

OWNER'S MANUAL

# Minnie Merry Tiller

Model MT550IC

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**CAUTION:**

Before using this product, read this manual and follow all Safety Rules and Operating Instructions.

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PART #708-3404  
1/16/17

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## SECTION I – SAFETY

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**This symbol points out important safety instructions** that if not followed, could endanger the personal safety and/or property of yourself and others. Read and follow all instructions in this manual before attempting to operate your tiller. Failure to comply with these instructions may result in personal injury. When you see this symbol - **heed its warning.**

**THIS MACHINE IS CAPABLE OF INFLICTING SERIOUS INJURY IF OPERATED IMPROPERLY -- READ WARNINGS & CAUTION LABELS.**

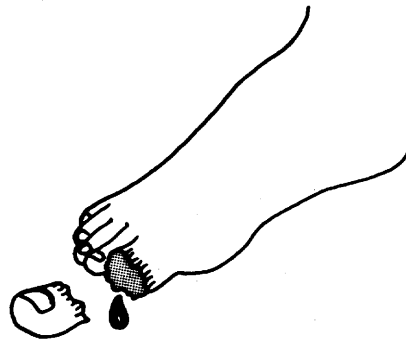
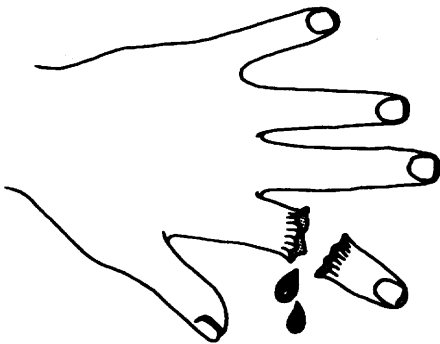
### INTENDED USE

This tiller is intended for cultivating soil. It is designed for this purpose only, and any other use may cause injury to yourself or bystanders.



**DANGER: Rotating tines and belts.**

Keep hands and feet out of the tine and belt area while the machine is running.



**DANGER:** This machine can **CRUSH, CUT, and SEVER** parts of your body if they enter the operating areas of the garden tiller or come in contact with any moving parts.



**DANGER:** Your tiller was built to be operated according to the rules for safe operation in this manual. As with any type of power equipment, carelessness or error on the part of the operator can result in serious injury. If you violate any of these rules, you may cause serious injury to yourself or others.

**MAKE CERTAIN THAT ALL SAFETY LABELS ON THIS EQUIPMENT ARE KEPT CLEAN AND IN GOOD CONDITION. IF YOU NEED REPLACEMENT LABELS, ORDER BY PART NUMBER.**



**091-0085**



**091-0085**



**091-0070**

# **SAFE OPERATION PRACTICES**

## **TRAINING**

- Read this owner's manual carefully in its entirety before attempting to assemble this machine. Read, understand, and follow all instructions on the machine before operation. Be completely familiar with the controls and the proper use of the machine before operating it. Keep this manual in a safe place for future and regular reference and for ordering replacement parts.
- Know how to stop the unit and disengage the controls quickly.
- Never allow children to operate the unit. Never allow adults to operate the equipment without proper instruction. Only responsible individuals who are familiar with these rules of safe operation should be allowed to use your unit.
- Keep the area of operation clear of all persons, particularly small children and pets. Stop the engine when they are in the vicinity of the unit. Keep work area clean and clear of branches or obstacles, which could cause you to stumble or fall.
- Keep in mind that the operator or user is responsible for accidents or hazards occurring to other people, their property, and themselves.
- Your tiller is a powerful tool, not a plaything. Exercise extreme caution at all times. Your unit has been designed to cultivate soil. Do not use it for any other purpose.
- If situations occur which are not covered in this manual, use care and good judgment. Contact your place of purchase for additional assistance.

## **PREPARATION**

- Thoroughly inspect the area where the equipment is to be used and remove all foreign objects.
- Avoid loose-fitting clothes and use protective footwear that will improve footing on slippery surfaces. Shirt and slacks that cover the arms and legs and steel-toed shoes are recommended. Secure hair above shoulders. Do not wear loose clothes or jewelry that can be caught in moving parts. Never operate a unit in bare feet, sandals or sneakers.
- Warning: Fuel is highly flammable and the vapors are explosive. Take the following precautions.
  - Store fuel and oil in approved containers.
  - Keep away from heat and open flame, and out of the reach of children.
  - Refuel outdoors only and do not smoke while refueling.
  - Check and add fuel before starting the engine. Never remove gas cap or add fuel while the engine is running or when the engine is hot. Allow engine to cool before refueling.
  - 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 disappeared.
  - Replace all fuel tank and container caps securely.
  - Never store the machine or fuel container inside where there is an open flame or spark, such as a gas hot water heater, space heater, clothes dryer or furnace.
  - To reduce fire hazard, keep engine and muffler free of debris build-up. Clean up fuel and oil spillage. Allow unit to cool at least five minutes before storing.
- Never attempt to make any adjustments while the engine is running.
- Make sure the clutch lever is disengaged before starting the tiller.

## OPERATION

- Never place your hands, feet, or any part of your body near or under any rotating or moving parts.
- Exercise caution to avoid slipping or falling.
- Stay alert for hidden hazards or traffic. Do not carry passengers.
- If the tines strikes a foreign object or if your machine should start making an unusual noise or vibration, immediately stop the engine, remove the spark plug wire(s) and wait for all moving parts to come to a complete stop. After the machine has come to a complete stop proceed as follows:
  - Inspect for any damage.
  - Repair or replace any damaged parts before restarting and operating the machine.
- If the machine should start to vibrate abnormally, immediately stop the engine and wait for all moving parts to come to a complete stop and inspect for the cause. Vibration is generally a warning sign of trouble.
- Stop the engine when leaving the operating position and when making any repairs, adjustments and inspections.
- Disconnect the spark plug before unclogging the tines or making any repairs or adjustments.
- Take all possible precautions as recommended by the manufacturer when leaving the machine unattended. Stop the engine and remove the key if so equipped.
- Before cleaning, repairing, or inspecting, shut off the engine and make certain all moving parts have come to a complete stop.
- Never run this machine in an enclosed area as the exhaust from the engine contains carbon monoxide, which is an odorless, tasteless, and deadly poisonous gas.
- Keep all guards and safety devices in place and operating properly. Do not operate the machine if all safety guards are not in place.
- The muffler and engine become hot and can cause a severe burn. Do not touch.
- Keep children and pets away.
  - Tragic accidents can occur if the operator is not alert to the presence of small children.
  - Keep children out of the work area and under the watchful eye of a responsible adult other than the operator.
  - Be alert and turn the unit off if a child enters the area.
  - Never allow children to operate the tiller.
- Do not overload the machine's capacity by attempting to till too deep at too fast a rate. Personal injury or damage to the machine could result.
- Never operate the machine at high transport speeds or on hard or slippery surfaces.
- Never allow bystanders near the unit while running.
- Only use accessories approved for this machine by the manufacturer. Read, understand, and follow all the instructions provided with the approved accessory.
- Only operate unit in good daylight. Do not operate unit at night or in dark areas where your vision may be impaired.
- Use extreme caution when reversing or pulling the machine towards you.
- Do not tamper with the governor setting. The governor controls the maximum safe operating speed and protects the engine. Over-speeding the engine is dangerous and will cause damage to the engine and to other parts of the machine. See your authorized dealer for engine governor adjustments.
- Start the engine according to the manufacturers instructions. Keep hands and feet away from all moving parts when starting.
- Never pick up or transport the machine while the engine is running.
- Do not operate while under the use of alcohol, drugs, or medication. A clear mind is essential for safety.
- Do not allow anyone who is not alert to operate this machine.

- Do not allow any part of the engine, especially around the cooling fans and muffler, to become clogged with dirt, leaves, oil, grease or any other combustible material.
- Do not operate engine if air cleaner or cover over carburetor air-intake is removed, except for adjustment. Removal of such parts could create a fire hazard.
- Be careful when tilling in hard soil or frozen ground. Certain soil conditions require the engine to be run at a reduced speed or the tines may catch in the ground and propel the tiller forward. If this occurs, release the clutch lever to stop the forward and tilling motion.
- Periodically check tines and remove any vines or garden debris that may be wrapped around the tine shaft.
- Do not operate if under the influence of alcohol or drugs.
- Refer to the engine manual for additional safety and servicing instructions.
- Disengage the tines before starting the tiller.

## **MAINTENANCE AND STORAGE**

- Keep machine, attachments and accessories in safe working condition.
- Check engine mounting bolts and other hardware at frequent intervals for proper tightness. Never operate your tiller in poor mechanical condition or when in need of repair. Be sure all safety guards and shields are in proper position. These safety devices are for your protection.
- Never store machine with fuel in the fuel tank inside a building where ignition sources are present, such as hot water and space heaters, clothes dryers and the like. Allow the engine to cool before storing in any enclosure.
- Always refer to the operator's manual for important details if the machine is to be stored for an extended period.
- Follow the manufacturer's recommendations for safe loading, unloading and storage of machine.
- If it is necessary for any reason to unclog the tines or to inspect or repair the machine where a moving part can come in contact with your body or clothing, shut the machine off and allow all moving parts to come to a complete stop before attempting to unclog, inspect or repair.
- Never tamper with safety devices. Check their proper operation regularly.
- Inspect the belt each time you use the unit. Look for damage, worn areas or tears. Do not use the unit if this condition exists.
- Do not tamper with the governor setting. The governor controls the maximum safe operating speed and protects the engine. Over-speeding the engine is dangerous and will cause damage to the engine and to other parts of the machine. See your authorized dealer for engine governor adjustments.

## SECTION II – ASSEMBLY

CARTON	POLYBAG	BOLT BAG	PART #
TILLER	OWNER'S MANUAL	3 EA – ¼-20 NYLOCK NUT	090-0470
HANDLE BARS	ENGINE MANUAL	2 EA – 5/16-18 X ¼" HHCS	090-0066
POLYBAG	WARRANTY CARD	2 EA – 5/16-18 X 1 ¼" HHCS	090-0091
	CROSS BRACE	4 EA – 5/16-18 NYLOCK NUT	090-0460
	CLUTCH LEVER	1 EA – CLUTCH SPRING	706-0152
	BOLT BAG	2 EA – CABLE GUIDE	706-2243
		2 EA – CLEVIS PIN	708-3211
		2 EA – HAIR COTTER PIN	100-0015
		2 EA – 10-32 KEP NUT	706-1539
		2 EA – 10-32 X 1 ¼" RHMS	090-0400
		1 EA – PULL CORD HOLDER	090-0467
		1 EA – ¼-20 X 1 ½ HHCS	090-0057

### TOOLS REQUIRED FOR ASSEMBLY

- 5/16 WRENCH AND SOCKET
- 7/16 WRENCH AND SOCKET

### STEP I – UNPACKING AND CHECKING CONTENTS

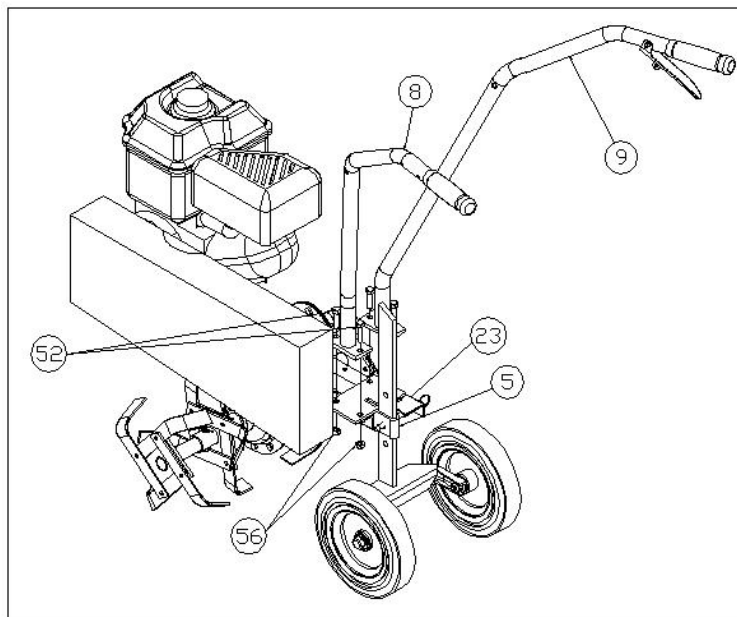
- Remove the all items from the crate.
- After unpacking the crate, compare the contents with the list above.
- If any parts are missing, contact your place of purchase.
- Assembly should be done on a clean, level surface.

**NOTE: For Step II, Step III & Step IV, do not completely tighten until all parts are in place and only hand tightened.**

### STEP II – ATTACHING HANDLES

1. Remove the left hand nuts and bolts (items #52 & #56) holding the hitch weldment (item #5) in place.
2. Hold the left handle (item #8) in place and hand tighten with the nuts and bolts you removed in step 1.
3. Repeat steps 1 & 2 for the right hand handle (item #9).

**Note: Be sure the spring pin plate (item #23) is in place on the bolts that attach the right hand handle.**

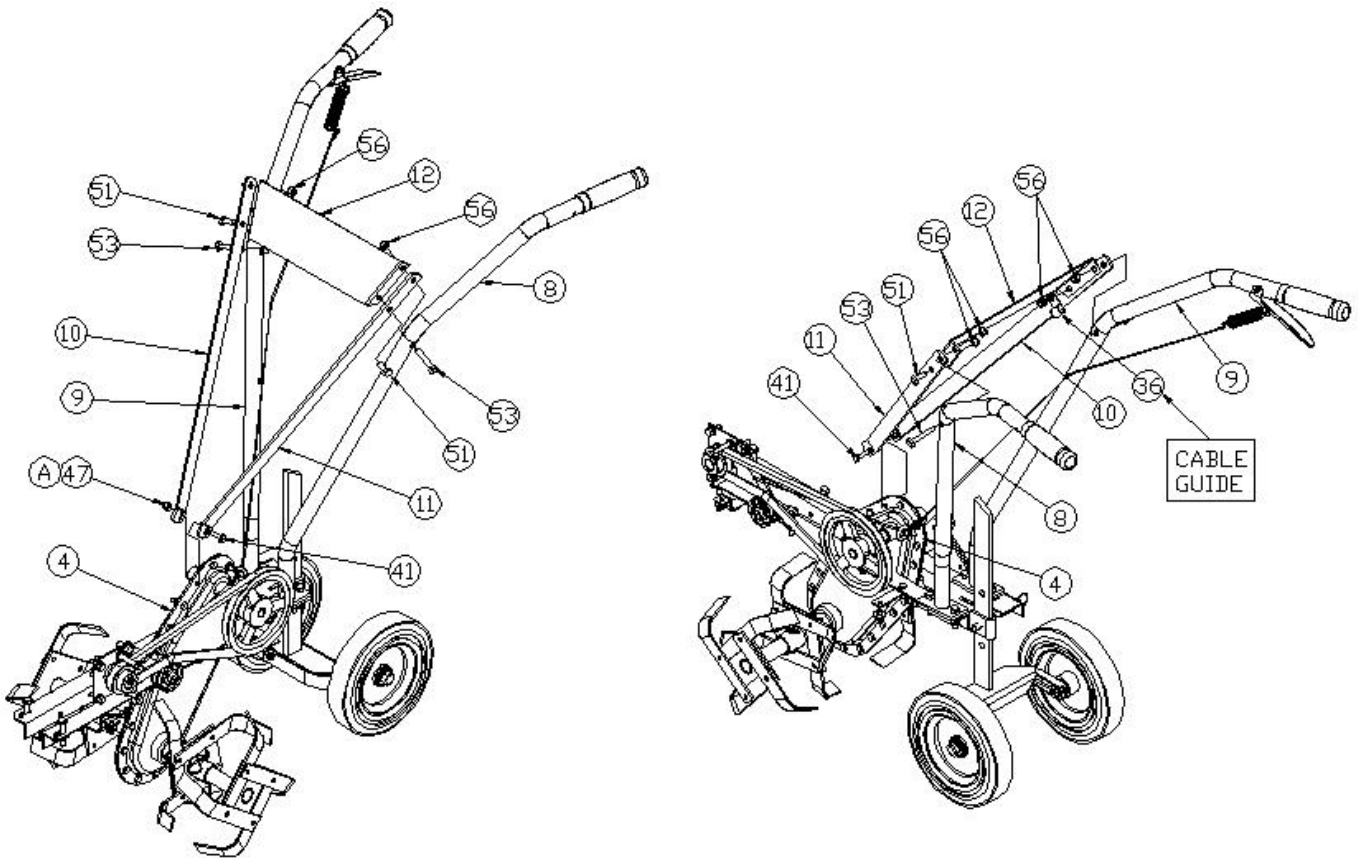


### STEP III – ATTACHING TIE BARS TO TRANSMISSION

1. Remove the long bolt (item #41) and whiz nut (item A) on the upper front of the transmission (item #4). Discard the whiz nut. On the MT475 this is the bolt that holds the upper belt guard bracket to the transmission.
2. Attach the right hand and left hand tie bars (item #10 & #11) to the transmission with the 1/4-20 x 1" HHCS you removed in step 1. **Hand tighten** with a 1/4-20 nylock nut (item #47) from the bolt bag.

### STEP IV – ATTACHING TIE BARS, CROSS BRACE AND THROTTLE CONTROL TO HANDLES

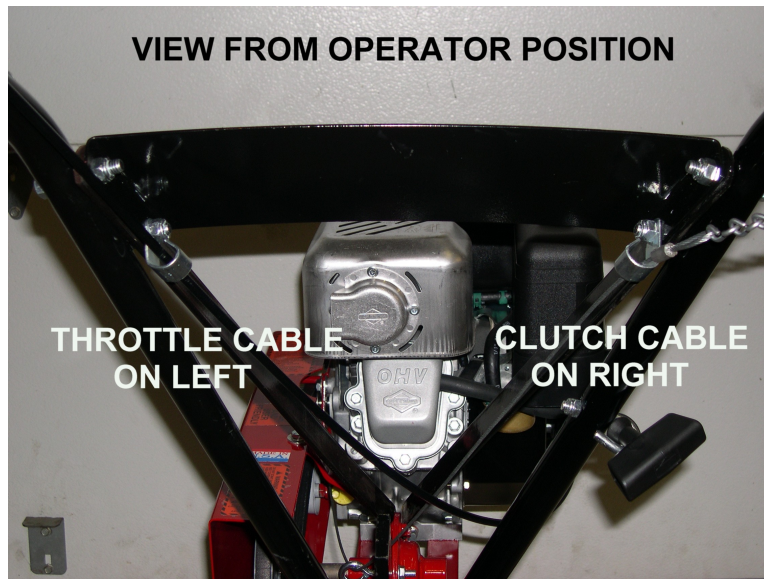
1. Take a 5/16-18 x 1 3/4" HHCS (item #53) from the bolt bag and put through the upper hole in the left hand handle (item #8), the upper hole in the left hand tie bar (item #11) and the upper hole in the cross brace (item #12). Hand tighten with a 5/16-18 nylock nut (item #56) from the bolt bag.
2. Repeat for right hand side.
3. Take a 5/16-18 x 3/4" HHCS (item #51) from the bolt bag and attach to the lower hole in the left hand tie bar and the cross brace. Put a cable guide on the bolt and hand tighten with a 5/16-18 nylock nut (item #56).
4. Repeat for the right hand side.
5. Insert throttle control through left hand cable guide and attach to the inside of the left hand handle at the operator position with the 10-32 screws and nuts from the bolt bag.



**NOTE: After completing Step IV, tighten all nuts and bolts in the same order as they were installed in Steps II, III & IV.**

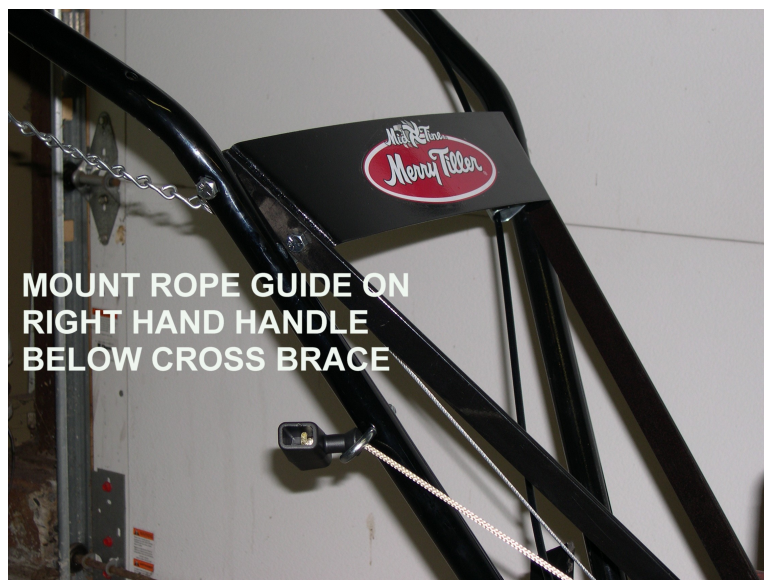


- When attaching the throttle and clutch cables, route the throttle cable through the left hand cable guide, and the clutch cable through the right hand cable guide as shown in the following picture.



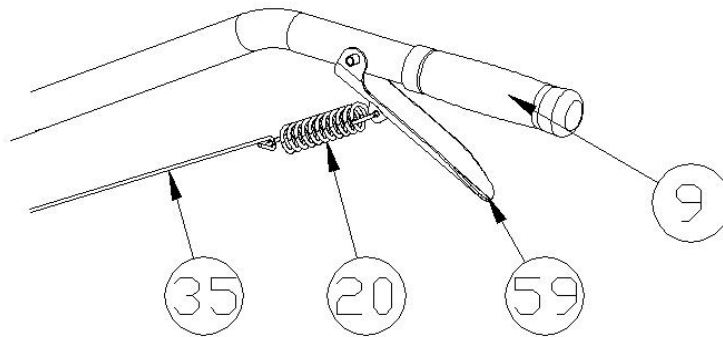
**STEP V – ATTACHING PULL CORD GUIDE - SKIP THIS STEP FOR MODEL MT550IC**

1. Pull engine starter rope out and feed into loop of the rope guide.
2. Put the pull cord guide through the hole on the right hand handle below the cross brace as shown in the following picture.
3. Secure with a nylock nut from the bolt bag.

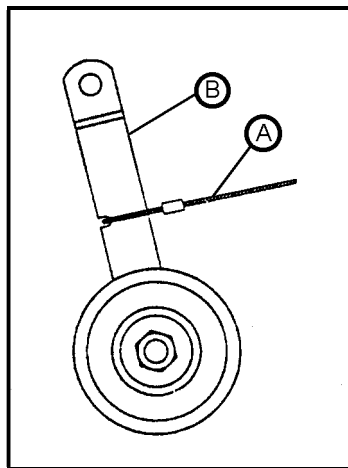


### STEP VI – ATTACHING CLUTCH SPRING & CLUTCH CABLE

1. Attach the clutch lever (item #59) on right hand handle with 1/4-20 x 1 ½ HHCS (item #59) and 1/4-20 nylock nut (item #59).
2. Attach the clutch spring (item #20) to the clutch lever (item #59).
3. Attach the clutch cable (item #35) to the clutch spring.



**NOTE:** Be sure that the clutch cable (A, #35) is positioned in the “V” groove of the idler arm (B, #14). Failure to do this could result in the tines turning without engaging the clutch control lever.



### STEP VII – ATTACHING THE OUTSIDE TINES

1. Identify the left hand and right hand tine extensions, or outside tines.
2. To do so hold the tine at your side by the tine tube. As you rotate them forward, the sharp edge of the tine blade must be the leading edge, which would hit the ground first.
3. If the blunt edge of the tine blade would hit the ground first, switch hands and test again.
4. After identification, secure the tine extensions to the inside tines (item #16 & #17) with a clevis pin (item #32) and a hair cotter pin (item #33) from the bolt bag.

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## **SECTION III – LUBRICATION & ENGINE START UP**

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**REFER TO THE ENGINE OWNER'S MANUAL FOR DETAILS REGARDING SAFETY, OPERATION AND MAINTENANCE OF THE ENGINE.**

**BEFORE STARTING ENGINE, ALWAYS CHECK OIL LEVEL!**

**NOTE: ENGINE IS SHIPPED WITHOUT OIL! FILL CRANKCASE WITH OIL BEFORE STARTING ENGINE. BE VERY CAREFUL NOT TO ALLOW DIRT TO ENTER THE ENGINE WHEN CHECKING OR ADDING OIL OR FUEL.**

**NOTE: IF YOU START THE ENGINE WITHOUT OIL, THE ENGINE WILL BE DAMAGED BEYOND REPAIR AND WILL NOT BE COVERED UNDER WARRANTY.**

**FOLLOW ENGINE SERVICING INSTRUCTIONS!**

### **BEFORE OPERATING ENGINE**

- **Read entire engine Operating & Maintenance Instructions and the entire Operating and Assembly Instructions for this tiller.**
- **Failure to follow instructions could result in serious injury or death.**

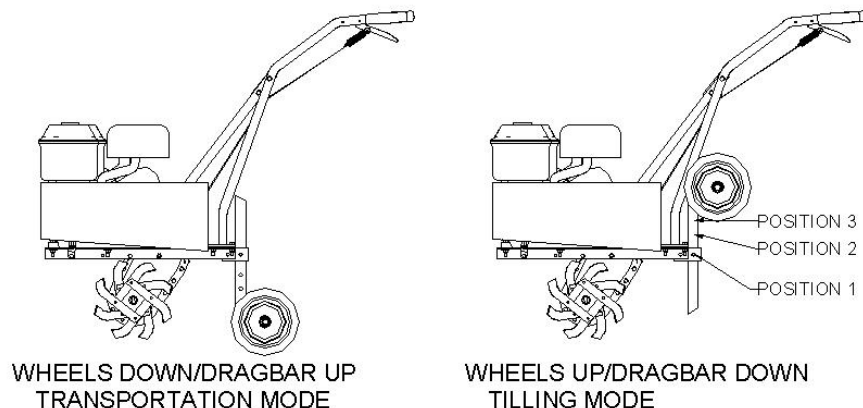
**MINNIE TILLERS ARE BUILT WITH DIFFERENT ENGINES. FOR THIS REASON, IT IS CRITICAL THAT YOU READ THE ENGINE OWNER'S MANUAL COMPLETELY TO UNDERSTAND THE SERVICING REQUIREMENTS AND FEATURES OF YOUR ENGINE. FOLLOWING THE ENGINE MANUFACTURER'S RECOMMENDATIONS WILL PROVIDE THE LONGEST LIFE FOR THE ENGINE.**

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## SECTION IV - TILLING

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- This tiller is equipped with a rear set of wheels. These wheels are designed only for transporting the tiller to and from the tilling area. They should never be used during the tilling process.
  - When at the tilling site, lean the tiller forward until it rests on the front of the frame rails.
- Note: When tilting the tiller forward or backwards, be sure to close the fuel shut-off valve.**
- Pull out on the spring pin (item #21) and take the wheel weldment (item #6) down and out of the hitch weldment (item #5).
  - Turn the wheel weldment over and put the drag bar down through the hitch weldment to the desired tilling depth.
  - The drag bar acts as an anchor, which forces the tiller to dig rather than walk over the area to be tilled. This also controls the forward motion.
  - By adjusting the downward pressure on the handlebars, the operator controls the drag bar depth and the tiller will perform properly with a minimum of assistance.
  - The tiller wheel weldment/drag bar has three adjustments. These settings provide for transportation and gradual breaking of the soil.
    - Position #1 is used while the wheels/drag bar are in the transportation mode. This hole location is for transportation only.
    - Position #2 is for breaking fresh sod, and with more downward pressure on the drag bar, this position will allow for deeper tilling.
    - Position #3 will provide the deepest and final tilling depth.
    - After tilling at depth #3, your soil will be well cultivated and ready for planting.
  - The tiller can be used at two different widths.
    - 12" using only the inside tines
    - 18" using both the inside and outside tines
  - Before starting the engine be certain that the clutch lever is not engaged.
  - After you have started the engine and you are ready to till:
    - Hold both handlebars.
    - Apply downward pressure on the drag bar.
    - Squeeze the clutch lever.
  - If at any time the tiller wants to run or jump, simply release the clutch lever.
  - If this continues, set the drag bar so it is deeper into the ground or apply more downward pressure on the handlebars.



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## SECTION V – SERVICE & MAINTENANCE

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**THE GARDEN TILLER HAS BEEN DESIGNED TO PROVIDE YEARS OF HARD WORKING, LOW MAINTENANCE SERVICE.**

**THE TRANSMISSION HAS BEEN FACTORY SERVICED WITH “00” GREASE. NO ADDITIONAL LUBRICATION IS NECESSARY OR RECOMMENDED.**

**BELT TENSION SHOULD BE CHECKED AFTER INITIAL 20-30 MINUTES OF OPERATION.**

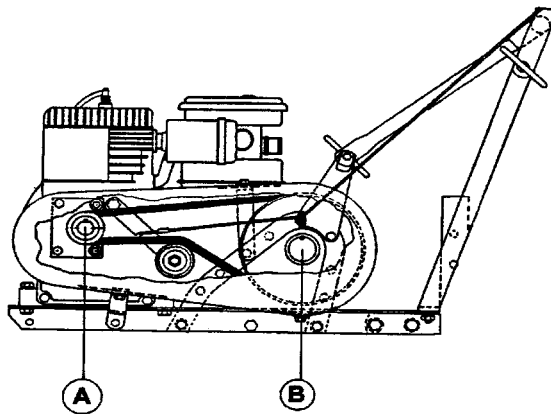
There are a couple of minor adjustments that need to be made periodically to this tiller for proper operation. Although they are simple, they are critical. This unit is primarily powered by a drive belt and idler pulley system. This system has been commonly used on power equipment for over 30 years. The key to this system is adjusting the belt so that it is loose enough to allow the belt to release from the drive pulley when the idler is relaxed and that it is tight enough so that the belt will not slip when the idler is engaged. When the belt is adjusted properly it should not be able to be removed from the pulley without some resistance. Another critical component is the belt release weldment. The pins of the belt release are positioned so that when the idler is released the pins will force the belt from the drive pulley. The belt must ride completely inside the end of the belt release pin. If the end of the pin is riding on the belt, this will cause belt damage. It is also critical that all pulleys and idlers be aligned properly, misalignment will cause belts to come off and wear excessively.

**Belt length and the amount a belt will stretch are very inconsistent. It is important that the belt be adjusted after the first usage, and be inspected periodically.**

### Belt and Clutch Adjustment

**Caution: Never Adjust The Belt With The Engine Running**

1. For proper belt tightness and tiller operation, the distance from the center of the engine crankshaft (A), to the center of the transmission input shaft (B) should measure 12 ½”.



2. To check proper operation of the belt and pulley system:

- Start the tiller.
- Press down on the handlebars to raise the tines in the air.
- Squeeze the clutch lever.

If adjusted correctly, the tines will rotate while the clutch lever is squeezed and stop when it is released. When the lever is squeezed tight, the clutch spring (item #20) should be slightly stretched, about ¼”.

3. If your tines fail to operate as described in step 2, adjustment can be made as follows:

- Switch the link on the end of the clutch cable (item #35) that is attached to the clutch spring (item #20). A link closer to the cable will tighten the adjustment, a link further away from the cable will loosen the setting.
- Additional adjustment can also be made by loosening the four engine bolts and sliding the engine forward or backward to get the proper adjustment. Retighten engine bolts before starting engine. **This adjustment is almost never needed and should not be made unless all other adjustments fail.**

**NOTE: If the belt is too loose it will slip and cause excessive wear. If too tight it will not release and the tines will continue to turn.**

### **Belt Installation and Alignment of Pulleys**

1. Whenever a new belt is installed, be sure to examine the grooves of the pulleys for wear. A wide groove of a worn engine pulley will cause slippage of the belt when engaged. Replace the pulley if worn.
2. The pulleys must be aligned by sliding the engine pulley in or out so that the belt will travel in a straight line.
3. Be sure to install the belt inside the two pins of the belt release bracket. If improperly installed on the outside of the belt release pins, the belt will be quickly damaged, and/or jump off pulleys.
4. Start the engine and test for proper operation.
5. Reinstall the belt cover.
6. Check belt tension after initial 20 to 30 minutes of operation with a new belt. Be sure your tiller operates as per the directions in this section.

**NOTE:** The purpose of the belt release bracket is to force the belt out of the engine pulley groove, allowing it to slip when the clutch lever is not engaged.

### **Service Notes**

- The tine drive transmission is factory lubricated and sealed. No additional lubrication is necessary or recommended.
- Service the engine according to the engine operating and maintenance instructions furnished with the tiller. Special attention should be given to the proper installation and service of the engine air filter assembly.
- Regularly check tines for wear. Tine bolt holes should be checked for wear or elongation. Tine assemblies should be replaced when lead corner on cutting edge has become rounded, therefore reducing tilling efficiency.
- Keep the machine, attachments, and accessories in safe working condition.
- Check engine mounting bolts, and other bolts at frequent intervals for proper tightness to be sure the equipment is in safe working condition.
- Never store the machine with fuel in the fuel tank inside a building where ignition sources are present, such as hot water and space heaters, clothes dryers, and the like. Allow the engine to cool before storing in any enclosure.
- Always refer to the engine operating instructions for important details if the tiller is to be stored for an extended period.

### **Inspection of the Tine Drive Transmission**

When it is necessary to make internal repairs to the transmission, it is advisable to take your tiller to an authorized dealer, especially if there are signs of excessive wear. Following are some suggestions that will help to determine the amount of wear.

- Before removing the transmission case from the tiller, turn the large pulley by hand and observe whether or not the rotor shaft also turns. If it does not, or if the pulley turns freely, check to be certain the square key securing the pulley to the drive shaft is not missing or damaged. This could cause the pulley to slip on the shaft.
- Turn the large pulley in either direction until all the slack is removed from the chains and sprockets within the transmission. Make a mark on the tine shaft and the outer edge of the large pulley. Then, while observing both the mark on the pulley and the mark on the tine shaft, turn the large pulley in the opposite direction until all internal slack is removed and the mark on the tine shaft just begins to move. The mark on the large pulley should not travel a distance of more than 3 inches (7.6 centimeters) before the mark on the tine shaft begins to move.
- Any travel of the mark in excess of this indicates excessive wear inside the case of either one or both chains, sprockets, shafts, or bearings. The case should be removed and disassembled for internal inspection.

### **Engine Maintenance**

By following the maintenance schedule in the engine owner's manual you will ensure maximum engine and tiller life. The engine will normally consume oil, so check oil level regularly and before each use.

# **MERRY TILLER SERVICE BULLETIN**

## **TIME TO CHANGE THE TINE SHAFT SEALS**

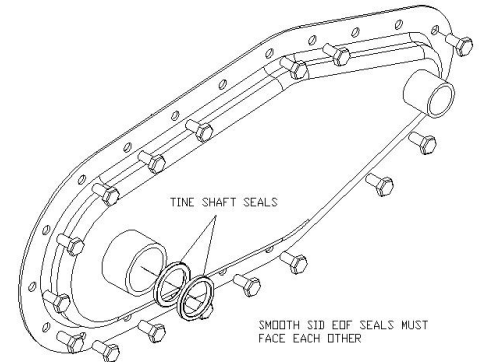
### **Tine Shaft Seal Replacement Instructions**

It is extremely important that the oil seals on the tiller transmission be inspected and replaced regularly to ensure proper lubrication and to prevent dirt from entering the transmission. Both sides of the tine shaft have two oil seals. These seals are inserted back to back over the tine shaft. The inner seal faces into the transmission and is designed to keep lubricant from escaping from the transmission. The outer seal faces outward and is designed to keep dirt out of the transmission. The Merry Tiller transmission is lubricated with heavy "00" grease. If the seals fail, it may not be noticed due to the heavy consistency of the grease. This is the best possible lubricant available and will add years of life to your Merry Tiller. Seals should be inspected regularly and replaced as needed or before periods of expected extended use.

To replace the seals proceed as follows.

1. Take a screwdriver or awl and hammer along the tine shaft until you can pry the first seal out.
2. Repeat and take the second seal out.
3. Place the new seal on the tine shaft with smooth side facing out, and press into place. (Note: A 1 1/2" ID piece of plastic pipe works great to do this).
4. Place the second seal on the tine shaft with the smooth side facing in, and press into place.
5. Repeat to other side of the transmission.

**Note: It is very important that the smooth side of the two seals be against each other.**



### **Replacement Parts**

PART #	QTY	WHERE USED	DESCRIPTION
708-3241	1	MINNIE	OIL SEAL
708-3241-10	10	MINNIE	OIL SEAL – 10 PACK
708-3241-50	50	MINNIE	OIL SEAL – 50 PACK
706-0344	1	SUBURBAN/INTERNATIONAL	OIL SEAL
706-0344-10	10	SUBURBAN/INTERNATIONAL	OIL SEAL – 10 PACK
706-0344-50	50	SUBURBAN/INTERNATIONAL	OIL SEAL – 50 PACK

## **MAINTENANCE SCHEDULE**

FREQUENCY	Service required
<b>After every use</b>	Inspect belts & pulleys for proper alignment and excessive wear
	Check operation of belt and idler, make sure tines stop & start correctly
	Inspect transmission for any leakage, check all bolts for tightness. Pay particular attention to center bolt that secures the transmission to the frame rails
	Check tines for wear and excessive play, make sure no pins are missing
	Perform normal engine maintenance
<b>Every 150 hours</b>	Inspect transmission case assembly, conduct test for excessive travel, (see attached). Check for excessive wear on case halves
	Check tine shaft and drive shaft for up and down play, if loose replace bearings.
	If transmission is OK replace tine shaft and drive shaft seals
	Inspect tines for wear, if cutting corner is rounded replace tines. Check pin holes for elongating and wear, make sure no pins are missing
	Anytime the transmission is unbolted from the frame rails it is necessary to secure the internal sprockets with a 5/16" rod cut to the same width of the transmission case. It is possible for the internal sprockets to move if not secured during service
<b>Every 600 hours</b>	Remove transmission for internal inspection. Disassemble and inspect all parts for wear. Clean all parts, replace worn parts as needed, relubricate with approx. 9 oz. "00" grease. Reassemble with new case gasket and reinstall on tiller.
	Anytime the transmission is unbolted from the frame rails it is necessary to secure the internal sprockets with a 5/16" rod cut to the same width of the transmission case. It is possible for the internal sprockets to move if not secured during service



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## SECTION VI - STORAGE

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- Clean the tiller thoroughly.
- Wipe down the tiller with an oiled rag to prevent rust (use a light oil or silicone).
- Store the unit in a clean, dry area. Do not store next to corrosive material, such as fertilizer.
- If the pulleys rust during storage or due to other factors, they should be cleaned or replaced as a rusted pulley may effect the operation of the tiller or the belt release system of the tiller.
- **NOTE: If storing in an unventilated or metal storage shed, rustproof the equipment by coating with a light oil or silicone.**

### Engine

It is important to prevent gum deposits from forming in essential fuel system parts such as the carburetor, fuel hose, or fuel tank during storage. Experience indicates that alcohol blended fuels (e.g. 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.

- Empty the fuel tank before storing the tiller for 30 days or longer.
- Start the engine and let it run until the fuel lines and carburetor are empty.
- Never use engine or carburetor cleaner products in the fuel tank or permanent damage may occur.
- Remove the spark plug, pour approximately one tablespoon of engine oil into cylinder and crank slowly to distribute oil. Replace the spark plug.
- Use fresh fuel next season. **Do not** store gasoline from one season to another.

**NOTE: Fuel stabilizer is an acceptable alternative in minimizing the formation of fuel gum deposits during storage.**

### Fuel Stabilizer

- Follow the mix ratio found on stabilizer container when mixing stabilizer to gasoline in fuel tank or storage container.
- Run the engine at least ten minutes after adding stabilizer to allow the stabilizer to reach the carburetor. Do not drain the gas tank and carburetor if using fuel stabilizer.

### Oil

- Drain all the oil from the crankcase and refill the crankcase with fresh oil each season (this should be done after the engine has been operated and is still warm).



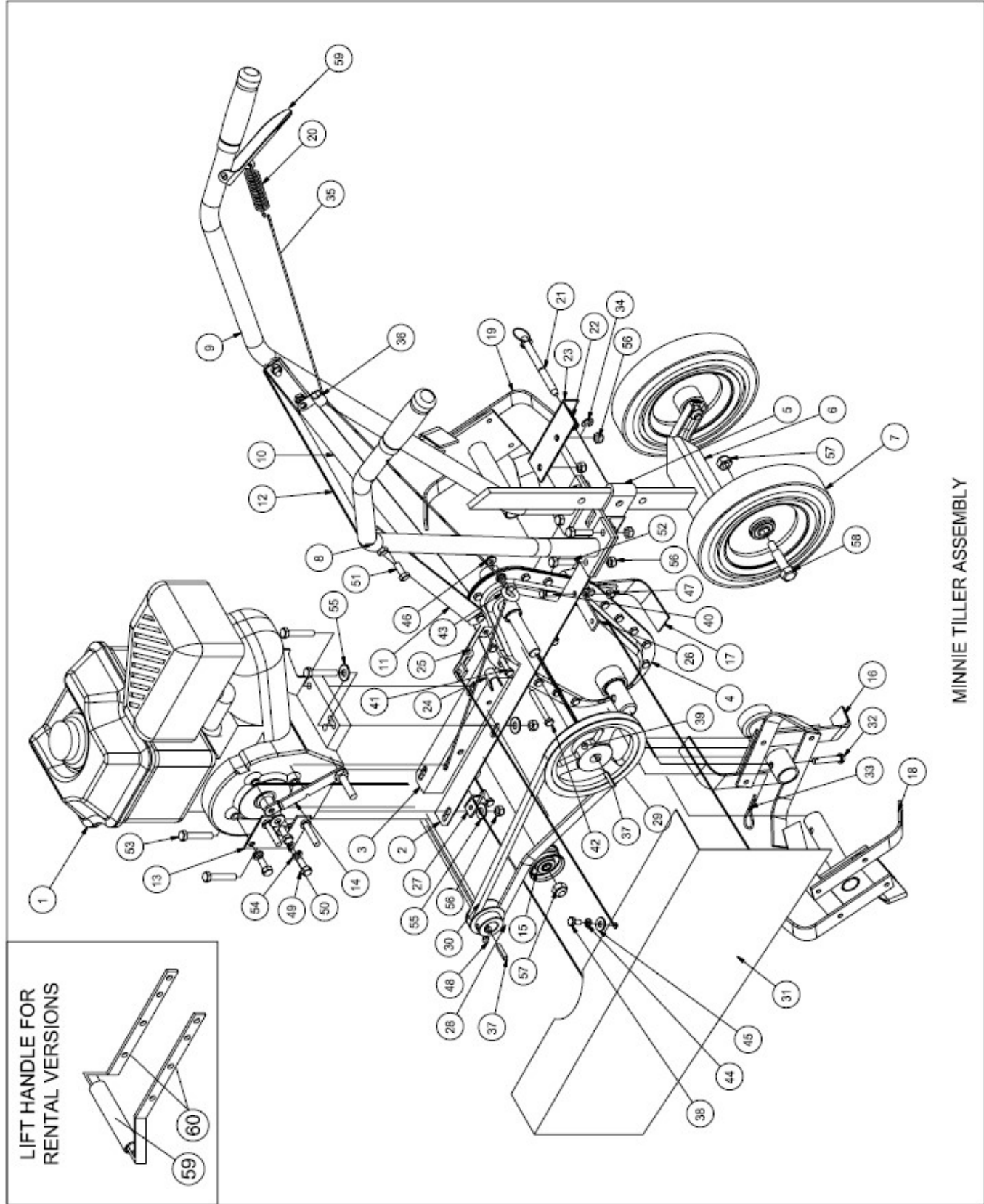
**DANGER:** Your tiller was built to be operated according to the rules for safe operation in this manual. As with any type of power equipment, carelessness or error on the part of the operator can result in serious injury. If you violate any of these rules, you may cause serious injury to yourself or others.

**BEFORE STARTING ENGINE, ALWAYS CHECK OIL LEVEL!**

## SECTION VII – PARTS LIST & ASSEMBLY DRAWINGS

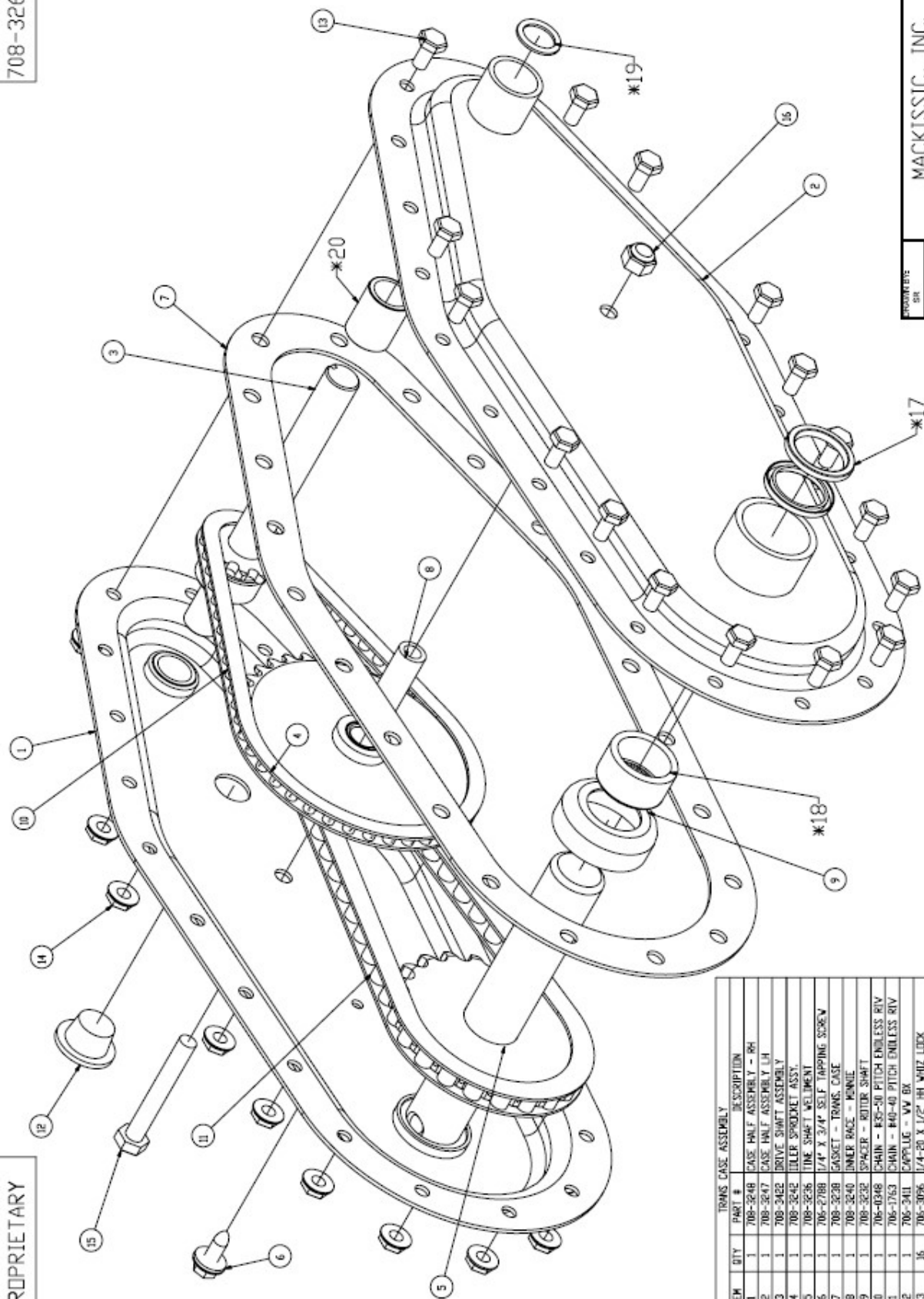
ITEM	QTY	PART .	DESCRIPTION
1	1	030-0578	B&S ENGINE
2	1	708-3402	LH ENGINE MOUNT
3	1	708-3403	RH ENGINE MOUNT
4	1	708-3260	TINE TRANSMISSION
5	1	708-3361	HITCH WELDMENT
6	1	708-3413	WHEEL WELDMENT
7	2	030-0223	WHEEL 8 X 1.75"
8	1	706-2632	LH HANDLE ASSEMBLY
9	1	706-2637	RH HANDLE ASSEMBLY
10	1	708-3163	RH TIE BAR
11	1	708-3162	LH TIE BAR
12	1	706-1826-1	CROSS BRACE
13	1	708-3290	BELT RELEASE WELDMENT
14	1	708-2978	IDLER ARM WELDMENT
15	1	030-0111	IDLER PULLEY
16	1	708-3153	LH INSIDE TINE
17	1	708-3154	RH INSIDE TINE
18	1	708-3155	LH OUTSIDE TINE
19	1	708-3156	RH OUTSIDE TINE
20	1	706-0152	CLUTCH CONTROL SPRING
21	1	709-3408	SPRING PIN
22	1	709-3409	SPRING – LC-042G-10
23	1	708-3411	MINNIE SPRING PIN PLATE
24	4	708-3267	ENGINE MOUNT SPACER
25	1	708-3315	BRACKET – UPPER
26	1	708-3308	BRACKET – LOWER REAR
27	1	708-3302	BRACKET – LOWER FRONT
28	1	706-1368	PULLEY – ENGINE – MT4H
29	1	708-3293	6" PULLEY – 5/8" BORE
30	1	030-0001	BELT 4L-380
31	1	708-3427	BELT GUARD
32	4	708-3211	CLEVIS PIN
33	4	100-0015	3/32" HAIR COTTER PIN
34	1	090-0497	E-ring
35	1	706-2250	CLUTCH CABLE ASSEMBLY
36	2	706-2243	CABLE GUIDE
37	2	500-0031	1/4" X 1/4" X 1" LG.
38	3	090-0052	1/4-20 X 1/2" HHCS
39	2	080-0077	1/4-20 X 3/8" SET SCREW W/ PATCH
40	2	090-0012	1/4-20 X 3/4" HHCS
41	2	090-0012	1/4-20 X 1" HHCS
42	2	090-0405	1/4-20 X 2-1/4" HHCS
43	1	090-0411	1/4-20 X 2-1/2" EYE BOLT

44	3	090-0378	1/4" SPLIT LOCKWASHER
45	3	090-0232	1/4" USS FLATWASHER PLTD
46	2	090-0453	1/4-20 WHIZ LOCK
47	6	090-0470	1/4-20 NYLOCK NUT
48	2	080-0053	5/16-18 X 5/16" SET SCREW W/ PATCH
50	1	090-0475	5/16-24 X 3/4" HHCS W/ NYLOCK PATCH
51	2	090-0066	5/16-18 X 3/4" HHCS
52	4	090-0089	5/16-18 X 1-1/4" HHCS
53	6	090-0091	5/16-18 X 1-3/4" HHCS
54	2	090-0394	5/16" SPLIT LOCKWASHER
55	6	090-0233	5/16" USS FLATWASHER PLTD
56	12	090-0460	5/16-18 NYLOCK NUT
57	3	090-0461	3/8-16 NYLOCK NUT
58	2	705-0056-2	1/2" DIA. HEX HEAD SHOULDER BOLT
59	1	706-3254	CLUTCH LEVER
59	1	090-0057	1/4-20 x 1 1/2 HHCS
59	1	090-0470	1/4-20 NYLOCK NUT
60	2	709-3405	LIFT HANDLE
NOT SHOWN	1	710-2667	THROTTLE CONTROL
NOT SHOWN	2	090-0400	10-32 X 1 1/4" RHMS (FOR THROTTLE CONTROL)
NOT SHOWN	2	706-1539	10-32 KEP NUTS (FOR THROTTLE CONTROL)



PROPRIETARY

708-3260



\*PARTS ARE INCLUDED WITH LH & RH CASE HALF  
OR AVAILABLE SEPERATELY.

TRANS CASE ASSEMBLY		
ITEM	QTY	DESCRIPTION
1	1	708-3248 CASE HALF ASSEMBLY - RH
2	1	708-3247 CASE HALF ASSEMBLY LH
3	1	708-3402 DRIVE SHAFT ASSEMBLY
4	1	708-3242 IDLER SHAFT ASSEMBLY
5	1	708-3236 1/4" X 3/4" SELF TAPPING SCREW
6	1	708-2788 1/4" X 3/4" SELF TAPPING SCREW
7	1	708-3238 GASKET - TRANS. CASE
8	1	708-3240 INNER RACE - PINION
9	1	708-3232 SHAFT - ROTOR SHAFT
10	1	708-0248 CHAIN - 42-48 PITCH ENDLESS RIV
11	1	708-3763 CHAIN - 40-40 PITCH ENDLESS RIV
12	1	708-3411 CAPPILOG - VV BX
13	35	708-3096 1/4-20 X 1/2" RH WHIZ LOCK
14	35	095-1453 1/4-20 WHIZ LOCK
15	1	095-1073 5/16-18 X 2-1/4" HRS
16	1	095-1460 5/16-18 NYLOCK NUT
17	4	708-3241 OIL SEAL
18	2	708-3233 TIME SHAFT BEARING
19	1	708-0242 DRIVE SHAFT SEAL LH CASE (IN 17)
20	2	708-3244 BRONZE BEARING

DRAWING BY: 01		MACKISSIC, INC.	
DATE: 2/10/2003	SCALE: 1:1	TRANS CASE ASSEMBLY	
DESIGNED BY: 01	PROJECT: 10	708-3260	
CHECKED BY: 01	DATE: 2/10/2003	708-3260	

# LIMITED WARRANTY

Any product manufactured by MacKissic, Inc. and found, in the judgment of MacKissic, Inc., to be defective in material or workmanship, will be repaired or replaced by an Authorized MacKissic Service Dealer without charge for parts and labor to the original owner of the MacKissic product.

The MacKissic product including any defective part must be returned to an Authorized MacKissic Service Dealer within the warranty period. The expense of delivering the product to the dealer for warranty work and the expense of returning it back to the owner after repair or replacement will be borne by the owner. MacKissic's responsibility is limited to making the required repairs or replacements only. No claim of breach of warranty shall be cause for cancellation or rescission of the sales contract of any MacKissic product. Proof of purchase will be required by the dealer to substantiate any warranty claim. All warranty work must be performed by an Authorized MacKissic Service Dealer.

This warranty is limited to two years from the date of original retail purchase for any MacKissic product that is used for consumer purposes or one year for commercial and rental use.

This warranty does not cover any product that has been subject to misuse, abuse, neglect, negligence, or accident, or that has been operated in any way contrary to or inconsistent with the operating instructions as specified in the owner's manual. The warranty does not apply to any damage to the product that is the result of improper maintenance, or to any product or parts that have not been assembled or installed as specified in the owner's manual.

The warranty does not cover any product that has been altered or modified. In addition, the warranty does not extend to repairs made necessary by normal wear, or by the use of parts or accessories which, in the judgment of MacKissic, Inc., are either incompatible with the MacKissic product or adversely affect its operation, performance or durability. This warranty does not cover engines, electric starters, batteries, and tires which are warranted separately by their manufacturer and for a different period of time.

MacKissic, Inc. reserves the right to change the design of any product without assuming any obligation to modify any product previously manufactured.

THE DURATION OF THE LIMITED WARRANTY IS TWO YEARS CONSUMER, ONE YEAR COMMERCIAL AND RENTAL USE. REPAIR OR REPLACEMENT AS PROCEEDED UNDER THIS LIMITED WARRANTY IS THE EXCLUSIVE REMEDY OF THE PURCHASER. MacKISSIC, INC., SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, EXCEPT THE LIMITED WARRANTY DESCRIBED ABOVE, ALL IMPLIED WARRANTIES (MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) ARE SPECIFICALLY DISCLAIMED.

MacKISSIC, INC. ASSUMES NO RESPONSIBILITY FOR INCIDENTAL, CONSEQUENTIAL OR OTHER DAMAGES INCLUDING, BUT NOT LIMITED TO, EXPENSE FOR GASOLINE, OIL, EXPENSE OF DELIVERING THE PRODUCT TO AN AUTHORIZED MACKISSIC SERVICE DEALER AND EXPENSE OF RETURNING IT BACK TO THE OWNER, MECHANIC'S TRAVEL TIME, TELEPHONE OR TELEGRAM CHARGES, RENTAL OF A LIKE PRODUCT DURING THE TIME WARRANTY REPAIRS ARE BEING PERFORMED, TRAVEL, LOSS OR DAMAGE TO PERSONAL PROPERTY, LOSS OF REVENUE, LOSS OF USE OF THE PRODUCT, LOSS OF TIME OR INCONVENIENCE.

This warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

2/22/18