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June 2021

MUD DOG CONCRETE BUGGY

Tamarack Industries



CB1600

OPERATOR'S MANUAL

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LIMITED TAMARACK WARRANTY

For one year from date of purchase, Tamarack will replace or repair for the original purchaser, free of charge, any part or parts, found upon examination by any Tamarack Authorized Service Depot or by the Tamarack factory, to be defective in material or workmanship or both. Equipment and accessories not manufactured by Tamarack are warranted only to the extent of the original manufacturer's warranty. All transportation charges on parts submitted for replacement or repair under this warranty must be borne by the purchaser. For warranty service contact your nearest Tamarack Authorized Service Depot.

THERE IS NO OTHER EXPRESS WARRANTY, IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED TO ONE YEAR FROM PURCHASE AND TO THE EXTENT PERMITTED BY LAW. LIABILITY FOR CONSEQUENTIAL DAMAGES UNDER ANY AND ALL WARRANTIES ARE EXCLUDED TO THE EXTENT EXCLUSION IS PERMITTED BY LAW. (THIS WARRANTY IS AN ADDITION TO ANY STATUTORY WARRANTY.)

WARRANTY VOID IF NOT REGISTERED

TAMARACK INDUSTRIES CONCRETE BUGGY

WARRANTY REGISTRATION FORM & INSPECTION REPORT

WARRANTY REGISTRATION (please print)

This form must be filled out by the dealer and signed by both the dealer and the customer at the time of delivery.

Customer's Name _____

Distributor Name _____

Address _____

Address _____

City, State, Code _____

City, State, Code _____

Phone Number (_____) _____

Check One:

Contact Name _____

Private ☐

Buggy Model _____

Contractor ☐

Serial Number _____

Other _____

Delivery Date _____

DISTRIBUTOR INSPECTION REPORT

- ____ Tire Pressure Checked
- ____ Wheel Bolts Torqued
- ____ Brakes Work
- ____ Concrete Bucket Pivots
- ____ Lubricate Machine
- ____ Check Hydraulic Oil Level
- ____ Check Engine Fluid Levels
- ____ Check That All Controls Function

SAFETY

- ____ Emergency Stop Switch Works
- ____ All Decals Installed
- ____ Review Operating And Safety Instructions

I have thoroughly instructed the buyer on the above described equipment which review included the Operator's Manual content, equipment care, adjustments, safe operation and applicable warranty policy.

Date _____

Dealer's Rep. Signature _____

The above equipment and Operator's Manual have been received by me and I have been thoroughly instructed as to care, adjustments, safe operation and applicable warranty policy.

Date _____

Owner's Signature _____

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WARNING



CALIFORNIA - Proposition 65 Warning

Engine exhaust and some of its constituents and some dust created by power sanding, sawing, grinding, drilling and other construction activities contains chemicals known to the State of California to cause cancer, birth defects and other reproductive harm.

Some examples of these chemicals are:-

- Lead from lead-based paints
- Crystalline silica from bricks
- Cement and other masonry products
- Arsenic and chromium from chemically treated lumber

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals:

ALWAYS work in a well ventilated area, and work with approved safety equipment, such as dust masks that are specially designed to filter out microscopic particles.

1 INTRODUCTION

Congratulations on your choice of a Concrete Buggy Manufactured by Tamarack Industries to complement your construction operation. This equipment has been designed and manufactured to meet the needs of a discriminating buyer for the efficient moving of concrete or other material.

Safe, efficient and trouble free operation of your Concrete Buggy requires that you and anyone else who will be operating or maintaining the Buggy, read and understand the Safety, Operation, Maintenance and Trouble Shooting information contained in the Operator's Manual.



This manual is applicable to the Model CB1600 Series Concrete Buggy built by Tamarack Industries. Use the Table of Contents or Index as a guide when searching for specific information.

Keep this manual handy for frequent reference and to pass on to new operators or owners. Call your distributor or dealer if you need assistance or information.

OPERATOR ORIENTATION - The directions left, right, front and rear, as mentioned throughout this manual, are defined when standing on the operators platform and facing in the direction of driving.

2 SAFETY

SAFETY ALERT SYMBOL

This Safety Alert symbol means
ATTENTION!
BECOME ALERT!
YOUR SAFETY IS INVOLVED!



The Safety Alert symbol identifies important safety messages on the Concrete Buggy and in the manual. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

Why is SAFETY important to you?

3 Big Reasons

Accidents Disable and Kill
Accidents Cost
Accidents Can Be Avoided

SIGNAL WORDS:

Note the use of the signal words **DANGER**, **WARNING** and **CAUTION** with the safety messages. The appropriate signal word for each message has been selected using the following guide-lines:

DANGER - Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations, typically for machine components that, for functional purposes, cannot be guarded.

WARNING - Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION - Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

SAFETY

YOU are responsible for the **SAFE** operation and maintenance of your Concrete Buggy. **YOU** must ensure that you and anyone else who is going to operate, maintain or work around the Concrete Buggy be familiar with the operating and maintenance procedures and related **SAFETY** information contained in this manual. This manual will take you step-by-step through your working day and alerts you to all good safety practices that should be adhered to while operating the Buggy.

Remember, **YOU** are the key to safety. Good safety practices not only protect you but also the people around you. Make these practices a working part of your safety program. Be certain that **EVERYONE** operating this equipment is familiar with the recommended operating and maintenance procedures and follows all the safety precautions. Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

- Buggy owners must give operating instructions to operators or employees before allowing them to operate the machine, and at least annually thereafter.
- The most important safety device on this equipment is a SAFE operator. It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow these. All accidents can be avoided.
- A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes himself and bystanders to possible serious injury or death.
- Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.

2.1 GENERAL SAFETY

1. Read and understand the Operator's manual and all safety signs before operating, maintaining, adjusting, servicing or cleaning the Buggy.
2. Only trained competent persons shall operate the Buggy. An untrained operator is not qualified to operate the machine.



3. Have a first-aid kit available for use, should the need arise and know how to use it.



4. Do not allow riders.

5. Have a fire extinguisher available for use should the need arise and know how to use it.



6. Wear appropriate protective gear. This list includes, but is not limited to:

- A hard hat
- Protective boots with slip resistant soles
- Protective goggles
- Heavy gloves
- Hearing protection



Stop engine, disconnect spark plug wire and wait for all moving parts to stop before servicing,

7. adjusting, repairing or cleaning.

8. Wear appropriate hearing protection when operating for long periods of time.



9. Dust Hazard ~ Wear appropriate dust mask around this equipment.



10. Ventilation ~ Never operate any gas powered equipment in a poorly ventilated or enclosed area. Avoid prolonged breathing of exhaust gases.



2.1 GENERAL SAFETY

11. Hot surface ~ Avoid contact with hot exhaust system and engine, Allow to cool before performing repairs or service.



12. Electrocution Hazard ~ Always use proper size grounded extension cord. inspect all extension cords for cuts, frayed wires and broken connectors. Do not use cords if not in good condition.



13. Explosion Hazard ~ Batteries give off small quantities of volatile gas when being charged. Keep sparks, smoking material and open flames away from the battery at all times.



14. Corrosive Material ~ battery acid is a corrosive material. Protect hands from exposure to battery acid at all times.



15. Rotating Parts ~ Keep hands away from rotating fan at all times. Allow fan to stop rotating before performing repairs or service.



16. High Pressure Hazard ~ Wear proper hand and eye protection when searching a high pressure hydraulic hose for a leak.



17. Fire Hazard ~ Do not operate machine in the vicinity of open flames, sparks or while smoking.



2. Do not allow riders on the machine.
3. Install, close and secure all guards, shields and hoods before starting or operating.
4. Stop engine, disconnect spark plug wire, apply park brake and wait for all moving parts to stop before servicing, adjusting, repairing, or cleaning.
5. Clear the area of all bystanders before starting.
6. Keep hands, feet, hair and clothing away from moving parts.
7. Do not allow personnel that are taking drugs, alcohol or any medications that impair the senses or when excessively tired or stressed to operate the Buggy.
8. Keep working area clean and dry to prevent slipping and tripping.
9. Keep all hydraulic lines, fittings, hoses and motors tight and free of leaks before using.
10. Do not run the Buggy in an explosive atmosphere or in a poorly ventilated or enclosed area.
11. Do not go between bucket and frame/engine compartment when dumping. Keep others away.
12. Disengage hydraulic pump before moving unit by hand.
13. Stay away from hot engine components during operation
14. Do not smoke when refueling gas engine.
15. Know the working area. Be sure all transport and loading/unloading areas are strong enough to support the weight of the Buggy and/or concrete.
16. Wear appropriate hearing protection and other protective gear when operating for long periods of time.
17. Do not exceed a safe travel speed when transporting. Slow down for corners and when going over rough terrain. Do not operate on slopes.
18. Review safety instructions with all operators annually.

2.2 OPERATING SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, servicing, adjusting, or cleaning the Buggy.

2.3 HYDRAULIC SAFETY

1. Make sure that all components in the hydraulic system are kept in good condition and are clean.
2. Replace any worn, cut, abraded, flattened or crimped hoses and steel lines.
3. Stop engine, disconnect spark plug wire and wait for all moving parts to stop before servicing, adjusting, repairing, or cleaning.
4. Do not attempt any makeshift repairs to the hydraulic lines, fittings or hoses by using tape, clamps or cements. The hydraulic system operates under extremely high-pressure. Such repairs will fail suddenly and create a hazardous and unsafe condition.

5. Wear proper hand and eye protection when searching for a high-pressure hydraulic leak. Use a piece of wood or cardboard as a backstop instead of hands to isolate and identify a leak.



6. If injured by a concentrated high-pressure stream of hydraulic fluid, seek medical attention immediately. Serious infection or toxic reaction can develop from hydraulic fluid piercing the skin surface.
7. Before applying pressure to the system, make sure all components are tight and that lines, hoses and couplings are in good condition.

2.4 BATTERY SAFETY

1. Keep all sparks and flames away from batteries, as gas given off by electrolyte is explosive.
2. Avoid contact with battery electrolyte: wash off any spilled electrolyte immediately.
3. Wear safety glasses when working near batteries.
4. Do not tip batteries more than 45 degrees, to avoid electrolyte loss.

2.4 BATTERY SAFETY

5. To avoid injury from spark or short circuit, disconnect battery ground cable before servicing any part of electrical system.

2.5 SAFETY SIGNS

1. Keep safety signs clean and legible at all times.
2. Replace safety signs that are missing or have become illegible.
3. Replaced parts that displayed a safety sign should also display the current sign.
4. Safety signs are available from your Distributor or the factory.

How to Install Safety Signs:

- Be sure that the installation area is clean and dry.
- Be sure temperature is above 50°F (10°C).
- Decide on the exact position before you remove the backing paper.
- Remove the smallest portion of the split backing paper.
- Align the sign over the specified area and carefully press the small portion with the exposed sticky backing in place.
- Slowly peel back the remaining paper and carefully smooth the remaining portion of the sign in place.
- Small air pockets can be pierced with a pin and smoothed out using the piece of sign backing paper.

2.6 MAINTENANCE SAFETY

1. Review the Operator's Manual and all safety items before working with, maintaining or operating the Buggy.
2. Stop engine, disconnect spark plug wire, apply park brake and wait for all moving parts to stop before servicing, adjusting, repairing, or cleaning.

3. Follow good shop practices:

- Keep service area clean and dry
- Be sure electrical outlets and tools are properly grounded.
- Use adequate light for the job at hand.



4. Keep hands, feet, clothing and hair away from all moving and/or rotating parts.
5. Do not place hands, arms or body parts next to bucket and frame unless the engine is off and the spark plug wire is disconnected.
6. Do not attempt any adjustment or maintenance to any system of the Buggy unless the spark plug wire is disconnected.
7. Keep all hydraulic lines, fittings, hoses and motors tight and free of leaks before using.
8. Relieve pressure in the hydraulic circuit before working on system.
9. Make sure that all guards, shields and hoods are properly installed and secured before operating the Buggy.
10. Securely support the machine using blocks or safety stands before working beneath it or changing tires.

11. Store and transfer gasoline, solvents, cleaners or any flammable liquids only in safety standard approved containers.
12. Establish and follow a lock out tag procedure for the Buggy before working on machine.

2.7 TIRE SAFETY

1. Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion which may result in serious injury or death.
2. Do not attempt to mount a tire unless you have the proper equipment and experience to do the job.
3. Have a qualified tire dealer or repair service perform required tire maintenance.

2.8 STORAGE SAFETY

1. Store unit in an area away from human activity.
2. Do not permit children to play on or around the stored Buggy.
3. Remove ignition key before storing.

2.9 REFUELING SAFETY

1. Handle fuel with care. It is highly flammable.
2. Allow engine to cool for 5 minutes before refueling. Clean up spilled fuel before restarting engine.
3. Do not refuel the machine while smoking or when near open flame or sparks.
4. Always use an approved fuel container.
5. Fill fuel tank outdoors.
6. Prevent fires by keeping machine clean of accumulated trash, grease and debris.



2.10 SIGN-OFF FORM

Tamarack Industries follows the general Safety Standards specified by the Society of Automotive Engineers (SAE) and the Occupational Safety and Health Administration (OSHA). Anyone who will be operating and/or maintaining the Concrete Buggy must read and clearly understand ALL Safety, Operating and Maintenance information presented in this manual.

Do not operate or allow anyone else to operate this equipment until such information has been reviewed. Annually review this information before the season start-up.

Make these periodic reviews of SAFETY and OPERATION a standard practice for all of your equipment. We feel that an untrained operator is unqualified to operate this machine.

A sign-off sheet is provided for your record keeping to show that all personnel who will be working with the equipment have read and understand the information in the Operator's Manual and have been instructed in the operation of the equipment.

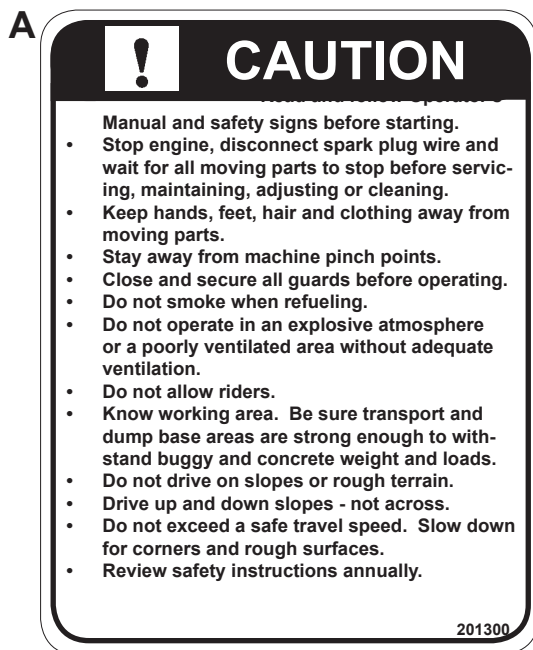
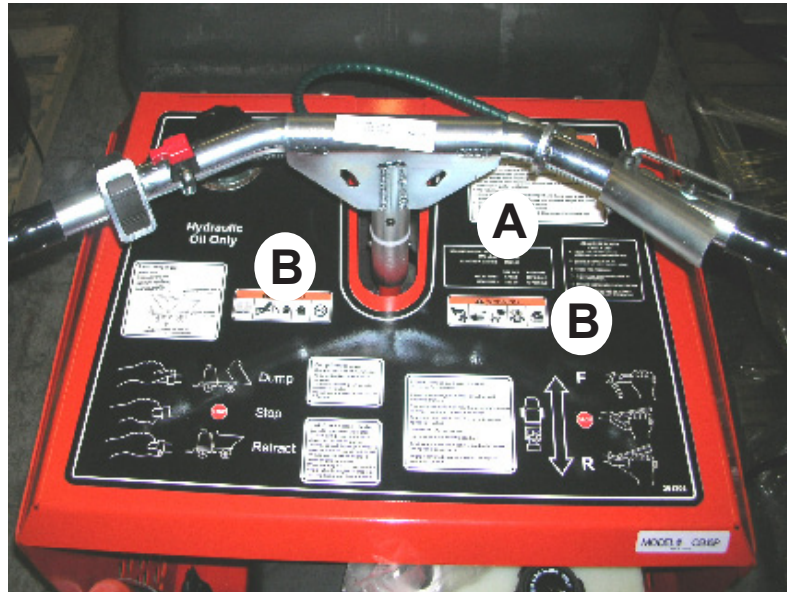
SIGN-OFF FORM

[illegible]

3 SAFETY SIGN LOCATIONS

The types of safety signs and locations on the equipment are shown in the illustration below. Good safety requires that you familiarize yourself with the various Safety Signs, the type of warning and the area, or particular function related to that area, that requires your SAFETY AWARENESS.

- Think SAFETY! Work SAFELY!



REMEMBER - If Safety Signs have been damaged, removed, become illegible or parts replaced without safety signs, new signs must be applied. New safety signs are available from your authorized dealer.

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D



C



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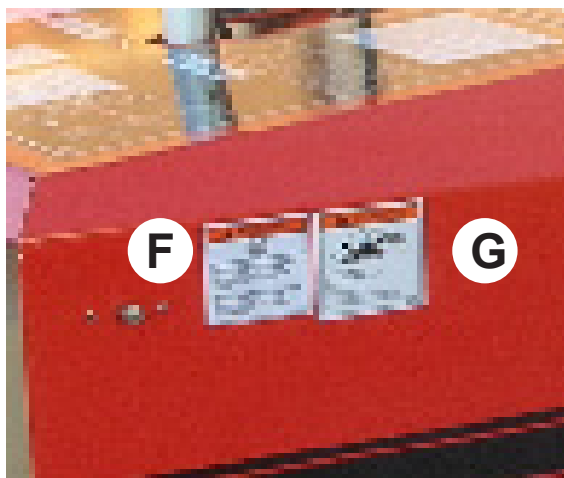
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E



F



G



REMEMBER - If Safety Signs have been damaged, removed, become illegible or parts replaced without safety signs, new signs must be applied. New safety signs are available from your authorized dealer.

4 OPERATION



OPERATING SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, servicing, adjusting, or cleaning the Buggy.
2. Do not allow riders on the machine.
3. Install, close and secure all guards, shields and hoods before starting or operating.
4. Stop engine, disconnect spark plug wire, apply park brake and wait for all moving parts to stop before servicing, adjusting, repairing, or cleaning.
5. Clear the area of all bystanders before starting.
6. Keep hands, feet, hair and clothing away from moving parts.
7. Do not allow personnel that are taking drugs, alcohol or any medications that impair the senses or when excessively tired or stressed to operate the Buggy.
8. Keep working area clean and dry to prevent slipping and tripping.
9. Keep all hydraulic lines, fittings, hoses and motors tight and free of leaks before using.
10. Do not run the Buggy in an explosive atmosphere or in a poorly ventilated or enclosed area.
11. Do not go between bucket and frame/engine compartment when dumping. Keep others away.
12. Disengage hydraulic pump before moving unit by hand.
13. Stay away from hot engine components during operation.
14. Do not smoke when refueling gas engine.
15. Know the working area. Be sure all transport and loading/unloading areas are strong enough to support the weight of the Buggy and/or concrete.
16. Wear appropriate hearing protection and other protective gear when operating for long periods of time.
17. Do not exceed a safe travel speed when transporting. Slow down for corners and when going over rough terrain. Do not operate on slopes.
18. Review safety instructions with all operators annually.

4.1 TO THE NEW OPERATOR OR OWNER

The concrete Buggy is designed to efficiently move concrete or other material into spaces that are not accessible to trucks or concrete pumps. It is the responsibility of the operator to be familiar with the machine before starting.

It is the responsibility of the owner or operator to read this manual before starting. Follow all safety instructions exactly. Safety is everyone's business. By following recommended procedures, a safe working environment is provided for the operator, bystanders and the environment.

Many features incorporated into this machine are

the result of suggestions made by customers like you. Read this manual carefully to learn how to operate the machine safely and how to set it to provide maximum operating efficiency. By following the operating instructions in conjunction with a good maintenance program, your Buggy will provide many years of trouble-free service.

At various places throughout this Manual you will see "F.N.R."

This is an abbreviation for:

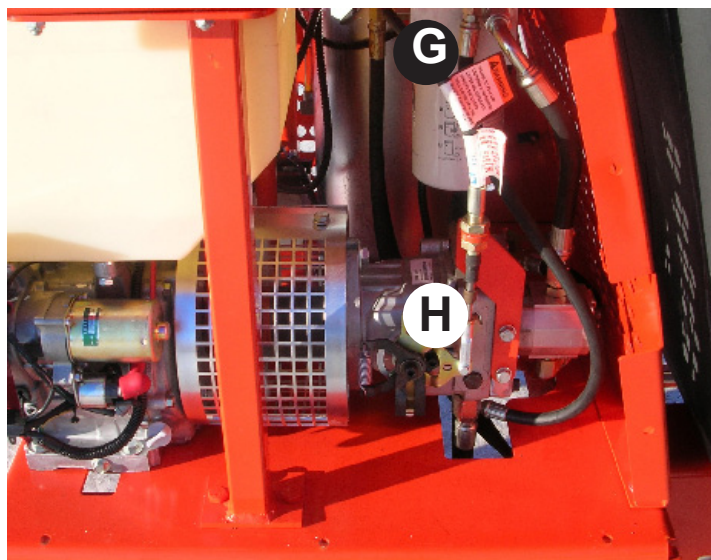
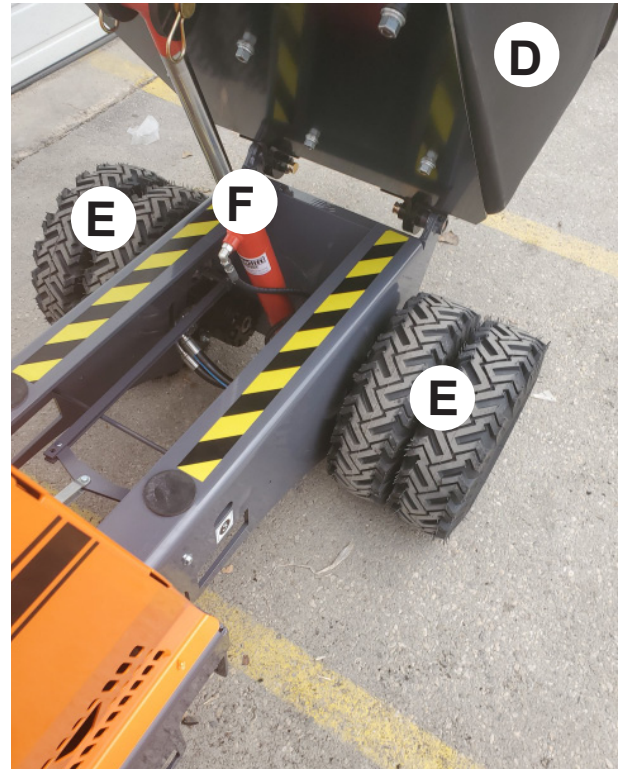
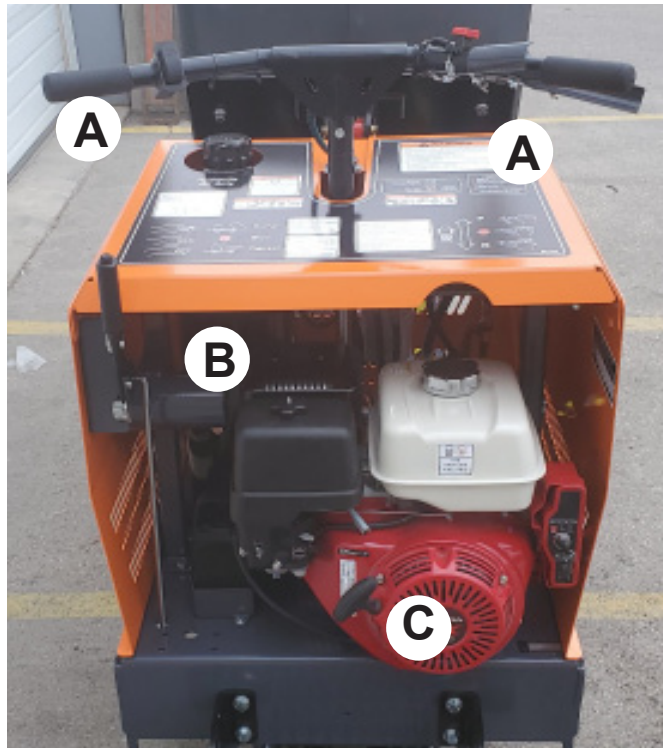
"FORWARD - NEUTRAL - REVERSE"

4.2 HOW THE MACHINE WORKS

The Concrete Buggy consists of a large transportable poly or steel bucket that is used to move concrete or other material. A gas engine, runs a hydraulic pump to provide tractive and dumping power. The drive train, pump, motor, cooler and oil reservoir are all located under the frame console. Single or dual wheels can be mounted on the tractive axles.

Controls are designed into the control handles or on the top of the engine compartment for easy access for the operator. A folding operator platform allows the operator to ride or walk behind during operation.

A hydraulic cylinder is used to dump the bucket as desired.



- A Controls
- B Hydraulic Reservoir
- C Gas Engine
- D Concrete Bucket
- E Tractive Wheels
- F Hydraulic Cylinder
- G Hydraulic Filter
- H Hydraulic Pump

Fig. 1 MACHINE COMPONENTS

4.3 SET-UP INSTRUCTIONS

The following items must be done prior to starting the machine:

1. Fill the fuel tank with regular unleaded gas. Do not use an ethanol blend.
2. Fill the engine crankcase with oil. Refer to engine manual for oil specifications.

IMPORTANT

Engine warranty is void if the engine is run without oil.

3. Check the hydraulic oil level. Top up as required. Oil should be visible in sight gage.

4.4 PRE-OPERATION CHECKLIST

Efficient and safe operation of the Concrete Buggy requires that each operator reads and understands the operating procedures and all related safety precautions outlined in this section. A pre-operation checklist is provided for the operator. It is important for both personal safety and maintaining the good mechanical condition of the machine that this checklist is followed.

Before operating the Buggy and each time thereafter, the following areas should be checked off:

1. Check all fluid levels: hydraulic oil, fuel and engine oil. Refuel or top up oil as required.
2. Check that the inside of the bucket is clean.
3. Check that the bucket tips and moves freely.
4. Check the work area. Be sure the loading, travel and dumping areas are strong enough to support the weight of the Buggy and concrete. Check that the Buggy fits through all gates and doorways. Be sure there are no obstructions.
5. Lubricate machine per Maintenance Section.
6. Install, close and secure all guards, shields and hoods.

4.5 MACHINE BREAK-IN

A special break-in procedure has been developed to insure the integrity of the machine when first starting. When using the machine for the first time, follow this procedure.

A. Before Starting:

1. Read the Engine and Buggy Operator's Manuals.
2. Review and follow pre-start procedures before starting machine (Section 4.4).

B. At 1/2, 2, 5 and 10 hours:

1. Check all machine fluid levels: Hydraulic oil, fuel and engine oil. Refuel or top up as required.
2. Check the bucket. Empty or clean if required.
3. Check for loose hardware. Tighten to its specified torque.
4. Check the controls. Be sure that they all function properly.
5. Lubricate the points defined in the Maintenance section.
6. Then go to the service schedule as defined in the Maintenance section.
7. Check wheel nut torque.

C. At 10 hours:

1. Change the engine oil. Replace with the specified oil.
2. Then go to the services schedule as defined in the Maintenance section and engine manual.

4.6 CONTROLS

Before starting to work, all operators should familiarize themselves with the location and function of the controls.

1. Gas Engine:

A 13hp Honda engine is used with the Buggy. Always read the engine Operator's Manual supplied with the machine for the detailed operating procedures.

a. Ignition Switch:

This key switch controls the electrical power to the engine electrical system. Turn the switch clockwise to turn the electrical system ON and the engine will run.

Turn further against the spring-loaded detent to engage the starter. Release the key when the engine starts and it will return to the run position. Turn counter-clock-wise to stop.

b. Fuel Shut-off Valves:

Each engine is equipped with a valve between the fuel tank and the carburator. Slide the fuel valve toward the block to turn ON and away for OFF. Turn the fuel OFF when not in use or before transporting.

c. Throttle:

This lever controls the engine RPM. Move the lever laterally to increase or decrease the RPM. Always run at near maximum throttle while operating.

d. Choke:

The choke controls the fuel/air mixture to the engine. Close the choke when starting if the engine is cold. Open the choke as the engine warms. Always open the choke fully during operation.

e. Starting Rope:

This retracting rope and T handle is used to turn the engine over for starting. Grasp the T handle firmly and pull the rope sharply to start the engine.

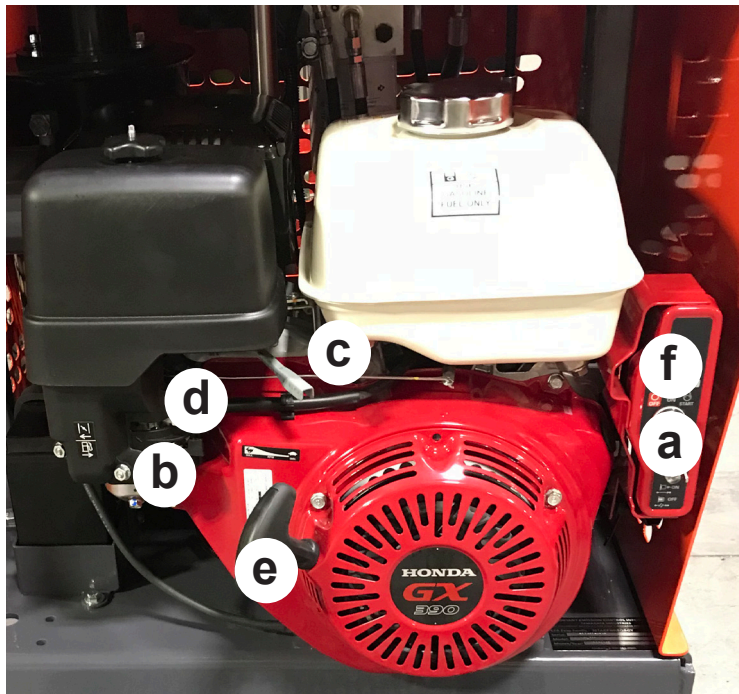


Fig. 2 ENGINE CONTROLS

f. Indicator Light And Circuit Breaker Reset:

This LED indicator light and circuit monitors the condition of the engine electrical circuit. It will illuminate when the circuit exceeds its preset value and trip the breaker. Depress the indicator to reset the breaker and the light will go out.

2. Console:

a. Handle Bars:

These traditional handle bars steer the Buggy by turning the rear pivoting axle. Turn the handle bars clockwise to steer to the right and counter-clockwise for left. The handle bars must be turned for steering as the rear wheels will not straighten out as the unit moves forward.

b. Hand Lever - RH Side Handlebar:

The right hand grip is equipped with a spring-loaded lever that controls the travel speed of the machine. Squeeze the lever with your right hand to increase the travel speed. Release the lever and the Buggy will slow until it stops.

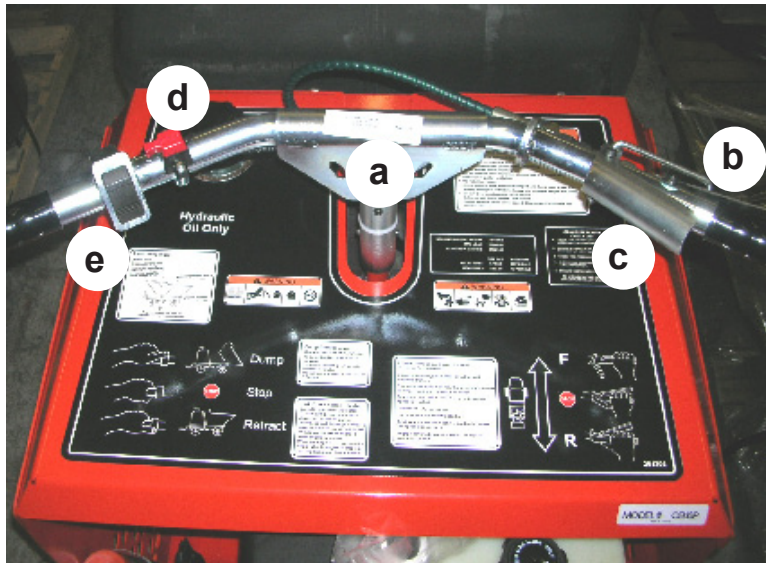


Fig. 3 CONSOLE

c. Thumb Lever - RH Handlebar:

The thumb lever controls the travel speed of the Buggy in the REVERSE DIRECTION

d. Emergency Stop Switch:

This 3 position switch controls the electrical circuit of engine. Place the switch parallel to the handle to allow the engine to run. Move the lever up or down (not parallel to the handle bar) to stop the engine.

e. Bucket Dump Switch:

This 3 position momentary on electrical switch controls the flow of oil to dump the bucket. Depress the switch at the upper location to raise the bucket, depress at the lower position to retract.

3. Brakes:

a. Foot Pedal:

The pedal controls the brakes by moving the brake shoe inside the drums on the drive wheels. Depress the pedal to engage the brake.

b. Parking Brake Lever:

The hand lever activates the parking brake. To activate press down on the foot pedal then pull the hand lever. Always engage the brake when leaving the machine or when stopping on a slope.

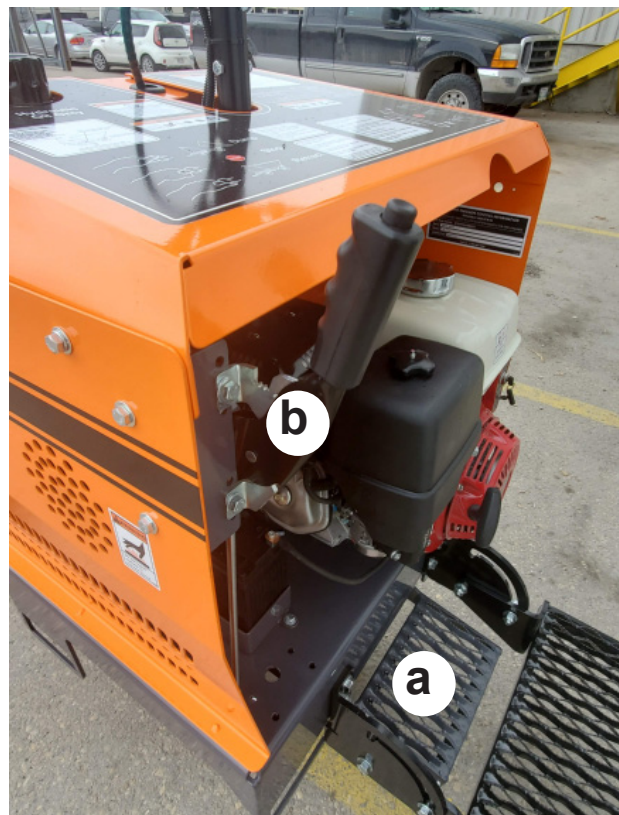


Fig. 4 BRAKES

4.7 OPERATING



OPERATING SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, servicing, adjusting, or cleaning the Buggy.
2. Do not allow riders on the machine.
3. Install, close and secure all guards, shields and hoods before starting or operating.
4. Stop engine, disconnect spark plug wire, apply park brake and wait for all moving parts to stop before servicing, adjusting, repairing, or cleaning.
5. Clear the area of all bystanders before starting.
6. Keep hands, feet, hair and clothing away from moving parts.
7. Do not allow personnel that are taking drugs, alcohol or any medications that impair the senses or when excessively tired or stressed to operate the Buggy.
8. Keep working area clean and dry to prevent slipping and tripping.
9. Keep all hydraulic lines, fittings, hoses and motors tight and free of leaks before using.
10. Do not run the Buggy in an explosive atmosphere or in a poorly ventilated or enclosed area.
11. Do not go between bucket and frame/engine compartment when dumping. Keep others away.
12. Disengage hydraulic pump before moving unit by hand.
13. Stay away from hot engine components during operation.
14. Do not smoke when refueling gas engine.
15. Know the working area. Be sure all transport and loading/unloading areas are strong enough to support the weight of the Buggy and/or concrete.
16. Wear appropriate hearing protection and other protective gear when operating for long periods of time.
17. Do not exceed a safe travel speed when transporting. Slow down for corners and when going over rough terrain. Do not operate on slopes.
18. Review safety instructions with all operators annually.

NOTE:

If bucket is dumped and the engine stalls (or is out of gas) and you want to retract the bucket proceed as follows:

Hold the down button on the L/H handlebars (page 15, fig. 3, item 'e') while you repeatedly pull the starter cord. This will generate enough power to open the valve and retract the bucket.

NOTE:

Ensure this is a 2 person operation and you are on stable ground

For recoil start models:

If the buggy bucket doesn't dump at engine idle rpm, then bring up the engine speed about 200 rpm – the charge coil needs about 2000 rpm to develop the electric power required.

Each operator should review this section of the manual when starting a project and as often as required to be familiar with the machine. When operating, follow this procedure:

1. Review and follow the Set-Up and Pre-Operation checklists.
2. Review the location and function of all controls.

3. **Starting Buggy:**

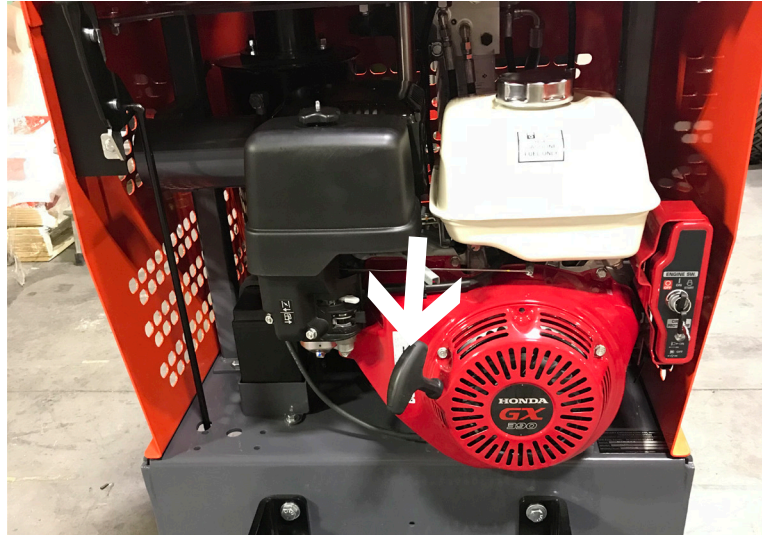
- a. Check that everyone is clear of the machine.
- b. Place the F.N.R. (on handle bar) lever(s) in neutral.
- c. Be sure the brake is engaged.
- d. Move the throttle into its mid-range position.
- e. Close the choke if starting when the engine is cold.

f. **Manual Start:**

- Check that the emergency stop switch on the handle bars is in the run position.
- Turn the ignition switch to its RUN position.
- Pull sharply on the T bar rope to start the engine.

g. **Electric Start:**

- Check that the emergency stop switch on the handle bars is in the run position.
 - Turn the ignition key to the start position.
 - Release the key when the engine starts.
- h. Allow the engine to run for a couple of minutes to warm up.
 - i. Open the choke to its fully open position when the engine is warm.
 - j. Move the throttle to its maximum RPM position.
 - k. Move the F.N.R. lever(s) into the desired position for forward or reverse.
 - l. Release the park brake.
 - m. Squeeze the hand lever as required for the speed desired.



Manual Start



Electric Start

Fig. 5 STARTING

4. Stopping Buggy:

- Release F.N.R. lever(s) on the right handle bar
- Set park brake.
- Move throttle to low idle.
- Turn ignition key switch off.



Key Switch (Electric Start)

5. Emergency Stopping:

If an emergency arises, use the emergency stop switch on the right hand grip to stop engine. Do not take a chance with your safety or those around the work site.



Fig. 6 STOPPING

Fig. 7
EMERGENCY STOP SWITCH

6. **Exhaust Fumes:**

- a. It is the responsibility of the operator to use a gas engine machine in an open area with good air flow and ventilation to eliminate the chance of asphyxiation from exhaust fumes. All gas engines produce carbon monoxide gas in their exhaust that is deadly in small concentrations. Never operate the machine inside a building or enclosed area unless ample ventilation is provided.
- b. The State of California has found that engine exhaust contains chemicals known to cause cancer, birth defects or other reproductive harm. Do not breathe exhaust fume. Do not allow others to breathe the fumes.



7. **Operating Environment:**

It is the responsibility of the operator to be familiar with the work site, operating environment and tasks to be done prior to starting the job. The items that all workers should be aware of includes but is not limited to:

a. **Dust:**

All work and construction sites create dust. Each operator should wear the appropriate gear to protect themselves against dust or other debris. A face shield or goggles will also prevent debris from contacting the operators eyes. Do not take chances with your safety or that of others on the work site.



b. **Noise:**

Many work and construction sites generate a lot of noise. Exposure to loud noise can cause long term hearing loss. Always wear appropriate hearing protection whenever operating the Buggy or on the work site. Have others wear hearing protective gear also.



c. **Surface Of Driveways:**

Buggys are used to move and transport concrete or other construction material into areas where trucks or pumers can not reach. It is the responsibility of the operator to inspect and verify that the driving routes and paths are clean, dry, level and strong enough to carry the weight of the loaded machine.

- Remove all boards, planks, blocks or other debris that can become an obstacle or obstruction. Keep the driveways clean and clear. An unexpected block or obstruction can cause the machine to go out of control. Do not take chances.
- Be sure the surface is dry and not slippery. Wet or slippery surfaces can cause the machine to slip or slide and get away from the driver. An out of control machine can damage property or personnel. Wait until the travel pathways have dried or are no longer slippery before continuing work. Do not operate on icy, wet or slippery surfaces.
- Be sure the structure under the travel ways is strong enough to support the weight of the machine whether it is loaded or unloaded. Travel pathways may go over partially completed structures or scaffolding. Always be sure of the structural integrity of the pathway and dumping support structures before starting to work.
- Be sure the pathway width, height and clearance are sufficient to accommodate the Buggy and its cargo. Be sure that all doorways, halls and corners are wide enough to provide for convenient passage. Widen doorways or reroute pathway to provide good clearance.

8. **Filling:**

Move the unit into position next to the supply source or vehicle. Be sure the loading area is level with no obstacles or obstructions to interfere. An uneven or inclined surface in the loading area can lead to tipping as the bucket is being filled or when it is full.

Direct the concrete into the bottom of the bucket rather than against the sides. Side loading can cause unexpected tipping as the bucket fills. Fill only as much as the conditions will allow to be safely handled. Take smaller loads when the travel pathway is rough or sloped. It is better to make an extra trip than to have to clean up a tipped machine.



Fig. 8 FILLING

9. **Dumping/Unloading:**

The Buggy is designed with a hydraulic cylinder to tilt the bucket for dumping/unloading/emptying. It is recommended that the driver review these general practices prior to dumping/unloading the bucket:

- a. Drive the machine to the dumping area so the drive wheels are 4 inches (100 mm) from the forms or unloading spot.
- b. Bring the unit to a full stop.
- c. Slowly raise the bucket by pressing the switch on the L/H handlebar.

NOTE: If the bucket dumps too quickly, then press and release the switch intermittently to "jog" the bucket up. Another option is to reduce the engine RPM slightly to reduce the flow of oil to the cylinder. Remember to return the engine to maximum RPM to ensure maximum breaking characteristics on grades.

- d. Extend and retract the tilt cylinder sharply to remove all material from the bucket.
- e. Use common sense at all times.

Watch out for:

- Do not empty the bucket while the Buggy is moving. A tilted bucket raises the machine center-of-gravity and results in a less stable machine which can lead to tipping.
 - Do not dump unless the tractive wheels are level. A dumping area that is not level can lead to tipping.
 - Do not tilt the bucket if the wheels are on a soft or an unstable base.
 - Do not dump the bucket unless dumping area is properly supported.
 - Do not dump on a slope. Uneven terrain or base can lead to tipping.
- f. Do not go between the bucket and engine compartment when lowering the bucket. Keep others away.

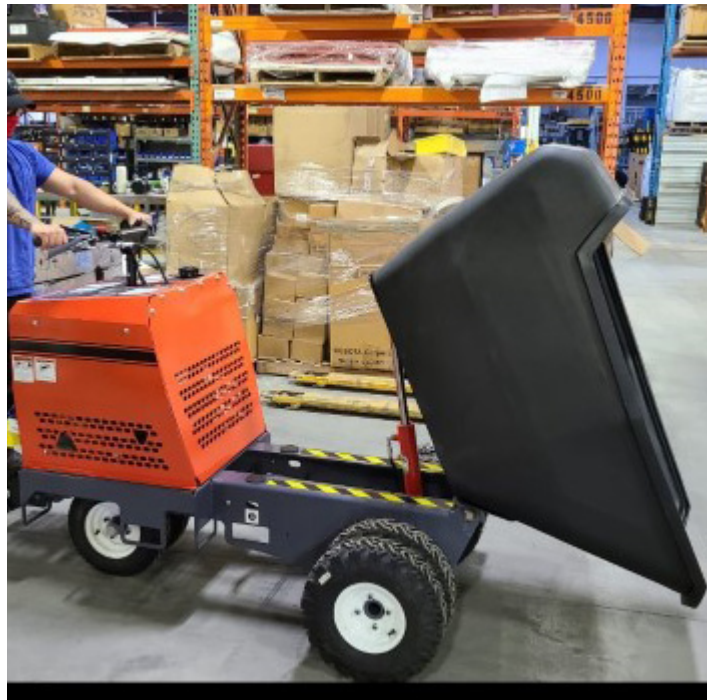


Fig. 9 DUMPING/UNLOADING

10. Travel Speed:

The machine is capable of traveling 8.4 mph (14 kph). It is the responsibility of the driver to assess the operating conditions and travel at a speed that provides good stability at all times. Do not exceed a safe travel speed during transport. The machine is designed narrow and high for access to most construction areas and for load carrying capacity. This gives it a high center-of-gravity that must be considered when determining the travel speed.

- Reduce speed when driving on a rough surface.
- Slow down when turning or making corners.
- Reduce speed when meeting other construction vehicles.

11. Riding Platform:

The Buggy is designed with a folding operator's platform. This feature allows the operator to ride or walk depending on the application. Lift the platform straight up and then rotate it until it is in the vertical position. Slide the anchor tabs into their lock slot to retain in the up position. Lift the platform to unlock it and move down for riding. The platform is designed to carry one person. Do not allow another person on the machine at any time.



Fig. 10 TRAVEL SPEED



Up (Lock Slot)



Down

Fig. 11 RIDING PLATFORM

12. Slopes:

Any operating area that is sloped at the loading, unloading or travel areas must be handled carefully. Operating considerations include but are not limited to:

- a. Try to level all operating areas. If that isn't possible,
- b. Use a slow speed whenever operating on a slope to minimize the chance of tipping.

IMPORTANT

Do not operate on steep slopes. Steep slopes reduce machine stability and can lead to tipping.

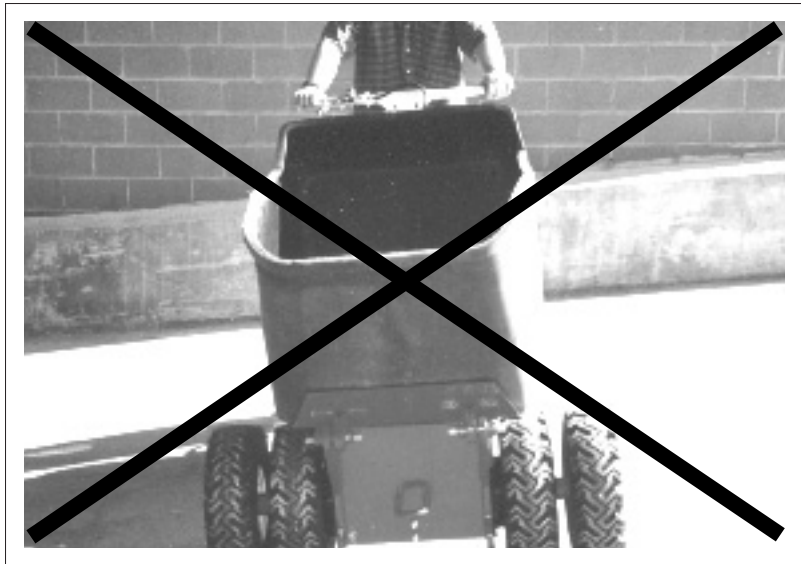


Fig. 12 SLOPES

- c. Install duals on drive wheels to widen stance and increase stability.
- d. Reduce the size of the load to lower the machine center-of-gravity and increase the stability.
- e. If the site contains sloped areas, it is recommended that the Buggy be driven straight up or straight down - never across.

It is the responsibility of the operator to use common sense when operating the unit. Do not take chances with the safety and efficient use of the Buggy.

13. Inclines/Ramps:

Many construction sites require machines to change elevation by going up or down ramps or inclines. It is recommended that these practices be followed when operating on slopes or inclines:

- a. Reduce speed to increase control and stability on inclines and ramps.
- b. Do not travel on inclines of more than 17° or a 25% slope.
- c. Reduce load when operating on slopes or ramps.
- d. Always keep the heavy end of the machine on the high side of the incline.
 - Drive up or back down the incline when the bucket is loaded.
 - Drive down or back up the incline when the bucket is empty.



Loaded



Unloaded

Fig. 13 INCLINES/RAMPS

14. Tires:

The tires are the main load carrying components that distribute the weight of the Buggy into supporting structure or base. Each set of drive wheels can be used in a single or dual configuration. As a general rule, it is recommended that the unit always be operated with dual wheels.

Single wheels can be used when operating in restricted, confined areas or to fit through narrow doorways, but reduce the capacity to 75%. A full bucket will exceed the load carrying capacity of the front tires.

Dual wheels provide maximum stability and load carrying capacity for the machine. Check wheel nut torque.

NOTE

Always check tire pressure and maintain them at their specified level.

15. Capacity:

The Buggy is designed to carry up to 16 cubic feet or 5/8 yard of concrete slurry under optimum operating conditions. This capacity is reached when the bucket is filled to within 6 inches (150 mm) of its rim.

- a. Overfilling the bucket can exceed the load carrying capacity of the frame and /or the tires. Do not over fill the bucket.
- b. Overfilling the bucket can increase the chance of spilling during transport. This spilling will spread wet concrete throughout the construction area that will harden and can become an obstruction.
- c. Overfilling will raise the machine center-of-gravity and reduce the stability of the unit.



Duals



Singles

Fig. 14 TIRES



Fig. 15 FILLED TO CAPACITY



Fig. 16 PLASTIC BUCKET

16. **Buckets:**

The Buggy is equipped with a plastic bucket to accommodate the needs of the customer. The plastic bucket is lighter and allows the operator to carry more payload.

17. **Confined Area:**

The machine is designed to work well in close, confined areas that are not accessible with trucks or large equipment. With single tires, the machine is narrow enough to fit through a standard 32 inches wide door frame. Measure the width of the travel pathway to determine if duals can be installed.

With single tires, it is recommended that the load be reduced to 75% and travel speed be reduced.

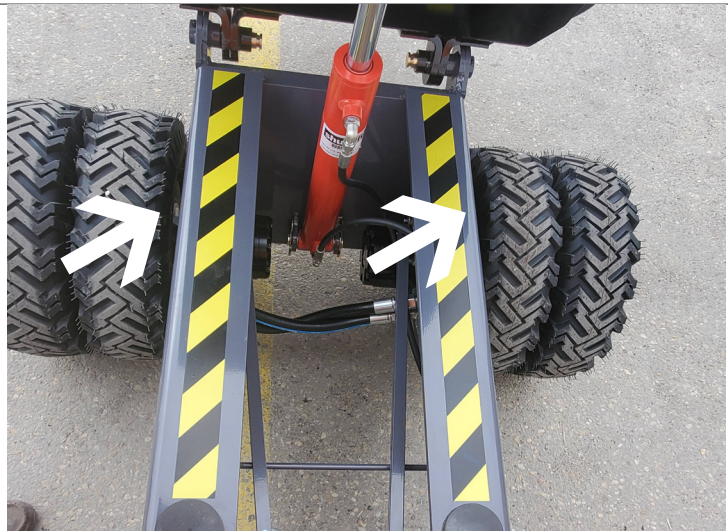
Be sure that there is ample ventilation to prevent asphyxiation when operating in a confined area. Carbon monoxide is an odorless and colorless exhaust product that can kill without warning. Do not take chances with safety.



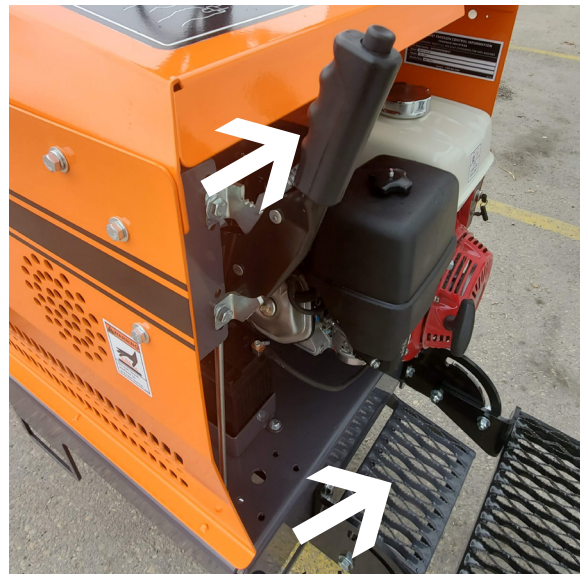
Fig. 17 NARROW DOORWAY

18. Brakes:

The machine is designed with drum brakes on each driving wheel that will hold the machine on a 25% slope when it is fully loaded. Step on the brake pedal to engage. Always engage the parking brake if the machine is parked in an area that is not level.



Drum



Control

Fig. 18 BRAKES

19. Spark Arrester:

The machine is equipped with a standard muffler to cover most applications. In certain jurisdictions and applications, a spark arrester muffler must be used to minimize the risk of sparks coming out with the exhaust. Contact your dealer or the factory to obtain an approved muffler. Always maintain the muffler per the instructions to keep it in good operating condition.

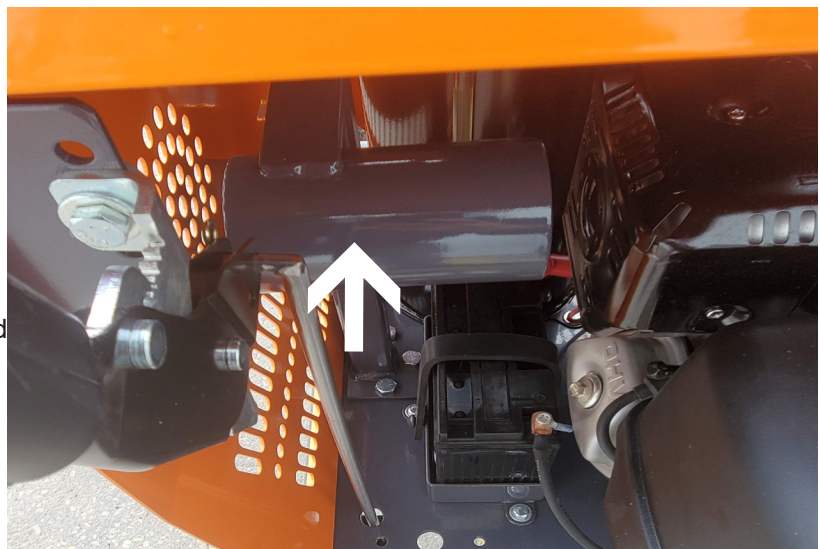


Fig. 19 MUFFLER

20. Fuel:

The Buggy is designed with a gas engine that supplies power to the machine. Gasoline is a readily available fuel source that is widely used and virtually everyone is familiar with it.

However, it is recommended that the operator always use common sense around gasoline. Gasoline is highly volatile, combustible and toxic if not used properly. Common sense, good safety practices for gas engines and gas include but are not limited to:

a. Exhaust Gases:

Be sure to provide ample ventilation when operating in enclosed areas. Exhaust gases contain carbon monoxide that is odorless and colorless and can be lethal in small concentrations. Do not allow others to breathe the fumes.

b. Refueling Tips:

- Do not smoke when refueling.
- Do not refuel near an open flame.
- Do not refuel when the engine is running.
- Do not refuel when the engine is hot.
- Do not spill fuel during refueling. Clean up spilled fuel before resuming work.
- Replace fuel cap when refueling is completed.
- Keep muffler, manifold and other hot surfaces clean to prevent fires.
- Clean around fuel cap before removing.

c. Gasoline:

- Always store in clean containers.
- Rotate fuel stocks to prevent the additives from settling out and gumming up the carburetor.



Fig. 20 FUEL TANK



21. **Cleaning:**

After extended use, concrete can build up in the bucket and reduce the unloading efficiency. To clean:

Plastic Bucket:

- Place a wooden block against the side of the bucket.
- Strike the block with a hammer to break the concrete loose from the side.
- Repeat where ever there is a build up.
- Dump bucket to remove the chips.

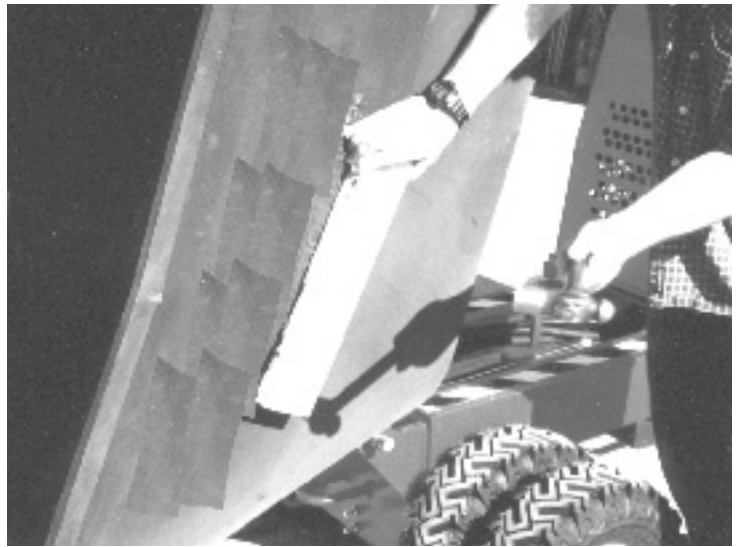


Fig. 21 **CLEANING BUCKET**

22. **Battery:**

All electric start machines are equipped with a battery for starting. Batteries give off small quantities of volatile gas when being charged. Keep sparks, smoking material and open flames away from the battery at all times. Battery acid is a corrosive material. Protect hands from exposure to battery acid at all times.

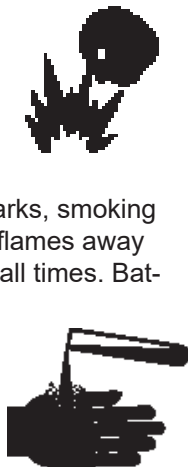


Fig. 22 **BATTERY**

23. Loading:

The Buggy frame is designed with a set of lateral and longitudinal pockets that should be used when loading with a forklift. Insert forks into the pockets to provide stability when lifting, moving and loading. Be sure the ends of the tines extend through the frame when lifting to distribute the load across the frame.

The frame is equipped with eyelets on each side of the frame at approximately the center of gravity. Always attach the lifting device to the eyelets and balance by hand.

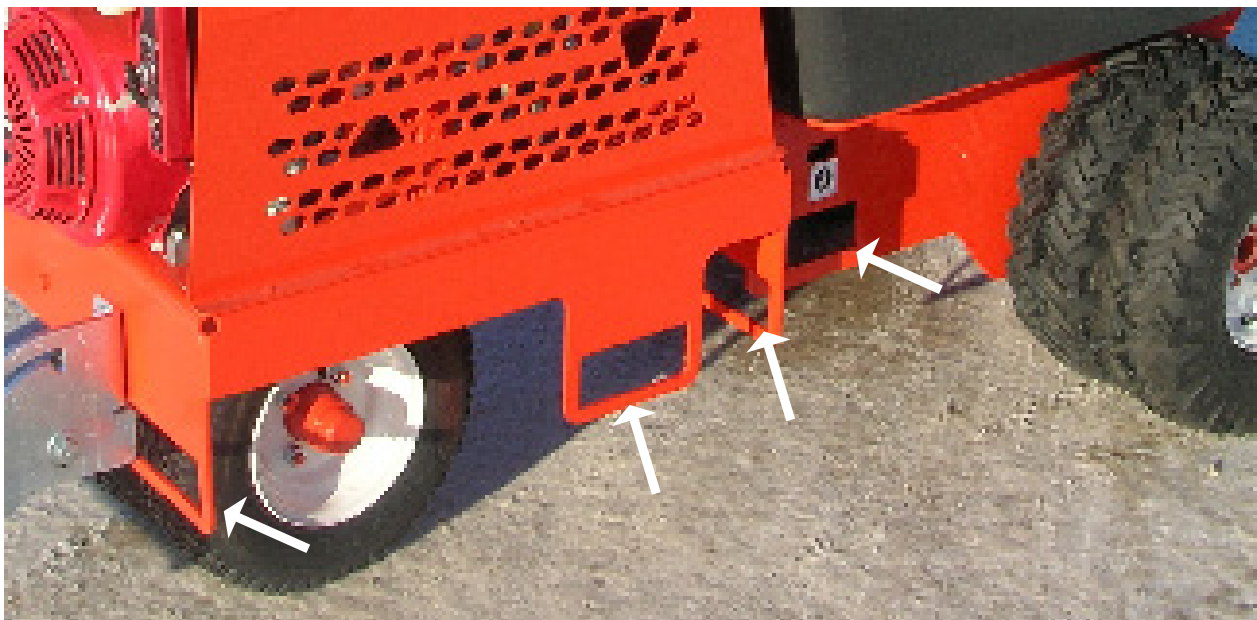


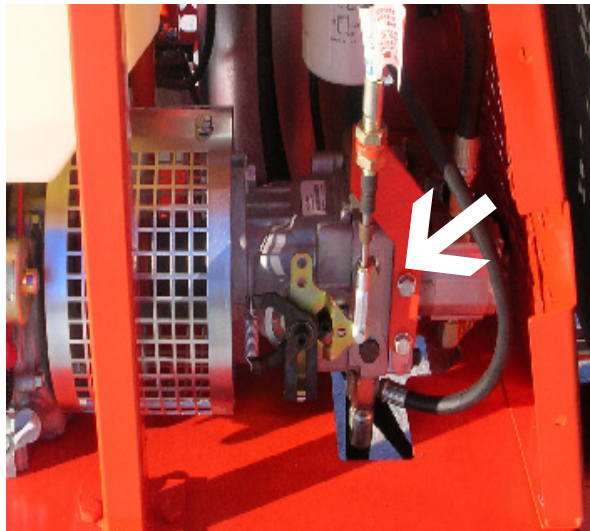
Fig. 23 LOADING POCKETS

24. **Moving By Hand:**

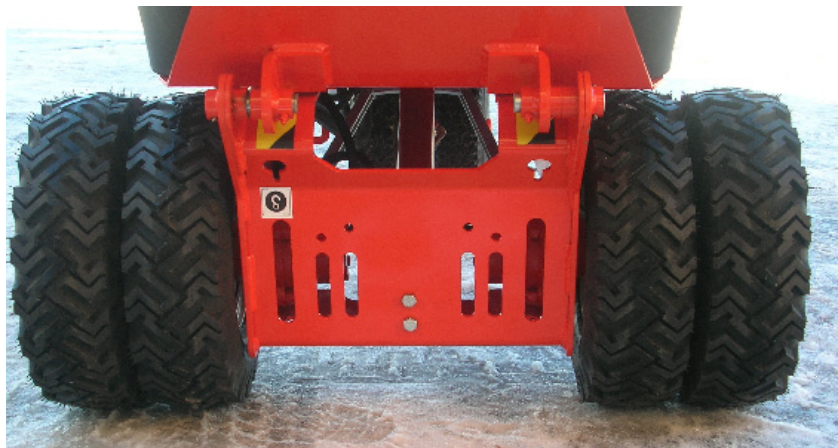
The machine is designed with a variable displacement hydraulic pump that must have oil flowing through it in order to rotate and turn the wheels. A shuttle valve in the pump can be used to open a bypass circuit that will allow the oil to circulate and the wheels to turn.

When moving the unit by hand, follow this procedure:

- a. Stop and disable engine.
- b. Set park brake.
- c. Remove or open the right side of the engine compartment.
- d. Attach a 5/8 inch socket to the shuttle valve bolt.
- e. Turn counter-clock-wise 2 revolutions.
- f. Release brake.
- g. Move unit to its desired location.
- h. Engage park brake.
- i. Turn shuttle valve bolt 2 revolutions clockwise to close bypass circuit.
- j. Install or close and secure engine panel.
- k. Release the brake before engaging tractive drive.



Shuttle Valve Bolt



Tow Locations

Fig. 24 MOVING BY HAND

25. **Operating Hints:**

- a. Only trained personnel are approved to operate the Buggy.
- b. Do not exceed a safe travel speed.
- c. Do not allow riders.
- d. Slow down in confined working conditions.
- e. Do not drive across slopes. Drive up and down.
- f. Use common sense whenever you are operating the Buggy.



Fig. 25 DRIVING

4.8 STORAGE



STORAGE SAFETY

1. Store unit in an area away from human activity.
2. Do not permit children to play on or around the stored Buggy.
3. Remove ignition key before storing.

At the end of the season or when the machine will not be used for a period, inspect all major components of the Buggy. Repair or replace any worn or damaged components to prevent any unnecessary down time at the start of next project. When preparing for storage, follow this procedure:

1. Drain the fuel from gas tank.
2. Turn the fuel supply valve OFF.
3. Thoroughly wash the machine using a water hose or pressure washer to remove all dirt, dust or residue.
4. Inspect the inside of the bucket. Chip out or break loose any build-up.
5. If the unit will be stored outside, raise the bucket fully up and install a cylinder lock bracket.
6. Lubricate all the grease fittings.
7. Cover the machine with a tarpaulin and tie down if the machine is not stored inside.

IMPORTANT

Do not get water on the engine. Use an air hose to clean the engine.



Fig. 26 STORED

5 SERVICE AND MAINTENANCE



MAINTENANCE SAFETY

1. Review the Operator's Manual and all safety items before working with, maintaining or operating the Buggy.
2. Stop engine, disconnect spark plug wire, apply park brake and wait for all moving parts to stop before servicing, adjusting, repairing, or cleaning.
3. Follow good shop practices:
 - Keep service area clean and dry.
 - Be sure electrical outlets and tools are properly grounded.
 - Use adequate light for the job at hand.
4. Keep hands, feet, clothing and hair away from all moving and/or rotating parts.
5. Do not place hands, arms or body parts next to bucket and frame unless the engine is off and the spark plug wire is disconnected.
6. Do not attempt any adjustment or maintenance to any system of the Buggy unless the spark plug wire is disconnected.
7. Keep all hydraulic lines, fittings, hoses and motors tight and free of leaks before using.
8. Relieve pressure in the hydraulic circuit before working on system.
9. Make sure that all guards, shields and hoods are properly installed and secured before operating the Buggy.
10. Securely support the machine using blocks or safety stands before working beneath it or changing tires.
11. Store and transfer gasoline, solvents, cleaners or any flammable liquids only in safety standard approved containers.
12. Establish and follow a lock out tag out procedure for the Buggy before working on machine.

5.1 SERVICE

5.1.1 FLUIDS AND LUBRICANTS

1. **Grease:**
Use an SAE multipurpose high temperature grease or a multipurpose lithium base grease.
2. **Gasoline:**
Use a standard unleaded gasoline for all operating conditions. Do not use gasoline with an ethanol blend.
Capacity: 3.4 gallon.
3. **Engine oil:**
Use an SAE 10W30 multi-viscosity oil meeting the American Petroleum Institute (API) classification of SF OR SG for normal operating temperatures. Consult the engine manual for unusual operating conditions. Do not mix oil types or viscosities.
Crankcase Capacity:
1.1 Lts (1.16 US qt, 1.94 Imp pt)
4. **Hydraulic Oil:**
Tamarack recommends SAE 20W50 motor oil for use in the hydraulic system. For sustained cold weather operation use Mobil fluid 424, Shell Donax TD or TDL or PetroCan DuraTran.

5. Storing Lubricants and Fluids:

Your machine can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all fluids. Store them in an area protected from dust, moisture and other contaminants.

5.1.2 GREASING

Refer to section 5.1.1 for recommended grease. Use the Maintenance Checklist provided to keep a record of all scheduled maintenance.

1. Use only a hand-held grease gun for all greasing. An air-powered greasing system can damage the seals on bearings and lead to early failures.
2. Wipe grease fitting with a clean cloth before greasing to avoid injecting dirt and grit.
3. Replace and repair broken fittings immediately.
4. If fittings will not take grease, remove and clean thoroughly. Also clean lubricant passage. Replace fitting if necessary.

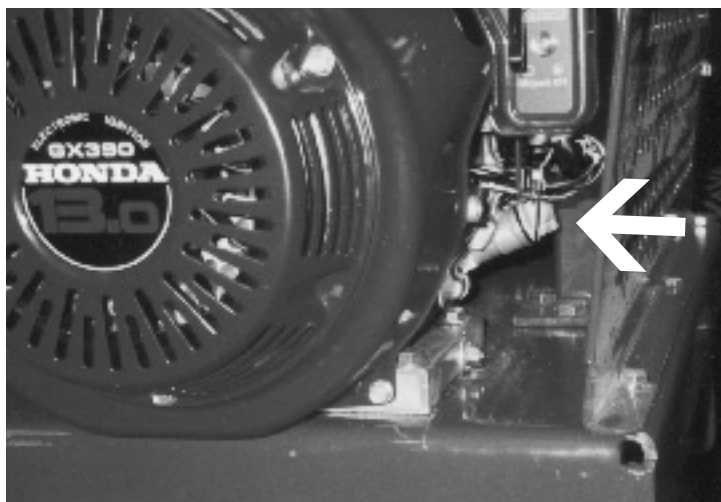
5.1.3 SERVICING INTERVALS

Daily or 8 Hours

1. Check engine fluid levels. Top up as required.
 - a. Check engine oil level. Top up as required.
 - b. Check fuel level. Add as required.



2. Check the oil level in the hydraulic reservoir. Oil should appear in sight glass, about 1" from top of gauge maximum.



Oil Level



Gas

Fig. 27 ENGINE FLUID LEVELS

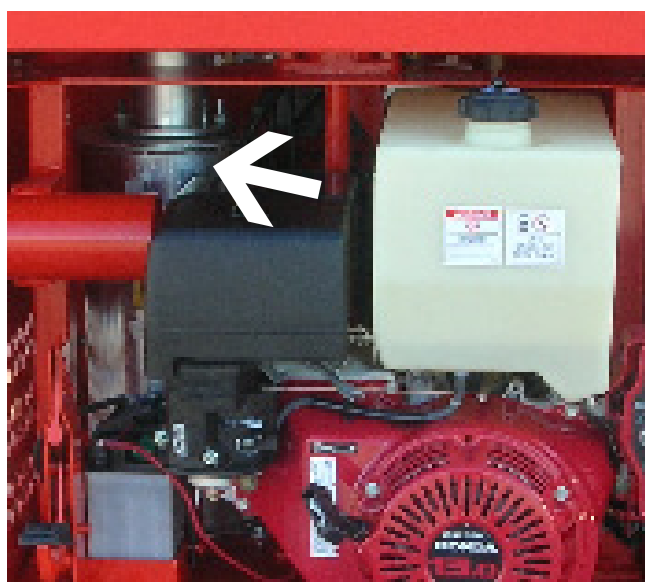
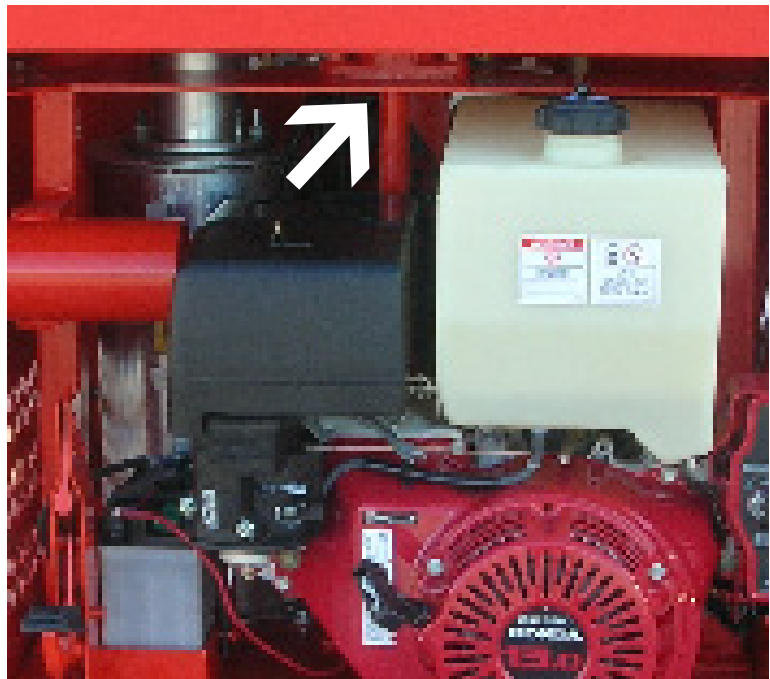
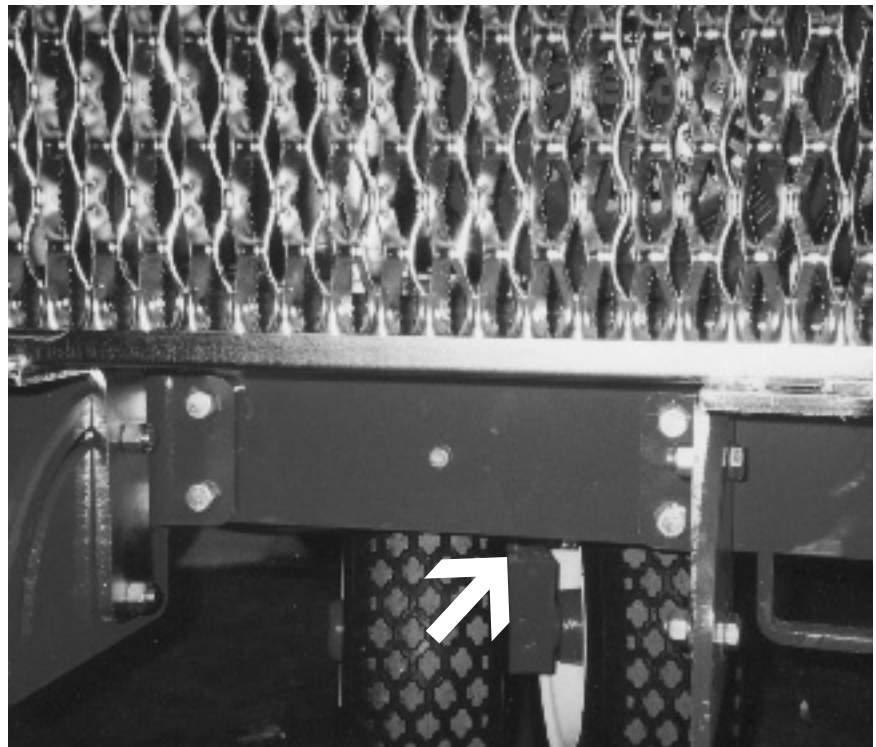


Fig. 28 OIL LEVEL

3. Grease the steering linkage bearings (2 locations).



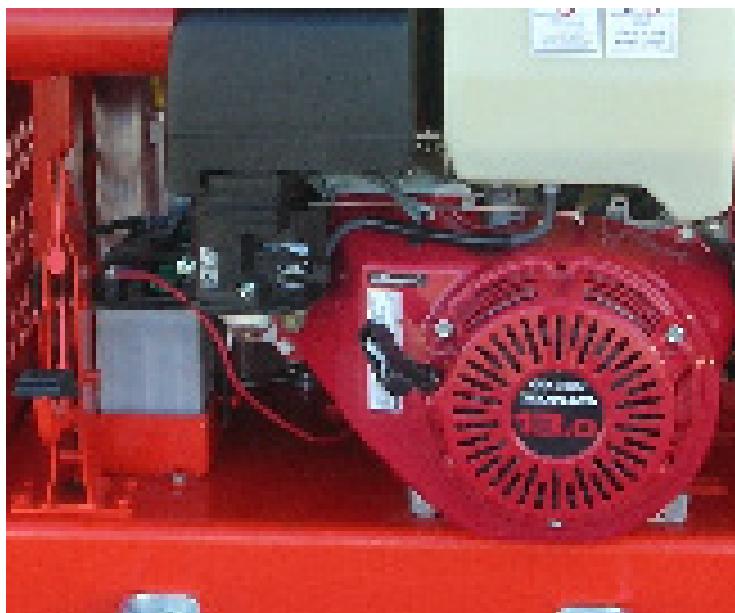
Upper



Lower Bearing (Typical)

Fig. 29 STEERING LINKAGE

4. Use an air hose to blow out and clean the engine, motor and compartment.



Manual Start



Electric Start

Fig. 30 ENGINE COMPARTMENT

Weekly or 50 Hours

1. Change the engine oil.

IMPORTANT

Change more frequently if operating in high ambient temperatures or in very dusty or dirty conditions.

- a. Drain plug.
- b. Fill plug.

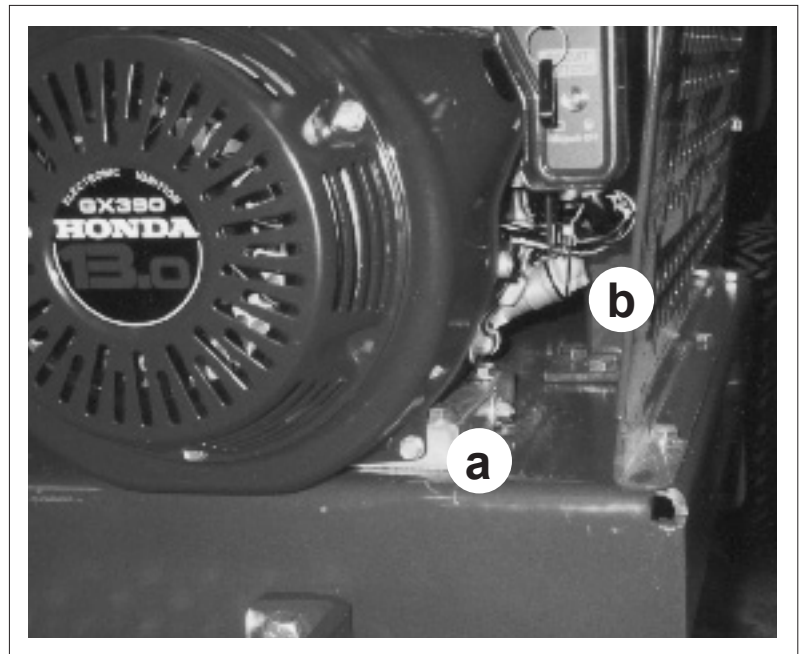


Fig. 31 ENGINE OIL

2. Clean the engine air intake filter.

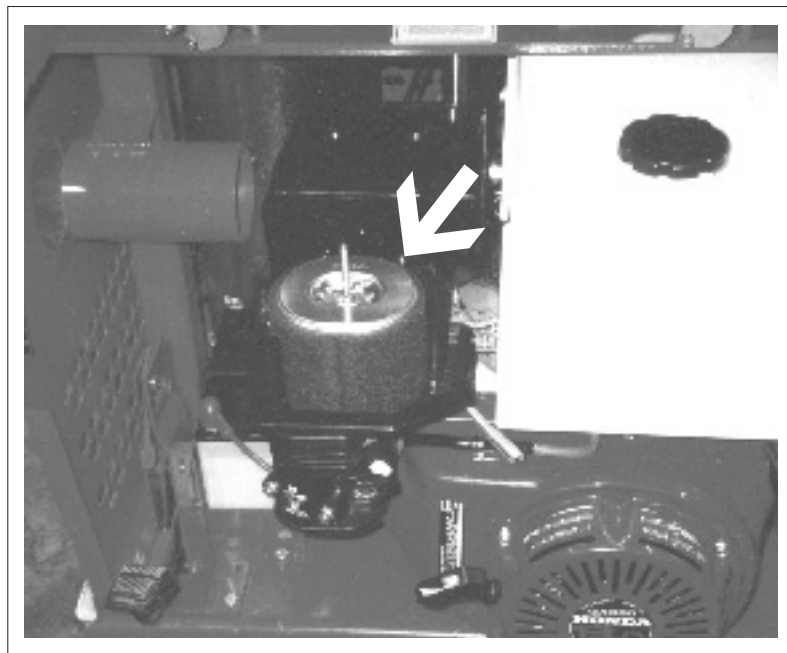


Fig. 32 ENGINE AIR INTAKE FILTER

- Grease the bucket tilt cylinder ends with 1 shot of grease (2 locations).



Fig. 33 BUCKET TILT CYLINDER

- Grease the bucket tilt shaft bushings (2 locations).

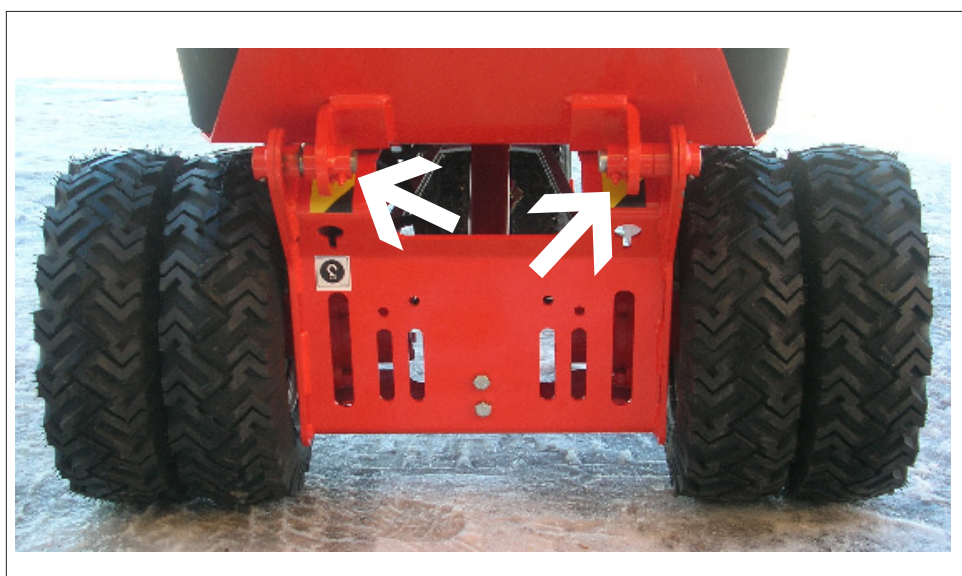


Fig. 34 BUCKET TILT BUSHINGS

Annually or 400 Hours

1. Change the hydraulic system oil.



WARNING

Machine is shown with engine hood open for illustrative purposes only. Never operate with hood open.

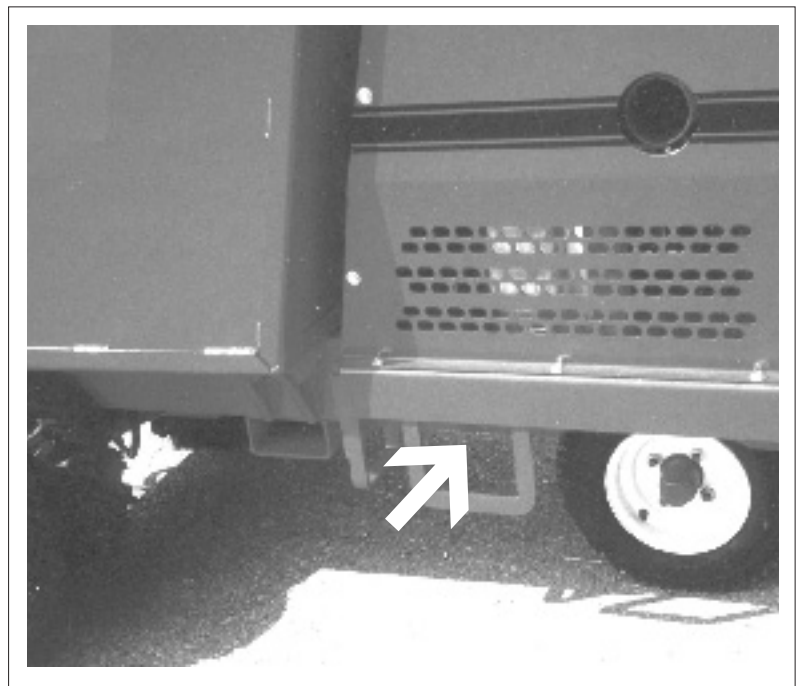


Fig. 35 DRAIN PLUG (BOTTOM OF RESERVOIR)

2. Change hydraulic system filter.

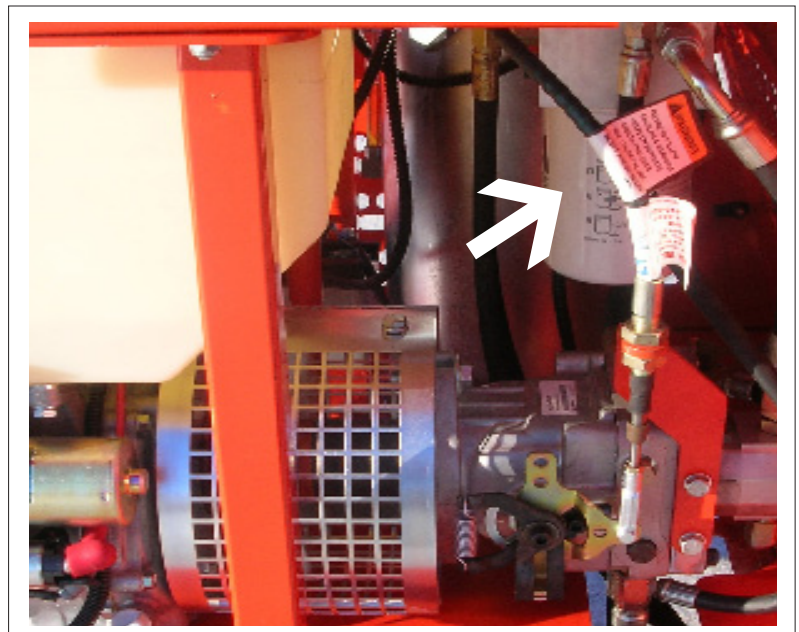


Fig. 36 OIL FILTER

3. Clean bucket.



Fig. 37 CLEANING BUCKET

5.1.4 SERVICE RECORD

See Lubrication and Maintenance sections for details of service. Copy this page to continue record.

ACTION CODE: § CHECK C CHANGE CL CLEAN
 L LUBRICATE RE REMOVE R REPACK

<div> <div>HOURS</div> <div>SEVICED</div> <div>MAINTENANCE</div> </div>	BY															
	DAILY OR 8 HOURS															
§ Engine Fluid Levels																
§ Oil Level (Hydraulic Reservoir)																
L Steering Linkage Bearings (2)																
CL Engine, Motor & Compartment																
WEEKLY OR 50 HOURS																
C Engine Oil, Drain Plug & Fill Plug																
CL Engine Air Intake Filter																
L Bucket Tilt Cylinder Ends (2)																
L Bucket Tilt Shaft Bushings (2)																
ANNUALLY OR 400 HOURS																
C Hydraulic System Oil																
C Hydraulic System Filter																
CL Bucket																

5.2 MAINTENANCE

By following a careful service and maintenance program for your machine, you will enjoy many years of trouble-free service.

5.2.1 ENGINE OIL CHANGING

1. Review the Operator's Manual for the engine.
2. Allow the engine to cool before changing oil. Hot oil can cause burns if it contacts exposed skin. Draining works best if the oil is warm.
3. Be sure the ignition switch is off and fuel valve is turned off.
4. Place a pan under the drain plug.
5. Remove the drain plug and allow oil to drain for 10 minutes.
6. Install the engine drain plug and tighten.
7. Dispose of the oil in an approved container and manner.
8. Add the specified type and amount of motor oil. Refer to Section 5.1.1 or the engine manual.
9. Run the engine for 1 minute and check for leaks.
10. If leaks are found around the drain plug, tighten slightly and repeat Step 9.
11. Check engine oil level. Top up as required.

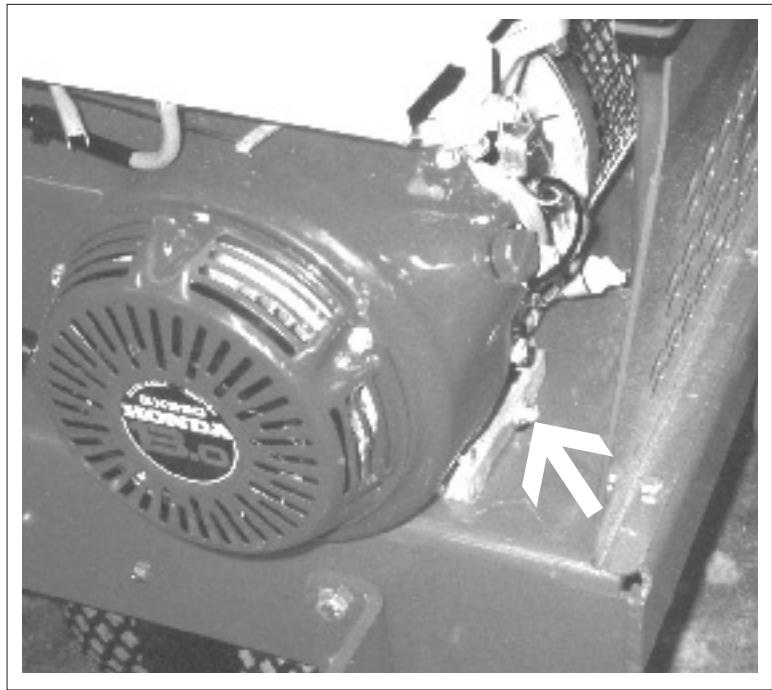


Fig. 38 ENGINE OIL CHANGING (DRAIN PLUG)

5.2.2 BRAKE ADJUSTMENT

The Buggy is designed with foot-engaged brakes that will hold a loaded machine on up to a 25% grade. Each drive wheel is equipped with a drum and brake shoe assembly that is activated by the foot pedal through a cable and mechanical linkage.

When the brakes are properly adjusted, the internal locking ratchet should click 4 times when the brakes apply. To adjust the brake, the cable sheath must be moved along the cable to provide for more or less cable movement as required. To adjust cable sheath follow this procedure:

1. Release brakes.
2. Raise bucket to its fully up position and install a cylinder lock bracket.
3. Loosen the position and jam nuts on the tube that goes through the frame.
4. Slide the tube to the desired position.
5. Tighten position and jam nuts.
6. Apply and release the brakes and Re-adjust if required.
7. Remove cylinder lock.

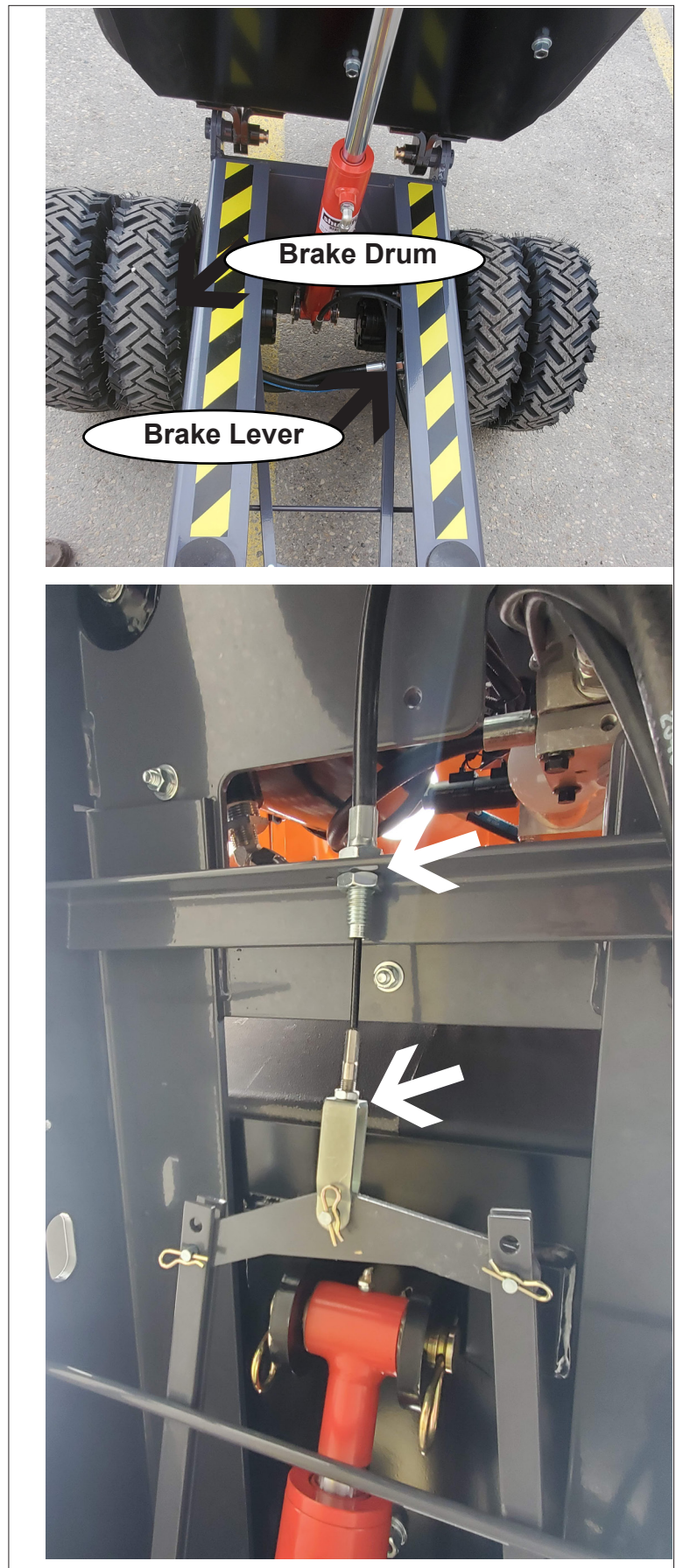


Fig. 39 BRAKES

5.2.3 AIR CLEANER MAINTENANCE

Each engine is equipped with filter to remove dust and dirt from entering the air intake. To clean the filter, follow this procedure:

1. Read the engine manual supplied with the machine.
2. Remove the filter cover.
3. Remove filter and shake out.
4. Wash in a filter cleaning detergent if heavily caked with dirt. Allow time to dry before re-installing.
5. Replace filter after washing 5 times.
6. Install clean filter and secure cover.

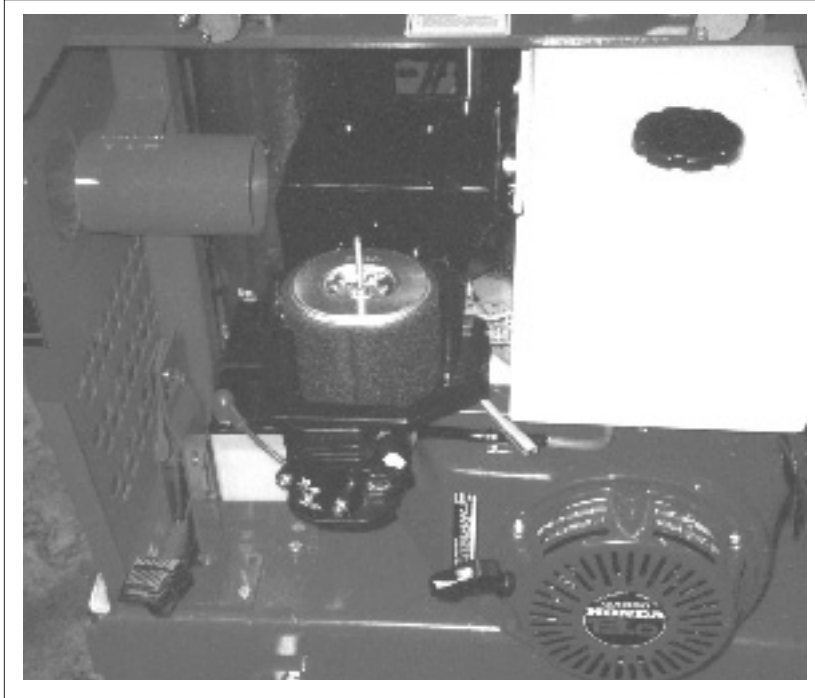


Fig. 40 AIR CLEANER

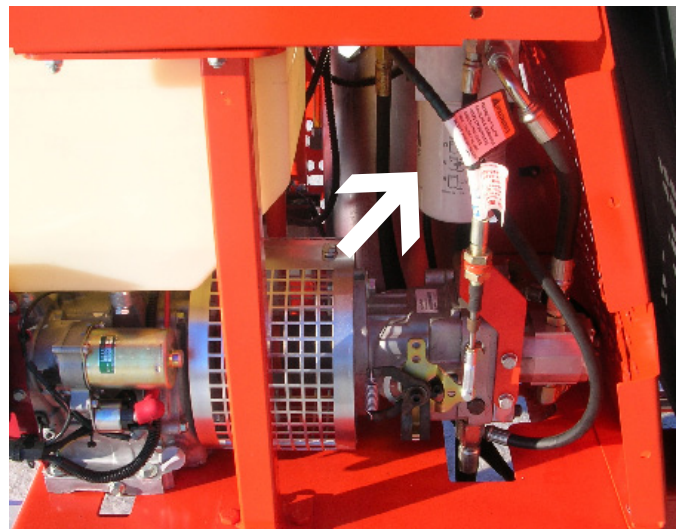
5.2.4 CHANGING HYDRAULIC SYSTEM OIL AND FILTER

Annually or every 400 hours (or more often if conditions are extremely dusty) the filter and oil in the hydraulic system should be changed. To change, follow this procedure:

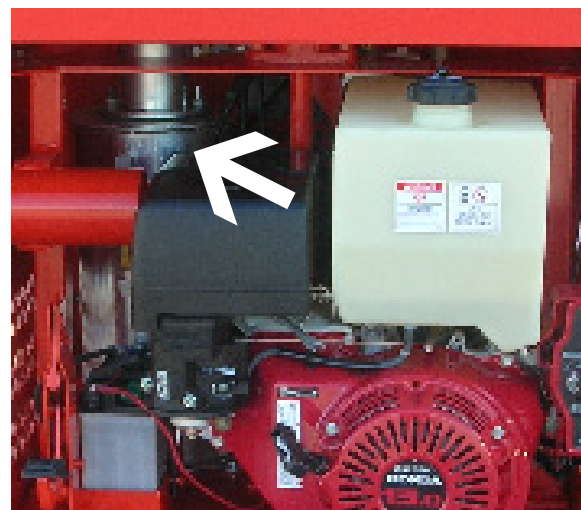
1. Clear the area of bystanders, especially small children.
2. Allow the machine to cool before changing the filter. Hot oil can cause burns if it contacts exposed skin.
3. Be sure the ignition switch is off and the fuel valve is turned off.
4. Remove or open access cover and move to the side.
5. Place a pan under the drain plug.
6. Remove the drain plug and allow oil to drain for 10 minutes.
7. Remove filter and replace with a new one.
8. Install the hydraulic reservoir drain plug and tighten.
9. Dispose of the oil in an approved container and manner.
10. Fill the reservoir with the type and quantity of specified oil.
11. Start the engine and run for 1 minute.
12. Check the filter, drain plug and all fittings for leaks.
13. If leaks are found around the drain plug, tighten slightly and repeat step 11 and 12.
14. Check reservoir oil level. Top up as required.
15. Move access cover into position and



Access Cover



Filter



Oil Level Sight Tube

Fig. 41 HYDRAULIC FILTER SYSTEM

6 TROUBLE SHOOTING

The Concrete Buggy is a self powered with a plastic bucket used to transport concrete or other materials into or out of constructions sites. It is a simple system that requires minimal maintenance.

In the following trouble shooting section, we have listed many of the problems, causes and solutions to the problems which you may encounter.

If you encounter a problem that is difficult to solve, even after having read through this trouble shooting section, please contact your authorized dealer, distributor or the factory. Before you call, please have this Operator's Manual and the serial number from your machine ready.

PROBLEM	CAUSE	SOLUTION
Engine won't start.	No fuel.	Fill the fuel tank.
	Low engine oil.	Fill the crankcase with oil.
	Cold engine.	Open choke.
	Ignition switch off.	Turn ignition switch on.
	Emergency Stop Switch on handbar is off.	Turn Emergency Switch on.
	Low battery.	Charge or replace battery.
	Poor electrical connection.	Clean and tighten all battery and power connections.
	Engine problem.	Refer to engine manual.
Buggy won't move.	Transmission out of gear.	Shift transmission into forward or reverse.
	Low hydraulic oil.	Add oil to bring to middle of sight tube.
	Dirty hydraulic filter.	Change hydraulic filter.
	Defective hydraulic component.	Repair or replace component.
	Insufficient power.	Release park brake.
Bucket won't move or tilt.	No power.	Check function of hydraulic system (See above. Change, adjust or repair to obtain correct system function).
	Bucket lock bracket in place.	Remove bucket lock bracket.
	Low hydraulic oil.	Add oil to bring to middle of sight tube.
	Defective hydraulic component.	Repair or replace component.
Build-up on bucket walls.	Insufficient cleaning.	Clean bucket more frequently.

7 SPECIFICATIONS

7.1 MECHANICAL

Model	CB1600
Capacity - Cu Ft / Lbs	16 ft³ / 2500 Lbs
Power	13HP Gas
Weight (Empty)	1200 Lbs
Weight (Loaded)	3750
Width	46" w/ dual wheels / 31" w/ singles
Height	57"
Tires	Front = 5.70 x 8 x 19 (4 bolt)
	Rear = 4.80 x 8 x 16 (4 bolt)
Dump Action	Hydraulic
Fuel Capacity	4.0 US Gal
Hydraulic Oil Capacity (Empty)	3.5 US Gal
Hydraulic Oil Capacity (Oil Change)	3.0 US Gal
Cooling Fan	Yes
Oil Cooler	Yes

AW 46 hydraulic oil is recommended for use in the hydraulic system.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

7.2 BOLT TORQUE

CHECKING BOLT TORQUE

The tables shown below give correct torque values for various bolts and capscrews. Tighten all bolts to the torques specified in chart unless otherwise noted. Check tightness of bolts periodically, using bolt torque chart as a guide. Replace hardware with the same strength bolt.

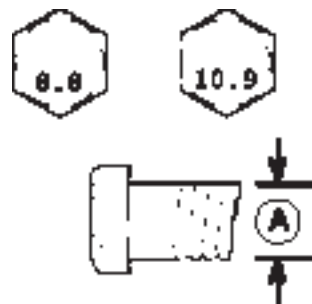
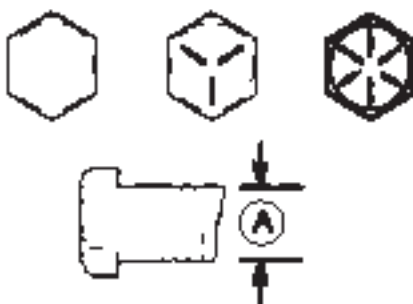
Imperial Torque Specifications

Bolt Dia. "A"	Bolt Torque*					
	SAE 2		SAE 5		SAE 8	
	Nm	Ft-Lbs	Nm	Ft-Lbs	Nm	Ft-Lbs
1/4	8	6	12	9	17	12
5/16	13	10	25	19	36	27
3/8	27	20	45	33	63	45
7/16	41	30	72	53	100	75
1/2	61	45	110	80	155	115
9/16	95	60	155	115	220	165
5/8	128	95	215	160	305	220
3/4	225	165	390	290	540	400
7/8	230	170	570	420	880	650
1	345	225	850	630	1320	970

Metric Torque Specifications

Bolt Dia. "A"	Bolt Torque*			
	8.8		10.9	
	Nm	Ft-Lbs	Nm	Ft-Lbs
M4	3	2.2	4.5	3.3
M5	6	4	9	7
M6	10	7	15	11
M8	25	18	35	26
M10	50	37	70	52
M12	90	66	125	92
M14	140	103	200	148
M16	225	166	310	229
M20	435	321	610	450
M24	750	553	1050	774

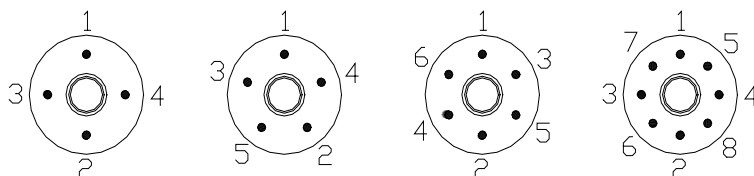
SAE-2 SAE-5 SAE-8



Torque figures indicated above are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or capscrews unless otherwise specified in this manual. When using locking elements, increase torque values by 5%.

WHEEL LUG NUT TORQUE:

Use the tightening pattern shown below, to ensure the even tightening of the lug nuts on each wheel.



* Torque value for bolts and capscrews are identified by their head markings.

7.3 HYDRAULIC FITTING TORQUE

TIGHTENING FLARE TYPE TUBE FITTINGS*

1. Check flare and flare seat for defects that might cause leakage.
2. Align tube with fitting before tightening.
3. Lubricate connection and hand tighten swivel nut until snug.
4. To prevent twisting the tube(s), use two wrenches. Place one wrench on the connector body and with the second tighten the swivel nut to the torque shown.

Tube Size OD (in.)	Nut Size Across Flats (in.)	Torque Value*		Recommended Turns To Tighten (After Finger Tightening)	
		(N.m)	(lb-ft)	(Flats)	(Turn)
3/16	7/16	8	6	1	1/6
1/4	9/16	12	9	1	1/6
5/16	5/8	16	12	1	1/6
3/8	11/16	24	18	1	1/6
1/2	7/8	46	34	1	1/6
5/8	1	62	46	1	1/6
3/4	1-1/4	102	75	3/4	1/8
7/8	1-3/8	122	90	3/4	1/8

- * The torque values shown are based on lubricated connections as in reassembly.

TIGHTENING O-RING FITTINGS*

1. Inspect O-ring and seat for dirt or obvious defects.
2. On angle fittings, back the lock nut off until washer bottoms out at top of groove.
3. Hand tighten fitting until back-up washer or washer face (if straight fitting) bottoms on face and O-ring is seated.
4. Position angle fittings by unscrewing no more than one turn.
5. Tighten straight fittings to torque shown.
6. Tighten while holding body of fitting with a wrench.

Tube Size OD (in.)	Nut Size Across Flats (in.)	Torque Value*		Recommended Turns To Tighten (After Finger Tightening)	
		(N.m)	(lb-ft)	(Flats)	(Turn)
3/8	1/2	8	6	2	1/3
7/16	9/16	12	9	2	1/3
1/2	5/8	16	12	2	1/3
9/16	11/16	24	18	2	1/3
3/4	7/8	46	34	2	1/3
7/8	1	62	46	1-1/2	1/4
1-1/16	1-1/4	102	75	1	1/6
1-3/16	1-3/8	122	90	1	1/6
1-5/16	1-1/2	142	105	3/4	1/8
1-5/8	1-7/8	190	140	3/4	1/8
1-7/8	2-1/8	217	160	1/2	1/12

- * The torque values shown are based on lubricated connections as in reassembly.

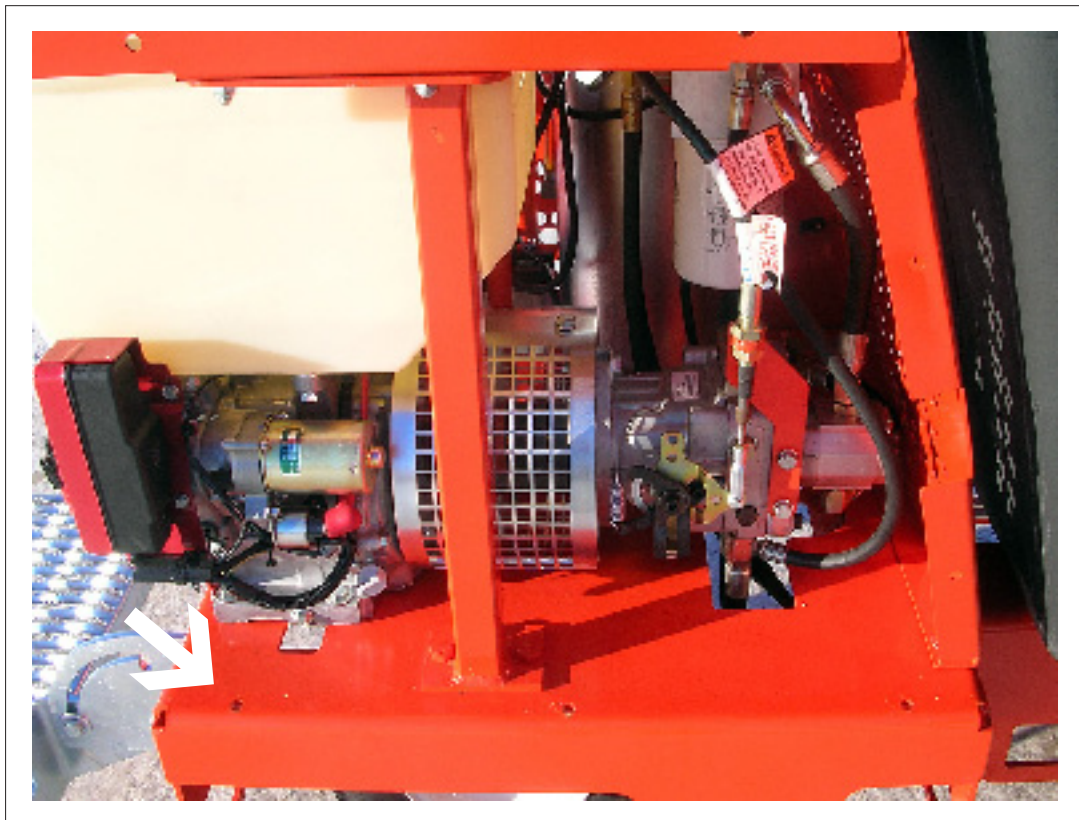
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SERIAL NUMBER LOCATION

Always give your dealer, distributor or factory the serial number of your Concrete Buggy when ordering parts or requesting service or other information.

The serial number is stamped into the frame where indicated. Please mark the number in the space provided for easy reference.



SERIAL NUMBER LOCATION

Model CB1600 _____

Serial Number _____



1205 SHERWIN RD
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