

# OPERATOR/SERVICE MANUAL

Model: SM1200, SM2000



CHAMPION<sup>®</sup> Mortar Mixer



**STONE CONSTRUCTION EQUIPMENT, INC.**  
A 100% EMPLOYEE-OWNED AMERICAN MANUFACTURER  
**WORLD CLASS PRODUCTS**

SILLO MIXER



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# Limited Warranty

The Manufacturer warrants that products manufactured shall be free from defects in material and workmanship that develop under normal use for a period of 90 days for concrete vibrators and electric pumps, one year for Rhino<sup>®</sup>, Bulldog<sup>®</sup>, WolfPac Mixers<sup>™</sup>, trowels, Stompers<sup>®</sup>, saws, forward plates, engine powered pumps, Lift Jockey<sup>™</sup>, Mortar Buggy<sup>™</sup> and 6 months for all other products from the date of shipment. The foregoing shall be the exclusive remedy of the buyer and the exclusive liability of the Manufacturer. Our warranty excludes normal replaceable wear items, i.e. gaskets, wear plates, seals, O-rings, V-belts, drive chains, clutches, etc. Any equipment, part or product which is furnished by the Manufacturer but manufactured by another, bears only the warranty given by such other manufacturer. (The Manufacturer extends the warranty period to "Lifetime" for the drum bearings and seals for the mortar mixers, and agrees to furnish, free of charge, the bearings and seals only upon receipt of the defective parts. The warranty is two years for eccentric bearings on the forward plate compactors, mortar and plaster mixer drums, trowel gearboxes, three years on the Bulldog trench mixer microprocessor (ECIB) and five years on the Bulldog trench mixer eccentric bearings.) A Warranty Evaluation Form must accompany all defective parts. Warranty is voided by product abuse, alterations, and use of equipment in applications for which it was not intended, use of non-manufacturer parts, or failure to follow documented service instructions. The foregoing warranty is exclusive of all other warranties whether written or oral, expressed or implied. No warranty of merchantability or fitness for a particular purpose shall apply. The agents, dealer and employees of Manufacturer are not authorized to make modification to this warranty, or additional warranties binding on Manufacturer. Therefore, additional statements, whether oral or written, do not constitute warranty and should not be relied upon.

The Manufacturer's sole responsibility for any breach of the foregoing provision of this contract, with respect to any product or part not conforming to the Warranty or the description herein contained, is at its option (a) to repair, replace or refund such product or parts upon the prepaid return thereof to location designated specifically by the Manufacturer. Product returns not shipped prepaid or on an economical transportation basis will be refused (b) as an alternative to the foregoing modes of settlement - the Manufacturer's dealer to repair defective units with reimbursement for expenses, except labor, and be reviewed with the Manufacturer prior to repair. A Warranty Evaluation Form must accompany all warranty claims.

Except as set forth hereinabove and without limitation of the above, there are no warranties or other affirmations which extends beyond the description of the products and the fact hereof, or as to operational efficiency, product reliability or maintainability or compatibility with products furnished by others. In no event whether as a result of breach of contract or warranty or alleged negligence, shall the Manufacturer be liable for special or consequential damages including but not limited to: Loss of profits or revenues, loss of use of the product or any associated product, cost of capital, cost of substitute products, facilities or services or claims of customers.

No claim will be allowed for products lost or damaged in transit. Such claims should be filed with the carrier within fifteen days.

Effective January 2004.

# FOREWORD



These instructions include:

- Safety regulations
- Operating instructions
- Maintenance instructions

- **These instructions have been prepared for operation on the construction site and for the maintenance engineer.**
- These instructions are intended to simplify operation of the machine and to avoid malfunctions through improper operation.
- Observing the maintenance instructions will increase the reliability and service life of the machine when used on the construction site and reduce repair costs and downtimes.
- **Always keep these instructions at the place of use of the machine.**
- **Only operate the machine as instructed and follow these instructions.**
- **Observe the safety regulations as well as the guidelines of the civil engineering trade association. Observe the safety rules for the operation of road mixers and compactors and the pertinent regulations for the prevention of accidents.**
- The manufacturer is not liable for the function of the machine when used in an improper manner and for other than the intended purpose.
- Operating errors, improper maintenance and the use of incorrect operating materials are not covered by the warranty.
- The above information does not extend the warranty and liability conditions of business of the manufacturer.

# WARRANTY INFORMATION

*Location of warranty information:*

1. Information on S/N tag.
2. Information on engine tag.
3. Information on S/N tag - if applicable.
4. Date you purchased machine.
5. Dealer machine was purchased from.
6. Information on battery and battery warranty card.

## STONE CONSTRUCTION EQUIPMENT, INC.

P.O. Box 150  
 HONEOYE, NEW YORK 14471  
 PHONE: (800) 888-9926  
 FAX: (585) 229-2363

## SILo MIXER

Please enter the following data. This will help expedite any service or warranty work.

1. Machine Type: \_\_\_\_\_

Machine S/N: \_\_\_\_\_

2. Engine Type: \_\_\_\_\_

Engine S/N: \_\_\_\_\_

3. VIN: \_\_\_\_\_

4. Purchase Date: \_\_\_\_\_

5. Dealer/Distributor Information:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Phone #: \_\_\_\_\_

Fax # \_\_\_\_\_

6. Battery Manufacturer: \_\_\_\_\_

Battery Type: \_\_\_\_\_

Battery S/N: \_\_\_\_\_





**SILO MIXER**





# 1. INTRODUCTION

# INTRODUCTION



**SILO MIXER**

## INTRODUCTION

---

Congratulations on your purchase of the Silo Mixer! You've made an excellent choice! Stone mixers have been specifically designed as the ideal machine for the professional contractor. The Silo Mixer is ergonomically engineered to optimize operator interface with the total machine--it's really "user friendly". Besides good visibility, you'll find that the controls are exactly in the right places for maximum comfort. And, it's real convenient to monitor all the consumables--gas and hydraulic oil levels.

Our common sense approach to servicing is a valuable benefit on the SILO MIXER. Thanks to our modular design, everything that needs servicing is located behind one of the easy-access cowl.

The following instructions were compiled to provide you information on how to obtain long and trouble free use of the mixer. Periodic maintenance of the mixer is essential. Read the manual in its entirety and follow the instructions carefully. Refer to the Technical Data Section to familiarize yourself with machine controls and components. Failure to do so may injure yourself or a bystander.

## INTENDED USE

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These machines are designed to carry out the function of mixing mortar, plaster, fireproofing, refractory, grout and other small grained Portland cement products.

Use of the machine in any other way is considered contrary to the intended use will void the warranty.

### Danger Zone

While the machine is in use unauthorized persons must remain outside the danger zone.

## GENERAL DESCRIPTION

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Your new SM1200 or SM2000 mixer comes standard with the following features:

### Patented Automatic Guard Lifter

Lifts the drum guard as the drum is tilted to prevent the mix from being poured through the guard and causing a build up on it. The guard and guard lifter system is designed for your safety and convenience.

### Quadruple Shaft Seal

Provides a life long urethane seal system that completely isolates the sealed ball bearings in the drum trunnions from the mix.

### Power Blend Paddle System

Adds a new dimension to the mixing action. The sharper angle at which the blades enter the mix divides, separates and recombines in addition to the normal folding and extruding actions. The blades "cut" the mix, rather than "plow it", resulting in a more lateral movement and less energy consumption. This cutting action minimizes the unproductive rolling action common to other mixers. The six paddles with longer blades ensure a thorough mix in the minimum time.

### Fiber Reinforced Rubber Blades

Provides a complete drum wipe for the life of the mixer. Fiber reinforced blades have superior tear strength and resist cuts and wear from the most demanding of mixes.

## High Dump

The 2 lift cylinders used on the SM2000 and the single cylinder used on the SM1200 dump the drum effortlessly. Hydraulic cylinders enable an innovative high dump system to discharge into wheelbarrows, buggies, pumps, and virtually any mix tub. The dump system allows for a full discharge of mix while providing a lower, more convenient charge height.

## Leg Height Adjustment

The SM2000 features four and the SM1200 features three adjustable legs providing stability in an A-frame design. As the legs extend downward they also move out for greater stability at increased heights. No outriggers are required. The adjustable legs also offer height adjustment for leveling and variable drum discharge heights.

## The One-Piece Cowl

The strong one-piece clamshell design that provides protection and optimum airflow for the engine. The cowl is lockable for theft protection and allows the operator access to start and control the engine without opening.

## Drums

Drums rotate on sealed-for-life bearings. Drum is of heavy duty steel construction with seam-welded support plates to prevent ingress of water. The drum is also machined on its outer face to ensure an excellent surface finish.

## Engine and Hydraulics

The engine is a high quality 13hp Honda with a cyclone air cleaner and low oil shutdown to protect the engine from the harshest environments.

The hydraulic drive system is a hydrostatic open-loop system that incorporates a pressure relief that protects the hydraulic system without stalling the engine. The mixers' paddles can be run at any speed by adjusting the engine RPM's.

The hydraulic tank is a baffled, large 20-gallon reservoir for cooler running an longer life of hydraulic components. Tank is also removable for ease of service. A sight gauge is provided for accessible monitoring of hydraulic oil level. A screw-on filter element is used to protect the system against dirt and contaminants. A pressurized breather/filler cap is conveniently located to allow easy fill of the tank.

A directional control valve with flow control provides continuous power to the system while ensuring constant dump speed in all operating conditions. Valve controls are conveniently located at the front and rear of the machine. Ergonomically designed controls operate the same way no matter whether you are at the front or rear of the machine.

The hydraulic pump is a high quality Eaton gear pump.

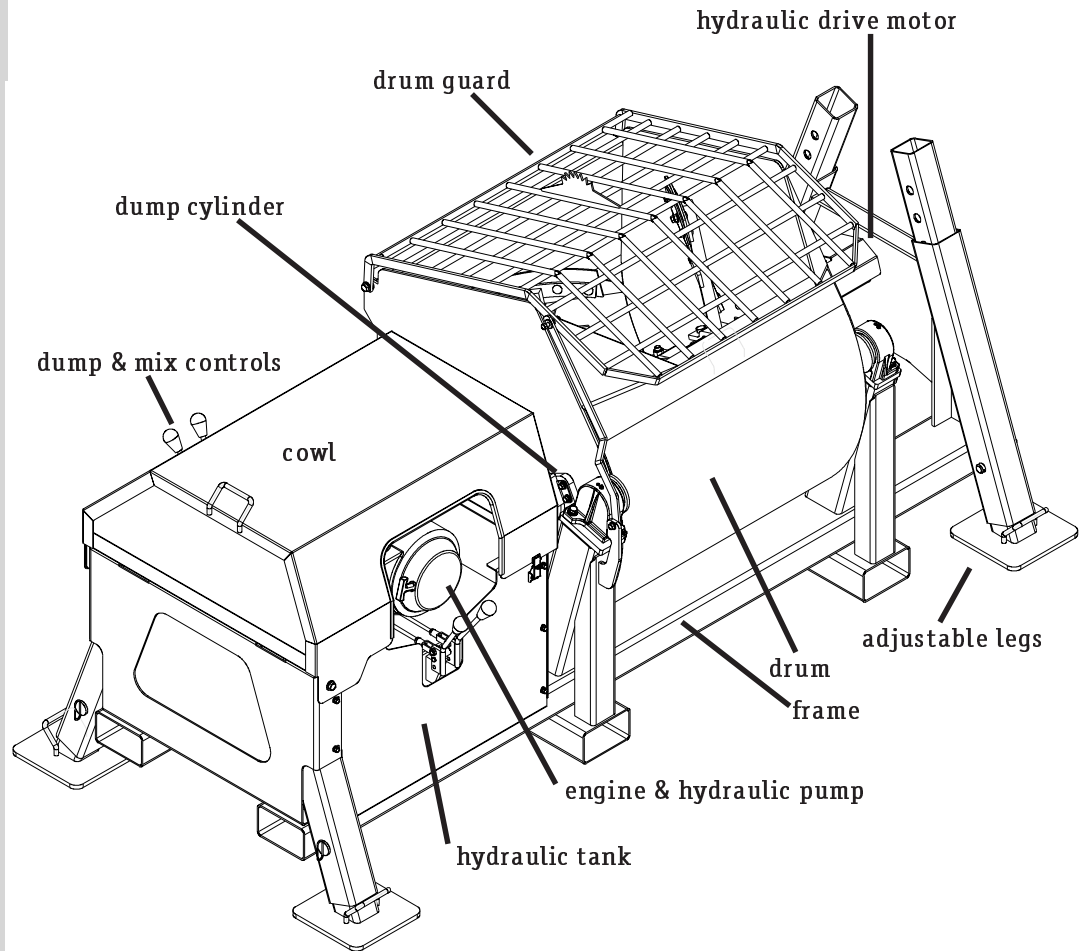
The motor is a high torque White gerotor motor with enough torque to get through the stiffest of mixes. The motor also has reverse action to clear jams.

Hydraulic hoses and fittings are high quality genuine Parker Parts backed by an unbeatable leak free warranty.



# INTRODUCTION

# MACHINE DIAGRAM



## SILO MIXER





**SILO MIXER**



## **2. TECHNICAL DATA**

# TECHNICAL DATA



## STONE SILO MIXER SPECIFICATIONS

Specification	Model	
	SM1200	SM2000
Operating Weight	1850 lb (839 kg)	2300 lb (1043 kg)
Batch Capacity - Bags	3 - 4 bags	6 - 7 bags
Batch Capacity	12 cuft (0,34 cum)	20 cuft (0,57 cum)
Total Volume	15 cuft (0,43 cum)	21 cuft (0,59 cum)
LXWXH	100" X 51.5" X 50" (254 X 131 X 127)cm	107.5" X 51.5" X 52.5" (273 X 131 X 133,5)cm
LXWXH (Legs Fully Extended)	100" X 60" X 62" (254 X 152,5 X 157,5)cm	107.5" X 74" X 82.5" (273 X 188 X 210)cm
Discharge Height	23" - 35" (58,5cm - 89cm)	26" - 56" (66cm - 142cm)
Charge Height	43" - 55" (109cm - 140cm)	42" - 72" (107cm - 183cm)
Hydraulic Tank Capacity	20 gal (76 liter)	20 gal (76 liter)
Engine	13hp Honda (9,7 kw)	13hp Honda (9,7 kw)

SILO MIXER



## TECHNICAL DATA



### Engine Specifications

<b>Engine Type</b>	Single Cylinder, 4-Cycle, Air Cooled Gasoline
<b>Engine Make</b>	Honda
<b>Engine Model</b>	GX390
<b>Power</b>	13hp (9,7kW)
<b>Operating Speed /Idle Full RPM</b>	1400/3600 (no load) +/- 100
<b>Air Filter</b>	Cyclone
<b>Fuel Type</b>	Unleaded Gasoline (minimum 86 Octane)
<b>Fuel Tank Capacity</b>	1.7Gallons (6,5 Liters)

### LUBRICATION SPECIFICATIONS

	Type	Quantity
<b>Engine Crankcase</b>	See Engine Manual	1.16 Quarts (1.1 Liters)
<b>Hydraulic System</b>	Mobilfluid 424 (VI-152) 55CST @ 40° c 9.3 CST c 100° c	20 Gallons (76 Liters)
<b>Grease Fittings</b>	Mobilgrease XHP 222 (NLGI 2EP lithium complex)	3-4 Ounces (90-120 Milliliters)

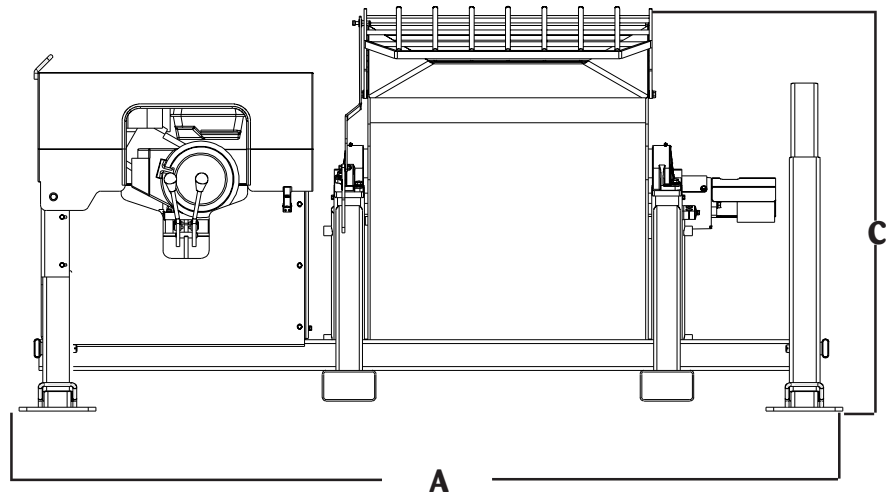
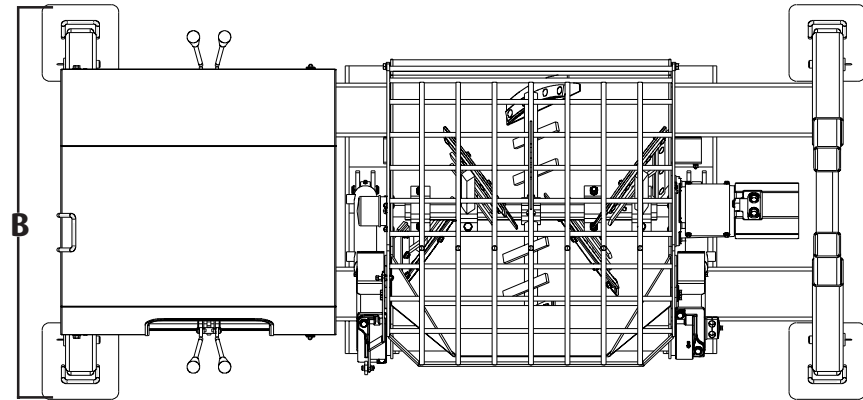
### MACHINE SOUND LEVEL TEST

<b>Machine Type</b>	Silo Mixer SM1200/SM2000
<b>Sound Level Meter Calibration Date</b>	May 26, 2005
<b>Meter Type</b>	Simpson Model 886-2 Type 2
<b>Test Date</b>	December 19, 2005
<b>Test Conditions</b>	
Temperature	26° F
Ambient Sound	dba fast mode
Soil Condition	Silts and clays
Moisture Limit	Approximately equal to 50%
Engine Speed	3,600 RPM
Frequency	4,000 RPM
Test Site	Honeoye, New York USA
Sound Level at Operator Position	dba 95

SILO MIXER

# TECHNICAL DATA

## MACHINE DIMENSIONS



Dimensions	A	B	C
SM1200 L x W x H (cm)	100" (254)	x 51.5" x 131	x 50" x 127
SM2000 L x W x H (cm)	107.5" (273)	x 51.5" x 131	x 52.5" x 133,5)
SM1200 L x W x H (cm) With Legs Fully Extended	100" (254)	x 60" x 152.5	x 62" x 157,5)
SM2000 L x W x H (cm) With Legs Fully Extended	107.5" (273)	x 74" x 188	x 82.5" x 210)

**SILo MIXER**

# MACHINE OPERATOR CONTROLS

# TECHNICAL DATA

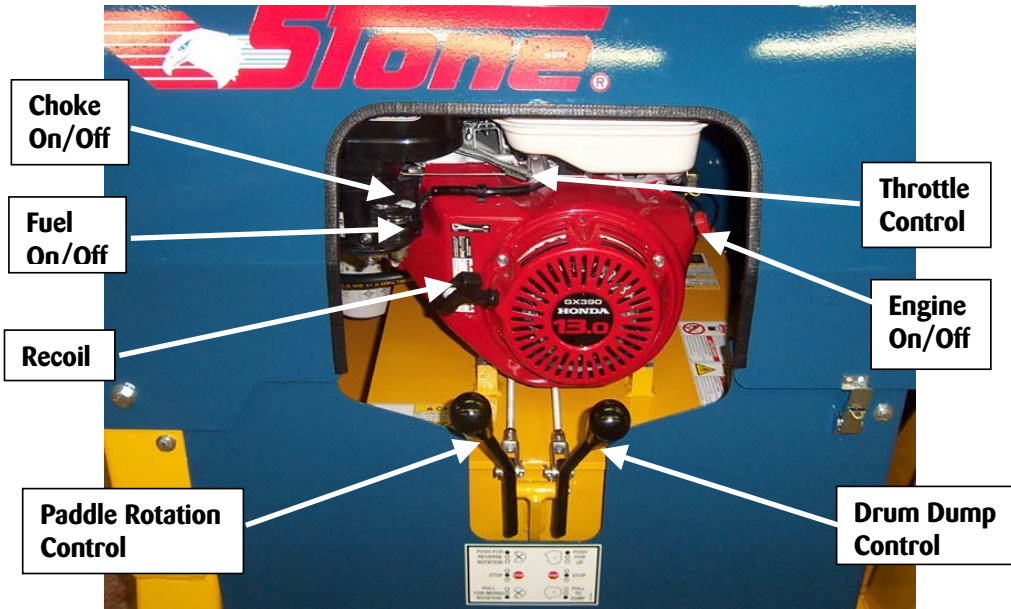


Figure 2 - Drum Discharge Side

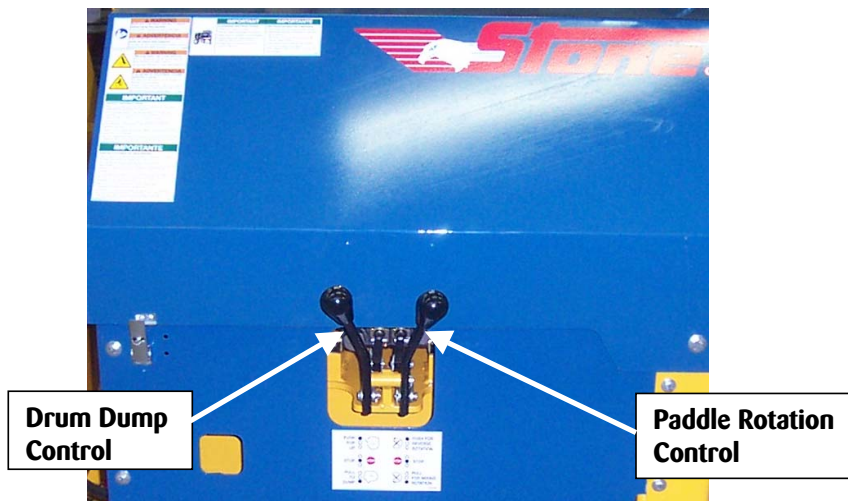


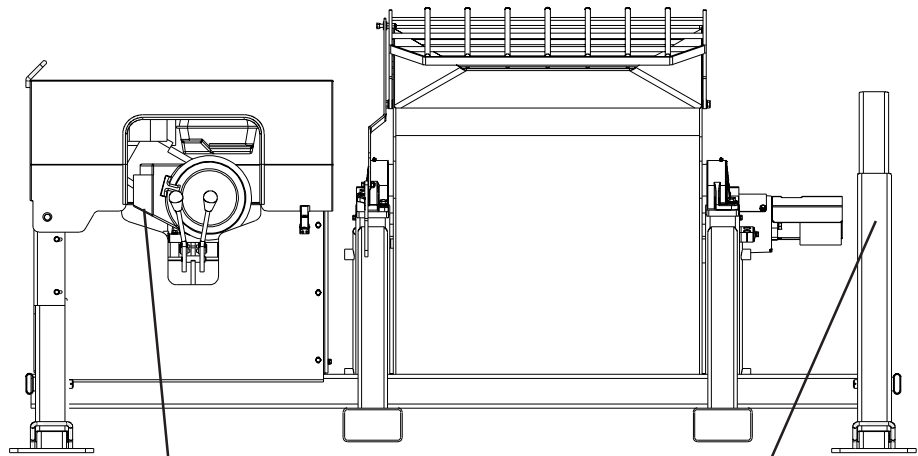
Figure 1 - Drum Charge Side

SILO MIXER

# TECHNICAL DATA

# PIN & PLATE LOCATION

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Engine Plate

Serial Number Plate



SILO MIXER





## **SAFETY USE**

These machines are designed to carry out the function of mixing mortar, plaster, fireproofing, refractory, grout and other small grained Portland cement products.

If used correctly they will provide an effective and safe means of compaction and meet the appropriate performance standards.

It is essential that the operator of the machine is adequately trained in its safe operation, be authorized to operate it, and have sufficient knowledge of the machine to ensure that it is in full working order before being put to use.



## **3. HEALTH & SAFETY**

## Rear View - Decal Placement

Before using this equipment, study this entire manual to become familiar with its operation. Do not allow untrained or unauthorized personnel, especially children, to operate this equipment. Use only factory authorized parts for service.

When warning decals are destroyed or missing, contact the Manufacturer immediately at 1-800-888-9926 for replacement. For the safety of your self and others, it is imperative that the following rules are observed. Failure to do so may result in serious injury or death.

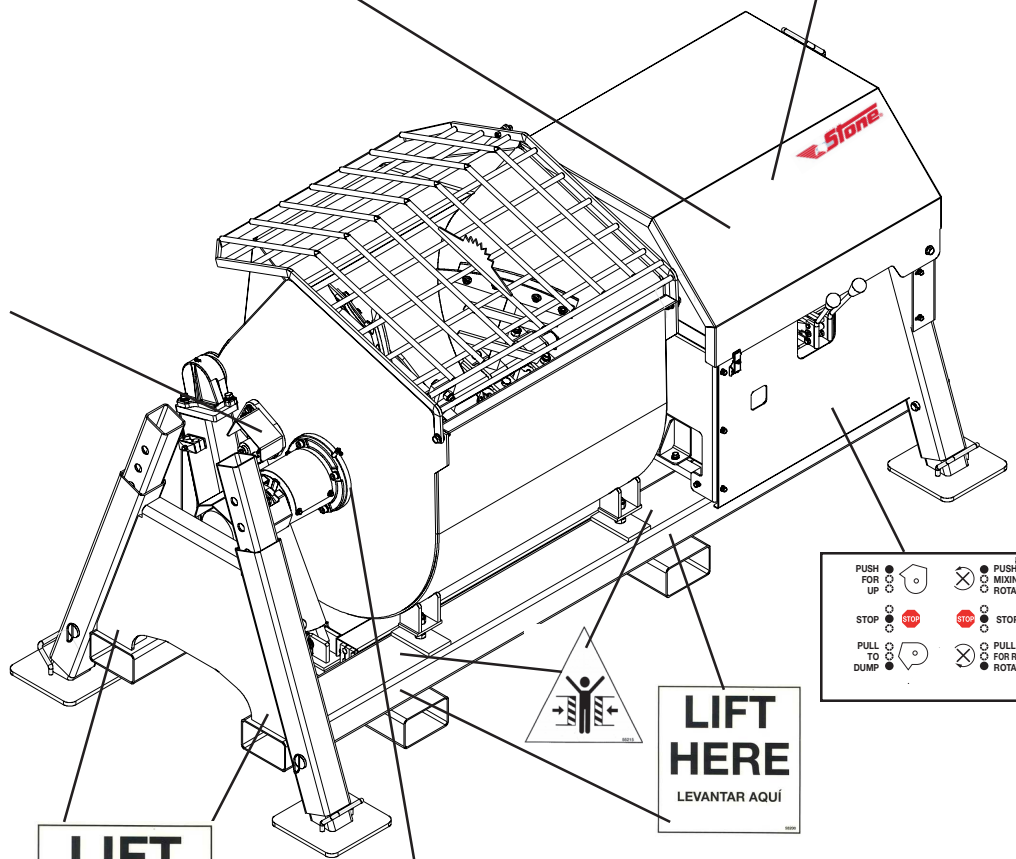
For ordering, refer to *Decal Identification* in Parts Manual.

	<p><b>IMPORTANT</b></p> <p>Read and understand the instructions and warnings on all labels before using this equipment. Failure to do so may result in serious injury or death.</p> <p><b>IMPORTANT</b></p> <p>Las instrucciones y advertencias en todas las etiquetas deben leerse y entenderse antes de utilizar este equipo. El no hacerlo puede resultar en lesiones graves o la muerte.</p>	<p><b>WARNING</b></p> <p>Moving parts can crush and cut. Do not operate with hands near or in contact with any moving parts. Keep hands clear of auger or augers. Engaged with electric motor, disengaged stop.</p> <p><b>ADVERTENCIA</b></p> <p>Las partes en movimiento pueden aplastar y cortar. No opere con las manos cerca de las partes móviles o en contacto con ellas. Mantenga las manos alejadas del eje de la tolva o tolvas. Envolvido con motor eléctrico, desenchufe. En estado de parada, desenchufe.</p>
	<p><b>IMPORTANT</b></p> <p>Read and understand the instructions and warnings on all labels before using this equipment. Failure to do so may result in serious injury or death.</p> <p><b>IMPORTANT</b></p> <p>Las instrucciones y advertencias en todas las etiquetas deben leerse y entenderse antes de utilizar este equipo. El no hacerlo puede resultar en lesiones graves o la muerte.</p>	<p><b>WARNING</b></p> <p>Moving parts can crush and cut. Do not operate with hands near or in contact with any moving parts. Keep hands clear of auger or augers. Engaged with electric motor, disengaged stop.</p> <p><b>ADVERTENCIA</b></p> <p>Las partes en movimiento pueden aplastar y cortar. No opere con las manos cerca de las partes móviles o en contacto con ellas. Mantenga las manos alejadas del eje de la tolva o tolvas. Envolvido con motor eléctrico, desenchufe. En estado de parada, desenchufe.</p>

	<p><b>IMPORTANT</b></p> <p><b>CLEANING INSTRUCTIONS</b></p> <ul style="list-style-type: none"> <li>Keep drum guard closed.</li> <li>Always keep guard lifter connected.</li> <li>Keep drum in upright, mixing position.</li> <li>Spray mixer with water before mix dries to remove accumulation.</li> <li>Rotate drum to dump position to remove debris.</li> </ul>	<p><b>IMPORTANTE</b></p> <p><b>INSTRUCCIONES DE LIMPIEZA</b></p> <ul style="list-style-type: none"> <li>Mantenga cerrada la guarda del tambor.</li> <li>Mantenga siempre conectado el elevador de la guarda.</li> <li>Mantenga el tambor en la posición de mezcla, hacia arriba.</li> <li>Para retirar la acumulación de mezcla rocíe el mezclador con agua.</li> <li>Para retirarla rote el tambor a la posición de vaciado.</li> </ul>
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SM2000 Only



**LIFT HERE**  
LEVANTAR AQUÍ

SM2000 Only

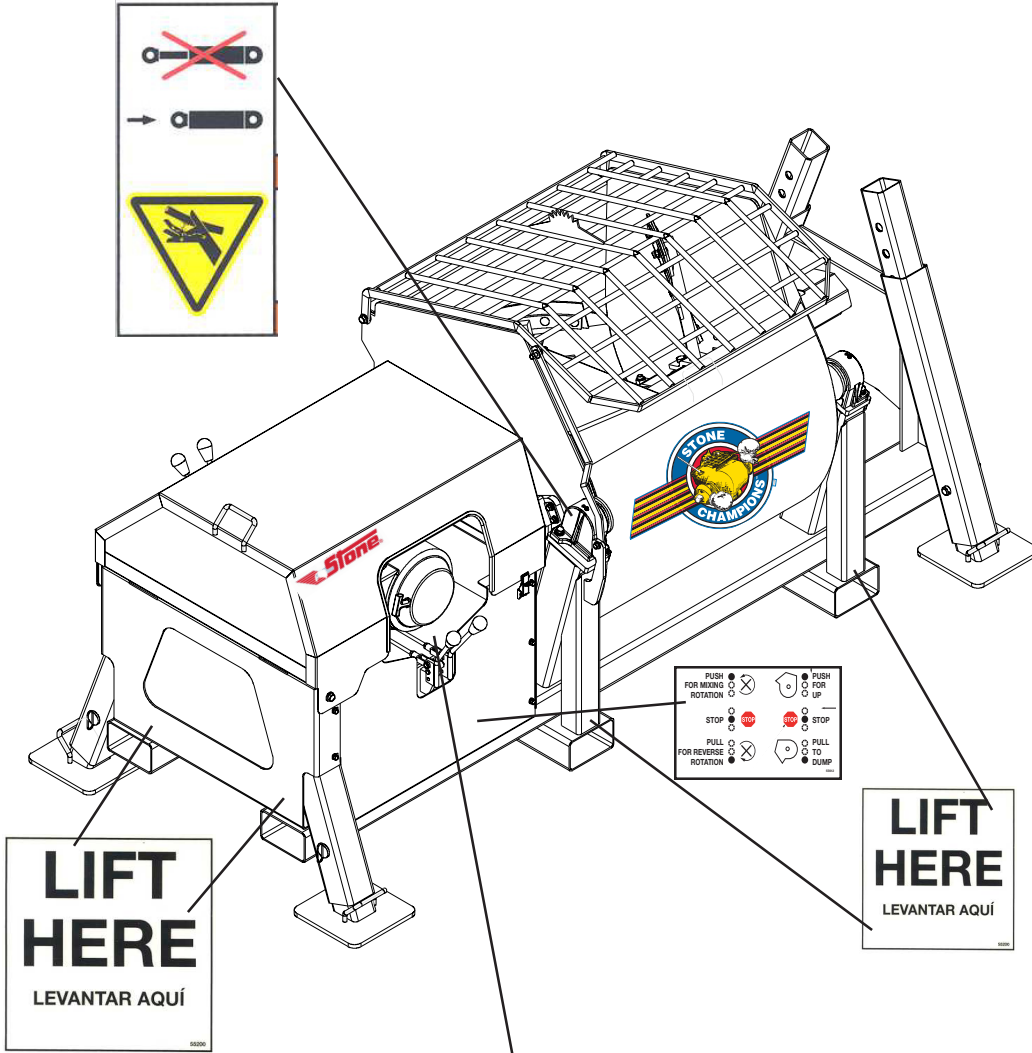
**GREASE WEEKLY**

PUSH FOR UP		PUSH FOR MIXING ROTATION	
STOP		STOP	
PULL TO DUMP		PULL FOR REVERSE ROTATION	



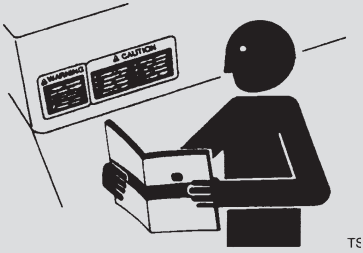
# Front View - Decal Placement

# HEALTH & SAFETY

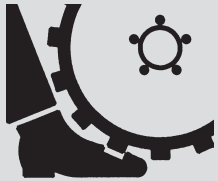


		<p><b>CAUTION</b>  <b>MOBIL 424 HYDRAULIC FLUID ONLY.</b>          Check when fluid is cold and unit is level.</p> <p><b>PRECAUCIÓN</b>  <b>UTILICE SOLAMENTE FLUIDO HIDRAULICO MOBIL 424.</b>          Verifiquelo cuando el fluido esté frío y la unidad esté nivelada.</p>	<p><b>CAUTION</b>          When equipment is not in use turn the fuel valve to the OFF position.</p> <p><b>PRECAUCIÓN</b>          Cuando el equipo no esté en uso gire la válvula de combustible a la posición OFF (apagado).</p>
<p><b>NOTICE</b>          If safety or hazard decals or operator's manual are missing from this equipment, contact the manufacturer immediately at 1-800-888-9926 or (585) 229-5141</p> <p><b>AVISO</b>          Si las etiquetas de seguridad o peligro o el manual del operador faltan en este equipo, contactar inmediatamente al fabricante al 1-800-888-9926 o al (585) 229-5141.</p>	<p><b>IDLE ENGINE 5 MINUTES BEFORE STOPPING TO IMPROVE SERVICE LIFE</b></p> <p><b>DEJE FUNCIONAR EL MOTOR EN VACIO DURANTE 5 MINUTOS ANTES DE DETENERLO PARA EXTENDER SU VIDA DE SERVICIO.</b></p>		<p>55546</p>

## HEALTH & SAFETY



### WARNING



## FOLLOW SAFETY INSTRUCTIONS

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- Carefully read all safety messages and decals in this manual and on your machine safety signs. Keep decals in good condition. Replace missing or damaged decals. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs and decals are available through your dealer.
- Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.
- Keep your machine in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.
- If you do not understand any part of this manual and need assistance, contact your dealer.

## UNDERSTAND SIGNAL WORDS

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- A signal word – DANGER, WARNING, or CAUTION – is used with the safety-alert symbol. DANGER identifies the most serious hazards.
- DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. IMPORTANT also calls attention to safety messages in this manual.
- This notation appears before warnings in the text. It means that the step that follows must be carried out to avoid the possibility of personal injury or death. These warnings are intended to help the technician avoid any potential hazards encountered in the normal service procedures. We strongly recommend that the reader takes advantage of the information provided to prevent personal injury or injury to others.

## PRACTICE SAFE OPERATION

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- Users must be trained to operate this mixer. Read the Operator's Manual and Engine Owner's Manual. Learn to operate this mixer safely.
- Before starting machine, make sure that there are no persons or obstacles near or under machine.
- Do not operate the mixer in standing water.
- Ear protection required when operating this equipment.
- Exposure to loud noise can cause impairment or loss of hearing.
- For foot protection, wear steel toe shoes or toe pads.

## PROPER VENTILATION

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- Never operate unit in a poorly ventilated or enclosed area.
- Avoid prolonged breathing of exhaust gases.
- Engine exhaust fumes can cause sickness or death.

## WEAR PROTECTIVE CLOTHING

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- Wear close fitting clothing and safety equipment appropriate to the job.
- Prolonged exposure to loud noise can cause impairment or loss of hearing.
- Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.
- Operating equipment safely requires the full attention of the operator. Do not wear radio or music headphones while operating machine.

## HOT SURFACES

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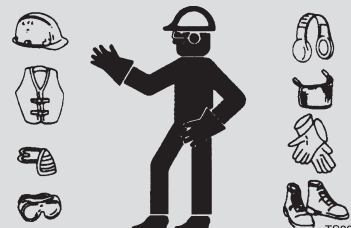
- Muffler, engine, and engine shroud may be hot.
- Allow all components in the engine compartment to cool before performing any service work.

## PRACTICE SAFE MAINTENANCE

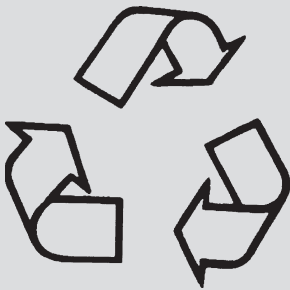
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- Understand service procedure before doing work. Keep area clean and dry.
- Never lubricate, service or adjust machine while it is moving. Keep hands, feet, and clothing from power-driven parts. Disengage all power and operation controls to relieve pressure. Stop the engine. Allow machine to cool.
- Securely support any machine elements that must be raised for service work.
- Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.
- Disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.
- Never perform any work on the mixer while it is running. Before working on the mixer, stop the engine and disconnect the spark plug wire(s) to prevent accidental starting, block drums to prevent rolling.
- Keep engine cover closed during the operation.
- Keep all guards in place.

## HEALTH & SAFETY



## HEALTH & SAFETY



## USE CAUTION WHEN WORKING ON HYDRAULICS

- Hydraulic system produces high pressures—incorrect hose replacement can cause serious personal injury. When performing service, refer to Operator's Manual for hose identification and connections.
- Pressurized release of fluids from hydraulic system can cause serious burns.
- Shut off engine. Only remove filler cap when cool enough to touch with bare hands. Slowly loosen cap to first stop to relieve pressure before removing completely.
- Escaping hydraulic fluid under pressure can have sufficient force to penetrate the skin, causing serious personal injury.
- Hydraulic fluid escaping under pressure from a very small hole can be almost invisible. Use a piece of cardboard or wood to search for possible leaks.
- Never use your hands to detect pressure leaks.
- Hydraulic tank temperature can reach 180o F maximum.

## DISPOSE OF WASTE PROPERLY

- Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.
- Use leak proof containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.
- Do not pour waste onto the ground, down a drain, or into any water source.
- Air conditioning refrigerants escaping into the air can damage the Earth's atmosphere. Government regulations may require a certified air conditioning service center to recover and recycle used air conditioning refrigerants.
- Inquire on the proper way to recycle or dispose of waste from your local environmental or recycling center.

## WARNING - EYE PROTECTION

- Always wear splash goggles when operating equipment.

## USE COMMON SENSE WHEN HANDLING FUELS

---

- Transport and handle fuel only when contained in approved safety containers.
- Do not smoke when refueling the engine or during any other fuel handling operation.
- If fuel is spilled during refueling, wipe it off from the engine immediately and discard the rag in a safe place.
- Do not operate the equipment if fuel or oil leaks exist-repair immediately.
- Never operate this equipment in an explosive atmosphere.
- Starting fluid (ether) is highly flammable, do not use or an explosion or fire may result.

## PREPARE FOR EMERGENCIES

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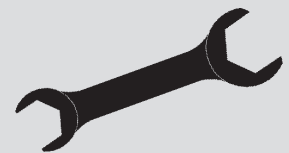
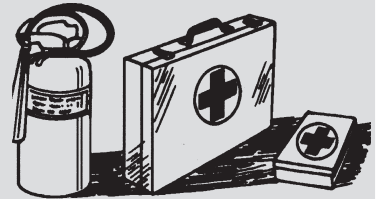
- Be prepared if a fire starts.
- Keep a first aid kit and fire extinguisher handy.
- Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.

## LOOSE HARDWARE

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- With power off, DAILY check for loose hardware. Immediately inform your supervisor to have it correct--Do Not Run Mixer.

## HEALTH & SAFETY





**SILO MIXER**



## **4. OPERATION**



## GENERAL SAFETY NOTES

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### If Applicable, Observe the Following Points for Your Safety and Protection

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Operators and maintenance personnel must always comply with the following safety precautions. These precautions are given here for your safety. Review them carefully before operating the machine and before performing general maintenance or repairs. Supervising personnel should develop additional precautions relating to specific work area and local safety regulations.

- Before operating the machine ensure you have had proper training and are fully conversant with the machine and its operation - If in Doubt ASK!
- Read this instruction manual carefully before operating the machine. Ensure this instruction manual is kept with the machine at all times and in good condition - replace the manual immediately if it becomes dirty, damaged or lost.
- Decals are fitted to the machine for safety purposes and **MUST** be replaced immediately if they are not readable or lost. If the machine is repaired and parts have been replaced on which decals were fixed, ensure new decals are fitted before the machine is put into service.
- Always make sure there is adequate ventilation around the machine. Never run the engine in an enclosed area without good ventilation or next to combustible materials.
- Stop the engine before refuelling. If there is a spillage, mop it up and do not start the engine until it is safe again.
- The exhaust gets extremely hot. Do not place anything on top of it and keep all combustible materials clear. Do not attempt any maintenance on a hot engine.
- Check your local laws, the engine may require a spark arrester etc.
- Do not inspect or clean the machine with the engine running.
- Before carrying out maintenance on the hydraulic system ensure the hydraulic fluid is cool and there is no residual pressure in the hydraulic circuit - hydraulic fluid leaking under pressure can penetrate the skin.
- Make sure you and anyone else who uses the machine have been shown how to operate it safely.
- A hard hat, safety boots, safety glasses and reflective clothing must be worn at all times.
- Establish a training program for all operators to ensure safe operation.
- Do not operate the machine unless thoroughly trained.
- Do not operate the machine if it is damaged, improperly adjusted or not completely and correctly assembled.



## PREVENT DAMAGE TO MACHINE

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## OPERATION

---

### Observe the Following Points, If Applicable, to Prevent Damage to the Machine

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- Always replace hoses, couplers and other parts with parts supplied or recommended by Stone Construction Equipment, Inc. NEVER USE SPARE PARTS OF INFERIOR SPECIFICATION.
- Never allow unqualified people to perform repairs on the machine.
- Never overfill the engine oil or fuel tank.
- If a hose bursts, stop the engine immediately - ALWAYS replace with a hose of the correct specification.
- If the hydraulic oil level is low, do not start the engine. Check the reason for low oil level.
- Follow the engine starting instructions in this manual and on the machine.
- If you see oil leaking, report it and get it fixed immediately.
- Make sure the correct fuel, oils and grease are used.
- Never use the machine for purposes other than those it was manufactured for.
- Always ensure workmates are aware of your work plan.
- If equipped, ensure all tires are serviceable before using the machine.
- Do not operate the machine if it is damaged, improperly adjusted or not completely and correctly assembled.
- Establish a training program for all operators to ensure safe operation.



SILO MIXER

## OPERATION



This symbol is used to identify an action that requires particular attention and/or care.

## SILO MIXER

## SAFETY SYMBOLS

---

Safety symbols are used in these instructions to bring attention to actions that may cause personal injury or damage to the equipment. Always observe these symbols, they are included for your safety and for the protection of the machine.

## DELIVERY INSPECTION

---

Upon receipt of your mixer, **CAREFULLY CHECK FOR ANY FREIGHT DAMAGE**. Any damage should be immediately reported to the carrier and a claim registered.

This unit is manufactured to the strictest specifications and inspection procedures. If any material or manufacturing defects are found, return the tag on the machine with the assembler's signature and your findings to the manufacturer. We want to know when a product is less than perfect. We also welcome any and all input on how the product may serve you better.

The following instructions were compiled to provide you information on how to obtain long and trouble free use of the mixer. Periodic maintenance of the mixer is essential. Read the manual in its entirety and follow the instructions carefully. Refer to the Technical Data Section to familiarize yourself with machine controls and components. Failure to do so may injure yourself or a bystander.

## BREAK-IN PERIOD

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The SILO MIXER is ready for normal operation. However, extra care during the first 50 hours of operation will result in more satisfactory, long-term machine performance and cost of ownership. Do not exceed 50 hours of operation before conducting the break-in first service.

- Run engine at full throttle.
- Run engine under load. DO NOT overload the engine.
- Idle engine 3 minutes before stopping.
- DO NOT idle engine for long periods.
- Check engine oil level daily.

## BEFORE STARTING

---

Review the following information. Specific information regarding these items can be found in the Technical Data Section or located by the Table of Contents. The following instructions were compiled to provide you information on how to obtain long and trouble free use of the mixer. Periodic maintenance of the mixer is essential. Read the manual in its entirety and follow the instructions carefully. Refer to the Technical Data Section to familiarize yourself with the machine controls and components. Failure to do so may injure you or a bystander.

Fuel is highly flammable, handle with care. Do not refuel the engine while smoking or when near an open flame or sparks. Always stop engine before refueling. Clean up spilled fuel before starting. Avoid fires by keeping engine clean of accumulated grease and debris.

Do not run unit in an enclosed, unventilated area. Avoid prolonged breathing of exhaust gases.

## PRE-START CHECKLIST

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- Review the manual and check that operator and engine controls function properly before starting.
- Check engine oil level. **Warranty is VOID if run without oil.** Consult the Engine Manual supplied with this unit for specific instructions and oil recommendations.
- Check engine air filter.
- Check engine fuel level.
- Check hydraulic fluid level.
- Check hardware for looseness. If loose, tighten according to torque chart.
- Check hoses for looseness or leaking.

### **WARNING**

**ENGINE IS EQUIPPED WITH LOW OIL SHUTDOWN. UNIT WILL SHUTDOWN IF ENGINE OIL IS LOW.**

## FUEL

---

Always use fresh, unleaded gasoline(86 octane min). Fresh gasoline is blended for the season and reduces gum deposits that could clog the fuel system. Do not use gasoline left over from the previous season. The engine has a separate oil reservoir in the crankcase. Do not mix oil with the fuel. Unleaded gasoline is recommended for use in the engine since it leaves less combustion chamber deposits.

### **WARNING**

**FUEL IS BOTH TOXIC AND FLAMMABLE. DO NOT SMOKE WHILE WORKING WITH FUEL. DO NOT USE NEAR OPEN FLAME. START, STORE AND REFUEL ON LEVEL GROUND TO PREVENT PERSONAL INJURY. DO NOT RUN UNIT IN AN ENCLOSED, NON-VENTILATED AREA. AVOID PROLONGED BREATHING OF VAPORS AND SKIN CONTACT. SERIOUS ILLNESS OR LOSS OF LIFE COULD RESULT.**

#### Fuel Level

Check the fuel level when the mixer is parked on level ground and the engine is off.

## MACHINE SETUP

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Each unit has a set of legs (3 legs – SM1200, 4 legs – SM2000) that can be adjusted for leveling or height adjustment. A properly rated forklift truck can lift the unit at fork pockets labeled on the frame of the machine and place the unit in its desired location.

### **WARNING**

**SET MIXER UP IN AN OPEN AREA. AVOID CLOSE PROXIMITY TO STRUCTURES OR OTHER EQUIPMENT. FAILURE TO DO SO MAY CAUSE INADVERTENT INJURY TO OPERATOR OR OTHER PERSON IN THE AREA.**

## OPERATION



**SILO MIXER**

## OPERATION



### Leg Adjustment

1. Lift the machine with a fork truck to the desired height.
2. While holding onto the handle at the foot of each leg pull the pin retaining the leg in position.
3. Allow the leg to descend to the desired position.
4. Replace the pin through the nearest hole.
5. Repeat for each leg until all legs are to their desired position.

## STARTING THE MACHINE

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### Warm Weather Starting

1. Disengage drive train by moving lever for paddle rotation to the neutral position at hydraulic valve.
2. Open fuel valve all the way.
3. Pull recoil until engine starts.
4. Always operate the engine at full throttle when under load.

### Cold Weather Starting

1. Disengage drive train by moving lever for paddle rotation to neutral at hydraulic valve.
2. Apply the choke.
3. Open fuel valve all the way.
4. Pull recoil until engine starts.
5. When engine starts, open the choke and adjust throttle as necessary to keep it running.
6. Always operate the engine at full throttle when under load.

## TO OPERATE

---

Start the engine as instructed above and allow engine to reach operating temperature. Make sure that the engine cowl is closed. **Never** operate the mixer with the cowl open. **Never** operate the mixer with the drum guard open or removed.

### Paddle Rotation

The proper rotation of paddles for mixing is clockwise rotation from the rear of the hydraulic motor. Push in the lever at the hydraulic valve for paddle rotation to engage the paddles. The lever will remain in this position unless pulled and disengaged. To clear jams the paddles can reverse by pulling on the lever for paddle rotation. The lever will return to the neutral position when released.

### Mixing

1. Engage the paddles for mixing prior to charging the mixer.
2. Begin charging the mixer by pouring half the required amount of water into drum.
3. Add half the required amount of sand.
4. Add the total required amount of mortar mix.
5. Add the balance of sand and water.



SILO MIXER

Note: When using a premix tower to charge the mixer, add the total required amount of water into drum prior to adding the premix.

## **⚠️ WARNING**

*THE MIXER IS DESIGNED FOR MIXING ONLY MORTAR, PLASTER, FIREPROOFING, REFRACTORY, GROUT AND OTHER SMALL GRAINED PORTLAND CEMENT PRODUCTS. ANY OTHER USE OF THIS MIXER MAY CAUSE PREMATURE FAILURE OR GREAT PERSONAL RISK TO THE OPERATOR OR OTHER INDIVIDUALS CLOSE BY. DO NOT USE FOR MIXING ANY VOLATILE OR CORROSIVE MATERIAL.*

### **Drum Discharge**

After mixing for the proper length of time (homogenous mix obtained), discharge the mix from the drum using the hydraulic dump control.

1. Leave the mixing paddles engaged to help in the discharge of the mix.
2. Pull out the lever at the hydraulic valve for drum dump control to discharge the mix.
3. When the drum is completely discharged push in the lever to retract the drum back to its mixing position.
4. Immediately pour in the required water for the next batch with the paddles continuing to mix. This will clean the paddles and drum between batches and help prevent dried lumps of mortar from forming and contaminating the next batch.

## **⚠️ WARNING**

*ALWAYS WEAR SPLASH GOGGLES WHEN OPERATING THE MIXER. FAILURE TO DO SO WILL ALLOW FOREIGN PARTICLES TO ENTER EYES.*

## **⚠️ WARNING**

*NEVER OPERATE MIXER WITH ANYONE CLOSE BY. KEEP ALL UNTRAINED PERSONNEL AWAY FROM WORK AREA.*

### **Cleaning the Mixer**

For consistent performance, long life and continued high quality mixing of plaster or mortar, thoroughly clean the mixer inside and out at the end of each day's operation. To prevent lumps of dried plaster from forming and contaminating future batches of plaster or mortar, do not allow build up of materials to form on drum guards, around paddles or anywhere inside the drum.

- Before cleaning, shut the engine off and disconnect the spark plug wire to prevent accidental starting.
- Keep drum guard closed.
- Always keep guard lifter connected.
- Keep drum in upright, mixing position.
- Spray mixer with water before mix dries to remove accumulation.
- Power up mixer and rotate drum to dump position to remove debris.
- DO NOT beat on drum with a shovel, hammer or other device to break up accumulations of dried mix, as this will dent and damage the drum and void the warranty

## **⚠️ WARNING**

*FAILURE TO FOLLOW CLEANING INSTRUCTION AND/OR ROTATION OF DRUM WITHOUT GUARD LIFTER CONNECTED CAN RESULT IN SERIOUS INJURY.*

## **OPERATION**



**SILO MIXER**

## OPERATION

## SHUTTING THE MACHINE OFF

1. Retract drum until it is in its mixing position.
2. Disengage drive train by moving lever for paddle rotation to its neutral position at hydraulic valve.
3. To improve the engine service life, throttle engine down to idle for a period of 2 to 5 minutes before shutting down.
4. When idle period is up, use engine stop switch under gas tank to shutoff engine.

## OPERATOR CONTROLS

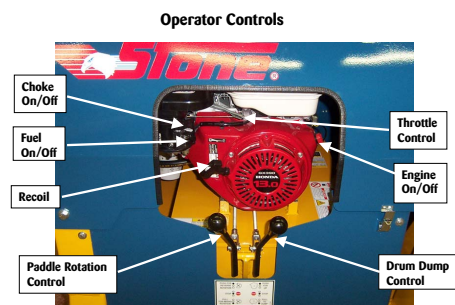


Figure 2 - Drum Discharge Side

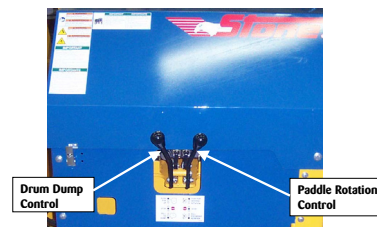


Figure 1 - Drum Charge Side

## TRANSPORTATION

A fork truck can lift and place the unit at fork pockets labeled on the frame of the machine. Ensure that drum is in its mixing position and legs are fully retracted and pinned in place before transporting the machine. Make sure the gas valve is in the off position. Use the fork pockets as tie down points for straps.

See Technical Data Section for mixer sizes and weights. Use properly rated ramps, chains, transportation equipment, etc.

When loading mixer, use proper loading equipment and procedures. Failure to do so may result in personal injury and/or machine damage.

To protect paint at tie down points, use plastic covering on tow cables/chains or other means of protection.





**SILO MIXER**





## **5. MAINTENANCE**

# MAINTENANCE



## First Service 50 Hours

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After the 50 hour break-in period, perform the following services:

- Check hydraulic oil level (See Hydraulic Oil and Sight Gauge section).
- Change the engine oil (See Engine Oil section).
- Change the hydraulic return filter (see Hydraulic Return Filter section).
- Check air filter (see Engine Air Filter section)

## ADDITIONAL SERVICE INFORMATION

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This is not a detailed engine service manual. If you want more detailed service information refer to engine manuals:

**IMPORTANT:** Read engine Emission Warranty Statement and Engine Manual before operating or performing maintenance.

## FLUIDS AND LUBRICATION

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### Hydraulic Oil

Mobil 424 SUS255/55CST ISO VG55 is recommended for the hydraulic system. Do not mix hydraulic oils. Check oil level daily, replace hydraulic oil every 800 hours. To replace hydraulic fluid:

- Remove breather/filler cap slowly.
- Remove drain plug and drain into suitable container.
- Clean drain plug, apply thread sealant to the plug, install and tighten
- Add fresh hydraulic fluid oil until level is visible in the sight gauge. A ¼ - ½ inch air bubble will be seen at the top of the gauge.
- Install and tighten breather/filler cap
- Idle engine 2-3 minutes, stop engine and check for proper hydraulic oil and inspect for any leaks.

Note: If any hoses, fittings, filter, and/or hydraulic components are changed, start the engine to purge the air from the system prior to checking the oil level. To do this, idle the engine for three minutes without operating the motor or cylinders. Slowly engage the motor and then the cylinders. This allows fluid to replace air introduced when any component is changed. If this procedure is not followed, partial or complete failure of the pump will result.

## WARNING

*ESCAPING HYDRAULIC FLUID UNDER PRESSURE CAN HAVE SUFFICIENT FORCE TO PENETRATE THE SKIN, CAUSING SERIOUS PERSONAL INJURY.*

*HYDRAULIC FLUID ESCAPING UNDER PRESSURE FROM A VERY SMALL HOLE CAN BE ALMOST INVISIBLE. USE A PIECE OF CARDBOARD OR WOOD TO SEARCH FOR POSSIBLE LEAKS. NEVER USE YOUR HANDS TO DETECT PRESSURE LEAKS. IF YOU ARE INJURED BY ESCAPING HYDRAULIC FLUIDS SEEK MEDICAL ATTENTION IMMEDIATELY. SERIOUS INFECTION OR REACTION CAN DEVELOP IF PROPER MEDICAL TREATMENT IS NOT ADMINISTERED IMMEDIATELY.*

## MAINTENANCE

### Engine Oil

SAE 30 API SH or SJ (oil with “starburst” certification mark) is recommended for general, all temperature use. Check daily for proper oil level; replace engine oil every 100 hours. DO NOT OVERFILL. See Engine Owner’s Manual for specifications.

### **▲**WARNING

*ENGINE IS EQUIPPED WITH LOW OIL SHUTDOWN. UNIT WILL SHUTDOWN IF ENGINE OIL IS LOW.*

### Gasoline Fuel

Always use fresh, unleaded gasoline (86 octane min). Fresh gasoline is blended for the season and reduces gum deposits that could clog the fuel system. Do not use gasoline left over from the previous season. The engine has a separate oil reservoir in the crankcase. Do not mix oil with the fuel. Unleaded gasoline is recommended for use in the engine since it leaves less combustion chamber deposits.

Fill fuel tank at the end of each day’s operation to prevent condensation in the tank. Drain and flush fuel tank every 1000 hours or 12 months.

Avoid storing fuel over long periods of time. If fuel is stored for more than a month prior to use or there is a slow turnover in fuel tank or supply tank, add a fuel conditioner to stabilize the fuel and prevent water condensation. Fuel conditioner also reduces fuel gelling and controls wax separation during cold weather.

Proper fuel storage is critically important. Use clean storage and transfer tanks. Periodically drain water and sediment from bottom of tank. Store fuel in a convenient place away from buildings.

### **▲**WARNING

*FUEL IS BOTH TOXIC AND FLAMMABLE.*

*DO NOT SMOKE WHILE WORKING WITH FUEL.*

*DO NOT USE NEAR OPEN FLAME.*

*ALWAYS STOP ENGINE BEFORE REFUELING.*

*CLEAN UP SPILLED FUEL BEFORE STARTING.*

*AVOID FIRES BY KEEPING CLEAN OF ACCUMULATED GREASE AND DEBRIS.*

*START, STORE AND REFUEL ON LEVEL GROUND TO PREVENT PERSONAL INJURY.*

*DO NOT RUN UNIT IN AN ENCLOSED, NON-VENTILATED AREA.*

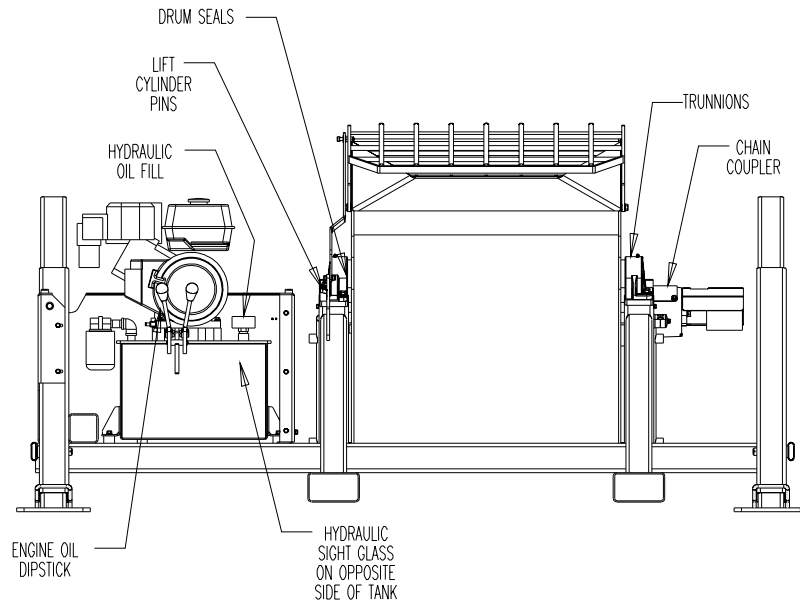
*AVOID PROLONGED BREATHING OF VAPORS AND SKIN CONTACT—SERIOUS ILLNESS OR LOSS OF LIFE COULD RESULT.*

**SILO MIXER**

# MAINTENANCE



# LUBRICATION POINTS



## Engine

Refer to engine manual for specific engine information.

## Engine Oil

1. Replace oil at 20 hours, then change oil every 100 hours. Under heavy loads, change engine oil more frequently.
2. Remove the oil filler cap and drain bolt. Drain oil into a suitable container.
3. Clean and install the drain bolt, tighten securely.
4. Fill with recommended oil, fill to the upper limit mark on the dipstick, and tighten the oil filler cap securely.
5. Run engine for 2 – 3 minutes, stop engine and check oil level and check for leaks.

Note: Please dispose of used motor oil in a manner that doesn't harm the environment.

## **▲**WARNING

*ENGINE IS EQUIPPED WITH LOW OIL SHUTDOWN. UNIT WILL SHUTDOWN IF ENGINE OIL IS LOW.*

## Air Filter

The air cleaner is equipped with a cyclone dual-filter element. To clean the cyclone-housing remove 3 pan-head screws from the pre-cleaner cap and take apart the loose components from inside the housing. Wash the parts with water and dry thoroughly. Remove the pre-cleaner cap to access the foam pre-cleaner and paper element.

Clean foam pre-cleaner in warm soapy water, rinse and dry thoroughly. Apply oil to the foam and squeeze out excess oil. The engine will smoke if too much oil is left in the foam.

Clean the paper element by tapping the element lightly on a hard surface to remove excess dirt or blow pressurized air (30psi max) through the filter from the air cleaner cover side. Do not brush the dirt off.

Reassemble the cleaned air cleaner components. Replace elements if damaged or excessively dirty.

### Spark Plug

The recommended spark plug is a BPR6ES (NGK) or W20EPR-U (DENSO). To ensure proper engine operation, the spark plug must be properly gapped and free of deposits. Clean and replace at scheduled maintenance. Clean engine before removing spark plug. Visually inspect the spark plug and discard if insulator or tip is damaged. Check that the spark plug washer is in good condition. If spark plug is to be reused, clean with a wire brush and set gap .028-.031in(.70-.80mm). Thread the spark plug in by hand to prevent cross threading. After the spark plug is seated, tighten with a spark plug wrench to compress the washer.

- If installing a new spark plug, tighten ½ turn after the spark plug seats to compress the washer.
- If reinstalling a used spark plug, tighten 1/8 to ¼ turn after the spark plug seats to compress the washer.

### Note:

- The spark plug must be securely tightened. An improperly tightened spark plug can become very hot and may cause engine damage.
- Use only the recommended spark plug or equivalent. A spark plug that has an improper heat range may cause engine damage.

### Engine RPM

Start the engine and allow it to warm up to normal operating temperature, check the idle speed 1400 +/- 100, and adjust the idle stop screw as required.

Check the full speed 3600 +/-100 and adjust the full speed stop screw as required.

### Cooling System

The machine should be cleaned at scheduled maintenance. This should include cleaning the air inlet screens and the engine cooling fins. Wash machine with warm soapy water, rinse off mud and dirt with water, and use pressurized air(30psi max) to blow dirt and debris from engine.

### Valve Clearance

Due to special tool requirements and training, an authorized engine dealer should perform this service unless the owner has the proper tools and proper shop manuals.

### Hydraulic Reservoir

The hydraulic reservoir consists of an inlet, outlet, filler point, sight gauge and drain plugs. The tank is specifically designed with baffling and filtration in the tank to provide cool and clean oil to the entire system for longer life of hydraulic components.

### Sight Gauge

Check the hydraulic oil level daily using the sight gauge located on the hydraulic tank. A ½ - ¾" air bubble will be seen at the top of the gauge. Keep filled to proper level with the recommended hydraulic oil or equivalent.

### Breather/Filler Cap

The breather in the cap is designed to pressurize the reservoir to 5 psi. Loosen cap slowly with wrench to avoid injury whenever adding oil or working on the hydraulic system. Use a wrench on the hex directly under the cap. Once cap is off hydraulic oil can be checked and/or added. The cap should be replaced every time the tank is flushed and oil is replaced or every 800 hours whichever comes first. For satisfactory operation, the following oil conditions apply:

- Accurate level readings can be checked only when the fluid is at ambient temperature and machine is on level ground.



## MAINTENANCE



- If the natural color of the fluid has become black or milky, it is possible that an overheating or water contaminant problem exists.
- DO NOT mix hydraulic fluids. See lubrication specifications for hydraulic system recommendations.
- Add hydraulic oil through breather tube. Pour hydraulic oil through strainer basket into hydraulic tank.

### Tank Strainer

The hydraulic tank has a strainer located at the tank outlet. The strainer is designed to filter out large particles before entering the pump. The strainer needs to be replaced every time the tank is flushed and oil is replaced or every 800 hours whichever comes first.

### Return Filter

The tank has a screw on filter located at the return line from the valve to the tank. The filter is designed to filter out small particles before returning fluid back to the tank. The filter needs to be replaced every time the tank is flushed and oil is replaced or every 100 hours whichever comes first.

### Hydraulic Drive

The hydraulic drive motor and pump are extremely reliable and will ordinarily not need maintenance or repair. There are couplings between the motor and the paddle shaft and from the engine to the pump. If a vibration is experienced at either motor or pump the coupling may be inspected and adjusted by removing the inspection cover on the pump and motor mount. DO NOT remove inspection covers while machine or engine is running. DO NOT run engine or machine with inspection covers removed.

The hydraulic cylinders and valve are extremely reliable and will not need maintenance or repair. The hydraulic directional control valve controls the motor and cylinders. The valve also regulates the stroke speed of the cylinder. A relief set at 2100 psi is built into the valve to protect the hydraulic components.

### Hydraulic Fittings and Hoses

The hydraulic fittings and hoses are o-ring face seal style connectors. Check weekly for loose hoses or fittings and for any damage or leakage. It is important to check the entire machine periodically.

### Hardware

Periodically inspect all hardware on the mixer and engine. Loose hardware can contribute to early component failure and poor performance.

## **STORAGE / LONG TERM STORAGE / END OF STORAGE**

---

### Cleaning and Storage

If equipment is taken out of operation for the Winter season or a prolonged period, follow below procedures to prevent machine or engine damage.

1. Ensure that the drum is in the mixing position and cylinders completely retracted. Release pressure in all hydraulic lines by actuating valve with engine off.
2. Completely clean mixer per cleaning instruction.
3. Drain the fuel system and fill it with the preservative fuel. If preservative fuel is not used, the system can be kept full with normal fuel, but the fuel must be drained and discarded at the end of the storage period.
4. Remove the air filter. Seal the vent pipe of the fuel tank or the fuel fill cap with waterproof tape.

## **TROUBLESHOOTING**

Engine Lacks Power	Fuel line plugged	Clean or replace
	Dirty fuel filter	Clean or replace
	Air filter dirty	Clean or replace
	Worn cylinder and piston rings	Replace
	Too much oil in crankcase	Drain to proper level
Oil Consumption	Worn valve guides	Replace
	Worn cylinder and piston rings	Replace
	Too much oil in crankcase	Drain to proper level
	Loose bolts on engine crankcase	Tighten
Blue Smoke	Worn valves/valve guides	Replace
	Worn cylinder and piston rings	Replace
	Too much oil in crankcase	Drain to proper level
	Oil seal at intake valve defective	Replace
Does Not Start	Empty fuel tank	Fill tank
	Run/off switch is in OFF position	Move switch to proper position
Paddles will not move forward or reverse	Low hydraulic oil	Check level, add if required
	Lever not fully engaged	Check linkage
	Control valve damaged	Replace or repair
	Faulty hydraulic pump	Replace pump if specified pressure not in range
	Faulty hydraulic drive	Replace drive motor if drive pressure is incorrect
Dump cylinder will not extend or retract	No cylinder pressure	Check pump pressure/valve
	Cylinder leaking	Replace or repair
Unit lacks power	Engine not properly warmed up	Idle about five (5) minutes to reach operating temperature
	Low hydraulic oil level	Add fluid
	Plugged hydraulic filter/strainer	Replace
	Fuel restriction	Change filter

## **MAINTENANCE**



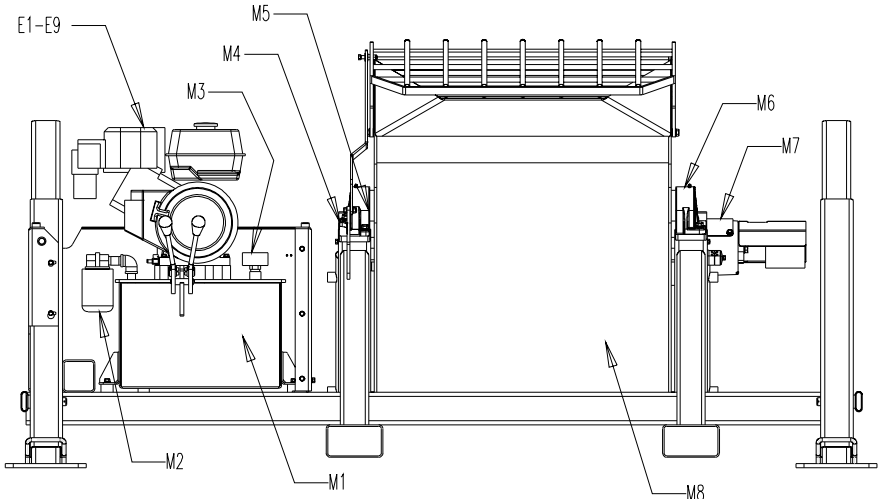
**SILO MIXER**

# MAINTENANCE



## IMPORTANT!

The person attempting any of the following maintenance tasks must be authorized to do so and have read *and* understood *all* sections within this manual.



✓ o	Check/Adjust Clean/Replace	Daily	Weekly	Other	Instructions
<b>ENGINE</b>					<b>READ EMISSION WARRANTY, OPERATOR &amp; ENGINE MANUAL</b>
E1	Oil Level	✓		o	Replace at 30-hrs, then every 100-hrs SAE 10W-20 or SJ
E2	Fuel Cap & Strainer	✓		o	Check daily, clean every 6-months or 100 hrs
E3	Sediment Cup & Filter			o	Clean every 100-hrs
E4	Air Filter & Pre-cleaner	✓		o	Clean every 50-hrs, replace every 300-hrs
E5	Spark Plug			o	Clean every 100-hrs, gap setting .028 inch, replace every 300-hrs
E6#	Engine RPM Idle/Full			✓	Check idle at full speed RPM every 300-hrs
E7	Clean Cooling System		✓	o	Clean/blow out air inlets, engine fins (30 psi max)
E8##	Valve Clearance			✓	Check/adjust every 300-hrs
E9	Fuel Tank			o	Clean every year or 300-hrs
<b>MACHINE</b>					
M1	Hydraulic Oil Level	✓		o	Replace every 800-hrs Mobil 424
M2	Hydraulic Filter			o	Replace every 100-hrs (PN 35444)
M3	Hydraulic Breather			o	Replace every 800 hrs (PN 38521)
M4	Lift Cylinder Pins	✓			Check operation, lube pins every 50-hrs
M5	Drum Seals	✓			Grease fittings with Lithium Base Grease
M6	Trunnions		✓		Grease fittings with Lithium Base Grease
M7	Chain Coupler			o	Check/lubricate chain weekly with chain lube
M8	Mixer Clean	o			Clean mixer inside & out/remove all build-up
M9	Leaks Oil & Fuel	✓			Clean unit and inspect
M10	Hardware/Engine Mounts	✓			Clean unit and check torque
#	Important READ Engine Emissions Warranty Statement, Stone Manual and Engine Manual				
##	See AUTHORIZED Engine Service Dealer and/or Refer to Engine Shop Manual for Procedures				

## SILO MIXER



# MAINTENANCE LOG

# MAINTENANCE

Machine Model \_\_\_\_\_ Date of Purchase \_\_\_\_\_

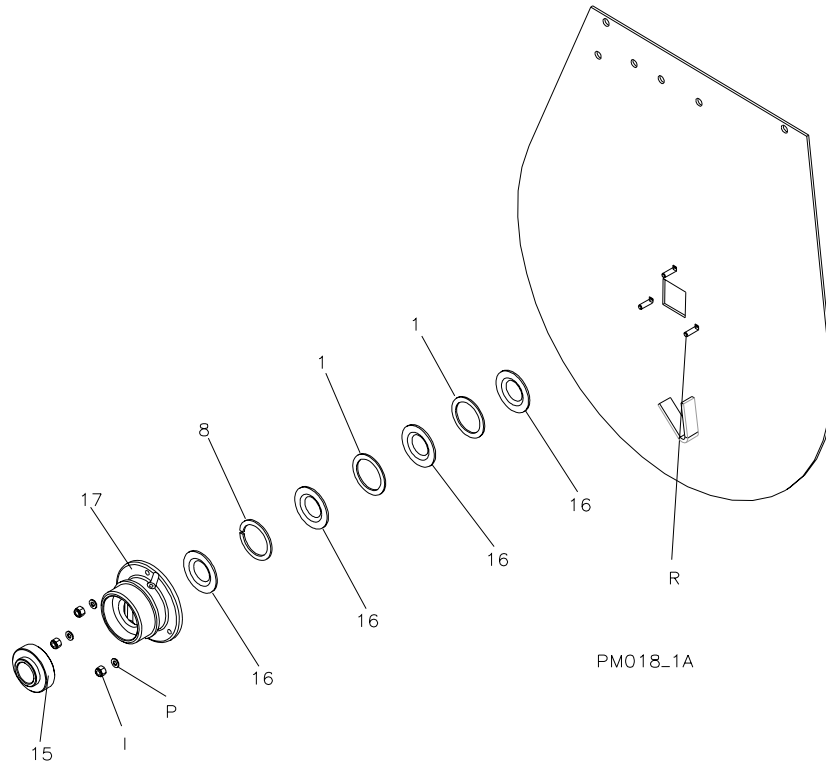
Serial Number \_\_\_\_\_ Engine Serial Number \_\_\_\_\_

Use this chart to record dates of service and hours on machine.

Maintenance	Date/ Hours	Date/ Hours	Date/ Hours	Date/ Hours	Date/ Hours	Date/ Hours	Date/ Hours
Replace Oil							
Replace Spark Plug							
Replace Engine Fuel Strainer							
Clean Air Filter							
Replace Air Filter							
Check Engine RPM							
Clean Cooling System							
Check/Adjust Valve Clearance							
Replace Hydraulic Oil							
Replace Hydraulic Filter (Tank)							
Replace Hydraulic Breather							
Lube Lift Cylinder Pins							
Grease Drum Seals							
Grease Trunnions							
Lubricate Chain Coupler							
Clean Mixer							



**Instructions for Seal & Bearing Assembly Kits P/N 23432**



ITEM	P/N	DESCRIPTION	QUANTITY
1	24017	Washer	2
8	25881	Washer Split	1
15	32003	Bearing	1
16	32324	Seal Drum Yellow	4

1. Disassemble drum from frame and remove. Unscrew end bolts from paddle shaft and remove spacers and bull gear.
2. Attach a three-jaw puller to ring on housing, center puller on paddle shaft and remove housing and bearing.
3. Remove worn components and clean shaft and housing as needed.
4. Assemble seals and spacers over paddle shaft, flush with drum end using soapy water mixture as lubricant.
5. Make sure seals are assembled tight up to drum end; inner lip of seals curve inwards towards drum end as illustrated.
6. Insert bearing into housing and slide over shaft and seals as illustrated.
7. Tighten housing evenly to drum end so as not to pinch seals.
8. Reassemble spacer, bull gear (if applicable), washer and bolt to paddle shaft and repeat steps 4-7 on opposite end and reassemble drum to frame.





**SILO MIXER**

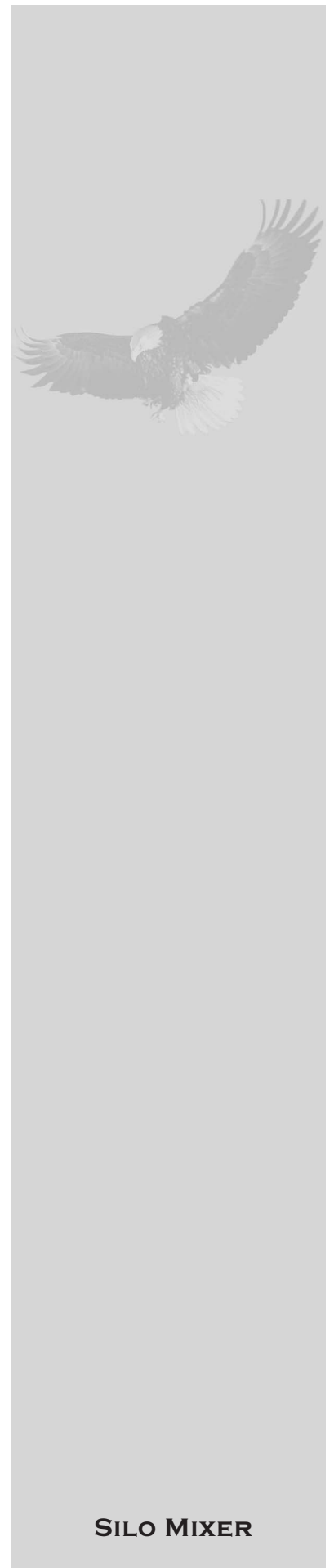


**SILO MIXER**



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**CALIFORNIA PROPOSITION 65 WARNING:** Operation of this equipment and/or engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, and other reproductive harm.



**SILO MIXER**



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