

CULTIVATOR

INSTRUCTION BOOK

Model
11052x92D

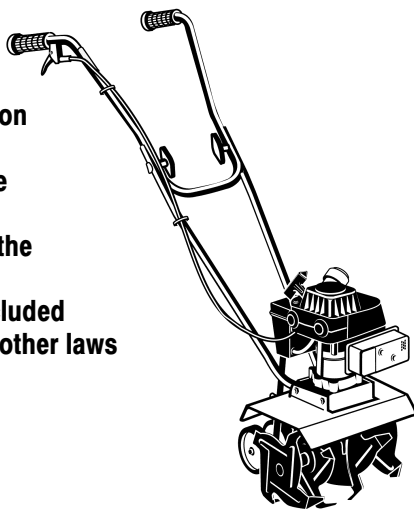
Read and keep this book for future reference.
This book contains important information on
SAFETY, ASSEMBLY, OPERATION, AND MAINTENANCE.

PRODUCT INFORMATION

The owner must be certain
that all the product information
is included with the unit.

This information includes the
INSTRUCTION BOOKS, the
REPLACEMENT PARTS and the
WARRANTIES.

This information must be included
to make sure state laws and other laws
are followed.



RECORD THE FOLLOWING INFORMATION ABOUT YOUR UNIT.
THIS INFORMATION IS NECESSARY WHEN ORDERING PARTS
OR IN CASE OF LOSS OR THEFT.

WHERE PURCHASED: _____.

DATE PURCHASED: Month _____ Day _____ Year _____.

MODEL NO.: _____ DATE OF MANUFACTURE: _____.

F-031305L

MURRAY, INC. Two Year Limited Warranty

Murray, Inc. warrants to the original purchaser that this unit shall be free from defects in material and workmanship under normal use and service for a period of **Two (2) Years** from the date of purchase; however, this warranty does not cover engines, accessories (such as snow blowers, snow blades, grass baggers and plows), transmissions, batteries and Normal Wear Parts (except as noted below) or transaxles as the companies that manufacture these items furnish their own warranties and provide service through their authorized field service facilities. For additional information, see the warranties covering these particular parts. If you are uncertain whether your unit contains or is equipped with one or more of these parts, consult your dealer prior to purchase. Subject to the terms and conditions noted in this Limited Warranty, we shall, at our option, repair or replace at no cost to the original purchaser any part covered by this Limited Warranty during the applicable warranty period.

In the event the battery proves defective within ninety (90) days from the date of purchase, we will replace it without charge. If the battery proves defective after (90) days but within one hundred twenty (120) days from the date of purchase, we will replace it for a charge of one half (1/2) of the retail price of the battery in effect at the time of return.

Normal Wear Parts are defined as belts, blades, blade adapters, pneumatic tires, headlights and seat covers. These parts are warranted to be free from defects in material and workmanship as delivered with the product. Any claim for repair or replacement of Normal Wear Parts must be made within thirty (30) days of the date of purchase. No claims involving damage caused from material use, abuse or misuse will be honored.

This **Murray, Inc. Two (2) Year Limited Warranty** is your exclusive remedy; however, this warranty is void or does not apply to any unit that has been tampered with, altered, misused, abused or used for rental or other commercial and/or professional (non-homeowner) uses. Your warranty does not cover minor mechanical adjustments which are not due to any defect in material or workmanship. For assistance in making such adjustments, consult your Instruction Book.

To make a claim under this **Murray, Inc. Two (2) Year Limited Warranty**, return the unit (or if authorized in advance, the defective part) along with your proof of purchase to an Authorized Service Center near you. To locate the nearest Authorized Service Center, call the Central Parts Distributor for your area shown in the list provided with your unit or check the Yellow Page listings in your local telephone directory. If you return the entire unit, we will repair the unit. If we authorize the return of the defective part only, we will either replace or repair the part. In the case of a defect in a transmission or differential (as distinguished from a transaxle), the entire transmission or differential must be returned since they do not include user serviceable parts.

This **Murray, Inc. Two (2) Year Limited Warranty** gives you specific legal rights, and you may also have other rights which vary from state to state. **This Limited Warranty is given in lieu of all other expressed and implied warranties including the implied warranty of merchantability and warranty of fitness for a particular purpose.** If you need additional information on this written warranty or assistance in obtaining service, call or write to the address below. The model number along with the CUSTOMER CARE Center 1-800 number is on the Model Number Nameplate attached to the unit.

MURRAY, INC.

Outdoor Power Equipment
Customer Service Department
P.O. Box 268
Brentwood, Tennessee 37027

OWNER'S INFORMATION

This instruction book is written for a person with some mechanical ability. Like most service books, not all the steps are described. Steps on how to loosen or tighten fasteners are steps anyone can follow with some mechanical ability. Read and follow these instructions before you use the unit.

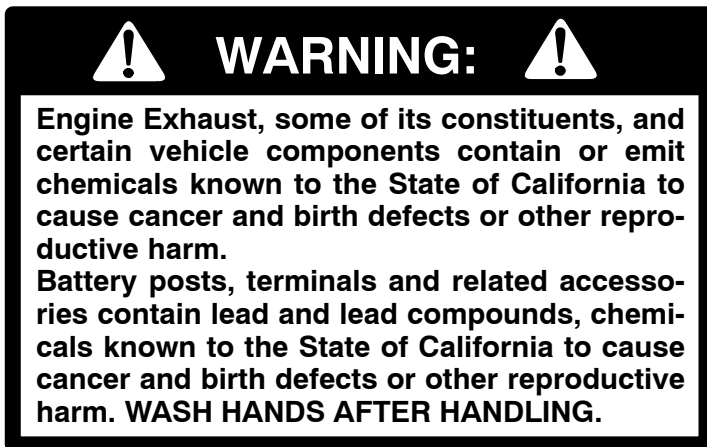
Know your product: If you understand the unit and how the unit operates, you will get the best performance. As you read this manual, compare the illustrations to the unit. Learn the location and the function of the controls. To help prevent an accident, follow the operating instructions and the safety rules. Keep this manual for future reference.

IMPORTANT: Many units are not assembled and are sold in cartons. It is the responsibility of the owner to make sure the assembly instructions in this manual are exactly followed. Other units are purchased in an assembled condition. On assembled units, it is the responsibility of the owner to make sure the unit is correctly assembled. The owner must carefully check the unit according to the instructions in this manual before it is first used.

RESPONSIBILITY OF THE OWNER

The responsibility of the owner is to follow the instructions below.

1. Carefully read and follow the rules for safe operation.
2. Follow all the assembly and preparation instructions.
3. Inspect the unit.
4. Make sure that the operator of the unit knows how to correctly use all standard and accessory equipment.
5. Operate the unit only with guards, shields, and other safety items in place and working correctly.
6. Correctly adjust the unit.
7. Service the unit only with authorized or approved replacement parts.
8. Complete all maintenance on the unit.



SAFETY RULES

Safe Operation Practices for Cultivator



WARNING: Look for this symbol to point out important safety precautions. It means: "Attention! Become Alert! Your Safety Is Involved."



WARNING: To prevent accidental starting when setting-up, transporting, adjusting or making repairs, always disconnect spark plug wire and put wire where it cannot contact the spark plug .

IMPORTANT: Safety standards require operator presence controls to minimize the risk of injury. Your cultivator is equipped with such controls. Do not attempt to defeat the function of the operator presence control under any circumstances.

Before Use

- Read the owner's manual carefully. Be thoroughly familiar with the controls and the proper use of the cultivator. Know how to stop the cultivator and disengage the controls quickly.
- Do not operate the cultivator without wearing adequate outer garments. Wear footwear that will improve footing on slippery surfaces.
- Keep the area of operation clear of all persons, particularly small children and pets.
- Thoroughly inspect the area where the cultivator is to be used and remove all foreign objects.
- Keep in mind that the operator or user is responsible for accidents or hazards occurring to other people, their property, and themselves.
- Disengage all clutches and shift into neutral before starting the engine (motor).

Fuel Safety

- Handle fuel with care; it is highly flammable.
- Use an approved container.
- Check fuel supply before each use, allowing space for expansion as the heat of the engine and/or sun can cause fuel to expand.

- Fill fuel tank outdoors with extreme care. Do not smoke while refueling. Never fill fuel tank indoors. Replace fuel tank cap securely and wipe up spilled fuel.
- If fuel is spilled, do not attempt to start the engine but move the machine away from the area of spillage and avoid creating any source of ignition until fuel vapors have dissipated.
- Never remove the fuel tank cap or add fuel to a running or hot engine.
- Never store fuel or cultivator with fuel in the tank inside a building where fumes may reach an open flame.

Operating Safety

- Never allow children or young teenagers to operate the cultivator. Keep them away while it is operating. Never allow adults to operate the cultivator without proper instruction.
- Do not operate this machine if you are taking drugs or other medication which can cause drowsiness or affect your ability to operate this machine.
- Do not use this machine if you are mentally or physically unable to operate this machine safely.
- Always wear safety glasses or eye shields during operation or while performing an adjustment or repair to protect your eyes from foreign objects that may be thrown from the cultivator.
- Do not put hands or feet near or under rotating parts.
- Exercise extreme caution when operating on or crossing gravel drives, walks, or roads. Stay alert for hidden hazards or traffic.
- Exercise caution to avoid slipping or falling.
- Never operate the cultivator without proper guards, plates, or other safety protective devices in place.
- Use only attachments and accessories approved by the manufacturer of the machine

SAFETY RULES

(such as wheel weights, counterweights, and the like.

- Never operate the cultivator at high transport speeds on hard or slippery surfaces. Look behind and use care when backing.
- Never allow bystanders near the cultivator.
- Keep children and pets away while operating.
- Never operate the cultivator without good visibility or light.
- Be careful when tilling in hard ground. The tines may catch in the ground and propel the tiller forward. If this occurs, let go of the handlebars and do not restrain the machine.
- Use extreme care when reversing or pulling the machine towards you.
- Do not change the engine governor settings or overspeed the engine.
- Start the engine or switch on the motor carefully according to instructions and with feet well away from the tines.
- Never pick up or carry a machine while the engine is running.
- Do not run the engine indoors. The exhaust fumes are dangerous, containing CARBON MONOXIDE, an ODORLESS and DEADLY GAS.
- Take all possible precautions when leaving the cultivator unattended. Stop the engine, and if equipped, remove the key.
- Do not overload the cultivator capacity by attempting to till too deep at too fast a rate.

Safe Storage

- Always refer to the owner's manual instructions for important details if the cultivator is to be stored for an extended period.

- Never store the cultivator with fuel in the fuel tank inside a building where ignition sources are present such as water and space heaters, clothes dryers, and the like. Allow the engine to cool before storing in any enclosure.
- If the fuel tank has to be drained, do this outdoors.
- Keep the cultivator in safe working condition. Check all fasteners at frequent intervals for proper tightness.

Repair / Adjustments Safety

- After striking a foreign object, stop the engine. Remove the wire from the spark plug, and keep the wire away from the plug to prevent accidental starting. Thoroughly inspect the cultivator for any damage, and repair the damage before restarting and operating it.
- If cultivator should start to vibrate abnormally, stop engine and check immediately for the cause. Vibration is generally a warning of trouble.
- Stop the engine whenever you leave the operating position. Also, disconnect the spark plug wire before unclogging the tines and when making any repairs, adjustments, or inspections.
- When cleaning, repairing, or inspecting, shut off the engine and make certain all moving parts have stopped.
- Never attempt to make any adjustments while the engine is running except when specifically recommended by the manufacturer.

SAFETY RULES

INTERNATIONAL SYMBOLS

IMPORTANT: Many of the following symbols are located on your unit or on literature supplied with the product. Before you operate the unit, learn and understand the purpose for each symbol.

Control And Operating Symbols



Slow



Fast



Fuel



Oil

Choke OFF

Half Choke

Full Choke



Safety Warning Symbols



WARNING
Thrown Objects.
Keep Bystanders Away.



WARNING
Rotating Parts. Stop Engine.
Disconnect Spark Wire Before
Making Adjustments.



WARNING



IMPORTANT
Read Owner's Manual
Before Operating
This Machine.



WARNING
Wear Eye Protection



STOP

ASSEMBLY

ASSEMBLY

PARTS PACKED SEPARATELY IN CARTON

- 1 – Owner's Manual (not shown)
- 1 – Upper Handle
- 1 – Right Lower Handle
- 1 – Left Lower Handle
- 1 – Parts Bag



WARNING: Always wear safety glasses or eye shields while assembling the cultivator.

Figure 1 shows the cultivator completely assembled.

References to the right or left side of the cultivator are from the viewpoint of the operator's position behind the unit.

HOW TO REMOVE THE CULTIVATOR FROM THE CARTON

- 1. Remove the parts bag from the carton.
- 2. Remove the handles from the carton.
- 3. Remove the packing material positioned around the unit.
- 4. Lift the cultivator out of the carton and place on a hard level surface.
- 5. Remove the packing material from the tines.

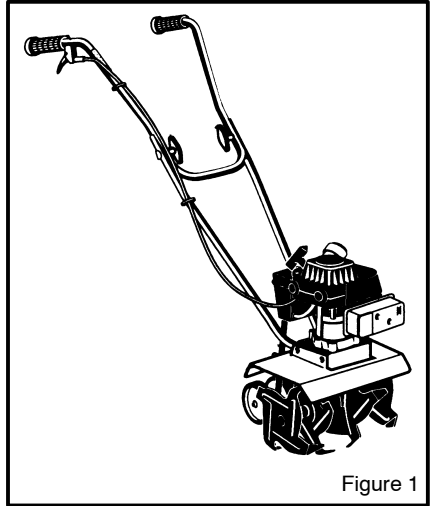


Figure 1

HOW TO ASSEMBLE THE HANDLE

The lower handles have a short bend at the bottom and have been flattened at the top.

- 1. Unwind the throttle control from around the engine. Straighten the throttle cable. Make sure that you do not bend or kink the cable.
- 2. Remove the **locknuts**, **spacers**, and **screws** from the **tine shield** (see Figure 2).

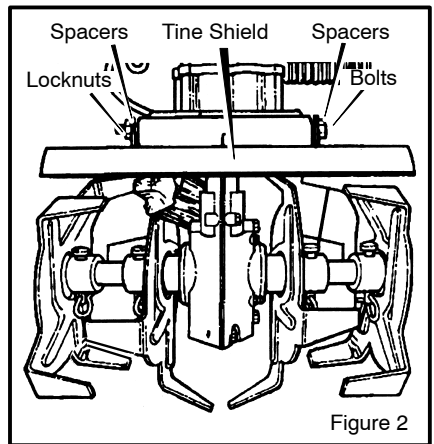


Figure 2

ASSEMBLY

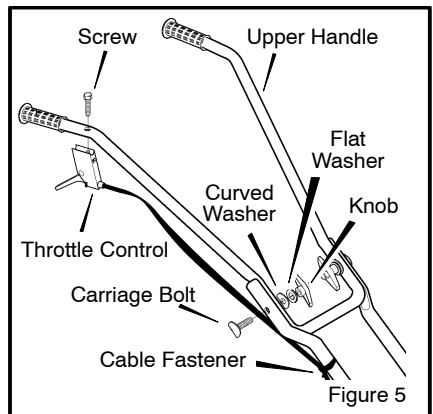
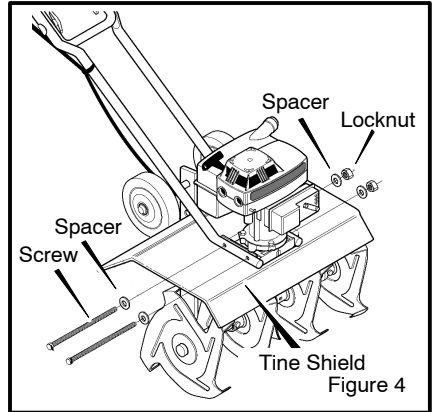
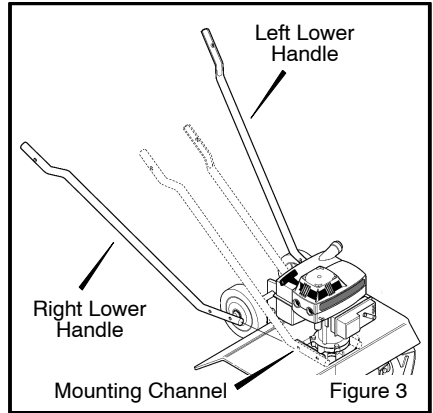
3. Insert the **right lower handle** into the **mounting channel** (see Figure 3). Make sure the flat end at the top of the handle is facing inward.
4. Mount a **spacer** on each **screw**. Push the **screws** through the **tine shield**, the **lower handle**, and half way through the engine casing (see Figure 4).
5. Insert the **left lower handle** into the **mounting channel** (see Figure 3). Make sure the flat end at the top of the handle is facing inward.
6. Push the **screws** through the engine casing, the **lower handle**, and the **tine shield**. Secure with **spacers** and **lock-nuts** as shown in Figure 4. Do not tighten at this time.
7. Remove the fasteners from the **upper handle** (see Figure 5).
8. Assemble the **upper handle** to the lower handles with the fasteners removed in step 7.
9. Tighten the **knobs**.

NOTE: To tighten the knobs, hold the curved carriage bolt head against the outside of the lower handle as you tighten the knobs.

10. Tighten the **locknuts** that hold the ends of the lower handles (see Figure 4). Tighten only enough to firmly hold the handles.

CAUTION: Over tightening the locknuts can change the shape of the handle and damage the engine casing.

11. Mount the **throttle control** on the right side of the **upper handle** with the **screw** as shown in Figure 5.
12. Attach the throttle control cable to the lower handle with the **cable fastener**. Make sure the throttle control cable is routed to the outside of the handles.



ASSEMBLY

✓ CHECKLIST

For the best performance and satisfaction from this quality product, please review the following checklist before you operate the cultivator:

- ✓ All assembly instructions have been completed.
- ✓ Check carton. Make sure no loose parts remain in the carton.
- ✓ All fasteners have been properly tightened.

As you learn how to use the cultivator, pay extra attention to the following important items:

- ✓✓ Fuel tank is filled with a fresh, clean, fuel mixture.
- ✓✓ Become familiar and understand the function of all controls. Before you start the engine, operate all controls.

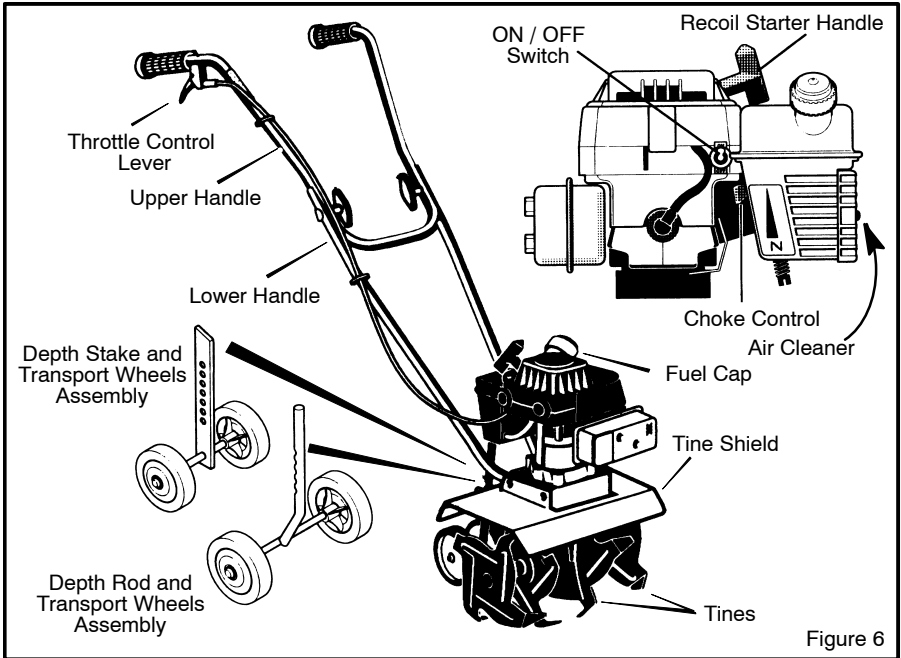
IMPORTANT: This unit is equipped with an internal combustion engine and must not be used on or near any unimproved forest-covered, brush-covered or grass-covered land unless the engine's exhaust system is equipped with a spark arrester meeting applicable local or state laws (if any). If a spark arrester is used, it must be maintained in effective working order by the operator.

In the State of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands. See an Authorized Service Center for a spark arrester for the muffler.

OPERATION

KNOW YOUR CULTIVATOR

READ THE OWNER'S MANUAL AND ALL SAFETY RULES BEFORE YOU OPERATE the cultivator. To familiarize yourself with the location of the controls, compare the illustrations with your cultivator. **Save this manual for future reference.**



Throttle Control – Controls the engine speed and the tine rotation. The cultivator is equipped with a centrifugal clutch that engages the tine drive system when the engine speed is increased.

Choke Control Lever – Use to assist when starting a cold engine.

ON / OFF Switch – The ON position allows the engine to start. The OFF position stops the engine and keeps the engine from starting.

Recoil Starter Handle – The engine is equipped with an easy pull recoil starter.

Depth Stake or Depth Rod – Two types are shown. Mount with the wheels up to adjust the depth of cut. Also use to help control the direction and speed of the cultivator.

Transport Wheels – Mount with the wheels down when transporting the cultivator.

EYE PROTECTION

Always wear safety glasses. If you wear eye glasses, put a Wide Vision Safety Mask over your eye glasses.



WARNING: Debris thrown from the cultivator can result in foreign objects being thrown into the eyes, which can cause severe eye damage. Always wear safety glasses or eye shields when operating the cultivator.

OPERATION

HOW TO USE THE CULTIVATOR

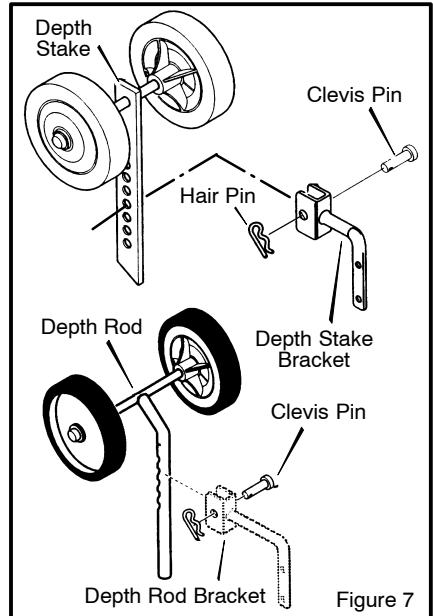
How To Stop The Cultivator

1. Release the throttle control to stop the tines.
2. Move the ON/OFF switch, on the engine, to the OFF position.

How To Set The Depth

Your model will either have a **depth stake** or a **depth rod** to control the tilling depth and the forward speed. Set the **depth stake** or the **depth rod** to the desired tilling position as follows:

1. Remove the **hairpin** and the **clevis pin** from the **depth stake** or **depth rod** (see Figure 7).
2. Adjust the **depth stake** or **depth rod** upward to dig shallower or downward to dig deeper.
3. Reinstall the **clevis pin** and **hairpin**.



HOW TO OPERATE THE CULTIVATOR

1. Start the engine. See "How To Start The Engine".
2. Tilt the unit back on the depth stake or depth rod until the tines are off the ground. Squeeze the throttle control all the way up against the hand grip. The engine is governor controlled and must be run at full throttle while tilling.
3. Hold the handle firmly and slowly tilt the unit forward to begin the tilling action.
4. As the tines begin to make contact with the ground, hold back on the handles so that the tines will dig into the soil and not ride forward over the ground.
5. Avoid tilling soil that is too dry as it will pulverize and produce a dust that will not hold water. Also, tilling soil that is too wet will be hard on the machine and produce unsatisfactory clods.
6. Lowering the depth stake will slow the cultivator and make it till deeper. Raising the depth bar will allow it to move faster and till more shallow. See "How To Set The Depth Stake or Depth Rod".



WARNING: Keep away from the rotating tines. Rotating tines can cause injury.

OPERATION

BEFORE STARTING THE ENGINE

How To Prepare The Engine



WARNING: Always use a safety fuel container. Do not smoke when adding the fuel mixture to the engine. When inside an enclosure, do not fill the fuel tank. Before you add the fuel mixture, stop the engine. Let the engine cool for several minutes.

How To Mix The Fuel Mixture

The two cycle engine, used on this cultivator, requires a mixture of gasoline and oil for lubrication of the bearings and other moving parts. The correct fuel mixture ratio is 24:1 (5.2 oz. oil per one gallon of gas – see the Fuel Mixture Chart). Gasoline and oil must be pre-mixed in a clean gasoline container. Always use fresh, clean, unleaded gasoline.

Mix gasoline and oil as follows:

1. Pour one (1) U.S. quart of fresh, clean, unleaded automotive gasoline into a one gallon size gasoline container.
2. Add 5.3 ounces of clean, high quality, two-cycle oil to the gasoline container.

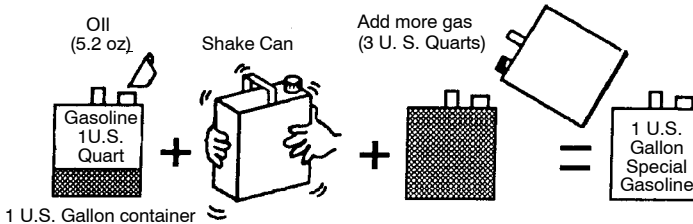
IMPORTANT: Do not use outboard motor oil or multi-viscosity oils, such as 10W-30 or 10W-40.

3. Install the fuel cap onto the gasoline container. Vigorously shake the gasoline container to mix the oil with the gasoline.
4. Add an additional three (3) U.S. quarts of gasoline to the gallon container. Again shake the gasoline container.
5. This completes the gasoline mixing procedure. The gasoline can now be added to the fuel tank.

FUEL MIXTURE CHART (mixture 24:1)

U.S.		SI. (Metric)	
GAS	OIL	GAS	OIL
1 Gal.	5.2 oz.	4 Liters	.167 L
2 Gal.	11 oz.	8 Liters	.333 L
5 Gal.	27 oz.	20 Liters	.833 L

Do not fill the fuel tank with gasoline that does not have oil mixed in it. Shake the gasoline container before each filling of the fuel tank.



OPERATION

HOW TO START THE ENGINE

Before you start the engine, make sure that you have read and understand all the instructions on the preceding pages.

1. Fill the fuel tank to 1/2 inch below the bottom of the fill neck. Reinstall the fuel tank cap securely. Always use fresh fuel. Never use fuel that could be stale from long periods of storage.
2. Move the ON/OFF switch to the ON position (see Figure 8).
3. If the engine is cold, move the choke control to the **Full Choke** position (all the way down).

NOTE: Do not choke a hot or warm engine.

4. Put the unit firmly on the tines and depth stake, or wheels, in an open area.
5. Hold the right handle firmly with your left hand.
6. Hold the rope handle with your right hand and pull to start the engine. Repeat if necessary. (It is sometimes necessary to hold the throttle control lever against the hand grip with your left hand. As

soon as the engine starts, slowly release the throttle control. If released too slowly, the unit will sometimes move forward).

7. When the engine starts, move the choke lever to the **Half Choke** position. When the engine runs smoothly, move the choke lever to the **No Choke** position.

NOTE: If the tines do not stop when the throttle control is released, adjust the carburetor idle speed. See "How To Adjust The Carburetor" in the Service And Adjustments.

8. To stop the engine, release the throttle control and move the ON/OFF switch to the OFF position.
9. If the engine becomes flooded remove and dry the spark plug. See "Spark Plug Maintenance" in the Maintenance section of this manual. Then, pull the starter rope with the choke lever in the **No Choke** position.



WARNING: The muffler and surrounding areas become hot after running the engine. Avoid these areas.

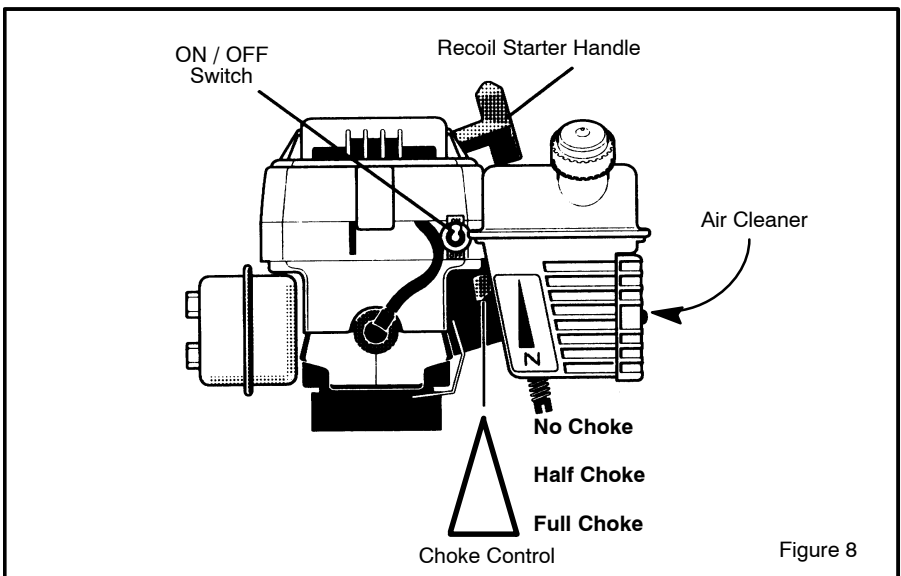


Figure 8

OPERATION

CULTIVATING TIPS

- Tilling is digging in, turning over and breaking up packed soil before planting. Loose unpacked soil helps root growth. Best tilling depth is 4 to 6 inches. A tiller will also clear the soil of unwanted vegetation. The decomposition of this vegetation matter enriches the soil. Depending on the climate (rainfall and wind), it may be advisable to till the soil at the end of the growing season to further condition the soil.
- Avoid tilling soil that is too dry as it will pulverize and produce a dust that will not hold water. Also, tilling soil that is too wet will be hard on the machine and produce unsatisfactory clods.
- Better growth will be obtained if an area is tilled properly and used soon after tilling to preserve the moisture content.
- The depth stake (on the back of the cultivator) serves a dual purpose. It helps regulate the depth of the cut and also acts as a brake to help the operator control the speed of the cultivator.
- Lowering the depth stake will slow the cultivator and make it till deeper. Raising the depth stake will allow it to move faster and till more shallow.
- If the cultivator stops forward motion and tries to dig deeper than necessary, move the handles from side to side to start forward motion.
- Cultivating is loosening or digging around growing plants which allows the plants to flourish.
- When using the cultivator to remove weeds, it is best to cultivate no deeper than 1–1/2 inches. Cultivating deeper will only pull to the surface ungerminated weed seeds. Raising the depth stake will allow it to move faster and till more shallow.
- When cultivating around plants or close areas, you may want to remove the outside tines. See “Tine Replacement” in the Service/Adjustments section.



WARNING: Read the Owner’s manual. Know location and functions of all controls. Keep all safety devices and shields in place. Never allow children or un instructed adults to operate cultivator. Shut off engine before unclogging tines or making repairs. Keep bystanders away from machine. Keep away from rotating parts and tines. They can cause injury.

HINTS FOR DEPTH STAKE OR WHEEL ADJUSTMENT

Light cultivation (about 1 to 2 inches depth) with moderate growth

Adjust the wheels upward to their highest or next to their highest position. Make sure the handles are at a comfortable height for operating the cultivator.

Seed bed preparation (4 to 6 inches depth)

Use the depth stake. Adjust the depth stake downward for deeper cultivation.

Heavy soil (4 inch depth or greater)

Remove the depth stake and work the tines down with a back and forth motion to at least a depth of 4 inches. Slowly pull the cultivator backward allowing the soil to feed forward over the tines.

MAINTENANCE

CUSTOMER RESPONSIBILITIES

SERVICE RECORDS Fill in dates as you complete regular service.	Before Each Use	After First 2 Hours	Every 25 Hours	Every 75 Hours	Before Storage	Before Each Season	SERVICE DATES
Tighten All Screws and Nuts	√	√					
Lubricate Tine Shaft			√		√		
Lubricate Transmission			√			√	
Check Spark Plug			√		√		
Clean and Oil Air Cleaner Filter			√		√		
Clean Cylinder Exhaust Ports				√			
Drain Fuel					√		

PRODUCT SPECIFICATIONS

Model No.:	See Nameplate
Date Of Purchase:	
Horse Power:	2
Displacement:	3.0 cu. in. (49.2 cc.)
Gasoline Capacity:	20 oz.
Fuel/Oil Mix Ratio:	24:1 Oil To Gas (5.3 oz. oil to 1 gal. gas (use unleaded regular)
Spark Plug:	Champion RCJ-8Y
Spark Plug Gap:	0.035 inch
Idle RPM:	1700-3000

GENERAL RECOMMENDATIONS

The warranty on this cultivator does not cover items that have been subjected to operator abuse or negligence. To receive full value from the warranty, the operator must maintain the cultivator as instructed in this manual.

Some adjustments must be made periodically to properly maintain your cultivator.

All adjustments in the Service and Adjustments section of this manual must be checked at least once each season.

MAINTENANCE

LUBRICATION

Every 25 hours and/or at the beginning of each season, make sure the gear box is filled with lubricant (see Figure 9). Tubes of gear lubricant are available from most automotive supply stores. Use portable tool grease such as Lubriplate 630AA (Product No. 06787, 1–3/4 oz. tube) or Lubriplate GR-132 (Product No. 15892, 10 oz. tube).

After cleaning and before storage, apply oil to the **tine shaft** (see Figure 9).

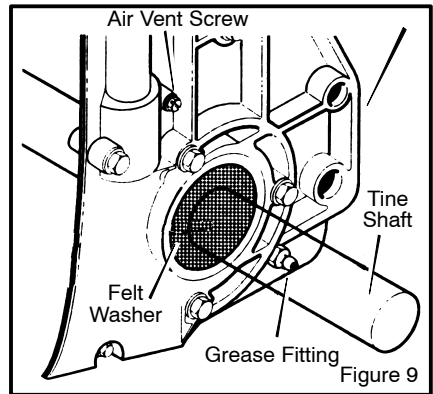


WARNING: Allow the transmission to cool before filling with grease.

1. Remove both left side tines. See “How To Replace The Tines” in the Service and Adjustments section.
2. Remove the **air vent screw** (see Figure 9).
3. Mount a grease gun onto the **grease fitting**. Fill the transmission until the grease begins to come out of the air vent screw hole.
4. Reinstall the **air vent screw**.
5. Check the condition of the **felt washer** (see Figure 9). Replace the **felt washer**

if it is damaged (see the Repair Parts section in this manual).

6. Clean and lubricate the **tine shaft** with a few drops of oil.
7. Reinstall the left side tines.
8. Remove the right side tines. Check the **felt washer** for damage. Clean and oil the **tine shaft**. Reinstall the right side tines.

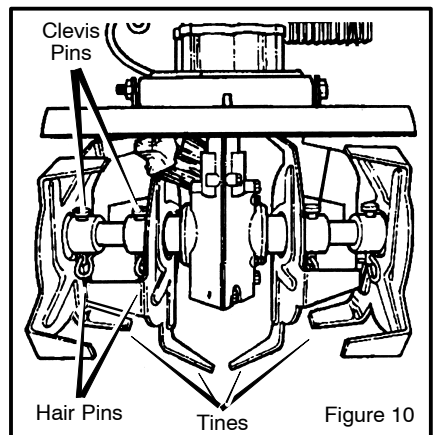


HOW TO CLEAN THE TINES

Always remove dirt and debris from the cultivator after each use. Remove any string, wire or vegetation that may become lodged in the mechanism and stop the tines from rotating.

1. Release the throttle control and move the on-off switch to the OFF position. Disconnect the spark plug wire from the spark plug.
2. While wearing gloves, remove the **hair-pins** and **clevis pins** that secure the tine assemblies to the shaft (see Figure 10). Remove the tines from the shaft.
3. Remove any lodged debris from the shaft and tines. Clean and lubricate the tine shaft with a few drops of oil.
4. Reassemble the tines on the shaft and secure with a clevis pin and hairpin.

5. Connect the spark plug wire to the spark plug.



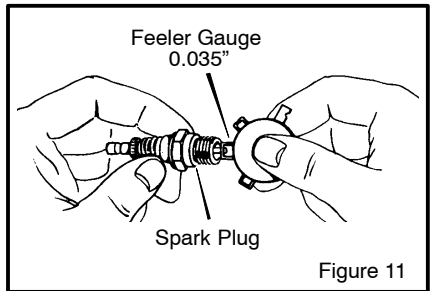
MAINTENANCE

SPARK PLUG

Check the **spark plug** every 25 hours. Replace the **spark plug** if the electrodes are pitted or burned or if the porcelain is cracked.

1. Make sure the **spark plug** is clean. Clean the **spark plug** by carefully scraping the electrodes (do not sand blast or use a wire brush).
2. Check the **spark plug** gap with a **feeler gauge**. See "Product Specifications" for the correct **spark plug** gap and replacement **spark plug**.

3. Before installing the **spark plug**, coat the threads lightly with oil for easy removal. Tighten the spark plug to a torque of 15 foot-pounds.



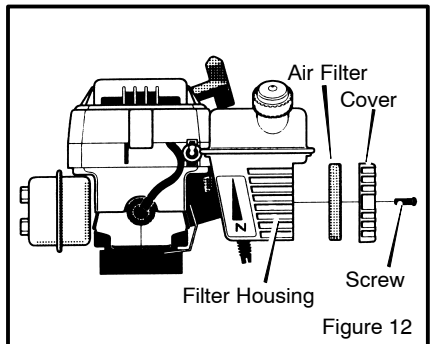
HOW TO CLEAN THE AIR FILTER

The engine uses a foam air filter that can be cleaned and reused. Clean and oil the air filter every 25 hours. Clean more often in dusty conditions. Remove and clean the air filter as follows:

CAUTION: Never run the engine without the air filter installed. An air filter clogged with dust can result in loss of engine power and can cause excessive wear or damage to the engine. If the air filter is clogged, clean or replace immediately.

1. Disconnect the spark plug wire from the spark plug.
2. Remove the **screws** from the **air filter cover** (see Figure 12). Remove the **air filter cover** and the **air filter**.
3. Wipe the **cover** and the inside of the **air filter housing** with a clean cloth.
4. Clean the **air filter** in a solution of water and household detergent. Rinse thoroughly in clean water.
5. Wrap the **air filter** in a dry clean cloth. Squeeze out (do not twist) all solution until dry.

6. Cover the outside of the **air filter** with oil. Use the same type of oil as used to make the fuel mixture. Lightly squeeze the **air filter** to distribute and remove any excess oil.
7. Put the clean **air filter** into the **air filter housing**.
8. Install the **air filter cover** and secure with the **screws** as shown.
9. Connect the spark plug wire to the spark plug.



CYLINDER EXHAUST PORTS

Clean the cylinder exhaust ports after every 75 hours of operation. For this procedure, we recommend that you take your unit to a Authorized Service Center.

F-031305L

SERVICE AND ADJUSTMENT

HOW TO REMOVE AND INSTALL THE TINES

References to the right or left side of the cultivator are from the viewpoint of the operator's position behind the unit.

All four tines are different and cannot be interchanged. The tines must be correctly installed or the cultivator will not function properly.

To till around plants or in small areas, the outside tines can be removed to reduce the tilling width to approximately 7 inches.

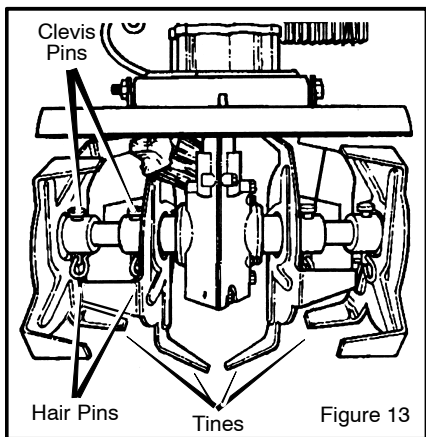


WARNING: The tines are self sharpening and will become quite sharp from use. Handle carefully.

The tines will all wear evenly. If the tines are being replaced because of wear, we recommend that all four tines be replaced at the same time. To replace the tines, do the following:

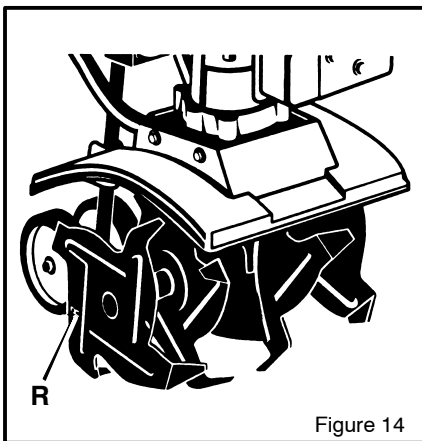
Tine Removal

1. Put the on-off switch in the OFF position.
2. Disconnect the spark plug wire from the spark plug.
3. While wearing gloves, remove the **hair-pins** and **clevis pins** that secure the tine assemblies to the shaft (see Figure 13). Remove the **tines** from one side of the unit.



Tine Installation

1. Clean and lubricate the tine shaft with a few drops of oil.
2. Place the inside tine on the tine shaft and reinstall the **clevis pin** and **hairpin**.
3. When the tines are properly installed, the letter **R** will be visible on the outside of the **right tine** (see Figure 14). The letter **L** will be visible on the outside of the left tine.



4. Mount the outside tine on the tine shaft and fasten with the **clevis pin** and **hairpin** (see Figure 13).
5. The cutting tips on the outside tines all bend in toward the inside tine. When assembled correctly, the letter **R** on the right side, or **L** on the left side, will be visible from the outside of the unit.
6. Repeat the above steps on the opposite side of the unit.

NOTE: Make sure the tines are installed on the correct side of the unit.

SERVICE AND ADJUSTMENT

HOW TO ADJUST THE CARBURETOR

A dirty air cleaner will cause the engine to run improperly or to smoke excessively. Before adjusting the carburetor, make sure the air cleaner is clean. Never make unnecessary adjustments to the carburetor. The carburetor was set at the factory to operate efficiently under most applications. However, if adjustments are required, we recommend you contact your nearest Authorized Service Center. If you feel that you are competent to make carburetor adjustment proceed as follows.



WARNING: Use extreme care when making adjustments that require the engine to be running. Keep hands, feet, hair and loose clothing away from all moving parts.

1. Turn the **mixture adjustment screw** clockwise to until closed (see Figure 15).

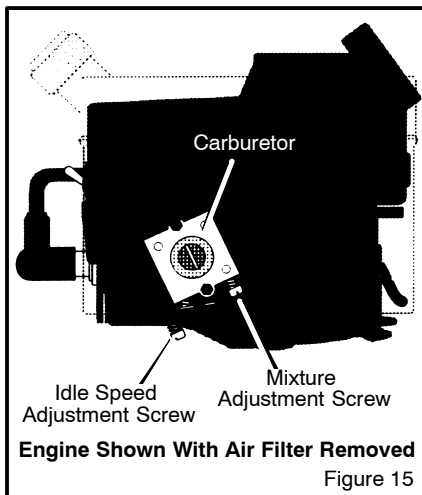
IMPORTANT: To prevent damage to the carburetor or to the adjusting screw, tighten the adjustment screws with your fingers.

2. Turn the **mixture adjustment screw** counterclockwise one turn.
3. Start the engine and let it warm up for approximately 3 to 5 minutes. Do not adjust the carburetor when the engine is cold.
4. If the engine runs erratically or stops after the choke lever is moved to the **CHOKE OFF** position, then open the **mixture adjustment screw** an additional 1/8 turn counterclockwise.
5. With the engine running, release the throttle control (idle position) to make the mixture adjustments.
6. Slowly turn the **mixture adjustment screw** clockwise until the engine begins to run erratically. Note this position.
7. Then, slowly turn the mixture adjustment screw counterclockwise until the engine again begins to run erratically. Note this position.

8. Turn the mixture adjusting screw clockwise until it is halfway between the first position and the second position.
9. Check the engine idle speed. Start the engine and release the throttle control. If the tines do not turn with the throttle control is released, the idle speed is correct. If the tines turn with the throttle control is released, adjust the engine idle speed as follows.
10. Have someone tilt the cultivator back on its depth stake so that the tines are off the ground.
11. Start the engine.
12. With the throttle in the released (idle position), turn the **idle speed adjustment screw** counterclockwise until the tines stop rotating.



WARNING: The engine governor is set at the factory. Do not change the governor setting. Over speeding the engine above the factory setting can be dangerous. If you think the engine governor needs an adjustment, contact your nearest Authorized Service Center.



SERVICE AND ADJUSTMENT

STORAGE



WARNING: Never store the cultivator indoors with fuel in the fuel tank. Never store in an enclosed, poorly ventilated area where fumes could reach an open flame, a spark or a pilot light as on a furnace, water heater or clothes dryer.



WARNING: Do not remove gasoline while inside a building, near a fire, or while you smoke. Gasoline fumes can cause an explosion or a fire.

When the cultivator is put in storage for thirty days or more, follow the steps below to make sure the cultivator is in good condition the following season.

Cultivator

- Completely clean the cultivator.
- Remove the tines. Clean and apply oil to the tine shafts. Mount the tines onto the tine shafts. See “How To Remove And Install The Tines” in the Service And Adjustments section.
- Loosen the knobs that secure the upper handle to the lower handle. Carefully fold the upper handle. Make sure the throttle cable is not bent. Tighten the knobs.
- The cross piece of the upper handle (between the lower handles) can now be used as a carry handle. To store the cultivator up off the floor and out of the way, the cross piece can also be hooked over a wall hook.
- Put the cultivator in a building that has good ventilation.

- Cover the cultivator with a suitable protective cover that does not retain moisture. Do not use plastic.

IMPORTANT: Never cover the cultivator while the engine and exhaust areas are still warm.

NOTE: A yearly checkup or tune-up by a Authorized Service Center is a good way to make sure that your cultivator will provide maximum performance for the next season.

Engine

IMPORTANT: It is important to prevent gum deposits from forming in fuel system parts such as the carburetor, fuel filter, fuel hose, and tank during storage. Also, using alcohol-blended fuels (called gasohol, ethanol or methanol) can attract moisture which leads to separation and formation of acids during storage. Acidic gas can damage the fuel system of an engine while in storage.

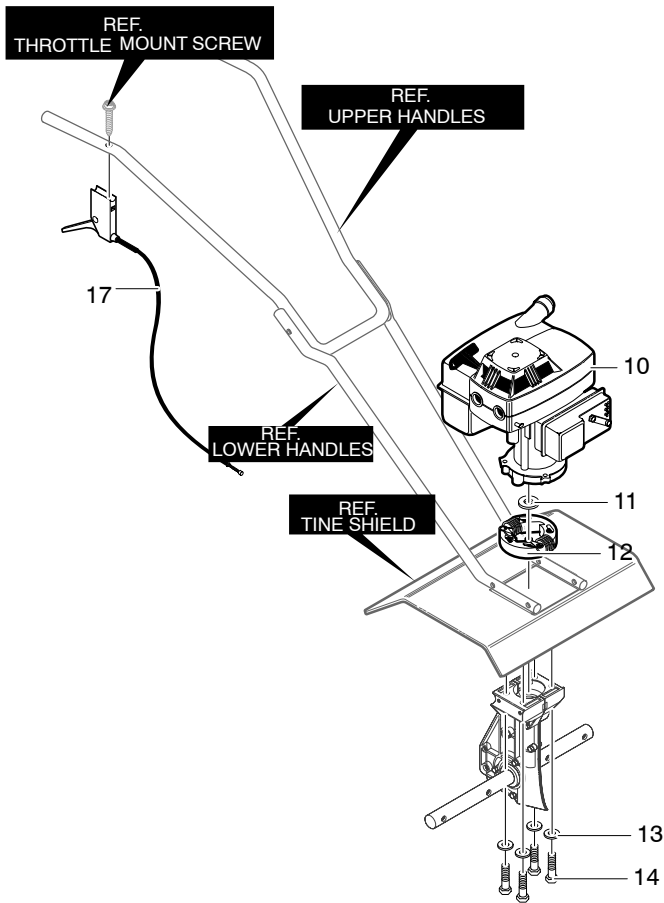
To prevent engine damage when the cultivator is in storage for 30 days or more, follow the steps below:

- Let the engine run until it is out of gasoline.
- Slowly pull the starter handle until you feel resistance due to compression in the cylinder, then stop.
- Slowly release the starter rope. This position will close both the intake and the exhaust ports and help prevent corrosion of the piston and cylinder.

TROUBLE SHOOTING CHART

TROUBLE	CAUSE	CORRECTION
Engine difficult to start	Stale fuel mixture	Drain fuel tank. Fill with fresh fuel mixture.
or	Too much oil in fuel mixture	Check fuel mixture chart and mix fresh fuel.
Engine runs erratically	Dirt in fuel tank or out of fuel	Clean fuel tank.
or	Carburetor out of adjustment	See Carburetor Adjustment section.
Engine will not run at full speed	Fouled spark plug	Clean and set spark plug gap.
	Dirty air filter	Clean and oil air filter.
Engine speed does not increase properly	Debris interfering with throttle linkage	Clean dirt and debris of top of carburetor.
Engine smokes excessively	Plugged air filter	Clean and oil air filter.
	Too much oil in fuel mixture	Check fuel mix chart and mix fresh fuel.
Tines continue to rotate when throttle control is released	Carburetor out of adjustment	Adjust carburetor idle speed. See "How To Adjust The Carburetor" in the Maintenance section.
Tines will not turn	Debris lodged in tine	Remove debris. See "How To Clean The Tines" in the Maintenance section.
Unit does not till properly	Incorrect tine installation	Check the tines for proper installation. See "How To Remove And Install The Tines" in the Service And Adjustments section.

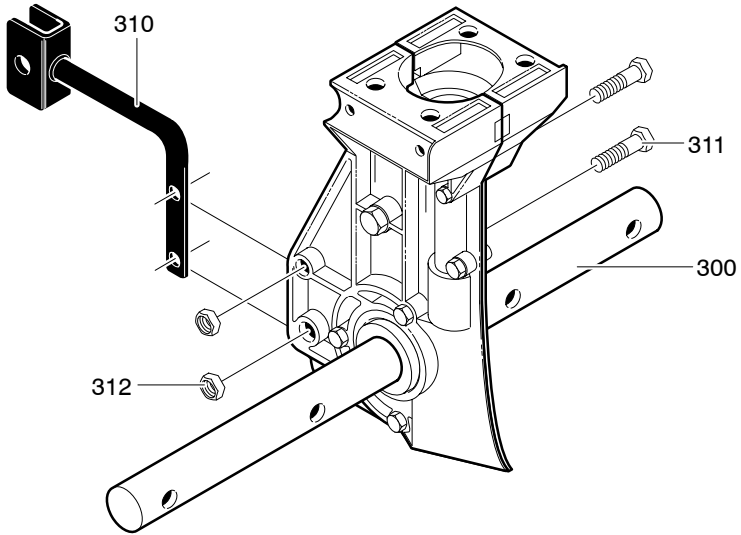
MODEL 11052x92D



323392C

KEY NO.	PART NO.	DESCRIPTION	KEY NO.	PART NO.	DESCRIPTION
10	2.0HP	Engine	14	001x90	Screw
11	56694	Flat washer	17	319306	Cable, Throttle
12	335350	Rotor	—	F-031305L	Instruction Manual
13	120380	Washer			

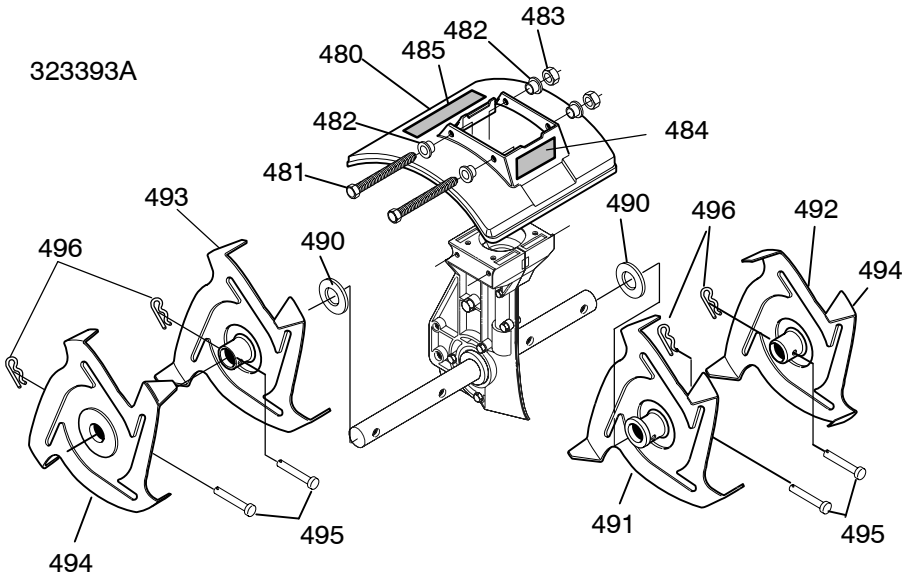
MODEL 11052x92D



318848C

KEY NO.	PART NO.	DESCRIPTION
300	1901017	Transmission
310	339390E701	Bracket, Depth Rod
311	180024	Screw, 1/4-20x1.25
312	782585	Nut, 1/4-20

MODEL 11052x92D

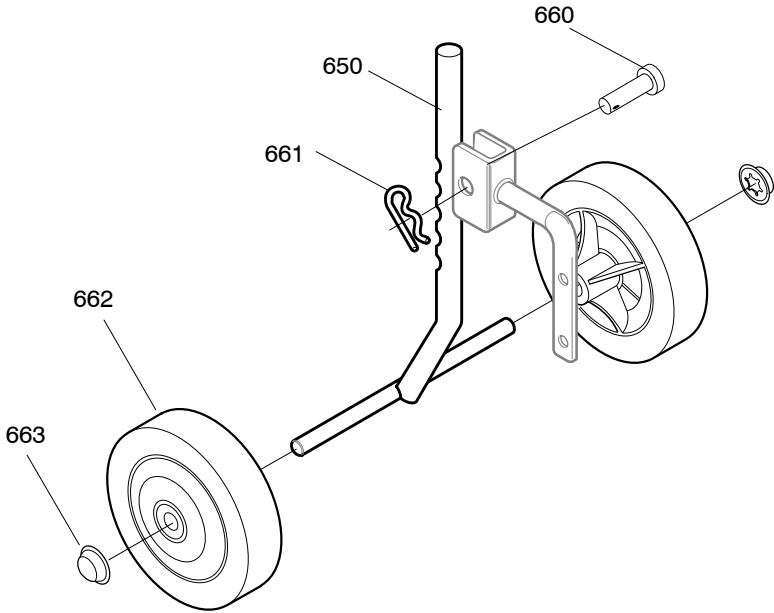


323393A

KEY NO.	PART NO.	DESCRIPTION	KEY NO.	PART NO.	DESCRIPTION
480	7401015 *	Shield, Tine *	491	56157E701	Tine Assy. Inner LH
481	310056	Screw, 1/4-20x5.50	492	56155E701	Tine Assy. Outer LH
482	672734	Spacer, Flange	493	56156E701	Tine Assy. Inner RH
483	782585	Nut, 1/4-20	494	56154E701	Tine Assy. Outer RH
484	48x894	Decal, Murray	495	56123	Clevis Pin
485	48x4031	Decal, Caution	496	0031x4	Hair Pin
490	56158	Washer, Felt			

* Includes Key Nos. 484, 485 and four Key Nos 482.

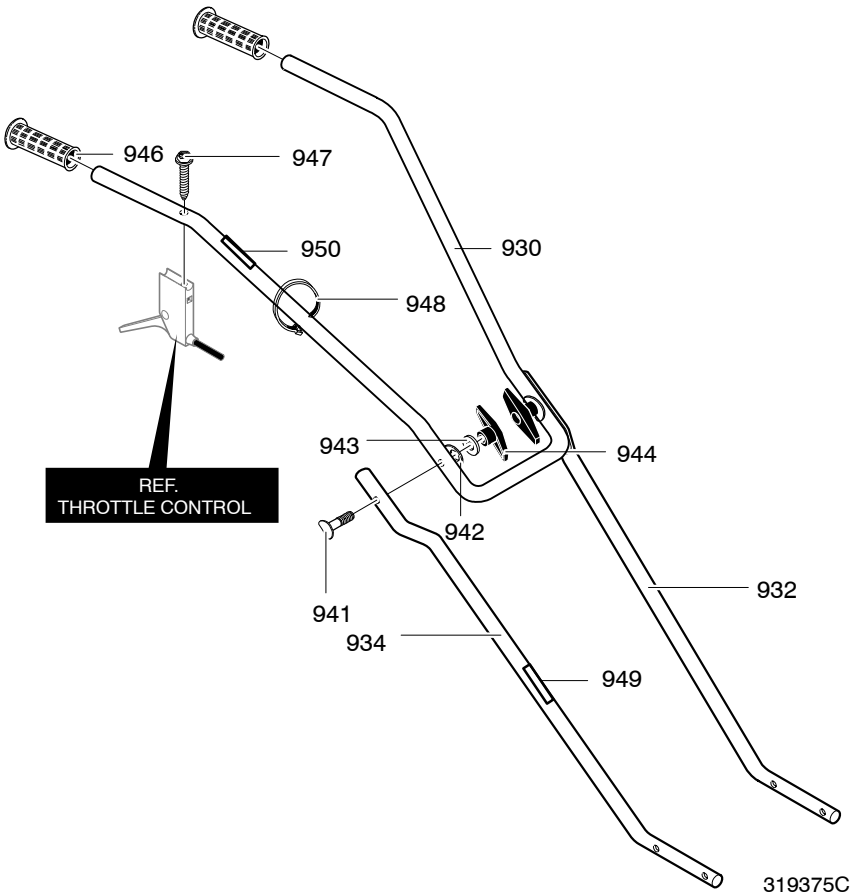
MODEL 11052x92D



323396B

KEY NO.	PART NO.	DESCRIPTION
650	331176 Z	Wheel Support Assy.
660	56123	Clevis Pin
661	31x4	Hair Pin
662	338307	Tire & Rim
663	73664	Push On Nut

MODEL 11052x92D



KEY NO.	PART NO.	DESCRIPTION	KEY NO.	PART NO.	DESCRIPTION
930	7401025 *	Upper Handle *	946	56778	Hand Grip
932	339398E701	Lower Handle LH	947	426635	Screw 10-16x1.5
934	7401022 *	Lower Handle RH +	948	712267	Cable Tie
941	56199	Bolt 5/16-18x1.63	949	305828	Decal, Caution
942	783000	Formed Washer	950	48x4030	Decal, Throttle Control
943	120393	Flat washer			
944	1901018	T Knob			

* Includes Key No. 950

+ Includes Key No. 949

NOTES

HOW TO ORDER REPAIR PARTS

Only use a factory repair part. Repair parts, except for the engine or the transmission, are available from the store where the unit was purchased, a service shop recommended by the store, or an authorized service shop found in the yellow pages of the telephone directory. If you cannot get a repair part or service as described above, call or write to the Central Parts Distributor shown below. When you order, include the following information: (1) Complete Model Number (see nameplate), (2) Date of Manufacture, (3) Complete Part Number, (4) Description, (5) Quantity.

Repair parts for the engine or the transmission are available from the manufacturer's authorized service center found in the yellow pages of the telephone directory. See the individual engine or transmission warranties.

MURRAY, INC. LAWN MOWER CENTRAL PARTS DISTRIBUTORS

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Porterville, CA. 93257
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Tualatin, OR. 97062
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FAX (503)691-2041

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(780)453-5791 1-800-861-9559

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234 Migneron Street
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West Valley City, UT 84120
1-800-318-0201
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GARDNER, INC.

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Columbus, OH. 43212
1-800-848-8946
FAX (614)486-7122
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Corpus Christi, TX. 78408
1-800-825-6999
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