNDERHOOD AIR COMPRESSOR (51711134-1)

CONTINUED

ITEM	PART NO.	DESCRIPTION	QTY
1.	60025012	CRANKCASE (PART OF 94)	1REF
2.	60025194	CYLINDER BLOCK	2
3.	60250270	CYLINDER HEAD	2
4.	60025193	PULSATION TANK	1
5.	70733069	REED VALVE ASM	2
6.	73073030	DIPSTICK	1
7.	70014613	DIPSTICK TUBE	1
8.	60120238	OIL SCREEN TUBE (PART OF 94)	1REF
9.	60120289	OIL SCREEN (PART OF 94)	1REF
10.	72066008	OIL SCREEN CLAMP (PART OF 94)	1REF
11.	60101507	OIL FILL PIPE	1
12.	51705310	BREATHER CAP ASM(INCL:95,96)	1
13.	72063050	WASHER 5/16 LOCK (PART OF 94)	5REF
14.	72053403	PLUG 3/8NPT SH (PART OF 94)	1REF
15.	72053413	PLUG 3/8NPT SQHD (PART OF 94)	1REF
16.	70039300	IDENTIFICATION PLATE	1
17.	72063001	WASHER 1/4 FLAT	12
18.	70014626	AIR INTAKE RETAINER	8
19.	76393803	AIR INTAKE SCREEN	8
20.	72062001	NUT 5/16-18 HEX	12
21.	72060063	CAP SCR 7/16-14X1-1/4 HHGR5	4
22.	72062036	NUT 5/16-24 HEX	12
23.	76039111	GASKET	2
24.	72053403	PIPE PLUG 3/8NPT SH	6
25.	70024122	WASHER 5/16 FLAT COPPER	12
26.	72063052	WASHER 7/16 LOCK	4
27.	72063050	WASHER 5/16 LOCK	1
28.	72063001	WASHER 1/4 WRT	2
29.	72060005	CAP SCR 1/4-20X1-1/4 HHGR5	2
30.	72053404	PLUG 1/2NPT SH	1
31.	7Q072212	O-RING	8
32.	76392642	HEAD GASKET	2
33.	76392641	GASKET-CYL/VALVEPLATE	2
34.	76392119	GASKET-CYL/SPACER	2
35.	70029293	SPACER-CYL BLOCK	2
36.	60106933	CAP	2
37.	72063049	WASHER 1/4 LOCK	2
38.	72066537	CABLE CLAMP	2
39.	72532716	BARB NIPPLE 3/8NPT X 5/8BARB	2
40.	72661487	DRIVE PIN	1
41.	76393107	O-RING	2
42.	72066426	BALL (PART OF 97)	2REF
43.	70029593	INSERT (PART OF 97)	2REF
44.	7Q073017	O-RING (PART OF 97)	2REF
45.	72601708	STUD 5/16-18X3-1/2	12
53.	76392550	FOAM FILTER	4
54.	70732444	CLUTCH HARDWARE	1
55.	70056437	PULLEY-1 GROOVE 5/8"	REF
	70056304	PULLEY-2 GROOVE 1/2"	REF
	70056441	PULLEY-6 GROOVE SERPENTINE	REF
	70056442	PULLEY-7 GROOVE SERPENTINE	REF
56.	77044419	COIL	1
57.	76039119	SEAL (PART OF 91)	1REF
58.	60025007	FRT BRG HSG (PART OF 91)	1REF
59.	70055011	FRT BRG CUP (PART OF 91)	1REF
60.	70055012	FRT BRG CONE PART OF 93)	1REF
61.	60108748	CRANKSHAFT (PART OF 93)	1REF
62.	72066267	WOODRUFF KEY #6	1
63.	70055009	REAR BRG CONE (PART OF 93)	1REF
64.	60101269	OIL PUMP COLLAR (PART OF 93)	1REF
65.	72066307	DRIVE PIN (PART OF 93)	1REF
66.	70055010	REAR BRG CUP (PART OF 92)	1REF
67.	60025005	REAR BRG HSG (PART OF 92)	1REF
68.	70014583	COIL SPRING	1
69.	60101505	SLEEVE	1
70.	70051006	OIL PUMP	1
71.	60025006	PUMP COVER	1
73.	72053411	PIPE PLUG 1/8NPT SQHD	2
74.	72060731	CAP SCR 5/16-18X3/4 SH (PART OF 94)	5REF
75.	72060731	CAP SCR 5/16-18X3/4 SH	4
76.	51029283	CONNECTING ROD	4
77.	51029285	PISTON ASM (INCL:78,79,100)	4
78.	70014627	WRIST PIN (PART OF 77)	4REF
79.	72066018	RETAINING RING (PART OF 77)	8REF
80.	70014600	OIL RING (PART OF 88)	4REF
81.	70014599	COMPRESSION RING(PART OF 88)	8REF
82.	76039092	GASKET-REAR BRG .006	2AR
	76039094	GASHET-REAR BRG .010	2AR
	76039144	GASKET-REAR BRG .020	2AR
	76039143	GASKET-REAR BRG .015	2AR
83.	76039093	PUMP COVER GASKET	1
84.	76039112	FRT BRG HSG GASKET	2REF
87.	72060025	CAP SCR 5/16-18X1HHGR5 (PART OF 94)	5REF
88.	51014947	RING SET (INCL:80,81)	1
89.	72053722	ADAPTER 3/8 X 1/4MPT	1
91.	51705709	FRT BRG HSG (INCL:57-59) (PART OF 94)	1REF
92.	51705710	REAR BRG HSG (INCL:66,67) (PART OF 94)	1REF
93.	51705661	CRANKSHAFT ASM(INCL:60,61,63-65) (PART OF 94)	1REF
94.	51715661	CRANKSHAFT/CASE ASM	1
95.	60107276	CAP-MODIFIED (PART OF 12)	1REF
96.	70048080	BREATHER (PART OF 12)	1REF
97.	51714023	INSERT ASM (INCL:42-44,98,102)	REF
98.	70029468	SHIM (PART OF 98)	2REF
99.	70039124	DECAL-OIL FILL	1
100.	70029062	PISTON (PART OF 77)	4REF
101.	72601060	STUD 5/16-24X2 NC GR5	12
102.	76393085	O-RING (PART OF 97)	2REF

DA435EL UNDERHOOD AIR COMPRESSOR (51711134-2)

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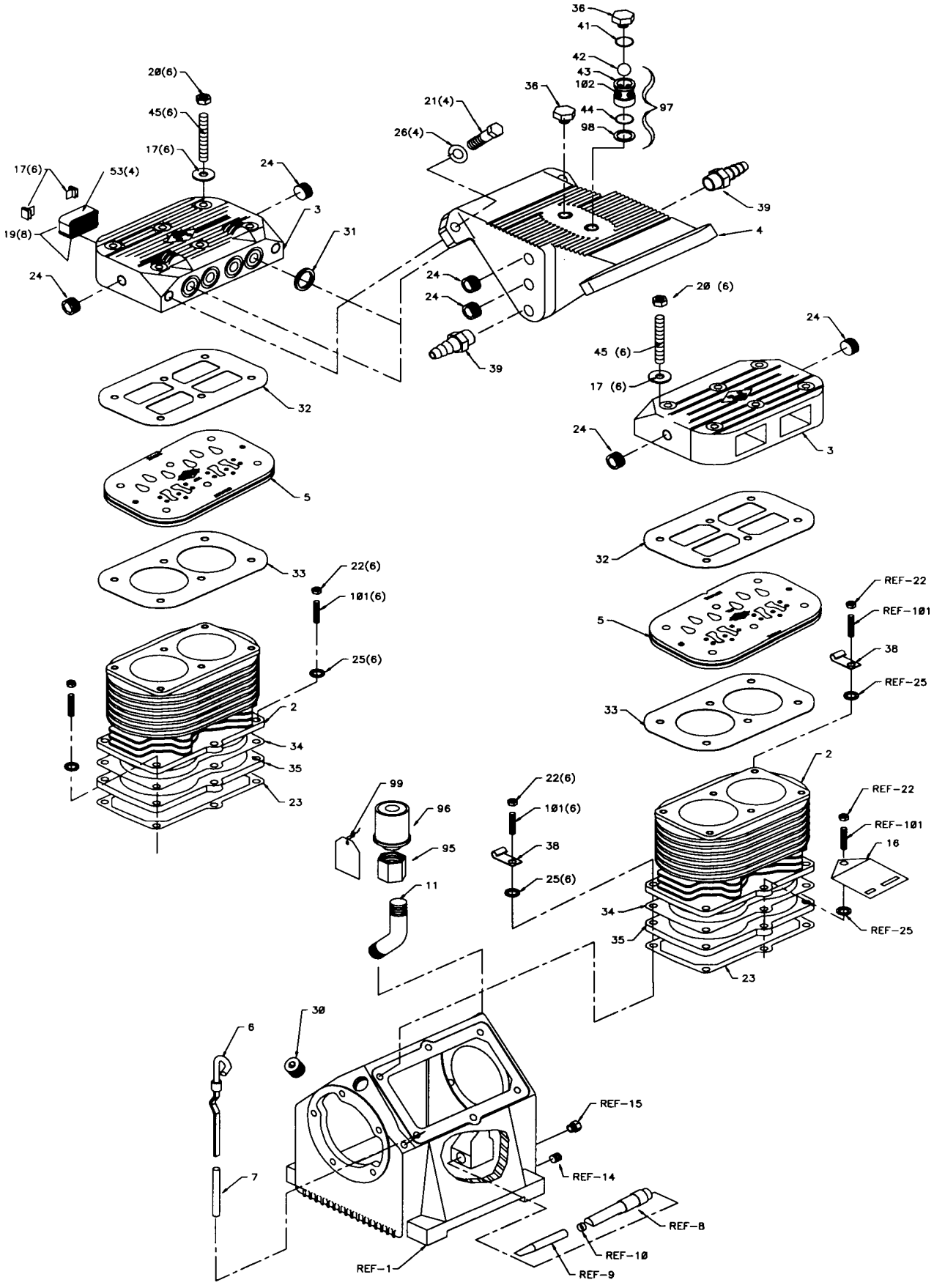
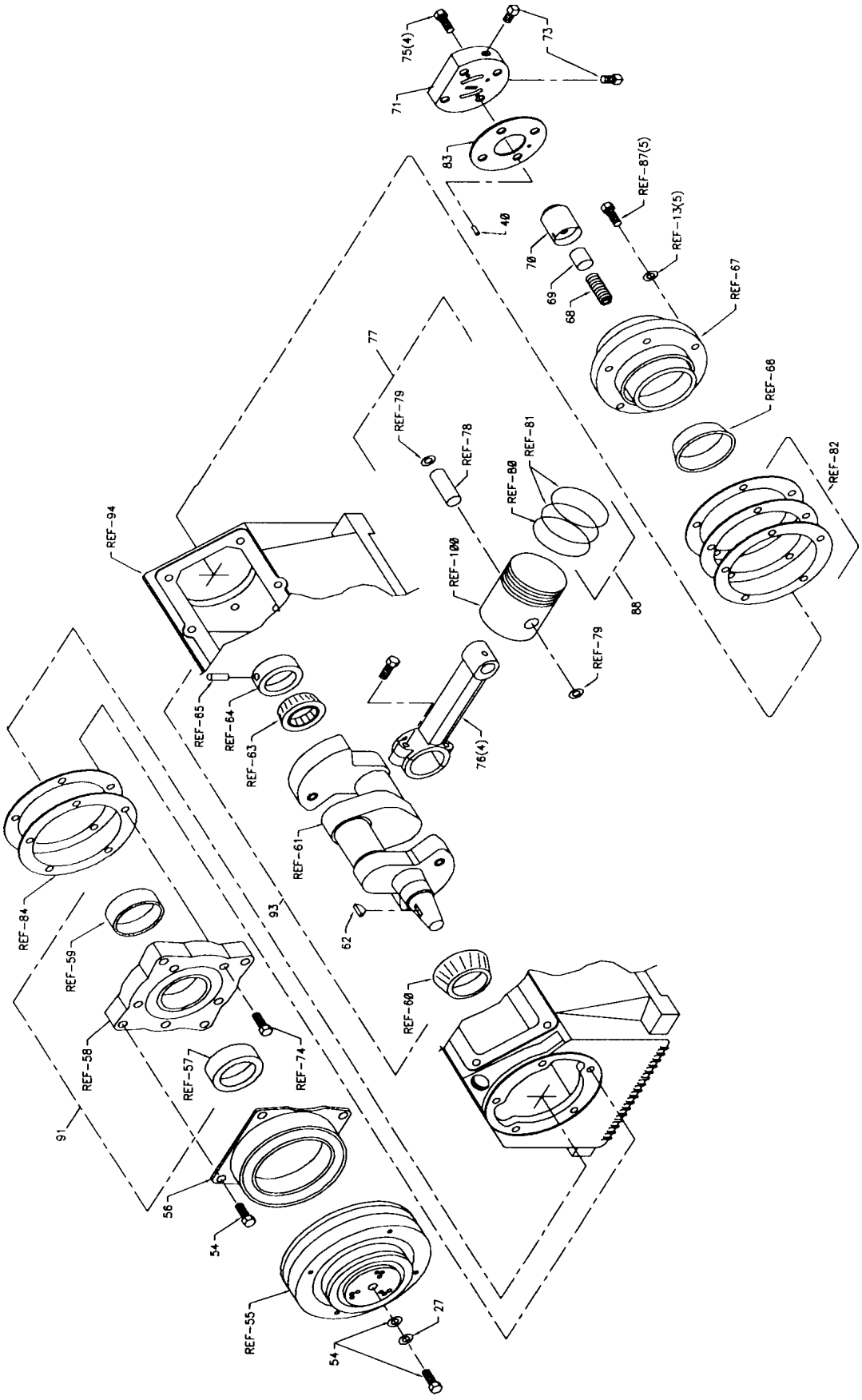


DA435EL UNDERHOOD AIR COMPRESSOR (51711134-3)



REMOTE MOUNTED PRESSURE SWITCH INSTALLATION INSTRUCTIONS (99900500)

1. Locate pressure switch mounting bracket (60119843) to the firewall or fender well of truck. Use the predrilled holes on the mounting bracket as a pattern to drill holes when mounting.

2. Assemble pressure switch and related hardware to the mounting bracket. Attach a 90° elbow (72531042) to the bottom side of the pressure switch mounting bracket.

3. Mount the pressure switch mounting bracket to the truck. Use the two (2) sheet metal screws provided in the kit.

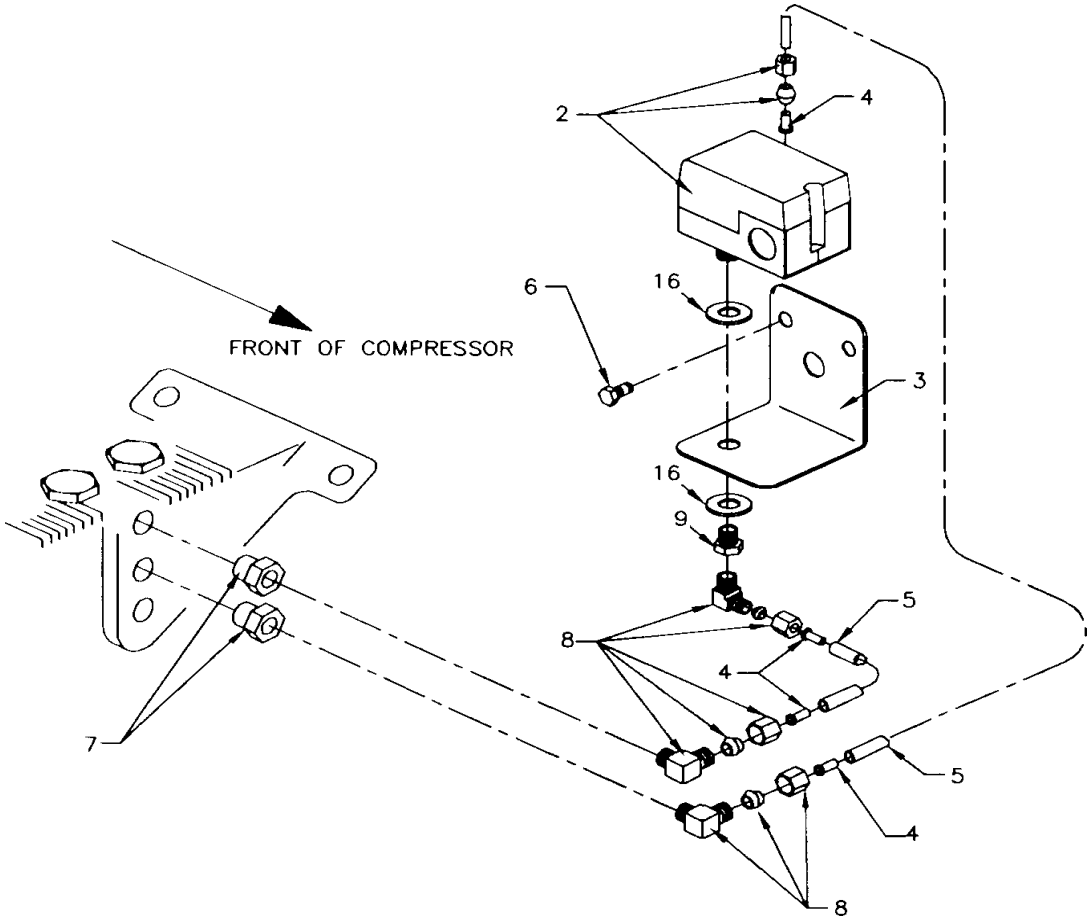
4. Affix 1/8"-1/4" 90° elbow (72531042) and 3/8"-1/8" reducer (72531827) to the pulsation tank as shown on the assembly drawing.

5. Complete assembly by routing the air line in the most convenient location. Cut line to length.

6. See Electrical Wiring Diagram provided with Pressure Switch Kit, for hook up information.

NOTE

ON FORD LATE MODEL TRUCKS, THE MOUNTING BRACKET (60119843) CAN BE LOCATED ON THE PASSENGER SIDE OF RADIATOR AT TOP. USE EXISTING BOLTS.



ITEM	PART NO.	DESCRIPTION	QTY
1.	51710225	KIT-RMT PR SW (INCL:2-17)	1
2.	77041369	PRESSURE SWITCH	1REF
3.	60119843	MOUNTING BRACKET	1REF
4.	72532952	BRASS INSERT	4REF
5.	89034176	AIR LINE 1/4" (10 FT)	REF
6.	72061004	SHT MTL SCR #14X3/4	2REF
7.	72531827	REDUCER BUSHING 3/8-1/2NPT	2REF
8.	72531042	ELBOW 1/8-1/4NPT 90°	3REF
9.	72531826	REDUCER BUSHING 1/4-1/8NPT	1REF

ITEM	PART NO.	DESCRIPTION	QTY
10.	89044274	WIRE 14GA BLK (4 FT)	REF
11.	89044271	WIRE 14GA BLU (4 FT)	REF
12.	89044234	WIRE 14GA YEL (4 FT)	REF
13.	77040048	BUTT CONNECTOR 16-14GA	3REF
14.	77040051	TERMINAL- SPADE 16-14GA	3REF
15.	89034048	SPIRAL WRAP (7")	REF
16.	72063005	WASHER 1/2 WRT	2REF
17.	99900169	WIRING DIAG	1REF

PRESSURE SWITCH KIT & INSTALLATION INSTRUCTIONS (51710225)

REPAIR KITS

GASKET KIT - 51393640

7Q072212	O-RING - CYL HEAD	8
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
76392642	GASKET-REED VALVE/HEAD	2
76392641	GASKET-REED VALVE/CLY	2

CRANKSHAFT KIT - 51705743

51705742	CRANKSHAFT ASM	1
51705661	CRANKSHAFT MACH	1REF
72066297	WOODRUFF KEY	1REF
70055010	BEARING-REAR CUP	1
70055011	BEARING-FRT CUP	1
70055012	BEARING-FRT CONE	1REF
70055009	BEARING-REAR CONE	1REF
72066307	DRIVE PIN	1REF
60101269	OIL PUMP COLLAR	1REF

PISTON RING SET - 51014947

70014599	COMPRESSION RING	8
70014600	OIL RING	4

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. 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.

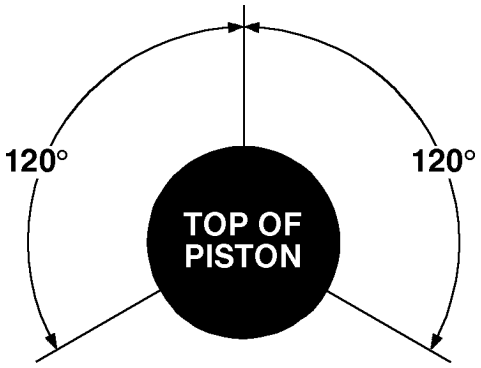


FIGURE E-1. PISTON RING ORIENTATION

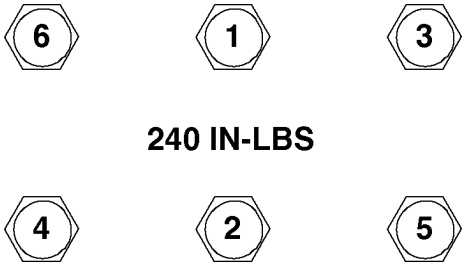


FIGURE E-2. CYLINDER HEAD TORQUE SEQUENCE

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 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.

12. 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.

13. Install the pulsation tank, and torque to 180 in-lbs.

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.

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.

5-4. 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.

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.

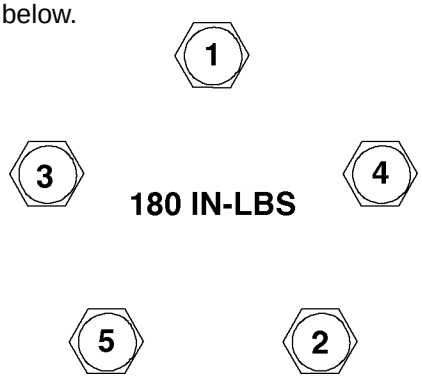


FIGURE E-3. BEARING HOUSING TORQUE SEQUENCE

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.

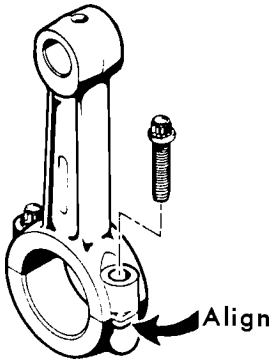


FIGURE E-4. ROD ALIGNMENT

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

5-5. 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 ENGINE 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 in-lbs.

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.

5-6. 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	DEFECTIVE CHECK VALVE / VALVES
	DIRTY FILTER
	AIR LEAK IN PLUMBING
	WORN VALVE PLATES OR PISTON RINGS

FIGURE E-5. TROUBLESHOOTING CHART

5-7. REED VALVE REPLACEMENT

NOTE

CAUTION: THE REED VALVE PRESSURE RATING IS 150PSI MAXIMUM. EXCEEDING THE MAXIMUM PRESSURE WILL VOID THE COMPRESSOR WARRANTY.

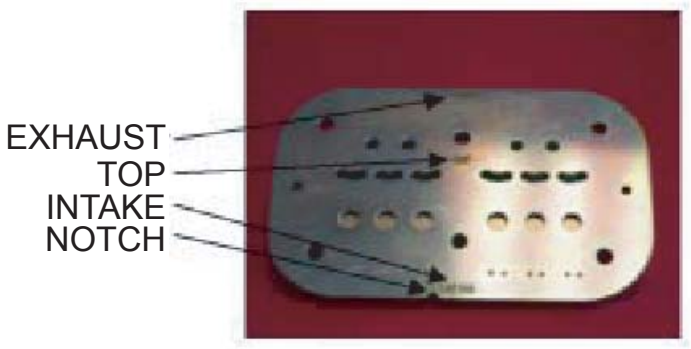


FIGURE E-6. REED VALVE POSITIONED WITH TEXT UP, NOTCH DOWN

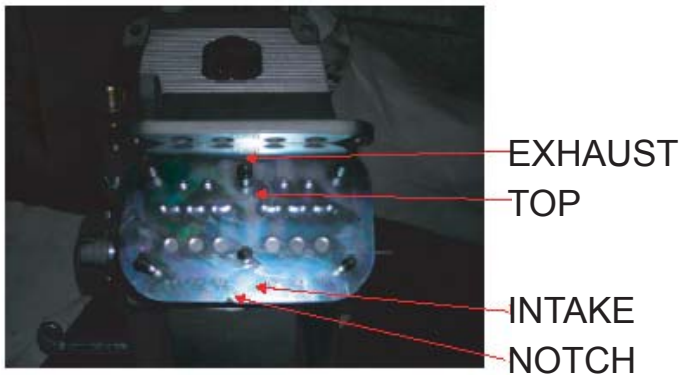


FIGURE E-7. REED VALVE INSTALLATION POSITION

1) Disconnect hose and remove pulsation tank.

2) Remove head and head gasket from compressor.

3) Remove reed valve from compressor.

4) Remove and replace reed valve gasket.

5) Install new reed valve.

NOTE

INSTALL REED VALVE TEXT SIDE OUT WITH THE NOTCH TOWARD THE BOTTOM OF THE MACHINE, AS SHOWN IN PHOTO.

6) Install new head gasket.

7) Reinstall head. Torque fasteners to 240 in-lb per torque sequence shown.

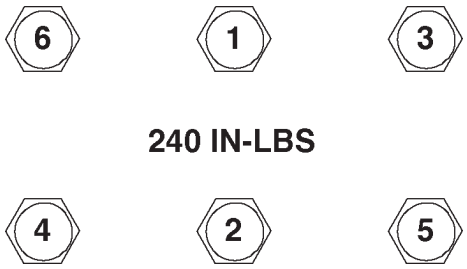


FIGURE E-8. CYLINDER HEAD TORQUE SEQUENCE

8) Remove and replace o-rings for pulsation tank.

9) Reinstall pulsation tank. Reconnect hose.

NOTE

CHECK CYLINDER HEAD TORQUE AFTER THE INITIAL 8 - 10 HOURS OF OPERATION. THE COMPRESSOR MUST BE COLD (ROOM TEMPERATURE) BEFORE RE-TORQUING STUDS. TORQUE STUDS TO 240 IN-LB ± 10 IN-LB.

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IOWA MOLD TOOLING CO., INC.
BOX 189, GARNER, IA 50438-0189
TEL: 641-923-3711
TECHNICAL SUPPORT FAX: 641-923-2424