



**COMPRESSOR**

**IOWA MOLD TOOLING CO., INC.**

BOX 189, GARNER, IA 50438-0189  
CUSTOMER SERVICE TEL: 1-800-554-4421

MANUAL PART NO: 99904281

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

**SERIAL NUMBERS PRED021074 TO PRESENT.**

## REVISIONS LIST

| DATE     | LOCATION | DESCRIPTION OF CHANGE  |
|----------|----------|--|
| 20070802 | ALL      | MANUAL RELEASE. REMOVED COMPRESSOR FROM PREDATOR MANUAL 99903299 |
| 20080103 | 3-36     | ECN 10636 - CHANGED PTO IN FORD MANUAL TRANSMISSIONS.            |

## PARTS ORDERING INFORMATION

Before placing an order, take the time to record the following information. This information should then be given to an IMT representative when placing your order.

**BODY MODEL NUMBER:**

**BODY SERIAL NUMBER:**

**PART NUMBER, DESCRIPTION AND QUANTITY REQUIRED:**

**If left or right side is applicable, please specify.**

Contact IMT at the following address:

**IOWA MOLD TOOLING CO., INC.  
BOX 189, GARNER, IA 50438-0189  
CUSTOMER SERVICE TEL: 1-800-554-4421**

**SERIAL NUMBERS PRED021074 TO PRESENT.**

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## SPECIFICATIONS

### IMT PREDATOR PTO AIR COMPRESSOR

|                                    |  |
|------------------------------------|--|
| DELIVERY @ 150 PSIG                | 45 CFM @ 110 PSI TO 150 PSI                |
| INPUT SPEED RPM TO COMPRESSOR PUMP | 2250 RPM (NON-GEARED)<br>1450 RPM (GEARED) |
| FLUID CAPACITY                     | 11 QUARTS                                  |
| COMPRESSOR / AIR INLET             | 9"W X 10.5"H X 13.25"L                     |
| RECIEVER / SUMP                    | 10" X 18" VERTICAL                         |
| SPIN-ON COALESCER FILTER           | 5" DIA                                     |
| COOLER / FAN ASSEMBLY              | 12.00" X 16.60" X 2.63"                    |
| OIL COOLER/AFTER COOLER FAN        | 12VDC, 22 AMP, 500 CFM @ 1/2" H2O          |
| AIRTANK                            | 20 GALLONS                                 |
| OIL FILTER                         | 15 MICRONS ABSOLUTE                        |

*Specifications subject to change without prior notice*

### CRITICAL WEAR PARTS AVAILABILITY

Your Predator Compressor has designated critical maintenance and repair parts that can be shipped from IMT on the next business day or sooner. Listed below are the designated parts. When ordering these as needed please advise the customer service representative that you need these shipped the next day or sooner.

**NOTE: These critical wear parts are used on units with serial numbers PRED021074 to present.**

### COMPRESSOR ITEMS

| P/N      | DESCRIPTION                 | P/N      | DESCRIPTION   |
|----------|-----------------------------|----------|---|
| 70048217 | Air filter element          | 70149781 | U-joint   |
| 73052128 | Air/hydraulic cooler        | 73511011 | Pump  |
| 70733695 | Fan assembly                | 94534345 | Shaft seal kit-B101 (Super Duty,<br>other manual transmissions) |
| 73540113 | Thermal valve               | 94744113 | Shaft seal kit - B101G (Allison<br>automatic transmissions)     |
| 70048214 | Oil filter element          | 94744114 | Bearing kit - B101G<br>(Allison automatics)                     |
| 70048224 | Temperature gauge switch    | 90488228 | Inlet valve repair kit  |
| 77041638 | N/C pressure switch - 5 lb  | 90488229 | Regulator repair kit  |
| 77041639 | N/O pressure switch - 20 lb | 89086192 | IMT brand compressor oil - quart 89086201                       |
| 73054032 | Relief valve                |          | IMT brand compressor oil - gallon                               |
| 73540109 | Regulator                   | 77041647 | Switch - High Temperature                                       |
| 73540110 | Valve, blowdown             | 77041645 | Switch - Fan  |
| 60124690 | Cap, fill tube              |          |   |
| 60124515 | Coalescer head              |          |   |
| 73733692 | Coalescer element           |          |   |

**SERIAL NUMBERS PRED021074 TO PRESENT.**

## COMPRESSOR PANEL ASM (51717794-1)

|     |          |  |   |
|-----|----------|--|---|
| 1.  | 60124194 | ELBOW, MOD TEMP SWITCH                     | 1 |
| 2.  | 60127900 | BRACKET-OIL FILTER<br>(WAS 60124195)       | 1 |
| 3.  | 60124200 | SHROUD-FAN                                 | 1 |
| 4.  | 60124204 | BRACKET-COALESCE                           | 1 |
| 5.  | 60124207 | PANEL-COMPRESSOR MOUNT                     | 1 |
| 6.  | 60124515 | HEAD-COALESCE REWORK                       | 1 |
| 7.  | 60124689 | PLUG-BLOWDOWN                              | 1 |
| 8.  | 60124691 | BRACKET-CONTROL COMPRS.                    | 1 |
| 9.  | 60124692 | FILL PIPE-COMPRS. PANEL                    | 1 |
| 10. | 60124201 | BRACKET-OIL FILL TUBE                      | 1 |
| 11. | 70048214 | ELEMENT-OIL FILTER                         | 1 |
| 12. | 70048224 | TEMP SENDER                                | 1 |
| 13. | 70146475 | TUBE-COALESCE TO SUMP 1"                   | 1 |
| 14. | 70148455 | TUBE ASM-COOLER TO TEE                     | 1 |
| 15. | 70148456 | TUBE ASM-THRM VLV TO COOL                  | 1 |
| 16. | 70142021 | TUBE ASM-COALS TO PRES VLV                 | 1 |
| 17. | 70148458 | TUBE ASM-AFT-COOL TO TANK                  | 1 |
| 18. | 70148459 | TUBE ASM-OIL FILL - THERM VLV              | 1 |
| 19. | 70733690 | TANK SUMP 10X18                            | 1 |
| 20. | 70733695 | FAN ASSEMBLY                               | 1 |
| 21. | 70733696 | AIR TANK, 20-GAL                           | 1 |
| 22. | 72053013 | NIPPLE-PIPE BLK 1/4XCLOSE                  | 1 |
| 23. | 72053141 | NIPPLE-PIPE BLK 3/4XCLOSE<br>(WAS 4, 2)    | 1 |
| 24. | 72053145 | NIPPLE-PIPE BLK 3/4X4.00                   | 1 |
| 25. | 72053286 | ELBOW-STR BLK 1 X 90°                      | 1 |
| 26. | 72053287 | ELBOW-STR BLK 1-1/4 X 90°                  | 2 |
| 27. | 72531826 | RED BUSH STL 1/4-1/8<br>(WAS 72053371)     | 2 |
| 28. | 72053392 | PLUG-PIPE SOC HD 1/4                       | 5 |
| 29. | 72053458 | NIPPLE-BARB BRS 3/4MPT 3/4                 | 2 |
| 30. | 72053555 | TEE-STL 3/4                                | 1 |
| 31. | 72053556 | ELBOW-STREET STL 3/4 X 90°                 | 3 |
| 32. | 72053676 | ADPTR-MPT/MJIC 3/4-12                      | 1 |
| 33. | 72053679 | ADPTR-MPT-MJIC 3/4-16                      | 5 |
| 34. | 72053680 | ADPTR-MPT-MJIC 1.00-16 (WAS 1)             | 2 |
| 35. | 72053682 | ADPTR-MPT-MJIC 1.25-20                     | 1 |
| 36. | 72053522 | ELBOW-STREET STL 1/2 X 45°                 | 1 |
| 37. | 72063005 | WASHER 1/2 FLAT                            | 2 |
| 38. | 72531430 | ELBOW MPT/MJIC 1.00-16 90°<br>(WAS 5)      | 4 |
| 39. | 72531833 | RED BUSHING-STL 3/4-1/2                    | 2 |
| 40. |          |  |   |
| 41. | 72531837 | RED BUSHING-STL 1-1/4 - 1.00<br>(WAS 1)    | 2 |
| 42. | 72533726 | TEE-MPIPE/FPIPE MALE RUN 1/4               | 4 |
| 43. | 72534344 | CROSS-PIPE 3/4" STEEL                      | 1 |
| 44. | 72534336 | TEE-RED 3/4 X 1/2 X 3/4 BLACK              | 1 |
| 45. | 72534419 | ELBOW-NPT/90/PUSHLOK 6 2<br>(WAS 72534338) | 1 |
| 46. | 72534339 | ELBOW-PRESTOLOK                            | 4 |
| 47. | 73540113 | VALVE-THERMAL                              | 1 |
| 48. | 72534341 | ELL-MPT/JIC 1.00-16 45° 16VTX-S            | 1 |
| 49. | 72053376 | RED BUSHING BLK 1.00 - 3/4                 | 1 |

CONTINUED ON FOLLOWING PAGE

|     |          |   |     |
|-----|----------|---|-----|
| 50. | 73029602 | HEAD-OIL FILTER                           | 1   |
| 51. | 73052128 | COOLER                                    | 1   |
| 52. | 73054032 | VALVE-PRESS RLF 1/4 200 PSI               | 2   |
| 53. | 73540109 | VALVE-REGULATOR 1/4"                      | 1   |
| 54. | 73540110 | VALVE-BLOWDOWN                            | 1   |
| 55. | 73540111 | VALVE-MIN PRESSURE 3/4                    | 1   |
| 56. | 73540114 | VALVE-DRAIN COCK 1/2"                     | 1   |
| 57. | 73733692 | FILTER-COALESCE                           | 1   |
| 58. | 77041647 | SWITCH-TEMP 3/8" 240 R NC                 | 1   |
| 59. | 77041638 | SWITCH-PRESS 5 LB 1/8" N/C                | 1   |
| 60. | 77041639 | SWITCH-PRESS 20 LB 1/8" N/O               | 1   |
| 61. | 77041645 | SWITCH-TEMP 1/2" 180R NO                  | 1   |
| 62. | 72533235 | ADPTR-FPT/MJIC 1.00-16                    | 1   |
| 63. | 60124690 | CAP-VENTED 1"                             | 1   |
| 64. | 60124197 | BRACKET-UPPER COOLER                      | 1   |
| 65. | 60124198 | BRACKET-LOWER COOLER                      | 1   |
| 66. | 60124199 | PANEL-SIDE COOLER                         | 1   |
| 67. | 72060046 | CAP SCR 3/8-16 X 1.00 HH GR5Z<br>(WAS 14) | 8   |
| 68. | 72062103 | NUT 3/8-16 HEX NYLOC<br>(WAS 32)          | 27  |
| 69. | 72063003 | WASHER 3/8 FLAT<br>(WAS 29)               | 24  |
| 70. | 77045896 | HARNESS-AIR SYSTEM                        | 1   |
| 71. | 77041655 | RELAY MODULE-AIR SYSTEM                   | 1   |
| 72. | 72053243 | PLUG-PIPE SH HEX BLK 1/2                  | 1   |
| 73. | 72060023 | CAP SCR 5/16-18 X 3/4 HH GR5              | 2   |
| 74. | 72063050 | WASHER 5/16 LOCK                          | 2   |
| 75. | 72063002 | WASHER 5/16 FLAT<br>(WAS 2)               | 6   |
| 76. | 72062104 | NUT 1/4-20 HEX NYLOC                      | 6   |
| 77. | 72060002 | CAP SCR 1/4-20 X 3/4 HH GR5               | 6   |
| 78. | 72060012 | CAP SCR 1/4-20 C 3.00 HH GR5              | 2   |
| 79. | 72063049 | WASHER 1/4 LOCK                           | 2   |
| 80. | 72063001 | WASHER 1/4 FLAT                           | 6   |
| 81. | 72661312 | CLAMP-1/2 LOOP CUSHIONED                  | 2   |
| 82. | 72066581 | CLAMP (WAS 5)                             | 4   |
| 83. | 72533756 | FITTING-COMP 1/4MPT X 3/8TUBE             | 2   |
| 84. | 72533747 | TUBE-TEFLON P TFE 3/8OD<br>HC NAT         | 9"  |
| 85. | 72063000 | WASHER 3/16 FLAT<br>(WAS 4)               | 6   |
| 86. | 70034472 | TUBE NYLON 3/8 OD X .225 ID               | 38" |
| 87. | 72060636 | SCR MACH 10-24 X 3/4 RDH Z                | 2   |
| 88. | 72062106 | NUT #10-24 HEX NYLOC ZINC                 | 2   |
| 89. | 72060047 | CAP SCR 3/8-16X1.25 HHGR5Z<br>(WAS 18)    | 20  |
| 90. | 72053143 | NIPPLE-PIPE BLK 3/4X2 (WAS 1)             | 2   |
| 91. | 77045887 | TERM-WP 14-16GA MALE                      | 2   |
| 92. | 70394069 | SEAL WP/MP 16GA GREEN                     | 2   |
| 93. | 77044573 | CONNECTOR WP 2CAV MALE/SH                 | 1   |
| 94. | 72053584 | ELB 3/4MPT 3/4FPT 45DEG SWIV              | 1   |
| 95. | 72053727 | ADPTR 1MPT 3/4MPT HEX                     | 1   |

NOTE: Items 13-18 can be replaced with Parker series 206 hose.

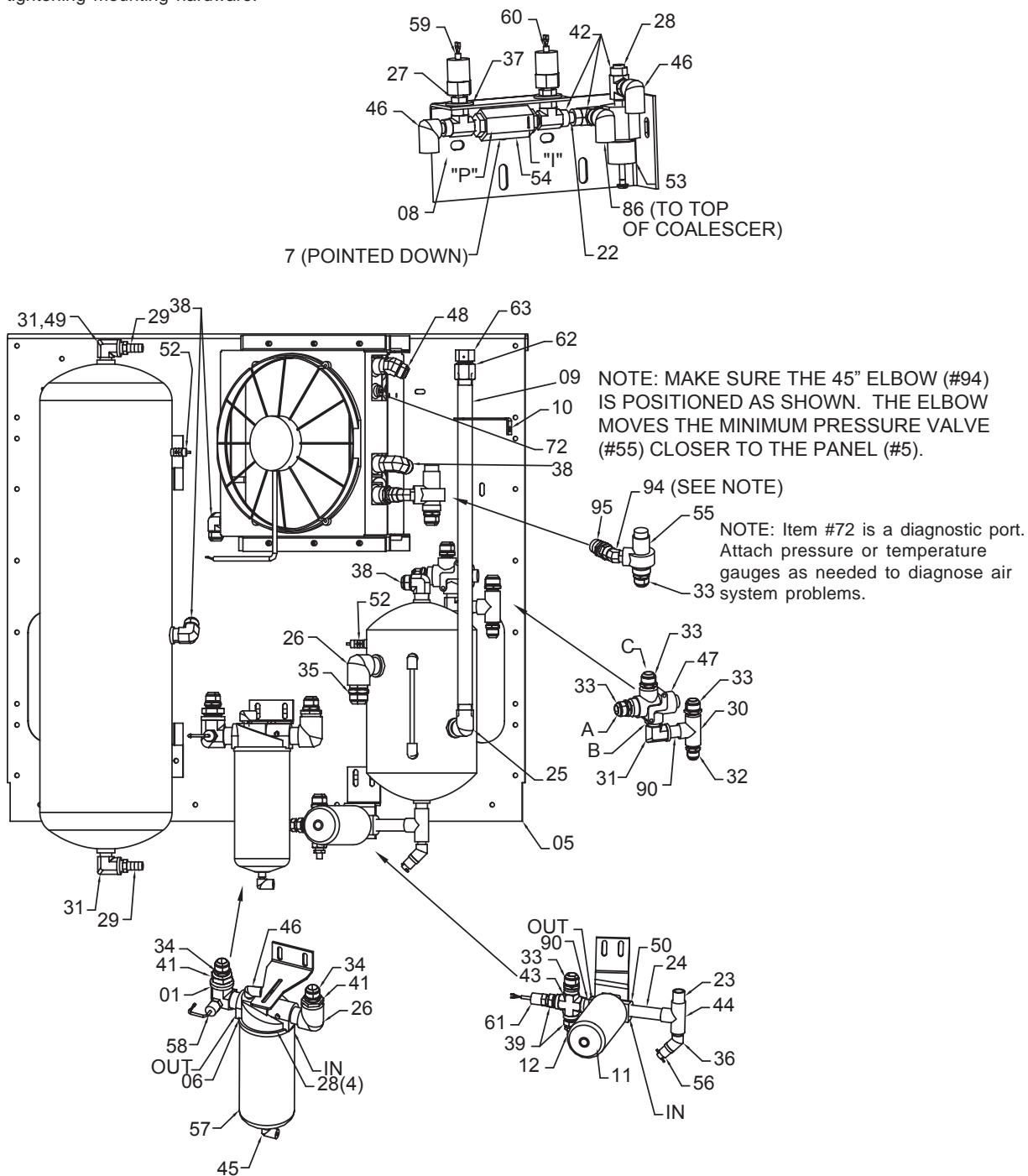
**SERIAL NUMBERS PRED021074 TO PRESENT.**

## COMPRESSOR PANEL ASM (51717794-2)

### ASSEMBLY NOTES:

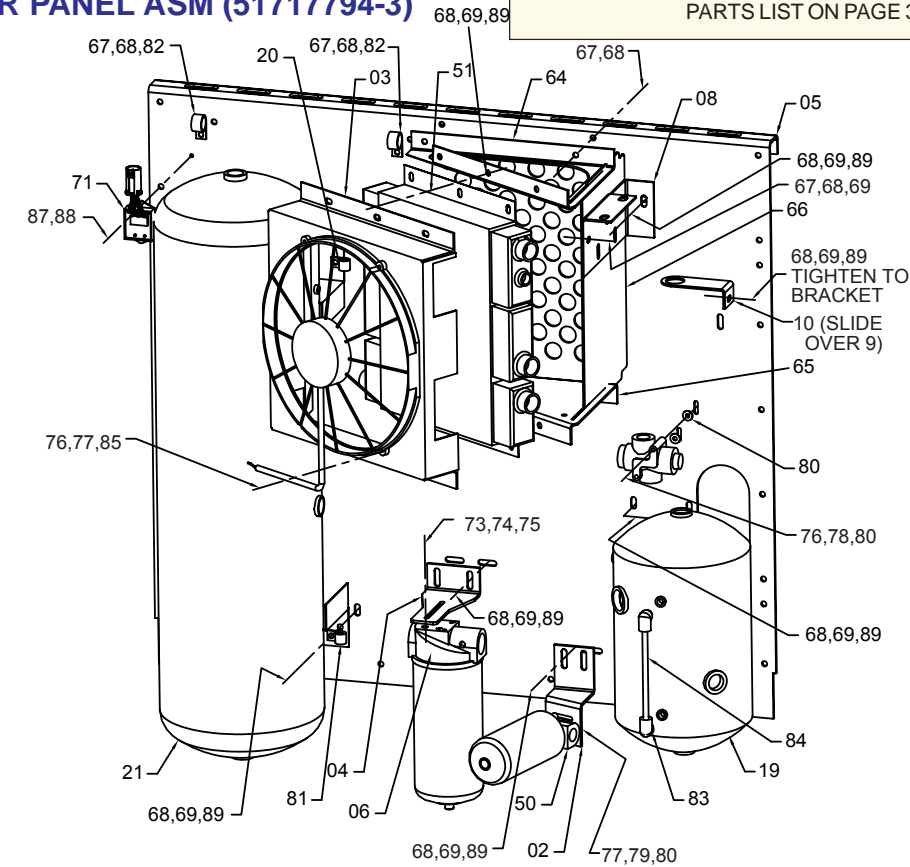
1. Subassembly groups as shown.
2. Loosely mount components as shown on page 3.
3. Install tubing.
4. Make final connections and adjustments.
5. Finish tightening mounting hardware.

PARTS LIST ON PREVIOUS PAGE.  
DRAWINGS CONTINUED ON FOLLOWING PAGE

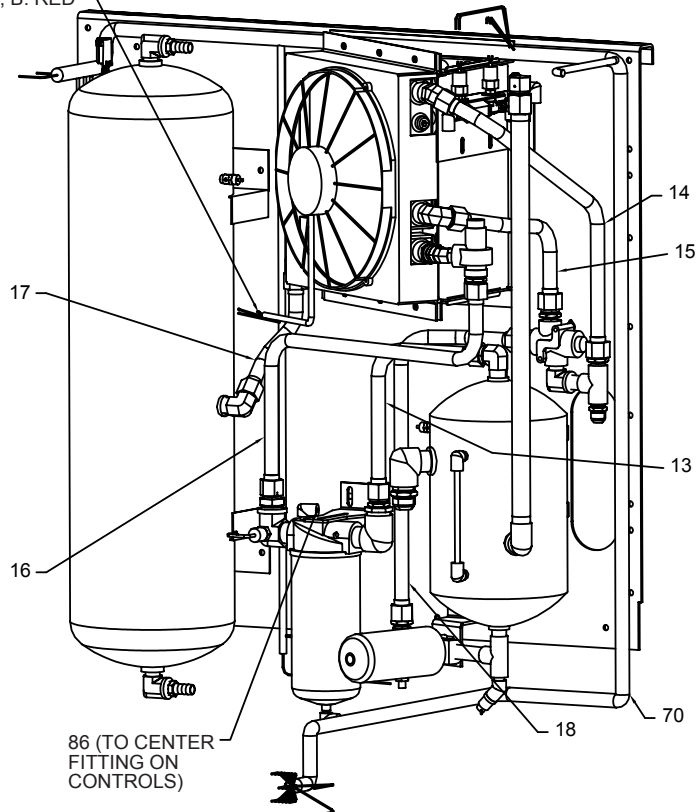


COMPRESSOR PANEL ASM (51717794-3)

PARTS LIST ON PAGE 3A-3.



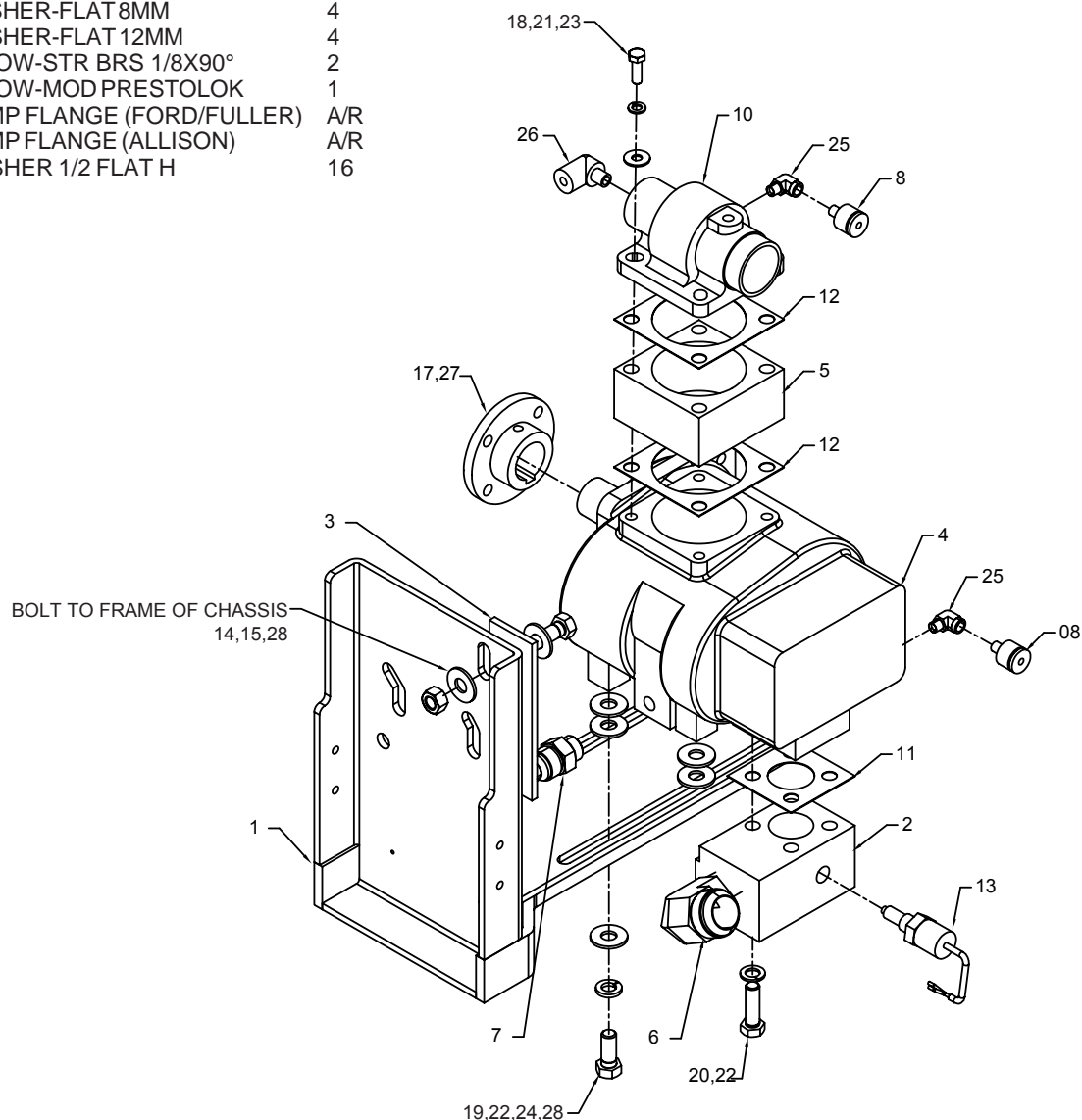
TERMINATE FAN WIRING  
WITH #91 (2), #92 (2) AND #93 (1)  
A: BLACK; B: RED



SERIAL NUMBERS PRED021074 TO PRESENT.

## AIR END ASSEMBLY (99903452)

|     |                |                               |     |
|-----|----------------|-------------------------------|-----|
| 1.  | 52717346       | COMP MTG FOOT-NON-G B101      | A/R |
|     | 52717347       | COMP MTG FOOT-NON FORD        | A/R |
| 2.  | 60124893       | BLOCK-DISCH B101 W/PROBE      | 1   |
| 3.  | 60124694       | SPACER COMP FT (FORD ONLY)    | A/R |
| 4.  | 70733693       | AIR END B101 (FORD/FULLER)    | A/R |
|     | 70733760       | AIR END B101G-H (ALLISON)     | A/R |
| 5.  | 60125045       | SPACER-AIR INTAKE B101        | A/R |
| 6.  | 72534343       | ELBOW MPT/JIC 1.25-20 90°     | 1   |
| 7.  | 72533656       | ADPTR #8MBSPP #12MJIC         | 1   |
| 8.  | 72534338       | ADPTR-PRESTOLOK               | 2   |
| 10. | 73540112       | INLET VALVE                   | 1   |
| 11. | 76396253       | DISCHARGE BLOCK GASKET        | 1   |
| 12. | 76396269       | INLET GASKET                  | A/R |
| 13. | 77041647       | TEMP SWITCH 3/8" 240R         | 1   |
| 14. | 72060118       | CAP SCR 1/2-313 X 2.00 HHGR5  | 4   |
| 15. | 72062232       | NUT 1/2-13 HEX TOP LOCK GR8   | 4   |
| 17. | 72060579       | SET SCR 3/8-16 X 1/2 SH PL    | 1   |
| 18. | 72601677       | CAP SCR-MET 8-1.25 X 25 H10.9 | A/R |
|     | 72601809       | CAP SCR-MET 8-1.25X70 HHZ     | A/R |
|     | (WAS 72601263) |                               |     |
| 19. | 72601394       | CAP SCR-MET 12-1.25 X 30 HHZ  | 4   |
| 20. | 72601496       | CAP SCR-MET 12-1.75 X 80 HHZ  | 4   |
| 21. | 72601797       | WASHER-LOCK 8MM               | 4   |
| 22. | 72601798       | WASHER-LOCK 12MM              | 8   |
| 23. | 72601799       | WASHER-FLAT 8MM               | 4   |
| 24. | 72601800       | WASHER-FLAT 12MM              | 4   |
| 25. | 72053589       | ELBOW-STR BRS 1/8X90°         | 2   |
| 26. | 60124756       | ELBOW-MOD PRESTOLOK           | 1   |
| 27. | 70580156       | COMP FLANGE (FORD/FULLER)     | A/R |
|     | 70580167       | COMP FLANGE (ALLISON)         | A/R |
| 28. | 72063132       | WASHER 1/2 FLAT H             | 16  |



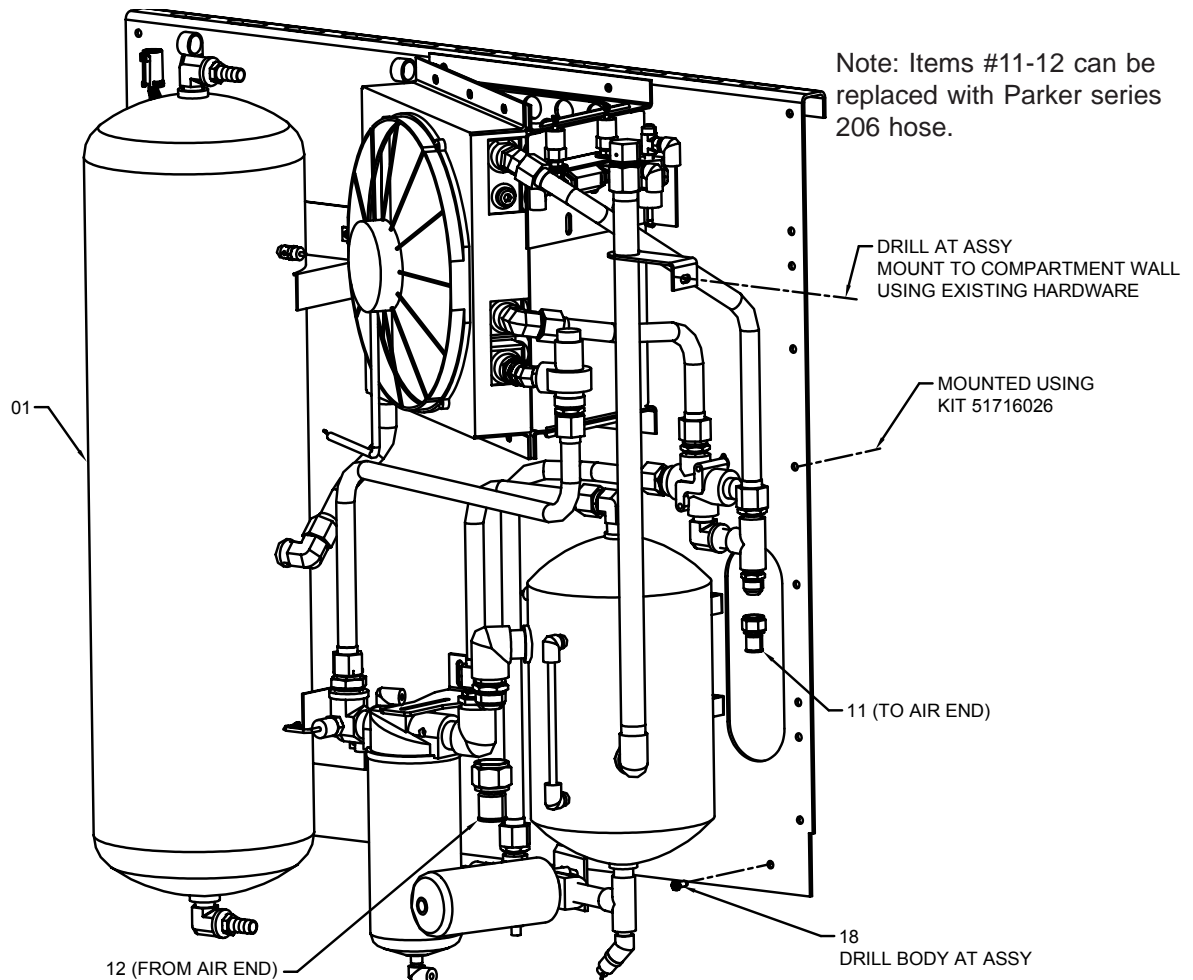
SERIAL NUMBERS PRED021074 TO PRESENT.



## COMPRESSOR INSTALLATION (99903453-1)

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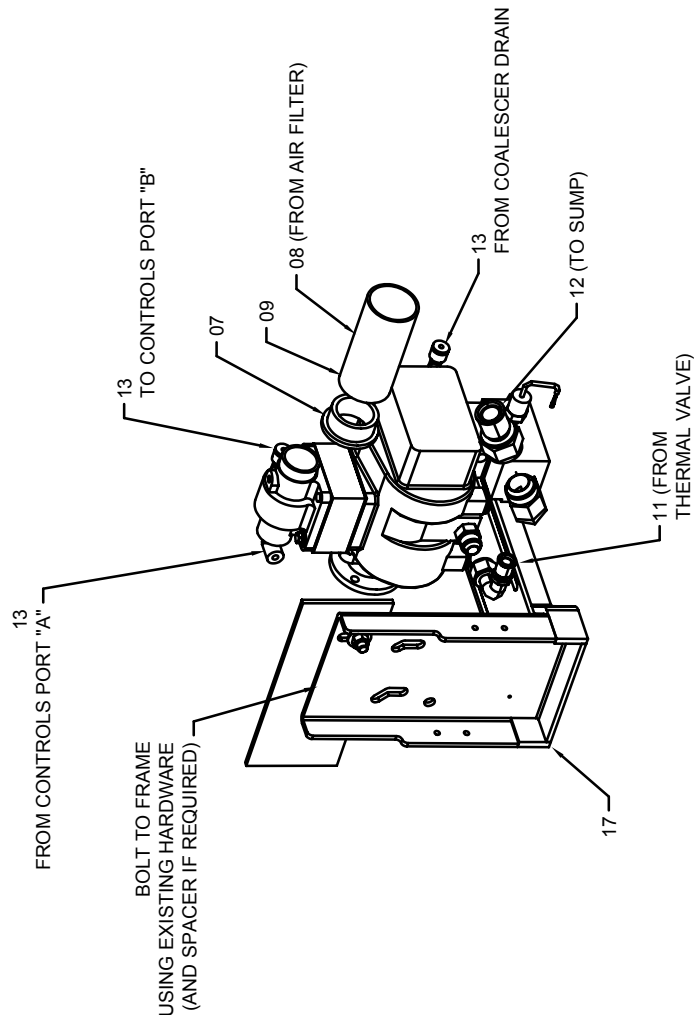
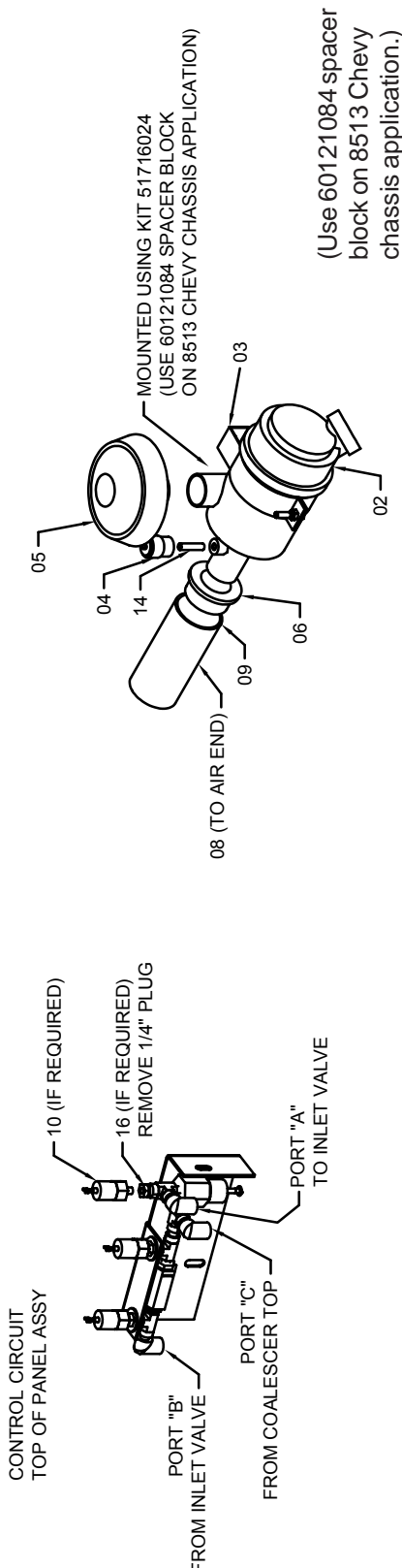
|     |          |                                      |     |
|-----|----------|--------------------------------------|-----|
| 1.  | 51717794 | PANEL ASM                            | REF |
| 2.  | 70048215 | AIR FILTER ASM                       | 1   |
| 3.  | 70048216 | AIR FILTER BAND 4.8                  | 1   |
| 4.  | 70048222 | AIR FILTER INDICATOR                 | 1   |
| 5.  | 70048223 | AIR FILTER CAP 4.8                   | 1   |
| 6.  | 76396153 | RUBBER INSERT 2.5 X 1.75             | 1   |
| 7.  | 76396154 | INSERT-INLET 2.5 X 2                 | 1   |
| 8.  | 70396152 | HOSE-2.5 ID GT                       | 10' |
| 9.  | 72661549 | CLAMP INLET 2.5                      | 2   |
| 10. | 77041638 | PRESS SWITCH 5# 1/8" N/C             | A/R |
| 11. | 51396272 | HOSE FJ 3/4X56.0 OAL<br>(W/O CRANE)  | A/R |
|     | 51396264 | HOSE-FJ 3/4X80 OAL (W/CRANE)         | A/R |
| 12. | 51396273 | HOSE-FF 1.25X41.0 OAL<br>(W/O CRANE) | A/R |
|     | 51396265 | HOSE-FF 1.25X65.0 OAL (W/CR)         | A/R |
| 13. | 70034472 | TUBE-NYLON .375 OD X .225 ID         | 23' |
| 14. | 72053001 | NIPPLE-1/8 X 1.50                    | 1   |
| 15. | 89086192 | IMT COMPOIL-QT                       | 10  |
| 16. | 72053371 | RED BUSHING 1/4-1/8                  | A/R |
| 17. | 99903452 | AIR END ASM DRAWING                  | REF |
| 18. | 72060833 | SCR THD CUT 5/16-18X3/4 HWH          | 4   |



SERIAL NUMBERS PRED021074 TO PRESENT.

## COMPRESSOR INSTALLATION (99903453-2)

PARTS LIST ON PAGE 3A-8.



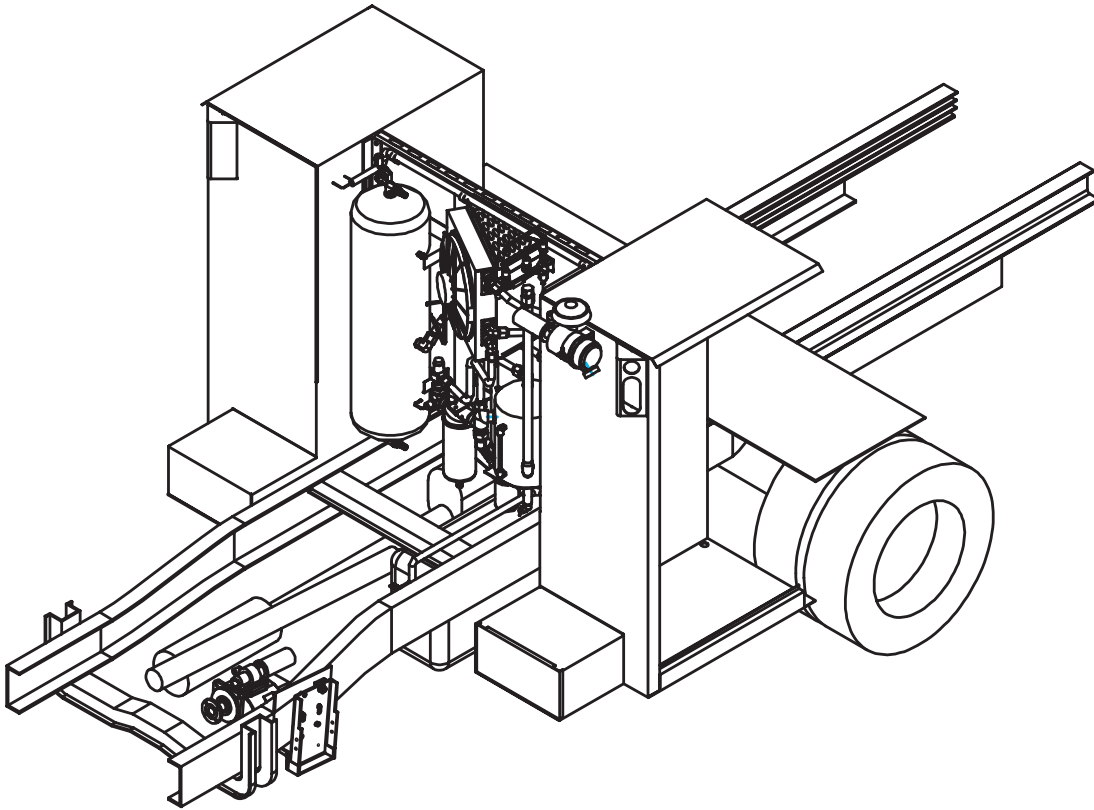
### Control Hose Port Call Outs (REF)

- LINE "A" Air signal from regulator outlet to compressor inlet valve regulating port. Air signal modulates air opening from open to close when there is no demand for air. Maximum pressure in this line is 50 psig.
- LINE "B" Air signal supply from side of inlet valve at shutdown to exhaust air from compressor system.
- LINE "C" System air pressure signal port air to air pressure regulator inlet. Air pressure is present anytime there is air pressure in the system.

SERIAL NUMBERS PRED021074 TO PRESENT.

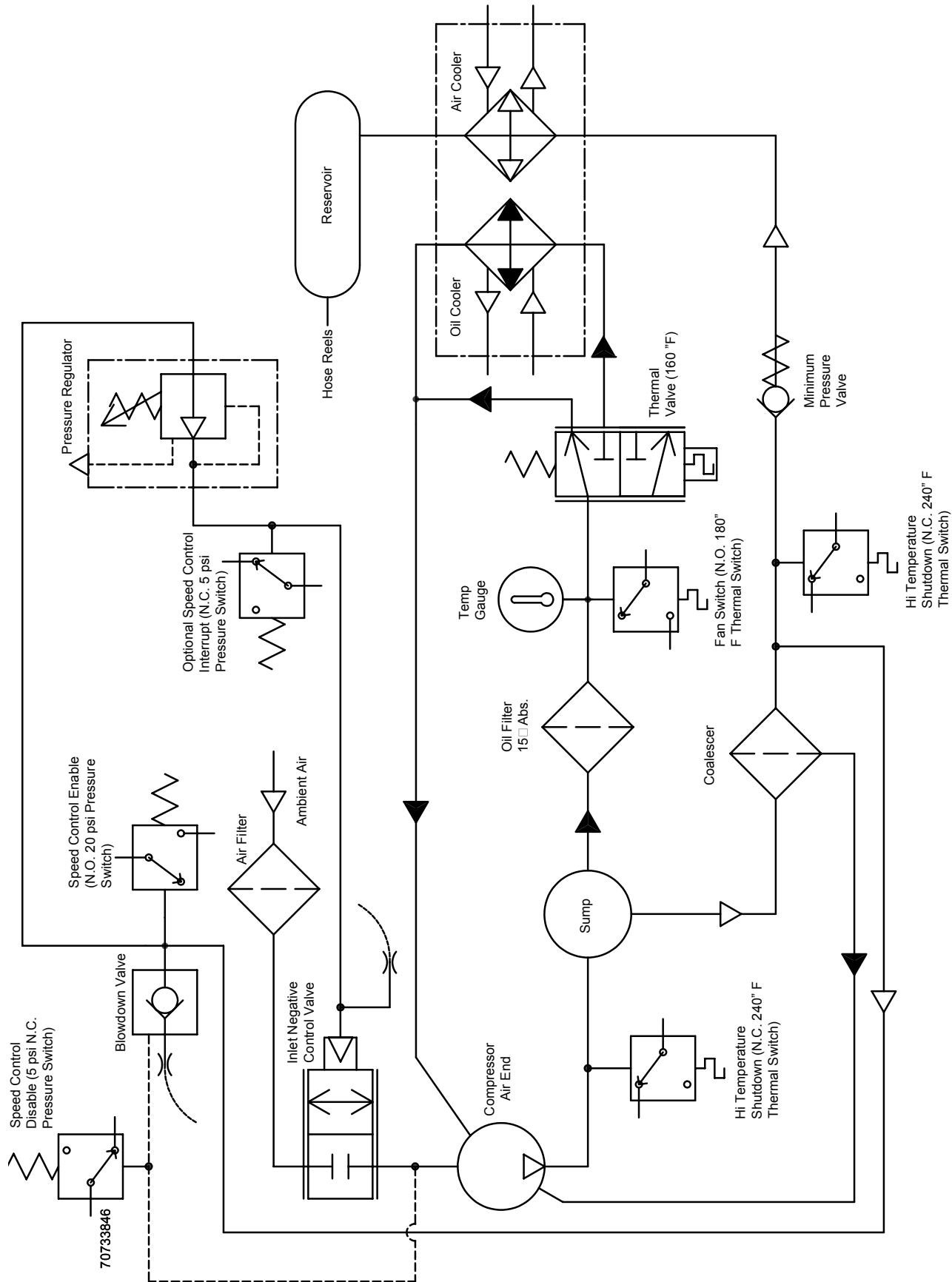


## TYPICAL INSTALLATION



**SERIAL NUMBERS PRED021074 TO PRESENT.**

HYDRAULIC SCHEMATIC (99903411)



SERIAL NUMBERS PRED021074 TO PRESENT.

**CONTINUED**

## **SAFETY INFORMATION**

### **WARNING**

All units are shipped with a detailed operators and parts manual. This manual contains vital information for the safe use and efficient operation of the unit. Carefully read the operators manual before starting the unit. Failure to adhere to the instructions could result in serious bodily injury or property damage.

### **AIR COMPRESSOR SAFETY PRECAUTIONS**

Safety is basically common sense. While there are standard safety rules, each situation has its own peculiarities that cannot always be covered by rules. There fore with your experience and common sense, you are in a position to ensure your safety. Lack of attention to safety can result in: accidents, personal injury, reduction of efficiency and worst of all - Loss of Life. Watch for safety hazards. Correct them promptly. Use the following safety precautions as a general guide to safe operation:

Do not attempt to remove any compressor parts without first relieving the entire system of pressure.

### **DANGER**

This compressor system is equipped with an air storage tank that remains pressurized even when the compressor is off. Relieve air storage tank pressure when servicing compressor or when not in use (i.e. during vehicle travel).

Do not attempt to service any part while machine is operating.

### **DANGER**

Check the compressor sump oil level after each use. Turn off the compressor and relieve system pressure completely before adding or draining oil. To relieve system air pressure, open the service valve. Failure to comply with this warning may cause property damage and serious bodily harm.

Do not operate the compressor at pressure or speed in excess of its rating as indicated in "Compressor Specifications"

Periodically check all safety devices for proper operation.

Do not play with compressed air. Pressurized air can cause serious injury to personnel.

Exercise cleanliness during maintenance and when making repairs. Keep dirt away from parts by covering parts and exposed openings.

Do not install a shut-off valve between the compressor and compressor oil sump.

### **DANGER**

Do not use IMT compressor systems to provide breathing air. Such usage, whether supplied immediately from the compressor source, or supplied to breathing tanks for subsequent use, can cause serious bodily injury.

IMT disclaims any and all liabilities for damage for loss due to personal injuries, including death, and/or property damage including consequential damages arising out of any IMT compressor used to supply breathing air.

Do not disconnect or bypass safety circuit system.

Do not install safety devices other than authorized IMT replacement devices.

Close all openings and replace all covers and guards before operating compressor unit.

Tools, rags, or loose parts must not be left on the compressor drive parts.

Do not use flammable solvents for cleaning parts.

Keep combustibles out of and away from the Compressor and any associated enclosures.

**CONTINUED ON NEXT PAGE**

**SERIAL NUMBERS PRED021074 TO PRESENT.**

## SUB-ZERO TEMPERATURE OPERATION INSTRUCTIONS

### CAUTION

READ AND UNDERSTAND THE SUB-ZERO TEMPERATURE OPERATION INSTRUCTIONS BELOW. DO NOT OPERATE COMPRESSOR WITH THE OIL TEMPERATURE BELOW 0° F.

#### Sub-Zero Operation

For IMT rotary screw compressors (both shaft driven and hydraulically driven) sub-zero temperature operation is defined as operation of the compressor when the oil temperature is below 0° F. It is possible to operate an IMT rotary screw compressor when the **ambient** temperature is below 0° F, but only by adhering to the following guidelines:

#### Maintenance Requirements

If the IMT rotary screw compressor is expected to operate at temperatures below 0° F, the oil filter, coalescer, air filter, and oil should be changed before the compressor is ran in sub-zero temperatures (ex: late fall, but this may vary by location and environment). Performing this maintenance will improve the performance of the system during sub-zero temperature operation. Use only IMT approved rotary screw compressor oils and filters.

#### Storage Requirements

The IMT rotary screw compressor should be stored at or above 0° F. If the ambient temperature is below 0° F the vehicle should be stored inside, preferably in a heated environment. After moving the vehicle from the heated environment, the compressor system should be operated for 15 minutes before proceeding to a job site. During this time, the service valve must be slightly ajar, such that the pressure gauge reads between 100 and 140 psi. This ensures that the oil temperature has had adequate time to come up to operating temperature, and that most of the water in the system has been removed. This will allow for approximately one hour of travel time before the oil cools to ambient temperature. If an extended driving time is expected, the operator may need to stop driving and run the system for 15 minutes every hour to ensure that the oil temperature does not cool to below 0° F. The operator should use his/her judgment when deciding what interval is needed between running the compressor to warm the oil. Lower ambient temperature will require more frequent warming of the compressor oil.

#### Failure to Follow Maintenance & Storage Requirements

At temperatures below 0° F, failure to follow the above guidelines may result overheating of the compressor due to the oil's inability to circulate through the compressor system. The lack of circulation leads to rapid warming of the compressor air end, and eventually the compressor air end will exceed the maximum operating temperature. If the system shuts down due to high temperature during sub-zero temperature operation, the oil will need to be warmed before restarting. This may require moving the vehicle to a heated location or waiting for the ambient temperature (and therefore the oil temperature) to exceed 0° F.

### CAUTION

FAILURE TO ADHERE TO THESE GUIDELINES, AND REPEATED RUNNING OF THE COMPRESSOR TO HIGH TEMPERATURE SHUTDOWN, MAY RESULT IN PERMANENT DAMAGE TO THE AIR END.

CONTINUED

## AIR COMPRESSOR SAFETY PRECAUTIONS

The owner, lessor, or operator of the Compressor are hereby notified and forewarned that any failure to observe these safety precautions may result in damage or injury.

IMT expressly disclaims responsibility or liability for any injury or damage caused by failure to observe these specified precautions or by failure to exercise that ordinary caution and due care required when operating or handling the Compressor, even though not expressly specified above.

## SAFETY INFORMATION

A compliment of warning decals is supplied with each unit. These decals must be affixed to the vehicle after it has been painted, trimmed, and undercoat, etc. and prior to being put into service. The decals shall be placed so as to be clearly visible to the user and service personnel.

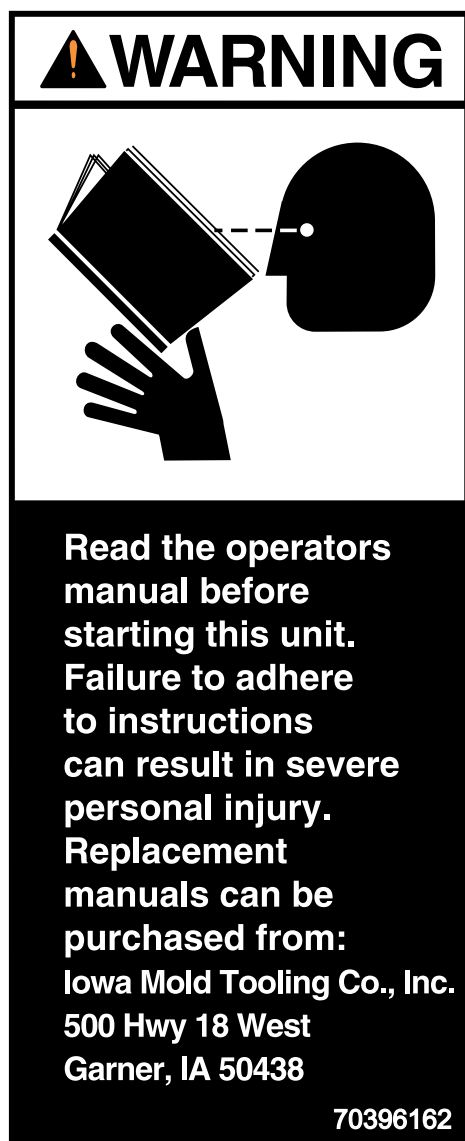


Figure 1. To be placed on visor or dash near start-up procedure decal.



Figure 2. To be placed on body near oil sump filler cap.

**SERIAL NUMBERS PRED021074 TO PRESENT.**



## SAFETY INFORMATION

CONTINUED



Figure 3. To be placed on body near air service valve.

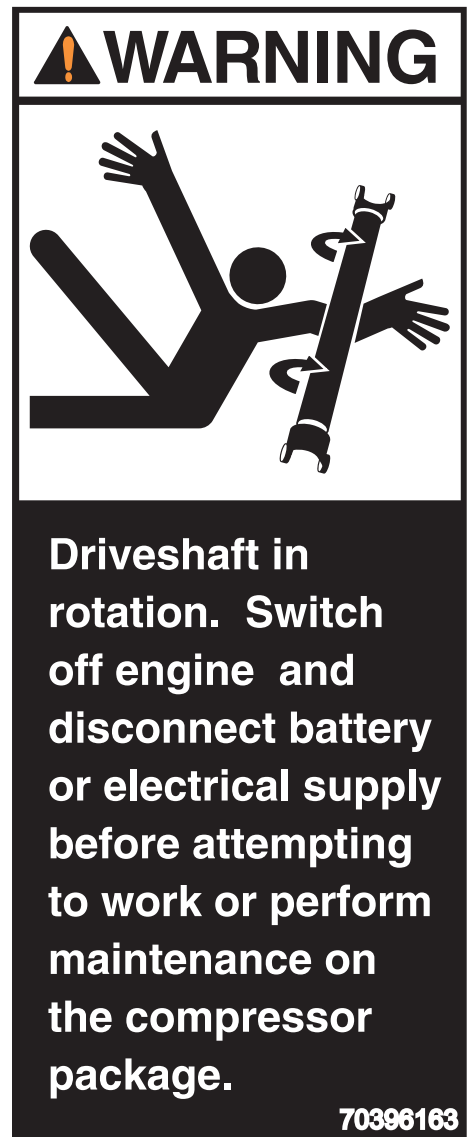


Figure 4. To be placed on body near compressor mounting foot.

## SAFETY INFORMATION

### COMPRESSOR FLUID

USE IMT ROTARY SCREW COMPRESSOR  
FLUID ONLY.

1. CHECK FLUID LEVEL WITH TRUCK OFF  
AND PARKED ON LEVEL GROUND. FLUID  
SHOULD BE WARM.
2. ADD FLUID IF NONE IS SHOWING IN  
SIGHTGLASS.
3. DO NOT FILL ABOVE LINE ON  
SIGHTGLASS.

70396161



#### Air Compressor Operating Instructions

- Set the parking brake.
- Close air tank drain.
- Engage the PTO.
- Operate the air compressor at least 15 minutes each time the compressor is started. This will reduce moisture build-up and winter freeze-ups.
- After disengaging the compressor, relieve system pressure and check oil level.
- Wait at least two minutes between compressor shutdown and startup to allow the blow-down cycle to complete.
- See the manual for complete operating instructions.

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#### CAUTION

**DO NOT OVERFILL.**  
Check warm oil with  
engine off.  
If oil is not visible,  
add oil until oil  
is visible in tube.

70395793

MAX OIL FILL  
CHECK HOT

TANK

#### DIRECTION OF ROTATION



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SERIAL NUMBERS PRED021074 TO PRESENT.

## **COMPRESSOR TERMINOLOGY**

### **ATF**

Automatic transmission fluid.

### **AIR/OIL COALESCER**

Performs second stage separation of oil from compressed air feeding air tools. Sometimes referred to as the separator element.

### **CFM**

Refers to the volume of compressed air being produced expressed as cubic feet of air per minute.

### **IMT SPEED CONTROL**

Sometimes referred to as the engine speed control.

### **OIL SUMP**

The first stage of oil separation from compressed air. Also serves as reservoir area for compressor lubricant and sometimes referred to as the receiver tank.

### **PSI**

Refers to the operating pressure the system is set up at, expressed as pounds per square inch.

### **SAFETY VALVE**

A valve located on the oil sump which opens in case of excessive pressure. Sometimes referred to as the pop-off or pressure relief valve.

### **SHUTDOWN SWITCH**

Works in conjunction with a power relay, sending a signal to stop the compressor power source in cases of high temperature. Power relay incorporates an additional wire for remote engine/speed control kill.

### **SIDE MOUNT PTO**

Power take off gearbox that bolts to the side of the transmission. The PTO input gear meshes with one of the gears in the vehicle's transmission. The rotation developed by the engine drives the transmission which turns the PTO gear box and rotates the PTO output shaft.

## DESCRIPTION OF COMPONENTS

CONTINUED

### COMPRESSOR ASSEMBLY

The IMT PTO compressor assembly is a positive displacement, oil flooded, rotary screw type unit employing one stage of compression to achieve the desired pressure. Components include a housing (stator), two screws (rotors), bearings, and bearing supports. Power from the engine is transferred to the male rotor through a drive shaft and gears in the gear housing. The female rotor is driven by the male rotor. There are four lobes on the male rotor while the female rotor has five roots.

### PRINCIPLES OF OPERATION

In operation, two helical grooved rotors mesh to compress air. Inlet air is trapped as the male lobes roll down the female grooves, pushing trapped air along, compressing it until it reaches the discharge port in the end of the stator and delivers smooth-flowing, pulse-free air to the receiver.

During the compression cycle, oil is injected into the compressor and serves these purposes:

1. Lubricates the rotating parts and bearings.
2. Serves as a cooling agent for the compressed air.
3. Seals the running clearances.

### LUBRICATION SYSTEM

Oil from the compressor oil sump, at compressor discharge pressure, is directed through the oil filter, cooling system, and to the side of the compressor stator, where it is injected into the compressor. At the same time oil is directed internally to the bearings and shaft seal of the compressor. The oil-laden air is then discharged back into the sump.

### OIL SUMP

Compressed, oil-laden air enters the sump from the compressor. As the oil-laden air enters the sump, most of the oil is separated from the air as it passes through a series of baffles and de-fusion plates. The oil accumulates at the bottom of the sump for recirculation. However, some small droplets of oil remain suspended in the air and are passed on to the coalescer.

### RELIEF VALVE

The pop relief valve is set at 200 PSI and is located at the top of the air/oil sump. This valve acts as a backup to protect the system from excessive pressure that might result from a malfunction.

### AIR/OIL COALESCER

The coalescer is self-contained within a spin-on housing and is independent of the sump. When air is demanded at the service line, it passes through the coalescer which efficiently provides the final stage of oil separation.

### OIL RETURN LINE

The oil that is removed by the coalescer accumulates at the bottom of the canister and is returned through an oil return line to the compressor. The oil return line is 1/4" and goes to an elbow hose fitting which is located at the compressor.

### MINIMUM PRESSURE VALVE

The minimum pressure valve is located at the outlet of the coalescer head and serves to maintain a minimum discharge pressure of 65 PSIG in operation, which is required to assure adequate compressor lubrication pressure.

### OIL FILTER

The compressor oil filter is the full-flow replaceable element type and has a safety bypass built into it.

**SERIAL NUMBERS PRED021074 TO PRESENT.**

## DESCRIPTION OF COMPONENTS

### COMPRESSOR COOLING SYSTEM

The compressor cooling system consists of a remote mounted oil/air cooler with an electric fan. The fan is activated through a latching relay, so it will not turn off until the compressor is disengaged and the system pressure is fully relieved, or when the engine is turned off. The thermal valve will divert oil to the oil cooler at 160°F.

### ELECTRICAL AND SAFETY CIRCUIT SYSTEM

The IMT PTO unit is supplied with an hourmeter, wire harness and shutdown. Engine shutdown occurs in the event of high compressor temperature.

### AUTOMATIC BLOW DOWN VALVE

There is one blow down valve in the compressor system. It is located at the top of the panel on the cooler side, and will automatically bleed the sump to atmospheric pressure when the compressor is disengaged. Blow down time interval takes between 30 to 60 seconds

### CONTROL SYSTEM

The prime component of the compressor control system is the compressor inlet valve. The control system is designed to match air supply to air demand and to prevent excessive discharge pressure when compressor is at idle. Control of air delivery is accomplished by the inlet valve regulation and modulation as directed by the discharge pressure regulator.

### DISCHARGE PRESSURE REGULATOR VALVE

This valve, located on the top of the panel near the oil fill pipe, is used to set the desired discharge pressure within the operating pressure range. Turning the regulator screw clockwise increased the working pressure, a counterclockwise movement of the screw reduces the working pressure. This system has a maximum operating pressure of 150 psi.

### NOTE

Most air tools operating pressure range is between 90 and 125 psi. Operating above the tools recommended pressure will decrease the life of the tool. Higher operating pressure can also over torque nut and bolts fatiguing the fastener and mating parts. Strictly adhere to tool operating pressures and torque standards set forth by the tool manufacturer and the specifications of the equipment that work is being performed on.

### INLET VALVE

The compressor inlet valve is a piston operated disc valve that regulates the inlet opening to control capacity and serving as a check valve at shutdown.

### AIR AFTERCOOLER

The Air Aftercooler is a second chamber of the oil cooler. Air leaving the compressor enters the aftercooler. Temperature of the air is reduced to approximately 4-7°F above ambient temperature. Condensation is directed to the air tank, where it is collected.

### CONTROL SYSTEM OPERATION

The following discussion explains the operation of the control system from a condition of "no load" to a condition of "full capacity" at working pressure. For the working pressure range of your machine, refer to applicable data in "Specifications".

The pressure regulator, mounted at the top of the panel near the oil fill pipe, operates as follows:

1. As the demand for air decreases, the receiver pressure rises. When this pressure exceeds the set point of the pressure regulator, the regulator opens sending a secondary pressure signal to the inlet valve. The poppet valve moves towards the valve inlet against the force of the modulating spring inside the valve. This regulates the opening area of the inlet valve.
2. If the air demand goes to zero, (service valve closed or air dead headed at tool) the inlet valve will close completely.
3. As the demand for air increases, the secondary pressure signal to the inlet valve is removed and the inlet valve poppet modulates to full open.

**SERIAL NUMBERS PRED021074 TO PRESENT.**

## INSPECTION, LUBRICATION, AND MAINTENANCE

This section contains instructions for performing the inspection, lubrication, and maintenance procedures required to maintain the compressor in proper operating condition. The importance of performing the maintenance described herein cannot be over emphasized.

The periodic maintenance procedures to be performed on the equipment covered by this manual are listed below. It should be understood that the intervals between inspections specified are maximum interval. More frequent inspections should be made if the unit is operating in a dusty environment, in high ambient temperature, or in other unusual conditions. A planned program of periodic inspection and maintenance will help avoid premature failure and costly repairs. Daily visual inspections should become a routine.

The LUBRICATION AND MAINTENANCE CHART lists serviceable items on this compressor package. The items are listed according to their frequency of maintenance, followed by those items which need only "As Required" maintenance.

The maintenance time intervals are expressed in hours. The hourmeter shows the total number of hours your compressor has run. Use the hourmeter readings for determining your maintenance schedules. Perform the maintenance at multiple intervals of the hours shown. For example, when the hourmeter shows "100" on the dial, all items listed under "EVERY 10 HOURS" should be serviced for the tenth time, and all items under "EVERY 50 HOURS" should be serviced for the second time, and so on.

### **DANGER**

Compressor must be shut down and completely relieved of pressure prior to checking fluid levels. Open service valve to ensure relief of system air pressure. Failure to comply with this warning may cause damage to property and serious bodily harm.

## LUBRICATION AND MAINTENANCE CHART

| INTERVAL                      | ACTION  |
|-------------------------------|---|
| PERIODICALLY DURING OPERATION | 1. Observe all gauge reading. Note any change from the normal reading and determine the cause. Repair as necessary. Notes: "Normal" is the usual gauge reading when operating at similar conditions on a day-to-day operation.  |
| EVERY 10 HRS (DAILY)          | 1. Check compressor oil level.<br>2. Check air filter. Pressure drop indicator while compressor is operating.<br>3. Check for oil and air leaks.<br>4. Check safety circuit switches.   |
| EVERY 25 HRS (MONTHLY)        | 1. Drain water from compressor oil.   |
| EVERY 100 HRS                 | 1. Grease compressor drive shaft.   |
| EVERY 500 HRS (6 MONTHS)      | 1. Change compressor oil and oil filter.<br>2. Check compressor shaft seal for leakage.<br>3. Check air filter piping, fittings and clamps.<br>4. Check compressor supports.<br>5. Install new air filter element. Shorter interval may be necessary under dusty conditions.<br>6. Check sump safety valve. |
| EVERY 1000 HRS (1 YEAR)       | 1. Change coalescer element.  |
| PERIODICALLY (AS REQD)        | 1. Inspect and clean air filter element.<br>2. Inspect and replace spin-on coalescer element if necessary.<br>3. Inspect and clean oil cooler fans.   |

### NOTE

Compressor oil and filter is to be changed after the first 50 hours of operation. After this, normal intervals are to be followed.

## LUBRICANT RECOMMENDATIONS

### WARNING

It is important that the compressor oil be of a recommended type and that this oil, as well as the air filter, oil filter, and coalescer elements be inspected and replaced as stated in this manual.

The combination of a coalescer element loaded with dirt and oxidized oil products together with increased air velocity as a result of this clogged condition may produce a critical point while the machine is in operation where ignition can take place and could cause a fire in the oil sump.

Failure to comply with this warning may cause damage to property and serious bodily harm.

The following are general characteristics for IMT rotary screw lubricant. Due to the impossibility of establishing limits on all physical and chemical properties of lubricants which can affect their performance in the compressor over a broad range of environmental influences, the responsibility for recommending and consistently furnishing a suitable heavy duty lubricant must rest with the individual supplier if they choose not to use the recommended IMT rotary screw lubricant. The lubricant supplier's recommendation must, therefore, be based upon not only the following general characteristics, but also upon his own knowledge of the suitability of the recommended lubricant in PTO helical screw type air compressors operating in the particular environment involved. The owner of this equipment should contact the factory if IMT rotary screw lubricant is not used as supplied with this equipment.

### CAUTION

Mixing different types or brands of lubricants is not recommended due to the possibility of a dilution of the additives or reaction between additives of different types.

IMT specified rotary screw lubricant shipped with your kit contains additives for rust, corrosion and anti-wear inhibitors. Use of any other lubricant is not recommended.

### LUBRICANT CHARACTERISTICS

1. Flash point 450°F minimum
2. Pour point -55°F.
3. Contains rust and corrosion inhibitors.
4. Contains foam suppressors.
5. Contains oxidation stabilizer.

### NOTE

Due to environmental factors, the useful life of all 'Extended Life' lubricants may be shorter than quoted by the lubricant supplier. IMT encourages the user to closely monitor the lubricant condition and to participate in an oil analysis program with the supplier.

### NOTE

No lubricant, however good and/or expensive, can replace proper maintenance and attention. Select and use lubricant wisely.



## MAINTENANCE

If some of the maintenance intervals in the schedule outlined in this manual seem to be rather short, it should be considered that one hour's operation of a compressor is equal to about 40 road miles on an engine. Thus, eight hours operation is equal to 320 road miles, 250 hours is equal to 10,000 road miles, etc.

### COMPRESSOR OIL SUMP FILL, LEVEL, AND DRAIN

Before adding or changing compressor oil make sure that the system is completely relieved of pressure. Oil is added at the fill cap located at the top of the compressor panel next to the air/oil cooler assembly. A drain valve is provided at the bottom of the sump. The proper oil level when the system pressure is relieved and the compressor is warm from running is at the midpoint of the oil sightglass. The truck must be level when checking the oil. **DO NOT OVERFILL.** The oil sump capacity is given in "Compressor Specifications".

#### **DANGER**

Do not attempt to draw in condensate, remove the oil level fill plug, or break any connection in the air or oil system without first shutting off compressor and manually relieving pressure from the sump and air storage tank. Failure to comply with this warning may cause damage to property and seriously bodily harm.

### AIR INTAKE FILTER

The air intake filter is a heavy-duty two-stage dry type high efficiency filter designed to protect the compressor from dust and foreign objects.

The filter is equipped with an evacuator cup for continuous dust ejection while operating and when stopped.

Frequency of maintenance of the filter depends on dust conditions at the operating site. The filter element must be serviced when clogged (maximum pressure drop for proper operation is 15" H<sub>2</sub>O). The filter is equipped with a pressure drop indicator, and the element should be changed based on it's reading first and then by the maintenance intervals outlined.

### AIR/OIL COALESCER

The air/oil coalescer employs an element permanently housed within a spin-on canister. This is a single piece unit that requires replacement when it fails to remove the oil from the discharge air, or pressure drop across it exceeds 15 PSI. Dirty oil clogs the element and increases the pressure drop across it.

To replace element proceed as follows:

1. Shutdown compressor and wait for complete blow down (zero pressure).
2. Disconnect drain line and fitting.
3. Turn element counterclockwise for removal (viewing element from bottom).
4. Install new rubber seal in head and supply a film of fluid directly to seal.
5. Rotate element clockwise by hand until element contacts seal (viewing element from bottom).
6. Rotate element approximately one more turn clockwise with band wrench near the top of element.
7. Reconnect drain line and fitting.
8. Run system and check for leaks.

#### **NOTE**

When connecting drain line, make sure tubing is fully inserted into fitting.

#### **WARNING**

Do not substitute element. Use only a genuine IMT replacement element. This element is rated at 200 psi working pressure. Use of any other element may be hazardous and could impair the performance and reliability of the compressor, possibly voiding the warranty and/or resulting in damage to property and serious bodily harm.

## MAINTENANCE

### OIL RETURN LINE

This line originates at the bottom of the air/oil coalescer and flows through a 1/4" Prestolok fitting located at the air-end.

### OIL FILTER

The compressor oil filter is a spin-on, throw away type.

To replace filter proceed as follows:

1. Make sure system pressure is relieved.
2. Remove filter by unscrewing from filter head (turn counterclockwise by hand viewing from bottom) and discard.
3. Install a new filter by applying a little oil to the seal and then screw the filter on by hand (turning it clockwise until hand tight, plus one - third turn viewing from bottom). Do not use tools to tighten the filter.
4. Check for leaks in operation.

### WARNING

Do not substitute element. Use only a genuine IMT replacement element. This element is rated at 200 psi working pressure. Use of any other element may be hazardous and could impair the performance and reliability of the compressor, possibly voiding the warranty and/or resulting in damage to property and serious bodily harm.

### OIL COOLER

The interior of the oil cooler should be cleaned when the pressure drop across it at full flow exceeds 25 PSI.

The following procedure has been recommended by the vendor who supplies the cooler:

1. Remove cooler.
2. Circulate a suitable solvent to dissolve and remove varnish and sludge.
3. Flush generously with IMT compressor lubricant.
4. After cooler is reinstalled and compressor is filled with fresh oil, change compressor oil after 50 hours of normal operation.

### PTO SHAFT SEAL INSTALLATION INSTRUCTIONS

1. Remove pto drive shaft, companion flange and key.
2. Remove (4) socket head metric bolts on cover and slide cover off shaft.
3. Pull seal wear sleeve off shaft with puller, adding heat to one area only on wear sleeve will help enlarge and aid in it's removal.
4. Clean shaft and surface of bearing remove all burrs from shaft where the wear sleeve gets installed.
5. Press new wear sleeve on to shaft. Oil heating new wear sleeve to 212°F approximately aids in the installation of this ring.
6. Press old shaft seal out of cover and clean cover for assembly of new seal.
7. Press new seal into cover (included in repair kit).
8. Apply silicone to outside diameter of assembly tool and slide assembly onto drive shaft until it touches the wear sleeve (tool and silicone included in repair kit).
9. Install cover, new o-ring, new seal assembly, over shaft and assembly tool. Note: Assembly tool is slip fit on shaft and allows new seal in cover to slide on to wear sleeve without cutting the lip of shaft seal. One new cover is on the assembly tool.
10. Bolt cover on squarely and slide off assembly tool.
11. Reinstall drive line assembly.

### NOTE

The seal cover is installed using an o-ring gasket. Care should be taken to not pinch the o-ring out of it's groove upon reinstallation.

## MAINTENANCE

### PTO

The PTO should be serviced in accordance with the PTO manual. The SAE side-mount type of PTO is lubricated by the transmission oil and thus requires little maintenance. It is strongly recommended that you periodically torque the fasteners in accordance with the PTO manual.

### HYDRAULIC PUMP OPTION (Model 8511 on Ford 450-550 & model 8513 on Ford 350-450 Auto-Trans ONLY)

The single cog belt arrangement is sized for an average life of 1000 hours. This time frame can be increased or decreased depending on the end users periodic maintenance schedule. Drive belt tension should be checked for adjustment every 100 hours there after. Belt deflection is to be checked at midpoint between both pulleys. Belt deflection is to be 1/8" at 3.5 lbs. Minimum to 5.0 lbs. Maximum.

BELT TENSION - Belt tension is accomplished as follows:

1. Loosen the 3/8" bolts that attach the hydraulic pump to mounting plate. Pump should now pivot free on bottom mounting bolt.
2. Pivot hydraulic pump until the correct deflection is accomplished. Hold pump in the position until the two 3/8" bolts are retightened.

#### NOTE

Over-tensing belt can damage compressor and hydraulic pump. When tensing belt all hardware should be broken loose only to the point in which the hydraulic pump can pivot.



## COMPRESSOR TROUBLESHOOTING GUIDE

Your IMT Predator compressor is equipped with a lighted relay module which will help you diagnose problems with your compressor. Use the lights on the module to assist you in troubleshooting. If the compressor unexpectedly shuts down, restart the engine and watch the lights on the relay module. The relay module is located on the compressor panel assembly on the left side of the air tank.

### 1) Cooler Fan Light:

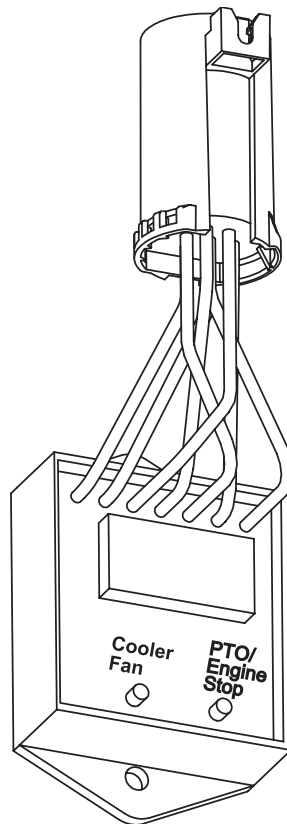
The compressor cooler fan should turn on when the compressor temperature exceeds 180°F. The fan will remain on until the compressor is disengaged and the system pressure is fully relieved (or when the engine is turned off).

### 2) Engine Stop Light:

- If the engine stop light is on, the truck engine should shut down. This may indicate that the compressor is over temperature or that an electrical component has been damaged or failed. Check the temperature gauge and/or electrical components.

- If the engine stop light is on and the truck engine does not shut down, there may be a wiring problem. Check the wiring to the module.

- **For Ford Super Duty Chassis with automatic transmissions:** The engine stop light will only be active for a few seconds after engine shutdown mode is invoked. This occurs because the relay module loses power when the engine is killed. The PTO will be disengaged and the engine may kill.



## Compressor Relay Module

SERIAL NUMBERS PRED021074 TO PRESENT.

## COMPRESSOR TROUBLESHOOTING GUIDE

| TROUBLE   | CAUSE  | WHAT TO DO  |
|---|--|---|
| Compressor does not make air.   | Air tank drain open.<br>Blow down valve stuck.<br><br>PTO not engaged.   | - Close tank drain valve.<br>- Remove blow-down valve, clean out, reassemble.<br>- Engage PTO per instructions.   |
| Compressor/truck shuts down.<br>Note: Check the light module as described on the previous page to begin troubleshooting when the compressor / truck shuts down. | High air end temperature.<br>- Check oil temperature using temperature gauge.<br><br>Fan not operating.<br><br>Air flow.<br><br>Leaks.<br><br>Safety system failure.<br><br>Thermal valve failure.<br><br>Oil flow restricted. | - Check oil level. Add as required per filling instructions. Do not overfill.<br>- Wait for the compressor to cool down. Restart the truck and compressor. If the truck shuts down again, continue with trouble shooting below.<br>- Insure that cooling fan is operating. If not, check fuse in harness next to fan and fan relay. See also speed control below.<br>- Insure that cooler does not have any obstruction to airflow.<br>- Check air cooler core. Clean as necessary.<br>- High ambient air temperature. Contact IMT Technical Support.<br>- Check for air leaking from tank or blow down fittings.<br>- Check high temperature shut down circuitry for proper operation.<br>- Check needle position on temperature gauge when compressor is cool. If the needle is not all the way to the left, replace the gauge.<br>- Check thermal valve for proper operation. Bypass valve if in doubt to verify failure.<br>- Check oil filter head for blockage (ex: bypass valve in filter head).<br>- Remove hoses and check for blockage. |
| Low system pressure   | Air tank drain open.<br>Dirty air filter.<br>Air leak.<br>Pressure control valve stuck.<br><br>Inlet valve not fully open.<br><br>System demands exceed compressor delivery.   | - Close tank drain valve.<br>- Check filter condition. Replace as required.<br>- Check air system fittings.<br>- Remove, disassemble, clean. Reassemble and install.<br>- Inspect and repair. Check control system operation.<br>- Reduce air demand and/or consumption. Do not operate multiple tools at a time.   |
| Coalescer filter plugging   | Excessive water in system.<br><br><br><br>Foreign material entering compressor inlet.  | - Reduce short run (i.e.: less than 15 minute) times. Run compressor for at least 15-20 minutes each time it is started.<br>- Drain water from sump-tank monthly, more if in humid conditions.<br>- Check air inlet hose from the air filter. Replace if damaged.   |

## COMPRESSOR TROUBLESHOOTING GUIDE

| TROUBLE                                 | CAUSE  | WHAT TO DO  |
|---|--|---|
| High oil consumption/oil in air system. | Excessive oil level.<br><br>Plugged coalescer filter.<br>Compressor operating at low pressure (60 psi or below).<br>Compressor oil leak.<br>Leaking oil lines or oil cooler.<br>Leaking compressor shaft seal.<br>Plugged coalescer return line. | - Check level per filling instructions. Drain excessive oil if necessary.<br>- Replace coalescer filter.<br>- Operate at rated pressure. - Reduce system load.<br>- Inspect and repair leaks.<br>- Inspect and repair all oil lines and/or cooler.<br>- Replace seal.<br>- Inspect and clean hose and connections between coalescer filter and air end.                   |
| Water in air system.                    | Defective moisture separator/drain trap.<br>Air cooler core dirty.<br>Air tank not drained.<br><br>Excessive moisture in compressor oil.   | - Inspect and clean if required. Replace separator/trap if required.<br>- Inspect and clean.<br>- Open tank drain. (This should be done each time the compressor is run, prior to driving the truck.)<br>- Let truck sit overnight. Open petcock/drain valve on compressor sump tank until oil starts to drain. Close valve and check oil level per filling instructions. |
| Excessive noise level.                  | Incorrect engine speed.<br><br><br><br>Low oil level.  | - Check engine speed and speed control operation. Check per specified speed. If speed control is not working properly, contact IMT Technical Support.<br>- Check oil level per filling instructions. Fill as required.  |
| Excessive vibration.                    | Loose components.<br>Compressor bearing failure.<br><br>Incorrect driveshaft angle.<br><br>Drive shaft u-joint failure.  | - Inspect and tighten.<br>- Contact authorized Distributor or IMT immediately, do not operate unit.<br>- Check driveshaft angle per installation manual or contact IMT.<br>- Inspect and repair as needed. Do not operate unit until repairs have been made. Damage to the chassis or compressor and/or serious injury could occur if driveshaft or u-joint breaks.       |
| Shaft seal leak.                        | Defective Seal.  | - Replace per service manual or contact authorized Distributor or contact IMT Technical Support.  |
| Pressure relief valve opens.            | Compressor operating over pressure.<br><br><br>Defective valve.<br>Coalescer filter plugged up.  | - Inspect and verify pressure control valve and control circuitry.<br>- Remove, disassemble, and clean pressure control valve. Reassemble and reinstall.<br>- Replace valve.<br>- Replace filter.   |
| Sump pressure does not blow down.       | Automatic blow down valve may be inoperative at coalescer head.  | - Inspect and repair/replace blow down valve.<br>- Remove, disassemble, and clean blow down valve. Reassemble and reinstall.  |

## COMPRESSOR TROUBLESHOOTING GUIDE

| TROUBLE  | CAUSE   | WHAT TO DO   |
|--|---|--|
| Speed control does not come up.  | Parking brake is not set.<br>Blown fuse.<br><br>Compressor is not making air.<br><br>No signal to speed control module from compressor. | - Engage parking brake.<br>- Check and replace 5 amp fuse located behind panel in right front compartment.<br>- Insure that PTO is engaged and that the pto shaft is turning.<br>- With compressor running, check for 12 volts across 20lb pressure switch (N.O.). If switch is not closing, replace switch.<br>- With the compressor off, check for 12 volts across 5lb pressure switch (N.C.). If switch does not close, replace switch. |
| Speed control comes on when engaging the parking brake with the pto off. | 20lb pressure switch.   | - With the compressor off, check for 12 volts across 20lb pressure switch (N.O.). If switch is not open, replace switch.   |
| Compressor has experienced a "flash".                                    | Low oil level, high operating temperature, or oil starvation.   | - See above for "What to Do".<br>- Check oil level per filling instructions. Fill as required.<br>- See Flash Recovery Procedure in manual.  |
| Excessive blowdown time.   | Blowdown valve stuck.<br>Min. pressure valve stuck open.  | - Replace blowdown valve.<br>- Replace valve.  |
| Air tank empties upon  | Min. pressure valve stuck open.   | - Replace valve.   |
| Oil discharges from blowdown   | Bad seal in blowdown valve.<br>Improper blowdown valve installation   | - Replace seal.<br>- Remove and reinstall per parts manual.  |

## FLASH RECOVERY PROCEDURE FOR 45 CFM ROTARY COMPRESSOR

The following highlights the steps required to flush system when it has flashed.

1. Flush air compressor and check for rotor grinding.
  - (a) Remove 2½" inlet hose from inlet valve and remove the driveshaft.
  - (b) Drain sump tank.
  - (c) Remove 1-1/4" hose from side of oil sump tank.
  - (d) Place the 1-1/4" hose at same height of inlet valve and fill inlet of compressor with clean IMT specified oil. Once full, lower hose into bucket and rotate compressor by hand to evacuate any remaining oil. Repeat until oil is clean. Make sure the compressor turns freely by hand and that there is no grinding present.
  - (e) Reinstall drive shaft.
2. Flush oil sump tank
  - (a) Leave the 1-1/4" hose from the compressor flush procedure off. Loosen tank-mounting bands, disconnect and mark all hoses and remove oil tank. Remove tank.
  - (b) Fill tank with IMT specified oil, until about half full. Slosh oil from end to end, then drain out oil at drain plug in bottom of tank. Check drain-plug and tee for any restrictions, (i.e. chunks of hose).
  - (c) Reinstall tank and install the filler tube.
3. Flush oil cooler
  - (a) Replace both tubes from cooler to thermal valve.
  - (b) Inspect that the plastic shroud and fan blades are intact. Put power direct to red lead (ground black lead) at fan motor to verify that motor works. Do not run the motor outside of the shroud. Leave package as-sembled. Fan is a puller style, verify that air from fan blows out towards cab of truck.
  - (c) Replace 1-1/4" hose from compressor to oil sump tank.
  - (d) Replace all filters, air, oil and coalescer.
  - (e) Re-connect all hoses and add IMT specified oil to proper level in tank.
4. Test safety circuit
  - (a) Start truck. Disconnect temperature switch underneath the truck at the air end discharge. Attempt to start the truck with the PTO engaged. The truck should NOT start. If it does, DO NOT PROCEED! Contact IMT Technical Support. If the truck does not start, reconnect the temperature switch.
  - (b) You should be ready to start air compressor for testing. Start truck; engage PTO, run compressor for five minutes. Drain oil, change oil filter, fill oil to proper level, and finish testing.



## COMPRESSOR OPERATION

CONTINUED

### STARTING/STOPPING

An operating procedure decal is furnished with every PTO Compressor. The decal should be attached to the dashboard or visor of the truck where it will be visible to the driver. Cable shift PTO's require the use of decal 70396160. Hot shift PTO's are to use decal 70396166. Both decals are supplied with your kit. Install the appropriate decal based on the type of PTO used.

The following decals are samples.

#### THIS TRUCK IS EQUIPPED WITH A



#### PTO COMPRESSOR PACKAGE

##### START UP PROCEDURE

1. SET BRAKES PER COMPANY PROCEDURES AND CHOCK WHEELS.
2. DEPRESS CLUTCH. ENGAGE PTO.
3. PUT TRANSMISSION IN NEUTRAL.
4. LET OUT CLUTCH. DEPRESS FUEL PEDAL MOMENTARILY.

##### SHUTDOWN PROCEDURE

1. CLOSE SERVICE VALVE.
2. DEPRESS CLUTCH AND HOLD FOR COMPRESSOR BLOWDOWN.
3. DISENGAGE P.T.O.

70396160

#### THIS TRUCK IS EQUIPPED WITH A



#### PTO COMPRESSOR PACKAGE

##### START UP PROCEDURE

1. STOP VEHICLE AND ENGAGE PARKING BRAKES.
2. SHIFT TRANSMISSION TO PARK. ENGAGE PTO.
3. ENGAGEMENT WILL BE COMPLETE WHEN RED INDICATOR LIGHT COMES ON.

##### SHUTDOWN PROCEDURE

1. CLOSE SERVICE VALVE.
2. DISENGAGE PTO.

70396166

SERIAL NUMBERS PRED021074 TO PRESENT.

## COMPRESSOR OPERATION

Before starting the PTO/compressor, read this section thoroughly. Familiarize yourself with the controls and indicators, their purpose, location, and use.

| CONTROL OR INDICATOR           | PURPOSE  |
|--------------------------------|--|
| HOURLMETER                     | Indicates accumulated hours of actual compressor operation.  |
| FLUID LEVEL SIGHT TUBE         | Indicates fluid level in the sump. Proper level should be between indicator marks on tube. Check this level when the compressor is disengaged and the vehicle is parked on level ground. |
| PRESSURE RELIEF VALVE          | Vents sump pressure to the atmosphere if the pressure inside the sump exceeds 200 psi.   |
| COMPRESSOR INLET CONTROL VALVE | Regulates the amount of air intake in accordance with the amount of compressed air being used. Isolates fluid in compressor unit on shutdown.  |
| PRESSURE REGULATING VALVE      | Senses air pressure from sump to provide automatic regulation of the compressor inlet control valve and load controller  |
| BLOW DOWN VALVE                | Coalescer head blow down valve vents the sump pressure to the atmosphere at shut down.   |
| MINIMUM PRESSURE VALVE         | Restricts air flow to balance sump and service air pressure. Assures a minimum of 65 psi to maintain compressor lubrication.   |
| RELAY MODULE:                  | Activates / regulates fan operation and engine kill. Also indicates with LED's when fan operation and/or engine kill are active.   |

## COMPRESSOR OPERATION-FORD F-SERIES W/AT

**OPERATING INSTRUCTIONS**

**Air Compressor When Mounted on Ford F-Series with 5-Speed Automatic Transmission**

**TO OPERATE:**

1. With transmission in "Park", set the parking brake.
2. Press **POWER** button on control module.
3. Press **RPM CONTROL**.
4. Press **FORD** oval to activate PTO.
5. PTO is now operational.

**TO SHUT DOWN:**

1. Press **RPM CONTROL** or **PTO CONTROL** button.
2. Press **POWER** button.
3. PTO and Control Module are now disengaged.
4. Parking brake may now be released.

70396381

**AUXILIARY POWER CONTROL MODULE**

### OPERATING CONDITIONS

The following conditions should exist for maximum performance of the PTO/compressor. The truck should be as close to level as possible when operating. The compressor will operate on a 15 degree sideward and length wise tilt without any adverse problems.

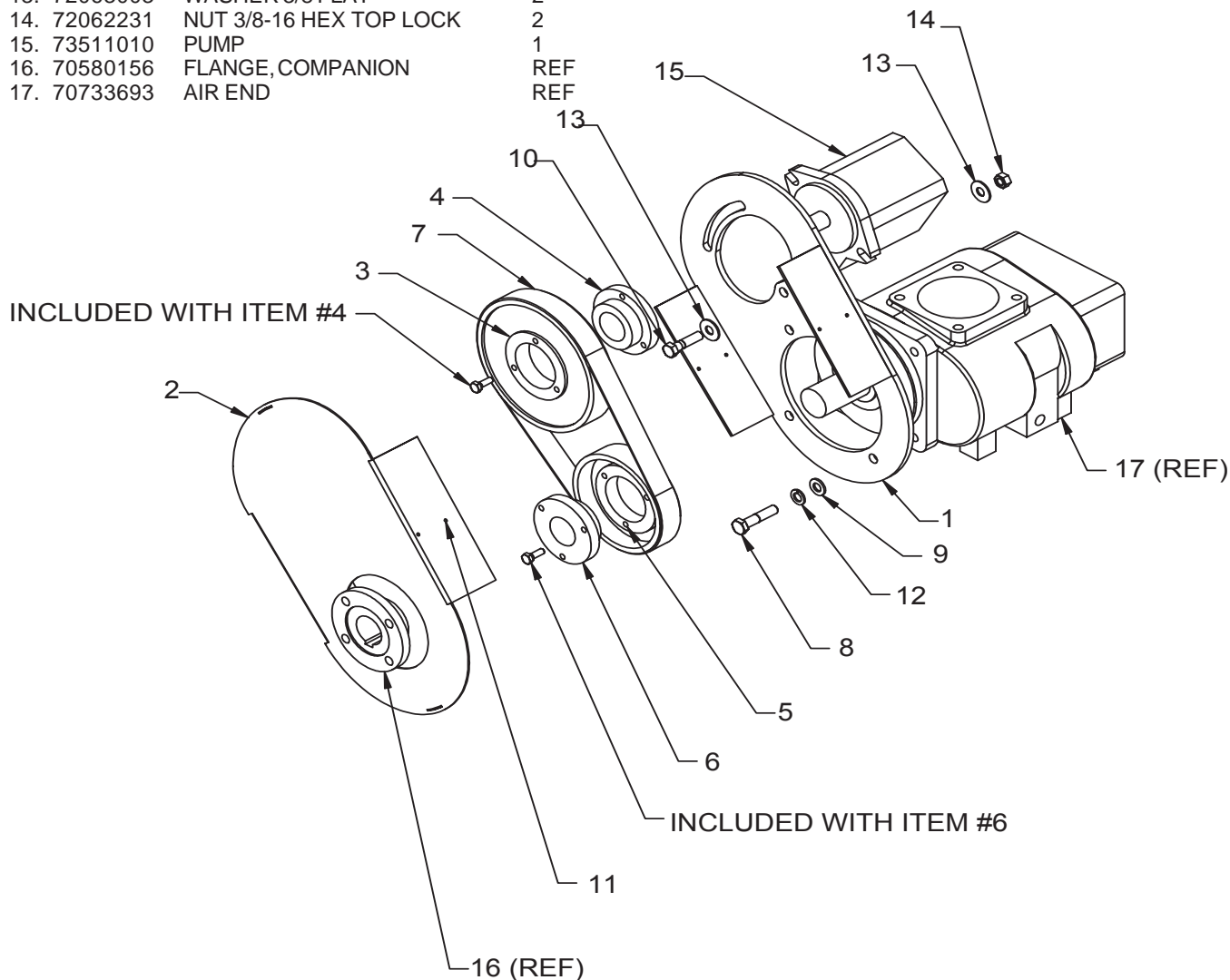
### NOTE

The compressor service valve should be relocated to the hose reel inlet or be the customer's air connection port when a hose reel is not used. Typical plumbing from minimum pressure valve should flow in the following order:

1. Minimum pressure valve.
2. Air tank.
3. Service valve.
4. Moisture trap/gauge/oiler combination
5. Hose reel.

## PTO AND DRIVELINE SYSTEM - FORD AUTOMATIC TRANSMISSION W/ CRANE (51717828)

|     |          |                             |     |
|-----|----------|-----------------------------|-----|
| 1.  | 52717348 | BRACKET-PUMP FORD AUTO      | 1   |
| 2.  | 60124205 | COVER-PULLEY                | 1   |
| 3.  | 71056584 | PULLEY-PUMP                 | 1   |
| 4.  | 71056585 | FLANGE                      | 1   |
| 5.  | 71056586 | PULLEY - DRIVESHAFT         | 1   |
| 6.  | 71056587 | FLANGE-DRIVESHAFT           | 1   |
| 7.  | 70580157 | BELT                        | 1   |
| 8.  | 72601518 | CAP SCR MET 10-1.50 X 30 HH | 4   |
| 9.  | 72063226 | WASHER - 10 MM FLAT         | 4   |
| 10. | 72060870 | CAP SCR 3/8-16 X 1.50 HHGR8 | 2   |
| 11. | 72601803 | SCR-SELF TAP 8-18 X 1/2 HH  | 4   |
| 12. | 72063227 | WASHER - 10 MM LOCK         | 4   |
| 13. | 72063003 | WASHER 3/8 FLAT             | 2   |
| 14. | 72062231 | NUT 3/8-16 HEX TOP LOCK     | 2   |
| 15. | 73511010 | PUMP                        | 1   |
| 16. | 70580156 | FLANGE, COMPANION           | REF |
| 17. | 70733693 | AIR END                     | REF |

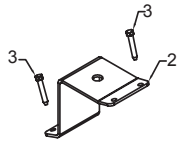


### WARNING

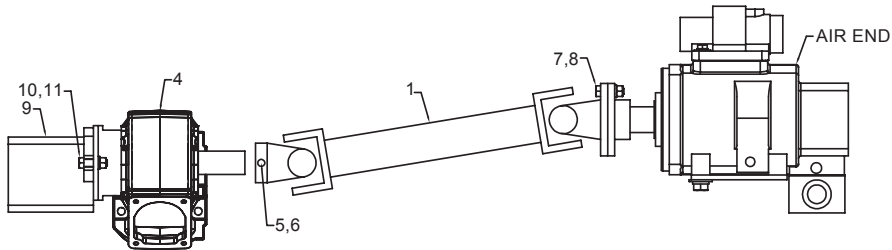
THE INSTALLER OF THE DRIVELINE MUST INSPECT THE FINAL POSITION OF THE DRIVELINE TO DETERMINE WHETHER ITS LOCATION PROVIDES SUFFICIENT PROTECTION TO AN OPERATOR, OR OTHER PERSONNEL, FROM HAZARDS ASSOCIATED WITH A ROTATING DRIVELINE. IF PROTECTION IS INSUFFICIENT, THE INSTALLATION OF A GUARD IS REQUIRED. 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.

**SERIAL NUMBERS PRED021074 TO PRESENT.**

## PTO DRIVELINE INSTALLATION



ON FLOOR OF CAB  
FOR MOUNTING PTO SHIFT CABLE



|     |  |                           | Ford 6-Speed Manual w/Crane<br>(51717827) | Ford 7.3L Auto w/Crane<br>(51717828) | Ford 6.0L Auto w/Crane<br>(51718034) | Ford 6-Speed Manual - No Crane<br>(51717829) | Ford 7.3L Auto - No Crane<br>(51717830) | Ford 6.0L Auto - No Crane<br>(51718035) | Allison<br>(51717846) | Fuller FS-5406A & FS-6406A<br>(51717866) | Fuller FSO-6406A<br>(51717886) | GMC 4500/5500 w/Allison 1000<br>(51718358) | Freightliner M2 with Allison 1000<br>(51718525) | Chevy 4500/5500 with Duramax<br>(51718597) |
|-----|--|---------------------------|---|--------------------------------------|--------------------------------------|--|---|---|-----------------------|--|--------------------------------|--|---|--|
| 1.  | 70580153   | DRIVELINE                 | 1   | X                                    | X                                    |  |   |   |                       |  |                                |  |   |  |
|     | 70580154   | DRIVELINE                 |   |                                      |                                      | X  |   |   |                       |  |                                |  |   |  |
|     | 70580166   | DRIVELINE                 |   |                                      |                                      |  |   |   | X                     |  |                                |  |   |  |
|     | 70580169   | DRIVELINE                 |   |                                      | X                                    |  |   | X                                       |                       |  |                                |  |   |  |
|     | 70580174   | DRIVELINE                 |   |                                      |                                      |  |   |   |                       |  | X                              | X  |   |  |
|     | 70580175   | DRIVELINE                 |   |                                      |                                      |  |   |   |                       |  |                                |  |   | X  |
| 2.  | 60124767   | BRACKET                   | 1   | X                                    |                                      | X  |   |   |                       | X  | X                              |  |   |  |
| 3.  | 72617557   | SCR-SELF TAP 1/8X1.50 HH  | 4   | X                                    |                                      | X  |   |   |                       | X  | X                              |  |   |  |
| 4.  | 70570882   | PTO (WAS 70570680)        | 1   | X                                    |                                      |  |   |   |                       |  |                                |  |   |  |
|     | 70570576   | PTO                       | 1   |                                      | X                                    |  | X                                       |   |                       |  |                                |  |   |  |
|     | 70570884   | PTO (WAS 70570681)        | 1   |                                      |                                      | X  |   |   |                       |  |                                |  |   |  |
|     | 70570743   | PTO                       | 1   |                                      |                                      |  |   |   | X                     |  |                                |  |   |  |
|     | (WAS 70570682 ON ALLISON ENGINES THROUGH 9/2/03) |                           |   |                                      |                                      |  |   |   |                       |  |                                |  |   |  |
|     | 70570742   | PTO                       | 1   |                                      |                                      |  |   |   |                       |  |                                |  | X   |  |
|     | 70570746   | PTO                       | 1   |                                      |                                      |  |   |   |                       |  |                                | X  |   | X  |
|     | 70570592   | PTO                       | 1   |                                      |                                      |  |   |   |                       | REF                                      |                                |  |   |  |
|     | 70570634   | PTO                       | 1   |                                      |                                      |  |   |   |                       |  | REF                            |  |   |  |
|     | 70570714   | PTO                       | 1   |                                      | X                                    |  |   | X                                       |                       |  |                                |  |   |  |
| 5.  | 72060860   | SET SCR 3/8-16X3/4 SQHD   | 1   | X                                    | X                                    | X  | X                                       | X                                       | X                     | X  | X                              | X  | X   | X  |
| 6.  | 70058882   | WIRE-MECH 18 GA           | 1'  | X                                    | X                                    | X  | X                                       | X                                       | X                     | X  | X                              | X  | X   | X  |
| 7.  | 72601802   | CAP SCR 3/8-24X1.25 HHGR8 | 4   | X                                    | X                                    | X  | X                                       | X                                       | X                     | X  | X                              | X  | X   | X  |
| 8.  | 72062300   | NUT 3/8-24 NYLOC          | 4   | X                                    | X                                    | X  | X                                       | X                                       | X                     | X  | X                              | X  | X   | X  |
| 9.  | 73511011   | PUMP                      | 1   | X                                    |                                      |  |   |   |                       |  |                                |  |   |  |
| 10. | 72060116   | CAP SCR 3/8-16X1.24 HHGR8 | 2   | X                                    |                                      |  |   |   |                       |  |                                |  |   |  |
| 11. | 72063225   | WASHER 3/8 LOCK           | 2   | X                                    |                                      |  |   |   |                       |  |                                |  |   |  |
|     | 51717931   | HOSE KIT                  | 1   |                                      |                                      |  |   |   | REF                   |  |                                | REF  | REF   | REF  |
|     | 70146436   | FITTING-ALLISON SAE #2    | 1   |                                      |                                      |  |   |   | X                     |  |                                | X  | X   | X  |

SERIAL NUMBERS PRED021074 TO PRESENT.

## RECOMMENDED SPARE PARTS LIST

### VP8500 (FOR UNITS WITH CRANES)

| PART NUMBER | DESCRIPTION              | QUANTITY |
|-------------|--------------------------|----------|
| 70048214    | OIL FILTER               | 2        |
| 70048209    | ELEMENT AIR FILTER (FLR) | 2        |
| 73052006    | ELEMENT HYD FILTER       | 2        |
| 89086201    | COMPRESSOR OIL - GALLON  | 6        |
| 73733692    | COALESCER                | 1        |
| 70048217    | AIR FILTER               | 2        |
| 89086159    | GREASE TUBE              | 1        |

### VP8501 (FOR UNITS WITHOUT CRANES)

| PART NUMBER | DESCRIPTION              | QUANTITY |
|-------------|--------------------------|----------|
| 70048214    | OIL FILTER               | 2        |
| 70048209    | ELEMENT AIR FILTER (FLR) | 2        |
| 89086201    | COMPRESSOR OIL - GALLON  | 6        |
| 73733692    | COALESCER                | 1        |
| 70048217    | AIR FILTER               | 2        |

