

# HYDRAULIC POWER UNIT PARTS LIST & OPERATOR'S MANUAL

# MODEL CB18BV-XL

November 2016

Part #1801795

# Proposition 65 State of California

### Warning !

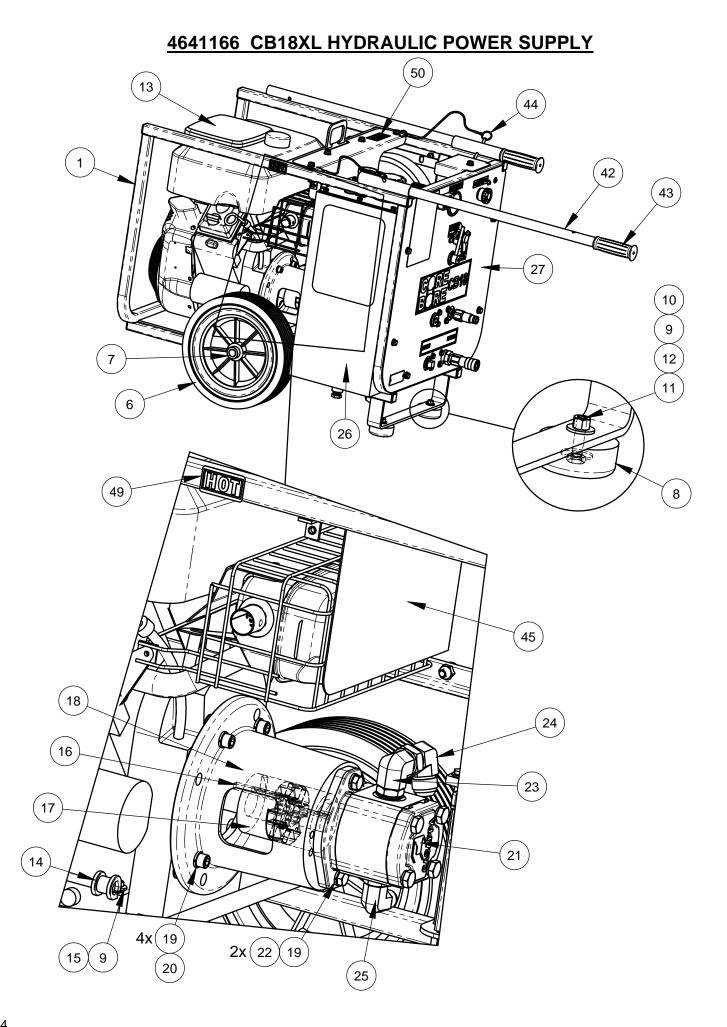
Engine exhaust and some its constituents are known to the State of California to cause cancer, birth defects, and/or other reproductive harm.

# Notification of Spark Arrester Requirement for State of California

It is a violation of Section 4442 or 4443 to use or operate the engine on any forest-covered, brush-covered, or grass-covered land unless the engine is equipped with a spark arrester, as defined in Section 4442, maintained in effective working order or the engine is constructed, equipped, and maintained for the prevention of fire pursuant to Section 4443.

# **Table of Contents**

Description	Page No.
1. Top Level Assembly	4
2. Hydraulic Schematic	8
3. Hose Kit	9
4. Electrical Schematic	10
5. Wire Kit	11
6. Hydraulic Tank Assembly	12
7. Control Panel Assembly	14.
9. Component Locations	16
10. Flow & Pressure Ratings, CB Power Packs	17
11. Safety Precautions	18
12. Descriptions and Specifications	20
13. Operating Instructions	21
14. Operating Driven Equipment	22
15. Maintenance Instructions	22
16. Troubleshooting	23
17. WarrantyRI	EAR COVER



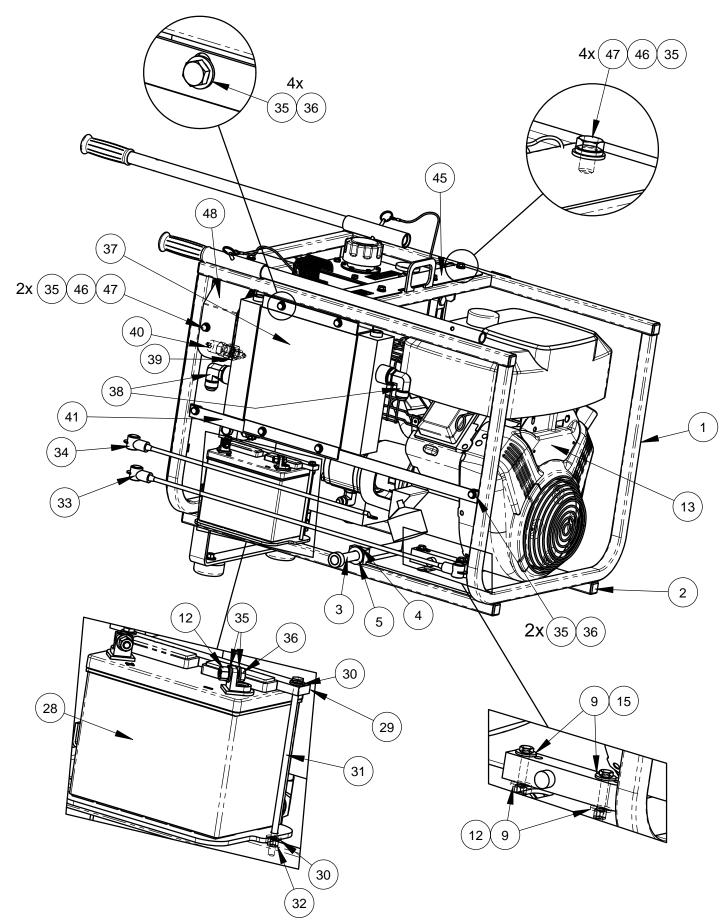
# 4641166 CB18XL HYDRAULIC POWER SUPPLY

ITEM	PART NO.	QTY.	DESCRIPTION
1	4641064	1	CB18 Frame Weldment
2	2500573	8	Plug, 1" Square Tube
3	4641061	1	Axle, 3/4"
4	2900101	2	Set Screw, Soc. Hd., 1/4-20 x 3/8"
5	2900003	2	Flat Washer, 3/4" SAE
6	2400643	2	Wheel, 12 x 2-5/8 x 3/4"
7	2400615	2	Set Collar, 3/4"
8	2501767	2	Rubber Bumper
9	2900567	10	Flat Washer, 5/16" USS
10	2901103	2	Fender Washer, 5/16" x 1"
11	2900217	2	Cap Screw, Hex Hd., 5/16-18 x 1- 1/4"
12	2900039	10	Lock Nut, 5/16-18 Nylon
13	2601674	1	18HP Briggs W/Elec. Start & Fuel Tank
14	2501434	1	Hose Clamp, 5/8" x 3/4" Wide
15	2900494	4	Cap Screw, Hex Hd., 5/16-18 x 2"
16	6048134	1	Key, 1/4" Sq. x 2-1/4"
17	2702225	1	Coupling Assembly, 3/4 - 1-1/8"
18	4646010	1	Pump Mount, SAE 2 Bolt
19	2900006	6	Lock Washer, 3/8" Split
20	2900724	4	Cap Screw, Soc. Hd., 3/8-16 x 1- 1/4"
21	2600663	1	Hydraulic Pump, .69 Cl
22	2900005	2	Cap Screw, Hex Hd., 3/8-16 x 1"
23	3201988	1	Elbow, 5/8" O-Ring to 3/4" M. JIC
24	3200417	1	Elbow, 3/4" F. JIC to 3/4" M. JIC

26 46   27 46   28 25   29 46   30 29   31 29	NO. 200366 641110 641103 600584 646122 900009 901405	1 1 1 1 1 4	Elbow, 5/8" O-Ring to 1/2" Male JIC, 90 Deg. Hydraulic Tank Assembly, 6 Gallon Panel Assembly, CB18 Battery, 12 Volt Group Size U1 BatterySupport
27 46 28 25 29 46 30 29 31 29	641103 600584 646122 900009 901405	1 1 1 4	Hydraulic Tank Assembly, 6 Gallon Panel Assembly, CB18 Battery, 12 Volt Group Size U1
28 25 29 46 30 29 31 29	500584 546122 900009 901405	1 1 4	Battery, 12 Volt Group Size U1
29 46   30 29   31 29	646122 900009 901405	1	
30 29 31 29	900009 901405	4	BatterySupport
31 29	901405		
			Flat Washer, 1/4" SAE
		2	Cap Screw, Hex Hd., 1/4-20 x 7- 1/2"
32 29	900010	2	Lock Nut, 1/4-20 Nylon
33 46	641037	1	Battery Cable Assy., Red
34 46	641041	1	Battery Cable Assy., Black
35 29	900022	18	Flat Washer, 5/16" SAE
36 29	900668	8	Cap Screw, Hex Hd., 5/16-18 x 7/8"
37 24	100318	1	Heat Exchanger, Air/Oil, 12 Volt
38 32	200400	2	Elbow, 3/4" O-Ring to 3/4" Male JIC
39 32	201012	1	1/2" O-ring - 1/2" FPT
40 28	300697	1	Temperature Switch, 1/2 NPT
41 46	600164	1	Radiator Suport Bar
42 46	641060	2	Handle, 1" Dia.
43 25	500636	2	Handle Grip
44 29	900278	2	Lanyard with Lock Pin
45 46	641108	1	Heat Shield
46 29	900031	6	Lock Washer, 5/16" Split
47 29	900958	6	Cap Screw, Hex Hd., 5/16-18 x 1/2"
48 46	641109	1	Splash Guard
49 18	300537	1	Label, HOT
50 18	301707	1	Decal, Caution, Fan
51 46	647131	1	Hose Kit, CB18-XL
52 46	640125	1	Wire Kit, CB18-XL

MUFFLER ONLY IS 2400316

#### 4641166 CB18XL HYDRAULIC POWER SUPPLY

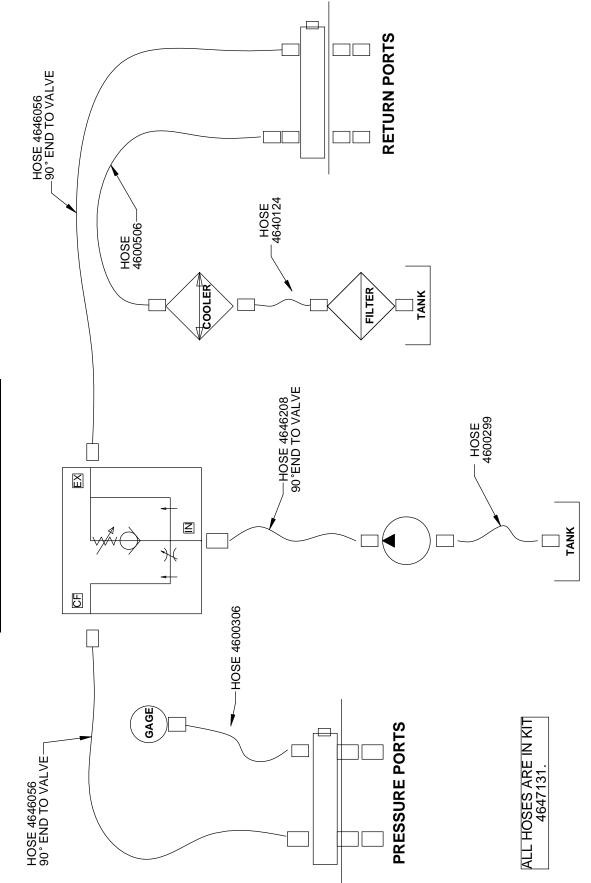


# 4641166 CB18XL HYDRAULIC POWER SUPPLY

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6	2400643	2	Wheel, 12 x 2-5/8 x 3/4"
7	2400615	2	Set Collar, 3/4"
8	2501767	2	Rubber Bumper
9	2900567	10	Flat Washer, 5/16" USS
10	2901103	2	Fender Washer, 5/16" x 1"
11	2900217	2	Cap Screw, Hex Hd., 5/16-18 x 1- 1/4"
12	2900039	10	Lock Nut, 5/16-18 Nylon
13	2601674	1	18HP Briggs W/Elec. Start & Fuel Tank
14	2501434	1	Hose Clamp, 5/8" x 3/4" Wide
15	2900494	4	Cap Screw, Hex Hd., 5/16-18 x 2"
16	6048134	1	Key, 1/4" Sq. x 2-1/4"
17	2702225	1	Coupling Assembly, 3/4 - 1-1/8"
18	4646010	1	Pump Mount, SAE 2 Bolt
19	2900006	6	Lock Washer, 3/8" Split
20	2900724	4	Cap Screw, Soc. Hd., 3/8-16 x 1- 1/4"
21	2600663	1	Hydraulic Pump, .69 Cl
22	2900005	2	Cap Screw, Hex Hd., 3/8-16 x 1"
23	3201988	1	Elbow, 5/8" O-Ring to 3/4" M. JIC
24	3200417	1	Elbow, 3/4" F. JIC to 3/4" M. JIC

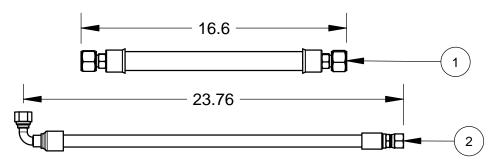
ITEM	PART NO.	QTY.	DESCRIPTION	
25	3200366	1	Elbow, 5/8" O-Ring to 1/2" Male JIC, 90 Deg.	
26	4641110	1	Hydraulic Tank Assembly, 6 Gallon	
27	4641103	1	Panel Assembly, CB18	
28	2500584	1	Battery, 12 Volt Group Size U1	
29	4646122	1	BatterySupport	
30	2900009	4	Flat Washer, 1/4" SAE	
31	2901405	2	Cap Screw, Hex Hd., 1/4-20 x 7- 1/2"	
32	2900010	2	Lock Nut, 1/4-20 Nylon	
33	4641037	1	Battery Cable Assy., Red	
34	4641041	1	Battery Cable Assy., Black	
35	2900022	18	Flat Washer, 5/16" SAE	
36	2900668	8	Cap Screw, Hex Hd., 5/16-18 x 7/8"	
37	2400318	1	Heat Exchanger, Air/Oil, 12 Volt	
38	3200400	2	Elbow, 3/4" O-Ring to 3/4" Male JIC	
39	3201012	1	1/2" O-ring - 1/2" FPT	
40	2800697	1	Temperature Switch, 1/2 NPT	
41	4600164	1	Radiator Suport Bar	
42	4641060	2	Handle, 1" Dia.	
43	2500636	2	Handle Grip	
44	2900278	2	Lanyard with Lock Pin	
45	4641108	1	Heat Shield	
46	2900031	6	Lock Washer, 5/16" Split	
47	2900958	6	Cap Screw, Hex Hd., 5/16-18 x 1/2"	
48	4641109	1	Splash Guard	
49	1800537	1	Label, HOT	
50	1801707	1	Decal, Caution, Fan	
51	4647131	1	Hose Kit, CB18-XL	
52	4640125	1	Wire Kit, CB18-XL	

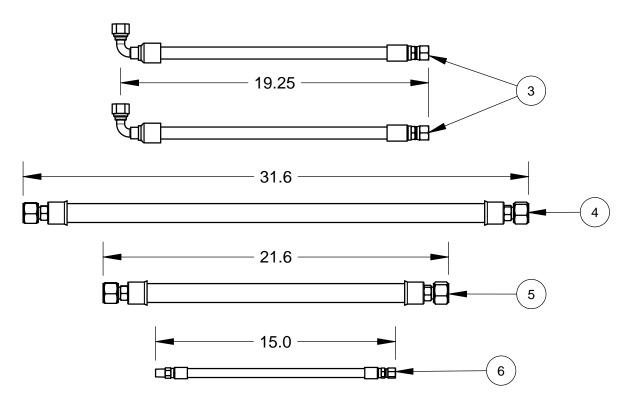
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4641166 CB18XL HYDRAULIC SCHEMATIC

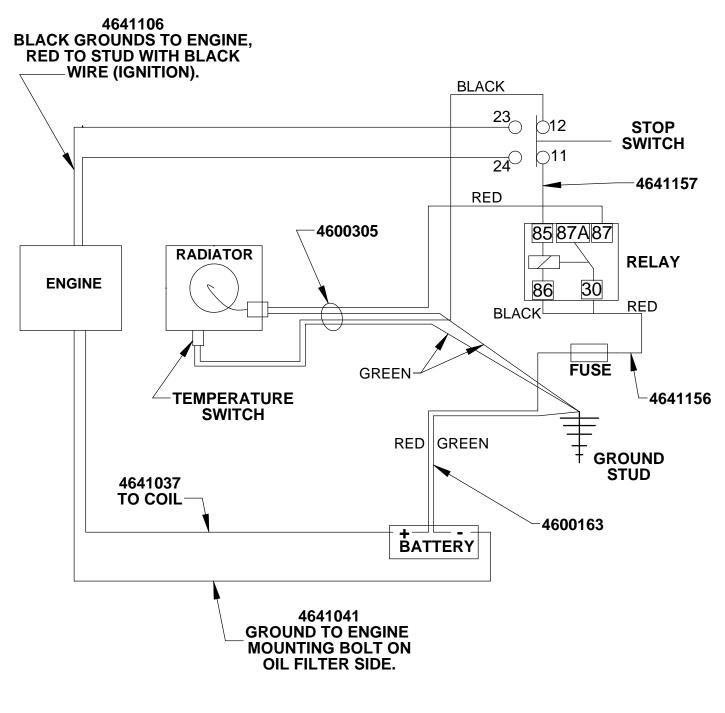
# 4647131 HOSE KIT, CB18-XL





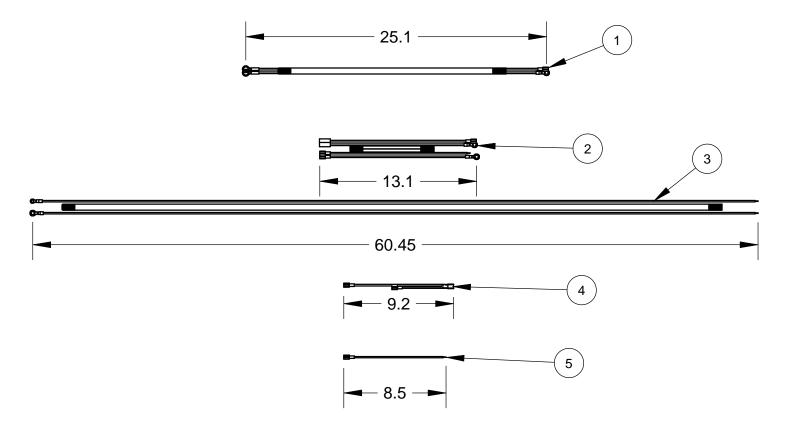
ITEM	PART NO.	QTY.	DESCRIPTION
1	4600299	1	Hose Assembly, 3/4" x 16.6"
	3201989	2	Fitting, 3/4" F.JIC to 3/4" Hose Barb
	3202708	2	Crimp Shell, #12
2	4646208	1	Hose Assembly, 1/2" X 23-3/4"
	3200290	1	Fitting, 1/2" F. JIC to 1/2" Hose Crimp
	3200408	1	Elbow, 1/2" F. JIC to 1/2" Parkrimp 90 deg.
3	4646056	2	Hose Assembly, 1/2" X 19-1/4"
	3200290	1	Fitting, 1/2" F. JIC to 1/2" Hose Crimp
	3200408	1	Elbow, 1/2" F. JIC to 1/2" Parkrimp 90 deg.
4	4600506	1	Hose Assembly, 3/4" x 31.6"
	3201989	2	Fitting, 3/4" F.JIC to 3/4" Hose Barb
	3202708	2	Crimp Shell, #12
5	4640124	1	Hose Assembly, 3/4" x 21.6"
	3201989	2	Fitting, 3/4" F.JIC to 3/4" Hose Barb
	3202708	2	Crimp Shell, #12
6	4600306	1	Hose Assembly, 1/4" x 15"
	3200128	1	Fitting, 1/4" F. JIC to 1/4" Hose Crimp
	3200145	1	1/4 MPT - 1/4 Hose Crimp

#### 4641166 CB18XL ELECTRIC SCHEMATIC



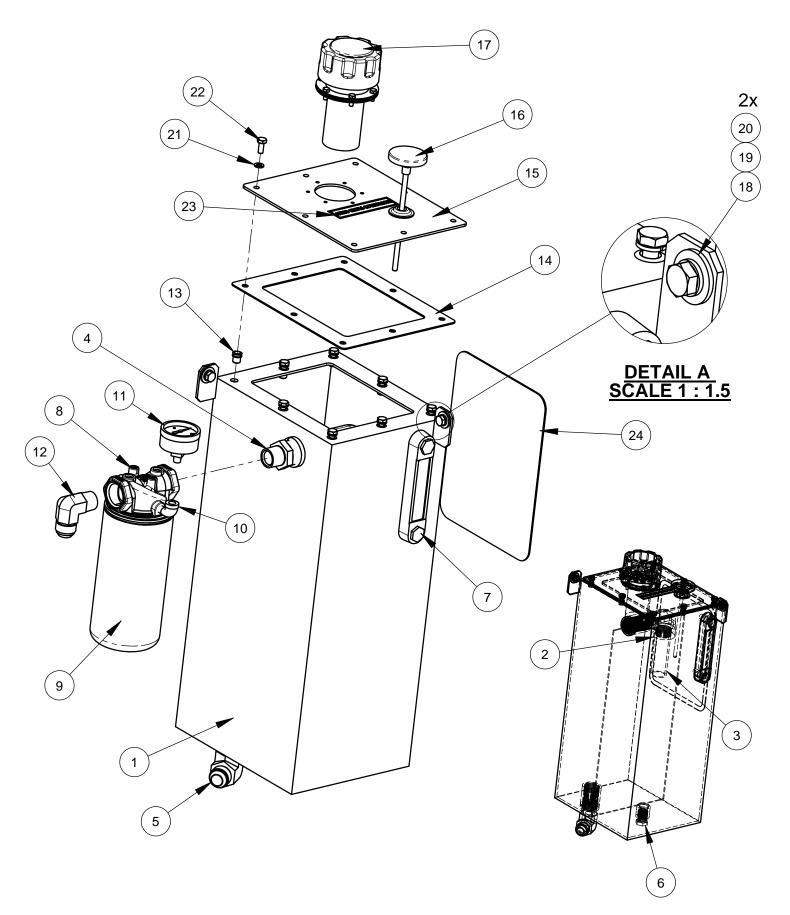
WIRES ARE IN KIT 4640125 (DOES NOT INCLUDE BATTERY CABLES)

# 4640125 CB18 XL WIRE KIT



ITEM	PART NO.	QTY.	DESCRIPTION
1	4600163	1 Wire Assy., Red & Grn, 14 Ga.	
2	4600305	1	Wire Assy., 4 Wire
3	4641106	1 Wire Assy., Emergency Off, 60-1/2"	
4	4641156	1 Wire Assy, Black & Red	
5	4641157	1	Wire Assy., 20 Ga., Brn, 8-1/2"

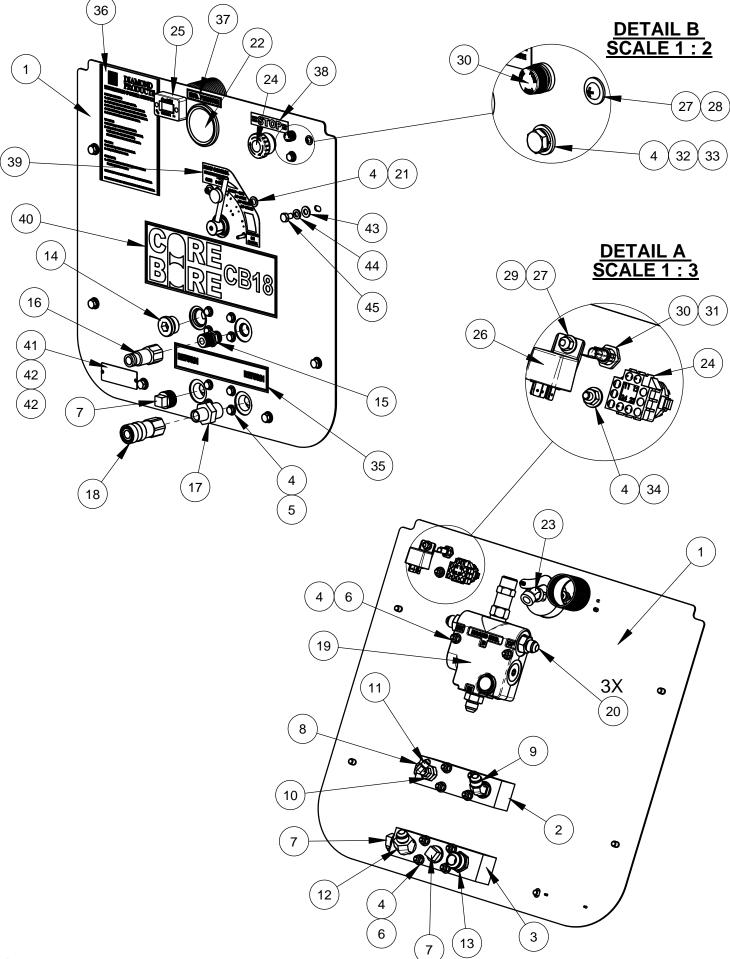
# 4641110 HYDRAULIC TANK ASSEMBLY



# 4641110 HYDRAULIC TANK ASSEMBLY

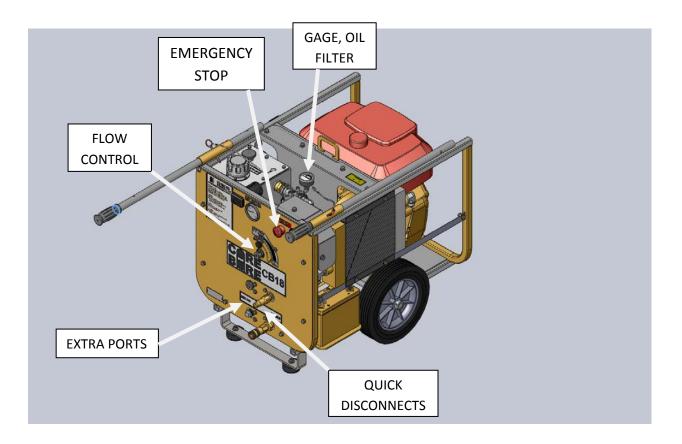
ITEM	PART NO.	QTY.	DESCRIPTION
1	4641058	1	Hydraulic Tank Weldment
2	3200409	1	Street Elbow, 1" NPT
3	3200427	1	Nipple, 1" NPT x 4"
4	3200431	1	NIpple, 1"MPT - 3/4" MPT
5	3200111	1	Elbow, 1" M. Pipe to 3/4" M. JIC
6	3200160	1	Plug, 1/2-14 NPT
7	2400166	1	Sight Gauge, Liquid Level
8	2703290	1	Filter Head, 3/4" NPT
9	3201175	1	Hydraulic Filter Element
10	3200355	1	1/8" Street Elbow
11	3200502	1	Gauge, Hydraulic Pressure
12	3200086	1	Elbow, 3/4" M. Pipe to 3/4" M. JIC
13	2900441	8	Rivet Nut, 1/4-20 Round
14	4641104	1	Gasket, Hyd Tank
15	4641063	1	Cover, Hydraulic Tank
16	2800459	1	Thermometer, 2", 0 - 200 F
17	2401305	1	Filler/Breather Cap (Top Mount)
	2900339	6	Cap Screw, Hex Hd., M5-0.8 x 12mm
18	2900567	2	Flat Washer, 5/16" USS
19	2900031	2	Lock Washer, 5/16" Split
20	2900883	2	Cap Screw, Hex Hd., 5/16-18 x 5/8"
21	2900024	8	Lock Washer, 1/4" Split
22	2900023	8	Cap Screw, Hex Hd., 1/4-20 x 5/8"
23	1800535	1	Decal, "Hydraulic Fluid Only"
24	1801893	1	Logo Decal

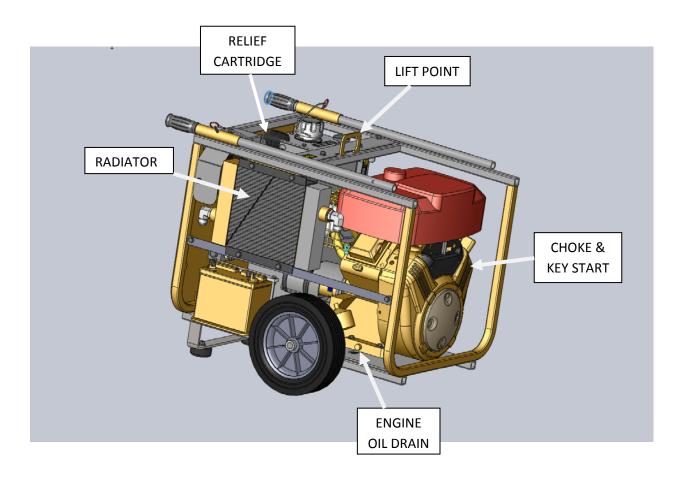
#### 4641103 CB18 XL PANEL ASSEMBLY



# 4641103 CB18 XL PANEL ASSEMBLY

ITEM	PART NO.	QTY.	DESCRIPTION	
1	4641062	1	Instrument Panel	
2	4646102	1	Manifold, SAE O-Ring	
3	4646101	1	Manifold, 3/4 NPT	
4	2900009	22	Flat Washer, 1/4" SAE	
5	2901001	8	Cap Screw, Hex Hd., 1/4-20 x 2-1/2"	
6	2900010	10	Lock Nut, 1/4-20 Nylon	
7	3200479	3	Plug, 3/4" NPT Square Head	
8	3201434	1	Plug, 1/2" SAE O-Ring Hex	
9	3200367	1	Elbow, 1/2" O-Ring to 1/2" Male JIC 45 Deg.	
10	3201291	1	Adapter, 1/2"M.O-Ring to 1/4" MJIC	
11	3201241	1	Elbow, 1/4" M. JIC to 1/4" F. JIC	
12	3200444	1	3/4" MPT to 1/2" MJIC, 45 Deg.	
13	3200097	1	Adapter, 3/4" M. JIC to 3/4" M. Pipe	
14	3201306	1	#12 MOR PLug (3/4" O-Ring)	
15	3200371	1	Adaptor, 1/2" MPT to 1/2" O-Ring	
16	3200105	1	Nipple, 1/2" Q.D.	
17	3200383	1	Nipple, Hex, 3/4" MPT TO 1/2" MPT	
18	3200104	1	Coupler, 1/2" Q.D.	
19	3201654	1	Valve, Flow Control	
20	3200287	3	Adapter, 5/8" O-Ring to 1/2" M. JIC	
21	2900245	2	Cap Screw, Soc. Hd., 1/4-20 x 2-5/8"	
22	3200250	1	Gauge, Hydraulic, 3000 PSI	
23	3200131	1	1/4" FPT, 45 Deg.	
24	2801367	1	E-Stop Switch	
25	2801502	1	Tach/Hour Meter, W/#6 Screws	
26	2800144	1	Relay, 50 Amp, 12 V, SPDT	
27	2900016	2	Flat Washer, #10 USS	
28	2900159	1	Machine Screw, Rd. Hd., #10-24 x 5/8"	
29	2900017	1	Lock Nut, #10-24 Nylon	
30	2800481	1	Fuse Holder	
31	2803014	1	Fuse, 15 Amp, Slo Blow	
32	2900024	1	Lock Washer, 1/4" Split	
33	2900008	1	Cap Screw, Hex Hd., 1/4-20 x 1"	
34	2900125	1	Hex Nut, 1/4"-20	
35	1800536	1	"Return" Decal	
36	1800941	1	Decal, Hydraulic Power Supply	
37	1800531	1	"Hyd. Pressure" Decal	
38	1801907	1	Decal, Stop	
39	1801848	1	Decal, CB18 Flow Control	
40	1801692	1	Decal, Core Bore CB18	
41	1800169	1	Serial Number Plate, US	
42	2900053	2	Rivet, 3/32" Dia.	
43	2900022	6	Flat Washer, 5/16" SAE	
44	2900031	6	Lock Washer, 5/16" Split	
45	2900958	6	Cap Screw, Hex Hd., 5/16-18 x 1/2"	

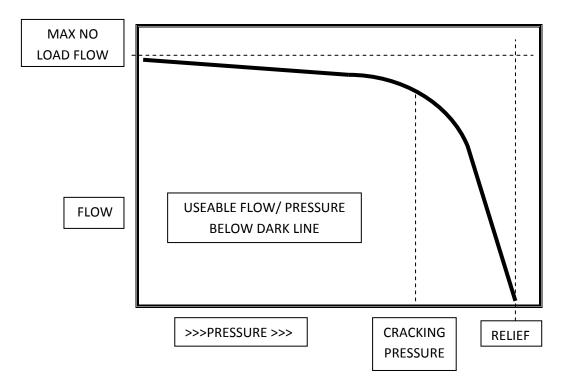




CB POWER PACK	MAXIMUM <u>NO</u>	RELIEF
MODEL	<u>LOAD</u> FLOW	SETTING
	GPM/LPM	PSI/BAR
15 Electric	12.75 / 48.2	2100 / 145
18 Briggs Vanguard	11.6 / 43.9	2850 / 196.5
20 Electric	14.9 / 56.4	2400 / 165.5
21 Honda	14.1 / 53.2	2600 / 179.3
30 Electric	20.4 / 77.2	2300 / 158.6
35 Briggs Vanguard	17.2 / 65.1	3000 / 206.9

# **CB POWER PACK FLOW AND PRESSURE RATING**

Maximum <u>no load</u> flow is based on pump and motor manufacturer's specifications for pump displacement and no load RPM. Relief is set to insure gas engines cannot reach their stall torque and electric motors will not exceed the recommended current limit.



Flow decreases as engine/motor RPM drops under load. Relief valves begin to open and shunt flow to tank at 75-80% of the relief setting (cracking pressure). This further reduces flow to the tool. At relief, all flow is directed to tank.

Issued August 2011

# **GENERAL SAFETY PRECAUTIONS**

<u>WARNING</u>: Do not operate power unit without reading this <u>entire</u> manual and the engine operation manual first. Keep manuals with power unit at all times for reference.

This manual describes the operating procedures, care, maintenance, adjustments, and safety precautions for proper use of this machine. This equipment is intended for industrial applications by experienced operators. It is to be operated in conformance with applicable federal, state, and local codes or regulations pertaining to safety, air pollution, noise, etc.

Tool operators and maintenance personnel must always comply with the safety precautions given in this manual and on the stickers and tags attached to the equipment.

These safety precautions are given for your safety. Review them carefully before operating the tool and before performing general maintenance or repairs.

Supervising personnel should develop additional precautions relating to the specific work area and local safety regulations.

In addition to this manual, read and understand safety and operating instructions in the Engine Operation Manual furnished with the Power Unit in addition to this manual.

- Establish a training program for all operators to ensure safe operation.
- Do not operate the power unit unless thoroughly trained or under the supervision of an instructor.
- Do not inspect or clean the power unit while it is running.
- Always use hoses and fittings rated at a minimum 2850 PSI (196.5 bar) with a 4 to 1 safety factor for pressure lines.
- Be sure all hose connections are tight.
- Make sure all hoses are connected for correct flow direction to and from the tool being used.
- Do not inspect hoses and fittings for leaks by using bare hands. "Pin-hole" pressure leaks can penetrate the skin.
- Never operate the gas power unit in a closed space. Inhalation of engine exhaust can be fatal.
- Do not operate a damaged or improperly adjusted power unit.
- Never wear loose clothing that can get entangled in the working parts of the power unit.
- Keep all parts of your body away from the working parts of the power unit.

- Always wear appropriate safety equipment such as goggles, ear protection, head protection and safety shoes. Certain tools used in conjunction with the power unit may require other safety equipment such as breathing filters.
- Keep clear of hot engine exhaust.
- Do not add fuel to the power unit while the power unit is still running or is still hot.
- Do not operate the power unit if a gasoline odor is present.
- Do not use flammable solvents around the power unit engine.
- Do not operate the power unit within 3 ft. (1 meter) of buildings or flammable objects.
- Allow the engine to cool before storing the unit in an enclosed area.
- To avoid personal injury or equipment damage, all tool repair, maintenance and service must only be performed by authorized and properly trained personnel.

**IMPORTANT**: The red stop button at the front panel will immediately stop the engine. Hydraulic pressure and flow will go to zero. This button must be in the out position to start the unit.

**DANGER**: Improper use or alteration of this equipment may be extremely hazardous.

#### SAFETY SYMBOLS

Safety symbols are used to emphasize actions which could result in a life-threatening situation, bodily injury, or damage to equipment.

Always observe safety symbols. They are included for your safety and for the protection of the tool.

# ! DANGER !

This safety symbol may appear on the tool. It is used to alert the operator of an action that could place him/her or others in a life threatening situation. !<u>WARNING</u>: !

This safety symbol appears in these instructions to identify an action that could cause bodily injury to the operator or to other threatening situation.

! IMPORTANT!

This safety symbol appears in these instructions to identify an an action or condition that could result in damage to the tool or other equipment.

# **DESCRIPTION AND SPECIFICATIONS**

**Pump:** Gear, pump rotation is clockwise (motor is CCW).

**Maximum GPM:** 11.6 GPM (43.9L/M) at no load, 3900RPM. Flow will decrease as pressure approaches the relief setting and as engine RPM drops under load.

Hydraulic Fluid Tank Capacity: 5-1/2 gallons (20.8Liters)

**Hose Couplings:** Bruning quick disconnect, 1/2 inch

**Relief Pressure:** Factory set at 2850 PSI /196.5 Bar (at valve outlet port). Adjustable to750 PSI. At relief, all flow is to tank and none to tool.

Engine: Briggs & Stratton 18 HP (13.5KW) Net @ 3900 RPM , air-cooled, RPM set to 3900 Fuel tank: 1.9 Gal (7.1L).

This unit is compatible with most hydraulically driven sawing and drilling components. The system may not be compatible with components of some manufacturers.

The power unit was inspected and operated before shipment and should not require any additional adjustments prior to its initial use.

**Hydraulic Fluid**: The reservoir of the hydraulic power unit must be full prior to start-up. The use of high quality petroleum based hydraulic oil with the following properties is recommended:

- Anti-wear
- Low foaming
- Rust and oxidation inhibitors
- Wide temperature range
- Fluid viscosity: 8-1000 Centistokes (52-4600 SUS). The unit is shipped with an ISO 46 Viscosity grade (8Cs/52SUS @ 212F/100C and 46Cs/210SUS @ 104F/40C).

The oil must be kept free of contamination to avoid damage to system components. The strainer in the fill cap must always be in place when adding oil. Quick disconnects must be cleaned before connections are made.

Control Valve: The pressure

compensated flow control valve on this unit allows full flow control while the gas engine remains at its most efficient wide-open throttle. This allows a higher operating pressure at all flows. <u>Flow settings</u>: CCW, all flow routed to tank. Flow to tool increases as valve rotates clockwise. <u>Relief pressure</u> can be adjusted by removing the cap at the top of the main control and using an Allen wrench to adjust the relief cartridge. The relief can be set as low as 750 psi; do not exceed 2850 psi as the engine may stall. To adjust, the flow control must be set at MAX and no tool should be attached. This will force all flow over relief. Securely replace the cap as oil seepage will occur through the relief cartridge. The relief is factory set at 2850 psi and should rarely need adjustment.

**Hydraulic Oil Cooler:** The power unit is equipped with an oil to air forced air style oil cooler. The radiator fan will come on automatically when the oil temperature reaches ~120F. (49C.) and continue to run until the temperature switch cools, even if the engine is shut off. The fan *will* stop whenever the emergency stop switch is used.

**HOSES**: Large diameters and short lengths are preferred and offer the highest system efficiency. If one is operating 50 ft (15.2M) from the power source, there is also a 50 ft (15.2M) return for a 100 ft (35.5M) total hose length. With 10 GPM and oil at 100 deg. F (37.8C), this could result in a 140 psi (9.6 Bar) pressure loss with ½" hose and a 60 psi (4.1 Bar) loss with 5/8" hose. Pressure loss will change dramatically with oil temperature.

# **OPERATING INSTRUCTIONS**

#### **Operator Responsibilities**

It is the operator's responsibility to use this unit and any attached tools under safe working conditions and to follow proper safety procedures for themselves, coworkers, observers, and the public at large. The operator must be aware of the machine's capabilities and limitations and follow the safety precautions in each section of this manual. Periodic maintenance is required, in accordance with the instructions herein, to promote safe and reliable operations.

# WARNING: Keep bystanders out of the immediate work area.

Wear approved:

- Safety glasses
- Ear protection
- Hard hat
- Gloves
- Safety shoes
- Any other protective equipment required for compliance with standard safety practices or federal, state, and local codes and regulations

**Hose Connections:** It is best to connect the hoses to the unit before starting as even very low residual pressure can make hose installation more difficult. Push couplings together until you hear it click. Turn locking ring of coupling to the secured position.

**Gas Engine:** Make sure that the engine crankcase is filled with oil to the proper level! Refer to your engine manual for oil checking and changing procedures, along with oil specifications, etc.

# **IMPORTANT:** Operating the engine without oil will ruin the engine.

**Fuel:** Use regular grade unleaded gasoline to fuel the engine. Premium

grade may be used if necessary. Fill the tank when the engine is off and has been allowed to cool. Care should be taken to prevent spilling fuel. **Do not overfill the fuel tank.** Always leave enough space for expansion due to environmental heating.

<u>WARNING</u>: In the event of fuel spillage, do not start the engine or operate any nearby electrical component until the spilled fuel has been removed.

#### **Starting Procedure:**

- Set the flow control valve to zero.
- Open the fuel shut off valve at the rear of the engine.
- Be certain the emergency off switch has been pulled out.
- Set choke if necessary (cold engine). Turn key to start and release. Refer to engine manual for details of control functions.
- Let engine warm and gradually open the choke.

DANGER: Exhaust from the gas engine contains carbon monoxide, a poisonous, odorless, invisible gas, which can cause serious illness or death. Do not operate the gas engine where ventilation is restricted. Open windows and doors may not be sufficient to prevent this hazard.

Heating Cold Oil: Forcing the oil over relief will quickly increase the oil temperature. With no tool connected to the unit, move the valve setting toward 10. This will force an increasing percentage of oil over relief. Heat cold oil to ~100F/38C maximum if desired. Cold oil greatly increases pressure loss in hoses and fittings and may affect tool operation.

**Maintaining Oil Temperature:** To force high oil temperatures down, run the unit

with the flow control set to zero. This unloads the unit yet circulates the oil through the cooling system. The rate of cooling will depend on the ambient temperature.

Some control valves at the external tool may create backpressure and heat even when off. It is best to set the flow control to zero or shut the power unit down to avoid heating and conserve energy.

**IMPORTANT:** Monitor the thermometer at the top of the hydraulic tank. Maximum recommended oil temperature is 180 degrees Fahrenheit (82 deg C).

#### Shutting Down:

- Shift the flow control valve to zero to unload the system.
- Turn the key to the off position.

<u>IMPORTANT</u>: The red emergency stop button at the front panel will immediately stop the engine and radiator fan. Hydraulic pressure and flow will go to zero. This button must be in the out position to start the engine.

## OPERATING DRIVEN EQUIPMENT

The operator must know the hydraulic requirements and limitations of the driven equipment and the appropriate adjustments must be made on the controls. The introduction of other control devices may cause system heating or may render the system inoperative.

**IMPORTANT:** This power unit is equipped with a positive displacement gear pump. All tools must be equipped with a control valve that shunts flow directly to return ports when not in use. Blocking oil flow or abruptly

#### disconnecting the tool can send flow over relief and potentially overheat the system.

Instructions supplied with the driven equipment must be followed to ensure correct connection and operation of each individual piece of equipment. Equipment supplied by Diamond Products will be capable of being connected correctly and will be compatible with this power unit, providing neither has been modified from original factory configuration. With equipment of other manufacturers, it will be necessary to determine the following:

- Correct direction of flow through the equipment.
- Correct pressure and flow required by the equipment.
- Compatibility of any valves or circuitry and quick disconnects. Some handheld equipment uses a trigger control, which is operated frequently. These valves must be of the open center type for correct operation.

**IMPORTANT:** The quick disconnects must be clean when connecting hoses and devices. Dirty connections may result in contamination and premature failure of system or tool components.

# MAINTENANCE INSTRUCTIONS

- Oil Filter: change the filter when indicated by the gage at the filter.
- Oil Change: establishing an oil analysis program is the preferred method of determining oil condition and when to change it. If the oil is kept clean, dry, and operated at moderate temperatures, it can last for several years. With no analysis program an oil change every 200 hours is recommended. See the section <u>Hydraulic Fluid</u> for specifications. A <sup>1</sup>/<sub>2</sub>" pipe thread oil drain port is at the bottom of the hydraulic tank.

- Gas Engine Oil: Change engine oil and filter and perform other routine maintenance as recommended in the engine operation manual.
- Inspect hoses, couplings, and fittings daily for leaks, tighten as required.
- Clean quick disconnects frequently. Replace any leaking or defective components immediately.
- Check hydraulic oil level daily. Fill tank to upper end of sight tube with unit off.

# TROUBLESHOOTING

PROBLEM	POSSIBLE SOLUTIONS
	1) Pull out emergency stop button.
Gas engine will not start.	<ul><li>2) Open gas line valve at rear of engine.</li><li>3) Dead battery?</li></ul>
	4) Low engine oil?
	Check gas engine RPM at tachometer on
Low oil flow.	front panel. Adjust governor to 3900 RPM if
	required. See engine manual.
	Contamination may have plugged an orifice
System builds high pressure with flow control	in the CF port of the flow valve. Detach the
valve set to zero.	valve from the front panel and remove the
	fitting from the CF port. A .015" orifice should
	be visible at the bottom of the port. Push a
	fine wire through the orifice and re-install.

Keep this manual and the engine manual readily available at all times for reference.

#### Corporate Office

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# EQUIPMENT AND PARTS WARRANTY

Diamond Products warrants all equipment manufactured by it against defects in workmanship or materials for a period of one (1) year from the date of shipment to Customer.

The responsibility of Diamond Products under this Warranty is limited to replacement or repair of defective parts at Diamond Products' Elyria, Ohio factory, or at a point designated by it, of such parts as shall appear to us upon inspection at such parts, to have been defective in material or workmanship, with expense for transportation and labor borne by Customer.

In no event shall Diamond Products be liable for consequential or incidental damages arising out of the failure of any Product to operate properly.

Integral units such as engines, electric motors, batteries, transmissions, etc., are excluded from this Warranty and are subject to the prime manufacturer's warranty.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, AND ALL SUCH OTHER WARRANTIES ARE HEREBY DISCLAIMED.



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