



## **P15W PUMP Operations and Parts Manual**



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### **SPRAYER START UP**

1. Check every fastener to make sure that the sprayer and engine are installed firmly onto the frame.
2. Set both pulleys in a straight line and set the belt to an appropriate tightness.
3. Check whether there is sufficient oil and use the appropriate fuel.
4. Before starting the engine, check both ON/OFF switches on the engine and the carburetor.
5. Connect the suction hose to the inlet of the sprayer. Leave the suction hose filter 20 cm above the bottom of the water tank in order to prolong the life of the sprayer.
6. Make sure the water supply is sufficient to allow the pump to reach its working pressure.
7. Connect the spray hose to the spray gun.
8. Open the exhaust cock before starting the engine in order to release air from the pump. Before using the spray gun for spraying, confirm the circulation of water in the pump is flowing properly.
9. To extend the life of the pump, always operate the machine according to its specific pressure. Adjust the pressure by turning the adjusting valve clockwise
10. In order to avoid damage to the packings and the pump, shut off the engine when not operating the pump for periods of 5 minutes or more.
11. Replace the oil in the pump after the first 10 to 15 hours of use. After this, the oil should be changed after every 70 hours of use. Make sure the oil is in good condition before each use.
12. Drain any sludge before changing the oil.
13. Replace and tighten the nut before refilling with #30-40 oil, then refill the oil level up to 2/3 of the oil window.
14. Always keep the grease cup filled with grease. Twist the grease cup twice for every 2 hours of spraying.
- 15.

16. After finishing spraying, loosen the pressure regulator handle and operate the sprayer with fresh water to clean out any remaining chemicals.
17. Never aim the sprayer output directly at people or animals
18. Operate carefully, as the engine's working temperature is very hot.
19. Do not touch the Pulleys or belts when the sprayer is running.

### **SPRAYER SHUT DOWN AND STORAGE**

1. Run the pump until all liquid is pumped out of the system. **Do not run the pump dry for more than 30 seconds.** Then shut the engine off and fill the tank with clean, clear water. Pump the tank empty. If the sprayer is going to be stored for several days, the following procedure is recommended:
2. Put 1 gallon of anti-freeze and 1 gallon of water or equivalent in the tank if temperatures are expected to be below 0°F. Check the freeze chart of the anti-freeze and add anti-freeze to recommended rating for expected temperatures.
3. Start the engine and allow the pump to operate just long enough to fill the system with the anti-freeze solution. This is accomplished when only anti-freeze mixture is coming out of the spray gun. Close the spray gun and allow the pump to operate for 1 minute.
4. Shut the system off and place in storage. This procedure keeps all the valves and other moving parts protected during storage.
5. When you are ready to use the system again, start the engine and allow the pump to operate until all anti-freeze has been pumped out of the system. Fill the tank with clear water and one bottle of ammonia-based cleaning liquid. Run the pump until this solution has been pumped out. Refill the system with clear water and pump the system dry once more. The spray system is now ready to go to work.

NOTE: The above procedure is highly recommended for sprayers in cold climates as a prevention of freezing and breaking the pump.

REF #	PART #	DESCRIPTION
45K	▲■X	O-Ring ▲■
45K	▲■X	U-Packing Plate ▲■
45K	▲■X	U-Packing ▲■
51A	42-815W-51	Suction Chamber w/Connector
53A	42-550-53	Set Bolt w/Washer
54A●■	42-550-54	Valve Assy.-Sold ONLY In Kit
65	42-815W-65	Outlet Chamber
74	42-550-74	Air Chamber—O-Ring
75	42-550-75	Air Chamber / Surge Tank
200	43-530-200	Complete Regulator

### **Pump Kits**

43-530-200	P 530 & P550 Complete Regulator Ref # 200
43-815W-525▲	Pump Packing Rebuild Kit Includes Ref # 45K
43-550-550●	Pump Valve Kit Includes 6 of Ref # 54A
43-550-565 X	Pump Cylinder Assembly
43.550.580 ■	Pump Rebuild Kit Includes Kit 43.550.525 & 43.530.550

REF #	PART #	DESCRIPTION
1A	42-815W-01	Crank Case w/Set Pin & Plate
2A	42-550-02	Piston Oil Seal
3	42-550-03	Dust Cover
4	42-550-04	Pump Pulley and Bolt
5	42-530-05	Screw
6	42-530-06	Crankshaft Oil Seal Cover
7A	42-550-07	Oil Inlet Cover Assy.
8	42-550-08	Rear Cover Packing
9	42-550-09	Crankshaft Rear Cover
10	42.530.10	Screw
11A	42-530-11	Oil Window Assy.
12A	42-530-12	Drainage Screw Assy.
13	42-530-13	Crankshaft Key
14	42-550-14	Crankshaft
15-A	42-550-15	Connecting Rod Assy.
16	42-550-16	Bearing
17	42-550-17	Crankshaft Oil Seal
18	42-815W-18	Crankshaft Oil Seal Cover
19A	42-815W-19	Piston Assy.
26	42-550-26	Piston Pin
28	42-530-28	Crankcase Stand (Short)
29A	42-530-29	Set Bolt w/Washer
40	42-815W-40 x	Cylinder, Sold In Kit Only
41A	42-550-41	Set Bolt w/Washer
42A	42-550-42	Double-End Screw w/Nut & Spring Washer
44A	42-815W-44	Grease Cup Assembly
45K	▲■ X	Waterproof Packing Assy. ▲■
45K	▲■ X	U-Packing ▲■

## STANDARD MAINTENANCE CHECKS

### FILLING AND CHANGING LUBRICATION OIL

Take off the oil cap (ref # 7) and fill with 30-weight oil to the full line on the indicator window or dip-stick. It is recommended to change oil every one hundred (100) hours of operation.

### GREASE THE CYLINDERS

Each cylinder is equipped with a grease cup to prevent premature plunger and packing wear. Each cup must be filled with grease on the initial starting of the sprayer unit and filled weekly if necessary.

### PUMP REPAIR TO REPLACE PUMP PISTON PACKING

1. Unscrew the nuts located underneath the cylinder (ref #40) and remove the discharge metal/manifold (item #70).
2. Unscrew the bolts (ref #52) and remove the suction metal/manifold (ref #51).
3. Unscrew the nuts (ref #41) that hold the cylinder (ref #40) on, and then the cylinder (ref #40) should slide off the pistons.  
NOTE: The cylinder (item #40) may require tapping with a non-metallic object to remove. The piston packing is inside the housing.
4. Unscrew the crown nut (ref #49) with the special wrench supplied with the pump. With your fingers, you can now remove the grease ring (ref # 47) and also the V packing (ref #46). Make sure to observe the direction of the v-shaped portion of the V packing. Install the new V packing in the same direction. Re-assembly may be accomplished by reversing the procedures.
5. After the pump is re-assembled, tighten the crown nut (ref #49) with the same special tool used to remove them.  
**CAUTION: DO NOT OVER TIGHTEN!!**
6. After the pump is back in operation, if there is any leakage, a slight tightening of the crown nut (ref #49) may be necessary.  
NOTE: Make sure to repack the grease cups (ref #44) with grease before placing the pump back in operation.

### REPLACING THE SUCTION AND DISCHARGE VALVE ASSEMBLIES

1. Unscrew the nuts located underneath the cylinder (ref # 40) and remove the discharge metal/manifold (ref #70). Then the valve assy



**Low or Lost Pressure**

Ref: 1,2, 3, 4, 5, 6, 10, 11,



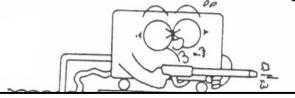
**Abnormal Suction**

Ref: 2, 3, 6, 7, 8, 11, 15,16



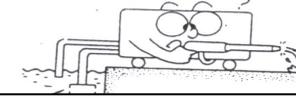
**Abnormal Vibration**

Ref: 9



**No Liquid at Spray Gun**

Ref: 2, 11, 14, 15, 16



**Abnormal Pump Noise**

Ref: 2, 3, 7, 8, 11, 15, 16

**TROUBLESHOOTING REFERENCE NUMBERS**

- |   |   |
|---|---|
| 1. Spray gun tip too large or worn        | 9. Pulsation dampening chamber full of water                          |
| 2. Suction filter clogged                 | 10. Worn pump valve chamber   |
| 3. Loose suction line connection          | 11. Foreign object in suction line                                    |
| 4. Malfunctioning pressure gauge          | 12. Plunger packing worn  |
| 5. Malfunctioning pressure regulator      | 13. Pump drive belts loose  |
| 6. Worn pump suction and discharge valves | 14. Pressure regulator by-pass valve open                             |
| 7. Over speeding the pump                 | 15. Suction line valve closed   |
| 8. Suction line too small                 | 16. Drive pulley spinning on pump or engine shaft. Replace drive key. |

**REPAIR KITS**

PART #	DESCRIPTION
43-815W-200	PRESSURE REGULATOR ASSEMBLY Complete pressure regulator (unassembled)
43-815W-550	VALVE REPAIR KIT: 6 Valves, 6 Seals
43-815W-575	PACKING REPAIR KIT: 9 V Packings, 3 Crown Nuts, 3 Grease Rings, 3 Water Stopping Rings, 3 Grease Packings
43-815W-380	PUMP REBUILD KIT: Includes both Valve Repair Kit and Packing Repair Kit

**TROUBLESHOOTING**

1. Instability of working pressure and water supply:
  - A. Check whether the suction hose leaks or sticks.
  - B. Open the ball cock to flush any air from the system.
  - C. Remove the water inlet cover to check if the valve assemblies are stuck or damaged.
  - D. Check whether the suction filter is obstructed.
2. Insufficient pressure:
  - A. Check whether the pressure is property adjusted.
  - B. Check whether the belt is too loose.
  - C. Check whether the spray hose and the couplings are damaged.
  - D. Check whether the valve or valve sheath is worn.
3. Cylinder leakage:
  - A. Remove the dust-proof ring, then fasten the adjusting ring.
  - B. If the problem persists, replace the y-packing in the cylinder.
  - C. Check whether the plunger is damaged. A scraped plunger can lead to sprayer leakage and low pressure.

**41-815W-000—P15 Pump  
Parts List**

<u>Ref.</u> <u>No.</u>	<u>Description</u>	<u>Ref.</u> <u>No.</u>	<u>Description</u>
1	Crankcase	12A	Drainage Screw Assy
2	Dustproof Cap	12	Drainage Screw
3	Pulley	12-1	O-Ring
4	Set Bolt	13	Crankshaft Key
5	Set Bolt	14	Crankshaft
6	Crankshaft Oil Seal Cover	15	Connecting Rod Assy
7A	Oil Inlet Cover Assy	16	Bearing
7	Oil Inlet Cover	17	Crankshaft Oil Seal
7-1	O-Ring	18	Piston Assy
8	Rear Cover Packing	19	Piston Rod
9	Rear Cover	20	Ceramic Piston Sleeve
10	Set Bolt	21	Double-End Screw
11A	Oil Window Assy	22	O-Ring
11	Oil Window	23	Gasket
11-1	O-Ring		