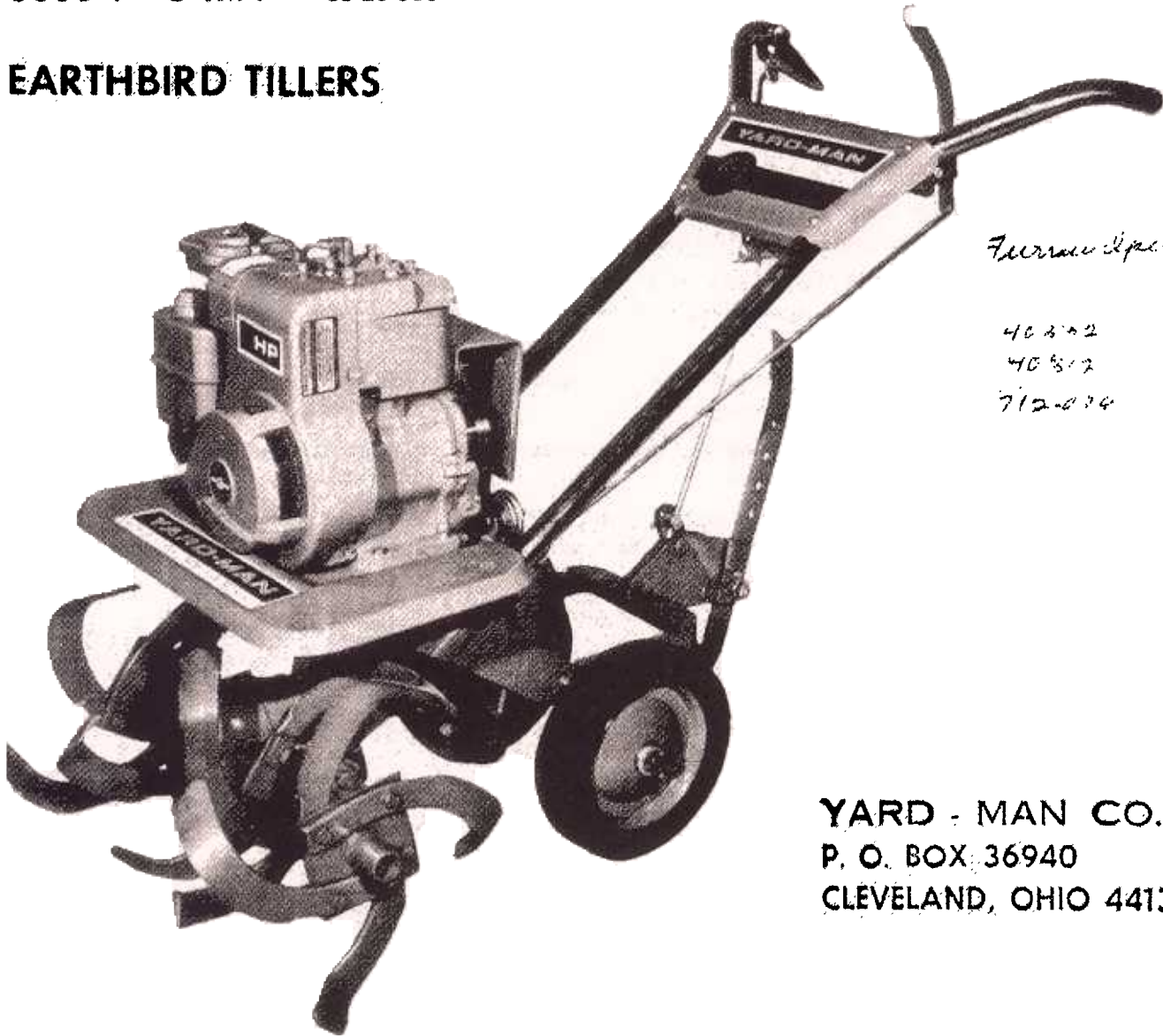


OWNERS OPERATING MANUAL

and PARTS LIST

| MODEL | STOCK NO. |
|---------------|-------------|
| 5010-1 3 H.P. | 08-28-300-1 |
| 5020-1 4 H.P. | 08-28-400-8 |
| 5030-1 5 H.P. | 08-28-500-4 |

EARTHBIRD TILLERS



Furnace Appliance Co.

*40372
40372
712-074*

YARD - MAN CO.
P. O. BOX 36940
CLEVELAND, OHIO 44136

0611-548

PRINTED IN U.S.A.

YARD-MAN 1410 W. Ganson St.,
Jackson, Michigan 49202
Incorporated

BUILDERS OF THE ORIGINAL SILENT YARD-MAN LAWN MOWER

RULES FOR SAFE OPERATION

Your EARTHBIRD Tiller is a precision piece of tilling equipment, engineering skill and experience have been combined to provide the ultimate in safety and efficiency. However, as with any type of power equipment, carelessness or error on the part of the operator can result in injury. Therefore, exercise extreme caution at all times.

1. **KNOW YOUR MACHINE** Read the Owner's Manual carefully — learn how to operate your EARTHBIRD properly and how to stop quickly.
2. **MAKE SURE THE AREA IS CLEAR** of bottles, stones, wire and other hazardous items before tilling. Such items are dangerous to both the operator and machine.
3. **ADD FUEL** before starting engine . . . never when engine is hot or running. Replace fuel tank cap securely.
4. **ALWAYS STOP ENGINE** and disconnect sparkplug wire before attempting any repairs or adjustments.
5. **DISENGAGE ALL CLUTCHES** and shift into neutral before starting motor. Keep hands, feet and clothing away from power driven parts.
6. **START THE ENGINE CAREFULLY** Always stand at side of machine. Do not operate engine indoors without proper ventilation.
7. **DISENGAGE POWER AND STOP MOTOR** before removing obstacles, or when leaving operating position.
8. **DO NOT ALLOW MINORS** to operate machine unless thoroughly instructed and properly supervised.
9. **KEEP CHILDREN AND PETS AWAY** from rotating tines. Keep a safe distance away from fences with rotating tines.
10. **NEVER WEAR SANDALS** or open toed shoes when operating machine.
11. **ADJUST DEPTH BAR** for desired tilling depth before starting engine.
12. **EXERCISE CAUTION** to avoid slipping or falling when operating machine.

SUGGESTIONS FOR MORE EFFICIENT, AND MAINTENANCE-FREE OPERATION

GENERAL TILLING:

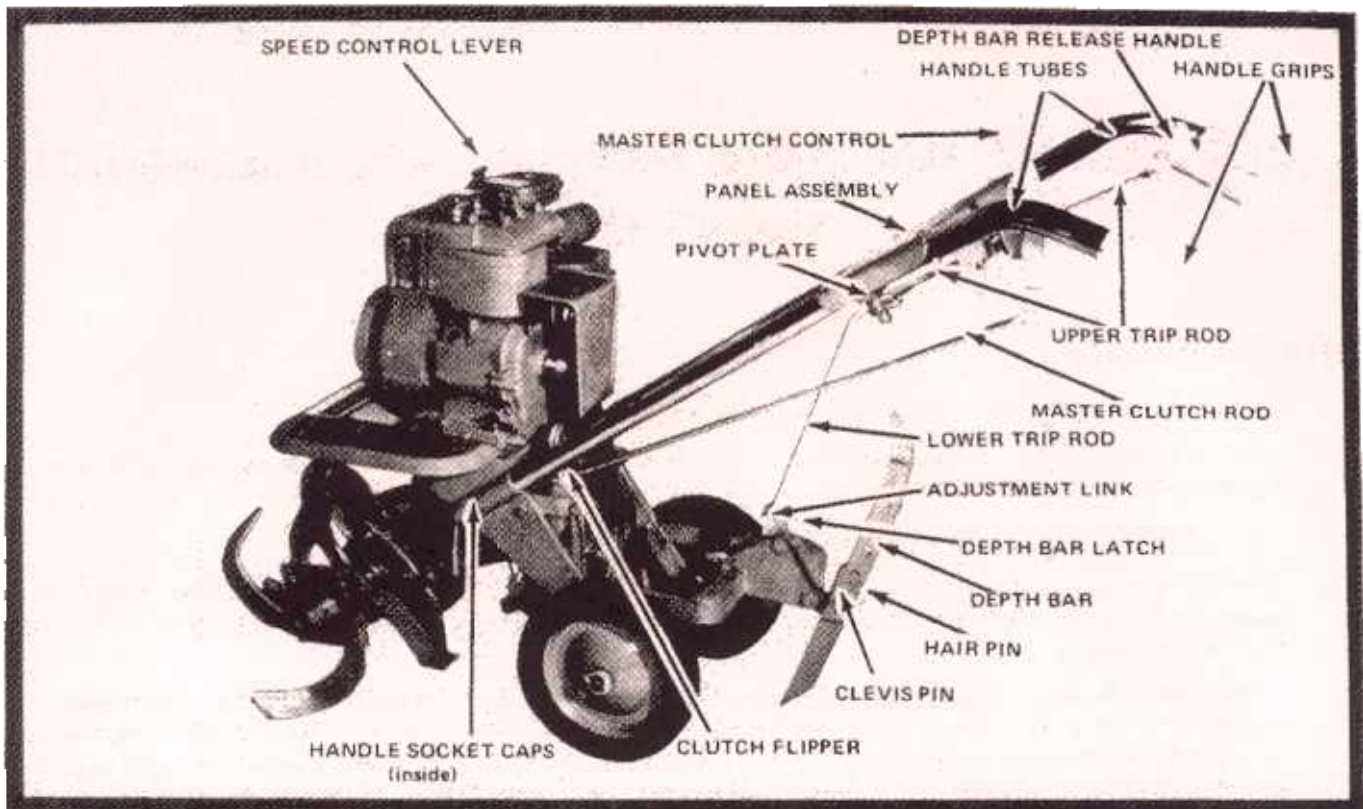
Keep area to be tilled cleared of vines, glass, wire, and stones.

2. Always start engine with machine on level surface with master clutch disengaged. After starting, let engine warm up several minutes at slow speed before starting to till.
3. Always preset depth bar into the ground before engaging master clutch control.
4. When tilling, run machine at throttle setting best suited to ground conditions. Always lower the tines "slowly" in to the soil, holding back on the handles until the desired tilling depth is reached. Then allow the tiller to move forward slowly using the depth bar drag setting.
5. In hard sod or on rough ground it is usually easier to maintain a straight forward motion with a slight movement of the handles from side to side. When making the first cut through an area the tiller will track a straight line, but when cutting the second path there will be a tendency to move towards the loose soil. Moving the handle from side to side will aid in following the edge of the first cut in making a wide straight tilled area. After a little practice proficiency in the operation of the tiller under all conditions will be gained.

MAINTENANCE:

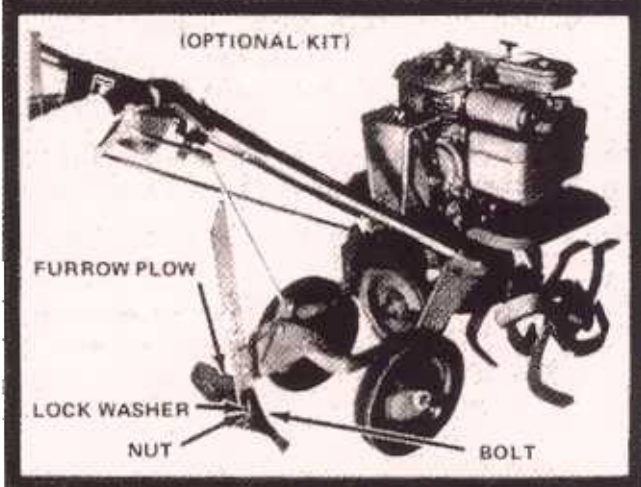
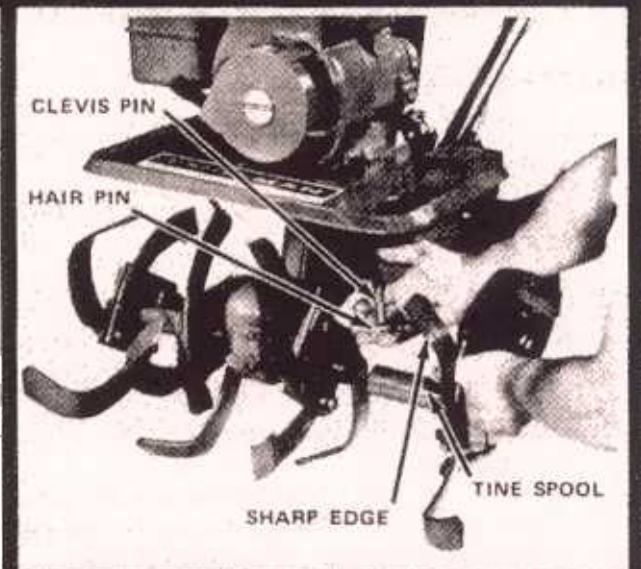
Your EARTHBIRD like all machines with moving parts, must receive care and maintenance. The following tips, if used, will contribute many trouble-free hours to your machine.

1. Check oil level frequently, or every 5 hours of use. When changing oil, make sure dirt and debris is cleaned from oil drain area before removing oil plug.
2. Keep tines and tine spools clean.
3. Check all nuts, bolts and screws occasionally for tightness to be sure machine is in good operating condition.
4. The machine is pre-lubricated at the factory. However, lubrication with each usage will prolong life of working parts.
5. If you are going to store your EARTHBIRD for any length of time (30 days or longer) it is important that the following steps be taken.
 - a. Drain the gas tank and carburetor. Allow the engine to run out of gas, gasoline left in the engine will leave gum deposits in the carburetor and gas tank.
 - b. Clean engine of all foreign matter.
 - c. Lubricate cylinder by removing the sparkplug and pouring one ounce of clean lubricating oil through the sparkplug hole into the cylinder. Crank engine slowly to spread oil and replace sparkplug.
6. The transmission is pre-lubricated. Every 10-15 hours of operation check the oil level by removing the oil level plug. Use SAE 90 extra duty transmission oil to fill if level is below plug opening. Change oil every 25 hours.
7. The belt tension is adjustable. The tensioning of belt should be checked every 5-10 hours of operation. Refer to adjustments section for resetting.
8. Just as your automobile needs professional mechanical maintenance from time to time, so does your air cooled engine. A yearly tune-up and check by a qualified service center is recommended to avoid breakdowns and unnecessary delays during the tilling season.



UNPACKING AND SET-UP

1. Be sure carton is right side up, cut end panels out and fold flat on floor. Remove inner pack and roll unit out of carton.
2. Assemble the right and left handle tubes to the unit with the right and left handle socket caps and bolts. Do not tighten.
3. Assemble the handle panel assembly over the right and left handle tubes and secure with four slotted round head bolts and lock nuts. Tighten all the bolts on the handle assembly. Place the handle grips over the ends of the handle tubes.
4. Place one end of the master clutch rod through the hole at the bottom of the master clutch control and the other end through the hole in the flipper near the end of the left handle tube and secure with the two cotter pins.
5. The tilling width is assembled for 22" as shipped. For 11" tilling width remove hair-pin and clevis pin and pull outside Spool Assemblies from shaft. Replace clevis pin and hair-pin thru inside Spool Assemblies and Shaft.
6. Attach the depth bar release handle to the handle near the right handle grip with a slotted head screw and nut. Attach the upper depth-bar release rod to the handle by hooking the looped end through the ear on the handle from the outside. Attach the opposite end down through the round hole in the depth bar pivot plate. Secure with a cotter pin. Attach the double bend end of the lower trip rod down through the slotted hole in the pivot plate. Secure with a washer and cotter pin. Thread the Adjustment Link on the opposite end and adjust to align with hole in Depth Bar Latch. Secure with a cotter pin. Check operation of Depth Bar Release Handle after attaching rods. With Depth Bar Release Handle all the way up, Depth Bar Latch should release. For failure to release, re-adjust the Adjustment Link.
7. Attach the depth bar into the bracket at the rear of the tiller frame using the short clevis pin through one of the holes in the bar, securing with the hair pin cotter. Use the pointed end of the depth bar in the ground except when the use of the furrow plow is desired.



BEFORE STARTING ENGINE

1. Fill the fuel tank with a good grade of regular gasoline. Do not mix oil with gasoline.
2. Place machine on a level surface. Remove oil filler cap and fill crankcase with good quality detergent oil. Above 32°F use SAE 30. Below 32° use SAE 10W. Fill to overflowing and replace cap.
3. During initial "Break-in" period, the oil level should be checked often.
4. Check oil level every five (5) operating hours or each time machine is used.

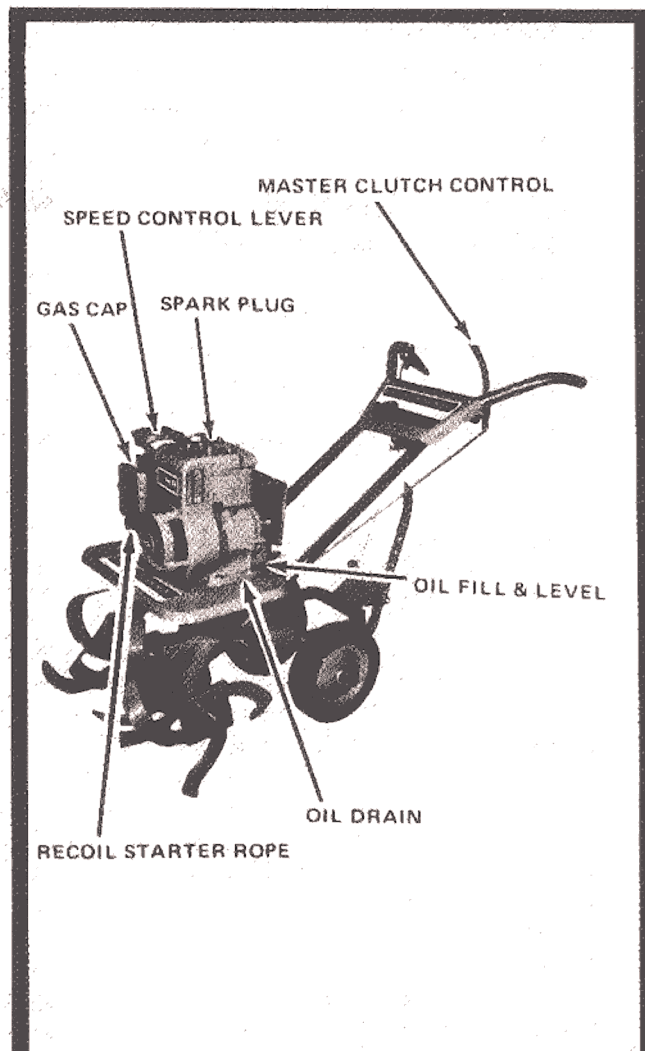
STARTING ENGINE

Shift the master clutch control to the neutral position. Move the speed control lever to full choke position. Start the engine by pulling rapidly on the recoil starter rope. As the engine starts and begins to warm up gradually return the control lever to the desired speed position.

If the engine should fail to start, refer to your engine Instruction Manual.

STOPPING ENGINE

To stop the engine move the speed control lever to the stop position. The sparkplug wire may also be removed to prevent accidental starting while unattended.



OPERATION OF CONTROLS

MASTER CLUTCH CONTROL

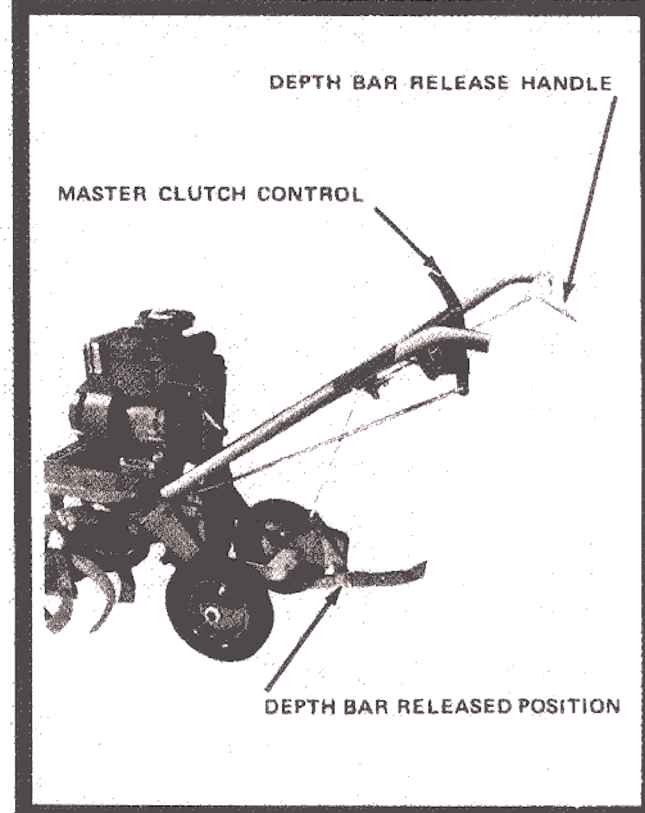
The master clutch control is located on the handle panel assembly and is used to engage the forward and reverse belt idlers. Move the clutch control forward to engage the forward belt idler. Pull the clutch control back to the center position for neutral. Pull the clutch control back and hold for reverse. Operate the clutch control several times until the neutral position can be easily determined for the control should always be in this position before starting engine.

DEPTH BAR

Before tilling lock depth bar in vertical position, and stake into soil.

Adjust bar depth to suit soil conditions, and depth of tilling.

When reversing for trenching, back filling or tine cleaning, the depth bar should be in the vertical locked position. The release handle unlocks the depth bar for transporting or reversing when required.



ADJUSTMENTS

NOTE: Make all adjustments with engine turned off and wire removed from the sparkplug. (Fasten wire to cylinder head at least 1" away from sparkplug.)

BELT REPLACEMENT AND IDLER WHEEL ADJUSTMENT

CAUTION: For belt adjustment the engine should be stopped and the sparkplug wire removed.

After the machine has been operated a short time it may be necessary to readjust the idlers for proper belt tension. The following steps should also be carefully followed when installing the replacement belts or adjusting belt tension.

FORWARD DRIVE BELT

1. Move the master clutch control to the neutral position.
2. Remove the belt guard bracket for belt replacement only.
3. Adjust the idler wheel in steps of approximately 1/4 inch and maintain some slack in the belt in the neutral position. If the belt fails to release properly in neutral adjust the idler wheel away from the belt. After positioning the idler pulley relocate the forward belt restrictor locating tab in the idler strap slot. Also, check the clearance between the belt and the belt restrictor pins (in the forward running position), pins should clear belt approximately 1/16 when belt guard bracket is re-installed or in place.

REVERSE DRIVE BELT

Adjust this belt in a similar manner as the forward drive belt, by loosening the bolt holding the reverse idler pulley in position and moving it up toward the belt to tighten. To check the setting for the proper amount of slack in the belt move the master clutch control to the forward running position (with the engine stopped) and position the belt on to the rim of the idler pulley. Move the idler up with the belt in this position, until the belt is tight and tighten the idler bolt. Then reposition the belt in the center of the idler pulley.

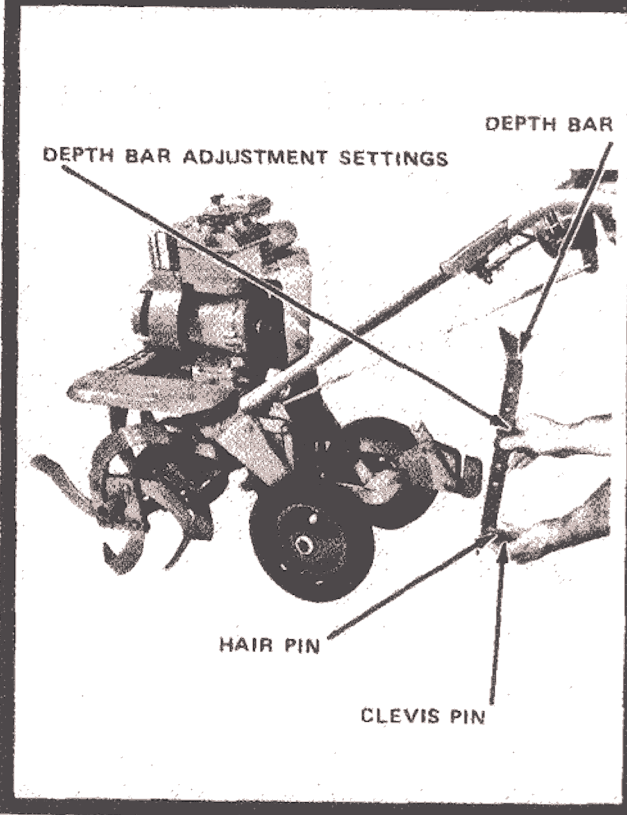
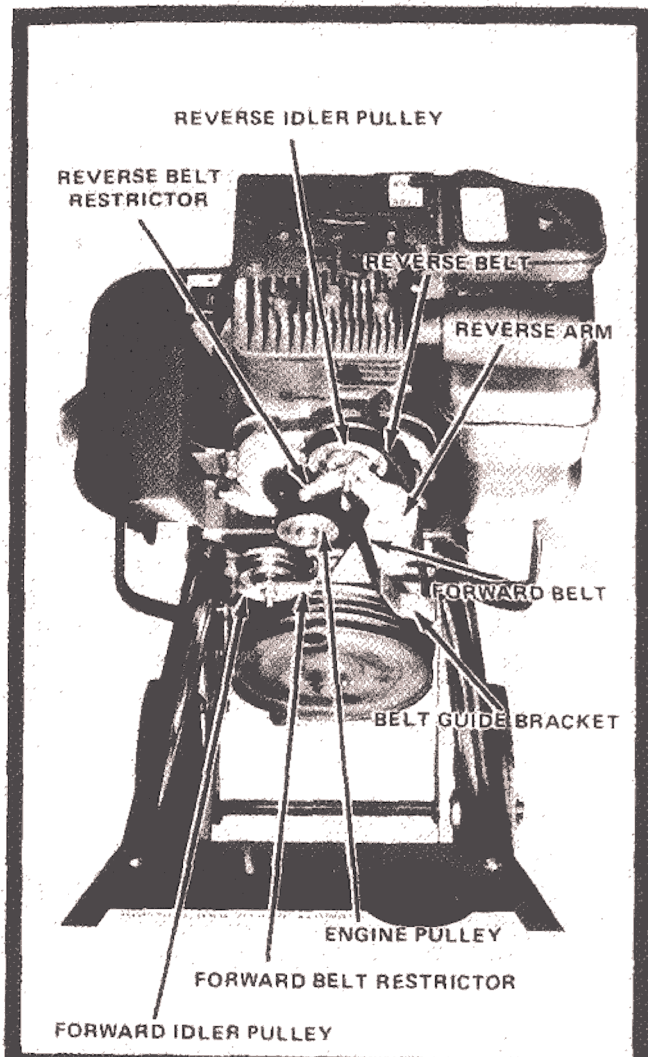
NOTE: The flat side of the reverse belt should always be on the inside. Return the clutch control to the neutral position and check the position of the reverse idler belt restrictor. This restrictor should be against the reverse belt to allow the belt to only slightly touch the engine drive pulley, but, should clear the belt with the clutch control pulled back in reverse position.

TINE WIDTH ADJUSTMENT

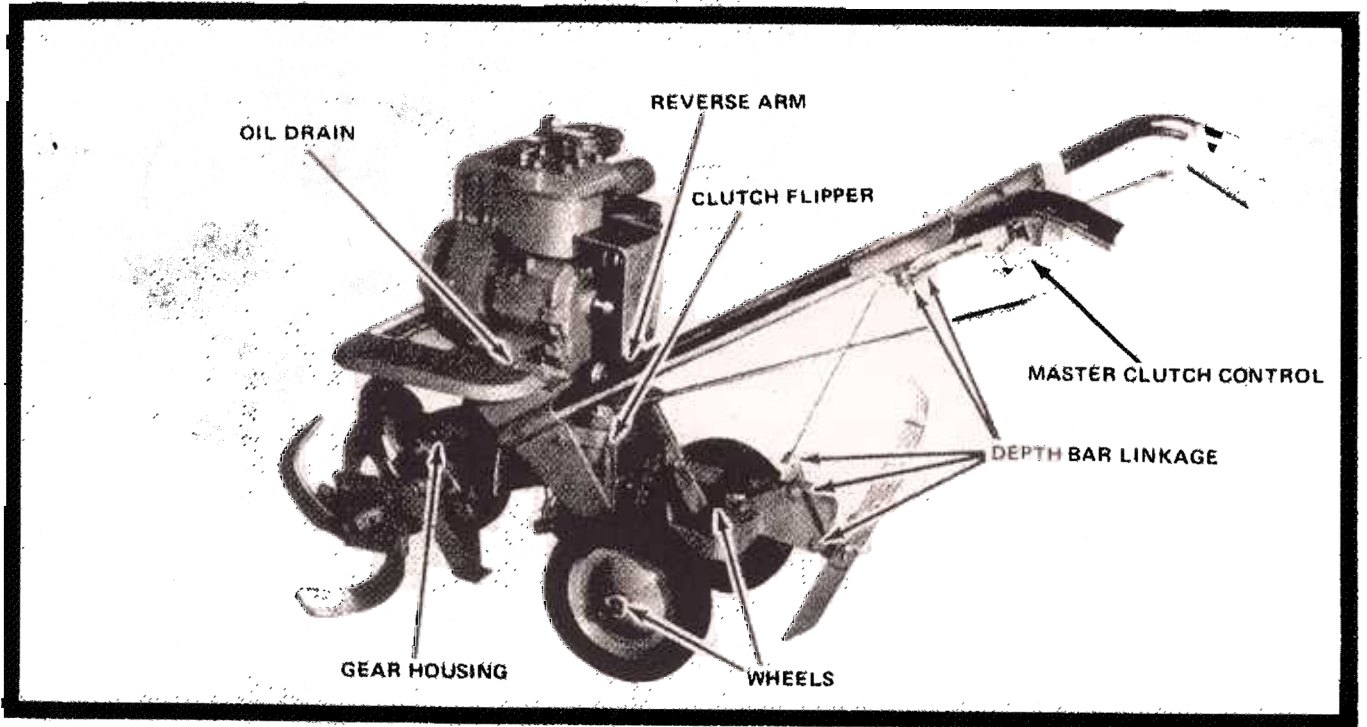
The tine spool assemblies can be adjusted to 11" or 22" tilling widths. Refer to Unpacking and Set Up Section for details. Tilling width up to 32" is available with optional tine extension spool assemblies.

DEPTH BAR ADJUSTMENT

To raise or lower the depth bar remove the hair pin cotter and clevis pin and move up or down. The depth bar setting helps control the depth of till and amount of drag resisting the pulling action of the rotating tines.



LUBRICATION



CHANGING ENGINE OIL

Drain oil when engine is warm. Remove oil drain plug and allow oil to drain completely. Replace drain plug and tighten securely.

See engine manual for complete engine lubrication and service instructions.

LUBRICATION POINTS

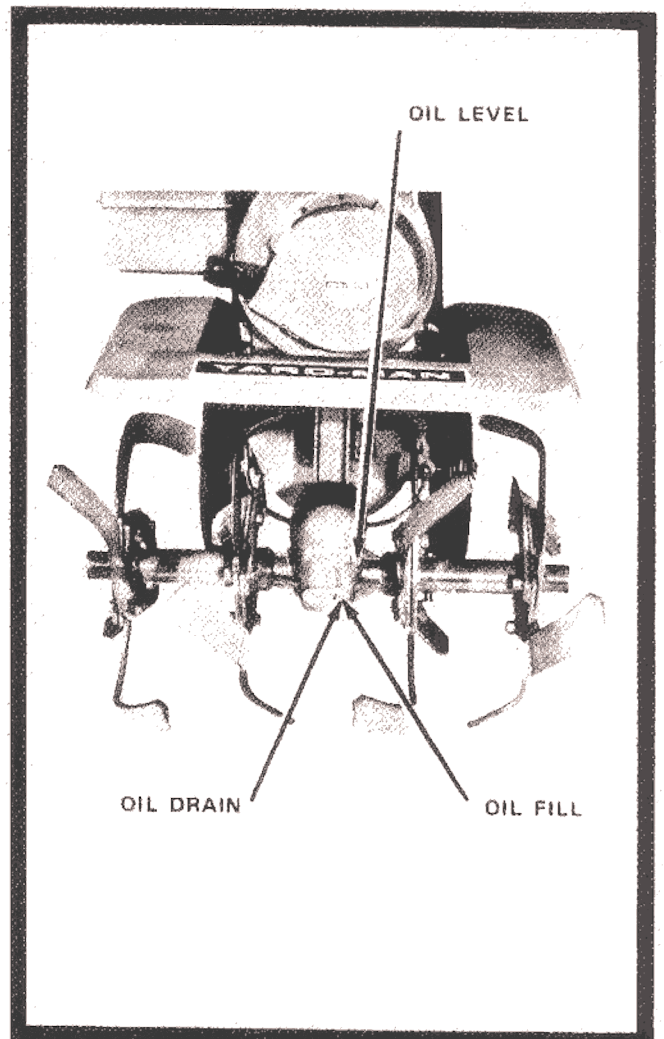
LUBRICATE THE PARTS PERIODICALLY
AS ILLUSTRATED

The following points are to be lubricated every five hours of operation with SAE 20 weight light duty oil, unless otherwise noted.

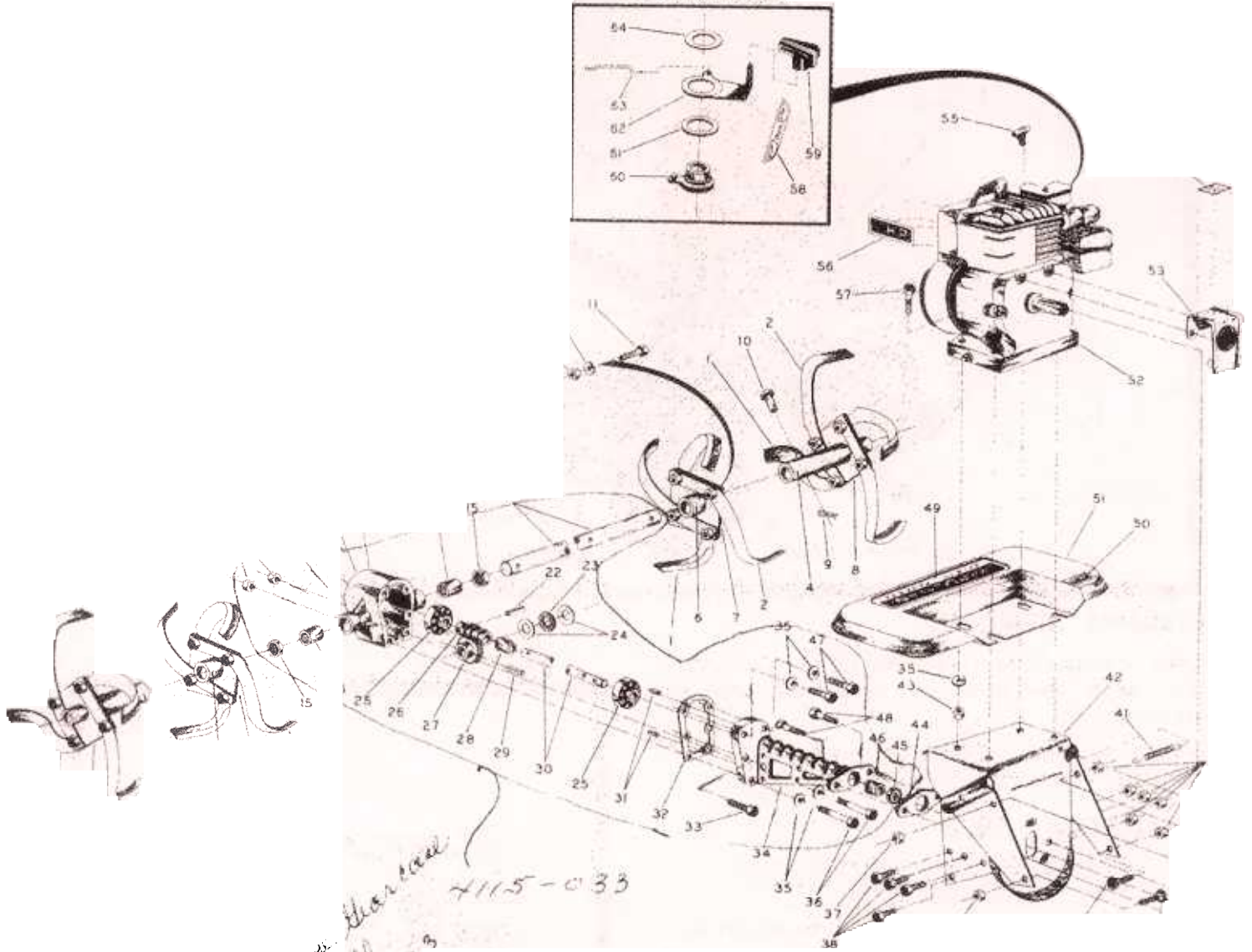
1. Clutch flipper.
2. Reverse arm.
3. Depth bar linkage.
4. Wheels
5. Master clutch control.
- *6. Gear housing.

*Before operating the tiller, check the oil level in the gear case by removing the oil level plug. With the tiller on a level surface or slightly tilted back, the oil level should be at least to this opening or above. Every 10-15 hours check and maintain this oil level using a heavy duty gear oil, such as GX-90 or Type 47 Outboard Motor Oil (90 weight). Drain the gear case and refill every 25 hours. To drain the oil from the gear case, first drain the oil and gas from the engine. Then remove the drain plug and tilt the unit forward.

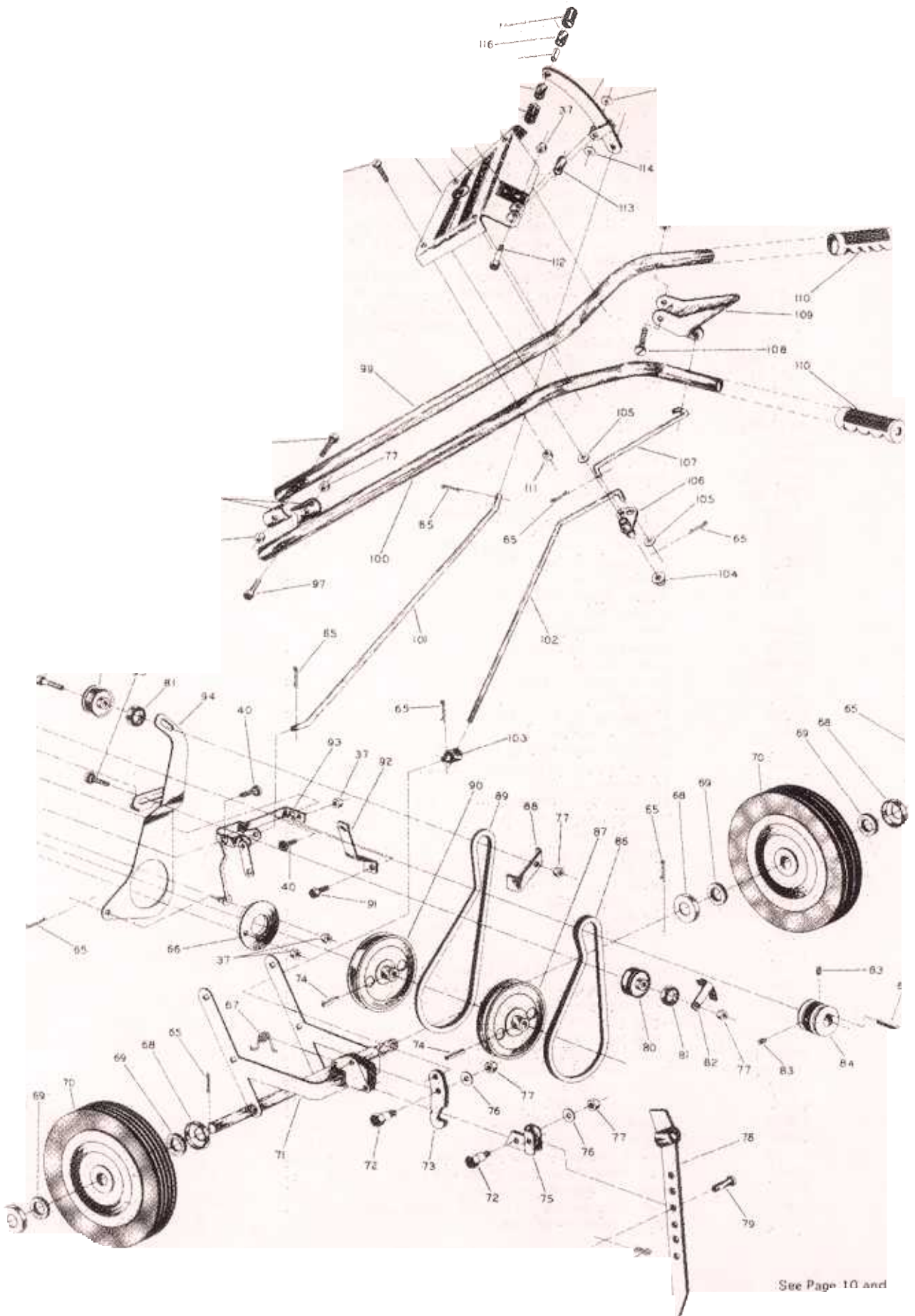
NOTE: The gear case should not be filled completely full.
AFTER BREAK-IN PERIOD, (FIRST 3 TO 4 HOURS OF OPERATION) CHECK ALL BOLTS AND NUTS FOR TIGHTNESS.



MODEL 5010-1 ONL



*See manual
all 23
7115-033
1030*



See Page 10 and

PARTS LIST

Your Tiller is Right Hand (R.H.) or Left Hand (L.H.) as You Operate Machine.
NOTE: Unless otherwise specified parts listed are used on all Models.

| REF NO. | PART No. | DESCRIPTION | QTY. |
|---------|----------|---|------|
| 1 | 40333 | Tine, Bolo (L.H.) 5/16 x 1-1/4 x 14" dia. (5020-1, 5030-1 only) | 8 |
| 1 | 42050 | Tine, Bolo (L.H.) 13/64 x 1-1/4 x 14" dia. (5010-1 only) | 8 |
| 2 | 40315 | Tine, Bolo (R.H.) 5/16 x 1-1/4 x 14" dia. (5020-1, 5030-1 only) | 8 |
| 2 | 42049 | Tine, Bolo (R.H.) 13/64 x 1-1/4 x 14" dia. (5010-1 only) | 8 |
| | 61832 | Assy., Spool, Outside w/Tines (L.H.) (5010-1 only) | 1 |
| | 61836 | Assy., Spool, Outside w/Tines (L.H.) (5020-1, 5030-1 only) | 1 |
| | 61818 | Assy., Spool, Outside | 2 |
| 5 | 61834 | Assy., Spool, Inside w/Tines (L.H.) (5010-1 only) | 1 |
| 5 | 61838 | Assy., Spool, Inside w/Tines (L.H.) (5020-1, 5030-1 only) | 1 |
| 6 | 61829 | Assy., Spool, Inside | 2 |
| | 61833 | Assy., Spool, Inside w/Tines (R.H.) (5010-1 only) | 1 |
| 7 | 61837 | Assy., Spool, Inside w/Tines (R.H.) (5020-1, 5030-1 only) | 1 |
| 8 | 61831 | Assy., Spool, Outside w/Tines (R.H.) (5010-1 only) | 1 |
| 8 | 61835 | Assy., Spool, Outside w/Tines (R.H.) (5020-1, 5030-1 only) | 1 |
| | 1547-5 | Hairpin Cotter, 3/32 dia. | 3 |
| 10 | 1546-29 | Pin, Clevis, 3/8 dia. x 2" | 2 |
| 11 | 1509-91 | Bolt, Hex Head, 3/8-16 x 1-1/4 | 16 |
| 12 | 1542-8 | Lockwasher, 3/8 (Spring Type) | 16 |
| 13 | 42342 | Nut, Hex (ESLOK) 3/8-16 | 16 |
| 14 | 1632-142 | Shaft, Tine, 1" dia. | 1 |
| | 40299 | Oil Seal, Double Lip | 2 |
| 16 | 1852-90 | Bearing, Needle, 1" x 1-1/4 x 1" L. | 2 |
| 17 | 4601-135 | Gear Housing | 1 |
| 18 | 0115-33 | Assy., Transmission, Complete | 1 |
| 19 | 42340 | Plug, Pipe, 1/8 NPTF (Special Vented) | 1 |
| 20 | 40060 | Plug, Pipe, 1/4 NPTF | 1 |
| 21 | 42122 | Nut, Hex Flexlock, Thin, 5/16-18 | 2 |
| 22 | 40048 | Pin, Spring, 1/4 dia. x 1" | 1 |
| 23 | 40164 | Bearing, Thrust | 1 |
| 24 | 40163 | Washer, Thrust | 2 |
| 25 | 40023 | Bearing, Ball | 2 |
| 26 | 20644 | Worm, 3 T. (R.H.) | 1 |
| 27 | 20612 | Worm Gear, 28 T. (R.H.) | 1 |
| 28 | 40099 | Spacer, Worm | 1 |
| 29 | 1547-42 | Pin, Grooved, 5/16 dia. x 2" | 1 |
| 30 | 20301 | Shaft, Pulley | 1 |
| 31 | 40250 | Pin, Spring, 1/8 dia. x 3/8 | 2 |
| 32 | 1653-23 | Gasket, Gear Housing | 1 |
| 33 | 40305 | Bolt, Hex Head, 5/16-18 x 1-1/2 (NYLOCK) | 2 |
| 34 | 40296 | Lid, Gear Housing (includes Bushing Ref. No. 46) | 1 |
| 35 | 40149 | Lockwasher, 5/16 | 8 |
| 36 | 42350 | Bolt, Hex Head (Grade 5) 5/16-18 x 4" | 2 |
| 37 | 40153 | Nut, Hex Lock (2-way) 5/16-18 | 12 |
| 38 | 50039 | Bolt, Hex Head, 5/16-18 x 2" | 5 |
| 39 | 40160 | Bolt, Carriage, 5/16-18 x 3/4 | 1 |
| 40 | 41133 | Bolt, Carriage, 5/16-18 x 1" | 1 |
| 41 | 40318 | Spring, Extension | 1 |
| 42 | 61814 | Assy., Engine Base | 1 |
| 43 | 1534-20 | Nut, Hex, 5/16-18 | 1 |
| 44 | 40303 | Extension Block | 1 |
| 45 | 40025 | Seal, Oil | 1 |
| 46 | 40317 | Bushing, Oilite, .791 x .877 x 1-1/8" | 1 |
| 47 | 42351 | Bolt, Hex Head (Grade 5) 5/16-18 x 1-1/2 | 1 |
| 48 | 40893 | Bolt, Hex Head, 5/16-18 x 1-5/8 | 1 |
| 49 | 42331 | Decal, Tine Shield | 1 |
| 50 | 1605-439 | Decal, Model No. (5010-1 only) | 1 |
| 50 | 1605-440 | Decal, Model No. (5020-1 only) | 1 |
| 50 | 1605-441 | Decal, Model No. (5030-1 only) | 1 |
| 51 | 22517 | Cover, Tine Shield | 1 |
| 52 | 42249 | Engine, 3 H.P. (5010-1 only) | 1 |
| 52 | 42250 | Engine, 4 H.P. (5020-1 only) | 1 |
| 52 | 42251 | Engine, 5 H.P. (5030-1 only) | 1 |
| 53 | 61839 | Assy., Pulley Cover Support Bracket (5020-1, 5030-1 only) | 1 |
| 53 | 61841 | Assy., Pulley Cover Bracket (5010-1 only) | 1 |
| 54 | 1616-317 | Decal, Belt Adjustment Warning | 1 |
| 55 | 1643-42 | Knob, Throttle Control (5020-1, 5030-1 only) | 1 |
| 56 | 42334 | Decal, Engine (5010-1 only) | 1 |

PARTS LIST

Your Tiller is Right Hand (R.H.) or Left Hand (L.H.) as You Operate Machine.

NOTE: Unless otherwise specified parts listed are used on all Models.

| REF. NO. | PART NO. | DESCRIPTION | QTY. |
|-------------|----------|---|------|
| 56 | 42335 | Decal, Engine (5020-1 only) | 1 |
| 56 | 42336 | Decal, Engine (5030-1 only) | 1 |
| 57 | 40152 | Bolt, Hex Head, 5/16-18 x 1-1/2 | 4 |
| 58 | 1616-280 | Decal, Air Cleaner Label (5010-1 only) | 1 |
| 59 | 2643-41 | Knob, Throttle Control (5010-1 only) | 1 |
| 60 | 2610-14 | Bushing, Adapter (Filter) (5010-1 only) | 1 |
| 61 | 1552-12 | Washer, Wave, 1.465 x 1.82 x .015 (5010-1 only) | 1 |
| 62 | 2705-25 | Lever, Throttle Control (5010-1 only) | 1 |
| 63 | 1625-25 | Link, Throttle Control (5010-1 only) | 1 |
| 64 | 1650-36 | Ring, Retaining, 1-3/8 (5010-1 only) | 1 |
| 65 | 40035 | Pin, Cotter, 1/8 x 1" | 10 |
| 66 | 61673 | Assy., Reverse Arm Retainer Washer | 1 |
| 67 | 40324 | Spring, Torsion | 1 |
| 68 | 21410 | Washer, Cup | 4 |
| 69 | 40302 | Washer, Felt, 5/8 x 1-1/4 x 1/4 | 4 |
| 70 | 40294 | Wheel, 10 x 1.75 x 5/8 | 2 |
| 71 | 1168-45 | Assy., Frame | 1 |
| 72 | 1513-97 | Bolt, Shoulder (Special) | 2 |
| 73 | 60312 | Assy., Depth Bar Lock Tongue | 1 |
| 74 | 40052 | Pin, Spring, 5/16 dia. x 1-1/2 | 3 |
| 75 | 60305 | Assy., Depth Bar Guide | 1 |
| 76 | 757 | Washer, Flat Steel, .320 x 3/4 x 16 Ga. | 2 |
| 77 | 42373 | Nut, Hex Lock (ESNA) 5/16-18 | 6 |
| 78 | 20500 | Depth Bar | 1 |
| 79 | 40319 | Pin, Clevis, 3/8 dia. x 1-1/8 | 1 |
| 80 | 1626-69 | Pulley, Idler w/Hub | 1 |
| 81 | 20142 | Washer, Idler Pulley | 2 |
| 82 | 22446 | Bracket, Belt Restrictor | 1 |
| 83 | 1161 | Screw, Set, 5/16-18 x 3/8 | 2 |
| 84 | 1626-72 | Pulley, Engine (Double) | 1 |
| 85 | 20265 | Key, Pulley, 3/16 sq. x 1-1/2 L. | 1 |
| 86 | 40041 | Belt, 4L-400 (Special) | 1 |
| 87 | 40033 | "V" Pulley | 1 |
| 88 | 22531 | Bracket, Belt Restrictor (Reverse) | 1 |
| 89 | 40207 | Belt, 4L-450 (Special) | 1 |
| 90 | 40032 | Pulley, Flat | 1 |
| 91 | 1509-37 | Bolt, Hex Head, 5/16-18 x 5/8 | 1 |
| 92 | 22668 | Bracket, Belt Guide | 1 |
| 93 | 60319 | Assy., Clutch Lock-Out | 1 |
| 94 | 61840 | Assy., Reverse Arm | 1 |
| 95 | 1529-39 | Bolt, Carriage (Sh. Sq. Neck) 5/16 x 2" | 1 |
| 96 | 60799 | Assy., Idler Pulley (Flat) | 1 |
| 97 | 1509-112 | Bolt, Hex Head (Grade 5) 5/16-18 x 2" | 2 |
| 98 | 20100 | Cap, Handle Socket | 2 |
| 99 | 42238 | Handle (R.H.) | 1 |
| 100 | 42239 | Handle (L.H.) | 1 |
| 101 | 22520 | Rod, Clutch | 1 |
| 102 | 1683-75 | Rod, Lower Trip | 1 |
| 103 | 1625-27 | Link, Rod Adjustment, 5/16-18 T. | 1 |
| 104 | 1539-24 | Push Nut, 5/16 | 1 |
| 105 | 40148 | Washer, Wrought, 5/16 | 2 |
| 106 | 60302 | Assy., Trip Plate | 1 |
| 107 | 22518 | Rod, Upper Trip | 1 |
| 108 | 40225 | Screw, Round Head Stove, 1/4-20 x 1-3/4 | 5 |
| 109 | 60721 | Assy., Trip Handle | 1 |
| 110 | 40217 | Grip, Handle, 1-1/4 | 2 |
| 111 | 40065 | Nut, Hex Nylock, 1/4-20 | 5 |
| 112 | 42210 | Bolt, Hex Head (Special) 5/16-18 x 1-3/4 | 1 |
| 113 | 42207 | Tube, Split, 15/32 O.D. x 16 Ga. x 7/8 | 1 |
| 114 | 42211 | Washer, Special Spring | 2 |
| 115 | 61755 | Assy., Clutch Handle | 1 |
| 116 | 40286 | Handle Pin | 2 |
| 117 | 40320 | Cap, Plastic (White) | 2 |
| 118 | 42332 | Decal, Shift (Handle Panel) | 1 |
| 119 | 42330 | Decal, Handle Panel | 1 |
| 120 | 61822 | Assy., Handle Panel | 1 |