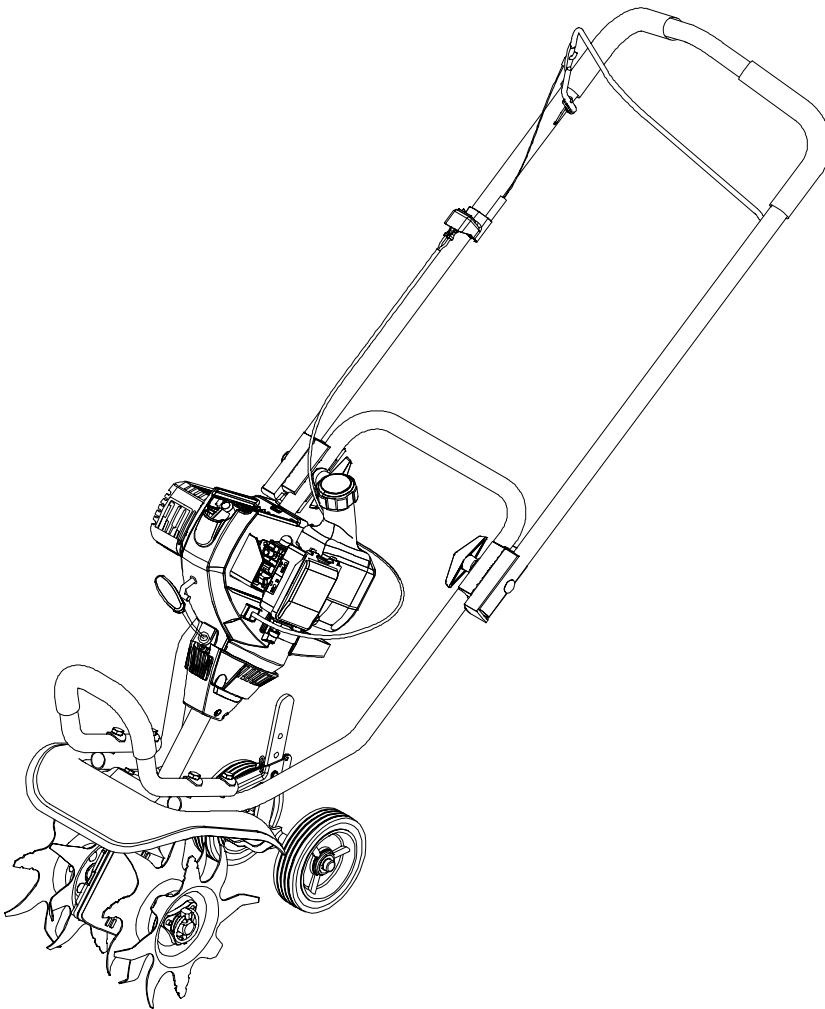




OPERATOR'S MANUAL



**Cultivator
Model Number
21A-144R401**

IMPORTANT: READ SAFETY RULES AND INSTRUCTIONS CAREFULLY

Warning: This unit is equipped with an internal combustion engine and should not be used on or near any unimproved forest-covered, brush-covered or grass-covered land unless the engine's exhaust system is equipped with a spark arrester meeting applicable local or state laws (if any). If a spark arrester is used, it should be maintained in effective working order by the operator. In the State of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands. A spark arrester for the muffler is available through your nearest engine authorized service dealer or contact the service department, P.O. Box 368022 Cleveland, Ohio 44136-9722.

MTD PRODUCTS INC. P.O. BOX 368022 CLEVELAND, OHIO 44136-9722

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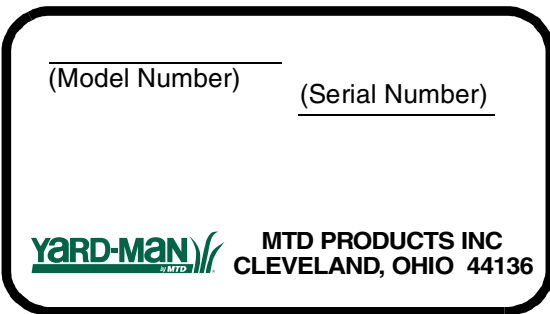
FINDING MODEL NUMBER

This Operator’s Manual is an important part of your new cultivator. It will help you assemble, prepare and maintain the unit for best performance. Please read and understand what it says.



Before you start assembling your new equipment, please locate the model plate on the equipment and copy the information from it in the space provided below. The information on the model plate is very important if you need help from our Customer Support Department or an authorized dealer.

- You can locate the model number by looking down in front of the engine on the cultivator. A sample model plate is explained below. For future reference, please copy the model number and the serial number of the equipment in the space below.



Copy the model number here: _____

Copy the serial number here: _____

CALLING CUSTOMER SUPPORT

If you have difficulty assembling this product or have any questions regarding the controls, operation or maintenance of this unit, please call the Customer Support Department.



Call 1- (330) 220-4MTD (4683) or 1- (800)-800-7310 to reach a Customer Support representative. Please have your unit’s model number and serial number ready when you call. See previous section to locate this information. You will be asked to enter the serial number in order to process your call.

For more details about your unit, visit our website at www.yardman.com

SECTION 1: IMPORTANT SAFE OPERATION PRACTICES



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

WARNING: The Engine Exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

DANGER: This machine was built to be operated according to the rules for safe operation in this manual. As with any type of power equipment, carelessness or error on the part of the operator can result in serious injury. This machine is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.

Training

1. Read, understand, and follow all instructions on the machine and in the manual(s) before attempting to assemble and operate. Keep this manual in a safe place for future and regular reference and for ordering replacement parts.
2. Be familiar with all controls and their proper operation. Know how to stop the machine and disengage them quickly.
3. Never allow children under 14 years old to operate this machine. Children 14 years old and over should read and understand the operation instructions and safety rules in this manual and should be trained and supervised by a parent.
4. Never allow adults to operate this machine without proper instruction.
5. Keep bystanders, helpers, pets, and children at least 50 feet from the machine while it is in operation. Stop machine if anyone enters the area.
7. Never attempt to make any adjustments while engine is running, except where specifically recommended in the operator's manual.
8. To avoid personal injury or property damage use extreme care in handling gasoline. Gasoline is extremely flammable and the vapors are explosive. Serious personal injury can occur when gasoline is spilled on yourself or your clothes which can ignite. Wash your skin and change clothes immediately.
 - a. Use only an approved gasoline container.
 - b. Extinguish all cigarettes, cigars, pipes, and other sources of ignition.
 - c. Never fuel machine indoors.
 - d. Never remove gas cap or add while the engine is hot or running.
 - e. Allow engine to cool at least two minutes before refueling.
 - f. Never over fill fuel tank. Fill tank to no more than 1/2 inch below bottom of filler neck to provide space for fuel expansion.
 - g. Replace gasoline cap and tighten securely.
 - h. If gasoline is spilled, wipe it off the engine and equipment. Move machine to another area. Wait 5 minutes before starting the engine.
 - i. Never store the machine or fuel container inside where there is an open flame, spark, or pilot light (e.g. furnace, water heater, space heater, clothes dryer, etc.)
 - j. Allow machine to cool at least 5 minutes before storing.

PREPARATION

1. Thoroughly inspect the area where the equipment is to be used. Remove all stones, sticks, wire, and other foreign objects which could be tripped over and cause personal injury.
2. Wear sturdy, rough-soled work shoes and close-fitting slacks and shirts. Loose fitting clothes or jewelry can be caught in movable parts. Never operate this machine in bare feet or sandals.
3. Wear safety glasses or goggles that are marked as meeting ANSI Z87.1 standards and ear/hearing protection when operating this unit. Wear a face or dust mask if the operation is dusty.
4. This unit has a clutch. The tines remain stationary when the engine is idling. If they do not, have the unit adjusted by an authorized service dealer.
5. Squeeze the throttle control and check that it returns automatically to the idle position.
6. Never leave this machine unattended with the engine running.

OPERATION

1. Do not put hands and feet near rotating parts. Contact with the rotating parts can amputate fingers, hands, and feet.
2. Do not operate machine while under the influence of alcohol or drugs.
3. Never operate this machine without good visibility or light. Always be sure of your footing and keep a firm hold on the handles.

4. Keep bystanders, helpers, pets, and children at least 50 feet from the machine while it is in operation. Stop machine if anyone enters the area.
5. Be careful when cultivating in hard ground. The tines may catch in the ground and propel the cultivator forward. If this occurs, let go of the handle and do not restrain the machine.
6. Never operate the machine at high transport speeds on hard or slippery surfaces.
7. Exercise caution to avoid slipping or falling.
8. Look down, behind, and use care when pulling machine towards you.
9. Start the engine according to the instructions found in this manual and keep feet well away from the tines at all times.
10. After striking a foreign object, stop the engine, disconnect the spark plug wire and ground against the engine. Thoroughly inspect the machine for any damage. Repair the damage before starting and operating.
11. Disengage all clutch and stop engine before you leave the operating position (behind the handle). Wait until the tines come to a complete stop before unclogging the tines, making any adjustments, or inspections.
12. Never run an engine indoors or in a poorly ventilated area. Engine exhaust contains carbon monoxide, an odorless and deadly gas.
13. Muffler and engine become hot and can cause a burn. Do not touch.
14. Use caution when cultivating near fences, buildings and underground utilities. Rotating tines can cause property damage or personal injury.
15. Do not overload machine capacity by attempting to cultivate soil to deep or to fast of a rate.
16. If the machine should start making an unusual noise or vibration, stop the engine, disconnect the spark plug wire and ground it against the engine. Inspect thoroughly for damage. Repair any damage before starting and operating.
17. Keep all shields, guards and safety devices in place and operating properly.
18. Never pick up or carry machine while the engine is running.
19. Use only attachments and accessories approved by the manufacturer. Failure to do so, can result in personal injury.
20. If situations occur which are not covered in this manual, use care and good judgment. Contact your dealer or telephone 1-800-800-7310 for assistance and the name of your nearest servicing dealer.

Maintenance And Storage

1. Never tamper with safety devices. Check their proper operation regularly.
2. Check bolts and screws for proper tightness at frequent intervals to keep the machine in safe working condition. Also, visually inspect machine for any damage.
3. Before cleaning, repairing, or inspecting, stop the engine and make certain the tines and all moving parts have stopped. Disconnect the spark plug wire and ground it against the engine to prevent unintended starting.
4. Do not change the engine governor settings or over-speed the engine. The governor controls the maximum safe operating speed of the engine.
5. Maintain or replace safety and instruction labels, as necessary.
6. Follow this manual for safe loading, unloading, transporting, and storage of this machine.
7. Never store the machine or fuel container inside where there is an open flame, spark or pilot light such as a water heater, furnace, clothes dryer etc.
8. Always refer to the operator's manual for proper instructions on off-season storage.
9. If the fuel tank has to be drained, do this outdoors.
10. Observe proper disposal laws and regulations for gas, oil, etc. to protect the environment.



WARNING: Restrict the use of this power machine to persons who read, understand and follow the warnings and instructions in this manual and on the machine.

NOTE: *Not all safety labels may apply to your cultivator.*

<p>WARNING</p> <p>TO AVOID SERIOUS INJURY</p> <ul style="list-style-type: none"> • READ THE OPERATOR'S MANUAL. 	<ul style="list-style-type: none"> • KNOW LOCATION AND FUNCTIONS OF ALL CONTROLS. • KEEP ALL SAFETY DEVICES AND SHIELDS IN PLACE AND WORKING. 	<ul style="list-style-type: none"> • NEVER ALLOW CHILDREN OR UNINSTRUCTED ADULTS TO OPERATE TILLER. • SHUT OFF ENGINE BEFORE UNCLOGGING TINES OR MAKING REPAIRS. 	<ul style="list-style-type: none"> • KEEP BYSTANDERS AWAY FROM MACHINE. • KEEP AWAY FROM ROTATING PARTS. • USE EXTREME CAUTION WHEN REVERSING OR PULLING THE MACHINE TOWARDS YOU.

WARNING

KEEP AWAY FROM ROTATING TINES. ROTATING TINES WILL CAUSE INJURY.

SECTION 2: ASSEMBLING YOUR CULTIVATOR

IMPORTANT: This unit is shipped without gasoline or oil in the engine. Be certain to service engine with gasoline and oil as instructed in the separate engine manual before operating your mower.

NOTE: Reference to right or left hand side of the cultivator is observed from the operating position.

Removing Unit From Carton

- Remove staples, break glue on top flaps, or cut tape at carton end and peel along top flap to open carton.
- Remove loose parts if included with unit (e.g., operator's manual, safety glasses, etc.)
- Cut along corners, lay carton down flat, and remove packing material.
- Roll or slide unit out of carton and check carton thoroughly for loose parts.

Disconnecting Spark Plug Wire

Before setting up your cultivator, disconnect the spark plug wire from the spark plug and ground to a stud on the engine.

Setting Up Your Cultivator

- Loosen each wing nut enough to separate the plastic connectors between the upper and lower handle. Gently lift up and pull back on the upper handle to raise the handle toward the operating position. See Figure 1.
- Separate the connectors and position the bottom tip of upper handle connector in front of the bottom tip of lower handle connector.
- The lower handle connector has three marked lines on the top and the upper handle connector has one marked line.

- Position the connectors aligning the marked line on the upper connector with the middle marked line on the lower connector.
- To secure the upper and lower handle, tighten the wing nuts and washers (carriage bolts must be seated properly into the handle and grooves must line up between connectors).
- Tighten the cable ties on the left side of handle.

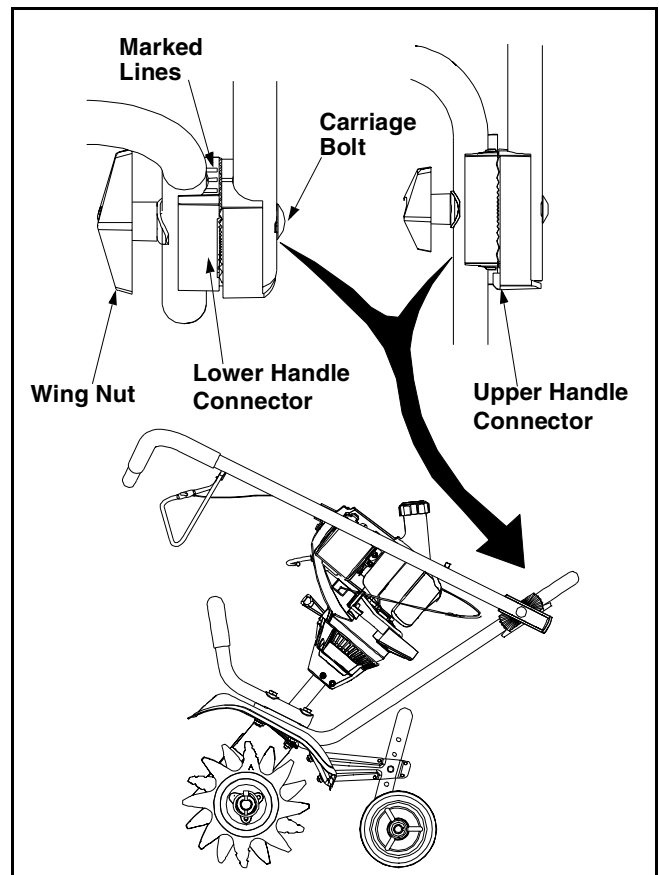


Figure 1

SECTION 3: KNOW YOUR CULTIVATOR

Read this operator's manual and safety rules before operating your cultivator. Compare the illustrations in Figure 2 with your cultivator to familiarize yourself with the location of various controls and adjustments. Save this manual for future reference.

Starter Handle

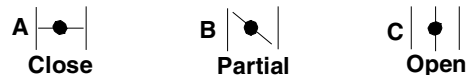
The starter handle is attached to an eyebolt in the front of the engine.

Throttle Lever

The throttle lever is located on the upper handle. Squeezing the lever against handle speeds up the engine and engages the cultivator tines. Release the handle to stop the tines.

Choke Lever

The choke lever is located on the right side of engine and it is used to enrich the fuel mixture when starting a cold engine.



Primer Button

The primer button is located on the right side of engine and it is used in conjunction with the choke to enrich the fuel mixture in the carburetor when starting a cold engine.

On/Off Switch

The On/Off switch is located on the upper handle. The switch must be in the On (I) to start engine and Off (O) to stop engine.

Handle Connectors

The handle connectors are on each side between lower and upper handle. They are used to lock the upper handle in a set position.

Front Handle

The front handle is used as support when grasping the starter handle during starting.

Tines

The tines are used to cultivate, furrow, and prepare your garden for seeding.

Wheel Support Bracket

The wheel support bracket is attached to the tailpiece bracket behind the cultivator. It is used to adjust the wheels to a higher or lower resting position.

Edger Wheel and Blade

The edger wheel and blade are separate parts that do not come attached on the cultivator. They are to be used instead of the cultivator tines for vertical edging.

Stopping Engine

- Push the On/Off switch to Off (O) position to stop engine and tines.
- Disconnect spark plug wire from spark plug and ground against the engine.

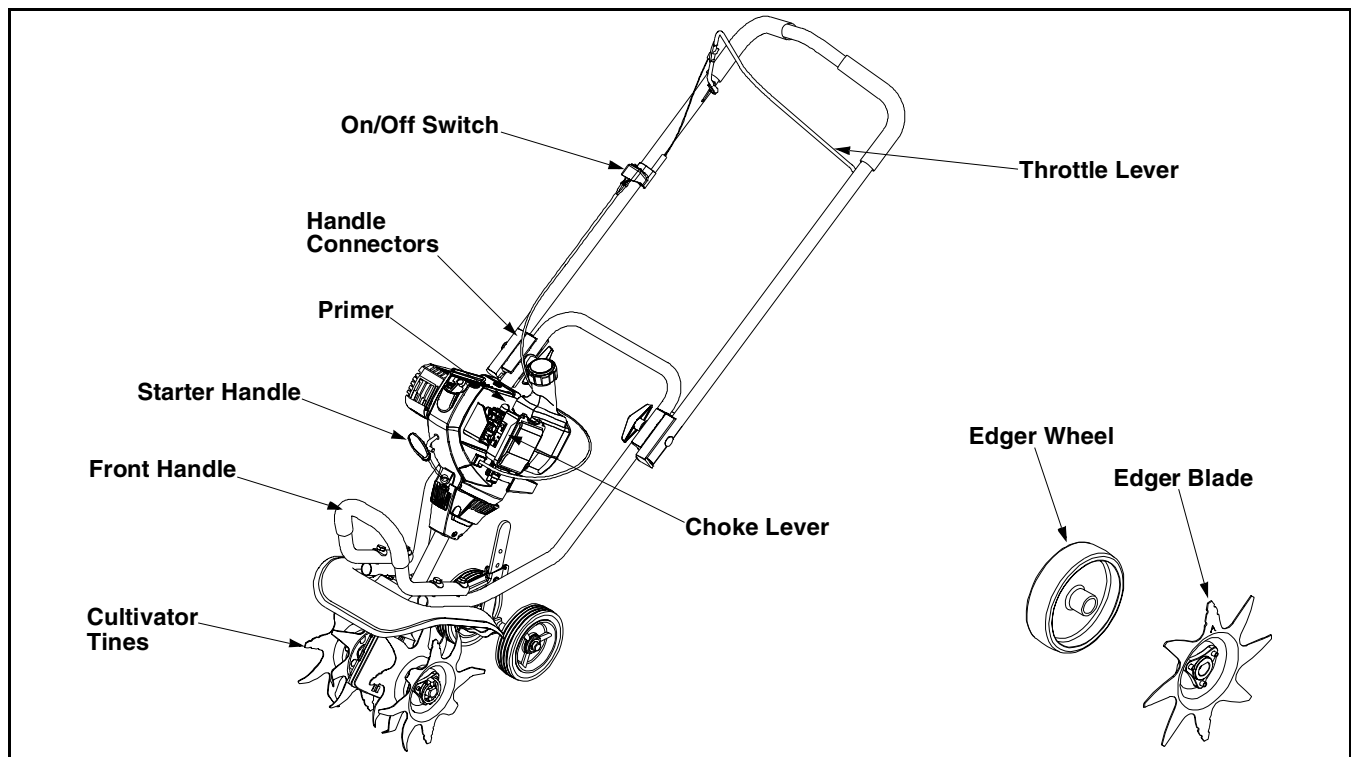


Figure 2

SECTION 4: OPERATING YOUR CULTIVATOR

Oil Fill-Up

Using the proper type and weight of oil in the crankcase is extremely important. Check the oil before each use and change the oil regularly. Failure to use the correct oil or using dirty oil can cause premature engine wear and failure.

Use a high-quality SAE 30 weight oil of API (American Petroleum Institute) service class SF, SG, or SH.

NOTE: This unit is shipped without oil in the engine. In order to avoid damage to the unit, put the recommended oil in the crankcase before attempting to start unit.

This unit is shipped with one 3.4 fluid oz. (100ml) bottle of SAE 30 SF, SG, or SH oil.

NOTE: This cultivator is shipped for operation in conditions above 40°F (4°C). For cold weather operation, temperatures below 40°F (4°C) use a high-quality SAE 10W30 weight oil of API (American Petroleum Institute) service class SF, SG, or SH.

- Lay the cultivator back in a horizontal position on a flat level surface with the upper handle touching the ground.

- Remove the oil plug/dipstick from the crankcase and pour the entire bottle of oil into the oil fill hole. See Figure 3.
- Wipe up any oil that may have spilled and reinstall the oil fill plug/dipstick.

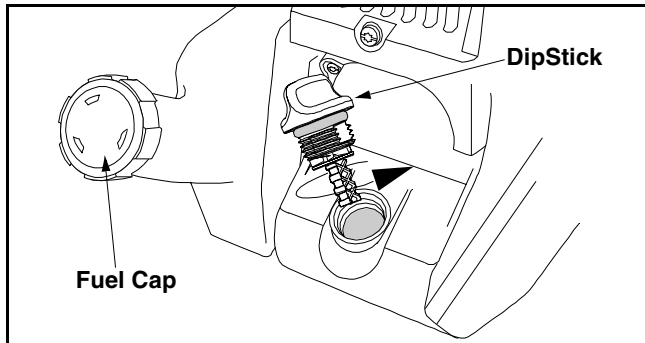


Figure 3

Gas Fill-Up

Old fuel is the primary reason for the unit not running properly. Be sure to use fresh, clean, and unleaded gasoline. Use fresh fuel (less than 60 days old), when using alcohol-blended fuel.

NOTE: This is a 4-cycle engine. In order to avoid damage to the unit, **do not mix oil with gasoline.**

Fuel Additives

The use of fuel additives or gas stabilizer will inhibit corrosion and minimize the formation of gum deposits. Using a fuel additive can keep fuel from forming harmful deposits in the carburetor for up to six (6) months. Add 0.8 oz. (23ml) of fuel additive per gallon of fuel according to the instructions on the container. **Never** add fuel additives directly to the unit's gas tank.

- Lay the cultivator back in a horizontal position on a flat level surface with the upper handle touching the ground.
- Remove fuel cap and remove the tag from the fuel tank neck. Refer to Figure 3.



WARNING: Use extreme care when handling gasoline. Gasoline is extremely flammable and the vapors are explosive. Never fuel machine indoors or while the engine is hot or running. Extinguish cigarettes, cigars, pipes, and other sources of ignition.

- Place spout of gas container into the fill hole on the fuel tank and fill tank.
- Wipe up any gasoline that may have spilled and reinstalled the fuel cap.
- Move the unit at least 30 ft. (9.1m) from the fueling source and site before starting the engine.

Starting Engine

- Attach spark plug wire to spark plug. Make certain the metal cap on the end of the spark plug is fastened securely over the metal tip on the spark plug.
- Push On/Off switch on upper handle to On (I).
- Place choke lever in Close (A) position. See Figure 4.
- Fully press and release the primer bulb slowly 5 to 7 times. Gasoline should be felt and visible in the bulb. Press primer a few more time, if gasoline is not noticed. See Figure 4.

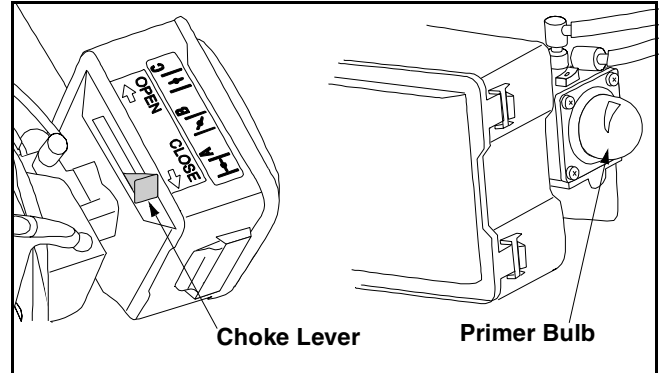


Figure 4

- With one hand grasping the starter handle, the other hand should grasp the front handle on the cultivator for a brace.
- Pull the starter rope briskly 3 to 5 times or until engine attempts to run.
- Move the choke to Partial (B) position.

NOTE: The engine will not operate in the Open (A) position.

- Pull the starter rope again 1 to 3 times until engine starts.
- Move choke lever to Open (C) position.
- With tines off the ground, depress the throttle lever against the upper handle to increase engine speed and rotate tines.



WARNING: Never run the engine indoors or in a poorly ventilated area. Engine exhaust contains carbon monoxide, an odorless and deadly gas. Keep hands, feet, hair, and loose clothing away from rotating tines.

Starting A Warm Engine

- Push On/Off switch on upper handle to On (I).
- Move the choke to Partial (B) position.
- Fully press and release the primer bulb slowly 5 to 7 times. Gasoline should be felt and visible in the bulb. Press primer a few more time, if gasoline is not noticed. See Figure 4.

- With one hand grasping the starter handle, the other hand should grasp the front handle on the cultivator for a brace.
- Pull the starter rope briskly 3 to 5 times or until engine starts.
- Move choke lever to Open (C) position.
- With tines off the ground, depress the throttle lever against the upper handle to increase engine speed and rotate tines.

Using Your Cultivator



WARNING: Never pick-up or carry the unit while the engine is running. Serious personal injury could result.

- Move the cultivator to the work area prior to starting the engine. The cultivator may be transported by pushing it on the wheels or carrying it by the handles.
- Start the engine referring to Starting Engine.
- With both hands on the upper handle and squeezing the throttle control, slowly lower the cultivator until the tines make contact with the ground.
- Once the tines are in the ground, continue to cultivate at a moderate pace until you are familiar with the controls and the handling of the cultivator.
- To adjust the cultivating depth, adjust the wheel support bracket. See Adjusting The Wheel Bracket.

For cultivation, a two to three inch depth is desirable. When laying out plant rows, be sure to allow enough width to permit cultivation between the rows. In growing corn or similar crops, check-row planting will permit cross cultivation and practically eliminate hand hoeing.

Adjusting the Wheel Support Bracket

To adjust the wheel support bracket proceed as follows:

- Stop engine and disconnect spark plug to avoid accidental starting.
- Remove cotter pin from the clevis pin and slide pin out of tailpiece bracket. See Figure 5.
- Slide the wheel support bracket up or down in the tailpiece, aligning the holes to the desire height.
- Place the clevis pin through the hole and secure with a cotter pin.

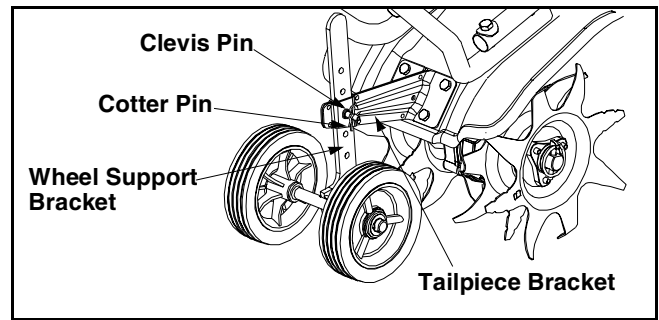


Figure 5

Attaching the Edger Wheel And Blade

To convert the cultivator to an edger proceed as follows:

- Push the On/Off switch to Off (O) position to stop engine and tines and disconnect spark plug to avoid accidental starting.
- It may be necessary to lay the cultivator back in a horizontal position on a flat level surface with the upper handle touching the ground.
- Remove the click pin from each end of the tine shaft and slide the tines off the shaft.
- Slide the edger wheel on the right side of the tine shaft and secure with the click pin in the inside hole. See Figure 6.
- Slide the edger blade with the hub facing out on the left side of tine shaft and secure with the click pin in the inside hole. See Figure 6.

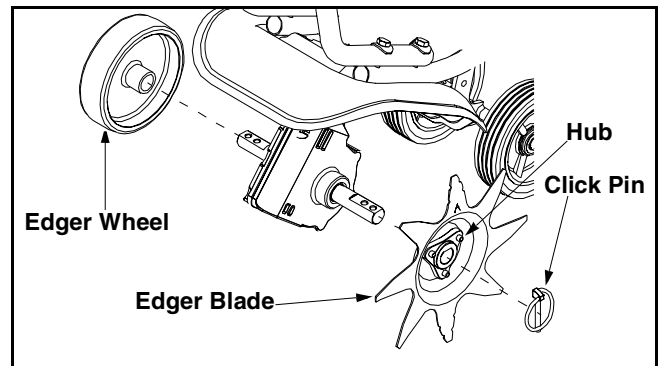


Figure 6

- Guide cultivator/edger along a flowerbed, garden, sidewalk, or driveway with the edger wheel along the outside edge.

SECTION 5: MAINTAINING YOUR CULTIVATOR



WARNING: Always stop engine and disconnect spark plug wire before cleaning or doing any kind of maintenance on your cultivator.

Tine Removal and Replacement

NOTE: All four tines should be replaced at the same time, because they will wear evenly through normal use.

- Push the On/Off switch to Off (O) position to stop engine and tines and disconnect spark plug to avoid accidental starting.
- It may be necessary to lay the cultivator back in a horizontal position on a flat level surface with the upper handle touching the ground.
- Remove the click pin from each end of the tine shaft and slide the tines off the shaft.
- Slide new tines on with hubs facing out. The four tines are marked with letters A and B and an A and a B tine must be on the same side. See Figure 7.
- Secure new tines to shaft with click pins.

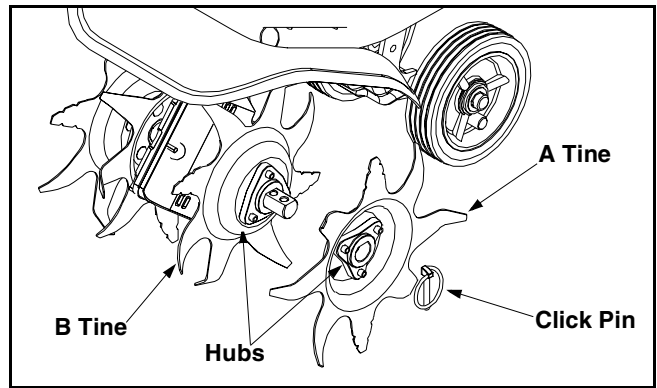


Figure 7

NOTE: It may be necessary to wash the dirt off the tines and shaft for ease of removal.

Engine Maintenance

Customer Responsibilities

MAINTENANCE SCHEDULE		Before each Use	Every 25 hours	Every 50 hours	Every 100 hours	Once a season	Before storage	SERVICE DATES					
ENGINE	Fill Fuel Tank	✓											
	Check Oil	✓											
	Change Oil		✓			✓							
	Clean Air Filter		✓										
	Check Spark Plug			✓									
	Check Spark Arrester (if any)			✓									

Gas Fill-Up

Refer to the operation section.

- If the level is low, add a small amount of oil to the oil fill hole and recheck. Repeat until the oil level reaches the top of the dipstick. See Figure 8.

Checking Oil



WARNING: To prevent extensive engine wear and damage to the unit, always maintain the proper oil level in the crankcase. Never operate the unit with the oil level below the bottom of the dipstick.

- Stop engine and allow oil to drain into the crankcase.
- Lay the cultivator back in a horizontal position on a flat level surface with the upper handle touching the ground.
- Keep dirt and debris out of the engine. Clean the area around the oil fill plug/dipstick before removing it.
- Remove the oil fill plug/dipstick and wipe off oil. Reinsert it all the way back in.
- Remove the oil fill plug/dipstick and check oil level. Oil should be up to the top of the dipstick. Refer to Figure 3.

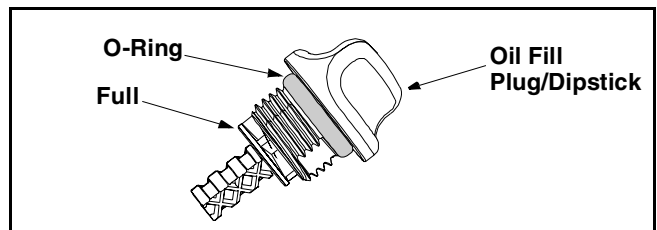


Figure 8

NOTE: Make sure the O-ring is in place on the oil fill plug/dipstick when checking and changing the oil.

Changing Oil

- Remove the oil fill plug/dipstick.
- Tip the unit back or away from the air filter to pour the oil out of the oil fill hole and into a container.
- Wipe up any oil residue on the unit and clean up any oil that may have spilled. Dispose of the oil according to federal, state, and local regulations.

- Refill the crankcase with 3.4 fl.oz. (100 ml.) of SAE 30 SF, SG, or SH oil.
- Replace the oil fill plug/dipstick.

Air Filter Maintenance

- Open the air filter cover on side of engine by pushing the tab on the left side in and swinging the air filter cover out and off. See Figure 9.
- Remove the air filter and screen.

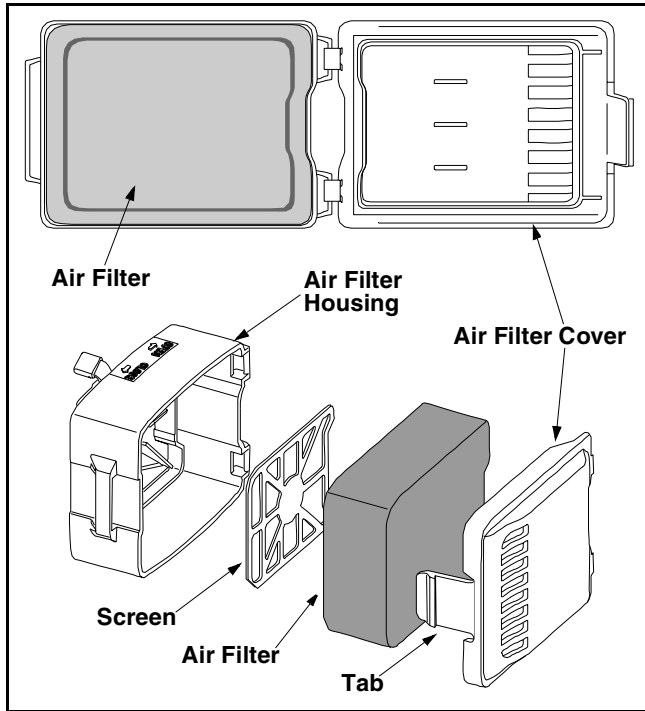


Figure 9

- Wash the filter in detergent and water. Rinse the filter thoroughly and allow it to dry.
- Apply enough clean SAE 30 motor oil to lightly coat the filter and squeeze the filter to spread and remove excess oil.
- Replace the screen and filter.
- Position the hooks on the right side of the air filter cover into the slots at the right side of the air filter housing.
- Swing the cover to the left until the tab on the air filter cover snaps into place in the slot.

Carburetor Adjustment

If the engine will not idle, hesitates or stalls on acceleration, or there is a loss of engine power have the carburetor adjusted by an authorized service dealer.

Replacing The Spark Plug

The spark plug should be removed and checked after every 50 hours of operation. To replace the spark plug proceed as follows:

- Stop the engine and allow it to cool. Grasp the plug wire firmly and pull the cap from the spark plug.
- Clean dirt from around the spark plug and remove the spark plug from the cylinder head by turning counterclockwise using a socket.
- Set the air gap at 0.025 in (0.655 mm.) using a feeler gauge. See Figure 10.

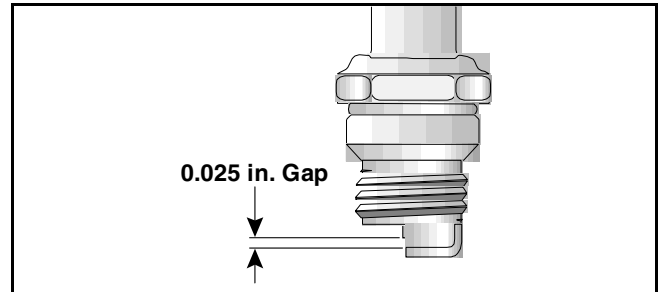


Figure 10

- Install a correctly gapped spark plug in the cylinder head and tighten by turning the socket clockwise until snug. Do not over tighten.

Spark Arrestor Maintenance

- Remove the muffler cover by pressing down on the corner with a flat blade screwdriver. Slide the notches on the sides of the muffler cover over the tabs on the engine cover and remove.
- Remove the screw attaching the spark arrestor cover to the muffler. See Figure 11.

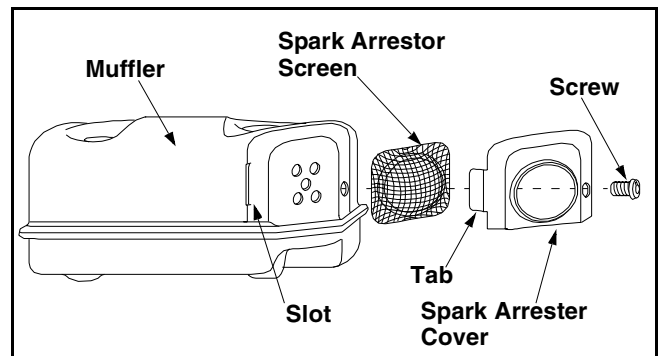


Figure 11

- Pull the tab on the spark arrestor cover out of the muffler and remove the spark arrestor cover.
- Remove the spark arrestor screen from the spark arrestor cover.
- Clean the spark arrestor screen with a wire brush or replace screen.
- Reinstall the spark arrestor screen, spark arrestor cover, and screw.

Storing Your Cultivator

- Thoroughly clean the unit and inspect for any loose or damaged parts. Repair or replace damaged parts and tighten loose screws, nuts, or bolts.

- Wipe equipment with a oiled rag to prevent rust.
- Never store the unit with fuel in the tank where fumes may reach an open flame or spark.

Engine

If the unit will be stored for longer than 60 days:

- Drain all gasoline from the gas tank into a container and dispose in accordance with federal, state, and local regulations.
- Start the engine and allow it to run until it stalls. This ensures that all gasoline has been drained from the carburetor.
- Allow the engine to cool and remove the spark plug and put 1 oz. (30ml) of high quality motor oil into the

cylinder. Pull the starter rope slowly to distribute the oil and reinstall the spark plug.

NOTE: Remove the spark plug and drain all of the oil from the cylinder before attempting to start the unit after storage.

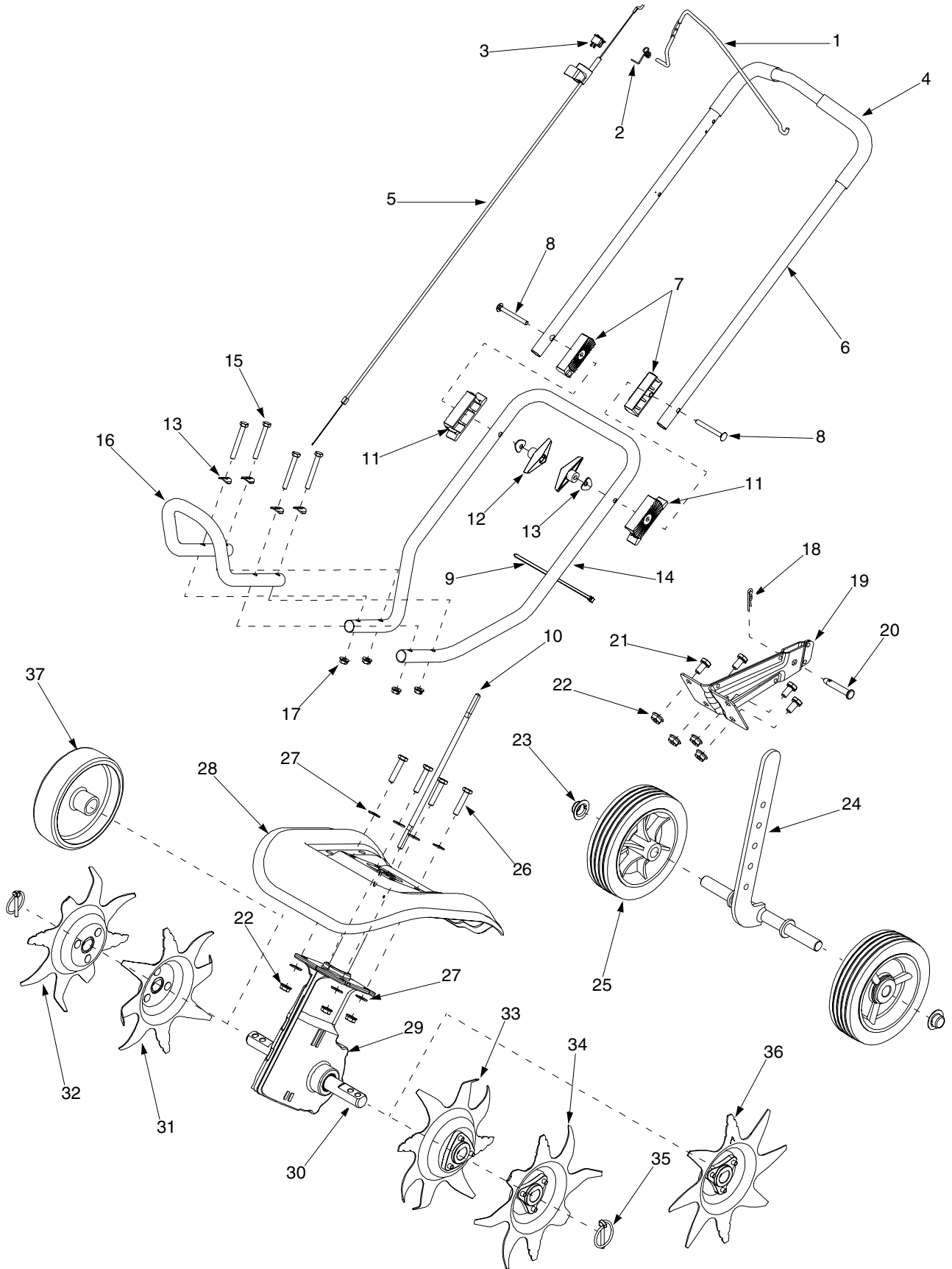
- Change oil. Refer to Engine Maintenance. Dispose of the oil in accordance with federal, state, and local regulations.
- Store unit in a clean, dry area. Do not store next to corrosive materials such as fertilizer.
- For more compact storage, store unit in the shipping position with the upper handle folded toward engine. See ASSEMBLY section for details.

SECTION 6: TROUBLESHOOTING

Problem	Cause	Remedy
Engine fails to start	<ol style="list-style-type: none"> 1. Spark plug wire disconnected. 2. Ignition switch is OFF (O). 3. Fuel tank empty or stale fuel. 4. Primer bulb wasn't pressed enough. 5. Engine flooded. 6. Faulty spark plug. 	<ol style="list-style-type: none"> 1. Connect wire to spark plug. 2. Turn switch to ON (I). 3. Fill tank with clean, fresh gasoline. 4. Press primer bulb fully and slowly 5-7 times. 5. Use starting procedure with choke lever in the Run (C) position. 6. Clean, adjust gap, or replace.
Engine runs erratic	<ol style="list-style-type: none"> 1. Spark plug wire loose. 2. Blocked fuel line or stale fuel. 3. Vent in gas cap plugged. 4. Water or dirt in fuel system. 5. Dirty air filter. 6. Carburetor out of adjustment. 	<ol style="list-style-type: none"> 1. Connect and tighten spark plug wire. 2. Clean fuel line; fill tank with clean, fresh gasoline 3. Clear vent. 4. Drain fuel tank. Refill with fresh fuel. 5. Replace air filter. 6. See authorized service dealer.
Engine overheats	<ol style="list-style-type: none"> 1. Engine oil level low. 2. Dirty air filter. 3. Carburetor not adjusted properly. 	<ol style="list-style-type: none"> 1. Fill crankcase with proper oil. 2. Replace air filter. 3. See authorized service dealer.
Occasional skip (hesitates) at high speed	<ol style="list-style-type: none"> 1. Spark plug gap too close. 	<ol style="list-style-type: none"> 1. Adjust gap to .025".
Idles poorly	<ol style="list-style-type: none"> 1. Spark plug fouled, faulty or gap too wide. 2. Carburetor improperly adjusted. 3. Dirty air filter. 	<ol style="list-style-type: none"> 1. Reset gap to .025" or replace spark plug. 2. See authorized service dealer. 3. Replace or clean air filter.

NOTE: For repairs beyond the minor adjustments listed above, contact your nearest authorized service dealer.

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Ref. No.	Part No.	Part Description	Ref. No.	Part No.	Part Description
1.	747-1320	Throttle Control	20.	711-1017	Clevis Pin
2.	732-1038	Torsion Spring	21.	710-3013	Hex Cap Screw 1/4-20 x .50
3.	725-2009	On/Off Switch	22.	712-3027	Hex Lock Nut 1/4-20
4.	720-0294	Foam Grip	23.	726-0299	Cap Push
5.	746-1147	Throttle Cable	24.	686-0182	Wheel Support Bracket Assembly
6.	749-1294A	Upper Handle	25.	734-2025	Wheel 5.0
7.	731-1268	Upper Handle Connector	26.	710-0106	Hex Cap Screw 1/4-20 x 1.25
8.	710-0405	Carriage Screw 5/16-18 x 3.0	27.	736-3020	Flat Washer .271 ID x .630 OD
9.	725-0157	Cable Tie	28.	786-0321	Shoulder Tine
10.	718-0812	Drive Shaft	29.	686-0194	Gearbox
11.	731-1267	Lower Handle Connector	30.	711-1608	Tine Shaft .75 x 8.0
12.	720-0241	Wing Nut 5/16-18	31.	686-0179	Inner Tine
13.	736-0451	Shoulder Washer .320 ID x .93 OD	32.	686-0178	Outer Tine
14.	749-1295	Lower Handle	33.	686-0177	Inner Tine
15.	710-0378	Hex Cap Screw 5/16-18 x 2.50	34.	686-0176	Outer Tine
16.	749-1299	Front Handle	35.	714-0220	Click Pin
17.	712-3004A	Flange Lock Nut 5/16-18	36.	686-0183	Edger Tine
18.	714-0104	Cotter Pin	37.	734-2026	Wheel 5.0
19.	686-0181	Tailpiece Bracket Assembly			

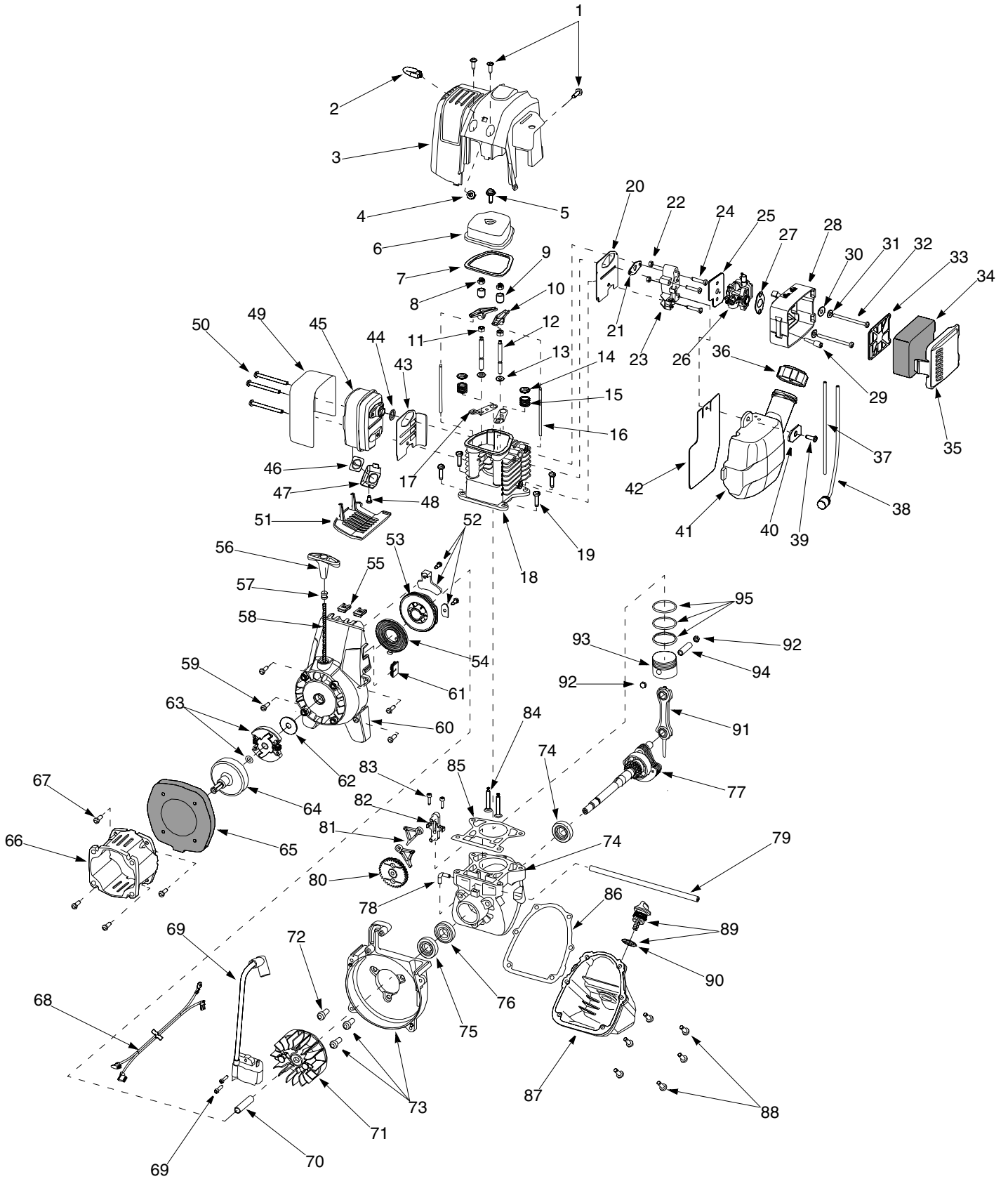
NOTE: For **painted parts**, please refer to the list of color codes below. Please add the applicable color code, wherever needed, to the part number to order a replacement part. For instance, if a part numbered 700-xxxx is painted Yard-Man Green, the part number to order would be 700-xxxx-0665.

Yard-Man Green: 0665

Yard-Man Yellow: 0674

Powder Black: 0637

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Model 21A-144R401

Ref. No.	Part No.	Part Description	Ref. No.	Part No.	Part Description
1.	182339	Engine Cover Screws	49.	182360	Muffler Shield
2.	182651	Starter Rope Eyelet	50.	182361	Muffler Mounting Screw
3.	182650	Engine Cover	51.	182362	Muffler Cover
4.	182652	Eyelet Nut	52.	182749	Pulley Retainer Assembly
5.	181025	Valve Cover Screw	53.	181597	Recoil Pulley
6.	182098	Valve Cover	54.	613102	Recoil Spring
7.	182099	Valve Cover Gasket	55.	182366	Nut Clip
8.	182340	Rocker Adjustment Nut	56.	181079	Pull Handle
9.	182101	Rocker Arm Pivot	57.	611061	Rope Guide
10.	182100	Rocker Arm	58.	182661	Rope
11.	181034	Hex Nut	59.	181020	Starter Housing Screw
12.	182341	Rocker Arm Stud	60.	182662	Starter Housing Assembly
13.	181035	Washer	61.	182537	Wire Grommet
14.	182103	Valve Spring Retainer	62.	182368	Clutch Washer
15.	181038	Valve Spring	63.	182369	Clutch w/ Washer
16.	181033	Push Rod	64.	153592	Clutch Drum
17.	182102	Push Rod Guide	65.	182663	Clutch Filter
18.	182700	Cylinder Head	66.	182664	Clutch Cover
19.	182344	Cylinder Screw	67.	181080	Clutch Cover Screw
20.	182345	Intake Baffle	68.	182665	Switch Wire Assembly
21.	182748	Carburetor Mount Gasket	69.	182725	Ignition Module w/ Screws
22.	181034	Nut	70.	181065	Spacer
23.	182347	Carburetor Mount (Includes 22)	71.	182736	Flywheel
24.	182348	Carburetor Mount Screw	72.	181861	Screw
25.	182782	Carburetor Gasket	73.	182743	Shroud Assembly w/ Screws
26.	182654	Carburetor w/ Primer	74.	182376	Crankcase Assembly
27.	181056	Air Filter Gasket	75.	610309	Oil Seal
28.	182655	Air Filter Cover Assembly	76.	182372	Bearing
29.	182097	Breather Tube Assembly	77.	182380	Crankcase
30.	182656	Grommet Washer	78.	182375	90° Elbow
31.	182409	Washer	79.	182379	Breather Hose
32.	181750	Air Filter Mounting Screw	80.	182666	Cam Gear
33.	182657	Air Filter Plate	81.	182667	Cam Follower
34.	182658	Air Filter	82.	181013	Cam Bracket
35.	182659	Air Filter Cover	83.	181012	Cam Bracket Screw
36.	182271	Fuel Cap	84.	181040	Intake & Exhaust Valves
37.	182352	Fuel Return Line	85.	182374	Cylinder Gasket
38.	182353	Fuel Pick-up Line w/ Filter	86.	181018	Oil Pan Gasket
39.	181080	Screw	87.	182377	Oil Pan
40.	182354	Washer	88.	181020	Oil Pan Screw
41.	182660	Fuel Tank Assembly	89.	182378	Dipstick Assembly
42.	182356	Fuel Tank Shield	90.	182290	O-Ring
43.	182358	Muffler Baffle	91.	181009	Connecting Rod
44.	181048	Muffler Gasket	92.	181008	Wrist Pin Button
45.	182359	Muffler	93.	182381	Piston
46.	180890	Spark Arrestor Screen	94.	181006	Wrist Pin
47.	181045	Screen Cover	95.	181005	Piston Ring Set
48.	181046	Screw			

MANUFACTURER'S LIMITED WARRANTY FOR:



The limited warranty set forth below is given by MTD PRODUCTS INC ("MTD") with respect to new merchandise purchased and used in the United States, its possessions and territories.

MTD warrants this product against defects in material and workmanship for a period of two (2) years commencing on the date of original purchase and will, at its option, repair or replace, free of charge, any part found to be defective in material or workmanship. This limited warranty shall only apply if this product has been operated and maintained in accordance with the Operator's Manual furnished with the product, and has not been subject to misuse, abuse, commercial use, neglect, accident, improper maintenance, alteration, vandalism, theft, fire, water or damage because of other peril or natural disaster. Damage resulting from the installation or use of any accessory or attachment not approved by MTD Products Inc. for use with the product(s) covered by this manual will void your warranty as to any resulting damages.

Normal wear parts or components thereof are subject to separate terms as follows: All normal wear part or component failures will be covered on the product for a period of 90 days regardless of cause. After 90 days, but within the two year period, normal wear part failures will be covered ONLY IF caused by defects in material or workmanship of OTHER component parts. Normal wear parts and components include, but are not limited to, belts, blades, blade adapters, grass bags, rider deck wheels, seats, snow thrower skid shoes, shave plates and tires. Batteries are covered by a 90-day limited replacement warranty.

HOW TO OBTAIN SERVICE: Warranty service is available, WITH PROOF OF PURCHASE THROUGH YOUR LOCAL AUTHORIZED SERVICE DEALER. To locate the dealer in your area, please check for a listing in the Yellow Pages or contact the Customer Service Department of MTD PRODUCTS INC by calling 1-800-800-7310 or writing to P.O. Box 368022, Cleveland, Ohio 44136-9722.

This limited warranty does not provide coverage in the following cases:

- a. The engine or component parts thereof. These items carry a separate manufacturer's warranty. Please refer to the applicable manufacturer's warranty on these items.
- b. Log splitter pumps, valves and cylinders have a separate one year warranty.

- c. Routine maintenance items such as lubricants, filters, blade sharpening and tune-ups, or adjustments such as brake adjustments, clutch adjustments or deck adjustments; and normal deterioration of the exterior finish due to use or exposure.

- d. MTD does not extend any warranty for products sold or exported outside of the United States of America, its possessions and territories, except those sold through MTD's authorized channels of export distribution.

No implied warranty, including any implied warranty of merchantability or fitness for a particular purpose, applies after the applicable period of express written warranty above as to the parts as identified. No other express warranty or guaranty, whether written or oral, except as mentioned above, given by any person or entity, including a dealer or retailer, with respect to any product shall bind MTD. During the period of the Warranty, the exclusive remedy is repair or replacement of the product as set forth above. (Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.)

The provisions as set forth in this Warranty provide the sole and exclusive remedy arising from the sales. MTD shall not be liable for incidental or consequential loss or damages including, without limitation, expenses incurred for substitute or replacement lawn care services, for transportation or for related expenses, or for rental expenses to temporarily replace a warranted product. (Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitation may not apply to you.)

In no event shall recovery of any kind be greater than the amount of the purchase price of the product sold. Alteration of the safety features of the product shall void this Warranty. You assume the risk and liability for loss, damage, or injury to you and your property and/or to others and their property arising out of the use or misuse or inability to use the product.

This limited warranty shall not extend to anyone other than the original purchaser, original lessee or the person for whom it was purchased as a gift.

How State Law Relates to this Warranty: This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state.