



# **LEV**

# **80-120**

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## Operator's

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## Manual

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Four-Cycle Engine · Vertical Crankshaft · Air-Cooled

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(English) 8/1/00

**NOTE:** Engines which are certified to comply with California and U.S. EPA emission regulations for SORE (Small Off Road Equipment), are certified to operate on regular unleaded gasoline, and include the following emission control systems: Engine Modification (EM), and Three-way Catalyst (TWC) (*if so equipped*).

## I. General Safety Precautions

### **WARNING**

Read this material and the equipment owner's manual before using this engine. Failure to do so can result in serious injury or death. Call Tecumseh Products Company at 1-262-377-2700 if you have any questions.

### Avoid Carbon Monoxide Poisoning

All engine exhaust contains carbon monoxide, a deadly gas. Breathing carbon monoxide can cause headaches, dizziness, drowsiness, nausea, confusion and eventually death. Carbon monoxide is a colorless, odorless, tasteless gas which may be present even if you do not see or smell any engine exhaust. Deadly levels of carbon monoxide can collect rapidly and you can quickly be overcome and unable to save yourself. Also, deadly levels of carbon monoxide can linger for hours or days in enclosed or poorly-ventilated areas. If you experience any symptoms of carbon monoxide poisoning, leave the area immediately, get fresh air, and **SEEK MEDICAL ATTENTION**.



To prevent serious injury or death from carbon monoxide:

- NEVER run engine indoors. Even if you try to ventilate engine exhaust with fans or open windows and doors, carbon monoxide can rapidly reach dangerous levels.
- NEVER run engine in poorly-ventilated or partially enclosed areas such as barns, garages, basements, carports, under dwellings, or in pits.
- NEVER run engine outdoors where engine exhaust can be drawn into a building through openings such as windows and doors.

### Avoid Gasoline Fires

Fuel vapors are highly flammable and can explode.

Fuel vapors can spread and be ignited by a spark or flame many feet away from engine. To prevent injury or death from fuel fires, follow these instructions:

- Never store engine with fuel in fuel tank inside a building with potential sources of ignition such as hot water heaters and space heaters, clothes dryers, electric motors, etc.
- Never remove fuel cap or add fuel with engine running.
- Allow engine to cool before refueling.
- Never fill fuel tank indoors. Fill fuel tank outdoors in a well-ventilated area.
- Do not smoke while refueling tank.
- Use only an approved red GASOLINE container to store and dispense fuel.
- Do not attempt to pour fuel from engine. Empty fuel tank by running engine.



### Avoid Other Fires

To reduce the risk of fire, keep all materials that can burn, including grass and leaves, away from muffler and rest of engine.

### Stay Away from Hot Surfaces

Muffler and other engine parts become extremely hot during operation and remain hot after engine has stopped. To avoid severe burns on contact, stay away from these areas.



### Do Not Modify Engine

To avoid serious injury or death, do not modify engine in any way. NEVER tamper with factory setting of engine governor. Running engine faster than speed set at factory can be dangerous and will void engine warranty.

### Avoid Accidental Starts

To prevent accidental starting when working on equipment, always disconnect spark plug wire and attach it securely to retaining post.

### Stay Away from Rotating Parts

Never operate engine with covers or guards removed. Rotating parts can cause severe injury. Keep hands, feet, hair, jewelry and clothing away from all moving parts.



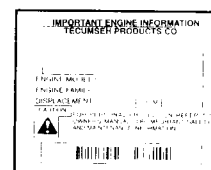
## II. How to Get Service

For engine adjustments, repairs or warranty service, contact your nearest Tecumseh Service Dealer. It is listed in your telephone book under "Engines, Gasoline."

A decal located on your engine blower housing (on some LEV models it may be located under the top cover - see right), indicates your engine model number and the date of manufacture (D.O.M.). Please fill in this information in the spaces below for future reference.

ENGINE  
MODEL: \_\_\_\_\_

D.O.M.: \_\_\_\_\_



If you have a general understanding of internal combustion engines and wish to repair and service your engine and/or engine emission control systems yourself, a Technician's Handbook is available from your Tecumseh Service Dealer. This handbook covers repairs and adjustments not covered within this manual. Order as part no. 692509.



# III. Oil & Fuel Specifications

## A. OIL

To operate your engine efficiently, follow the chart below:

TEMPERATURE	RECOMMENDED OIL
Above 32°F (0°C)	Tecumseh Part No. 730225 or clean, high-quality SAE 30W detergent oil. Container must be marked A.P.I. Service SF - SJ.
0°F to 32°F (-18°C to 0°C)	Tecumseh Part No. 730226 or clean, high-quality SAE 5W30 or SAE 10W detergent oil. Container must be marked A.P.I. Service SF - SJ.
Below 0°F (-18°C)	Clean, high-quality SAE 0W30 may be used in temperatures below 0°F only.

At temperatures above 32°F (0°C), use of multigrade oil in air-cooled engines will result in greater oil consumption, and is not recommended. (Multigrade oil will have a number appearing both before and after the "W," such as "5W30", etc.)

Oil sump capacity: 21 ounces (1-5/16 U.S. pints; .62 liters)

## B. FUEL

- Use unleaded regular, unleaded premium or reformulated automotive fuel only. DO NOT use leaded fuel.
- Fuel must be fresh and clean. Never use fuel left over from last season or stored for long periods.
- Never mix oil with fuel.
- Do not use fuel containing Methanol (Wood Alcohol). You may use fuel containing the following, but they may require special care when engine is not used for extended periods (see "Seasonal Storage" instructions on page 7).

FUEL COMPONENT	PERCENTAGE ALLOWED
Ethanol	10%
Grain Alcohol (Gasohol)	10%
Methyl Tertiary Butyl Ether (MTBE)	15%
Ethyl Tertiary Butyl Ether (ETBE)	15%

# IV. Before Starting Your Engine

## A. CHECKING OIL LEVEL/FILLING OIL SUMP

To avoid engine damage, it is important to:

- Check oil level every five operating hours and before each use. Check oil level more frequently during engine break-in.
- Keep oil level between "Full" and "Add" marks on dipstick or to point of overflow on engines without dipstick
- Insure oil fill cap/plug is tightened securely.

WITH DIPSTICK (figure 1A)	WITH OIL FILL PLUG (figure 1B)
<ol style="list-style-type: none"> <li>1. Place equipment so engine is level.</li> <li>2. Clean area around oil fill cap.</li> <li>3. Remove oil fill cap.</li> <li>4. Wipe dipstick clean.</li> <li>5. Replace oil fill cap and tighten securely. This will ensure accurate reading.</li> <li>6. Remove oil fill cap again. If oil reading on dipstick is below "Add" mark, slowly add oil to reach "Full" level. <b>IMPORTANT: Do not over-fill.</b></li> <li>7. Replace oil fill cap and tighten securely.</li> </ol>	<ol style="list-style-type: none"> <li>1. Place equipment so engine is level.</li> <li>2. Clean area around oil fill plug.</li> <li>3. Remove oil fill plug.</li> <li>4. Add oil to overflow point, making sure to avoid spilling.</li> <li>5. Re-install oil fill plug and tighten securely.</li> </ol>

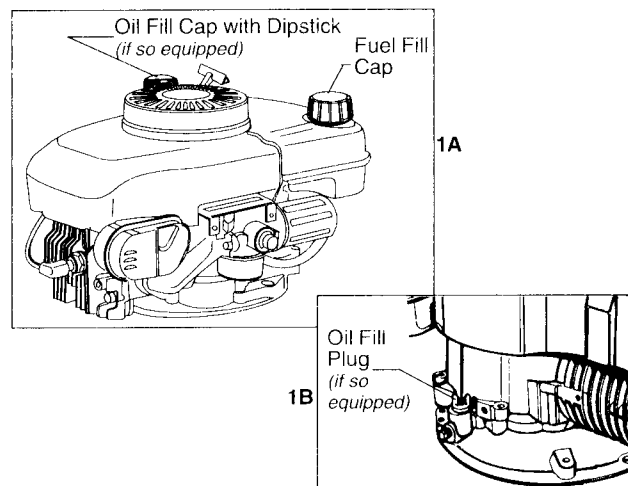


FIGURE 1: Checking & Adding Oil

## B. FILLING FUEL TANK

- WARNING:** Fuel vapors are highly flammable and can explode. Fuel vapors can spread and be ignited by a spark or flame many feet away from engine. To prevent injury or death from fuel fires, follow these instructions:
- Never remove fuel cap or add fuel with engine running.
  - Allow engine to cool before refueling.
  - Never fill fuel tank indoors. Fill fuel tank outdoors in a well-ventilated area.
  - Do not smoke while refueling tank.
  - Do not overfill fuel tank. Fill tank to 1/2" below bottom of filler neck to allow fuel to expand without overflowing.
  - Replace fuel cap securely and wipe up spilled fuel before starting engine.
  - If fuel is spilled, do not start engine. Move machine away from area of spillage. Avoid creating any source of ignition until fuel vapors are gone.
  - Use only an approved red GASOLINE container to store and dispense fuel.

1. Clean area around fuel fill cap *before* removing (figure 1A).
2. Remove fuel cap.
3. Add fuel (specified in section IIIB) slowly, to avoid overfilling or spilling.  
**IMPORTANT:** Never mix oil with fuel.
4. Replace fuel cap and tighten securely.
5. Wipe up any spilled fuel.

- WARNING:** DO NOT transport engine with fuel in tank. Fuel vapor or spilled fuel may ignite.

## V. Starting Your Engine

**WARNING:** Never run engine indoors or in poorly-ventilated or partially enclosed areas including, but not limited to, barns, garages, basements, carports, or under dwellings. Carbon monoxide can rapidly reach dangerous levels, even when using exhaust fans and open doors and windows to aid ventilation. When running engine, be sure exhaust fumes are away from all air intakes including, but not limited to, windows and doors.

All engine exhaust contains carbon monoxide, a deadly gas. Breathing carbon monoxide can cause headaches, dizziness, drowsiness, nausea, confusion and eventually death. If you experience any of these symptoms, leave the area immediately, get fresh air, and seek medical treatment. Deadly levels of carbon monoxide can collect rapidly and you can quickly become overcome and unable to save yourself.

**WARNING:** If you are unable to start this engine after following instructions in this manual, contact your Tecumseh Service Dealer. To avoid serious burn injuries or damage to your engine, DO NOT attempt to start or troubleshoot this engine in any other way. For example:

- DO NOT use starting fluid.
- DO NOT spray flammable vapors into carburetor or onto air cleaner.
- DO NOT put flammable liquids into carburetor or onto air cleaner.
- DO NOT crank engine with spark plug removed. Fuel can spray from spark plug hole and ignite.

**WARNING:** When pulling starter cord, cord can unexpectedly jerk back causing serious injury. Carefully follow instructions for pull starting engine.

**WARNING:** Rotating parts can cause severe injury. Keep hands, feet, hair, jewelry and clothing away from all moving parts. Never operate engine with covers, shrouds or guards removed.

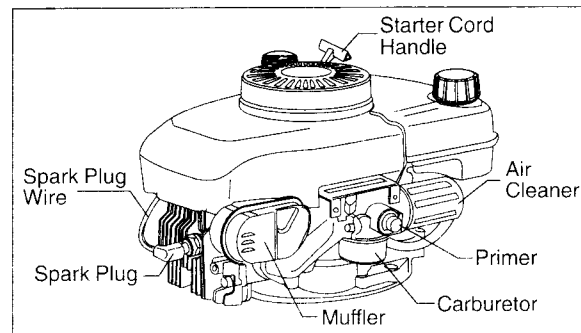


FIGURE 2: Engine Component Locations

### ENGINE WITH CHOKE ONLY



1. Move control lever (figure 4) to "CHOKE" or "START" (see equipment manufacturer's instructions).

**NOTE:** If restarting a warm engine after a short shutdown, move control lever to "FAST" instead of "CHOKE."

2. Operate equipment control to release engine brake, if so equipped (see equipment manufacturer's instructions).

3.

**a) RECOIL STARTERS:** Grasp starter cord handle (figure 2 or 3) and pull cord out slowly until you feel drag. Let cord rewind slowly. Pull cord with rapid, full arm stroke. Return cord slowly to original position.

**b) ELECTRIC STARTERS:** Crank engine.

4. When engine starts, move control lever to "FAST" and then to desired speed in "RUN" range. If engine falters, move control lever to "CHOKE", then to "FAST," then to desired speed in "RUN" range.

**NOTE:** RECOIL STARTERS: If engine fails to start after 3 pulls, move control lever to "FAST" and pull starter cord again.

**NOTE:** If engine fires but does not continue running, move control lever to "CHOKE" and repeat steps 2-3 until engine starts. Do not crank an electric starter for more than 5 seconds each attempt.

### ENGINE WITH PRIMER ONLY



STOP



SLOW



FAST

1. Move equipment control to "FAST" or "START" if so equipped (see equipment manufacturer's instructions).

2. When starting a cold engine, push primer bulb firmly with your thumb 3 times, allowing primer bulb to return completely to original position between pushes (figure 2). Below 55°F additional primes may be needed.

**NOTE:** Do not use primer to restart a warm engine after a short shutdown.

3. Operate equipment control to release engine brake, if so equipped (see equipment manufacturer's instructions).

4.

**a) RECOIL STARTERS:** Grasp starter cord handle (figure 2 or 3) and pull rope out slowly until you feel drag. Let cord rewind slowly. Pull cord with rapid, full arm stroke. Return cord slowly to original position.

**NOTE:** If engine fails to start after 3 pulls, repeat steps 2-3 above.

**b) ELECTRIC STARTER:** Crank engine.

**NOTE:** If engine does not start after 5 seconds of cranking, stop and repeat steps 2-3 above.

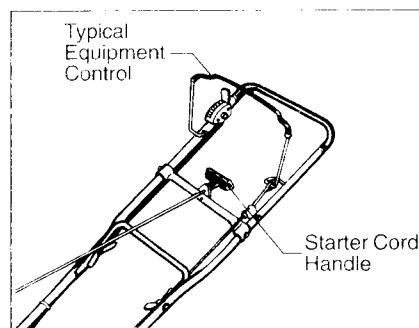


FIGURE 3: Typical Engine Control

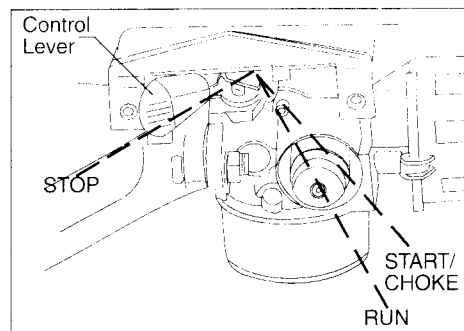


FIGURE 4: Choke Control Positions

## ENGINE WITH PRIMER AND CHOKE

1. Move control lever (figure 4) to "CHOKE" or "START" (see equipment manufacturer's instructions).  
**NOTE:** If restarting a warm engine after a short shutdown, move control lever to "FAST" instead of "CHOKE."
2. Push primer bulb firmly with your thumb 3 times, allowing primer bulb to return completely to original position between pushes. Below 55°F, additional primes may be needed.  
**NOTE:** Do not use primer to restart a warm engine after a short shutdown.
3. Operate equipment control to release engine brake, if so equipped (see equipment manufacturer's instructions).
4.
  - a) **RECOIL STARTERS:** Grasp starter cord handle (figure 2 or 3) and pull cord out slowly until you feel drag. Let cord rewind slowly. Pull cord with rapid, full arm stroke. Return cord slowly to original position.
  - b) **ELECTRIC STARTERS:** Crank engine.  
**NOTE:** If engine does not start after 5 seconds of cranking, stop and repeat steps 2-3 above.
5. When engine starts, move control lever to "FAST" and then to desired speed in "RUN" range. If engine falters, move control lever to "CHOKE," then to "FAST," then to desired speed in "RUN" range.  
**NOTE:** If engine fires, but does not continue to run, move control lever to "CHOKE" and repeat steps 2-4 until engine starts.

## VI. Stopping Your Engine/ Short-Term Storage

1. See equipment manufacturer's instructions.

**WARNING:** To reduce risk of fire, keep all combustible materials away from muffler and hot engine parts.

**WARNING:** Muffler and nearby areas become extremely hot during operation and remain hot after engine has stopped. To avoid severe burns on contact, stay away from these areas.

**WARNING:** Fuel vapors are highly flammable and can explode. Fuel vapors can spread and be ignited by a spark or flame many feet away from engine. To prevent injury or death from fuel fires, never store engine with fuel in fuel tank inside a building with potential sources of ignition such as hot water heaters, space heaters, clothes dryers, electric motors, etc.

## VII. Maintenance

**WARNING:** Muffler and nearby areas become extremely hot during operation and remain hot after engine has stopped. To avoid severe burns on contact, stay away from these areas.

**WARNING:** To prevent accidental starting when working on equipment, always disconnect spark plug wire and keep it away from spark plug.

**WARNING:** Fuel vapors are highly flammable and can explode. Fuel vapors can spread and be ignited by a spark or flame many feet away from engine. To prevent injury or death from fuel fires, never store engine with fuel in fuel tank inside a building with potential sources of ignition such as hot water heaters, space heaters, clothes dryers, electric motors, etc.

## A. CHANGING OIL

Check oil level every five operating hours and before each use. (See "Checking Oil Level/Filling Oil Sump" on page 2.)

Change oil after first two operating hours and every 25 operating hours thereafter; more often if operated in extremely dusty or dirty conditions. Engine should still be warm from recent use.

1. Disconnect spark plug wire and attach to retaining post (figure 5).
2. Position equipment so engine oil drain plug is lowest point on engine.
3. Clean area around oil drain plug (figure 6).
4. Place container under plug to catch oil as it drains.
5. Remove oil drain plug.
6. Remove oil fill cap/dipstick (or oil fill plug) and drain oil (figure 7).
7. Replace oil fill cap/dipstick (or oil fill plug) and tighten securely.
8. Replace oil drain plug and tighten securely.
9. Wipe away any spilled oil.
10. Add oil (see "Oil & Fuel Specifications" on page 2).

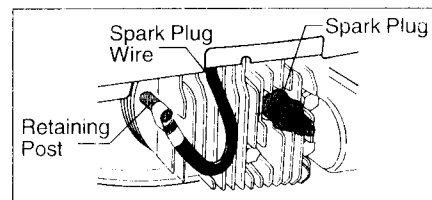


FIGURE 5: Spark Plug/Retaining Post

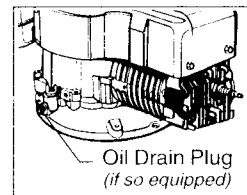
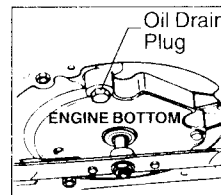


FIGURE 6: Oil Drain Plug Locations

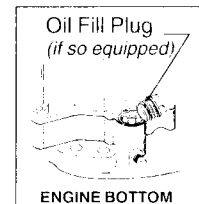
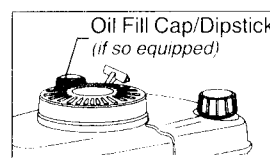


FIGURE 7: Oil Fill Locations

## B. REMOVING DEBRIS FROM ENGINE

Before each use, remove grass clippings, dirt and debris from cooling fins, air intake screen and levers and linkage, to insure adequate cooling, correct engine speed, and to reduce the risk of fire (see fig. 8). Tecumseh Products Company recommends you take your engine to an Tecumseh Service Dealer once a year for a complete cleaning.

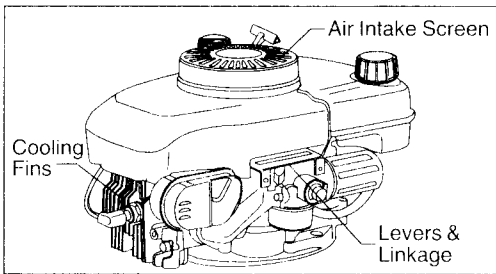


FIGURE 8: Debris Locations

## C. SPARK PLUGS

Check spark plugs annually or every 100 operating hours.

1. Clean area around spark plug.
2. Remove spark plug.
3. Replace spark plug if electrodes are pitted, burned, fouled with deposits, or if porcelain is cracked.  
**NOTE:** A resistor spark plug must be used for replacement (Tecumseh part no. #35395, or Champion RJ-19LM).
4. Check electrode gaps with wire feeler gauge and set gaps to .030 (0.76mm) if necessary.

**NOTE:** This spark ignition system meets all requirements of the Canadian Interference-Causing Equipment Regulations.

**NOTE:** This engine complies with all current Australian and New Zealand limitations regarding electromagnetic interference.

**NOTE:** This engine complies with the European standard for safety of garden equipment and powered lawnmowers EN836. Revision March, 1997, and applicable sections of the EU Machinery Safety Directives.

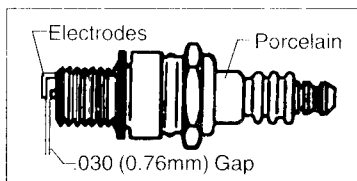


FIGURE 9: Resistor Spark Plug

## D. CLEANING/REPLACING AIR CLEANER

**IMPORTANT:** Air cleaners help prevent premature engine wear and failure. NEVER run engine without complete air cleaner installed on engine.

### 1. SERVICING FILTERS

#### A. Foam Filter

Clean and re-oil every three months or every 25 operating hours. Clean and re-oil daily if used in extremely dusty conditions.

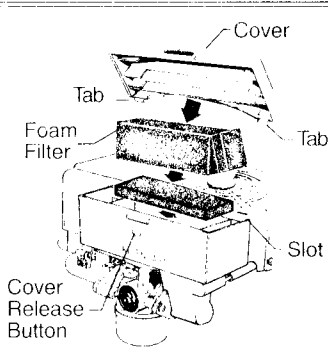
1. Wash in water and detergent solution and squeeze (don't twist) until all dirt is removed.
2. Rinse thoroughly in clear water.
3. Wrap in a clean cloth and squeeze (don't twist) until completely dry.
4. Saturate with engine oil and squeeze (don't twist) to distribute oil and remove excess oil.

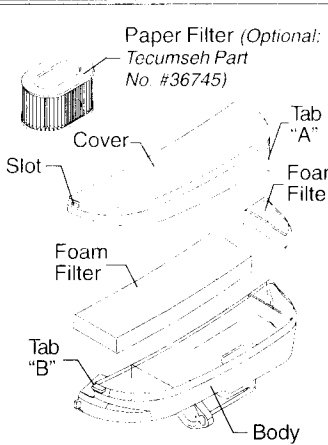
#### B. Paper or Foam Filters

Paper filter cannot be cleaned and must be replaced once a year or every 100 operating hours; more often if used in extremely dusty conditions. Replacement filters are available at a Tecumseh Service Dealer.

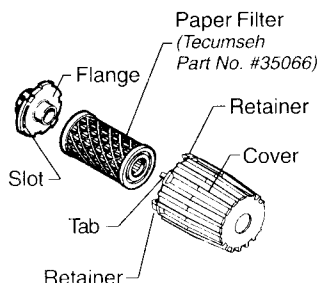
### 2. REMOVING & INSTALLING FILTERS

Your engine will be equipped with one of the following air cleaners. Find the air cleaner which best resembles yours, and follow the instructions which accompany it.

AIR CLEANER "A"	
	<ol style="list-style-type: none"><li>1. Remove cover by pressing in on side of body and lifting cover upward.</li><li>2. Inspect filter for discoloration or dirt accumulation. If either is present, service per preceding "Servicing Filters" instructions.</li><li>3. Clean inside of cover and body thoroughly.</li><li>4. Install filter in body.</li><li>5. Install cover securely on body.</li></ol>

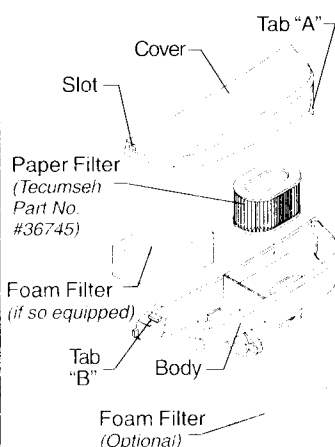
AIR CLEANER "B"	
	<ol style="list-style-type: none"><li>1. Remove cover by pulling tab "A" away from body while lifting cover upward.</li><li>2. Inspect filter(s) for discoloration or dirt accumulation. If either is present, service per preceding "Servicing Filters" instructions.</li><li>3. Clean inside of cover and body thoroughly.</li><li>4. Install foam filter(s) and paper filter (if so equipped) in body.</li><li>5. Install cover by hooking slot of cover over tab "B" on body. Push cover down, snapping cover onto body.</li></ol>

## AIR CLEANER "C"



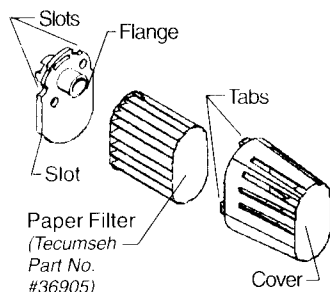
1. Turn cover to left (counterclockwise) and remove it and paper filter from flange.
2. Discard filter.
3. Clean cover and flange thoroughly.
4. Install new paper filter into cover.
5. Position cover and filter against flange with tab on cover inserted into lower left corner of slot in flange.
6. Push cover firmly against flange and turn to right (clockwise) as far as it will go. Be sure retainers are locked around flange.

## AIR CLEANER "D"



1. Remove cover by pulling tab "A" away from body while lifting cover upward.
2. Inspect filter(s) for discoloration or dirt accumulation. If either is present, service per preceding "Servicing Filters" instructions.
3. Clean inside of cover and body thoroughly.
4. Install paper filter in body.
5. Install foam filter (if so equipped) inside of body.
6. Install cover by hooking slot of cover over tab "B" on body.
7. Push cover down until it snaps into body.

## AIR CLEANER "E"



1. Turn cover to right (clockwise) to remove.
2. Remove paper filter from flange.
3. Discard filter.
4. Clean cover and flange thoroughly.
5. Insert new paper filter into cover.
6. Line up tabs on cover with slots on flange.
7. Push cover firmly against flange and turn to left (counterclockwise) until cover locks securely in place. Cover should be in vertical position.

## VIII. Adjustments

For satisfactory engine performance, engine and equipment controls must be adjusted properly.

### 1. CHOKE CONTROL CABLE ADJUSTMENT

To check engine choke adjustment:

- a. Set equipment choke at "Fast".
- b. Loosen cable clamp screw so choke cable moves in cable clamp (figure 10).
- c. Line up hole in choke control lever with notch on choke control bracket. This is "fast" position on engine.
- d. Hold choke control lever in this position and tighten cable clamp screw securely.

**NOTE:** If additional adjustments are needed, adjust at equipment control (see equipment manufacturer's instructions).

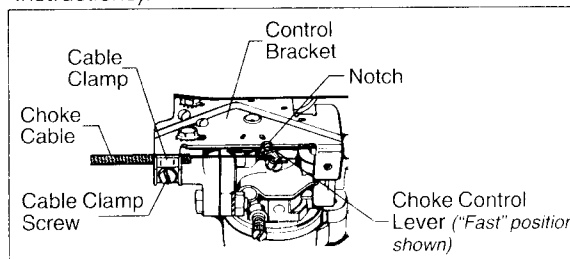


FIGURE 10: Choke Cable Adjustment

### 2. CARBURETOR

Engine performance should not be affected at altitudes up to 7,000 feet (2,134 meters). For operation at higher elevations, contact your Tecumseh Service Dealer.

### 3. ENGINE SPEED

**WARNING:** To avoid serious injury, NEVER tamper with factory setting of engine governor. Running engine faster than speed set at factory can be dangerous and will void engine warranty.

**WARNING:** Never run engine indoors or in poorly-ventilated or partially enclosed areas including, but not limited to, barns, garages, basements, carports, or under dwellings. Carbon monoxide can rapidly reach dangerous levels, even when using exhaust fans and open doors and windows to aid ventilation. When running engine, be sure exhaust fumes are away from all air intakes including, but not limited to, windows and doors.

All engine exhaust contains carbon monoxide, a deadly gas. Breathing carbon monoxide can cause headaches, dizziness, drowsiness, nausea, confusion and eventually death. If you experience any of these symptoms, leave the area immediately, get fresh air, and seek medical treatment. Deadly levels of carbon monoxide can collect rapidly and you can quickly become overcome and unable to save yourself.

**WARNING:** Rotating parts can cause severe injury. Keep hands, feet, hair, jewelry and clothing away from all moving parts. Never operate engine with covers, shrouds or guards removed.

## IX. Seasonal Storage

If engine is to be unused for over 30 days, prepare as follows:

### 1. FUEL SYSTEM

Fuel stored in the tank will gradually deteriorate, leaving gum deposits which will clog the carburetor or fuel system. To avoid these problems, treat the fuel system in one of the two following methods:

#### METHOD 1: Draining Fuel Tank

- A. Run engine until engine stops from lack of fuel.

**WARNING:** Fuel vapors are highly flammable and can explode. Fuel vapors can spread and be ignited by a spark or flame many feet away from engine. To prevent injury or death from fuel fires, use only an approved container to store and dispense fuel.

**WARNING:** Never run engine indoors or in poorly-ventilated or partially enclosed areas including, but not limited to, barns, garages, basements, carports, or under dwellings. Carbon monoxide can rapidly reach dangerous levels, even when using exhaust fans and open doors and windows to aid ventilation. When running engine, be sure exhaust fumes are away from all air intakes including, but not limited to, windows and doors.

All engine exhaust contains carbon monoxide, a deadly gas. Breathing carbon monoxide can cause headaches, dizziness, drowsiness, nausea, confusion and eventually death. If you experience any of these symptoms, leave the area immediately, get fresh air, and seek medical treatment. Deadly levels of carbon monoxide can collect rapidly and you can quickly become overcome and unable to save yourself.

- B. Drain remaining fuel from carburetor by pressing up on bowl drain (if so equipped).

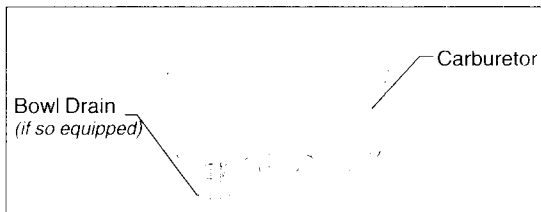


FIGURE 11: Draining Carburetor

If "Gasohol" has been used:

- C. Add 1/2 pint of gasoline into fuel tank, and repeat step "A" and "B" above.

#### METHOD 2: Adding Fuel Stabilizer

Gasoline preservative/stabilizer (such as "Tecumseh Gasoline Stabilizer"), is an acceptable alternative in minimizing formation of fuel gum deposits during storage.

- A. Add fuel preservative/stabilizer according to manufacturer's instructions.  
B. Run engine at least 10 minutes after adding stabilizer to allow it to reach carburetors.

**IMPORTANT:** Always follow mix ratio found on stabilizer container. DO NOT drain stabilizer from carburetor.

### 2. ENGINE

Remove any clippings, dirt or chaff from exterior of engine.

### 3. OIL

Change oil if not changed within the last three months. (See "Changing Oil" section under "Maintenance"; page 4).

### 4. BATTERY (if so equipped)

See equipment manufacturer's instructions for proper storage.

### 5. CYLINDER BORE

1. Remove spark plug wire (figure 12).
2. Attach spark plug wire to retaining post.
3. Remove spark plug.
4. Squirt 1oz. (30ml) of clean engine oil into spark plug hole.
5. Grasp starter handle and pull out *slowly* 2 times. Use a full arm stroke. This will distribute oil throughout the cylinder to prevent corrosion during storage.
6. Re-insert spark plug.

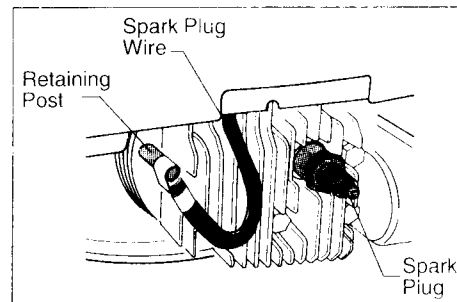


FIGURE 12: Spark Plug/Retaining Post

## X. Quick-Check Maintenance Chart

PROCEDURE:	After first two hours	Every 5 hours or daily	Every 25 hours/3 months	Every 50 hours/6 months	Every 100 hours/seasonally	Every 200 hours/seasonally
Check oil level		•				
Change oil	•		•			
Clean foam filter			•			
Replace paper filter					•	
Check spark plugs					•	
Replace spark plug						•
Clean cooling fins		•				



# CALIFORNIA & US EPA EMISSION CONTROL WARRANTY STATEMENT

The U. S. Environmental Protection Agency ("EPA"), the California Air Resources Board ("CARB") and Tecumseh Products Co. are pleased to explain the Federal and California Emission Control Systems Warranty on your new small off-road engine. In California, new 1995 and later small off-road engines must be designed, built and equipped to meet the State's stringent anti-smog standards. In other states, new 1997 and later model year engines must be designed, built and equipped, at the time of sale, to meet the U.S. EPA regulations for small non-road engines. Tecumseh Products Co. will warrant the emission control system on your small off-road engine for the periods of time listed below, provided there has been no abuse, neglect, unapproved modification, or improper maintenance of your small off-road engine.

Your emission control system may include parts such as the carburetor, ignition system and exhaust system. Also included may be the compression release system and other emission-related assemblies.

Where a warrantable condition exists, Tecumseh Products Co. will repair your small off-road engine at no cost to you for diagnosis, parts and labor.

## MANUFACTURER'S EMISSION CONTROL SYSTEM WARRANTY COVERAGE

Emission control systems on 1995 and later model year California small off-road engines are warranted for two years as hereinafter noted. In other states, 1997 and later model year engines are also warranted for two years. If, during such warranty period, any emission-related part on your engine is defective in materials or workmanship, the part will be repaired or replaced by Tecumseh Products Co.

## OWNER'S WARRANTY RESPONSIBILITIES

As the small off-road engine owner, you are responsible for the performance of the required maintenance listed in your Owner's Manual, but Tecumseh Products Co. will not deny warranty solely due to the lack of receipts or for your failure to provide written evidence of the performance of all scheduled maintenance.

As the small off-road engine owner, you should, however, be aware that Tecumseh Products Co. may deny you warranty coverage if your small off-road engine or a part thereof has failed due to abuse, neglect, improper maintenance or unapproved modifications.

You are responsible for presenting your small off-road engine to a Tecumseh Authorized Service Outlet (any Tecumseh Registered Service Dealer, Tecumseh Authorized Service Distributor or Tecumseh Central Warehouse Distributor) as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

Warranty service can be arranged by contacting either a Tecumseh Authorized Service Outlet or by contacting Tecumseh Products Co., c/o Service Manager, Engine and Transmission Group Service Division, 900 North Street, Grafton, WI 53024-1499. Telephone 1-262-377-2700, or see your local telephone yellow pages under "Engines, Gasoline" for the name, address and telephone number of a Tecumseh Authorized Service Outlet near you.

## IMPORTANT NOTE

This warranty statement explains your rights and obligations under the Emission Control System Warranty ("ECS Warranty") which is provided to you by Tecumseh Products Co. pursuant to California law. Tecumseh Products Co. also provides to original purchasers of new Tecumseh Products Co. engines. The Tecumseh Products Co. Limited Warranties for New Tecumseh Engine and Electronic Ignition Modules ("Tecumseh Products Co. Warranty") which is enclosed with all new Tecumseh Products Co. engines on a separate sheet. The ECS Warranty applies only to the emission control system of your new engine. To the extent that there is any conflict in terms between the ECS Warranty and the Tecumseh Products Co. Warranty, the ECS Warranty shall apply except in any circumstances in which the Tecumseh Products Co. Warranty may provide a longer warranty period. Both the ECS Warranty and the Tecumseh Products Co. Warranty describe important rights and obligations with respect to your new engine.

Warranty service can only be performed by a Tecumseh Products Co. Authorized Service Outlet, or by Tecumseh Products Co. at its factory in Grafton, WI. At the time of requesting warranty service, evidence must be presented of the date of sale to the original purchaser. The purchaser shall pay any charges for making service calls and/or for transporting the products to and from the place where the inspection and/or warranty work is performed. The purchaser shall be responsible for any damage or loss incurred in connection with the transportation of any engine or any part(s) thereof submitted for inspection and/or warranty work.

If you have any questions regarding your warranty rights and responsibilities, you should contact Tecumseh Products Co. at 1-262-377-2700.

## EMISSION CONTROL SYSTEM WARRANTY

Emission Control System Warranty ("ECS Warranty") for 1995 and later model year California small off-road engines (for other states, 1997 and later model year engines):

A. **APPLICABILITY:** This warranty shall apply to 1995 and later model year California small off-road engines (for other states, 1997 and later model year engines). The ECS Warranty Period shall begin on the date the new engine or equipment is delivered to its original, end-use purchaser, and shall continue for 24 consecutive months thereafter.

B. **GENERAL EMISSIONS WARRANTY COVERAGE:** Tecumseh Products Co. warrants to the original, end-use purchaser of the new engine or equipment and to each subsequent purchaser that each of its small off-road engines is:

1. Designed, built and equipped so as to conform with all applicable regulations adopted by the Air Resources Board pursuant to its authority in Chapters 1 and 2, Part 5, Division 26 of the Health and Safety Code, and
2. Free from defects in materials and workmanship which, at any time during the ECS Warranty Period, will cause a warranted emissions-related part to fail to be identical in all material respects to the part as described in the engine manufacturer's application for certification.

C. The ECS Warranty only pertains to emissions-related parts on your engine, as follows:

1. Any warranted, emissions-related parts which are not scheduled for replacement as required maintenance in the Owner's Manual shall be warranted for the ECS Warranty Period. If any such part fails during the ECS Warranty Period, it shall be repaired or replaced by Tecumseh Products Co. according to Subsection 4 below. Any such part repaired or replaced under the ECS Warranty shall be warranted for any remainder of the ECS Warranty Period.
2. Any warranted, emissions-related part which is scheduled only for regular inspection as specified in the Owner's Manual shall be warranted for the ECS Warranty Period. A statement in such written instructions to the effect of "repair or replace as necessary", shall not reduce the ECS Warranty Period. Any such part repaired or replaced under the ECS Warranty shall be warranted for the remainder of the ECS Warranty Period.
3. Any warranted, emissions-related part which is scheduled for replacement as required maintenance in the Owner's Manual, shall be warranted for the period of time prior to the first scheduled replacement point for that part. If the part fails prior to the first scheduled replacement, the part shall be repaired or replaced by Tecumseh Products Co. according to Subsection 4 below. Any such emissions-related part repaired or replaced under the ECS Warranty, shall be warranted for the remainder of the ECS Warranty Period prior to the first scheduled replacement point for such emissions-related part.
4. Repair or replacement of any warranted, emissions-related part under this ECS Warranty shall be performed at no charge to the owner at a Tecumseh Authorized Service Outlet.

5. The owner shall not be charged for diagnostic labor which leads to the determination that a part covered by the ECS Warranty is in fact defective, provided that such diagnostic work is performed at a Tecumseh Authorized Service Outlet.
6. Tecumseh Products Co. shall be liable for damages to other original engine components or approved modifications proximately caused by a failure under warranty of an emission-related part covered by the ECS Warranty.
7. Throughout the ECS Warranty Period, Tecumseh Products Co. shall maintain a supply of warranted emission-related parts sufficient to meet the expected demand for such emission-related parts.
8. Any Tecumseh Products Co. authorized and approved emission-related replacement part may be used in the performance of any ECS Warranty maintenance or repair and will be provided without charge to the owner. Such use shall not reduce Tecumseh Products Co. ECS Warranty obligations.
9. Unapproved add-on or modified parts may not be used to modify or repair a Tecumseh Products Co. engine. Such use voids this ECS Warranty and shall be sufficient grounds for disallowing an ECS Warranty claim. Tecumseh Products Co. shall not be liable hereunder for failures of any warranted parts of a Tecumseh Products Co. engine caused by the use of such an unapproved add-on or modified part.

### EMISSION-RELATED PARTS INCLUDE THE FOLLOWING:

1. Carburetor Assembly and its Internal Components
  - a) Fuel filter
  - b) Carburetor gaskets
  - c) Intake pipe
2. Air Cleaner Assembly
  - a) Air filter element
3. Ignition System, including:
  - a) Spark plug
  - b) Ignition module
  - c) Flywheel assembly
4. Catalytic Muffler (*if so equipped*)
  - a) Muffler gasket (*if so equipped*)
  - b) Exhaust manifold (*if so equipped*)
5. Crankcase Breather Assembly and its Components
  - a) Breather connection tube

4-29-99 EPA/CARB

## XI. Warranty Information

Warranty requirements for engines sold outside of the USA may vary from country to country. For warranty details for your specific country, contact your national Tecumseh Service Distributor. If help is needed in locating your national service distributor, you may contact Tecumseh c/o International Service Coordinator, Engine & Transmission Group Service Division, 900 North Street, Grafton, Wisconsin USA 53024-1499. Telephone in USA is 262-377-2700.

### Limited Warranty for New Tecumseh Engines and Electronic Ignition Modules

For the time period shown below from the date of purchase and subject to the exceptions and limitations described herein, Tecumseh Products Company will, at its option as the exclusive remedy, either repair or replace for the original purchaser, free of charge, any part of any new Tecumseh engine which is found, upon examination by any Tecumseh Authorized Service Outlet or by Tecumseh's factory in Grafton, Wisconsin, to be **DEFECTIVE IN MATERIAL AND/OR WORKMANSHIP**. This Limited Warranty **DOES NOT COVER** (i) any Tecumseh engine or part(s) thereof used to power any vehicle in competitive racing and/or used on any commercial or rental track, or (ii) defects or damage caused by alterations or modifications of new Tecumseh engines or parts or by normal wear, accidents, improper maintenance, improper use or abuse of the product, or failure to follow the instructions contained in an Instruction Manual for the operation of the new Tecumseh engine or part. The cost of normal maintenance or replacement of service items which are not defective shall be paid for by the original purchaser. At the time warranty service is requested, evidence must be presented of the date of purchase by the original purchaser. Any charge for making service calls and/or for transporting any engine or part(s) thereof to and from the place where the inspection and/or warranty work is performed is payable solely by the purchaser. The purchaser is responsible for any damage or loss incurred in connection with the transportation of any engine or part(s) thereof submitted for inspection and/or warranty work. **WARRANTY SERVICE CAN ONLY BE PERFORMED BY A TECUMSEH AUTHORIZED SERVICE OUTLET.** Warranty service can be arranged by contacting a Tecumseh Authorized Service Outlet (any Tecumseh Registered Service Dealer, Tecumseh Authorized Service Distributor, or Tecumseh Central Warehouse Distributor) or by contacting Tecumseh c/o Service Manager, Engine and Transmission Group Service Division, 900 North Street, Grafton, Wisconsin USA 53024-1499.

**THIS EXPRESS WARRANTY IS IN LIEU OF ALL OTHER EXPRESS WARRANTIES.** Neither Tecumseh nor any of its affiliates makes any warranties, representations, or promises, written or oral, as to the quality of the engine or any of its parts, other than as set forth herein. **ANY IMPLIED WARRANTY OF MARKETABILITY OR FITNESS FOR A PARTICULAR PURPOSE, TO THE EXTENT THAT EITHER MAY APPLY TO ANY TECUMSEH ENGINE OR PART(S) THEREOF, SHALL BE LIMITED IN DURATION TO THE PERIODS OF THE EXPRESS WARRANTIES SHOWN IN THE WARRANTY PERIOD CHART ABOVE AND TO THE EXTENT PERMITTED BY LAW AND ANY AND ALL IMPLIED WARRANTIES ARE EXCLUDED. IN NO EVENT WILL TECUMSEH BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES AND/OR EXPENSES.** Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitation(s) or exclusion(s) may not apply to you. This Limited Warranty gives you specific legal rights and you may also have other legal rights which vary from state-to-state.

## ENGINE WARRANTY PERIOD

### CONSUMER USE +

WARRANTY CATEGORY~	WITHIN USA & CANADA	OUTSIDE USA & CANADA
(A)	90 day	90 day
(B)	1 year	1 year
(C)	2 years	1 year
(D)	2 years	2 years**
(E)	2 years	2 years
(H)	2 'n 10*	2 'n 10*
(K)	2 'n 10*	2 'n 10*

### COMMERCIAL USE ++

WARRANTY CATEGORY~	WITHIN USA & CANADA	OUTSIDE USA & CANADA
(A)	No Warranty	No Warranty
(B)	1 year	1 year
(C)	1 year	1 year
(D)	1 year	1 year
(E)	1 year	1 year
(H)	1 year	1 year
(K)	2 'n 10*	1 year

- \* 2 years on engine, 10 years (the first 5 years covering parts and labor only; the second 5 years covering parts only) on electronic ignition.
- \*\* 1 year for Australian/New Zealand for rotary mower engines.
- + For purposes of this warranty policy, "consumer use" shall mean consumer's personal, residential, household use by the original retail purchaser.
- ++ For purposes of this warranty policy, "commercial use" shall mean all other uses, including use for commercial, income producing, or rental purposes.
- The engine warranty category of your engine can be determined by review of the engine model number on the "Important Engine Information" decal. One letter in the engine model number will be surrounded by parens (A), (B), (C), (D), (E), (H) or (K) and that letter is your engine warranty category designation. **IN CALIFORNIA ONLY THIS EXPRESS WARRANTY IS SUPPLEMENTED BY THE TECUMSEH CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT.**

Revised March, 2000

### **WARNING** CALIFORNIA PROPOSITION 65

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



*"The Power to Grow Your Business..."*

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Telephone: 262.377.2700

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