



*'Whatever It Takes'*

# **Operator's Manual**

**CC110-SS Concrete Saw**

**CC110D-DC Deep Cut Concrete Saw**

**Part Number: 1801463**

**(800) 321-5336**

*[www.diamondproducts.com](http://www.diamondproducts.com)*



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# Safety Precautions

Operate the CC110-SS Concrete Saw and the CC110D-DC Deep Cut Concrete Saw and all of their components according to this manual. Failure to comply with and understand the following safety, operations, 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 these saws and should understand the risks and hazards involved. Diamond Products discourages improper or unintended saw usage and cannot be held liable for any resulting damages.

Saw 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 saw warranties if a problem arises as a result of the modification.

Refer to the CC110-SS or CC110D-DC Parts List for additional information and part diagrams. Refer to the CANtrak manual, and engine manual and manufacturer as the primary source for all safety, operations, and maintenance instructions regarding the engine. Prior to operating, record the saw's serial number, and the engine's model and serial numbers in Appendix A.

**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

### WARNING

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



## 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 saw.
- Keep saw components clean and free of slurry, concrete dust, and debris.
- Inspect water hoses prior to operating the saw. Clean, repair, or replace damaged components.
- Raise the saw to a proper height for access when working underneath the saw. Use chocks to block the wheels, and fit blocks or jacks under the frame edges at the front and back of the frame for additional support.
- When using a jack to raise the saw, place the jack against a solid, flat area under the frame base to properly support the saw.
- Repair the saw immediately when a problem arises.
- Replace saw 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 saw.
- Operate the saw wearing flame resistant clothing.
- Always wear safety glasses when removing retaining rings.
- Persons under the statutory age limit should not operate the saw.
- Keep all body parts away from rotating machinery.
- Replace all guards and access panels (unless stated otherwise) prior to operating the saw.
- Always pivot guards fully to avoid serious injuries.
- DO NOT assume the saw will remain still when in neutral or when parking/stopping the saw on a slope. Chock the wheels to help prevent unnecessary movement.

### DO NOT:

- 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 saw without using the appropriate safety equipment required for the work task.



- Operate or service the saw with any clothing, hair, or accessories that can snag in the machinery, which could lead to serious injuries or death!
- Operate the saw using attachments not associated with or recommended for the saw.

### DO NOT (cont.):

- Operate the saw around combustible materials or fumes to prevent fires/explosions.
- Operate the saw with anyone near the work area or within the direct line of the blade.
- Operate the saw until all unnecessary materials have been removed from the work area.
- Operate the saw with loose nuts, screws, and bolts.
- Operate the saw when ill or fatigued.
- Operate the saw under the influence of drugs and/or alcohol.
- Operate the saw on steep slopes.
- Cut concrete with guards and access panels removed.
- Grease the saw with the engine running (unless stated otherwise).
- Touch hot components when operating the saw.
- Leave the saw unattended until the engine is off and the blade has stopped spinning.
- Place the saw into storage until it has cooled down.
- Service the saw until it has cooled down.
- Service the saw with the engine running (unless stated otherwise).

## 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 saw components (unless stated otherwise).
- Remove the battery when storing the saw for longer periods.
- Always use the correct size fuses (amps) to prevent fires.

## Blade Safety

- Always use reinforced abrasive blades or steel-centered diamond blades.
  - Never use a wet cutting blade without an adequate water supply to properly lubricate the blade.
  - Inspect all blades prior to usage and discard damaged blades. Clean dirty blades as necessary.
  - DO NOT install or remove a blade with the engine running.
  - Keep all body parts away from rotating blades.
  - Inspect the blade flanges for damages, wear, and cleanliness. Clean or replace dirty/damaged components immediately.
- 
- DO NOT expose yourself or anyone else to the direct line of the blade when operating the saw. 
- 
- Always use an appropriate size blade and the correct blade type based on the cutting task and the type of material being cut.
  - The blade must always fit snug on the blade shaft, outer flange, and/or inner flange.
  - Wear gloves and be alert to the surrounding environment when handling blades.
  - When installing the blade, always point the arrow printed on the blade in the direction of the blade shaft's rotation.
  - DO NOT exceed the blade's maximum recommended speed when cutting. Excessive blade speeds can cause blade breakage, resulting in serious injuries and/or death!
  - DO NOT use damaged blades when cutting to avoid harming yourself, others, or the saw.
  - DO NOT use a blade for cutting that requires a lower speed than the blade shaft speed.
  - Always tighten the blade shaft bolt/nut as directed to properly secure the outer flange and blade. Failure to properly secure the outer flange and blade may cause parts to loosen or fall off the saw, resulting in serious injuries or death!
  - Let the blade cool prior to removal when dry cutting (applicable models).

## Blade Guard Safety

- DO NOT operate the saw with the blade guard raised or removed.
- Blade exposure should not exceed 180° while cutting.
- When pivoting the front of the blade guard, raise/lower it cautiously and slowly to avoid serious injuries. DO NOT pivot larger guards when installing/removing larger blades.
- DO NOT pivot the front of the blade guard up or down when installing/removing large blades.

Attempting to pivot the front of the guard when the guard is raised higher makes the guard very heavy and difficult to lift and/or lower.

- Always pivot the front of the blade guard 180° (fully upward) so the guard does not swing down unexpectedly, causing serious injuries. 
- Use extreme caution when installing/removing parts of a guard or the entire guard as guards can be extremely heavy and may require installation/removal at moderate heights.
- DO NOT install or remove the blade guard with the engine running.
- Always use a blade guard that corresponds with the blade size.
- Inspect the blade guard and water tubes prior to starting the saw. Clean or replace dirty/damaged components immediately.

## Fuel Safety

- Always use caution when refueling.
  - Store all fuel in appropriate safety containers.
  - DO NOT operate the saw with a fuel leak.
  - DO NOT fuel the saw 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 saw 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 saw 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.
  - Make sure the speed control lever is at neutral when starting the engine.
  - Fill the fuel tank and check the oil level prior to starting the engine.
- 
- Keep all body parts away from rotating saw parts with the engine running. 
  - 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 saw 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 saw.
  - 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.

### **Cutting Safety**

- The direct work area should not contain buried or embedded electrical, gas, or water lines that could be damaged and/or cause personal injury while cutting.
- Turn off all electricity, gas, and water around the direct work area prior to cutting.
- DO NOT expose yourself or anyone else to the direct line of the blade when operating the saw.
- DO NOT allow any person, animal, and/or object in and around the work area while cutting.

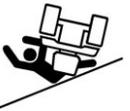
### **Hydraulic Safety**

- Turn off the engine prior to servicing hydraulic components.
  - Lower the saw completely prior to servicing to relieve some hydraulic fluid pressure in the system.
  - Always make sure any hydraulic components being serviced are not supporting the weight of other saw components. If a particular component is under pressure when connections 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! 

### **Belt Safety**

- Turn off the engine and let the belts cool down prior to servicing them.
- Regularly inspect the belts for fraying, stress cracks, and/or breakage and replace immediately when damaged. Always check the belt alignment prior to operating the saw.
- Use extreme caution when working with belts and rotating machine parts to avoid entanglement.
- Over-tensioning the belts may damage the power take-off or PTO. Under-tensioning the belts may cause slippage, shorter belt life, and/or poor saw performance.
- Squealing belts indicate looseness.
- DO NOT use old and new belts on the same sheave together.

### **Transporting Safety**

- Remove the blade prior to transporting the saw.
  - Make sure the truck/trailer is in good, working condition and sufficient to transport the load. DO NOT tow the saw behind a vehicle.
  - Close the fuel shutoff valve when transporting.
  - Drain the fuel tank when transporting long distances.
  - Use heavy-duty ramps that will support the weight of the saw and yourself when loading or unloading.
  - Raise the saw to avoid damaging components while moving up and down ramps.
- 
- Use extreme caution when guiding the saw up and down ramps. Slowly drive the saw forward down the ramp. Slowly back the saw in reverse up the ramp. Avoid standing directly downhill from the saw to prevent machine rollover. 
- 
- Chock the wheels and secure the saw in a truck/trailer prior to transporting.
  - Place the speed control lever at neutral and turn off the engine once the saw is loaded in the truck/trailer.
  - 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 saw to prevent being crushed. 
- Secure the appropriate hoisting cables, straps, and/or chains to the saw's designated lift points prior to hoisting.
- Never use the tie-down brackets (applicable models) to lift the saw.
- DO NOT attempt to lift the saw irresponsibly and/or improperly.

# Introducing the CC110-SS and CC110D-DC

## Controls

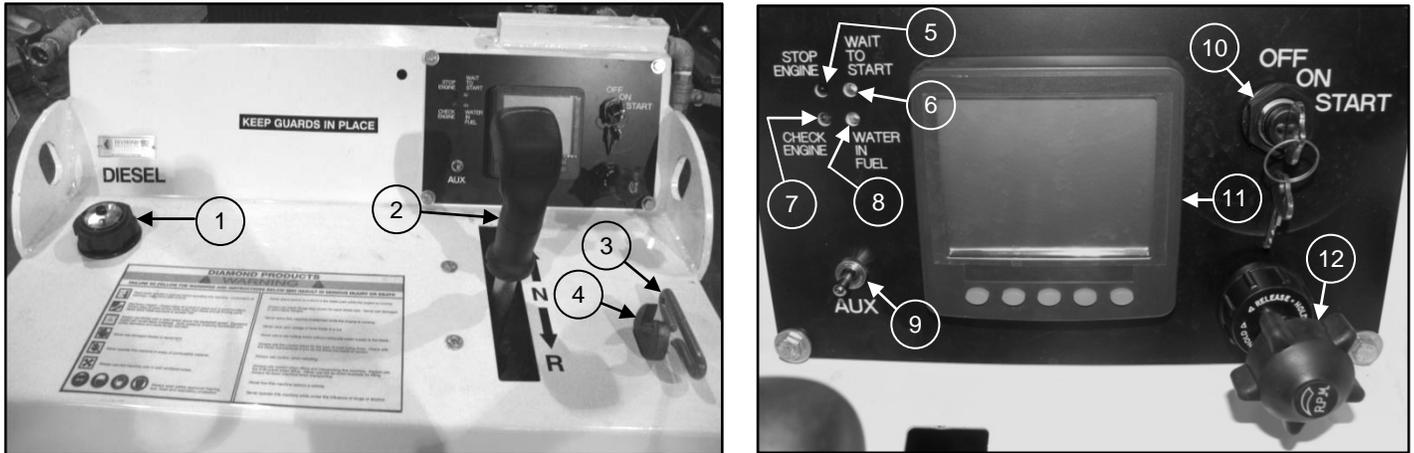


Figure 1: CC110-SS/CC110D-DC Controls

1. **Fuel Tank Cap**—Fuel port; indicates fuel level.
2. **Speed Control Lever**—Forward/neutral/reverse control for the saw.
3. **Hex Key**—Use to tighten the inner flange screws when installing/removing blades (CC110D-DC only).
4. **Wrench**—Use to tighten the blade shaft bolt when installing/removing blades.
5. **Stop Engine Light**—Indicates an engine problem. The engine must be stopped **immediately** for maintenance. *Note: The engine will turn off within a short time if not done manually.*
6. **Wait to Start Light**—Indicates when to start the engine if using a glow plug (applicable models).
7. **Check Engine Light**—Indicates an engine problem. The engine must be stopped as soon as possible for maintenance.
8. **Water in Fuel Light**—Indicates that water must be emptied from the water/fuel separator.
9. **AUX Switch**—Raises or lowers fifth wheel (CC110D-DC only).
10. **Ignition Switch**—Starts the engine.
11. **CANtrak Generic Engine Monitor (GEM)**—Displays engine data and alerts, and records additional information when operating the saw. *Note: Refer to the GEM manual for information on using the monitor.*
12. **Vernier Throttle**—Increases or decreases the engine rpm.

Item(s) not shown above:

1. **Emergency Stop Button**—Stops the engine.
2. **Control Grip**—Pushbuttons raise or lower the saw and blade.
3. **Spotlight Switch (Optional)**—Turns the spotlight on or off.

## Dimensions

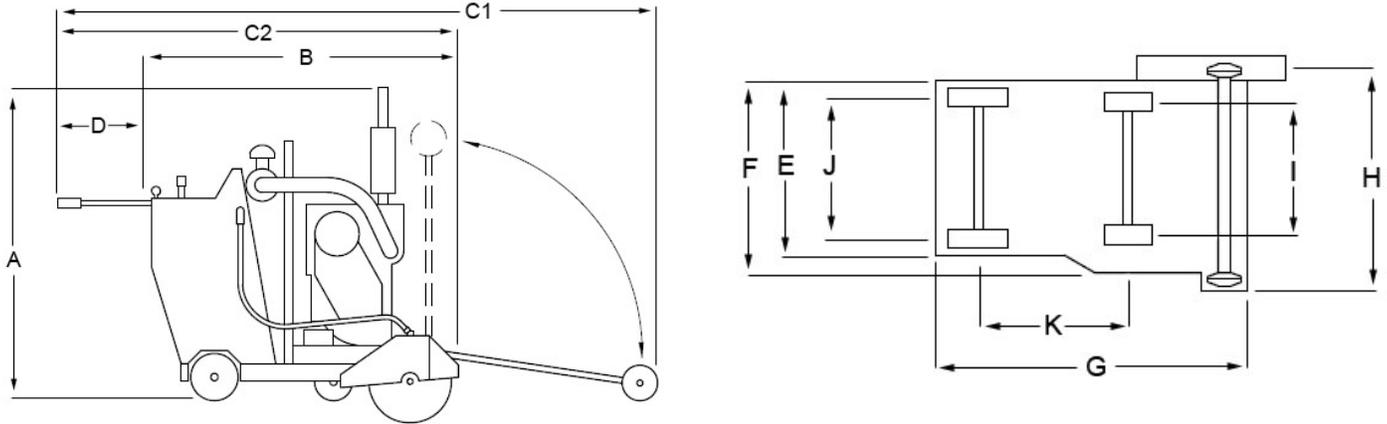


Figure 2: CC110-SS/CC110D-DC Dimensions

Table 1: CC110-SS Dimensions		
A	Saw Height	74"
B	Minimum Length, Handles In	72"
C1	Maximum Length, Handles Out	126"
D	Handle Extension	22"
E	Frame Width (Rear)	30"
F	Frame Width (Front)	30"
G	Frame Length	55"
H	Saw Width	37 1/2"
I	Front Axle Center Length	24"
J	Rear Axle Center Length	26"
K	Wheel Base Length	24"
L	Blade Shaft Maximum Height (not shown above)	19"
Crated Dimensions		84" x 44" x 72"

Table 2: CC110D-DC Dimensions		
A	Saw Height	74"
B	Minimum Length, Handles In	91"
C2	Maximum Length, Handles Out	142"
D	Handle Extension	22"
E	Frame Width (Rear)	30"
F	Frame Width (Front)	30"
G	Frame Length	81"
H	Saw Width	37 1/2"
I	Front Axle Center Length	24"
J	Rear Axle Center Length	26"
K	Wheel Base Length	35"
L	Blade Shaft Maximum Height (not shown above)	37 1/2"
Crated Dimensions		96" x 44" x 72"

## Specifications

<b>Table 3: CC110-SS Specifications</b>	
Maximum Cutting Depth	14-7/8" with 36" blade
Blade Shaft Diameter	2"
Arbor Diameter	1" with four lock pins
Blade Shaft Bearings	Two-bolt pillow block mounted roller bearings
Blade Shaft Drive	Polychain belt
Blade Mounting	Right or left
Blade Raise/Lower	Electro-hydraulic pump
Blade Coolant	Dual water tubes
Blade Guard Attachment	Bolt-on
Handlebars	Length and tilt adjustable
Drive Speed	0-200 ft/min
Fuel Capacity	Nine gallons
Electric Start	Standard
Tachometer/Hour Meter	Standard
Quick Disconnect Blade Flanges	Standard
Frame Lift	Standard
Uncrated Weight <i>(add 100 lb for crated weight)</i>	2,400 lb

<b>Table 4: CC110D-DC Specifications</b>	
Maximum Cutting Depth	32-1/4" with 72" blade
Blade Shaft Diameter	2-1/2"
Arbor Diameter	1" with six bolts
Blade Shaft Bearings	Two-bolt pillow block mounted roller bearings
Blade Shaft Drive	Polychain belt
Blade Mounting	Right or left
Blade Raise/Lower	Electro-hydraulic pump
Blade Coolant	Dual water tubes
Blade Guard Attachment	Bolt-on
Handlebars	Length and tilt adjustable
Drive Speed	0-200 ft/min
Fuel Capacity	Nine gallons
Electric Start	Standard
Tachometer/Hour Meter	Standard
Quick Disconnect Blade Flanges	Standard
Frame Lift	Standard
Uncrated Weight <i>(add 100 lb for crated weight)</i>	2,800 lb

<b>Table 5: Engine Specifications</b>	
Manufacturer	Cummins
Model	QSB3.3
Maximum Horsepower (HP)	110 @ 2,400 RPM
Fuel Type	Low sulfur/ultra-low sulfur diesel fuel
Air Filter	Three-stage
Low Oil and Fuel Alert	Warning lights
Engine Data	CANtrak Generic Engine Monitor (GEM)
<i>Note: Refer to the engine and CANtrak manuals and the manufacturers for additional engine information and specifications.</i>	

# Operating the CC110-SS and CC110D-DC

## Spotlight (Optional)

1. Loosen the light bar lock knob and slide the light bar in or out of the frame to adjust the length of the bar.
2. Tighten the lock knob to secure.
3. Turn the spotlight switch on or off as needed for additional lighting.

## Splash Guard

Applies to the CC110D-DC.

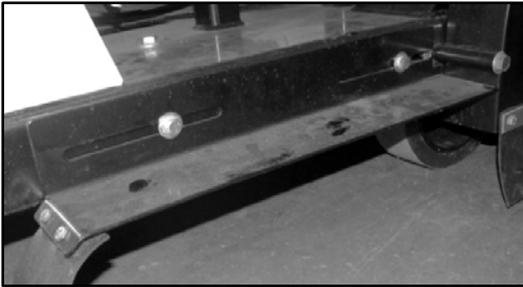


Figure 3: Splash Guard

1. Secure the splash guard to the side of the frame base.
2. Adjust the guard forward or backward to place it up against the blade guard.
3. Remove the bolts and guard as necessary.

## Handlebars

The handlebars help the operator guide and maneuver the saw. Place the handlebars in the desired position for better leverage when lifting and steering. Lift up on the handlebars to lift the rear wheels off the ground and maneuver the saw manually.



Figure 4: Handlebar

## Adjusting the Handlebars

1. Loosen the handlebar lock knob.
2. The handlebar can be positioned on an angle or straight on. To change the position, pull the handlebar out until it reaches the frame opening. Push it back into the frame and guide the bar into the angled or straight on pathway inside the frame upright.
3. Move the handlebar forward or backward to adjust the length and retighten the lock knob to secure.

## Fifth Wheel

Applies to the CC110D-DC.

The fifth wheel helps the operator maneuver the saw from side to side.

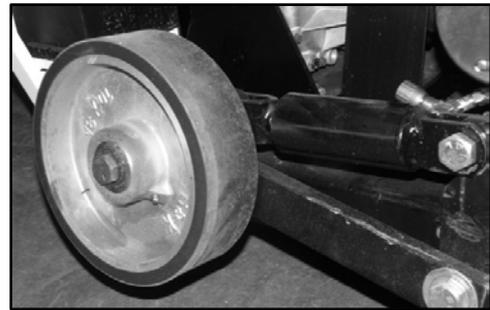


Figure 5: Fifth Wheel

1. Push the AUX switch down to lower the fifth wheel to the ground. *Note: The fifth wheel raises the drive wheels, allowing the saw to be maneuvered from side to side without manually lifting up on the handlebars.*
2. Push the AUX switch up to lift the fifth wheel off the ground.

## Control Grip

The control grip pushbuttons raise and lower the saw and blade (buttons work with engine off).

1. Press the left pushbutton to raise the saw and blade, and release to stop. *Note: Always raise the blade when maneuvering the saw to provide proper clearance between the blade and the ground.*
2. Press the right pushbutton to lower the saw and blade, and release to stop.

## Fuel System

### **WARNING**

- Always use caution when refueling.
- DO NOT operate the saw with a fuel leak.
- DO NOT fuel the saw 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.
- Fuel may seep out from the fuel cap vent (applicable models) when raising the saw if the fuel tank is overfilled.

### Adding Fuel

1. Lower the saw to level the frame.
2. Turn off the engine and let the saw cool down.
3. Remove the fuel tank cap.
4. Fill the fuel tank with low sulfur or ultra-low sulfur diesel fuel. DO NOT overfill the tank for expansion purposes. Refer to the engine manual for information on appropriate diesel fuels in normal and cold weather temperatures.
5. Replace the fuel tank cap and secure.

## Blade Guard

### **WARNING**

- DO NOT operate the saw with the blade guard raised or removed.
- DO NOT remove the blade guard with the engine running.
- Blade exposure should not exceed 180° while cutting.
- Always pivot the front of the blade guard 180° (fully upward) so the guard does not swing down unexpectedly, which may cause serious injuries.
- When pivoting the front of the blade guard, raise/lower it cautiously and slowly to avoid serious injuries.



The blade guard shields the blade and must always be in place when operating the saw. Regularly inspect the blade guard and water tubes. Clean, repair, or replace dirty or damaged components immediately. *Note:*

*Always use a guard size that matches the blade size. Refer to the parts list for more information.*

### Installing the Blade Guard

*Note: Always install the blade guard with the blade off the saw.*

1. Raise the saw slightly for access under the frame base.
2. Rest the blade guard on the ground, and remove the pivot bolt securing the front and back of the guard together. Remove the front of the guard.
3. To ensure safety, have a second trained operator fit the back of the guard over the blade flanges while holding it in place against the side of the frame base.
4. Place a blade guard bolt through the bolt hole near the back of the guard, and secure the first bolt for the guard to the frame base through the bolt hole near the back of the base.
5. *CC110-SS:* Place a blade guard bolt through the bolt hole inside the guard, and secure the second bolt for the guard to the frame base through the bolt hole near the front of the base.
6. *CC110D-DC:* Place a blade guard bolt through both bolt holes inside the guard, and secure the second and third bolts for the guard to the frame through the bolt holes on the front arm of the frame.
7. To ensure safety, have a second trained operator carefully lift the front of the guard and realign the front and back of the blade guard. Replace the pivot bolt to secure the entire guard together.
8. Connect the water supply hose to the water valve and blade guard.



**Figure 6: Blade Guard Installed**

### Removing the Blade Guard

*Note: Always remove the blade guard with the blade off the saw.*

1. Disconnect the water supply hose from the blade guard.
2. Raise the saw slightly for access under the frame base.
3. To ensure safety, have a second trained operator hold the front of the blade guard in place. Remove the pivot bolt securing the front and back of the guard together, and remove the front of the guard from the saw.
4. Have the second operator hold the back of the blade guard in place. Remove the blade guard bolt(s) from inside the guard.
5. Remove the blade guard bolt near the back of the guard.
6. Have the second operator remove the back of the guard from the saw. Reattach the front and back of the guard, if desired, while resting both components on the ground.

### Flange Guard



**Figure 7: Flange Guard**

1. Remove the rubber lock from the jackshaft sheave guard.
2. Carefully pivot the jackshaft sheave guard fully backward to expose the frame base.
3. Remove the flange guard screw and lift the flange guard off the frame base to remove the guard.
4. Fit the flange guard over the blade flanges, rest the guard on the frame base, and secure it to the frame base to install the guard.
5. Carefully pivot the jackshaft sheave guard fully upward and secure with the rubber lock.

### Diamond Blades

#### **! WARNING**

- DO NOT exceed the blade's maximum recommended speed when cutting. Excessive blade speeds can cause blade breakage, resulting in serious injuries and/or death.
- DO NOT use damaged blades when cutting to avoid harming yourself, others, or the saw.



Using the proper blade (size and type) preserves the blade and improves efficiency, resulting in lower costs. Refer to the Association of Equipment Manufacturers (AEM) safety brochure for diamond blades and [www.diamondproducts.com](http://www.diamondproducts.com) for additional blade information.

#### Inspecting the Blade

Inspect each blade prior to installation and discard all damaged blades. Inspect the blades for:

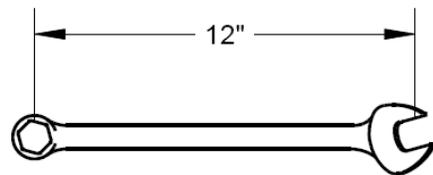
- Cracks, nicks, and dents
- A damaged/deformed arbor (center hole)
- Darkness/discoloration near edge of blade
- A deformed blade circumference
- Segment loss/cracks
- Core wear
- Bending
- Uneven side-widths

#### Blade Speed

Refer to the blade or blade packaging information for the recommended blade speeds when cutting. DO NOT exceed the maximum recommended blade speed. DO NOT use a blade for cutting that requires a lower speed than the blade shaft speed.

#### Wrench

Use the wrench provided when installing or removing a blade. Apply force to the opposite end of the wrench and tighten the blade shaft bolt to 125 ft-lb (169.5 Nm) to secure the outer flange and blade. Verify this measurement with a torque wrench.



**Figure 8: Wrench**

## Installing the Blade

### WARNING

- DO NOT install a blade with the engine running.
- Failure to properly secure the outer flange and blade may cause parts to loosen or fall off the saw, resulting in serious injuries or death!
- DO NOT pivot the front of the blade guard up or down when installing large blades. Attempting to pivot the front of the guard when the guard is raised higher up for blade installation makes the guard very heavy and difficult to lift and/or lower.



### CAUTION

- Wear gloves and be alert to the surrounding environment when handling blades.

The blade can be installed on the right or left side of the saw. Install the blade on the side preferred or most appropriate for the cutting task.

#### Option 1 (Small or Large Blades)

Option 1 is the standard method for installing both small and large blades. Attaching large blades using this method raises the position of the flanges, blade, and blade guard, making the process a little more difficult when handling larger/heavier components.

1. Select a blade size and type. Remember to check the blade for damages and discard as necessary.
2. To ensure safety, have a second trained operator hold the front of the blade guard in place. Remove the pivot bolt securing the front and back of the guard together, and remove the front of the guard from the saw.
3. Remove the blade shaft bolt (clockwise loosens on right side, counterclockwise loosens on left side) and washer using the wrench.
4. Carefully remove the outer flange. Inspect the flange assembly and clean or replace dirty/damaged components.
5. *CC110D-DC*: Remove all six blade screws from the inner flange using the hex key.
6. Place the blade against the inner flange. For large blades, carefully roll the blade up to the inner flange. Adjust the height of the saw to align the flange and blade arbor. *Note: Point the arrow printed on the blade in the direction of the blade shaft's rotation.*

7. *CC110D-DC*: Fit the six blade screws through the blade and into the inner flange, and tighten to secure.
8. *CC110-SS*: Align and fit the outer flange through the blade and into the inner flange.
9. *CC110D-DC*: Align and fit the outer flange through the blade and into the blade shaft. *Note: The outer flange should fit snug with the blade, inner flange, and blade shaft.*
10. Slightly rotate the outer flange and blade backward to eliminate backlash (looseness) between parts.
11. Place the washer onto the blade shaft bolt and insert the bolt into the blade shaft through the center of the outer flange.
12. Tighten the bolt by hand. Slowly lower the saw, if necessary, until the blade just touches the ground.
13. Tighten the bolt again, using the wrench, to 125 ft-lb (169.5 Nm) to secure the outer flange and blade. Verify this measurement with a torque wrench.
14. To ensure safety, have a second trained operator carefully lift the front of the guard and realign the front and back of the blade guard.
15. Replace the pivot bolt to secure the entire guard together.

#### Option 2 (Large Blades Only)

Option 2 is a secondary method for installing large blades only. Attaching large blades using this method lowers the position of the flanges, blade, and blade guard, making the process a little easier when handling larger/heavier components. *Note: This method requires a pre-existing, partial cut made by a smaller saw.*

1. Select a blade size and type. Remember to check the blade for damages and discard as necessary.
2. To ensure safety, have a second trained operator hold the front of the blade guard in place. Remove the pivot bolt securing the front and back of the guard together, and remove the front of the guard from the saw.
3. Remove the blade shaft bolt (clockwise loosens on right side, counterclockwise loosens on left side) and washer using the wrench.
4. Carefully remove the outer flange. Inspect the flange assembly and clean or replace dirty/damaged components.
5. Remove all six blade screws from the inner flange using the hex key.
6. Carefully roll the blade down into the pre-existing cut (generally made with a smaller saw).
7. Adjust the height of the saw to align the inner flange and blade arbor. *Note: Point the arrow printed on the blade in the direction of the blade shaft's rotation.*
8. Fit the six blade screws through the blade and into the inner flange, and tighten to secure.

9. Align and fit the outer flange through the blade and into the blade shaft. *Note: The outer flange should fit snug with the blade, inner flange, and blade shaft.*
10. Slightly rotate the outer flange and blade backward to eliminate backlash (looseness) between parts.
11. Place the washer onto the blade shaft bolt and insert the bolt into the blade shaft through the center of the outer flange.
12. Tighten the bolt by hand, and then tighten the bolt again, using the wrench, to 125 ft-lb (169.5Nm) to secure the outer flange and blade. Verify this measurement with a torque wrench.
13. To ensure safety, have a second trained operator carefully lift the front of the guard and realign the front and back of the blade guard.
14. Replace the pivot bolt to secure the entire guard together.
15. Raise the blade out of the pre-existing cut (**with the engine off!**).

#### Removing the Blade

#### **CAUTION**

- DO NOT remove a blade with the engine running.
- DO NOT pivot the front of the blade guard up or down when removing large blades. Attempting to pivot the front of the guard when the guard is raised higher up for blade removal makes the guard very heavy and difficult to lift and/or lower.



*Note: If desired when removing large blades, lower the blade into the finished cut (**with the engine off!**) to lower the position of the flanges, blade, and blade guard, making the process a little easier when handling larger/heavier components.*

1. To ensure safety, have a second trained operator hold the front of the blade guard in place. Remove the pivot bolt securing the front and back of the guard together, and remove the front of the guard from the saw.
2. Slowly lower the blade, if necessary, until it just touches the ground.
3. Remove the blade shaft bolt using the wrench.
4. *CC110-SS:* Carefully remove the outer flange from the blade and inner flange. Remove the blade and place in an appropriate storage location.
5. *CC110D-DC:* Carefully remove the outer flange from the blade shaft.
6. *CC110D-DC:* Remove the six blade screws from the blade and inner flange. Remove the blade (slowly if

inside finished cut) and place in an appropriate storage location.

7. Inspect the flange assembly and clean or replace dirty/damaged components.
8. *CC110D-DC:* Retighten the blade screws to the inner flange.
9. Carefully fit the outer flange back into the inner flange and/or blade shaft.
10. Place the washer onto the blade shaft bolt and insert the bolt into the blade shaft through the center of the outer flange.
11. Tighten the bolt to secure the blade flanges.
12. To ensure safety, have a second trained operator carefully lift the front of the guard and realign the front and back of the blade guard.
13. Replace the pivot bolt to secure the entire guard together.

#### **Engine**

#### **WARNING**

- Operate the saw 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 saw.
- DO NOT leave the saw unattended while the engine is running.



#### Vernier Throttle



**Figure 9: Vernier Throttle**

1. Turn the *Hold/Release* knob counterclockwise to loosen the knob.
2. Turn the throttle clockwise to increase the engine rpm or counterclockwise to decrease the engine rpm. *Note: The engine must run at half throttle or*

greater for proper transmission efficiency when maneuvering the saw with power.

3. Turn the *Hold/Release* knob clockwise to tighten the knob and secure the engine rpm speed.

#### Tasks Prior to Starting the Engine

Complete the tasks listed below prior to starting the engine to ensure a safe start:

- Check fluids and fill to appropriate levels.
- Turn off controls and switches.
- Place speed control lever at neutral.
- Remove tools from area.

#### Starting the Engine

1. Open the fuel shutoff valve.
2. Adjust the Vernier throttle to idle.
3. Insert the key into the ignition, turn it to *Start*, and release when the engine starts. *Note: If the engine does not start within 5 seconds, turn the key to Off and try again approximately one minute later. Refer to the engine manual for troubleshooting recommendations after several failed attempts.*
4. Let the engine idle for several minutes. Check the CANtrak GEM and all warning lights. Turn off the engine immediately and fix any problems prior to operating the saw.
5. Increase the engine speed slowly when starting a cold engine. Adjust the engine speed as necessary for maximum efficiency. Refer to the engine manual for additional information.

#### Stopping the Engine

##### **CAUTION**

- DO NOT leave the saw unattended until the engine is off and the blade has stopped spinning.

1. Place the speed control lever at neutral and raise the blade from the cut.
2. Turn off all controls, switches, and water.
3. Decrease the engine speed to idle for several minutes to cool down.
4. Turn the ignition key to *Off* and remove the key.
5. Close the fuel shutoff valve (if desired).

## **Speed Control Lever**



**Figure 10: Speed Control Lever**

#### Speed Control Lever

The speed control lever moves the saw forward and backward at up to 200 ft/min. *Note: The engine must be running at half throttle or greater to move the saw using the speed control lever.*

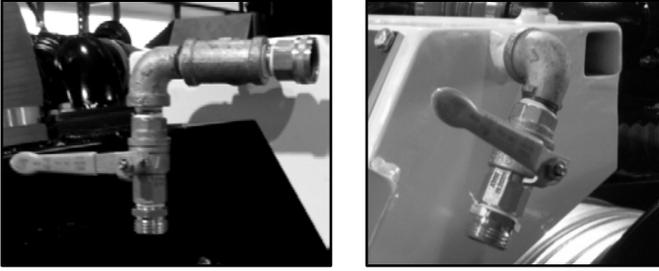
1. Slowly push the lever toward “F” to move forward, and release when at the desired traveling speed.
2. Slowly pull the lever toward “R” to move backward, and release when at the desired traveling speed.
3. Place the lever at “N” to put the saw in neutral. DO NOT assume at any time that neutral will act as a brake. *Note: Always start the engine with the speed control lever at neutral.*

## **Water Supply**

The water supply cools the blade and minimizes dust when cutting. *Note: Always test the water supply for adequate pressure and flow prior to cutting.*

#### Using the Water Supply

1. Connect the water source hose to the garden hose fitting on the dual water valve.
2. Connect one end of the water supply hose to the water supply fitting on either water valve, depending on the side being used for cutting.
3. Connect the other end of the water supply hose to the blade guard. *Note: Disconnect and reconnect the water supply hose when moving the blade guard to the opposite side of the saw.*



**Figure 11: Water Supply Valves**

4. Push the water valve lever down to increase the water flow, or push the water valve lever up to decrease the water flow. *Note: Activate the water supply just before cutting to save on water costs.*
5. Turn off the water valve lever and disconnect the water source hose from the saw when finished.
6. Disconnect the water supply hose from the blade guard and water supply fitting as necessary.

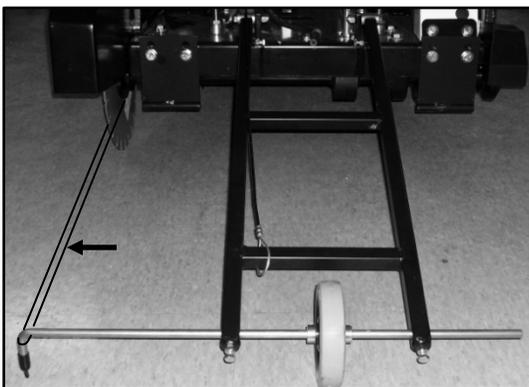
### **Cutting Guide**

*Applies to the CC110-SS.*

Use the cutting guides as needed to help follow the cutting line. Always check the cutting guides for proper alignment with the blade prior to cutting.

#### Adjusting the Front Pointer

1. Remove the lanyard from the cable cleat.
2. Lower the front pointer frame to the ground.
3. Loosen both front pointer frame screws.
4. Divide an 8–10 ft piece of string in half.
5. Place the looped end of string into a gullet on the backside of the blade.
6. Place one string line up against the backside of the blade and one string line up against the front side of the blade. Holding the string ends in one hand, tension the lines out toward the front pointer rod.



**Figure 12: Tensioned String Line**

7. Adjust the pointer rod to place the tip between the tensioned string lines.
8. Retighten both front pointer frame screws.
9. Lift the frame off the ground when finished.
10. Tension the lanyard and secure it to the cable cleat.

### **Concrete Cutting**

#### **! WARNING**

- DO NOT expose yourself or anyone else to the direct line of the blade when operating the saw.
- The direct work area should not contain buried or embedded electrical, gas, or water lines that could be damaged and/or cause personal injury while cutting.

*Note: Always raise the blade to provide proper clearance between the blade and the ground when maneuvering the saw.*

#### Helpful Hints Prior to Cutting

Keep the following in mind for better efficiency while cutting:

- Refer to the Diamond Products' Pro Cutters Guide for additional cutting tips and information.
- Use just enough handle pressure to guide the saw down the cutting line. DO NOT forcibly direct (twist) the saw from side to side when cutting. DO NOT jam, cock, or wedge the blade in a cut.
- Moving too quickly when cutting may stall the saw, or may cause the blade to climb out from the cut. If the saw stalls while cutting, move the speed control lever to neutral and raise the blade from the cut to restart the engine.
- Avoid sawing excessively deep to preserve the blade and reduce sawing costs.
- DO NOT lower the blade too quickly or move the saw forward too quickly when finishing a partial-cut to avoid forcing the blade into the concrete.
- Always have a proper water flow when cutting for maximum blade efficiency. Using too much water when cutting will make the slurry look clear. Not using enough water will make the slurry look thick and pasty.

#### Tasks Prior to Cutting

Complete the following tasks prior to cutting:

- Align the cutting guide with the blade.
- Clearly mark the cutting line.

- Turn off all electricity, gas, and water around the direct work area prior to cutting.

#### Making a Cut

1. Align the blade and guide with the cutting line.
2. Turn on the water valve and adjust the water flow.
3. Slowly lower the blade into the concrete surface and make a two-inch deep pass across the entire cutting line as the guide cut. DO NOT cut to the entire depth in one pass.
4. Raise the blade out of the cut and reposition the saw at the end of the cut. DO NOT move backwards in a cut.
5. Starting at the end of the cut, lower the blade back into the cut and make a deeper pass across the entire cutting line again, using the most efficient rpm speed and traveling speed. *Note: Always use the step-cut method when cutting for maximum efficiency. For example, when cutting to a depth of ten inches, begin with a two-inch deep pass, then a four-inch deep pass, and finish with another four-inch deep pass to complete the cut.*
6. Raise the blade out of the cut and reposition the saw at the end of the cut as necessary. Continue the step-cut process to reach the maximum depth. DO NOT cut any deeper than required.

#### Continuing a Partial-Cut

1. Maneuver the saw to the desired location.
2. Align the blade with the previous cut and slowly lower the blade back into the concrete. Use extreme caution to make sure the blade is perfectly aligned within the cut. DO NOT continue cutting until the blade is aligned within the cut!
3. Continue the step-cut process to reach the maximum depth.

#### Finishing a Cut

1. Place the speed control lever at neutral.
2. Raise the blade from the cut (provide proper ground clearance).
3. Turn off the water.

# Maintaining the CC110-SS and CC110D-DC

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 saws. DO NOT attempt to perform maintenance on the saws if you are not properly trained for it, or are not supervised by an experienced person.

Refer to the CC110-SS or CC110D-DC Parts List for additional information and part diagrams when performing maintenance tasks. Refer to the engine and CANtrak manuals and the manufacturers as the primary source for all safety, operations, and maintenance instructions for the engine. Contact the saw and/or engine manufacturers with any additional questions.

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

## Maintenance Overview

Complete the following tasks as required. DO NOT delay maintenance! Print the Daily Maintenance Task Chart from Appendix B to help keep track of maintenance tasks completed daily.

### Daily

- Lubricate the blade shaft bearing grease fittings (2).
- Lubricate the jackshaft bearing grease fittings (2).
- Lubricate the rear axle bearing grease fittings (2).
- Lubricate the hydraulic lift cylinder grease fitting (1).
- Lubricate the front wheel grease fittings (2).
- Lubricate the PTO spline shaft grease fitting (1).
- Clean the radiator filter and wipe down the radiator assembly.
- Check all fluid levels (fuel, engine oil, hydraulic oil, coolant, transmission oil) and fill as necessary (see engine manual).
- Inspect saw for damages and repair immediately.
- Inspect all belts for tension and wear. Replace or re-tension as necessary.
- Tighten loose nuts, screws, and bolts.
- Clean the air cleaner (see engine manual).
- Look for fluid leaks and check all hoses. Repair all damaged components immediately.
- Wipe down and clean saw components to remove dust, debris, and slurry (especially from fans).

### 25-40 Hours

- Lubricate the undercarriage pivot bearing grease fittings (2).
- Lubricate the fifth wheel grease fitting (1).
- Lubricate the transmission drive chain.

*Note: Refer to the engine and CANtrak manuals and the manufacturers for daily engine care and routine maintenance tasks.*

## Part Lubrication



### WARNING

- DO NOT grease parts with the engine running (unless stated otherwise).



Lubricate all necessary parts on schedule for maximum saw efficiency. Occasionally lubricate controls, cables, and linkages with a spray lubricant when movement becomes stiff and/or sluggish. Use NLGI No. 2 premium lithium-based grease when lubricating all grease fittings, except the PTO spline shaft. Use high-quality extreme pressure (EP) grease such as Mobil HTS. Use one to two full pumps of grease when lubricating grease fittings. *Note: If bearings are too hot to touch after completing work, there is either a lack of grease or the belts are too tight.*

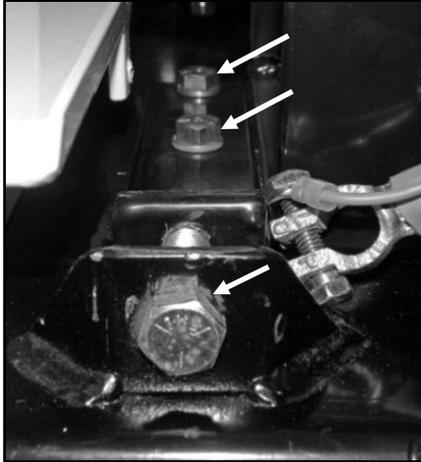
## Shear Bolt

*Applies to the CC110-SS.*

The shear bolt and nut (securing the jackshaft sheave to the breakaway hub) will break when the saw jams, allowing the jackshaft and engine sheaves to continue spinning. Stop the engine immediately when the bolt/nut break and replace them prior to operating again.

## Drive Alignment

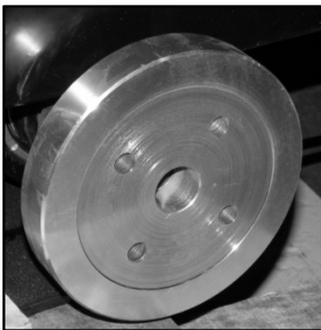
The saw should drive forward and backward in a straight line. Adjust the drive alignment as necessary.



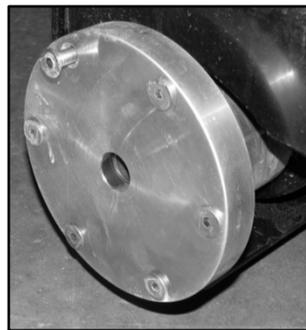
**Figure 13: CC110-SS Transmission Mount Bolts and Drive Alignment Bolt**

1. Locate the transmission mount bolts and drive adjustment bolt at the rear of the frame base.
2. *CC110-SS*: Loosen the two transmission mount bolts located directly behind the adjustment bolt. DO NOT remove the bolts.
3. *CC110D-DC*: Loosen the three transmission mount bolts (two of them are located directly behind the adjustment bolt, and one (missing from picture) is located on the opposite side of the transmission). DO NOT remove the bolts.
4. Turn the adjustment bolt clockwise to adjust the alignment toward the right or counterclockwise to adjust the alignment toward the left.
5. Retighten the transmission mount bolts to secure.

### ***Inner Blade Flange***



**Figure 14: CC110-SS Inner Flange**



**Figure 15: CC110D-DC Inner Flange**

### ***Installing the Inner Blade Flange***

1. Inspect the inner flange for damages. Clean or replace damaged components as necessary.

2. Place the flange onto the blade shaft.
3. Apply Loctite 262 (red) or an equivalent to the setscrew threads.
4. Tighten the setscrew(s) into the back of the inner flange to secure.

### ***Removing the Inner Blade Flange***

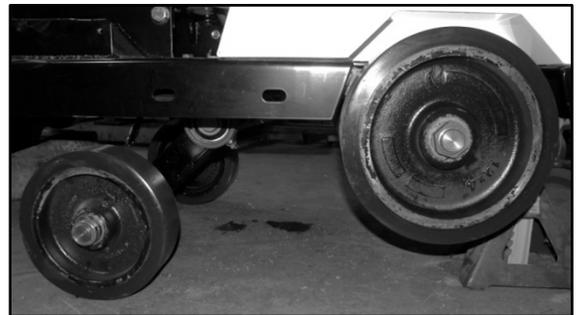
1. Remove both setscrews from the back of the inner flange using an Allen wrench.
2. Carefully remove the flange from the blade shaft.

### ***Front/Rear Wheels***



### **WARNING**

- Raise the saw to a proper height for access when working underneath the saw. Use chocks to block the wheels, and fit blocks or jacks under the frame edges at the front and back of the frame for additional support.



**Figure 16: Front and Rear Wheels**

### ***Replacing the Front Wheels***

Replace the front wheels when damaged and/or affecting saw performance.

1. Move the saw to level ground. Use a jack to lift the saw near the front wheels, and raise the front wheels off the ground.
2. Loosen the setscrew(s) in the set collar.
3. Remove the set collar and wheel from the undercarriage.
4. Place a wheel onto the undercarriage and replace the set collar.
5. Tighten the setscrew(s) into the set collar to secure the wheel.
6. Replace the second front wheel as directed.
7. Slowly lower the jack and remove the jack stand when the wheels are firmly touching the ground.

### Replacing the Rear Wheels

Replace the rear wheels when damaged and/or affecting saw performance.

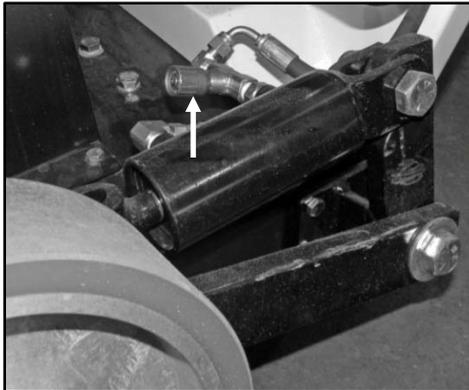
1. Move the saw to level ground. Use a jack to lift the saw near the rear wheels, and raise the rear wheels off the ground.
2. Remove the trantorque axle bushing from the rear wheel.
3. Remove the wheel from the rear axle and place a new wheel onto the rear axle shaft.
4. Replace the trantorque axle bushing and tighten to 175 ft-lb (237 Nm). *Note: Failure to fully tighten the bushings may cause the wheels to fall off the saw.*
5. Replace the second rear wheel as directed.
6. Slowly lower the jack and remove the jack stand when the wheels are firmly touching the ground.

### **Fifth Wheel**

Applies to the CC110D-DC.

#### Flow Control Valve

Adjust the fifth wheel's flow control valve to increase or decrease the wheels raise and lower speed.



**Figure 17: Flow Control Valve**

#### Adding Hydraulic Fluid

Check the fifth wheel's hydraulic fluid tank regularly and add fluid as necessary.

1. Lower the saw to level the frame.
2. Remove the hydraulic tank cap.
3. Add Mobil DTE 15M oil to the tank. **DO NOT** fill the tank completely as the oil needs room to expand when hot.
4. Replace the hydraulic tank cap when finished.

#### Replacing the Fifth Wheel

1. Remove the screw and lock nut from the fifth wheel.

2. Remove the old wheel and align the center of the new wheel with the screw hole near the end of the wheel lever.
3. Place the screw through the center of the wheel and through the wheel lever, and tighten the lock nut to the screw to secure.

### **Primer Pump**

The fuel system must be re-primed if the saw runs out of fuel while operating it.

1. Turn off the engine.
2. Open the bleeder screw at the top of the secondary fuel filter approximately two turns.



**Figure 18: Bleeder Screw**

3. Place a dry cloth over the screw to avoid fuel spray.
4. Unscrew the primer pump knob (above the fuel/water separator canister).



**Figure 19: Primer Pump Knob**

5. Pump the knob in and out until fuel sprays out from the bleeder screw on the secondary fuel filter.
6. Tighten the primer pump knob to secure.
7. Tighten the bleeder screw to secure.
8. Clean up any spilled fuel.

## 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.



Figure 20: Battery

### Battery Type

12 Volt, Group 26

### Servicing the Battery

1. Remove the battery brace.
2. Disconnect the negative cable lead from the negative terminal. *Note: Always disconnect the negative cable first.*
3. Disconnect the positive cable lead from the positive terminal.
4. Carefully remove the battery from the battery platform.
5. 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.
6. 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 onto the battery platform.
7. Reconnect the positive cable lead to the positive battery terminal. *Note: Always reconnect the positive cable first.*
8. Reconnect the negative cable lead to the negative battery terminal.
9. Replace the battery brace and secure.

## Transmission

Wipe down the transmission regularly to help prevent higher oil temperatures when operating the saw.

### Adding Transmission Oil

Check the transmission oil level daily and fill as necessary. **DO NOT** let the oil fall below the *Add* line.

1. Remove the transmission oil reservoir cap.

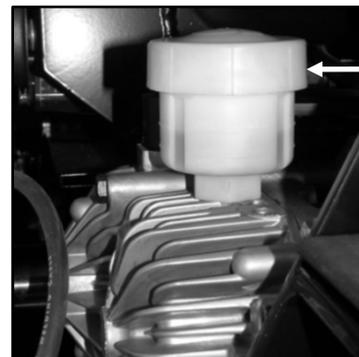


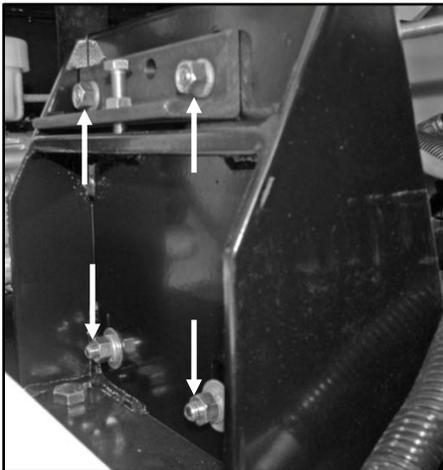
Figure 21: Oil Reservoir Cap

2. Add Mobil #30 oil or an equivalent to the *Full Level (Cold)* line. DO NOT fill the oil above this line to leave room for expansion.
3. Replace the oil reservoir cap and tighten to secure.

#### Tightening the Transmission Drive Chain

Inspect the transmission drive chain regularly. Tighten the chain as necessary and lubricate every 25-40 hours.

1. Remove old grease and dirt from the chain using a degreasing agent and a brush. Wipe the chain clean and lubricate with NGLI No. 2 premium lithium-based grease.
2. Loosen the four bolts on the transmission mount.

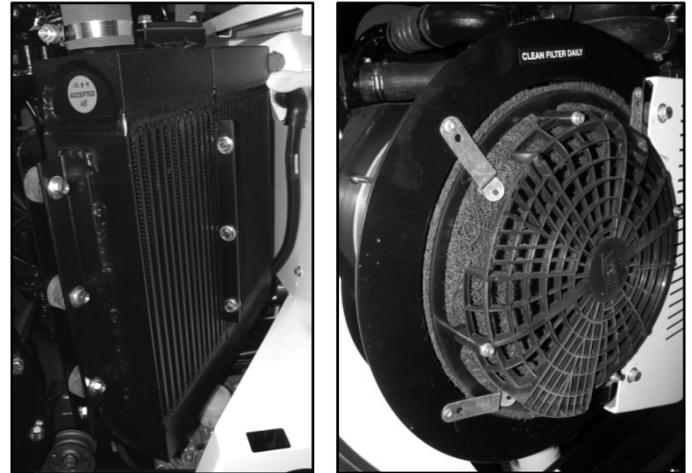


**Figure 22: Mount Bracket and Bolts**

3. Loosen the nut on the tension bolt at the center of the chain tensioning bracket (center bolt on bracket in image above).
4. Turn the bolt clockwise to tighten the drive chain, leaving a slight amount of slack in the chain. DO NOT over-tighten!
5. Retighten the nut to secure the tension bolt.
6. Retighten the four bolts on the transmission mount to secure.

## **Radiator**

Clean the radiator daily.



**Figure 23: Radiator Filter and Fan**

1. Remove the radiator fan guard.
2. Remove the filter and grill from the fan housing.
3. Clean the filter by washing it out or using compressed air to remove dirt particles. Replace the filter when damaged or not cleanable.
4. Fit the grill and air filter back into the fan housing.
5. Place the fan guard over the filter inside the fan housing.
6. Secure the guard to the fan housing using the metal tabs.
7. Wipe down the radiator base to help prevent higher operating temperatures. Use compressed air to remove debris from the cooling fins or, if necessary, use a pressure washer. *Note: Always use low air and water pressure settings to avoid bending the radiator fins; bent fins may prevent proper cooling.*

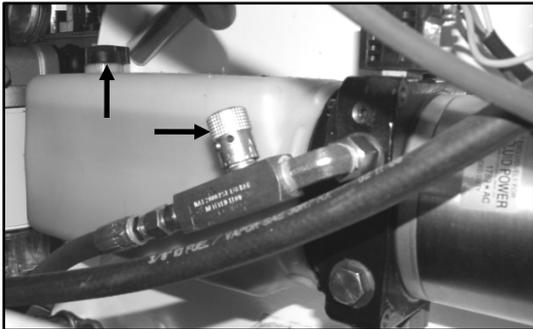
## Hydraulic System

### WARNING

- 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!
- Always make sure any hydraulic components being serviced are not supporting the weight of other saw components. If a particular component is under pressure when connections points are loosened, oil may spray out forcefully.



Inspect all hydraulic hoses and fittings daily for leaks. Remember to use cardboard or a piece of paper when checking for leaks. Replace damaged components immediately.



**Figure 24: Hydraulic Tank Cap and Flow Control Valve**

### Flow Control Valve

Adjust the flow control valve to increase or decrease the saw's raise and lower speed during normal operation.

### Adding Hydraulic Fluid

Check the hydraulic fluid daily and add fluid as necessary.

1. Lower the saw to level the frame.
2. Remove the hydraulic tank cap.
3. Add Mobil DTE 15M oil to the tank. DO NOT fill the tank completely as the oil needs room to expand when hot.
4. Replace the hydraulic tank cap when finished.

## Belt System

### WARNING

- Turn off the engine prior to servicing the belts.
- Use extreme caution when working with belts and rotating machine parts to avoid entanglement.



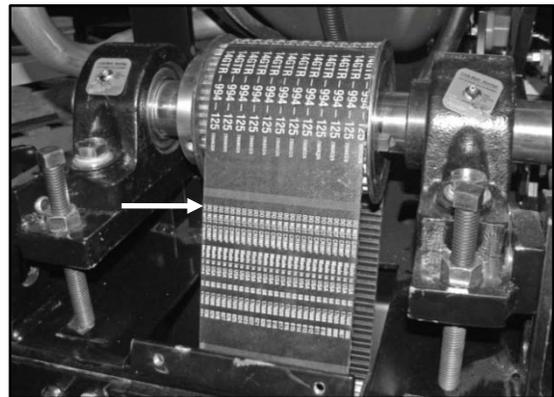
### CAUTION

- Let the belts cool down prior to servicing them.

Inspect all belts daily for fraying, stress cracks, and/or breakage and replace immediately when damaged. DO NOT exceed the manufacturer's recommended belt tension setting when tensioning belts. *Note: Over-tensioning belts may damage the PTO. Under-tensioning belts may cause slippage, shorter belt life, and/or poor saw performance. Squealing belts indicate looseness.*

### Replacing the Polychain Belt (CC110-SS)

Replace the polychain belt once it breaks. The belt only requires tension adjustments when replacing.



**Figure 25: Polychain Belt**

1. Loosen all four engine mount bolts.
2. Turn both engine belt tension bolts (two large bolts at front of engine mount) counterclockwise to loosen the engine belts. Remove the belts from the jackshaft sheave.
3. Loosen all four jackshaft mount bolts.
4. Remove all four jackshaft bearing bolts.

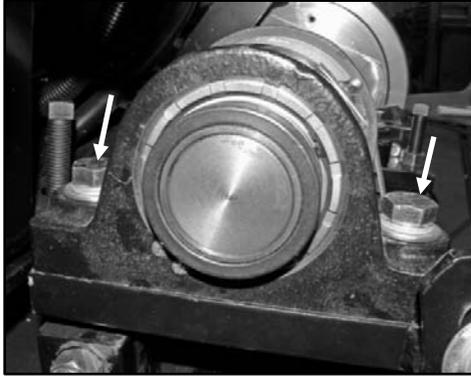


Figure 26: 2 of 4 Jackshaft Bearing Bolts

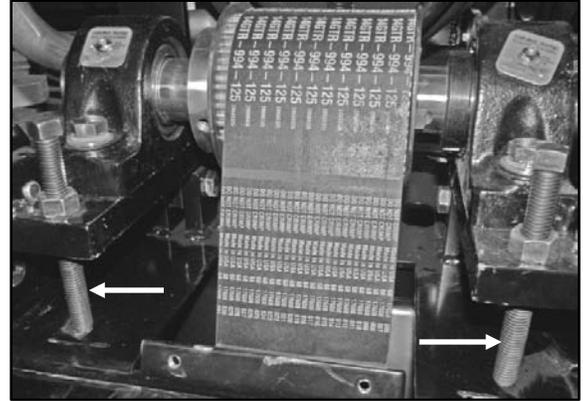


Figure 27: Jackshaft Belt Tension Bolts

5. To ensure safety, carefully remove the jackshaft from the saw with the help of a second trained operator. DO NOT try lifting the jackshaft off the saw alone.
6. Remove all six bolts (four on front of plate, two on bottom of plate underneath frame) from the skid plate. Remove the plate.
7. Remove two of the four blade shaft bearing bolts. The bolts being removed must be from the same bearing! Loosen the remaining two blade shaft bearing bolts. DO NOT remove them.
8. Remove the old belt from the blade shaft.
9. Fit a new polychain belt around the blade shaft from the same side as the two removed blade shaft bearings bolts. Slide the belt to the center of the saw and fit it around the blade shaft's polychain sprocket. Bring the belt up through the hole on the frame base.
10. Retighten all four blade shaft bearing bolts.
11. Reinstall the skid plate at the front of the saw (using six bolts).
12. To ensure safety, carefully lift the jackshaft with the help of the second trained operator and fit the jackshaft through the polychain belt. Rest the jackshaft on the jackshaft mounts and fit the belt around the jackshaft's polychain sprocket.
13. Retighten all four jackshaft bearing bolts.
14. Turn both jackshaft belt tension bolts (two large bolts at front of jackshaft mount) clockwise to tighten the polychain belt. The bolts must be at the same height once the belt is tightened. Test the belt tension and readjust as necessary. Refer to Appendix C for additional information on belt tension settings.
15. Retighten all four jackshaft mount bolts.
16. Loop the engine belts around the jackshaft sheave. Keep them slightly loose. DO NOT tighten fully.
17. Start the saw and let it idle (**very slow speed!**) while adjusting the tracking of the polychain belt.
18. Slightly loosen two of the four jackshaft bearing bolts. The bolts being loosened must be from the same bearing!
19. Using a pry bar, push the loose bearing forward or backward to place the belt at the exact center of the polychain sprocket. When adjusting the left bearing (facing front of saw), pry the bearing backward to move the belt toward the left, or pry the bearing forward to move the belt toward the right. When adjusting the right bearing (facing front of saw), pry the bearing backward to move the belt toward the right, or pry the bearing forward to move the belt toward the left. *Note: If adjusting one bearing only isn't working to center the belt, adjust both bearings separately.*

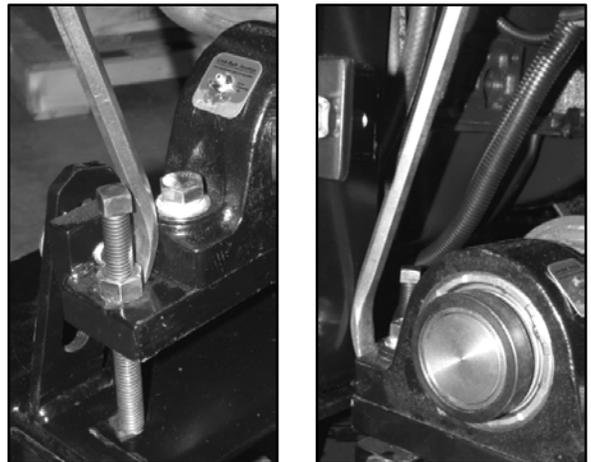
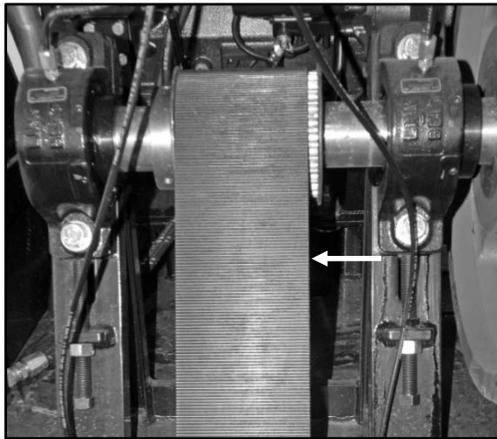


Figure 28: Prying the Bearing Forward/Backward

20. Retighten all loose jackshaft bearing bolts.
21. Turn off the engine.
22. Turn both engine belt tension bolts (two large bolts at front of engine mount) clockwise to fully tighten the engine belts. Both bolts must be at the same height once the belts are tightened. Test the belt tension and readjust as necessary. Refer to Appendix C for additional information on belt tension settings.
23. Retighten all four engine mount bolts.

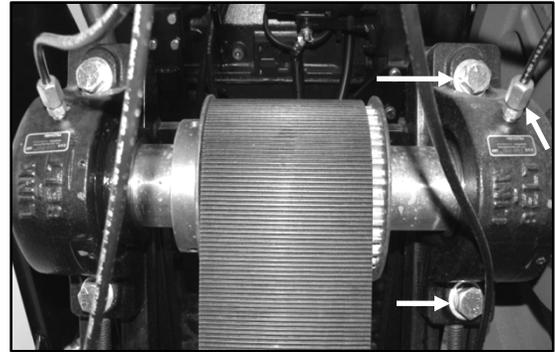
**Replacing the Polychain Belt (CC110D-DC)**

Replace the polychain belt once it breaks. The belt only requires tension adjustments when replacing.



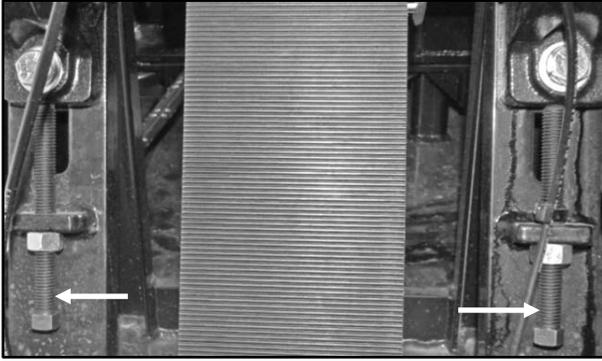
**Figure 29: Polychain Belt**

1. Loosen all four engine mount bolts.
2. Turn both engine belt tension bolts (two large bolts at front of engine mount) counterclockwise to loosen the engine belts. Remove the belts from the jackshaft sheave.
3. Loosen all four jackshaft bearing bolts.
4. Turn both jackshaft belt tension bolts (two large bolts under jackshaft bearings) counterclockwise to loosen the polychain belt.
5. Loosen the ferrule nut from the grease line and remove the grease line from only one of the jackshaft bearings. Remove two of the already loosened jackshaft bearing bolts from the same bearing as the removed grease line.



**Figure 30: Grease Line and Jackshaft Bearing Bolts**

6. Remove all six bolts (four on front of plate, two on bottom of plate underneath frame) from the skid plate. Remove the plate.
7. Remove two of the four blade shaft bearing bolts. The bolts being removed must be from the same bearing! Loosen the ferrule nut from the grease line and remove the grease line from the same bearing as the removed blade shaft bearing bolts.
8. Loosen the remaining two blade shaft bearing bolts. DO NOT remove them.
9. Remove the old belt from the blade shaft.
10. Fit a new polychain belt around the blade shaft from the same side as the two removed blade shaft bearings bolts and grease line. Slide the belt to the center of the saw and fit it around the blade shaft's polychain sprocket. Bring the belt up through the hole on the frame base.
11. Retighten all four blade shaft bearing bolts and reattach the grease line to the blade shaft bearing.
12. Reinstall the skid plate at the front of the saw (using six bolts).
13. To ensure safety, have a second trained operator hold the jackshaft in place. Carefully fit the polychain belt around the jackshaft bearing from the side with the removed jackshaft bearing bolts and grease line.
14. Fit the belt around the jackshaft's polychain sprocket.
15. Retighten all four jackshaft bearing bolts just until snug.
16. Turn both jackshaft belt tension bolts (two large bolts under jackshaft bearings) clockwise to tighten the polychain belt. Both bolts must be at the same height once the belt is tightened. Test the belt tension and readjust as necessary. Refer to Appendix C for additional information on belt tension settings.



**Figure 31: Jackshaft Tension Bolts**

17. Fully tighten all four jackshaft bearing bolts and reattach the grease line to the jackshaft bearing.
18. Loop the engine belts around the jackshaft sheave. Keep them slightly loose. **DO NOT** tighten fully.
19. Start the saw and let it idle (**very slow speed!**) while adjusting the tracking of the polychain belt.
20. Slightly loosen two of the four jackshaft bearing bolts. The bolts being loosened must be from the same bearing!
21. Facing the front of the jackshaft, carefully and slowly adjust the jackshaft belt tension bolt on the same side as the slightly loosened bearing to place the belt at the exact center of the polychain sprocket. **DO NOT over-tighten the belt during this process!** When adjusting the left bearing, turn the tension bolt clockwise a very small amount to move the belt to the left, or turn the bolt counterclockwise a very small amount to move the belt to the right. When adjusting the right bearing, turn the tension bolt clockwise a very small amount to move the belt to the right, or turn the bolt counterclockwise a very small amount to move the belt to the left. *Note: If adjusting one bearing only isn't working to center the belt, adjust both bearings separately.*
22. Retighten all loose jackshaft bearing bolts.
23. Turn off the engine.
24. Turn both engine belt tension bolts (two large bolts at front of engine mount) clockwise to fully tighten the engine belts. Both bolts must be at the same height once the belts are tightened. Test the belt tension and readjust as necessary. Refer to Appendix C for additional information on belt tension settings.
25. Retighten all four engine mount bolts.

#### Tensioning the Engine Belts

1. Loosen all four engine mount bolts.
2. Turn both engine belt tension bolts (two large bolts positioned vertically (CC110-SS) or horizontally (CC110D-DC) at front of engine mount) clockwise to tighten the engine belts. Both tension bolts must be

at the same height/length once the belts are tightened. Test the belt tension and readjust as necessary. Refer to Appendix C for additional information on belt tension settings.

3. Retighten all four engine mount bolts.

#### Replacing the Engine Belts

1. Remove the outboard housing from the engine (seven bolts).
2. Loosen all four engine mount bolts.
3. Turn both engine belt tension bolts (two large bolts positioned vertically (CC110-SS) or horizontally (CC110D-DC) at front of engine mount) counterclockwise to loosen the engine belts.
4. Remove the belts from the engine sheave and from the jackshaft sheave.
5. Replace the transmission drive belt if necessary. Refer to the *Replacing the Transmission Drive Belt* section.
6. Loop and align the new belts around the jackshaft sheave and then around the engine sheave.
7. Turn both engine belt tension bolts clockwise to tighten the engine belts. Both bolts must be at the same height/length once the belts are tightened. Test the belt tension and readjust as necessary. Refer to Appendix C for additional information on belt tension settings.
8. Retighten all four engine mount bolts.
9. Secure the outboard housing to the engine.

#### Tensioning the Transmission Drive Belt

1. Loosen the bolt securing the tensioner base to the frame.



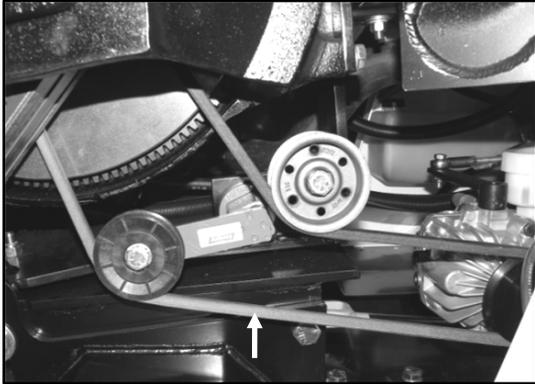
**Figure 32: CC110D-DC Tensioner Base and Bolt**

2. Turn the square tensioner base counterclockwise to tighten the belt. *Note: Replace the belt when it can no longer be tensioned.*

3. Retighten the tensioner bolt to secure

#### Replacing the Transmission Drive Belt

*Note: It is most convenient to replace the transmission drive belt when replacing the engine belts.*



**Figure 33: CC110-SS Transmission Drive Belt**

1. Remove the outboard housing from the engine (seven bolts).
2. Loosen all four engine mount bolts.
3. Turn both engine belt tension bolts (two large bolts positioned vertically (CC110-SS) or horizontally (CC110D-DC) at front of engine mount) counterclockwise to loosen the engine belts.
4. Remove the belts from the engine sheave.
5. Using a pry bar, lift up the belt tensioner arm to loosen the transmission drive belt. Remove the belt and gently release the tensioner arm.
6. Loop a new belt around the pulley accessory drive. Pull the belt down and loop it under the backside idler pulley and around the transmission pulley.
7. Using a pry bar, lift up the belt tensioner arm again and loop the belt under the front side idler pulley. Gently release the tensioner arm to tighten the belt.
8. Loop the engine belts around the engine sheave.
9. Turn both engine belt tension bolts clockwise to tighten the engine belts. Both bolts must be at the same height/length once the belts are tightened. Test the belt tension and readjust as necessary. Refer to Appendix C for additional information on belt tension settings.
10. Retighten all four engine mount bolts.
11. Secure the outboard housing to the engine.

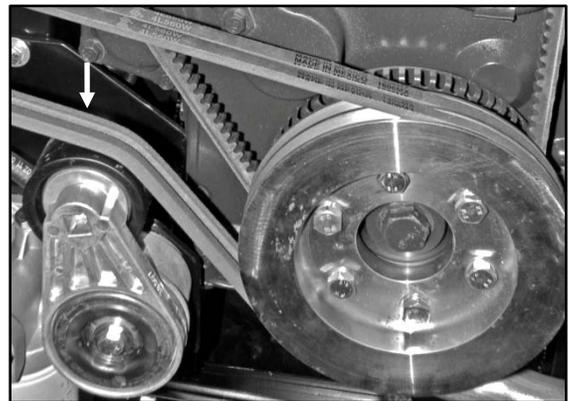
#### Replacing the Radiator Belt

1. Remove the radiator fan guard, filter, and grill.
2. Place the head of a ½" square-head breaker bar into the tensioner hold on the radiator belt tensioner.



**Figure 34: Tensioner Hold**

3. Turn the breaker bar counterclockwise to push the tensioner down and loosen the belts. Remove the belts from both fan sheaves.
4. Loop the new belts around both fan sheaves.
5. Place the breaker bar into the tensioner hold and turn the bar counterclockwise to push the tensioner down. Rest the belts on the top of the belt tensioner sheave.



**Figure 35: Belts Resting on Tensioner**

6. Gently release the belt tensioner to tighten the belts.
7. Replace the grill and filter.
8. Secure the fan guard.

#### Alternator Belt

Refer to the engine manual for information on servicing the alternator belt.

## 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 and CANtrak manuals and the manufacturers for a full maintenance schedule and all additional maintenance information.**

### Cleaning the Engine

Wipe down the engine's exterior, fans, and guards daily to prevent high operating temperatures. DO NOT spray the engine directly with water to prevent engine damage.

### **Storing**

Complete the tasks listed below prior to storing the saw for longer time frames:

- Drain the water lines/hoses.
- Drain all fluids.
- Turn off all switches and controls.
- Lower the saw completely to remove strain on the lifting mechanism.
- Clean and wipe down the saw to remove dust, debris, and slurry from saw components (especially fans).
- Remove the battery and store in a proper location, out of reach from children.
- Refer to the engine manual for engine and fuel recommendations.
- Store the saw in a dry area, protected from outdoor elements and out of reach from children.

### **Disposal**

Dispose of the saw when it's no longer repairable, and/or contains safety hazards not worth repairing or maintaining. Complete the tasks listed below when discontinuing usage:

- Drain all fluids and dispose of according to city, state, and federal regulations.
- Remove the battery and bring to a recycling facility; many battery retailers also accept old batteries.
- Transport the saw to a salvage yard or recycling facility.



# References

## **Appendix A**

### Serial Tags

Record the saw'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	

## Appendix B

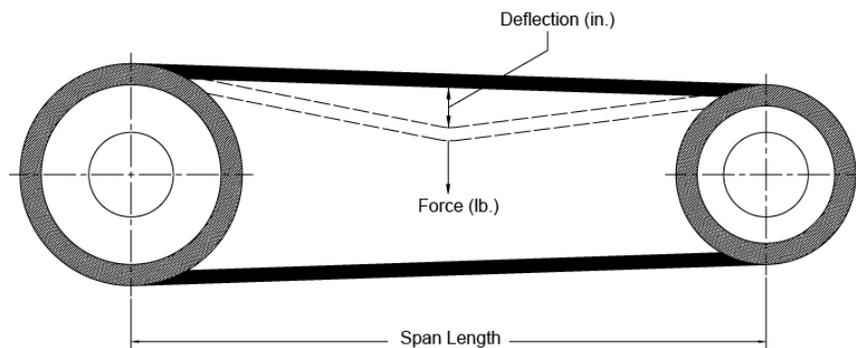
### Daily Maintenance Task Chart

Table 6: Daily Maintenance Task Chart							
Date							
		✓	✓	✓	✓	✓	✓
1.	Lubricate blade shaft bearing grease fittings (2).						
2.	Lubricate jackshaft bearing grease fittings (2).						
3.	Lubricate rear axle bearing grease fittings (2).						
4.	Lubricate hydraulic lift cylinder grease fitting (1).						
5.	Lubricate front wheel grease fittings (2).						
6.	Lubricate PTO spline shaft grease fitting (1).						
7.	Clean radiator filter and wipe down radiator assembly.						
8.	Check all fluid levels (fuel, engine oil, hydraulic oil, coolant, transmission oil) and fill as necessary (see engine manual).						
9.	Inspect saw for damages and repair immediately.						
10.	Inspect all belts for tension and wear. Replace or tension as necessary.						
11.	Tighten loose nuts, screws, and bolts.						
12.	Clean air cleaner (see engine manual).						
13.	Look for fluid leaks and check all hoses. Repair all damaged components immediately.						
14.	Wipe down and clean saw components to remove dust, debris, and slurry (especially from fans).						
15.	Refer to the engine and CANtrak manuals and the manufacturers for daily engine care and routine maintenance tasks.						

## Appendix C

### Belt Tension Settings

Table 7: Belt Tension Settings				
Model	Engine Type	Belt	Deflection Force	Deflection
CC110-SS	Cummins QSB3.3	5VX560	50lb	1/4"
		Polychain 14 mm	50lb	3/8"
CC110D-DC	Cummins QSB3.3	5VX1000	50 lb	1/4"
		Polychain 14 mm	50 lb	1/2"



Deflection (in.) should be equal to number of inches listed in chart above when deflection force (lb) listed in chart above is applied to middle of belt using tension gauge.

## Appendix D

### Troubleshooting

<b>Table 8: Troubleshooting</b>		
<b>Symptom</b>	<b>Problem</b>	<b>Solution</b>
1. Engine will not start.	Out of fuel?	Fill fuel tank.
	Emergency stop button down?	Pull up emergency stop button.
	Fuel/water separator or fuel lines clogged?	Clean fuel/water separator, or unclog/replace fuel lines.
	Air in fuel lines?	Bleed fuel lines.
	Worn-out battery?	Charge or replace battery.
	Faulty battery connection?	Inspect, clean, and tighten battery cables.
	Engine malfunction?	Refer to engine manual.
2. Saw will not raise.	Defective solenoid start switch?	Replace solenoid on hydraulic pump unit.
	Worn-out battery?	Charge or replace battery.
	Defective raise button?	Replace raise button.
3. Saw will not lower.	Debris in lowering valve stem?	Inspect and clean stem.
	Worn-out battery?	Charge or replace battery.
	Defective valve coil?	Check for magnetism of valve stem when activated.
	Defective lowering button?	Replace lowering button.
4. Saw lowers too slow/too fast.	Improper lowering speed setting?	Adjust flow control valve.
5. Blade does not cut straight.	Drive alignment off?	Adjust drive alignment.
	Excessive force used when sawing?	Reduce forward speed. DO NOT twist blade from side-to-side.
	Wrong blade?	Contact dealer/manufacturer of blade.
6. Short belt life.	Loose belts causing slippage?	Check belt tension.
	Sheaves misaligned?	Use straightedge to check blade shaft sheave alignment.
	Worn sheave grooves?	Check for groove wear and replace as needed.
	Mismatched belts?	Replace with matched set of belts. DO NOT use old and new belts together.
	Overheating of PTO?	Check belt tension and/or lubricate PTO as required.

## **Appendix E**

### Additional Resources

1. Cummins ([www.cummins.com](http://www.cummins.com))
  - *Operation and Maintenance Manual* QSB3.3, CM2150, and B3.3; Indiana, 2008
2. Diamond Products ([www.diamondproducts.com](http://www.diamondproducts.com))
  - *CC110-SS Concrete Saw Parts List; Ohio, 2010*
  - *CC110D-DC Deep Cut Saw Parts List; Ohio, 2010*
  - *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](http://www.diamondproducts.com))
3. Concrete Sawing and Drilling Association ([www.csda.org](http://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](http://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](http://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/](http://www.cdc.gov/NIOSH/))
  - NIOSH provides information on work-related safety and health practices.

**Notes:**

**Notes:**

