Project 1.2.5 Let's Get Technical

Jeremy Cattau

Tool Name – 7 ¼" Circular Saw

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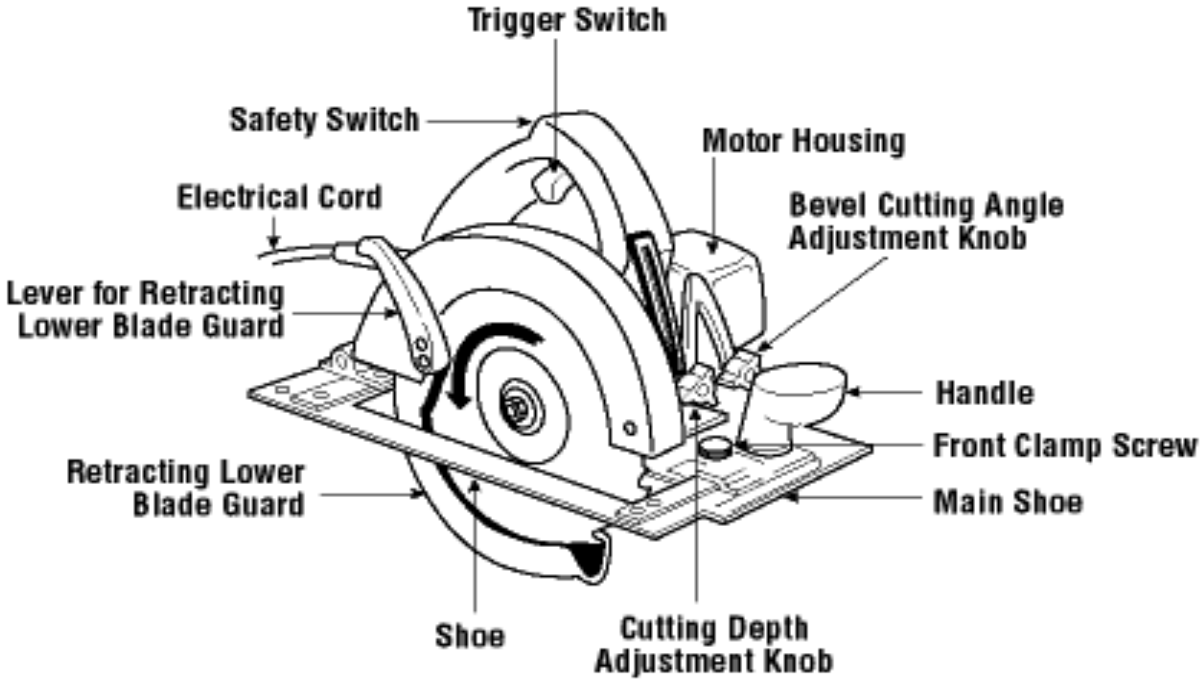
1.Tool Identification



2. Tool Purpose

Circular saws are used for onsite and workplace applications. The saw can be used for ripping, beveling, plunge cuts, and cross cutting. Wood, metals, plastics, masonry products can be sawed.

3. PPE

Goggles—Keep flying debris from eyes
Dust Mask—Keep from breathing dust
Ear Plugs – Hearing protection
Hair Ties – Keeps long hair from tangling in machine

4. Tool Safety and Operation

Keep work area clean and well lit. Cluttered or dark areas invite accidents.

Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.

Power tools create sparks which may ignite the dust or fumes.

Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication. A moment of inattention while operating power tools may result in serious personal injury. Use personal protective equipment. Always wear eye protection. Protective equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries. Prevent unintentional starting. Ensure the switch is in the off-position before connecting to power source and / or battery pack, picking up or carrying the tool. Carrying power tools with your finger on the switch or energizing power tools that have the switch on invites accidents. Remove any adjusting key or wrench before turning the power tool on. A wrench or a key left attached to a rotating part of the power tool may result in personal injury. Do not overreach. Keep proper footing and balance at all times. This enables better control of the power tool in unexpected

situations. Dress properly. Do not wear loose clothing or jewelry. Keep your hair, clothing and gloves away from moving parts. Loose clothes, jewelry or long hair can be caught in moving parts. If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used. Use of dust collection can reduce dust related hazards. Do not force the power tool. Use the correct power tool for your application.

Have both hand on saw. Stand behind the cut and your body to the motor side of the saw. Never stand in line with the blade.

Keep children and bystanders away while operating a power tool.

Distractions can cause you to lose control.

DEPTH ADJUSTMENT

Disconnect plug from power source. Loosen the depth adjustment lever located between the guard and handle of saw. Hold the foot down with one hand and raise or lower saw by the handle. Tighten lever at the depth setting desired. Not more than one tooth length of the blade should extend below the material to be cut, for minimum splintering

Bevel Adjustment

Disconnect plug from power source. The foot can be adjusted up to 45° by loosening the bevel adjustment wing nut at the front of the saw. Align to desired angle on calibrated quadrant. Then tighten bevel adjustment wingnut.

90° CUTTING ANGLE CHECK

Disconnect plug from power source. Set foot to maximum depth of cut setting. Loosen bevel adjustment wing nut, set to 0° on quadrant, retighten wing nut and check for 90° angle between the blade and bottom plane of

foot with a square (Fig. 5). If adjustment is necessary, tilt foot to 45°, tighten bevel adjustment wing nut and bend "TAB" with an adjustable wrench or pliers.

CUTTING LARGE SHEETS

Large sheets and long boards sag or bend, depending on support. If you attempt to cut without leveling and properly supporting the piece, the blade will tend to bind, causing KICKBACK and extra load on the motor. Support the panel or board close to the cut. Be sure to set the depth of the cut so that you cut through the sheet or board only and not the table or work bench. The two-by-fours used to raise and support the work should be positioned so that the broadest sides support the work and rest on the table or bench. Do not support the work with the narrow sides as this is an unsteady arrangement. If the sheet or board to be cut is too large for a table or work bench, use the supporting two-by-fours on the floor.

Position the saw with the blade just clearing the material to be cut. Start the motor and once fully up to speed, gradually lower the back end of saw using the front end of the foot as the hinge point. **Once the foot plate rests flat on the surface being cut, release the lower guard and move the hand holding the front of the foot plate to hold the auxiliary handle.** Proceed cutting in forward direction to end of cut.

Always make sure that the motor side of saw is on the stationary piece of material being cut.

After completing a cut and the trigger has been released, be aware of the necessary time it takes for the blade to come to a complete stop during coast down. Do not allow the saw to brush

against your leg or side, since the lower guard is retractable, it could catch on your clothing and expose the blade. Be aware of the necessary blade exposures that exist in both the upper and lower guard areas.

5. Power Source

When you plug your tool into the power source, the power indicator light will go “ON” indicating the tool is receiving power.

SAFETY SWITCH

The safety switch is designed to prevent accidental starts. To operate safety switch, press the release button with your thumb on either side of handle to disengage the lock, then pull the trigger. When the trigger is released the button will engage the safety switch automatically, and the trigger will no longer operate.

6. Materials

Circular saws are constructed from many materials.
The handle that accepts the power cable is mad from a polycarbonate plastic that is extremely durable. The motor housing and sliding guard is made from cast aluminum.
The main frame and arbor are made of steel. A plastic chip guard is found on most models. The motor is standard copper and brass.

7. Fluids

Motor comes internally lubricated from factory. A lubricant can be used periodically to maintain free and easy movement of sliding guards.

8. Cutting Attachments and Fasteners

Ripping Blade – Ripping wood with the grain
Crosscut Blade - Cutting wood across the grain
Combination Blade – Both ripping and crosscutting
Masonry Blade – Cutting masonry (Tile)
Metal Cutting Blade – Cutting sheet metal

9. Simple Machines and Energy

The potential energy of the blade and electric motor is turned into kinetic energy through electricity powering the motor. The arbor turns at a high rpm that allows the blade to spin and work to cut material.

10. Tool Maintenance

The tool maybe cleaned most effectively with compressed dry air. Always wear safety goggles when cleaning tools with compressed air.

Look for damage of the saw housing and blade condition. In addition, examine the power supply for exposed wires.

Store in well - ventilated and dry area

11.Troubleshooting Guide

Read instruction manual first! Remove plug from the power source before making adjustments or assembling the blade.

TROUBLE: SAW WILL NOT START

PROBLEM

1. Power cord is not plugged in.
2. Power source fuse or circuit breaker tripped.
3. Cord damaged.
4. Burned out switch.
5. Trigger does not turn tool on.

REMEDY

1. Plug saw in.
2. Replace fuse or reset tripped circuit breaker.
3. Inspect cord for damage. If damaged, have cord replaced by an Authorized Skill
Service Center or Service Station.
4. Have switch replaced by an Authorized Skill Service Center or Service Station.
5. Disengage Safety Switch as described on page 10

TROUBLE: BLADE DOES NOT COME UP TO SPEED

PROBLEM

1. Extension cord too light or too long.
2. Low house voltage.

REMEDY

1. Replace with adequate cord.
2. Contact your electric company.

TROUBLE: EXCESSIVE VIBRATION

PROBLEM

1. Blade out of balance.
2. Work piece not clamped or supported properly.

REMEDY

1. Discard Blade and use different blade.
2. Clamp or support work piece.

TROUBLE: CANNOT MAKE SQUARE CUT WHEN CROSSCUTTING

PROBLEM

1. Foot not adjusted properly.

REMEDY

1. See “Operating Instructions” section, “Bevel Adjustment” , “Cutting Large Sheets”.

TROUBLE: CUT BINDS, BURNS, STALLS MOTOR WHEN RIPPING

PROBLEM

1. Dull blade with improper tooth set.
2. Warped board.
3. Blade binds.
4. Improper work piece support.

REMEDY

1. Discard blade and use a different blade.
2. Make sure concave or hollow side is facing “DOWN” feed slowly.
3. Assemble blade and tighten Vari-Torque clutch per “Assembly Instructions”, see
4. Clamp or support work piece as shown on pages 10 and 12.

TROUBLE: BLADE SLIPPING

PROBLEM

1. Tool does not cut work piece.

REMEDY

1. Assemble blade and tighten Vari-Torque clutch.

12. References

https://www.osha.gov/SLTC/etools/machineguarding/saws/handheld_saws.html

www.powertoolinstitute.com/pti_pdfs/PTI_Teachers_Power_Tool_Safety_Rules.pdf

https://www.safetyinfo.com/hand-and-power-tool-safety-index/