



ROTARY CULTIVATOR

WITH 5.5 HP BRIGGS & STRATTON® ENGINE

Model 91959

ASSEMBLY AND OPERATING INSTRUCTIONS



3491 Mission Oaks Blvd., Camarillo, CA 93011
Visit our Web site at: <http://www.harborfreight.com>

**TO PREVENT SERIOUS INJURY,
READ AND UNDERSTAND ALL WARNINGS
AND INSTRUCTIONS BEFORE USE.**

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For technical questions or replacement parts, please call 1-800-444-3353.

PRODUCT SPECIFICATIONS

Item	Description
Engine Size/Type	5.5 HP Briggs & Stratton® Quantum® STE / Vertical Shaft. Displacement: 190cc. Engine Model: 128802. Engine Type: 2325-D1. Fuel Type: Unleaded Gasoline. Fuel Tank Size: 1.5 Liter (.40 Gal.). EPA Approval: Phase 1.
Tiller Type	Walk Behind.
Maximum Tilling Depth	11".
Maximum Tilling Width	21".
Wheel Size	11-1/4" Diameter x 2-1/8" Width.
Drive Type	Belt Driven.
Drive Actuation	Clutch Drive (Handle Lever Operated).
Handle Height	44-1/4".
Overall Dimensions	28-1/4" L x 20-1/2" W x 44-1/4" H.
Weight	105 Pounds.

UNPACKING

When unpacking, check to make sure all the parts shown on the **Parts List on page 13** are included. If any parts are missing or broken, please call Harbor Freight Tools at the number shown on the cover of this manual as soon as possible.

SAVE THIS MANUAL

You will need this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures, parts list and assembly diagram. Keep your invoice with this manual. Write the invoice number on the inside of the front cover. Keep this manual and invoice in a safe and dry place for future reference.

GENERAL SAFETY PRECAUTIONS



READ AND UNDERSTAND ALL INSTRUCTIONS
Failure to follow all instructions listed in the following pages may result in electric shock, fire, and/or serious injury.
SAVE THESE INSTRUCTIONS

WORK AREA

1. **Keep your work area clean and well lit.** Cluttered benches and dark areas invite accidents.
2. **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust.** Power tools create sparks which may ignite flammables.
3. **Keep bystanders, children, and visitors away while operating a power tool.** Distractions can cause you to lose control. Protect others in the work area from debris such as chips and sparks. Provide barriers or shields as needed.

PERSONAL SAFETY

1. **Stay alert. Watch what you are doing, and use common sense when operating a power tool. Do not use a power tool while tired or under the influence of drugs, alcohol, or medication.** A moment of inattention while operating power tools may result in serious personal injury.
2. **Dress properly. Do not wear loose clothing or jewelry. Contain long hair. Keep your hair, clothing, and gloves away from moving parts.** Loose clothes, jewelry, or long hair can be caught in moving parts.
3. **Avoid accidental starting. Be sure the Engine's Throttle Control (71) is off before transporting the Cultivator or performing any maintenance or service on the unit.** Transporting or performing maintenance or service on a power tool with its Throttle Control **ON** invites accidents.
4. **Remove adjusting keys or wrenches before turning on the tool.** A wrench or a key that is left attached to a rotating part of the tool may result in personal injury.
5. **Do not overreach. Keep proper footing and balance at all times.** Proper footing and balance enables better control of the tool in unexpected situations.
6. **Use safety equipment. Always wear ANSI approved safety glasses underneath a full face shield, a dust mask or respirator, and hearing protection.**

TOOL USE AND CARE


1. **Do not force the tool. Use the correct tool for your application.** The correct tool will do the job better and safer at the rate for which it is designed.

2. **Do not use the power tool if the Engine's Throttle Control (71) does not turn it on or off.** Any gasoline powered tool that cannot be controlled with the Engine's Throttle Control is dangerous and must be replaced.
3. **Disconnect the Engine Spark Plug Wire from the Spark Plug before making any adjustments, changing accessories, or storing the tool.** Such preventive safety measures reduce the risk of starting the tool accidentally.
4. **Store idle tools out of reach of children and other untrained persons.** Tools are dangerous in the hands of untrained users.
5. **Maintain tools with care.** Do not use a damaged tool. Tag damaged tools "Do not use" until repaired.
6. **Check for misalignment or binding of moving parts, breakage of parts, cracking or breakage of parts, and any other condition that may affect the tool's operation. If damaged, have the tool serviced before using.** Many accidents are caused by poorly maintained power tools.
7. **Use only accessories that are recommended by the manufacturer for your model.** Accessories that may be suitable for one tool may become hazardous when used on another tool.

SERVICE

1. **Tool service must be performed only by qualified repair personnel.** Service or maintenance performed by unqualified personnel could result in a risk of injury.
2. **When servicing a tool, use only identical replacement parts. Follow instructions in the "Inspection, Maintenance, And Cleaning" section of this manual.** Use of unauthorized parts or failure to follow maintenance instructions may create a risk of injury.

SPECIFIC SAFETY PRECAUTIONS

1. **Maintain labels and nameplates on the Cultivator.** These carry important information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
2.  **CAUTION!** **To avoid injury, keep hands, fingers, and feet away from the Tines (37, 50, 40).** Grip the Upper Handle (66) of the Cultivator *firmly* with both hands. If both hands are holding the Upper Handle and your feet are clear of the Tines, your hands, fingers, and feet cannot be injured by the Tines.

3. **Always use recommended replacement parts.** The recommended replacement parts are available from Harbor Freight Tools.
4. **Use safety equipment. Always wear ANSI approved safety glasses underneath a full face shield, a dust mask or respirator, and hearing protection.**
5. **Industrial applications must follow OSHA requirements.**
6. **Keep all spectators at least six feet from the Cultivator during operation.**
7. **Use the Cultivator only in well ventilated outdoor areas. Carbon monoxide fumes exhausted from the Engine (1) are a colorless, odorless gas that, if inhaled, can cause serious injury or death.**
8. **Only use a suitable means of transport and lifting devices with sufficient weight bearing capacity when transporting the Cultivator.** Only use sturdy loading ramps with sufficient weight bearing capacity. Secure the Cultivator on transport vehicles to prevent the tool from rolling, slipping, and tilting.
9. **Never leave the Cultivator unattended while it is running.**
10. **Always keep a safe distance away from the edges and banks of ditches and avoid any actions that may cause the Cultivator from toppling over.**
11. **Do not use the Cultivator on steep inclines.** Use the Cultivator only on level ground surfaces.
12. **Always park the Cultivator on a firm and level surface.**
13. **Thoroughly inspect the area where the Cultivator is to be used and remove all large sticks, stones, wires, or other foreign objects.**
14. **Always turn off the Engine and disconnect the Spark Plug (1) before unclogging the Tines (37, 50, 40). Always protect your hands by wearing heavy duty work gloves.**
15. **Before operating the Cultivator, make sure its Guards are attached and in proper working condition.**

FIRE AND EXPLOSION PRECAUTIONS

1. **Gasoline fuel and fumes are flammable, and potentially explosive. Use proper fuel storage and handling procedures. Always have multiple ABC class fire extinguishers nearby.**

2. **Keep the Cultivator and surrounding area clean of flammable objects at all times.**
3. **When spills of fuel or oil occur, they must be cleaned up immediately.** Dispose of fluids and cleaning materials as per any local, state, or federal codes and regulations. Store oil rags in a covered metal container.
4. **Never store fuel or other flammable materials near the Cultivator.**
5. **Do not smoke, or allow sparks, flames or other sources of ignition around the Engine and Fuel Tank. Fuel vapors are explosive.**
6. **Keep grounded conductive objects, such as tools, away from exposed, live electrical parts and connections to avoid sparking or arcing.** These events could ignite fumes or vapors.
7. **Always fill the Engine's Gas Tank to approximately 1-1/2" below the top of the neck of the Tank to allow for fuel expansion. Do not overfill.**
8. **Do not refill the Fuel Tank while the Engine is running or while the Engine is still hot. Do not operate the Cultivator with known leaks in the fuel system.**
9. **Excessive buildup of unburned fuel gases in the exhaust system can create a potentially explosive condition. This buildup can occur after repeated failed start attempts, valve testing, or hot engine shutdown.** If this occurs, open exhaust system drain plugs, if equipped, and allow the gases to dissipate before attempting to restart the Engine.
10. **Always check the Engine oil level prior to starting the Engine.** Make sure to read and understand the *Engine Owner's Manual* for the proper oil level and oil change schedules.
11. **Use *only* engine manufacturer recommended fuel and oil.** Refer to the *Engine Owner's Manual* for further instructions.

MECHANICAL PRECAUTIONS

1. **ALWAYS make sure the Engine's Throttle Control (71) is in its "OFF" position. Disconnect the spark plug wire, and allow the Engine to completely cool before carrying out maintenance.**
2. **Check for damaged parts.** Before using the Cultivator, any part that appears damaged should be carefully checked to determine that it will operate

properly and perform its intended function. Check for alignment and binding of moving parts, any broken parts or mounting fixtures, and any other condition that may affect proper operation. Any part that is damaged should be properly repaired or replaced by a qualified technician.

3. **Make sure to read and understand all instructions and safety precautions as outlined in the *Engine manufacturer's Owner's Manual*.** Do not attempt to operate the Cultivator until you fully understand how to properly operate and maintain the Engine and how to avoid accidental injuries and/or property damage.
4. **Keep hands, arms, long hair, loose clothing, and jewelry away from moving parts.** Be aware that when engine parts are moving fast they cannot be seen clearly.
5. **Do not alter or adjust any part of the Cultivator that is assembled and supplied by the manufacturer.**
6. **Always follow and complete scheduled Engine and Cultivator maintenance.**


BURN AND CHEMICAL PRECAUTIONS

1. **Avoid contact with hot fuel, oil, exhaust fumes, and hot solid surfaces.**
2. **Avoid body contact with fuels, oils, and lubricants used in the Engine. If swallowed, seek medical treatment immediately.** Do not induce vomiting if fuel is swallowed. For skin contact, immediately wash with soap and water. For eye contact, immediately flush eyes with clean water.

NOISE PRECAUTIONS

1. **Prolonged exposure to noise levels above 85 dBA is hazardous to hearing.** Always wear ANSI approved ear protection when operating or working around the Cultivator when it is running.

HEART PACEMAKER PRECAUTIONS

1.  **WARNING!** People with pacemakers should consult their physician(s) before using this product. Electromagnetic fields in close proximity to a heart pacemaker could cause interference to or failure of the pacemaker.

CALIFORNIA PROPOSITION 65 WARNINGS

- WARNING!** Operation of this Cultivator and/or Engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.
(California Health & Safety Code 25249.5, et seq.)

OWNER/OPERATOR PRECAUTIONS

- WARNING!** The warnings, precautions, and instructions discussed in this manual cannot cover all possible conditions and situations that may occur. The operator must understand that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

ASSEMBLY INSTRUCTIONS

NOTE: For additional references to the parts listed in the following pages, refer to the **Assembly Diagram on page 14.**

- Prior to use, the Lower Handle (65) must be attached to the Housing (13). To do so, align the mounting holes at the bottom (on each side) of the Lower Handle with the mounting holes located on each side of the Housing. Then use four Bolts (64), four Washers (26), and four Self-Lock Nuts (27) to secure the Lower Handle to the Housing. **(See Figure A.)**

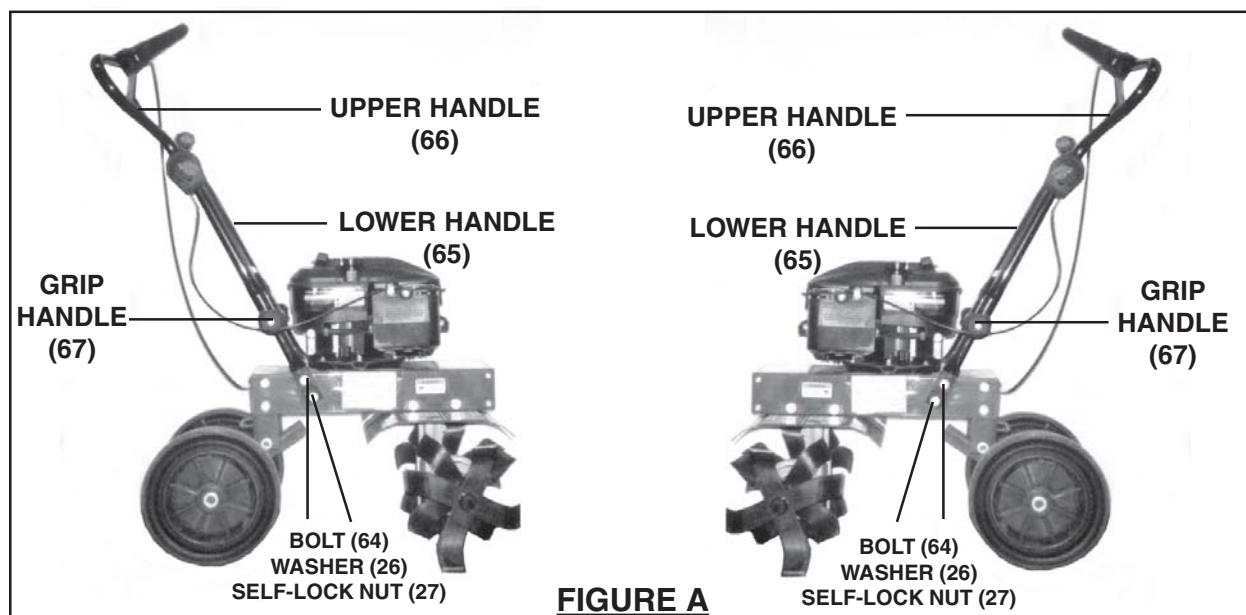


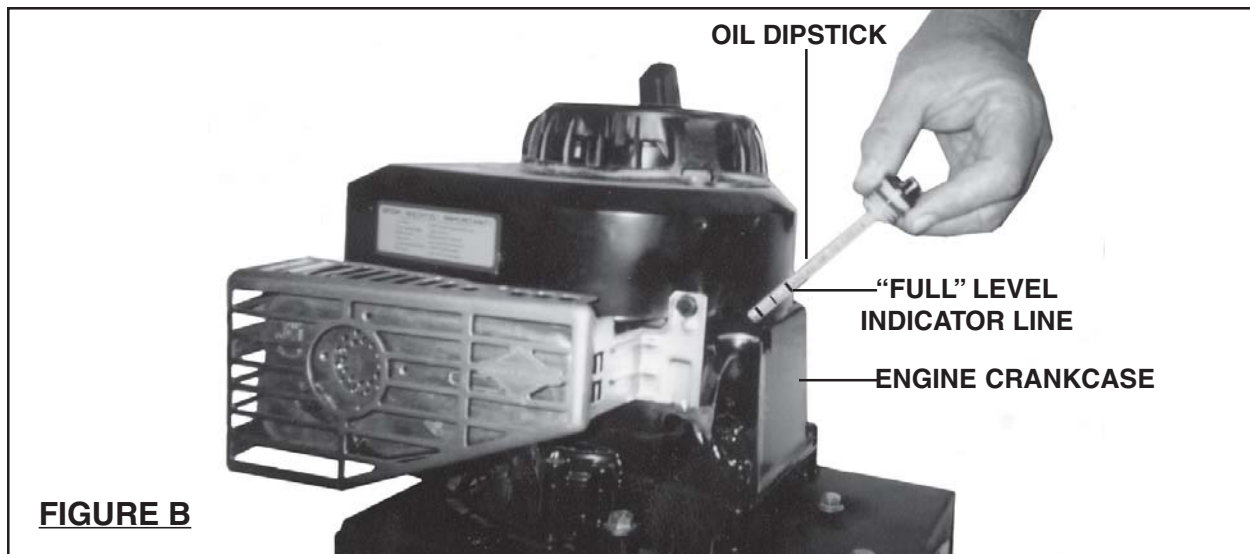
FIGURE A

2. The Upper Handle (66) is folded for shipping purposes. Loosen the Grip Handles (67) located on each side of the Upper Handle. Unfold the Upper Handle to its normal working position. Then, firmly retighten each Grip Handle to secure the Upper Handle in place. (See Figure A.)

OPERATING INSTRUCTIONS

Pre-Start Checks:

1. **IMPORTANT!** Prior to first using the Cultivator, the Engine **MUST** be filled with a high quality SAE 10W-30 grade engine oil until the level of the oil is indicated as “FULL” on the Oil Dipstick. To do so, unscrew and remove the Oil Dipstick located on the Engine Crankcase. Fill the Engine Crankcase with the Proper amount of oil. Then, screw the Dipstick back into the Oil Fill Hole. (For additional information, refer to the engine manufacturer’s manual.) (See Figure B.)



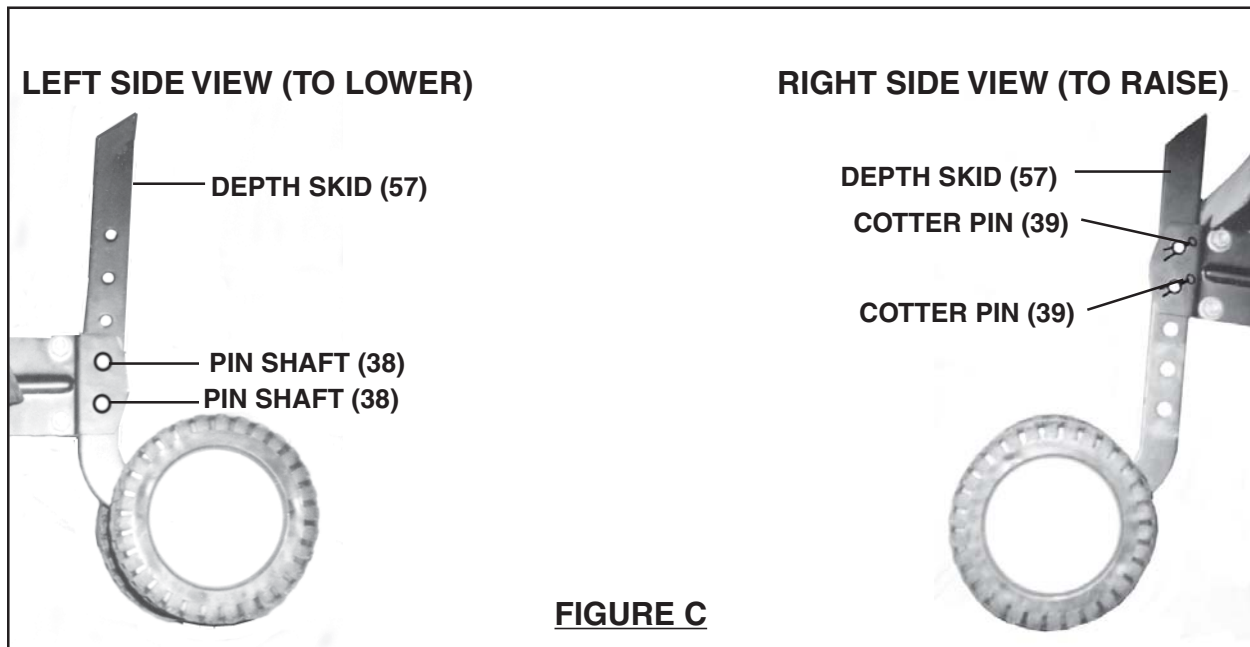
2. Before the first use, remove the Engine’s Fuel Tank Cap and fill the Fuel Tank with *unleaded* gasoline. Then, replace the Fuel Tank Cap. Thereafter, check the Fuel Tank for the amount of unleaded gasoline. Refill the Fuel Tank *only* with unleaded gasoline.

BEWARE of possible buried obstacles such as cable, conduit, and irrigation lines.

To Start And Operate The Cultivator:

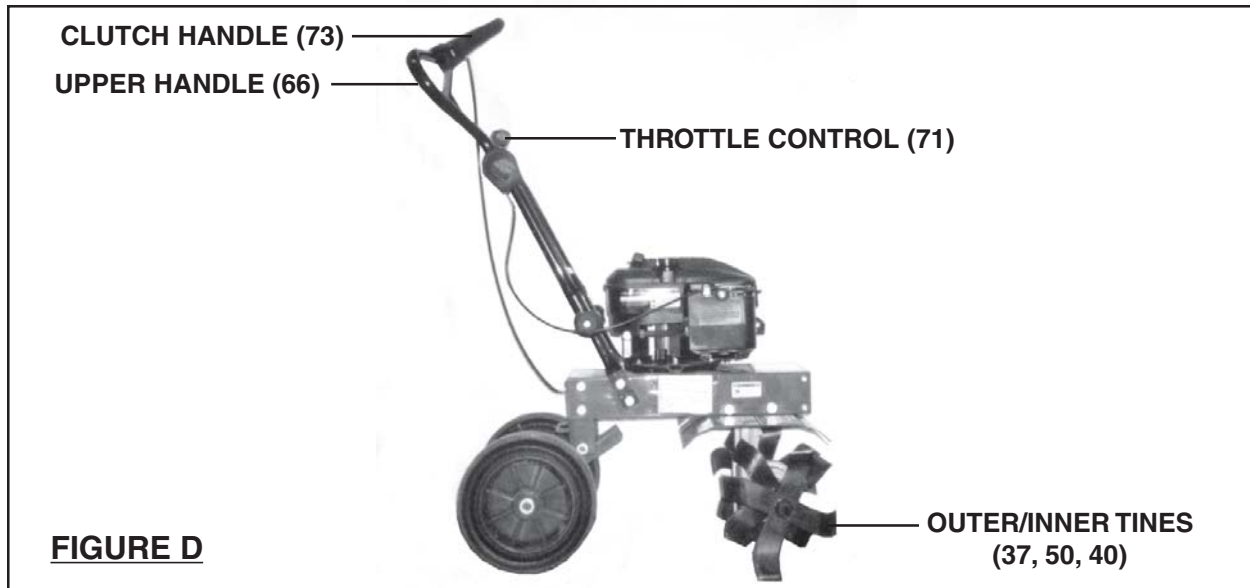
1. Move the Cultivator to the position where you wish to begin tilling the soil.
2. If necessary, adjust the Depth Skid (57) in order to till the soil at a desired depth

(to a maximum 11" deep). To do so, remove the two Cotter Pins (39). Remove the two Pin Shafts (38). Raise or lower the Depth Skid (57) to obtain the desired tilling depth. Then, replace the Pin Shafts and Cotter Pins. **(See Figure C.)**



3. Open the Fuel Valve on the Engine.
4. Turn the Choke Lever on the Engine to its **“CHOKE”** position.
5. Set the Throttle Control (71) to its **“FAST”** position. **(See Figure D, next page.)**
6. Hold the Start Handle of the Engine loosely and pull it slowly several times to allow the gasoline to flow into the Engine’s carburetor. Then hold the Start Handle firmly and pull the rope hard and fast. Pull the rope all the way out, using two hands if necessary. If necessary, pull the rope several times until the Engine starts.
7. Allow the Engine to run for several seconds. Then, turn the Choke Lever to its **“RUN”** position.
8. Adjust the Throttle Control (71) to the desired speed at which the Cultivator will move. **(See Figure D.)**
9. Grip the Upper Handle (66) *firmly* with both hands. **(See Figure D.)**
10. Squeeze down on the Clutch Handle (73) to rotate the Tines (37, 50, 40) and move the Cultivator in a **FORWARD** direction. **(See Figure D.)**
11. Slowly push the Cultivator while guiding the tool in the desired forward direction.


12. Always keep a safe distance away from the edges and banks of ditches and avoid any actions that might cause the Cultivator to topple over.



To Stop The Cultivator:

1. Release your grip on the Clutch Handle (73), and allow it to return to its “**NEUTRAL**” position. (See Figure D.)
2. Turn the Throttle Control (71) to its “**STOP**” position.
3. Close the Fuel Valve on the Engine.
4. **NOTE:** Always park the Cultivator on a firm and level surface away from all flammable materials such as leaves, brush, weeds, etc.

INSPECTION, MAINTENANCE, AND CLEANING

1.  **CAUTION!** Always make sure the Engine’s Throttle Control (71) is in its “**STOP**” position. Disconnect the spark plug wire from the Spark Plug. And allow sufficient time for the Engine to completely cool before performing any inspection, maintenance, or cleaning on the Cultivator and/or Engine.
2. **Before each use**, inspect the general condition of the Cultivator. Check for loose screws, misalignment or binding of moving parts, cracked or broken parts, and any other condition that may affect its safe operation. If a problem occurs, always have the Cultivator immediately checked out by a *qualified service technician* before further use. **Do not use damaged equipment.**

3. **Before each use**, check to make sure the Engine's oil level is adequate. If necessary, fill the Engine's Crankcase until the oil level is indicated as "**FULL**" on the Oil Dipstick. **(See Figure B.)**
4. **Before each use**, With a soft brush, vacuum, or compressed air, remove all debris from the Cultivator. Then, use a premium quality, lightweight machine oil to lubricate all moving parts except the Belt (12), Pulley F (3), and Pulley J (31).
5. **Every 25 hours of use** drain the old Engine oil and replace with a high quality SAE 10W-30 grade engine oil, making sure the oil level is indicated as "**FULL**" on the Oil Dipstick. **Make sure to contact a local environmental or recycling center for proper disposal of old oil.**
6. **Belt replacement:** Should it become necessary to replace the Belt (12) it is recommended that only a *qualified, certified technician* perform this procedure.
7. **Every 300 hours of use**, have a *qualified, certified technician* perform thorough maintenance on the Cultivator and its Engine.

Adjusting The Tiller Tines

8. Part # 45 Shaft, and the Tines, are assembled with Cotter Pins (39) and Pin Shaft (38). The Shaft (45) has adjustment holes in it. To change the spacing between the Tines remove the Cotter Pins then remove the Pin Shaft (45). Adjust the Tiller Tines to the desired placement then insert the Pin Shaft (38) through the Shaft (45). Insert the Cotter Pins (39) in the Pin Shaft (38) to secure it.

PLEASE READ THE FOLLOWING CAREFULLY
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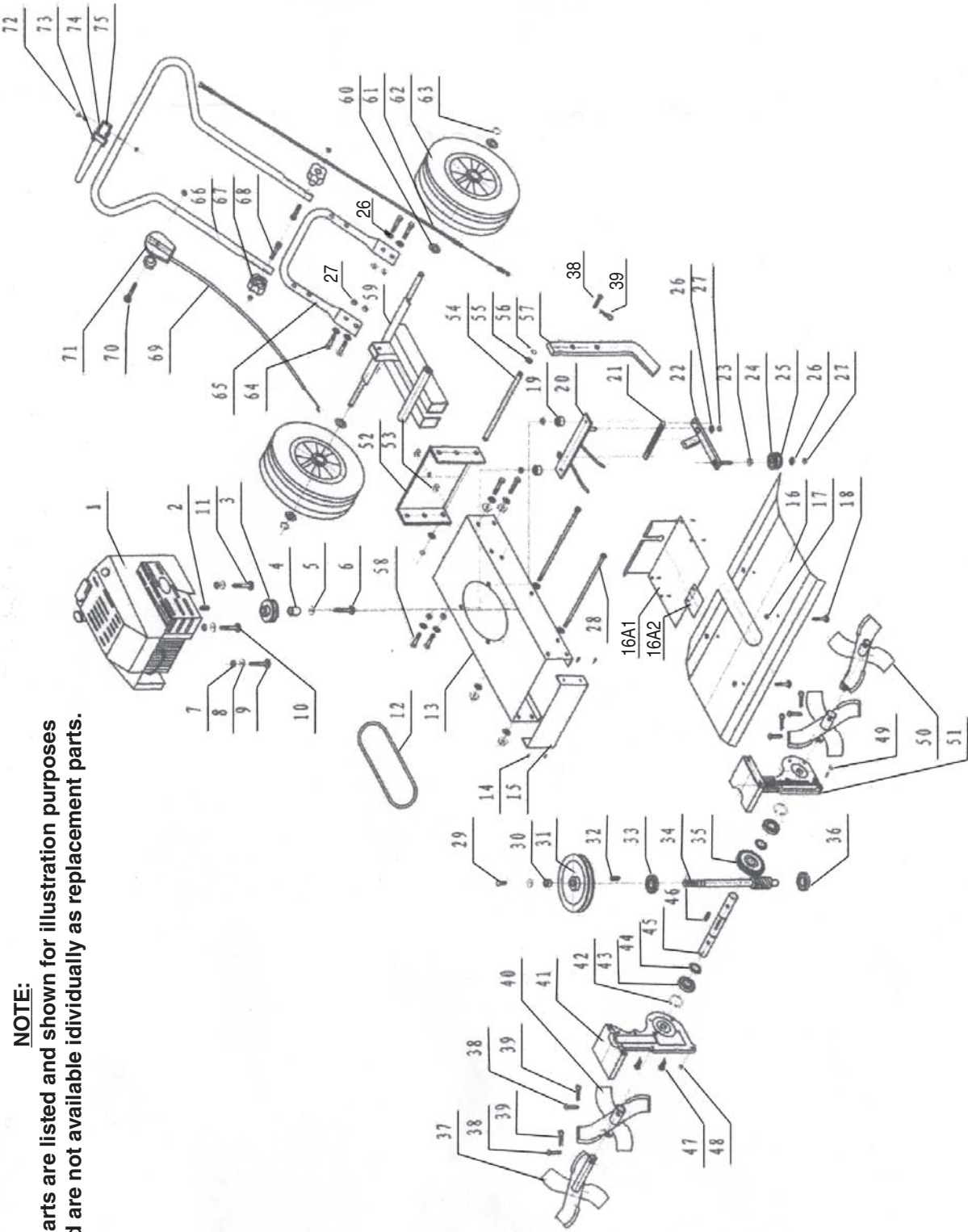
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PARTS LIST

Part #	Description	Qty.	Part #	Description	Qty.
1	Engine (5.5 HP)	1	38	Pin Shaft (0B8 x 40)	5
2	Flat Key (B5 x 5 x 25)	1	39	Cotter Pin	5
3	Pulley (F)	1	40	Tines (Inner)	2
4	Engine Adjusting Sleeve	1	41	Speed Reducer Shell (1)	1
5	Washer (M8 x 24 x 2)	10	42	Shaft Spring Circlip (25)	2
6	Bolt (5/16"-24 UNF x 20)	1	43	Bearing (6005 RZZ)	2
7	Washer (M8 x 24 x 2)	7	44	Shaft Adjusting Sleeve (J)	2
8	Washer (8)	7	45	Shaft (J)	1
9	Bolt (M8 x 35)	1	46	Flat Key (B6 x 6 x 25)	1
10	Bolt (M8 x 45)	1	47	Bolt (M8 x 12)	2
11	Bolt (M8 x 75)	1	48	Self-Lock Nut (M6)	15
12	V Belt (A 630mm)	1	49	Inner Hex Screw (M6 x 22)	9
13	Housing (D)	1	50	Outer Tines (L)	1
14	Hex Flange Lock Screw (M5 x 8)	8	51	Speed Reducer Shell (2)	1
15	Front Cover (D)	1	52	Rear Cover Assy.	1
16	Mud Proof Plate	1	53	Washer	2
16A1	Dust Proof Cover (Large)	1	54	Frame Shaft	1
16A2	Dust Proof Cover (Small)	1	55	Flat Washer (12)	2
17	Self-Lock Nut (M6)	15	56	Shaft Spring Circlip	2
18	Bolt (M6 x 12)	4	57	Depth Skid	1
19	Washer Sleeve	2	58	Bolt (M10 x 20)	4
20	Arm (1)	1	59	Wheel Shaft Fixing Frame	1
21	Spring (D)	1	60	Flat Washer (16)	4
22	Arm (2)	1	61	Clutch Cable (D)	1
23	Swelling Wheel Adjusting Sleeve	1	62	Wheel	2
24	Bearing (6200RZZ)	1	63	Shaft Spring Circlip (16)	2
25	Small Swelling Wheel	1	64	Bolt (M10 x 25)	4
26	Washer (10)	10	65	Lower Handle	1
27	Self-Lock Nut (M10)	10	66	Upper Handle	1
28	Bolt (M8 x 245)	2	67	Grip Handle	2
29	Bolt (M8 x 15)	1	68	Bolt (M8 x 50)	2
30	Worm Shaft Adjusting Sleeve	1	69	Throttle Cable	1
31	Pulley (J)	1	70	Bolt (M6 x 60)	1
32	Flat Key (B6 x 6 x 25)	1	71	Throttle Control	3
33	Bearing (6004 RZZ)	1	72	Inner Hex Screw (M6 x 40)	1
34	Worm Shaft (D)	1	73	Clutch Handle	1
35	Worm Wheel (D)	1	74	Clutch Handle Housing	1
36	Bearing (30204)	1	75	Clutch Handle Housing Cover	1
37	Outer Tines (R)	1			

NOTE: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

ASSEMBLY DIAGRAM



NOTE:
Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.