



645 E. 7th ST., ST. PAUL, MINN. 55106  
(612) 771-5581  
TELEX NO. 29-7403

## OPERATOR'S MANUAL 518, 518R, 1022R PRESSURE WASHERS

### UNPACKING

1. Remove the cleaner from the shipping carton.
2. Check for freight damage.
3. Attach the handle to the wand using two wrenches.

### SET UP

1. Electric Power Source
  - A. Requirements:  
Model 518 & 518R-110 Vac-15 AMP circuit  
Model 1022R-110 Vac 20 AMP circuit  
(Use circuit breakers or slow-blow fuses)
  - B. Extensions:  
Model 518 & 518R-50 feet-14 gauge-3 wire  
Model 1022R-50 feet-12 gauge-3 wire
2. Tap Water Source
  - A. Requirements:  
Model 518 & 518R-min. 2 G.P.M. flow  
Model 1022R-min. 3 G.P.M. flow
  - B. Extensions:  
50 foot-rubber hose with min. 5/8 inch I.D.  
100 foot-rubber hose with min. 3/4 inch I.D.
  - C. Test:  
Run water into (5) gallon jug while timing.  
The tap source must supply the min. G.P.M.  
Flow.
  - D. Operating effects when not meeting tap  
water requirements:  
If water pressure is too low it will starve  
the pump. You will not obtain full output  
pressure and it will shorten pump life.
3. Lubrication  
Lubrication at factory. Grease with Nobles  
lubrication kit every 100 hours or at least once  
per month and wipe excess grease out of bearing  
cavity.
4. Connections
  - A. Finger tighten the tap hose to the swivel nut  
or shut off valve in case of 518.
  - B. Be certain that control switch is off and  
then plug cleaner into outlet or extension.
  - C. Now be certain to turn the water on.
  - D. Purge air from machine by snapping gun  
off of hose and turning on water then the  
motor.
  - E. Snap gun back on hose, pressure washer  
is ready to use.

### NOZZLE ADJUSTMENTS

5. Rinse Mix
  - A. High Pressure Cleaner Rinse:  
Dial Hi-Lo nozzle counter-clockwise until  
it stops. Rinse pattern should be a nominal  
20 degree fan with a "knife-like" pattern  
producing max. pressure.
  - B. Low Pressure Mix:  
Dial Hi-Lo nozzle clockwise until knife  
pattern changes to a cone shape pattern.  
This will reduce nozzle pressure and activate  
injector. Approximate chemical ratio set-  
ting at Factory is 10-1 and can be changed  
by an adjustment of knob on the top of the  
flow meter.  
  
Chemical can be applied at line pressure with  
motor off. NOTE: Do not turn nozzle more  
than two turns clockwise from original rinse  
stop position. Nozzle will come off if  
clockwise turning is continued.
6. Flow Meter  
The decal on the flow meter has numbers  
that correspond approximately to ounces  
per minute at the viscosity of water. The  
decal at the left of meter will show approx.  
ratio for each unit. The adjustment knob  
on top of meter will be set at the factory  
for max. flow. The black adjustment knob  
has a hole inline with the slot. The hole  
should be in back of meter for max. flow.  
Reduced flow of chemical achieved by  
turning clockwise, 1/4 turn max. will shut  
chemical flow off.
7. Spray Gun-518R & 1022R  
When the trigger is depressed, the fluid flows  
through the gun and out the nozzle. When  
the trigger is released, the fluid recirculates  
through the limiting valve. CAUTION: do  
not allow the system to by-pass for more  
than 10 minutes at a time when the valve  
is returning liquid to the pump inlet. Heat  
build up may damage the pump.
8. Caution: In areas where freezing conditions are  
prevalent, protect unit after its use by flushing  
the unit with a glycol antifreeze. This operation  
will prevent the cracking of the pump.

## TROUBLE SHOOTING

### MACHINE DOES NOT RUN

Is power cord plugged in outlet?  
 Is outlet live? (try another circuit)  
 Is fuse blown on outlet circuit?  
 Use 20 amp slow blow fuses.

### MACHINE STOPS AFTER 20 OR 30 MINUTES OF USE

Is motor hot to touch?  
 Be sure power cord is secure in outlet.  
 Thermal switch will turn motor off when overheated.  
 Press motor protection reset button on motor. It will start again when it cools down (about 20 minutes).

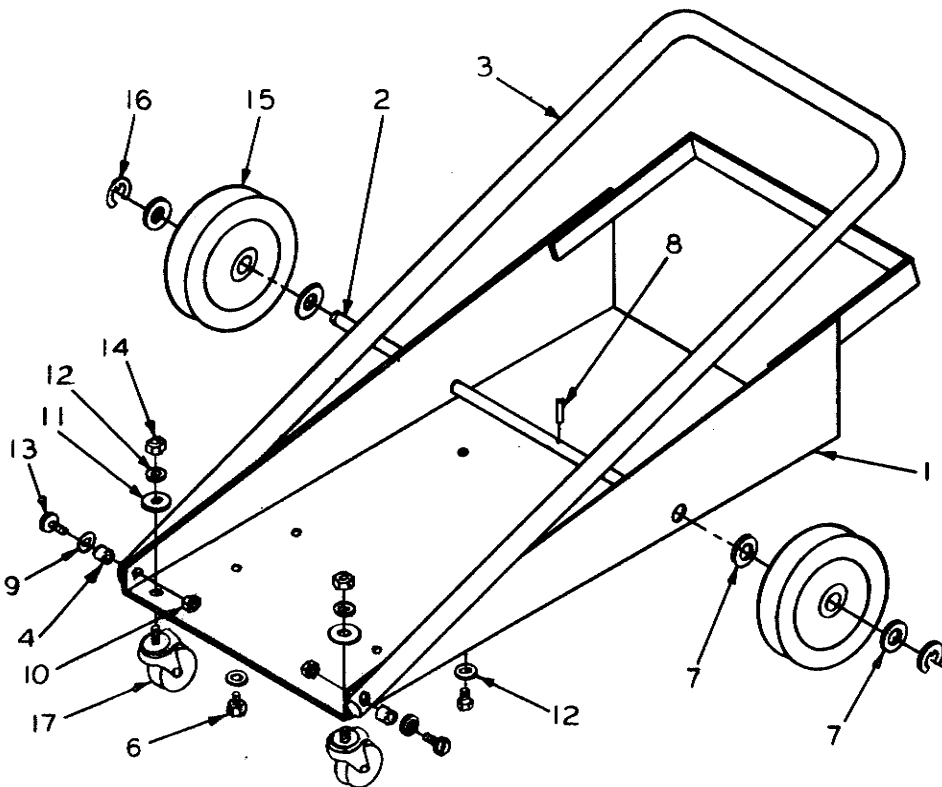
### MACHINE RUNS BUT NO PRESSURE DEVELOPS

Is water supply turned on full?  
 Is water supply hose at least 5/8" I.D. or larger?  
 Is all air purged from water line as instructed in 4-D?

### CAUSES OF MOTOR OVERHEATING

1. Low line voltage from outlet (too many appliances working on circuit at same time).
2. Extension cord wire gauge too small. (See 1-B)
3. Power cord plug blades dirty or loose.
4. Plugged nozzle causing back pressure.

## PRESSURE WASHER CART Models 518, 518R, 1022R



	<u>Part No.</u>	<u>Qty.</u>	<u>Description</u>
1.	C21984	1	Assy - Plate & Jug Holder
2.	A3969	1	Axle
3.	C22795	1	Handle
4.	A22794	2	Spacer
6.	K3036-8	6	Screw, Hex Hd.
7.	K4252	4	Washer, Wave
8.	K5115	1	Pin, Roll
9.	K6306-4	2	Washer, Flat
10.	K4948	2	Nut, Hex
11.	K14880-5	2	Washer, Flat
12.	K14881-5	8	Washer, Lock
13.	K14957-20	2	Screw, Pan Hd.
14.	K15741	2	Nut, Hex
15.	K21169	2	Wheel
16.	K15996	2	E-Ring
17.	K21985	2	Caster



645 East Seventh Street  
St. Paul, Minnesota 55106  
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### SUGGESTIONS FOR PROLONGED LIFE OF YOUR PRESSURE WASHER

#### HOW TO PRIME AND MAINTAIN YOUR MACHINE

- A. With tap water on full — turn switch to rinse to purge air from line.
- B. Move switch alternately from concentrate, (top mix position) to rinse 3 or 4 times until liquid fills the dip tube. (Just a few seconds on each position.)
- C. Move switch to mix position and apply chemical at a 7:1 ratio. Work from the bottom up and rinse from the top.

#### LUBRICATION FOR 2 PISTON PUMP

- A. Single point lubrication.
- B. Grease each 100 operating hours.
- C. Inspect unit for water leaks. (If water is detected in the area of the grease fitting — cups should be replaced.)

#### LUBRICATION FOR 3 PISTON PUMP

- A. 3 Piston Pumps are self lubricating and require oil change every 250 operating hours with 1 pint of automatic transmission oil.

#### **PRESSURE WASHER LIFE MAY BE EXTENDED WHEN USING ACID BY INCORPORATING THE FOLLOWING IN THE DAILY MAINTENANCE OF YOUR EQUIPMENT:**

- 1. When ordering the unit, specify that it will be used with acid and use acid acceptable to pressure washers.
- 2. After the acid application, clean the machine by placing the dip tube in a mild alkaline solution and prime the pump for about (1) minute, then change the switch position to rinse for (1) minute to flush all acid from the system.

Also follow the above flushing procedure if you plan to let the machine stand idle for 15 minutes or during lunch shut down.

- 3. When storing the unit for a week or more, flush the system with warm water using the prime instructions. This will add additional life to your pump and prevent the check valve from sticking.
- 4. In areas where freezing conditions are prevalent, protect the unit after its use by flushing the unit with a glycol antifreeze. This operation will prevent the cracking of the pump.

### TROUBLE SHOOTING GUIDE

Assemble . . . Pressure Cleaner per Op-Manual instructions. Be certain water is hooked up and turned on. Without nozzle in wand end, turn director control switch to “rinse” position.

See Point 4 under “set-up” in op-manual.

#### MACHINE DOES NOT RUN

Loose wires due to rough handling

Transformer fuse damaged or burned (Must be replaced)

#### MACHINE RUNS BUT NOT FULL SPEED

Is power cord plugged in outlet?

Is outlet voltage a full 110-115 volts?

Is outlet live? (try another circuit)

Is extension cord of adequate size used?  
(Number 12 wire for 50’ or 100’ extension cords.)

Is fuse blown on outlet circuit?

2 GPM Machine — Use 20 AMP slow blow fuses.

3 GPM Machine — Use 25-30 AMP slow blow fuses.

Is motor wired for 110 or 220 volts (Have electrician check)

Is control hose connected to machine?

If above functions are correct, continue to run on “rinse” setting without nozzle tip until all air is purged from line. Now turn switch to off and snap on nozzle. Turn switch to rinse.

Is director turned to rinse position?

## TROUBLE SHOOTING GUIDE (cont.)

### MACHINE RUNS BUT NO PRESSURE DEVELOPS

- Is water supply turned on full?
- Is water supply hose at least 5/8" I.D. or larger?
- Is nozzle the proper size for the washer?  
2 GPM in 2 GPM Machine – 3 GPM in 3 GPM Machine
- Is all air purged from water line?
- Is director switch turned to rinse position?
- Is V-Belt slipping? (Check inside unit cover)
  1. Wipe clean if oil or grease is found on belt.  
(Be sure to unplug machine when doing this)
  2. Tighten belt if necessary.
- Now put dip tube in a container of solution.  
Prime dip tube by moving director switch to top mix position briefly and back to rinse 2 or 3 times until dip tube is full.

### MACHINE RUNS BUT NO CHEMICAL COMES OUT

- Is director control switch on mix<sup>1</sup> position?
- Is dip tube primed as instructed above?
- Is dip tube in a solution?
- Is dip tube screen clean?
- Is tap water supply over 80 lbs. P.S.I.  
(See op-manual under "tap water" Part D. Turn down water tap until chemical appears on mix<sup>1</sup> setting.)
- Is flow washer in position?  
(See op-manual under ratio control device)  
TO CHECK: Turn off water tap. Remove inlet adaptor from front of machine revealing two inlet holes. There should be a black rubber flow washer in the left inlet. It must be straight, not tilted, against the backing washer.
- Is check valve, beveled side facing you, clean and working?  
If stuck open – water will fill solution container.  
If stuck closed – no solution can come through dip tube.
  1. To break loose, remove dip tube from check valve and push nail or stiff wire in opening of brass fitting to loosen valve inside.
  2. Replace dip tube and run warm water through machine on top mix setting to clean old soap from check valve. (If this fails, replace check valve.)

### MACHINE STOPS

#### AFTER 20 OR 30 MINUTES OF CLEANING

- Is motor hot to the touch?
- Does water come through on rinse and mix<sup>1</sup>?
- Be sure power cord is secure in outlet.
- Be sure electric plug blades are clean, not corroded.

### STILL WILL NOT RUN – SMELLS HOT

- Thermal switch will turn motor off when overheated.
- Motor will work again when cooled (about 20 minutes).

### CAUSES OF MOTOR OVERHEATING . . .

1. Low line voltage from outlet (too many appliances working on circuit at same time.)
2. Extension cord wire gauge too small. (See op-manual)
3. Power cord plug blades too dirty or loose.
4. Plugged nozzle causing back pressure.
5. Incorrect nozzle (2 gpm in 3 gpm Machine).

### MACHINE WON'T RINSE

#### SOLUTION ON ALL POSITIONS

- Is water turned on all the way?
- Is some other appliance using the water supply?
- Is the water tap pressure at least 30 lbs. PSI?  
(Constant low water pressure will make it necessary to put dip tube in bucket of water to rinse clean.)

### IMPORTANT 24 Volt Check Out Procedure

1. Remove director from red control hose  
(Op-Manual under electrical op checks.)
2. Disconnect 24 volt red control from front of chassis.
3. Plug director control into front of chassis in place of red control.
4. Slip belt off motor.
5. Either turn off water supply or run pressure hose into drain.

Turn director switch to:

- Rinse . . . Does motor run and water flow (or solenoid click)?
- Mix<sup>1</sup> . . . Does motor run and water flow (or mix solenoid click)?
- Mix<sup>2</sup> . . . Does Motor run and no water flow?

Remember to replace belt on motor.

Above test applies to all remote control models except 522, 523, 722 and 723.

For Models 522, 523, 722 and 723

Turn director switch to:

- Rinse . . . Does motor run and water flow
- Mix<sup>1</sup> . . . Does motor run, mix<sup>1</sup> solenoid click, water flow
- Mix<sup>2</sup> . . . Does motor run, mix<sup>2</sup> solenoid click, water flow

If machine checks out with this test, then the problem is in the wiring in the red control hose and any electric appliance ship is capable of soldering wires or send entire hose assembly to plant for repair.



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## PRESSURE WASHER REMOTE CONTROL ELECTRICAL REPAIR INSTRUCTIONS

The following identifies the control hose problem:

**A. Nothing runs on any setting of director switch.**

1. Black common wire broken or unsoldered.
2. Transformer burned out fuse blown and Part # K14996 must be replaced.

**B. Motor runs — draws solution on all switch positions.**

1. Red and white wires broken or unsoldered.
2. Water supply turned off or blocked — see above.

**C. Motor does not run, water runs on rinse and mix.**

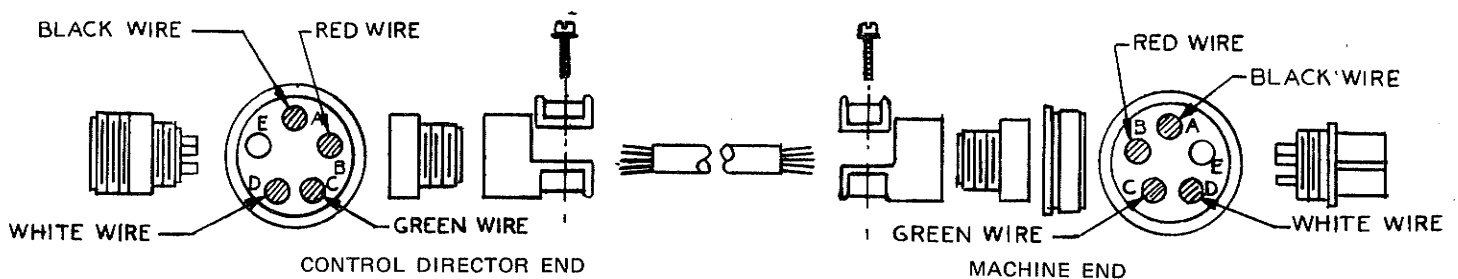
1. Green wire broken or unsoldered.
2. Motor overheated and thermal switch open.

**D. Motor runs when director switch is on "Off".**

1. Relay contact points are stuck together due to arcing in low voltage running.
2. Wires in red control hose are damaged and touching together to complete circuit.

### REPAIR PROCEDURE:

Disassemble amphenol fittings on each end of red control hose and observe each part to make reassembly a simple operation.



\*\*\* Check continuity of each wire.

Cut back an inch or so of control wire and red sleeve. Strip about 1/8" insulation off wires and leave about 1/2" of wire cable out of red sleeve.

(BE CERTAIN ALL AMPHENOL PARTS ARE SLID BACK ON RED SLEEVE BEFORE SOLDERING WIRES.)

\*\*\* Check continuity of each wire from end to end to determine if any are broken.

If any show an open conductor or are weak, proceed as follows: Grip each wire with a small electrical pliers and give a strong steady pull. (Usually it will be on the director control end if a wire is broken.) The broken wire will break the insulation under this pressure.

By measuring the piece of wire, you can determine how far back in the control hose the break has occurred. If more than one foot is the length, it is suggested you return the entire hose to the factory for repair.

If the break is less than 12" or wire is simply pulled out of solder post, proceed with next step.

1. Use resin core solder. Tin solder posts on amphenol parts and also wire ends.
2. Now sweat wires into proper solder posts per diagram above.
3. Check to be certain no loose wire strands or excess solder is touching another post.
4. Test continuity end to end on control hose.
5. Reassemble amphenol ends.
6. Using tape or thread, seal on pressure hose threads, connect director control to control hose and check out system.

If black pressure hose is now longer than the wire, it should be cut back and shortened so that a loop of red control wire sleeve is created. Looping the red control hose sleeve will allow any pulling pressure to be on the black water hose and not the control hose wires.

### PRESSURE WASHER HOSE REPAIR

Procedure for replacing or repairing pressure hose:

1. Determine length of hose end to be removed.
2. Use sharp knife and cut off reasonably square.
3. Now remove reusable hose end.



Unscrew Part A counter clockwise from hose.

Unscrew Part B clockwise (left hand thread) from outside of hose.

4. Replace reusable hose ends on good hose.  
Use some lubricant on Part A to ease reassembly.