CORE POWER
OPERATOR'S MANUAL

CP38KXL
HYDRAULIC POWER UNIT

July, 2023

Part #: 1802747-01

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CP38KXL HYDRAULIC POWER UNIT OPERATOR'S MANUAL

Introduction

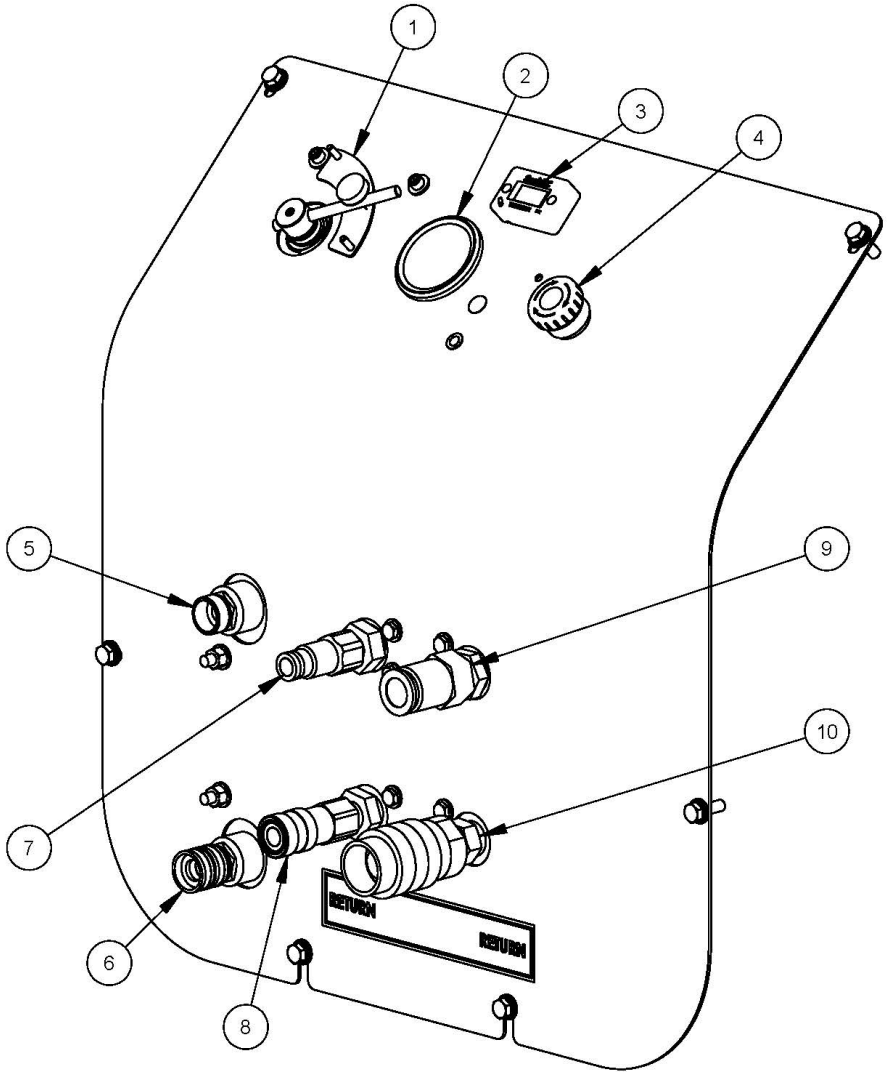
Welcome to the Diamond Products family and thank you for choosing Diamond Products equipment. At Diamond Products we are driven to ensure you are completely satisfied with your product and continually strive to improve our product line so that we can offer you the best possible equipment in the industry.

This operator's manual is a critical document that provides pertinent information regarding the safety, operation, maintenance, and care of your new equipment. Keep this manual available at all times. Operate the equipment and all of its components according to this manual. Failure to comply with and understand the following safety, operation and maintenance instructions can result in serious injuries and/or death. All operators must be properly trained or supervised by experienced personnel prior to using this equipment and should understand the risks and hazards involved. Diamond Products discourages improper or unintended equipment usage and cannot be held liable for any resulting damages.

Equipment modifications should be made by Diamond Products to ensure safety and design. Any modifications made by the owner(s) are not the responsibility of Diamond Products and void all equipment warranties if a problem arises as a result of the modification.

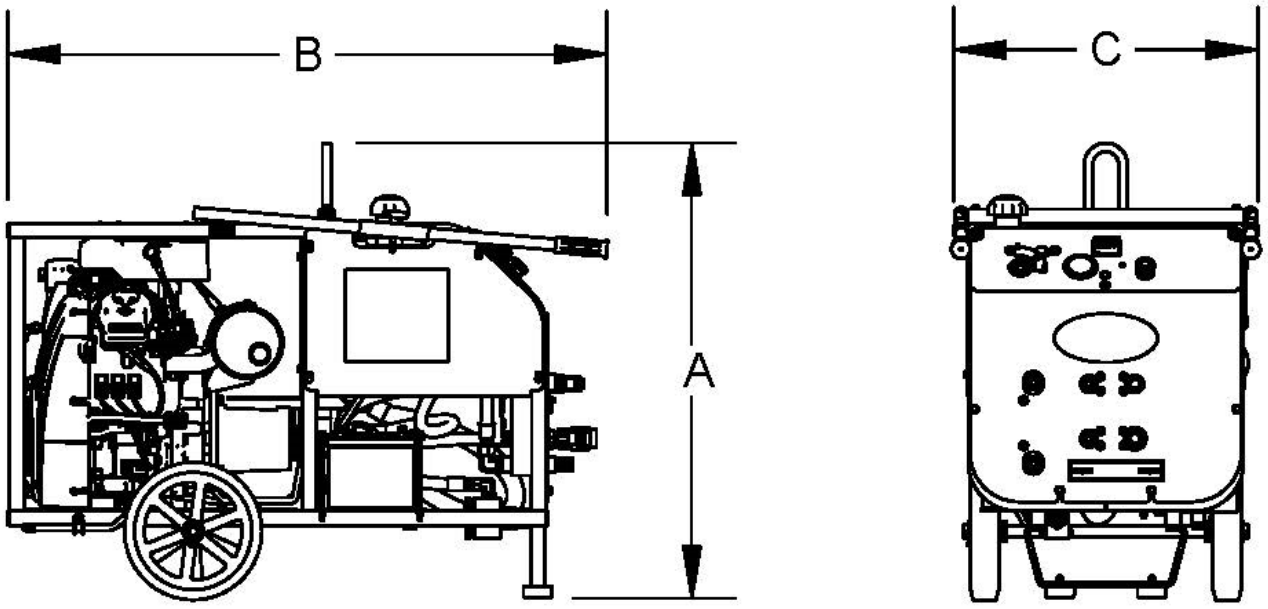
Refer to the Diamond Products Parts List for additional information and part diagrams. Refer to the engine/motor manual and manufacturer as the primary source for all safety, operations, and maintenance instructions regarding the engine/motor. Prior to operating, record the equipment's serial number, and the engine's/motor's model and serial numbers in Appendix C.

CP38KXL Controls



1. **Flow Control Valve –** Allows the operator the ability to increase or decrease flow from the hydraulic tank to the tool(s).
2. **Hydraulic Gauge –** Provides visual indication of hydraulic oil pressure.
3. **Tach/Hour Meter -** Provides visual indication of engine speed and total number of engine operating hours.
4. **Emergency Stop Button –** Stops the engine
5. **Inlet Water Connection –** Allows cooling water enter into the hydraulic oil cooler.
6. **Outlet Water Connection –** Allows cooling water to discharge from the hydraulic oil cooler.
7. **Pressure Port Connection (1/2") –** Attachment point for 1/2" hydraulic oil supply hose.
8. **Return port Connection (1/2") –** Attachment point for 1/2" hydraulic oil return hose.
9. **Pressure Por Connection (3/4") –** Attachment point for 3/4" hydraulic oil supply hose.
10. **Return Port Connection (3/4") –** Attachment point for 3/4" hydraulic oil return hose.

CP38KXL Dimensions



CP38KXL Dimensions		Inches	Millimeters
A	Unit Height	40	1016
B	Unit Length	52-1/4	1327
C	Unit Width	27	686

CP38KXL Specifications

Engine	Kohler PRO EFI ECH980
Emission Regulation	US EPA & EU Stage V
Engine Type	Kohler, 4-cycle, gasoline, OHV, cast iron cylinder liners, aluminum block, electronic fuel injection
Engine Max Power	38 HP (28.3 kw) @3600 rpm (Kohler rating)
Peak Torque	58 lb.-ft (78.6 Nm) @ 3400 rpm
Engine Air Filtration	Low profile paper element with pre-cleaner
Battery	12 Volt (300 CCA), Group U1
Starter	12 Volt solenoid shift starter
Fuel Type	Gasoline, Unleaded, 87 Octane or higher
Fuel Tank	4.4 Gallon (16.7 Liter) with fuel gauge level indication
Engine Oil**	2 Qt. (1.9 Liter) 10W-30
Hydraulic Pump	Casappa PLP20, 1.0 CI, 3.6 KSI
Hydraulic Fluid	Mobile DTE10 EXCEL 46, 11 Gal. (41.6 Liter)
Max. GPM	16 GPM (60.6 L/M) @ no load, 3600 rpm
Hydraulic Relief	3000 psi (83 bar), factory set, adjustable
Lubrication Type	NLGI #2 Lithium grease
Wheels	12″ x 2-1/2″ x 1″ rubber tread x 2-3/4″ steel hub

** See Kohler engine manual for additional oil specifications based on climate.

Safety

Operate the equipment and all of its components according to this manual. Failure to comply with and understand the following safety, operation and maintenance instructions can result in serious injuries and/or death. All operators must be properly trained or supervised by experienced personnel prior to using this power unit and should understand the risks and hazards involved. Diamond Products discourages improper or unintended equipment usage and cannot be held liable for any resulting damages.

Equipment modifications should be made by Diamond Products to ensure safety and design. Any modifications made by the owner(s) are not the responsibility of Diamond Products and void all equipment warranties if a problem arises as a result of the modification.

Refer to the Diamond Products Parts List for additional information and part diagrams. Refer to the engine manual and manufacturer as the primary source for all safety, operations, and maintenance instructions regarding the engine. Prior to operating, record the power unit's serial number, and the engine's model and serial numbers in Appendix C.

Notice: The information in this manual may be updated at any time!

Safety Alerts

DANGER
Serious injuries and/or death will occur if these instructions are not followed.

WARNING
Serious injuries and/or death could occur if these instructions are not followed.

CAUTION
Mild and/or moderate injuries could occur if these instructions are not followed.

Proposition 65

PROPOSITION 65
WARNING: This product produces gasoline or diesel engine exhaust, which is known to the state of California to cause cancer, birth defects or other reproductive harm. For more information go to: **WWW.P65WARNINGS.CA.GOV**

Spark Arrester Requirement

WARNING
In the 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.

Respiratory Hazards

WARNING
Concrete cutting produces dust and fumes known to cause illness, death, cancer, respiratory disease, birth defects, and/or other reproductive harm. Safety protection techniques include, but are not limited to:

- Wearing gloves.
- Wearing safety goggles or a face shield.
- Using approved respirators.
- Washing work clothes daily.
- Using water when wet cutting to minimize dust.
- Washing the hands and face prior to eating/drinking.

For additional safety and self-protection information contact your employer, the Occupational Safety and Health Administration (OSHA), and/or The National Institute for Occupational Safety and Health (NIOSH).

General Safety

- Read and understand all safety, operations, and maintenance instructions provided in this manual prior to operating or servicing the power unit.
- Keep equipment components clean and free of slurry, concrete dust, and debris.
- Inspect water hoses prior to operating the equipment. Clean, repair, or replace damaged components.
- Inspect hydraulic hoses prior to operating the equipment. Clean, repair, or replace damaged components.
- Raise the equipment to a proper height for access when working underneath the equipment. Use chocks to block the wheels, and fit blocks or jacks under the frame edges.
- Repair the equipment immediately when a problem arises.
- Replace equipment decals if unreadable.
- Dispose of all hazardous waste materials according to city, state, and federal regulations.
- Always have a phone nearby, and locate the nearest fire extinguisher and first aid kit prior to operating the equipment.
- Operate the equipment wearing flame resistant clothing.
- Underage or non-trained personnel should not operate the equipment.
- Keep all body parts away from rotating machinery.
- Replace all guards and access panels (unless stated otherwise) prior to operating the equipment.

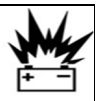
DO NOT:

- Assume the equipment will remain still when parking/stopping the equipment on a slope. Chock the wheels to help prevent unnecessary movement.
- Drop equipment, supplies, tools, etc., when handling to help prevent injuries.
- Lift and carry equipment, supplies, tools, etc., that are too heavy and/or cannot be lifted easily.
- Operate the equipment without using the appropriate safety equipment required for the work task.

- Operate or service the equipment with any clothing, hair, or accessories that can snag in the machinery, which could lead to serious injuries or death!
- Operate the equipment using attachments not associated with or recommended for the equipment.
- Operate the equipment around combustible materials.
- Operate the equipment with anyone near the work area.
- Operate the equipment until all unnecessary materials have been removed from the work area.
- Operate the equipment with loose nuts, screws, and bolts.
- Operate the equipment when ill or fatigued.
- Operate the equipment under the influence of drugs and/or alcohol.
- Operate the equipment on steep slopes.
- Touch hot components when operating the equipment.
- Leave the equipment unattended until the engine is off.
- Place the equipment into storage until it has cooled down.
- Service the equipment until it has cooled down.
- Service the equipment with the engine running.

Battery and Electrical Safety

- Ignitable explosive gases are emitted from the battery. DO NOT expose the battery to sparks or open flames.



- Keep the area around the battery well-ventilated.
- Keep the battery level when handling it.
- Use protective eyewear or a face shield, and avoid contact with the skin when handling/servicing the battery.
- Use a proper battery tester when testing the battery strength.
- Always be sure to connect the battery cables to the proper terminal when reconnecting the cables.
- Occasionally inspect the battery, cables, clamps, and terminals for damages. Service components as necessary.
- Always keep the battery cable clamps away from the battery terminals when the battery is disconnected to avoid accidental connections while servicing.
- Immediately rinse your clothing, skin, or eyes with water if exposed to battery acid. Seek medical attention immediately!
- Disconnect the battery prior to servicing all equipment components (unless stated otherwise).
- Remove the battery when storing the equipment for longer periods.
- Always use the correct size fuses (amps) to prevent fires.

Fuel Safety

- Always use caution when refueling.
- Store all fuel in appropriate safety containers.
- DO NOT operate the equipment with a fuel leak.
- DO NOT fuel the equipment with the engine running.
- Let the engine cool prior to adding fuel.
- Refer to the engine manual for recommended fuels.
- Always use appropriate fuels in cold weather.
- Move the equipment away from the refueling area prior to starting the engine.
- DO NOT smoke or expose fuel to open flames when filling the fuel tank or working with fuel.

- Clean up any spilled fuel prior to starting the engine.
- Drain the fuel tank and fuel lines when storing the equipment for longer periods of time. Refer to the engine manual for additional recommendations.

Engine Safety

- Refer to the engine manual as the primary source for engine safety.
- Always know how to turn off the engine quickly for emergency purposes.
- Fill the fuel tank and check the oil level prior to starting the engine.
- Keep all body parts away from rotating equipment parts with the engine in operation.

- DO NOT start the engine without the air filter(s) installed.
- DO NOT allow dust to enter the air intake tube when cleaning/replacing air filter(s).
- Replace damaged components immediately that may allow dust to enter the engine.
- DO NOT leave the engine running unattended.
- Always operate the equipment in well-ventilated areas. Concentrated engine exhaust can cause loss of consciousness and/or death.

- DO NOT touch the engine/muffler assembly with the engine running, and always let them cool down prior to touching or servicing the equipment.
- Handle hot oil carefully when changing the oil.
- Let the engine cool prior to removing pressurized caps (applicable models).
- DO NOT use any starter substances or starter fluids (e.g., starter fluid sprayed into the air filter) when starting the engine using a glow plug (applicable models). These materials are extremely flammable and explosive, and can melt parts or possibly explode when used to help start the engine.

Hydraulic Safety

- Turn off the engine prior to servicing hydraulic components.
- Always make sure any hydraulic components being serviced are not supporting the weight of other equipment components. If a particular component is under pressure when connection points are loosened, oil may spray out forcefully.

- Always place a piece of cardboard or paper up against hydraulic components, or use a leak detection fluid to check for hydraulic fluid leaks. Keep all body parts away from leaks and/or areas that may eject hydraulic fluid. Pressurized hydraulic fluid can penetrate the skin, causing serious injuries. Seek medical attention immediately!

Transporting Safety

- Make sure the truck/trailer is in good, working condition and sufficient to transport the load. DO NOT tow the equipment behind a vehicle.
- Close the fuel shutoff valve (applicable models) when transporting.
- Drain the fuel tank when transporting long distances.
- Use ramps that will support the weight of the equipment and yourself when loading or unloading.
- Chock the wheels and secure the power unit in the truck/trailer prior to transporting.
- Refer to the Department of Transportation (DOT) for additional transportation recommendations.

Lifting Safety

- Move yourself and all others away from the lifting area when hoisting the power unit to prevent being crushed.

- Secure the appropriate hoisting cables, straps, and/or chains to the power unit's designated lift point prior to hoisting.
- Never use the tie-down brackets (applicable models) to lift the power unit.
- DO NOT attempt to lift the power unit irresponsibly and/or improperly.

Operating

General Operating Precautions

- Prior to operating the power unit, read the operator's manual thoroughly and ensure that you understand the safe and proper operation of the power unit.
- Use approved personal protective equipment at all times while operating the power unit.
- Ensure that there is firefighting equipment and a first aid kit nearby while operating the power unit.
- Ensure the work area is free of obstructions, people, and/or animals prior to operating the power unit.

Emergency Stop

If an emergency condition should arise, the power unit is equipped with an emergency stop button located on the front of the control panel. The emergency stop places the power unit into safe mode allowing the operator to address the emergency condition.

NOTE: Only use the emergency stop in an emergency condition. Do not use it to stop the power unit during normal operations.

Activating the Emergency Stop

To activate the emergency stop, press down on the emergency stop button. The engine will shut off.

Deactivating the Emergency Stop

Prior to deactivating the emergency stop, ensure that the power unit is back into a safe operating condition. Then turn the emergency stop button clockwise until it springs back into position. The power unit can now be restarted.

Emergency Stop Button

Handlebars

The handlebars help to guide and maneuver the power unit. The handlebars have two positions for operation, fully extended or retracted for storage and transport. Both positions can be locked in place using the provided detent pins.

Handlebars

Adjusting the Handlebars

1. Remove the detent pin holding the handlebar in the handlebar tube.
2. Move the handlebar to the desired position by aligning the hole through the handlebar with the corresponding hole in the handlebar tube.
3. Reinsert the detent pin through the holes to lock the handlebar in place.
4. Repeat for the second handlebar.

The pressure compensated flow control valve 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.

The flow control valve is located on the upper left of the control panel. When the valve is set at the min gpm setting, all flow is directed to the hydraulic tank. As the valve is rotated clockwise, the flow to the tools will increase.

Flow Control Valve

Pressure Relief Valve

Overpressure protection is provided by a pressure relief valve located just below the left side of the control panel. The valve is factory set at 3000 psi (206.9 bar) which directs all flow back to the tank. The valve can be manually adjusted down to 1200 psi (83 bar).

⚠CAUTION
When adjusting the pressure relief valve DO NOT exceed 3000 psi.

Adjusting the Pressure Relief Valve

1. Ensure that there are no tools attached to the power unit and start the engine.
2. Allow the hydraulic oil to warm up to approximately 100°F (38°C).
3. Rotate the flow control valve clockwise to allow maximum flow over the relief.

Pressure Relief Valve

4. Using a 1" wrench, loosen the lock nut securing the adjusting bolt on the relief.
5. Using a 3/8" allen key, turn the adjusting bolt counterclockwise to bring the relief pressure down to the required setting.
6. When the required setting is achieved, tighten the lock nut on the adjusting bolt to secure.
7. Rotate the flow control valve back to the min rpm setting and turn the engine off.

Hydraulic Oil Cooler

The power unit is equipped with a brazed plate oil cooler. Water will pass through the cooler and discharge to the driven tools for dust suppression or blade and bit cooling. Some tools will automatically shut the water off when not actively cutting or drilling. This may result in higher oil temperatures if the power unit continues to run for long periods without cooling water. Ideally the oil temperatures need to stay below 120° F (49° C). In order to avoid this situation, an optional oil to air cooler is available.

NOTE: If temperatures are expected to drop below 0°F (-18°C), drain the water from the cooler.

Hydraulic Oil Cooler

Air to Oil Cooler (Optional)

A radiator/fan driven oil cooler is available to provide an additional cooling source for the hydraulic oil. The fan is set to turn on at approximately 120°F (49°C) and continue to run until the oil temperature drops below 120°F (49°C). The fan will continue to run even if the engine is turned off. However, the fan will stop whenever the emergency stop button is activated.

Hoses

Large diameters and short lengths are preferred and offer the highest system efficiency. Particular attention must be paid to the hose lengths. When using a 50 foot (15.2 M) supply hose there is also a 50 foot (15.2 M) return hose for a total of 100 feet (30.5 M) of hose. At 15 GPM and oil temperature at 100°F (37.8°C), this could result in a 400 psi (27.5 bar) pressure loss when using a 1/2" hose and a 140 psi (9.6 bar) pressure loss when using a 5/8" hose. As oil temperature changes, the pressure loss will change dramatically.

Hose Connections

It is best to make all hose connections prior to starting, as even the slightest pressure will make hose connections difficult. Push the hose couplings together until they click, then turn the locking ring on the coupling to the secured position.

Fuel

⚠WARNING

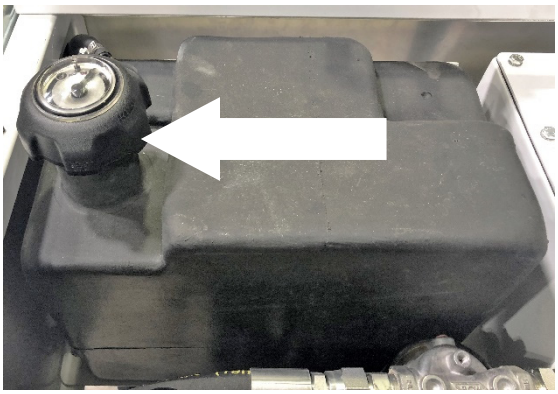
Always use caution when refueling.
DO NOT operate the power unit with a fuel leak.
DO NOT fuel the power unit with the engine running.
DO NOT smoke or expose fuel to open flames when filling the fuel tank or working with fuel.

⚠CAUTION

Clean up any spilled fuel prior to starting the engine.

Adding Fuel

1. Turn off the engine and let the power unit cool down.
2. Remove the fuel tank cap.
3. Fill the fuel tank with unleaded 87 octane or higher only. DO NOT overfill the tank for expansion purposes. Refer to the engine manual for additional information.
4. Replace the fuel tank cap.



Fuel Tank Cap

Engine

⚠WARNING

Operate the power unit in well-ventilated areas. Concentrated engine exhaust can cause loss of consciousness and/or death.
DO NOT touch the engine/muffler with the engine running, and always let them cool down prior to touching or servicing the power unit.
DO NOT leave the power unit unattended while the engine is running.

Tasks Prior to Starting the Engine

1. Check oil level and add as required. DO NOT overfill.
2. Check fuel level and fill as required. DO NOT overfill.
3. Pull up on the emergency stop button.
4. Ensure the fuel shutoff valve located under the fuel tank is open.
5. Set the flow control valve to zero.

Starting the Engine

1. Set the throttle control midway between fast and slow positions.

NOTE: If the fuel system is dry, turn the key switch to ON position for one minute to prime the system.

2. Turn the key switch to *START* and release as soon as the engine starts.

NOTE: If the engine does not start within 10 seconds, turn the key switch to OFF position and try again approximately 30 seconds later. Refer to the engine manual if the condition persists.

3. Set the throttle control to the fast position.

Stopping the Engine

1. Rotate the flow control valve counterclockwise to the min rpm setting.
2. Set the throttle control back to midway between the fast and slow positions.
3. Turn the key switch to the off position.
4. Close the fuel shutoff valve located under the fuel tank.

NOTE: If the hydraulic oil temperature is above 120°F (49°C) and the unit is equipped with the oil to air cooler, the fan will continue to run after the engine is turned off until the oil temperature falls below 120°F (49°C).

Heating Cold Oil

Cold oil greatly increases pressure loss in hoses and fittings and may affect tool operation. Prior to operating tools, heat the oil by forcing it over relief as follows:

1. Ensure no tools are connected to the power unit.
2. Start the engine in accordance with the starting instructions above.
3. Rotate the flow control valve clockwise toward the max rpm setting.
4. Allow the hydraulic oil to warm up to approximately 100°F (38°C).
5. Rotate the flow control valve to the min rpm setting.
6. Turn off the engine.
7. The unit is now ready for operation.

Maintaining Hydraulic Oil Temperature

With an ample water supply and the oil to air cooler, it is unlikely that overheating will be an issue except in the most extreme ambient temperatures. To lower high oil temperatures, operate the unit with the flow control valve in the min rpm setting. This will unload the unit while circulating oil through the cooling system. The rate of cooling will depend on the ambient temperature and the amount of water being circulated through the cooler.

NOTE: Monitor the thermometer on the top of the hydraulic tank. Maximum recommended oil temperature is 180°F (82°C).

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 devices may cause system heating or may render the system inoperative.

⚠CAUTION

The power unit is equipped with a positive displacement gear pump. All tools must be equipped with a control valve that allows 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 condition. With equipment from 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.

⚠CAUTION

The quick disconnects must be clean when connecting hoses and devices. Failure to thoroughly clean may result in contamination and premature failure of system or tool components.

Maintenance

General

Failure to read and comply with the maintenance instructions provided in this manual prior to performing maintenance may result in serious injuries and/or death, and may harm the power unit. DO NOT attempt to perform maintenance on the power unit if you are not properly trained for it, or are not supervised by an experienced person.

Refer to the CP38KXL Parts List for additional information and part diagrams when performing maintenance tasks. Refer to the engine manual and manufacturer as the primary source for all safety, operations, and maintenance instructions for the engine. Contact the power unit and/or engine manufacturer with any additional questions.

Remove all necessary guards and access panels prior to servicing the power unit. Replace prior to operating.

Pre Maintenance Preparations

- Ensure the power unit is in a safe area to conduct maintenance.
- Maintain proper cleanliness of the work area to minimize personal injury or equipment damage.
- Ensure the power unit is sufficiently cool to conduct any maintenance.
- Place the power unit on a level surface with the engine turned off and the emergency stop activated.
- Ensure there is adequate lighting in the work area to ensure safety.
- Ensure all equipment and tools required for the maintenance task are staged and available for use.
- Prior to any maintenance being performed, know the locations of all safety equipment such as fire extinguishers, first aid kits, etc.
- All maintenance shall be performed by qualified personnel only.

General Cleaning

The power unit must be cleaned after each use and prior to conducting any maintenance. Ensure that the power unit is cool prior to cleaning. Ensure affected electrical equipment is properly covered or de-energized prior to cleaning with water or air.

Cleaning Techniques

Various cleaning options can be utilized depending on the type of cleaning required. High pressure washers and a mild detergent will work the best. Compressed air and low pressure water can also be utilized where required.

⚠CAUTION

Care must be taken when using high pressure water and compressed air to conduct any maintenance or cleaning. High pressure water and compressed air can cause injury to personnel or damage to equipment if not used properly.

Air to Oil Cooler

Ensure that the air to oil cooler is cool prior to cleaning. Use compressed air or a power washer, set at 25° or larger, to clean the cooler fins being careful not to damage the fins. A mild detergent with low pressure water can also be used to clean or degrease the oil to air cooler.

NOTE: Plugged or damaged radiator fins can and will diminish the cooling capacity of the air to oil cooler.

Control Panel

Do not spay water on the control panel to clean. Use a damp cloth or compressed air to clean electrical components. Dry the control panel after cleaning.

Engine

Use a mild detergent and water to clean the engine. Do not to spray water forcefully on the engine to prevent damage to components.

NOTE: Do not spray water into the exhaust pipe or air filter.

Service Schedule

The service schedule is based primarily on the standard operating time of the machine. The frequency of the maintenance tasks can be increased based on the working environments of the machine. For additional recommended engine maintenance, refer to the engine owner's manual.

	Daily	25 Hrs.	100 Hrs.	150 Hrs.	200 Hrs.	500 Hrs.
Visually inspect power unit for damage and repair as necessary	X					
Wipe down and clean all components for dust, debris, and slurry	X					
Check that all side panels and heat shield are in place	X					
Check for loose or frayed wiring. Repair/replace as necessary	X					
Check for loose nuts and bolts and retighten	X					
Inspect all hoses for damage, leaks, or looseness and repair/replace as necessary	X					
Check engine oil level	X					
Check fuel level	X					
Check hydraulic fluid level	X					
Check hydraulic filter	X[1]					
Drain water from oil cooler	X[1]					
Clean the low profile air precleaner filter		X[2]				
Change engine oil and filter element			X[3]			
Replace the the low profile air cleaner element				X		
Replace fuel filter				X[4]		
Replace hydraulic oil					X[4]	
Replace the spark plugs and set the gap						X[4]

1 - Service as required
2 - Clean more often if operating in dusty conditions
3 - Initially change at 50 operating hours
4 - Or 1 year whichever occurs first

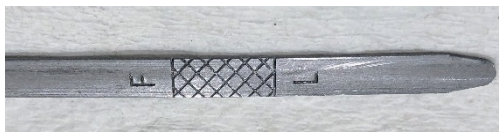
Daily Service

Check Engine Oil Level

1. Remove the engine oil dipstick from the left side of the power unit.

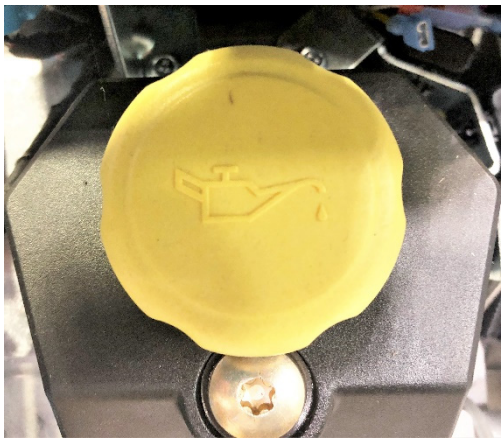
Engine Oil Dipstick

2. Check the oil level on the dipstick. The level should be at the top of the FULL indicating line.



Engine Oil Level Indicators

3. If the level is low, remove the engine oil fill cap located next to the oil dipstick.



Oil Fill Cap (Top of Engine)

4. Add oil until the level is correct on the dipstick.
5. Replace the engine oil fill cap.

Check Fuel Level

1. The fuel cap is equipped with a fuel level gage for fuel level indication.

Fuel Tank with Level Indicating Cap

2. If the fuel level is low, remove the fuel tank fill cap located on the top of the fuel tank.
3. Fill the tank with unleaded 87 octane or higher only.
4. Replace the fuel tank fill cap.

Check the Hydraulic Oil Level

It is important to keep the hydraulic oil free of contamination to avoid damage to system components. There is a strainer in the fill cap that must be checked for debris prior to every use and must always be in place when filling the tank with fresh hydraulic oil.

1. The hydraulic tank, located on the right side of the power unit, has a liquid level sight gage located on the side. The hydraulic oil level should be at the upper end of the sight glass.

Liquid Level Sight Gage

2. If the oil level is low, remove the fill cap from the top of the tank and fill the tank to the upper end of the sight glass.

Hydraulic Oil Tank Fill Cap

3. Check for any contamination in the fill strainer and remove as required.
4. Replace the fill cap onto the tank.

Check the Hydraulic Oil Filter

An oil filter with a differential pressure gage is provided at the inlet of the hydraulic tank to aid in minimizing contamination in the system. When the gage indicates that the differential pressure is in the red zone (25 -100 psi), the filter should be replaced.

Hydraulic Oil Filter

Replacing the Hydraulic Oil Filter

1. Remove the four bolts securing the left side panel to the frame.
2. Place an oil receptacle drain pan under the hydraulic oil filter.
3. Loosen the fitting on the inlet hose to the hydraulic oil filter.
4. Remove the hose and allow the fluid to drain into the drain pan.
5. Remove the filter using a filter wrench.
6. Dispose of the oil and filter in accordance with city, state and federal regulations.
7. Completely fill the new filter with Mobile DTE10 EXCEL 46 oil and add a thin film of oil to the gasket on the filter.
8. Screw the new filter into the filter head until the gasket is seated. Then turn the filter 1/2 turn by hand to secure.
9. Reinstall the inlet hose to the filter head and tighten the hose fitting securely.
10. Remove the reservoir tank cap.
11. Add Mobile DTE10 EXCEL 46 oil to the reservoir tank up to the upper end of the sight glass. DO NOT overfill as fluid will leak out from the reservoir cap.
12. Replace the cap and tighten to secure.

Drain the Water from the Oil Cooler

When storing the unit for an extended period of time or when operating in cold climate conditions, it is important to drain the water from the oil cooler to prevent it from freezing and causing damage to the cooler.

1. Ensure that all hoses are disconnected from the oil cooler water inlet and outlet fittings.
2. Using low pressure air, blow out the water tubes from the top fitting until there is little to no water exiting the lower fitting.

25 Hour Service

Clean the Low Profile Pre-cleaner Filter

If the air to oil cooler option is installed, start at step #1. If the tool tray option is installed, start at step #5. If no air to oil cooler is installed start at step #7.

1. Remove the four 5/16-18 x 2-1/4" hex head cap screws attaching the radiator guard and cooler assembly to the frame and set aside.
2. Remove the radiator guard.
3. Disconnect the green and black wires attached to the temperature switch located on the cooler.
4. Carefully lift the cooler from the frame and flip it toward the back of the power unit being careful not to damage the hoses. Set it down on a clean secure surface.
5. If the tool tray option is installed, remove the four 5/16-18 x 2" hex head cap screws attaching the tool tray to the frame and set aside.
6. Remove the tool tray.
7. Loosen the two knobs on the top of the low profile air cleaner and remove the cover.

⚠CAUTION
Ensure to keep dust and debris from entering the air intake while the top is removed to prevent possible engine failure.

8. Remove the foam pre-cleaner from the paper element.
9. Replace or wash the pre-cleaner in warm water with detergent. Rinse and allow to air dry.
10. Saturate the pre-cleaner with new engine oil; squeeze out the excess oil.
11. Reinstall the pre-cleaner over the paper element.
12. Reinstall the air cleaner cover and tighten the two knobs to secure.
13. If the tool tray option is used, reinstall the tool tray and secure using the four 5/16-18 x 2" hex head bolts.
14. If the air to oil cooler option is being used, carefully set the cooler back onto the frame.
15. Reattach the temperature switch wires as follows:
    - Black wire to center tab
    - Green wire to outer tab
16. Reinstall the radiator guard on top of the cooler and align the bolt hole to the frame and secure using the four 5/16-18 x 2-1/4" hex head bolts.

100 Hour Service

Change the Engine Oil and Filter

- Refer to Engine Operator's Manual for oil and oil filter specifications and capacities.

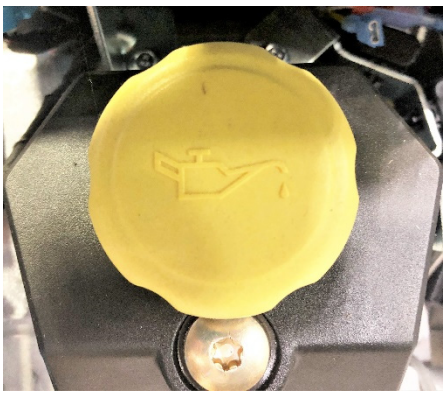
1. Run the engine until it reaches normal operating temperature and then shut the engine OFF.

⚠WARNING
DO NOT drain the oil with the engine running.

2. Place drain pan beneath drain hose located on the left side of the power unit.

Engine Oil Drain Hose

3. Remove the engine oil fill cap.



Engine Oil Fill Cap

4. Remove the drain plug on the end of the drain hose and drain the oil completely.
5. Remove the oil filter located at the back of the engine using a filter wrench.
6. Dispose of the oil and filter in accordance with city, state and federal regulations.
7. Replace the drain plug onto the end of the drain hose.

8. Lubricate the rubber gasket on the new oil filter with a film of oil and install the filter on the engine.
9. Tighten the filter only hand tight.
10. Add oil in accordance with the manufacturer's specifications and capacities.
11. Replace the engine oil fill cap.

150 Hour Service

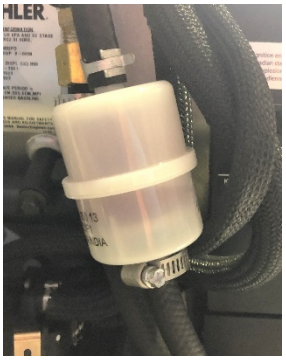
Replace the Low Profile Air Cleaner Element

If the air to oil cooler option is installed, start at step #1. If the tool tray option is installed, start at step #5. If no air to oil cooler is installed start at step #7.

1. Remove the four 5/16-18 x 2-1/4" hex head cap screws attaching the radiator guard and cooler assembly to the frame and set aside.
2. Remove the radiator guard.
3. Disconnect the green and black wires attached to the temperature switch located on the cooler.
4. Carefully lift the cooler from the frame and flip it toward the back of the power unit being careful not to damage the hoses. Set it down on a clean secure surface.
5. If the tool tray option is installed, remove the four 5/16-18 x 2" hex head cap screws attaching the tool tray to the frame and set aside.
6. Remove the tool tray.
7. Loosen the two knobs on the top of the low profile air cleaner and remove the cover.
8. Remove the foam pre-cleaner from the paper element.
9. Replace or wash the pre-cleaner in warm water with detergent. Rinse and allow to air dry.
10. Remove the paper element and replace with a new one.
11. Saturate the pre-cleaner with new engine oil; squeeze out the excess oil.
12. Reinstall the pre-cleaner over the paper element.
13. Reinstall the air cleaner cover and tighten the two knobs to secure.
14. If the tool tray option is used, reinstall the tool tray and secure using the four 5/16-18 x 2" hex head bolts.
15. If the air to oil cooler option is being used, carefully set the cooler back onto the frame.
16. Reattach the temperature switch wires as follows:
    - Black wire to center tab
    - Green wire to outer tab
17. Reinstall the radiator guard on top of the cooler and align the bolt hole to the frame and secure using the four 5/16-18 x 2-1/4" hex head bolts.

Replace the fuel Filter

1. Ensure the engine is turned off.
2. Ensure the fuel shutoff valve located under the fuel tank is closed.
3. Locate the fuel filter on the right side of the power unit and place a container under it.



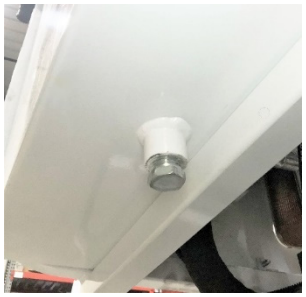
Fuel Filter

4. Loosen the spring clamp on the discharge hose and remove the fuel filter. Direct any fuel from the hose into the container,
5. Loosen the worm clamp on the inlet hose and remove the fuel filter. Direct any fuel from the hose into the container.
6. Install the new fuel filter and secure using the spring clamp and worm clamp on the hoses.
7. Discard the used fuel according to city, state, and federal regulations.
8. Open the fuel shutoff valve located under the fuel tank.

200 Hour Service

Replace Hydraulic Oil

1. Ensure the engine is turned off.
2. Place a drain pan under the 1/2" plug located on the bottom of the hydraulic tank.



Hydraulic Oil Tank Drain Plug

3. Remove the hydraulic tank fill cap.
4. Remove the drain plug below the tank and allow the oil to completely drain into the drain pan.
5. Replace the drain plug.
6. Dispose of the oil and filter in accordance with city, state and federal regulations.
7. Add Mobile DTE10 EXCEL 46 oil to the reservoir tank up to the upper end of the sight glass. DO NOT overfill as fluid will leak out from the reservoir cap.
8. Replace the hydraulic tank fill cap and tighten to secure.

500 Hour Service

Replace the Spark Plugs

There are two spark plugs located on either side of the engine.

1. Ensure the engine is turned off.
2. Pull the plug wire from the plug on the right side of the power unit.

Spark Plug

3. Remove the old plug.
4. Using a feeler gauge, gap the new plug to 0.030" (0.76 mm).
5. Install the plug into the cylinder head and torque it to 20 ft.-lb. (27 Nm).
6. Repeat for the left side plug.

Regular Maintenance

Engine

WARNING

Let the engine cool down prior to servicing the saw.

DO NOT service the saw with the engine running (unless stated otherwise).

Refer to the engine manual and manufacturer for a full engine maintenance schedule and additional engine maintenance information.

Battery

WARNING

Ignitable explosive gases are emitted from the battery. DO NOT expose the battery to sparks or open flames, and keep the area around the battery well-ventilated.

Disconnect the battery prior to servicing the saw (unless stated otherwise).

Always keep the battery cable clamps away from the battery terminals when the battery is disconnected to avoid accidental connections while servicing.

Always be sure to connect the battery cables to the proper terminal when reconnecting.

CAUTION

Use a proper battery tester when testing the battery strength.

Use protective eyewear or a face shield and avoid contact with the skin when handling/servicing the battery.

The saw contains a charged battery with one positive cable lead and one negative cable lead.

Battery Type

12 Volt, Group Size 24

Battery

Servicing the Battery

1. The battery is located on the left side of the power unit.
2. Remove the battery hold down bracket by unscrewing the two 1/4-20 x 7-1/2" hex head cap screws.
3. Disconnect the negative cable lead from the negative terminal.

NOTE: Always disconnect the negative cable first.

4. Disconnect the positive cable lead from the positive terminal.
5. Remove the battery from the battery platform by sliding the battery out.
6. When replacing the battery, carefully place a new battery onto the battery platform. Bring the old battery to a recycling facility; many battery retailers also accept old batteries.
7. When cleaning the battery, inspect the terminals, clamps, and cables for damages and corrosion. Clean the terminals and clamps using a wire brush, or use another approved technique for cleaning. Use acid-free, acid-resistant grease to grease the battery clamps and terminals. Carefully place the battery back into the battery box.
8. Reconnect the positive cable lead to the positive battery terminal.

NOTE: Always reconnect the positive cable first.

9. Reconnect the negative cable lead to the negative battery terminal.
10. Reinsert the battery hold down bracket and secure it using the two 1/4-20 x 7-1/2" hex head cap screws.

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Appendix A

Troubleshooting

Troubleshooting the CP38KXL		
Symptom	**Problem**	**Solution**
1. Engine will not start.	Out of Fuel?	Fill fuel tank.
	Fuel lines or fuel filter clogged?	Unclog or replace fuel lines or fuel filter.
	Fuel shutoff valve closed?	Open fuel shutoff valve.
	Faulty battery connection?	Inspect, clean, and tighten battery cables.
	Engine malfunction?	Refer to engine manual.
	Battery voltage low?	Recharge Battery.
	E-Stop is active.	Pull up emergency stop button.
2. Low hydraulic oil flow.	Engine RPM too low?	Refer to engine manual.
	Low hydraulic fluid?	Check hydraulic fluid level and fill as necessary.
3. System builds high pressure with flow control valve set at minimum rpm	Orifice clogged?	Detach the flow control valve from the front panel. 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 port to clear the clog. Reinstall the fitting on the CF port. Reinstall the flow control valve onto the front panel.
4. Optional air to oil cooler fan does not run.	Oil temp < 120°F (49°C)?	Normal, fan turns on after oil temp. > 120°F (49°C).
	Bad fuse?	Check fuse on front panel, replace if required.
	Loose electrical wires?	Check wiring to ensure tight connections..
	E-stop is active?	Pull up emergency stop button.

Appendix B

Additional Resources

1. Kohler **(www.kohlerpower.com)**
   - *Command PRO EFI ECH980 Owner's manual*

2. Diamond Products (**www.diamondproducts.com**)
   - *CP38KXL Power Unit Parts List*
   - *A Guide for Professional Concrete Cutters*
   - *Training Manual – Introduction to Diamond Blades, Bits, and Equipment*
   - *Diamond Products' Equipment Catalog*
   - *Diamond Products' Website* (**www.diamondproducts.com**)

3. Concrete Sawing and Drilling Association (**www.csda.org**)
   - The CSDA has many helpful concrete cutting publications available to members and non-members.

4. Association of Equipment Manufacturers (**www.aem.org**)
   - The AEM has a variety of safety and technical manuals available for various types of equipment, along with a list of industry-standardized safety symbols.

5. Occupational Safety & Health Administration (OSHA) (**www.osha.gov/**)
   - OSHA provides information on work-related safety and health practices.

6. The National Institute for Occupational Safety and Health (NIOSH) (**www.cdc.gov/NIOSH/**)
   - NIOSH provides information on work-related safety and health practices.

Appendix C

Model and Serial Numbers

Record the power unit's serial number below for future reference and customer service purposes.

Serial Number	

Record the engine's model and serial numbers below for future reference and customer service purposes.

Model Number	
Serial Number	

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.

DIAMOND PRODUCTS®

333 Prospect Street, Elyria, Ohio 44035
(440) 323-4616 • (800) 321-5336 • Fax (800) 634-4035
www.diamondproducts.com

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