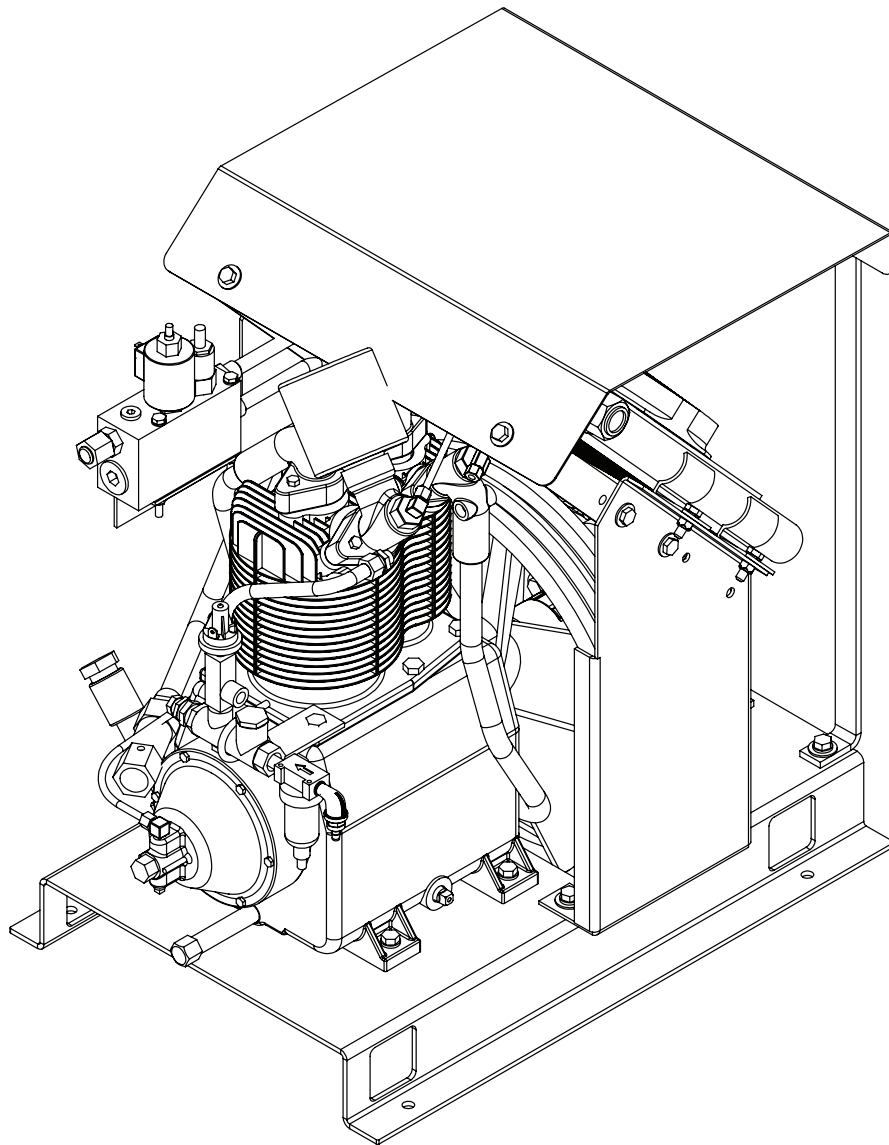


# Model 23P

## Two-Stage Piston Compressor Manual

Specifications • Installation • Assembly



Stellar Industries Inc.  
740 North State Street  
PO Box 169  
Garner, IA 50438  
800-392-3015


[www.stellarindustries.com](http://www.stellarindustries.com)

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# Model 23P Manual Revisions

Date of Revision	Section Revised	Description of Revision

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**DATE**

**PATENT / IP INFORMATION:**   
[www.stellarindustries.com/ip](http://www.stellarindustries.com/ip)

**MADE IN THE USA**  
by the Employee Owners of Stellar Industries PN 112060

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For Technical Questions, Information, Parts, or Warranty, Call Toll-Free at

**800-321-3741**

Hours: Monday - Friday, 8:00 a.m. - 5:00 p.m. CST

Or email at the following addresses:

Technical Questions, and Information:

[service@stellarindustries.com](mailto:service@stellarindustries.com)

Order Parts:

[parts@stellarindustries.com](mailto:parts@stellarindustries.com)

Warranty Information:

[warranty@stellarindustries.com](mailto:warranty@stellarindustries.com)

# Introduction

Stellar Industries® Air Compressors are designed to provide safe and dependable service for a variety of operations. With proper use and maintenance, these air compressors will operate at peak performance for many years.

To promote this longevity, carefully study the information contained in this manual before putting the equipment into service. Though it is not intended to be a training manual for beginners, this manual should provide solid guidelines for the safe and proper usage of the air compressor.

Once you feel comfortable with the material contained in this manual, strive to exercise your knowledge as you safely operate and maintain the air compressor. This process is vital to the proper use of the unit.

A few notes on this manual:

A copy of this manual is provided with every air compressor and can be found in the hard plastic manual case that is installed on the chassis. A copy of this manual shall remain with the air compressor at all times.

Throughout the manual, three signal words will be used to bring attention to important items:

## **NOTICE**

A NOTICE signal word indicates a practice not related to physical injury.

## **⚠ WARNING**

A WARNING signal word indicates a hazardous situation which, if not avoided, could result in death or serious injury.

## **⚠ DANGER**

A DANGER signal word indicates a hazardous situation which, if not avoided, will result in death or serious injury.

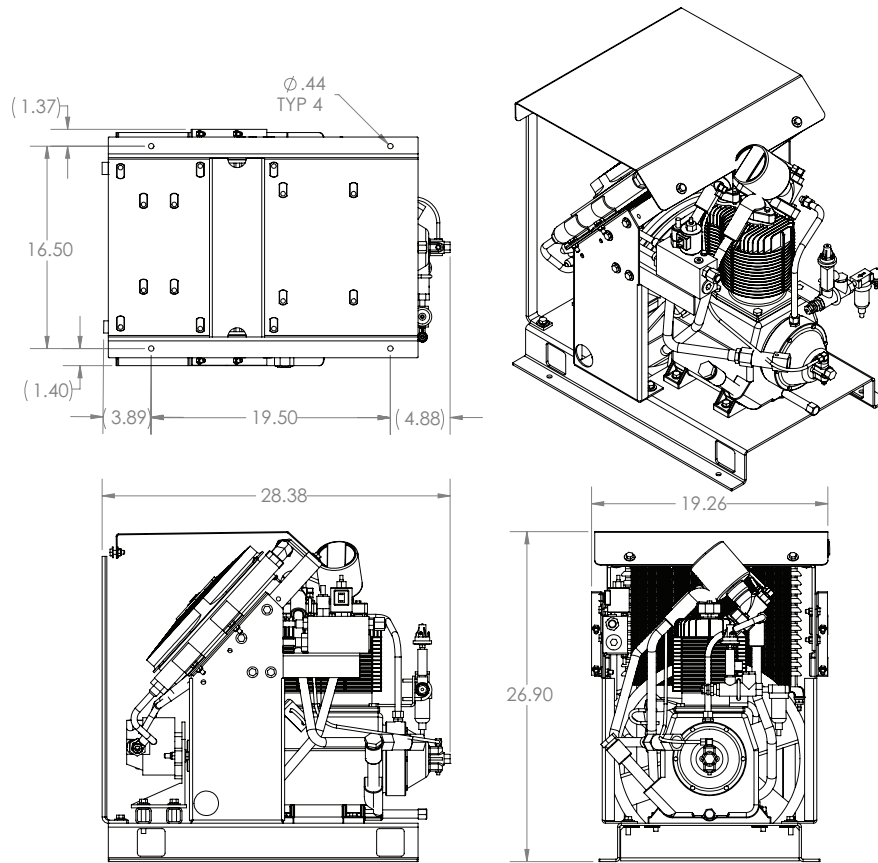
Information contained within this manual does not cover all maintenance, operating, or repair instructions pertinent to all possible situations. Please be aware that some sections of this manual contain information pertaining to Stellar Industries® manufactured air compressors in general and may or may not apply to your specific model.

This manual is not binding. Stellar Industries reserves the right to change, at any time, any or all of the items, components, and parts deemed necessary for product improvement or commercial/production purposes. This right is kept with no requirement or obligation for immediate mandatory updating of this manual.

In closing:

If more information is required or technical assistance is needed, or if you feel that any part of this manual is unclear or incorrect, please contact the Stellar Industries Customer Service Department by phone at 800-392-3015 or email at [service@stellarindustries.com](mailto:service@stellarindustries.com).

# Chapter 1 - Specifications



SPECIFICATIONS	23P
Hydraulic System	8 GPM @ 2300 PSI
Max Compressor Speed	1000 RPM
Hydraulic Relief Pressure	3000 PSI
Max Air Pressure	175 PSI
Air Relief Valve	200 PSI
Air Delivery (At Max Speed)	23 CFM @ 100 PSI
Max Working Pressure	175 PSI
Weight (Hydraulic Driven Asm)	270 lbs.
Weight (Air Pump Only)	125 lbs.
Dimensions (Length)	28.38"
Dimensions (Width)	19.26"
Dimensions (Height)	26.90"
Electrical	12V DC
Crankcase Oil Capacity	2 Quarts
Cooler Fan	800 CFM, 12 Volt (Pull)
Drive Type	Direct Driven

## NOTICE

Duty cycle on Piston Compressors is 50:50 over 10 minutes.

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# Chapter 2 - Installation

## Component Installation

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

### Pump Assembly:

The pump assembly may either be installed directly on the PTO or as an optional method, may be driven by a driveline from the PTO. Pump manufacturers provide specific installation information for their products and should be consulted if questions arise. Note: A dual or tandem hydraulic pump is recommended when additional hydraulically operated equipment are added to the hydraulic system.

### PTO Assembly:

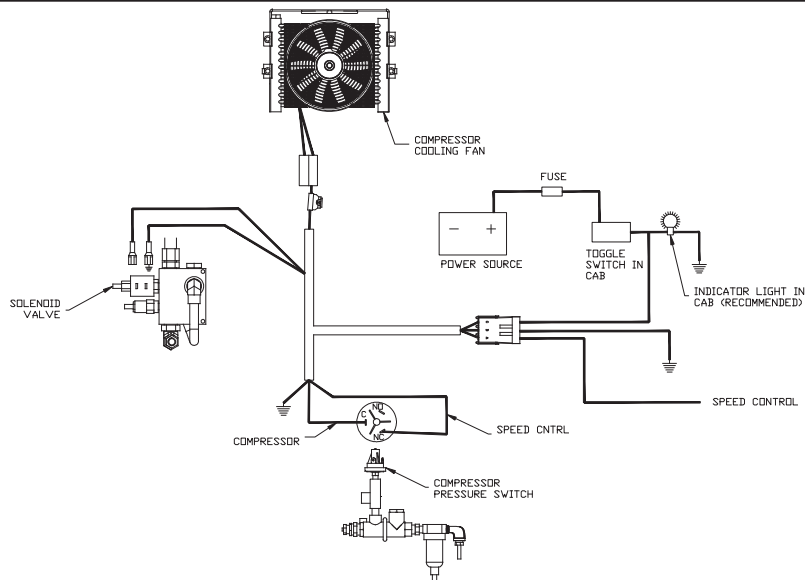
Check with the PTO manufacturer's representative for specific instructions regarding your particular make, model, and year of vehicle. As some trucks may require modification of the transmission cross member and the exhaust system, the manufacturer's instructions should be followed to ensure proper installation of the PTO.

### Compressor Assembly:

Prepare the mounting location of the compressor by locating and drilling four (4) holes, 1/2" diameter as per the mounting pattern of the air compressor base. Using four (4) 3/8" x 1.25 GR-5 cap screws, 3/8" flat washer, and 3/8" nyloc nut, secure the compressor in place. The compressor is air cooled, and must have a clean supply of cooling air to the fan with minimum restrictions. Adequate space must be provided for proper circulation of air.

### Electric Speed Control:

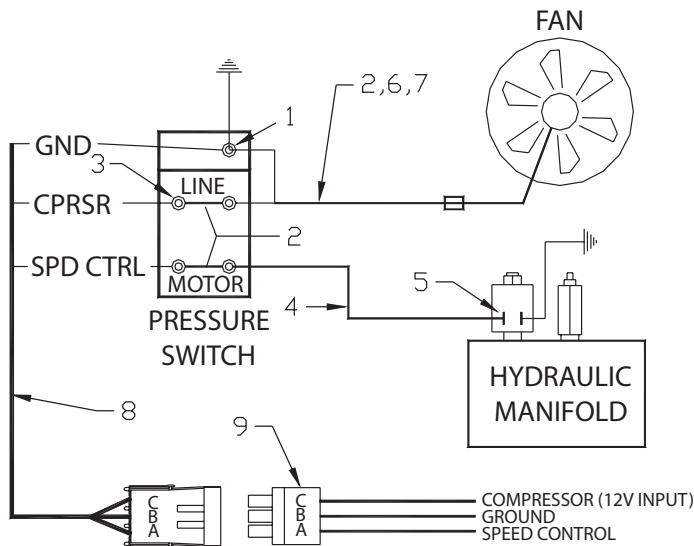
An optional electric or electronic speed control must be used to maintain proper operating speed of the air compressor. The engine speed control will automatically increase from idle to preset speed when engaged and decrease when disengaged.



# 23P Electrical Schematic

## Electrical Connections:

From the air pressure switch there are two (2) wires, red and black, running to the outside of the compressor housing. Connect the black wire to the vehicle frame or other suitable ground. Mount a single throw toggle switch in a convenient location and connect the red wire from the compressor to this switch. Connect the other switch terminal to a fuse holder and then to a 12- volt power supply. A third wire is required from the air compressor switch when connecting the speed control into the system.



ITEM	PART No.	DESCRIPTION	QTY
1	C0072	TERMINAL RING-#10	2
2	C4691	WIRE, 14 GA BLK	1.3FT
3	C5953	TERMINAL SPADE, 14/16 #10	6
4	C6202	WIRE, DUPLEX 14-2	1.3FT
5	C6004	TERMINAL, FEMALE DISC 16/14	4
6	D1256	WIRE, 14 GA BLUE	1.3FT
7	C4131	LOOM- .38 FIBER	1FT
8	15917	WIRE HARNESS SHD60/43 COMPRESSORS	1
9	18939	WIRE HARNESS SHIPOUT PIGTAIL	1

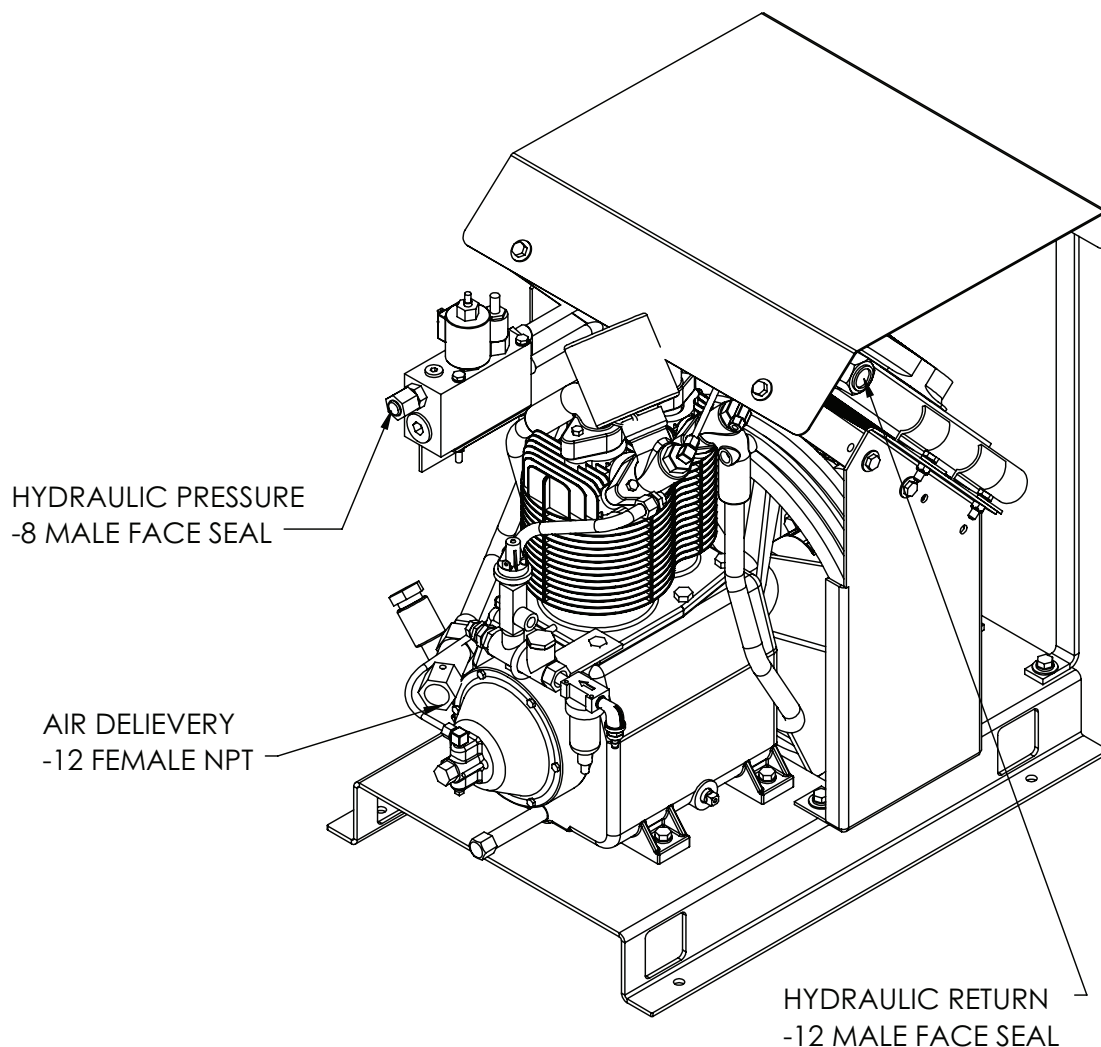


# Hydraulic System

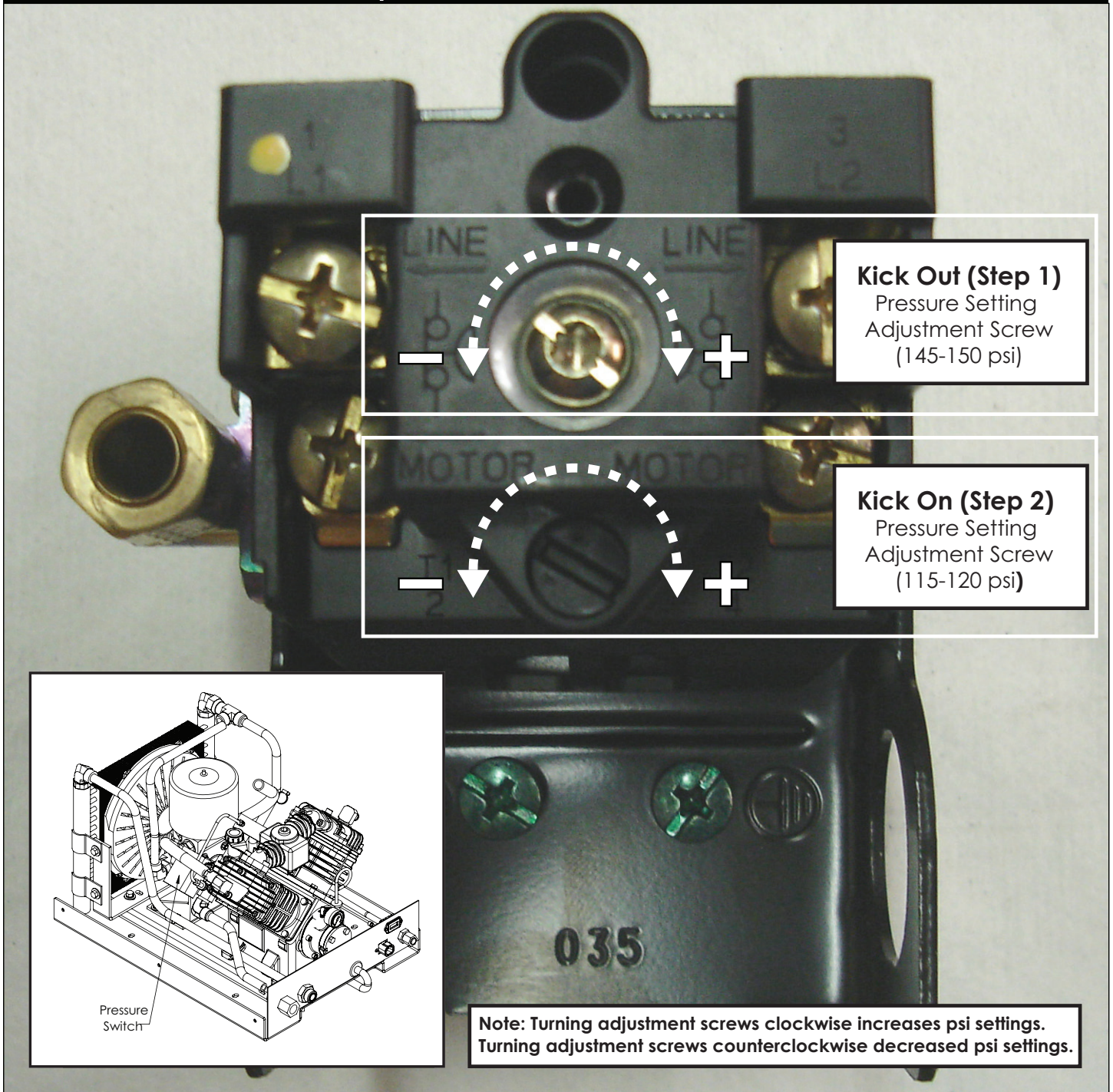
Installed on the compressor is a valve block assembly that controls the flow to the hydraulic motor. To this block, a 1/2" high-pressure hose must be attached. This hose comes from the hydraulic pumps pressure side. A 1-1/4" hydraulic suction hose must be installed from the hydraulic reservoir to the hydraulic pump. (See drawing above) Note: For compressors purchased without a reservoir a 3/4" minimum low-pressure return line is connected to the oil cooler outlet and is routed to the oil reservoir. The case drain line from the hydraulic motor is also routed to the oil reservoir. Stellar Industries recommends a sufficient sized reservoir be provided which includes the proper suction and return filters. The cooler on the compressor is designed and sized to cool the air compressor efficiently. An auxiliary oil cooler is required when additional hydraulically operated equipment are added to the hydraulic system. Pressure on the return line exceeding 200 PSI can and will cause damage to the filter, cooler, and components of the compressor hydraulic system.

# Air System

Two (2) airlines must be routed to the air tank for proper installation. The main airline is routed from the check valve to the air tank using a 3/4"(200psi) air hose. This is the main delivery line and should be free from all obstructions. A 1/4" line is routed from the air pressure valve to the air tank. This line senses the pressure in the tank and will engage and disengage the compressor automatically.



# Compressor Pressure Switch



**Kick Out (Step 1)**  
Pressure Setting  
Adjustment Screw  
(145-150 psi)

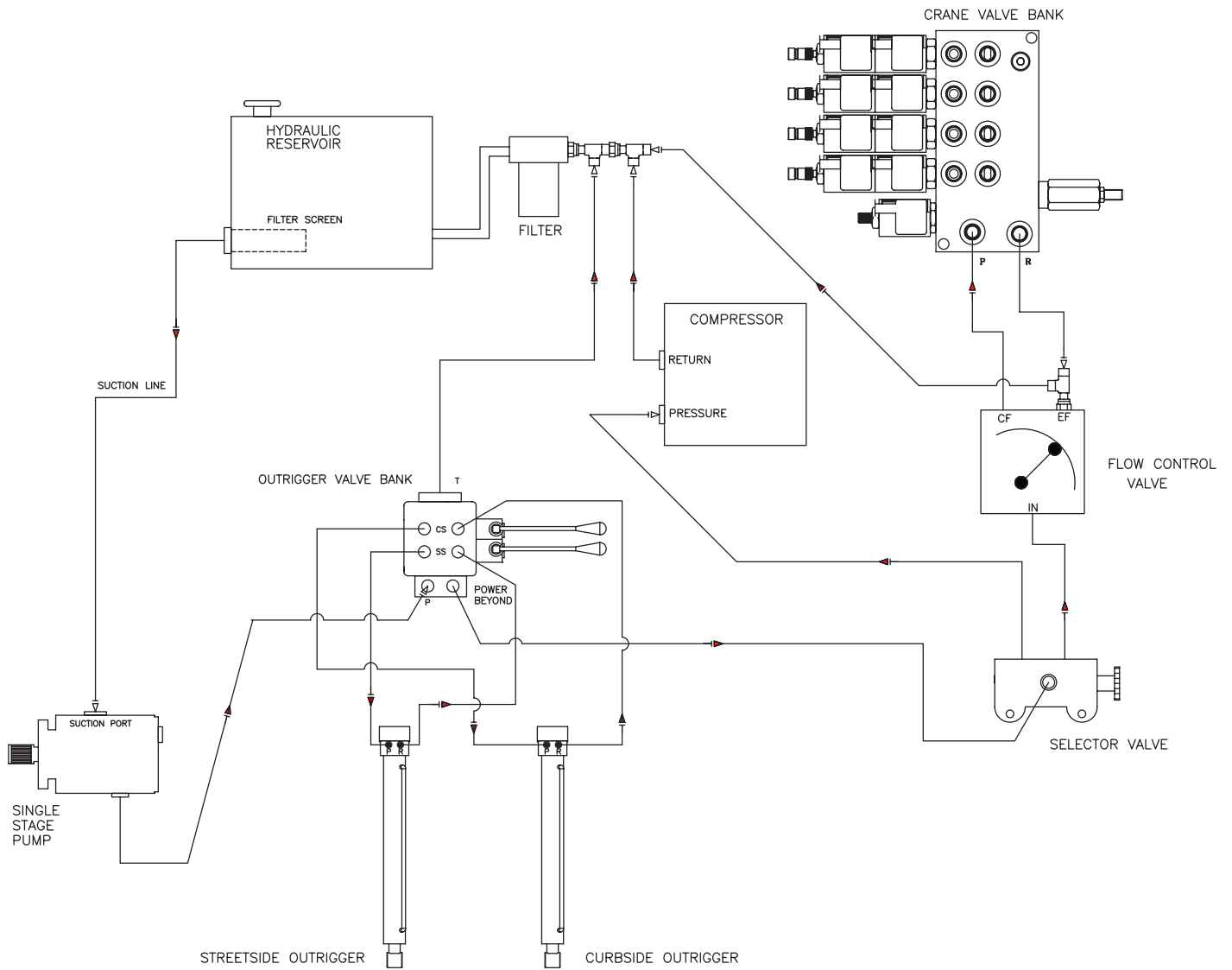
**Kick On (Step 2)**  
Pressure Setting  
Adjustment Screw  
(115-120 psi)

**Note:** Turning adjustment screws clockwise increases psi settings.  
Turning adjustment screws counterclockwise decreased psi settings.

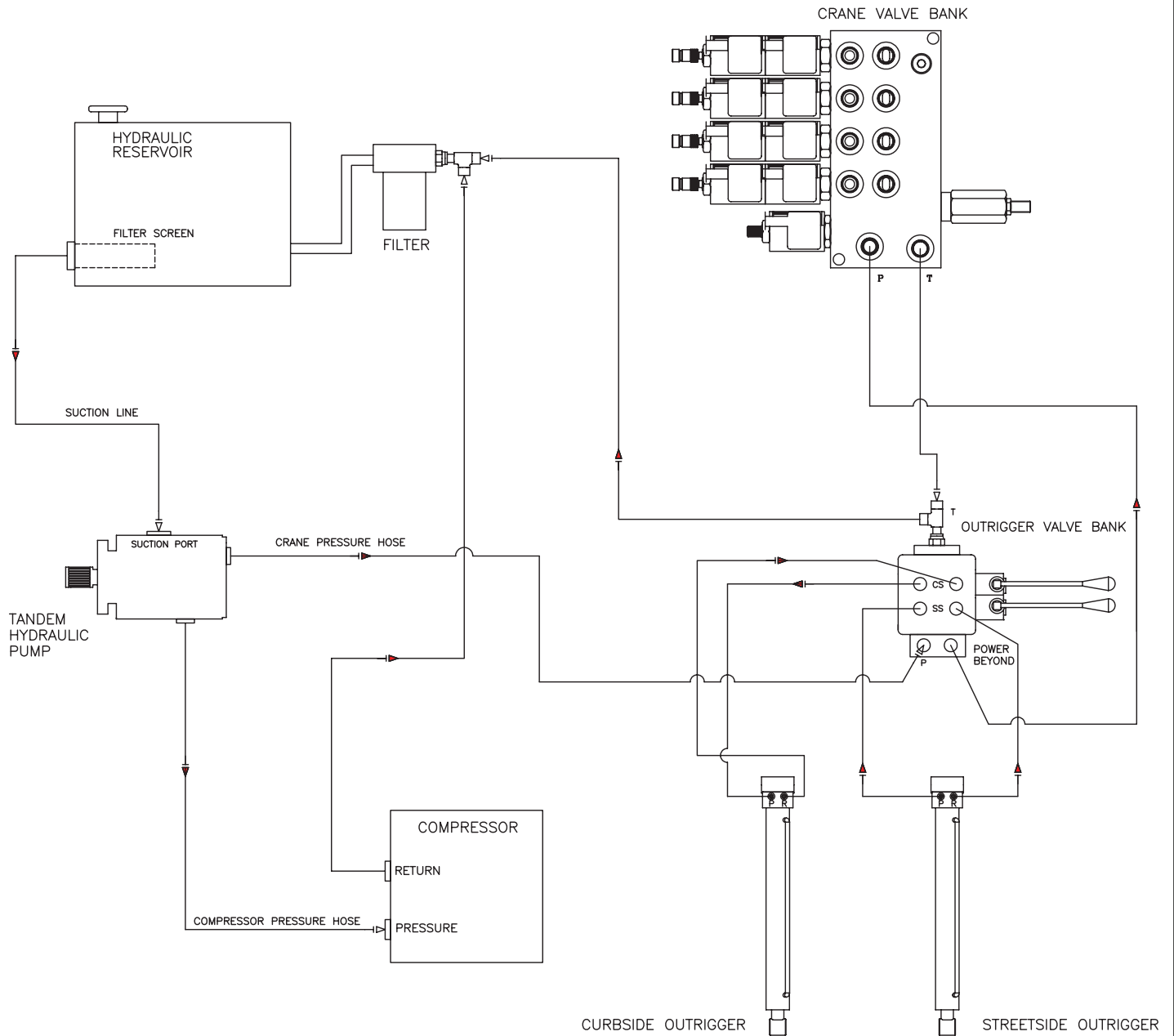
## Pressure Setting Instructions:

1. Always set the kick out pressure setting first. Adjust the kick out screw setting to 145 psi minimum/150 psi maximum.
2. After kick out pressure is set, adjust the kick on screw setting to 115 psi minimum/120 psi maximum.
3. Cycle compressor to verify correct settings.
4. For questions about this procedure, please contact Stellar Industries Customer Service at 800-321-3741.

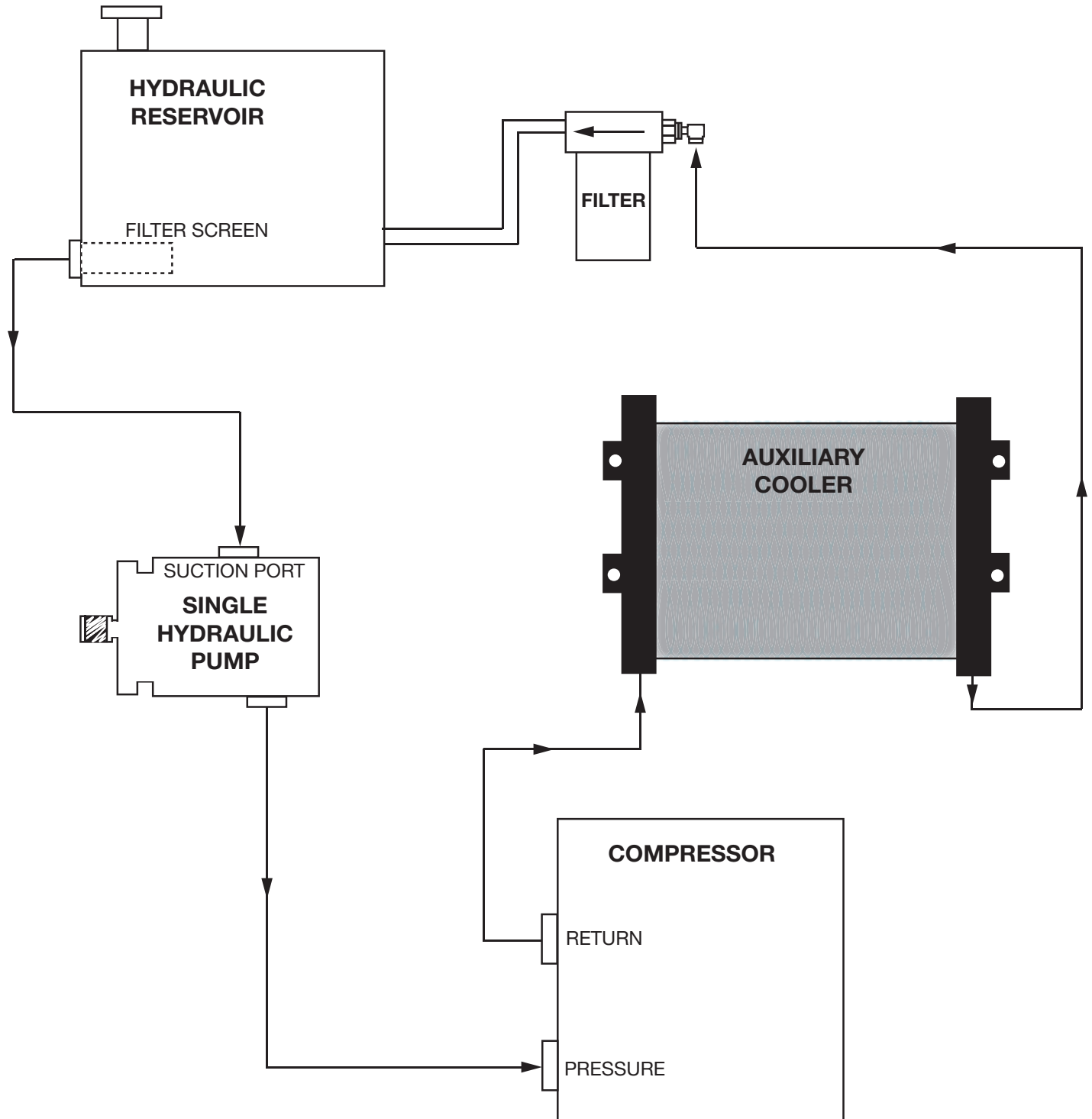
# Typical Hydraulic Circuit for Single-Section Pump



# Typical Hydraulic Circuit for Tandem (Two Part) Pump



# Typical Hydraulic Circuit for Compressor with Auxiliary Cooler



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# 23P Assembly Bill - PN D1809

ITEM	PART	DESCRIPTION	QTY.
1	0333	NUT 0.25-20 HHGR5 NYLOC	2
2	0335	CAP SCR 0.38-16X1.25 HHGR5	10
3	0342	NUT 0.31-18 HH NYLOC	14
4	0343	WASHER 0.31 USS FLAT ZINC	14
5	0347	NUT 0.38-16 HH NYLOC	2
6	0420	CAP SCR 0.31-18X0.75 HHGR5	2
7	0439	CAP SCR 0.25-20 X 4.00 HHGR5	2
8	0521	WASHER 0.25 LOCK	2
9	0523	WASHER 0.38 LOCK	14
10	1554	FTG 8-8 MFS-MORB STRAIGHT	1
11	2772	CAP 8FNL-S	1
12	3853	VALVE PILOT 145/175 PSI RCL-S	1
13	3854	FTG ST L 45 DEG 44-205	1
14	4581	NIPPLE 0.75X4.00 BRASS	1
15	4591	FTG 12 MORB PLUG HOLLOW HEX	1
16	4593	FTG 8-8 MJ-FJS-MJ TEE	1
17	4594	FTG 8-8 MJ-MORB STRAIGHT	1
18	4595	TUBE ASM PRES 0.50 SHD33DD	1
19	4596	TUBE ASM MOTOR TO CLR 0.50 SHD33DD	1
20	4597	TUBE ASM MANIF TO CLR 0.50 SHD33DD	1
21	4703	BRKT UNLOADER VALVE MNT SHD66DD	2
22	5203	BASE WLDMT SHD33DD	1
23	5208	COUPG LOVEJOY 5-16 KW L100-1.31	1
24	5272	BRKT COOLER MOUNT LH SHD33DD	1
25	5273	BRKT COOLER MOUNT RH SHD33DD	1
26	5290	WASHER #8 SAE FLAT ZP	6
27	5391	BRKT LIFT SHD33DD	1
28	5418	STEL 0.25 90 DEG BRASS 44-161	1
29	5480	VALVE CHECK 0.75 STANDARD	1
30	5591	WASHER 0.31 SAE FLAT YELLOW GR8	4
31	5760	CPRSR CHMP R15 SPECIAL	1
32	6065	BRKT MANIFOLD MOUNT SHD33	1

ITEM	PART	DESCRIPTION	QTY.
33	8158	FTG 4-4XCLOSE MP-MP NIPPLE STRAIGHT BRASS	1
34	8277	FTG ST L 0.25 MNPT/0.125 FNPT SPL	1
35	10659	CPLR 0.75 BRASS	1
36	17334	TUBE SPACER MOTOR MNT SHD33	2
37	19644	BRKT MOTOR MOUNT 19644 POWDERCOAT	1
38	20326	PLUG 0.25 NPT SQ HD BRASS	1
39	20456	FTG 6-6X4.00 MP-MP NIPPLE STRAIGHT BRASS	1
40	29228PC	BRKT CPRSR ASM SHD66 9000 PC BLACK	2
41	44645	MANIFOLD ASM SHD60	1
42	52808	COVER SHD33DD FAN	1
43	71406	FTG HOSE 4-4 PL-MP STRAIGHT BRASS	1
44	C0864	SWITCH PRES HOBBS	1
45	C0922	CAP SCR 0.31-18X1.00 HHGR5	12
46	C0944	CAP SCR 0.38-16X1.75 HHGR5	2
47	C1005	CAP SCR 0.38-16X2.50 HHGR8	4
48	C1129	COOLER OIL	1
49	C4492	MOTOR HYD SHD60 & SHD43	1
50	C4779	COUPG SPIDER SUL 99 BLUE URETHANE	1
51	C4781	COUPLING LOVEJOY 5/8	1
52	C4934	FTG 12 FFSS CAP	1
53	C5662	FILTER METAL BOWL 0.25	1
54	C5968	FTG 12-12 MFS-MAORB 90	1
55	C6015	FTG 0.75 PLUG 12-P5ON	1
56	C6064	U BOLT 0.25X1.25X2.25	2
57	C6353	WASHER 0.38 FLAT GR8	12
58	D0075	SCREW #6-32X2.75 RH HD MACHINE	2
59	D0076	NUT #6-32 HH NYLOC	2
60	D0840	FAN 12.00 PUSH 12 VOLT SPL 301003	1
61	D1189	FTG 8-12 MJ-MORB STRAIGHT	4
62	D1254	CAP 0.38 PIPE HEX 5406-CAP-6	1
63	C6162	FTG 12-12 MP-MP HEX NIPPLE STRAIGHT	1
64	30482	TUBE ASM 9000/SHD66 YZ	1

PARTS NOT SHOWN IN DRAWING:  
 11144 (1) - WIRE HARNESS SHD66 COMPRESSOR  
 C4685 (1.5FT) - TUBING COPPER 0.25



# Chapter 4 - Replacement Parts

## 23P (AE) Replacement Parts

23P (AE) Assembly Items		
Part Number	Description	Kit Contents (If Applicable)
5381	Overhaul Kit	Gasket Set (Qty 1), Ring Set (Qty 1), Valve Plate (Qty 2), O-Ring (Qty 2), Bearing Oil Seal (Qty 1), Oil (1 Quart), Inner Filter (Qty 2), Outer Filter (Qty 2)
C0361	Gasket Set Complete	
C0069	Ring Set Complete	
C0314	Valve Plate Assembly	Valve Plate (Qty 1), Top Head Gasket (Qty 1), Bottom Head Gasket (Qty 1)
23871	Crankshaft with Bearings - Straight Shaft	
23872	Crankshaft with Bearings - Tapered Shaft	

23P (AE) Maintenance Items		
Part Number	Description	Kit Contents (If Applicable)
14509	Service Kit w/Canister Filter	Canister Filter Element (Qty 1), Compressor Oil (1 Quart), Hydraulic Oil Filter (Qty 1)
32891	Service Kit w/Foam Filters	Inner Foam Filter Element (Qty 2), Outer Foam Filter Element (Qty 2), Compressor Oil (1 Quart), Hydraulic Oil Filter (Qty 1)
4562	Canister Filter Element Only	
22867	Canister Filter Assembly	
C0297	Embedded Filter Screen	
C0296	Embedded Filter Foam - Outer	
C0715	Embedded Filter Foam - Inner	
C0294	Embedded Filter Retainer	
C0087	Synthetic Compressor Oil (Quart)	
7259	Synthetic Compressor Oil (Case of 12 Quarts)	

## 23P (Champion) Replacement Parts

23P (Champion) Assembly Items		
Part Number	Description	Kit Contents (If Applicable)
C4914	Relief Valve	
C4913	Solenoid Valve	
7471	Valve Assembly - Low Pressure Intake	
C0891	Valve Assembly - Low Pressure Exhaust	
7472	Valve Assembly - High Pressure Intake	
C0894	Valve Assembly - High Pressure Exhaust	
C0864	Air Pressure Switch	
3853	Air Pilot Valve	
5480	Check Valve	
C5662	Metal Filter Bowl w/Filter	

23P (Champion) Maintenance Items		
Part Number	Description	Kit Contents (If Applicable)
69641	Service Kit	Air Filter Element (Qty 1), Compressor Oil (4 Quarts), Hydraulic Oil Filter (Qty 1)
4559	Air Filter Element Only	
6073	Air Filter Assembly	
C0087	Synthetic Compressor Oil (1 Quart)	
7259	Synthetic Compressor Oil (Case of 12 Quarts)	





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