

CENTRAL MACHINERY[®]

OHV GAS ENGINE - HORIZONTAL

MODEL 99856 - 13 HP

MODEL 96154 - 11 HP

ASSEMBLY AND OPERATION INSTRUCTIONS

IMPORTANT!
Your Warranty is voided if:
You do not put Engine oil in the Engine's crankcase prior to its first use.
Never run the Engine with low or no oil.
Running the Engine with low or no oil will permanently damage the Engine.



Due to continuing improvements, actual product may differ slightly from the product described herein.

Distributed exclusively by Harbor Freight Tools.

3491 Mission Oaks Blvd., Camarillo, CA 93011

Visit our website 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.

SPECIFICATIONS

	Model 99856	Model 96154
Engine Type	13 HP, 4-Stroke Gasoline Engine Air Cooled, Horizontal Shaft Electric Start w/Recoil Back-Up Powered w/mid-to-high octane unleaded gasoline Model: 188FD, Family: 6CLGS.38988F Battery Type: 12 VDC (not included)	11 HP, 4-Stroke Gasoline Engine Air Cooled, Horizontal Shaft Electric Start w/Recoil Back-Up Powered w/mid-to-high octane unleaded gasoline Model: 182FD, Family: 6CLGS.38988F Battery Type: 12 VDC (not included)
Displacement	389CC	337cc
Compression Ratio	8:1	8:1
Maximum Power Output	13 HP @ 3600 rpm	11 HP @ 3600 RPM
Maximum Torque	17 Ft.-Lb. @ 2500 RPM	15.5 Ft.-Lb. @ 2500 RPM
Fuel Tank Capacity	1.7 Gal.	1.7 Gal.
Engine Oil Capacity	2.3 Pints	2.3 Pints
Shaft Size	1" Diameter x 2-7/8" Long Drilled & Tapped with 3/8"-24 UNF 1/4" Keyway	1" Diameter x 2-7/8" Long Drilled & Tapped with 3/8"-24 UNF 1/4" Keyway
Engine Rotation	Counterclockwise facing the Shaft	Counterclockwise facing the Shaft
Spark Plug Type	NGK® BR-6HS / Champion® RL86C	NGK® BR-6HS / Champion® RL86C
Air Cleaner Type	Semi-Dry	Semi-Dry
Engine Approvals*	2008 U.S. E.P.A. Phase II 2008 California Emissions Regulations	2008 U.S. E.P.A. Phase II
Weight	68.3 Lb.	68.3 Lb.

IMPORTANT!

This product requires oil and fuel to be added before starting. Attempting to start the Engine without oil WILL ruin the Engine and void the warranty.

NOTE:

The Engine's carburetor may need to be adjusted by a qualified mechanic for efficient high-altitude use.

* The emission control system for this Engine is warranted for standards set by the U.S. Environmental Protection Agency For warranty information, refer to the last pages of this manual.

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. Write the product's serial number in the back of the manual near the assembly diagram, or write month and year of purchase if product has no number. Keep this manual and invoice in a safe and dry place for future reference.

GENERAL SAFETY RULES


▲WARNING!

READ AND UNDERSTAND ALL INSTRUCTIONS
Failure to follow all instructions listed below 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 and dark areas invite accidents.
2. Do not operate the Engine in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust. Gasoline engines create sparks which may ignite the dust or fumes.
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. Children should never be allowed in the work area.

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 the Engine 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. Do not overreach. Keep proper footing and balance at all times. Proper footing and balance enables better control of the Engine in unexpected situations.
4.  Use safety equipment. Always wear eye protection. Dust mask, nonskid safety shoes, hard hat, or hearing protection must be used for appropriate conditions. Always wear ANSI-approved safety goggles when using or performing maintenance on this Engine.

TOOL USE AND CARE

1. Do not force the Engine. Use the correct Engine for your application. The correct Engine will do the job better and safer at the rate for which it is designed. Do not force the Engine and do not use the Engine for a purpose for which it is not intended.

2. Do not use the Engine if the Engine's Ignition Switch does not turn it on or off. Any tool that cannot be controlled with the Ignition Switch is dangerous and must be replaced.
3. Disconnect the Spark Plug Wire from the Engine before making any adjustments, changing accessories, or storing the tool. Such preventive safety measures reduce the risk of starting the tool accidentally. Always disconnect the Spark Plug Wire before performing any inspection, maintenance, or cleaning procedures. Maintain tools with care. Keep the Engine clean. Properly maintained engines are less likely to malfunction and are easier to control. Do not use a damaged Engine. Tag damaged engines "Do not use" until repaired.
4. Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tool's operation. If damaged, have the Engine serviced before using. Many accidents are caused by poorly maintained equipment.
5. 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. Engine 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 the Engine, 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 and void applicable warranties.

SPECIFIC SAFETY RULES

1. **IMPORTANT!** Your Warranty is voided if:
You do not put engine oil in the Engine's crankcase prior to its first use. Before each use, check the oil level. Never run the Engine with low or no engine oil. Running the Engine with low or no Engine oil will permanently damage the Engine.
2. Maintain labels and nameplates on the Engine. These carry important information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
3. Maintain a safe working environment. Make sure there is adequate surrounding workspace.
4. Avoid unintentional starting. Make sure you are prepared to begin work before turning on the Engine. Learn and memorize how to shut off the Engine prior to starting it.

5. People with pacemakers should consult their physician(s) before use. Electro-magnetic fields in close proximity to a heart pacemaker could cause pacemaker interference or pacemaker failure. Caution is necessary when near the Engine's magneto or recoil starter.
6. Never leave the Engine unattended when it is running. Turn off the Engine before leaving the work area.
7. Always use the Engine on a flat, level, dry ground surface.
8. Make sure to keep hands and fingers away from all moving parts of the Engine.
9. Prior to installing the Engine onto a power equipment unit, make sure to read and understand all instructions and safety precautions as outlined in the owner's manual for the power equipment.

TOXIC FUMES, FIRE, AND EXPLOSION PRECAUTIONS

1. This Engine is designed for outdoor use only. Do not operate the Engine in a closed area or in a poorly ventilated area. When running, the Engine produces carbon monoxide, a colorless, odorless, toxic gas that, when inhaled, can cause serious personal injury or death. Whenever possible, use a carbon monoxide detector (not included) to detect excessive carbon monoxide fumes in the work area and in the surrounding area.
2. Gasoline fuel and fumes are flammable, and potentially explosive. Use proper fuel storage and handling procedures. Always have multiple ABC class fire extinguishers nearby.
3. Keep the Engine and surrounding areas clean at all times.
4. 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.
5. Never store fuel or other flammable materials near the Engine.
6. Do not smoke, or allow sparks, flames, or other sources of ignition around the Engine.
7. 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.
8. Do not refill the Fuel Tank while the Engine is running or hot.
9. Do not operate the Engine with known leaks in the Engine's fuel system.
10. Use only Engine manufacturer recommended oil and fuel.

MECHANICAL PRECAUTIONS

1. Prior to performing service, maintenance, or cleaning procedures, always make sure the Engine's Ignition Switch is in its "OFF" position. Allow the Engine to completely cool. Then, remove the Spark Plug Wire from the Spark Plug.
2. Do not alter or adjust any part of the Engine that is assembled and supplied by the manufacturer or distributor.
3. Always follow and complete scheduled Engine maintenance.

CHEMICAL PRECAUTIONS

1. Avoid contact with hot fuel, oil, exhaust fumes, and solid surfaces.
2. Avoid body contact with fuels, oils, and lubricants used in the Engine. If swallowed, seek immediate medical treatment. 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 PRECAUTION

Prolonged exposure to high noise levels is hazardous to hearing. Always wear ANSI-approved hearing protection when operating or working around the Engine when it is running.

MISC. PRECAUTION

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

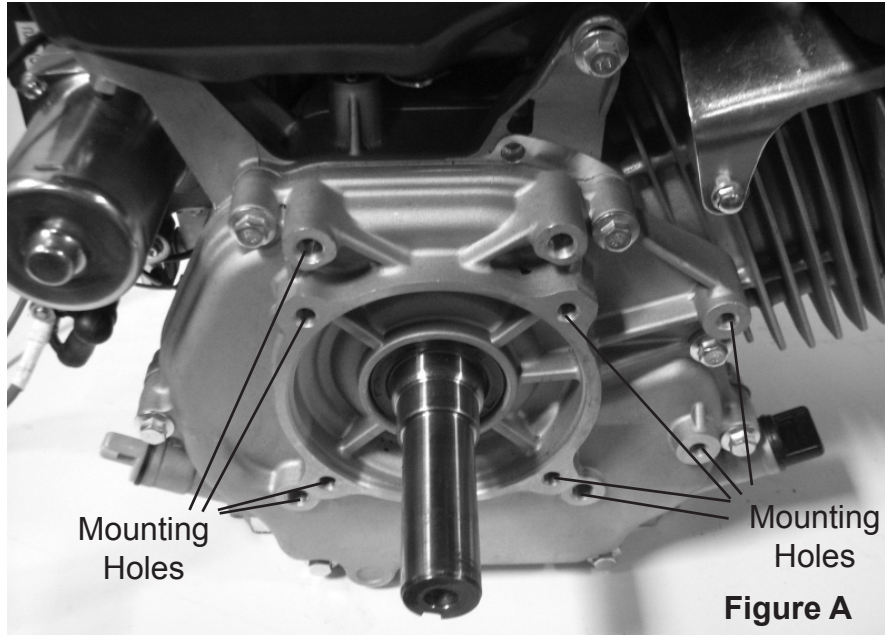
UNPACKING

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

ASSEMBLY INSTRUCTIONS

TO MOUNT THE ENGINE

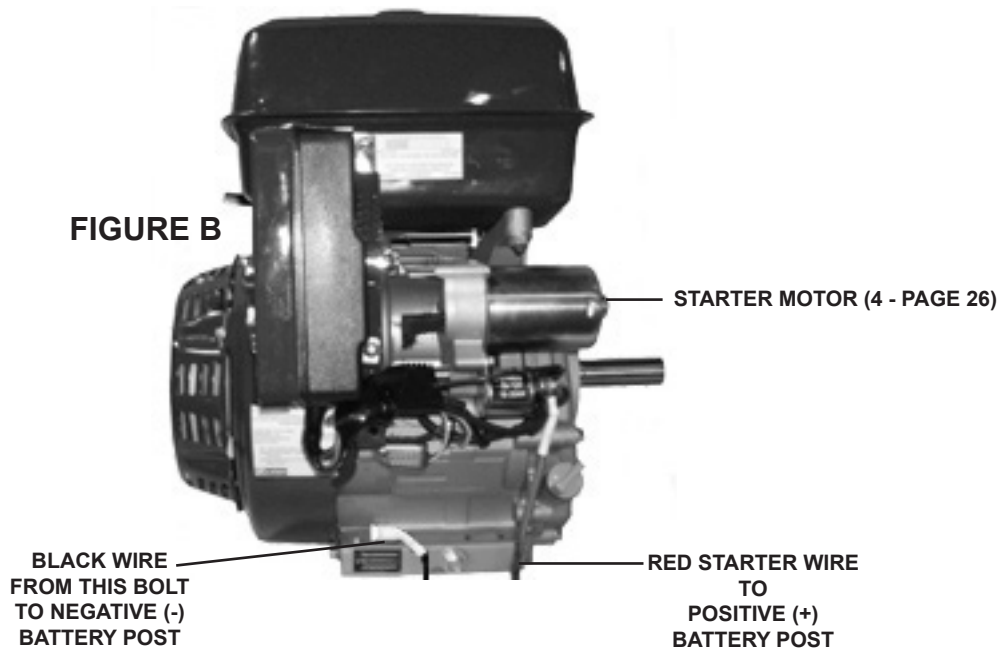
1. **IMPORTANT:** If you have any doubts about your ability to perform the following assembly procedures, you should have a qualified service technician perform the assembly for you.



2. Located near the Crankshaft (16 - page 16) are different-sized mounting holes with which to mount the Engine to your power equipment unit. **(See Figure A.)**
3. Set the Engine side-by-side to the power equipment unit, and align the mounting holes of the Engine with the mounting holes in the power equipment unit. **NOTE:** There are different patterns of mounting holes available. Use the mounting holes that best match the ones on the power equipment unit. **(See Figure A.)**
4. Use hardened steel Bolts, Washers, Lock Washers, and Nuts (not included) of the appropriate diameter and length to secure the Engine to the power equipment unit. **(See Figure A.)**
5. **⚠CAUTION!** Check to make sure the Bolts, Washers, Lock Washers, and the Nuts used **DO NOT** come in contact with any moving part of the Engine and power equipment unit.
6. **NOTE:** Refer to the power equipment unit's owner manual for instructions on how to properly install a belt drive pulley, chain drive gear, etc. onto the Crankshaft (16 - page 16) of the Engine.

TO PROVIDE BATTERY POWER TO THE STARTER MOTOR

1. The Engine's Starter Motor (4 - page 26) unit can be powered by a typical 12 VDC battery (not included).



2. To provide battery power to the Starter Motor (4 - page 26), connect the **BLACK** (negative -) wire from the negative (-) post on the battery to the Bolt designated on the base of the engine. Then connect the **RED** (positive +) wire from the Starter Motor to the positive (+) post on the battery. **(See Figure B.)**

PRE-OPERATING INSTRUCTIONS

1. **Make sure the Engine's Crankcase is filled with approximately 37 ounces of 10-30W automotive oil. Also, make sure the Engine's Fuel Tank is filled with approximately 1-1/2 gallon of unleaded gasoline before attempting to start the Engine.** Failure to do so **WILL** damage the Engine and void the Warranty.
2. Before adding oil check to make sure the Drain Plug (2 - page 13) is tight. Unscrew and remove the Dipstick (15 - page 14). Pour the required amount of oil into the Crankcase Cover (4 - page 14). Then screw the Dipstick back into the Crankcase Cover. **(See Figure C, next page.)**
3. Unscrew and remove the Fuel Filler Cap (11 - page 19) from the Fuel Tank (9 - page 19). Pour the required amount of unleaded gasoline (mid to high octane) into the Fuel Tank. Then screw the Fuel Filler Cap back onto the Fuel Tank. **(See Figure C.)**

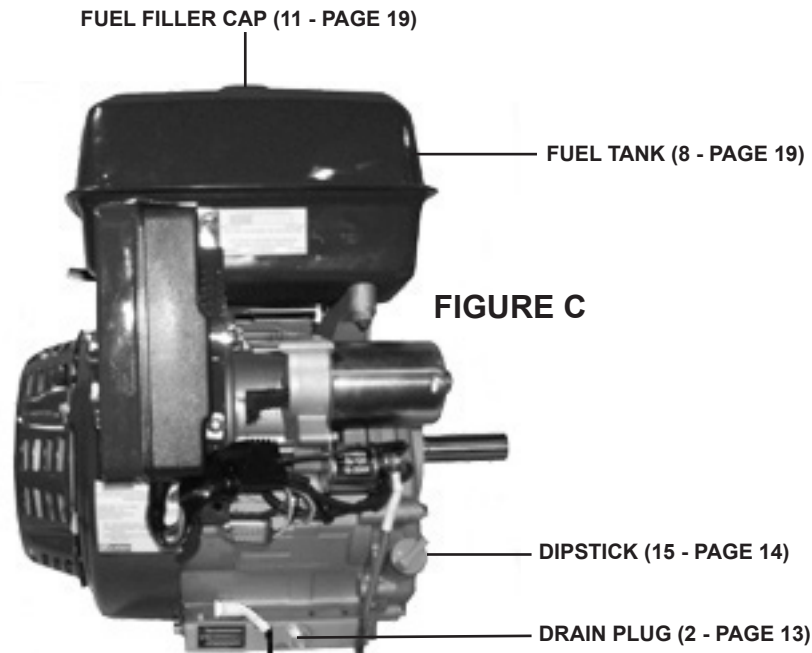


FIGURE C

OPERATING INSTRUCTIONS

1. **Make sure the power equipment unit's transmission (if applicable) is in its "NEUTRAL" or "PARK" position before attempting to start the Engine.**

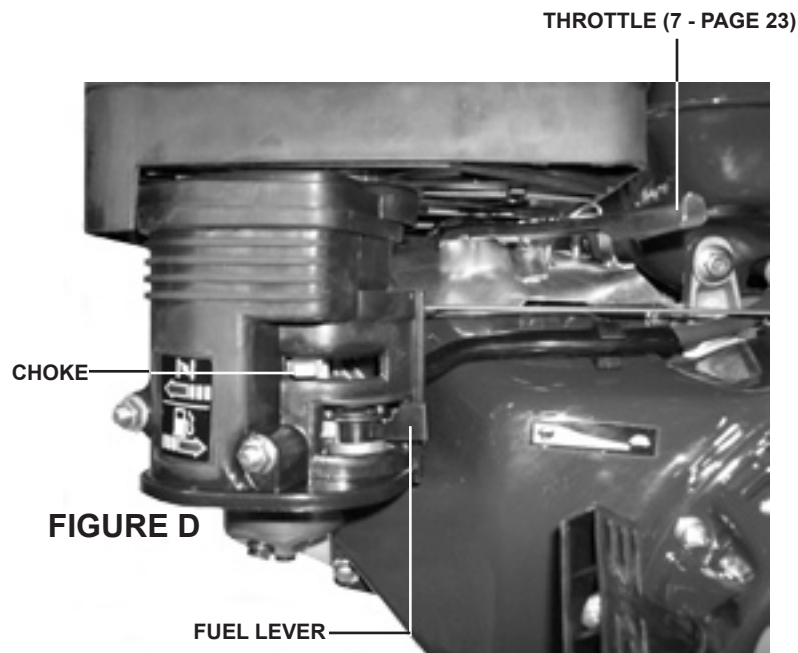
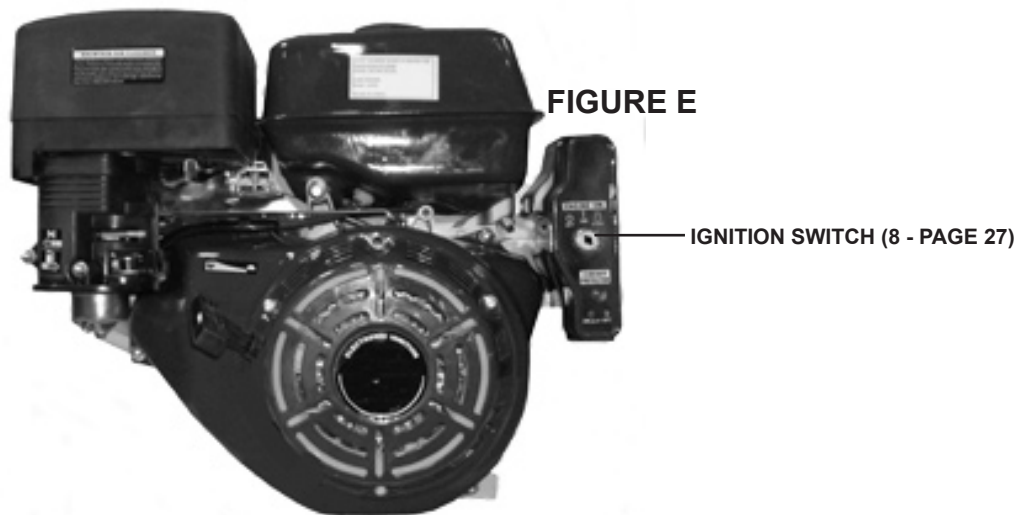


FIGURE D

2. To start the Engine, turn the Fuel Lever to its **"OPEN"** position. Turn the Choke to its **"START"** position. Then turn the Throttle to the RIGHT to its **"SLOW"** position. **(See Fig. D.) Note:** If the Engine is already hot, keep the Choke in the **"RUN"** position.



3. To start the Engine, using the **battery** for cranking power, insert the Ignition Key (19 - page 27) and turn the Engine Ignition (8 - page 27) to its “**START**” position. If necessary, repeat this procedure until the Engine starts. **NOTE:** To prolong Starter Motor (4 - page 26) life, use short starting cycles (5 seconds maximum, then wait one minute before attempting restart. **(See Figure E.)**
4. To start the Engine **manually**, using the Starter Recoil Handle (17 - page 22), insert the Ignition Key (19 - page 27) and turn the Engine Ignition (8 - page 27) to its “**RUN**” position. Grasp the Starter Recoil Handle and pull slowly until resistance is felt. Allow the Handle to retract slowly. Then pull the Handle with a rapid, full arm stroke. Allow the Handle to retract slowly. If necessary, repeat this procedure until the Engine starts.
5. Once the Engine starts, turn the Choke to its “**RUN**” position. Then adjust the Throttle to the RIGHT (7 - page 23) to the the speed (RPM) you desire. **(See Figure D.)**
6. **IMPORTANT:** Allow the Engine to run at no load for five minutes after each start-up so that the Engine can stabilize.
7. When finished using the Engine, turn the Engine’s Ignition (8 - page 27) to its “**OFF**” position. Then close the Engine’s Fuel Lever. **(See Figures D and E.)**
8. **NOTE:** In an emergency, the Engine can be turned off by either:
 - a. Turning the Engine Ignition (8 - page 27) to its “**OFF**” position.
 - b. Turning the Fuel Lever to its “**CLOSED**” position.
 - c. Removing the Spark Plug Cap (4 - page 25).

INSPECTION, MAINTENANCE, AND CLEANING

1. **⚠WARNING!** Never perform any services or maintenance on the Engine while it is running. Before performing any inspection, maintenance, and cleaning, turn off the Engine and disconnect the Spark Plug Wire from the Spark Plug to prevent accidental starting. Then, allow the Engine to completely cool.
2. Before each use, inspect the general condition of the Engine. Check for loose bolts and nuts, misalignment, binding of moving parts, loose or broken parts, damaged fuel lines, and any other condition that may affect the safe operation of the Engine. If abnormal noise or vibration occurs, turn off the Engine immediately and have the problem corrected before further use. **Do not use damaged equipment.**
3. Follow all maintenance procedures as outlined in the **Engine Maintenance Schedule** below at the specified intervals. **(See Figure G.)**
4. After each use, remove all debris from the Engine with a soft brush, cloth, vacuum, or with compressed air. Do not use solvents. Do not allow water to enter the internal workings of the Engine.
5. When storing, drain all fuel out of the Engine's Fuel Tank. If this is not done, old fuel in the Engine's Fuel Tank and Carburetor may become contaminated and prevent the Engine from starting until cleaned out. Do not drain oil. Always store the Engine in a clean, dry, safe location out of reach of children and other unauthorized people.
6. **⚠CAUTION!** All maintenance, service, and repairs not mentioned in this manual must only be performed by a qualified service technician.

Engine Maintenance Schedule

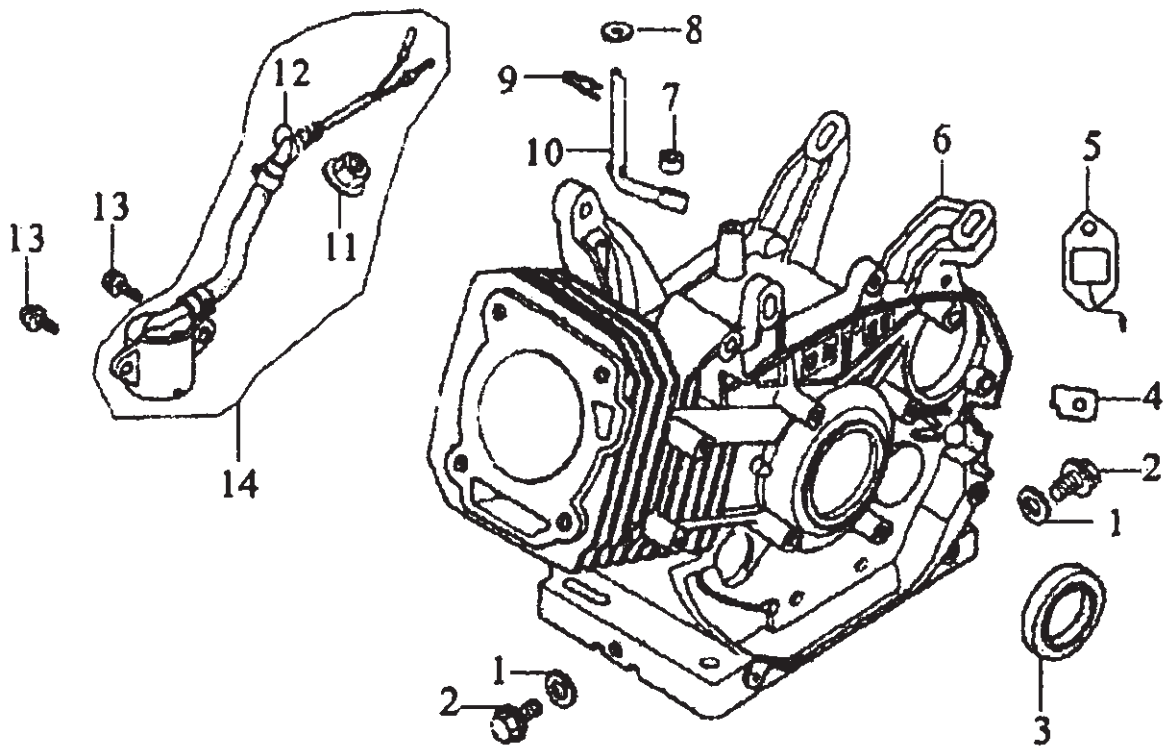
Interval <small>(More frequent maintenance will be necessary in dusty or severe conditions.)</small>	8 hours or daily, before use	50 hours or weekly	100 hours or biweekly	200 hours or monthly	500 hours or every 6 months	1000 hours or yearly	Details
Clean engine and check bolts & nuts							
Check and refill engine oil							
Change engine oil*							*Initial change immediately after 20 hour break-in period
Clean spark plug							
Clean and adjust spark plug electrodes							
Replace spark plug							
Clean air cleaner element							Wear dust mask and vacuum or blow clean with compressed air.
Replace air cleaner element							
Clean/replace fuel filter(s)^							^QUALIFIED TECHNICIAN/MECHANIC ONLY
Replace fuel lines and filter(s)^							^QUALIFIED TECHNICIAN/MECHANIC ONLY
Remove carbon from cylinder head^							^QUALIFIED TECHNICIAN/MECHANIC ONLY
Check and adjust valve clearance^							^QUALIFIED TECHNICIAN/MECHANIC ONLY
Clean and adjust carburetor^							^QUALIFIED TECHNICIAN/MECHANIC ONLY
Overhaul engine^							^QUALIFIED TECHNICIAN/MECHANIC ONLY

TROUBLESHOOTING

Problem	Possible Cause	Possible Solution
Engine will not start.	<ol style="list-style-type: none"> 1. Low on fuel or oil. 2. Ignition switch is in "OFF" position. 3. Faulty spark plug. 4. Choke in wrong position. 5. Fuel lever in "CLOSED" position. 6. Engine under load during start-up. 7. Spark plug wire loose. 8. Fuel line clogged. 9. Air filter clogged. 10. Fuel contaminated. 11. Faulty ignition system. 12. Battery low or defective. 	<ol style="list-style-type: none"> 1. Add fuel or oil. 2. Turn ignition switch to "ON" position. 3. Clean or replace spark plug. 4. Properly adjust choke. 5. Turn fuel lever to "OPEN" position. 6. Remove load from Engine. 7. Attach wire to spark plug. 8. Clean fuel line and filter. 9. Clean air filter. 10. Drain fuel tank and carburetor bowl. Refill with fresh fuel. 11. Have a qualified service technician check out ignition system. 12. Recharge or replace battery.

PARTS LIST/DIAGRAM - CRANKCASE

Part	Description	Q'ty	Part	Description	Q'ty
1	Washer	2	8	Washer	2
2	Drain Plug	2	9	Split Pin	1
3	Oil Seal, Crankshaft	1	10	Regulating Sway Bar	1
4	Seal	1	11	Nut (M10)	1
5	Diode	1	12	O-Ring	1
6	Crankcase	1	13	Bolt (M6x14)	2
7	Oil Seal, Regulating Sway Bar	1	14	Oil Sensor	1



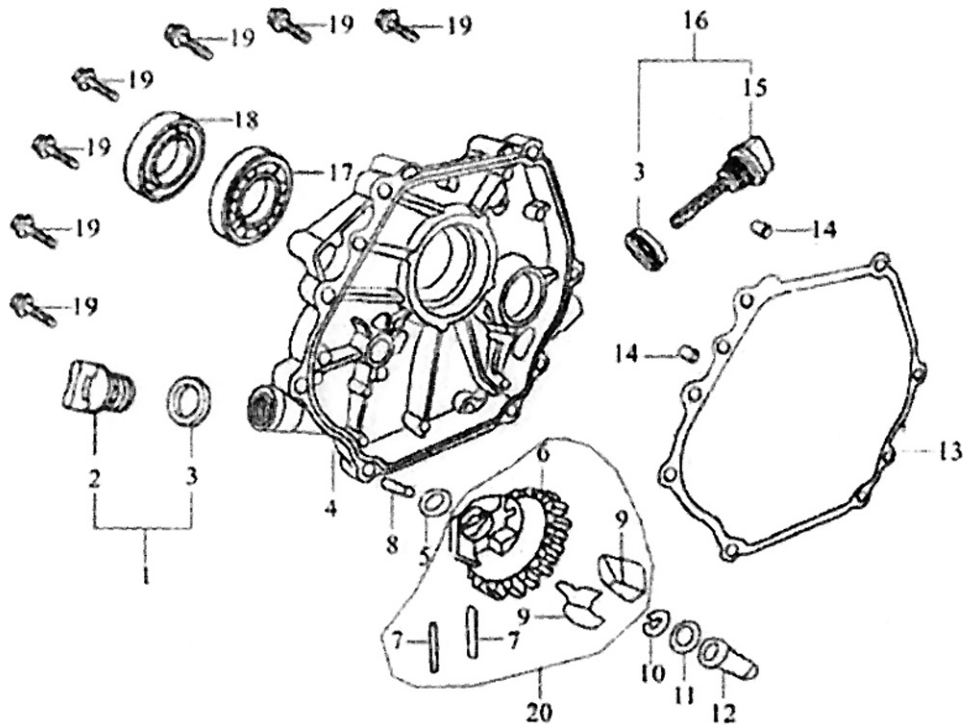
IMPORTANT

When ordering parts from the above Parts List, make sure to specify the following:

- a. The MODEL NUMBER (either 99856 or 96154) of the Engine for which you are ordering.
- b. The PART NUMBER listed to the left of the part description.
- c. The NAME OF THE PARTS LIST from which you are ordering (located at the top of this page).

PARTS LIST/DIAGRAM - CRANKCASE COVER

Part	Description	Q'ty	Part	Description	Q'ty
1	Oil Plug with Seal	1	11	Washer	2
2	Oil Plug	1	12	Sliding Sleeve	1
3	Seal	1	13	Gasket, Crankcase	1
4	Crankcase Cover	1	14	Set Pin (8x12)	2
5	Washer, Drive Gear	1	15	Dipstick	1
6	Drive Gear, Regulator	1	16	Dipstick with Seal	1
7	Pin	2	17	Bearing (6206)	1
8	Regulating Shaft	1	18	Oil Seal, Crankshaft	1
9	Flying Block	2	19	Bolt (M8x40)	7
10	Snap Ring	1	20	Drive Gear, Regulator	1



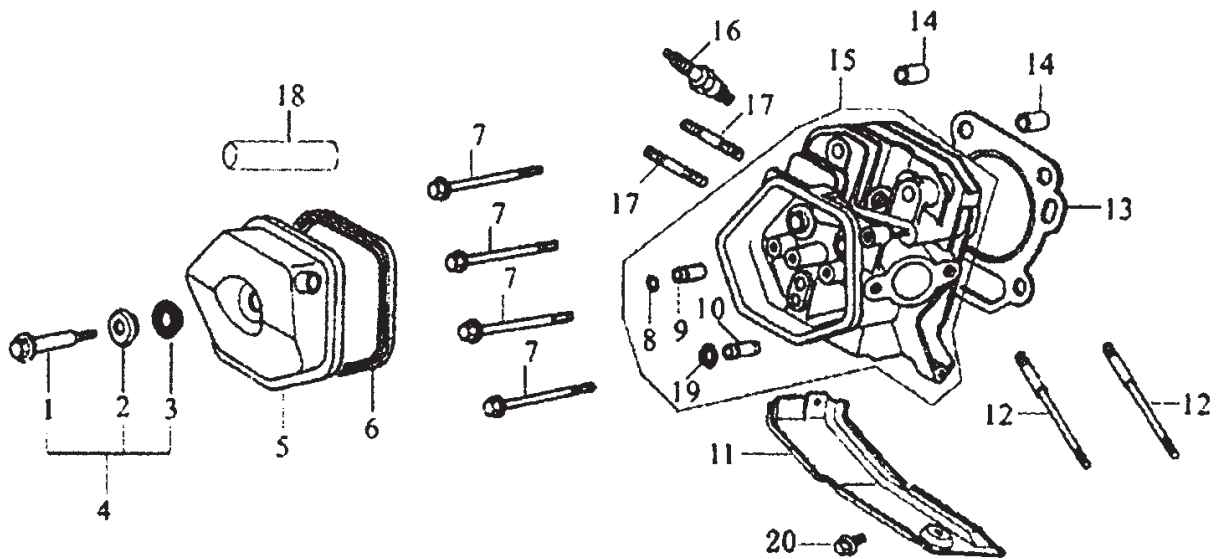
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PARTS LIST/DIAGRAM - CYLINDER HEAD/CYLINDER HEAD COVER

Part	Description	Q'ty	Part	Description	Q'ty
1	Bolt	1	11	Lead Wind Cover	1
2	Washer	1	12	Stud (M6x8x134.5)	2
3	Rubber Seal	1	13	Gasket, Cylinder Head	1
4	Bolt	1	14	Set Pin	2
5	Cylinder Head Cover Assy.	1	15	Cylinder Head Assy.	1
6	Gasket, Cylinder Head Cover	1	16	Spark Plug (F7RTCJ)	1
7	Bolt	4	17	Stud (M8x48.5)	2
8	Circlip	1	18	Air Duct	1
9	Exhaust Valve Guide	1	19	Seal	1
10	Intake Valve Guide	1	20	Bolt (M6x12)	1



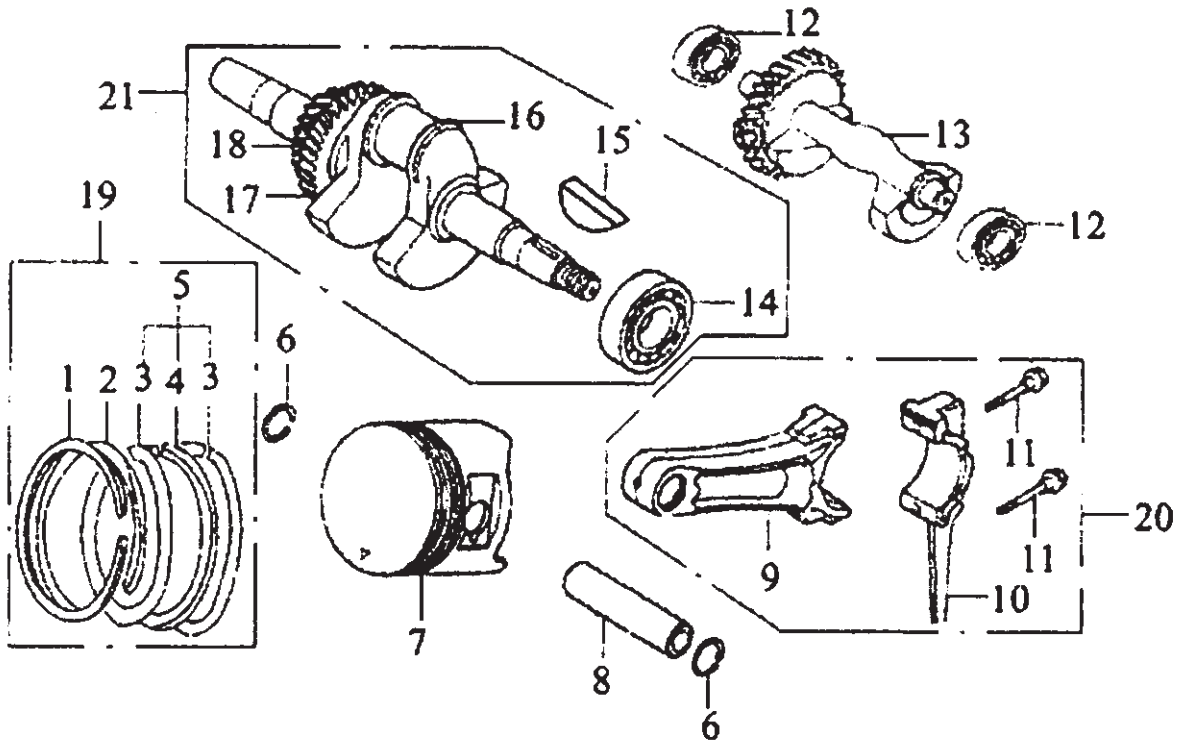
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PARTS LIST/DIAGRAM - CRANKSHAFT, PISTON, CONNECTING ROD

Part	Description	Q'ty	Part	Description	Q'ty
1	Piston Ring (I)	1	12	Bearing (6202)	2
2	Piston Ring (II)	1	13	Balancing Shaft	1
3	Side Rail	2	14	Bearing (6207)	1
4	Expander	1	15	Woodruff Key	1
5	Scraper Ring Set	1	16	Crankshaft	1
6	Piston Pin Circlip	2	17	Drive Gear	1
7	Piston	1	18	Timing Gear	1
8	Piston Pin	1	19	Piston Ring Set Kit	1
9	Shank	1	20	Connecting Rod Assy.	1
10	Bearing Cap	1	21	Crankshaft Assy.	1
11	Bolt	2			



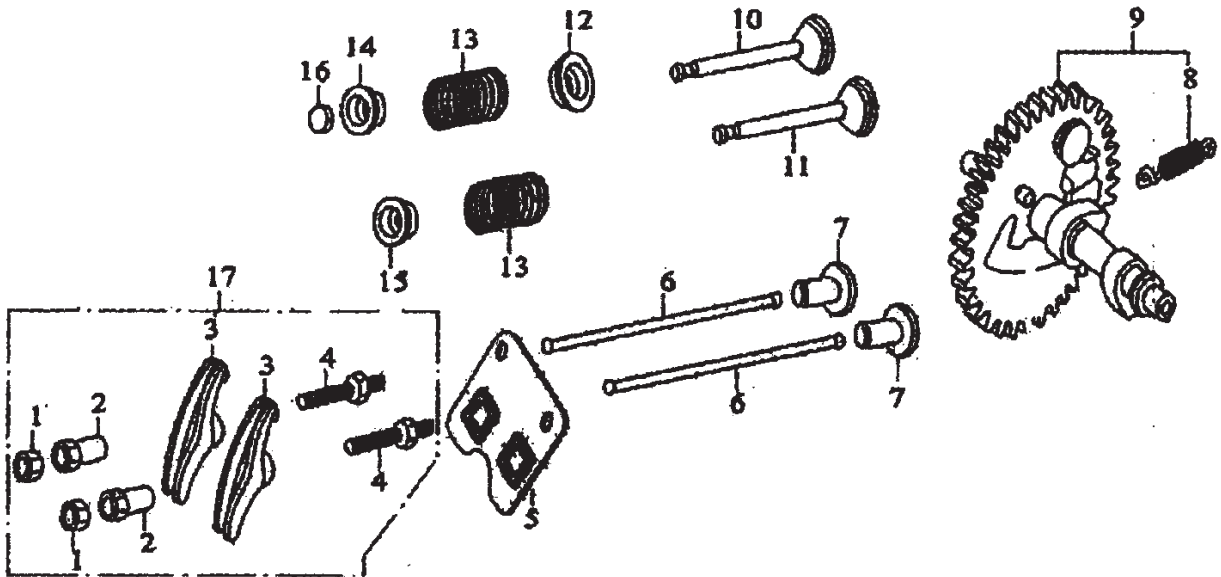
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PARTS LIST/DIAGRAM - CAMSHAFT, VALVE ROCKER

Part	Description	Q'ty	Part	Description	Q'ty
1	Lock Nut	2	10	Exhaust Valve	1
2	Sleeve	2	11	Intake Valve	1
3	Valve Rocker	2	12	Spring Retainer, Exhaust Valve	1
4	Adjusting Bolt for Valve Gap	2	13	Valve Spring	2
5	Pusher Guide	1	14	Spring Keeper	1
6	Push Rods	2	15	Spring Keeper	1
7	Valve Tappets	2	16	Seal	1
8	Extension Spring	1	17	Valve Rocker Assy.	2
9	Camshaft Assy.	1			



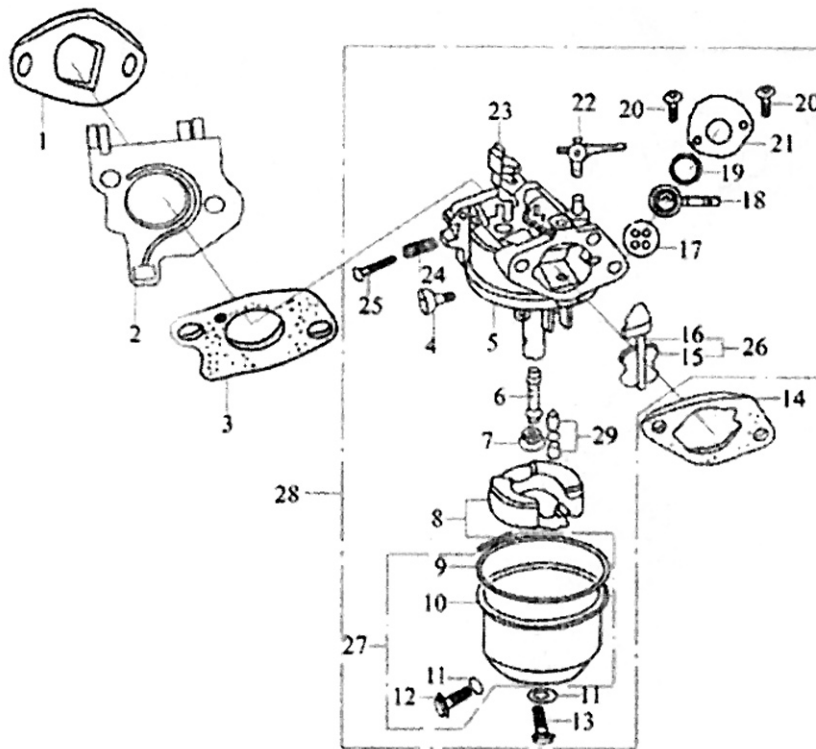
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PARTS LIST/DIAGRAM - CARBURETOR

Part	Description	Q'ty	Part	Description	Q'ty
1	Inlet Gasket	1	16	Choke Stem	1
2	Connecting Block	1	17	Airproof Washer	1
3	Carburetor Gasket	1	18	Throttle Lever	1
4	Idle Adjustment Screw	1	19	Washer	1
5	Mixture Chamber Body	1	20	Screw (M4)	2
6	Main Nozzle	1	21	Cover	1
7	Main Jet	1	22	Choke Switch	1
8	Float	1	23	Throttle Unit	1
9	Float Chamber Gasket	1	24	Spring, Mixture Adjustment Screw	1
10	Float Chamber	1	25	Mixture Adjustment Screw	1
11	Washer	2	26	Choke Unit	1
12	Float Chamber Drain Screw	1	27	Float Chamber	1
13	Screw	1	28	Carburetor Assy.	1
14	Air Cleaner Gasket	1	29	Float Needle	1
15	Choke	1			



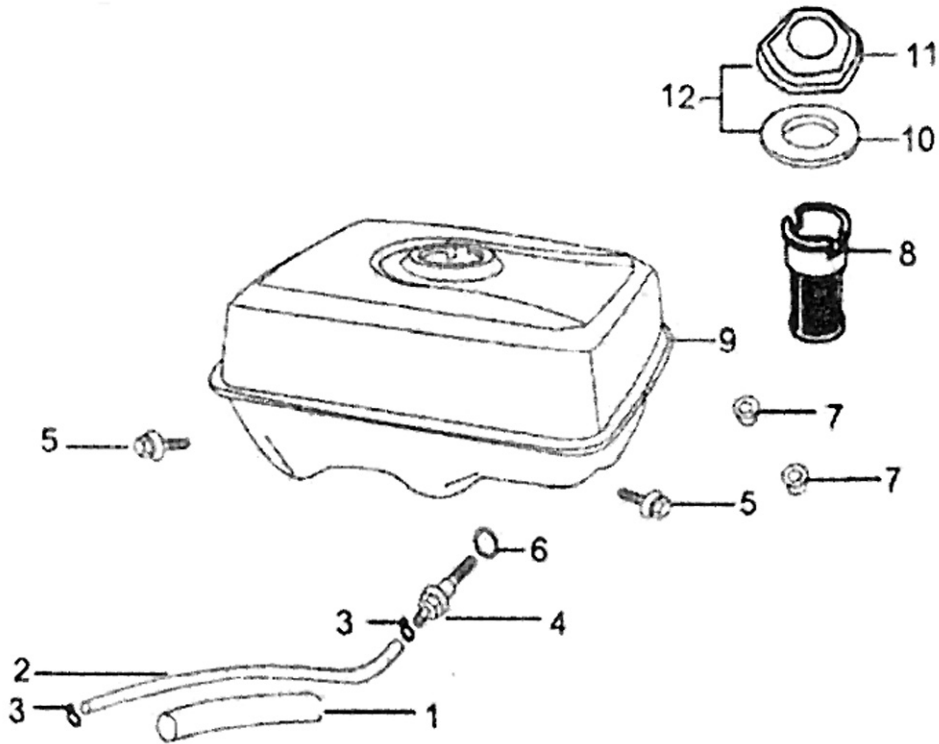
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PARTS LIST/DIAGRAM - FUEL TANK

Part	Description	Q'ty	Part	Description	Q'ty
1	Pipe	1	7	Nut (M8)	2
2	Outlet Pipe	1	8	Fuel Tank	1
3	Pipe Clamp	2	9	Filter Cup	1
4	Connector	1	10	Packing Ring	1
5	Bolt (M8x25)	2	11	Fuel Filler Cap	1
6	Packing Ring	1	12	Fuel Filler Cap w/Packing Ring	1



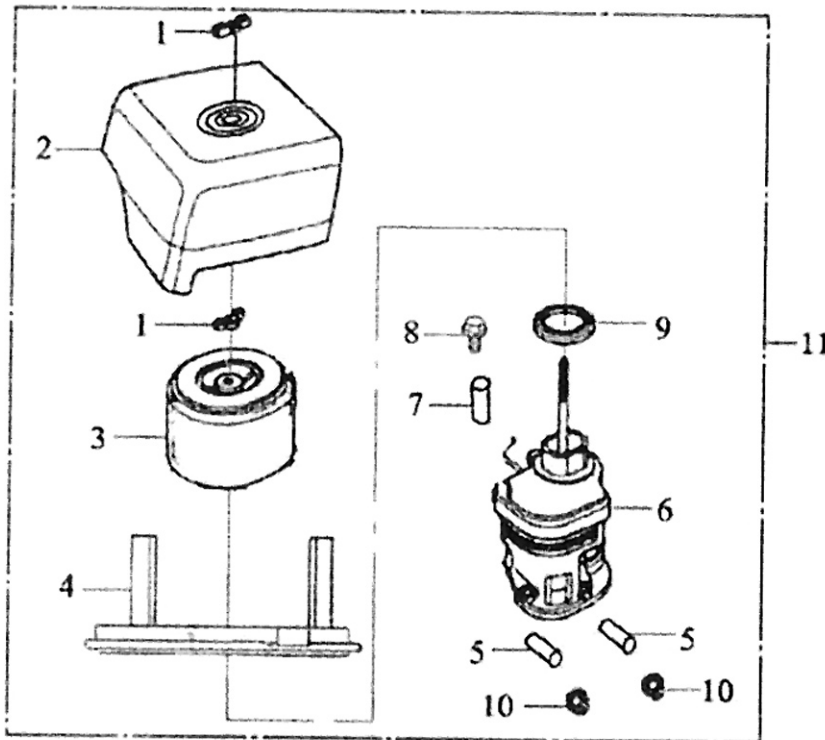
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PARTS LIST/DIAGRAM - AIR CLEANER

Part	Description	Q'ty	Part	Description	Q'ty
1	Wing Nut	2	7	Sleeve B	1
2	Air Cleaner Cover	1	8	Bolt (M6x22)	1
3	Filter Element	1	9	Washer	1
4	Air Cleaner Base	1	10	Nut (M6)	2
5	Sleeve A	1	11	Air Cleaner Assy.	1
6	Air Cleaner Housing	1			



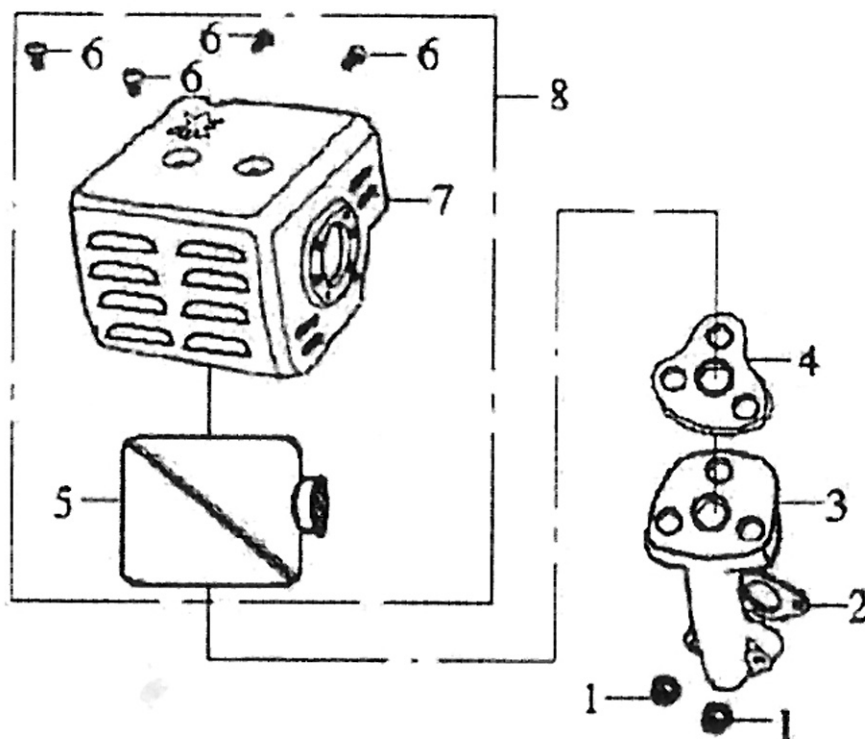
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PARTS LIST/DIAGRAM - MUFFLER

Part	Description	Q'ty	Part	Description	Q'ty
1	Nut (M8)	5	5	Muffler	1
2	Exhaust Pipe Gasket	1	6	Screw (M5x8)	4
3	Exhaust Pipe	1	7	Muffler Hood Assy.	1
4	Muffler Gasket	1	8	Muffler Assy.	1



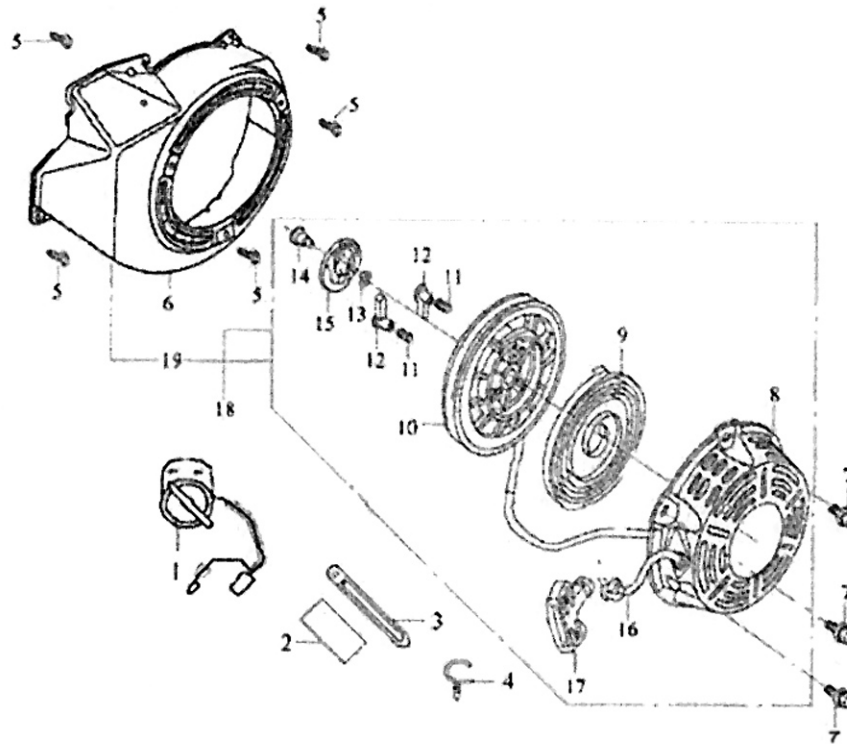
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PARTS LIST/DIAGRAM - RECOIL STARTER

Part	Description	Q'ty	Part	Description	Q'ty
1	Engine Switch	1	11	Ratchet Spring	2
2	Wire Grommet	1	12	Ratchet	2
3	Clip	1	13	Friction Spring	1
4	Plastic Clip	1	14	Set Screw	1
5	Bolt (M6x12)	5	15	Spring Lid	1
6	Fan Hood Assy.	1	16	Rope	1
7	Bolt (M6x8)	3	17	Handle	1
8	Casing	1	18	Recoil Starter	1
9	Coil Leaf Spring	1	19	Recoil Starter Assy.	1
10	Cord Spool	1			



IMPORTANT

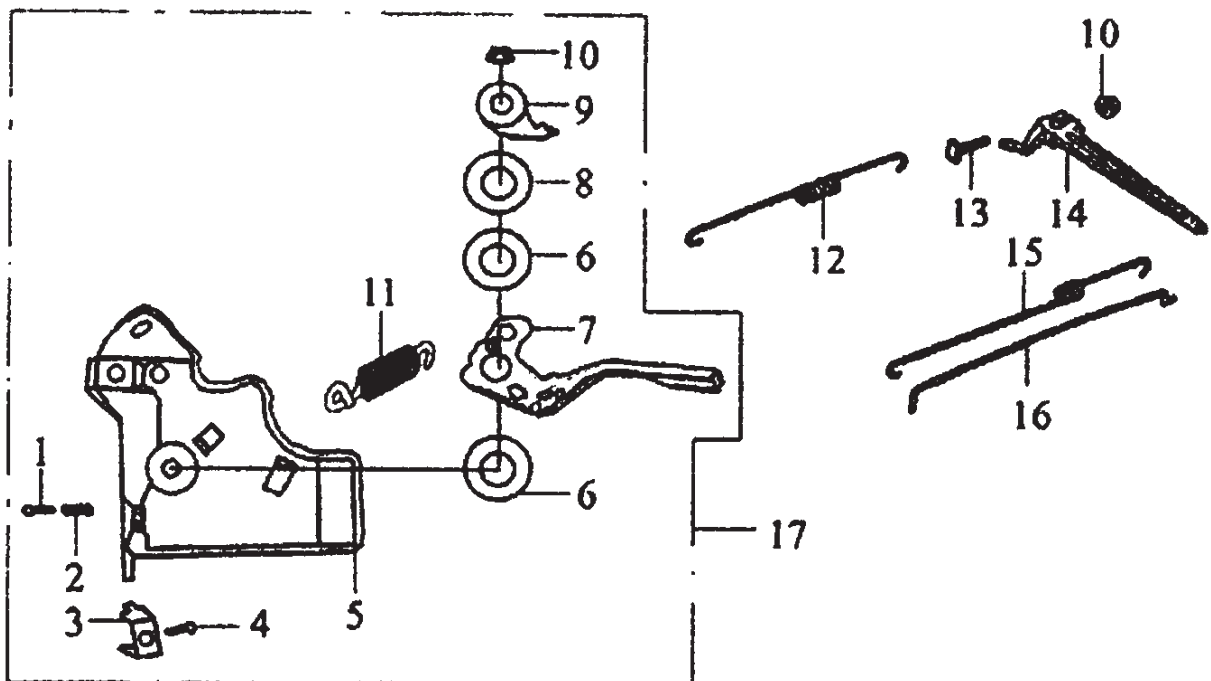
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PARTS LIST/DIAGRAM - REGULATING CONTROL SYSTEM

Part	Description	Q'ty
1	Bolt (M5x35)	1
2	Regulating Spring	1
3	Clamp	1
4	Bolt (M6x12)	1
5	Support Panel	1
6	Washer	2
7	Throttle	1
8	Spring Patch	1
9	Setting Panel	1

Part	Description	Q'ty
10	Nut (M6)	2
11	Spring	1
12	Back Spring	1
13	Lock Bolt	1
14	Regulating Arm	1
15	Regulating Arm Spring	1
16	Pulling Rod	1
17	Regulating Frame Assy.	1



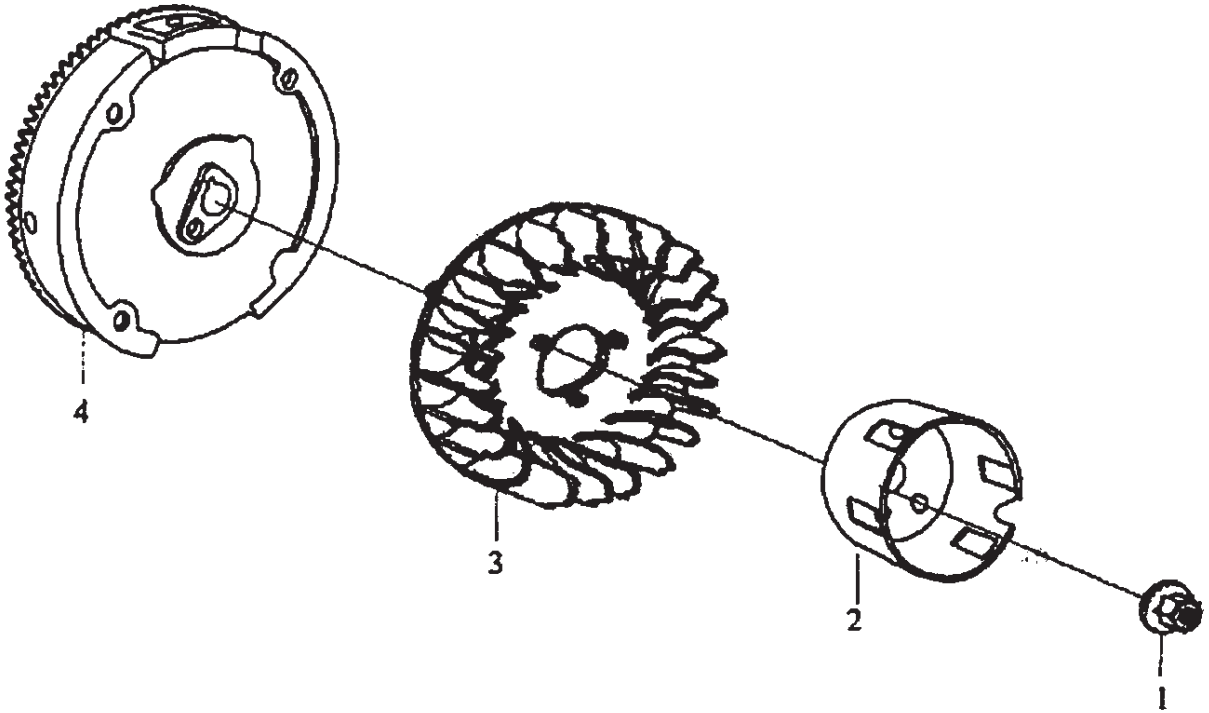
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PARTS LIST/DIAGRAM - FLYWHEEL

Part	Description	Q'ty	Part	Description	Q'ty
1	Nut (M16x1.5)	1	3	Flywheel Fan	1
2	Starting Flange	1	4	Flywheel	1



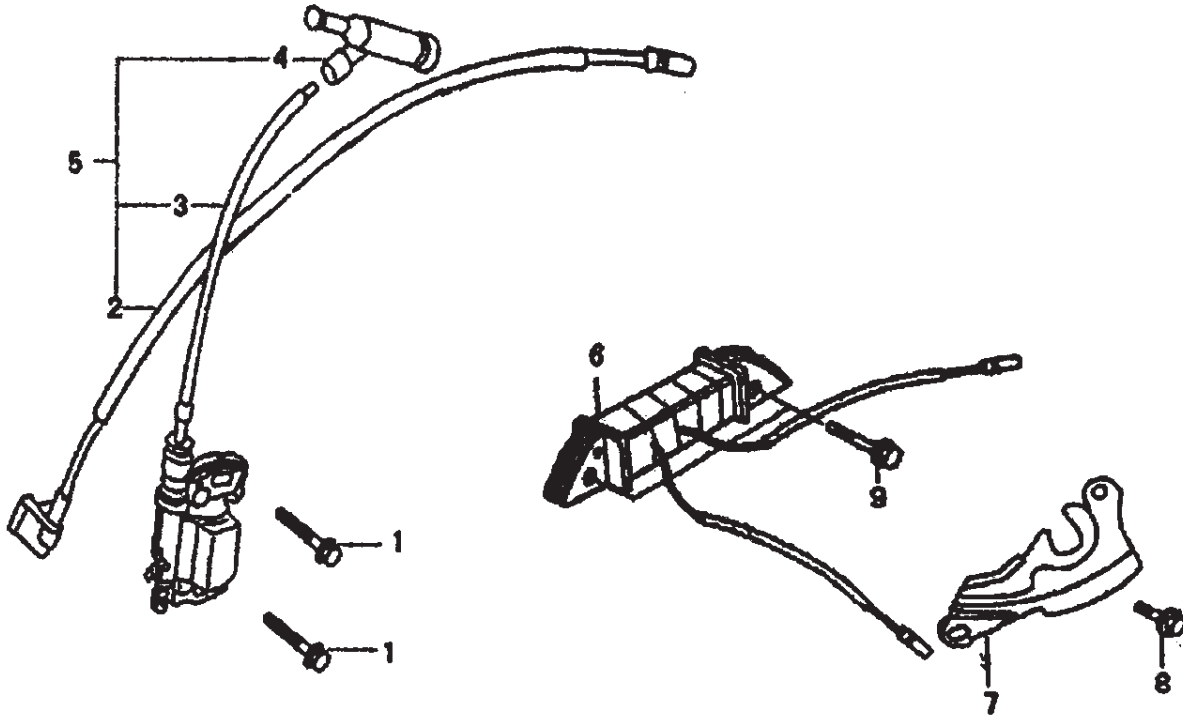
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PARTS LIST/DIAGRAM - IGNITION COIL

Part	Description	Q'ty	Part	Description	Q'ty
1	Screw (M6x30)	2	6	Charge Coil	1
2	Engine Stop Cable	1	7	Clamp, Cord	1
3	Ignition Coil	1	8	Bolt (M6x35)	2
4	Spark Plug Cap	1	9	Bolt (M6x12)	1
5	Ignition Coil Assy.	1			



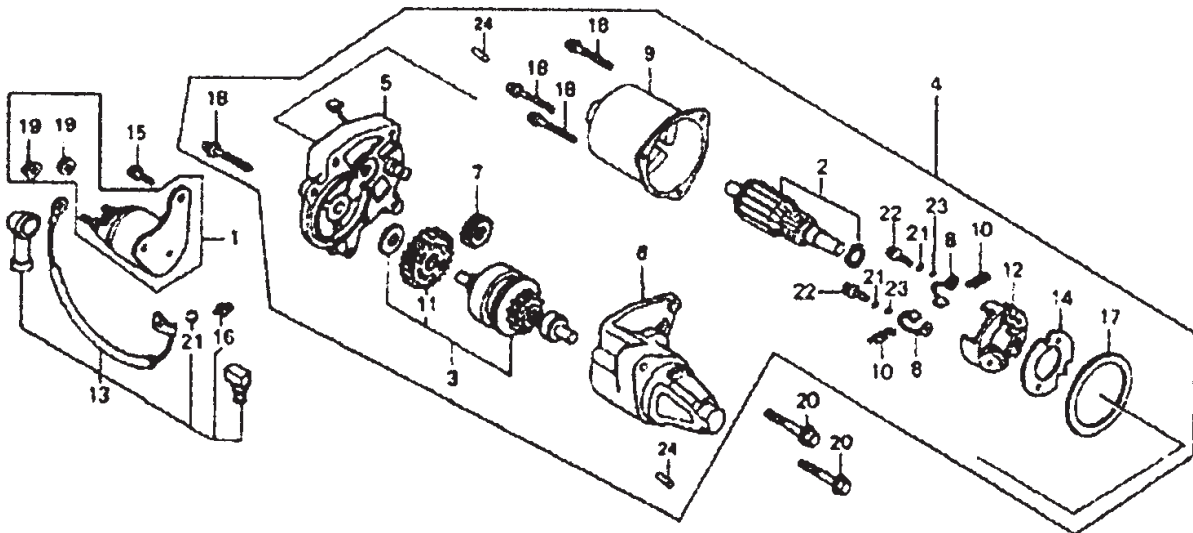
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PARTS LIST/DIAGRAM - STARTER MOTOR

Part	Description	Q'ty	Part	Description	Q'ty
1	Relay, Start-Up	1	13	Cable, Starter Motor	1
2	Rotor Comp.	1	14	Insulator	1
3	Starting Clutch	1	15	Bolt (M5x14)	2
4	Starter Motor Assy.	1	16	Screw (M4x6)	1
5	Base, Starter	1	17	Packing Ring	1
6	Housing, Starter Clutch	1	18	Screw (M5x32)	4
7	Drive Gear	1	19	Nut (M6)	2
8	Brush, Comp.	4	20	Bolt (M6x35)	2
9	Stator Assy.	1	21	Spring Washer (4mm)	3
10	Spring, Brush	4	22	Screw (M4x14)	2
11	Reducing Gear	1	23	Washer (4mm)	2
12	Stay, Brush	1	24	Set Pin (8x14)	2



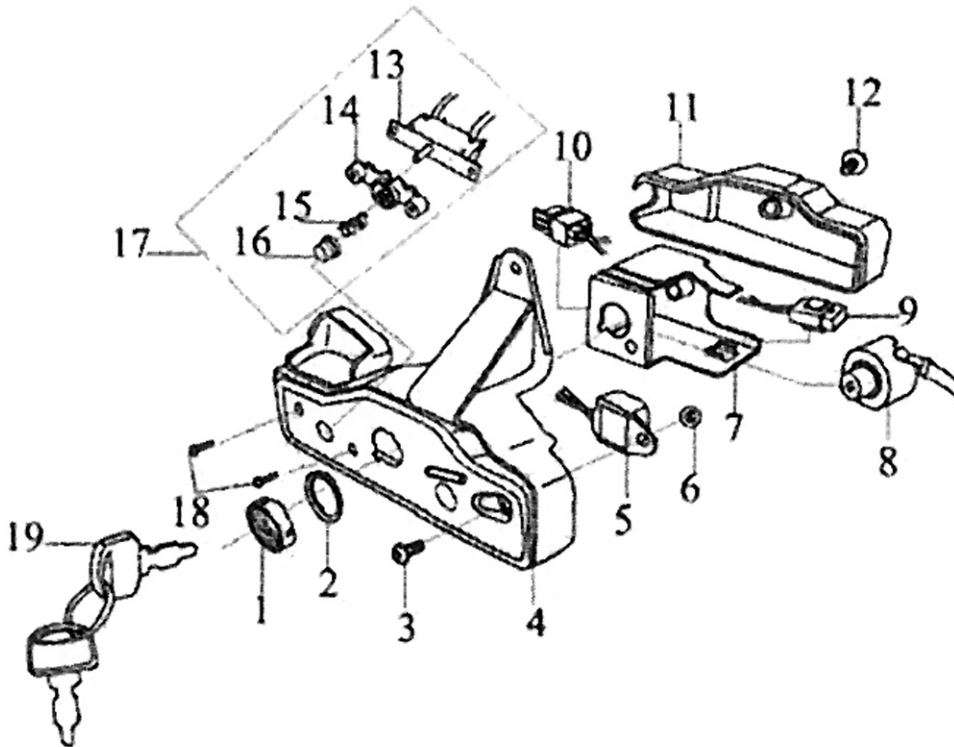
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PARTS LIST/DIAGRAM - STARTER & CONTROL BOX

Part	Description	Q'ty	Part	Description	Q'ty
1	Clamp Ring	1	11	Control Rear Cover	1
2	Gasket	1	12	Attachment Bolt	1
3	Bolt (M4x10)	1	13	Protector	1
4	Control Front Cover	1	14	Fixed Mount	1
5	Diode	1	15	Spring	1
6	Nut (M4)	1	16	Cover	1
7	Fixed Mount	1	17	Protector Assy.	1
8	Ignition Switch	1	18	Bolt (M3x12)	2
9	Safety	1	19	Ignition Key	1
10	Diode Assy.	1			



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EMISSION CONTROL SYSTEM WARRANTY

California and United States Emission Control Defects Warranty Statement

The California Air Resources Board (herein CARB), the United States Environmental Protection Agency (herein EPA), and Harbor Freight Tools® (herein HFT) are pleased to explain the emission control system warranty on your 1995 and later Small Off-Road Engine (herein engine). In California, the engine must be designed, built and equipped to meet the State's stringent anti-smog standards. Elsewhere within the United States, new off-road, spark-ignition engines certified for model year 1997 and later, must meet similar standards set forth by the EPA. HFT must warrant the emission control system on your engine for the periods of time described below, provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the carburetor or fuel-injection system, and the ignition system. Also included may be hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, HFT will repair your engine at no cost to you including diagnosis, parts and labor.

Manufacturer's Warranty Coverage

The 1995 and later engines are warranted for two (2) years. If any emission-related part on your engine is defective, the part will be repaired or replaced by HFT.

Harbor Freight Tools Emission Control Defects Warranty Coverage

Engines are warranted for a period of two (2) years relative to emission control parts defects, subject to the provisions set forth below. If any emission related part on your engine is defective, the part will be repaired or replaced by HFT.

Owner's Warranty Responsibilities

- As the engine owner, you are responsible for the performance of the required maintenance listed in your Owner's Manual. HFT recommends that you retain all receipts covering maintenance on your engine, but HFT cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.
- As the engine owner, you should, however, be aware that HFT may deny you warranty coverage if your engine or a part has failed due to abuse, neglect, improper maintenance, or unapproved modifications.
- You are responsible for shipping your engine to a HFT warranty station as soon as a problem exists. Contact the HFT Customer Service department at the number below to make shipping arrangements. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should contact the Harbor Freight Tools Customer Service Department at 1-800-444-3353.

Harbor Freight Tools Emission Control Defects Warranty Provisions

1. Length of Coverage

HFT warrants to a first retail purchaser and each subsequent purchaser that the engine is free from defects in materials and workmanship that cause the failure of warranted parts for a period of two (2) years after the date of delivery to the first retail purchaser.

2. No Charge Repair or Replacement

Repair or replacement of any warranted part will be performed at no charge to the owner if the work is performed through a warranty station authorized by HFT. For emissions warranty service, contact the HFT Customer Service Department at 1-800-444-3353.

3. Consequential Damages Coverage

Coverage under this warranty shall also extend to the failure of any engine components caused by the failure of any warranted part while it is still covered under this warranty.

4. Coverage Exclusions

Warranty claims shall be filed in accordance with the provisions of the HFT warranty policy explained in the box at the top of the previous page. HFT shall not be liable for any loss of use of the engine, for any alternative usage, for any damage to goods, loss of time, or inconvenience. Warranty coverage shall also be excluded for any part which fails, malfunctions, or is damaged due to failure to follow the maintenance and operating instructions set forth in the Owner's Manual including, but not limited to:

- (a) use of parts which are not authorized by HFT
- (b) improper installation, adjustment or repair of the engine or of any warranted part unless performed by an authorized warranty center
- (c) failure to follow recommendations on fuel use contained in the Owner's Manual
- (d) improper or inadequate maintenance of any warranted parts
- (e) repairs performed outside of the authorized warranty service dealers
- (f) alterations by changing, adding to or removing parts from the engine.

EMISSION CONTROL SYSTEM WARRANTY – (CONT.)

Harbor Freight Tools Emission Control Defects Warranty Provisions

5. Service and Maintenance

Component parts which are not scheduled for replacement as required maintenance or are scheduled only for regular inspection to the effect of "repair or replace as necessary" are warranted for the warranty period. Any warranted part which is scheduled for replacement as required maintenance is warranted for the period of time up to the first scheduled replacement point for that part. Any replacement part, provided it is equivalent in durability and performance, may be used in performance of maintenance or repairs. The owner is responsible for commissioning a qualified technician/mechanic to perform all required maintenance, as outlined in the Inspection, Cleaning, and Maintenance section in this manual.

6. Warranted Parts

- 1) Fuel Metering System
 - i) Carburetor and its internal parts.
 - ii) Fuel pump (if so equipped).
 - iii) Cold start enrichment system.
- 2) Air Induction System
 - i) Intake pipe/manifold.
 - ii) Air cleaner.
- 3) Ignition System
 - i) Spark plug.
 - ii) Magneto ignition system.
- 4) Catalyst System (if so equipped)
 - i) Exhaust pipe stud.
 - ii) Muffler.
 - iii) Catalytic converter (if so equipped).
- 5) Miscellaneous items Used in Above Systems
 - i) Vacuum, temperature and time sensitive valves and switches.
 - ii) Hoses, belts, connectors, and assemblies.

PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

LIMITED 90 DAY WARRANTY

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

3491 Mission Oaks Blvd. • PO Box 6009 • Camarillo, CA 93011 • (800) 444-3353

NOTE:

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