OPERATION MANUAL

MULTIQUIP®

MP2 SERIES

MODELS: MP25E1, MP25E3, MP2H MASONRY SAWS

(5 HP 1Ø ELECTRIC MOTOR)

(5 HP 3Ø ELECTRIC MOTOR)

(8.5 HP HONDA GASOLINE ENGINE)

Revision #4 (10/04/19)

Discount Equipment

THIS MANUAL MUST ACCOMPANY THE EQUIPMENT AT ALL TIMES.

P/N: 35305

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⚠ WARNING

SILICOSIS WARNING

Grinding/cutting/drilling of masonry, concrete, metal and other materials with silica in their composition may give off dust or mists containing crystalline silica. Silica is a basic component of sand, quartz, brick clay, granite and numerous other minerals and rocks. Repeated and/or substantial inhalation of airborne crystalline silica can cause serious or fatal respiratory diseases, including silicosis. In addition, California and some other authorities have listed respirable crystalline silica as a substance known to cause cancer. When cutting such materials, always follow the respiratory precautions mentioned above.

⚠ WARNING

RESPIRATORY HAZARDS

Grinding/cutting/drilling of masonry, concrete, metal and other materials can generate dust, mists and fumes containing chemicals known to cause serious or fatal injury or illness, such as respiratory disease, cancer, birth defects or other reproductive harm. If you are unfamiliar with the risks associated with the particular process and/or material being cut or the composition of the tool being used, review the material safety data sheet and/or consult your employer, the material manufacturer/supplier, governmental agencies such as OSHA and NIOSH and other sources on hazardous materials. California and some other authorities, for instance, have published lists of substances known to cause cancer, reproductive toxicity, or other harmful effects.

Control dust, mist and fumes at the source where possible. In this regard use good work practices and follow the recommendations of the manufacturers or suppliers, OSHA/NIOSH, and occupational and trade associations. Water should be used for dust suppression when wet cutting is feasible. When the hazards from inhalation of dust, mists and fumes cannot be eliminated, the operator and any bystanders should always wear a respirator approved by NIOSH/MSHA for the materials being used.

MP2 Masonry Saw

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NOTICE

Specifications are subject to change without notice.

Do not operate or service the equipment before reading the entire manual. Safety precautions should be followed at all times when operating this equipment. Failure to read and understand the safety messages and operating instructions could result in injury to yourself and others.

SAFETY MESSAGES

The four safety messages shown below will inform you about potential hazards that could injure you or others. The safety messages specifically address the level of exposure to the operator and are preceded by one of four words: **DANGER, WARNING, CAUTION** or **NOTICE.**

SAFETY SYMBOLS

DANGER

Indicates a hazardous situation which, if not avoided, **WILL** result in **DEATH** or **SERIOUS INJURY.**

WARNING

Indicates a hazardous situation which, if not avoided, **COULD** result in **DEATH** or **SERIOUS INJURY.**

CAUTION

Indicates a hazardous situation which, if not avoided, **COULD** result in **MINOR** or **MODERATE INJURY.**

NOTICE

Addresses practices not related to personal injury.

Potential hazards associated with the operation of this equipment will be referenced with hazard symbols which may appear throughout this manual in conjunction with safety messages.

Symbol	Safety Hazard
	Rotating parts hazards
	Cutting and crushing hazards
	Electric shock hazards

GENERAL SAFETY

⚠ WARNING

- Adherence to the OSHA 2017 Ruling governing Occupational Exposure to Respirable Crystalline Silica, requires that all sawing operations **MUST BE** conducted with an integrated water delivery system that feeds water to the blade.

⚠ CAUTION

- **NEVER** operate this equipment without proper protective clothing, shatterproof glasses, respiratory protection, hearing protection, steel-toed boots and other protective devices required by the job or city and state regulations.

- Avoid wearing jewelry or loose fitting clothes that may snag on the controls or moving parts as this can cause serious injury.
- **NEVER** operate this equipment when not feeling well due to fatigue, illness or when under medication.

- **NEVER** operate this equipment under the influence of drugs or alcohol.

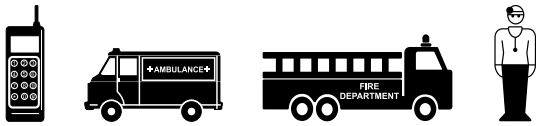
- **ALWAYS** clear the work area of any debris, tools, etc. that would constitute a hazard while the equipment is in operation.
- No one other than the operator is to be in the working area when the equipment is in operation.
- **ALWAYS** check the equipment for loosened threads or bolts before starting.
- **DO NOT** use the equipment for any purpose other than its intended purposes or applications.

NOTICE

- This equipment should only be operated by trained and qualified personnel 18 years of age and older.
- Whenever necessary, replace nameplate, operation and safety decals when they become difficult read.
- Manufacturer does not assume responsibility for any accident due to equipment modifications. Unauthorized equipment modification will void all warranties.
- **NEVER** use accessories or attachments that are not recommended by Multiquip for this equipment. Damage to the equipment and/or injury to user may result.
- **ALWAYS** know the location of the nearest **fire extinguisher.**

- **ALWAYS** know the location of the nearest **first aid kit.**

- **ALWAYS** know the location of the nearest phone or **keep a phone on the job site.** Also, know the phone numbers of the nearest **ambulance, doctor** and **fire department.** This information will be invaluable in the case of an emergency.



SAW SAFETY

DANGER

- **NEVER** operate the equipment in an explosive atmosphere or near combustible materials. An explosion or fire could result causing severe **bodily harm or even death.**

WARNING

- Accidental starting can cause severe injury or death. **ALWAYS** place the ON/OFF switch in the OFF position.

- Keep hands away from moving parts at all times.

- **NEVER** disconnect any **emergency or safety devices.** These devices are intended for operator safety. Disconnection of these devices can cause severe injury, bodily harm or even death. Disconnection of any of these devices will void all warranties.

CAUTION

- **ALWAYS** ensure saw is **securely** placed on appropriate blocks or jackstands when maintenance requires elevation of the saw.
- If the machine malfunctions, stop the saw immediately and secure it. Fix the problem as soon as possible.

NOTICE

- **ALWAYS** keep the machine in proper running condition.
- Fix damage to machine and replace any broken parts immediately.
- Make sure there is no buildup of grease, oil or debris on the machine.
- **ALWAYS** store equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of the reach of children and unauthorized personnel.

BLADE SAFETY

WARNING

- Rotating blade can cut and crush. **ALWAYS** keep hands and feet clear while operating the saw.

CAUTION

- **NEVER** operate the saw without blade guards and covers in place. Exposure of the diamond blade must not exceed 180 degrees.

- Verify the motor start switch is set to the OFF position before installing a blade.
- **ALWAYS** inspect blade before each use. The blade should exhibit no cracks, dings, or flaws in the steel centered core and/or rim. Center (arbor) hole must be undamaged and true.

NOTICE

- Use proper blades and follow blade manufacturer's recommendations. Match the blade RPM (blade shaft RPM) to the recommended blade surface feet per minute (SFPM).
- Ensure the blade-mounting bolt is tightened adequately
- **ALWAYS** examine blade flanges for damage and excessive wear.
- Ensure the blade is marked with an operating speed greater than the spindle speed of the saw.
- Only cut the material that is specified for the diamond blade. Read the specification of the diamond blade to ensure the proper tool has been matched to the material being cut.
- Ensure that water is used during sawing operations and that a sufficient flow of water is applied to both sides of the blade.
- **DO NOT** drop the diamond blade on ground or surface.
- Ensure that the blade is mounted for proper operating direction.
- Adhere to the blade manufacturer's recommendations on handling, storage and safe usage of blades.

ELECTRIC MOTOR SAFETY

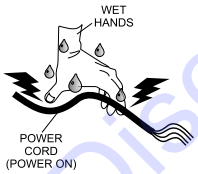
NOTICE

- Operate electric motor only at the specified voltage indicated on the nameplate.
- **DO NOT** spray water onto electric motor.
- **ALWAYS** disconnect AC power plug from power source before moving saw, changing blade, or performing maintenance.
- **ALWAYS** make sure the ON/OFF switch on the electric motor is in the OFF position when not in use and before inserting the saw's power plug into an AC receptacle.

Power Cord/Cable Safety

⚠ DANGER

- **NEVER** let power cords or cables **lay in water.**
- **NEVER** use **damaged** or **worn** cables or cords when connecting equipment to generator. Inspect for cuts in the insulation.
- **NEVER** grab or touch a live power cord or cable with wet hands. The possibility exists of **electrical shock, electrocution or death.**



- Make sure power cables are securely connected. Incorrect connections may cause electrical shock and damage to the saw.

⚠ CAUTION

- Ensure that cables and cords will not be tripped over or trapped underneath the saw.
- Never use the cable to pull out the plug from the power source.

NOTICE

- **ALWAYS** make certain that proper power or extension cord has been selected for the job.
- Protect the cable from heat, oil, and sharp edges.

LIFTING SAFETY

⚠ CAUTION

- **NEVER** allow any person or animal to stand underneath the equipment while lifting.
- Some saws are very heavy and awkward to move around. Use proper heavy lifting procedures.
- **DO NOT** lift machine to unnecessary heights.
- **NEVER** lift the equipment while the motor is running.

TRANSPORTING SAFETY

NOTICE

- **ALWAYS** shutdown motor before transporting.
- **ALWAYS** tie down equipment during transport by securing the equipment with rope.
- Ensure that the diamond blade does not come into contact with the ground or surface during transportation.
- **NEVER** transport the saw to or from the job site with the blade mounted.

ENVIRONMENTAL SAFETY

NOTICE

- Dispose of hazardous waste properly. Examples of potentially hazardous waste are used motor oil, fuel and fuel filters.

- **DO NOT** use food or plastic containers to dispose of hazardous waste.
- **DO NOT** pour waste, oil or fuel directly onto the ground, down a drain or into any water source.

Table 1. Saw Specifications			
Saw Model	**MP25E1**	**MP25E3**	**MP2H**
Approximate Weight	415 lbs. (188 Kg.)		
Blade Capacity	20 in. blade maximum		
Cutting Depth	8 in. with 20 in. blade		
Blade Shaft Speed	2,497 RPMs		2,222 RPMs
Water Pump	115V/60Hz, Oil-filled, 300 GPM		Mechanical/ Centrifugal,138 GPH

Table 2. MP2 Electric Motor/Engine Specifications			
Saw Model	**MP2H**	**MP25E1**	**MP25E3**
Engine/Motor	Honda GX270QWH2	5 H.P. Industrial TEFC Electric 208-230 VAC 21.5 - 20.0 Amp Single Phase 60 Hz	5 H.P. Industrial TEFC Electric 230 VAC 12.0 Amp Three Phase 60 Hz
Type	4-Stroke OHV Single Cylinder		
Bore & Stroke	3.0 x 2.3 in. (77 x 58 mm)		
Displacement	16.5 cu. in. (270 cc)		
Max Output	8.5 HP (6.3 KW) @ 3600 rpm		
Fuel Tank Cap.	1.59 U.S. Gal. (6.0 liters)		
Fuel	Unleaded Gasoline		
Lube Oil Cap.	1.16 U.S. Qt. (1.1 liters)		
Speed Control Method	Centrifugal Fly-Weight type		
Starting Method	Recoil Start		
Dimension	14.0 x 16.9 x 16.1 In. (355 x 430 x 410 mm)		
Dry Net Weight	55.1 Lbs. (25.0 Kg)		

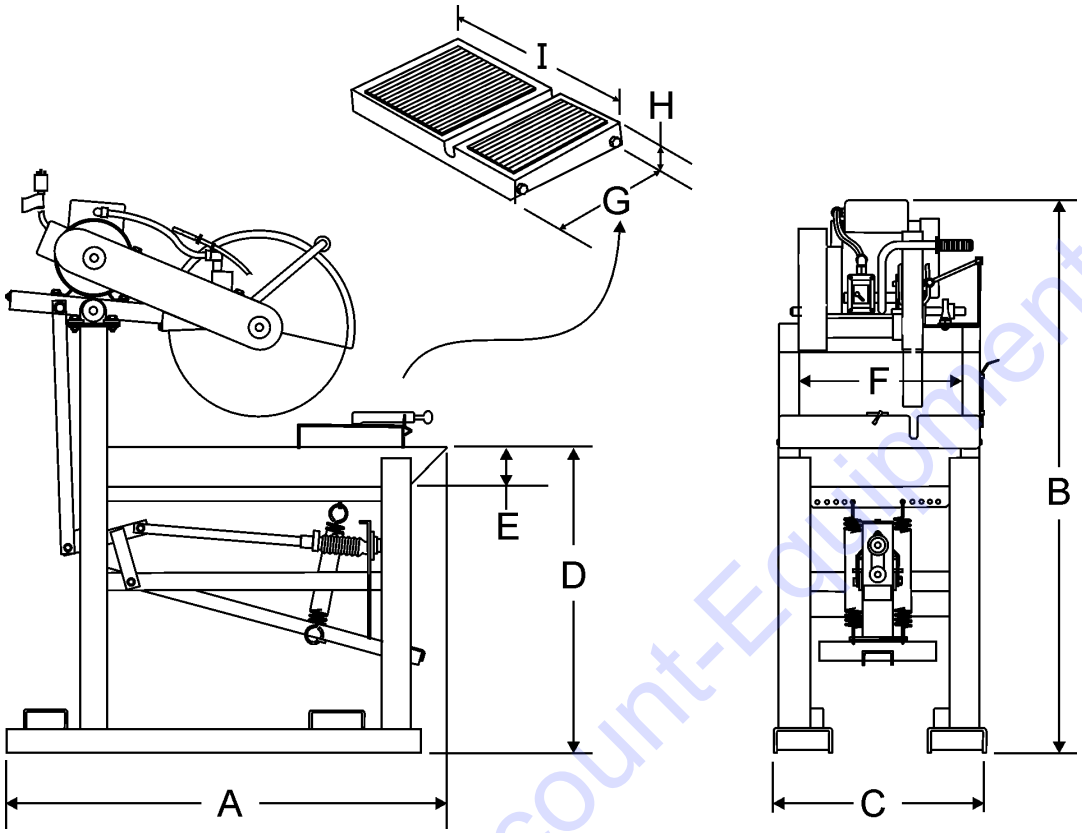


Figure 1. Dimensions

Table 3. Dimension		
REFERENCE LETTER	**DESCRIPTION**	**DIMENSION in. (mm)**
A	Max Length	48 in. (1219 mm)
B	Max Height (Electric Models)	61 in. (1549 mm)
	Max Height (Gasoline Models)	68 in. (1727 mm)
C	Max Width	23 in. (584 mm)
D	Tray Height	34.5 in. (876 mm)
E	Tray Depth	4.5 in. (114 mm)
F	Splash Shield Opening	18 in. (457 mm)
G	Cart Length	13.5 in. (343 mm)
H	Cart Height	2.5 in. (63.5 mm)
I	Cart Width	24 in. (610 mm)
WEIGHTS	MS 2090 HP	526 lbs. (239 Kg)
	MS 2050 E1	501 lbs. (227 Kg)
	MS 2050 E3	526 lbs. (239 Kg)

MP2 MASONRY SAW

The MP2 Masonry Saw is designed for vigorous wet-cutting masonry applications. The heavy-duty steel conveyor cart and ball bearing roller wheels ensure material stability and smooth travel. In addition a reinforced jig-welded steel frame provides rigidity for cutting accuracy and long service life.

This saw is available with either an electric motor or a gasoline engine. Two heavy duty electric motors are available: a 5 HP 230V single phase or 5 HP 230V three phase, all with overload protection.

If desired, the MP2 Masonry Saw can be configured with an 8.5 HP Honda GX270 gasoline engine.

All MP2 saw models include a high flow water pump, cutting jig, water hoses and associated plumbing to enable the operator to begin wet cutting.

WET CUTTING APPLICATIONS

For operator safety, ALL sawing must be conducted with the water delivery system that is provided with the masonry saw. Ensure that a free flow of clean water is properly routed from the pump through the plumbing system so that the blade receives an ample amount of water. This action is required to safeguard against the operational hazards of silica exposure.

⚠ WARNING

Adherence to the OSHA 2017 Ruling governing Occupational Exposure to Respirable Crystalline Silica, requires that all sawing operations **MUST BE** conducted with an integrated water delivery system that feeds water to the blade.

BLADE APPLICATIONS

This saw has been designed to incorporate the use of diamond blades as the cutting tool. The optimum performance of this saw is best evidenced by using 20-inch (508 mm) diamond blades that match the material being cut. Ask Discount-equipment about your specific cutting application.

FEATURES

- 5 HP, 230 VAC , 60 Hz heavy duty electric motors with overload protection.
- 8.5 HP Honda GX270 gasoline engine.
- 20-inch blade capacity provides 8-inch depth of cut.
- Rugged steel conveyor cart for optimum stability.
- Open back design permits capability of cutting large materials.
- Ergonomically designed cutting head provides operator relief in high tempo operations.
- Welded fork pockets for easy transportation.
- Rubber-matted cutting table helps hold the material being cut in place while resisting vibrations for smoother cuts with less chipping.
- Cutting table marked in inches (ruler) for precision cuts.
- Stay-level blade guard for operator safety.
- Rigid steel frame minimizes vibrations and assures accurate cutting.
- Mechanical Water Pump Kit (Gasoline Model Only)
- Electric Submersible Water Pump Kit (Electric Models Only).

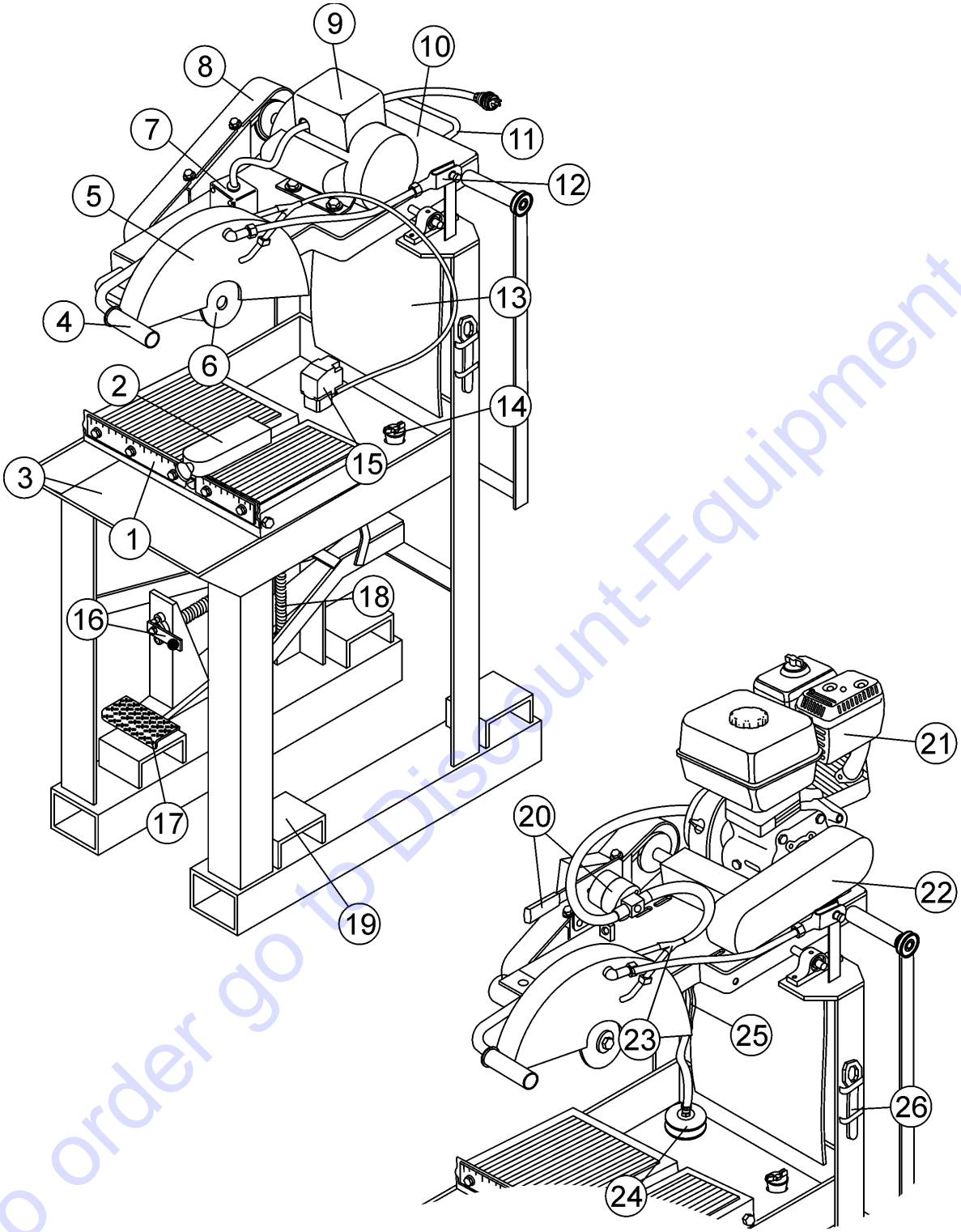


Figure 2. Saw Components

Figure 2 shows the location of the basic components of the MP2 Saw. Listed below is a brief explanation of each component.

1. **Ruler Backstop** — When cutting, place material against backstop. Use measurement rail (ruler) to determine where material is to be cut.
2. **Miter Box** — For angled cuts, place the lip of the miter box on the measurement rail with the threaded thumb knob facing you and tighten.
3. **Water Tray** — When wet cutting is required, fill with clean fresh water. Make sure the water pump is totally immersed in water before cutting.
4. **Cutting Head Handle** — Grab hold of this handle to control the movement of the cutting head as you step on the Blade Raise/Lower Foot Pedal.
5. **Blade Guard** — Protects the user from the cutting blade. ***NEVER*** operate the saw with the blade guard removed.
6. **Spindle Bolt/Outside Blade Flange** — When mounting of the cutting blade is required, remove the spindle bolt and outside blade flange. Align cutting blade with inside flange arbor and reassemble spindle and outside blade flange.
7. **Power ON/OFF Box** — This box is used on ***electric models saws only***. To turn on the saw place in the ON (I) position. Place in the OFF (0) position to shut-down the saw.
8. **V-belt Cover** — Remove this cover to access the drive V-belt. ***NEVER*** operate the saw with the V-belt cover removed.
9. **Electric Motor/Conduit Box** — This unit uses 2 different types of electric motors and voltages (see Table 2). Plug the water pump (electric models only) power cord into the AC receptacle located on the conduit box.
10. **Mounting Plate** — Supports the electric motor/ gasoline engine. Plate has slotted holes for horizontal (right-side) and vertical (left-side) adjustment of cutting head.
11. **Mounting Plate Handle** — Grip this handle (rear) to lift the mounting plate.
12. **Tie Rod** — The tie rod length has been set at the factory for best blade guard position for the majority of the cutting that will be done.
13. **Splash Guard** — Keeps water and debris from leaving the water tray.
14. **Stopper** — Place stopper in tray when filling with water.
15. **Electric Water Pump** — For best results place the pump between the splash shield and the rear of the water tray. This is for electric models only. Plug water pump power cord into AC receptacle on electric motor conduit box. ***NEVER*** run pump dry. Pump must be immersed in water.
16. **Blade Raise/Lower Crank Handle** — Use this handle to set the maximum cutting depth of the MP2 Masonry Saw. Turn ***clockwise*** to LOWER the blade. Turn ***counterclockwise*** to RAISE the blade.
17. **Blade Raise/Lower Foot Pedal** — Step on the pedal to lower the blade for cutting. Gently step off the pedal to raise the blade when finished cutting.
18. **Spring Tensioner** — Connects to the foot pedal bar to allow for an easy up and down movement of the mounting plate and blade.
19. **Forklift Pockets** — Use to easily move the MP2 Masonry Saw from one location to another. When moving the saw, ensure that the forks pass completely through the pockets on both sides of the machine before attempting to lift the MP2.
20. **Mechanical Water Pump** — A mechanical centrifugal water pump is used on gasoline engine driven saw models only. Saw is shipped from the factor for wet cutting applications (see **WET CUTTING** section). The Pump Mounting Bracket must be positioned in the 'UP' position to engage the pump drive wheel to the drive belts.
21. **Engine** — The gasoline model saws use an 8.5 HP Honda GX270, 4-stroke, OHV, single cylinder, air-cooled gasoline engine.
22. **V-belt Cover (Gasoline Only)** — Remove this cover to access the engine shaft-side V-belt. ***NEVER*** operate the saw with the V-belt cover removed.
23. **Water Lines** — Replace the clear vinyl tubing water lines when they become brittle, worn or clogged. Water kits are available through your dealer.
24. **Strainer** — For best results place the strainer between the splash shield and the rear of the water tray. This is for gasoline models only. ***NEVER*** run pump dry. Strainer must be immersed in water.
25. **Priming Bulb** — Squeeze this bulb to prime the mechanical water pump (gasoline models only).
26. **Blade Wrench** — Use this tool to mount and remove cutting blade.

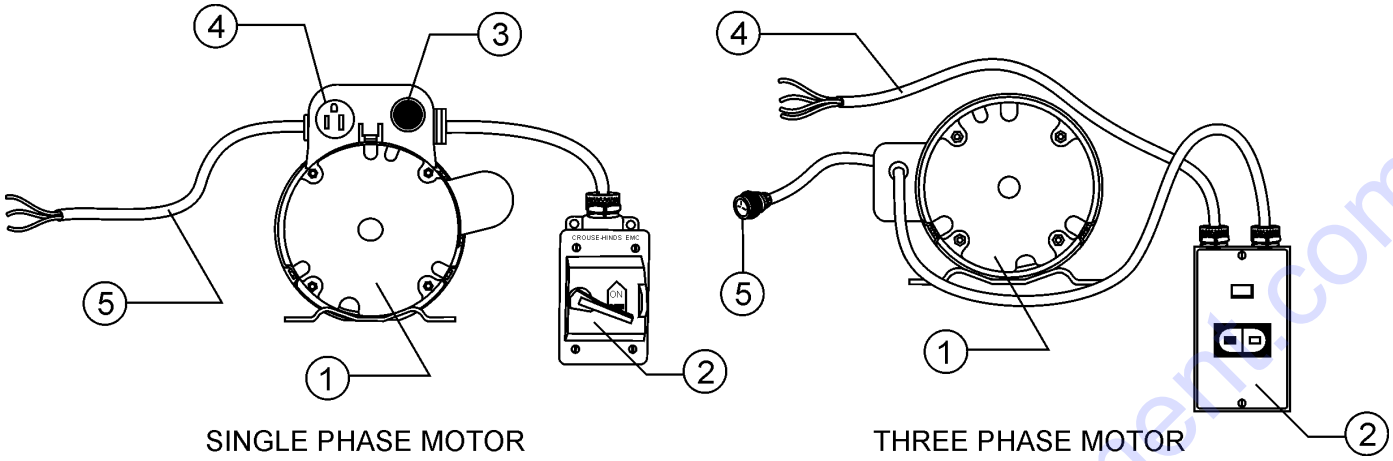


Figure 3. Electric Motor Components

HEAVY DUTY ELECTRIC MOTORS

The MP2 Saw can be equipped with several different models of electric motors. Figure 3 shows the basic components of the electric motor. Refer to the manufacturers electric motor manual for instructions & details of operation and servicing.

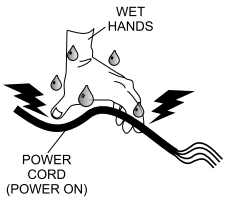
1. **Electric Motor —** The MP2 saw can be operated with either a Single Phase or Three Phase 230V motor. Only qualified electricians should service the motor.

⚠ WARNING

All saws equipped with ***three phase motors*** should be wired by a qualified electrician and correct motor rotation verified before operating the saw.

2. **Power ON/OFF Box —** To turn on the saw, place switch in the **ON** position. Place in the **OFF** position to shutdown the saw.
3. **Electric Motor Reset Switch —** This switch is part of the thermal overload protection for the electric motor. If the motor overheats and shuts down, press this switch to reset the motor, after allowing the motor to cool down. This is used on ***Single phase*** electric saws only.
4. **Water Pump AC Power Receptacle —** Plug the electric water pump into this receptacle to provide power to the pump during saw operation. Unplug the electric water pump from this receptacle when dry cutting.
5. **Electric Motor Wiring Pigtail —** The saw motor ships with cable "pigtails." Have an licenced electrician supply and install the appropriate NEMA connector.

⚠ DANGER



NEVER grab or touch a live power cord with wet hands, the possibility exists of electrical shock, electrocution, and even death!

NEVER use a damaged or worn extension cable when connecting to a power source. Defective cables may cause damage to the saw's electric motor or electrical shock.

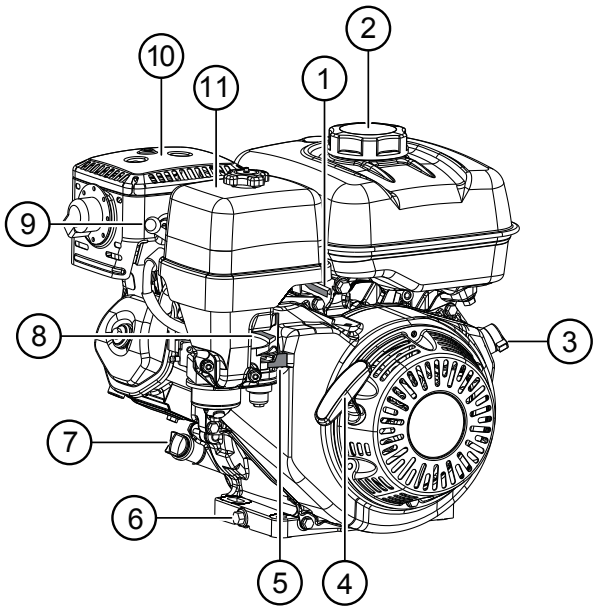


Figure 4. Engine Components

INITIAL SERVICING

The engine (Figure 4) must be checked for proper lubrication and filled with fuel prior to operation. Refer to the manufacturer's engine manual for detailed operation and service instructions.

1. **Throttle Lever** — Adjusts engine RPM speed.
2. **Fuel Filler Cap/Fuel Tank** — Remove this cap to add unleaded gasoline to the fuel tank. Refer to Table 2 for fuel tank capacity. Make sure the cap is tightened securely. **DO NOT** overfill

DANGER

Add fuel to the tank **only** when the engine is stopped and has had an opportunity to cool down. In the event of a fuel spill, **DO NOT** attempt to start the engine until all fuel residue has been completely wiped up and the area surrounding the engine is dry.

3. **Engine ON/OFF Switch** — **ON** position permits engine starting. **OFF** position stops engine operation.
4. **Recoil Starter** — Manual starting method. Pull the starter grip until resistance is felt, then pull briskly and smoothly to start the engine.
5. **Fuel Valve Lever** — Open to allow fuel to flow. Close to prevent fuel flow.
6. **Oil Drain Bolt** — Remove this bolt to drain oil from the engine crankcase.
7. **Oil Filler Cap/Dipstick** — Remove this cap to determine if engine oil is low. Add oil through this filler port as recommended in Table 2.
8. **Choke Lever** — Used in cold weather conditions or for the starting of a cold engine. The choke enriches the fuel mixture.
9. **Spark Plug** — Provides spark to the ignition system. Set the spark plug gap according to the engine manufacturer's instructions. Clean the spark plug once a week.
10. **Muffler** — Reduces noise and emissions. **NEVER** touch the muffler while it is **hot**!
11. **Air Cleaner** — Prevents dirt and other debris from entering the fuel system. Remove the wing nut on top of the air cleaner cover to gain access to the filter elements.

NOTICE

Operating the engine without an air cleaner, with a damaged air cleaner, or with an air cleaner in need of replacement will allow dirt to enter the engine, causing rapid engine wear.

⚠ WARNING

Whenever cleaning, adjusting or lubricating any part of the saw, **MAKE SURE** to place the power **ON/OFF** switch in the OFF position and disconnect the plug from the power source.

ASSEMBLY (ELECTRIC POWERED SAWS ONLY)

1. Remove the MP2 Masonry Saw from its container and place it on a stable, level surface. Make sure location you choose can support the weight of the saw. The saw location should be rigid and stationary so that the saw will not move, sag, or sway due to the vibrations and movements of the saw.
2. Connect the barb fitting to the water pump. Attach the clear plastic water hose (Figure 5) coming from the blade guard to the water pump.
3. Fill the water tray with ***clean fresh water***. The ***water pump intake must always be fully covered by water***. Also, keep the pump intake free of sludge, debris and other materials that may accumulate in the tray.
4. Make certain that the water hose will not come in contact with the blade or interfere with any moving parts. The best location for the water pump/strainer is between the splash shield and the rear of the water tray. This will prevent some of the abrasive particles from flowing through the pump.

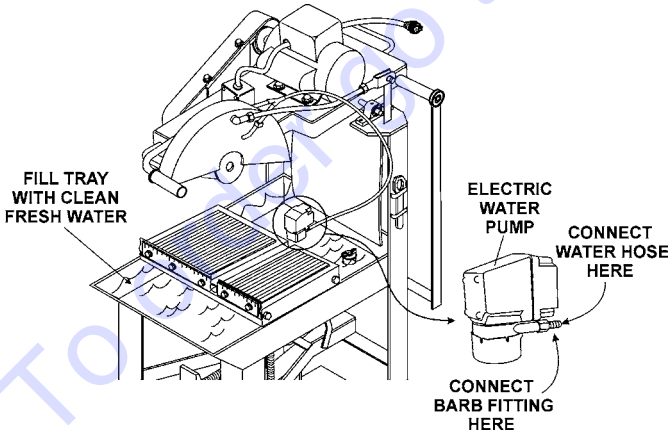


Figure 5. Water Tray/Water Pump

5. Insert the water pump ***power plug*** into the outlet receptacle on the electric motor conduit box as shown in Figure 6.

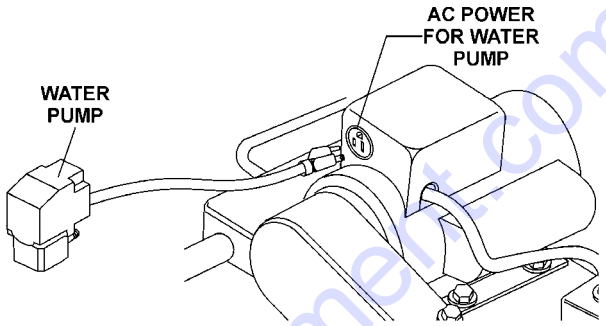


Figure 6. Water Pump Power Connection

For three-phase motors, you may be required to install a plug on the end of the water pump power cable, which should have 3 wires exposed. Have a qualified electrician install a male plug that has bee properly rated for the equipment(230V).

Once a plug has been installed, insert the power plug into the receptacle plug cord attached to the motor

CONVEYOR CART PLACEMENT

1. Place the conveyor cart across the water tray as shown in Figure 7. Align the wheels of the cart with the outer edge of the water tray. Push the cart back and forth, it should move freely in both directions.

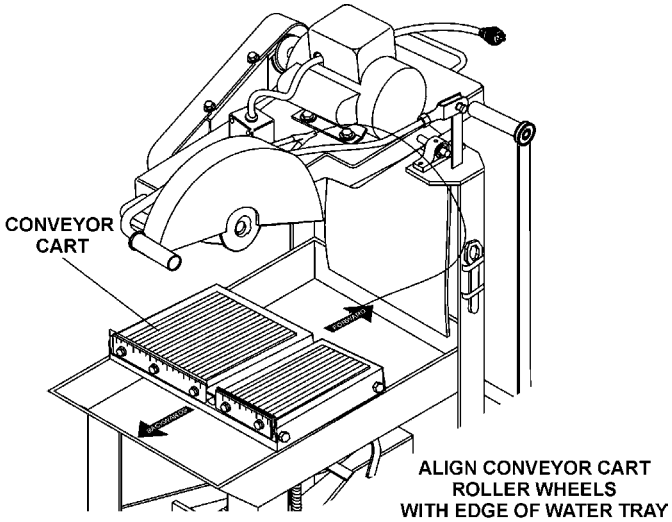


Figure 7. Conveyor Cart Placement

BLADES

WARNING

Failure to thoroughly inspect the blade for operational safety could result in damage to the blades or the saw and may cause serious injury to the user or others in the operating area. Inspect the blade flanges and shaft for damage before installing the blade.

Blade Components

Diamond blades are recommended for your saw. Ask Discount-equipment about your specific cutting application. Figure 8 highlights the components of a diamond blade.

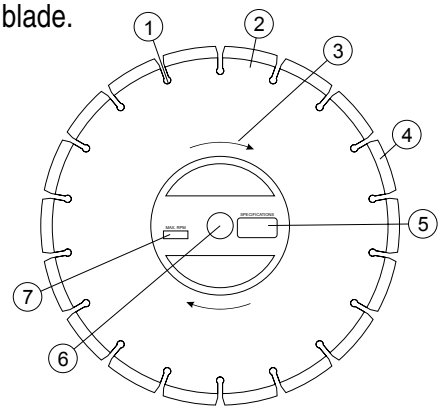


Figure 8. Diamond Blade

1. **Stress Relief Holes (Gullets)** — Check the steel core for cracks that may have propagated from the slots and/or gullets. Cracks indicate extreme fatigue failure and if sawing continues, catastrophic failure will occur.
2. **Edge of the Steel Core** — Check the diameter edge for discoloration (blue oxidation) indicating an overheating condition caused by insufficient cooling water/air. Overheating of blades may lead to loss of core tension and/or increase the possibility for blade failure. Check to make sure the steel core's width is uniform about the rim of the blade, and not succumbing to an "under cutting" condition brought about by highly abrasive material or improper under cutting core protection.
3. **Directional Arrow** — Check to ensure that the blade is oriented properly on the spindle for sawing. Reference the directional arrow on the blade and place it so the direction of rotation "downcuts" with the turn of the shaft.
4. **Diamond Segment or Rim** — Ensure that there are no cracks, dings, or missing portions of the diamond segment/rim. **DO NOT use a blade that is missing a segment or a portion of the rim**. Damaged and/or missing segments/rims may cause damage to your saw and injury to the user or others in the operating area.
5. **Specifications** — Ensure that the blade specifications, size, and diameter properly match up to the sawing operation. Wet blades must have water to act as a coolant. Utilizing a diamond blade not matched properly to the task may result in poor performance and/or blade damage.
6. **Arbor Hole** — It is essential that the arbor hole diameter properly matches the shaft arbor, and that it is free from distortions. Correct blade flanges (collars) must be used. The inside face of the flanges must be clean and free of debris. An out of round arbor condition will cause damage to the blade and the saw.
7. **MAX RPM** — This RPM reference is the maximum safe operating speed for the blade selected. **NEVER** exceed the max RPM on the diamond blade. Exceeding the MAX RPM is dangerous, and may cause poor performance and may damage the blade. All blades used must be designed for the maximum spindle RPM.

Blade Installation

1. Use the ***blade nut wrench*** (Figure 9) supplied with the saw to install the cutting blade
2. Ensure the capacity of the blade guard matches the diameter of your cutting blade.
3. Using the blade nut wrench, remove the ***blade shaft nut*** and ***outside blade flange***. Install the cutting blade onto the ***inside blade flange arbor***. Re-install the outside blade flange and blade shaft nut. Tighten securely. **DO NOT** overtighten.

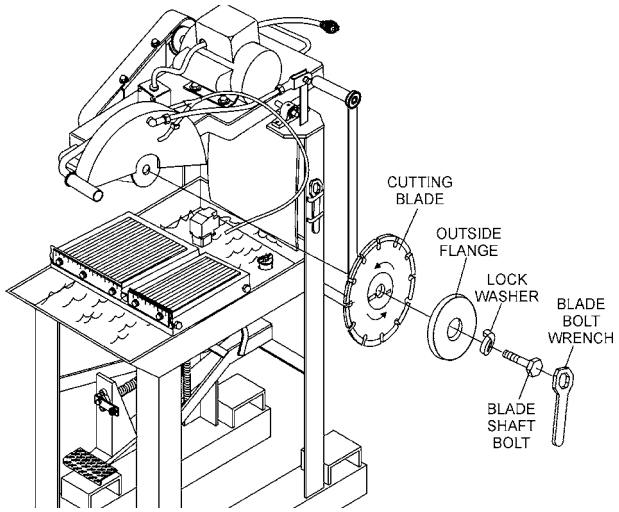


Figure 9. Blade Installation

CONNECTING THE POWER

1. Place the power **ON/OFF** switch (Figure 10) in the **OFF** position (down).

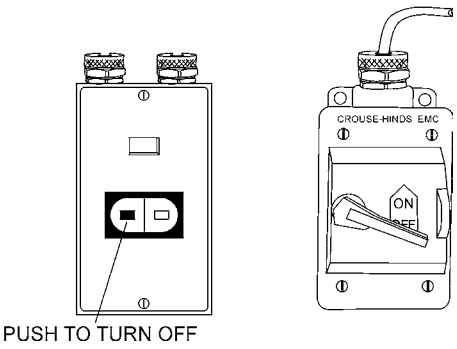


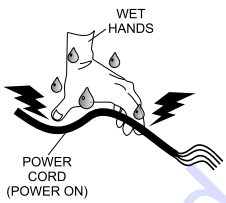
Figure 10. Power ON/OFF Switch

2. Connect an extension cord of adequate current carrying capacity to the power plug on the electric motor.
3. **MAKE CERTAIN** that the correct size extension cord is used. Undersized wires will burn out motors. Use Table 4 to determine the correct extension cord size.

Table 4. Extension Cord Sizes

MOTOR	VOLTAGE VAC	50 ft (15. 2 m) Long	75 ft (22.9 m) Long	100 ft (30.5 m) Long
5 HP 1Ø	230	NO. 10	NO. 8	NO. 6
5 HP 3Ø	230	NO. 12	NO. 10	NO. 8
5 HP 3Ø	460	NO. 14	NO. 12	NO. 10

DANGER



NEVER grab or touch a live power cord with wet hands, the possibility exists of electrical shock, electrocution, and even death!

NEVER use a damaged or worn extension cable when connecting to a power source. Defective cables may cause damage to the saw's electric motor or electrical shock.

ALWAYS use a grounded (3-wire) extension cord and **MAKE CERTAIN** that the motor is connected to a properly grounded electric circuit. If possible use a ground fault circuit interrupter to protect the operator from possible electric shock.

4. The MP2 masonry saw is now ready for ***wet cutting***.

WARNING

Adherence to the OSHA 2017 Ruling governing Occupational Exposure to Respirable Crystalline Silica, requires that all sawing operations **MUST BE** conducted with an integrated water delivery system that feeds water to the blade.

WARNING

Whenever cleaning, adjusting or lubricating any part of the saw, MAKE CERTAIN to stop the engine and disconnect the spark plug wire from the spark plug

ASSEMBLY (GASOLINE POWERED SAWS ONLY)

1. Remove the saw from its container and place it on a stable, level surface. Make sure location you choose can support the weight of the saw. The saw location should be rigid and stationary so that the saw will not move, sag, or sway due to the vibrations and movements of the saw.
2. The ***gasoline powered*** saw uses a ***mechanical water*** pump. This pump operates by drawing power from the drive V-belts, and has been adjusted and locked for wet cutting operation when shipped from the factory.
3. Fill the water tray with clean fresh water. The ***water pump intake (strainer) must always be fully covered by water to operate effectively***. Also, keep the pump intake free of sludge, debris and other materials that may accumulate in the tray.
4. Make certain that the water hose will not come in contact with the blade or interfere with any moving parts. The best location for the water pump/strainer is between the splash shield and the rear of the water tray. This will prevent some of the abrasive particles from flowing through the pump.

WARNING

ALWAYS position the ***strainer*** in the water tray in a manner that will allow the free movement of the conveyor cart, and clearance from the cutting blade and cutting action.

NOTICE

The mechanical water pump is shipped from the factory for ***wet cutting*** applications.

WET CUTTING (GASOLINE ONLY)

To connect the ***mechanical water pump*** to the drive V-belts perform the following:

1. Loosen the 2 hex head cap screws (Figure 11) that secure the pump mount bracket.
2. Rotate the pump mounting bracket 'UP' to engage the pump drive wheel to the V-belts for water pump operations. The drive wheel should press down (belt deflection) approximately 1/8 to 3/16 inch to ensure proper connection.
3. Tighten the 2 hex head cap screws that secure the pump mount bracket.

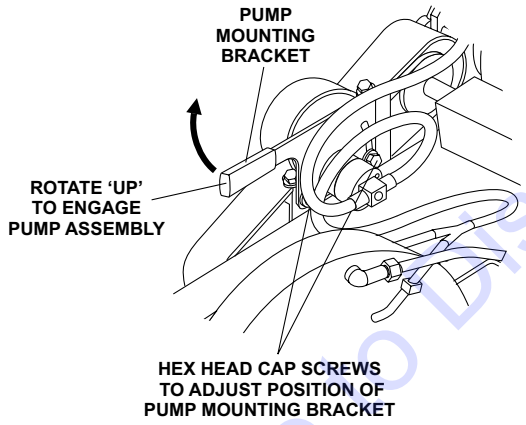


Figure 11. Pump Engage

4. With the engine running, squeeze the water pump ***priming bulb*** (Figure 12) until water begins to flow through the water lines. If the pump is working correctly, the cutting blade should be covered with a steady water mist. This will keep the blade cool while cutting.

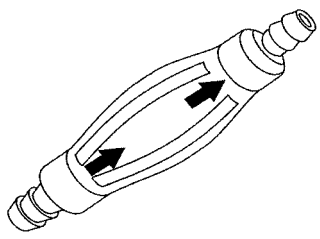


Figure 12. Priming Bulb

DRY CUTTING (GASOLINE ONLY)

If the nation of operations (the USA and Canada do not apply) permits DRY Sawing Operations, it is highly recommended to disengage the mechanical water pump as not to overheat the unit.

To disconnect the mechanical water pump from the drive v-belts for DRY Cutting, perform the following:

1. Loosen the 2 hex head cap screws (Figure 13) that secure the pump mounting bracket.
2. Rotate the pump mounting bracket "DOWN" to disengage the drive wheel from the V-Belts.
3. Tighten the 2 hex head cap screws that secure the pump mount bracket.

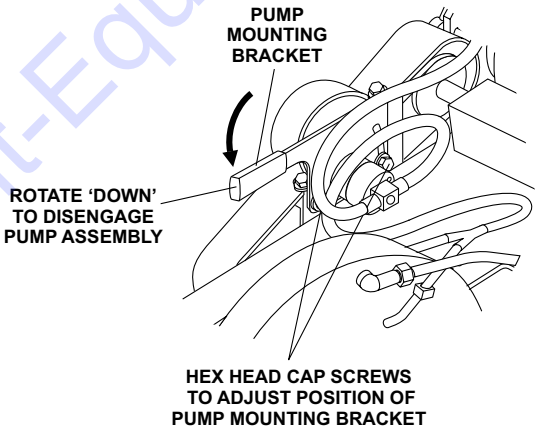


Figure 13. Pump Disengage

BEFORE STARTING

1. Read safety instructions at the beginning of manual.
2. Clean the saw, removing dirt and dust, particularly the engine cooling air inlet, carburetor and air cleaner.
3. Check the air filter for dirt and dust. If air filter is dirty, replace air filter with a new one as required.
4. Check carburetor for external dirt and dust. Clean with dry compressed air.
5. Check fastening nuts and bolts for tightness.

ENGINE OIL CHECK

1. To check the engine oil level, place the saw on a secure level surface with the engine stopped.
2. Remove the filler dipstick from the engine oil filler hole (Figure 14) and wipe clean.

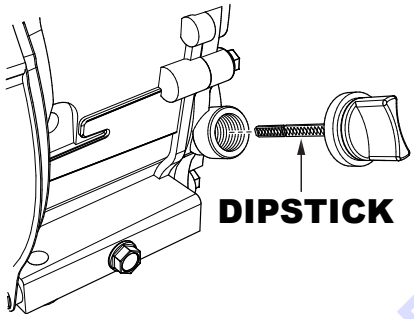


Figure 14. Engine Oil Dipstick (Removal)

3. Insert and remove the dipstick without screwing it into the filler neck. Check the oil level shown on the dipstick.
4. If the oil level is low (Figure 15), fill to the edge of the oil filler hole with the recommended oil type (Table 5). Maximum oil capacity is 0.63 quarts (0.60 liters)

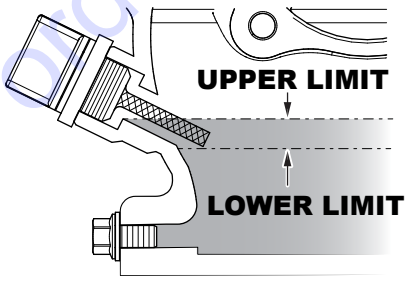


Figure 15. Engine Oil Dipstick (Oil)

Table 5. Oil Type

Season	Temperature	Oil Type
Summer	25°C or Higher	SAE 10W-30
Spring/Fall	25°C~10°C	SAE 10W-30/20
Winter	0°C or Lower	SAE 10W-10

FUEL CHECK

DANGER

EXPLOSIVE FUEL!

Motor fuels are highly flammable and can be dangerous if mishandled. **DO NOT** smoke while refueling. **DO NOT** attempt to refuel the compactor if the engine is hot or running.

1. Remove the gasoline cap located on top of fuel tank.
2. Visually inspect to see if the fuel level is low. If fuel is low, replenish with unleaded fuel.
3. When refueling, be sure to use a strainer for filtration. **DO NOT** top-off fuel. Wipe up any spilled fuel ***immediately!***

START-UP PROCEDURE (ELECTRIC MOTOR)

NOTICE

Read and fully understand this manual before starting or attempting to operate the saw.

Before starting the saw's electric motor make sure that the Safety, General Information, and Set-Up sections have been completed and understood. **DO NOT** proceed until the above mentioned sections have been completed.

WARNING

ALWAYS wear approved eye and hearing protection before operating the saw.

WARNING

NEVER place hands or feet inside the belt guard or blade guard while the motor is running. **ALWAYS** shut the motor down before performing any kind of maintenance

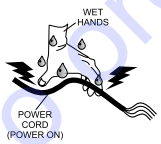
WARNING

NEVER place hands and fingers near the cutting blade. The possibility exists of severe bodily harm if hands and fingers come in contact with rotating saw blade.

WARNING

ALWAYS ensure that the cutting blade has been mounted correctly.

DANGER



NEVER touch a live power cord with wet hands. The possibility exists of electrical shock, electrocution which could cause severe bodily harm, even death.

WARNING

NEVER lift the blade guard while the blade is rotating. The possibility exists of severe bodily harm if fingers or hands come in contact with the rotating saw blade. Wait for the blade to stop rotating before lifting the blade guard.

1. Turn the power ON/OFF switch (Figure 16) to the ON position with the blade away from the material to be cut, the cutting blade should begin to rotate. Before cutting remember to follow all safety rules referenced in this manual

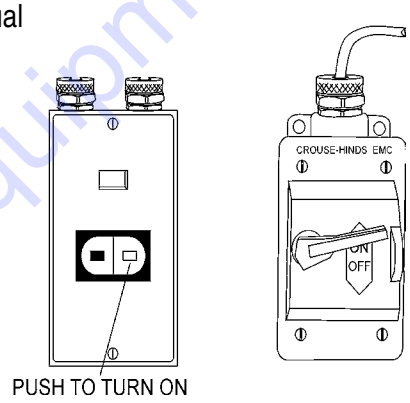


Figure 16. Power ON/OFF Switch (ON)

2. Avoid overloading the motor when cutting. The electric motors are protected with a manual-reset thermal overload switch that will turn the saw off if the motor is overheated. In the event that the switch is tripped, turn the ON/OFF switch to the OFF position and allow the motor to cool before attempting to restart.

Shutdown Procedure

1. Place the power **ON/OFF** switch (Figure 17) in the **OFF** position (down).

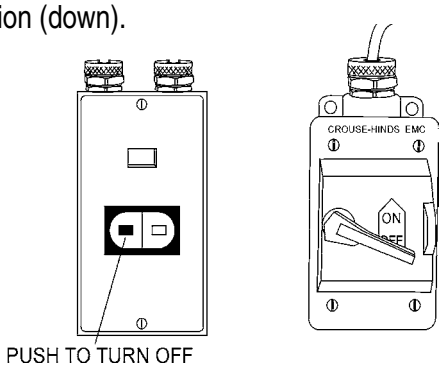


Figure 17. Power ON/OFF Switch (OFF)

START-UP PROCEDURE (ENGINE)

NOTICE

Read and fully understand this manual before starting or attempting to operate the saw.

Before starting the saw's electric motor make sure that the Safety, General Information, and Set-Up sections have been completed and understood. **DO NOT** proceed until the above mentioned sections have been completed.

WARNING

NEVER operate the saw in a confined area or enclosed area structure that does not provide ample ***free flow of air***

WARNING

ALWAYS wear approved eye and hearing protection before operating the saw.

WARNING

NEVER place hands or feet inside the belt guard or blade guard while the motor is running. **ALWAYS** shut the motor down before performing any kind of maintenance

WARNING

NEVER place hands and fingers near the cutting blade. The possibility exists of severe bodily harm if hands and fingers come in contact with rotating saw blade.

WARNING

ALWAYS ensure that the cutting blade has been mounted correctly.

1. Place the engine fuel valve lever (Figure 18) to the "**ON**" position.

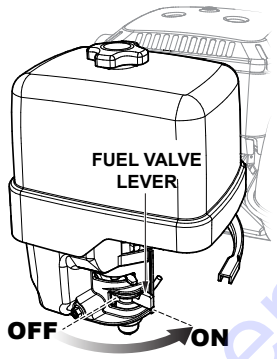


Figure 18. Engine Fuel Valve Lever (ON Position)

2. Place the ***Engine ON/OFF switch*** (Figure 19) in the "**ON**" position.

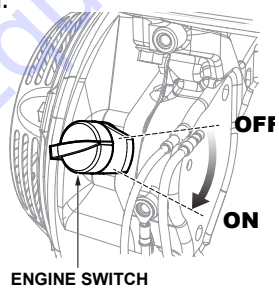


Figure 19. Engine ON/OFF Switch

3. Place the choke lever (Figure 20) in the **"CLOSED"** position if starting a cold engine.

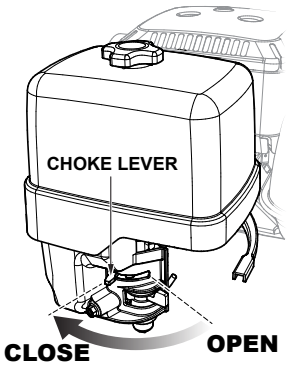


Figure 20. Choke Lever

NOTICE

The **CLOSED** position of the choke lever enriches the fuel mixture for starting a **COLD** engine. The **OPEN** position provides the correct fuel mixture for normal operation after starting, and for restarting a warm engine.

4. Rotate the ***throttle lever*** (Figure 21) halfway between ***fast*** and ***slow*** for starting. All cutting is done at ***full throttle***. The engine governor speed is factory set to ensure optimum blade operating speeds

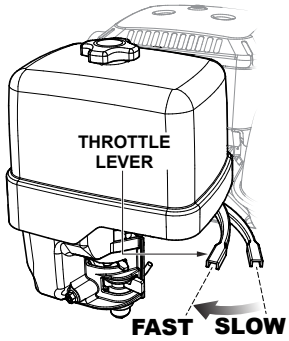


Figure 21. Throttle Lever

5. Grasp the starter grip (Figure 22) and slowly pull it out. The resistance becomes the hardest at a certain position, corresponding to the compression point. Pull the starter grip briskly and smoothly for starting.

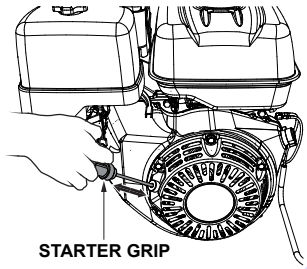


Figure 22. Starter Grip

6. If the engine has started, slowly return the choke lever (Figure 20) to the ***"OPEN"*** position. If the engine has not started repeat steps 1 through 5.
7. Before the saw is placed into operation, run the engine for several minutes. Check for fuel leaks, and noises that would associate with a loose guards and/or covers.
8. Gradually move the engine throttle lever toward the fast position. (All cutting should be done at full throttle) Squeeze the water pump priming bulb (Figure 23) until water begins to flow through the water lines. If the pump is working correctly, the cutting blade should be covered with a steady water mist. This will keep the blade cool.

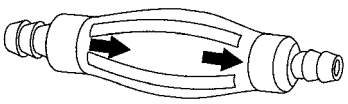


Figure 23. Priming Bulb

⚠ WARNING

ALWAYS cut with the saw at **FULL THROTTLE.** Attempting to cut with the saw at less than full throttle could cause the blade to bind or stop abruptly in the slab resulting in serious injury to the operator or others in the area.

⚠ DANGER

ALWAYS be alert to the fact that there is a rotating blade on the saw and be extremely aware of your body position — especially your hands in relationship to the rotating blade. The possibility exists of severe bodily harm or even death if your body comes in contact with the rotating saw blade.

9. Avoid overloading the engine when cutting. In the event that the engine becomes overloaded, turn the engine **ON/OFF** switch to the **OFF** position and allow the engine to ***cool*** before attempting to restart.

STOPPING

⚠ CAUTION

Engine components can generate extreme heat. To prevent burns, **DO NOT** touch these areas while the engine is running or immediately after operations. **NEVER** operate the engine with heat shields or heat guards removed.

1. Set the engine throttle lever to ***slow*** speed and let the engine idle for 3-5 minutes.
2. Turn the engine **ON/OFF** switch to the **"OFF"** position.
3. Place the fuel valve lever in the ***closed*** position.
4. Let the engine cool.
5. Using a soft cloth, clean any excess debris or residue that may have accumulated on the saw.
6. Store saw in a clean dry location where it will be out of the reach of children.

The MP2 Masonry Saw has two methods available for cutting: Using the ***step pedal*** to lower the blade into the material or fixing the height of the blade before cutting using the ***raise/lower crank handle*** to allow for a constant cutting depth.

DANGER

ALWAYS be alert to the fact that there is a rotating blade on the saw and be extremely aware of your body position — especially your hands in relationship to the rotating blade. The possibility exists of severe bodily harm or even death if your body comes in contact with the rotating saw blade.

"FIXED HEIGHT" CUTTING METHOD

1. Using the ***Raise/Lower Crank Handle***, located above the step pedal, turn the handle **CLOCKWISE** to **LOWER** the saw blade to the required depth (Figure 24). Turn the handle **COUNTERCLOCKWISE** to **RAISE** the saw blade to the required depth.

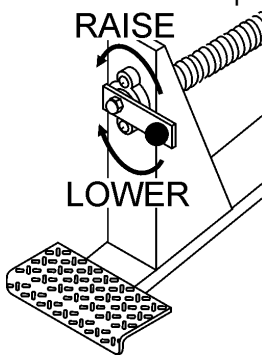


Figure 24. Raise/Lower Crank Handle

2. Place the material to be cut (Figure 25) on the conveyor cart against the backstop.

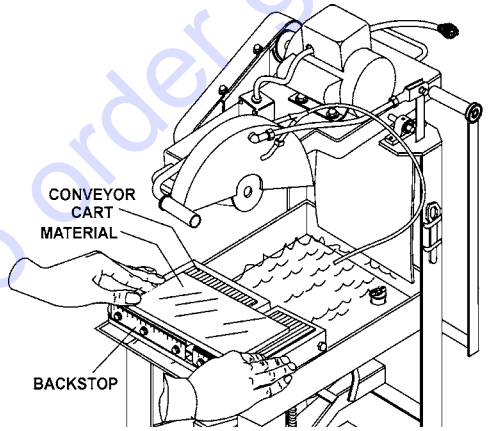


Figure 25. Material Placement

3. With the blade away from the material to be cut, start the Motor (or Engine) using the steps listed in the **Startup/Shutdown Procedure** (Electric Motors or Gasoline Engine).
4. Push the conveyor cart, with the material in place, slowly and evenly until the cut is complete. When finished cutting, move the cart back and remove the cut pieces.

"STEP PEDAL" CUTTING METHOD

1. Place the material to be cut (Figure 25) on the conveyor cart against the backstop.
2. With the blade away from the material to be cut, start the Motor (or Engine) using the steps listed in the **Startup/Shutdown Procedure** (Electric Motors or Gasoline Engine).
3. Move the conveyor cart, with the material in place, under the blade. Using your foot, depress the step pedal using a slow even pressure to lower the blade for cutting (Figure 26).

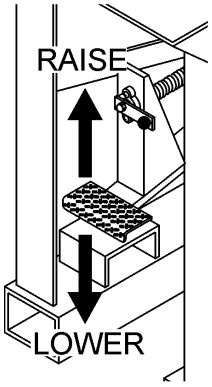


Figure 26. Raise/Lower Step Pedal

4. When finished cutting, slowly lift your foot up to raise the blade away from the conveyor cart and your cut material. Hold on to the mounting plate handle to prevent the plate from rising rapidly, possibly causing the saw to become unstable. **DO NOT** remove your foot from the step pedal until the blade has fully raised.

A good preventive maintenance program of regular inspection and care will increase life and improve the performance of the saw and cutting blades.

⚠ WARNING

Whenever cleaning, adjusting, or lubricating any part of the saw, **MAKE CERTAIN** to do the following:

Electric Powered Saws

- Place power **ON/OFF** switch to the **OFF** position.
- Disconnect power cord from AC source.
- **NEVER** attempt to check the V-belt with the engine running. Severe bodily injury can occur.

Gasoline Powered Saws

- Turn the engine switch to the **OFF** position, disconnect the spark plug wire and secure it away from the spark plug.
- **NEVER** attempt to check the V-belt with the engine running. Severe bodily injury can occur.

BASIC MAINTENANCE

1. Tighten loose nuts or screws and replace any cracked or broken parts.
2. Clean the machine frequently. **DO NOT** use aggressive cleaners (i.e. containing solvents). **DO NOT** use high high-pressure water jets, aggressive detergents or solutions and liquids with a temperature exceeding 86°. Use a fluff-free cloth only. Use a cloth which may be lightly moistened only for removing dust and dirt. Hard packed dirt can be removed with a soft brush.

   DO NOT let any water/cleaning liquid/vapor penetrate into the electric motor, connectors/plugs, switches, etc. Cover all apertures, holes in the housing, connectors or plugs, etc, or seal them with adhesive tape.

   Use a soft, low-pressure water jet and a brush to rinse dirt and incrustations away. Be particularly careful when near hazardous parts of the machine (e.g. switch, motor). Clean the motor and switches only by wiping with a moist cloth.
3. Clean the sludge that accumulates on the bottom of the water tray at least once a day and refill with clean water. It may be necessary to clean the tray out twice a day in heavy cutting. The sludge is abrasive and will shorten the life of the blades.
4. After each day's use, clean the sludge from the bottom of the tray and run clean water through the water pump and water hoses. This extends pump and blade life.
5. Lubricate the blade adjustment rod after every 8 hours of use.
6. Check the spindle bolt for tightness periodically.
7. Keep the drive belts tight. It is very important to replace worn belts as soon as possible.
8. **MAKE CERTAIN** that the cutting head is aligned properly. Misalignment can adversely affect blade life.
9. The blade flanges must have a diameter of 4 in. Undersize flanges will reduce blade life and cause breakage. Therefore, they should be replace at once.
10. Cutting blades must fit the arbor snugly. This is very important with diamond blades as pounding will occur and serious blade damage can result. If the arbor shoulder of the inner blade flange is grooved from blade slippage, the flange must be replaced.
11. Inspect the conveyor cart periodically. Replace the wood insert and wheels when necessary.
12. Lubricate spindle bearings after each day's operation. When dry cutting, grease bearings several times during the day's operation to protect them from the dust.
13. Replace the spindle bearings as soon as they begin to make any strange noises. Worn bearings can destroy blades very quickly.
14. Grease pivot bearings periodically.

BEARING LUBRICATION CARE

There are two (2) grease points (Figure 27) for the MP2 (Electric Motors) and four (4) grease points for the MP2 (Gasoline Engine). Use only Premium Lithium 12 based Grease, conforming to NLG1 Grade #1 consistency. Grease ***daily***.

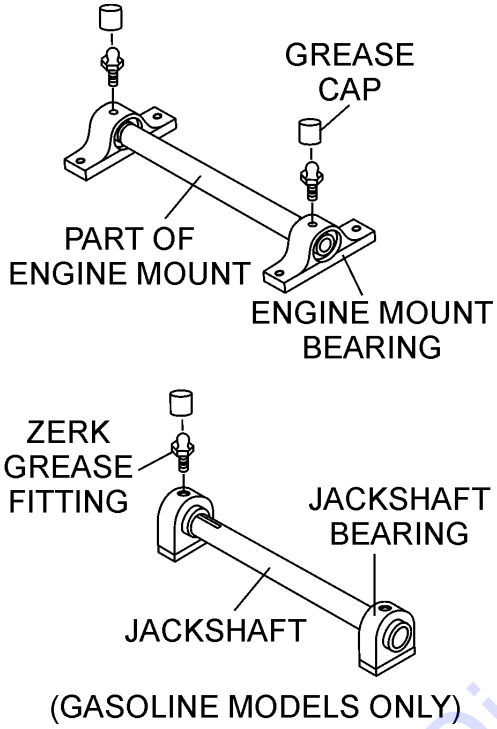


Figure 27. Zerk Fittings Lubrication

ADJUST BELT TENSION (GASOLINE POWERED SAWS)

1. Remove engine-to-jackshaft and jackshaft-to-bladeshaft belt guards.
2. Check for proper belt tension on jackshaft-to-bladeshaft belts and engine-to-jackshaft belts.
3. 4-5 lbs of force applied to the mid-point between jackshaft and bladeshaft pulleys should deflect the belt approximately 3/16" on a used belt.
4. 4-5 lbs of force applied to the mid-point between engine and jackshaft pulleys should deflect the belt approximately 1/8".

To adjust engine-to-jackshaft belts only:

1. Loosen engine mounting bolts.
2. Adjust engine adjusting nuts to apply proper tension while maintaining pulley alignment and belt parallelism. Check pulley alignment and parallelism with a straight edge from jackshaft pulley to engine pulley.
3. When proper belt tension and parallelism have been achieved, tighten engine mounting bolts.

To adjust jackshaft-to-bladeshaft belt:

If the jackshaft-to-bladeshaft belt requires adjustment, it will also be necessary to adjust the engine-to-jackshaft belts.

1. Loosen the 4 jackshaft mounting bolts, the 4 engine mounting bolts, and the jackshaft adjuster screw jam nuts (Loosen the mounting bolts only enough for the jackshaft and the engine to slide easily.)
2. Adjust jackshaft-to-bladeshaft belt first. To increase tension, tighten adjuster on bladeshaft belt side. To help maintain belt parallelism, loosen the jackshaft adjuster screw on the engine side the same number of turns that the bladeshaft side adjuster screw was tightened. Using a straight edge on the bladeshaft pulley to the jackshaft pulley, check for pulley alignment and belt parallelism.
3. When belt tension is correct, pulleys are aligned, and belts are parallel, tighten jackshaft mounting bolts and adjuster screw jam nuts.
4. Check for proper engine-to-jackshaft belt tension (4-5 lbs with 1/8" deflection at mid-point between pulleys.)
5. Adjust engine adjuster bolts to apply proper tension while maintaining pulley alignment and belt parallelism. Check pulley alignment and parallelism with a straight edge from jackshaft pulley to engine pulley.
6. When proper belt tension and parallelism have been achieved, tighten engine mounting bolts.
7. Reinstall belt guards. Test saw operation.

Adjust Belt Tension (Electric Powered Saws)

1. Remove the three belt guard screws securing the belt guard to the frame and remove the belt guard.
2. Loosen the four motor mounting bolts.
3. To increase belt tension, tighten the two adjusting nuts on the back of the motor plate. Proper belt tension is 4-5 lbs. of force with approximately 3/16" of belt deflection measured at a point midway between the pulleys.
4. Adjust motor adjusting nuts to apply proper tension while maintaining pulley alignment and belt parallelism. Check pulley alignment and parallelism with a straight edge from motor pulley to bladeshaft pulley.
5. When proper belt tension and parallelism have been achieved, tighten engine mounting bolts and re-attach the belt guard.

CUTTING HEAD ALIGNMENT (BLADE)

When cutting with the MP2 Masonry Saw, make certain the ***cutting head*** is properly aligned horizontally and vertically with the conveyor cart. Misalignment can adversely affect blade life.

Horizontal Cutting Head Alignment:

1. Loosen the set screws for the engine mount bearings.
2. Adjust the position of the cutting head horizontally until the blade is positioned within the middle of the cutting groove (Figure 28).
3. Slide the conveyor cart forward and backward on the tray to ensure that no part of the blade comes into contact with the groove. If the blade touches the side of the cart at any time, the cutting head is out of alignment. Repeat steps 1-3 until corrected.
4. Tighten the set screws.

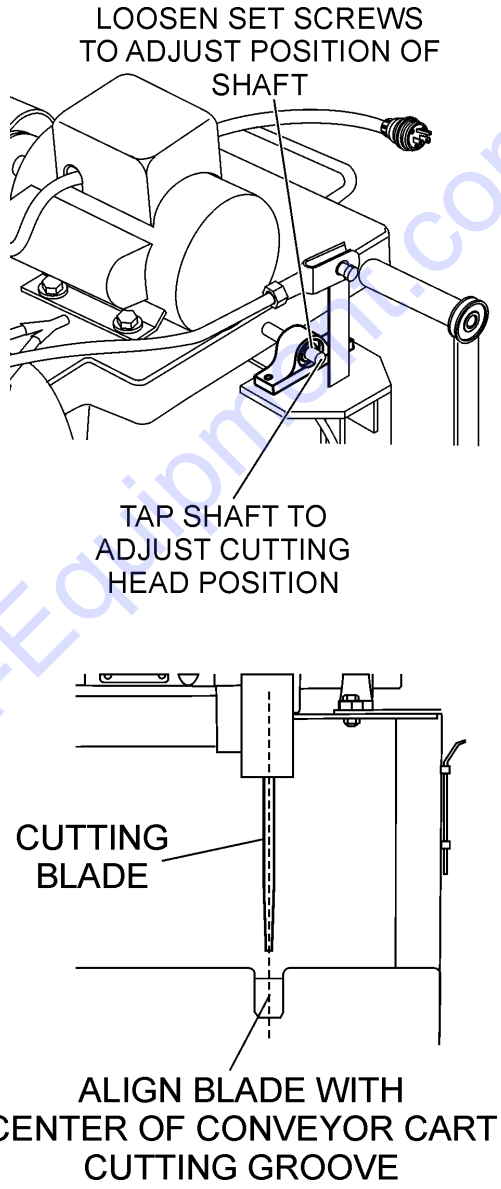


Figure 28. Cutting Head Alignment (Horizontal)

Checking Vertical Cutting Head Alignment:

Use the following procedures to check the vertical cutting head alignment. The MP2 Masonry Saw is factory shimmed to ensure proper vertical alignment. Should the cutting head become vertically misaligned, contact Discount-equipment to have the cutting head realigned.

⚠ WARNING

It is very important that the jackshaft and blade shaft remain parallel to each other. Self-alignment of the cutting head could result in damage to your material, machine or bodily injury.

1. Using a square or other straight edge device, check the vertical alignment of the blade by placing the bottom of the square on the conveyor cart and the side of the square against the blade (Figure 29).
2. If a gap exists between any part of the blade and square, the cutting head is out of alignment.

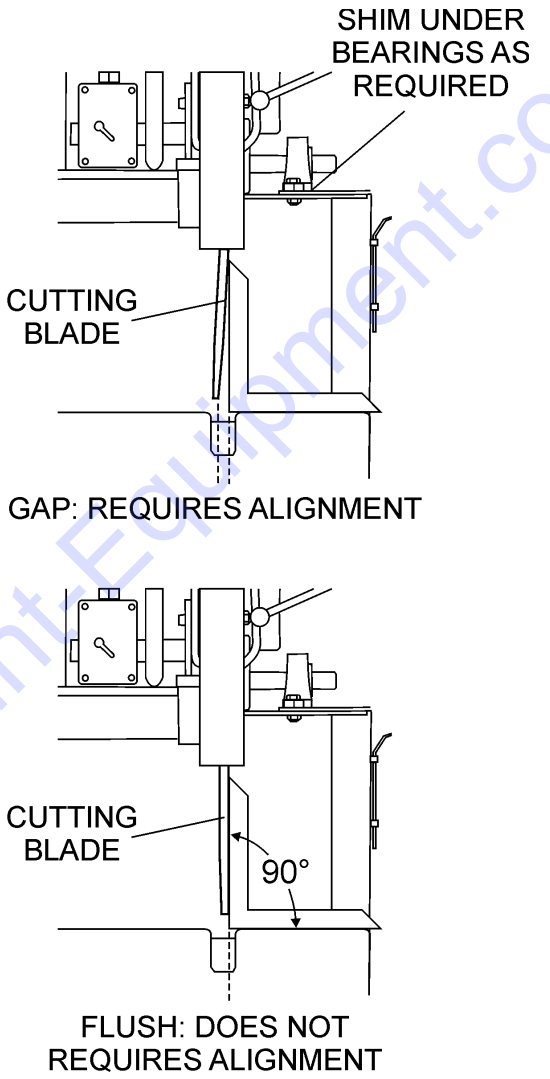


Figure 29. Cutting Head Alignment (Vertical)

Use Table 6 as a general maintenance guideline when servicing your engine. For more detail engine maintenance information, refer to the engine owner's manual supplied with your engine.

Table 6. Engine Maintenance Schedule

DESCRIPTION (3)	OPERATION	BEFORE	FIRST MONTH OR 10 HRS.	EVERY 3 MONTHS OR 25 HRS.	EVERY 6 MONTHS OR 50 HRS.	EVERY YEAR OR 100 HRS.	EVERY 2 YEARS OR 200 HRS.
Engine Oil	Check	X					
	Change		X				
Air Cleaner	Check	X					
	Change			X (1)			
All Nuts and Bolts	Retighten if necessary	X					
Spark Plugs	Check/Clean				X		
	Replace						X
Cooling Fins	Check				X		
Spark Arrester	Clean					X	
Fuel Tank	Clean					X	
Fuel Filter	Check					X	
Idle Speed	Check/ Adjust					X (2)	
Valve Clearance	Check/ Adjust						X (2)
Fuel Lines	Check	Every 2 years (replace if necessary) (2)					

(1) Service more frequently when used in **DUSTY** areas.

(2) These items should be serviced by your service dealer, unless you have the proper tools and are mechanically proficient. Refer to the HONDA Shop Manual for service procedures.

(3) For commercial use, log hours of operation to determine proper maintenance intervals.

Perform the scheduled maintenance procedures as defined below:

DAILY

Thoroughly remove dirt and oil from the engine and control area. Clean or replace the air cleaner elements as necessary. Check and retighten all fasteners as necessary. Check the gearbox for oil leaks. Repair or replace as needed.

WEEKLY

1. Remove the fuel filter cap and clean the inside of the fuel tank.
2. Remove or clean the filter at the bottom of the tank.
3. Remove and clean the spark plug (Figure 30), then adjust the spark gap to 0.024 ~0.028 inch (0.6~0.7 mm). This unit has electronic ignition, which requires no adjustments.

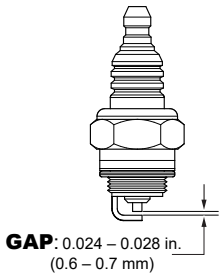


Figure 30. Spark Plug Gap

ENGINE OIL

1. Drain the engine oil when the oil is warm as shown in Figure 31.
2. Remove the oil drain bolt and sealing washer and allow the oil to drain into a suitable container.
3. Replace engine oil. Engine oil capacity is 1.16 quarts (1.1 liters). **DO NOT** overfill.
4. Install drain bolt with sealing washer and tighten securely.

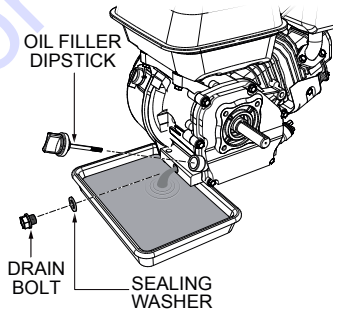


Figure 31. Engine Oil (Draining)

ENGINE AIR CLEANER

Remove the air cleaner cover and foam filter element as shown in Figure 32.

Tap the paper filter element (Figure 32) several times on a hard surface to remove dirt, or blow compressed air [not exceeding 30 psi (207 kPa, 2.1 kgf/cm2)] through the filter element from the air cleaner case side. **NEVER** brush off dirt. Brushing will force dirt into the fibers. Replace the paper filter element if it is excessively dirty.

Clean foam element in warm, soapy water or nonflammable solvent. Rinse and dry thoroughly. Dip the element in clean engine oil and completely squeeze out the excess oil from the element before installing.

DANGER

DO NOT use gasoline as a cleaning solvent to avoid creating the risk of fire or an explosion.

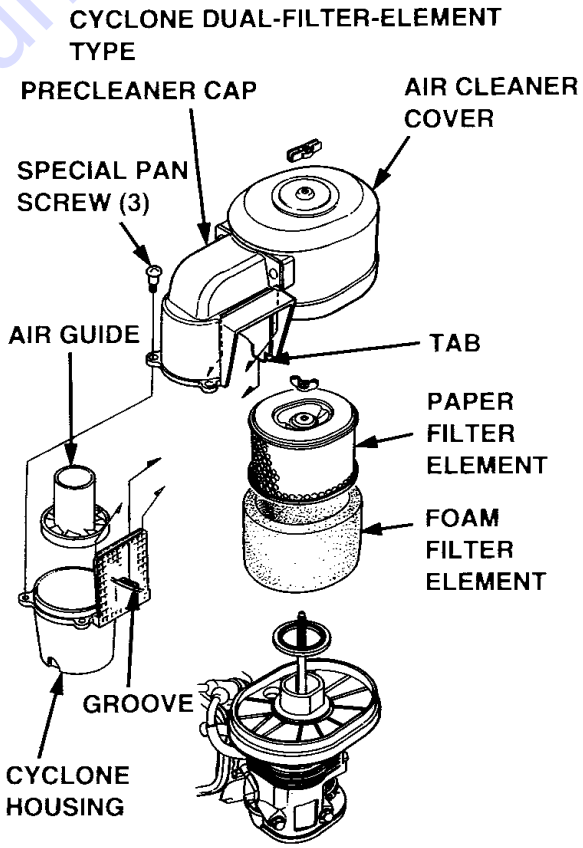
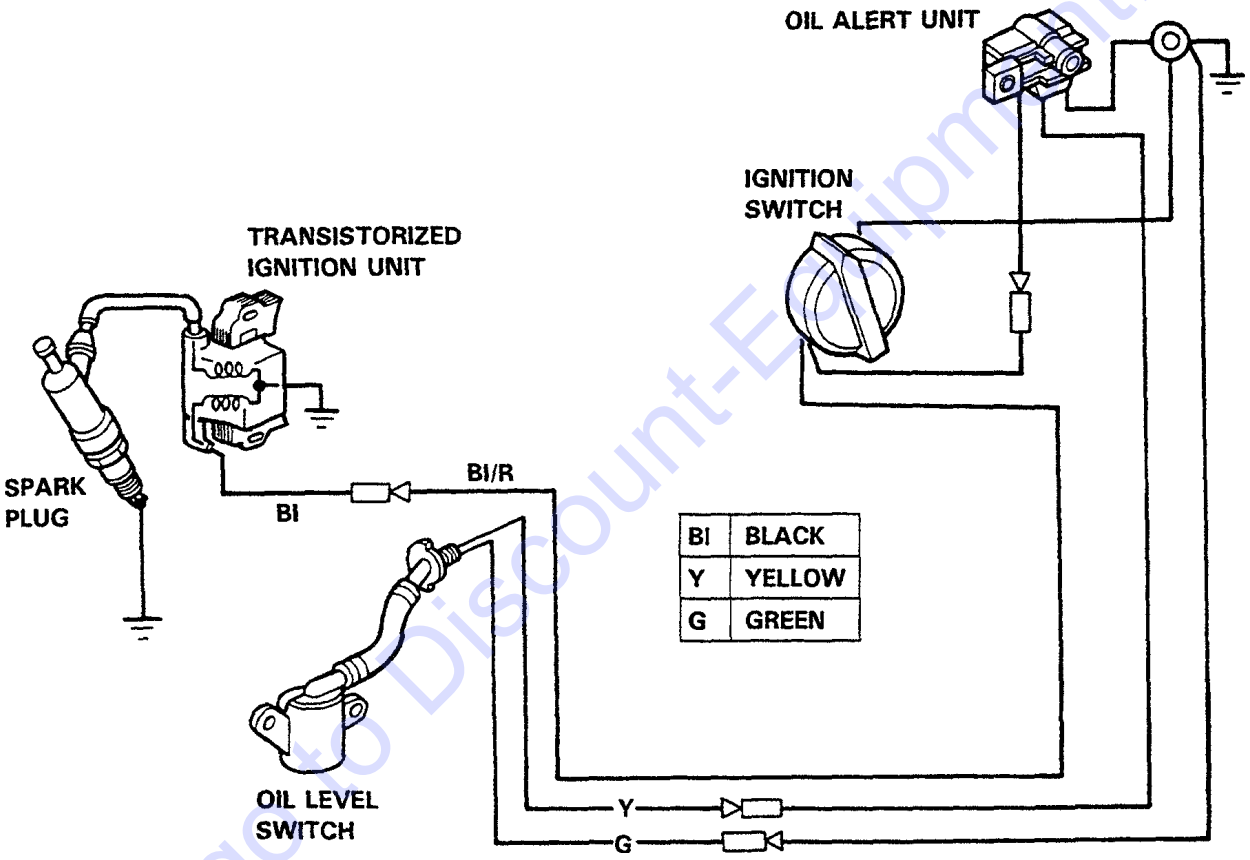


Figure 32. Engine Air Cleaner



Troubleshooting (Blades)		
Symptom	**Possible Problem**	**Solution**
Blade slows or Stops cutting,still remains on blade.	Blade too hard for the material being cut?	Consult Discount-equipment for correct blade. Try cutting very soft material (sandstone, silica brick, cinder block) to "Redress" the blade.
	Engine Torgue diminished because of loose V-Belts?	Tighten and/or replace V-Belts.
	Insufficent Engine power?	Check Throttle setting. Check Engine horespower.
	Improper direction of rotation?	Check that the blade is oriented and rotational arrow points are in a "Down-Cutting" direction.
	Blade is slipping on the blade shaft?	Check that the blade and flange pin are properly installed on the blade shaft.
Blade does not cut straight and/or true.	Blade being used on misaligned saw?	Check blade shaft bearings and alignment integrity.
	Blade is excessively hard for the material being cut?	Check specifications of the blade with the material being cut. Consult Discount-equipment.
	Blade being used at improper RPM?	Ensure blade surface feet per minute speed (SFPM) is approximately 6,000.
	Blade improperly mounted on arbor shoulders and flanges?	Ensure blade is properly affixed on the blade shaft.
	Excessive force applied to blade while cutting?	Do not force the blade in the cut. Apply a slow, steady pace to sawing.
Blade discoloring, crackling and/or wearing excessively.	Blade too hard for the material being cut?	Consult Discount-equipment for correct blade. Try cutting very soft material (sandstone, silica brick, cinder block) to"Redress" the blade.
	Blade improperly mounted on arbor shoulders and flanges?	Ensure blade is properly affixed on the blade shaft. Ensure the blade flanges are clean and free of debris.
	Blade not receiving enough cooling water?	Ensure proper flow and volume of water is provided for blades.
	Abor hole out of round?	Ensure blade is properly affixed on the blade shaft.
	Incorrect blade chosen for material being cut?	Check specifications of the blade with the material being cut. Consult Discount-equipment.
	Excessive force applied to blade while cutting?	Do not force the blade in the cut. Apply a slow, steady pace to sawing.

Troubleshooting (Electric Motor)		
Symptom	**Possible Cause**	**Solution**
Electric motor will not start.	Is there power?	Check power source. Check reset button.
	Is power cable plugged in?	Plug in power cable.
	Is ON/OFF switch placed in ON position?	Place ON/OFF switch in ON position.
	Defective cable?	Check cable.
Electric motor continuously stops.	Reset button OK?	Check power source.
Electric motor RPM's too low.	Low voltage?	Check input voltage.
Electric motor RPM's too high.	High voltage?	Check input voltage.

Troubleshooting (Engine)		
Symptom	**Possible Problem**	**Solution**
Difficult to start, fuel is available, but no spark at spark plug.	Spark plug bridging?	Check gap, insulation or replace spark plug.
	Carbon deposit on spark plug?	Clean or replace spark plug.
	Short circuit due to deficient spark plug insulation?	Check spark plug insulation, replace if worn.
	Improper spark plug gap?	Set to proper gap.
	Spark plug is red?	Check transistor ignition unit.
	Spark plug is bluish white?	If insufficient compression, repair or replace engine. If injected air leaking, correct leak. If carburetor jets clogged, clean carburetor.
	No spark present at tip of spark plug?	Check transistor ignition unit is broken, and replace defective unit. Check if voltage cord is cracked or broken and replace. Check if spark plug is fouled. Replace if fouled.
	No oil?	Add oil as required.
	Oil pressure alarm lamp blinks upon starting? (if applicable)	Check automatic shutdown circuit, "oil sensor". (if applicable)
Difficult to start, fuel is available, and spark is present at the spark plug.	ON/OFF switch is shorted?	Check switch wiring, replace switch.
	Ignition coil defective?	Replace ignition coil.
	Improper spark gap, points dirty?	Set correct spark gap and clean points.
	Condenser insulation worn or short circuiting?	Replace condenser.
	Spark plug wire broken or short circuiting?	Replace defective spark plug wiring.
Difficult to start, fuel is available, spark is present and compression is normal.	Wrong fuel type?	Flush fuel system, replace with correct type of fuel.
	Water or dust in fuel system?	Flush fuel system.
	Air cleaner dirty?	Clean or replace air cleaner.
	Choke open?	Close choke.
Difficult to start, fuel is available, spark is present and compression is low.	Suction/exhaust valve stuck or protruded?	Reseat valves.
	Piston ring and/or cylinder worn?	Replace piston rings and/or piston.
	Cylinder head and/or spark plug not tightened properly?	Torque cylinder head bolts and spark plug.
	Head gasket and/or spark plug gasket damaged?	Replace head and spark plug gaskets.
No fuel present at carburetor.	No fuel in fuel tank?	Fill with correct type of fuel.
	Fuel cock does not open properly?	Apply lubricant to loosen fuel cock lever, replace if necessary.
	Fuel filter/lines clogged?	Replace fuel filter.
	Fuel tank cap breather hole clogged?	Clean or replace fuel tank cap.
	Air in fuel line?	Bleed fuel line.
Will not start, no power with key "ON". (if applicable)	ON/OFF device not in ON position?	Place ON/OFF device in ON posotion.

Troubleshooting (Engine) - continued		
Symptom	**Possible Problem**	**Solution**
Weak in power, compression is proper and does not misfire.	Air cleaner dirty?	Clean or replace air cleaner.
	Improper level in carburetor?	Check float adjustment, rebuild carburetor.
	Defective spark plug?	Clean or replace spark plug.
	Improper spark plug?	Set to proper gap.
Weak in power, compression is proper but misfires.	Water in fuel system?	Flush fuel system and replace with correct type of fuel.
	Dirty spark plug?	Clean or replace spark plug.
	Ignition coil defective?	Replace ignition coil.
Engine overheats.	Spark plug heat value incorrect?	Replace with correct type of spark plug.
	Wrong type of fuel?	Replace with correct type of fuel.
	Cooling fins dirty?	Clean cooling fins.
	Intake air restricted?	Clear intake of dirt and debris. Replace air cleaner elements as necessary.
	Oil level too low or too high?	Adjust oil to proper level.
Rotational speed fluctuates.	Governor adjusted incorrectly?	Adjust governor.
	Governor spring defective?	Replace governor spring.
	Fuel flow restricted?	Check entire fuel system for leaks or clogs.
Recoil starter malfunctions. (if applicable)	Recoil mechanism clogged with dust and dirt?	Clean recoil assembly with soap and water.
	Spiral spring loose?	Replace spiral spring.
Burns too much fuel.	Over-accumulation of exhaust products?	Check and clean valves. Check muffler and replace if necessary.
	Wrong spark plug?	Replace spark plug with manufacturer's suggested type.
Exhaust color is continuously "white".	Lubricating oil is wrong viscosity?	Replace lubricating oil with correct viscosity.
	Worn rings?	Replace rings.
Exhaust color is continuously "black".	Air cleaner clogged?	Clean or replace air cleaner.
	Choke valve set to incorrect position?	Adjust choke valve to correct position.
	Carburetor defective, seal on carburetor broken?	Replace carburetor or seal.
	Poor carburetor adjustment, engine runs too rich?	Adjust carburetor.

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