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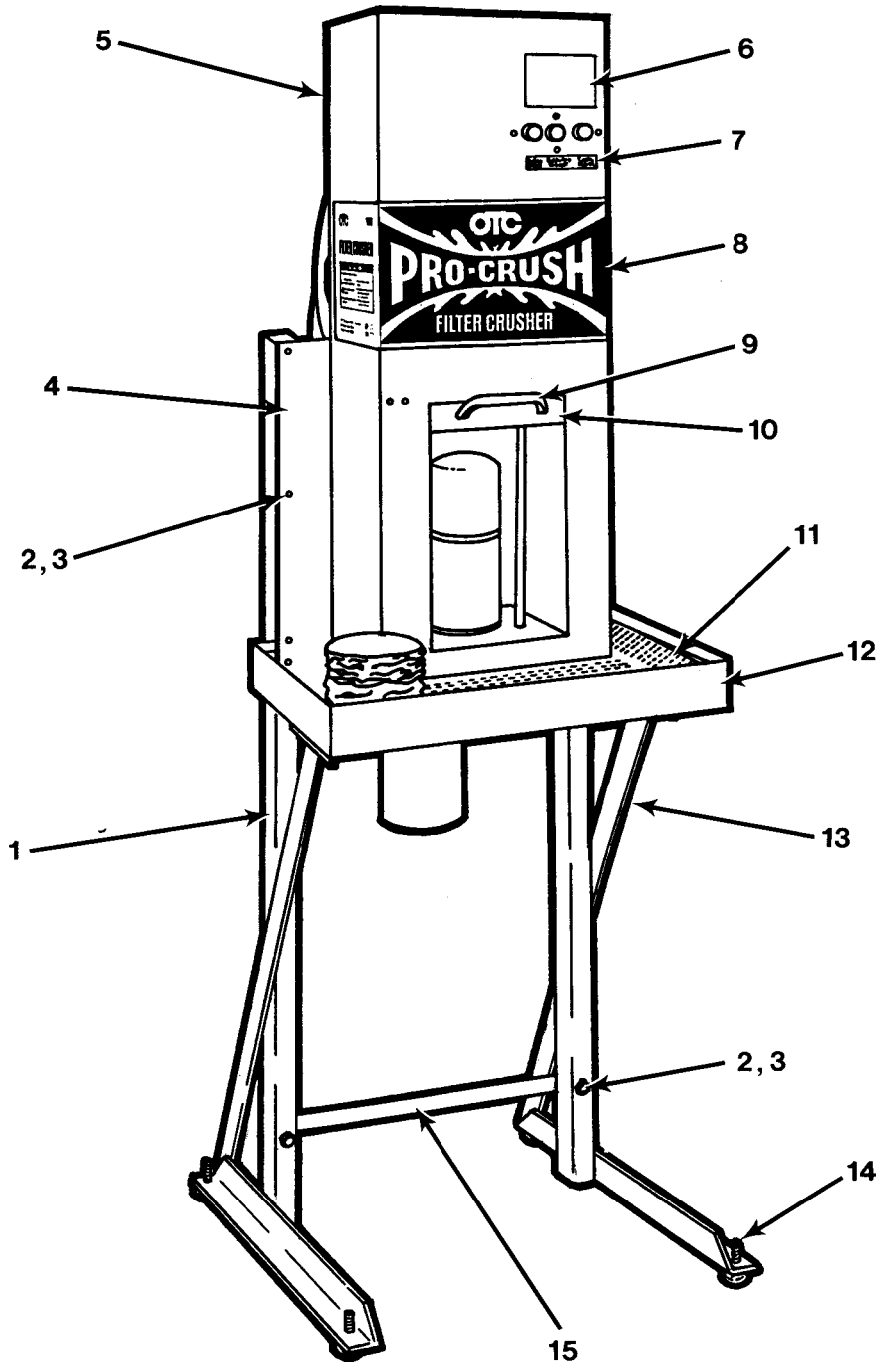
Form No. 102725

Parts List &
Operating Instructions
for: 1896

Oil Filter Crusher

Max. Capacity: 25 Tons



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Issue Date:	Rev. C, 1-15-03

Item No.	Part No.	No. Req'd	Description
1	**53815**	1	Right Stand Assembly
2	**214480**	8	Hex Hd. Cap Screw (5/16-18 x 3-3/4" Lg.)
3	**13116**	8	Locknut (5/16-18)
4	**53814-BK2**	1	Plate
5	**53817-BL2**	1	Cover
6	**219390**	1	Decal
7	**219389**	1	Decal
8	**62494**	1	Decal
9	**219005**	1	Handle
10	**48976-BL2**	1	Door
11	**48977-BK2**	1	Grate
12	**53818-BL2**	1	Drain Pan
13	**53816**	1	Left Stand Assembly
14	**219004**	4	Leveling Screw
15	**311709**	1	Angle

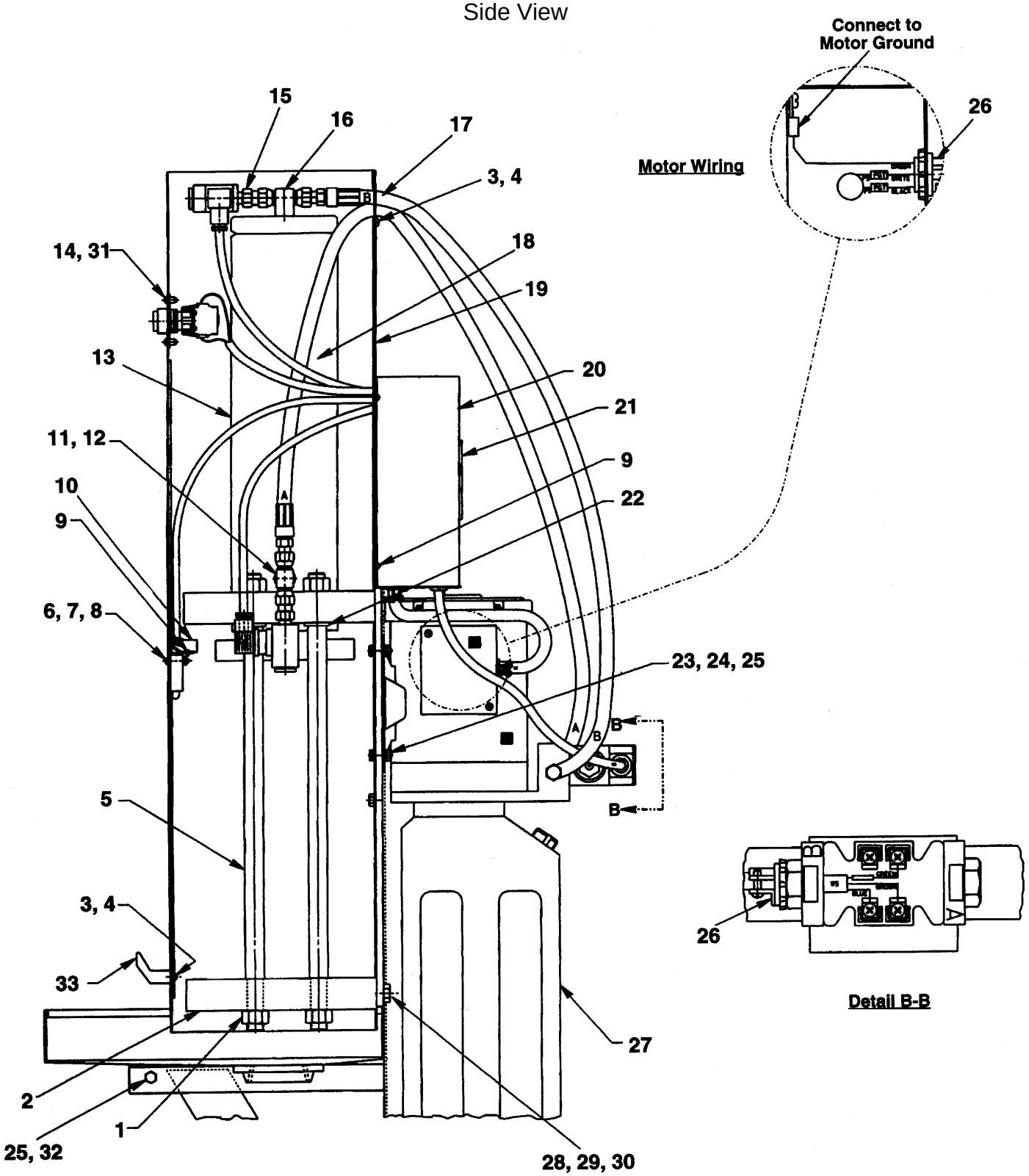
Refer to any operating instructions included with the product for detailed information about operation, testing, disassembly, reassembly, and preventive maintenance.

Items found in this parts list have been carefully tested and selected by OTC. **Therefore: Use only OTC replacement parts!**

Additional questions can be directed to the OTC Technical Services Department.

Oil Filter Crusher

Side View



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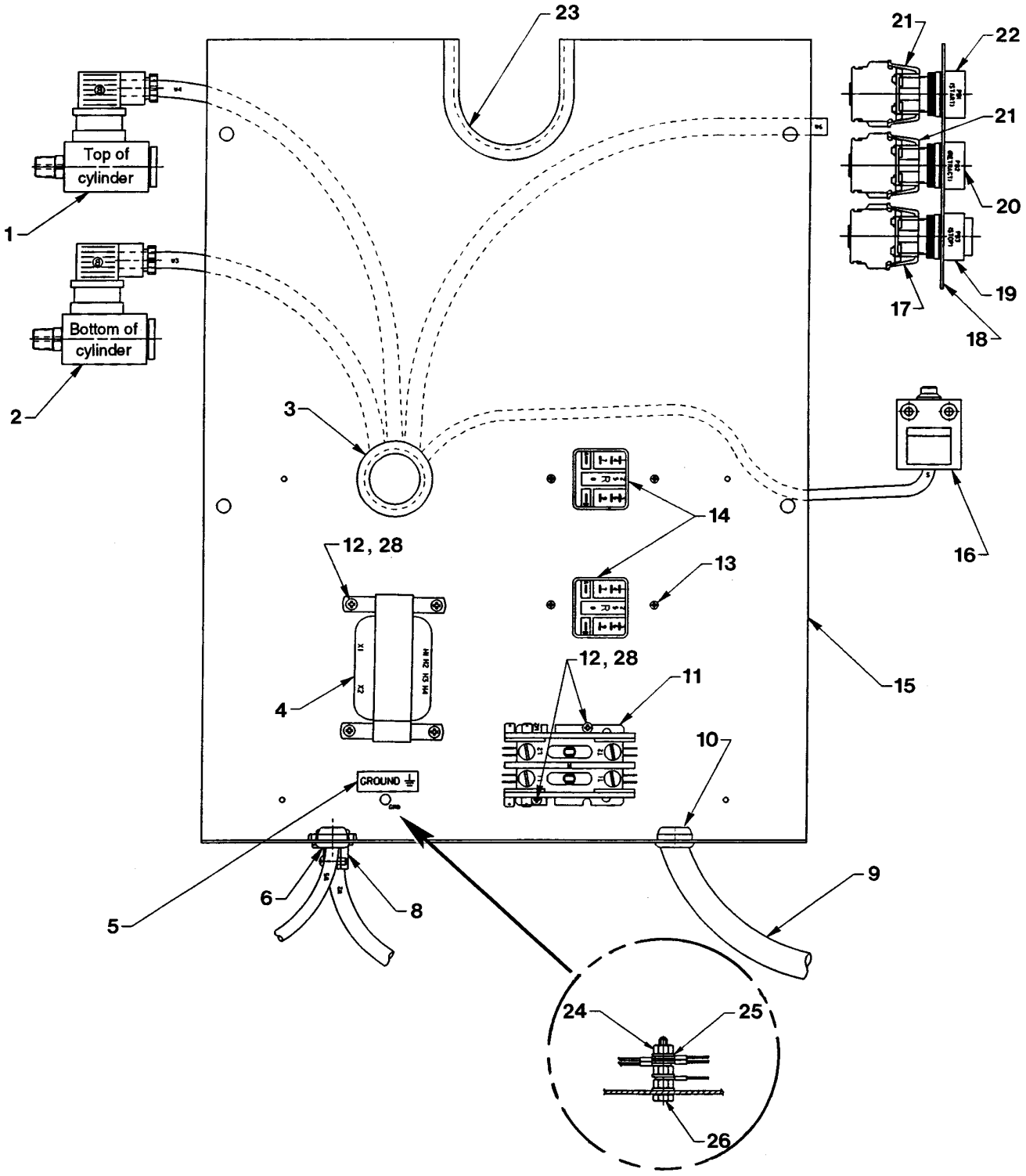
Issue Date:	Rev. C, 1-15-03

Item No.	Part No.	No. Req'd	Description
1	**10215**	8	Hex Nut (3/4-16)
2	**53804**	1	Bottom Plate
3	**10177**	12	Rd. Hd. Machine Screw (1/4-20 x 5/8" Lg.)
4	**10245**	12	Lockwasher (for 1/4" bolt)
5	**311676**	4	Rod
6	**11856**	2	Rd. Hd. Machine Screw (10-24 x 1" Lg.)
7	**10197**	2	Hex Nut (10-24)
8	**10241**	2	Lockwasher (#10)
9	**14812**	8	Pan Hd. Tapping Screw (8-18 x 3/8" Lg.)
10	**219282**	2	Roller Latch
11	**211646**	1	Tee Fitting
12	**10673**	1	Straight Fitting (3/8 to 3/8)
13	**53882**	1	Cylinder Assembly
14	**15467**	4	Rd. Hd. Screw (10-24 x 5/16" Lg.)
15	**10676**	2	Straight Fitting (3/8 to 1/4)
16	**218761**	1	Tee Fitting
17	**311730**	1	Hydraulic Hose (3/8 I.D. x 50" Lg.)
18	**311731**	1	Hydraulic Hose (3/8 I.D. x 70" Lg.)
19	**62489**	1	Electrical Control Box Assembly
20	**48975-BK2**	1	Cover
21	**200188**	1	Warning Decal
22	**219215**	4	Special Washer
23	**10032**	4	Hex Hd. Cap Screw (5/16-18 x 1" Lg.)
24	**10230**	8	Plain Washer (for 5/16" bolt)
25	**13116**	8	Locknut (5/16-18)
26	**11203**	2	Straight Conduit Connector
27	**48954**	1	Electric Motor/Hydraulic Pump Assembly
28	**10080**	4	Hex Hd. Cap Screw (1/2-13 x 1-1/4" Lg.)
29	**10249**	4	Lockwasher (for 1/2" bolt)
30	**12004**	2	Plain Washer (for 1/2" bolt)
31	**11108**	4	Ext. Tooth Lockwasher (#10)
32	**215749**	4	Hex Head Cap Screw
33	**219005**	1	Handle

Control Box Assembly



Ground Connections

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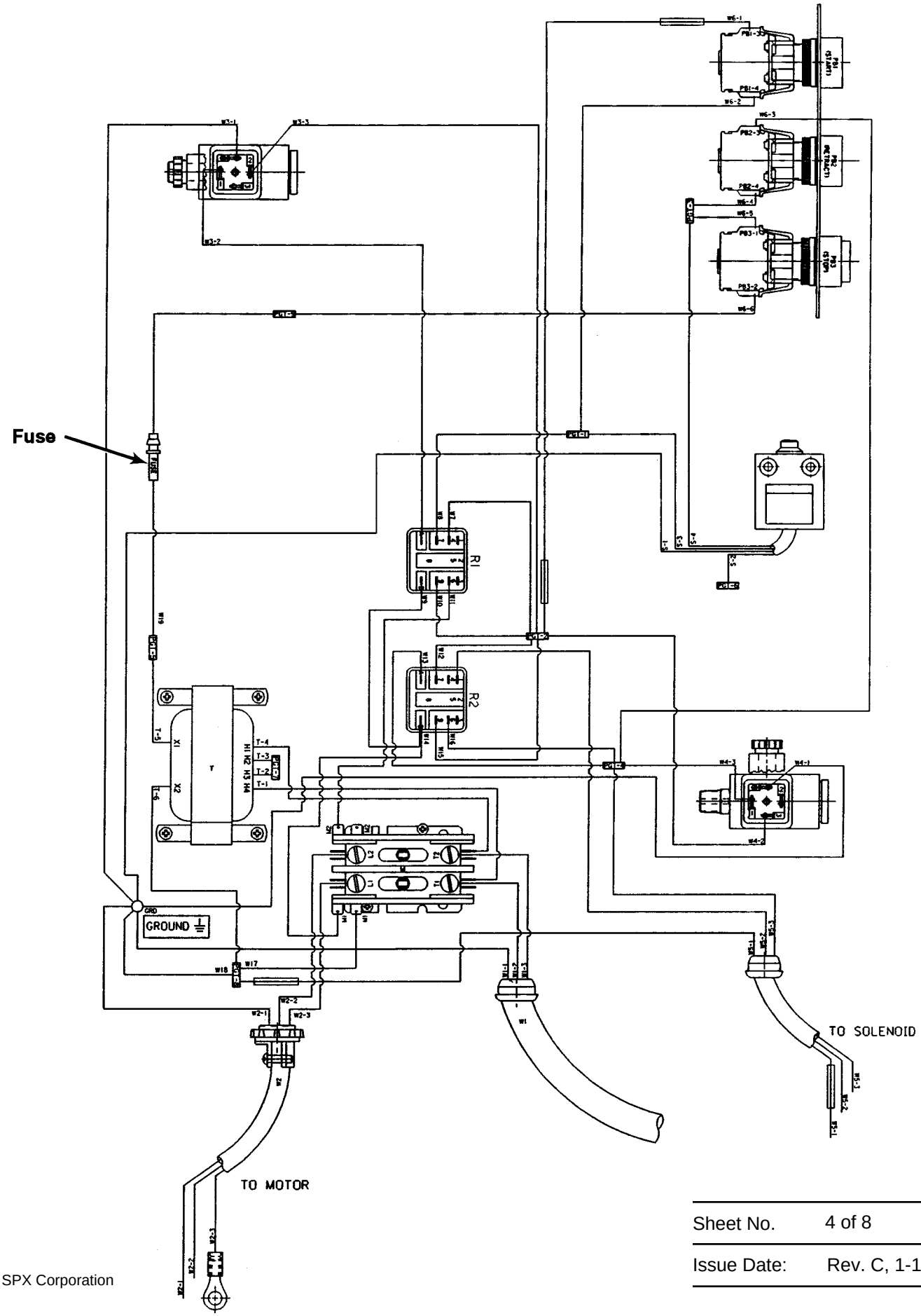
Item No.	Part No.	No. Req'd	Description
1	**218630**	1	Pressure Switch (3000 PSI)
2	**218618**	1	Pressure Switch (1000 PSI)
3	**219358**	1	Grommet
4	**39692**	1	Transformer
5	**205189**	1	Grounding Decal
6	**15993**	1	Strain Relief Bushing
8	**11203**	1	Straight Conduit Connector
9	**311370**	1	Cord Set (110 volt)
10	**218831**	1	Strain Relief Bushing
11	**312277**	1	2-Pole Contactor
12	**15467**	6	Screw (10-24 x 5/16" Lg.)
13	**206509**	4	Pan Hd. Tapping Screw (6-20)
14	**39092**	2	General Purpose Relay
15	**62488-BK2**	1	Mounting Plate
16	**218608**	1	Plunger Switch
17	**218607**	1	Contact Block (NC)
18	**311710-BK2**	1	Switch Plate
19	**218605**	1	Pushbutton Switch (Stop)
20	**219281**	1	Pushbutton Switch (Retract)
21	**218606**	2	Contact Block (NO)
22	**218604**	1	Pushbutton Switch (Start)
23	**208812**	.6 ft.	Channel Trim (Grommet)
24	**10199**	3	Hex Nut (1/4-20)
25	**11351**	3	Ext. Tooth Lockwasher
26	**15535**	1	Hex Hd. Cap Screw (1/4-20 x 1-1/2" Lg.)
28	**11108**	6	Ext. Tooth Lockwasher (#10)
	219356	1	Fuse (shown on Sheet 4)

Warning: To help prevent personal injury, any repair work or troubleshooting must be performed by qualified personnel who are familiar with this equipment. Electrical work must be performed by a qualified electrician.

North American & International Color Codes

Conductors	North American	International
Line	Black	Brown
Neutral	White	Blue
Ground	Green	Green/Yellow

Electrical Assembly



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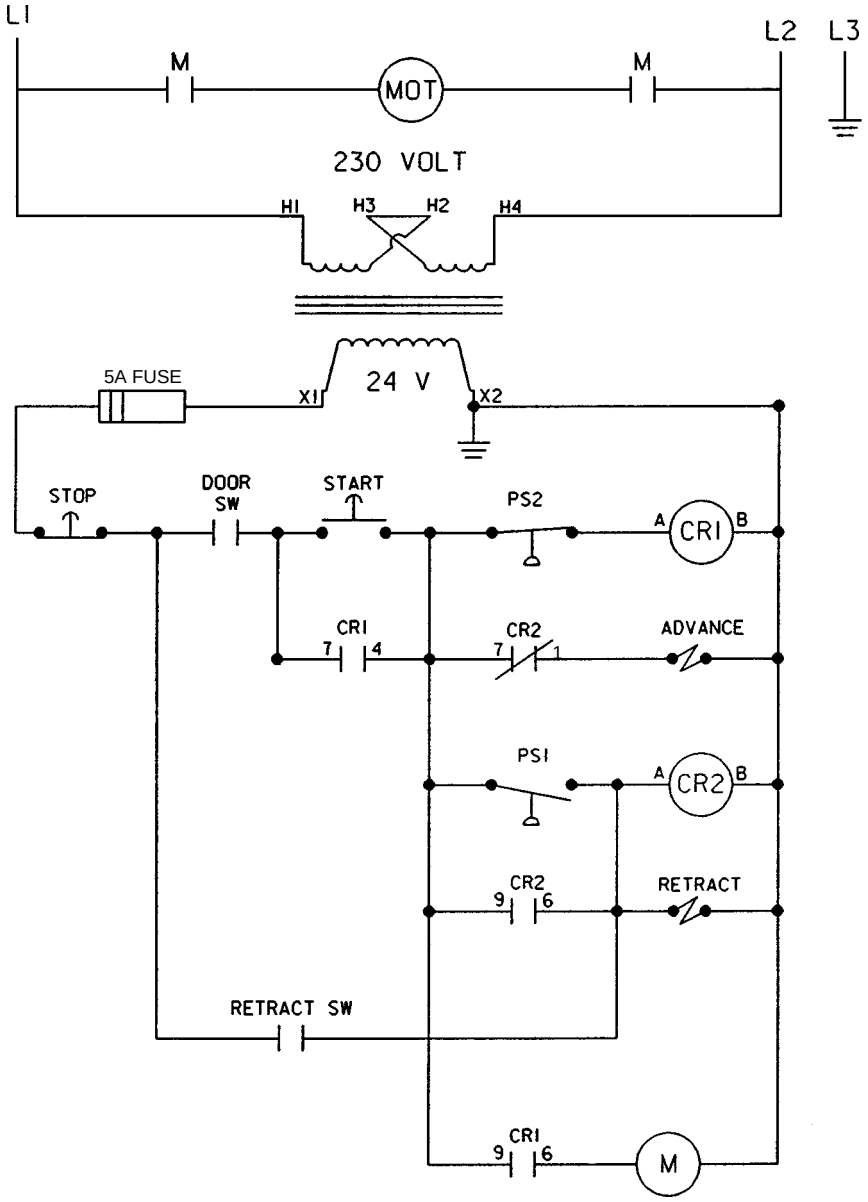
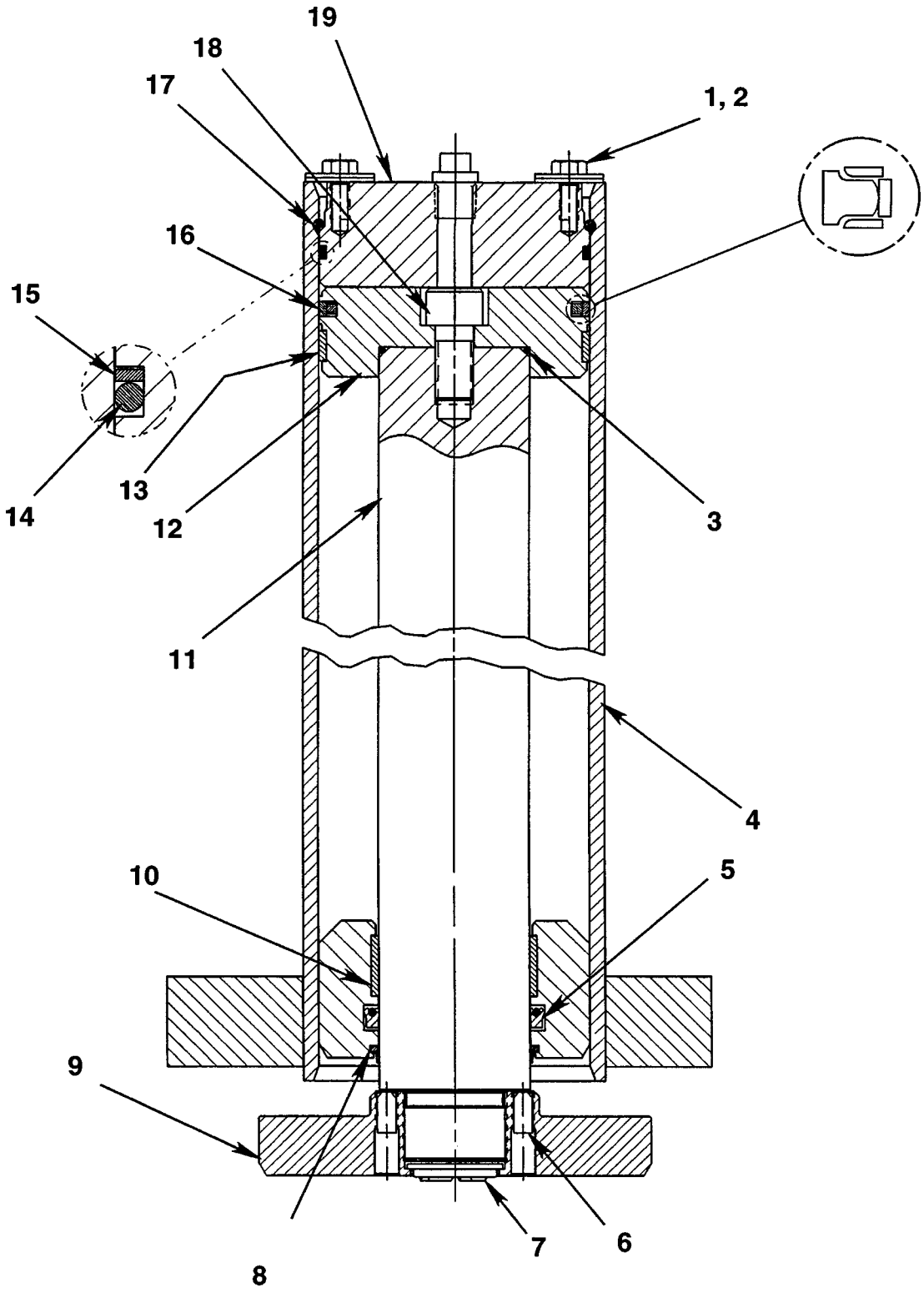
Wiring Schematic

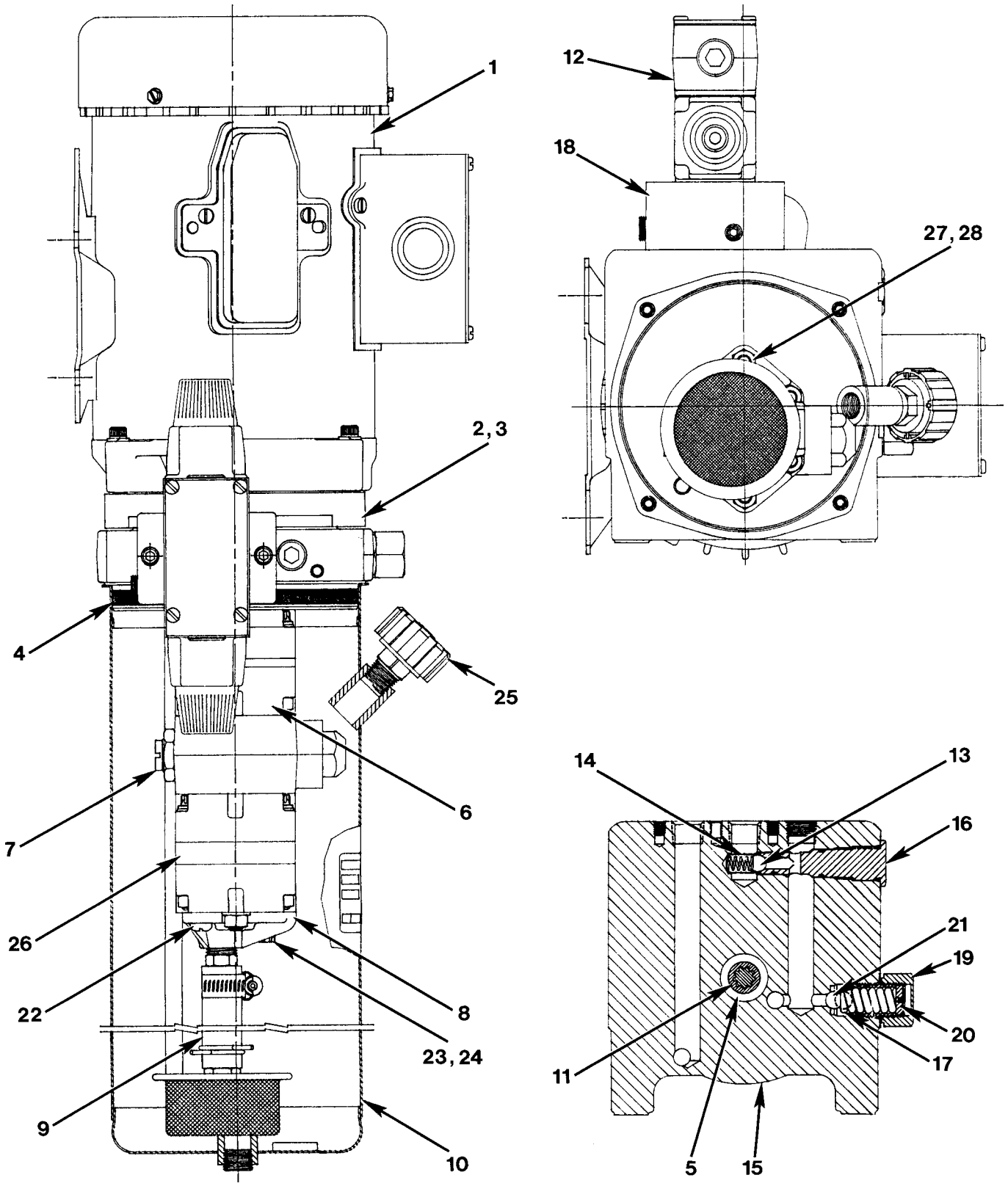


Cylinder Assembly



Item No.	Part No.	No. Req'd	Description
1	**10027**	2	Cap Screw (5/16-18 x 5/8" Lg.)
2	**219192**	2	Plain Wide Washer
3	**10295**	1	O-ring Packing
4	**62542**	1	Cylinder Weldment
5	**218616**	1	Rod Seal
6	**219958**	2	Socket Hd. Set Screw
7	**219234**	1	Stamp
8	**218724**	1	Rod Wiper
9	**311677**	1	Threaded Adapter
10	**218615**	1	Rod Wear Ring
11	**311679**	1	Cylinder Rod
12	**503122**	1	Piston
13	**218614**	1	Piston Wear Ring
14	**10858**	1	O-ring Packing
15	**19171**	1	O-ring Back-up Washer
16	**503216**	1	Piston with Loading Ring Seal
17	**311675**	1	Retaining Ring
18	**12916**	1	Socket Hd. Cap Screw
19	**49162**	1	Cylinder Cap

Pump & Motor Assembly



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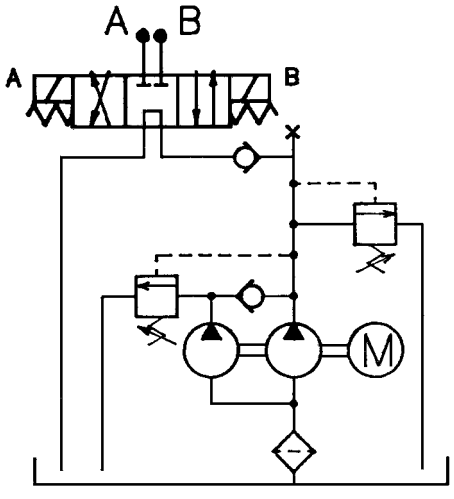
Item No.	Part No.	No. Req'd	Description
1	**311666-21**	1	AC Motor (230 Volt, 2 HP)
2	**311665-2**	4	Bolt (1/4-20 x 3/4" Lg.)
3	**311665-3**	1	Motor Adapter
4	**311665-4**	1	O-ring
5	**311665-5**	1	Shaft Seal
6	**311666-22**	1	Pump Assembly
7	**311666-23**	1	Unload Assembly
8	**311665-8**	1	Suction Cover Assembly
9	**311666-27**	1	Plumbing Assembly Inlet
10	**311665-6**	1	Reservoir (Steel) Early Models
	223520	1	Reservoir (Plastic) Late Models
11	**311665-1**	1	Coupling
12	**311768-1**	1	Solenoid Valve
13	**311768-4**	1	Spring & Ball
14	**311665-17**	1	Spring Retainer
15	**311768-3**	1	End Head
16	**311665-20**	1	Check Valve Assembly
17	**311665-14**	1	Spring
18	**311768-2**	1	D03 N2 Assembly Kit
19	**311665-13**	1	Relief Cap
20	**311665-12**	1	Adjusting Screw
21	**10378**	1	Ball
22	**311665-7**	2	Taptite Screw (M6-10 x 12mm)
23	**311665-9**	1	Washer (.338 x .625 x .060 Lg.)
24	**311665-10**	1	Torx Bolt (5/16-18 x 1" Lg.)
25	**311665-11**	1	Breather Cap
26	**311666-24**	1	Pump Assembly
27	**311666-25**	2	Washer (.330 x .525 x .055 thk.)
28	**311666-26**	2	Threaded Rod (5/16-24 x 8" Lg.)



Hydraulic Schematic

Safety Precautions

Caution: To help prevent personal injury and/or equipment damage,

- **Read and carefully follow these instructions. Most problems with new equipment are caused by incorrect installation or operation.**
- **Wear eye protection that meets ANSI Z87.1 and OSHA requirements.**
- **Keep tie rod nuts torqued at 300-320 ft. lbs.**
- **Remove the crushed filter carefully. Sharp edges can scratch, cut, or puncture skin.**

Hydraulic

- **If a hydraulic hose ruptures, bursts, or needs to be disconnected, immediately shut the pump OFF. Never grasp a leaking, pressurized hose with your hands, because the force of escaping hydraulic fluid could cause serious injury. Regularly inspect hoses for signs of wear or stress, and replace if needed.**
- **Do not exceed the hydraulic pressure rating (3500 PSI) noted on the pump's nameplate. Do not tamper with the internal relief valve; creating pressure beyond the rated capacity of this unit can result in personal injury.**
- **Completely retract the cylinder before adding oil to the pump reservoir. Overfilling the pump reservoir can cause personal injury due to excess pressure created in the reservoir when the cylinder is retracted.**

Electric

- **Electrical work must be performed by a qualified electrician.**
- **The crusher is designed for intermittent use only; continuous usage can cause the pump motor to overheat. If motor temperature exceeds 150°F, let the unit cool down before starting it again.**
- **Do not use an extension cord with this unit.**
- **The pump must be connected to a single phase, 60 cycle, 230 volt power source with a minimum 20 amp rating.**
- **If the circuit breaker or fuse opens continuously, locate the problem and correct it. Do not increase power line capacity by replacing the fuse with another of higher value, because this could overheat the power line and possibly cause a fire.**
- **Avoid conditions that create an electrical hazard. If the power cord is damaged or the wiring exposed, replace or repair the power cord immediately.**
- **Disconnect the power supply before removing the motor control box cover or before performing repairs or maintenance.**
- **Keep the override switch clean and in working order.**

Setup Instructions

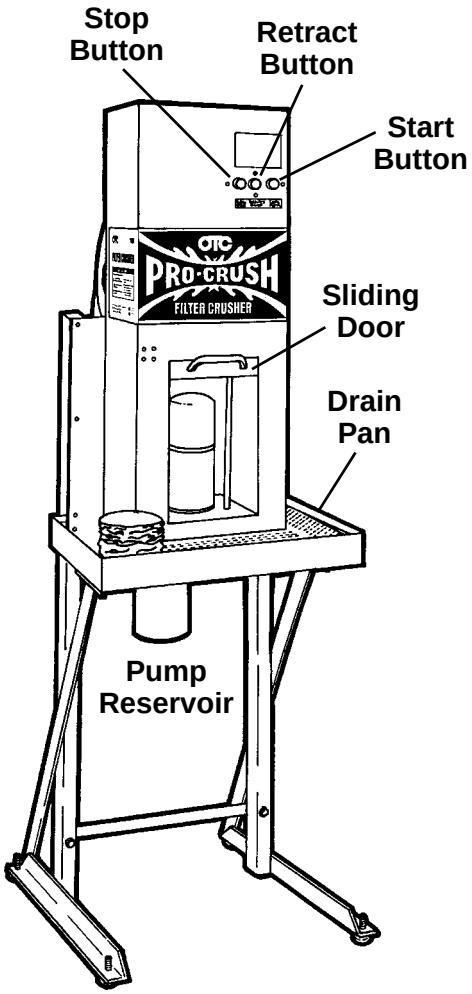
1. Refer to the following color code chart, and install a 230 volt male power plug on the end of the cord set.

North American & International Color Codes

Conductors	North American	International
Line	Black	Brown
Neutral	White	Blue
Ground	Green	Green/Yellow

2. Install four leveling screws (Item #14, Sheet 1) on bottom of stand angle supports.
3. Connect the pump motor to a power source (single phase, 60 cycle, 230 volt, minimum 20 amp rating).
4. Cycle the pump and cylinder without building pressure. Retract the cylinder and check the oil level in the pump reservoir. **Note: If the cylinder does not advance, refer to the procedure for "Bleeding Air from the System."**

Operating Instructions



1. Place an approved waste oil container under the drain fitting in the drain pan.
2. Lift the sliding door and place the oil filter on the plate, centering it between the tie rods. The filter's open end (the sealing area containing the o-ring) must be facing down toward the drain holes. When the oil filter is crushed, the oil will be forced into the holes.
3. Close the sliding door and press the START button. The pump will extend the ram, retract the ram, and automatically shut off when the cycle is complete. **If it is necessary to interrupt the cycle, press the STOP button.**
4. Open the sliding door and remove the crushed filter, being careful not to scratch, cut, or puncture your skin on the filter's sharp edges. **Do not open the sliding door while the ram is extending.**

Note: When crushing the smaller automotive size filters, cycle time can be reduced by stopping the ram during the return stroke:

   A. Press the STOP button or open the sliding door.

   B. Press the RETRACT button to reverse the cylinder just enough to remove the crushed filter and insert the next filter.

5. Recycle or dispose of waste oil and oil filters according to local, state, and federal regulations.

Maintenance

1. Dirt is the greatest single cause of failure in hydraulic systems. Keep the outer surface of the pump, including hose connections and the filler cap, as clean as possible.
2. Keep the breather hole in the filler cap clean and unobstructed.
3. Keep the override switch clean and in working order.

Changing the Oil in the Pump Reservoir

The oil should be changed every 5000 cycles (or about once each year) depending upon the degree of usage and the cleanliness of the work environment.

1. Release system pressure.
2. Place a bucket under the pump reservoir. Loosen the plug on the bottom of the reservoir, and let the oil drain out. Tighten the drain plug.
3. Remove dirt from the area around the filler cap. Any abrasive materials collected in the oil will damage the polished surfaces and precision-fit components of this pump.
4. Remove the filler cap, and insert a clean funnel (with a filter) into the fill port.
5. Verify that the cylinder is completely retracted. Add SAE 10W or 20W hydraulic oil (OTC #9036, 9037, or equivalent) until the oil level is one inch from the bottom of the fill port.
6. Cycle the pump and cylinder without building pressure. Retract the cylinder and check the oil level in the pump reservoir. **Note: If the cylinder does not advance, refer to the procedure for "Bleeding Air from the System."**

Bleeding Air from the System

If the cylinder responds slowly or in an unstable ("spongy") manner, air is trapped in the hydraulic system. To remove the air, loosen the hose fitting at the top of the ram. Run the pump until you see a steady flow of oil (free of air bubbles). Tighten the fitting.

Troubleshooting

Warning: To help prevent personal injury, any repair work or troubleshooting must be performed by qualified personnel who are familiar with this equipment. Electrical work must be performed by a qualified electrician. Use the correct gauges and equipment when trouble-shooting.

North American & International Color Codes

Conductors	North American	International
Line	Black	Brown
Neutral	White	Blue
Ground	Green	Green/Yellow

Problem	Cause	Solution
Motor does not start	1. Unit is not plugged in	*1. Make power connections*
	2. No voltage supply	*2. Check line voltage*
	3. Broken lead wire or defective power cord plug	*3. Replace defective parts*
	4. Defective switches	*4. Replace defective parts*
	5. Defective starter relay	*5. Replace defective parts*
	6. Circuit breaker tripped because total amp draw is too high for circuit	*6. Add or use a circuit with correct amperage*
	7. Overheated motor	*7. Wait for motor to cool*
	8. Defective motor	*8. Replace or repair motor*
	9. Defective override switch	*9. Repair or replace override switch*
	10. Blown fuse	*10. Replace 5 amp fuse (#219356)*
	11. Sliding door not actuating override switch when door is closed	*11. Slightly adjust tab on corner of sliding door until it contacts override switch*
Pump is not delivering oil or delivers only enough oil to advance cylinder partially or erratically.	1. Oil level is too low	*1. Retract cylinder. Fill reservoir to within 1" of bottom of fill port.*
	2. Air in the system	*2. Bleed the system*
	3. Air leak in suction line	*3. Tighten suction line*
	4. Dirt in pump or filter is plugged	*4. Clean pump filter*
	5. Cold oil or oil is too heavy (oil viscosity is too high)	*5. Change to a lighter weight oil*
	6. Motor rotating in wrong direction	*6. Check electric schematic on motor*
	7. Vacuum in reservoir	*7. Check breather hole in filler plug for obstruction*
	8. Worn pressure pump	*8. Replace pump*
Pump will not build full pressure	1. External leakage	*1. Look for leaks at cylinder, hose, or power unit. Seal leaking pipe fittings with pipe sealant.*
	2. Worn pressure pump	*2. Replace pump*
	3. Pressure switch not set correctly	*3. Replace pressure switch or send unit to authorized service center for repair*