



Straight LP Conversion Kit—PA-228064 Model 2/2.5CM-RV

This kit may be installed on Tecumseh TVM powered RV Generator Sets to convert from gasoline to a straight LP fuel. Use the following instructions to install kit.

NOTE

CSA certification does not apply to 2/2.5 CM generators equipped with LP conversion kit PA-228064.

WARNING

UNIT STARTS WITHOUT NOTICE! To prevent accidental starting on units with a remote start/stop switch, always disconnect battery (remove negative lead first and reconnect it last) to disable generator set before working on any equipment connected to generator.

WARNING

DANGEROUS FUELS! Use extreme caution when handling, storing, and using fuels—all fuels are highly explosive in a vapor state. Store fuel in a well-ventilated area away from spark producing equipment and out of the reach of children. Never add fuel to the tank while the engine is running to prevent spilled fuel from igniting on contact with hot parts or from ignition spark. Keep fuel lines and connections tight and in good condition—don't replace flexible fuel lines with rigid lines. Flexible sections are used to avoid breakage due to vibration. Should any fuel leakage, fuel accumulation, or electrical sparks be noted, **DO NOT OPERATE GENERATOR SET.** Have systems repaired by qualified specialists before resuming generator operation. Additional precautions should be taken when using the following fuels.

GASOLINE: Store gasoline only in approved red containers clearly marked **GASOLINE.** Don't store gasoline in any occupied building.

LPG: LPG fuels are highly explosive. Proper ventilation is imperative. Be aware these gases are heavier than air and tend to settle into low areas where even the slightest spark can cause explosion.

WARNING

DANGEROUS GAS LEAKS! When the entire system is completed, it must be checked for leakage using a soap-water solution. Do not use solutions that contain ammonia or chlorine, for soap will not bubble for an accurate leakage test.

WARNING

PRESSURIZATION! After all LP-Gas connections have been completed, the entire system shall be test pressurized to 6-8 ounces (10-14 inches water column).

NOTE

The generator set must be removed from the coach and mounted to servicing stand kit PA-228102 (Gold) or PA-228208 (Beige).

NOTE

Derate approximately 3.5% per 1000 ft. (305m) above 500 ft. (152m) above sea level. Derate 1% for every 10°F (5.5°C) above 60°F (16°C).

INSTALLING LP GAS CONVERSION KIT

A. REMOVING GENERATOR SET FROM COACH (General)

1. Disconnect battery (negative lead first) to disable generator set.
2. Remove mounting screws and necessary duct work.
3. Disconnect load leads, remote start-stop switch and manual choke (if used), and exhaust system at muffler connection.
4. Disconnect fuel line at fuel pump inlet. Cap fuel line and disconnect fuel line at fuel tank. Cap fuel tank connection. Drain all fuel from fuel line between fuel tank and generator set. Cap and secure both ends of fuel line to prevent contamination, or remove entire fuel line from coach.

WARNING

FLASH FIRE! When removing fuel line or carburetor, use a proper container to catch all fuel. Do not smoke or permit flame or spark to occur near carburetor, fuel line, fuel pump, or other potential sources of spilled fuel or fuel vapors.

5. Remove generator set from coach and mount servicing stand kit PA-228102 (Gold) or PA-228208 (Beige). See Figure 1. If servicing stand is not used, support generator set at tray flanges. Do NOT rest on generator end bracket.

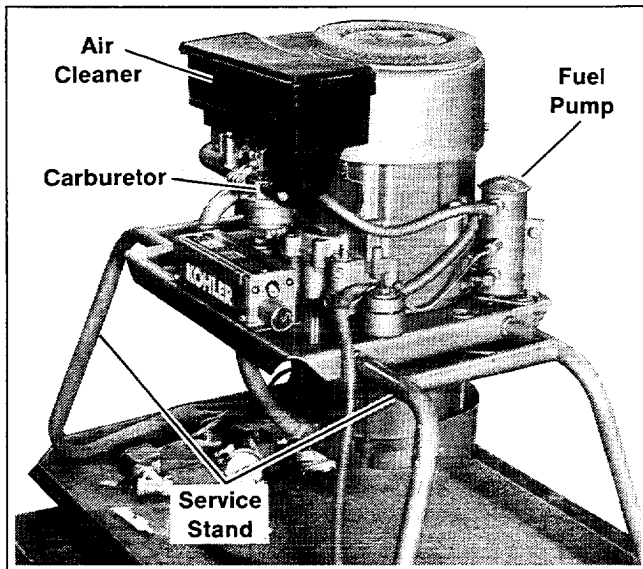


Figure 1. Removing Gasoline Parts

B. REMOVING GASOLINE PARTS

1. Remove fuel line at fuel pump outlet.



WARNING

FLASH FIRE! When removing fuel line or carburetor, use a proper container to catch all fuel. Do not smoke or permit flame or spark to occur near carburetor, fuel line, fuel pump, or other potential sources of spilled fuel or fuel vapors.

2. Remove air cleaner cover. Remove air cleaner assembly by removing two screws at carburetor and one screw inside air cleaner. Gasket will not be reused.
3. Remove carburetor mounting screws, noting position of governor spring mounting bracket. Maneuver carburetor assembly so to remove governor link and remove carburetor assembly. Carburetor assembly and gasket will not be reused.
4. Disconnect fuel pump lead at connection. Remove fuel pump bracket screws and remove fuel pump. Fuel pump and bracket will not be reused.

NOTE

On older models, cut fuel pump lead at insulator. Strip end of #2 lead and crimp-on female push-on terminal (X-431-38). If #2 lead has terminal installed, then terminal in kit will not be used.

C. MOUNTING LP GAS CARBURETOR AND REGULATOR

1. Connect governor link to the carburetor throttle bracket hole designated in Figure 2. Position carburetor gasket (228079) and idle plate (228242) against manifold flange. Idle plate inlet should face intake manifold as shown. Place remaining carburetor gasket (228079) and carburetor assembly against idle plate. Position governor spring mounting

bracket against carburetor flange and install mounting screws (do not tighten). Move governor spring mounting bracket to a near vertical position and tighten mounting screws. Loosen screws on carburetor control bracket to align choke lever with large slot in choke bracket. Retighten control bracket screws. Check that the governor/carburetor linkage works smoothly without binding. Route fuel hose from carburetor fuel valve to idle plate inlet and secure with hose clamps (X-309-14).

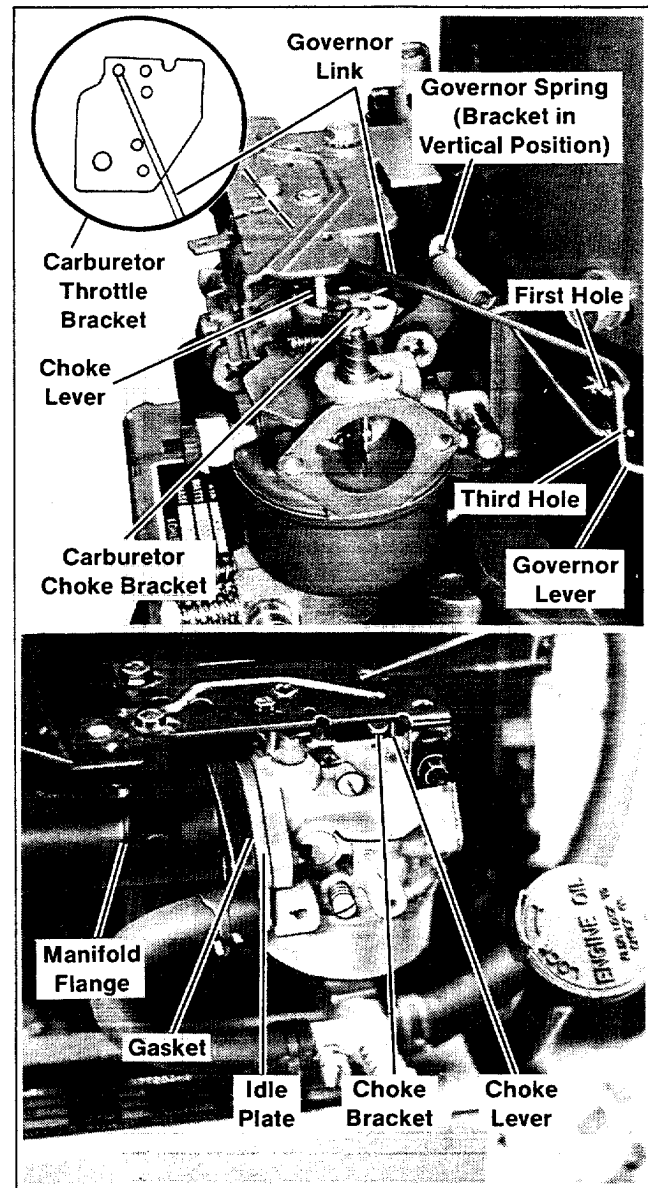


Figure 2. Mounting LP Gas Carburetor

2. Apply pipe sealant to threads on end of pipe nipple (X-220-5) and install in gas regulator (239153) outlet. Apply pipe sealant to other end of pipe nipple and thread street elbow (X-215-5) onto pipe nipple. Street elbow should be at 1 o'clock position with gas regulator inlet pointing downward and outlet side facing forward. Apply pipe sealant to threads on hose fitting (X-652-1) and install in street elbow. Attach hose (X-6045-4) to hose fitting with clamp (X-309-17).

3. Apply pipe sealant to all male threads and connect reducer bushing (X-202-30) to gas valve (277857) and pipe nipple (X-220-10) to reducer bushing.
4. Position gas regulator above hole in mounting tray and connect gas valve assembly.
5. Mount bracket (228129-GLD) to back of gas regulator and then to mounting tray using one screw (X-117-5), lock washer (X-19-1), and nut (X-70-2). See Figure 3. Locate in hole farthest from mounting tray edge. Do not final tighten.

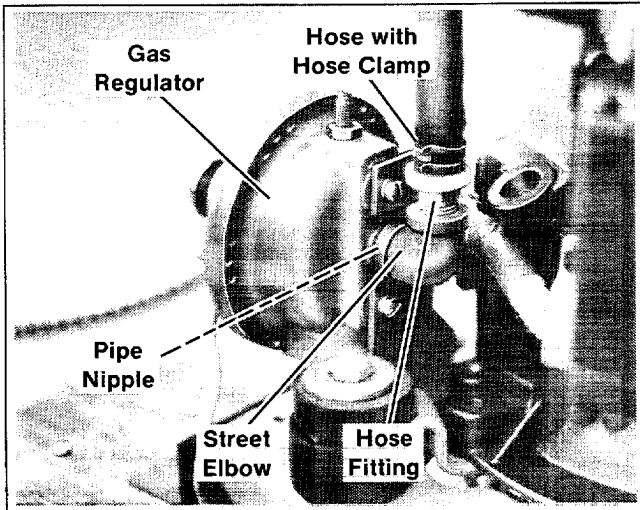


Figure 3. Mounting LP Gas Regulator

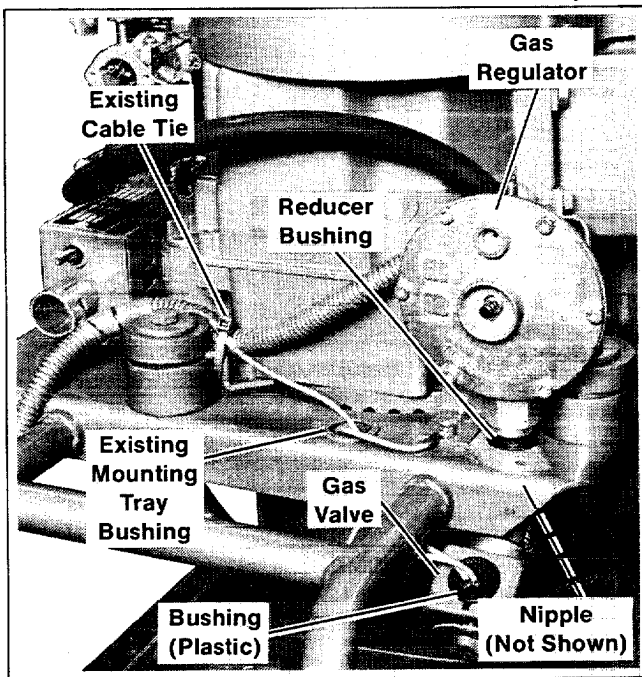


Figure 4. Connecting Gas Valve Leads

6. Slide plastic bushing (248896) over gas valve leads and into gas valve. Run both leads through plastic bushing in mounting tray. Cut to length one lead to reach front hole of gas regulator valve, strip end, and crimp-on eyelet terminal (X-283-8). Install screw (X-117-5), internal tooth lock washer (X-22-9), lock washer (X-19-1), and nut (X-70-2) in front hole of gas

regulator. Between screw head and internal tooth lock washer locate eyelet terminal. Tighten both screws.

7. Cut to length the other gas valve lead to reach #2 lead (fuel pump) of wiring harness, strip end, and crimp-on male push-on terminal (X-431-29). Connect gas valve lead to #2 lead of wiring harness. Locate lead under cable tie used on plastic conduit. See Figure 4.
8. Attach hose with hose clamp (X-309-17) to carburetor inlet and tighten clamp.
9. Install air cleaner to carburetor with gasket (228078) using two screws at carburetor and one screw inside air cleaner. Be sure breather hose is placed in air cleaner hole. Replace air cleaner cover.

D. REPLACING GENERATOR SET IN COACH (General)

1. Remove generator from servicing stand and install generator in coach.
2. Fabricate fuel line and connect to fuel valve inlet.
3. Reconnect load leads, remote start-stop switch and manual choke (if used), and exhaust system.
4. Replace mounting screws and necessary duct work.
5. Reconnect battery (negative lead last).

E. TESTING AND ADJUSTMENTS

1. Before starting the generator set, check the (secondary) gas regulator inlet pressure using an ounce pressure gauge or manometer. Pressure should be 4-6 ounces or 7-11 inches water column, adjust pressure on primary gas regulator.

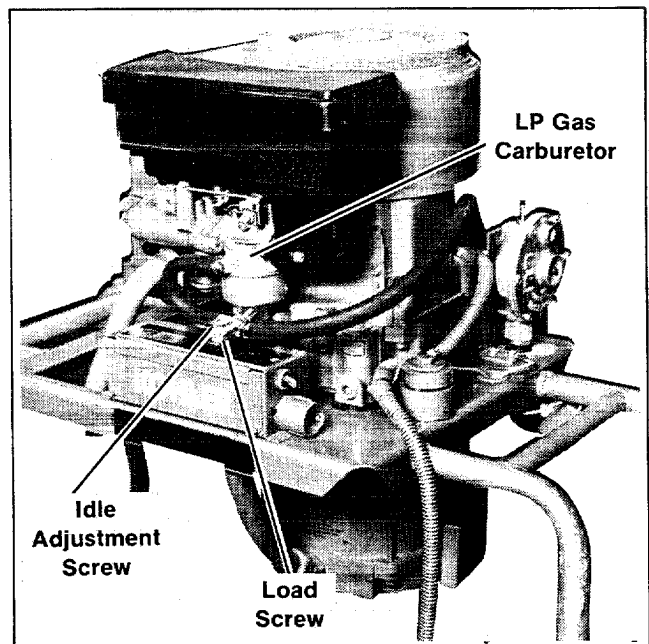


Figure 5. Carburetor Adjustments

2. Make a preliminary carburetor adjustment by turning the load (large) screw in until it bottoms lightly and turn out four full turns. Open the idle adjustment screw one turn. See Figure 5. Start the generator set without load. Open or close idle adjustment

screw until smooth operation is obtained (at no load). Apply load and adjust load screw until set reaches maximum speed.

3. Check governor function while generator set is running with load applied. Engine speed is determined by governor spring tension. Bend the governor spring mounting bracket inward (more spring tension) or outward (less spring tension) to reduce engine speed. See Figure 6. The correct speed at no load is 63 Hz (3780 rpm). Stop generator set.

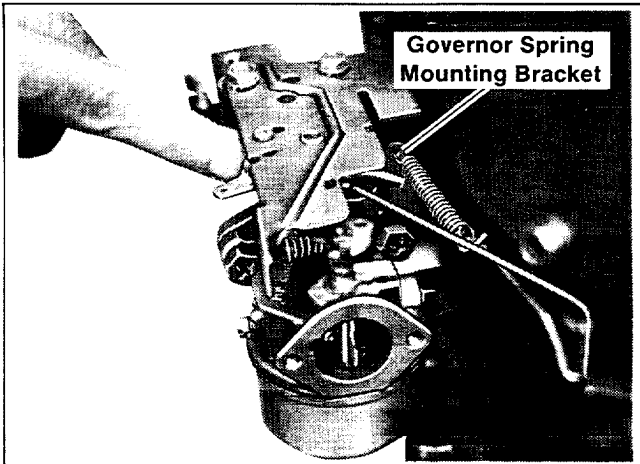


Figure 6. Governor Adjustment

PARTS LISTING

Ref. No.	Part No.	Description	Qty.
1	X-19-1	Washer, #10 Lock	2
2	X-22-9	Washer, #10 Internal Tooth Lock	1
3	X-70-2	Nut, 10-24	2
4	X-117-5	Screw, 10-24 x 5/8 in.	2
5	X-202-30	Bushing, Reducing	1
6	X-220-10	Pipe, 1/4 x 2-1/2 in. Pipe	1
7	X-282-8	Terminal, Eyelet	1
8	X-652-1	Fitting, Hose	1
9	X-309-17	Clamp, Hose 9/16 in.	2
10	X-431-38	Terminal, Female Push-On	1
11	X-431-29	Terminal, Male Push-On	1
12	X-6045-4	Hose	1
13	A-228226	Carburetor Assembly	1
14	228129-GLD	Bracket, Regulator	1
15	228077	Sealant, Pipe	1
16	228078	Gasket, Air Cleaner	1
17	228079	Gasket, Carburetor	2
18	239153	Regulator, Gas	1
19	248896	Bushing (Plastic)	1
20	277857	Valve, Gas	1
21	X-215-5	Elbow, Street 1/4 in.	1
22	X-220-5	Nipple, 1/4 x 7/8 in. Pipe	1
23	X-309-14	Clamp, Hose 1/2 in.	2
24	228242	Plate, Idle	1

