OPERATION MANUAL

MULTIQUIP®

WHITEMAN

MODEL
WM63SLF
PLASTER AND MORTAR MIXER
(MPOWER 177F-BH 9.0 HP GASOLINE ENGINE)

Revision #0 (09/27/22)

To find the latest revision of this publication or associated parts manual, visit our website at:
www.multiquip.com

THIS MANUAL MUST ACCOMPANY THE EQUIPMENT AT ALL TIMES.


WARNING
CANCER &
REPRODUCTIVE HARM
www.P65Warnings.ca.gov
P/N 38707

⚠ 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.

WM63SLF
Plaster and Mortar Mixer

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

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.

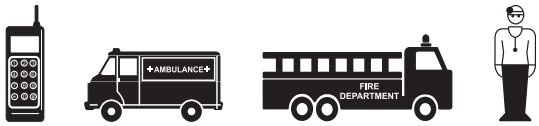
- **ALWAYS** clear the work area of any debris, tools, etc. that would constitute a hazard while the equipment is in operation.
- **ALWAYS** check the equipment for loosened threads or bolts before starting.
- **DO NOT** use the equipment for any purpose other than its intended purposes or applications.

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.

⚠ 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.

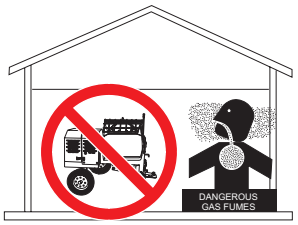
NOTICE

- **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.
- **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

⚠ 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.

FUEL SAFETY

⚠ 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.

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.

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 drum 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.

EMISSIONS INFORMATION

NOTICE

The gasoline engine used in this equipment has been designed to reduce harmful levels of carbon monoxide (CO), hydrocarbons (HC) and nitrogen oxides (NOx) contained in gasoline exhaust emissions.

This engine has been certified to meet US EPA evaporative emissions requirements in the installed configuration.

Attempting to modify or make adjustments to the engine emission system by unauthorized personnel without proper training could damage the equipment or create an unsafe condition.

Additionally, modifying the fuel system may adversely affect evaporative emissions, resulting in fines or other penalties.

Emission Control Label

The emission control label is an integral part of the emission system and is strictly controlled by regulation(s).

The label must remain with the engine for its entire life.

If a replacement emission label is needed, please contact your authorized engine distributor.

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.

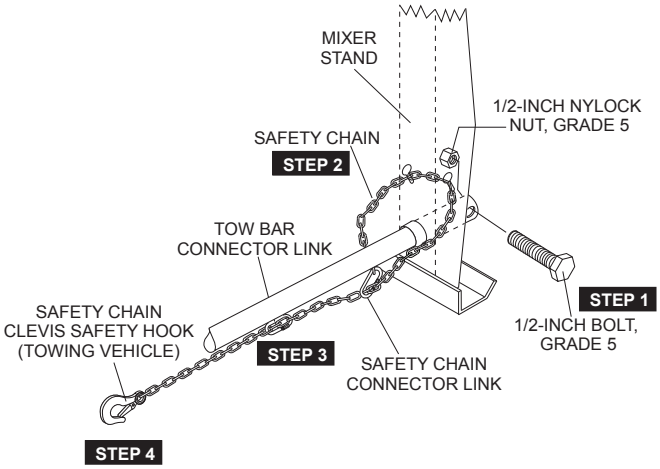


Figure 1. Tow Bar and Safety Chain Installation

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.

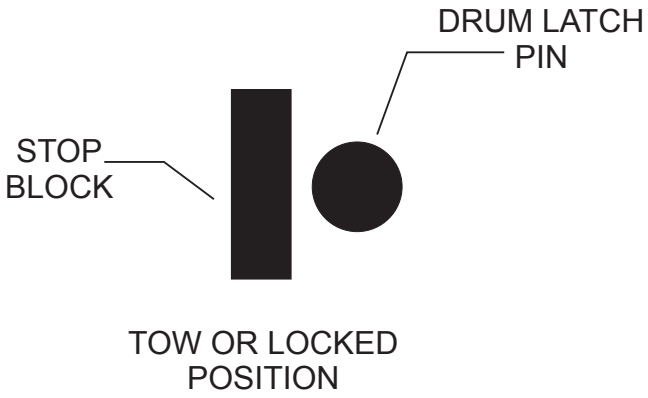


Figure 2. Drum Latch Pin (Tow or Locked Position)

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	**MPower 177F-BH**
Type	4 stroke, OHV, single cylinder tilt 25°
Bore × Stroke	3.00 in. × 2.20 in. (76 mm × 55 mm)
Displacement	16.48 in.^{3} (270 cm^3)
Max. Output	9.0 hp (6.7 kW) @ 3,600 rpm
Torque	93 Nm /68.5 lbf-ft @ 420 rpm
Fuel Tank Capacity	1.58 US gallons (5.3 liters)
Fuel Type	Unleaded
Lube Oil Capacity	1.05 US quart (6.32 liters)
Lubricating System	Splash
Air Cleaner	Dual Element
Speed Control Method	Centrifugal Flyweight Type
Starting Method	Recoil
Ignition System	Thermal Ignition Control
Spark Plug Type	BPR6ES NGK
Spark Plug Gap	0.027 - 0.031 in. (0.7 - 0.8 mm)
Crankshaft Rotation	Counterclockwise
Cooling System	Forced Air
Dimensions (L × W × H)	16.9 × 16.5 × 16.1 in. (429 × 419 × 408 mm)
Dry Net Weight	64.0 lb. (29.0 kg)

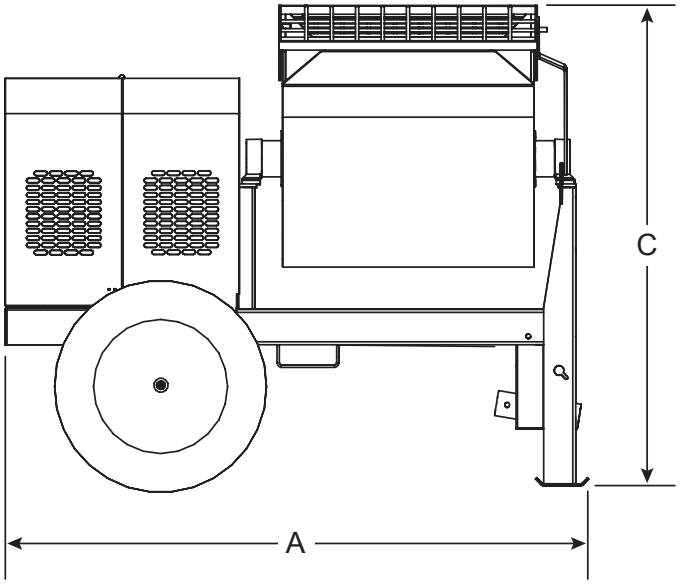
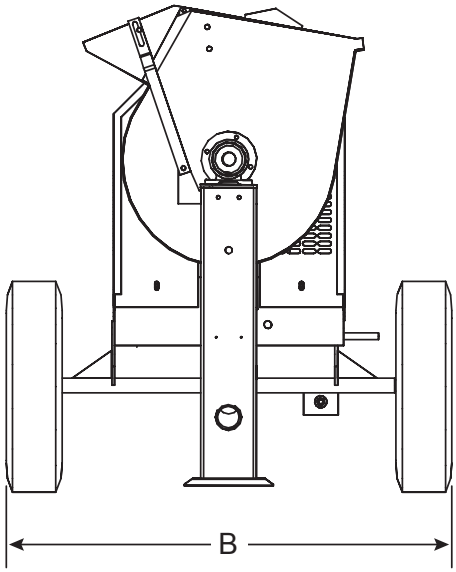


Table 3. Dimensions	
Description	**Dimensions in. (cm)**
Length (w/Tow Bar)	67 in. (170 cm)
Width	50 in. (127 cm)
Height	56 in. (142 cm)



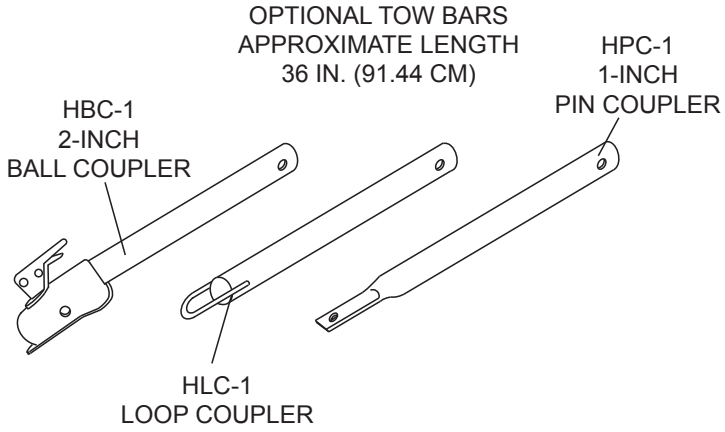


Figure 3. Dimensions

APPLICATION

The MQ Whiteman WM63SLF mixer (drum capacity of 6.3 cu. ft./178 liters) is shipped completely assembled and has been factory tested and is 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 to 3-1/2 bags.

POWER PLANT

The mixer is powered by a MPower 177F-BH air-cooled, 4-stroke OHV, single cylinder, gasoline engine. Refer to Table 2 for specific engine information.

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 MPower Engine Owner's manual furnished with the engine.

OPTIONAL TOW BARS

The mixer can be configured for use with various types of tow bars (ball, loop or pin). See Figure 4. Contact the MQ sales department for the desired tow bar.

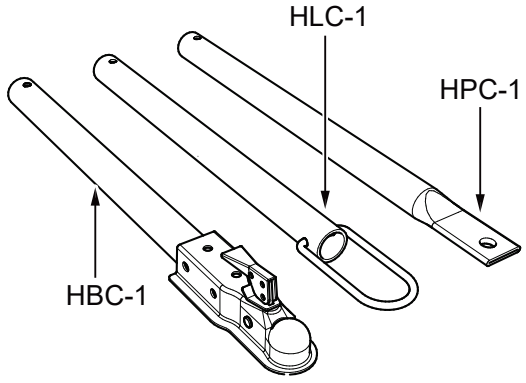


Figure 4. Optional Tow Bars

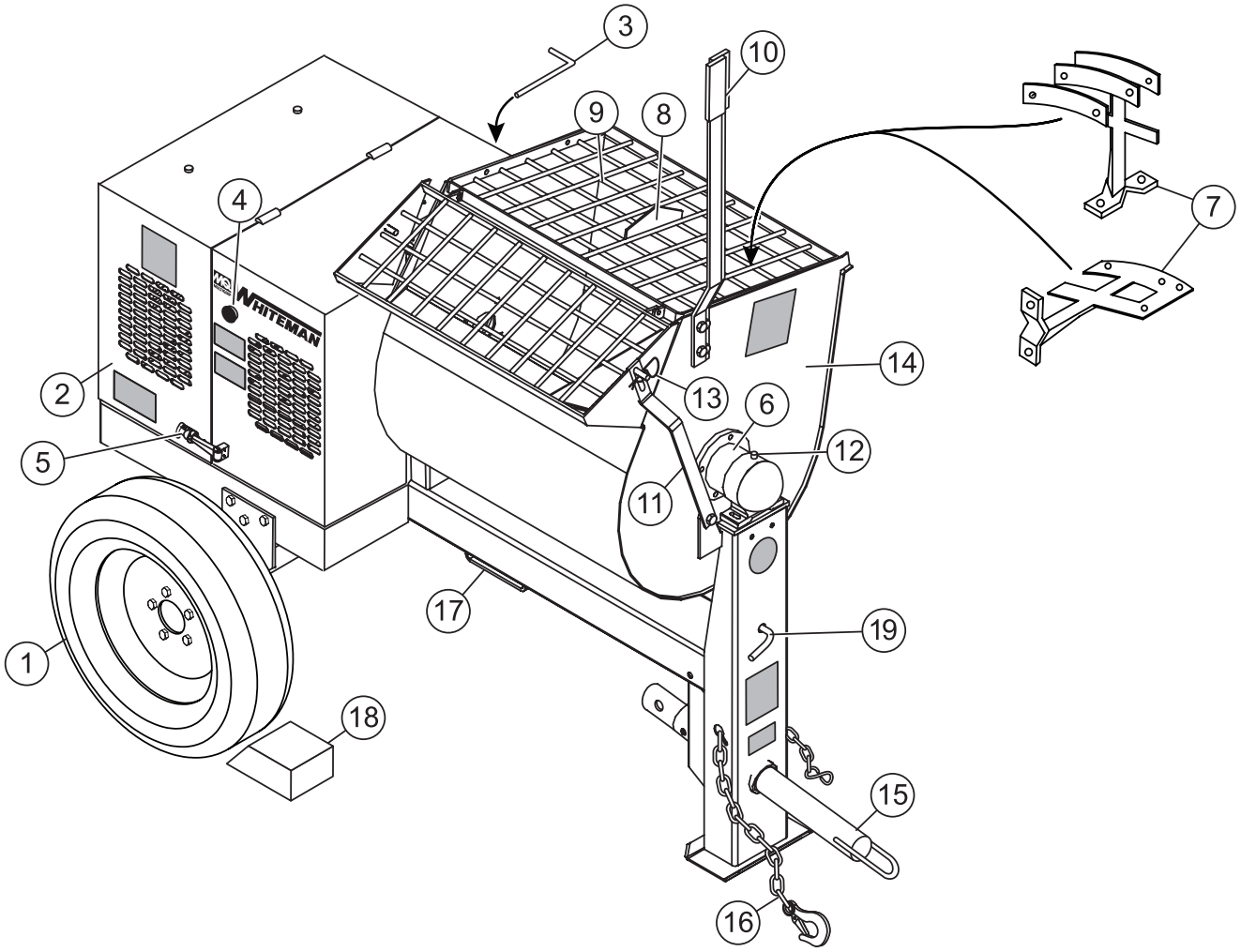


Figure 5. Mixer Components

Figure 5 illustrates the basic components and controls of the WM63SLF mixer.

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.

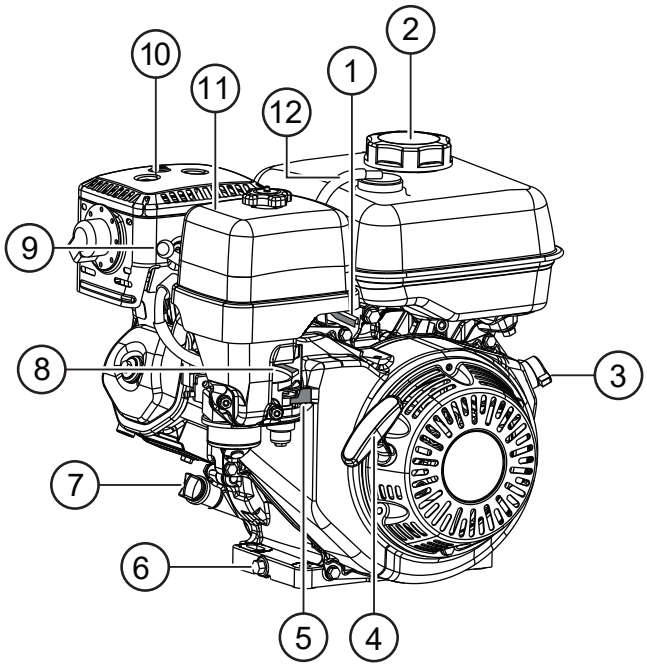


Figure 6. Engine Components

INITIAL SERVICING

The engine (Figure 6) 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.
2. **Fuel Filler Cap/Fuel Tank** — Remove this cap to add unleaded gasoline to the fuel tank. Make sure cap is tightened securely. **DO NOT** overfill. For additional information refer to engine owner's manual..

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.

3. **Engine ON/OFF Switch** — ON position permits engine starting, OFF position stops engine operations.
4. **Recoil Starter (pull rope)** — Manual-starting method. Pull the starter grip until resistance is felt, then pull briskly and smoothly.
5. **Fuel Valve Lever** — OPEN to let fuel flow, CLOSE to stop the flow of fuel.
6. **Oil Drain Bolt** — Remove this bolt to remove oil from the engine's crankcase.
7. **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 6
8. **Choke Lever** — Used in the starting of a cold engine, or in cold weather conditions. 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 when **hot**!
11. **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.
12. **Vapor Recovery Valve** — Removes vapor from the fuel tank. Part of the EVAP system.

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.

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 7) and wipe it clean.

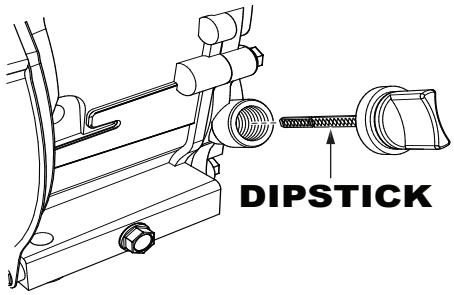


Figure 7. Engine Oil Dipstick (Removal)

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 8), fill to the edge of the oil filler hole with the recommended oil type (Table 5). Maximum oil capacity is 1.05 quarts (6.32 liters).

NOTICE

Reference engine manufacturer's manual for specific servicing instructions.

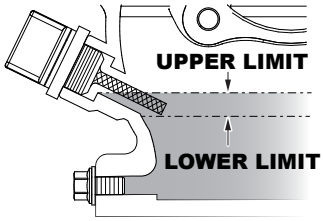


Figure 8. Engine Oil Dipstick (Oil Level)

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 9) 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.

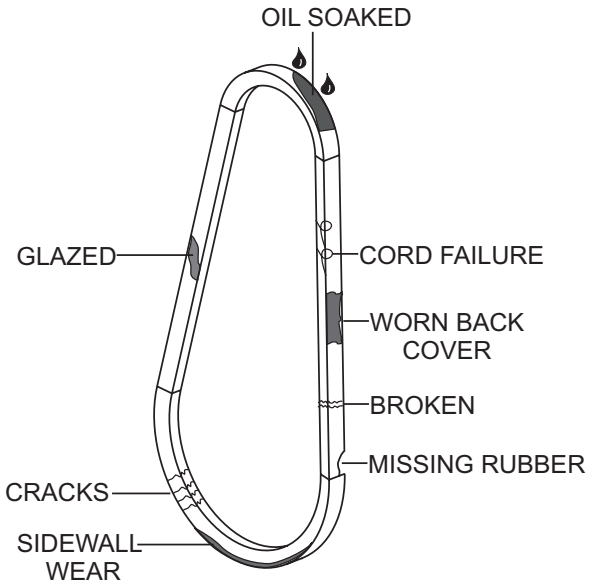


Figure 9. V-Belt Inspection

START/STOP SWITCH

This unit has been equipped with a start/stop switch (Figure 10), which should be tested every time the unit is started.

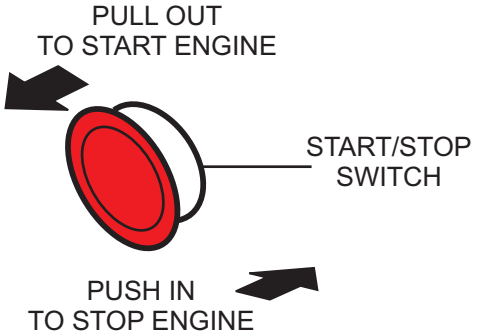


Figure 10. Start/Stop Switch

BLADE CHECK

Check for worn or defective paddle blades (Figure 11). Make sure that all blades are adjusted properly. See blade adjustment procedure (Figure 13) in this manual. Replace all defective or damaged blades immediately.

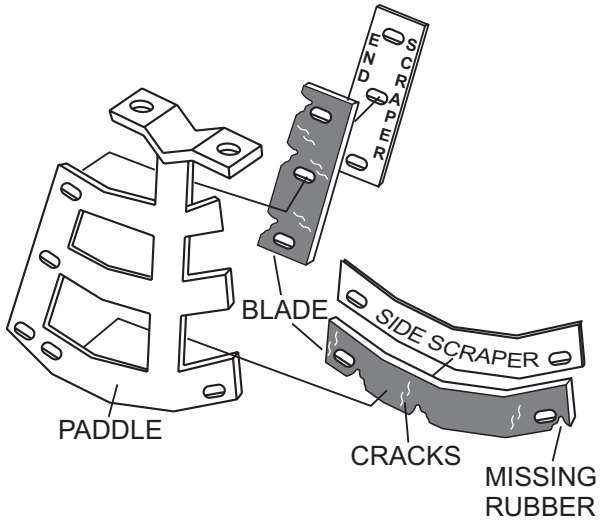


Figure 11. Blade Inspection

GREASE FITTINGS (DUMPING MECHANISM)

Check the drum bearing bracket grease fittings (Figure 12) 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.

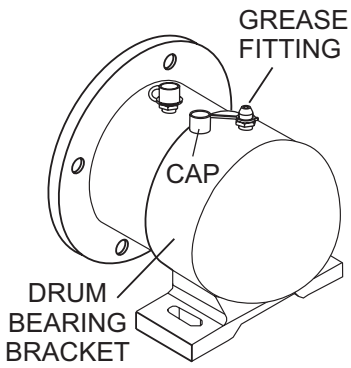


Figure 12. Grease Fittings Drum Bearing Bracket

PADDLE BLADE ADJUSTMENT

Adjust paddles as shown in Figure 13.

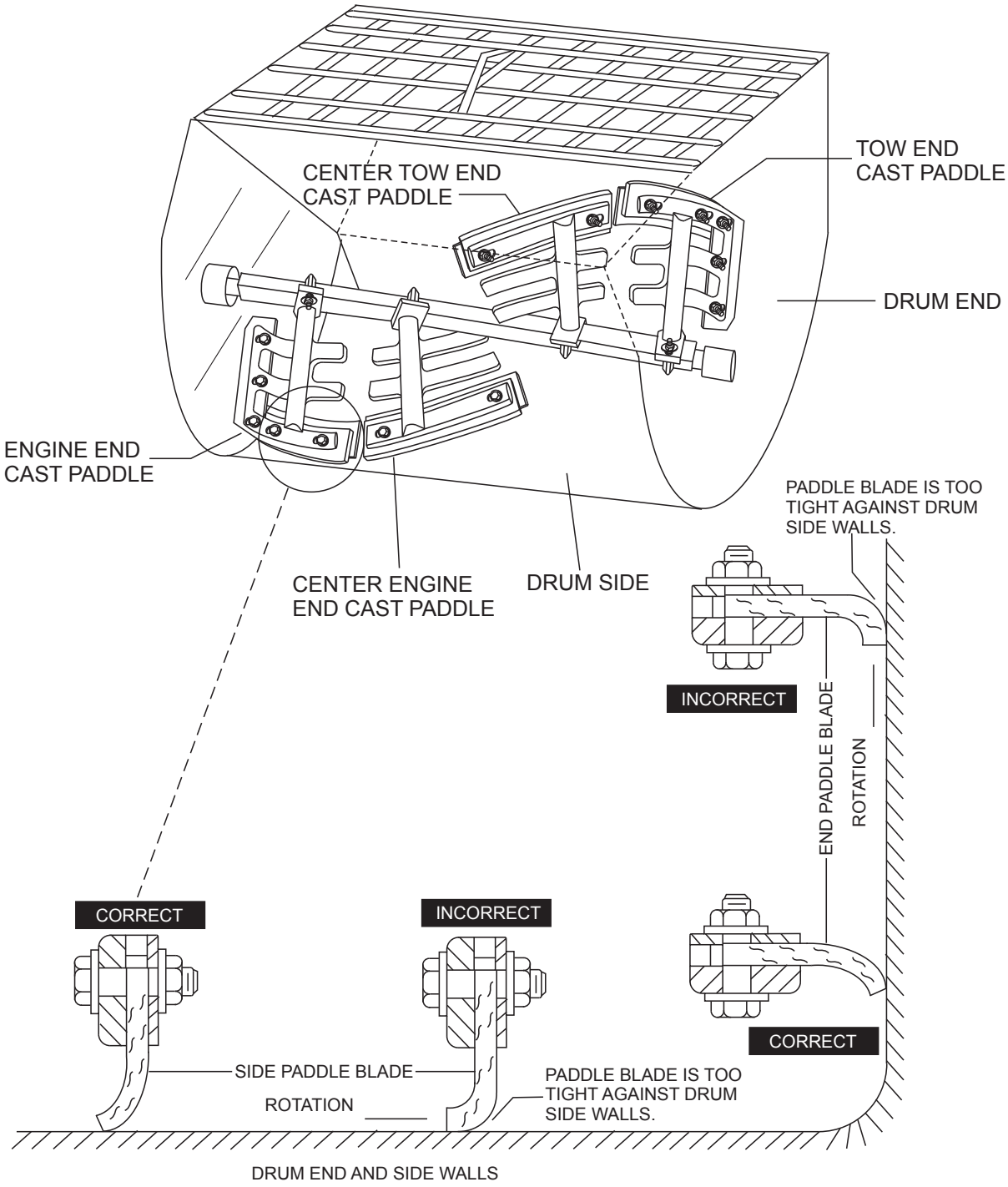


Figure 13. Paddle Blade Adjustment

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 5 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.

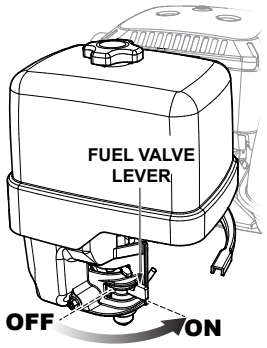


Figure 14. Fuel Shut-Off Lever

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

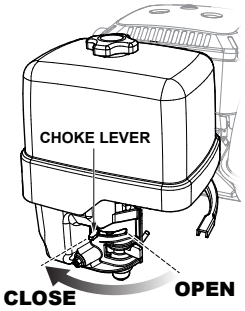


Figure 15. Choke Lever

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

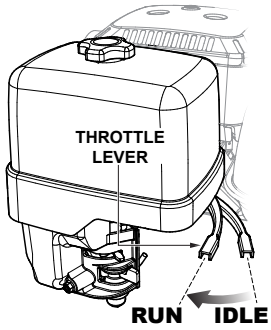


Figure 16. Throttle Lever

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

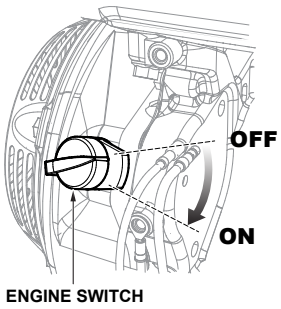


Figure 17. Engine On/Off Switch

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.

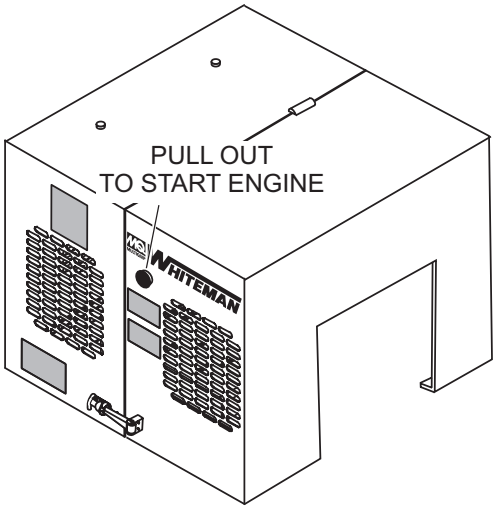


Figure 18. Start/Stop Switch

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

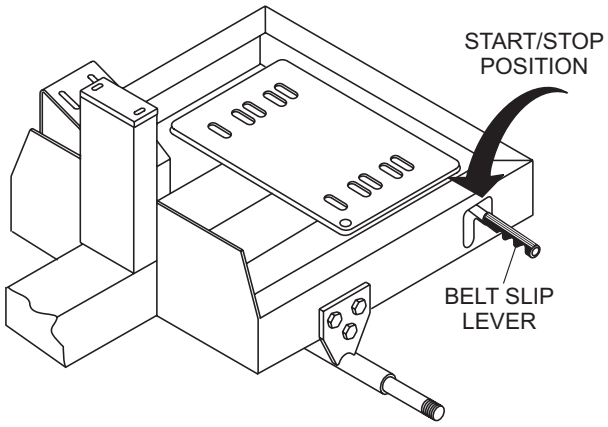


Figure 19. Belt Slip Lever (Start/Stop Position)

⚠ 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.

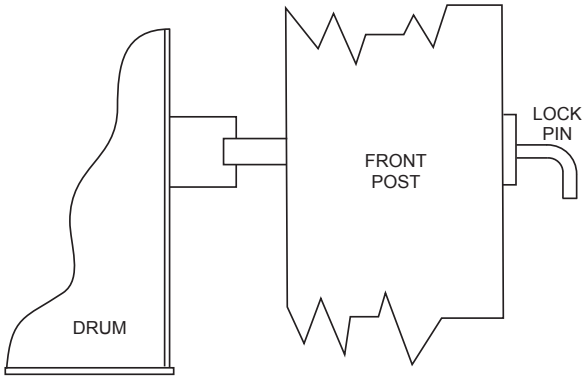


Figure 20. Drum Lock Pin (Side-View)

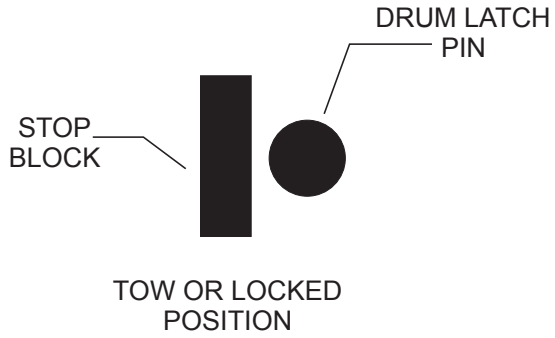


Figure 21. Drum Lock Pin (Right Position)

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

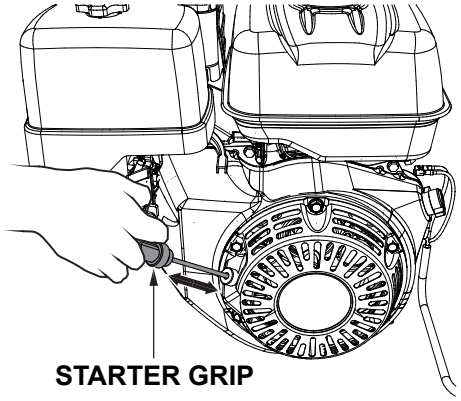


Figure 22. Starter Grip

8. 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.

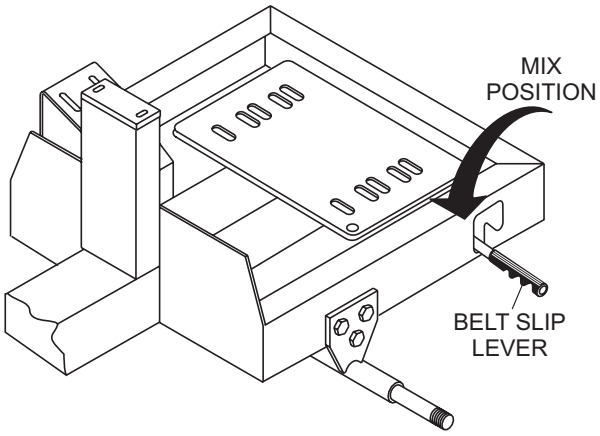


Figure 23. Belt Slip Lever (Mix Position)

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.

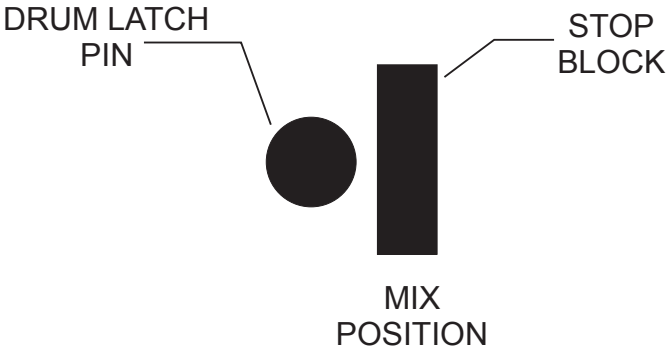


Figure 24. Drum Lock Pin (Left Position)

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.

Figure 25. Stand Clear of Dump Handle

STOPPING THE MIXER

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.

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	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 MPower Shop Manual for service procedures.

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

MAINTENANCE

Perform scheduled maintenance procedures as defined in Table 6 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.

WIRING

Inspect the entire mixer for bad or worn electrical wiring or connections. Replace wiring immediately if any wiring or connections are exposed (insulation missing).

FUEL STRAINER (IF EQUIPPED)

1. Thoroughly clean the area around the fuel tank cap.

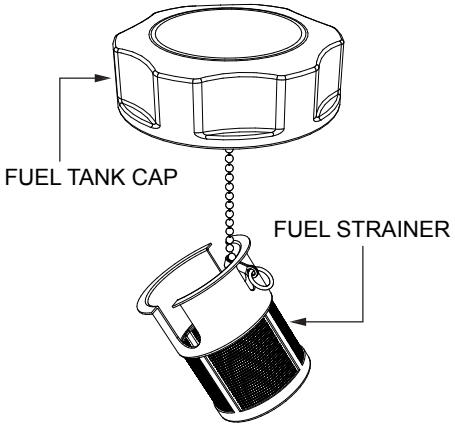


Figure 26. Fuel Strainer

2. Remove the fuel tank cap from the fuel tank.
3. Remove, inspect and clean the fuel strainer (Figure 26) with solvent.

SPARK PLUG

Remove and clean the spark plug (Figure 27). Adjust the spark plug gap to 0.027–0.031 in. (0.7–0.8 mm). This unit has electronic ignition, which requires no adjustments.

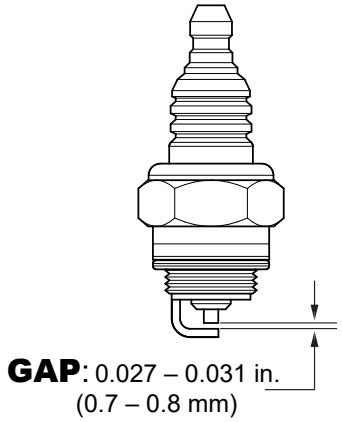


Figure 27. Spark Plug Gap

ENGINE OIL

> ***NOTICE***
>
> **ALWAYS** drain the engine oil while the oil is **warm**.

1. Unscrew the oil filler dipstick (Figure 28) from its holder.

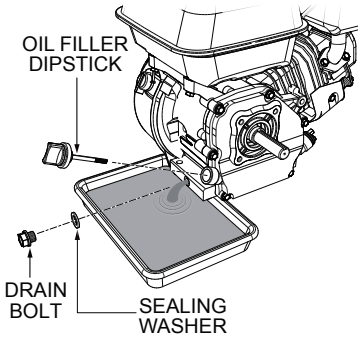


Figure 28. Draining Engine Oil

2. Remove the oil drain bolt and sealing washer and allow the oil to drain into a suitable container (Figure 28).
3. Reinstall the drain bolt with sealing washer and tighten securely.
4. Replace the engine oil with the recommended oil type listed in Table 5. **DO NOT** overfill. SeeTable 2 for engine oil capacity.

ENGINE AIR CLEANER

1. Remove the air cleaner cover and foam filter element as shown in Figure 29.

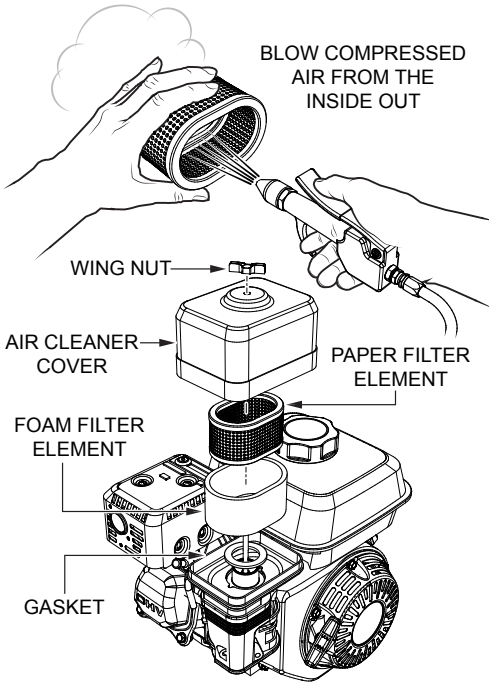


Figure 29. Engine Air Cleaner

2. To remove dirt, tap the paper filter element (Figure 29) several times on a hard surface, 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.
3. Clean the 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

To avoid the risk of fire or an explosion, **NEVER** use gasoline as a cleaning solvent.

SPARK ARRESTER CLEANING

Clean the spark arrester every 6 months or 100 hours of operation.

1. Remove the three 4 mm screws securing the exhaust deflector (Figure 30) to the muffler protector, then remove the exhaust deflector.

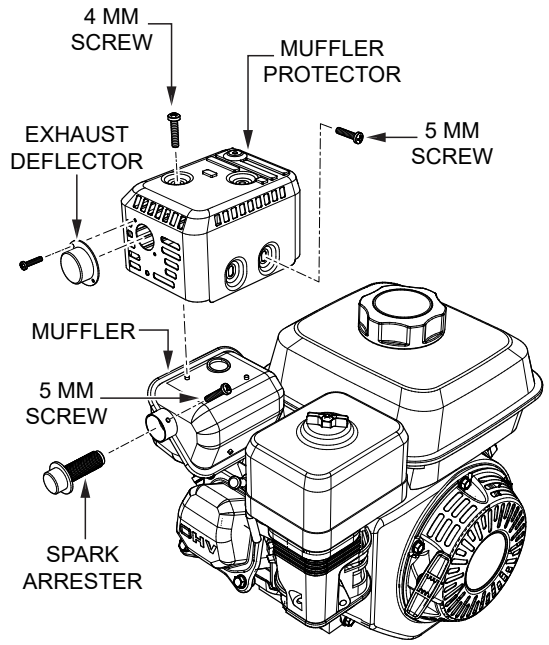


Figure 30. Spark Arrester

2. Remove the four 5 mm screws from the muffler protector (Figure 30), then remove the muffler protector.
3. Carefully remove carbon deposits from the spark arrester screen (Figure 31) with a wire brush.

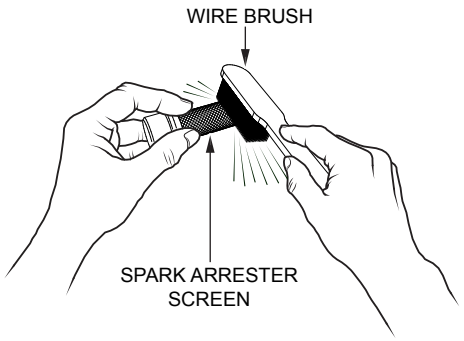


Figure 31. Cleaning the Spark Arrester

4. If the spark arrester has breaks or holes or is otherwise damaged, replace it with a new one.
5. Reinstall the spark arrester and muffler protector in reverse order of disassembly.

DRUM HEAD SEALS

There is 1 set of drum head seals (Figure 32) 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.

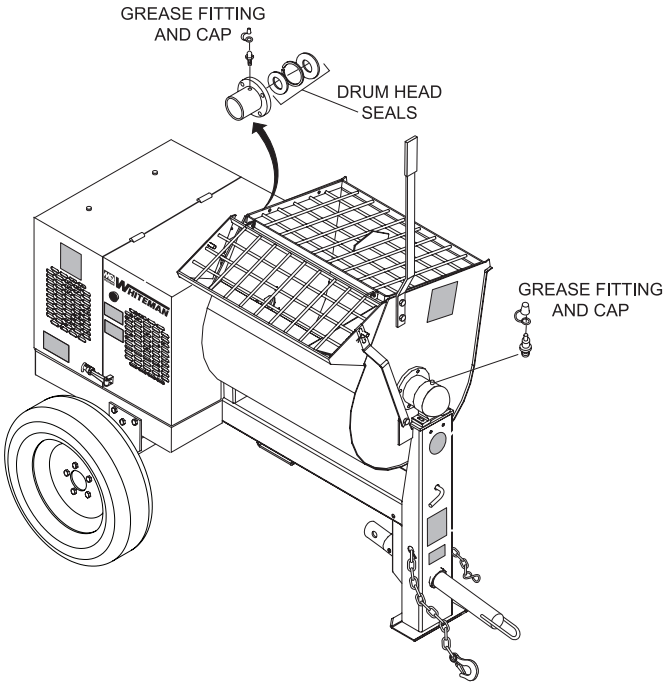


Figure 32. Grease Fittings (Drum Head Seals)

DRUM BEARING BRACKET LUBRICATION

There is 1 set of drum bearing brackets (Figure 33) 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.

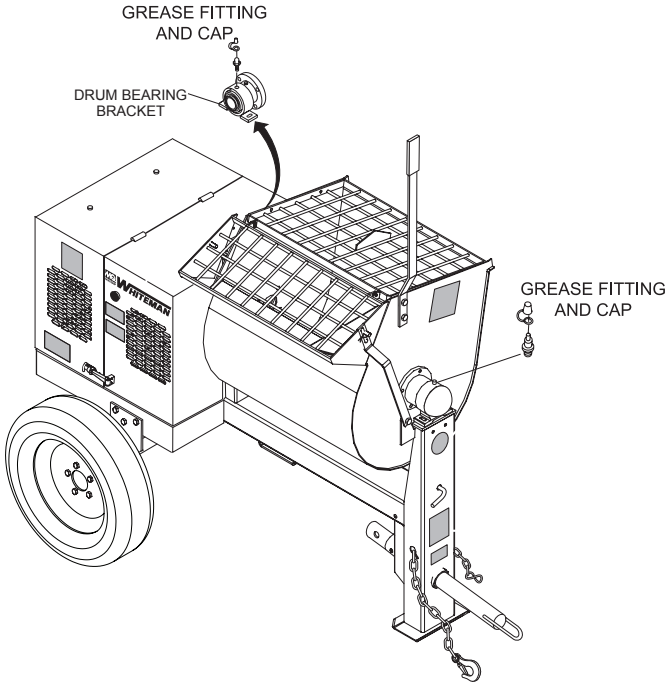


Figure 33. Grease Fittings (Dumping Mechanism)

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 34) that will require lubrication. Lubricate the grease fitting for each countershaft bearing every 40 hours of operation using any grade lithium base grease.

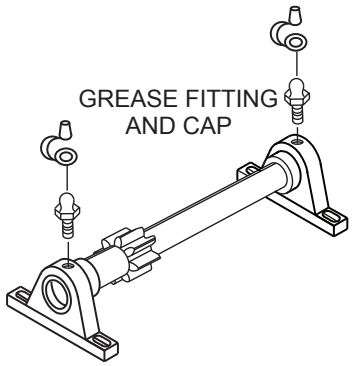


Figure 34. Grease Fittings (Countershaft)

WHEEL BEARINGS

1. After every 3 months of operation, remove the hub dust cap and inspect the wheel bearings (Figure 35). 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.").

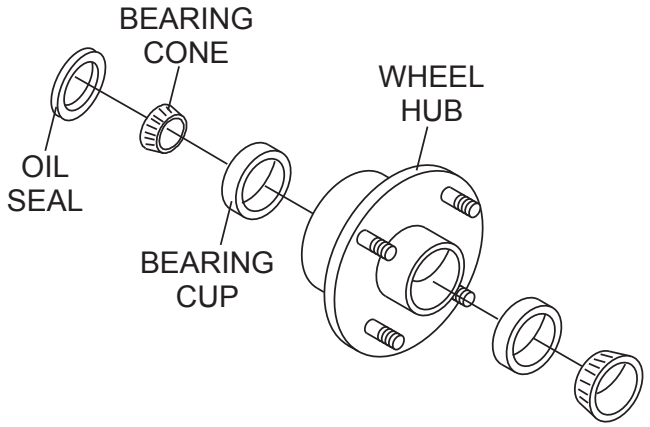


Figure 35. Wheel Hub and Bearings

2. Fill the wheel hub (Figure 35) 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 36).

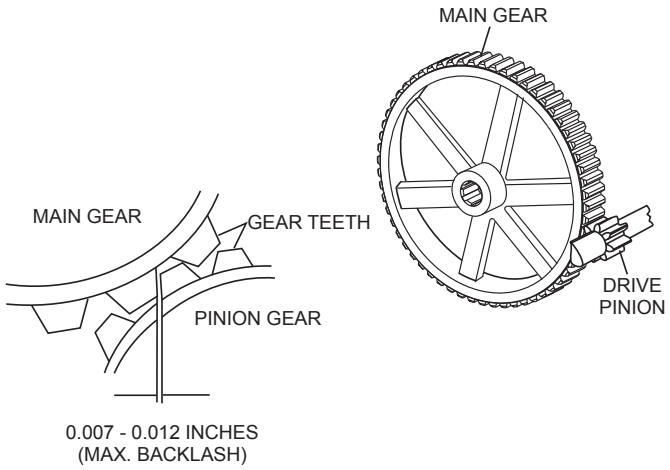


Figure 36. Drive Pinion and Main Gear (Backlash)

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.

4. If gear teeth are not contacting properly (Figure 37), adjust pillow block to correct the problem.

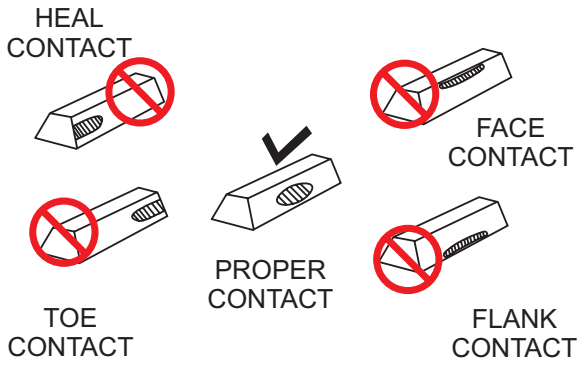


Figure 37. Gear Teeth Alignment

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

Table 7. 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 38. **DO NOT** torque the wheel lug nuts all the way down. Tighten each lug nut in 3 separate passes as defined by Figure 38.

Table 8. 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.

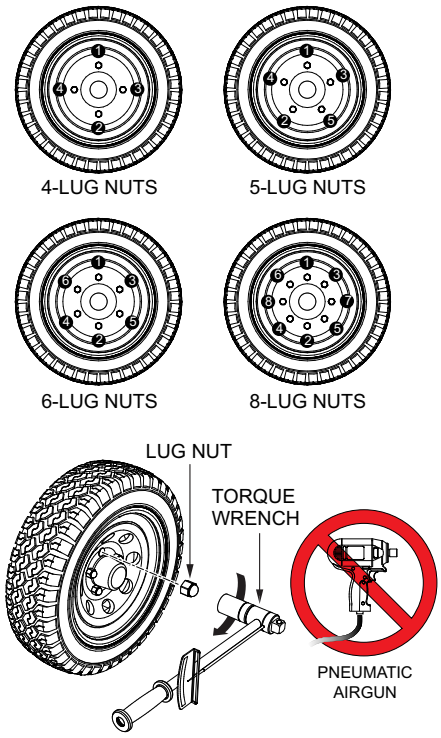


Figure 38. Wheel Lug Nuts Tightening Sequence

SUSPENSION

The rigid type axle and associated hardware (Figure 39) should be periodically inspected for signs of excessive wear, elongation of bolt holes, and loosening of fasteners. Replace all damaged parts immediately.

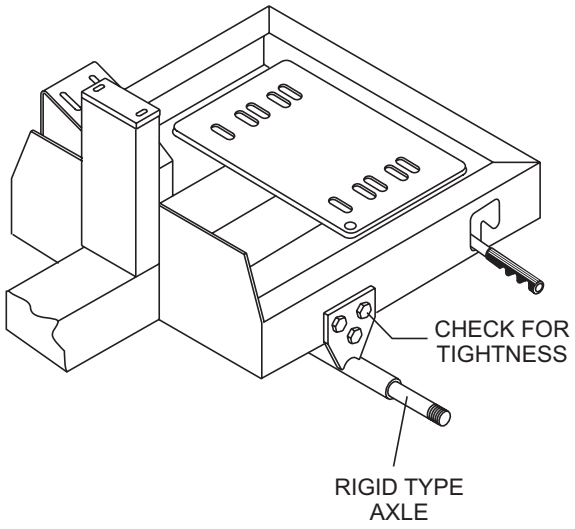


Figure 39. Axle Support Components

MIXER CLEANING

1. **ALWAYS** disconnect the spark plug wire before cleaning the inside of the drum. 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 (Figure 40).

Figure 40. 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 41).

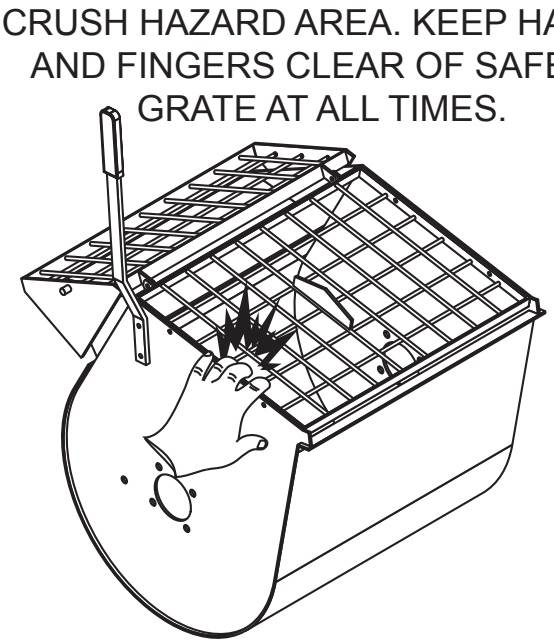


Figure 41. Safety Grate (Crush Hazard)

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

LONG-TERM 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 gasoline in the carburetor is completely consumed.
- Completely drain the oil from the crankcase and refill with fresh oil.
- Remove the spark plug, pour 2–3 cc of SAE 30 oil into the cylinder and crank slowly to distribute the oil.
- Slowly rotate the engine a few times with the starter rope and install a new plug.
- Slowly pull out the starter rope and stop at the compression point.
- Clean the entire mixer and engine compartment.
- Clean the drum of all debris and foreign matter.
- Clean all external parts of the mixer with a cloth.
- Cover the mixer and place it a clean, dry area where it will be protected from harsh elements.

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 is 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 (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.

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.

OPERATION MANUAL

HERE'S HOW TO GET HELP

PLEASE HAVE THE MODEL AND SERIAL NUMBER ON-HAND WHEN CALLING

UNITED STATES

Multiquip Inc.

(310) 537- 3700
6141 Katella Avenue Suite 200
Cypress, CA 90630
E-MAIL: mq@multiquip.com
WEBSITE: www.multiquip.com

CANADA

Multiquip

(450) 625-2244
4110 Industriel Boul.
Laval, Quebec, Canada H7L 6V3
E-MAIL: infocanada@multiquip.com

UNITED KINGDOM

Multiquip (UK) Limited Head Office

0161 339 2223
Unit 2, Northpoint Industrial Estate,
Globe Lane,
Dukinfield, Cheshire SK16 4UJ
E-MAIL: sales@multiquip.co.uk

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