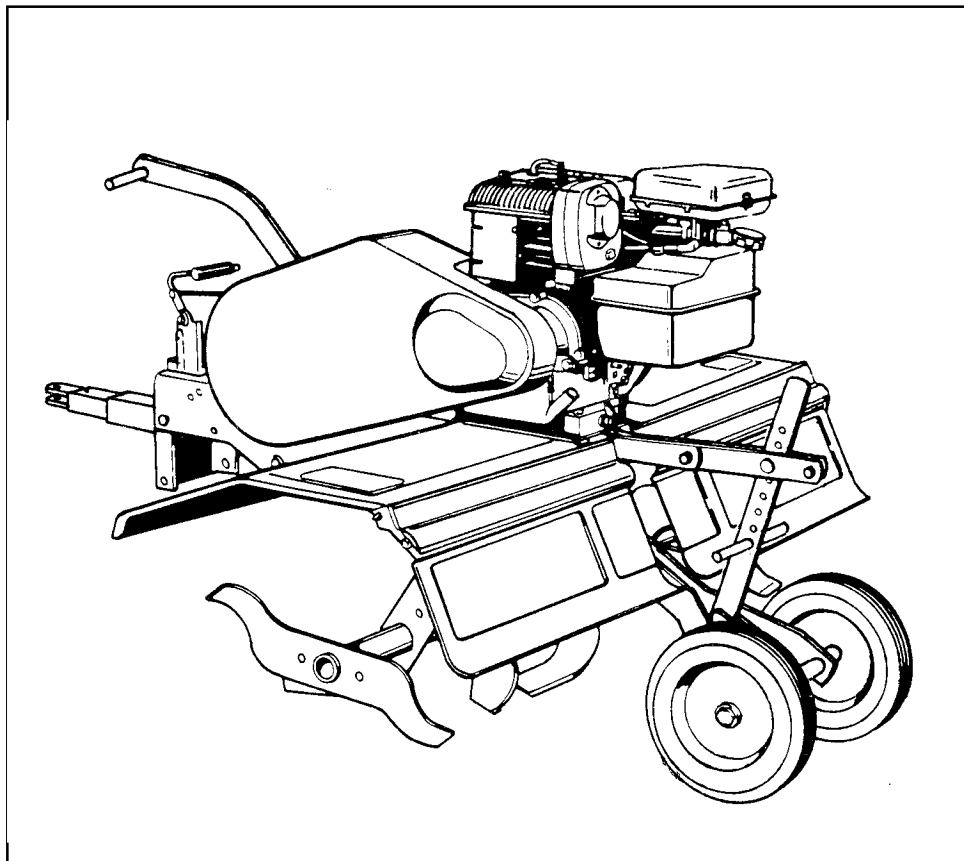


OWNER'S MANUAL

**MODEL NO.
45-0308
810-218**



5 HP UNIVERSAL TOW BEHIND TILLER

CAUTION:
Read Rules for
Safe Operation
and Instructions
Carefully

- **Assembly**
- **Operation**
- **Customer Responsibilities**
- **Service and Adjustment**
- **Repair Parts**

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 PARTS ORDERING/SERVICE Rear Cover

CONGRATULATIONS on your purchase of a tow behind tiller. It has been designed, engineered and manufactured to give you the best possible dependability and performance.

PRODUCT SPECIFICATIONS

HORSEPOWER:	5.0 H.P.
DISPLACEMENT:	12.57 cu. in.
GASOLINE CAPACITY:	3 QUARTS Regular Unleaded
OIL (20 oz. Capacity):	Above 32 F: SAE 30 Below 32 F: SAE 5W30
SPARK PLUG (GAP .030 IN.):	Champion RJ19LM
TILLING GROUND SPEED:	Approx. 2 MPH
TILLING WIDTH:	36 IN.
TILLING TINE SPEED:	260 RPM

Please read and retain this manual. The instructions will enable you to assemble and maintain your tiller properly. Always observe the "SAFETY RULES".

MODEL NUMBER 45-0308 SERIAL NUMBER _____ DATE OF PURCHASE _____ THE MODEL AND SERIAL NUMBER WILL BE FOUND ON THE MODEL PLATE ATTACHED TO THE RIGHT HAND CHASSIS. YOU SHOULD RECORD BOTH SERIAL NUMBER AND DATE OF PURCHASE AND KEEP IN A SAFE PLACE FOR FUTURE REFERENCE.
--

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.

CUSTOMER RESPONSIBILITIES

- Read and observe the safety rules.
- Follow a regular schedule in maintaining, caring for and using your Tiller.
- Follow the instructions under "Customer Responsibilities" and "Storage" sections of this Owner's Manual.

In the state of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands. See your Sears Authorized Service Center for spark arrester. Refer to the repair Parts section of this manual for part number.



SAFETY RULES



Safe Operation Practices for the Tow-Behind Tiller Attachment

TRAINING

- Read opening and Service instructions carefully. Be thoroughly familiar with the controls and the proper use of the equipment.
- Never allow children to operate the machine. Do not allow adults to operate the machine without proper instruction.
- Keep the area of operation clear of all persons, particularly small children and pets.

PREPARATION

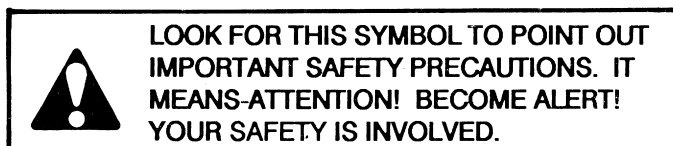
- Check the fuel and lubrication before starting the engine. Do not fill the gasoline tank indoors when the engine is running or while the engine is still hot. Wipe off any spilled gasoline before starting the engine.
- Inspect the area to be filled. Remove glass, wire, metal objects, large sticks and stones. Avoid underground pipes and wiring.
- Have a complete working knowledge of your tractor and know how to handle your tractor with a tiller or other attachment attached.

OPERATION

- Give complete and undivided attention to the job at hand. Operate the tiller in daylight or good artificial light.
- Personal injury may result from contact with the tines or debris thrown by this machine. Therefore, always stay a safe distance away from tines.
- Stop the tiller engine when leaving your tiller unattended.
- Check before each use for loose fasteners or parts.

IMPORTANT

Warnings, Cautions, and Notes are a means of attracting attention to important or critical information in this manual.



- Never store the equipment with gasoline in the tank inside of a building where fumes may reach an open flame or spark. Allow the engine to cool before storing in an enclosure.
- Stop engine and disconnect spark plug lead wire before cleaning tines, removing obstacles or making adjustments except for any instructions which must be done while the engine is running.
- Never place hands or feet under or into rotating parts or concealed areas. Keep hands and feet clearly away from tine elements, belts, pulleys, etc., while engine is running.
- Wear substantial shoes and eye protection while using tiller.
- Never attempt to make a maintenance adjustment except on the carburetor, while engine is running.
- Do not run the engine indoors; carbon monoxide fumes are dangerous to inhale.
- Never operate machine without proper guards, plates or other safety protective devices in place.
- Disengage the Tine Drive Clutch, stop tiller and tractor engines before getting off the tractor.
- Disengage the Tine Drive Clutch and stop the tiller engine during transportation to and from the work area.

MAINTENANCE AND STORAGE

- Follow maintenance instructions as outlined in this manual and your Engine Owners Manual supplied with the unit.
- Disconnect spark plug wire before making any maintenance adjustment or repair.
- Store gasoline in an approved metal container in a cool, dry place.
- Keep all nuts, bolts and screws tight. Keep machine in good operating condition and keep safety devices in place.
- Safety and performance levels can be assured only by the use of specified replacement parts.

ASSEMBLY

TO REMOVE UNIT FROM CARTON

UNPACK CARTON

- Cut from top to bottom all four corners of the carton and lay panels flat. (See Fig:1)
- Remove lag screw that holds the floating hitch to the packing skid.
- Disassemble and discard wood top and side carton supports.
- Remove four Hex Bolts, four Hex nuts, and four Flat Washers from the hold down Brackets at rear of Tiller carton.
- Remove two Flat Washers and two Cotter Pins from rear Axle and save for use when attaching Gauge Wheels.
- Discard all other packing Hardware and hold down Brackets.
- Remove Gauge Wheels from Wheel Box.

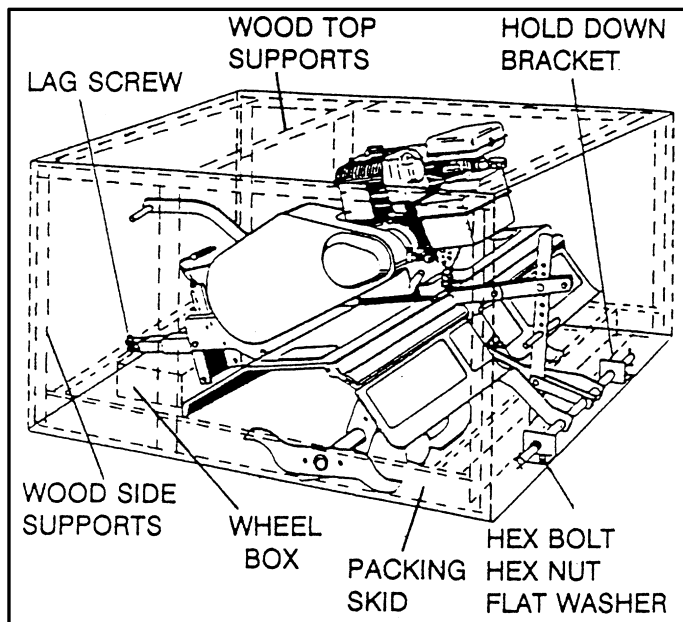


FIG. 1

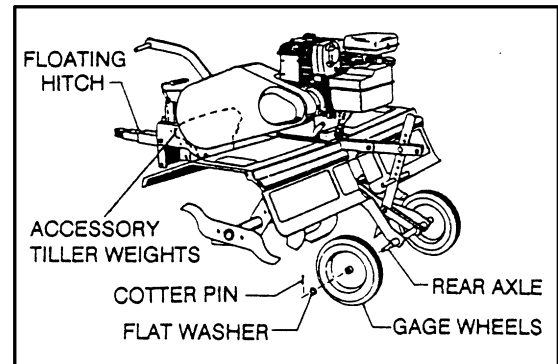


FIG. 2

TO INSTALL THE TILLER (WHEEL) WEIGHT ACCESSORIES

NOTE: Tiller (Wheel) Weights are not furnished with Tiller. They are an accessory that may be purchased if required. (See Operation section of the manual.)

- Remove two Carriage Bolts and Nuts from the front of each Tine Shield, located approximately 3-1/2 inches from the front edge. (See Fig.3)
- Place Tiller (Wheel) Weight on Tine Shield and secure with long Bolts and Nuts furnished with the Weights.

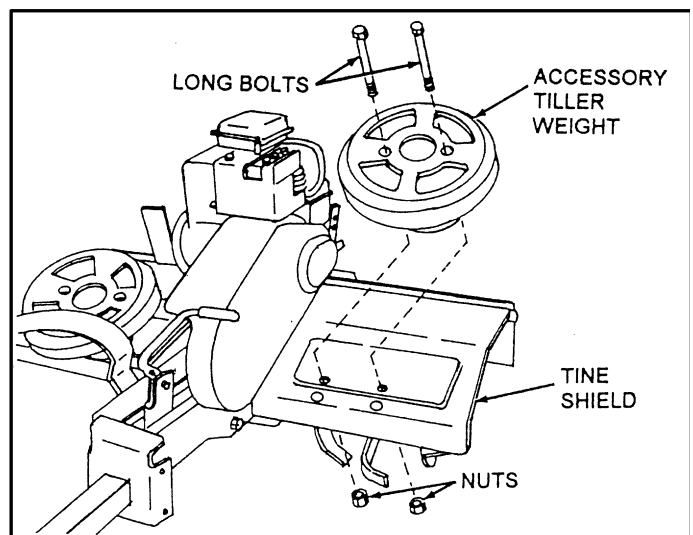


FIG. 3

TO INSTALL THE TILLER GAUGE WHEELS

ATTACH GAUGE WHEELS

- Assemble Gauge Wheels onto the Rear Axle with extended Hub inward and secure with a Flat Washer and Cotter Pin. (See Fig. 2)

When R.H. (Right Hand) or L.H. (Left Hand) are used, it means from a position behind the steering wheel as if you were seated on the tractor seat and facing forward.

NOTE: We recommend that you remove Mower Deck before using Tiller.

OPERATION

KNOW YOUR TILLER

READ THIS OWNER'S MANUAL AND SAFETY RULES BEFORE OPERATING YOUR TILLER.

Compare the illustrations with your tiller to familiarize yourself with the location of various controls and adjustments. Save the manual for future reference.

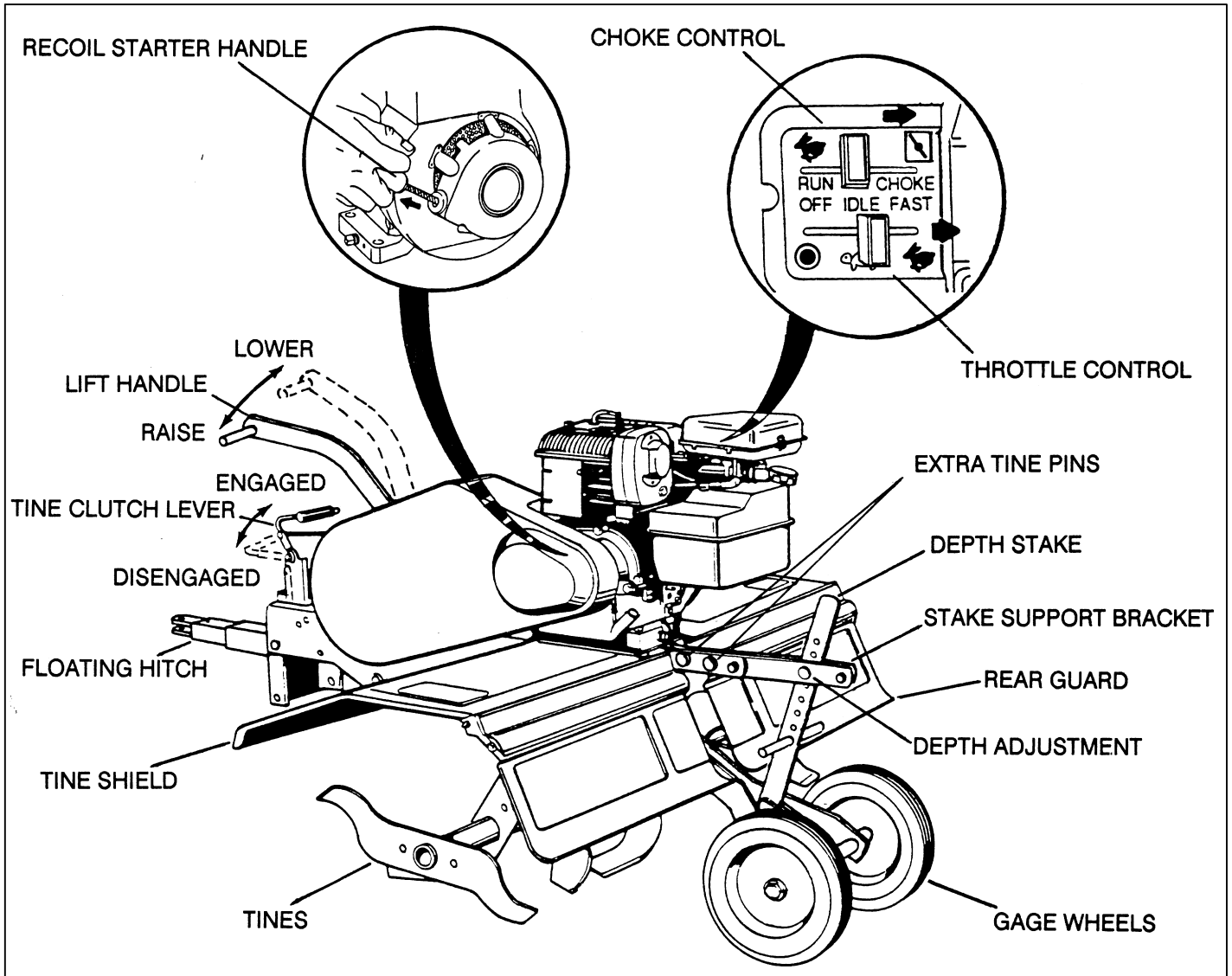


FIG. 4

TINE CLUTCH LEVER - starts and stops tine rotation

LIFT HANDLE - selects tilling or transport position by moving gage wheels

THROTTLE CONTROL - controls engine speed

CHOKE CONTROL - used when starting a cold engine

FLOATING HITCH - telescoping hitch limits shock loads to tractor

DEPTH STAKE - controls tilling/cultivating depth

RECOIL START HANDLE - used to start the engine

OPERATION



The operation of any tiller can result in foreign objects thrown into the eyes, which can result in severe eye damage. Always wear safety glasses or eye shields before starting your tiller and while tilling. We recommend wide vision safety mask for over the spectacles or standard safety glasses.

HOW TO USE YOUR TILLER

STOPPING (See Fig. 4)

TINES

- Raise Tiller to transport position.
- Pull forward on tine clutch lever.

ENGINE

- Move throttle control to "STOP" position.
- Never use choke to stop engine.

ATTACHING TILLER TO TRACTOR (See Fig. 5)

- Rear wheel weights and tire chains can be used if additional traction is required for tilling.
- Place Tiller on ground level and back up tractor to it for assembly.
- Slide Floating Hitch of Tiller over the tractor drawbar so that the hitch pin holes line up.
- Insert hitch pin until it extends from the bottom of the Floating hitch. Insert hair cotter pin into hitch pin.

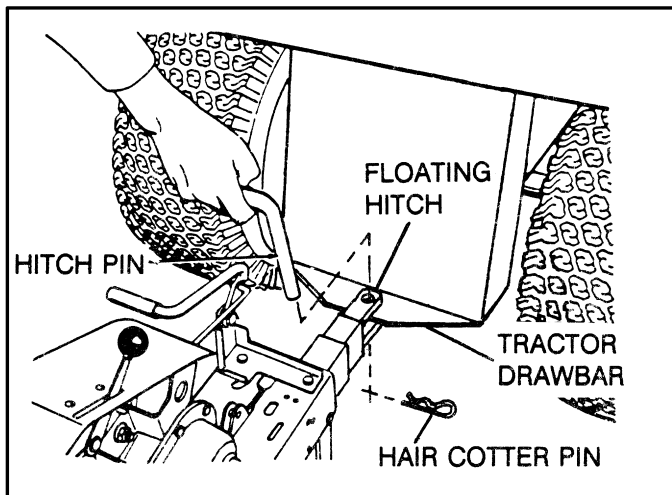


FIG. 5

TRANSPORTING YOUR TILLER

AROUND THE YARD

- Pull forward on lift handle until it locks in the up transport position.

AROUND TOWN

- Disconnect spark plug wire.
- Drain fuel tank.
- Transport in the upright position to prevent oil leakage.



CAUTION: Before lifting or transporting, allow tiller engine and muffler to cool. Disconnect spark plug wire. Drain gasoline from fuel tank.

STARTING TO TILL

- Raise Tiller to transport position.
- Start Tiller engine and move throttle control to full speed.
- Push rearward on tine clutch lever to start tine rotation.
- Move Tiller lift handle to lower Tiller.
- Select lowest tractor ground speed at tractor engine idle.

TO ADJUST DEPTH STAKE

- Depth stake has five position holes to select tilling depth from 1 to 5 inches.
- The top stake hole selects the shallowest tilling depth and the bottom stake hole selects the deepest position.
- To change depth remove the hair cotter pin from the clevis pin which is connecting the depth stake to the stake support bracket.
- Grasp the top of the depth stake, remove the clevis pin and reposition the drag stake. Insert clevis pin and hair cotter pin.

IMPORTANT: THE DRAG STAKE SHOULD NEVER BE REMOVED FROM THE TILLER. IT IS DESIGNED TO PROTECT THE TRACTOR TRANSAXLE FROM THRUSTING ACTION OF THE TILLER.

OPERATION

BEFORE STARTING ENGINE

FILL ENGINE WITH OIL (See Fig. 6)

IMPORTANT: BE VERY CAREFUL NOT TO ALLOW DIRT TO ENTER THE ENGINE WHEN CHECKING OR ADDING OIL OR FUEL. USE CLEAN SAE30 WEIGHT OIL AND STORE IN APPROVED, CLEAN, COVERED CONTAINERS. ALL OILS MUST MEET A.P.I. SERVICE CLASSIFICATION SG. USE CLEAN FILL FUNNELS.

- With engine level, remove engine oil filler plug.
- Fill engine with oil to point of overflowing. For approximate capacity see "PRODUCT SPECIFICATIONS" on page 3.
- Tilt tiller back on its wheels and then re-level.
- Check oil level. Refill to point of overflowing if necessary. Replace oil filler plug.
- For cold weather operation you should change oil for easier starting (See "OIL VISCOSITY CHART" in the Customer Responsibilities section of this manual).
- To change engine oil, see the Customer Responsibilities section in this manual.

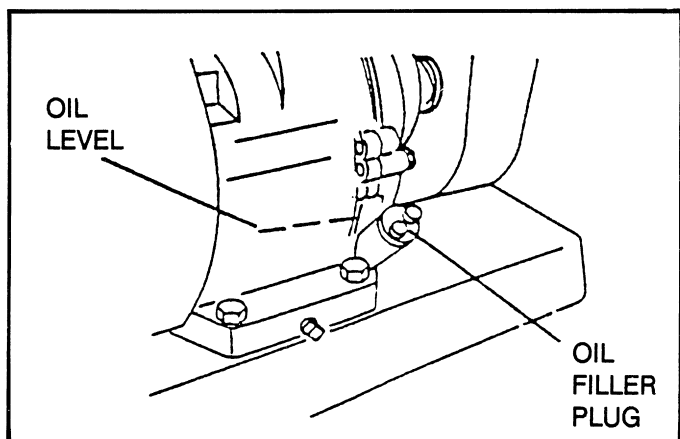


FIG. 6

ADD GASOLINE

- Fill fuel tank. Use fresh, clean, regular unleaded gasoline. (Use of leaded gasoline will increase carbon and lead oxide deposits and reduce valve life). Do not use old gasoline from last season to avoid starting problems.

WARNING: Experience indicates 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. To avoid engine problems, the fuel system should be emptied before storage of 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 section of this manual for additional information. Never use engine or carburetor cleaner products in the fuel tank or permanent damage may occur.



CAUTION: Fill to bottom of gas tank filler neck. Do not overfill. Wipe off any spilled oil or fuel. Do not store, spill or use gasoline near open flame.

TO START ENGINE (See Fig. 7)



CAUTION: Keep the tine Clutch Lever in "OFF" position when starting engine.

- Make sure spark plug wire is properly connected.
- Place throttle control in "FAST" position.
- Place choke control in "CHOKE" position if the engine is cold. A warm engine may not require choking to start.
- Grasp starter handle with one hand. Pull rope out slowly until engine reaches start of compression cycle (rope will pull slightly harder at this point).
- Pull rope with a rapid, continuous, full arm stroke. Keep a firm grip on starter handle and let rope rewind slowly. Do not let starter handle snap back against starter.
- When engine starts, move choke control on engine to the "RUN" position.
- Move throttle control to desired running position.
- Allow engine to warm up for a few minutes before engaging tines.

NOTE: If at a high altitude (above 3000 feet) or in cold temperatures (below 32 F), the carburetor fuel mixture may need to be adjusted for best engine performance. See Service and Adjustment section of this manual.

OPERATION

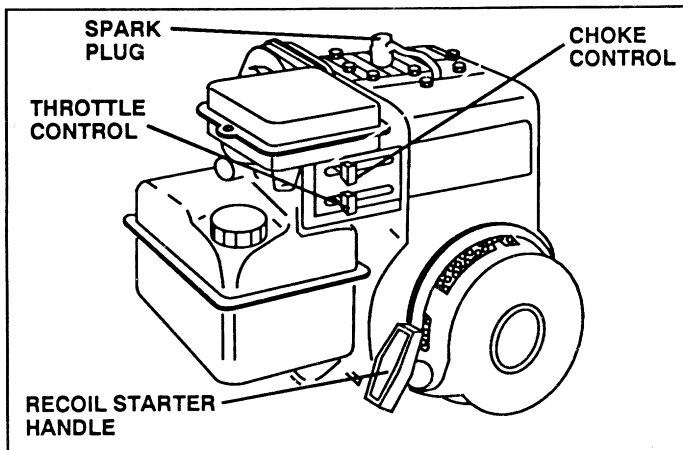


FIG. 7

BREAKING IN YOUR TILLER

Break-in your belts, pulleys and the control before you actually begin tilling.

- Start engine, tip tines off ground by pressing handles down and engage tine control to start tine rotation. Allow tines to rotate for five minutes.
- Check tine operation and adjust if necessary. See "TINE OPERATION CHECK" in the Service and Adjustments section of this manual.

TILLING

- The most efficient tillage is obtained when Tiller Engine is operated at full throttle. The sound of the Tiller Engine will tell you. When Tiller Engine is lightly loaded, raise Gauge Wheels to increase tilling depth. If Engine seems to be overloaded or stalls out, lower Gauge Wheels for shallower tilling.
- Operate Tiller Engine at full throttle and operate tractor in slowest forward speed, with tractor engine at idle speed or just above idle. You will soon learn the proper combination of tilling depth and speed for good tillage.
- Soil conditions will determine how deep Tiller can penetrate on the first pass. In extremely hard ground, several passes may be necessary to till to a depth of 6 inches. While in soft ground, Tiller may penetrate to a depth of 6 inches in the first pass.

TILLING HINTS

IMPORTANT OPERATING HINTS

NOTE: The following is a general guideline of tilling, but may vary depending upon soil conditions.

- In virgin soil, the tiller should be started in the shallowest depth position and lowered one position at a time after each pass in each position.

- If the soil is extremely hard and dry, it may be desirable to cross till an area at shallow depth first, then till in the direction of planting rows on the second pass at the final depth.
- Where possible, we recommend tilling in a pattern similar to that shown in Fig. 8. Make the first pass, then skip a space equal to the width of the tiller, and make the return pass. Then till the skipped area. Tilling in this pattern will enable you to maintain better control. If the passes were made side-by-side, the tractor and tiller would tend to pull toward the tilled (soft) side.
- Check ground moisture: If you can make a ball in your hand out of ground to be tilled, do not till soil if too wet. This causes lumps which are difficult to work up.
- When operating for the first time, proceed slowly and carefully until you become familiar with the proper method of operating the tiller.
- In soil that has tilled the year before, select the tilling depth at which the tiller engine runs comfortably and does not stall or pull down. Lower depth for additional passes if greater depth is desired.
- Whenever working multiple passes, go perpendicular to the previous tilling direction.
- In cases where the soil is too hard to get proper penetration or if tilling action causes Tiller to hop or bounce, it will be necessary to purchase a set of Tiller (Wheel) Weights.

CULTIVATING

- Your tiller may be used for cultivating which required a minimum of two (2) inches of soil penetration.
- Set depth stake so the Tiller will penetrate soil to a depth of 2 to 3 inches. The Tiller Engine should be run at full throttle except when cultivating small plants. A slower engine is necessary to prevent burying the plants.

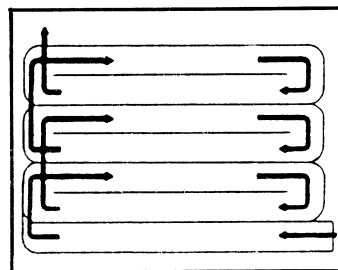


FIG. 8

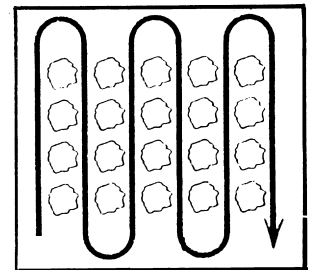


FIG. 9

CUSTOMER RESPONSIBILITIES

GENERAL RECOMMENDATIONS

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

Some adjustments will need to be made periodically to properly maintain your unit.

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

- Once a year you should replace the spark plug, clean or replace air filter, and check tires and belts for wear. A new spark plug and clean air filter assure proper air-fuel mixture and help your engine run better and last longer.

BEFORE EACH USE

- Check engine oil level.
- Check tine operation.
- Check for loose fasteners.

LUBRICATION

Keep unit well lubricated (See "LUBRICATION CHART").

MAINTENANCE SCHEDULE					SERVICE DATES														
	BEFORE EACH USE	FIRST 2 HOURS	EVERY 5 HOURS	EVERY 25 HOURS OR EACH YEAR															
Check Engine Oil Level	✓		✓																
Change Engine Oil		✓		✓ ^{1,2}															
Inspect Spark Arrester Muffler				✓															
Inspect Air Screen	✓																		
Check and Clean Air Cleaner			✓																
Replace Air Cleaner Cartridge				✓ ²															
Clean Engine Cylinder Fins				✓															
Replace Spark Plug				✓															
Lubricate Tiller				✓															
Chaincase Lubrication				✓															

1 - Change more often when operating under a heavy load or in high ambient temperatures.

2 - Service more often when operating in dirty or dusty conditions.

LUBRICATION CHART

- ① REFER TO CUSTOMER RESPONSIBILITIES "ENGINE SECTION."
- ② REFER TO CUSTOMER RESPONSIBILITIES "TILLER LUBRICATION SECTION."
- ③ GENERAL PURPOSE GREASE

IMPORTANT: DO NOT OIL OR GREASE PIVOT POINTS. VISCOUS LUBRICANTS WILL ATTRACT DUST AND DIRT THAT CAN CAUSE WEAR ON PIVOT POINTS. IF YOU FEEL THEY MUST BE LUBRICATED, USE ONLY A DRY POWERED GRAPHITE TYPE LUBRICANTS.

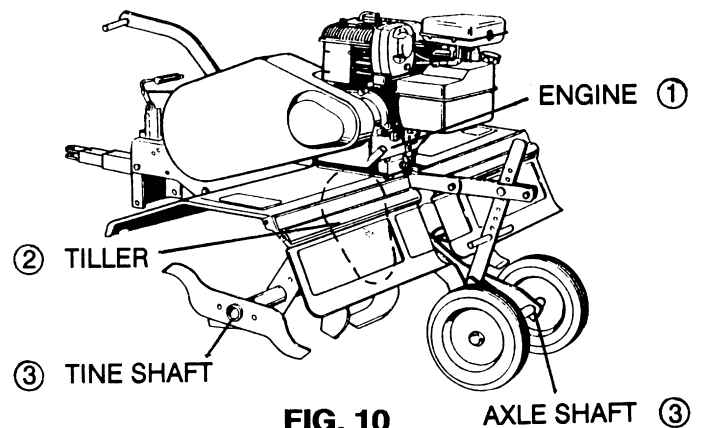


FIG. 10

AXLE SHAFT ③

CUSTOMER RESPONSIBILITIES



Disconnect spark plug wire before performing any maintenance (except carburetor adjustment) to prevent accidental starting of engine.

Prevent fires! Keep the engine free of grass, leaves, spilled oil, or fuel. Remove fuel from tank before tipping unit for maintenance. Clean muffler area of all grass, dirt and debris.

Do not touch hot muffler or cylinder fins as contact may cause burns.

ENGINE LUBRICATION

Change the oil after the first two hours of operation and every 25 hours thereafter or at least once a year if the tiller is not used for 25 hours in one year.

Check the crankcase oil level before starting the engine and after each fine (5) hours of continuous use. Add SAE30 motor oil or equivalent. Tighten oil filler plug securely each time you check the oil level. SAE 5W-30 motor oil may be used to make starting easier in areas where temperature is consistently 30 F or lower.

TO CHANGE ENGINE OIL (See Figs. 11 and 12)

Only use high quality oil rated with API service classification SG. Select the oil's SAE viscosity grade according to your expected operating temperature.

- Be sure tiller is on level surface.
- Oil will drain more freely when warm.
- Catch oil in a suitable container.
- Remove drain plug.
- Tip tiller forward to drain oil.
- After oil has drained completely, replace oil drain plug and tighten securely.
- Remove oil filler plug. Be careful not to allow dirt to enter the engine.
- Refill engine with oil. See "FILL ENGINE WITH OIL" in Operation section of this manual.

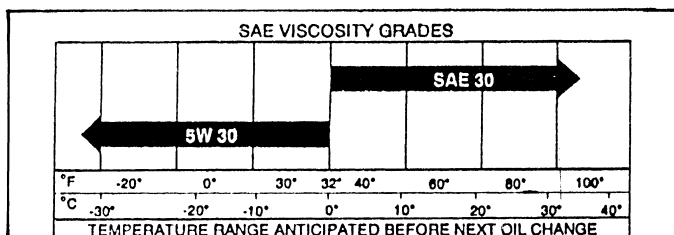


FIG. 11

NOTE: Although multi-viscosity oils (5W30, 10W30 etc.) improve starting in cold weather, these multi-viscosity oils will result in increased oil consumption when used above 32°F. Check your engine oil level more frequently to avoid possible engine damage from running low on oil.

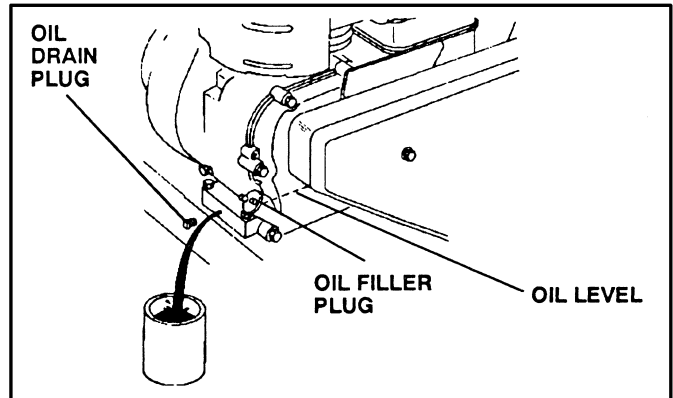


FIG. 12

CHECK AND CLEAN AIR FILTER (See Fig. 13)

- Loosen two screws and remove cover.
- Carefully remove pre-cleaner and wash in liquid detergent and water.
- Squeeze dry in a clean cloth.
- Saturate in engine oil. Squeeze in clean absorbent cloth to remove all excess oil.
- Carefully remove cartridge.
- Clean by tapping gently on flat surface.
- If very dirty, replace or wash in nonsudsing detergent and warm water solution. Rinse thoroughly with water flowing from mesh side until water is clear. Allow cartridge to stand and air dry thoroughly before using.
- Reinstall cartridge and pre-cleaner.
- Reinstall air cleaner cover and tighten two screw.

REPLACE AIR CLEANER (See Fig. 13)

Replace air cleaner cartridge and pre-cleaner every twenty five hours, more often if engine is used in very dusty conditions.

- Loosen two screws and remove cover.
- Carefully remove air cleaner cartridge and pre-cleaner. Be careful! Do not allow dirt or debris to fall into carburetor.
- Install new air cleaner cartridge and pre-cleaner.
- Clean and replace cover, tighten two screw.

CUSTOMER RESPONSIBILITIES

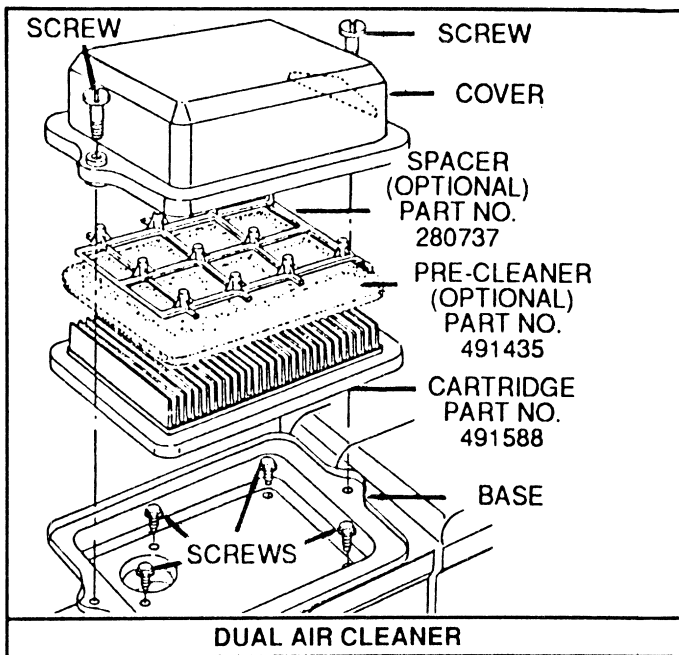


FIG. 13

COOLING SYSTEM (See Fig. 14)

Your engine is air cooled. For proper engine performance and long life keep your engine clean.

- Clean air screen frequently using a stiff-bristled brush.
- Remove blower housing and clean as necessary.
- Keep cylinder fins free of dirt and chaff.

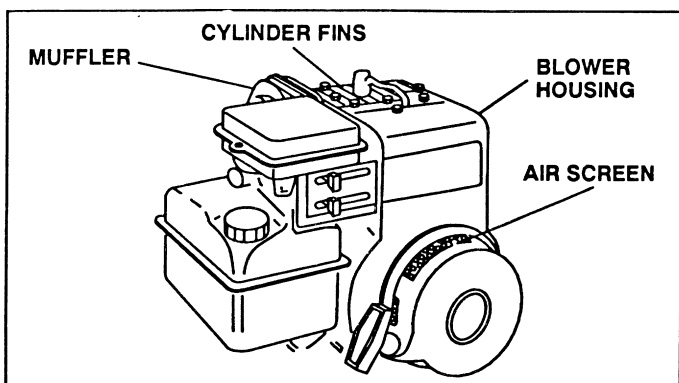


FIG. 14

SPARK PLUG

Replace spark plugs at the beginning of each tilling season or after every 50 hours of use, whichever comes first. Spark plug type and gap setting is shown in "PRODUCT SPECIFICATIONS" on page 3 of this manual.

CLEANING

- Clean engine, wheels, finish, etc. of all foreign matter.
- Keep finished surfaces and wheels free of all gasoline, oil, etc.
- Protect painted surfaces with automotive type wax.

We do not recommend using a garden hose to clean your unit unless the muffler, air filter and carburetor are covered to keep water out. Water in engine can result in a shortened engine life.

MUFFLER

Do not operate tiller without muffler. Do not tamper with exhaust system. Damaged mufflers or spark arresters could create a fire hazard. Inspect periodically and replace if necessary. If your engine is equipped with a spark arrester screen assembly, remove every 50 hours for cleaning and inspection. Replace if damaged.

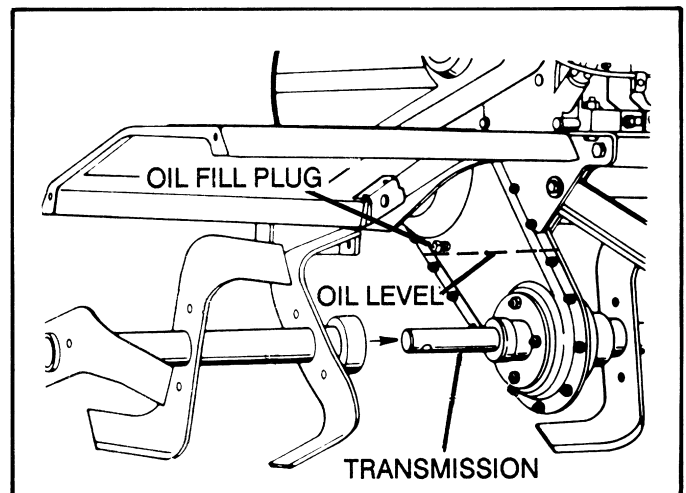


FIG. 15

TILLER LUBRICATION

Check transmission oil level after first 5 hours of operation. Remove Oil Fill Plug (Fig. 15). Oil Level must be even with the Plug Hole (with Tiller level). If necessary, add Oil. Use SAE30 Non-Detergent Motor Oil. Replace Oil Fill Plug.

Check transmission oil level after each 10 hours of operation.

NOTE: It is not necessary to change the Oil in this Tiller Transmission. If for any reason it must be changed, Oil capacity is 22 oz.

SERVICE AND ADJUSTMENTS

TO REPLACE V-BELT

Replace V-belt if it has been damaged from slipping under heavy loads considerably or if it shows cracks or frayed edges.

Belt guard must be removed to service belt.

- Remove the screw from the top of the belt guard.
- Remove hex nut from front of guard.
- Remove belt guard to allow access of drive belt.
- Remove belt guide from engine.
- Disengage tine drive control and remove belt.
- Reverse the above procedures for installation of new belt.

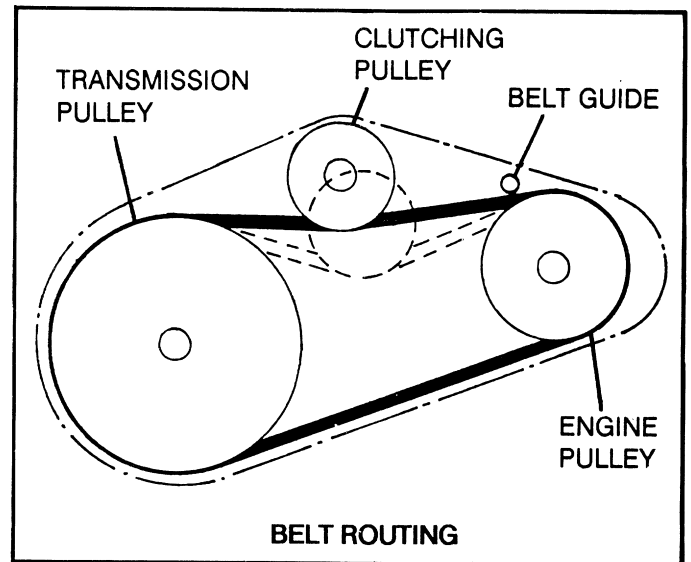


FIG. 17

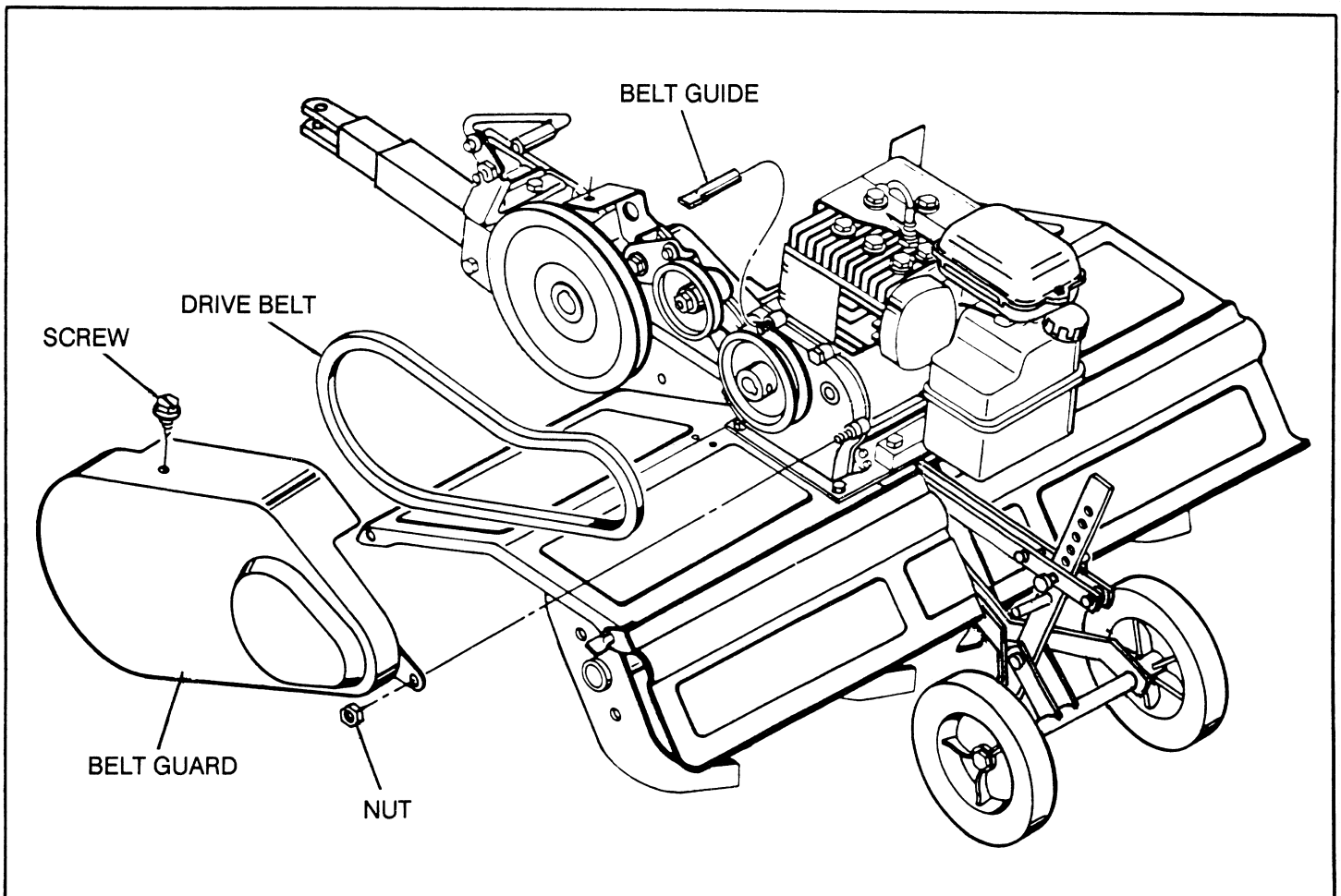


FIG. 16

SERVICE AND ADJUSTMENTS

ENGINE

TO ADJUST CARBURETOR (See Fig. 18)

The carburetor has been preset at the factory and adjustment should not be necessary. However, minor adjustments may be required to compensate for differences in fuel, temperature, altitude or load. If the carburetor does need adjustment, proceed as follows.

In general, turning the needle valve in (clockwise) decreases the supply of fuel to the engine giving a leaner fuel/air mixture. Turning the needle valve out (counterclockwise) increases the supply of fuel to the engine giving a richer fuel/air mixture.

IMPORTANT: DAMAGE TO THE NEEDLES AND THE SEATS IN CARBURETOR MAY RESULT IF SCREWS ARE TURNED IN TOO TIGHT.

PRELIMINARY SETTING

- Air cleaner assembly must be assembled to the carburetor when making carburetor adjustments.
- With engine off, turn needle valve in (clockwise) closing it finger tight and then turn valve out (counterclockwise) 1-1/2 turns.

FINAL SETTING

- Start engine and allow to warm for five minutes. Make final adjustments with engine running and gearshift control lever in "NEUTRAL" position.

IDLE RPM ADJUSTMENT

- To adjust idle RPM, rotate throttle linkage counterclockwise and hold against stop while adjusting idle speed adjusting screw to obtain 1750 RPM. Release throttle linkage.

ACCELERATION TEST

- Move throttle control lever from "SLOW" to "FAST" position. If engine hesitates or dies, turn needle valve out (counterclockwise) 1/8 turn. Repeat test and continue to adjust, if necessary, until engine accelerates smoothly.

High speed stop is factory adjusted. Do not adjust or damage may result.

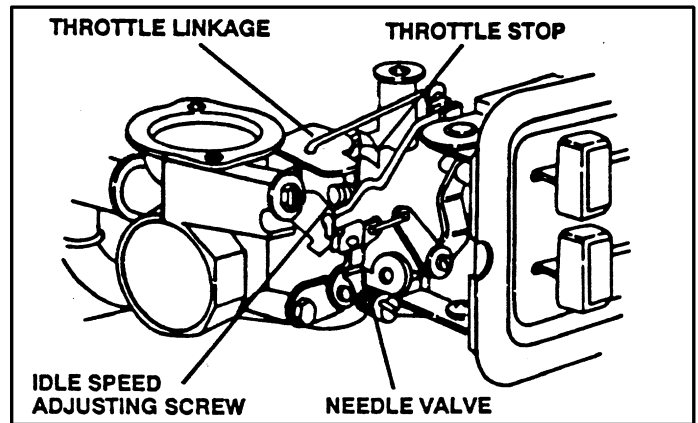


FIG. 18

IMPORTANT: 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 SPEED NEEDS ADJUSTING, CONTACT YOUR NEAREST BRIGGS & STRATTON SERVICE CENTER WHICH HAS PROPER EQUIPMENT AND EXPERIENCE TO MAKE ANY NECESSARY ADJUSTMENTS.

TINE CARE

- For best results—Tine Blades should be kept reasonably sharp. The Tine Blade can be sharpened on a grinding wheel. Do not attempt to sharpen Tines while mounted to Tiller.

SPARE TINE PINS

- The Tiller Drive components are protected from damage by a (Shearable) Tine Pin located in the Tine Assembly used to drive them and hold them in the proper location. Should the Tine Assembly strike or pick up a large hidden object or become jammed, the Tine Pin will break and the Drive Line will not be damaged.



WARNING: SHUT OFF (DISENGAGE) THE TINE CLUTCH LEVER, THE TILLER ENGINE, AND THE TRACTOR ENGINE BEFORE MAKING ANY REPAIRS.

- A number of extra Tine Pins have been included with the tiller. They are located in the Tiller Stake Support Bracket. Additional Tine Pins can be ordered by calling the number listed on the rear cover.
- Tine Pins are designed to be loose fit. Do not attempt to use a Pin larger or harder than that provided as original equipment.

STORAGE

Immediately prepare your tiller for storage at the end of the season or if the unit will not be used for 30 days or more.



CAUTION: Never store the tiller with gasoline in the tank inside a building where fumes may reach an open flame or spark. Allow the engine to cool before storing in any enclosure.

TILLER

- Clean entire tiller (See "CLEANING" in the Customer Responsibilities section of this manual).
- Inspect and replace belts, if necessary (See belt replacement instructions in the Service and Adjustments section of this manual).
- Lubricate as shown in the Customer Responsibilities section of this manual.
- Be sure that all nuts, bolts and screws are securely fastened. Inspect moving parts for damage, breakage and wear. Replace if necessary.
- Touch up all rusted or chipped paint surfaces; sand lightly before painting.

ENGINE

FUEL SYSTEM

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 INDICATES 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 tank.
- 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.
- Use fresh fuel next season.

NOTE: Fuel stabilizer is an acceptable alternative in minimizing the formation of fuel gum deposits during storage. Add stabilizer to gasoline in fuel tank or storage container. Always follow the mix ratio found on stabilizer container. Run engine at least 10 minutes after adding stabilizer to allow the stabilizer to reach the carburetor. Do not drain the gas tank and carburetor if using fuel stabilizer.

ENGINE OIL

Drain oil (with engine warm) and replace with clean oil (See "ENGINE" in the Maintenance section of this manual).

CYLINDERS

- Remove spark plug.
- Pour one ounce of oil through spark plug hole into cylinder.
- Pull starter handle slowly several times to distribute oil.
- Replace with new spark plug.

OTHER

- Do not store gasoline from one season to another.
- Replace your gasoline can if your can starts to rust. Rust and/or dirt in your gasoline will cause problems.
- If possible, store your unit indoors and cover it to give protection from dust and dirt.
- Cover your unit with a suitable protective cover that does not retain moisture. Do not use plastic. Plastic cannot breathe which allows condensation to form and will cause your unit to rust.

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

TROUBLESHOOTING

PROBLEM:

Probable Cause —> Possible Remedy

WILL NOT START OR HARD TO START

- No gasoline in Fuel Tank —> Fill tank with gasoline
- Choke not set properly —> Place Choke Control in "CHOKE" position
- Throttle Control not set properly —> Place Throttle Control in "FAST" position
- Choked improperly, flooded Engine —> Move Choke control to "RUN" position, place Throttle Control in "FAST" position and pull Starter several times to clear out gas
- Dirty Air Cleaner —> Remove to inspect, replace if dirty
- Loose Spark Plug Wire —> Make sure Spark Plug Wire is seated properly on Spark Plug
- Spark Plug dirty or improper gap —> Replace Spark Plug and adjust gap
- Water in gasoline or old fuel —> Drain Fuel Tank and Carburetor, use fresh fuel and replace Spark Plug
- Improper Carburetor adjustment —> Make necessary adjustments
- Clogged Fuel Tank —> Remove and clean

ENGINE MISSES OR LACKS POWER

- Engine overloaded —> Set Depth Stake and Wheels for shallower tilling
- Partially plugged Air Cleaner —> Remove and clean or replace
- Dirty Air Screen —> Clean Air Screen
- Spark Plug dirty, improper gap or wrong type —> Replace Spark Plug and adjust gap
- Oil in gasoline —> Drain and refill gas Tank and Carburetor
- Improper Carburetor adjustment —> Make necessary adjustments
- Clogged Fuel Tank —> Remove and clean
- Poor compression —> Major Engine overhaul

ENGINE OVERHEATS

- Low oil level or dirty oil —> Add or change oil
- Dirty Air Screen —> Clean Air Screen
- Dirty Engine —> Clean Air screen Clean Cylinder Fins, Air Screen and Muffler area
- Partially Plugged Muffler —> Remove and clean Muffler
- Improper Carburetor adjustment —> Adjust Carburetor to richer position

EXCESSIVE BOUNCE AND DIFFICULT HANDLING

- Wheels and Depth Stake incorrectly adjusted —> Adjust Wheels and Depth Stake
- Ground too dry and hard —> Moisten ground or wait for more favorable soil conditions

SOIL BALLS UP OR CLUMPS

- Ground too wet —> Wait for more favorable soil conditions

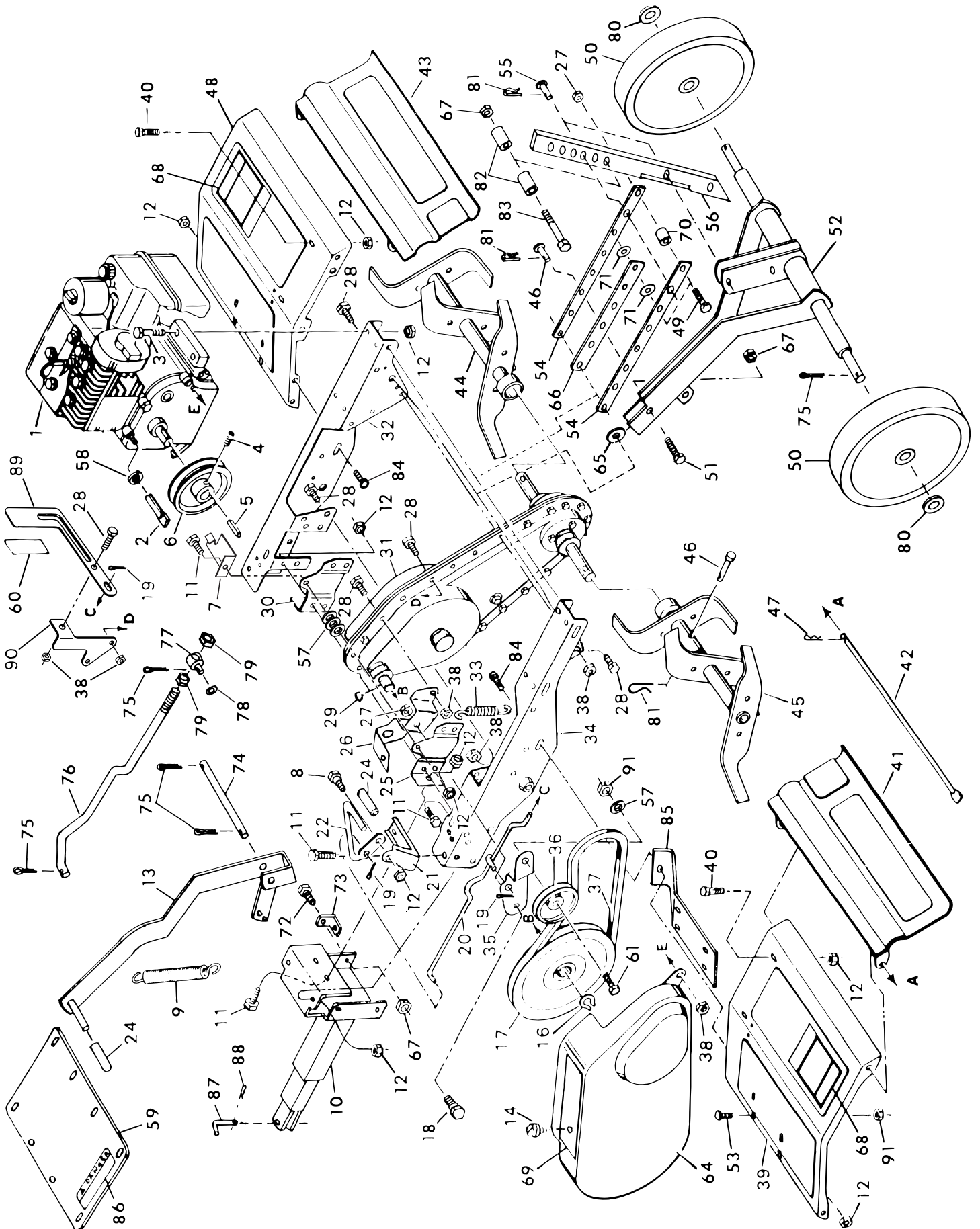
ENGINE RUNS WELL BUT TILLER WON'T MOVE

- Tine Control not engaged —> Engage Tine Control
- V-Belt off of pulleys —> Check V-Belt

ENGINE RUNS WELL BUT LABORS WHEN TILLING

- Tilling too deep —> Adjust Depth Stake
- Throttle Control not properly adjusted —> Check Throttle Control setting
- Carburetor not adjusted properly —> Check Carburetor adjustment

REPAIR PARTS FOR MODEL 45-0308, 810-218 5 HP TOW BEHIND TILLER

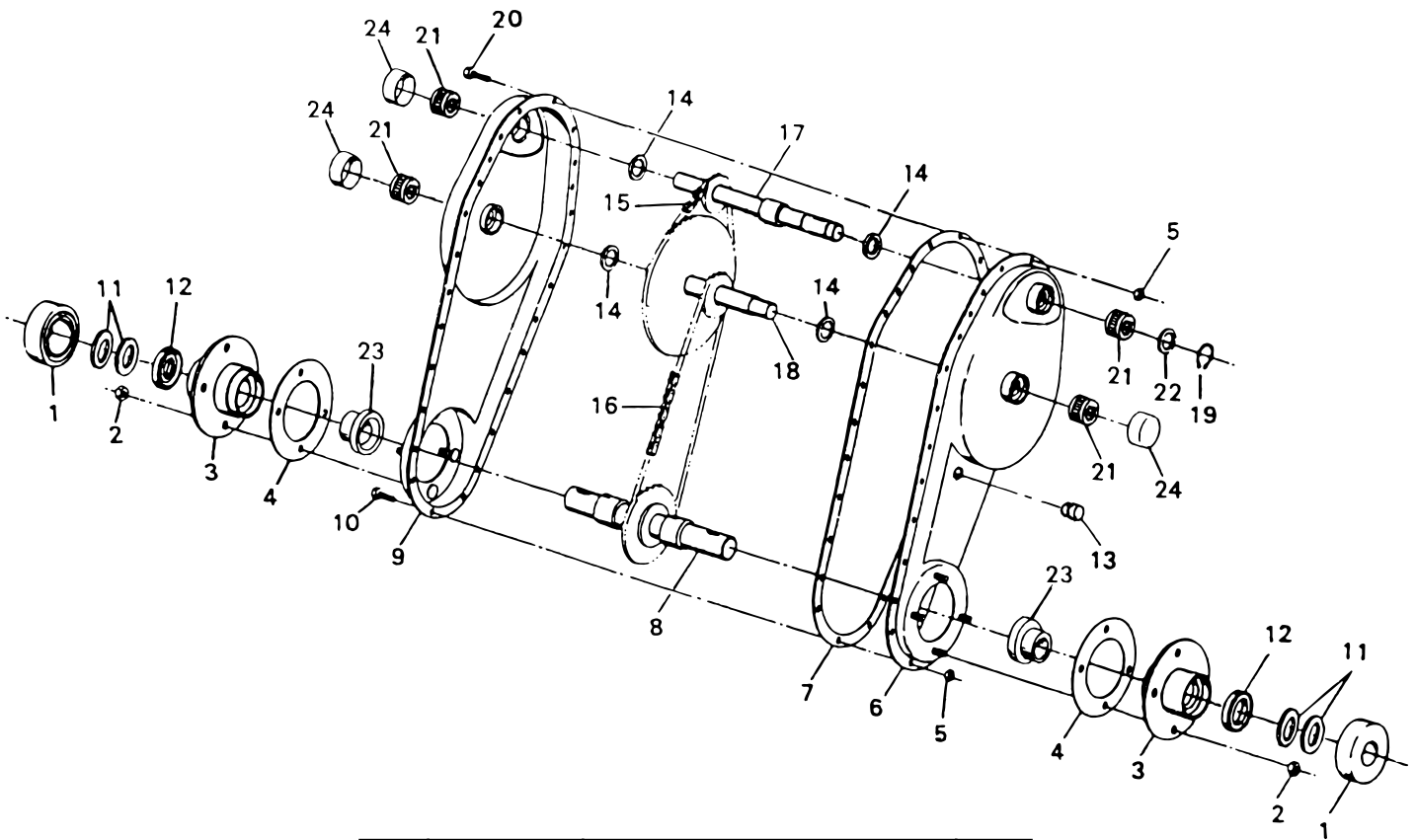


REPAIR PARTS FOR MODEL 45-0308, 810-218 5 HP TOW BEHIND TILLER

Ref. No.	Part Number	Description	Qty. Req.
1	HA24000	Engine	1
2	HA22819	Guide - Belt	1
3	43085	Bolt, 5/16-18 x 1-1/2" Hex Head	1
4	HA115321	Screw, 5/16-18 x 5/16" Cup Pt. Set	4
5	HA11154	Key, Square 3/16" x 2"	1
6	HA20176	Pulley	1
7	HA23738	Bracket, Lift Stop	1
8	HA20169	Bolt - Shoulder	1
9	HA19860	Spring, Depth Extension	1
10	HA20701	Hitch Bracket Assembly	1
11	43063	Bolt, 5/16-18 x 1" Hex Head	10
12	43064	Locknut, 5/16-18 Hex	25
13	HA20679	Lift Handle Assembly	1
14	HA15683	Screw, Self-Tapping 1/4" x 1/2"	1
16	HA20135	Ring, Retainer	1
17	HA20184	Pulley, Input	1
18	HA20178	Bolt - Shoulder	1
19	HA103373	Pin, Cotter 3/32" x 3/4"	1
20	HA20180	Clutch Rod Assembly	3
21	HA20167	Bracket, Clutch Control	1
22	HA20168	Lever, Clutch	1
24	HA20170	Grip, Handle	2
25	HA20162	Bracket, Guide - LH	1
26	HA20134	Bracket, Belt Guide & Idler Mounting	1
27	43082	Locknut, 3/8-16 Hex	10
28	43661	Bolt, 1/4-20 x 1" Hex Head	7
29	HA20185	Key, Woodruff No. 61	1
30	HA20163	Bracket, Guide - RH	1
31	HA20119	Transmission - Complete	1
32	HA20160	Chassis, Left	1
33	HA20186	Spring, Extension	1
34	HA20159	Chassis, Right	1
35	HA23258	Bracket, Idler	1
36	HA11496	Pulley, Idler	1
37	HA20187	V-Belt	1
38	HA4119	Nut, 1/4-20 Hex Lock	1
39	HA20936	Tine Shield Assembly - LH	8
40	43182	Bolt, 5/16-18 x 3/4" Hex Hd.	1
41	HA20112	Rear Guard Assembly - LH	8
42	HA20118	Connecting Pin, Rear Guard	1
43	HA20113	Rear Guard Assembly - LH	2
44	HA20094	Tine & Hub Assembly - RH	1
45	HA20088	Tine & Hub Assembly - LH	1
46	HA10070	Pin, Clevis	4
47	HA3430	Hair Cotter Pin	2
48	HA20935	Tine Shield Assembly - RH	1
49	43062	Bolt, 3/8-16 x 1-1/2" Hex Head	1
50	HA20918	Wheel	4
51	R74780828	Bolt, 1/2-13 x 1-3/4" Hex Head	1
52	HA20670	Pivot Axle Assembly	1
53	*GM-126227	Bolt, 3/8-16 x 3/4" Carriage	4
54	HA20725	Strap Frame Extension	2
55	HA3433	Pin, Clevis	2
56	HA20690	Stake, Drag	1
57	HA446363	Washer	1
58	43177	Lockwasher, 1/4" Med.	1
59	HA20316	Plate, Fender Support	1
60	HA20941	Decal, Caution Flag	1
61	41576	Bolt - 3/8-16 x 1-3/4" Hex Head	1
64	HA20704	Belt Guard (incl. #69)	1
65	HA14306	Washer	1
66	HA20691	Strap-Frame Extension Brace	1
67	43262	Nut, 1/2-13 Hex Lock	3
68	HA20938	Decal, Danger	2
69	HA20942	Decal	1
70	HA5713	Spacer	1
71	HA15200	Washer	2
72	HA180173	Bolt, 1/2-13 x 1" Hex Head	1
73	HA13780	Anchor - Spring	1
74	HA21366	Rod - Lift Anchor	1
75	HA120123	Pin - 1/8" x 1-1/4" Cotter	6
76	HA20688	Rod - Lift	1
77	HA19649	Anchor - Adjustment	1
78	HA120396	Washer - 17/32" x 1-1/6" x .095" Flat	1
79	HA124934	Nut - 1/2-20 Hex Jam	2
80	HA456151	Washer - 13/16" x 1-1/2" x .134" Flat	2
81	HA20481	Pin - Hair Cotter	6
82	HA7974	Spacer	2
83	HA445608	Bolt, 1/2-13 x 5-1/2" Hex Head	1
84	44326	Bolt, 5/16-18 x 1" Carriage	2
85	HA20932	Bracket - Wheel Weight Support	2
86	HA20940	Decal, Danger	1
87	HA5236	Pin - Locating	1
88	HA3341	Pin - Hair Cotter	1
89	HA20173	Flag, Caution	1
90	HA20172	Bracket, Caution Flag	1
91	HA21362	Nut, Hex Nylock 3/8-16	9
NP	HA24038	Owner's Manual	1

*Standard Hardware - Purchased Locally

REPAIR PARTS FOR MODEL 45-0308, 810-218 5 HP TOW BEHIND TILLER



Ref. No.	Part Number	Description	Qty. Req.
1	HA20344	Dust Cap	2
2	*GM-9413227	Locknut, 5/16-18	8
3	HA20123	Flange & Bearing Assy	2
4	HA20122	Gasket, Flange	2
5	HA4119	Locknut, 1/4-20 Hex	17
6	HA20120	Drive Housing & Bearing Assy - LH	1
7	HA20136	Gasket, Drive Housing	1
8	HA20127	Tine Shaft Assy	1
9	HA20121	Idler Pulley Assy	1
10	43866	Bolt, Hex 1/4-20 x 5/8" Grade 8	15
11	HA20125	Washer, Felt	4
12	HA20124	Seal, Rubber	2
13	HA20130	Plug, Transmission Oil	1
14	HA20129	Washer, Thrust	4
15	HA20132	Chain Assembly #40	1
16	HA20128	Chain Assembly #50	1
17	HA20133	Input Shaft Assembly	1
18	HA20131	Idler Shaft Assembly	1
19	HA20135	Ring, Retainer 5/8" Dia. Shaft	2
20	1509-90	Bolt - 1/4-20 x 1-1/4" Hex Head	2
21	HA20137	Bearing	4
22	HA20145	Seal	1
23	HA20156	Bearing, Flange	2
24	HA20138	Cap, Bearing	3

*Standard Hardware - Purchased Locally

NOTES

REPAIR PARTS
303 West Raymond
Sullivan, IL. 61951
217-728-8388
www.agri-fab.com