Power Team®
SPXFLOW®

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Operating Instructions For:

62072 (See P159)	**201338-TID** (See 12)	**P157 SERIES**
62087 (See P55)	**P12 SERIES**	**P175D SERIES**
64122 (See P55)	**P19 SERIES**	**P159 SERIES**
64215 (See P59)	**P23 SERIES**	**P159D SERIES**
64372 (See P55)	**P30F SERIES**	**P300 SERIES**
66463 (See P59)	**P55 SERIES**	**P300D SERIES**
64662 (See P157)	**P59 SERIES**	**P460 SERIES**
64663 (See P157)	**P59F SERIES**	**YM-01**

SINGLE-STAGE AND TWO-STAGE

HYDRAULIC HAND PUMP

Max. Pressure: See Pump Data Plate

MODEL SHOWN FOR P157 SERIES

Form No. 102842
Rev. 18 May. 26, 2022

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SAFETY SYMBOLS AND DEFINITIONS

Safety symbols are used to identify any action or lack of action that can cause personal injury. Your reading and understanding of these safety symbols is very important.

⚠ DANGER: Danger is used only when your action or lack of action will cause serious human injury or death

⚠ WARNING: Warning is used to describe any action or lack of action where a serious injury can occur.

⚠ CAUTION: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

CAUTION: Used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

IMPORTANT: Important is used when action or lack of action can cause equipment failure, either immediate or over a long period of time.

1. Pictogram Definition

Do not remove this component. For service only. Pressure must be released.

SAFETY PRECAUTIONS

⚠ WARNING: It is the operator's responsibility to read and understand the following safety statements

- **Only qualified operators should install, operate, adjust, maintain, clean, repair, or transport this machinery.**
- **These components are designed for general use in normal environments. These components are not specifically designed for lifting and moving people, agri-food machinery, certain types of mobile machinery or special work environments such as: explosive, flammable, or corrosive. Only the user can decide the suitability of this machinery in these conditions or extreme environments. Power Team will supply information necessary to help make these decisions.**
- **Do not use equipment if damaged, altered, or in poor condition.**
- **All safety decals must be replaced when unreadable.**

These instructions are intended for end-user application needs. Most problems with new equipment are caused by improper operation or installation. Detailed service repair instructions or parts lists can be obtained from your nearest Power Team facility.

⚠ WARNING :To help prevent personal injury,

Hydraulic hoses and lines

- **Before operating the pump, all hose connections must be tightened with the proper tools. Do not overtighten. Connections should only be tightened securely and leak-free. Overtightening can cause premature thread failure or high pressure fittings to split at pressures lower than their rated capacities.**

- **Should a hydraulic hose ever rupture, burst, or need to be disconnected, immediately shut off the pump and release all pressure. Never attempt to grasp a leaking pressurized hose with your hands. The force of escaping hydraulic fluid could cause serious injury.**
- **Do not subject the hose to potential hazard such as fire, sharp surfaces, extreme heat or cold, or heavy impact. Do not allow the hose to kink, twist, curl, crush, cut, or bend so tightly that the fluid flow within the hose is blocked or reduced. Periodically inspect the hose for wear, because any of these conditions can damage the hose and possibly result in personal injury. Never repair with tape.**
- **Do not use the hose to move attached equipment. Stress can damage the hose and possibly cause personal injury.**
- **Hose material and coupler seals must be compatible with the hydraulic fluid used. Hoses also must not come in contact with corrosive materials such as creosote-impregnated objects and some paints. Hose deterioration due to corrosive materials can result in personal injury. Consult the manufacturer before painting a hose. Never paint a coupler.**
- **All components in the hydraulic system must match the maximum pressure rating of the pump.**

Pump

- **Do not exceed the hydraulic pressure rating noted on the pump nameplate or tamper with the internal high pressure relief valve. Creating pressure beyond rated capacities can result in personal injury.**
- **Before adding hydraulic fluid, retract the system to prevent overfilling the pump reservoir. An overfill may cause personal injury due to excess reservoir pressure created when cylinders are retracted.**
- **The load must be under operator control at all times.**
- **Do not connect pump to hydraulic system powered by another pump.**

Cylinder

- **Do not exceed rated capacities of the cylinders. Excess pressure may result in personal injury.**
- **Do not set poorly-balanced or off-center loads on a cylinder. The load may tip and cause personal injury.**
- **Stay clear of lifted loads and keep others away.**
- **Extensions are not recommended for lifting applications.**

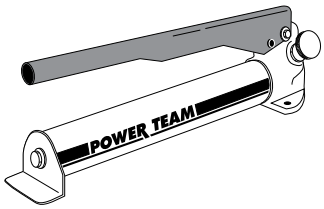
HYDRAULIC HAND PUMP

SINGLE-STAGE AND TWO-STAGE

Max. Pressure: See Pump Data Plate

Definition: A hydraulic hand pump delivers hydraulic fluid under pressure by directly applied anual effort.

Note: Illustrations depict general pump configurations.



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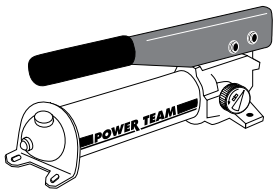

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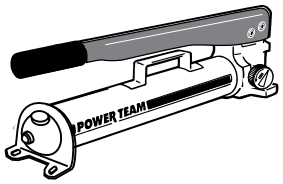

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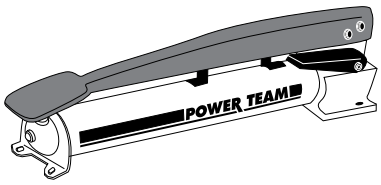
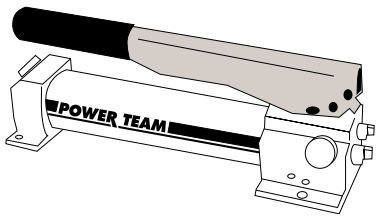


P59F/P59FP



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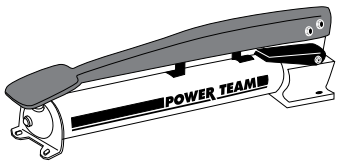

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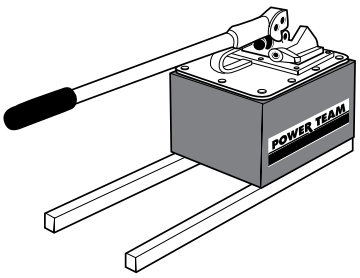

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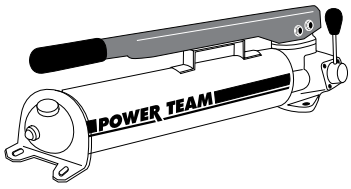
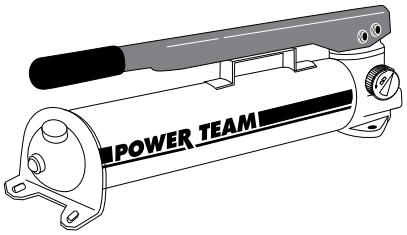
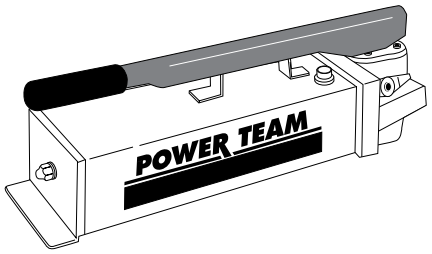


P157D/P159D



P157/P159
64662/64663



P300

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Hydraulic Hand Pump Continued

For Use With	Order No.	Volume & Pressure					Handle or Foot Lever Effort		Reservoir						Product Weight	
		Stage	Volume per stroke		Maximum Pressure				Type	Oil Capacity		Usable Oil Capacity				
			In.^{3}	cm^3	psi	bar	lbs.	kg		In.^{3}	cm^3	In.^{3}	cm^3		lbs.	kg.
Single Acting Cylinders (Pump includes 2-Way Valve)	**P12**	1	0.069	1.1	10000	700	75	34.0	A	12	197	9	148		5.7	2.6
	P19	1 2	0.305 0.091	5 1.5	325 10000	22 700	8.5 98.5	3.8 44.7	B	24.4	400	20	328		6.6	3
	P23	1	0.160	2.6	3000	200	70	31.8	B	23.8	390	20.3	333		12.0	5.4
	P30F	1 2	0.216 0.054	3.5 0.9	325 10000	22 700	125	56.7	B	31	508	27	443		10.0	4.5
	P30FP	1 pop-off	0.216 0.054	3.5 0.9	325 10000	22 700	125	56.7	B	31	508	27	443		10.0	4.5
	P55	1	0.160	2.6	10000	700	145	65.8	B	55	901	45	738		15.8	7.2
	P59	1 2	0.662 0.160	10.8 2.6	325 10000	22 700	145	65.8	B	55	901	45	738		17.2	7.8
	P59F	1 2	0.550 0.130	9.0 2.1	325 10000	22 700	120	54.5	B	55	901	45	738		14.0	6.4
	P59FP	1 pop-off	0.550 0.130	9.0 2.1	325 10000	22 700	145	65.8	B	55	901	45	738		14.0	6.4
	P157	1 2	0.650 0.160	10.7 2.6	1400 10000	97 700	140	63.5	B	152	2491	137	2245		26.0	11.8
	P159	1 2	2.600 0.160	42.6 2.6	325 10000	22 700	140	63.5	B	152	2491	137	2245		26.0	11.8
	P300	1 2	2.600 0.160	42.6 2.6	325 10000	22 700	140	63.5	C	1.5 gal.	5.71	310	5081		55.3	25.1
	P460	1 2	7.350 0.294	120.5 4.6	325 10000	22 700	90	40.8	D	2.5 gal.	9.51	460	7539		54.9	24.9
Double Acting Cylinders (Pump includes 4-Way Valve)	**P157D**	1 2	0.650 0.160	10.7 2.6	1400 10000	97 700	140	63.5	B	152	2491	137	2245		28.8	13.1
	P159D	1 2	2.600 0.160	42.6 2.6	325 10000	22 700	140	63.5	B	152	2491	137	2245		27.9	12.7
	P300D	1 2	2.600 0.160	42.6 2.6	325 10000	22 700	140	63.5	C	1.5 gal.	5.71	310	5081		57.0	25.9
	P460D	1 2	7.350 0.294	120.5 4.6	325 10000	22 700	90	40.8	D	2.5 gal.	9.51	460	7539		57.9	26.3

Table 1

Note: 3/8 NPTF oil port(s) on all pumps.

SET-UP

1. Hydraulic Connections

IMPORTANT:

Seal all hydraulic connections with a high grade, nonhardening thread sealant. PTFE tape may also be used to seal hydraulic connections if only one layer of tape is used. Apply the tape carefully, two threads back, to prevent it from being pinched by the coupler and broken off inside the pipe end. Any loose pieces of tape could travel through the system and obstruct the flow of fluid or cause jamming of precision fit parts.

A. Clean all areas around the fluid ports of the pump and cylinder. Clean all hose ends, couplers, and union ends. Remove thread protectors from the hydraulic fluid outlets, and connect the hose assembly. Couple hose to cylinder.

B. The use of a hydraulic pressure or tonnage gauge (not included) is strongly recommended. Remove the pipe plug from the gauge port of the valve, thread the gauge into this port and seal as noted above.

⚠ WARNING :To help prevent personal injury,

- **The gauge must have the same pressure rating as the pump and cylinder. Personal injury can result if the wrong gauge is used.**
- **Release hydraulic pressure BEFORE removing or tightening hose couplings.**

OPERATION

The P460 can be operated only in the horizontal position. All other hand pumps can be operated in a horizontal position or in a vertical position with head pointing downward. Refer to Table 1 and your pump name plate to determine your style of pump.

IMPORTANT:

Figure 1 illustrates the normal drop of handle effort experienced when all (except P59) two-stage pumps shift from low pressure stage to high pressure stage.

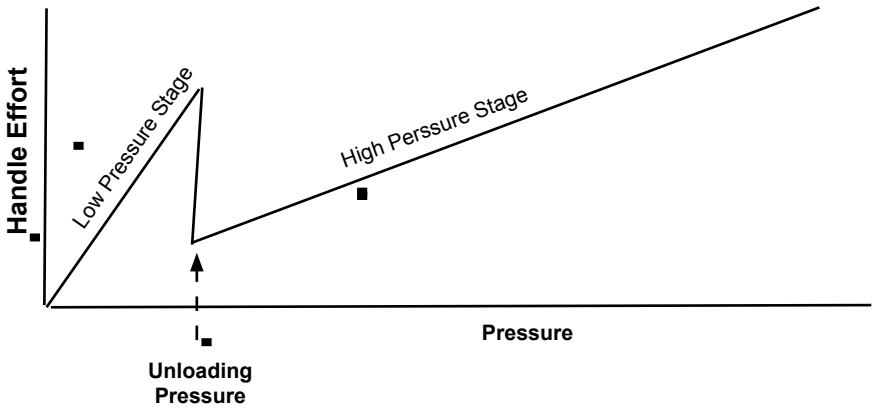

Figure 1

Operation Continued

1. Two-way Valve

Pumps with a two-way valve are for use with single acting cylinders.

A. To extend the cylinder, turn the valve knob counterclockwise to a closed (seated) position. **Note: Hand tight only!** Work the pump handle up and down to build pressure.

B. To release pressure, open the valve slowly by turning the knob clockwise to control the load.

2. Four-way Valve

Pumps with a three-position, four-way valve are for use with double-acting cylinders. The hose connection for extending a cylinder can be made to either port. With the handle in the forward position, the fluid is directed to the top fluid port. To maintain (hold) pressure, stop the pumping action. When the valve handle is in the center position, fluid flow is blocked to both ports.

⚠ WARNING

The operator should always release the pressure slowly.

PREVENTIVE MAINTENANCE

IMPORTANT:

Any repair or servicing that requires dismantling the pump must be performed in a dirt-free environment by a qualified technician.

Lubrication

Apply lubricant regularly to all pivot and rubbing points.
Use a good grade of No. 10 motor oil or grease. Do not use dry lubricants.

1. Bleeding Air From the System

Air can accumulate in the hydraulic system during the initial set-up or after prolonged use, causing the cylinder to respond slowly or in an unstable manner. To remove the air:

A. Position the cylinder at a lower level than the pump, and turn the cylinder rod end down.

B. Extend and retract the cylinder several times without putting a load on the system. Air will be released into the pump reservoir. Follow the fluid level instructions for your reservoir type to release the air from the reservoir and top off the fluid supply.

2. Bleeding Air From The Pump

When the pump is first put into use, or after refilling the pump's reservoir it may be necessary to bleed any trapped air from the pump. If this is not done the pump will not function properly (will not build pressure or has very spongy operation).

To bleed air from the pump, turn the pressure control knob counterclockwise (CCW) (turn lever down or clockwise on P460 models) and operate the pump handle up and down approximately twenty times. Turn the pressure control knob clockwise (CW) to its full stop position (turn lever up or CCW on P460 models). The pump should now be bled of air and ready to use.

3. Hydraulic Fluid Level

⚠ WARNING

Cylinder(s) must be fully retracted before checking the fluid level. Release all system pressure before breaking any hydraulic connection in the system.

Check the hydraulic fluid level in the reservoir periodically. Use a funnel with a filter to add hydraulic fluid if needed. *Refer to Table 1 for your reservoir type.*

- **For models with Reservoir Type A:** Place the pump in a vertical position with the pump head facing upward. Unscrew and remove the pump head from the reservoir. The fluid level within the reservoir should come to the fluid level mark indicated on the reservoir body decal. Before replacing the pump head, visually inspect the O-ring which seals the pump head/reservoir assembly. Replace this O-ring if it is worn or damaged. Reinstall pump head to reservoir and tighten securely. Check for leaks.
- **For models with Reservoir Type B:** Remove the filler cap. The fluid level should come to the bottom edge of the filler hole when the pump is level and resting horizontally on its base and the cylinders are retracted (see Figure 2).

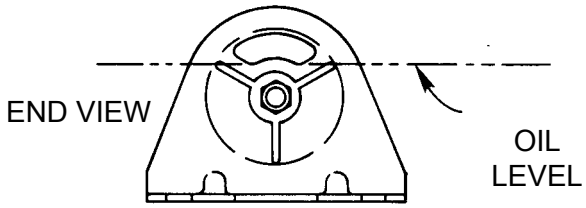

Figure 2

- **For models with Reservoir Type C:** Remove the filler cap. The fluid level should be 1/2 inch (12.7 mm) from the filler hole when the pump is level and resting horizontally on its base and the cylinders are retracted.

I**MPORTANT:**

The pump sight gauge indicates the presence of hydraulic fluid only. It does not determine correct fluid level.

- **For models with Reservoir Type D:** Remove the filler cap. The fluid level should be 1/2 inch (12.7 mm) from the cover plate when the pump is level and resting horizontally on its base and the cylinders are retracted.

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4. Draining And Flushing The Reservoir

Drain, clean and replenish the reservoir with high-grade, approved Power Team hydraulic fluid yearly or more often if necessary. The frequency of fluid change will depend upon the general working conditions, severity of use and overall cleanliness and care given the pump.

IMPORTANT:

Clean the exterior of the pump first. After draining and flushing the reservoir, drain and clean the other hydraulic system components (hoses, cylinders, etc.) before connecting them to the pump again. This will help prevent contaminated fluid from entering the pump.
Refer to Table 1 for your reservoir type.

- **For models with Reservoir Type A:**

A. Unthread and separate the pump head from the reservoir. Drain the reservoir of the used hydraulic fluid.

B. Flush out reservoir with a small amount of clean hydraulic fluid. Clean the pump intake filter.

IMPORTANT:

Removing the filter from the pump assembly could result in its breakage. Attempt to clean it as well as possible with it installed.

C. Refill the reservoir and reassemble the pump head to the reservoir. Tighten securely. Check for leaks.

- **For models with Reservoir Type B & C:**

A. Remove the filler cap. Drain the hydraulic fluid through filler hole.

B. Remove the nut from the tie rod. Separate the reservoir from the pump body. Clean the reservoir and filter.

IMPORTANT:

Removing the filter from the pump assembly could result in its breakage. Attempt to clean it as well as possible with it installed.

C. Reassemble and fill the reservoir with Power Team hydraulic fluid. Replace the filler cap.

- **For models with Reservoir Type D:**

A. Remove the ten screws fastening the reservoir cover to the reservoir, and lift the pump and valve assemblies off.

B. Drain all hydraulic fluid and flush reservoir with a small amount of clean hydraulic fluid.

C. Remove the pump assembly filter, rinse it clean, and reassemble.

D. Refill the reservoir with Power Team hydraulic fluid. Place the pump and valve assembly (with gasket) on the reservoir, and thread the ten screws. Tighten securely and evenly.

TROUBLESHOOTING GUIDE

⚠ WARNING

To help prevent personal injury, always release pump pressure and disconnect hose(s) from pump before making repairs.

Refer to the appropriate pump parts list during troubleshooting. Repairs must be performed in a dirt-free environment by qualified personnel familiar with this equipment..

PROBLEM	CAUSE	SOLUTION
Pump losing pressure.	1. System components leaking.	1. Repair or replace as necessary.
	2. Directional control valve leaks or not adjusted properly.	2.* Reseat, repair, or replace directional control assembly and correctly adjust.
	3. Fluid leaking past outlet check seat(s).	3.* Check for dirt. Reseat pump body and/or replace poppet(s) or ball(s).
Handle rises after each stroke.	1. Fluid leaking past outlet check seat(s)	1.* Check for dirt. Reseat pump body and/or replace poppet(s) or ball(s).
Pump not delivering fluid.	1. Low fluid level in reservoir.	1. Check fluid level per instructions.
	2. Intake filter is dirty.	2. Remove reservoir and clean.
	3. Seats worn and not seating properly.	3.* Repair seats or replace pump body.
Pump does not reach full pressure.	1. Low fluid level in reservoir.	1. Check fluid level per instructions
	2. System components leaking.	2. Repair or replace as necessary.
	3. Directional control valve leaks or not adjusted properly.	3.* Reseat, repair, or replace directional control assembly and orrectly adjust.
	4. Improperly adjusted relief valve.	4.* Readjust.
	5. Fluid leaking past inlet or outlet checks or high pressure piston seal damaged.	5.* Reseat or repair inlet or outlet checks or replace high pressure piston seal.
Pump handle can be pushed down (slowly) without raising the load.	1. Inlet checks are not seating.	1.* Check for dirt and/or reseat valve seats.
	2. Damaged piston assembly or piston seals leaking,	2. Damaged piston assembly or piston seals leaking.
Pump handle operates with a spongy action.	1. Air trapped in system.	1. Position cylinder lower than pump. Extend and return cylinder several times. Follow bleeding instructions.
	2. Too much fluid in reservoir.	2. Check fluid level per instructions.
Pump handle effort drops significantly after some pressure has been obtained.	1. This is normal operation on most two-stage hand pumps	

*Power Team recommends these hand pump repairs be performed by an Authorized Hydraulic Service Center.

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English Original

DECLARATION OF INCORPORATION OF PARTLY COMPLETED MACHINERY

We declare under our sole responsibility that our Hand-Pump Models:

62072,	**201338-TID,**	**P157,**
62087,	**P12,**	**P157D,**
64122,	**P19,**	**P159,**
64215,	**P19L,**	**P159D,**
64372,	**P23,**	**P300,**
66463,	**P30F,**	**P300D,**
64662,	**P55,**	**P460,**
64663,	**P59,**	**P460D**
YM-01,	**P59L,**	**P59L-1500**
	P59F,	**P59L-1500G**

to which this declaration relates are in conformity with the following:

EN, EN-ISO, ISO standards	**Title**
Per the provisions of the Machinery Safety Directive	**2006/42 EC**
EN_ISO 12100:2011	Safety of machinery, basic concepts, general principles for design, risk assessment & risk reduction
EN 4413:2010	Hydraulic Fluid Power – general rules and safety requirements for systems & their components

We, the undersigned, hereby declare that the equipment specified above conforms to the above mentioned European Communities Directive(s) and Standard(s).

SPX Hydraulic Technologies
5885 11th Street
Rockford, IL 61109-3699
United States of America

This product is not to be put into service until the final machine into which it is to be incorporated has been declared in conformity with the provisions of these Directives, where appropriate.

SPX Hydraulic Technologies
Andreas J. Klemm
SPX Hydraulic Technologies
Albert Thijsstraat 12
NL-6471 WX Eygelshoven
The Netherlands

The Netherlands Sept 14, 2017

Andreas J. Klemm, PhD