

OPERATION AND PARTS MANUAL



 **WHITEMAN** SERIES

MODELS

WM63H5, WM63H8

WM63E

PLASTER AND MORTAR MIXER

(HONDA GX160UT1HX2/GX240UT1HA2

GASOLINE ENGINES)

Revision #2 (09/05/19)



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PROPOSITION 65 WARNING



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SILICOSIS/RESPIRATORY WARNINGS

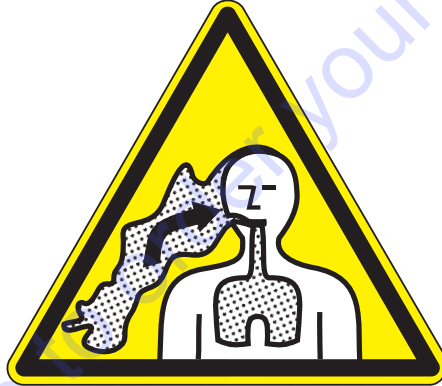
⚠ WARNING



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.

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NOTICE

Specifications and part numbers are subject to change without notice.

SAFETY INFORMATION

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
	Lethal exhaust gas hazards
	Explosive fuel hazards
	Burn hazards
	Rotating parts hazards

SAFETY INFORMATION

GENERAL SAFETY

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 on 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.
- **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 or older.
- Whenever necessary, replace nameplate, operation and safety decals when they become difficult to 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 the 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.



MIXER 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**.
- **DO NOT** mix **flammable** or **explosive** substances.



SAFETY INFORMATION

WARNING

- **NEVER** place your hands inside the drum while starting or operating this equipment.
- **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.
- Before operating the mixer, ensure that the safety grate is in position and correctly fitted.



CAUTION

- **NEVER** lubricate components or attempt service on a running machine.

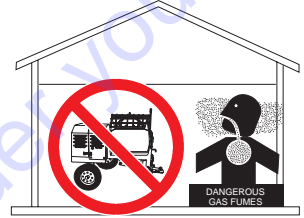
NOTICE

- **ALWAYS** keep the machine in proper running condition.
- **ALWAYS** ensure the mixer is on level ground before mixing.
- Fix damage to the machine and replace any broken parts immediately.
- **DO NOT** tip the mixer onto the drum mouth when the drum is rotating.
- Ensure the drum is rotating while filling and emptying the drum.
- **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.
- **ALWAYS** make sure the mixer is clean of dried materials. **DO NOT** allow material to build up inside the drum. Keep the drum, frame and wheels clean. Excess debris can fall off on the highway and/or build up on the frame and wheels, creating an unbalanced condition leading to premature metal fatigue.

ENGINE SAFETY (GASOLINE MODELS ONLY)

DANGER

- Engine fuel exhaust gases contain poisonous carbon monoxide. This gas is colorless and odorless, and can cause death if inhaled.
- The engine of this equipment requires an adequate free flow of cooling air. **NEVER** operate this equipment in any enclosed or narrow area where the free flow of air is restricted. If the air flow is restricted it will cause injury to people and property and serious damage to the equipment or engine.



WARNING

- **DO NOT** place hands or fingers inside the engine compartment when the engine is running.
- **NEVER** operate the engine with heat shields or guards removed.
- Keep fingers, hands, hair and clothing away from all moving parts to prevent injury.
- **DO NOT** remove the engine oil drain plug while the engine is hot. Hot oil will gush out of the oil tank and severely scald any persons in the general area of the mixer.



CAUTION

- **NEVER** touch the hot exhaust manifold, muffler or cylinder. Allow these parts to cool before servicing the equipment.
- Make certain the operator knows how to and is capable of turning the engine **OFF** in case of an emergency.



NOTICE

- **NEVER** run the engine without an air filter or with a dirty air filter. Severe engine damage may occur. Service the air filter frequently to prevent engine malfunction.
- **NEVER** tamper with the factory settings of the engine or engine governor. Damage to the engine or equipment can result if operating in speed ranges above the maximum allowable.



SAFETY INFORMATION

FUEL SAFETY (GASOLINE MODELS ONLY)

DANGER

- **DO NOT** start the engine near spilled fuel or combustible fluids. Fuel is **extremely flammable** and its vapors can cause an **explosion** if ignited.
- **ALWAYS** refuel in a well-ventilated area, away from sparks and open flames.
- **ALWAYS** use extreme caution when working with **flammable** liquids.
- **DO NOT** fill the fuel tank while the engine is running or hot.
- **DO NOT** overfill the tank, since spilled fuel can ignite if it comes into contact with hot engine parts or sparks from the ignition system.
- Store fuel in appropriate containers, in well-ventilated areas and away from sparks and flames.
- **NEVER** use fuel as a cleaning agent.
- **DO NOT** smoke around or near the equipment. **Fire or explosion** could result from fuel vapors or if fuel is spilled on a hot engine.



GENERATOR SAFETY

If using a generator to power the mixer, refer to the applicable generator manual safety information section.



ELECTRIC MOTOR SAFETY (ELECTRIC MODELS ONLY)

NOTICE

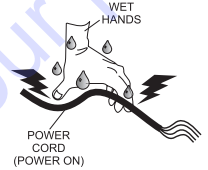
- Operate the electric motor only at the specified voltage indicated on the nameplate.
- **DO NOT** spray water onto the electric motor.
- **ALWAYS** disconnect the AC power plug from the power source before moving the mixer.
- **ALWAYS** make sure the ON/OFF switch on the electric motor is in the **OFF** position when not in use and before inserting the mixer'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 the equipment to a generator. Inspect the insulation for cuts.
- **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 mixer.



CAUTION

- Ensure that cables and cords will not be tripped over or trapped underneath the mixer.

NOTICE

- **ALWAYS** make certain that the proper power or extension cord has been selected for the job.

TRANSPORTING SAFETY

CAUTION

- **NEVER** allow any person or animal to stand underneath the equipment while lifting.

NOTICE

- **ALWAYS** make sure forklift forks are inserted as far as possible into the pockets (if applicable) when lifting the mixer.
- **ALWAYS** shut down the engine before transporting.
- **NEVER** lift the equipment while the engine is running.
- Tighten the fuel tank cap securely and close the fuel cock to prevent fuel from spilling.
- **DO NOT** lift the machine to unnecessary heights.
- **ALWAYS** tie down equipment during transport by securing the equipment with rope.
- **NEVER** tip the engine to extreme angles during lifting as this may cause oil to gravitate into the cylinder head, making the engine difficult to start.

SAFETY INFORMATION

TOWING SAFETY

CAUTION

- In addition to meeting *Department of Transportation (DOT) safety towing regulations*, check your local county or state safety towing regulations before towing the mixer.
- In order to reduce the possibility of an accident while transporting the mixer on public roads, **ALWAYS** make sure the towing vehicle is mechanically sound and in good operating condition.
- **ALWAYS** shut down the engine before transporting and place the fuel valve in the **OFF** position.
- **ALWAYS** inspect the hitch and coupling for wear. **NEVER** tow a mixer with defective hitches, couplings, chains, etc.
- Check the tire air pressure on both towing vehicle and mixer. **Mixer tires should be inflated to 50 psi cold.** Also check the tire tread wear on the vehicle and mixer.
- **ALWAYS** make sure the mixer is equipped with a **safety chain**.
- **ALWAYS** properly attach the mixer's safety chains to the towing vehicle.
- The maximum speed for highway towing is **55 MPH** unless posted otherwise. Recommended off-road towing is not to exceed **15 MPH** or less depending on type of terrain.
- Avoid sudden stops and starts. These can cause skidding or jackknifing. Smooth, gradual starts and stops will improve towing.
- Avoid sharp turns to prevent rolling.
- The mixer should be adjusted to a level position at all times when towing.
- Raise and lock the mixer wheel stand in the **UP** position when towing.
- Place **chock blocks** underneath the mixer wheels to prevent **rolling** while parked.

ENVIRONMENTAL SAFETY/DECOMMISSIONING

NOTICE

Decommissioning is a controlled process used to safely retire a piece of equipment that is no longer serviceable. If the equipment poses an unacceptable and unrepairable safety risk due to wear or damage or is no longer cost effective to maintain (beyond life-cycle reliability) and is to be decommissioned (demolition and dismantlement), follow the rules below.

- **DO NOT** pour waste or oil directly onto the ground, down a drain or into any water source.
- Contact your country's Department of Public Works or a recycling agency in your area and arrange for proper disposal of any electrical components, waste or oil associated with this equipment.
- When the life cycle of this equipment is over, remove the battery (if equipped) and bring it to an appropriate facility for lead reclamation. Use safety precautions when handling batteries that contain sulfuric acid.
- When the life cycle of this equipment is over, it is recommended that the mixer frame and all other metal parts be sent to a recycling center.



Metal recycling involves the collection of metal from discarded products and its transformation into raw materials to use in manufacturing a new product.

Recyclers and manufacturers alike promote the process of recycling metal. Using a metal recycling center promotes energy cost savings.

SAFETY CHAIN CONNECTION

CAUTION

NEVER tow the mixer with the safety chain removed. The safety chain is intended to prevent complete separation of the mixer from the towing vehicle in the event of a tow bar failure.

TOW BAR TO MIXER CONNECTION

Reference Figure 1 for the installation of the safety chain.

1. Insert the tow bar through the round opening at the bottom of the mixer stand.

Align the hole on the tow bar with the hole on the mixer frame, and insert 1/2-inch bolt through tow bar and frame. Secure tow bar to frame with 1/2-inch nyloc nut. Tighten to 40 ft.-lbs.

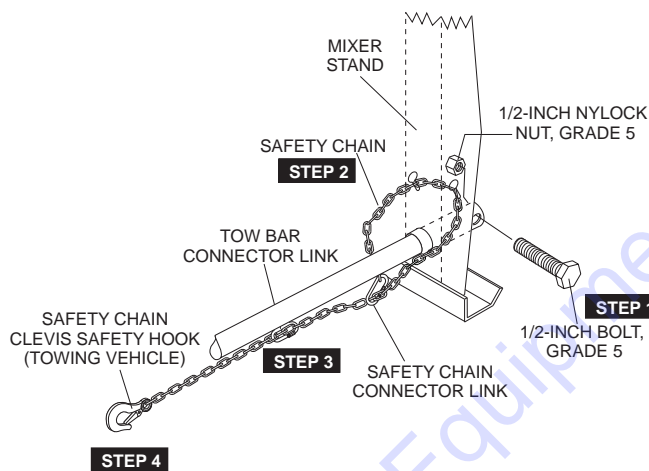


Figure 1. Tow Bar and Safety Chain Installation

2. Route the safety chain through the holes just above the tow bar, located on each side of the mixer stand.

Loop the chain together and place under the tow bar. Secure the loop with the connector link.

3. Extend the safety chain along the length of the tow bar, looping it through the tow bar's connector link. Remove any excess chain slack.

4. Connect the free end of (connector link) the safety chain to the towing vehicle. Remember it is critical that the length of the chain be properly adjusted, to prevent the draw bar and the front of the mixer stand from dropping to the ground (contact) in the event the draw bar becomes disconnected from the towing vehicle.

CAUTION

DO NOT tow the mixer unless the mixing drum is completely empty. **ALWAYS** make sure the drum latch pin is fully engaged to the right (Figure 2) of the drum stop block. This will keep the drum from rotating.

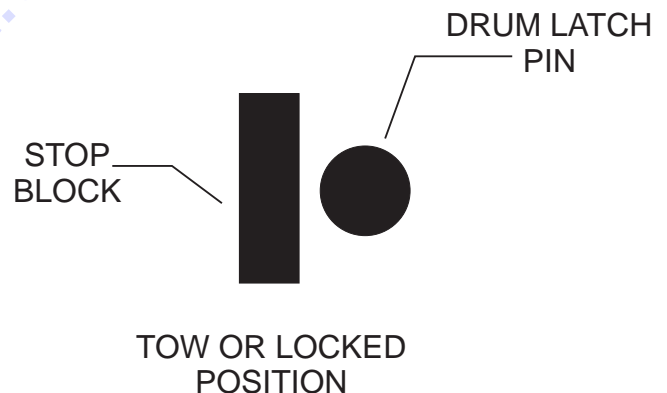


Figure 2. Drum Latch Pin (Tow or Locked Position)

SPECIFICATIONS

Table 1. Mixer Specifications	
Capacity	6.3 cu. ft (178 liters)
Bag Capacity	1-1/2 to 2-1/2 bags
Weight	574 lbs. (260 kg.)
Height W/Dump Handle	73 in. (185 cm.)
Discharge Height	17.5 in. (44.4 cm.)
Drive	V-Belt/Gear
Dump Action	Manual

Table 2. Engine Specifications			
Model	Honda GX160UT1HX2	HONDA GX240UT1HA2	Baldor
Type	Air-cooled 4 stroke, Single Cylinder, OHV, Horizontal Shaft Gasoline Engine		1.5 HP, 115/230V Single-Phase Electric Motor
Bore X Stroke	2.70 in. X 1.80 in. (68 mm x 45 mm)	2.90 in. X 2.30 in. (73 mm x 58 mm)	N/A
Displacement	9.9 cu. in. (163 cc)	14.81 cu. in. (242 cc)	N/A
Max Output	4.8 H.P./3600 R.P.M.	7.1 H.P./3600 R.P.M.	1.5 HP/1725 RPM
Fuel Tank Capacity	Approx. 0.95 U.S. Gallons (3.6 Liters)	Approx. 1.59 U.S. Gallons (6 Liters)	N/A
Fuel	Unleaded Gasoline		N/A
Lube Oil Capacity	0.63 qt. (0.6 liter)	1.16 qt. (1.1 liter)	N/A
Speed Control Method	Centrifugal Flyweight Type		N/A
Starting Method	Recoil Start		N/A
Dimensions (L x W x H)	12.3 x 14.3 x 13.6 in. (312 x 362 x 346 mm)	15 X 17 X 16.6 in. (380 X 430 X 422 mm)	13.3 X 8.7 X 9.06 in. (380 X 430 X 422 mm)
Dry Net Weight	40.8 lbs. (15 Kg.)	55.1 lbs. (25 Kg.)	Approx. 22 lbs. (10 Kg.)

NOTICE

In accordance with our established policy of constant improvement, we reserve the right to amend these specifications at any time without notice.

DIMENSIONS

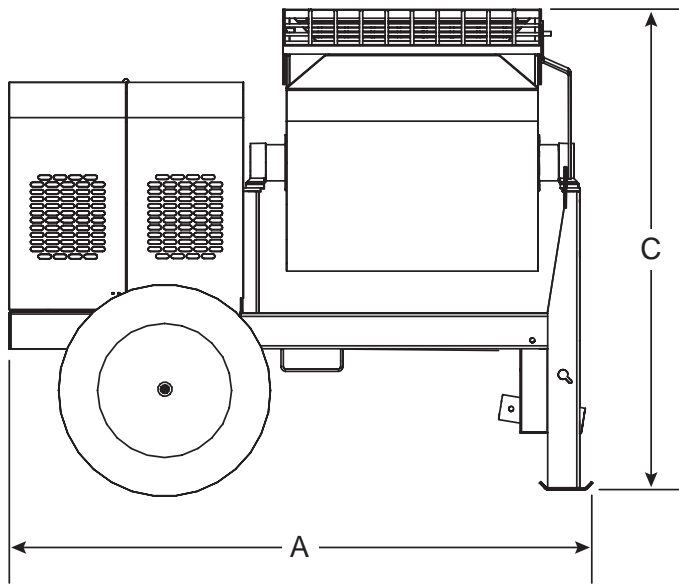


Table 3. Dimensions	
Description	Dimensions in. (cm)
Length (w/Tow Bar)	67 in. (170 cm)
Width	50 in. (127 cm)
Height	56 in. (142 cm)

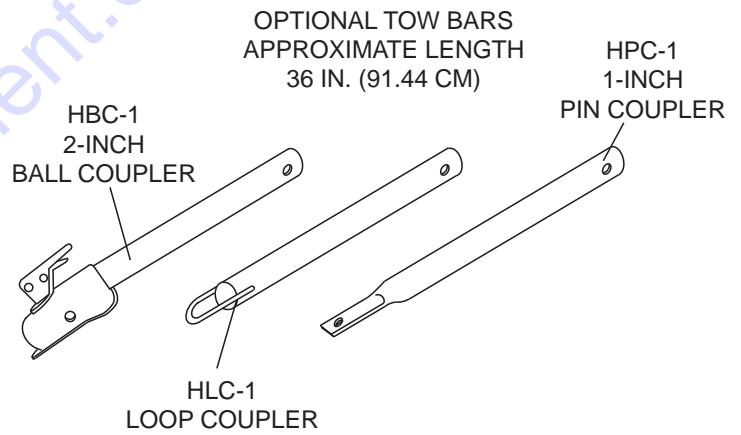
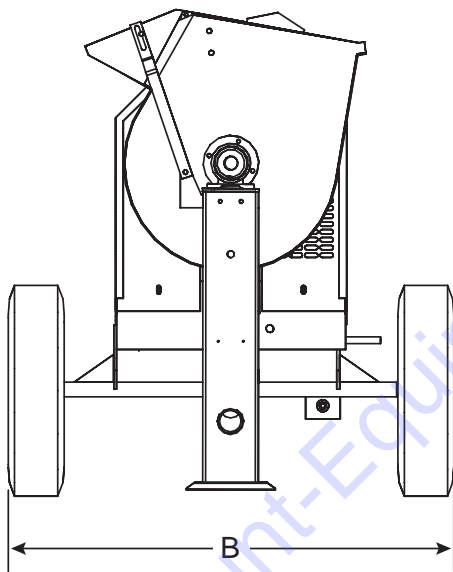


Figure 3. Dimensions

GENERAL INFORMATION

APPLICATION

The MQ Whiteman WM63 Series mixers (drum capacity of 6.3 cu. ft./178 liters) are shipped completely assembled and have been factory tested and are ready for use.

This mixer is only intended for the production of plaster and mortar. The mixer must be used for its intended purpose and is not suitable for the mixing of flammable or explosive substances. The mixer must not be used in an explosive atmosphere. This mixer has a batch capacity between 2-1/2 and 3-1/2 bags.

POWER PLANTS

The WM63 Series mixer can be equipped with either a Honda GX160 or GX240 air-cooled, 4-stroke gasoline engine. In addition this mixer is also available with a 1.5 HP electric motor with that can be configured for either 115 or 230 VAC operation by means of a voltage selector switch. Refer to Table 2 for specific engine or electric motor information.

ELECTRICAL

If mixer is equipped with an electric motor, make sure that the power being supplied to the motor corresponds to the voltage rating label on the motor. Supplying the wrong voltage to the electric motor will cause severe electrical damage to the motor.

Always make sure the OFF/ON switch on the electric motor is in the OFF position before applying power.

It is strongly recommended when inserting the mixer's power cord into a receptacle, that a G.F.C.I. (Ground Fault Current Interrupter) receptacle be used (115 VAC applications).

Extension Cables

The extension cable should be a 3-wire configuration that includes a ground wire that conforms to UL code. The wire cross section must be a minimum of 2.5 mm². Choose an extension cord of adequate current carrying capacity as referenced in Table 6. Remember cable distance affects the current-voltage capacity of the extension cable.

Ensure that the extension cable is carefully laid out avoiding wet areas, sharp edges and locations where vehicles might run over it. Avoid allowing the extension cable to be trapped underneath the mixer.

Unroll the extension cable fully or it will overheat and could catch fire. Make sure that all extension cable connections are dry and safe. Replace any defective or badly worn extension cable immediately.

HARDWARE

Check all hardware on the mixer before starting. Periodically inspect all hardware. Loose hardware can contribute to early component failure and poor performance. Use Table 4 as a general guideline when torquing of mixer hardware is required. Remember to keep all mixer hardware components tight.

Table 4. Hardware Torque Recommendations

Hardware Diameter	Torque (ft-lbs)
5/16-inch x 18	14
3/8-inch x 16	24
3/8-inch x 24	37
1/2-inch x 13	39
1/2-inch x 13 (Grade 8)	90

ENGINE MAINTENANCE

For basic engine maintenance, refer to the engine maintenance section in this manual. For a more detailed engine maintenance, refer to the Honda Engine Owner's manual furnished with the engine.

Figure 4 illustrates the basic components and controls of the WM63 Series mixer.

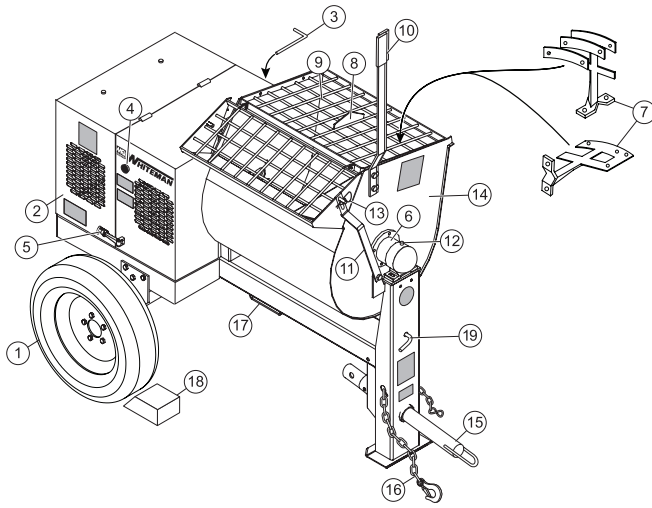


Figure 4. Mixer Components

1. **Tires Ply** — The tire ply (layers) number is rated in letters. This mixer uses 13-inch 4-ply tires.
2. **Engine Cover** — Lift this cover to gain access to the engine compartment.
3. **Belt Slip Lever** — When starting, this lever should be move upward and to the left. For mixing, place the lever in the down position. See attached decal located adjacent to lever.
4. **ON/OFF Switch** — This switch is located on the side of the engine cover. When activated, it will shut down the engine.
5. **Latch** — Use this latch to secure the engine compartment cabinet.
6. **Drum Bearing** — There is a sealed bearing on each end of the mixing drum. Bearings are packed and sealed at the factory and require no further maintenance.
7. **Mixing Paddles** — Used in the mixing of material. This unit uses four different types of paddles to provide a fast uniform mix.
8. **Bag Cutter** — This feature allows compound mixing bags to be opened easily, therefore allowing the contents of the bag to fall directly into the mixing drum.
9. **Safety Grill** — Provided for operator safety. This safety grill is designed to keep hands and solid objects out of the mixing drum when in use. This grill should be closed at all times when mixer is in use. **DO NOT** remove the grill or grill opening bar. Keep the grill clean by washing it down daily.
10. **Dump Handle** — Pull this handle downward to dump the contents of the drum. Push the handle upward to return the drum to its vertical position.
11. **Safety Grill Lock Handle** — To prevent injury to hands and arms, the safety grill should **ALWAYS** be locked when the mixing of plaster or mortar is required. Also when transporting the mixer, the safety grill should be locked. The safety grill should only be unlocked when cleaning of the blades and drum is required.
12. **Pivot Point/Zerk Fitting** — There is a zerk grease fitting on each end of the mixing drum. These fittings lubricate the dumping mechanism. Lubricate both fittings at least twice a week.
13. **Dump Handle Release Pin** — Pull this pin outward (spring loaded) to release the drum, then pull down on the dump handle to place the drum in the dump position. When drum is in dump position, pin will automatically lock drum.
14. **Mixing Drum** — Mixing materials such as mortar, plaster are to be placed into this drum for mixing. Always clean the drum after each use.
15. **Tow Bar/Coupler** — This mixer uses a 2-inch coupler or pintle towbar.
16. **Safety Chain** — This mixer uses a 3/16-inch thick, 72-inches long, zinc-plated safety chain. **ALWAYS** connect the safety chain when towing.
17. **Forklift Pockets** — When lifting of the mixer is required, use these fork lift pockets to lift the mixer. Remember to insert the forks of the forklift a minimum of 24 inches into the lift pockets.
18. **Chock Blocks** — Place these blocks (not included as part of the mixer package) under each mixer wheel to prevent rolling.
19. **Drum Latch Pin** — Place pin to the **right** to prevent drum from rotating. Place pin to the **left** to rotate (tilt) drum.

BEFORE STARTING

1. Read all safety instructions at the beginning of manual.
2. Clean the unit, 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.

CAUTION



ALWAYS wear approved eye and hearing protection while operating the mixer.

CAUTION



NEVER place hands or feet inside the engine guard cover while the engine is running. **ALWAYS** shut the engine down before performing any kind of maintenance service on the mixer.

ENGINE OIL CHECK

1. To check the engine oil level, place the unit on secure level ground with the engine stopped.
2. Remove the filler dipstick from the engine oil filler hole (Figure 5) and wipe it clean.

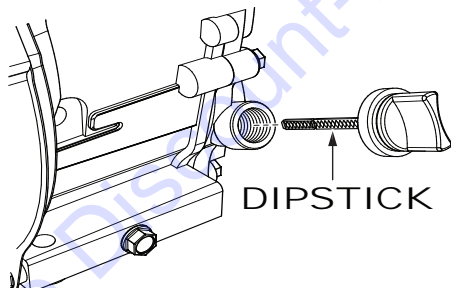


Figure 5. Engine Oil Dipstick (Removal)

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 6), fill to the edge of the oil filler hole with the recommended oil type (Table 5). Maximum oil capacity is 2.33 pints (1.09 liters).

NOTICE

Reference engine manufacturer's manual for specific servicing instructions.

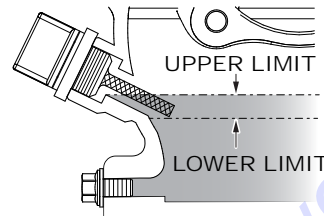


Figure 6. Engine Oil Dipstick (Oil Level)

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



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

1. Remove the gasoline cap located on top of fuel tank.
2. Visually inspect to see if 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.

V-BELT CHECK

Visually examine the V-belt (Figure 7) and determine if it is full of tiny cracks, frayed, has pieces of rubber missing, is peeling or otherwise damaged.

Also, examine the belt and determine if it is **oil soaked** or "**glazed**" (hard shiny appearance on the sides of the belt). Either of these two conditions can cause the belt to run hot, which can weaken it and increase the danger of it breaking.

If the V-belt exhibits any of the above wear conditions replace the V-belt immediately.

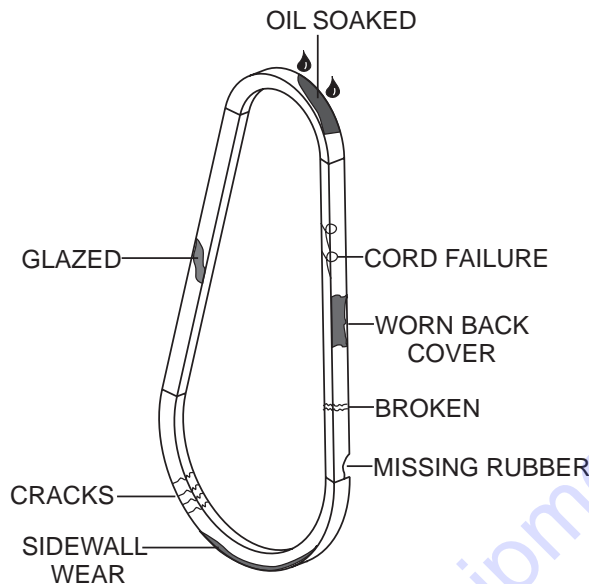


Figure 7. V-Belt Inspection

START/STOP SWITCH

This unit has been equipped with a start/stop switch (Figure 8), which should be tested every time the unit is started.

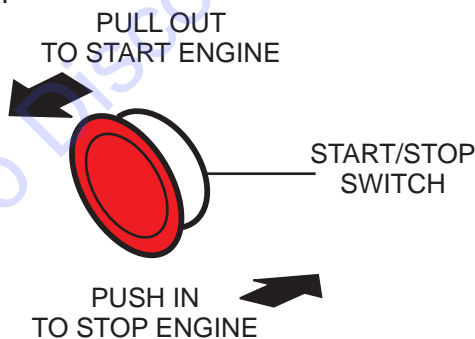


Figure 8. Start/Stop Switch

Check for worn or defective paddle blades (Figure 9). Make sure that all blades are adjusted properly. See blade adjustment procedure (Figure 13) in this manual. Replace all defective or damaged blades immediately.

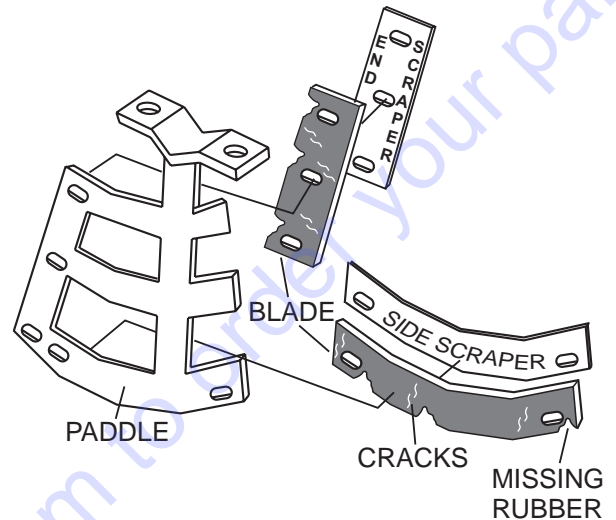


Figure 9. Blade Inspection

GREASE FITTINGS (DUMPING MECHANISM)

Check the drum bearing bracket grease fittings (Figure 10) at each end of the mixing drum. These grease fittings lubricate the dumping mechanism. If the dumping handle is stiff or hard to move, lubricate these grease fittings.

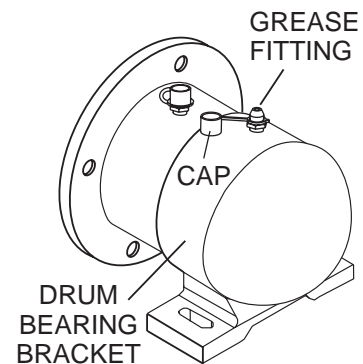


Figure 10. Grease Fittings Drum Bearing Bracket

BASIC ENGINE

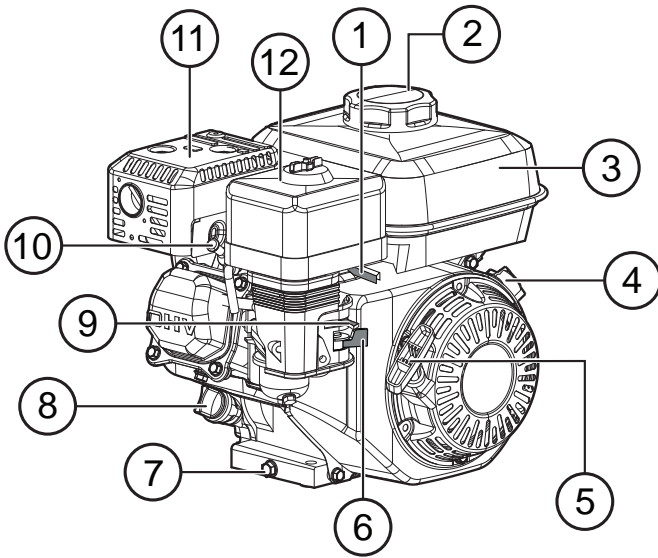


Figure 11. Engine Components

INITIAL SERVICING

The engine (Figure 11) must be checked for proper lubrication and filled with fuel prior to operation. Refer to the engine manufacturer's manual for instructions and details of operation and servicing.

1. **Throttle Lever** — Used to adjust engine RPM speed (lever advanced forward SLOW, lever back toward operator FAST).

DANGER



Adding fuel to the tank should be done 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 the fuel residue has been completely wiped up, and the area surrounding the engine is dry.

2. **Fuel Filler Cap** — Remove this cap to add unleaded gasoline to the fuel tank. Make sure cap is tightened.
3. **Fuel Tank** — Holds unleaded gasoline. For additional information refer to engine owner's manual.
4. **Engine ON/OFF Switch** — ON position permits engine starting, OFF position stops engine operations.
5. **Recoil Starter (pull rope)** — Manual-starting method. Pull the starter grip until resistance is felt, then pull briskly and smoothly.
6. **Fuel Valve Lever** — OPEN to let fuel flow, CLOSE to stop the flow of fuel.
7. **Oil Drain Plug** — Remove this plug to remove oil from the engine's crankcase.
8. **Dipstick/Oil Filler Cap** — Remove this cap to determine if the engine oil is low. Add oil through this filler port as recommended in Table 5
9. **Choke Lever** — Used in the starting of a cold engine, or in cold weather conditions. The choke enriches the fuel mixture.
10. **Spark Plug** — Provides spark to the ignition system. Set spark plug gap to 0.6 - 0.7 mm (0.028 - 0.031 inch) Clean spark plug once a week.
11. **Muffler** — Used to reduce noise and emissions.
12. **Air Cleaner** — Prevents dirt and other debris from entering the fuel system. Remove wing-nut on top of air filter cannister to gain access to filter element.

NOTICE

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

WARNING



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

ELECTRIC MOTOR

ELECTRIC MOTOR

For maintenance care and operation of the electric motor, refer to your electric motor instruction booklet furnished with the motor.

Protect the electric motor from dust as much as possible and keep ventilating openings clean.

CAUTION

DO NOT spray water at any time on the electric motor.

DO NOT operate electric motor in a explosive environment.

The electric motor used in this mixer is a single-phase 3 HP motor. The input voltage requirement for this motor is 115/230 VAC, and has been pre-set to 230VAC.

ELECTRIC MOTOR CONNECTION

A 12-inch electrical cable (Figure 7) is provided with the electrical motor for hookup to a power source. Table 5 shows the required NEMA connector for the desired motor horsepower rating. In addition, Table 5 also shows the matching NEMA approved connector for the required extension cord.

NOTICE

ALWAYS make certain that the power source required for the electric motor is correct and always use the correct NEMA configuration plug. Failure to supply the correct voltage to the motor can severely damage the motor.

NOTICE

It is strongly recommended that all electrical wiring be done by a **licensed electrician**.

Special attention should be given to the electric switch as well as the over-and-under voltage protection devices as per regulations set forth in the local electrical safety code handbook.

Table 6. Electric Motor Wiring Information

Motor Horsepower Rating	115-230 VAC - Single Phase	
	NEMA Plug	Mating NEMA Receptacle
1.5 HP (115 VAC)	L5-20P P/N EM940537	L5-20R P/N EM940538
1.5 HP (230 VAC)	L6-20P P/N EM940539	L6-20R P/N EM940540

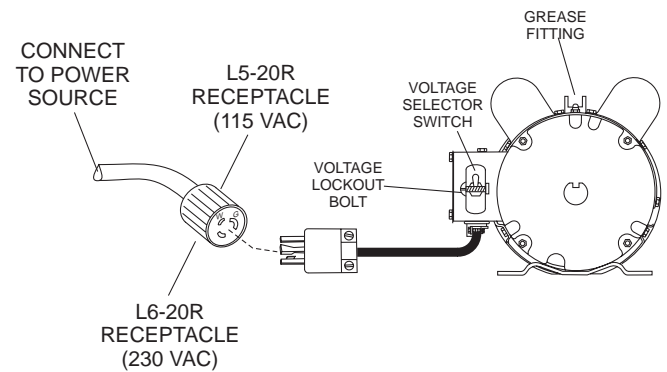
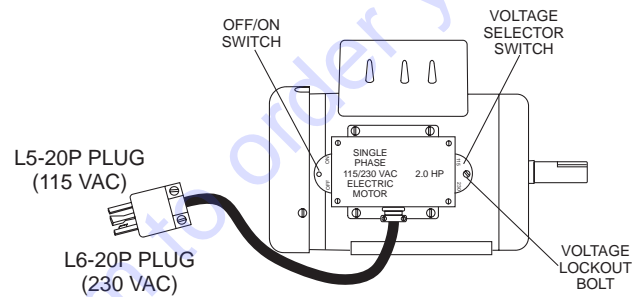


Figure 12. Single Phase Electric Motor With 12-inch Pigtail

The electric motor supplied is wired for 115 VAC grounded operation. Make certain that the correct size grounded (3-wires) extension cord is used. See Table 7 below.

Table 7. Recommended Extension Cord Sizes

Model	Motor	Voltage	50 ft. (15.24 m)	75 ft. (22.86 m)	100 ft. (30.48 m)	200 ft. (60.96 m)
WM63E	1.5 HP	115 VAC	No. 12	No. 10	No. 8	No. 6
		230 VAC	No. 14	No. 12	No. 12	No. 8

Motors can burn out when the line voltage falls 10% below the voltage rating of the motor. Failure to use proper voltage will cause the motor to overheat and actuate the overload switch.

If overload protection should actuate because of improper voltage or any other malfunction, turn the main switch on the motor to the "OFF" position and correct the problem, press the reset switch button, and turn the main switch to the "ON" position.

ELECTRIC MOTOR VOLTAGE SWITCH

- **ALWAYS** make certain the electric motor switch is "OFF" and the power cord has been disconnected from the power source.
- Remove the voltage lock-out bolt (Figure 12). Change the position of the voltage change toggle switch from 115 VAC to 230 VAC. The mixer is factory wired for 115 VAC operation.
- Replace the voltage lock-out bolt.
- Important!, when changing the input voltage to the motor from 115 to 230 VAC, the plug on the motor power cord must also be changed. See Table 6

PADDLE BLADE ADJUSTMENT

Adjust paddles as shown in Figure 13.

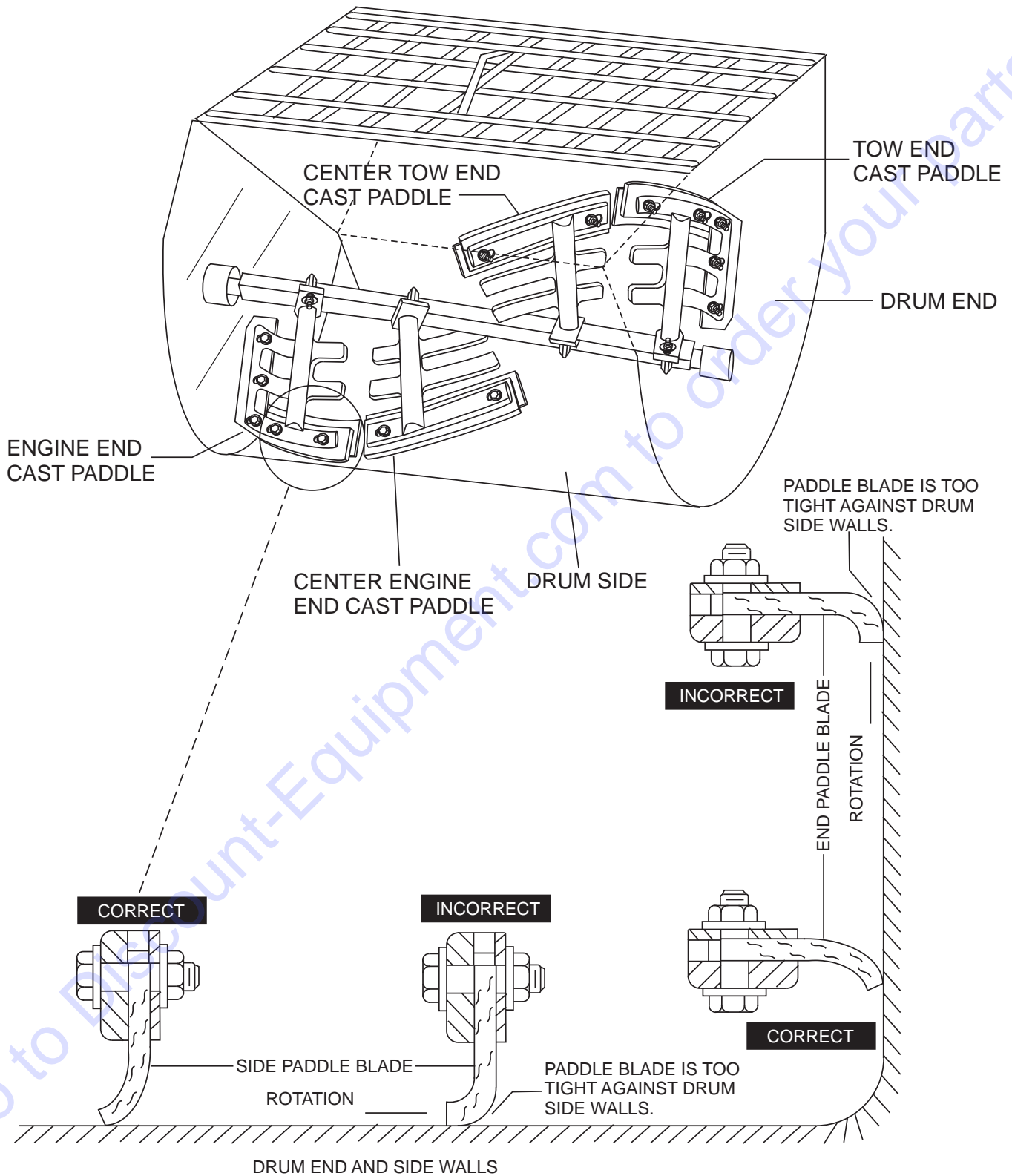


Figure 13. Paddle Blade Adjustment

START-UP

This section is intended to assist the operator with the initial start-up of the unit. It is extremely important that this section be read carefully before attempting to use the mixer in the field. **DO NOT** use your mixer until this section is thoroughly understood.



WARNING

Failure to understand the operation of the mixer could result in severe damage to the mixer or personal injury. See Figure 4 for the location of any control referenced in this manual.

CAUTION



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

The following steps outline the procedure for starting the engine.

1. Move the fuel shut-off lever (Figure 14) to the ON position.

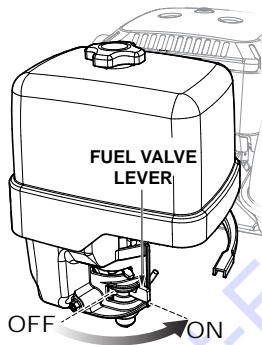


Figure 14. Fuel Shut-Off Lever

2. To start a cold engine, move the choke lever (Figure 15) to the CLOSED position.

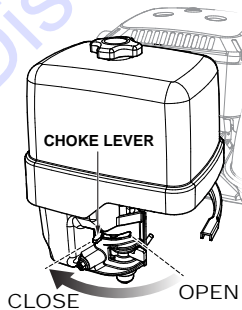


Figure 15. Choke Lever

3. Move the throttle lever (Figure 16) away from the slow position, about 1/3 of the way toward the fast position.

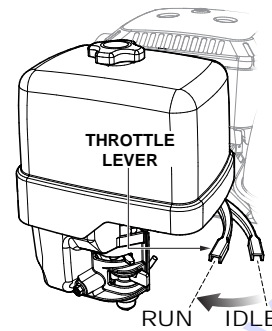


Figure 16. Throttle Lever

4. Turn the engine switch (Figure 17) to the ON position.

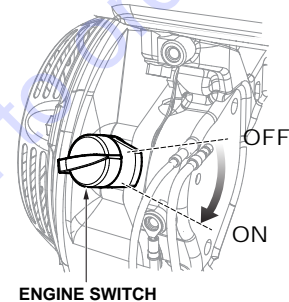


Figure 17. Engine On/Off Switch

5. The main start/stop switch located on the engine cover (Figure 18) is used to start and stop the engine. Pull this switch outward to start the engine.

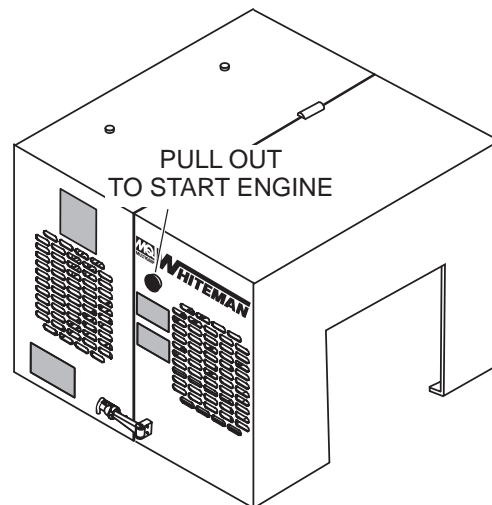


Figure 18. Start/Stop Switch

- Place the belt slip lever (Figure 19) in the START/STOP (disengaged) position.

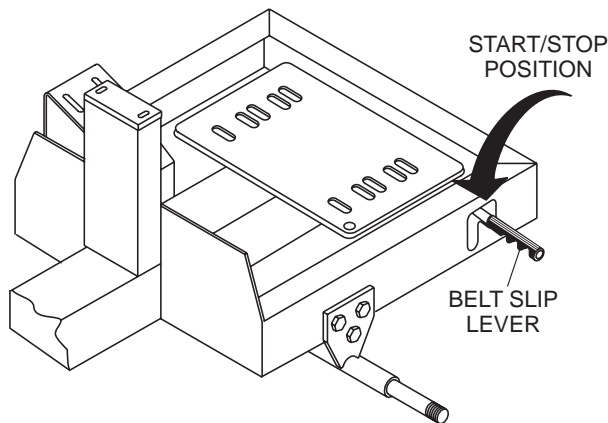



Figure 19. Belt Slip Lever (Start/Stop Position)

CAUTION



Make certain the drum lock pin (Figure 20 and Figure 21) is placed to the RIGHT (when viewing the mixer from the towpole end) of the drum stop block which is welded to the front side of the drum. Also make sure lock pin is fully engaged (locked). This will prevent the drum from tipping.

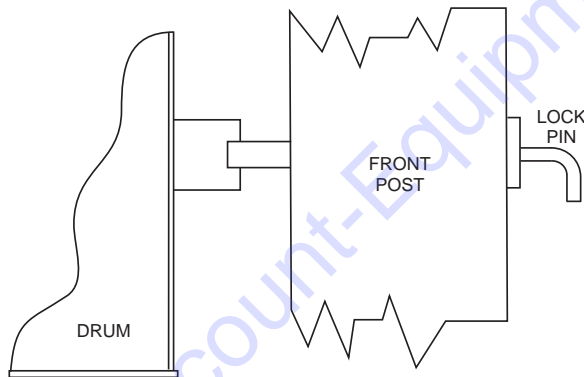


Figure 20. Drum Lock Pin (Side-View)

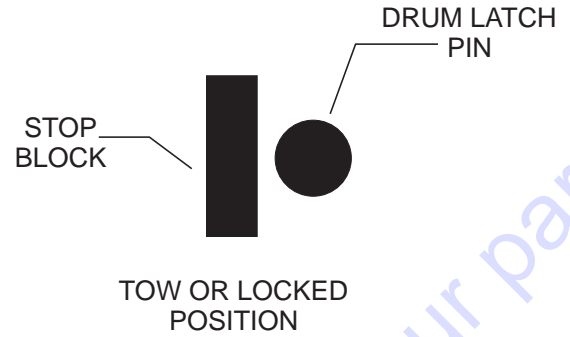


Figure 21. Drum Lock Pin (Right Position)

- Pull the starter grip (Figure 22) lightly until you feel resistance, then pull briskly. Return the starter grip gently.

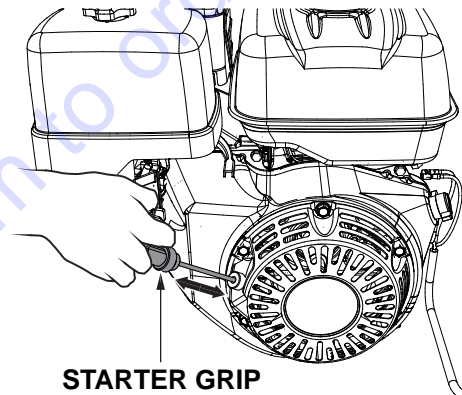


Figure 22. Starter Grip

- Place the belt slip lever (Figure 23) in the mix position. This will tilt the engine placing tension on the V-belts enabling the shaft to rotate.

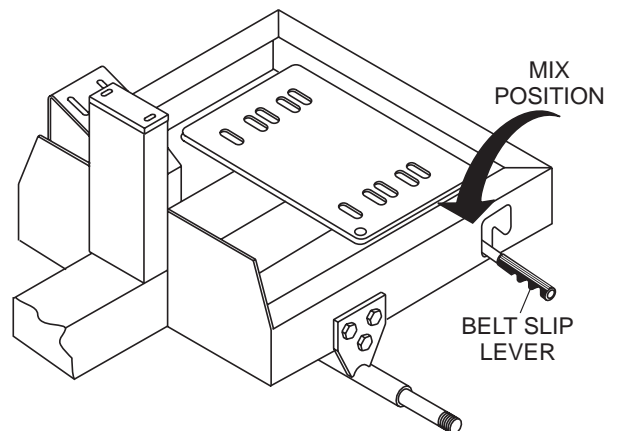


Figure 23. Belt Slip Lever (Mix Position)

MIXING/DUMPING

1. The paddle shaft inside the drum should be rotating at this time.
2. Add a small amount water to the mixing drum.
3. Lift the mixing bag compound onto the steel safety grate over the bag cutter and let the contents fall into the drum. Add more water if desired and mix compound to desired consistency.
4. When charging, mixing, or dumping a batch of plaster or mortar the drum lock pin should be placed to the left (when viewing the mixer from the towpole end) of the drum stop block which is welded to the front side of the drum. See Figure 24.

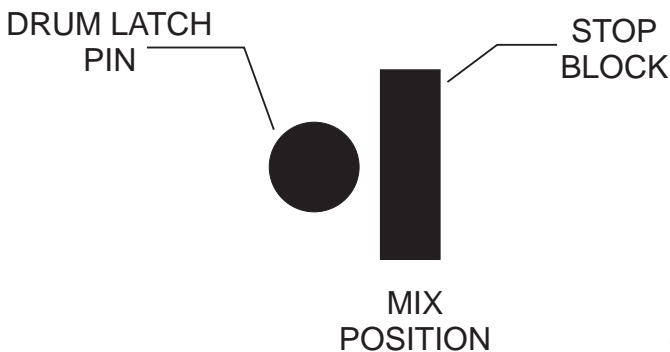


Figure 24. Drum Lock Pin (Left Position)

This will allow the operator to use both hands on the drum handle during dumping. Please note that when the lock pin is placed to the left, the drum will be maintained in the vertical position as the paddles rotate. To discharge the material the operator should hold the dump handle with both hands and rotate the drum to discharge the desired amount of material.

WARNING

Be sure to stand clear of the dump handle (Figure 25) when the mixer is operational. Any binding of material between the mixer blades and the drum will cause the dump handle to quickly move and could cause bodily harm.

STAND CLEAR OF DUMP HANDLE.
HANDLE KICK-BACK IS POSSIBLE.



Figure 25. Stand Clear of Dump Handle

STOPPING THE MIXER (GASOLINE)

1. Place the belt slip lever in the start/stop position (Figure 19).
2. Push the main start/stop switch (Figure 18) inward to stop the engine.
3. Turn the fuel shut-off valve to the OFF position.
4. Disconnect the spark plug.
5. Clean mixer as referenced in the maintenance section of this manual.

NOTICE

It is recommended that the mixer's Start/Stop switch be used to stop the engine after every use. Doing this will verify that the switch is working properly and presents no danger to the operator.

DANGER

NEVER disable or disconnect the start/stop switch. It is provided for operator safety. Serious Injury may result if it is disabled, disconnected or improperly maintained.

STOPPING THE MIXER (ELECTRIC MOTOR)

1. Place the electric motor's ON/OFF switch (Figure 12) in the OFF position.
2. Disconnect the electric motor's extension cord from its power source.
3. Clean mixer as referenced in the maintenance section of this manual.

MAINTENANCE (ENGINE)

Use Table 8 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 8. 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	Re-tighten 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.

MAINTENANCE (ENGINE)

Perform the scheduled maintenance procedures as defined by Table 8 and 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

- Remove the fuel filter cap and clean the inside of the fuel tank.
- Remove or clean the filter at the bottom of the tank.
- Remove and clean the spark plug (Figure 26), 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.

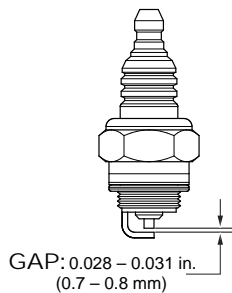


Figure 26. Spark Plug Gap

ENGINE OIL

- Drain the engine oil when the oil is warm as shown in Figure 27.
- Remove the oil drain bolt and sealing washer and allow the oil to drain into a suitable container.
- Replace engine oil with recommended type oil as listed in Table 5. For engine oil capacity, see Table 2 (Engine Specifications). **DO NOT** overfill.
- Install drain bolt with sealing washer and tighten securely.

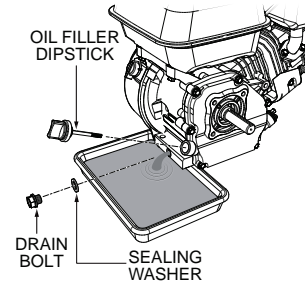


Figure 27. Engine Oil (Draining)

ENGINE AIR CLEANER

- Remove the air cleaner cover and foam filter element as shown in Figure 28.
- Tap the paper filter element (Figure 28) 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.

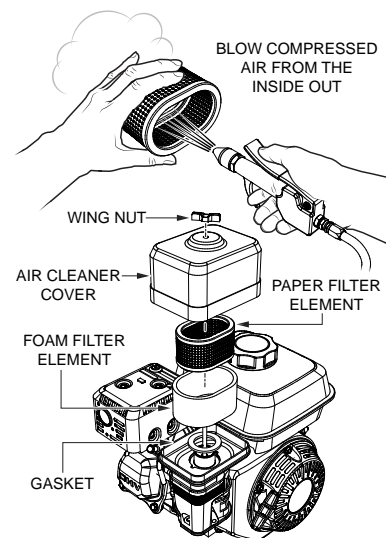


Figure 28. Engine Air Cleaner

MAINTENANCE (MIXER)

DRUM HEAD SEALS

There is 1 set of drum head seals (Figure 29) that will require lubrication. Lubricate the grease fitting for each drum seal every 40 hours of operation using any grade lithium base grease. Apply grease until visible inside of mixing drum (over grease). This will purge seal system of contamination.

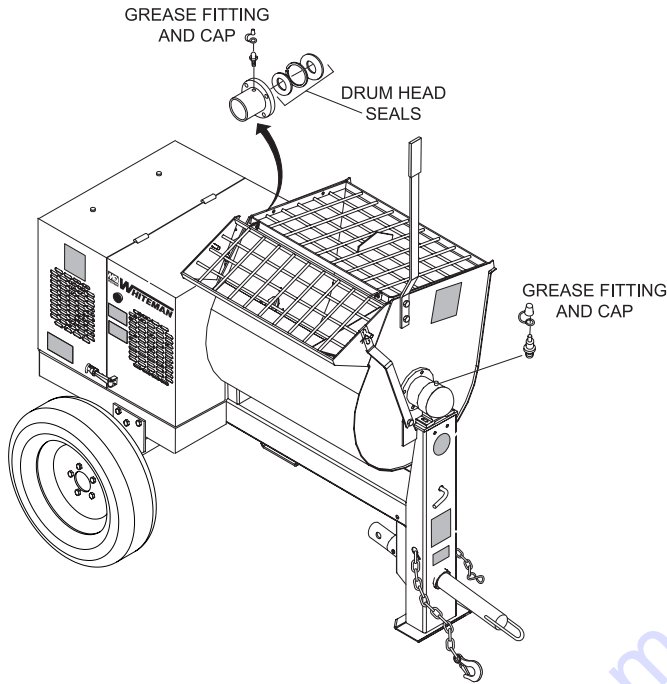


Figure 29. Grease Fittings (Drum Head Seals)

DRUM BEARING BRACKET LUBRICATION

There is 1 set of drum bearing brackets (Figure 30) that will require lubrication. These brackets are intended to make the drum rotate freely. Lubricate the grease fitting for each drum bearing bracket every month or when the drum becomes difficult to position using multi-purpose grade grease.

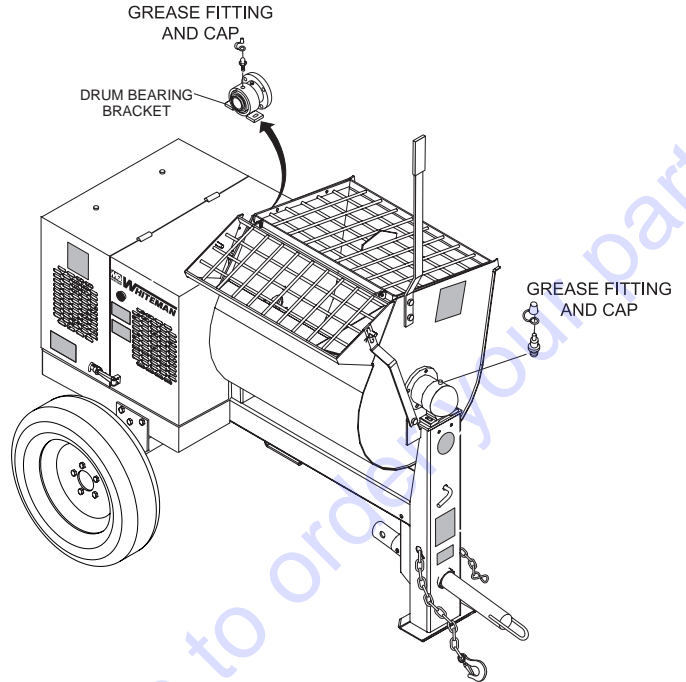


Figure 30. Grease Fittings (Dumping Mechanism)

! CAUTION

Failure to lubricate the drum bearing grease fittings periodically will cause the dumping mechanism to stiffen, making the mixing drum hard to dump.

BALL SOCKET AND CLAMP FACE MAINTENANCE

1. If the towing vehicle is equipped with a ball socket, smear socket periodically with multi-purpose grease. This will keep the ball socket well lubricated.
2. Periodically oil pivot points and clamp face surfaces of coupler with SAE 30 WT. motor oil.
3. When parking or storing your mixer. Keep the coupler off the ground so dirt will not build up in the ball socket.

COUNTERSHAFT BEARING LUBRICATION

There is 1 set of countershaft bearings (Figure 31) that will require lubrication. Lubricate the grease fitting for each countershaft bearing every 40 hours of operation using any grade lithium base grease.

MAINTENANCE (MIXER)

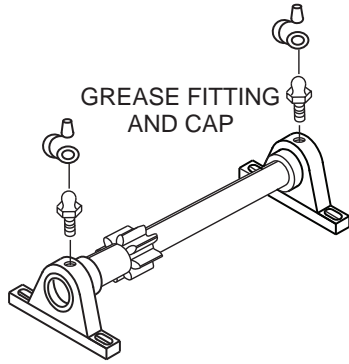


Figure 31. Grease Fittings (Countershaft)

WHEEL BEARINGS

1. After every 3 months of operation, remove the hub dust cap and inspect the wheel bearings (Figure 32). Once a year, or when required, disassemble the wheel hubs remove the old grease and repack the bearings forcing grease between rollers, cone and cage with a good grade of high speed wheel bearing grease (never use grease heavier than 265 A.S.T.M. penetration (“No. 2.”).

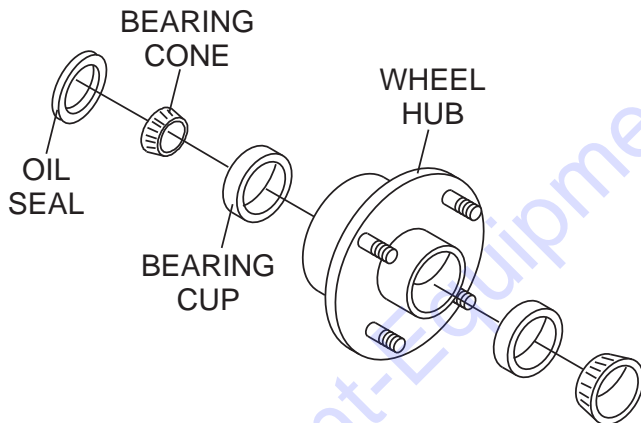


Figure 32. Wheel Hub and Bearings

2. Fill the wheel hub (Figure 32) with grease to the inside diameter of the outer races and also fill the hub grease cap. Reassemble the hub and mount the wheel. Then tighten the adjusting nut, at the same time turn the wheel in both directions, until there is a slight bind to be sure all the bearing surfaces are in contact.

Then back-off the adjusting nut 1/6 to 1/4 turn or to the nearest locking hole or sufficiently to allow the wheel to rotate freely within limits of .001” to .010” end play. Lock the nut at this position. Install the cotter pin and dust cap, and tighten all hardware.

MAIN GEAR AND DRIVE PINION ALIGNMENT

1. Disconnect the spark plug wire (gasoline engines). If mixer is equipped with an electric motor remove power cord from AC power receptacle. In addition make sure the clutch engagement lever is disengaged to relieve V-belt tension.
2. The countershaft and drive pinion are mounted on a slotted base. To align drive pinion with main gear, loosen the pillow block mounting bolts and move them until the necessary alignment has been made. Remember gears must be paralleled aligned not skewed.
3. Using your hand, slightly move (rock) the drive pulley back and forth to determine the amount of backlash. Insert feeler gauge between gears to determine backlash distance. Backlash should range between 0.007- 0.012 inches (Figure 33).

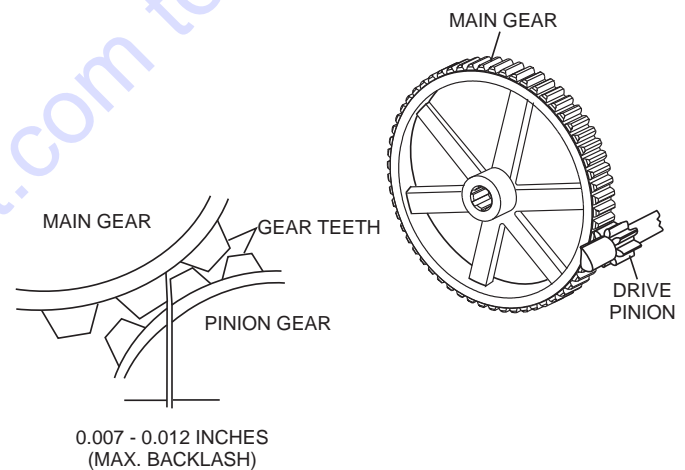


Figure 33. Drive Pinion and Main Gear (Backlash)

INSPECT TOOTH CONTACT BETWEEN MAIN GEAR AND DRIVE PINION

1. Coat 3 or 4 teeth at 3 different positions on the main gear with yellow paint.
2. Rotate the drive pulley in both directions.
3. Inspect the tooth pattern.

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MAINTENANCE (MIXER)

- If gear teeth are not contacting properly (Figure 34), adjust pillow block to correct the problem.

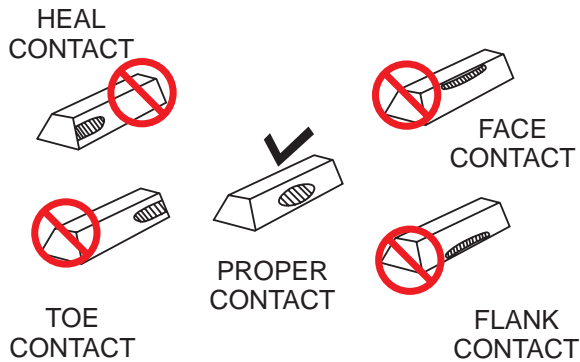


Figure 34. Gear Teeth Alignment

GREASE FITTINGS (ZERK) MAINTENANCE (ELECTRIC MOTOR)

- There are two grease (Figure 33) fittings at each end of the electric motor that will require lubrication. Lubricate these fittings about every 16 months.
- Use Poleyrex EM (Exxon Mobil) or equivalent lubricant. Clean grease fitting, apply grease gun to fitting (1/2 shot). Remember too much grease or injecting grease too quickly can cause premature bearing failure. Slowly apply the recommended amount of grease, taking a minute or so to apply.

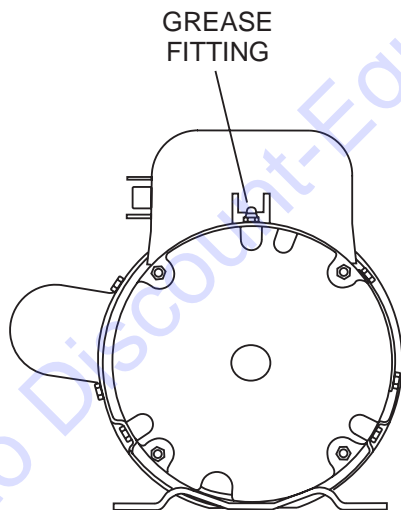


Figure 35. Grease Fittings Electric Motor

TIRES/WHEELS/LUG NUTS

Tires and wheels are a very important and critical components of the trailer. When specifying or replacing the trailer wheels it is important the wheels, tires, and axle are properly matched.

WARNING



DO NOT attempt to repair or modify a wheel. **DO NOT** install an inter-tube to correct a leak through the rim. If the rim is cracked, the air pressure in the inter-tube may cause pieces of the rim to explode (break-off) with great force and can cause serious eye or bodily injury.

Tires Wear/Inflation

Tire inflation pressure is the most important factor in tire life. Pressure should be checked cold before operation. **DO NOT** bleed air from tires when they are hot. Check inflation pressure weekly during use to insure the maximum tire life and tread wear.

WARNING









ALWAYS wear safety glasses when removing or installing force fitted parts. Failure to comply may result in serious injury.

Table 9 (Tire Wear Troubleshooting) will help pinpoint the causes and solutions of tire wear problems.

MAINTENANCE (MIXER)

Table 9. Tire Wear Troubleshooting

Wear Pattern	Cause	Solution
	Center Wear Over Inflation	Adjust pressure to particular load per tire manufacturer
	Edge Wear Under Inflation	Adjust pressure to particular load per tire manufacturer.
	Side Wear Loss of chamber or overloading	Make sure load does not exceed axle rating. Align wheels.
	Toe Wear Incorrect toe-in	Align wheels.
	Cupping Out of balance	Check bearing adjustment and balance tires.
	Flat Spots Wheel lockup and tire skidding	Avoid sudden stops when possible and adjust brakes.

Lug Nut Torque Requirements

It is extremely important to apply and maintain proper wheel mounting torque. Be sure to use only the fasteners matched to the cone angle of the wheel. Proper procedure for attachment of the wheels is as follows:

1. Start all wheel lug nuts by hand.
2. Torque all lug nuts in sequence. See Figure 36. **DO NOT** torque the wheel lug nuts all the way down. Tighten each lug nut in 3 separate passes as defined by Figure 36.

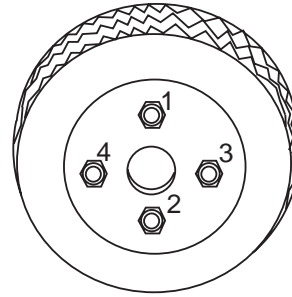
Table 10. Tire Torque Requirements

Wheel Size	First Pass FT-LBS	Second Pass FT-LBS	Third Pass FT-LBS
12"	20-25	35-40	50-65
13"	20-25	35-40	50-65
14"	20-25	50-60	90-120
15"	20-25	50-60	90-120
16"	20-25	50-60	90-120

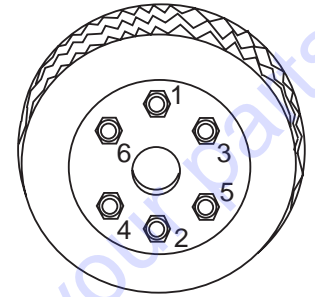
NOTICE

NEVER use an pneumatic air gun to tighten wheel lug nuts.

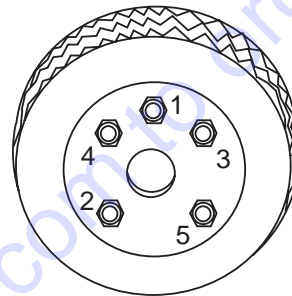
3. After first road use, retorque all lug nuts in sequence. Check all wheel lug nuts periodically.



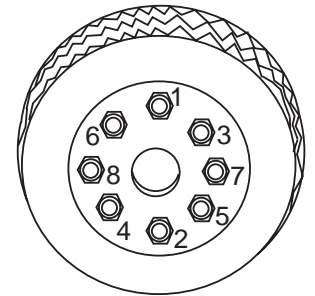
4-LUG NUTS



6-LUG NUTS



5-LUG NUTS



8-LUG NUTS

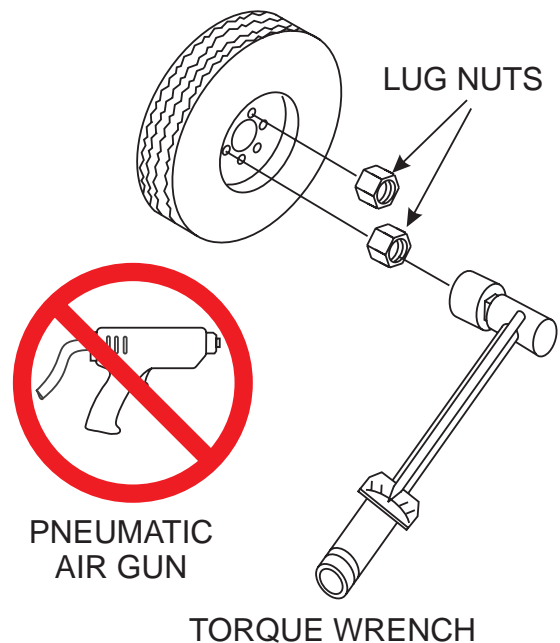


Figure 36. Wheel Lug Nuts Tightening Sequence

MAINTENANCE (MIXER)

SUSPENSION

The rigid type axle and associated hardware (Figure 37) should be periodically inspected for signs of excessive wear, elongation of bolt holes, and loosening of fasteners. Replace all damaged parts immediately.

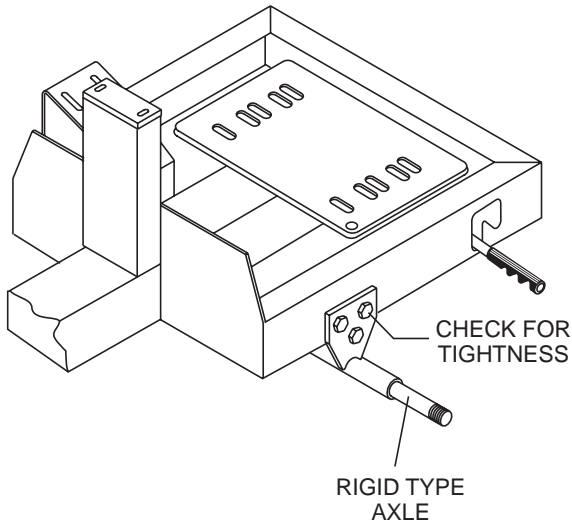


Figure 37. Axle Support Components

MIXER CLEANING

1. **ALWAYS** disconnect the spark plug wire (gasoline engines) before cleaning the inside of the drum. If mixer is equipped with an electric motor remove power cord from AC power receptacle. In addition make sure the clutch engagement lever is dis-engaged.
2. Make sure the rear section of the safety grate is connected to the mixing drum.
3. At the end of each day's operation, place mixer drum in an upright position and spray inside of tub immediately with water to prevent lumps of dried mortar or plaster from forming and contamination of future batches, **DO NOT** allow a buildup of materials to form on the blades or anywhere inside the drum.
4. Rotate mixer to dump position and remove debris.
5. Thoroughly clean the entire mixer, wheels, cabinet and frame.
6. **NEVER** pour or spray water over the engine or electric motor (Figure 38).

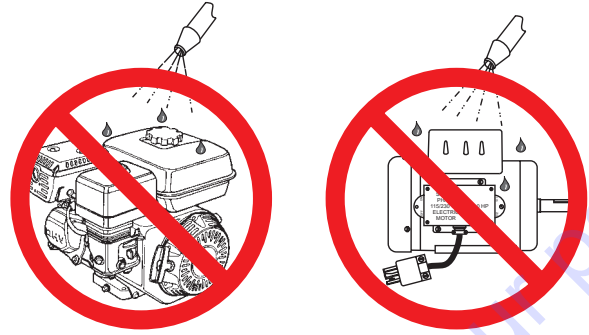


Figure 38. No Spraying of Water

⚠ WARNING

When rotating the mixing drum from the dump position to the upright position, keep hands clear of safety grate. The possibility exists of hands or fingers being crushed (Figure 39).

CRUSH HAZARD AREA. KEEP HANDS AND FINGERS CLEAR OF SAFETY GRATE AT ALL TIMES.

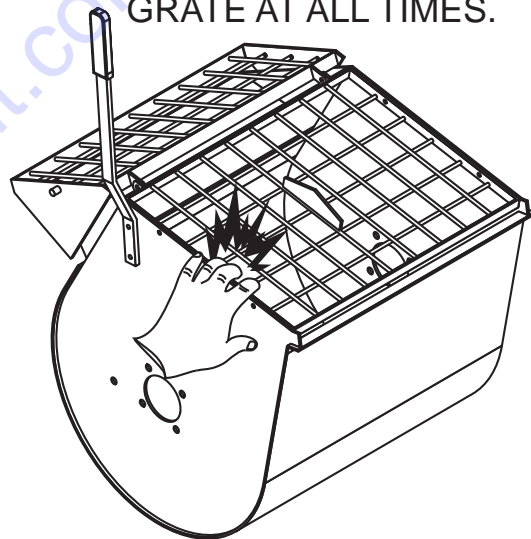


Figure 39. Safety Grate (Crush Hazard)

7. When cleaning of the entire mixer is done, return mixing drum to an upright position.

MIXER STORAGE

For storage of the mixer for over 30 days, the following is recommended:

- Drain the fuel tank completely, or add STA-BIL to the fuel.
- Run the engine until the fuel is completely consumed.
- Completely drain used oil from the engine crankcase and fill with fresh clean oil, then follow the procedures described in the engine manual for engine storage.
- Clean the entire mixer and engine compartment.
- Place the mixing drum in the down position (mouth facing downward).
- Cover the mixer and place it a clean dry area, that is protected from harsh elements.

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TROUBLESHOOTING

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 if transistor ignition unit is broken, and replace defective unit. Check if voltage cord cracked or broken and replace. Check if spark plug if fouled and replace.
	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.

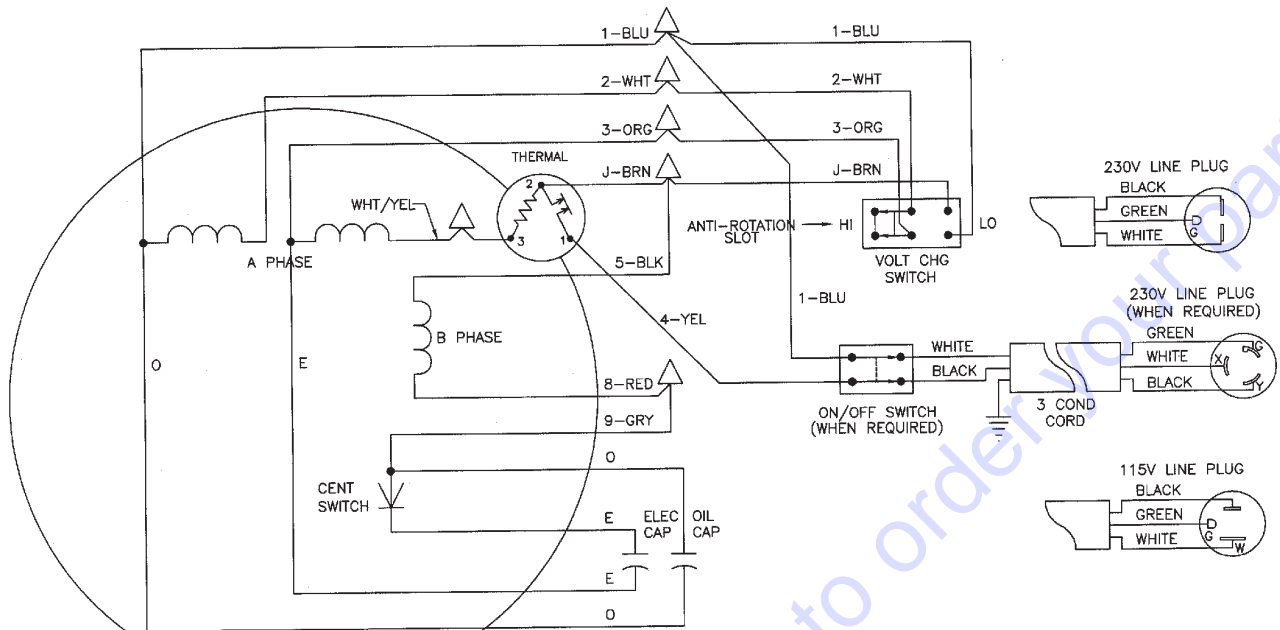
TROUBLESHOOTING

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	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.
Starter malfunctions.	Loose, damaged wiring?	Ensure tight, clean connections on battery and starter.
	Battery insufficiently charged?	Recharge or replace battery.
	Starter damaged or internally shorted?	Replace starter.
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.
Will not start, no power with key "ON". (if applicable)	ON/OFF device not activated ON?	Turn on ON/OFF device.
	Battery disconnected or discharged?	Check cable connections. Charge or replace battery.
	Ignition switch/wiring defective?	Replace ignition switch. Check wiring.

TROUBLESHOOTING

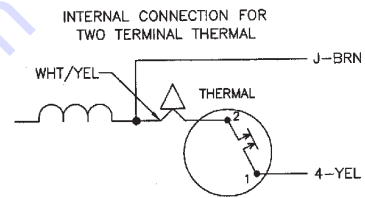
Mixer Troubleshooting		
Blades will not rotate.	Worn or defective V-belt?	Replace V-belt.
	Adjustment lever mis-aligned?	Check position of adjustment lever. Adjust if necessary.
Material leaking from drum ends.	Worn or defective paddle shaft seals?	Replace seals.
Drum difficult to discharge (tilt)	Defective or worn drum support brackets?	Apply grease to bracket or replace.
	Blades adjusted too tight.	Adjust blades until they almost touch side walls of drum.

WIRING DIAGRAM



NOTES:

1. CONNECTIONS ARE SHOWN FOR CCW ROTATION FACING END OPPOSITE SHAFT EXTENSION (STD). FOR CW ROTATION, INTERCHANGE 5 AND 8 LEADS.
2. MULTIPLE CAPACITORS ARE CONNECTED IN PARALLEL UNLESS OTHERWISE SPECIFIED.
3. USE 2PDT VOLTAGE CHANGE SWITCH. CONTACTS ARE SHOWN IN HIGH VOLT POSITION. VIEW IS FROM TERMINAL SIDE.
4. LEAD COLORS ARE OPTIONAL. LEADS MUST ALWAYS BE NUMBERED AS SHOWN.



EXPLANATION OF CODE IN REMARKS COLUMN

The following section explains the different symbols and remarks used in the Parts section of this manual. Use the help numbers found on the back page of the manual if there are any questions.

NOTICE

The contents and part numbers listed in the parts section are subject to change **without notice**. Multiquip does not guarantee the availability of the parts listed.

SAMPLE PARTS LIST

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	12345	BOLT	1	INCLUDES ITEMS W/%
2%		WASHER, 1/4 IN.		NOT SOLD SEPARATELY
2%	12347	WASHER, 3/8 IN. ...	1	MQ-45T ONLY
3	12348	HOSE	A/R	MAKE LOCALLY
4	12349	BEARING	1	S/N 2345B AND ABOVE

NO. Column

Unique Symbols — All items with same unique symbol (@, #, +, %, or >) in the number column belong to the same assembly or kit, which is indicated by a note in the “Remarks” column.

Duplicate Item Numbers — Duplicate numbers indicate multiple part numbers, which are in effect for the same general item, such as different size saw blade guards in use or a part that has been updated on newer versions of the same machine.

NOTICE

When ordering a part that has more than one item number listed, check the remarks column for help in determining the proper part to order.

PART NO. Column

Numbers Used — Part numbers can be indicated by a number, a blank entry, or TBD.

TBD (To Be Determined) is generally used to show a part that has not been assigned a formal part number at the time of publication.

A blank entry generally indicates that the item is not sold separately or is not sold by Multiquip. Other entries will be clarified in the “Remarks” Column.

QTY. Column

Numbers Used — Item quantity can be indicated by a number, a blank entry, or A/R.

A/R (As Required) is generally used for hoses or other parts that are sold in bulk and cut to length.

A blank entry generally indicates that the item is not sold separately. Other entries will be clarified in the “Remarks” Column.

REMARKS Column

Some of the most common notes found in the “Remarks” Column are listed below. Other additional notes needed to describe the item can also be shown.

Assembly/Kit — All items on the parts list with the same unique symbol will be included when this item is purchased.

Indicated by:

“INCLUDES ITEMS W/(unique symbol)”

Serial Number Break — Used to list an effective serial number range where a particular part is used.

Indicated by:

“S/N XXXXX AND BELOW”

“S/N XXXX AND ABOVE”

“S/N XXXX TO S/N XXX”

Specific Model Number Use — Indicates that the part is used only with the specific model number or model number variant listed. It can also be used to show a part is NOT used on a specific model or model number variant.

Indicated by:

“XXXXX ONLY”

“NOT USED ON XXXX”

“Make/Obtain Locally” — Indicates that the part can be purchased at any hardware shop or made out of available items. Examples include battery cables, shims, and certain washers and nuts.

“Not Sold Separately” — Indicates that an item cannot be purchased as a separate item and is either part of an assembly/kit that can be purchased, or is not available for sale through Multiquip.

SUGGESTED SPARE PARTS

WM63-SERIES PLASTER AND MORTAR MIXER WITH HONDA GX160UT1HX2/GX240UT1HA2 ENGINES AND 1.5 HP ELECTRIC MOTOR.

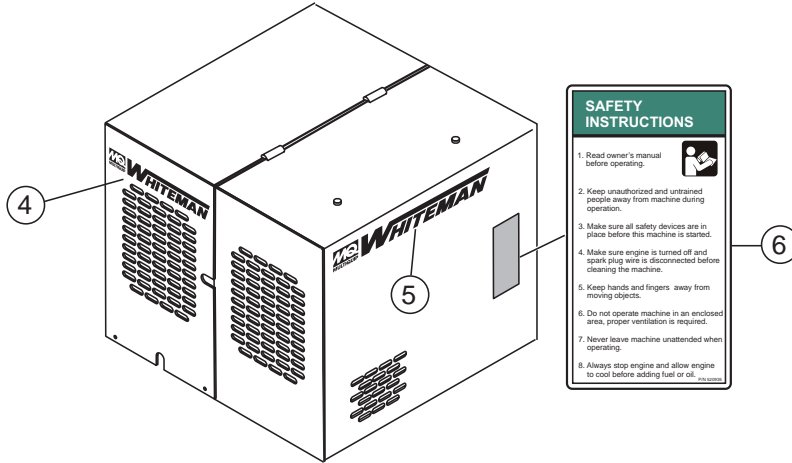
1 to 3 units

Qty.	P/N	Description
6	491107	V-BELT A32, HONDA ENGINE (GX160, 5.5 HP)
6	07055-034	V-BELT 4L340, HONDA ENGINE (GX240, 8.0 HP)
6	491112	V-BELT A40, ELECTRIC MOTOR
2	EM914288	OIL SEAL, AXLE
4	EM903113	BEARING, CONE, AXLE
4	EM903012	BEARING, CUP, AXLE
2	20654-001	SEAL, PADDLE SHAFT (BLACK)
2	530029	RING, RETENTION
2	20104-002	SEAL, SHAFT URETHANE (YELLOW)
3	17210ZE1822	ELEMENT, AIR CLEANER (GX160, 5.5 HP)
3	17210ZE2822	ELEMENT, AIR CLEANER (GX240, 8.0 HP)
3	9807956846	SPARK PLUG, BPR6ES, NGK
3	9807956855	SPARK PLUG, W20EPR-U, DENSO
1	28462ZH8003	ROPE, RECOIL STARTER (GX160, 5.5 HP)
1	28462ZE2W11	ROPE, RECOIL STARTER (GX240, 8.0 HP)
1	17620Z4H020	CAP, FUEL TANK
2	25647-502	KIT, BLADE (RUBBERS ONLY)

NOTICE

Part numbers on this Suggested Spare Parts list may supersede/replace the part numbers shown in the following parts lists.

NAMEPLATE AND DECALS



SAFETY INSTRUCTIONS

1. Read owner's manual before operating.
2. Keep unauthorized and untrained people away from machine during operation.
3. Make sure all safety devices are in place before this machine is started.
4. Make sure engine is turned off and spark plug wire is disconnected before cleaning the machine.
5. Keep hands and fingers away from moving objects.
6. Do not operate machine in an enclosed area, proper ventilation is required.
7. Never leave machine unattended when operating.
8. Always stop engine and allow engine to cool before adding fuel or oil.

WARNING

To avoid injury, you **MUST** read and understand operator's manual before using this machine.

Keep safety grates, guards and doors in place. Shut off engine or electric motor before inspection or maintenance.

Moving parts can cut and crush. **SHUT OFF** engine or electric motor before placing hands in mixing drum.

This machine to be operated by qualified personnel only. Ask for training as needed.

WARNING

To avoid injury, you **MUST** read and understand operator's manual before using this machine.

Keep safety grates, guards and doors in place. Shut off engine or electric motor before inspection or maintenance.

Moving parts can cut and crush. **SHUT OFF** engine or electric motor before placing hands in mixing drum.

This machine to be operated by qualified personnel only. Ask for training as needed.

WARNING

Stand clear of dump handle. handle kick-back is possible.

Wear appropriate dust mask, hearing and eye protection when operating this equipment.

Crush hazard area keep hands and fingers clear of safety grate at all times.

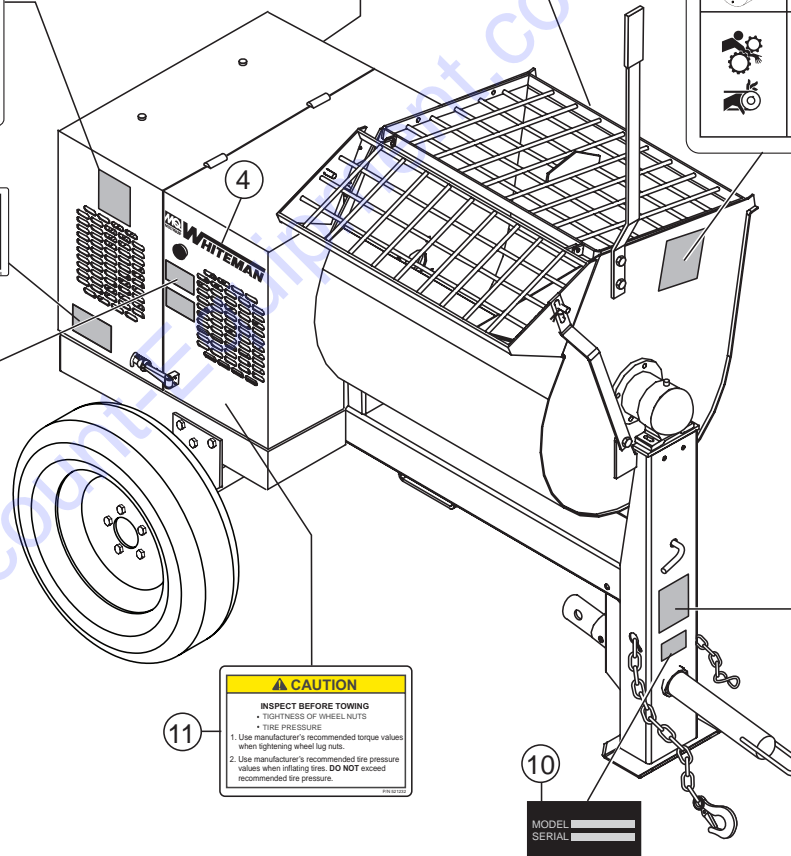
Moving parts can crush and cut. Do not operate with guard removed. Follow lockout procedure before servicing.

PIN 521230

DANGER

Gasoline is highly flammable. **DO NOT** drink alcohol or use the equipment. Fire or explosion could result from fuel vapors or if fuel is spilled on a hot engine!

PUSH TO STOP



CAUTION

INSPECT BEFORE TOWING

- TIGHTNESS OF WHEEL NUTS
- TIRE PRESSURE

1. Use manufacturer's recommended torque values when tightening wheel lug nuts.
2. Use manufacturer's recommended tire pressure values when inflating tires. **DO NOT** exceed recommended tire pressure.

CAUTION

DRUM LOCK POSITIONING

SEE OPERATOR'S MANUAL FOR PROPER DRUM LOCK POSITIONING

LEGEND

● — REPRESENTS LOCK PIN

■ — REPRESENTS DRUM STOP BLOCK

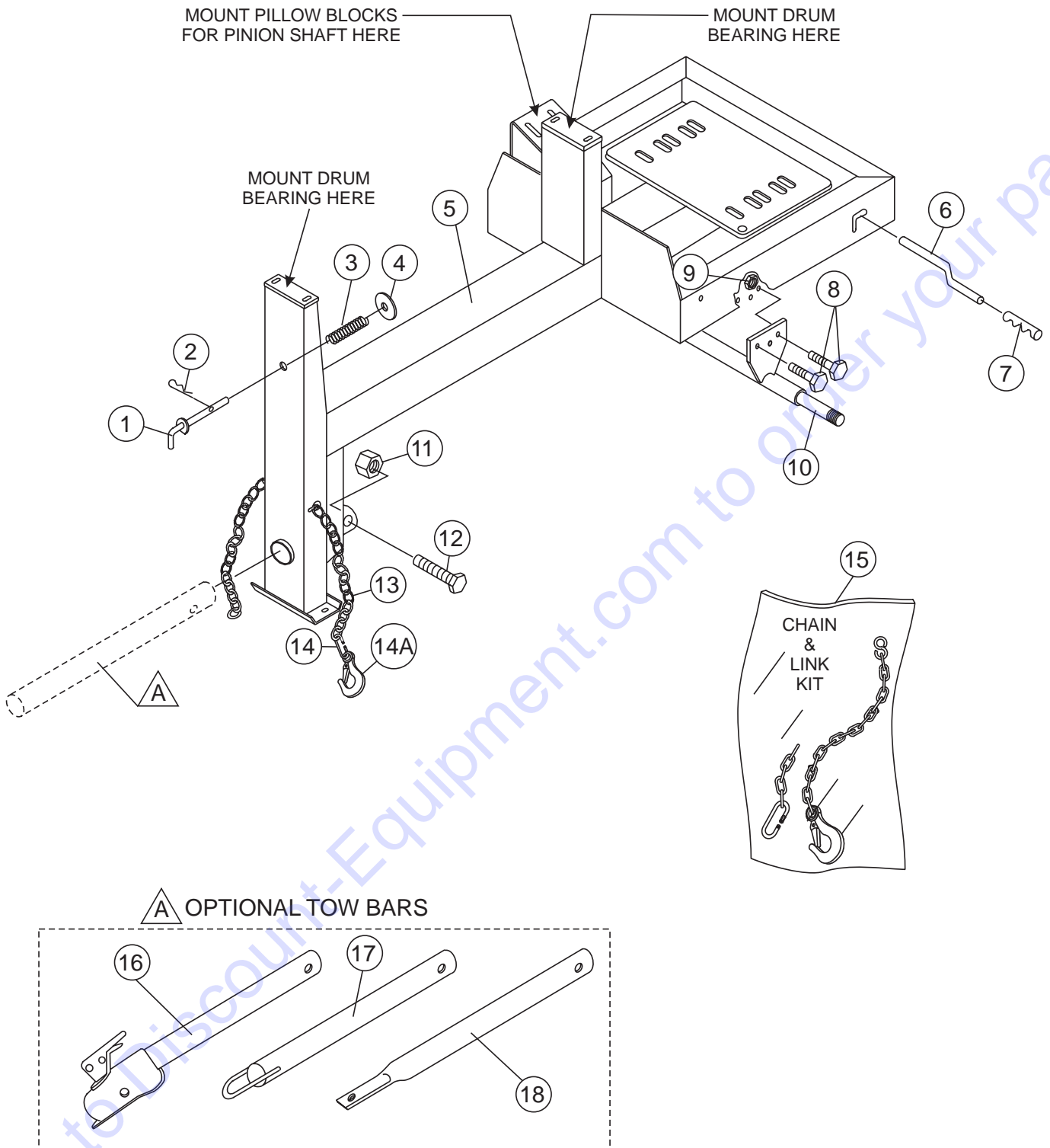
MIX TOW

NAMEPLATE AND DECALS

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	EM948630	DECAL, PUSH TO STOP	1	
2	521228	DECAL, DO NOT SMOKE	1	
3	521229	DECAL, READ MANUAL, CRUSH HAZARD	2	
4	515275	DECAL, MQ WHITEMAN LOGO SMALL	1	
5	504714	DECAL, MQ WHITEMAN LOGO LARGE	1	
6	520935	DECAL, SAFETY INSTRUCTIONS	1	
7	521230	DECAL, HANDLE KICK BACK, SAFETY GRATE, CRUSH HAZARD	1	
8	504715	DECAL, WHITEMAN LOGO LARGE	1	
9	521231	DECAL, DRUM LOCK POSITIONING	1	
10		NAMEPLATE	1	CONTACT DISCOUNT-EQUIPMENT
11	521232	DECAL, INSPECT BEFORE TOWING	1	

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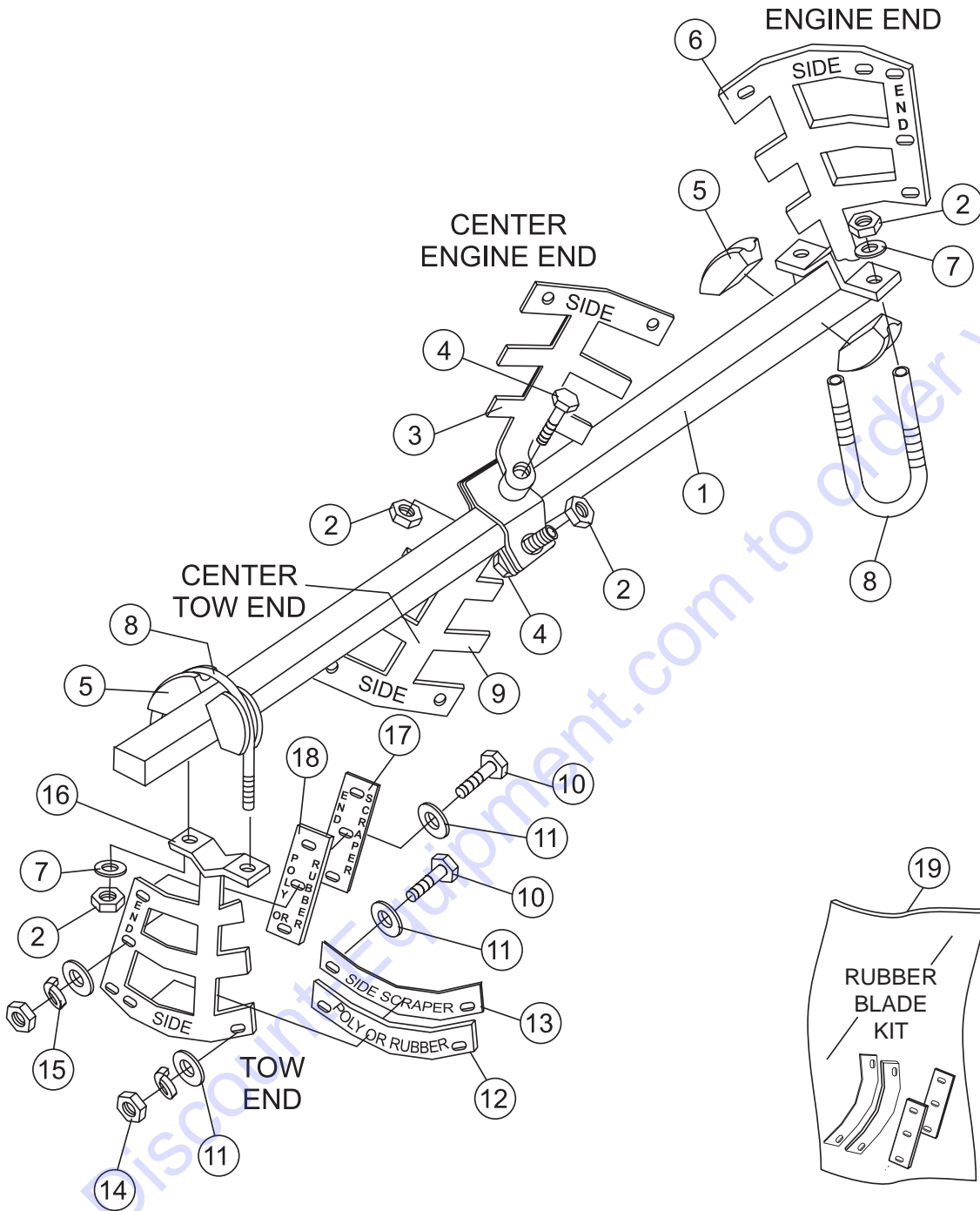
FRAME ASSY.



FRAME ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	514842	LOCK, PIN	1	
2	491692	COTTER PIN	1	
3	530023	SPRING LOCKING PIN	1	
4	507444	WASHER, FLAT 3/4"	1	
5	514834	MAIN FRAME	1	
6	530013	CLUTCH HANDLE LEVER	1	
7	20278-001	CLUTCH HANDLE GRIP	1	
8	EM963692	BOLT 1/2" UNC 1-1/2"	6	
9	492584	NUT, LOCK 1/2"	6	
10	514802	AXLE, UNIVERSAL	1	
11	10176	LOCK NUT 1/2" NC	1	
12	EM124	BOLT 1/2"-13 X 4 G5	1	
13\$		SAFETY CHAIN.....	1	SOLD ONLY IN KIT
14\$	01004	CONNECTOR LINK	1	
14A\$	516580	CLEVIS SAFETY HOOK	1	
15	13363KIT	CHAIN AND LINK KIT.....	1	INCLUDES ITEMS W/\$
16	HBC-1	BALL HITCH 2-INCH.....	1	CONTACT UNIT SALES
17	HLC-1	LOOP HITCH.....	1	CONTACT UNIT SALES
18	HPC-1	PIN HITCH 1-INCH.....	1	CONTACT UNIT SALES

PADDLE SHAFT ASSY.

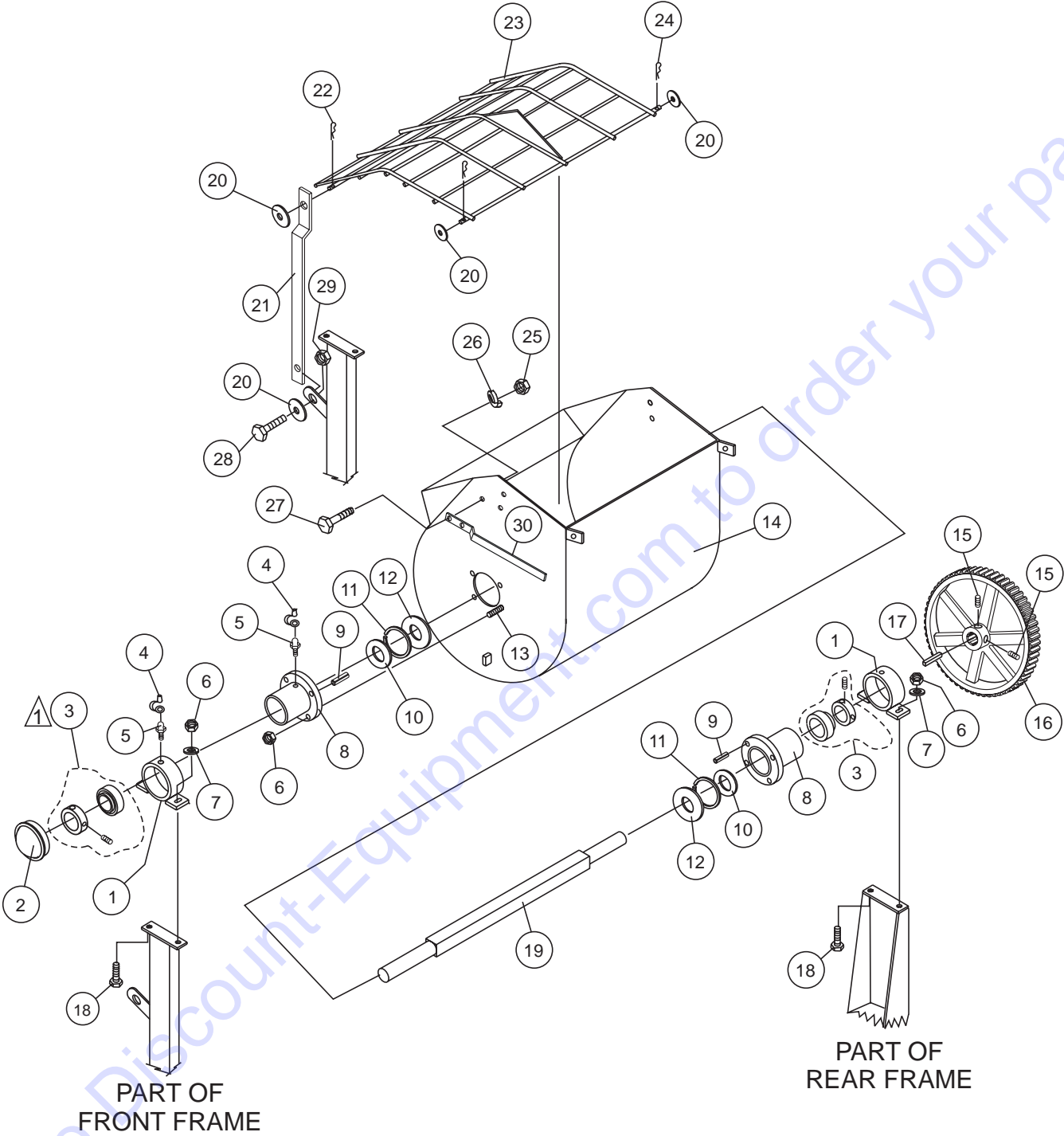


PADDLE SHAFT ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	514752	PADDLE SHAFT	1	
2	492584	NUT, LOCK 1/2"	6	
3	530140C	PADDLE ARM, CENTER ENGINE END	1	
4	3215	SCREW, HHC 1/2-13 X 3-1/2	2	
5	EM200292	INSERT, PADDLE ARM	4	
6	530141	PADDLE ARM, ENGINE END	1	
7	6109170	WASHER, FLAT 1/2"	6	
8	EM200297	U-BOLT, END PADDLES	2	
9	530143	PADDLE ARM, CENTER TOW END	1	
10	505196	SCREW, 3/8 X 1-1/2 " HHCS	18	
11	3019092	WASHER, FLAT 3/8"	28	
12@	25667-001	BLADE, SIDE RUBBER	4	
13	25668-001	BLADE, SIDE SCRAPPER	4	
14	1456	NUT, HEX FINISH 3/8-16	14	
15	0166 A	WASHER, LOCK 3/8" MED.	14	
16	530142C	PADDLE ARM, TOW END	1	
17	33074-001	BLADE, SCRAPPER END	2	
18@	33017-001	BLADE, RUBBER END	2	
19	25647-502	KIT, BLADE (RUBBERS ONLY)	1.....	INCLUDES ITEMS W/@

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STEEL TUB ASSY.

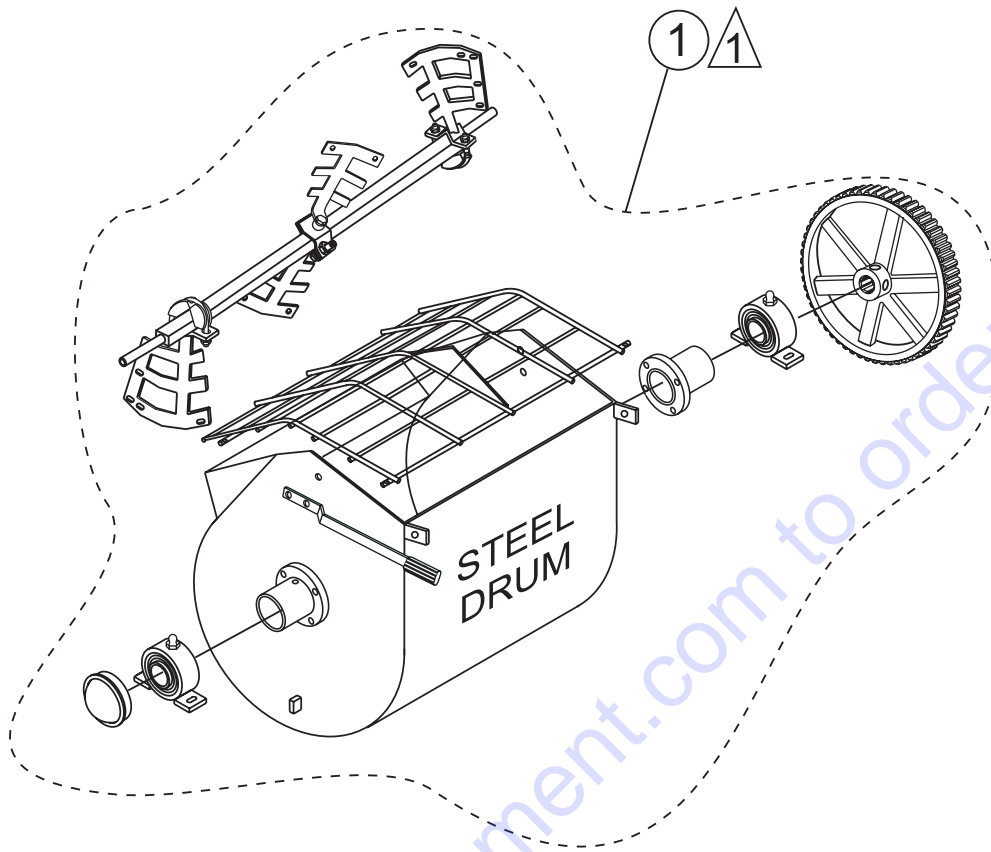


NOTES:
 ⚠ SET SCREWS AND BEARING COLLAR ARE INCLUDED WITH BEARING AND CANNOT BE PURCHASED SEPARATELY.

STEEL TUB ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	530028	DRUM BEARING BRACKET	2	
2	3249	CAP, DUST	1	
3	20561-001	BEARING, SEALED.....	2.....	SET SCREWS AND BEARING COLLAR CANNOT BE SOLD SEPARATELY.
4	491008	CAP, GREASE FITTING	2	
5	EM916019	FITTING, GREASE	2	
6	EM969013	NUT, NYLOCK 3/8"	12	
7	3019092	WASHER, FLAT 3/8"	4	
8	514778	TRUNNION HUB	2	
9	513453	ROLL PIN 3/16" X 3/4"	2	
10	20654-001	SEAL, SHAFT (BLACK)	2	
11	530029	RING, RETENTION	2	
12	20104-002	SEAL, SHAFT URETHANE (YELLOW)	2	
13	513452	BOLT 3/8" NC X 1/4" G5	8	
14	515009	DRUM, STEEL	1	
15	492484	SET SCREW	2	
16	530043	MAIN GEAR	1	
17	500432	KEY, 3/8" X 50 MM	1	
18	17985-012	CARRIAGE BOLT 3/8-16 X 1-1/2"	4	
19	514752	SHAFT, PADDLE	1	
20	6109170	WASHER, FLAT 1/2"	4	
21	515032	LIFT BAR	1	
22	EM925191	PIN, COTTER	1	
23	514962	GRATE	1	
24	EM924015	PIN, COTTER	2	
25	6109160	HEX NUT 1/2" G5	2	
26	6109180	WASHER, LOCK 1/2"	2	
27	EM963692	BOLT 1/2" NC 1-1/4" G5	2	
28	492393	CAPSCREW, HHCS 1/2" NC X 1-1/4"	1	
29	492584	NUT, LOCK 1/2" NC	1	
30	EM201537	HANDLE DUMP	1	

DRUM AND PADDLE SHAFT COMPLETE ASSY.

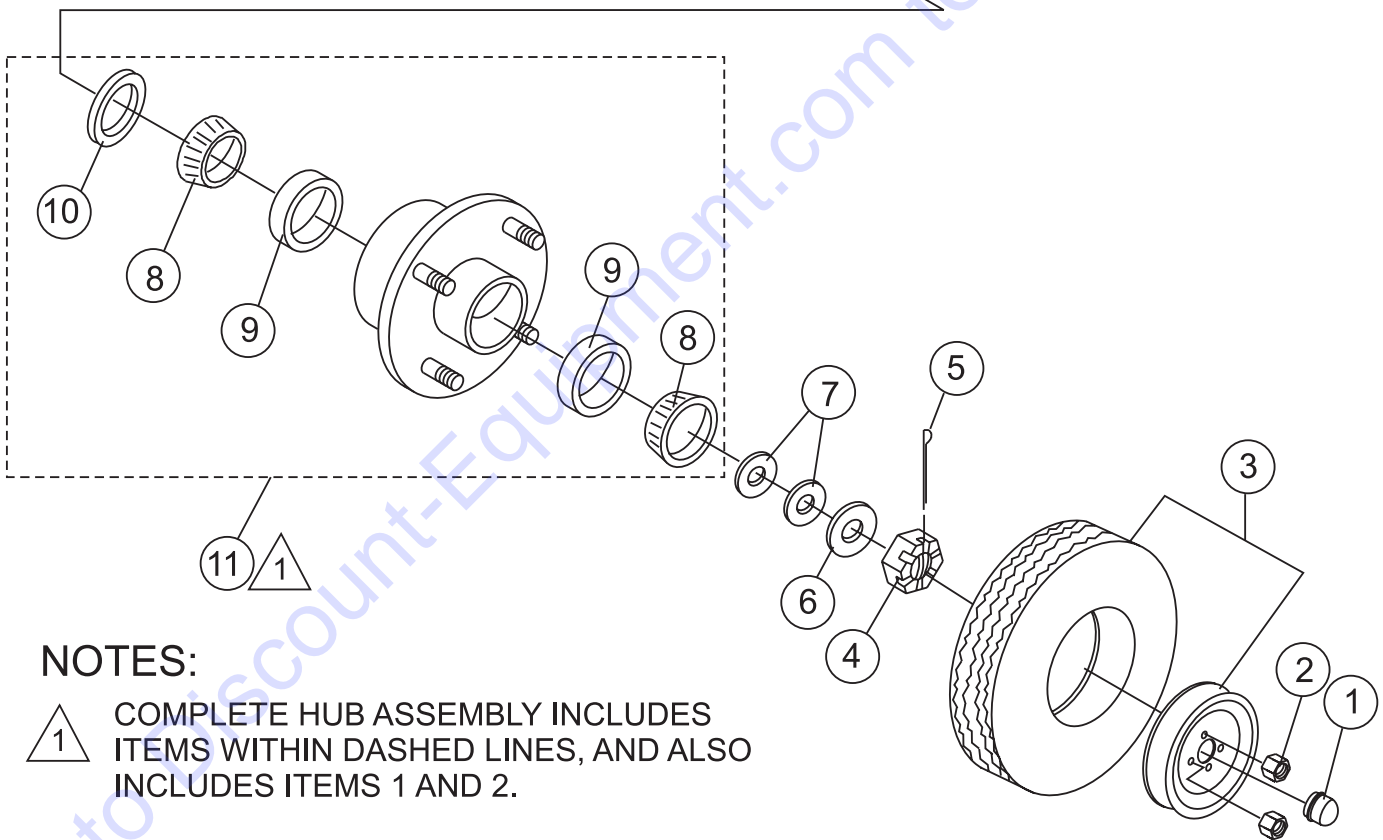
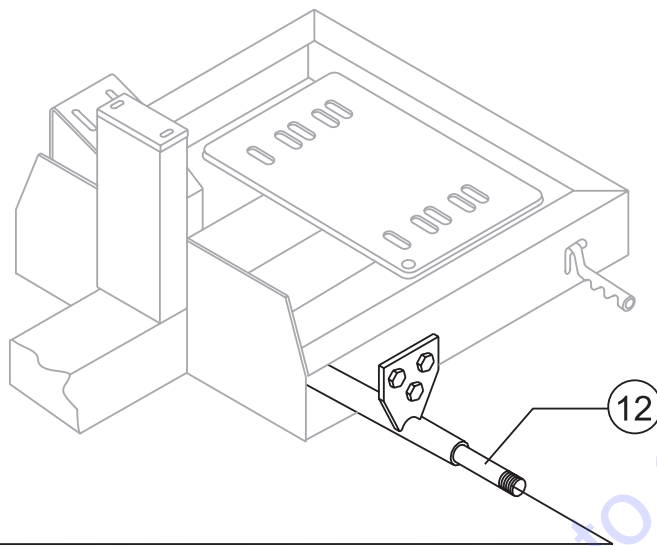


NOTES:

- △ 1 COMPLETE DRUM AND PADDLE
SHAFT ASSEMBLIES ARE INCLUDED
WITHIN DASHED LINES.

DRUM AND PADDLE SHAFT COMPLETE ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	516069	DRUM AND SHAFT COMPLETE ASSY.....	1.....	INCLUDES ITEMS LISTED BELOW
	530028	DRUM BEARING BRACKET	2	
	3249	CAP, DUST	1	
	20561-001	BEARING SEALED	2	
	491008	CAP, GREASE FITTING	2	
	EM916019	FITTING, GREASE	2	
	EM969013	NUT, LOCK 3/8"	12	
	3019092	WASHER, FLAT 3/8"	4	
	514778	TRUNNION HUB	2	
	07594-012	ROLL PIN 3/16" X 3/4"	2	
	20654-001	SEAL, SHAFT (BLACK)	2	
	530029	RING, RETENTION	2	
	20104-002	SEAL, SHAFT URETHANE (YELLOW)	2	
	513452	BOLT 3/8" NC X 1/4" G5	8	
	515009	DRUM, STEEL	1	
	EM961019	SET SCREW	2	
	530043	MAIN GEAR	1	
	10057-034	KEY, 3/8" SQ X 2.00 STEEL	1	
	EM963057	CAPSCREW HHCS 3/8 X 1-1/2"	4	
	514752	SHAFT, PADDLE	1	
	6109170	WASHER, FLAT 1/2"	2	
	514946	GRATE	1	
	EM924015	PIN, COTTER 3/16 X 1	2	
	6109160	HEX NUT 1/2-13	2	
	6109180	WASHER, LOCK 1/2"	2	
	EM963692	CAPSCREW, 1/2-13 X 1-1/2 HHCS	2	
	EM201537	HANDLE DUMP	1	
	15081	GRIP, DUMP HANDLE	1	
	514752	PADDLE SHAFT	1	
	492584	NUT, LOCK 1/2"	6	
	530142	PADDLE ARM, CENTER ENGINE END	1	
	3043	SCREW, HHC 1/2-13 X 6" G5	2	
	EM200292	INSERT, PADDLE ARM	4	
	530141	PADDLE ARM, ENGINE END	1	
	6109170	WASHER, FLAT 1/2"	6	
	EM200297	U-BOLT, END PADDLES	2	
	530143	PADDLE ARM, CENTER TOW END	1	
	505196	SCREW, 3/8 X 1-1/2 HHCS G5	18	
	EM923023	WASHER, FLAT 5/16"	28	
	25667-001	BLADE, SIDE RUBBER	4	
	25668-001	BLADE, SIDE SCRAPPER	4	
	2105164	NUT, HEX 5/16" NC G5	14	
	EM923343	WASHER, LOCK 5/16"	14	
	530140	PADDLE ARM, TOW END	1	
	33074-001	BLADE, SCRAPPER END	2	
	33017-001	BLADE, RUBBER END	2	



NOTES:

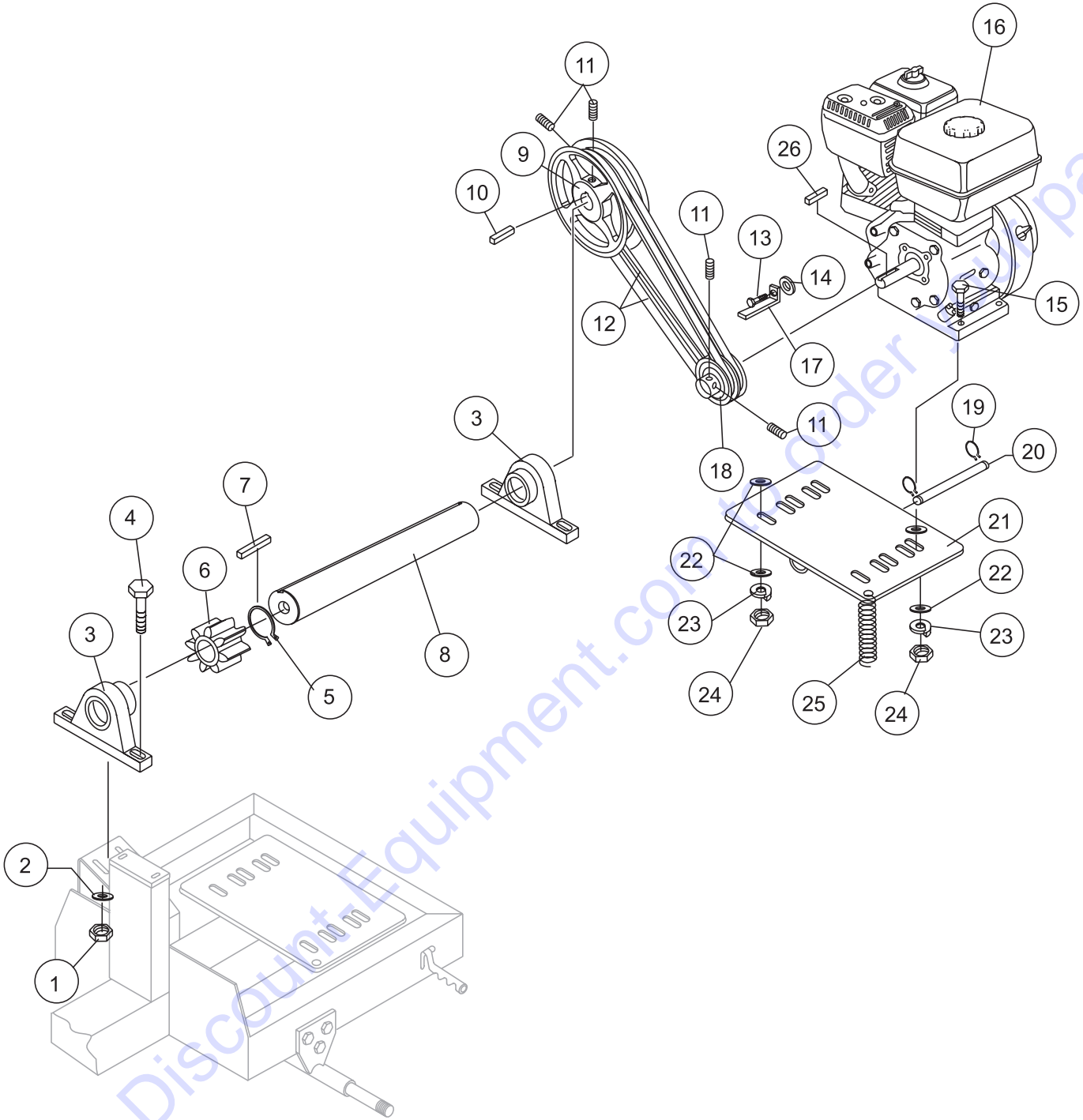
- △ 1 COMPLETE HUB ASSEMBLY INCLUDES ITEMS WITHIN DASHED LINES, AND ALSO INCLUDES ITEMS 1 AND 2.

AXLE ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1#	3469	DUST CAP	2	
2#	29194	LUG NUTS	8	
3	516476	TIRE AND RIM, TOWMASTER II	2	
4	8164	CASTLE NUT 1-20 JAM	2	
5	EM924008	COTTER PIN 1/8" X 1-1/2'	2	
6	EM511159	WASHER, FLAT, .087" THICKNESS	2	
7	EM501299	WASHER, FLAT, .135" THICKNESS	1	
8#	EM903113	BEARING CONE	4	
9#	EM903012	BEARING CUP	4	
10#	EM914288	OIL SEAL	2	
11	EM941306	HUB ASSY., 4-BOLT	2.....	INCLUDES ITEMS W/#
12	514802	AXLE, UNIVERSAL	1	

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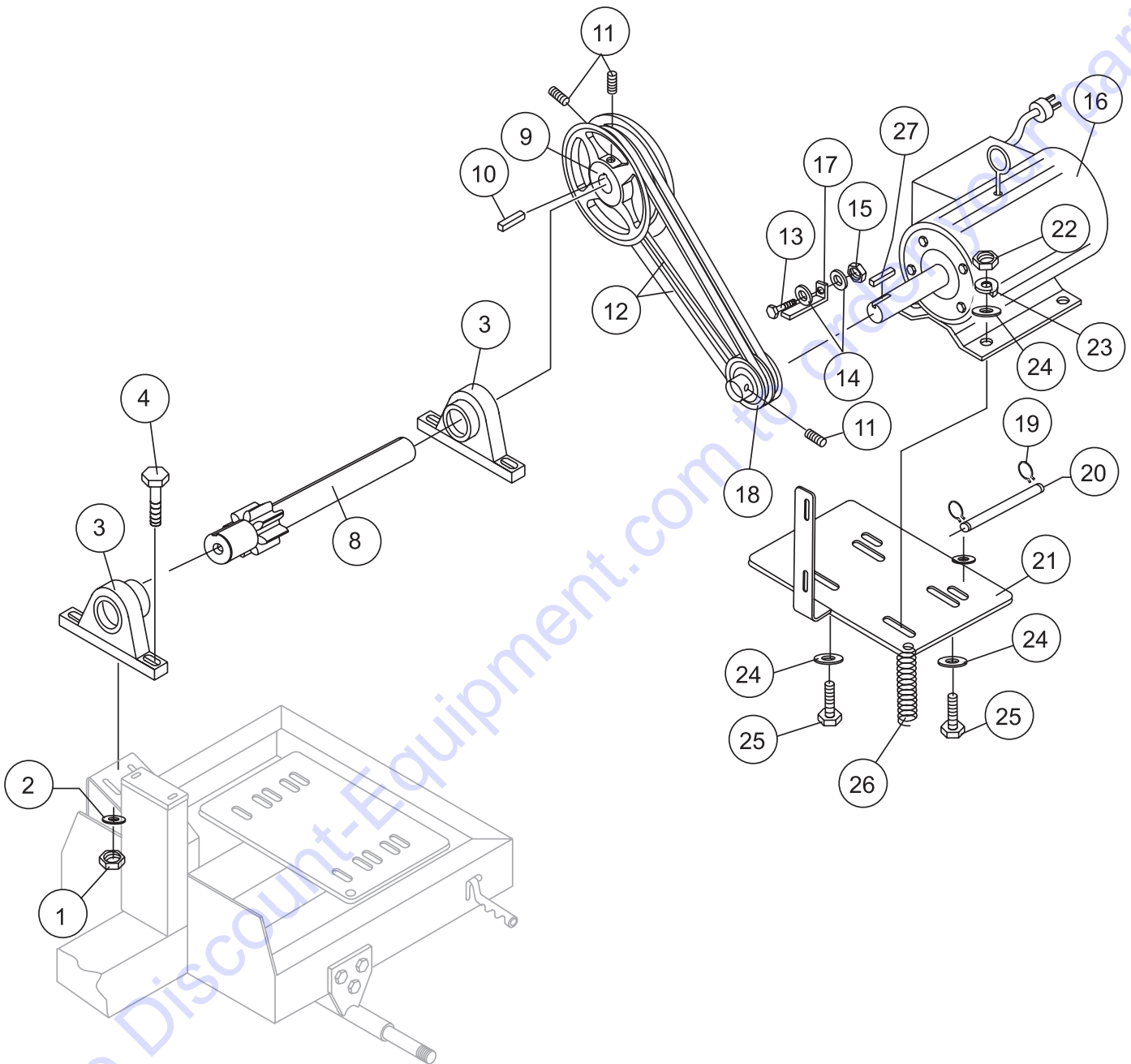
ENGINE ASSY.



ENGINE ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	EM969013	NUT NYLOK 3/8" NC G5	4	
2	3019092	FLAT WASHER 3/8	8	
3	EM905016	PILLOW BLOCK BEARING	2	
4	492378	BOLT 3/8" NC X 1-3/4" G5	4	
5	JISB2804C25	RING, RETAINING	1	
6	513868	PINION GEAR	1	
7	500214	KEY, SQUARE 1/4 X 1/4 X 1-1/2	1	
8	502226	PINION SHAFT	1	
9	492077	PULLEY (LARGE)	1	
10	505084	KEY, 1/4" X 55 MM	1	
11	492467	SCREWSET SCREW, 5/16" NC 3/8"	4	
12	491107	V-BELT, A-32.....	2.....	HONDA GX160, 5.5 HP
12	07055-034	V-BELT, 4L340.....	2.....	HONDA GX240, 8.0 HP
13	503117	BOLT, 3/8" NC X 3" G5	1	
14	508344	WASHER, FLAT 5/16"	1	
15	2105162	SET BOLT ENGINE.....	4.....	HONDA GX160, 5.5 HP
15	492378	BOLT 3/8 X 1-3/4 HHCS G5.....	4.....	HONDA GX240, 8.0 HP
16	GX160UT1HX2	ENGINE, HONDA, 5.5 HP	1	
16	GX240UT1HA2	ENGINE, HONDA, 8.0 HP	1	
17	514985	BELT RETAINER BAR	1	
18	492055	PULLEY, (SMALL).....	1.....	HONDA GX160, 5.5 HP
18	505205	PULLEY, (SMALL).....	1.....	HONDA GX240, 8.0 HP
19	604445	RETAINING RING	2	
20	530454	SHAFT, ENGINE MOUNT	1	
21	530019	ENGINE MOUNTING PLATE	1	
22	EM923023	WASHER, FLAT 5/16"	6	
22	3019092	WASHER, FLAT 3/8"	6	
23	EM923343	WASHER, LOCK 5/16"	4	
23	0166 A	WASHER, LOCK 3/8"	4	
24	2105164	NUT, HEX 5/16"	4	
24	1456	NUT, HEX FINISH 3/8-16	4	
25	EM102014	SPRING, EXTENSION	1	
26	501019	SQ. KEY 3/16" X 45 MM.....	1.....	HONDA GX160, 5.5 HP
26	90745ZE2600	SQ. KEY 6.3 X 6.3 X 43 MM.....	1.....	HONDA GX240, 8.0 HP

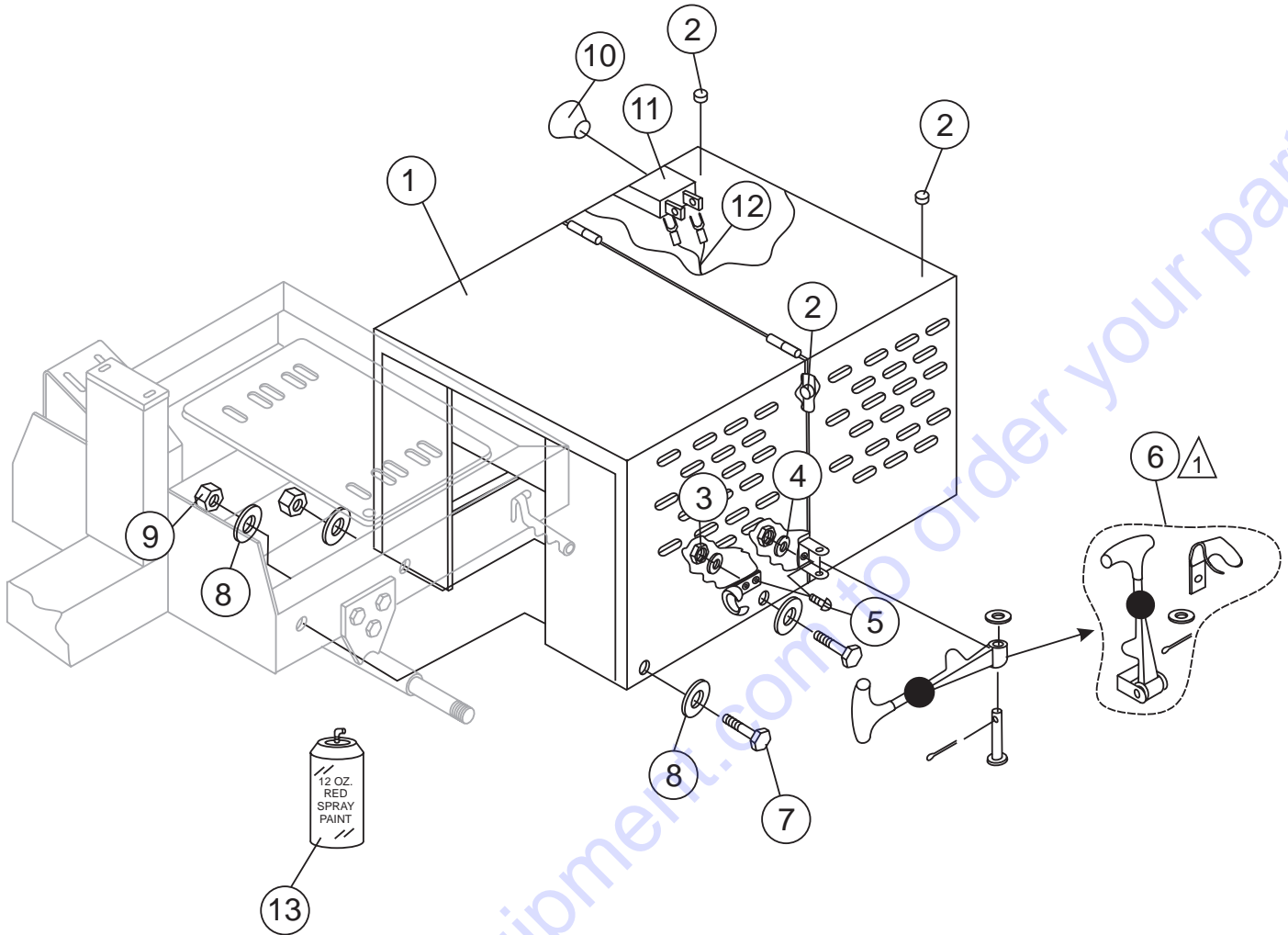
ELECTRIC MOTOR ASSY.



ELECTRIC MOTOR ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	EM969013	NUT NYLOK 3/8" G5	4	
2	3019092	FLAT WASHER 3/8	8	
3	EM905016	PILLOW BLOCK BEARING	2	
4	492378	BOLT 3/8 X 1-3/4" G5	4	
8	20216-001	PINION SHAFT	1	
9	20061-001	PULLEY, (LARGE)	1	
10	500214	KEY, 1/4 X 1/4 X 1-1/2	1	
11	492467	SET SCREW, 5/16" NC 3/8"	3	
12	491112	V-BELT, A-40	2	
13	503117	CAP SCREW 3/8 NC X 3 G5	1	
14	3019092	WASHER, FLAT 3/8"	2	
15	492582	NUT, NYLON 5/16"-18	1	
16	35L229S302	ELECTRIC MOTOR 1.5 HP	1	
17	514985	BELT RETAINER BAR	1	
18	502213	PULLEY, (SMALL)	1	
19	604445	RETAINING RING	2	
20	530454	SHAFT, ENGINE MOUNT	1	
21	530089	ELECTRIC MOTOR MOUNTING PLATE	1	
22	2105164	NUT, HEX 5/16" NC	4	
23	492623	WASHER, LOCK 5/16"	4	
24	EM923023	WASHER, FLAT 5/16"	8	
25	492378	BOLT 3/8" NC X 1-3/4" G5	4	
26	530024	SPRING, TENSION	1	
27	500169	KEY, SQUARE 3/16" X 2"	1	

CABINET ASSY.



NOTES:

- △ COMPLETE LATCH ASSEMBLY INCLUDES ITEMS WITHIN DASHED LINES. ITEMS CANNOT BE PURCHASED SEPARATELY.

CABINET ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	515014	CABINET, ENGINE W/DECALS	1.....	INCLUDES ITEMS W/\$
2	490202	RUBBER PROTECTOR	4	
3\$	13287	LOCK NUT 8-32	6	
4\$	2203	WASHER, FLAT #10	6	
5\$	1307	SCREW PHP 8-32 X 1/2"	6	
6\$	491010	LATCH ASSY., COMPLETE	2	
7	EM963610	CAP SCREW 3/8" NC X 1-1/4 G8	4	
8	3019092	WASHER, FLAT 3/8"	4	
9	EM969013	NUT NYLOK 3/8	4	
10	29174-001	KNOB, MUSHROOM	1	
11	29173-001	SWITCH, PUSH-PULL	1	
12	504135C	WIRE HARNESS	1	
13	RAL3020S	PAINT, SPRAY CAN 12 OZ., RED TRAFFIC	AR	

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