



SPARTAN TOOL

FOR TOUGH CUSTOMERS. SINCE 1943.



PRODUCT MANUAL

Urban Soldier Skid Mount Sewer Jetter

Spartan Tool LLC | 1618 Terminal Road | Niles, MI 49120
order by phone **800.435.3866** order online **SpartanTool.com**

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Part #757150US



Contents

WARNINGS	4
FEATURES	5
DESCRIPTION—COMPONENTS	6
Push Buttons and Indicating Lights.....	10
DESCRIPTION—CONTROLS	10
Remote Control.....	11
SAFETY INSTRUCTIONS	12
IMPORTANT SYMBOLS	14
MECHANICAL OPERATION.....	15
Check Before Departure	15
Placement of Urban Soldier	15
Prior to Starting the Urban Soldier.....	15
Starting the Engine	16
RIOMOTE® CONTROL OPERATION.....	17
Emergency Stop Test.....	17
Battery Indication.....	17
OPERATING INSTRUCTIONS	18
Cleaning a Drain Line	18
Stop Spraying	19
Care of the HP Hose.....	19
Cold Weather Operation	19
Cleaning a Wall, Terrace, or Floor	20
Secure After High-Pressure Cleaning	20

MAINTENANCE	21
Daily Maintenance.....	21
Minor Service.....	22
Extensive Periodic Maintenance.....	23
Maintenance Schedule.....	23
Valve Assembly Kit (75715371)	24
 P425HP GIANT PUMP	 24
Oil Seal Kit.....	24
Plunger Packing Kit (75715374)	24
 TECHNICAL SPECIFICATIONS	 26
 TROUBLESHOOTING	 28
 APPENDIX A	
MACHINE DIMENSIONS (IN MM)	30
 APPENDIX B	
ACCESSORIES	31



Warnings

- Read the safety and operating instructions before using any Spartan Tool product. Drain and sewer cleaning can be dangerous if proper procedures are not followed and appropriate safety gear is not utilized. Read the engine owners' manual for instructions and safety precautions on engine operation.
- Gasoline is extremely flammable and is explosive under certain conditions.
 - Refuel in a well ventilated area with the engine stopped. Do not smoke or allow flames or sparks in the area where the engine is refueled or where gasoline is stored.
 - Do not overfill the fuel tank (there should be no fuel in the filler neck). After refueling, make sure the tank cap is closed properly and securely.
- Explosive fuel can cause fires and severe burns. Fuel is flammable and its vapors can ignite. Do not fill the fuel tank while the engine is hot or running. Do not start the engine near spilled fuel. Never use fuel as a cleaning agent.
- Before starting unit, be sure to wear personal protective equipment such as safety goggles or face shield and protective clothing such as gloves, coveralls or raincoat, rubber boots with metatarsal guards, and hearing protection.
- Ensure the jet hose has been placed in the pipe (minimum of 6 feet suggested) before engaging the water pressure to prevent the hose from coming out of the pipe prematurely and causing injury.
- Always shut off the water pressure before pulling the hose out of the pipe. Mark the hose a minimum of 6 feet from the end to help ensure the hose is not accidentally pulled out of the pipe while still under pressure. Shut off the water pressure when the hose mark is encountered.



CAUTION: Portions of the system can still be under pressure even if the unit is not operating.

- Never point the wash gun at anyone while operating the unit. Injury may result.
- Drains and sewer can carry bacteria and other infectious micro-organisms or materials which can cause death or severe illness. Avoid exposing eyes, nose, mouth, ears, hands, and cuts and abrasions to waste water or other potentially infectious materials during drain and sewer cleaning operations. To further help protect against exposure to infectious materials, wash hands, arms and other areas of the body, as needed, with hot, soapy water and, if necessary, flush mucous membranes with water. Also, disinfect potentially contaminated equipment by washing such surfaces with appropriate chemicals or soaps.
- For any questions, contact Spartan Tool at the address shown below.

CONTACT US

Spartan Tool LLC
1618 Terminal Road
Niles, MI 49120
800.435.3866
SpartanTool.com



SPECS

- Pipe Sizes: up to 13" diameter
- Max Water Pressure: 3,000 psi
- Max Water Flow: 10 GPM
- Water Capacity: 210 gallons
- Unit Weight: 900 lbs (empty)
- Overall Size: 62"L x 37½"W x 43½"H
- Warranty: (1) year limited

FEATURES

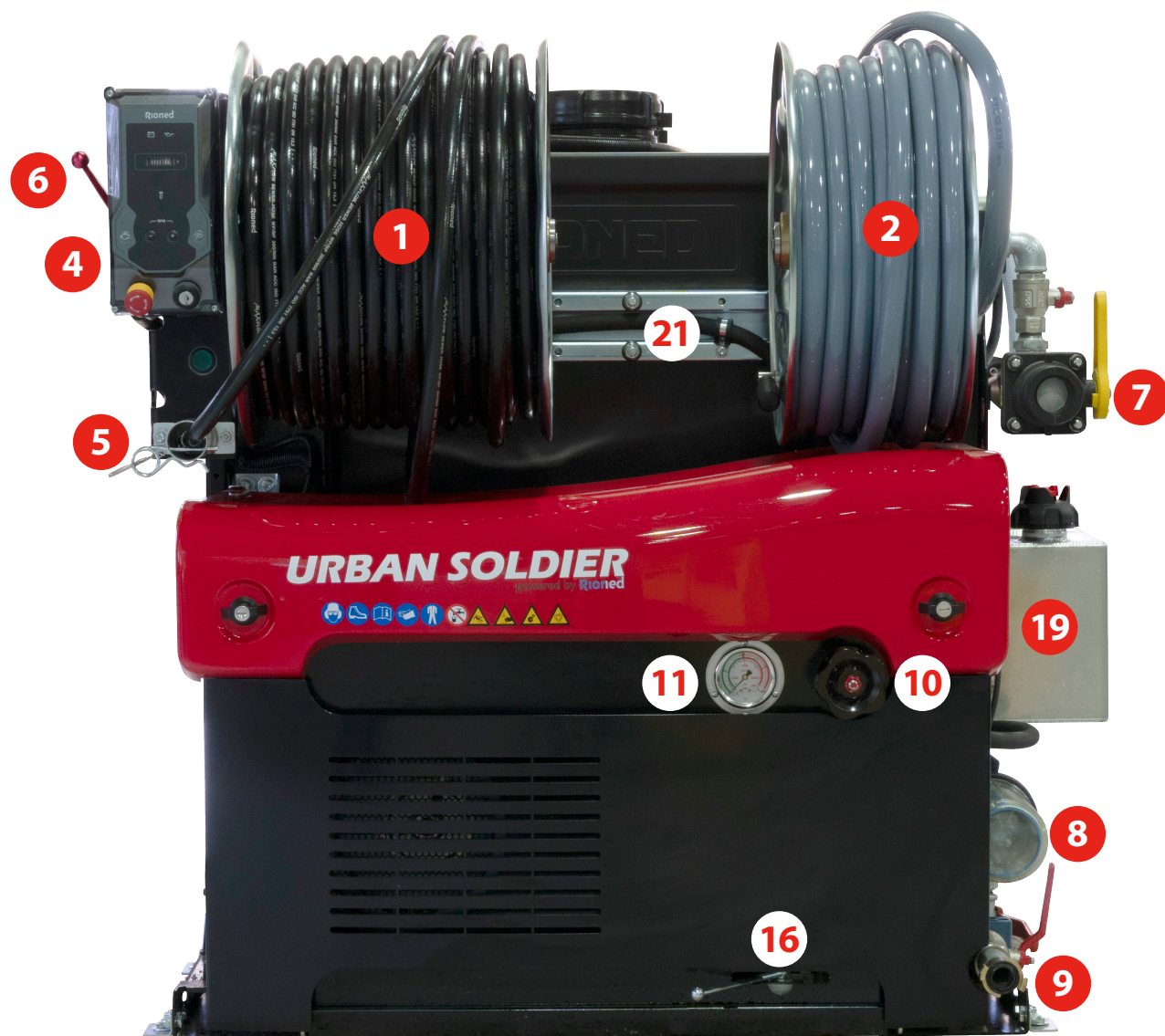
- 22 HP Honda Gasoline Engine
- P25 Speck/Giant Triplex Pump
- eControl
- Warning lights provide machine status at a glance
- Pressure can be continuously adjusted with accessible handwheel
- Remote control
- 1/2" x 260' of Maxflow HP hose
- 115' of supply hose
- Stationary hose reel, electric rewind with freewheel system
- Powder coated steel frame

SAFETY

- Run dry protection with override ability
- Automatic engine shutdown protection for low engine oil
- Emergency stop



Description—Components



- | | | |
|----------------------------------|-----------------------------------|--------------------------------|
| 1. High-pressure hose - 75729128 | 9. Drain valve - 75715378 | 17. Water tank level indicator |
| 2. Supply hose | 10. Pressure regulator - 75715375 | 18. Water tank |
| 3. Supply hose valve - 75729124 | 11. Pressure gauge - 75729111 | 19. Fuel tank |
| 4. eController | 12. Supply hose holder | 20. Engine - 75715315 |
| 5. Hose holder | 13. Supply hose reel lock | 21. Nozzle holders - 75729147 |
| 6. High-pressure (HP) valve | 14. Water filter valve | |
| 7. Supply pipe | 15. HP pump - 75729203 | |
| 8. Water filter - 75729101 | 16. Pulsator valve | |

Description—Components

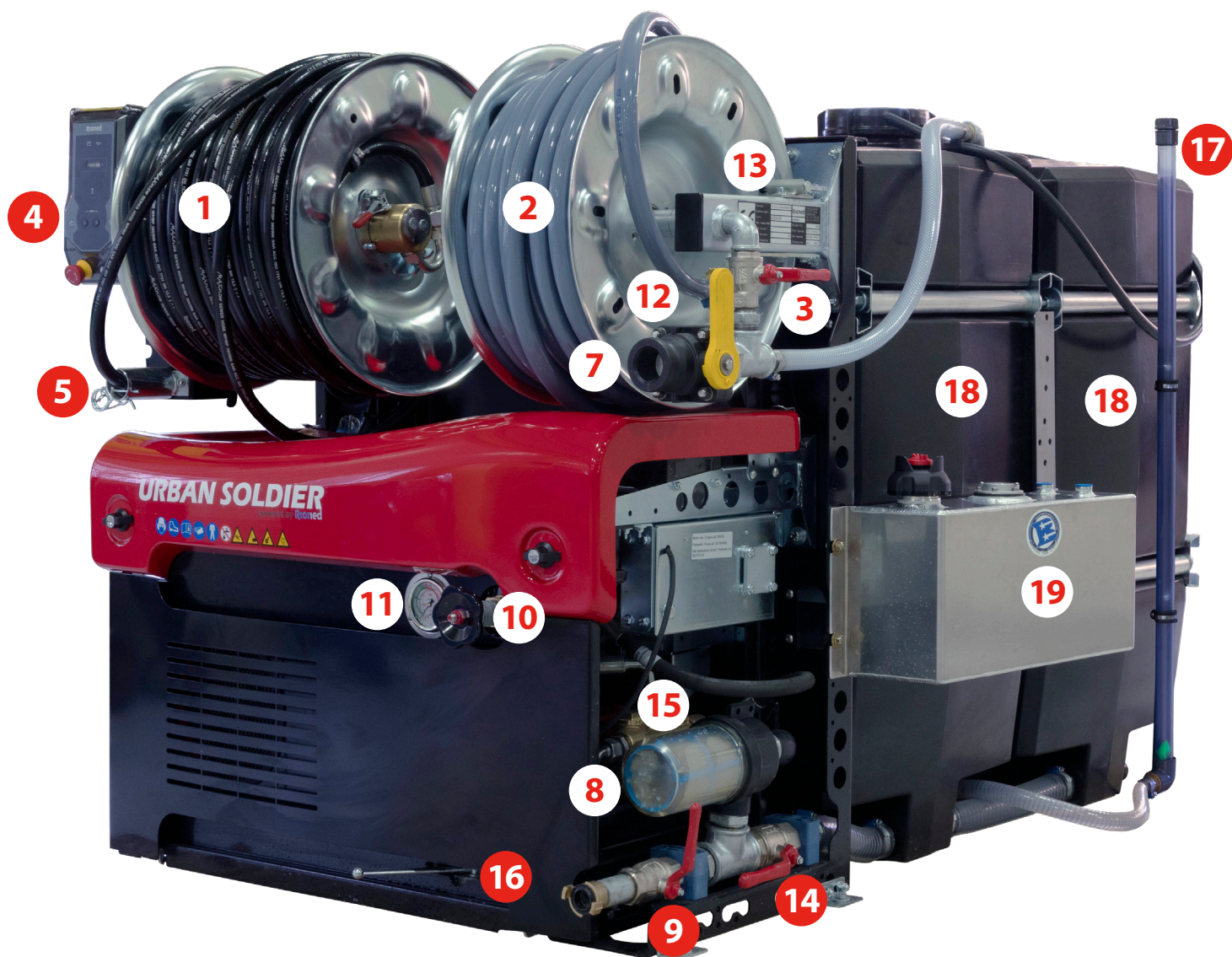


- 1. High-pressure hose - 75729128
- 2. Supply hose
- 3. Supply hose valve - 75729124
- 4. eController
- 5. Hose holder
- 6. High-pressure (HP) valve
- 7. Supply pipe
- 8. Water filter - 75729101

- 9. Drain valve - 75715378
- 10. Pressure regulator - 75715375
- 11. Pressure gauge - 75729111
- 12. Supply hose holder
- 13. Supply hose reel lock
- 14. Water filter valve
- 15. HP pump - 75729203
- 16. Pulsator valve

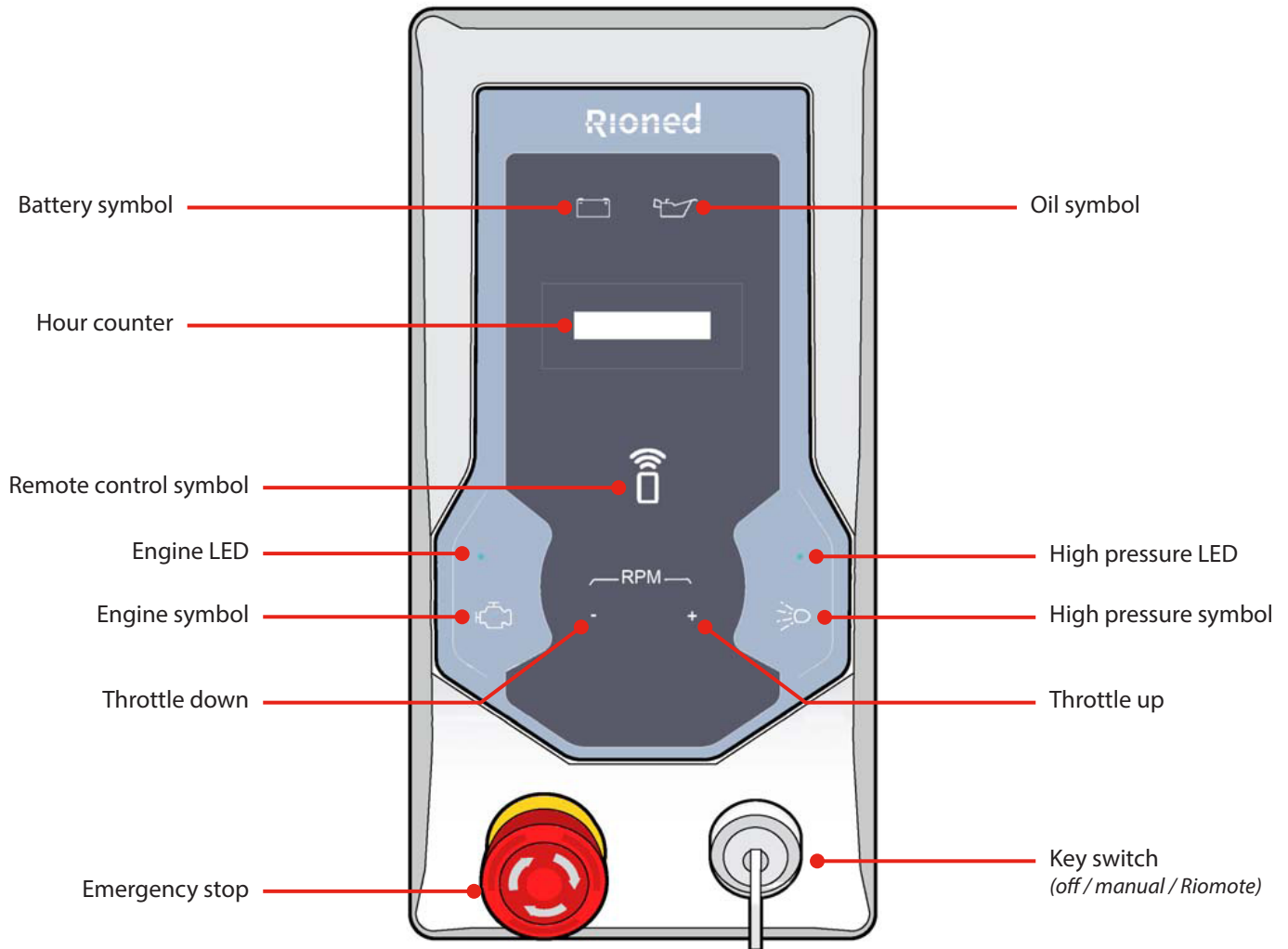
- 17. Water tank level indicator
- 18. Water tank
- 19. Fuel tank
- 20. Engine - 75715315
- 21. Nozzle holders - 75729147

Description—Components



- | | | |
|---|-----------------------------------|--------------------------------|
| 1. High-pressure hose - 75729128 | 9. Drain valve - 75715378 | 17. Water tank level indicator |
| 2. Supply hose | 10. Pressure regulator - 75715375 | 18. Water tank |
| 3. Supply hose valve - 75729124 | 11. Pressure gauge - 75729111 | 19. Fuel tank |
| 4. eController | 12. Supply hose holder | 20. Engine - 75715315 |
| 5. Hose holder | 13. Supply hose reel lock | 21. Nozzle holders - 75729147 |
| 6. High-pressure (HP) valve | 14. Water filter valve | |
| 7. Supply pipe | 15. HP pump - 75729203 | |
| 8. Water filter - 75729101
Strainer - 75729125 | 16. Pulsator valve | |

CONTROLS AND INDICATIONS





Description—Controls

PUSH BUTTONS AND INDICATING LIGHTS



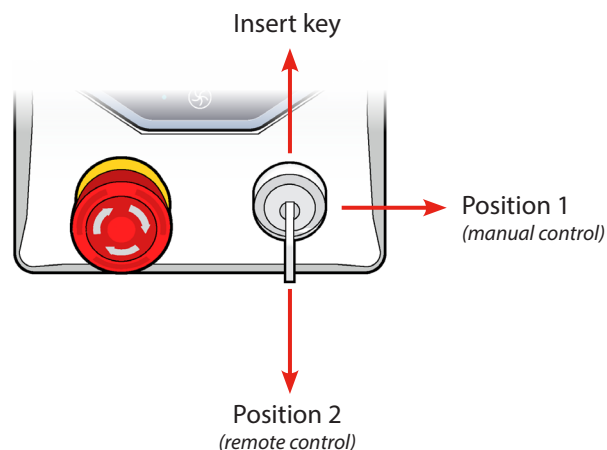
The **Engine On** light/button indicates the status and controls the starting of the engine. (See page 16, *Starting the Engine*, for more information.)



The **High Pressure Spray** light/button indicates the status and controls the high pressure spray valve. (See page 18, *Cleaning a Drain Line*, for more information.)

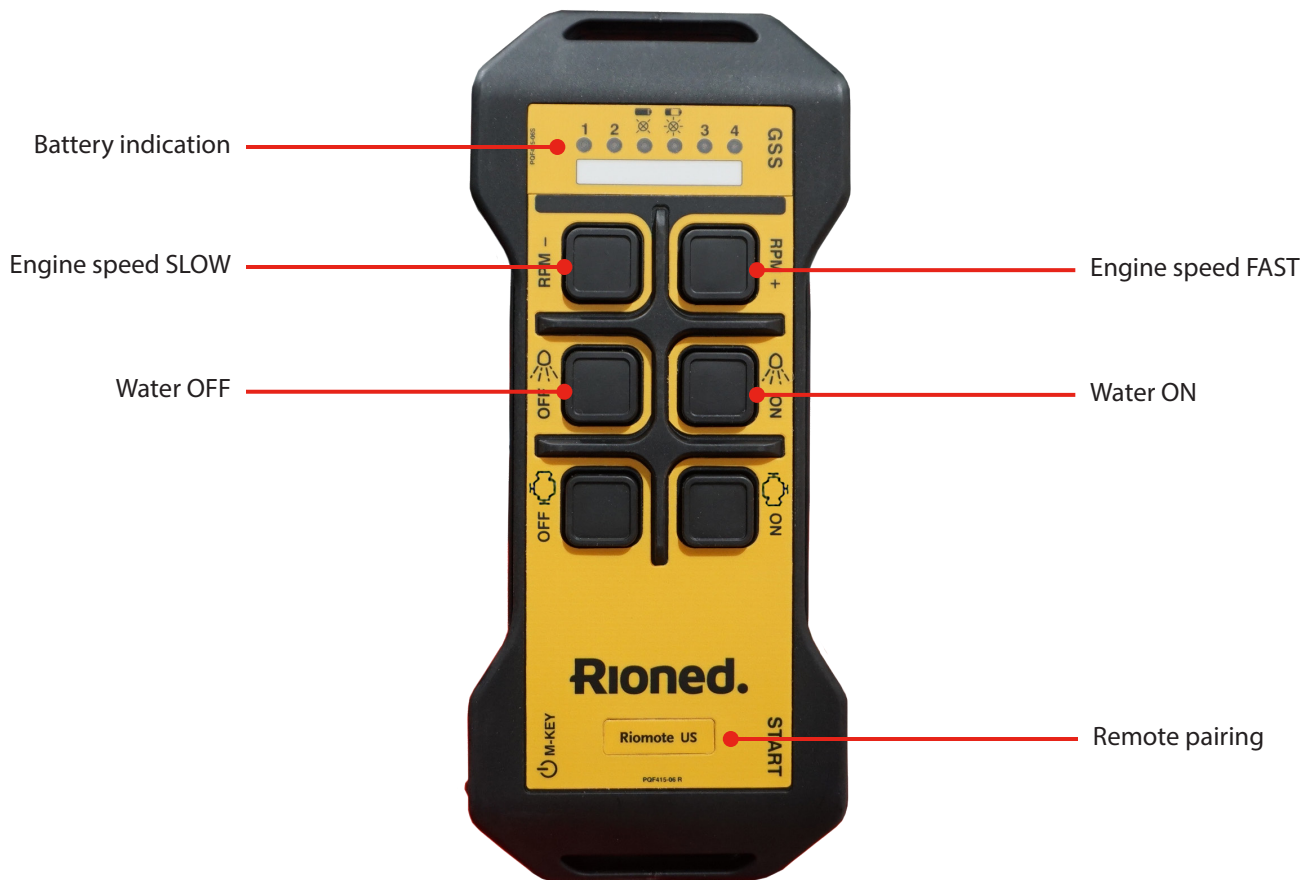
The **Blue LED** above each button will **blink** when the corresponding function is available. (The engine is ready to start or high pressure spray is available.)

The **Blue LED** above each button will **light solid** when the corresponding function is active. (The engine is running or the high pressure spray valve is open.)



REMOTE CONTROL

Hand-Held Remote Sender



The **Riomote® radio remote control** consists of a large waterproof and shockproof hand-held sender and a unit-mounted receiver. The system is provided with separate batteries (8 hours per charge) and is supplied with a battery charger.

UNIT-MOUNTED RECEIVER





Safety Instructions



WARNING: Read the **Operator's Manual** thoroughly before using any Spartan Tool product. Drain and sewer cleaning can be dangerous if proper procedures are not followed. Know the proper operation, correct applications for your Spartan Tool products.

EMERGENCY STOP

This machine is equipped with an **Emergency Stop**. By operating the Emergency Stop, the machine will shut down. Do not use this button for normal stopping. Only use it when dangerous situations occur. After use, remove the danger and then rotate the Emergency Stop button clockwise to be able to start up again. Ensure the Emergency Stop can always be reached.

PRESSURE REGULATOR

The **Pressure Regulator** functions to ensure that the working pressure never gets too high. It functions like a safety valve, relieving water to the storage tank to reduce pressure in the HP hose line.

PERSONAL PROTECTIVE EQUIPMENT

The following personal protective equipment should be worn by personnel operating or working with the Urban Soldier:

- Hearing protection
- Protective safety goggles
- Gloves (recommended)
- Waterproof work clothing (recommended)
- Spray boots for use with the spray gun (recommended)

WORK AREA

The following precautions must be observed when establishing a work area for use of the Urban Soldier:

- Clearly mark the work area.
- Maintain a minimum distance of 20 feet from the work area.
- Remove all loose materials from inside the work area.
- Never spray from an unstable surface (ladder, boat, scaffold, etc.).
- Never use in a confined space (closed room).
- Ensure there are no combustible materials in the area.
- The area must be adequately ventilated to prevent accumulation of carbon monoxide.
- DO NOT use corrosive chemicals in conjunction with Spartan Tool sewer jetters. Only environmentally-approved chemicals should be introduced into drain lines.

GENERAL PRECAUTIONS

- Do not let the machine operate without supervision.
- Keep children and animals away from the machine.
- DO NOT spray on humans or animals. *If the skin is penetrated, immediately seek medical attention.*
- Prevent damage from debris or flying parts.
- Avoid spraying near electrical connections and other electric components if you are cleaning with a spray gun.
- Never block the controls in any way.
- Put personal protective equipment on BEFORE you start the machine.
- Ensure that the spray nozzle does not leave the drain.



SAFETY DECALS

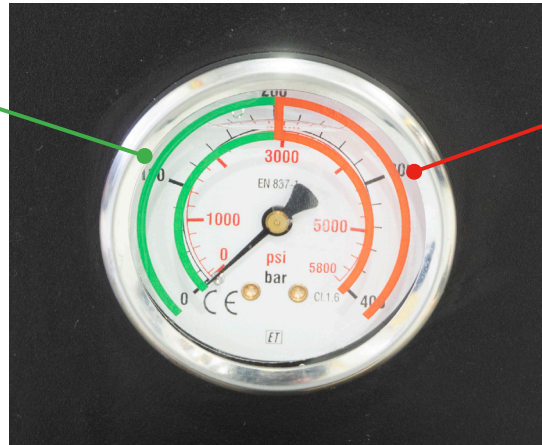
1. Safety glasses, hard hats , and hearing protection are required
2. Safety shoes are required
3. Be familiar with the user's manual
4. Hand protection is required
5. Wear protective clothing against caustic material
6. Non-potable water—Do not drink.
7. Slipping hazard
8. Pinching hazard (hand injury)
9. Rotating machinery
10. Warning, machine auto start



Important Symbols

PRESSURE GAUGE

Operating Zone



Danger Zone

The mechanical relief in the unloader valve will prevent pressure from exceeding 3000 PSI.



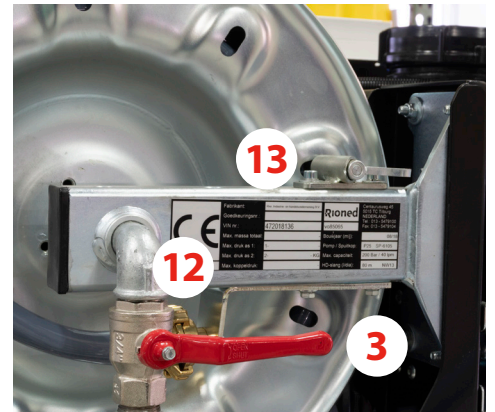
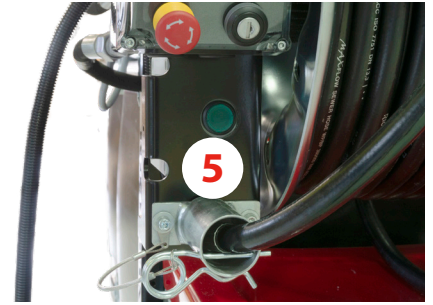
WARNING If the unit fails to maintain pressure within the operating zone, contact Spartan Tool Customer Service at 800.435.3866 or by email at CustomerService@SpartanTool.com.



CHECK BEFORE DEPARTURE

Before you drive away with the vehicle, check the following:

1. The high-pressure hose has been inserted into the hose holder (5) and secured with the locking pin.
2. The high-pressure hose reel is locked with the clutch engaged (*see page 18*).
3. The supply hose is connected to the supply hose holder (12). The supply hose reel is locked by means of the reel locking device (13).
4. If temperatures are below freezing, the water tank should be emptied and the piping system drained and flushed with antifreeze. (*See page 19, Cold Weather Operation, for more information.*)
5. The vehicle is now ready for departure.

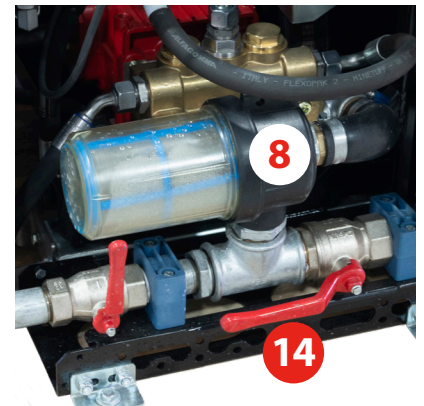
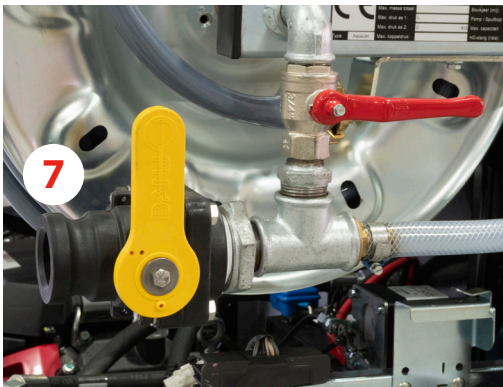
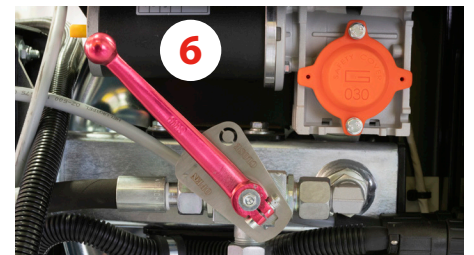
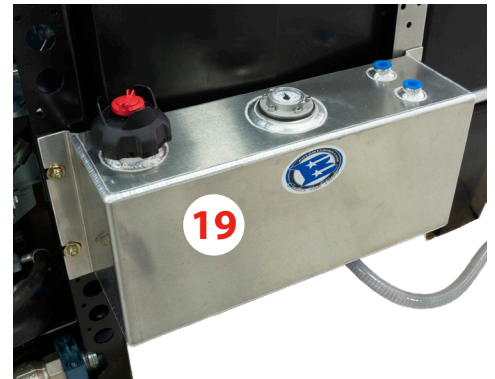


PLACEMENT OF URBAN SOLDIER

1. Put the vehicle at the desired location and set the parking brake.
2. Block the tires if using on an incline or uneven surface.
3. Mark the working area by establishing barriers to prevent inadvertent access to the work area.

PRIOR TO STARTING THE URBAN SOLDIER

1. Ensure there is adequate fuel in the fuel tank (19) for the intended task.
2. Ensure the water filter (8) is clean. Clean the filter, if necessary.
3. Check that the supply valve (14) to the water filter is open.
4. Check that the high-pressure valve (6) at the HP hose reel is closed.
5. Fill the water tank via the supply pipe (7) or the supply hose. (*The maximum water temperature is 55°C/130°F.*)
6. Loosen the control wheel of the pressure regulator (10) (*rotate counter-clockwise*).
7. Attach the jetting nozzle onto the high-pressure hose.



Mechanical Operation

STARTING THE ENGINE



IMPORTANT! The machine is equipped with an **Emergency Stop**. By operating this Stop, the machine will shut down. Do not use this button for normal stopping. Only use when dangerous situations occur. After use, rotate the Emergency Stop clockwise to be able to start again. Make sure the Emergency Stop can always be reached.



CAUTION! Put on protective safety goggles and hearing protection before starting the machine.



1. Put the key in the eController key switch.
2. Turn the key clockwise to position 1, **Manual Control on**.
 - **Battery** and **oil symbols** light up.
3. Pull the **choke**, if necessary.
4. Push the **engine button** briefly.
 - Engine starts.
 - When the engine is running, the blue **Engine LED** is illuminated.
 - **Battery** and **oil symbol** lights go off.
5. Push the **choke** back.
6. Increase the RPM by pressing the **throttle up button**.

Riomote® Control Operation



RIOMOTE® CONTROL

The **Riomote® remote control** provides the ability to operate the high pressure machine jetter from a distance. There are multiple versions of the remote control based on the available functions of the machine.

EMERGENCY STOP TEST

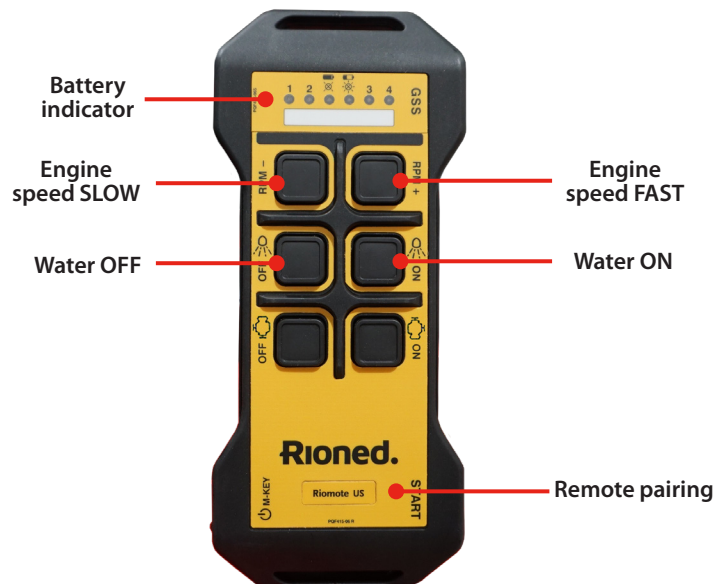
Check that the emergency stop works before working with the Riomote® control. Proceed as follows:

1. Insert the key into the **eController key switch**.
2. Turn the key to **position 2, Remote Control on**.
 - **Remote control on icon** displays continuously.
 - **Battery** and **oil symbols** light up.
3. Switch the Riomote® control **on**.
 - Press and hold the **Start button** on the Riomote® to link the Riomote® with the Urban Soldier.
 - Two green lights on the receiver light when the Riomote® control is in contact with the receiver.
 - Blue **remote control symbol** lights up.
4. Depress the **Stop button** to exercise the Emergency Stop function.



BATTERY INDICATION

If the **Battery indicator** on the Riomote control lights continuously, the battery must be recharged.



NOTE! The engine will shut down if the remote is out of range or the battery loses charge.



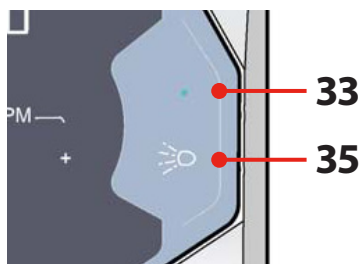
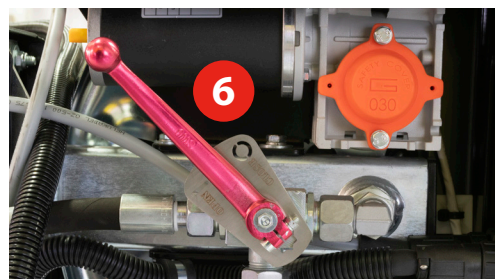
NOTE! If the engine does NOT stop by using the Riomote® control, contact Spartan Tool Customer Service.



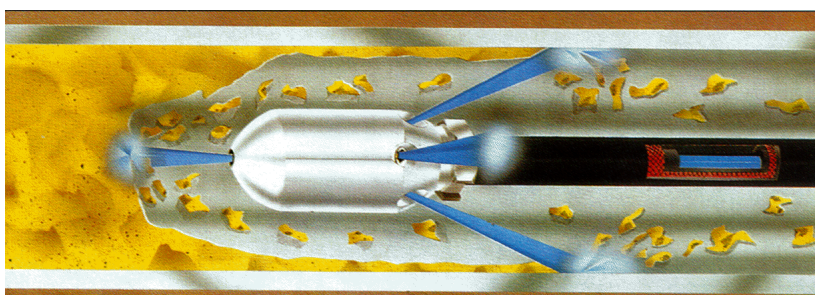
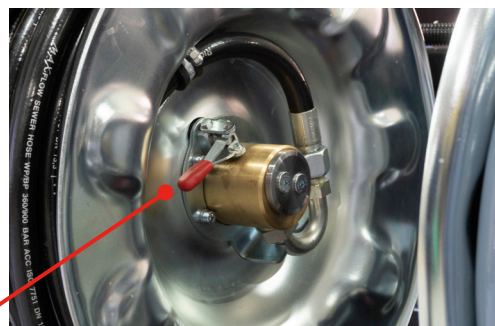
Operating Instructions

CLEANING A DRAIN LINE

1. Attach a suitable nozzle onto the high-pressure hose.
2. With the hose reel out of gear, put the nozzle into the drain to be cleaned (a minimum of 6 feet). A **clutch assembly** (30) on the HP hose reel drive unit can be disengaged to allow the hose reel to free wheel for pulling the hose off the reel manually.
3. Rotate the **pressure regulator** (10) clockwise to increase pressure to the desired value on the pressure gauge (11).
4. Open the **high-pressure valve** (6).
5. Depress the **high pressure on button** (35).
 - Water begins spraying out of the nozzle at the end of the hose.
 - **High pressure LED** (33) lights blue.
6. Increase or decrease engine RPM by pushing the **throttle up button** or **throttle down button**.
7. The hose will now unwind and work its way into the drain line.
8. When possible, jet the drain line from the low end to the high end of the pipe.
9. Check for water draining away as an indication that the blockage has been cleared in the drain line.
10. When the blockage has been cleared, continue to flush the pipe while rewinding the high-pressure hose.



Clutch



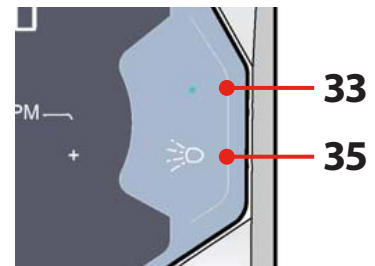


ATTENTION! Ensure that the spraying nozzle does not leave the drain while spraying. Water under high pressure may cause severe injury.

STOP SPRAYING

Depress the **high pressure button** (35) to shut the high pressure valve.

- The **high pressure LED** (33) extinguishes.
- Water spray at hose nozzle stops.
- Engine RPM decreases.
- Close the **high pressure valve** (6).



CARE OF THE HP HOSE

- Always clean the hose after use.
- Ensure there are no sharp objects near the hose.
- Ensure vehicles do not cross over the hose.



IMPORTANT! Rewind hose onto reel under pressure to avoid crushing. If machine has run out of water, ensure hose is unwound before pressurizing.

COLD WEATHER OPERATION

Your high-pressure device may freeze in cold weather and temperatures below 32°F. A number of safety precautions must be taken.

Additional preparations before departure:

1. Drain the water tank by opening the drain valve.
2. When all the water has been removed or drained, remove the water filter.
3. Clean the filter and mount it in opposite order.
4. Close the drain valve.
5. Remove the nozzle/gun from the HP hose.
6. Antifreeze unit with optional Antifreeze System.

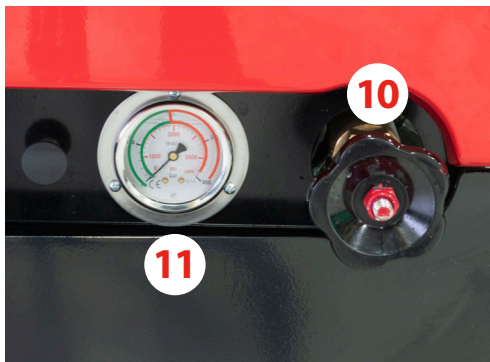
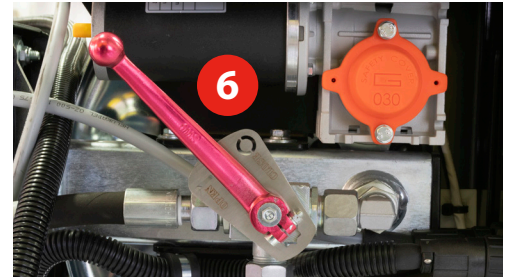
Operating Instructions

CLEANING A WALL, TERRACE, OR FLOOR



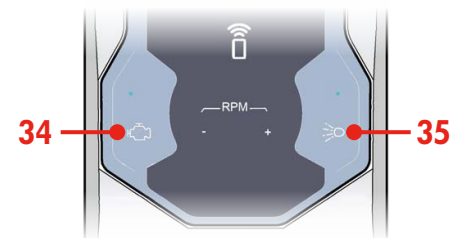
CAUTION! Before using a spray gun, set the jetter pressure below the maximum spray gun pressure (+/- half the maximum spray gun pressure). Do this prior to starting the engine. Once the engine is running, jetter pressure can be increased by turning the HP regulator handwheel to the working pressure. DO NOT exceed the green band pressure on the pressure gauge.

1. Attach the **spray gun** (B) onto the high-pressure hose.
2. Disengage the **clutch** and completely unroll the **high pressure hose**.
3. Attach the **spray lance gun** (C), securing the quick coupling tightly.
4. Open the **manual HP valve** (6).
5. Depress the **High Pressure On button**.
6. Throttle up the engine speed by pushing the **(+) button**.
7. Rotate the **pressure regulator hand wheel** (10) clockwise until the desired operating pressure is reached when the spray gun is open.



SECURE AFTER HIGH-PRESSURE CLEANING

1. Depress the **high pressure button** (35) to shut the high-pressure valve and throttle down the engine.
2. Close the **manual high pressure valve** (6).
3. Depress the **Engine On button** (34) for more than 1 second to stop the engine.
4. Rewind the hose.



IMPORTANT! Rewind hose onto reel under pressure to avoid crushing. If machine has run out of water, ensure hose is unwound before pressurizing.



CAUTION! Always stop the engine first and depressurize the system before servicing or repairing the machine. To depressurize the system, open the manual HP valve. If the spray gun is attached, you must also pull the trigger to release the pressure.

DAILY MAINTENANCE

Check Oil Levels

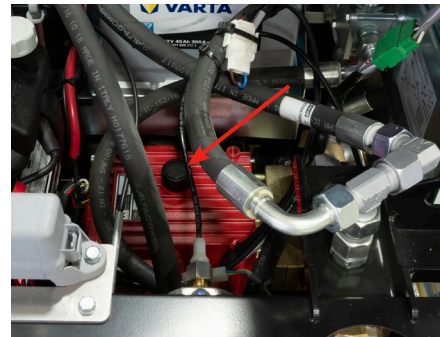
- Check all oil levels daily (engine oil, HP water pump oil).
- Add oil if necessary (*see page "MOTOR" on page 26, Technical Specifications, Motor*).
- If oil level has dropped, this implies a leak in the system. In this case, check all gaskets and couplings in the system.
- Immediately repair damage and fill the system with the correct oil.



NOTE! During the break-in period, oil consumption may be greater than usual.



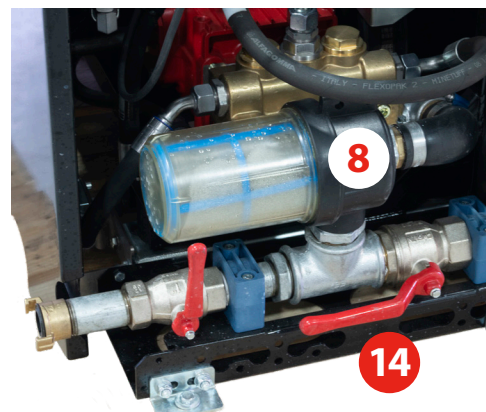
Engine Oil



HP Water Pump Oil

Clean the Water Filter

1. Close the **water filter valve** (14).
2. Unscrew the cap from the **filter piece** (8).
3. Clean the filter and associated parts. After cleaning, assemble the parts in reverse order.
4. Open the **water filter valve** (14).
5. Check for leakage.



Maintenance

MINOR SERVICE

Minor service must be carried out **every 250 working hours** (or at least once every 6 months) and includes the following parts of the machine:

1. Drive and Engine

- Change the oil in the engine.
- Replace the oil filter.
- Clean the air filter.
- Replace the fuel filter.
- Check tension of the V-belt and increase tension if necessary.
- Check the condition of the battery.
- Check the torque of attachment bolts for the engine and tighten as necessary.

2. Carriage

- Lubricate all mechanical moving parts in the system. Check that all nuts and bolts have been correctly tightened.

3. Pump system

a. Cleaning the high-pressure control system:

- With the manual high-pressure valve closed, the pressure gauge should NOT indicate any pressure due to recirculation through the unloader valve.
- If the spray gun is connected and closed, the pressure gauge should NOT indicate any pressure due to recirculation through the unloader valve.
- If the pressure gauge does indicate a pressure, this implies a leakage in the system or the pop-off valve on the unloader valve may be dirty or damaged. (Contact Spartan Tool Customer Service for assistance.)
- If leakage is suspected, stop the machine, unscrew the hose coupling and clean or replace the pop-off valve on the unloader. Also, check the condition of the O-ring and gasket. (Contact Spartan Tool Customer Service for assistance.)

b. Regularly clean the high-pressure control system:

- Carefully remove all dirt.
- Proper maintenance will increase the service life of this part.

c. Changing the pump oil:

- Change the pump oil in the high-pressure pump after every 500 working hours (or at least once a year).

EXTENSIVE PERIODIC MAINTENANCE

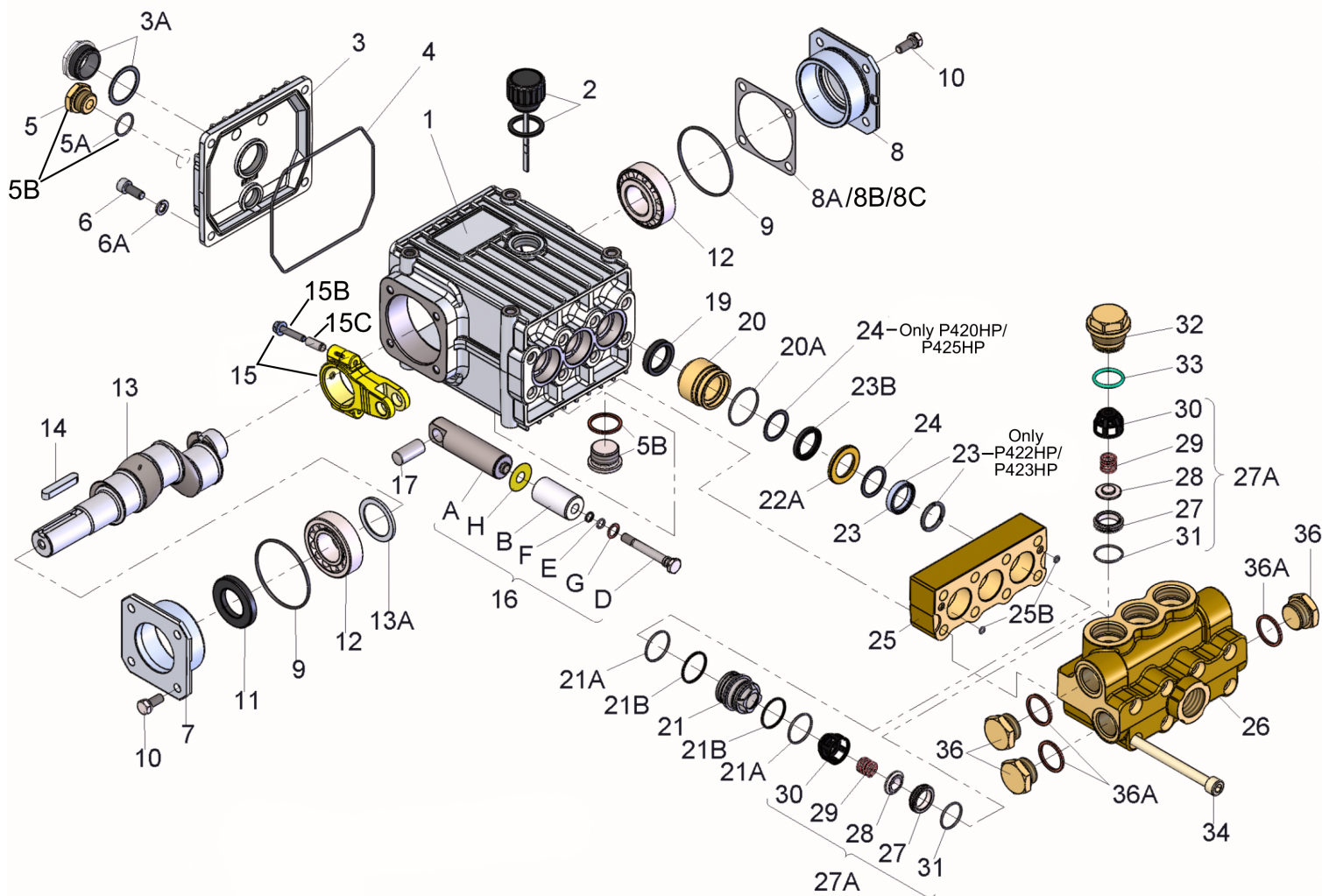
Have the high-pressure machine checked and maintained on a regular basis by a Spartan Tool technician.

MAINTENANCE SCHEDULE

Check oil levels	Daily
Clean water filter	Before each use
Clean carriage	Weekly
Service engine	Every 250 working hours or at least once every 6 months
Lubricate moving parts	Every 250 working hours or at least once every 6 months
Clean pressure regulator	Every 250 working hours or at least once every 6 months
Renew pump oil	Every 500 working hours or once a year
Decalcify suction valves	Once a year
Decalcify pressure valves	Once a year
Puncture nozzle holes	Before each use
<i>Replace parts immediately if there is wear or defect.</i>	



P425HP Giant Pump



VALVE ASSEMBLY KIT (75715371)

Item	Part Number	Description	Qty.
27A		Valve Assembly, Complete	6
33		O-Ring	6

OIL SEAL KIT

Item	Part Number	Description	Qty.
19	73810209	Oil Seal	3

PLUNGER PACKING KIT (75715374)

Item	Part Number	Description	Qty.
20A		O-Ring	3
21A		O-Ring	6
21B		Support Ring	6
23		V-Sleeve	3
23B		Weep Seal	3
24		Pressure Ring	6
25B		O-Ring	2

P425HP Giant Pump

Item	Part Number	Description	Qty.
1		Crankcase	1
2		Oil Fill Plug with Gasket	1
3		Crankcase Cover	1
3A	79832400	Oil Sight Glass w/Gasket	1
4		O-Ring	1
5	71705948	Oil Drain Plug	1
5A		O-Ring	1
5B		Plug with Gasket	1
6		Screw	4
6A	79832900	Spring Washer	4
7		Bearing Cover Open	1
8	73810216	Bearing Cover Closed	1
8A		Shim	1-3
8B		Shim	1
8C		Shim	2
9	75800518	O-Ring	2
10	79833500	Screw with Washer	8
11	73810220	Radial Shaft Seal	1
12	73810216	Taper Roller Bearing	2
13		Crankshaft (A, C)	1
13		Crankshaft (B, D)	1
14		Fitting Key	1
15		Connecting Rod Assembly	3
15B		Connecting Rod Screw	6
15C		Adapter Sleeve	6
16		Plunger Assy., 25 mm, (C, D) for items 16A-16H	3
16		Plunger Assy., 25 mm, (C, D) for items 16A-16H	3
16A		Plunger Base	3
16B		Plunger Pipe, 22mm (A, B)	3
16B	73810229	Plunger Pipe, 25mm (C, D)	3
16D		Tensioning Screw	3
16E	73810232	O-Ring	3
16F		Backup Ring	3

Item	Part Number	Description	Qty.
16G	75800532	Copper Washer	3
16H	73810290	Oil Scraper	3
17		Crosshead Pin	3
19	73810828	Oil Seal	3
20		Seal Case (A, B)	3
20		Seal Case (C, D)	3
20A		O-Ring	3
21		Seal Sleeve (A, B)	3
21	75715365	Seal Sleeve (C, D)	3
21A	75800550	O-Ring	6
21B	75715367	Support Ring	6
22A		Drip Return Ring (A, B)	3
22A		Drip Return Ring (C, D)	3
23		V-Sleeve with Support Ring (A, B)	3
23		V-Sleeve, 25mm (C, D)	3
23B		Weep Seal (A, B)	3
23B		Weep Seal (C, D)	3
24		Pressure Ring (A, B)	3
24	73810244	Pressure Ring (C, D)	6
25		Seal Casing	1
25B		O-Ring	2
26	75715369	Manifold	1
27A		Valve Assembly	6
27		Valve Seat	6
28		Valve Plate	6
29		Valve Spring	6
30	75715366	Valve Spring Retainer	6
31		O-Ring	6
32		Plug	3
33		O-Ring	3
34	75718001	Cap Screw	8
36		Plug, 3/4" BSP	3
36A		Seal Ring	3



Technical Specifications

GENERAL SPECIFICATIONS

Description	Unit
Dimensions	See page 28, Appendix A: Urban Soldier Dimensions
Water tank capacity	105 gal. per tank
Fill medium	Water (H2O) maximum
Temperature medium	132° F
Total length of high-pressure hose	260 ft.
Diameter of high-pressure hose	½" (NW13)
Total length of supply hose	115 ft.
Diameter of supply hose	¾" (NW19)
Pressure regulator	ULH 221
Year of construction	See name plate on frame

MOTOR

Description	Unit
Type	Honda GX 690
Number of cylinders	2
Power	16.6 kW (22.3 HP)
Fuel	Unleaded Gasoline
Fuel tank	8 gal.
Cooling	Air cooled
Weight	101 lbs.
Battery	12V, 45AH
Engine oil	10W30 API/SF-CC or better
Engine oil capacity	2.0L (2.1 US qt.)

PUMP

Description	Unit
Type	Speck NP25
Maximum pressure	See name plate on frame
Maximum output	See name plate on frame
Weight	37.5 lbs.
Maximum water temperature	60° C / 140° F
Gear oil	GX 80W90
Gear oil capacity	0.9 liters (30.4 fl. oz.)



Troubleshooting

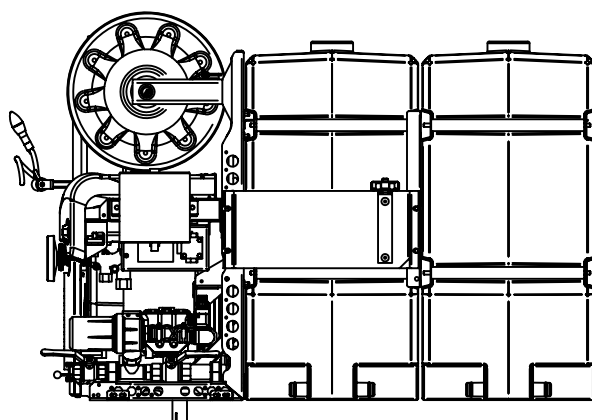
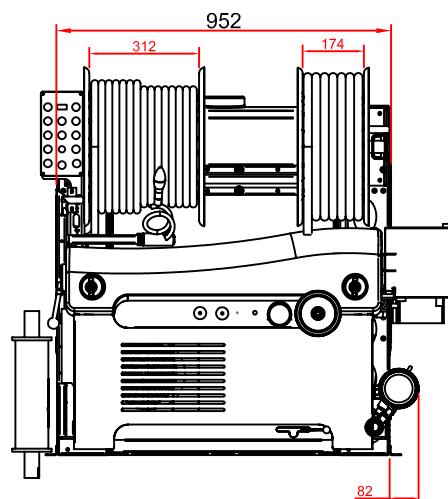
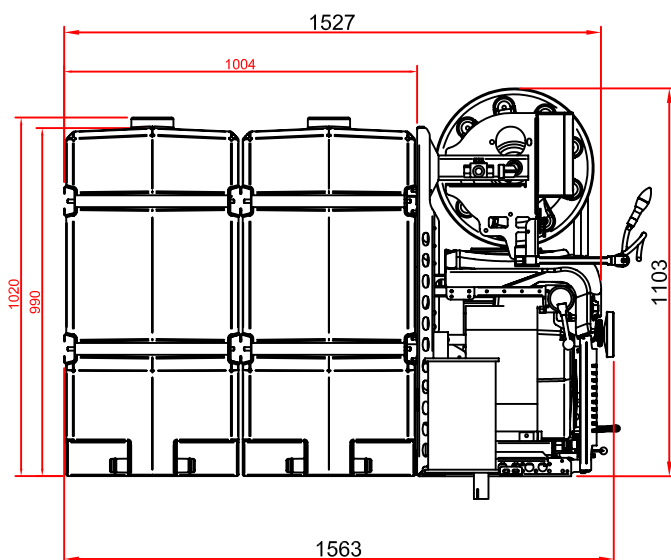
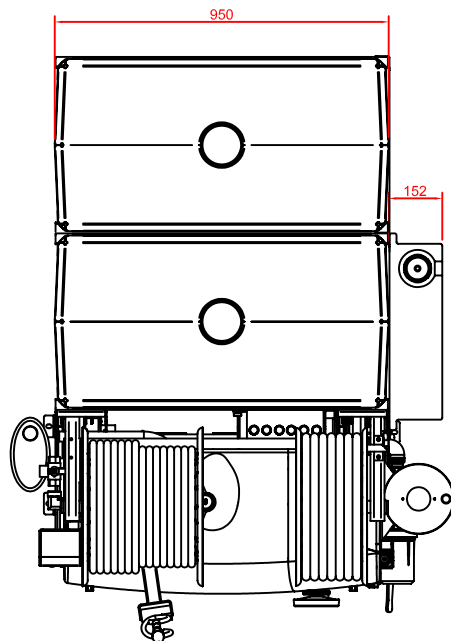
FAILURE	REASON	SOLUTION
Engine does not start or stops abruptly.	Machine has run out of fuel.	Add fuel.
	Main or secondary fuse blown.	Replace the defective fuse and restart engine. If problem repeats, contact Spartan Tool Customer Service.
	Battery voltage too low.	Charge or replace the battery.
	Emergency stop activated.	Rotate the emergency stop button in order to be able to start up again.
	Insufficient level in the water tank.	Fill the water tank and start again.
The high-pressure pump does not produce the required pressure.	Water tank empty.	Fill the water tank.
	Supply valve to water filter closed.	Open the supply valve.
	Water filter clogged.	Stop the machine and clean the water filter.
	Air in the high-pressure pump.	Allow the machine to run a few minutes. The failure will normally disappear. If not, contact Spartan Tool Customer Service.
	Suction valves blocked.	Carefully loosen the valves and de-scale them, if necessary.
	V-belt not sufficiently tightened.	Tighten the V-belt; replace if necessary.
	Suction valves worn.	Contact Spartan Tool Customer Service.
Pressure varies.	Water level in tank too low.	Stop the engine, refill the tank and restart engine.
	Water supply valve not sufficiently opened.	Open the supply valve completely.
	Water filter clogged.	Stop the machine and clean the filter.
	Pump sucks air.	Stop the machine and check all hoses and couplings for leakage.
	Nozzle clogged.	Stop the machine and clean the nozzle (clean the nozzle holes).
	Pressure valves dirty or worn.	Stop the machine. Check the condition of the pressure valves. Clean or replace them.
	Pump gasket worn.	Stop the machine and replace gasket.
	Pump v-belts slip.	Stop the machine and tighten the belts.
	Ceramic plungers in the pump damaged.	Contact Spartan Tool Customer Service.
	Pressure control clogged or internally damaged.	Contact Spartan Tool Customer Service.

FAILURE	REASON	SOLUTION
No reaction from the Riomote controller.	No current.	Recharge the battery.
		Use new battery.
		Contact points are dirty.
		Check fuses.
		Contact Spartan Tool Customer Service if problem is frequent or ongoing.
	Transmitter is not on.	Activate the transmitter (link to the receiver).
Transmitter out of reach from receiver.	Bring the transmitter closer to the receiver.	
Warning signal after short working time.	Battery discharged / defective.	Charge or replace the Riomote® battery.
		Check the terminal connections.
		Contact Customer Service.
Transmitter indications are good but functions are not executed.	Emergency stop pushed in.	Unlock emergency stop.
	Receiver has no current.	Check / replace fuses.
	No radio connection.	Check functions of control lights.
Certain functions are not executed.	Receiver is faulty.	Contact Spartan Tool Customer Service.
	Interruption in electric current.	Check all plugs. Plug in and push. Check control lights if functions are indicated.



APPENDIX A

Machine Dimensions (in mm)



This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper has a slight shadow on the right side, suggesting it's resting on a surface.

YOUR URBAN SOLDIER

Unit Serial Number

Engine Serial Number

Pump Serial Number



SPARTAN TOOL

FOR TOUGH CUSTOMERS. SINCE 1943.

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