

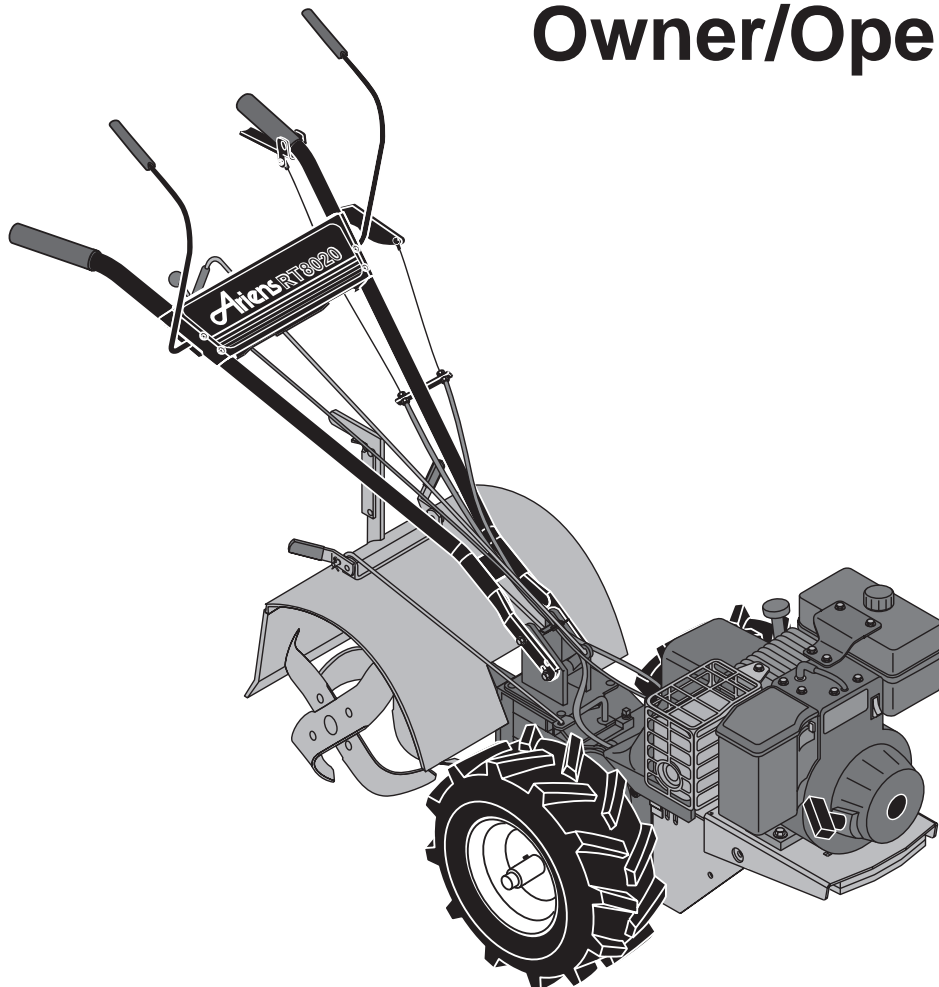
Ariens®

Rocket™ Rear-Tine Tiller

Owner/Operator Manual

901
SERIES

MODEL
024 - RT8020



00158400A Orig. 5/98
Supersedes 00158400
Printed in USA

A Message to Ariens Customers . . .

Welcome to the world of Ariens equipment. We are pleased that you have purchased the best equipment available. The care you give your new Ariens equipment will determine the satisfaction and service life you will obtain from it. Use this manual and the engine manual supplied, as your guide. By observing the instructions and suggestions in these manuals, your Ariens equipment will serve you well for many years.

Your Ariens dealer will be happy to supply any service or advice which may be required to keep your Ariens equipment operating at peak efficiency. The dealer stocks genuine Ariens parts and lubricants; manufactured with the same precision and skill as the original equipment. A factory trained staff is well informed on the best methods of servicing Ariens equipment. They are ready and able to serve you.

If engine repairs or services are required, they can be obtained from an Ariens dealer or from an authorized engine manufacturer's service center. If service is required, be prepared to supply the service person with the Model Number and Serial Number of the equipment and the engine, as well as a full description of the problem encountered.

NOTE: The descriptions and specifications contained in this manual were in effect at the time the manual was approved for printing. Ariens Company reserves the right to discontinue models without notice and without incurring obligation. The equipment described within this manual may not be identified as either standard or optional and the various illustrations may not all be applicable to your particular tiller. If you have questions, always check with your Ariens dealer.

Safety Alert Symbol and Notations

The following safety notations are used throughout this manual to call attention to special information or operating procedures. Understand the message in each notation and be alert to unsafe conditions and the possibility of personal injury.

NOTE: A **NOTE** points out general reference information regarding proper operation and maintenance practices.

IMPORTANT: An **IMPORTANT** statement indicates specific procedures or information that is required to prevent damage to the machine or its attachments.



This safety alert symbol is used to attract your attention! **PERSONAL SAFETY IS INVOLVED!** When you see this symbol - **BECOME ALERT - HEED ITS MESSAGE.**



WARNING: A **WARNING** describes a condition where failure to follow the instructions could result in severe personal injury.



DANGER: A **DANGER** designates a condition where failure to follow instructions or heed warning will most likely result in serious personal injury or death.



CAUTION: A **CAUTION** identifies safe operating practices or indicates unsafe conditions that could result in personal injury.



WARNING

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

Contents

Safety Alert and Notationsi
 Safety Precautions1
 Safety Decals3
 Controls and Features4
 Operation7
 Lubrication and Maintenance9
 Adjustments13
 Cleaning and Storage15
 Transporting15
 Service Manual15
 Trouble Shooting16
 Accessories16
 Specifications17
 WarrantyInside Back Cover

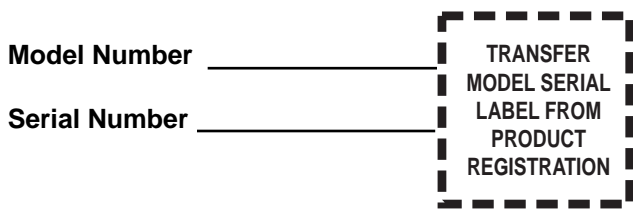
Model

Model 901024 (RT8020)
 8 HP Briggs & Stratton Recoil

Specific Model and Serial Numbers are on a label located on the frame of your tiller and on a label located on the product registration form. Record those numbers and transfer the label from the product registration to place indicated. Use these numbers whenever parts or service is required.

NOTE: All references to “Left”, “Right”, “Front” and “Back” are given from operators position.

Customer Note: Your Ariens Dealer has been provided complete setup and preparation instructions which must be completed prior to you taking delivery of this unit. The dealer is required to review important information in this manual with you before or upon delivery of the unit or attachment.



Safety Precautions

Training

Read and understand this Owner’s Manual and engine manufacturers instructions before operating unit. Know controls thoroughly and practice how to disengage controls and stop unit quickly and in an emergency.

Understand and follow each danger, warning, caution and instruction decal installed on tiller.

NEVER allow children to operate tiller. DO NOT allow adults to operate it without proper instruction.

Keep the area of operation clear of all persons particularly children and pets.

Safe operation of this equipment requires your complete and unimpaired attention at all times. DO NOT operate unit after or during the consumption of medication, drugs or alcohol.

Preparation

Thoroughly inspect and clear work area of objects which might be picked up and thrown.

Remove all stones, sticks, wires, and foreign objects.

Wear sturdy footwear. DO NOT operate tiller barefoot or when wearing open sandals or canvas shoes. DO NOT wear loose clothing that may get caught in rotating parts of unit.

NEVER attempt to make any adjustments to unit while engine is running (except where specifically recommended).

Gasoline is highly flammable and its vapors are explosive. Handle with care. Use an approved (RED) gasoline container.

Never allow smoking materials, sparks or flame (match, pilot light, etc.) near tiller or gasoline container.

Check fuel supply before starting engine. DO NOT fill gasoline tank indoors, when engine is running, or while engine is still hot. Allow engine to cool several minutes before removing fuel cap. Wipe off any spilled gasoline before starting engine.

Disengage main clutch and tine clutch before starting engine.

Safety Precautions (Continued)

NOTE: This product is equipped with an internal combustion type engine. Do not use unit on or near any unimproved, forest-covered or brush-covered land unless the exhaust system is equipped with a spark arrester meeting applicable local, state or federal laws. A spark arrester, if it is used, must be maintained in effective working order by the operator. See your Ariens Dealer or engine manufacturer's service center.

Operation

DO NOT put hands or feet near or under rotating parts.

Operate tiller only in daylight or good artificial light.

Do not engage tine clutch unless wheel drive is engaged. Tiller may run away propelled on the high speed tines.

To begin tilling: lift up on handlebar so tines clear ground, engage the main clutch, then slowly lower tines into the soil.

Disengage main clutch, stop engine, wait for moving parts to stop and remove wire to spark plug before leaving the operators position, attempting to unclog tines or make any repairs, adjustments and inspections. (Except where specifically recommended by manufacturer.)

Open doors if engine is run in garage or enclosed areas, exhaust fumes are dangerous. DO NOT run engine indoors without adequate ventilation.

NEVER allow anyone near unit while it is in operation. Be familiar with area of operation.

Stay alert for holes, rocks, roots and hidden hazards in area of operation.

Disengage power to tines when tiller is transported or not in use.

Watch out for traffic when crossing or operating near roadway.

DO NOT touch engine or tiller drive parts which are hot from operation. Before attempting to maintain, adjust or service allow such parts to cool.

If unit starts to vibrate abnormally, disengage Main Clutch, stop engine, remove wire from spark plug and check immediately for cause. Abnormal vibration is a warning of trouble. Repair any damage before restarting unit.

Disengage Main Clutch, stop engine, remove wire from spark plug and inspect for damage after striking a foreign object. Repair any damage before restarting and operating tiller.

DO NOT overload tiller capacity by attempting to till too deep as too fast a rate.

Tines contacting hard objects will cause rear of tiller to lurch. If this occurs, let go of the handlebars and do not restrain the unit. Never attempt to force tines by hanging on handlebars. Let the machine do the work - you control the machine.

NEVER operate tiller at high transport speeds on slippery surfaces. Look behind and use care when backing.

Take all possible precautions when leaving tiller unattended; such as disengaging main and tine clutch, stopping engine, removing wire from spark plug and keeping wire away from plug to prevent accidental starting or unauthorized use.

Maintenance and Storage

DO NOT change governor setting or overspeed engine.

Keep tiller in good operating condition. Keep all safety devices in place and functioning properly. Ensure main clutch controls are functioning properly. Wheels and tines must stop rotating when main clutch levers are released.

Keep all nuts, bolts, and screws tight and be sure equipment is in safe operating condition. Check hardware and tiller at frequent regular intervals.

To reduce fire hazard and overheating, keep equipment free of debris.

Never store tiller with gasoline in tank inside a building where ignition sources are present such as hot water and space heaters, clothes dryers, open flame or spark, etc. Allow engine to cool before storing in any enclosure.

Always refer to Owner's Manual for important details

Safety Decals

⚠ WARNING

Do not operate tines with wheel drive in neutral.
Loss of control may result.

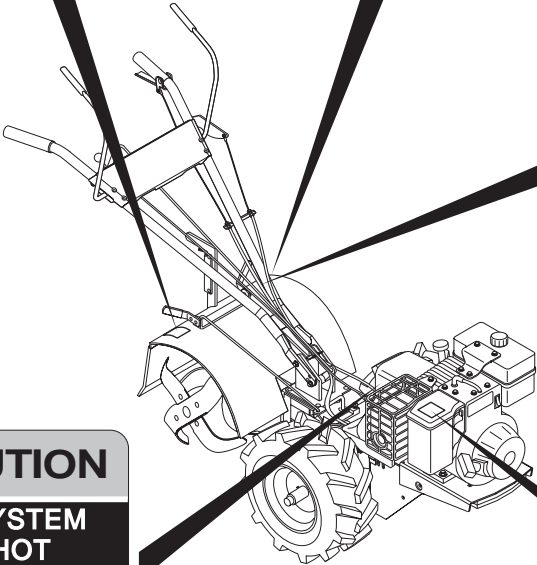
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⚠ DANGER

ROTATING TINES

- Keep hands & feet away.
- Disengage clutch, stop engine & remove spark plug ignition wire before clearing.

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⚠ WARNING

TO AVOID SERIOUS INJURY

- READ THE OPERATOR'S MANUAL.
- KNOW LOCATION AND FUNCTIONS OF ALL CONTROLS.
- KEEP ALL SAFETY DEVICES AND SHIELDS IN PLACE.
- NEVER ALLOW CHILDREN OR UNINSTRUCTED ADULTS TO OPERATE TILLER.
- STOP ENGINE AND REMOVE IGNITION WIRE BEFORE CLEARING TINES OR REPAIRING.
- KEEP BYSTANDERS AWAY FROM TILLER.
- KEEP AWAY FROM ROTATING PARTS.
- USE EXTREME CAUTION WHEN REVERSING OR PULLING TILLER TOWARD YOU.

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⚠ CAUTION

DRIVE SYSTEM MAY BE HOT

Disconnect Spark Plug Lead Before Changing Belts

Do Not Operate With Belt Guard Removed

⚠ CAUTION

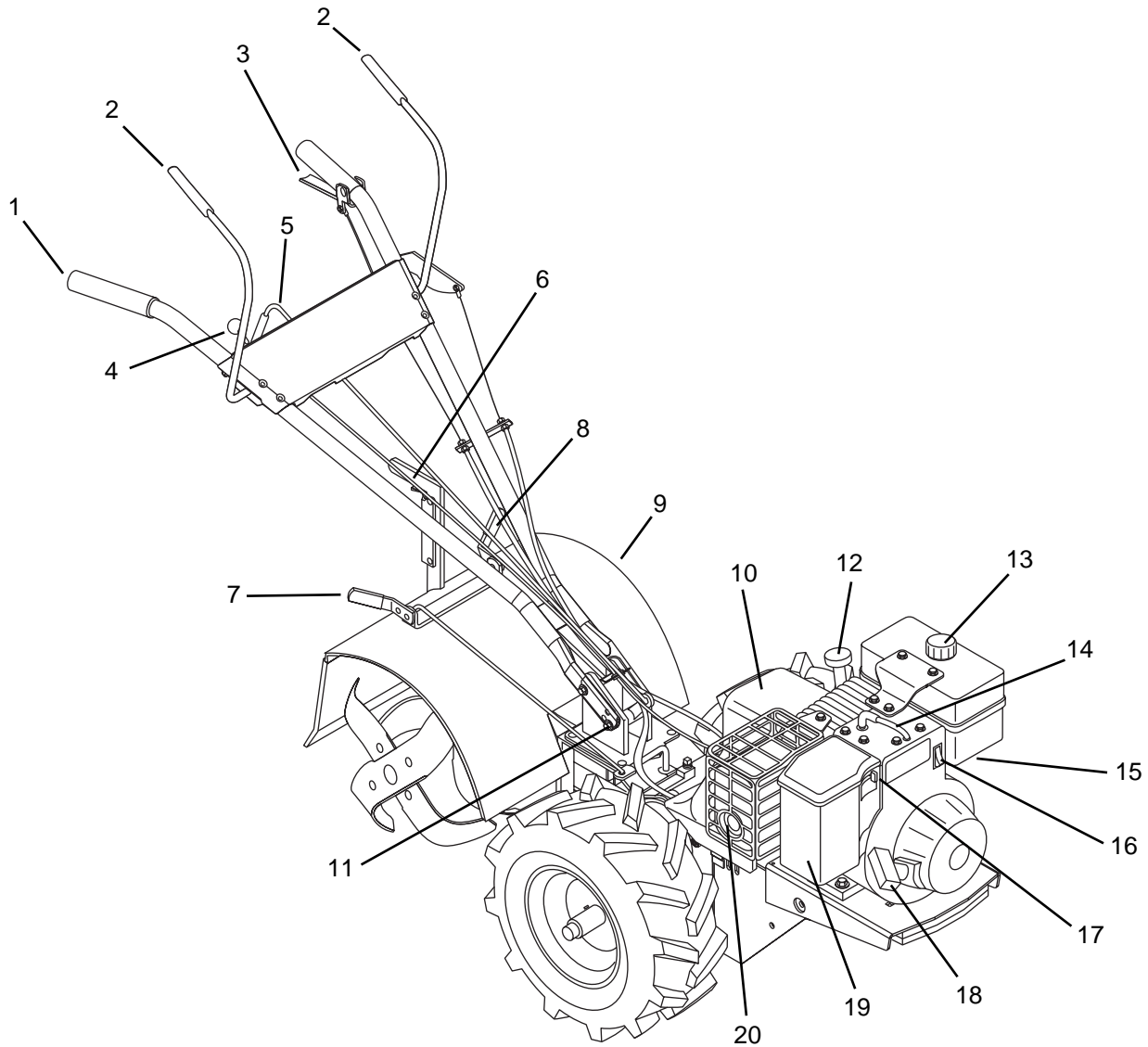
When Starting Engine

- Make Sure Main Clutch Is In Neutral
- Place Feet Firmly On The Ground And Keep Free Hand Clear Of Machine

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Figure 1: Safety Decals

Controls and Features



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- | | |
|---------------------------------|--------------------------------------|
| 1. Handlebar | 11. Handlebar Height Adjustment Bolt |
| 2. Forward Levers (Main Clutch) | 12. Dipstick (Engine Oil) |
| 3. Reverse Lever (Main Clutch) | 13. Fuel Tank and Cap |
| 4. Throttle Control | 14. Spark Plug Wire |
| 5. Handlebar Swivel Lever | 15. Fuel Shut Off Valve |
| 6. Depth Control Handle | 16. Engine Shut Off Switch |
| 7. Wheel Drive Lever | 17. Choke Control |
| 8. Tine Clutch Lever | 18. Recoil Starter Handle |
| 9. Tine Hood | 19. Air Cleaner |
| 10. Belt Cover | 20. Muffler and Guard |

Figure 2: Control and Feature Locations

Controls and Features

Wheel Drive



WARNING: DO NOT engage or disengage Wheel Drive with Main Clutch engaged.

DO NOT disengage Wheel Drive with Tine Clutch engaged.

Put Wheel Drive in "NEUTRAL" position before starting engine and when transporting unit.

To start wheels, engage the Main Clutch after the engine is running and the Wheel Drive is engaged.

To stop wheels, release Main Clutch levers.

IMPORTANT: DO NOT force Wheel Drive Lever.

To engage Wheel Drive, roll tiller back and forth while moving Wheel Drive Lever to its "Lo" or "Hi" position.

To move unit by hand without engine power, put Wheel Drive Lever in "NEUTRAL" position (gears in transmission are disengaged).

NOTE: Both wheels of tiller turn at same rate of speed because solid-axle provides them equal power. Wheels hold tiller back while tines are digging.

Tine Clutch



WARNING: DO NOT engage Tine Clutch unless Wheel Drive is engaged, tiller may run away propelled on the high speed tines.

DO NOT engage Tine Clutch with Main Clutch engaged.



CAUTION: Disengage Tine Clutch before starting and when transporting tiller.

To start tines, engage the Main Clutch after the engine is running and the Tine Clutch is engaged.

To stop tines, release Main Clutch levers.

IMPORTANT: DO NOT force Tine Clutch Lever.

To engage, move the Tine Clutch Lever forward to the "IN" position.

To disengage, move the Tine Clutch Lever rearward to the "OUT" position.

NOTE: If the Tine Clutch Lever does not shift smoothly or stay in the "IN" position, it may be necessary to adjust the tine clutch linkage. See Adjustments.

Main Clutch



WARNING: Main Clutch MUST be in neutral "N" (disengaged) before starting engine or engaging Wheel Drive and Tine Clutch.

With the engine running and the Wheel Drive and Tine Clutch engaged, the Main Clutch will control the direction of travel and engagement of the tines.

IMPORTANT: Engage only one control lever at a time. Keep both hands on handlebars whenever possible.

Prior to engaging Main Clutch, hold the handlebar up to keep the tines out of the soil.

To operate forward: pull Forward Levers down to the handlebars.

To operate in reverse: pull Reverse Lever up to handlebar.

After tines and wheels start, slowly lower tines into the soil to begin tilling.

To stop unit and tines: release the control lever(s). They will spring back into the neutral position. When Main Clutch is in neutral the forward and reverse idlers are disengaged.

Tires

Correct tire pressure is 14 PSI.

Controls and Features (Continued)

Ground and Tine Speed

Tiller comes with Drive Belt(s) in low speed groove(s) of pulley(s). Low speed is best for heavy tilling. Moving belt(s) to high speed groove(s) allows faster tine and wheel speed for moving tiller to and from garden, cultivating or breaking up last bits of soil in final pass.

To change speed, follow instructions in Adjustments Section.

Handlebar Height

Handlebars should be set to a safe comfortable tilling height. See Adjustments Section.

Handlebar Swivel Position

Handlebars may be positioned center, right or left. To move Handlebars pull back on the Handlebar Swivel Lever and swing Handlebars to desired position, release Lever and latch will lock in position by spring pressure.

Depth Control



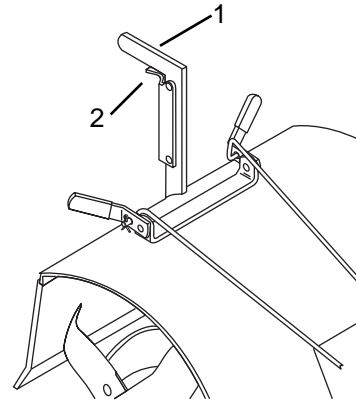
CAUTION: Do not adjust tilling depth with tines rotating. Release Main Clutch levers to the "NEUTRAL" position before changing tilling depth.

Tilling depth is controlled by grasping Depth Control Handle, squeezing trigger, positioning Drag Bar at desired height and releasing trigger to engage appropriate notch in bar. Lower handle and engage bottom notch for transporting tiller (with tines disengaged). To increase tilling depth raise Tiller Depth Control Handle.

IMPORTANT: DO NOT overload tiller by attempting to till too deep at too fast a rate.

Tilling Width

Tines can be adjusted to till from 19-24". See Adjustments .



1. Depth Control Handle
2. Trigger

Figure 3: Depth Control

Throttle

The Throttle controls the engine speed. To increase engine speed raise (Push-Up) lever, to decrease lower (Pull-Down) lever. Moving throttle to the "STOP" position will shut off engine. Set Throttle at its fastest position when starting (refer to engine manufacturers instructions).

In order to become familiar with the tiller, when first operating it, use lowest engine speed that will still give sufficient power to operate. After you become familiar with tiller increase throttle to 'FAST' position for best tilling results.

Choke Control

The Choke Control limits the amount of air entering the engine to aid in starting.

Fuel Shut Off Valve

Check that fuel shut off valve is in the open (on) position for starting and operation. Turn the valve to the "OFF" position when transporting unit on a trailer or in a truck.

Recoil Starter Handle

The recoil starter handle is used to start the engine.

IMPORTANT: DO NOT let starter handle snap against starter.

Operation

Pre-Start

- Check that engine crankcase oil is full using dipstick. See Lubrication and Maintenance.



CAUTION: Make sure all hardware is tight, all safety devices in place and all adjustments correct.

- Check air filter and precleaner for dirt. Clean as required. See Lubrication and Maintenance.
- Check fuel supply. Wipe dust, dirt and debris from around cap before removing to prevent foreign particles from entering tank while filling. Fill fuel tank.

IMPORTANT: Refer to Engine Manual for correct fuel type.

- Securely replace cap and wipe up any spilled fuel.



WARNING: Gasoline is highly flammable and must be handled with care. Never fill tank when the engine is running or hot from operation. **DO NOT** allow open flame, matches or smoking in area. **DO NOT** overfill. Wipe up any spills. Use approved (Red) gasoline container.



CAUTION: This product is equipped with an internal combustion type engine. Do not use unit on or near any unimproved, forest-covered or brush-covered land unless the exhaust system is equipped with a spark arrester meeting applicable local, state or federal laws. A spark arrester, if it is used, must be maintained in effective working order by the operator. See your Ariens Dealer or engine manufacturer's service center.

Starting



WARNING: Disengage Main Clutch, Wheel Drive, and Tine Clutch before starting engine.



CAUTION: DO NOT attempt to start your engine at this time. Thoroughly read this entire Owner's Manual and engine manufacturers operating instructions first.

NOTE: Try out each control without running engine to see how they work and what they do.

1. Release Main Clutch levers.
 2. Ensure Wheel Drive and Tine Clutch are disengaged.
 3. Move throttle control to the "FAST" position
 4. Move the Choke Control to the "CHOKE" position.
 5. Grasp recoil starter handle and pull rope out slowly until it pulls harder, this is compression stroke. Let rope rewind slowly.
 6. Pull rope with a rapid continuous full arm stroke. Let rope rewind slowly.
- IMPORTANT:** DO NOT let starter handle snap against starter.
7. Repeat steps 5 and 6 until engine starts
 8. Once engine starts, move the Choke Control to 1/2 choke until the engine runs smoothly, then move it to the "RUN" position.

Transport Operation

To travel short distances:

1. Ensure Tine Clutch is in the "OUT" position.
2. Engage Wheel Drive Lever into "Hi" position.
3. Set the Depth Control Handle to its lowest notch to raise tines off the ground.
4. Engage the desired Main Clutch lever(s) to propel the unit and release lever(s) to stop.

IMPORTANT: DO NOT engage Tine Clutch while transporting.

Operation (Continued)

Forward (Tilling) Operation

Practice operating controls and running tiller (with tines out of ground) before starting to till.

After the engine is running:

1. Release Main Clutch levers.
2. Set the desired tilling depth.
3. Engage Wheel Drive Lever into “Hi” or “Lo” position.
4. Engage Tiller Clutch Lever to “IN” position.
5. Raise handlebar up to keep the tines out of the soil.
6. Pull Main Clutch forward levers down to the handlebars.
7. Once wheels and tines start, slowly lower tines into soil.



CAUTION: Hold onto handlebars firmly to control the tiller.

Release the handlebars and do not restrain the tiller if unit suddenly lurches from contact with a hard object.

Stand clear until tines stop and then re-establish control by lifting up to remove tines from soil.

After striking a foreign object, disengage Main Clutch, shut off unit, remove wire from spark plug, thoroughly inspect tiller for any damage and repair damage before restarting and operating tiller.

You don't need to exert pressure or weight on handlebars while you are tilling. Heavy pressure on handlebars will cause tines to try to propel tiller instead of digging.

When reaching end of a row, lift handlebars to raise tines out of ground. Push handlebars to right or left so tiller turns in desired direction.

Reverse Operation



WARNING: When operating in reverse with both the tine clutch and wheel drive engaged, both the tines and wheels will rotate in reverse. Once tines are clear of soil, DO NOT set tines back onto ground until reverse lever is released.

To operate in reverse:

1. Release Main Clutch forward levers and allow tines and wheels to stop.
2. Raise handlebar up to keep the tines out of the soil during reverse operation.
3. Pull Main Clutch reverse lever up to the handlebar.

Stopping Operation

To stop travel and tine action, release all Main Clutch levers (forward and reverse).

Shut Off

To shut off the unit:

1. Release Main Clutch levers and allow unit and tines to stop.
2. Move the Throttle Control to the “STOP” position to stop the engine.
3. Disengage the Tine Clutch.
4. Disengage the Wheel Drive.

Tilling Tips

When tilling for first time, set depth control in second notch to a tilling depth of 1/2 to 1” - just enough to break hard soil crust or sod.

NOTE: Tilling depth will vary with ground conditions. Chisel strap increases drag when peak is installed toward ground.



CAUTION: Disengage clutches, stop engine and remove wire from spark plug before removing debris by hand.

Don't let crop residue, rye grass, stringy stalks, vines, etc., build up to a point where it chokes off action of tines. Reverse tiller to unwind and reduce amount of tangle.

NOTE: DO NOT till wet soil, it produces hard-to-break lumps. Tilling soil that is too dry results in powdered soil.

Lubrication and Maintenance

Ariens dealers will provide any service which may be required to keep tractor operating at peak efficiency. Tractor is equipped with the finest quality engine obtainable. However, should servicing be required, it can be obtained from an Ariens dealer or an authorized engine manufacturer's service station.

Checking Engine Oil



CAUTION: DO NOT touch engine or tiller drive parts which are hot from operation. Be careful handling hot drain oil.

The engine crankcase oil should be checked daily or every five (5) hours of operation. Oil level **MUST** be maintained in safe operating range at all times or engine damage will result.

To check oil:

1. Park tiller on a flat level surface, stop engine and disengage clutches. Use Depth Control to level engine so that accurate reading can be taken.
2. Wipe all debris from around oil fill plug.
3. Remove oil fill plug and dipstick.
4. Wipe dipstick clean, insert it into oil fill hole, tighten securely and remove dipstick.
5. If oil is not up to "FULL" mark on dipstick, add recommended oil.

IMPORTANT: DO NOT overfill. POUR SLOWLY. Wipe dipstick clean every time oil level is checked. Be sure engine is level when adding oil.

6. Install and tighten oil fill plug and dipstick.
7. Wipe up any spilled oil.

Changing Engine Oil

IMPORTANT: Change oil after first two (2) hours of operation, thereafter change oil every fifty (50) hours of operation (more often in dusty, dirty conditions). See Engine Manual for proper type, viscosity and amount required.

NOTE: Run engine just prior to changing oil. Oil will flow more freely and carry away more contamination when warm.

To change oil:

1. Stop engine and remove wire from spark plug.
2. Clean area around oil drain plug (see Engine Manual).
3. Position unit so drain plug is lowest point on engine.
4. Remove drain plug and fill plug and dipstick.
5. After oil has drained, install oil drain plug and tighten securely.
6. Fill engine to proper level with recommended oil (see Checking Engine Oil).

Engine Cooling

The engine is air cooled. Air must circulate freely around engine from air intake screen, over cooling fins on cylinder head and block to prevent overheating.

Every fifty (50) operating hours (more often if conditions require) remove cooling shrouds and clean cooling fins. Also clean external surfaces of your engine of dust, dirt and oil deposits which can contribute to improper cooling.

IMPORTANT: DO NOT operate engine with cooling shrouds removed - this will cause overheating and engine damage.

Air Cleaner

IMPORTANT: DO NOT run engine with the Air Cleaner removed. Operating engine with a dirty air filter for only a brief period of time can cause engine damage. DO NOT wash Air Filter element or blow dirt off with compressed air as this will damage element.

Inspect Air Cleaner Element every five (5) operating hours, and replace when damaged or dirty. Check more frequently under dirty, dusty conditions. Check filter element and tap lightly to remove light dust. Examine element carefully and replace it if bent, crushed, damaged or dirty. Reassemble precleaner and element in air cleaner. Reinstall air cleaner cover.

The filter precleaner should be washed every twenty-five (25) operating hours, or more often under extremely dirty, dusty conditions.

Lubrication and Maintenance (Continued)

To clean Precleaner and check or change Filter Element, remove Air Cleaner Cover. Remove Precleaner from Air Cleaner.

Wash Precleaner in warm water with detergent. Rinse thoroughly until all traces of detergent are eliminated and squeeze (don't wring) away excess water. Air dry. Soak precleaner in fresh, clean engine oil and squeeze out excess oil.

Changing Transmission Oil

NOTE: Drain and refill transmissions after first twenty to twenty five (25) hours of operation or at end of first season, whichever comes first, thereafter change oil only if repair parts are installed or you see contaminant's in the oil.

IMPORTANT: Serious damage can be caused to your transmission if it is allowed to run for even a short time without proper amount of oil.

Drive Transmission

Every eight hours or at start of tilling operation check oil level in drive transmission. Park unit on a flat level surface, stop unit and disengage clutches. Use the depth control to level the unit so an accurate reading can be taken. Check oil level with dipstick. Level must be at FULL mark on dipstick. If necessary, add Ariens L-2 Special Gear Lubricant at oil fill port, check and replace dipstick when full.

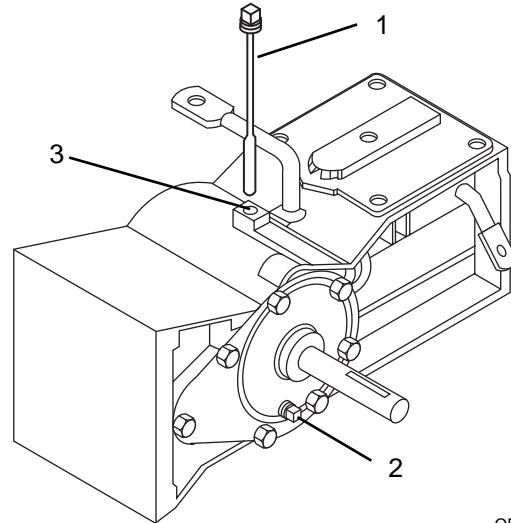
To drain, place a shallow pan below drain plug and remove drain plug. After oil has drained replace drain plug securely.

Fill transmission to FULL mark on dipstick with Ariens L-2 Special Gear Lubricant (approximately 36 ounces) and check according to instruction above.

Tiller Transmission

Every eight hours or at start of tilling operation check oil level in tiller transmission. Park unit on a flat level surface, stop unit and disengage clutches. Use the depth control to level the unit so an accurate reading can be taken. To check level, remove the gear lubricant fill plug. Oil level should run out of or be up to filler hole.

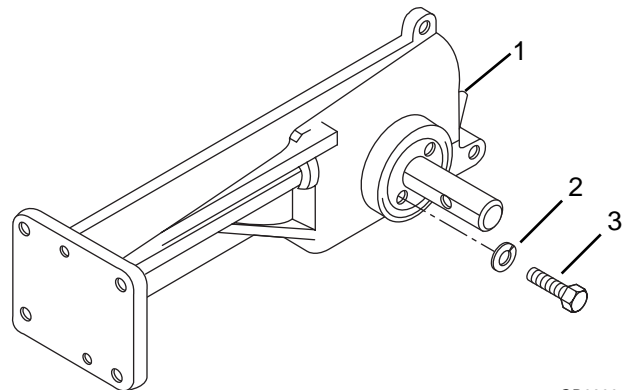
To drain, remove one lower cap screw and lock washer that mounts bearing flange. Allow oil to drain through hole. After oil has drained, replace cap screw and lock washer. Remove gear lubricant fill plug, fill gear case with Ariens L-2 Special Gear Lubricant (approximately 8 ounces) and replace fill plug.



OB0590

1. Dipstick
2. Drain Plug
3. Gear Lubricant Fill Port

Figure 4: Drive Transmission



OB0600

1. Gear Lubricant Fill Plug
2. Lockwasher
3. Cap screw

Figure 5: Tiller Transmission

Lubrication and Maintenance (Continued)

Forward Drive Belt Replacement



WARNING: Disengage Main Clutch, stop engine, wait for moving parts to stop and remove wire from spark plug before changing belt speed.



CAUTION: DO NOT touch engine or tiller drive parts which are not from operation. Allow such parts to cool.

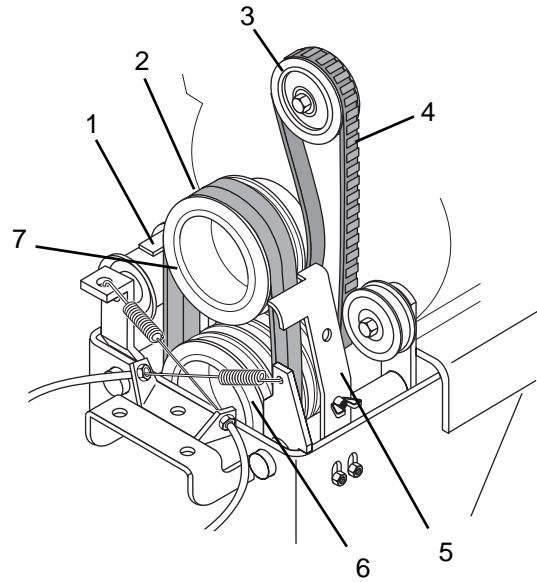
To replace forward drive belts, remove belt cover by removing hex bolt and lifting cover off. Remove belt fingers mounting hardware and belt fingers. Work belts to high speed position then remove belts from engine sheave first, transmission sheave second.

Replace new belts in reverse order making sure belts align. If alignment is necessary, loosen engine sheave setscrews, reposition engine sheave and retighten setscrews. Replace belt fingers and adjust them properly (see Adjustments).

Reverse Drive Belt Replacement

To replace the reverse belt remove drive belt per instruction above, loosen cap screw and locknut securing stationary reverse idler. Position idler lower in slotted bracket. Roll reverse belt from transmission sheave and remove from unit.

Install new belt on engine sheave and roll it into position on lower sheave. Adjust reverse stationary idler. (See Adjustments).



OB0610

1. Left Belt Finger
2. Forward Belts
3. Stationary Reverse Idler
4. Reverse Belt
5. Right Belt Finger
6. Transmission Sheave
7. Engine Sheave

Figure 6: Forward and Reverse Belts

Lubrication and Maintenance (Continued)

Chart 1 shows the recommended service schedule that should be performed on a regular basis. More frequent service may be required due to working conditions (i.e. heavy loads, high ambient temperatures, dusty conditions, or when airborne debris are present). See the engine manual for maintenance instructions.

MAINTENANCE SCHEDULE				
SERVICE PERFORMED	TIME INTERVALS BETWEEN SERVICE			
	DAILY	25 HRS.	50 HRS.	100 HRS.
Check Function of Main Clutch levers	●			
Check Engine Oil	●			
Check Engine Cooling System		●		
Check the Air Cleaner	●			
Lubricate all Pivot Points		●		
Check the Fasteners		●		
Adjust Main (Fwd-Rev) Clutch			●	
Check the Transmission Oil				●
Check the Tire Pressure		●		

OB0021

Chart 1

Always use genuine Ariens service parts and accessories to ensure your machines peak performance.

Adjustments



WARNING: Disengage Main Clutch, stop engine, wait for moving parts to stop and remove wire from spark plug before making any adjustments.

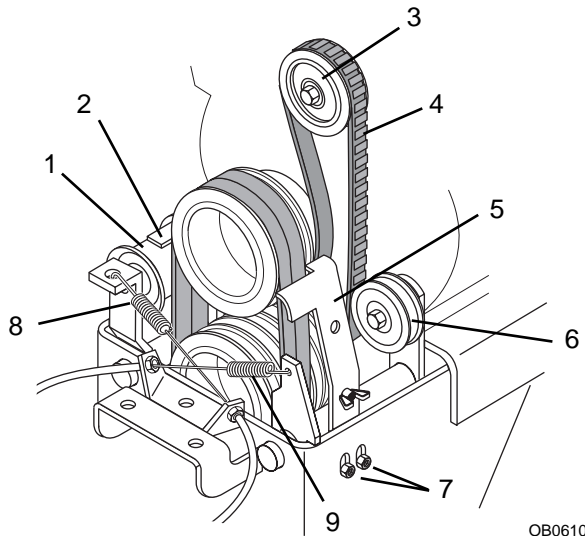


CAUTION: DO NOT touch engine or tiller drive parts which are hot from operation. Allow parts to cool.

Main Clutch

To adjust the forward or reverse clutch cables:

1. Shut off engine, and remove spark plug wire from spark plug.
2. Engage the handle fully and check the spring tension at the lower end of the cable.
 - Minimum spring coil separation is .005".
 - Maximum total spring extension is .75".
3. Adjust nuts on the upper end of the cable to achieve proper spring tension.

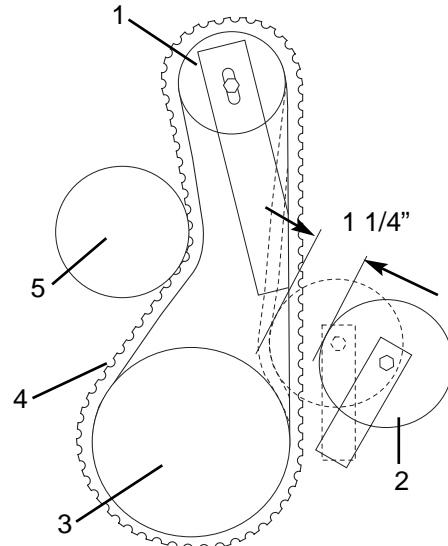


1. Forward Idler
2. Idler Side Belt Finger
3. Stationary Reverse Idler
4. Reverse Belt
5. Drive Side Belt Finger
6. Clutching Reverse Idler
7. Belt Finger Adjustment
8. Forward Clutch Cable Spring
9. Reverse Clutch Cable Spring

Figure 7: Drive and Reverse Belts

Reverse Idler

With the cable properly adjusted, there should be about 1 1/4 Inch of travel between 'NEUTRAL' and engaged position of clutching reverse idler. If idler movement is not correct, loosen stationary reverse idler cap screw, move stationary idler up or down in slot as required and tighten cap screw when correct clutching reverse idler travel is obtained.



1. Stationary Reverse Idler
2. Clutching Reverse Idler
3. Transmission Sheave
4. Reverse Belt
5. Engine Sheave

Figure 8: Reverse Idler and Belt

Belt Fingers

Adjust belt fingers to clear belts to about 1/16 inch clearance on drive side, and about 1/16 to 1/8 inch clearance on idler side of belts.

NOTE: Make belt finger adjustments with Main Clutch engaged and belts in high speed position (largest groove of engine sheave).

Adjustments (Continued)

Belt Speed

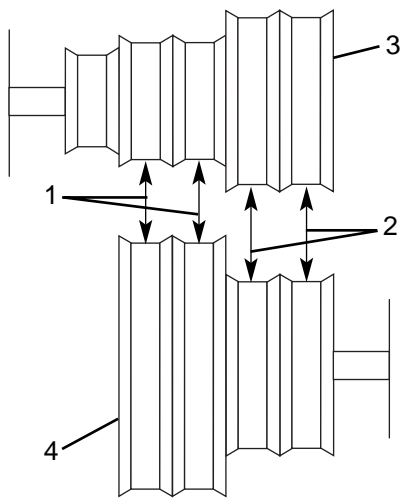
- To change speeds, drive belts are shifted from one set of sheave grooves to the other. (Refer to instruction decal on belt guard.)
- Remove hex bolt on top of Belt Guard and lift guard off unit. Loosen belt finger hardware and move belt finger. (Main Clutch must be in 'NEUTRAL' to move belts.)
- Lift and roll belts to desired speed. If drive belts are in small grooves of engine sheave, move belts on engine drive sheave first, then transmission sheave. If drive belts are in large groove of engine sheave move belts on transmission sheave first, then engine sheave. Readjust belt finger(s) as above.

Handlebar

To adjust Handlebar height, three holes at bottom of handlebar legs are used. Remove the hardware and position handlebar at a safe comfortable tilling height. Align holes and secure with the hardware.

Tilling Width

To till the minimum width, remove the outer tines by removing the four nuts and bolts that hold them to the tine spool.



1. Low Speed Groove(s)
2. High Speed Groove(s)
3. Engine Sheave
4. Transmission Sheave

Figure 9: Speed Grooves

Cleaning and Storage

Cleaning and Storage

IMPORTANT: NEVER spray unit with water or store unit outdoors to aid in prevention of rust or corrosion.

Water can seep into sealed bearings, which are sealed against dirt and debris only, causing reduced component life.



WARNING: Never store tiller in an enclosed area where fuel fumes may reach flame, sparks, pilot lights or an ignited object. Drain fuel outdoors away from any ignition source. Use only approved fuel container.

Your authorized Ariens Dealer is trained and equipped to service your tiller. A periodic checkup by your dealer will help reduce your maintenance costs.

Unit

Store tiller in a cool, dry protected place.

Inspect tiller for visible signs of wear, breakage or damage. Order any parts required and make necessary repairs to avoid delays when beginning use again.

Clean tiller thoroughly. Touch up all unpainted areas to avoid rust.

Engine

When storing tiller for an extended period refer to Engine Manufacturer's Instruction Manual.

Transport

Always secure unit to truck or trailer to prevent it from sliding or tipping over.

Never secure unit from linkages or rods that may be damaged.

IMPORTANT: The Fuel Shut Off Valve must be turned to the "OFF" position for transport, to prevent fuel from leaking out of the carburetor during transport.

Service Manual

Publications are available for tiller owners who wish to perform some of their own maintenance and service operations. Should a complete parts and/or repair manual be desired, use the convenient order form supplied with your warranty registration or order by machine model and serial number.

Rear Tine Rotary Tiller Service Manual

Tiller Model Number _____
Tiller Serial Number _____

Mail Requests to: **Ariens Service**
 655 West Ryan Street
 P.O. Box 157
 Brillion, WI 54110-0157

Components commonly used for consumer service, can be ordered through your Ariens Dealer. When ordering parts always include the Model and Serial Number of your unit to assure prompt service.

Trouble Shooting

1. Engine recoil operates but engine will not start.

Fuel tank empty
Fuel shut-off valve at the fuel tank turned off
Engine failure-See Engine Manual

2. Engine starts but runs roughly.

Restricted fuel cap vent
Engine carburetor malfunction-See Engine Manual
Engine choke in "CHOKE" position
Restricted air cleaner element
Engine electrical system trouble-See Engine Manual

3. The unit will not move when the Main Clutch is engaged.

Wheel drive lever in 'NEUTRAL' position
Main Clutch Lever(s) need adjustment

4. Tiller Tines will not operate.

Attachment jammed or damaged
Tine clutch lever in 'NEUTRAL' position

5. Attachment operates slowly

Adjust engine throttle
Engine problems-See Engine Manual

6. The Wheel Drive Lever will not go into 'Hi' or 'Lo' when lever is moved.

Debris blocking the linkage
Gear teeth not in mesh (rock machine back and forth while engaging lever)

Accessories

Enhance your Tiller with these Ariens Accessories.

701002	Tine Side Shield
701020	Engine Guard
702011	Rental Tine
701014	Furrower

Be sure to always use genuine Ariens parts to keep your tiller running like new.

Specifications

Model No.	901024
Description Name	RT8020
Length	71" 180 CM
Height	44" 111 CM
Width	23" 58 CM
Weight	286 lbs 107 kg
Engine - Manufacture	Briggs & Stratton
No. Cycles	Four
Horse Power	8 HP
Fuel Tank Cap.	4 Quart
Fuel	Unleaded
Idle RPM	1800
Governed R.P.M.	3250
Crank Case Capacity	44 Oz.
Air Cleaner	Paper Element Foam Precleaner
Engine Oil Type	SAE 30
Spark Plug Gap	.30
Gear Case	Cast Iron
Ground Speeds	
Low Tine Speed	175
Low Gear	.6 MPH .9 KMPH
High Gear	1.3 MPH 2.0 KMPH
Reverse	.5 MPH .8 KMPH
High Tine Speed	235
Low Gear	.9 MPH 1.4 KMPH
High Gear	1.3 MPH 2.0 KMPH
Reverse	1.1 MPH 1.6 KMPH
Trans. Case Oil	36 Oz. L-2
Tine Case Oil	8 Oz. L-2
No. of Tines	16
Diameter of Tines	14" 35.6 CM
Adj. Tilling Width	19" - 24" 48.3 - 61 CM
Max. Tilling Depth	7" 17.8 CM
Adj. Handlebar	Yes
Swing Handlebar	Yes
Tire Size	4.80-4.00x8
Tire Pressure	14 PSI.
Side Shield Kit	701002
120 V. Electric Start	N/A
12 V. Electric Start	N/A
Heavy Duty Tines	Standard
Furrower Kit	701014
Engine Guard Kit	701020

Index

Accessories	16	Models	1
Adjustments	13	Operation	7
Belt Finger	13	Forward Tilling Operation	8
Belt Speed	14	Pre-start	7
Handlebar	14	Reverse Operation	8
Main Clutch	13	Shut Off	8
Reverse Idler	13	Starting	7
Tilling Width	14	Stopping Operation	8
		Tilling Tips	8
		Transport Operation	7
Cleaning and Storage	15	Safety Alert Symbol and Notations	i
Engine	15	Safety Decals	3
Unit	15	Safety Precautions	1
Control and Features	4	Maintenance and Storage	2
Choke	6	Operation	2
Depth Control	6	Preparation	1
Handlebar Height	6	Training	1
Handlebar Swivel Position	6	Service Manual	15
Main Clutch	5	Specifications	17
Recoil Starter Handle	6	Transport	15
Throttle	6	Trouble Shooting	16
Tine Clutch	5	Warranty	Inside Back Cover
Tire Pressure	5		
Wheel Drive	5		
Lubrication and Maintenance	9		
Air Cleaner	9		
Forward Drive Belt Replacement	11		
Changing Engine Oil	9		
Changing Transmission Oil	9		
Checking Engine Oil	9		
Drive Transmission	10		
Engine Cooling	9		
Maintenance Schedule	12		
Reverse Belt Replacement	11		
Tiller Transmission	10		

Q U A L I T Y

Q U A L I T Y

P R O D U C T S

G U A R A N T E E



Ariens Company hereby warrants to the original consumer purchaser that products manufactured by Ariens Company will be free from defects in material and workmanship FOR A PERIOD OF FIVE (5) YEARS FROM THE DATE OF PURCHASE, EXCEPT AS NOTED BELOW.



PROTECTION PLAN

- The Company will provide for the replacement of any part found upon examination by the Company to be defective. Such repair or replacement will be free of charge to the purchaser (labor and parts) for two years (24 months) from the date of purchase. Ariens manufactured parts (but not labor) will be free of charge for an additional three years (36 months) thereafter.



This warranty is subject to the following exceptions and limitations:



PURCHASER RESPONSIBILITIES

- Maintenance & minor adjustments per owners manual
- Notification of need for warranty service
- Transportation to/from place of warranty repair

RENTAL USE - ALL PRODUCTS

- NINETY DAYS LABOR & PARTS



CONSUMER PRODUCT - PUT TO COMMERCIAL, INDUSTRIAL, INSTITUTIONAL USE

- NINETY DAYS LABOR & PARTS



PRODUCT REGISTRATION

- Return of registration card required to validate warranty

SERVICE PARTS & ACCESSORIES

- NINETY DAYS LABOR & PARTS



SERVICE

- For warranty service, contact any Ariens Distributor or Dealer. For the name and location of the Ariens Distributor or Dealers in your area, and for further warranty information, write or call Ariens Company.



PURCHASED COMPONENTS & NORMAL WEAR

- **Two year** labor and parts on purchased components i.e., (tractor drive train components manufactured by Dana, Eaton, Foote, Sundstrand and any plastic and electrical components, wire harness, bags, boots, tubes, etc.).
- **Two year** labor and parts on normal wear items i.e., (belts and rubber components, bearings, cables, controls, clutches, tines, etc.).

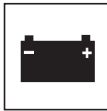
ENGINES, ENGINE ACCESSORIES, & PEERLESS PRODUCTS

- Covered only by manufacturer's warranty



EXCLUSIONS

- No warranty is extended to blades, mower vanes, skid shoes, runners, scraper blades, shear bolts, light bulbs, headlights and any equipment which has been altered, misused, misassembled, improperly adjusted, neglected, or damaged by accident.
- No warranty is extended for service completed by anyone other than an authorized distributor or dealer.
- No warranty is extended on any parts that are not genuine Ariens service parts.
- Ariens Company reserves the right to incorporate any changes in design into its products without obligation to make such changes on products previously manufactured.



BATTERY WARRANTY PRORATED

- **One to six months - free replacement**
- Seven to twelve months - 50% credit
- Thirteen to twenty-four months - 25% credit

WARRANTY - COMMERCIAL PRODUCTS

- **One year** parts and labor
- Product labeled commercial/professional
- Household use - 5 year limited warranty applies



DISCLAIMER OF FURTHER WARRANTY

There is no other express warranty. Implied warranties, including any warranty of merchantability or fitness for a particular purpose, are limited to the duration of this written warranty, and are excluded to the extent permitted by law. There are no warranties which extend beyond the description of the product contained herein.

In no event shall the company be liable for indirect, special or consequential damages (such as loss of anticipated profits)

in connection with the consumer's use of the product.

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

Ariens®

655 West Ryan Street • P.O. Box 157 • Brillion, WI 54110-0157 • 920-756-2141 • Fax 920-756-4421



***Ask Your Dealer For Information On
These Other Fine Ariens Products***

- **Front and Rear Tine Tillers**
- **Walk-Behind Lawn Mowers**
- **Zero-Turning Radius Mowers**
- **Rear Engine Riding Mowers**
- **Yard and Garden Tractors**
- **Commercial Walk-Behind and Riding Mowers**
- **Sno-Thros**