

CANOGA 193-E SERIES
CONCRETE MIXER (ELECTRIC)
OPERATOR'S MANUAL



Revision 203	05.2011
Manual Part No. 166135	

Caution: Read all safety and operating instructions before using this equipment. This manual **MUST** accompany the equipment at all times.


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Safety precautions should be followed at all times when operating this equipment. Failure to read and understand the Safety Precaution and Operating Instructions could result in injury to yourself and others.

This Operation Manual has been developed to provide complete instructions for the safe and efficient operation of the Canoga 193-E Series Concrete Mixer (Electric).

Before using these mixers, ensure that the person operating the mixer has read and understands all instructions in this manual.

SAFETY MESSAGE / ALERT SYMBOLS

A safety message alerts you to potential hazards that could hurt you or others. Each safety message is preceded by a safety alert symbol () and one of three words: **DANGER**, **WARNING**, or **CAUTION**.

DANGER

You **WILL** be **KILLED** or **SERIOUSLY INJURED** if you do not follow directions.

WARNING

You **CAN** be **KILLED** or **SERIOUSLY INJURED** if you do not follow directions.

CAUTION

You **CAN** be **INJURED** if you do not follow directions. It may also be used to alert against unsafe practices.

Each message tells you what the hazard is, what can happen, and what you can do to avoid or reduce injury. Other important messages are preceded by the word **NOTICE**.

NOTICE

You can cause **PROPERTY DAMAGE** to your machine if you don't follow directions.

The safety labels should be periodically inspected and cleaned by the user to maintain good legibility at a safe viewing distance. If the label is worn, damaged or illegible, it should be replaced.

Potential hazards associated with the Canoga 193-E Series Concrete Mixer (Electric) operation will be referenced with Hazard Symbols which appear throughout this manual, and will be referenced in conjunction with Safety Message Alert Symbols.

HAZARD SYMBOLS



ALWAYS read this Owner's Manual before operating the machine.



Avoid inhalation of and skin contact with silica dust and/or mist.



ALWAYS place the power ON/OFF switch in the **OFF** position when the mixer is not in use.



ALWAYS wear approved eye protection.



ALWAYS wear approved ear protection.



ALWAYS wear approved respiratory protection.



NEVER operate equipment with covers, or guards removed. Keep fingers, hands, hair and clothing away from all moving parts to prevent injury.



Use caution around gears. Keep fingers, hands, hair and clothing away from all moving parts to prevent injury.



DO NOT touch hot engine components while the machine is running or immediately after operating.



NEVER touch the power cord with wet hands or while standing in water when it is connected to a power source.



NEVER operate the machine in an explosive atmosphere or near combustible materials.

RULES FOR SAFE OPERATION



DANGER

Failure to follow instructions in this manual may lead to serious injury or even death! This equipment is to be operated by trained and qualified personnel only! This equipment is for industrial use only.

The following safety guidelines should always be used when operating the Canoga 193-E Concrete Mixer (Electric).

GENERAL SAFETY



- **DO NOT** operate or service this equipment before reading this entire manual.

- This equipment should not be operated by persons under 18 years of age.
- **NEVER** operate this equipment without proper protective clothing, shatterproof glasses, steeltoed boots and other protective devices required by the job.
- **NEVER** operate this equipment when not feeling well due to fatigue, illness or taking medicine.
- **NEVER** operate this equipment under the influence of drugs or alcohol.
- Whenever necessary, replace nameplate, operation and safety decals when they become difficult to read.
- **ALWAYS** check the machine for loose bolts before starting.



- **ALWAYS** wear proper respiratory (mask), hearing and eye protection equipment when operating the mixer.

- **NEVER** place hands inside the drum while the drum is rotating.
- **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.



- **NEVER** leave the mixer unattended. Turn off electric motor when unattended.

- **CAUTION** must always be observed while servicing this mixer. Rotating parts can cause injury if contacted.
- Ensure that any electrical extension cord is protected against damage. Always ensure that the electrical extension cord is not trapped underneath the mixer.
- **DO NOT** allow extension cord to come into contact with water or fluids. **DO NOT** spray water onto electric motor.
- This mixer is intended for the production of concrete. Mixer must be used only for its intended purpose.
- This mixer is not suitable for the mixing of flammable or explosive substances.



- **NEVER** operate the mixer in an explosive atmosphere.

- Before starting the mixer, check that all guards are in position and correctly fitted.
- Keep area around the mixer clear of obstructions and trip hazards which could cause persons to fall onto moving parts.
- **ALWAYS** ensure mixer is on level ground before mixing.
- Become familiar with the controls of the mixer before operating.

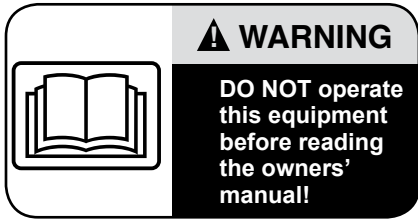
- Ensure the drum is rotating while filling and emptying the drum.
- **ALWAYS** disconnect AC power plug from power source before moving mixer.
- Make sure the OFF/ON power switch on the electric motor is always in the **OFF** position before inserting the mixer's power plug into an AC receptacle.
- Operate electric motor only at the specified voltage indicated on the nameplate.
- **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.
- Unauthorized equipment modifications will void all warranties. Manufacturer does not assume responsibility for any accident due to equipment modifications.
- **NEVER** use accessories or attachments, which are not recommended by Canoga for this equipment. Damage to the equipment and/or injury to user may result.

MAINTENANCE SAFETY

- **NEVER** lubricate components or attempt service on a running machine.
- Keep the machinery in proper running condition.
- Fix damage to the machine immediately and always replace broken parts, or missing decals.

OPERATION & SAFETY DECALS

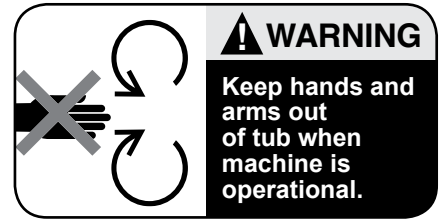
The Canoga Mixer is equipped with a number of safety decals (Figure 1) provided for operator safety and maintenance information. Should any of these decals become unreadable, replacements can be obtained by calling **(800) 262-1575**.



Decal A



Decal B



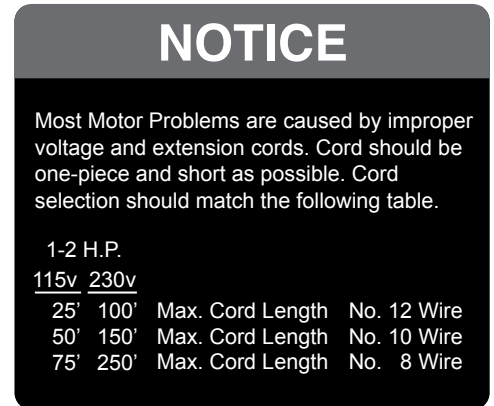
Decal C



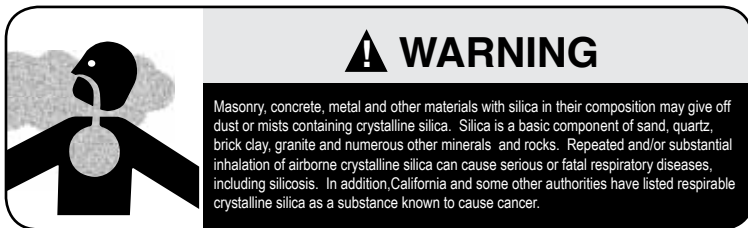
Decal D



Decal E



Decal G



Decal F



Decal H



Decal I



Decal J

Fig 1. Canoga 193-E Safety Decal Sheet, Part No. 166008

MIXER SPECIFICATIONS & DECAL LOCATIONS

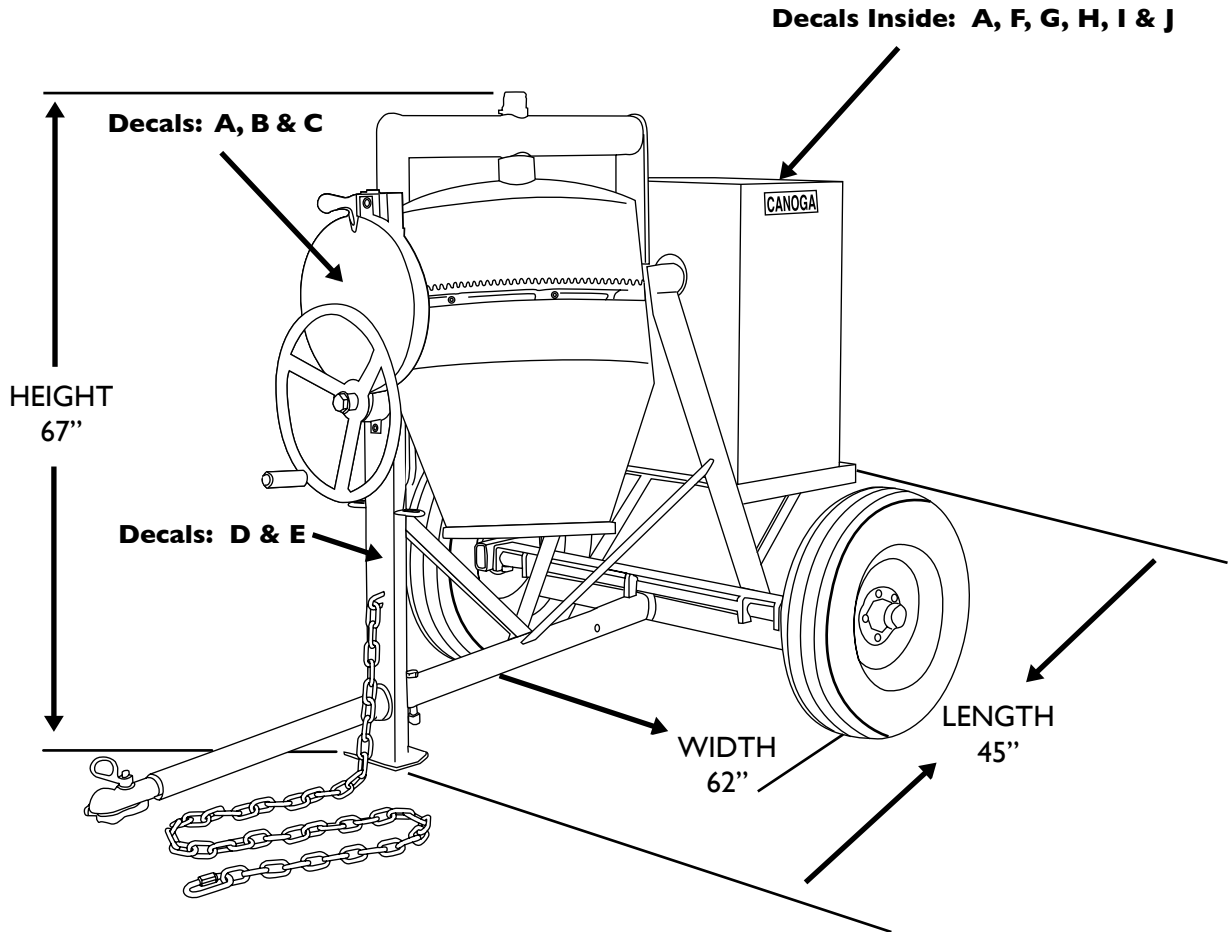


Fig 2. Mixer Dimensions and Decal Locations

Decal	Location	Description
A	Dump Gear Guard and Inside Motor Cabinet	Warning Read Manual Before Operating Equipment
B	Dump Gear Guard	Caution Guards in Place
C	Dump Gear Guard	Warning Keep Hands and Arms Out of Tub
D	Front Leg	Caution Fasten Safety Chain Before Towing
E	Front Leg	Warning Maintain Tire Pressure
F	Inside Motor Cabinet	Warning Silica Dust Hazard
G	Inside Motor Cabinet	Notice Extension Cord Warnings
H	Inside Motor Cabinet	Service or Warranty Information
I	Inside Motor Cabinet	Caution Keep Hands and Arm from Belt Drive
J	Inside Motor Cabinet	Notice Do Not Overtension Belts

SPECIFICATIONS

Canoga I93-E Specifications	
Model	I93-E
Motor*	Electric
Horse Power	1 HP
Batch Capacity	1/2 to 3/4 Bag (5 cu. ft.)
Total Volume	8-1/2 cu.ft.
Drum Diameter	26"
Drum Depth	3/4"
Drum Opening	16"
Drive	Dual V-belts to cast gear
Axle	Torsion-Bar
Wheels	5.0 x 13"
Tires	ST175/80D 13C 6 ply Bias/Load Range C
Dimension (L x W X H)	95" x 62" x 67"
Shipping Weight	700 lbs.
Part Number	163821

*See motor manual for complete motor specifications.

MIXER BASIC COMPONENTS

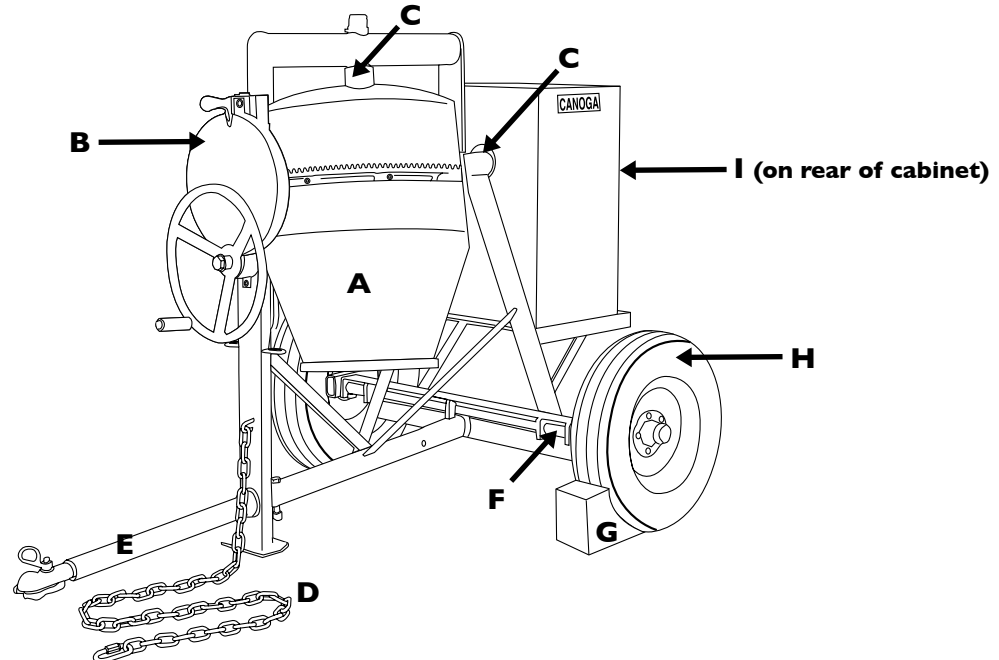


Fig 3. Mixer Major Components

- A. **Steel Mixing Drum** – The Canoga concrete mixer uses an 8-1/2 cu. ft. steel mixing drum. This drum is to be used for mixing of concrete. Always clean the drum after each use.
- B. **Dump Gear Guard** – **NEVER** remove the guarding on the dump gear.
- C. **Zerk Fittings** – Zerk fittings are located at the top of the engine side of the yoke and center of the drum bearing. Lubricate these fittings as referenced in the maintenance section of this manual.
- D. **Safety Chain** – This mixer uses a 3/16-inch thick, 72-inches long zinc-plated safety chain. **ALWAYS** connect the safety chain when towing.
- E. **Tow Bar** – This mixer uses various towing bars. Reference the tow bar drawing on page 9 to determine which tow bar meets your requirements.
- F. **Torsion Bar Suspension** – This mixer has a torsion bar suspension that should be inspected periodically.
- G. **Chock Blocks** – Place these blocks (not included as part of the mixer package) under each mixer wheel to prevent rolling, when mixer is not connected to the towing vehicle.
- H. **Tires Ply** – The tire ply (layers) number is rated in letters. This mixer uses 13-inch 2-ply tires. Replace with only recommended type tires.
- I. **Cabinet/Latch** – Encloses gas engine. **NEVER** run mixer with cabinet removed. Use latches to secure motor compartment cabinet.

ELECTRIC MOTOR SAFETY

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

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



CAUTION



- **DO NOT** spray water on the electric motor. Do not touch the plug with wet hands. To reduce the risk of electrocution, keep all connections dry and off the ground.
- **DO NOT** operate electric motor in an explosive environment.



WARNING

Use only extensions cords that are intended for outdoor use. These extension cords are identified by a marking, “Acceptable for use with outdoor appliances; store indoors while not in use.” Use only extension cords having an electrical rating not less than the rating of the product. Do not use damaged extension cords. Examine extension cords before using and replace if damaged. Do not abuse extension cords and do not yank on any cord to disconnect. Always disconnect the extension cord from the receptacle before disconnecting the product from the extension cord.

Electric Motor Connection

ALWAYS make certain that the power source required for the electric motor is correct and always use the correct NEMA configuration plug. Motors can burn out when the line voltage falls 10% below the voltage rating of the motor. Failure to use proper voltage will cause the motor to overheat. Make certain that the correct size grounded (3-wires) extension cord is used. See the table below.

To choose the proper extension cord:

- Locate the length of extension cord needed in table to the right.
- Once the proper length is found, move down the column to obtain the correct AWG size required for that length of extension cord.

NOTICE

Most Motor Problems are caused by improper voltage and extension cords. Cord should be one-piece and short as possible. Cord selection should match the following table.

1-2 H.P.			
115v	230v		
25'	100'	Max. Cord Length	No. 12 Wire
50'	150'	Max. Cord Length	No. 10 Wire
75'	250'	Max. Cord Length	No. 8 Wire

Fig. 1 Extension Cord Table



WARNING

Use of undersize extension cords result in low voltage to the motor that can result in motor burnout and premature failure. Canoga Equipment warns that equipment returned to us showing signs of being run in a low voltage condition, through the use of undersized extension cords will be repaired or replaced totally at the customers expense. There will be no warranty claim.

ELECTRICAL REQUIREMENTS AND GROUNDING INSTRUCTIONS

In order to prevent potential electrical shock and injury, the following electrical safety precautions and symbols should be followed at all times!

WARNING

In case of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This tool is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.

- Do not modify the plug provided – if it will not fit the outlet; have the proper outlet installed by a qualified electrician.
- Improper connections of the equipment-grounding conductor can result in a risk of electric shock. The equipment-grounding conductor is the insulated conductor that has an outer surface that is green, with or without yellow stripes. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.
- Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded.
- Use only 3-wire extension cords that have 3-prong grounding plugs and 3-pole receptacles that accept the tool's plug.
- Repair or replace a damaged or worn cord immediately.

WARNING

This tool is intended for use on a circuit that has an outlet that looks like the one shown in Sketch A of Figure 2. The tool has a grounding plug that looks like the plug illustrated in Sketch A of Figure 2. A temporary adapter, which looks like the adapter illustrated in sketches B and C, may be used to connect this plug to a 2-pole receptacle as shown in Sketch B, if a properly grounded outlet is not available. The temporary adapter should be used only until a properly grounded outlet can be installed by a qualified electrician. The green-colored rigid ear, lug, and the like, extending from the adapter, must be connected to a permanent ground such as a properly grounded outlet box.

NOTE: Use of a temporary adapter is not permitted in Canada.

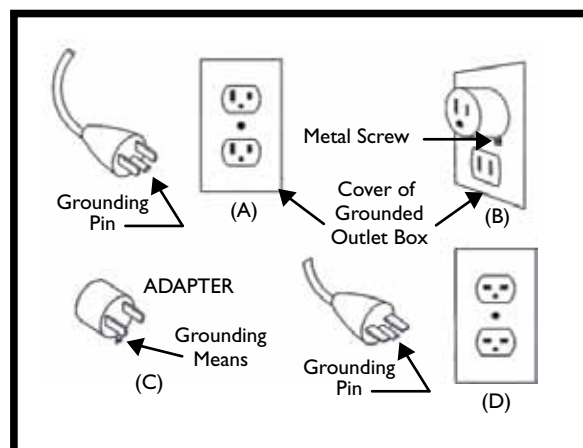


Fig. 2 Circuit and Adapter Information

! WARNING

To reduce the risk of electrocution, keep all connections dry and off the ground.

A Ground Fault Circuit Interrupter (GFCI) should be provided on the circuit(s) or outlet(s) to be used for this machine. Receptacles are available having built-in GFCI protections and may be used for this measure of safety.

When using an extension cord, the GFCI should be installed closest to the power source, followed by the extension cord and lastly, the machine.

! WARNING

To avoid the possibility of the appliance plug or receptacle getting wet, position the machine to one side of a wall mounted receptacle. This will prevent water from dripping onto the receptacle or plug. A “drip loop,” shown in Figure 3, should be arranged by the user to properly position the power cord relative to the power source.

The “drip loop” is that part of the cord below the level of the receptacle, or the connector, if an extension cord is used. This method of positioning the cord prevents the travel of water along the power cord and coming in contact with the receptacle.

If the plug or receptacle gets wet, **DO NOT** unplug the cord. Disconnect the fuse or circuit breaker that supplies power to the tool. Then unplug and examine for presence of water in the receptacle.

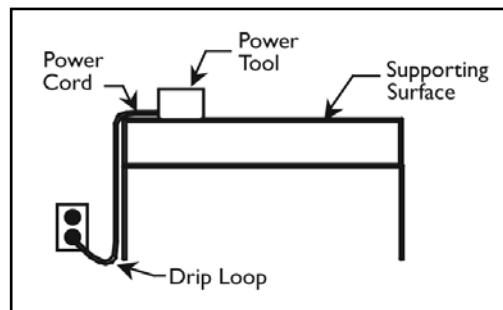


Fig. 3 Drip Loop Information

ELECTRIC MOTOR

Refer to motor manual for detailed information.

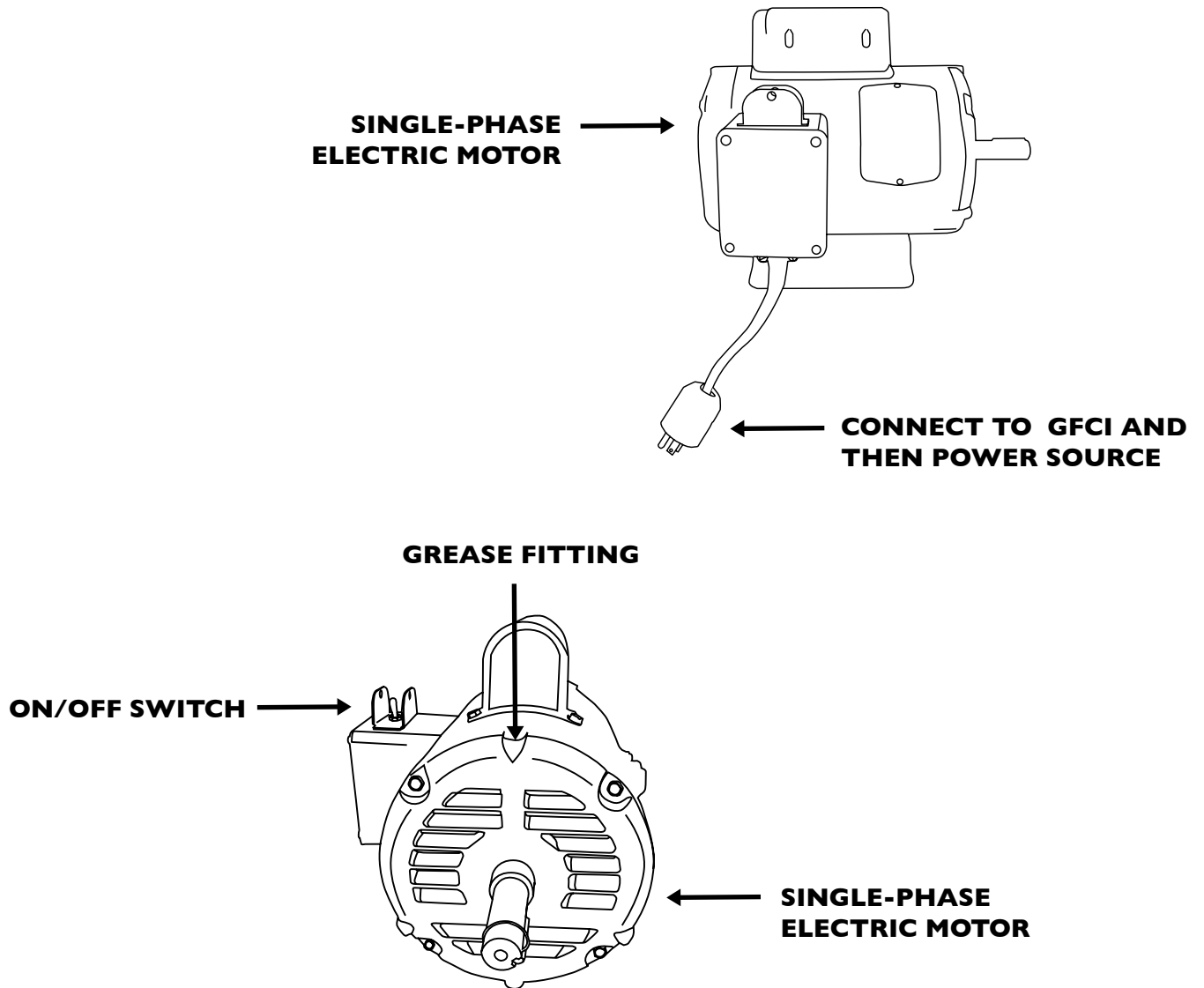


Fig 4. Single Phase Electric Motor with Pigtail Cable

INITIAL START-UP (ELECTRIC MOTOR)

Refer to motor manual for detailed instructions.

! **CAUTION**

DO NOT attempt to operate the mixer until the Safety, General Information and Inspection sections have been read and understood.

1. Before starting, make sure mixer is positioned on a secure flat surface to prevent rolling.
2. Use an extension cord of adequate current carrying capacity (see table on Page 12), insert the electric motor's power plug into one end of the extension cord. See the Recommended Extension Cord Sizes table.

! **WARNING**

NEVER use a worn or frayed extension cord.

NEVER operate mixer with V-belt cover removed.



! **DANGER**

NEVER touch the power cord with wet hands or while standing in water when it is connected to a power source. The possibility exists of electrical shock (electrocution) even death. **NEVER** spray water directly on the electric motor.

3. Plug the other end of the extension cord into a 120 VAC G.F.C.I. protected receptacle. Remember the power requirements for this electric motor is 120 VAC, 60 Hz. The use of any other input voltage will severely damage the motor.

! **WARNING**

ALWAYS read the label on the electric motor before applying power. The label will indicate the proper power requirements for the motor. Remember the use of any other input voltage will severely damage the motor.

4. To prevent tripping (Figure 5) of personnel, position the extension cord so that it lays flat and is not curled underneath the mixer.
5. Set the electric motor's **ON/OFF** switch (Figure 6) to the **ON** position.

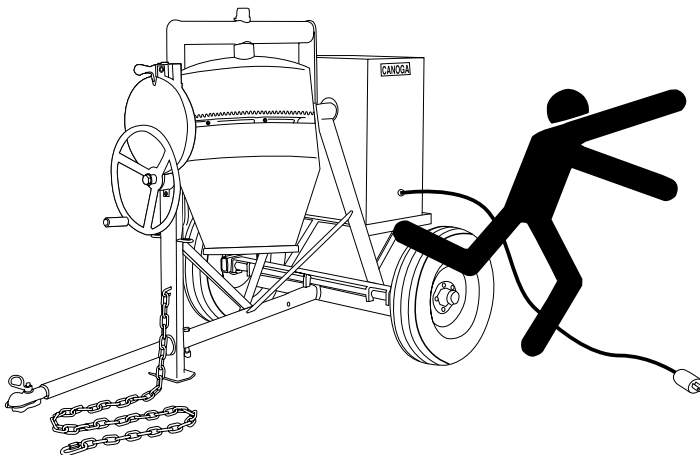


Fig 5. Extension Cord (Tripping)

ON/OFF SWITCH

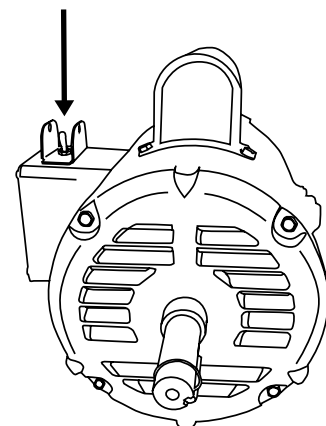


Fig 6. Electric Motor ON/OFF Switch

CONCRETE MIXING

Application

This mixer is **only** intended for the production of cement concrete. 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. Refer to the reference table below when mixing concrete for various applications.

Concrete Mixing Hints								
APPLICATIONS	MIX RATIOS	BATCH QUANTITIES					APPROX. BATCH OUTPUT	
		CEMENT 12lbs. (50 Kgs.) Bag	SAND		STONE			
			CU. FT.	LTR	CU. FT.	LTR	CU. FT.	LTR
Most Ordinary	1:2:4	1/2 BAG	1-1/4	35	2-1/2	71	3	85
Foundations	1:3:6	1/3 BAG	1-1/4	35	2-1/2	71	2-3/4	78
Rough Mass Concrete	1:4:8	1/4 BAG	1-1/4	35	2-1/2	71	2-3/4	78
Watertight Floors, Tanks, Pits, Etc.	1:1-1/2:3	2/3 BAG	1-1/4	35	3	71	3	85

OPERATION

1. To position the drum, make sure the mixer is placed on firm level ground, then pull up on the dump latch (Figure 7) and turn the hand wheel until the drum is at the desired position. Once the drum is at the desired position, pull down on the dump latch to lock the drum in position.

**CAUTION**

NEVER stand in front or behind the mixing drum while it is being placed in the dump position. Stay clear of the mixing drum while it is being positioned.

2. As the drum rotates, use a shovel (Figure 8) to place the cement mix inside the drum, add water as required.
3. Placing the shovel all the way inside the drum will cause the shovel to strike the blades. This condition could cause injury to personnel. **NEVER** place hands inside the mixing drum while it is rotating (Figure 9).

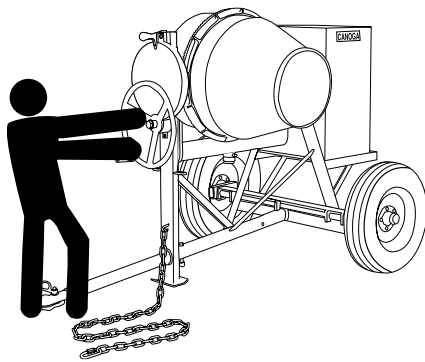


Fig 7. Mixing Drum Positioning

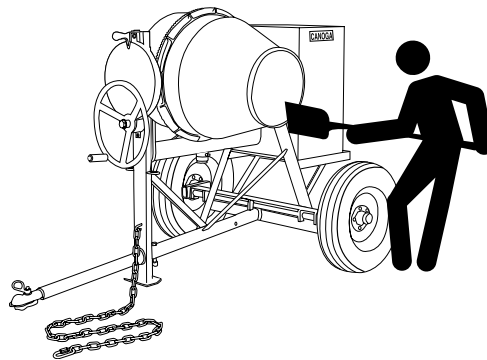


Fig 8. Filling Mixing Drum



Fig 9. Filling Mixing Drum

Stopping the Mixer

1. Turn the main **start/stop** switch to the **STOP** position.
2. Push the fuel shut-off lever to the **OFF** position.
3. Clear drum of all debris and foreign matter.

TOWING GUIDELINES



CAUTION

Check with your county or state safety towing regulations department before towing your mixer.

To reduce the possibility of an accident while transporting the mixer on public roads, always make sure that the mixer towing components and the towing vehicle are in good operating condition and both units are mechanically sound.

The following list of suggestions should be used when towing the mixer

- Make sure that the hitch and coupling of the towing vehicle are rated equal to, or greater than the trailer “gross vehicle weight rating” (GVWR).



CAUTION

If the mixer tow bar is deformed or damaged replace entire tow bar. **NEVER** tow the mixer with a defective tow bar. There exists the possibility of the trailer separating from the towing vehicle.

- **ALWAYS** inspect the hitch and coupling for wear. **NEVER** tow the mixer with defective hitches, couplings, chains etc.
- **CHECK** the tire air pressure on both the towing vehicle and the trailer. Also check the tire tread wear on both vehicles.
- **ALWAYS** make sure the mixer is equipped with a “Safety Chain”.
- **ALWAYS** attach trailer’s safety chain to the frame of towing vehicle.
- **ALWAYS** make sure that the towing vehicle’s directional, backup, and brake lights are working properly.
- Remember in most cases the maximum speed unless otherwise posted for highway towing is 45 MPH, however before towing your mixer, check your local state, and county vehicle towing requirements. Recommended off-road towing is not to exceed **10 MPH** or less depending on type of terrain.
- When towing of the mixer is required, place the drum in the **DOWN** position (mouth facing **DOWN**).
- **ALWAYS** make sure that the fuel valve lever is in the **OFF** position.
- Check wheel mounting lug nuts with a torque wrench. Torque wheel lug nuts as described in the maintenance section of this manual.
- Avoid sudden stops and starts. This can cause skidding, or jackknifing.
- Avoid sharp turns to prevent rolling.

TOWING GUIDELINES CONTINUED

Tow Bar to Vehicle Connection (Coupler Only)

1. Check the vehicle hitch ball, and mixer's coupler for signs of wear or damage. Replace any parts that are worn or damaged before towing.
2. Use only a 2-inch ball diameter (towing vehicle), this will match the mixer's 2-inch coupler. Use of any other ball diameter will create an extremely dangerous condition which can result in separation of the coupler and ball or ball failure.
3. After tow bar has been connected to mixer, attach mixer's coupler to the hitch ball on the towing vehicle securely and make sure the lock lever is in tight.

Mixer Tow Bar Vehicle Connection (Pintle & Loop)

1. Make sure the bumper on the towing vehicle is equipped to handle either a pintle or loop type tow bar configuration.
2. After tow bar has been connected to mixer, secure either type of tow bar to the towing vehicle, following state and county towing regulations.
3. As a minimum, use a 1/2-inch bolt and nylock nut grade 5 when securing either tow bar to the towing vehicle.

SAFETY CHAIN CONNECTION



CAUTION

NEVER tow the mixer with the safety chain removed. The safety chain is intended to prevent complete separation of the mixer from the towing vehicle in the event of a tow bar failure. Reference the figure below for the installation of the Safety Chain.

Tow Bar to Mixer Connection

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 nylock nut. Tighten to 40 ft.-lbs.
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 the safety chain (clevis safety hook) 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 the ground (contact) in the event the draw bar becomes disconnected from the towing vehicle.

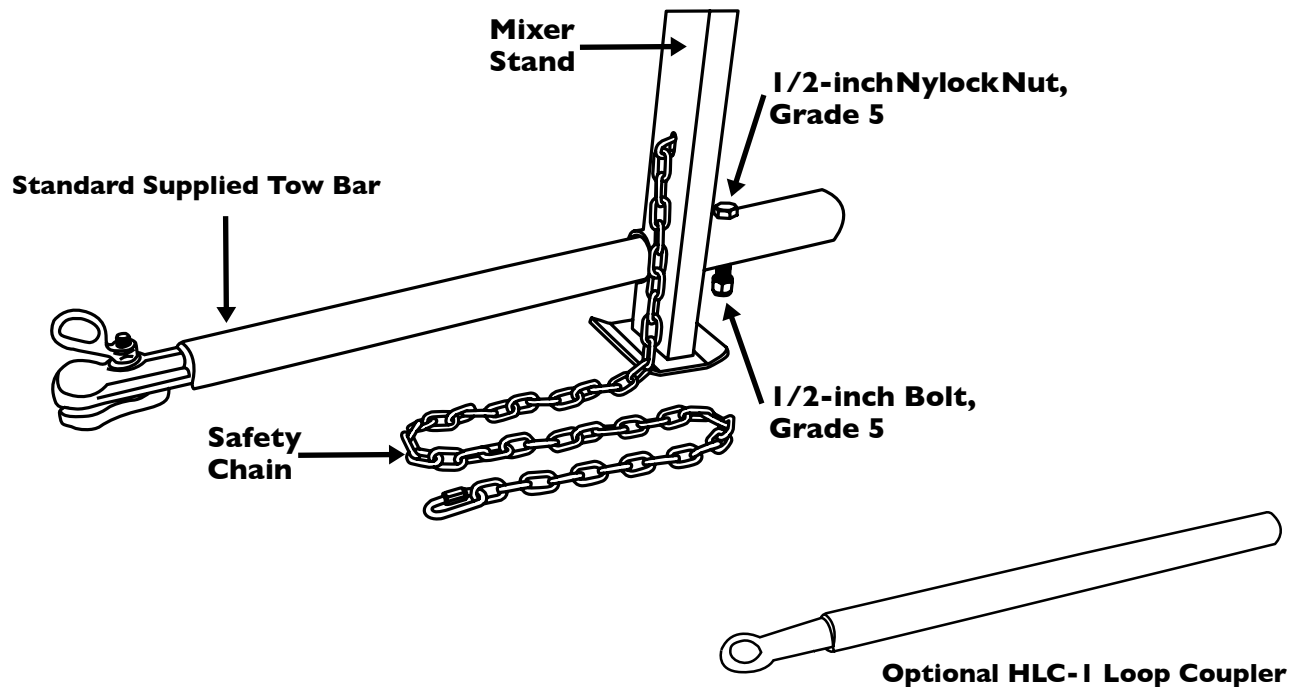


Fig 10. Tow Bar and Safety Chain Installation

MIXER MAINTENANCE

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. When parking or storing your mixer. Keep the coupler off the ground so dirt will not build up in the ball socket.

Grease Fittings (Zerk) Maintenance (Mixer)

There are 2 grease fittings (Figure 11) that will require lubrication. Lubricate these fittings once a week. Use lithium base grease, grade No.1.

Grease Fittings (Zerk) Maintenance (Electric Motor)

1. There are two grease fittings (Figure 12) at each end of the electric motor that will require lubrication. Lubricate these fittings about **every 16 months**.

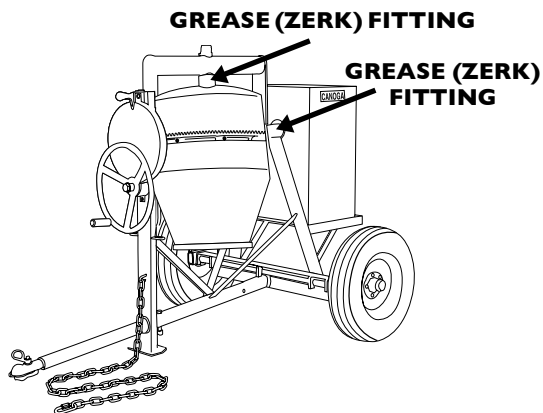


Fig 11. Grease Fittings on Mixer

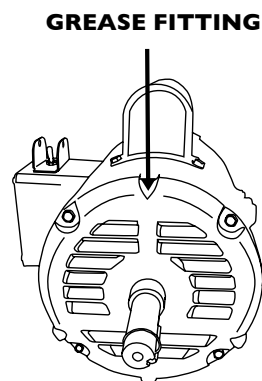


Fig 12. Grease Fittings on Electric Motor

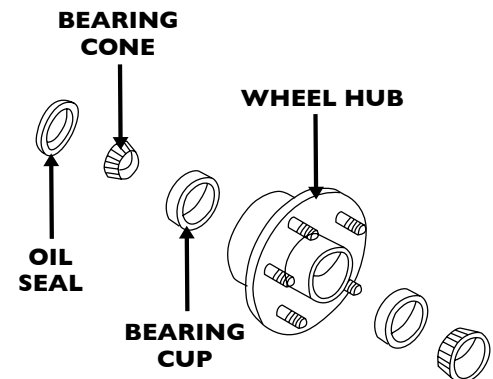


Fig 13. Wheel Hub and Bearings

2. Use Poleyrex EM (Exxon Mobil) or equivalent lubricant. Clean grease fitting, apply grease gun to fitting (1/2 shot). Remember too much grease or injecting grease too quickly can cause premature bearing failure. Slowly apply the recommended amount of grease, taking a minute or so to apply.

Wheel Bearings

1. After every 3 months of operation, remove the hub dust cap and inspect the wheel bearings (Figure 28). 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.")).

Fill the wheel hub (Figure 13) 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.

Mixer Cleaning

1. **Always** wash drum out after each use.
2. **NEVER** pour or spray water over the electric motor.

MIXER MAINTENANCE

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.



CAUTION

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.

The Tire Wear Troubleshooting table will help pinpoint the causes and solutions of tire wear problems.



CAUTION

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

Tire Wear Troubleshooting			
WEAR PATTERN		CAUSE	SOLUTION
	Center Wear	Over inflation	Adjust pressure to particular load per the manufacturer.
	Edge Wear	Under inflation	Adjust pressure to particular load per the 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 & tire skidding	Avoid sudden stops when possible and adjust brakes.

MIXER MAINTENANCE

Lug Nut Torque Requirements

It is extremely important to apply and maintain proper wheel mounting torque on the trailer. 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:

NOTICE

NEVER use an pneumatic air gun (Figure 14) to tighten wheel lug nuts.

1. Start all wheel lug nuts by hand using a Torque Wrench (Figure 15).
2. Torque all lug nuts in sequence (Figure 16). **DO NOT** torque the wheel lug nuts all the way down.
3. Tighten each lug nut in 3 separate passes as defined by Troubleshooting table. After first road use, retorque all lug nuts in sequence. Check all wheel lug nuts periodically.

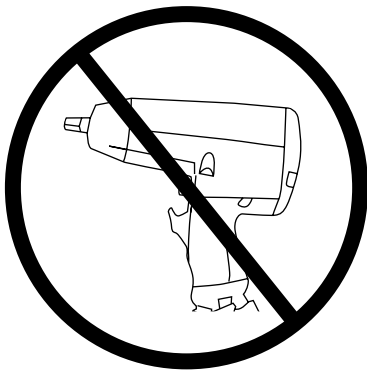


Fig 14. Pneumatic Air Gun

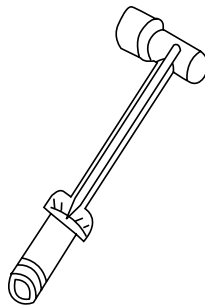


Fig 15. Torque Wrench

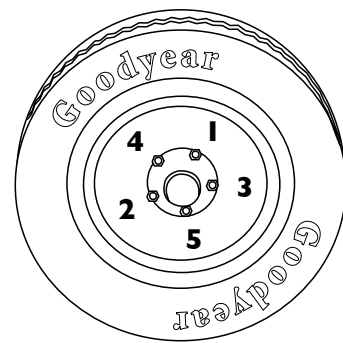


Fig 16. Wheel Lug Nuts Tightening Sequence

Mixer Storage

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

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

TROUBLESHOOTING

Practically all breakdowns can be prevented by proper handling and maintenance inspections, but in the event of a breakdown, please take a remedial action following the diagnosis based on the Troubleshooting information shown below. If the problem cannot be remedied, please leave the unit just as it is and consult our company's business office or service center.

Mixer Troubleshooting		
SYMPTOM	POSSIBLE PROBLEM	SOLUTION
Drum rotates rough	Defective ring gear?	Check that the ring gear and bearings are not worn. Replace as necessary.
	Defective pinion gear?	Check that the pinion gear and bearings are not worn. Replace as necessary.
	Worn V-belt?	Replace V-Belt.
	Loose pulley?	Tighten or replace pulley.
Drum does not rotate at all	Incorrect or no voltage being supplied to electric motor?	Check that the electric motor has the correct supply voltage.
	Power to electric motor?	Inspect power source and extension cord. Push reset button on electric motor. Make sure correct voltage is being supplied to motor.
	Broken V-belt?	Replace V-belt.
	Defective ring or pinion gears?	Check that the gears and bearings are not broken. Replace as necessary.
	Defective electric motor?	Replace electric motor.

ACCESSORIES, ORDERING AND RETURN INFORMATION**Ordering Information**

You may order MK Diamond products through your local MK Diamond distributor or, you may order direct from MK Diamond.

NOTE: There is a \$25.00 minimum order when ordering direct from MK Diamond. All purchases must be made using VISA, MasterCard, and American Express.

When ordering direct from MK Diamond, please have the following information ready before calling:

- The Model of the machine
- The Serial Number of the machine
- Where the machine was purchased and when
- The Part Number for the part(s) being ordered
- The Part Description for the part(s) being ordered

All parts may be ordered by calling toll free to **(800) 421-5830** or **(310) 539-5221** and asking for Customer Service. For technical questions, call **(800) 474-5594** or **(310) 257-2845**.

Return Materials Policy

To expedite the service relative to the return of a product purchased through MK Diamond, please observe the following:

NOTE: When returning items, they must have been purchased within the previous twelve (12) months.

- Have the Model Number of the machine
- Have the Serial Number of the machine
- Have the location of where the machine was purchased and when
- Contact Customer Service for approval to return the item(s)
- Follow the packaging instructions in the following section
- Ensure your item(s) are prepaid to the destination

For returned items, call toll free to **(800) 421-5830** or **(310) 539-5221** and asking for Customer Service. For technical questions, call **(800) 474-5594** or **(310) 257-2845**.

Packaging Instructions

- Remove the blade guard.
- Dry the machine before shipping.
- Package the unit in its original container or one of comparable size (do not ship the unit partially exposed)
- Ensure all parts are secured in the packaging to prevent moving

Authorized Service Centers

For quicker repair time, you may contact MK Diamond Customer Service, toll free at **(800) 421-5830** or **(310) 539-5221** for the Authorized Service Center closest to you. For technical questions, call **(800) 474-5594**.

CONTACT:

Canoga Equipment is a subsidiary of MK Diamond Products, Inc. Please contact MK Diamond Customer Service with any questions you might have regarding distributors, parts or service.

Telephone: **(800) 421-5830**

Fax: **(310) 539-5158**

E-mail: **Customer_Service@MKDiamond.com**

Customer Service Hours: **Monday through Friday, 6AM-5PM PST**

**MK Diamond Products, Inc.
1315 Storm Parkway
Torrance, CA 90501**

CANOGA LIMITED WARRANTY

MK DIAMOND PRODUCTS, INC. will guarantee every CANOGA® machine they build, to be free from defects in material and workmanship for (1) one year from date of purchase. The obligation of MK DIAMOND PRODUCTS, INC. under this warranty is limited to the repair or replacement of any parts which, under normal use, prove to be defective in material or workmanship. The parts involved or the unit in question should be returned to MK DIAMOND PRODUCTS, INC. or to a point designated by us, transportation prepaid.

This warranty does not obligate us to bear the cost of labor or transportation charges in connection with replacement or repair of defective parts. Likewise, it shall NOT apply to any unit which has been subjected to misuse, neglect or accident. This warranty does NOT apply to any machine which has been repaired or altered outside our factory.

This warranty does NOT obligate MK DIAMOND PRODUCTS, INC., with respect to items not of our manufacture, such as engines, motors, hydraulics, etc., which are subject to their own guarantees and warranties.

We shall in no event be liable for consequential damages or contingent liabilities arising out of failure of any equipment or parts to operate properly.

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Canoga Equipment may have patents, patent applications, trade marks, copyrights of other intellectual property right covering this product in this document.

This manual **MUST** accompany the equipment at all times. This manual is considered a permanent part of the equipment and should remain with the unit if resold.

The information and specifications included in this publication were in effect at the time of approval for printing. Illustrations are based on the Model 193 Concrete Mixer. Illustrations, descriptions, references and technical data contained in this manual are for guidance only and may not be considered as binding. Canoga reserves the right to discontinue or change specifications, design or the information published in this publication at any time without notice and without incurring any obligations.



Certificate of Origin for a Vehicle Request Form

Check with your county or state for towing regulations before towing your Canoga mixer. If you require a Certificate of Origin for a Vehicle for your Canoga mixer, please fill out the form and Canoga will send the necessary paper work to your distributor for them to issue your Certificate.

Manufacturer's Certificate of Origin form may also be found online at http://canogamixers.com/vehicle_cert.html

PERSONAL INFORMATION

First Name	Last Name
Company	Address
Address 2	City
State	Zip Code
Email Address	Phone

DISTRIBUTOR INFORMATION

Name	Address
City	State
Zip Code	

CANOGA INFORMATION

Model Number	Part Number
Serial Number	Invoice Number
Date Purchased	

Please return the completed form via email, fax or mail. Forms that are not fully completed cannot be processed.

Fax: (310) 530-3695

Mail: Canoga Products
Customer Service
1315 Storm Parkway
Torrance, CA 90509

CANOGA 193-E SERIES
OPERATOR'S MANUAL



MK Diamond Products, Inc.
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