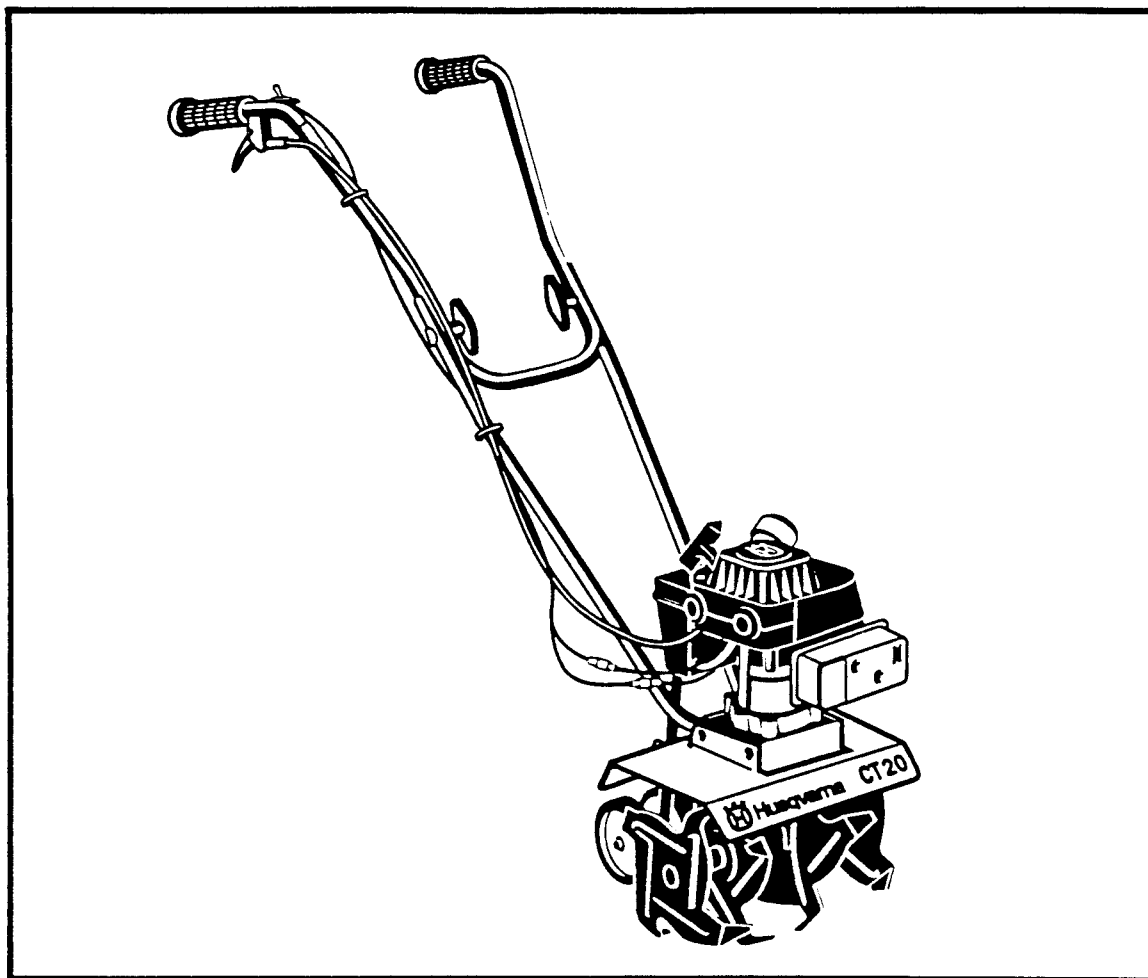


CT20



Spare Parts
Pièces Détachées

Owner's Manual 601 00 24 63
Reference No. 711783



SAFETY RULES

THESE SAFETY RULES ARE FOR YOUR PROTECTION. READ THEM CAREFULLY

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.

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. Never fill fuel tank indoors. Replace fuel tank cap securely and wipe up spilled fuel.
- Never remove the fuel tank cap or add fuel to a running or not 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.
- 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.
- Never operate the cultivator at high transport speeds on 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.

- 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.
- 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.
- Keep the cultivator in safe working condition. Check all fasteners at frequent intervals for proper tightness.

REPAIR AND ADJUSTMENT SAFETY

- After striking a foreign object, stop the engine (**motor**). 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 the cultivator.
- If the cultivator should start to vibrate abnormally, stop the engine (**motor**) and check immediately for the cause. Vibration is generally a warning of trouble.
- Stop the engine (**motor**) 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 (**motor**) and make certain all moving parts have stopped.
- Never attempt to make any adjustments while the engine (**motor**) is running (**except when specifically recommended by the manufacturer**).

California Proposition 65 WARNING!

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.



LOOK FOR THIS SYMBOL TO POINT OUT IMPORTANT SAFETY PRECAUTIONS. IT MEANS ATTENTION!!! BECOME ALERT!!! YOUR SAFETY IS INVOLVED

OWNER'S INFORMATION

Record the following information about your unit so that you will be able to provide it in case of loss or theft.

MODEL NUMBER: — (Enter complete 8 digit number from model plate on unit)

PURCHASE DATE: ____ / ____ / ____ CODE NO.: _____ SERIAL NO.: _____

DEALER'S NAME AND ADDRESS: _____

CITY: _____ STATE: _____ TELEPHONE: _____

WARNING: This unit is equipped with an internal combustion engine and should 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 should 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. A spark arrester for the muffler is available through your nearest engine authorized service dealer.

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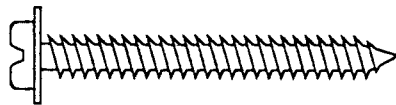
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CONTENTS OF SHIPPING CARTON

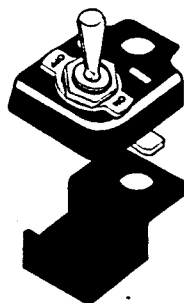
- 1 - 10 inch Cultivator completely assembled except for the handles, shut-off switch, and throttle control assembly
- 1 - Upper Handle
- 1 - Left Hand Lower Handle
- 1 - Right Hand Lower Handle
- 1 - Owner's Manual (Not Shown)
- 1 - Bag of Assembly Parts:

- 1 - 10-16 x 1-1/2 Inch Washer Head Tap Screw
- 2 - Tie Strap
- 1 - Shut-Off Switch Assembly
- 1 - Switch Bracket
- 1 - Wire Assembly

CONTENTS OF PARTS BAG

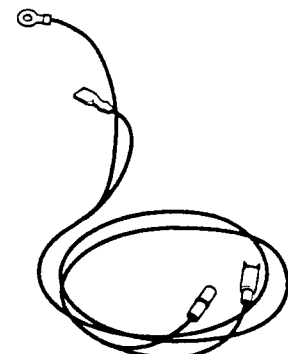


1 - 10-16 x 1-1/2 Inch Washer Head Tap Screw



1 - Shut-Off Switch Assembly

1 - Switch Bracket



1 - Wire Assembly



2 - Tie Straps

TOOLS REQUIRED FOR ASSEMBLY

- 2 - 7/16 inch Wrenches (or adjustable wrenches)
- 1 - Regular Screwdriver or 5/16 inch wrench
- 1 - Pair Scissors

TO REMOVE CULTIVATOR FROM CARTON

- Remove plastic parts bag for cultivator from carton.
- Remove handles from the carton.
- Remove remainder of packing material from carton.
- Lift the cultivator out of carton and place on a hard, level surface.
- Remove packing material from around tines.



CAUTION: ALWAYS WEAR SAFETY GLASSES OR EYE SHIELDS WHILE ASSEMBLING CULTIVATOR.

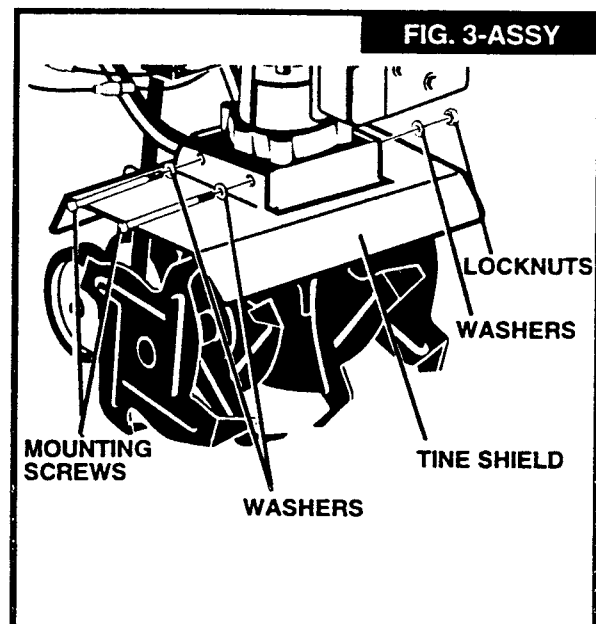
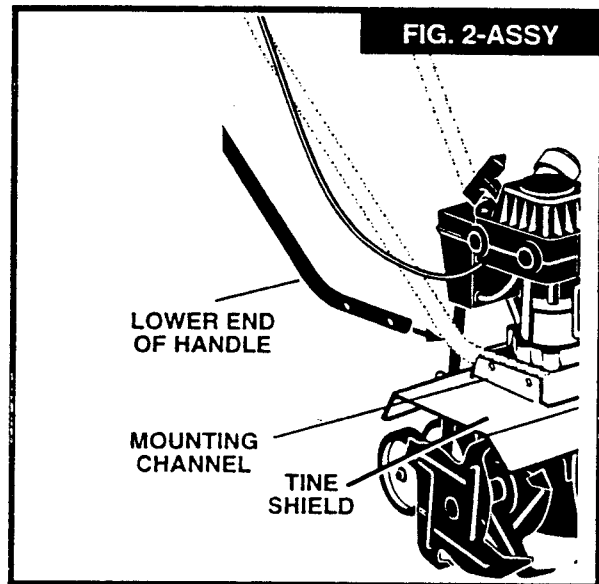
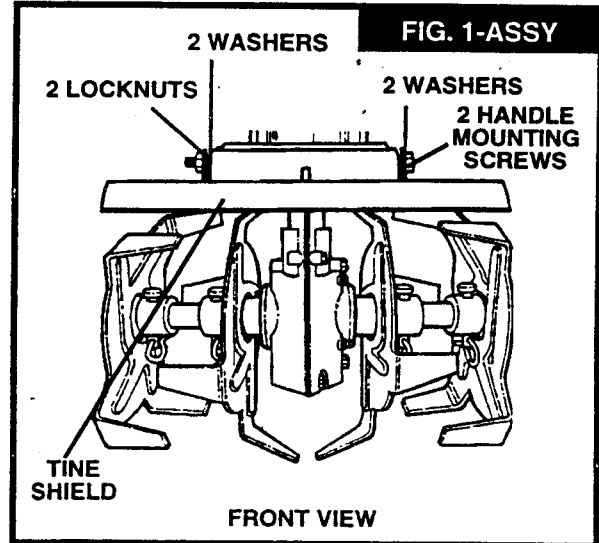
FIG. 1-OP on page 6 shows the cultivator completely assembled.

Reference to the right and left hand side of the cultivator is from the operator's position behind the unit.

TO INSTALL THE HANDLE ASSEMBLY

The lower handles have a short bend at the bottom end and are flattened at the top to allow the upper handle to be placed between the lower handles. To assemble the handles, do the following:

- Unwind the throttle control from around the engine and straighten the cable. Be careful you do not kink the cable.
- Remove two locknuts, four washers and two handle mounting screws from the tine shield (See FIG. 1-ASSY).
- Insert the right side lower handle section into the mounting channel between the tine shield and the engine casting (See FIG. 2-ASSY). Push the mounting screws through the tine shield, handle and approximately halfway into the engine casting. Be sure a washer is on each mounting screw (See FIG. 3-ASSY). It may be necessary to rotate the lower handle to align the mounting holes. To allow proper mounting of the upper handle section be sure the flat portion of the lower handle is facing inward.
- Position the left side lower handle section into the mounting channel between the tine shield and the engine casting. Align the holes in the handle with the engine casting and the tine shield, then push the mounting screws completely through the engine casting, tine shield and handle. Install washers onto the mounting screws and secure the lower handle sections using two locknuts previously removed (See FIG. 3-ASSY). Finger tighten the locknuts at this time.



- Remove hardware from upper handle.
- Place the upper handle between the lower handles (See FIG.4-ASSY).
- Assemble loosely with two curved head carriage bolts, two formed washers, two 11/32 inch flatwashers, and two T-knobs (removed earlier) on the inside of the handle. (See FIG.4-ASSY).
- Using two 7/16 inch wrenches, tighten the two locknuts on the screws on the ends of the lower handles just enough to hold the handles firmly in place.

IMPORTANT: OVERTIGHTENING THE SCREWS ENOUGH TO CHANGE THE SHAPE OF THE HANDLES CAN RESULT IN DAMAGE TO THE ENGINE CASTING.

- Hold the curved head carriage bolts against the outside of the lower handle while tightening the T-knobs securely.

TO INSTALL THE THROTTLE CONTROL AND SWITCH ASSEMBLY

- Place the No. 10 x 1-1/2 inch hex head screw through wire assembly eyelet, through switch assembly through switch assembly bracket, then through upper right handle into the throttle control. Tighten securely with 5/16" wrench or screwdriver. (See FIG. 5-ASSY)

NOTE: Switch assembly must be to the right of upper right handle.

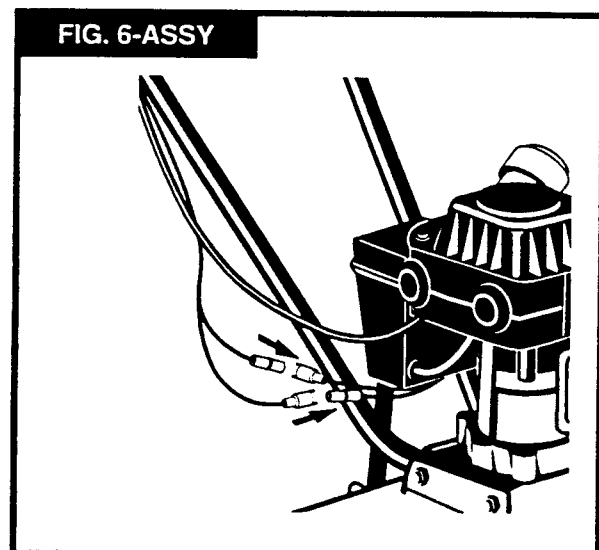
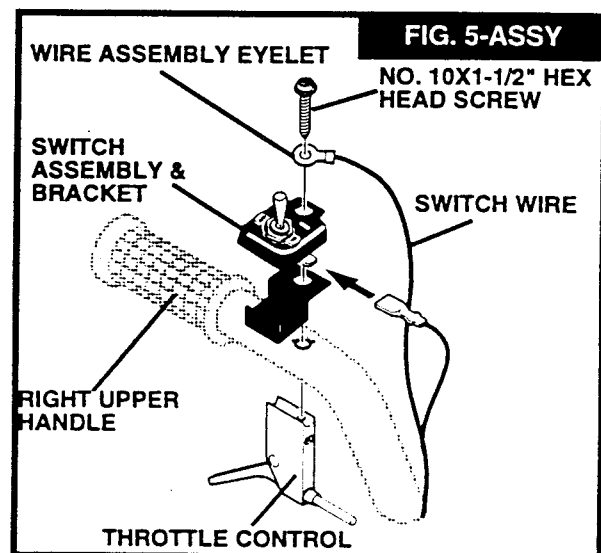
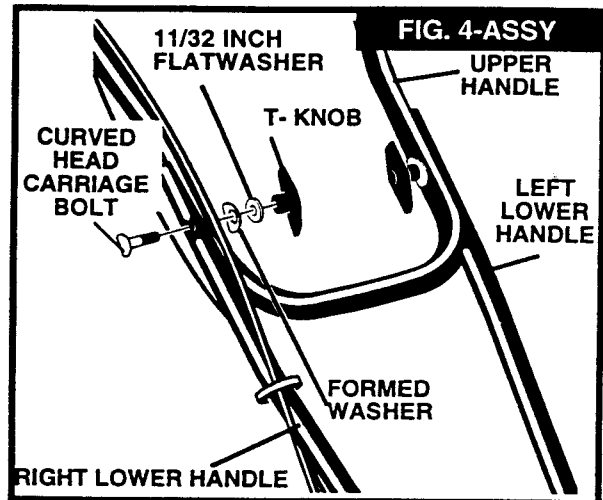
- Push switch wire onto prong on bottom side of switch. (See FIG. 5-ASSY)
- Connect other end of wire assembly to the two wires at back side of engine. (See FIG. 6-ASSY)

NOTE: If wires are not connected the engine will not shut-off.

- Attach the throttle cable and wire assembly to the right lower and upper handles with tie straps supplied in parts bag (See FIG. 1-OP on page 6 for location of tie straps).
- Thread the pointed end of the strap through the other (square) end of the strap and pull tight around the throttle cable and lower handle.

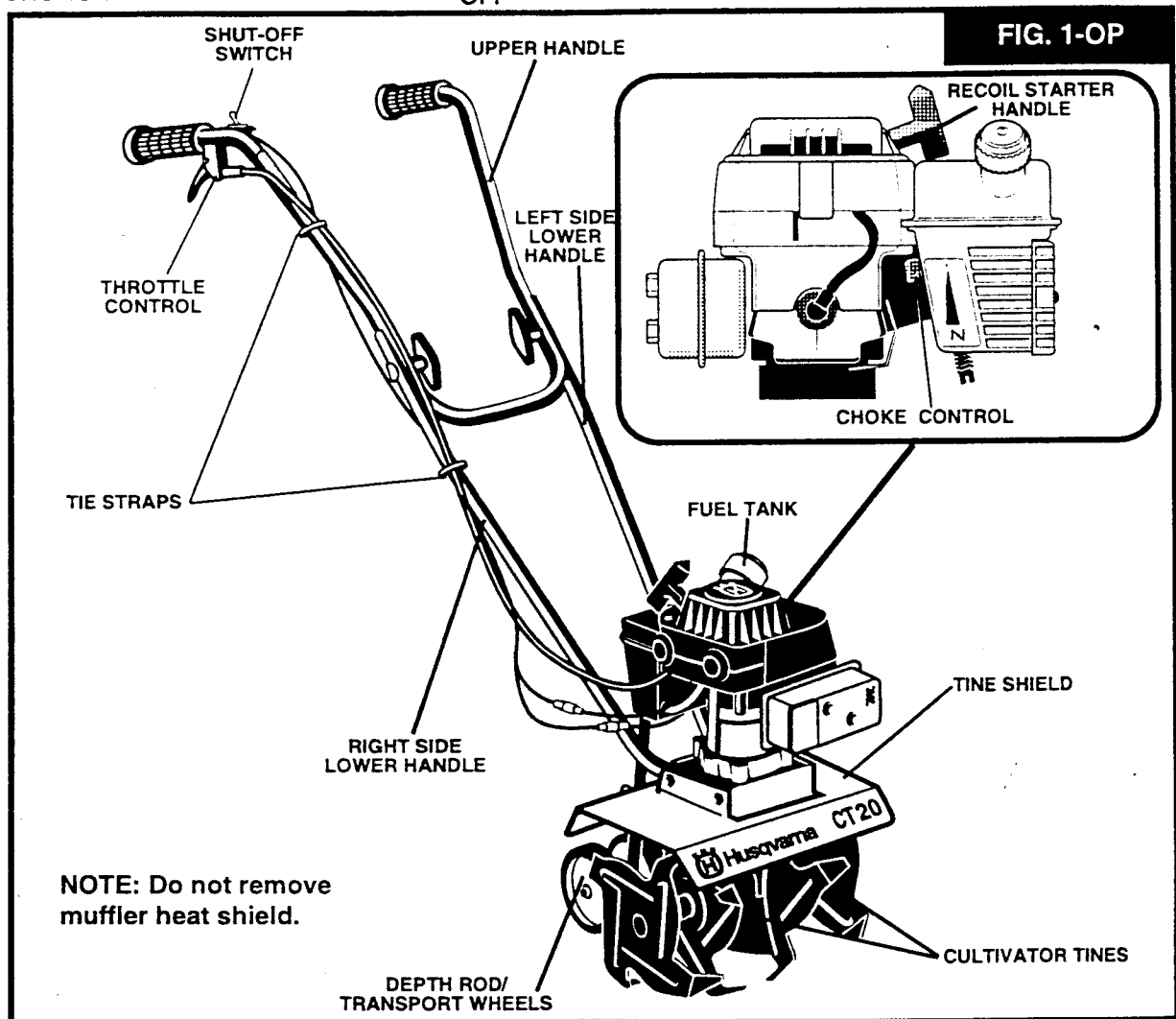
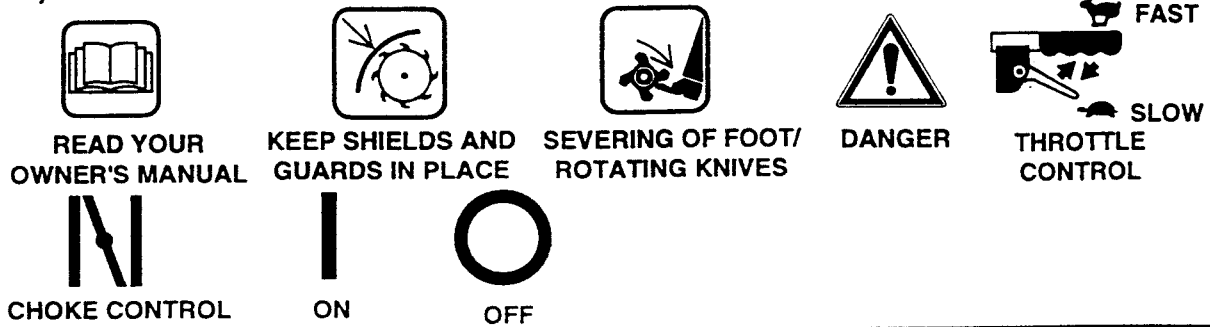
NOTE: One side of the tie strap is rough, while the other side is smooth. The rough side must be on the inside of the loop formed when the ends of the tie strap are put together.

- Try to loosen the tie strap. If it will loosen, it is put together with the smooth side to the inside of the loop. Remove the tie strap and reverse the direction.
- Cut off excess strap.



KNOW YOUR CULTIVATOR

READ THIS OWNER'S MANUAL AND SAFETY RULES BEFORE OPERATING YOUR CULTIVATOR. Compare the illustrations with your cultivator to familiarize yourself with the location of various controls and adjustments. Save this manual for future reference.



THROTTLE CONTROL - Controls the engine speed and the tine rotation. This cultivator is equipped with a centrifugal clutch that engages the tine drive system when the engine speed is increased.

SHUT-OFF SWITCH - Located on right lower handle. Used to stop the engine.

CHOKE CONTROL LEVER - Used to assist in starting a cold engine.

STARTER HANDLE - The engine on this cultivator is equipped with an easy pull recoil starter.

DEPTH ROD/TRANSPORT WHEELS - Used to adjust the depth of the cut. It also acts as a brake to help the operator control the direction and speed of the cultivator. It is adjusted by removing the hairpin and the clevis pin and moving the depth rod to a different setting. Turn the depth rod with the wheels down to transport the cultivator.




The operation of this cultivator can result in foreign objects being thrown into the eyes, which can result in severe eye damage. Always wear safety glasses or eye shields while operating the cultivator.

We recommend standard safety glasses or Wide Vision Safety Mask for over your glasses.



CAUTION: KEEP AWAY FROM THE ROTATING PARTS. ROTATING PARTS CAN CAUSE INJURY.

TO STOP CULTIVATOR

- Release the throttle control to stop the tines.
- Move the shut-off switch located on the right upper handle to the  or (OFF) position.

TO OPERATE CULTIVATOR

- Set the depth rod to the desired tilling position as follows:
- Remove the hairpin from the clevis pin securing the depth rod (**See FIG. 2-OP**). Remove the clevis pin and adjust the depth rod upward to dig shallower or downward to dig deeper. Reinstall the clevis pin and hairpin.
- With engine running, tilt the unit back on the depth bar until the tines are off the ground and squeeze the throttle control all the way up against the hand grip. The engine is governor controlled and should be run at full throttle.
- Grasp the handles firmly and slowly tilt the unit forward to begin the tilling action.
- As the tines begin to make contact with the ground, hold back on the handles so that the tines will dig and not ride forward over the ground. Hold back until the tines dig into the soil.
- If the tilled depth is too deep or too shallow, turn off the engine and reset the depth rod.
- If depth rod is not controlling forward action, lower the depth rod. If the unit is not going forward, raise the depth rod.

BEFORE STARTING ENGINE FILL FUEL TANK

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 (**See Fuel Mixture Chart**). Gasoline and oil must be pre-mixed in a clean gasoline container. Always use fresh, clean unleaded gasoline.



CAUTION: GASOLINE IS FLAMMABLE AND CAUTION MUST BE USED WHEN HANDLING OR STORING IT. DO NOT FILL FUEL TANK WHILE

CULTIVATOR IS RUNNING, HOT, OR WHEN CULTIVATOR IS IN AN ENCLOSED AREA. KEEP AWAY FROM OPEN FLAME, ELECTRICAL SPARK, AND DO NOT SMOKE WHILE MIXING FUEL OR FILLING THE FUEL TANK. NEVER FILL FUEL TANK COMPLETELY; BUT FILL THE TANK TO WITHIN 1/2 INCH FROM THE TOP TO PROVIDE SPACE FOR EXPANSION OF FUEL. ALWAYS FILL FUEL TANK OUTDOORS AND USE A FUNNEL OR SPOUT TO PREVENT SPILLING. MAKE SURE TO WIPE UP ANY SPILLED FUEL BEFORE STARTING ENGINE.

STORE GASOLINE IN A CLEAN, APPROVED CONTAINER, AND KEEP THE CAP IN PLACE ON THE CONTAINER. KEEP GASOLINE IN A COOL, WELL VENTILATED PLACE; NEVER IN THE HOUSE. NEVER BUY MORE THAN A 30 DAY SUPPLY OF GASOLINE TO ASSURE VOLATILITY. GASOLINE IS INTENDED TO BE USED AS A FUEL FOR INTERNAL COMBUSTION ENGINES; THEREFORE, DO NOT USE GASOLINE FOR ANY OTHER PURPOSE. SINCE MANY CHILDREN LIKE THE SMELL OF GASOLINE, KEEP IT OUT OF THEIR REACH BECAUSE THE FUMES ARE DANGEROUS TO INHALE, AS WELL AS BEING EXPLOSIVE.

WARNING: Experience indicates that 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 avoid engine problems, the fuel system should be emptied before storage for 30 days or longer. Drain the gas tank, start the engine and let it run until the fuel lines and carburetor are empty. Use fresh fuel next season. See **Storage Instructions** for additional information. Never use engine or carburetor cleaner products in the fuel tank or permanent damage may occur.

GASOLINE AND OIL MIXTURE

Mix gasoline and oil as follows:

- Pour 1 U.S. quart of fresh, clean, unleaded automotive gasoline into a gallon gasoline container.
- Add (5 oz.) of clean, high quality two-cycle oil into the gasoline container.

IMPORTANT: DO NOT USE OUTBOARD MOTOR OIL OR MULTI-VISCOSITY OILS, SUCH AS 10W-30 OR 10W-40. DISREGARD MIX RATIO INFORMATION ON OIL CONTAINER IF INSTRUCTIONS CONFLICT WITH FUEL MIXTURE CHART BELOW.

- Reinstall the cap on the gasoline container and shake container vigorously so the oil mixes with the gasoline.
- Add an additional 3 U.S. quarts of gasoline to the gallon container and shake the container again.

FUEL MIXTURE CHART (Mixture 24:1)

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

- This completes the special gasoline mixing (24:1) procedure. It can now be poured into the cultivator fuel tank.

IMPORTANT: DO NOT FILL FUEL TANK WITH GASOLINE THAT DOES NOT HAVE OIL MIXED IN IT. DO NOT USE GASOLINE ADDITIVES BECAUSE THE ENGINE MAY BE DAMAGED. SHAKE THE GASOLINE CONTAINER BEFORE EACH FILLING OF THE FUEL TANK.

TO START THE ENGINE

Before starting the engine, be sure you have read and understood all the instructions on the preceding pages.

- Fill the fuel tank (to 1/2 inch below the bottom of the fill neck) with fresh fuel mix and reinstall the fuel tank cap securely. Never use fuel that may be stale from long periods of storage.



CAUTION: DO NOT TOUCH THE THROTTLE CONTROL WHILE STARTING THE ENGINE. THE CULTIVATOR WILL PROPEL ITSELF IF THE ENGINE SPEED IS ADVANCED FROM IDLE.

- Move the shut-off switch to the I or (ON) position.
- Move the choke control (see FIG. 1-OP) to the lowest position (all the way down).

NOTE: A warm engine should not require choking.

- Tilt the cultivator back on the depth rod or transport wheels to raise the tines off the ground.
- Grasp the upper handle firmly to stabilize the cultivator and pull the starter handle with short quick pulls. Do not allow the starter handle to snap back, let it rewind slowly while holding the starter rope. It will take a few pulls on the starter handle to feed gas from the fuel tank to the carburetor.
- When engine starts, move the choke control to 1/2 choke position until the engine runs smoothly. Then move choke control to the highest position.
- If engine falters, move choke control to 1/2 choke position until engine runs smoothly. Then move choke control to highest position.
- If engine fires, but does not continue to run, move choke control to highest position and repeat starting instructions.

NOTE: If the tines do not stop when the throttle control is released, see **Carburetor Adjustment** paragraph in the **Service/Adjustments** section of this manual.

- To stop the engine, release the throttle control and move the shut-off switch to the O or (OFF) position.
- If the engine becomes flooded, see the **Spark Plug Maintenance** paragraph in the **Maintenance** section of this manual. Then pull the starter rope with the choke control in the highest position.



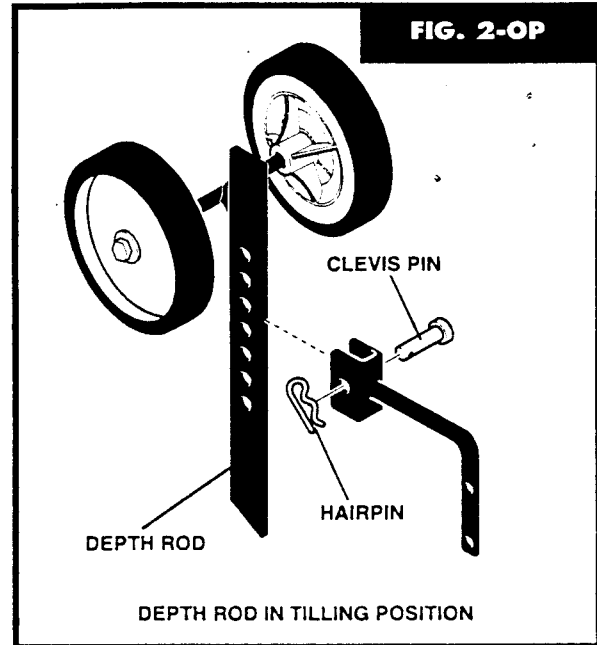
CAUTION: THE MUFFLER AND SURROUNDING AREAS BECOME HOT AFTER RUNNING THE ENGINE. AVOID THESE AREAS.

CULTIVATING HINTS

- 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. Tilling 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 the soil that is too dry as the soil pulverizes and produces a dust that will not hold water. Also, tilling soil that is too wet will produce unsatisfactory clods besides being hard on the machine.
- Better growth will be obtained in tilled ground if a relatively small area is tilled properly and the tilled ground used soon after tilling to preserve the moisture content.
- The depth rod (**on the back of the cultivator**) serves a dual purpose (**See FIG. 2-OP**). It helps regulate the depth of the cut to a uniform level and also acts as a brake to help the operator control the speed of the cultivator. Also, with the wheels down, it is used for transporting the unit.
- Lowering the depth rod will slow the cultivator and make it till deeper. Raising the depth rod will allow the cultivator 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.
- When cultivating (**weed killing**) it is best to till no deeper than 1-1/2 inches. Tilling deeper will only pull to the surface ungerminated weed seeds. You may want to raise the depth rod to lessen the braking action.
- When cultivating around plants or close areas you may want to remove the outside tines (**See Tine Replacement paragraph in the Service/Adjustments section of this manual**).

TRANSPORTING HINT

- Loosen the T-knobs that secure the upper handle to the lower handle.
- Carefully fold the upper handle down, making sure the throttle and shut-off switch cables are not kinked. Tighten the T-knobs.
- The cross piece of the upper handle (between the lower handles) can now be used as a carry handle.



- READ THE OPERATOR'S MANUAL.
- KNOW LOCATION AND FUNCTIONS OF ALL CONTROLS.

- KEEP ALL SAFETY DEVICES AND SHIELDS IN PLACE.
- NEVER ALLOW CHILDREN OR UNINSTRUCTED ADULTS TO OPERATE CULTIVATOR.
- SHUT OFF ENGINE BEFORE UNCLOGGING TINES OR MAKING REPAIRS.
- KEEP BYSTANDERS AWAY FROM MACHINE.
- KEEP AWAY FROM ROTATING PARTS.



- KEEP AWAY FROM ROTATING TINES.
- ROTATING TINES CAN CAUSE INJURY.

SERVICE RECOMMENDATIONS CHART

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

GENERAL

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. The **Service Recommendations Chart** is provided to assist the operator in properly maintaining the cultivator.

LUBRICATION

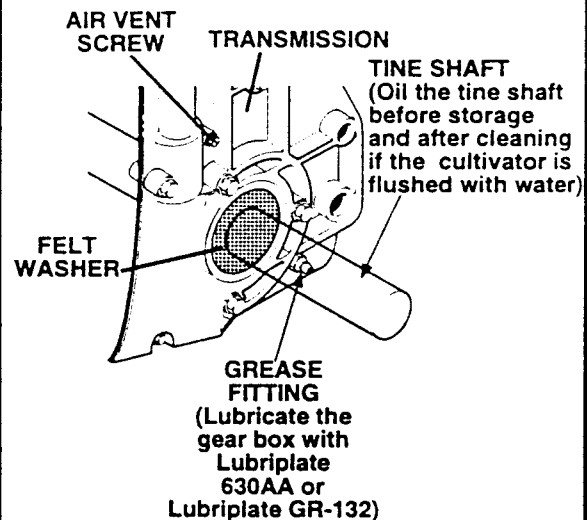
Every 25 hours and/or at the beginning of each season, the gear box should be filled with lubricant. Tubes of gear lubricant are available from most automotive supply stores. Use portable tool grease such as **Lubriplate 630AA** (Product No. 06787 - 1-3/4 oz. tube) or **Lubriplate GR-132** (Product No. 15892 - 10 oz. tube). The tine shaft should have oil applied before storage and after cleaning if the cultivator is flushed with water. The following illustration is provided to assist the operator in properly maintaining the cultivator.

CHECK TRANSMISSION GREASE LEVEL

- Remove both left side tines (See **Service and Adjustments** section) in this manual.
- Remove the air vent screw (See **FIG. 1-MAINT**) from the top left side of the transmission.
- Using a grease gun, fill the transmission through the grease fitting until the new grease begins to come out of the air vent screw hole.
- Reinstall the air vent screw.

- Check the condition of the felt washer in the side of the transmission at the tine shaft (See **FIG. 1-MAINT**). Replace the felt washer if it is damaged (See **Repair Parts** section in this manual).
- Clean tine shaft, spread a few drops of oil on shaft in tine replacement areas. Reinstall the tines.
- Remove the right side tines. Check the felt washer for damage, clean and oil the tine shaft. Reinstall the tines.

FIG. 1-MAINT



VIEW OF LEFT SIDE WITH TINES REMOVED

ENGINE

AIR CLEANER

The air cleaner filter should be cleaned and reoiled after 3 months or 25 hours of operation. Clean more often under dusty conditions.

IMPORTANT: The engine can be worn out in a very short period of time if dirt or grit is allowed to enter the engine.

To clean the air filter, do the following:

- Loosen screws on air cleaner cover (See FIG. 2-MAINT.) and remove the cover.
- Remove foam element from air cleaner.
- Wipe inside of the air cleaner housing clean.
- Clean the foam element by washing in a strong solution of water and household detergent. Then rinse thoroughly in clean water.
- Wrap foam element in clean cloth and squeeze out (**do not twist**) all the liquid until dry.
- Cover the ends and side of the foam element with same oil used in fuel mixture. Knead the foam element between fingers to distribute oil and remove excess oil.
- Service the foam element carefully, inspecting for deterioration or damage. A defective, improperly serviced, or misassembled air filter will allow dirt particles to enter the engine.
- Reassemble the filter (See FIG. 2-MAINT). Place the cover on the air cleaner housing and tighten screws to secure cover to the housing.



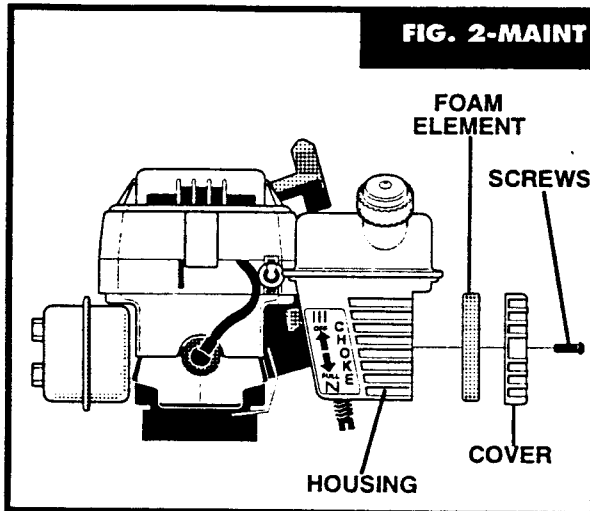
NEVER RUN THE ENGINE WITHOUT THE AIR CLEANER ELEMENT INSTALLED. A DEFECTIVE AIR CLEANER CAN RESULT IN LOSS OF ENGINE POWER AND CAN CAUSE EXCESSIVE WEAR OR DAMAGE TO THE ENGINE COMPONENTS IF DIRT OR DUST IS PERMITTED TO ENTER THE ENGINE THROUGH THE CARBURETOR. AN AIR CLEANER THAT IS CLOGGED WITH DUST OR DIRT SHOULD BE CLEANED AND RE-OILED.

SPARK PLUG

If the engine is flooded, clean the area around the spark plug base to prevent foreign material from entering the cylinder when the plug is removed. Remove and dry the spark plug. Regap the electrodes to .030 inch if necessary. If a new spark plug is needed, refer to the **Engine Operation and Maintenance** manual for the proper replacement spark plug. Tighten the spark plug firmly. If a torque wrench is available, torque the spark plug to 15 foot-pounds.

CYLINDER EXHAUST PORTS

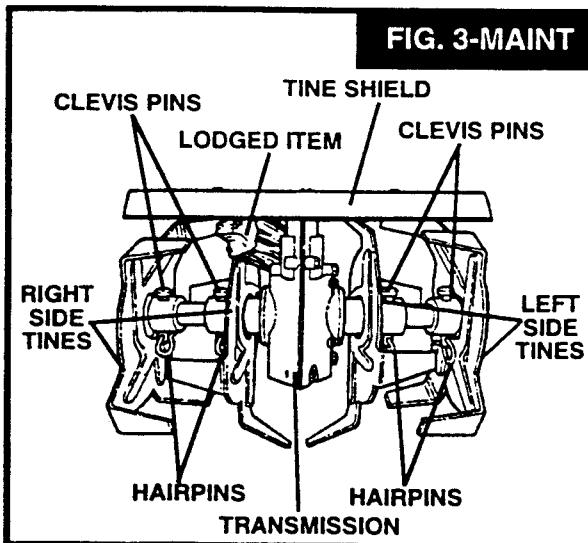
The cylinder exhaust ports should be cleaned after each seventy-five (75) to one hundred (100) hours of operation. For this procedure we recommend that you take your unit to a technician trained to work on two cycle engines.



CLEANING (See FIG. 3-MAINT)

Always remove the 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 tine rotation. Proceed as follows:

- Release the throttle control and move the shut-off switch to the **O** or (**OFF**) position, then disconnect the spark plug wire.
- Remove hairpin and clevis pin securing tine(s) assembly to the shaft and remove the tine(s).
- ⚠ **CAUTION:** Wear gloves when removing tines.
- Remove lodged material. Reassemble tine(s) on shaft and secure with a clevis pin and hairpin.
- Reconnect spark plug wire and restart engine.



TINE REPLACEMENT

The cultivator is left hand or right hand as viewed from the operator's position behind the unit.

All four tines on this unit are different and cannot be interchanged. The tines must be properly installed as shown in **FIGS. 1 and 2-SERV & ADJ** or the cultivator will not function properly.

The outside tines may be removed to reduce the tilling width to about 6 inches, for working close around plants or in small areas, if desired. When reinstalling the outside tines see below.



THE TINES ARE SELF-SHARPENING AND WILL BECOME QUITE SHARP FROM USE. HANDLE CAREFULLY. WEAR GLOVES.

The tines will all wear fairly 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:

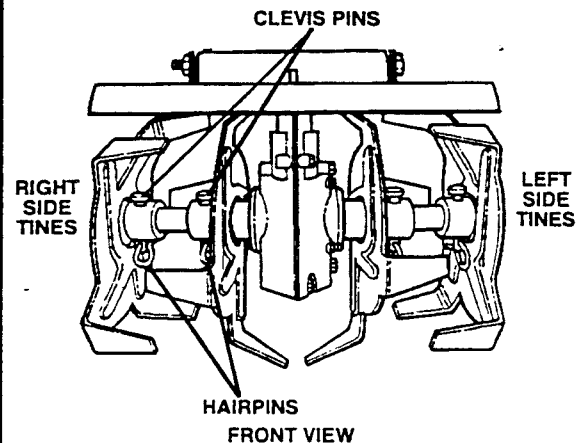
- Place the shut-off switch to the **O** or **OFF** position and disconnect the spark plug wire.
- Remove the hairpins and the clevis pins from the tines on one side of the unit and remove the tines (**See FIG.1-SERV.&ADJ.**).
- Clean the tine shaft and oil the shaft at the tine locations.
- Place the inside tine on the tine shaft and reinstall the clevis pin and hairpin.
- When the tines are properly installed, the letter **"R"** will be visible on the outside of the right-hand tine (**the letter "L" on the left-hand tine**).
- Place the outside tine on the tine shaft and reinstall the clevis pin and hairpin.
- The outside tine cutting tips will all bend in toward the inside tine. The letter **"R"** on the right side or **"L"** on the left side should be visible from the outside of the unit.
- Repeat steps on the opposite side of the unit.
- Check to make sure the tines are installed on correct side of the unit (**See FIG. 2-SERV.&ADJ.**).

CARBURETOR ADJUSTMENT

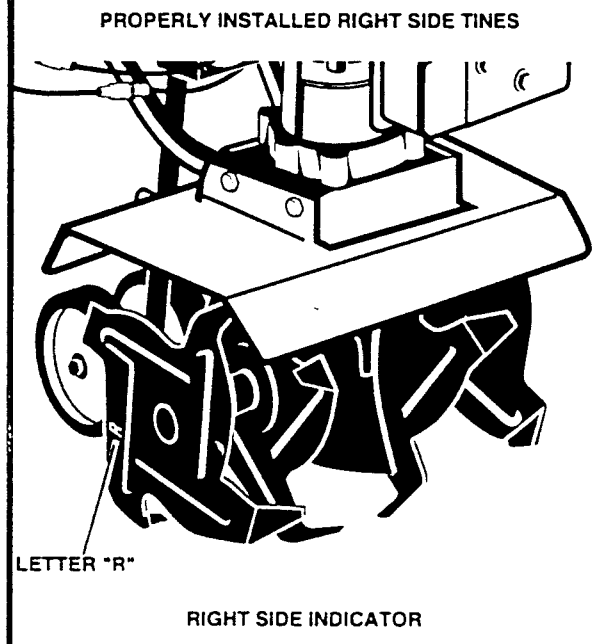
NOTE: A dirty air cleaner will cause the engine to run improperly and/or smoke excessively. Be sure the air cleaner is clean.

The carburetor was set at the factory to operate efficiently under most applications. However, if adjustments are required, we recommend you contact a competent repairman.

**FIG. 1-
SERV&ADJ**



**FIG. 2-
SERV&ADJ**



NEVER TAMPER WITH THE ENGINE GOVERNOR WHICH IS FACTORY SET FOR PROPER ENGINE SPEED. OVER-SPEEDING THE ENGINE ABOVE THE FACTORY HIGH SPEED SETTING CAN BE DANGEROUS. IF YOU THINK THE ENGINE GOVERNED HIGH SPEEDS NEEDS ADJUSTING, CONTACT A COMPETENT REPAIRMAN WHICH HAS THE PROPER EQUIPMENT AND EXPERIENCE TO MAKE ANY NECESSARY ADJUSTMENTS.



NEVER STORE ENGINE WITH FUEL IN TANK INDOORS OR IN ENCLOSED, POORLY VENTILATED AREA, WHERE FUEL FUMES MAY REACH AN OPEN FLAME, SPARK OR PILOT LIGHT AS ON A FURNACE, WATER HEATER, CLOTHES DRYER, ETC.

NOTE: The cultivator should be immediately prepared for storage at the end of the season or if the unit will not be used for 30 days or more.

CULTIVATOR

- Thoroughly clean the cultivator. Remove all dirt and debris from the engine and unit.
- Remove the tines and oil the tine shaft and reinstall the tines (See **Service/Adjustments** section in this manual).
- Loosen the T-knobs that secure the upper handle to the lower handle.
- Carefully fold the upper handle down making sure the throttle is not kinked. Tighten the T-knobs.
- The cross piece of the upper handle (**between the lower handles**) can now be used as a carry handle or can be hooked over a wall hook to store the cultivator up off the floor out of the way.

NOTE: A yearly checkup or tune-up by a competent repairman is a good way to insure that your cultivator will provide maximum performance for the next season.

ENGINE

IMPORTANT: IT IS IMPORTANT TO PREVENT GUM DEPOSITS FROM FORMING IN ESSENTIAL FUEL SYSTEM PARTS SUCH AS THE CARBURETOR, FUEL FILTER, FUEL HOSE OR TANK DURING STORAGE. ALSO, EXPERIENCE INDICATE THAT ALCOHOL BLENDED FUELS (CALLED GASOHOL OR USING 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.

- Drain the fuel from the fuel tank into an approved container outdoors, away from open flame.
- Start and run the engine until it stops due to lack of fuel.

- Pull the starter handle slowly until you feel resistance due to compression pressure, then stop.
- Release the starter tension slowly to prevent the engine from reversing due to compression pressure. This position will close both the intake and exhaust ports to prevent corrosion of the piston and cylinder bore.

OTHER

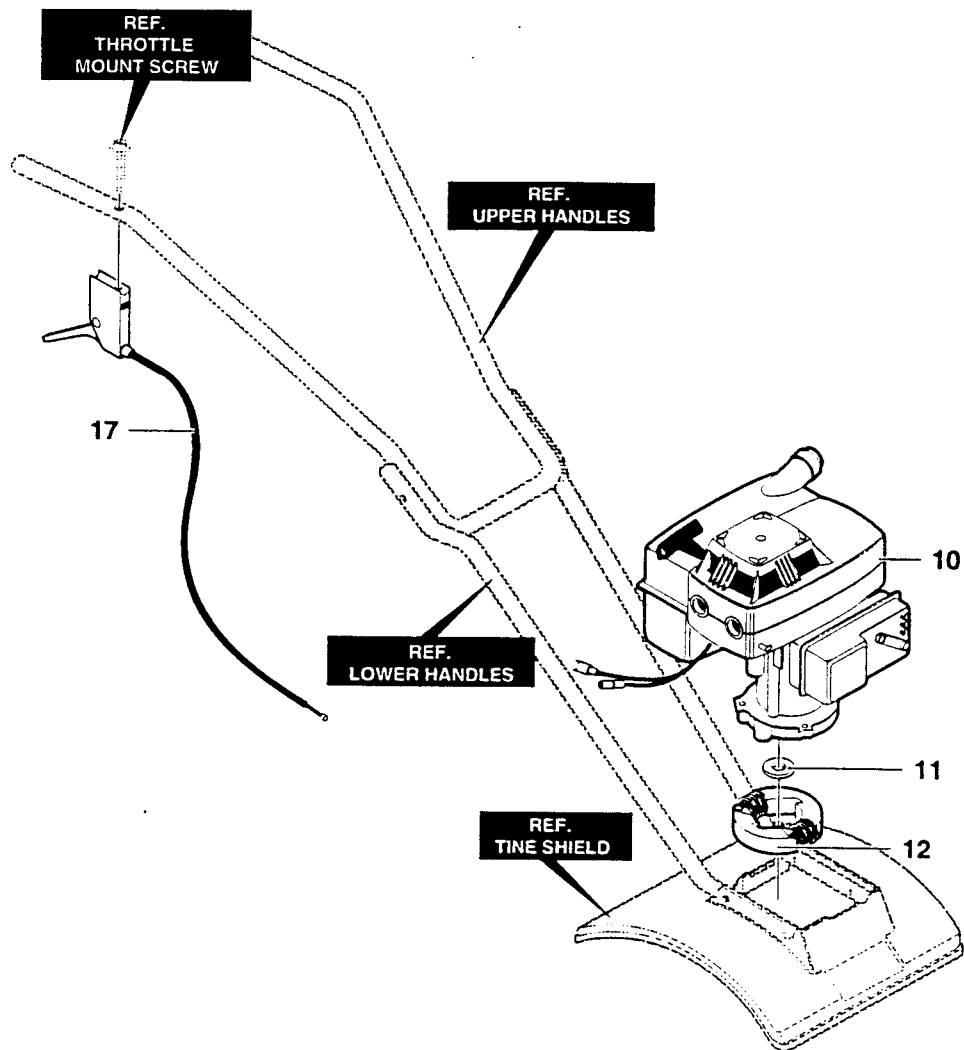
- If possible, store your cultivator indoors and cover it to give protection from dust and dirt.
- Cover the cultivator with a suitable protective cover that does not retain moisture. Do not use plastic.

IMPORTANT: NEVER COVER THE CULTIVATOR WHILE THE ENGINE AND EXHAUST AREAS ARE STILL WARM.

TROUBLE SHOOTING

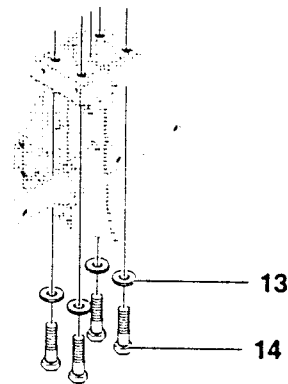
TROUBLE	CAUSE	CORRECTION
Difficult starting	Stale fuel mixture	Drain fuel tank. Fill with fresh mixture.
	Too much oil in mixture	Check fuel mix chart and mix fresh fuel.
Engine runs erratically	Dirt in fuel tank or out of fuel	Clean fuel tank. Fuel tank should be half full when starting engine.
Engine will not run at full speed	Carburetor out of adjustment	See carburetor adjustment section.
	Fouled spark plug	Clean and re-gap plug or replace.
	Plugged air cleaner	Clean and re-oil air cleaner.
Engine speed does not increase properly	Debris interfering with throttle linkage	Blow dirt and debris off top of carburetor.
Engine smokes excessively	Plugged air cleaner	Clean and re-oil air cleaner.
	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 Carburetor Adjustment paragraph in Service/Adjustments section of this manual.
Tines will not turn	Foreign object lodged in tine	Remove lodged item. See Cleaning paragraph in the Maintenance section of this manual.
Unit does not till properly	Incorrect tine installation	Check the tines for proper installation. See the Tine Replacement paragraph in the Service/Adjustment section of this manual.

CULTIVATOR PARTS CT20 ENGINE ASSEMBLY



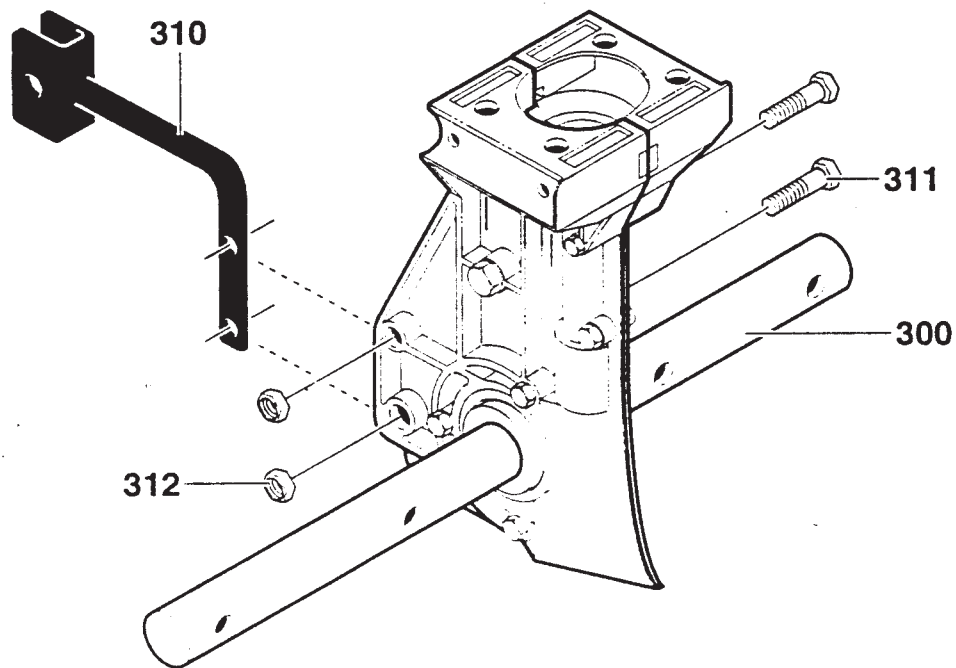
Note: Always use original equipment parts. Use of service/replacement parts other than original parts may void your warranty.

All unnumbered items are interchangeable with opposite side



REF. NO.	PART NO.	PART NAME
10	-	ENGINE, 2.0TEC (See Engine Manual)
11	601 00 06 17	WASHER, FLAT .378X1.25X.06
12	601 00 19 50	ROTOR (SMALLER DIA.)
13	601 00 00 14	WASHER, REGSPTLK.263X.49X.07
14	601 00 12 83	SCREW, 1/4-20X1.75 HHC
17	601 00 12 84	CABLE, THROTTLE, CULTIVATOR
	601 00 24 63	MANUAL, OWNERS

CULTIVATOR PARTS CT20
TRANSMISSION REPAIR PARTS

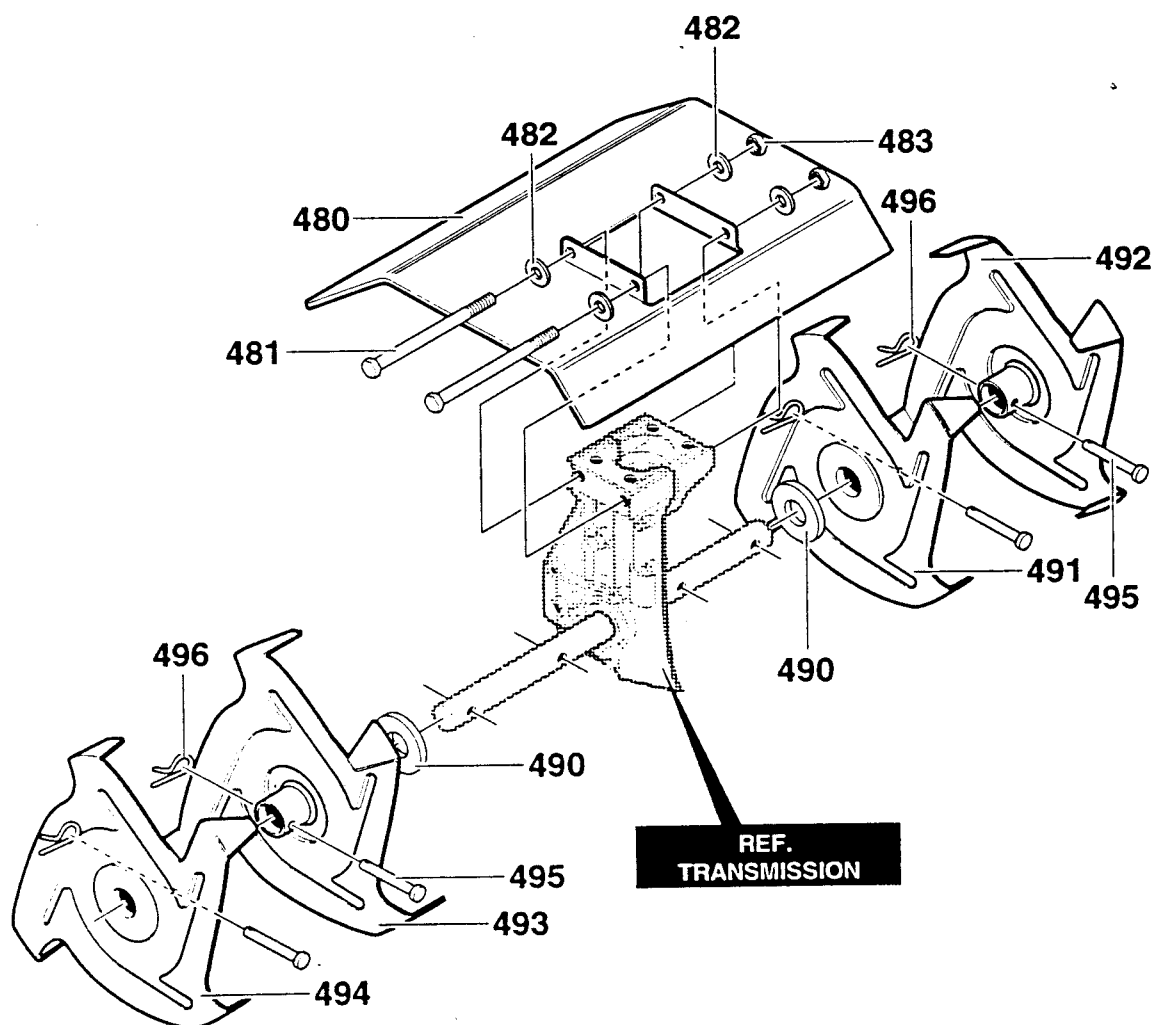


REF. NO.	PART NO.	PART NAME
300	531 30 96-74	TRANSMISSION ASSY.
310	601 00 22 56	BRKT,DEPTH FLAT/WIDE
311	601 00 00 69	SCREW, 1/4-20X1.25 HHC
312	601 00 23 18	NUT, 1/4-20 REGHEXCTRLK

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CULTIVATOR PARTS CT20

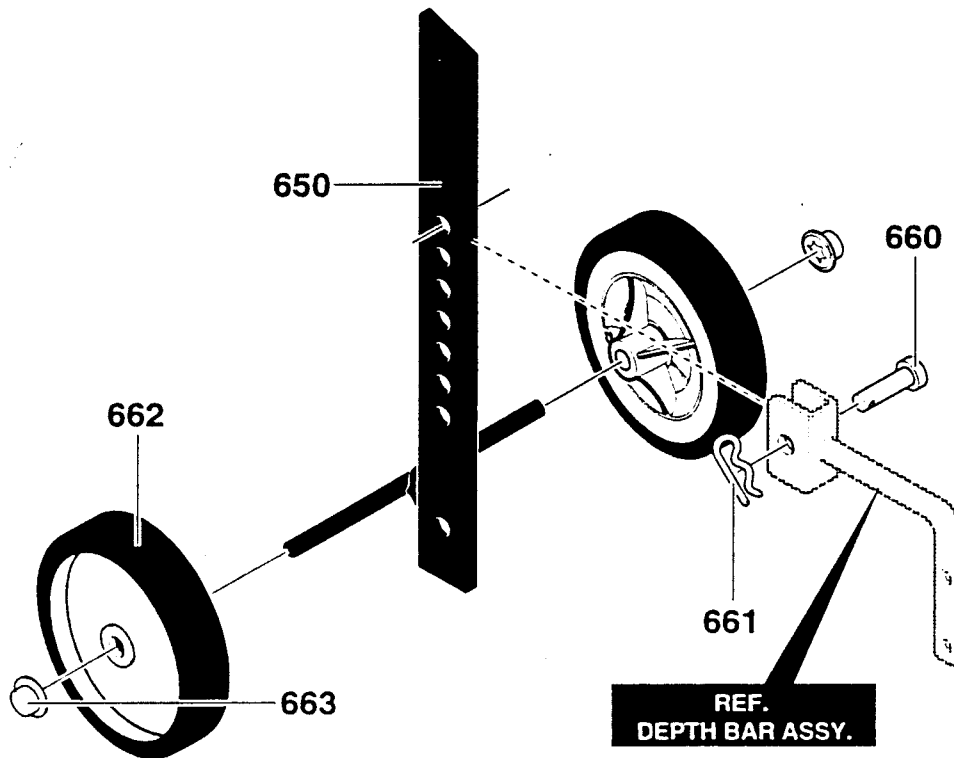
TINE SHIELD ASSEMBLY



REF. NO.	PART NO.	PART NAME
480	601 00 12 86	SHIELD, TINE
481	601 00 12 87	SCREW, 1/4-20X5.00 HHC
482	601 00 00 18	WASHER, FLAT .281X .63X.065
483	601 00 23 18	NUT, 1/4-20 REGHEXCTRLK
490	601 00 06 02	WASHER, FELT.68X1.46X.12 WOOL
491	601 00 07 45	TINE, ASSY INNER LH
492	601 00 07 43	TINE, ASSY OUTER LH
493	601 00 07 44	TINE, ASSY INNER RH
494	601 00 07 42	TINE, ASSY OUTER RH
495	601 00 05 99	PIN, CLEVIS .31X1.38
496	601 00 06 04	PIN, HAIR .53DIAX1.62LG

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CULTIVATOR PARTS CT20 **WHEEL ASSEMBLY**

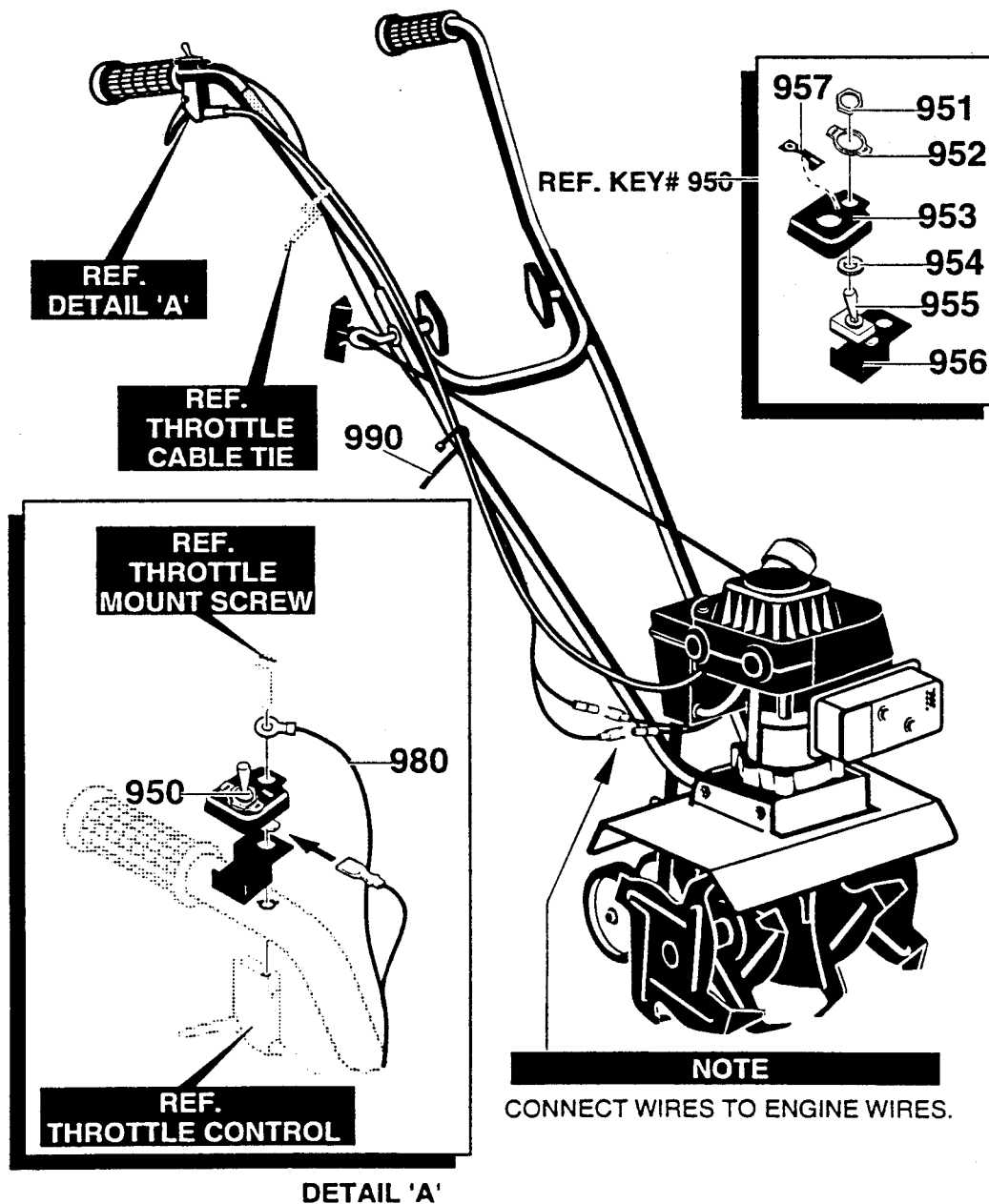


REF. NO.	PART NO.	PART NAME
650	601 00 12 88	WHEEL SUPT,ASSY
660	601 00 18 60	PIN, CLEVIS .321X.75BR
661	601 00 06 04	PIN, HAIR .53DIA X1.62LG
662	601 00 22 57	TIRE & RIM,SEPU 5.0 X 1.(696)
663	601 00 12 91	NUT, PUSH ON 3/8"

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CULTIVATOR PARTS CT20

REMOTE STOP ASSEMBLY

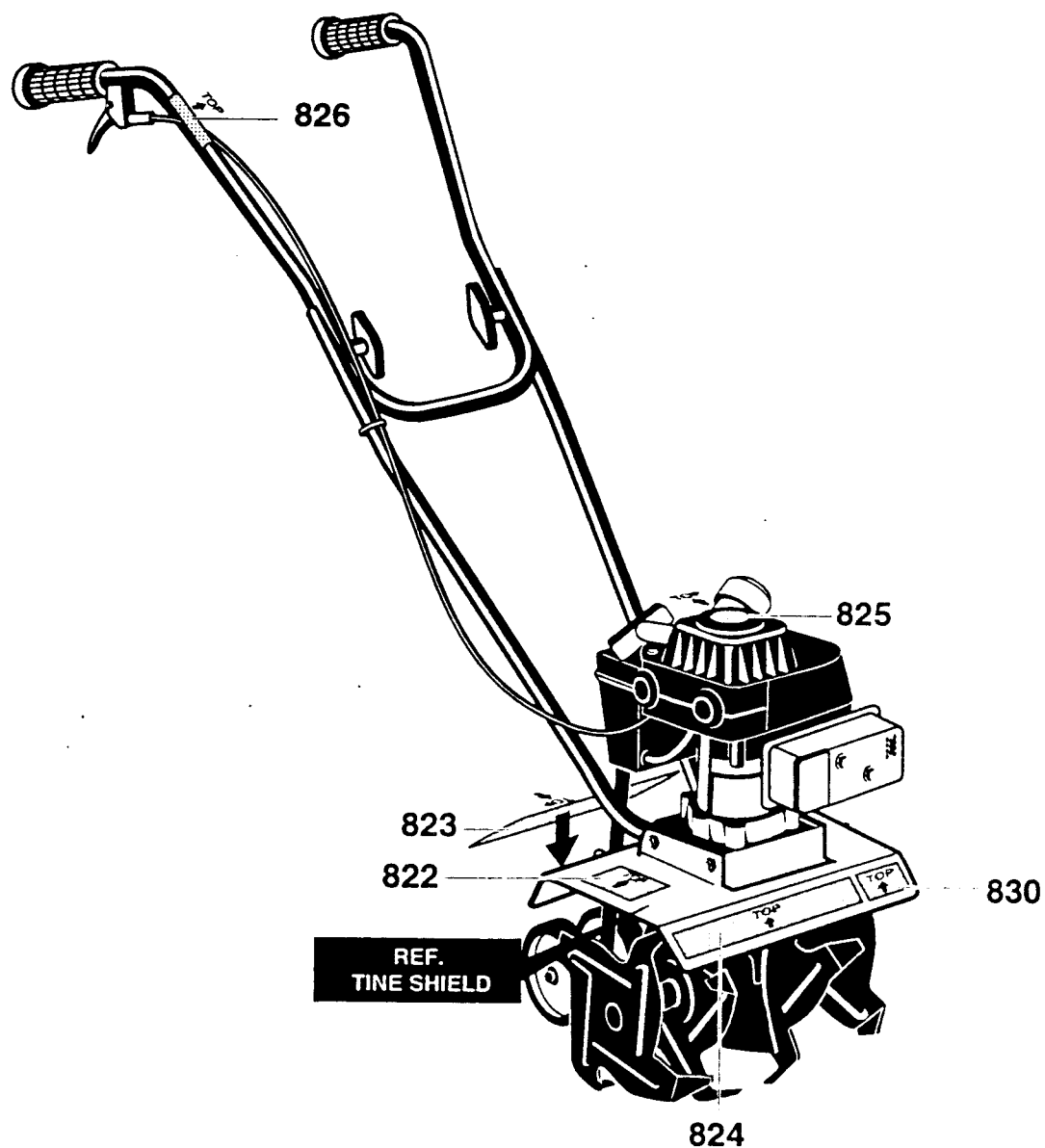


REF. NO.	PART NO.	PART NAME
950	601 00 22 58	SWITCH ASSEMBLY
951	601 00 12 99	PLATE, INDICATOR
953	601 00 24 65	BRACKET, SWITCH
954	601 00 13 07	LOCKWASHER
955	601 00 13 04	SWITCH
956	601 00 24 66	BRACKET, SWITCH
957	601 00 22 59	DÉCAL, ON-OFF
980	601 00 22 60	KILL SWITCH ASSEMBLY
990	601 00 06 28	TIE CABLE

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CULTIVATOR PARTS CT20

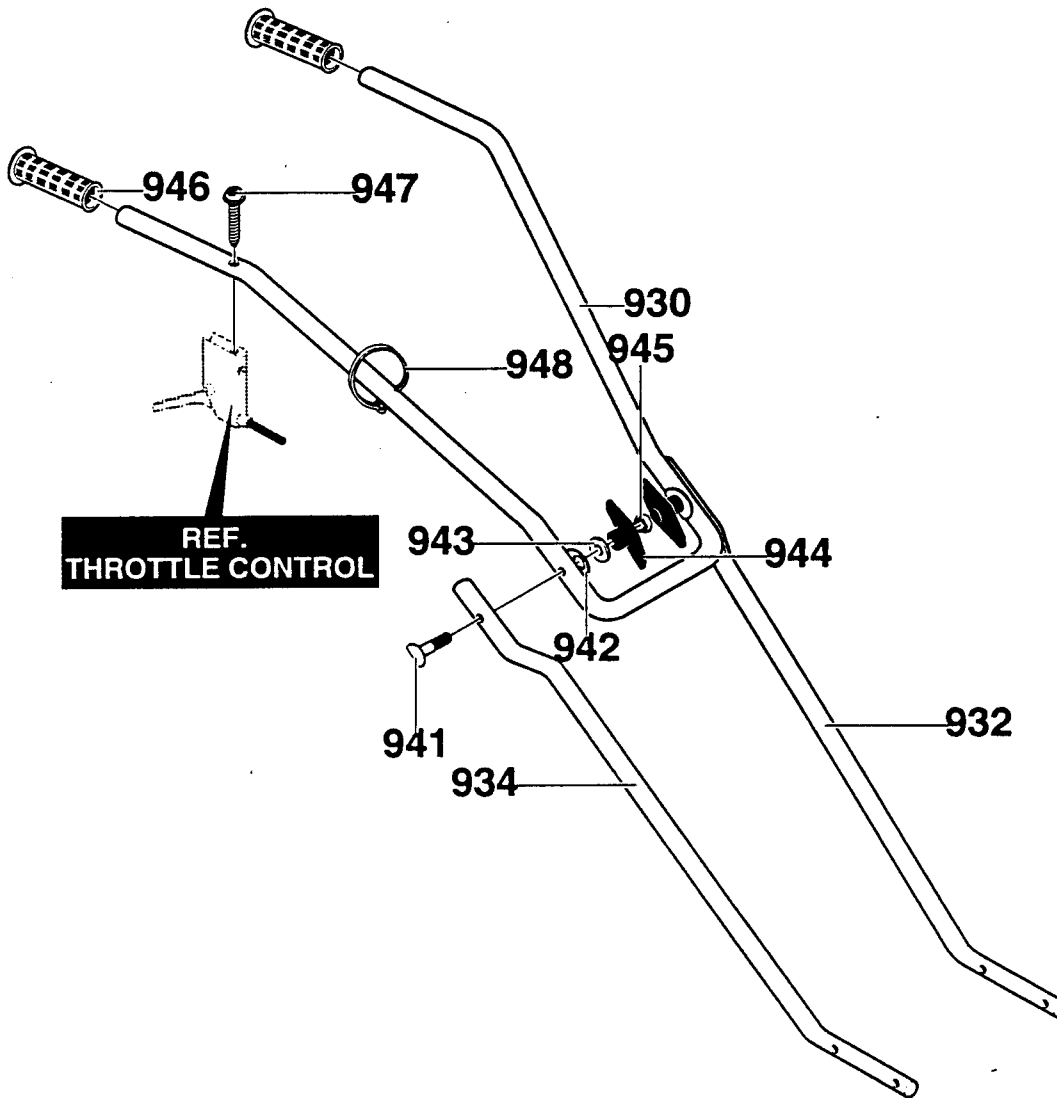
DECALS



REF. NO.	PART NO.	PART NAME
822	-	REFERENCE ONLY
823	601 00 12 96	DECAL, CAUTION
824	601 00 20 96	DECAL, HUSQVARNA TOP COVER
825	601 00 22 00	DECAL, RECOIL HSING HUSQV.
826	601 00 11 95	DECAL, HOLD RH GRIP
830	601 00 24 67	DECAL, TINE SHIELD CT-20 HUSQV

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CULTIVATOR PARTS CT20 **HANDLE ASSEMBLY**



REF. NO.	PART NO.	PART NAME
930	601 00 22 62	HANDLE, UPPER .75X18GASTEEL
932	601 00 22 63	HANDLE, LOWER LH
934	601 00 22 64	HANDLE, LOWER RH
941	601 00 12 94	BOLT, 5/16-18X1.63 CARRSP
942	601 00 23 12	WASHER,.343IDX1.0X.062 FORM
943	601 00 00 19	WASHER, FLAT .344X .69X.065
944	601 00 06 84	KNOB, T 2BLADE W/516-18 NUT
945	601 00 00 12	NUT, 5/16-18 REGHEX
946	601 00 06 18	GRIP, HAND
947	601 00 12 15	SCREW, 10-16X1.50 WAHHTAP
948	601 00 06 28	TIE, CABLE BLACK NYLON 5.62L

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WARRANTY STATEMENT

SECTION 1: LIMITED WARRANTY

Husqvarna Forest & Garden Company ("Husqvarna") warrants Husqvarna product to the original purchaser to be free from defects in material and workmanship from the date of purchase for the "Warranty Period" of the product as set forth below:

Lifetime Warranty: All tiller tines, trimmer shafts, ignition coils and modules on hand held product.

2 Year Warranty: Riding lawn mowers, yard and garden tractors, walk behind mowers, trimmers, brushcutters, snow blowers, hand held blowers, hedge trimmers, and electrical products for non-commercial, non-professional, non-institutional or non-income producing use, except as herein stated.

Emission control system components necessary to comply with CARB-95 and EPA regulations, except for those components which are part of engine systems manufactured by third party engine manufacturers for which the purchaser has received a separate warranty with product information supplied at time of purchase.

1 Year Warranty: Chain saws, cultivators, clearing saws and backpack blowers for non-commercial, non-professional, non-institutional or non-income producing use. Trimmer models 120, 125, 122, 132, 225, 232 and 235 used for commercial purposes.

90 Day Warranty: Any Husqvarna product used for rental, commercial, institutional, professional or income producing use except as otherwise provided herein.

30 Day Warranty: Husqvarna bow guide and replacement parts.

SECTION 2: HUSQVARNA'S OBLIGATIONS UNDER THE WARRANTY

Husqvarna will repair or replace defective components without charge for parts or labor if a component fails because of a defect in material or workmanship during the warranty period.

SECTION 3: ITEMS NOT COVERED BY THIS WARRANTY

The following items are not covered by this warranty:

- (1) Normal customer maintenance items which become worn through normal regular use, including, but not limited to, belts, blades, blade adapters, bulbs, filters, guide bars, lubricants, rewind springs, saw chain, spark plugs, starter ropes and tines;
- (2) Natural discoloration of material due to ultraviolet light;
- (3) Engine and drive systems not manufactured by Husqvarna; these items are covered by the respective manufacturer's warranty as provided in writing with the product information supplied at the time of purchase; all claims must be sent to the appropriate manufacturer;
- (4) Lawn and garden attachments are covered by a third party which gives a warranty, all claims for warranty should be sent to the manufacturer; and
- (5) Emission Control System components necessary to comply with CARB-95 and EPA regulations which are manufactured by third party engine manufacturer.

SECTION 4: EXCEPTIONS AND LIMITATIONS

This warranty shall be inapplicable to defects resulting from the following:

- (1) Accident, abuse, misuse, negligence and neglect, including stale fuel, dirt, abrasives, moisture, rust, corrosion, or any adverse reaction due to incorrect storage or use habits;
- (2) Failure to operate or maintain the unit in accordance with the Owners/Operator's manual or instruction sheet furnished by Husqvarna;
- (3) Alterations or modifications that change the intended use of the product or affects the product's performance, operation, safety, or durability, or causes the product to fail to comply with any applicable laws; or: (4) Additional damage to parts or components due to continued use occurring after any of the above.



WARRANTY STATEMENT

REPAIR OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE PURCHASER. HUSQVARNA SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY ON THESE PRODUCTS EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ON THESE PRODUCTS IS LIMITED IN DURATION TO THE WARRANTY PERIOD AS DEFINED IN THE LIMITED WARRANTY STATEMENT. HUSQVARNA RESERVES THE RIGHT TO CHANGE OR IMPROVE THE DESIGN OF THE

PRODUCT WITHOUT NOTICE, AND DOES NOT ASSUME OBLIGATION TO UPDATE PREVIOUSLY MANUFACTURED PRODUCTS.

Some states do not allow the exclusion of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

SECTION 5: CUSTOMER RESPONSIBILITIES

The product must exhibit reasonable care, maintenance, operation, storage and general upkeep as written in the maintenance section of the Owner's/Operator's manual. Should an operational problem or failure occur, the product should not be used, but delivered as is to an authorized Husqvarna dealer for evaluation. Proof of purchase, as explained in section 6, rests solely with the customer.

SECTION 6: PROCEDURE TO OBTAIN WARRANTY CONSIDERATION

It is the Owner's and Dealer's responsibility to make certain that the Warranty Registration Card is properly filled out and mailed to Husqvarna Forest & Garden Company. This card should be mailed within ten (10) days from the date of purchase in order to confirm the warranty and to facilitate post-sale service.

Proof of purchase must be presented to the authorized Husqvarna dealer in order to obtain warranty service. This proof must include date purchased, model number, serial number, and complete name and address of the selling dealer.

To obtain the benefit of this warranty, the product believed to be defective must be delivered to an authorized Husqvarna dealer in a timely manner, no later than thirty (30) days from date of the operational problem or failure. The product must be delivered at the owner's expense. Pick-up and delivery charges are not covered by this warranty. An authorized Husqvarna dealer can be normally located through the "Yellow Pages" of the local telephone directory or by calling 1-800-HUSKY62 for a dealer in your area.

HUSQVARNA FOREST & GARDEN COMPANY
9006-J PERIMETER WOODS DRIVE
CHARLOTTE, NC 28216

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