

**KEIHIN CARBURETOR/1976 FL,FLH,FX,FXE**

This Service Bulletin contains information for the new Keihin carburetor which is being used on 1976 FL/FLH/FX and FXE models, replacing the Bendix carburetor used last year. This information will appear in the 1976 Service Manual now in preparation.

Some early carburetor units were produced with the accelerator pump rod too long thereby eliminating the specified free play and causing an over-rich fuel mixture at idle speed.

Since only 10% of the early production carburetors may exhibit this condition, a spacer was made available to fit over the pump lever to space it away from the throttle lever thus raising the rod to produce necessary free play. This part (39, Figure 2) can be ordered from the Service Department if it is needed. The spacer has two different spacing thicknesses on opposite sides which can be selected as required.

Later production carburetors will have the correct length accelerator pump rod, part No. 27310-76, and parts order stock will be corrected. As an alternative to using the spacer or a new accelerator pump rod, the existing rod can be checked for correct length and shortened if necessary. Remove pump housing, spring, and diaphragm (33, 32, and 31, Figure 2). With idle adjusting screw backed off, the rod should extend into pump well from bottom surface no more than .040 inches. If it projects too far, disassemble rod and grind off the required amount from the straight end.

**DESCRIPTION**

The Keihin carburetor is a horizontal type with a fuel bowl, a single ring-shaped float, an accelerating pump, idle mixture adjusting needle and a throttle stop screw for idle speed adjustment.

The throttle body casting contains an integral venturi and a fuel valve seat that is pressed into the body. The underside of the throttle body contains a boss. The main nozzle slides into this boss and projects up into the venturi. The main jet then screws into the end of the boss and holds the nozzle in place.

**ADJUSTING CARBURETOR** (See Figures 1 and 2)

Adjust carburetor as follows. Turn low speed mixture screw (12) all the way in, clockwise, until just seated. Do not overtighten. Back out 1-1/2 turns. With screw in this position, the engine will start but the mixture will be too rich.

Note: The low speed mixture screw is turned clockwise, or in, to make the mixture leaner and counterclockwise, or out, to make mixture richer. Screw is held in position set by spring (13).

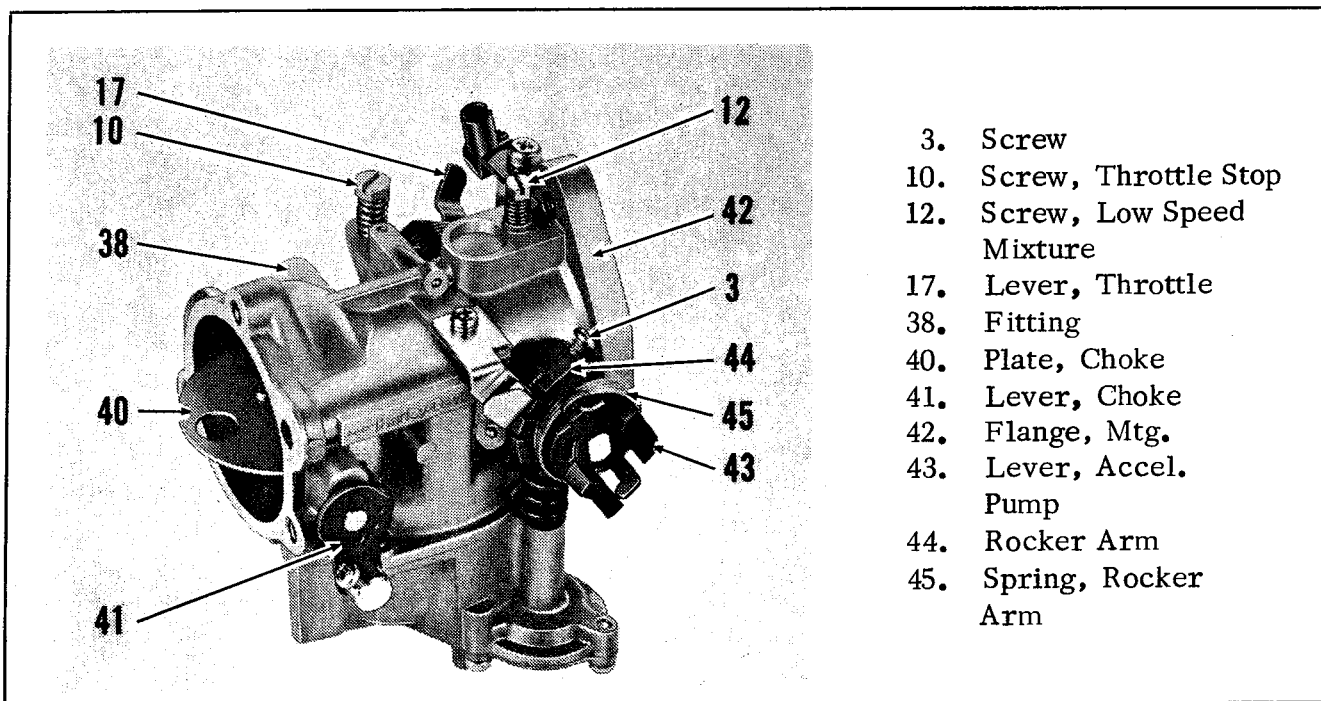
Adjust throttle stop screw (10) to make engine idle at desired speed with throttle closed. Turning screw clockwise opens throttle plate for faster idle. Never set idle adjustment to slowest possible speed. An extremely slow idle causes bearing wear, oil consumption, and slow speed accelerating difficulties. Recommended idle speed is 700 to 900 RPM.

Make final readjustment on low speed mixture screw (12) after engine is warm. First turn screw in, then out, to see if engine picks up speed or runs more smoothly. Starting and all around performance will be better with mixture adjustment set slightly richer than leaner. If necessary, make further adjustment on throttle stop screw (10) to obtain correct engine idling speed.

During high speed operation, fuel is metered by a main jet (26) which has no adjustment. Operating conditions, such as high altitudes or hard service, may require a different size main jet other than the standard size. The following main jet sizes are available through parts order:

<u>HDMCO Part No.</u>	<u>Main Jet Size</u>	<u>HDMCO Part No.</u>	<u>Main Jet Size</u>
27356-76	No. 185 (Std.)	27418-76	No. 170
27416-76	No. 180	27419-76	No. 165
27417-76	No. 175	27420-76	No. 160

The amount of fuel injected by the accelerating pump is adjusted by means of the rocker arm adjusting screw (3). Factory adjustment is 6 mm (approximately 1/4 in.) between end of screw and stop. Back screw out for more fuel volume; in for less. The rocker arm spring (45) controls stroke duration and is adjustable by means of three locating notches in the accelerator pump rocker arm (44). Center notch is standard adjustment.



- 3. Screw
- 10. Screw, Throttle Stop
- 12. Screw, Low Speed Mixture
- 17. Lever, Throttle
- 38. Fitting
- 40. Plate, Choke
- 41. Lever, Choke
- 42. Flange, Mtg.
- 43. Lever, Accel. Pump
- 44. Rocker Arm
- 45. Spring, Rocker Arm

Figure 1. Keihin Carburetor.

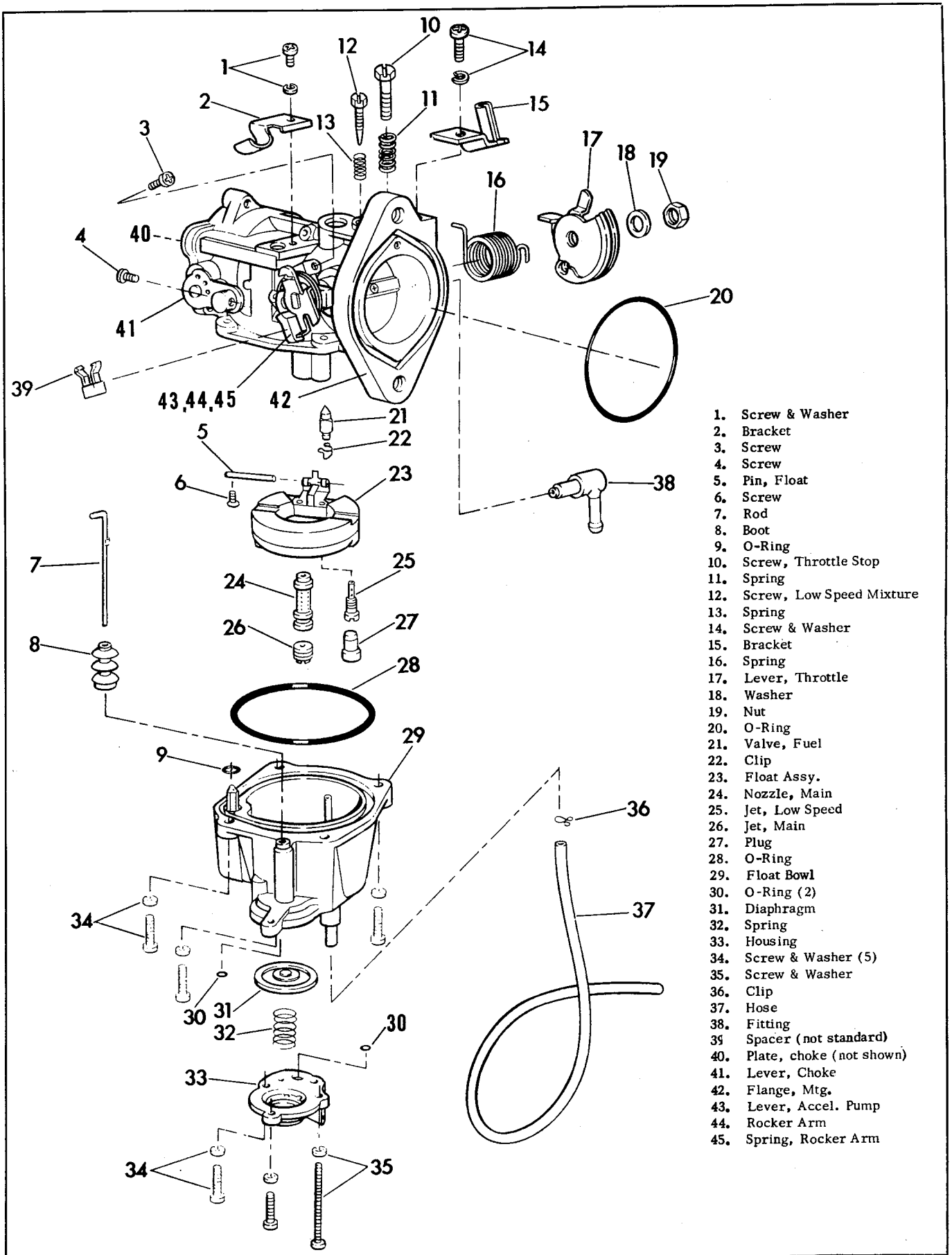


Figure 2. Exploded View.

DISASSEMBLING (See Figure 2)

Disconnect throttle wire and choke wire from their respective operating levers. Detach carburetor from engine by removing nuts and washers from mounting studs.

Disassemble accelerating pump parts as follows. Remove accelerating pump housing (33) by removing three sets of screws and washers (34 & 35). Remove spring (32), diaphragm (31) and two O-rings (30), taking care when lifting off housing (33) to catch spring (32). Also, be careful not to damage housing mounting surface to prevent fuel leakage when re-assembled.

Disassemble float bowl as follows. Detach float bowl (29) from body by removing three sets of screws and washers (34). Remove screw (6) which retains float pin (5). Remove float pin (5) and remove float (23). Slip off fuel valve (21) from metal clip on float. If needed, remove clip (22) from fuel valve (21). Take care not to damage rubber needle portion of fuel valve (21). Also, be careful not to damage pump nozzle and overflow pipe which are built into the float bowl. Remove O-ring (28) from groove in float bowl.

The removal of the float bowl will allow pump rod (7) and boot (8) to be removed next.

Disassemble carburetor body as follows. Pull plug (27) out of tube above slow jet (25). Unscrew slow jet (25) and main jet (26). Tip body and let main nozzle (24) slide out of main tube.

Remove O-ring (20) from slot in body mounting flange. Unscrew and remove nut (19) along with washer (18). This will free throttle lever (17) and spring (16) so they can be pulled off throttle shaft.

Unscrew throttle stop screw (10) and low speed mixture screw (12) along with associated springs (11) and (13), respectively.

As required, remove brackets (2) and (15) by removing screws and washers (1) and (14), respectively.

The throttle valve assembly and choke valve assembly (shaft, valve, plate and associated parts) usually are not disassembled. These parts are matched to the individual carburetor during manufacture. In both cases, screws securing plates to shafts have peened ends, the threads of which would be destroyed if screws are removed. In the case of throttle assembly, the position of bypass hole was positioned precisely to match lip of valve and would be changed if taken apart and reassembled. If problems arise involving these assemblies, the complete carburetor is usually replaced.

### CLEANING & INSPECTING

Clean carburetor body in solvent such as "GUNK" to remove varnish and carbon stains from fuel and air passages. Blow body dry with compressed air. Reverse air flow through each passage to insure removal of all dirt particles. Never scrape carbon deposits from carburetor parts with knife or other steel instrument. Also, do not use wires or drills to clean small holes. To do so may cause burrs or change hole sizes. This is particularly important to observe when cleaning jet openings.

Inspect all parts and replace any that are damaged or worn. The most important checks are as follows.

Check accelerating pump. Inspect diaphragm (31) for pinholes, cracks or deformation and replace if necessary. Inspect rod (7) for bending and boot (8) for cracks. Any dirt in accelerating pump passage should be blown out from side opposite nozzle or check valve will close, making cleaning impossible.

Check for dirt clogging overflow hose (37). If clogged, fuel may not flow out and instead flood engine, causing poor starting.

Check low speed mixture screw (12). Inspect for carbon lodging on tip and for damage to taper or screw, itself.

### ASSEMBLING CARBURETOR

Assembling carburetor is essentially the reverse of the disassembly procedure outlined above. An added step, however, is the adjustment of the float level.

Two positions of the float valve must be set: the valve fully closed and the valve fully open. To make these adjustments, remove float bowl (29) from carburetor body.

The valve fully closed position is determined as follows. Tip carburetor body upside down so float assembly (23) is facing up. Next, measure from outside surface of float to flat mounting surface of carburetor body casting. Dimension should be .55 to .63 inch (14 to 16 mm).

To determine the valve fully open position, turn carburetor over, back right side up, and measure from the same surfaces as above. Dimension now should be 1.10 to 1.18 inch (28 to 30 mm).

The actual adjustments are made by carefully bending the two tabs of the metal clip on the float assembly until these two dimensions are achieved.

INSTALLING CARBURETOR ON MOTORCYCLE

Mount the carburetor on the motorcycle as follows. Check O-ring (20) on the mounting flange to see that it is okay and in its groove. Position carburetor on two manifold mounting studs and secure with nuts and washers.

Insert throttle wire through slot in bracket (15) and wrap around into groove in throttle lever (17). Place throttle wire end ferrule into hole in lever. Check operation by twisting throttle control on handlebar. Throttle should open and close fully with handlebar grip movement.

Attach choke wire to choke lever (41) and confirm operation of choke by operating carburetor choke knob.

Attach fuel line from gas tank to fitting (38) on carburetor body. Position overflow tube (37) downward so any fuel overflow will drip away from hot engine. Open fuel valve and check for leakage.

Adjust idle. Install air filter assembly and test ride. Make final idle adjustment.

KEIHIN CARBURETOR TROUBLESHOOTINGTROUBLECORRECTIONOverflow

- |  |  |
|--|--|
| 1. Worn fuel valve (21) or dirty valve seat. | 1. Replace valve (21) or clean seat.     |
| 2. Improper fuel level in float bowl (29).   | 2. Adjust float (29) mtg. tabs.          |
| 3. Worn float (23) mtg. tabs.                | 3. Replace float (23).                   |
| 4. Worn float pin (5) or loose screw (6).    | 4. Replace pin (5) or tighten screw (6). |
| 5. Damaged float bowl O-ring (28).           | 5. Replace O-ring (28).                  |
| 6. Loose float bowl screws (34).             | 6. Tighten screws (34).                  |
| 7. Deformed float (23).                      | 7. Replace float (23).                   |

Poor Idling

- |   |  |
|---|--|
| 1. Idling improperly adjusted.            | 1. Adjust idle.                        |
| 2. Damaged low speed mixture screw (12).  | 2. Replace screw (12).                 |
| 3. Clogged bypass or idle port.           | 3. Clean.                              |
| 4. Clogged slow jet (25).                 | 4. Clean jet (25).                     |
| 5. Loose slow jet (25).                   | 5. Tighten jet (25).                   |
| 6. Air leaking into system.               | 6. Inspect mtg. screw tightness.       |
| 7. Excessive fuel from accelerating pump. | 7. Check accelerating pump rod length. |

TROUBLECORRECTIONPoor Fuel Economy

- |   |   |
|---|---|
| 1. Fuel level too high.                   | 1. Adjust level of float (23).                              |
| 2. Clogged bleed tubes (24) and (25).     | 2. Clean.   |
| 3. Loose jets.                            | 3. Tighten.   |
| 4. Idling improperly adjusted.            | 4. Adjust idle.   |
| 5. Choke not opening fully.               | 5. Inspect choke plate, choke wire, and adjustment.         |
| 6. Dirty air cleaner.                     | 6. Clean.   |
| 7. Excessive fuel from accelerating pump. | 7. Adjust fuel flow. Check accelerator pump rod (7) length. |

Poor Acceleration

- |   |                                |
|---|--------------------------------|
| 1. Clogged accelerating system.         | 1. Clean.                      |
| 2. Damaged pump diaphragm (31).         | 2. Replace diaphragm (31).     |
| 3. Slow system improperly adjusted.     | 3. Adjust slow system.         |
| 4. Clogged slow jet (25) or bleed tube. | 4. Clean.                      |
| 5. Fuel level too low.                  | 5. Adjust level of float (23). |

Hard Starting

- |   |  |
|---|--|
| 1. Choke valve (41) not operating properly. | 1. Adjust choke system.  |
| 2. Idling improperly adjusted.              | 2. Adjust idle.  |
| 3. Generally dirty carburetor.              | 3. Disassemble and clean.  |
| 4. Loose carburetor mtg. nuts.              | 4. Tighten mtg. nuts.  |
| 5. Fuel overflow.                           | 5. Inspect float (23) and fuel valve (21) and adjust or replace. |

Poor Performance On Road

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|---|--|
| 1. Idling improperly adjusted.            | 1. Adjust idle.  |
| 2. Fuel overflow.                         | 2. Inspect float (23) and fuel valve (21) and adjust or replace. |
| 3. Main jet (26) loosened.                | 3. Inspect main jet (26) and tighten.                            |
| 4. Damaged O-ring (20).                   | 4. Replace O-ring (20).  |
| 5. Faulty operation of accelerating pump. | 5. Correct rod (7) length.                                       |

Poor High Speed Performance

- |   |  |
|---|--|
| 1. Loose main jet (26).                       | 1. Inspect main jet (26) and tighten.                  |
| 2. Improper fuel level in float chamber (29). | 2. Adjust float (23) mtg. tabs for correct fuel level. |
| 3. Dirt lodged in strainer in fuel tank.      | 3. Clean strainer.                                     |
| 4. Clogged main jet (26) or air passage.      | 4. Clean.  |

TROUBLECORRECTIONAbnormal Combustion (Fuel Mixture)

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|--------------------------------|---|
| 1. Incorrect fuel mixture.     | 1. Adjust carburetor.                                     |
| 2. Generally dirty carburetor. | 2. Disassemble and clean.                                 |
| 3. Dirty or clogged fuel line. | 3. Clean fuel line or replace.                            |
| 4. Air leaking into system.    | 4. Check mtg. nuts for tightness.<br>Inspect O-ring (20). |

Loss of Power (Insufficient Fuel)

- |  |   |
|--|---|
| 1. Generally dirty carburetor.         | 1. Disassemble and clean.                                 |
| 2. Clogged fuel line.                  | 2. Clean.   |
| 3. Dirty fuel tank.                    | 3. Clean.   |
| 4. Air leaking into system.            | 4. Check mtg. nuts for tightness.<br>Inspect O-ring (20). |
| 5. Accelerating pump not working.      | 5. Repair and adjust.                                     |
| 6. Clogged fuel strainer in fuel tank. | 6. Clean strainer.  |

Loss of Power (Insufficient Air)

- |                                |                                     |
|--------------------------------|-------------------------------------|
| 1. Dirty air cleaner.          | 1. Clean air cleaner.               |
| 2. Throttle cable not working. | 2. Check and repair throttle cable. |