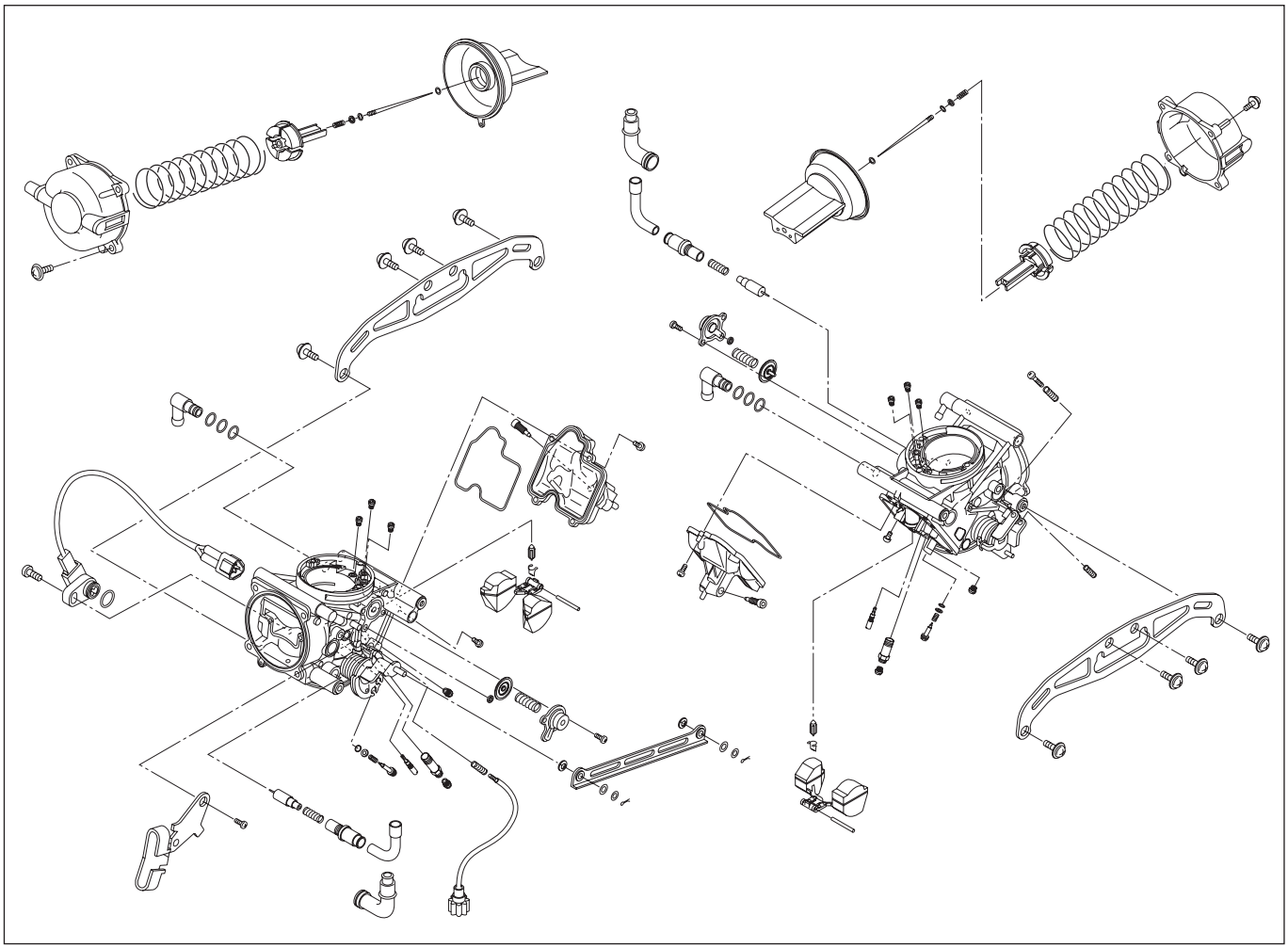
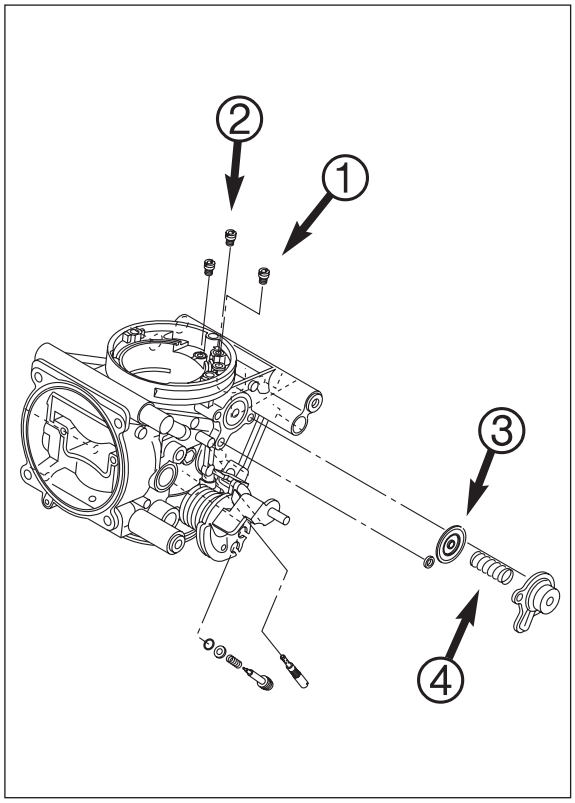
CARBURATOR - KEIHIN CVRD 43





Description of the ACV (air cut valve) system

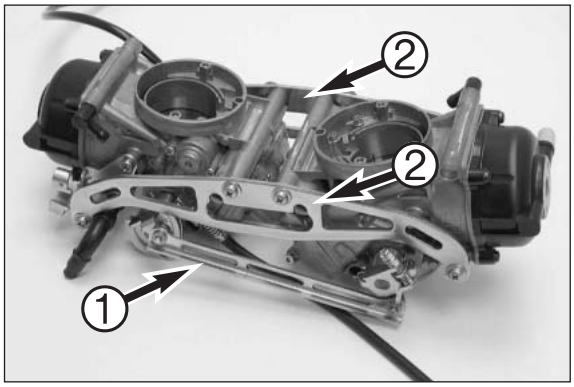
ACV stands for Air Cut Valve.

The ACV system enriches the mixture by reducing the idle-air quantity to prevent the exhaust from backfiring in an overrun condition or upon sudden closure of the throttle valve.

Normally the required idle-air reaches the mixture through two air jets, the idle air jet ❶ (jet diameter 50) and the ACV jet ❷ (jet diameter 80).

In an overrun condition or during upon sudden closure of the throttle valve, the momentary high under-pressure causes the diaphragm ❸ of the ACV valve to close the air channel to the idle-air jet against the pressure of the ACV spring ❹. Now the air can only be drawn in through the ACV jet ❷, resulting in a richer mixture.

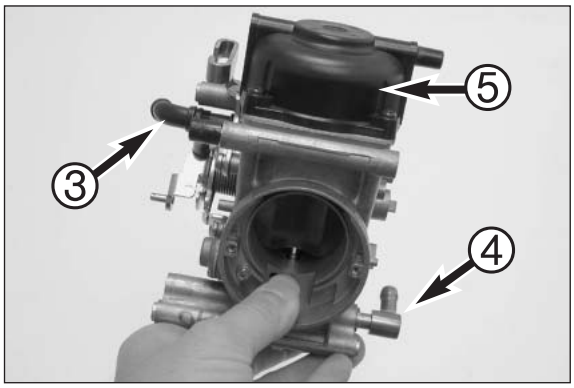
The system needs no maintenance. No servicing is required other than an inspection of the components when the carburetor is overhauled. No adjustments can be made.



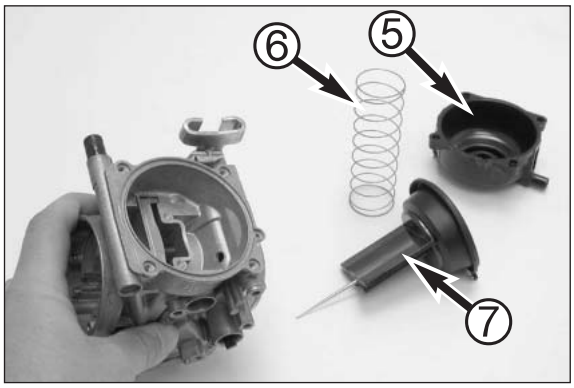
Disassembling the carburetor

– Loosen the throttle linkage arm ❶ and remove together with the shims.
– Unscrew the throttle sensor and cable for the idle setting.
– Loosen the screws and remove both connecting rods ❷.

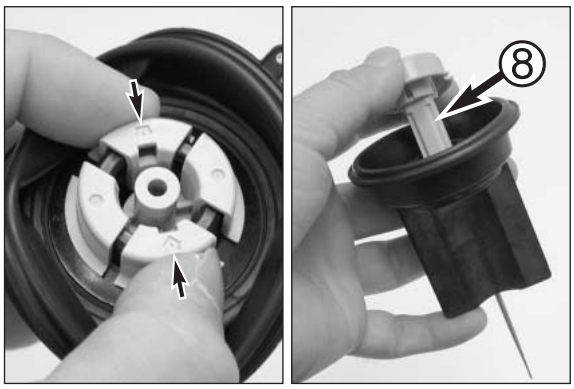
NOTE:
– The screws on the connecting rods are glued in. Place the carburetor on an aluminum plate and tap the screws carefully with a hammer to loosen.
– The fuel connections must be turned aside before the connecting rods can be removed.



– Unscrew the connection for the electric starter system ❸ and remove the starter piston and spring, unless already removed when the carburetor was dismounted.
– Pull the fuel connection ❹ out of the carburetor.
– Remove the diaphragm cover ❺.

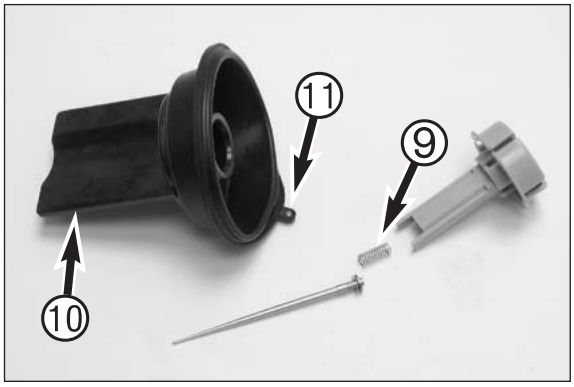


– Remove the throttle slide spring ❻ and pull the throttle slide ❼ out of the carburetor together with the diaphragm.



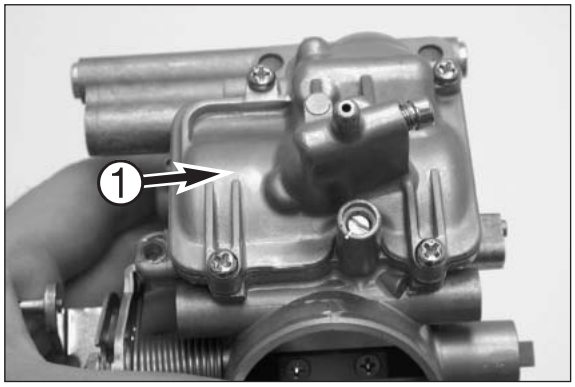
– Press the jet needle holder ❽ together in the direction of the arrows, carefully unclip from the jet needle and remove.

NOTE: the spring ❾ on the jet needle usually remains in the jet needle holder.

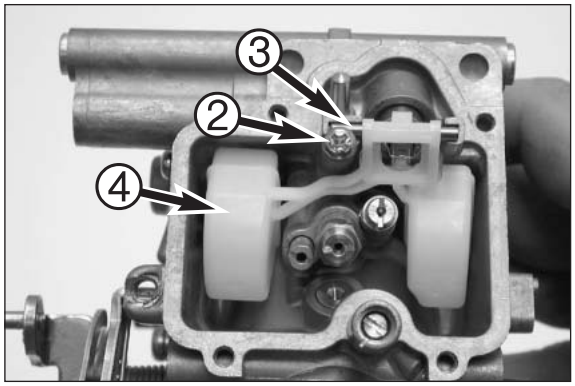


– Check all parts for wear, especially the jet needle and the guide surfaces ❿ of the throttle slide.
– Check the throttle slide diaphragm carefully for cracks or fractures.

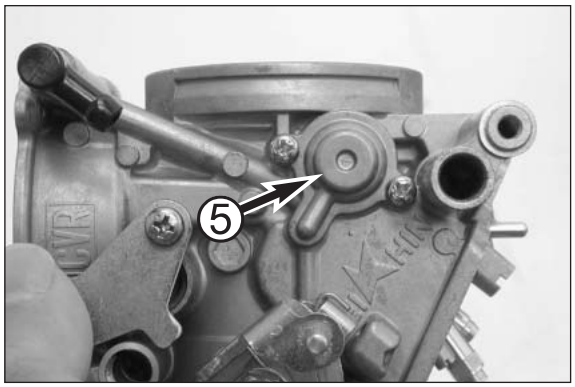
NOTE: the tab of the throttle slide diaphragm contains a small air jet ⓫ – be carefully not to lose it.



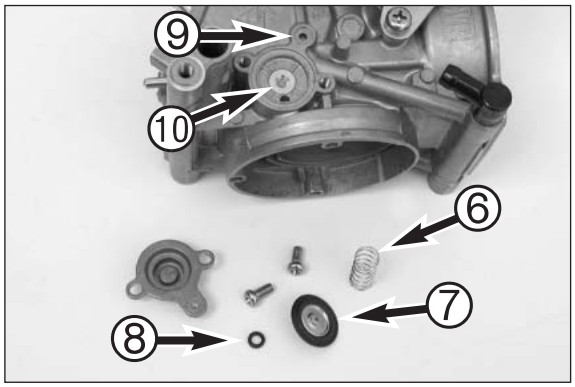
– Remove the float chamber ❶ and discard the gasket.



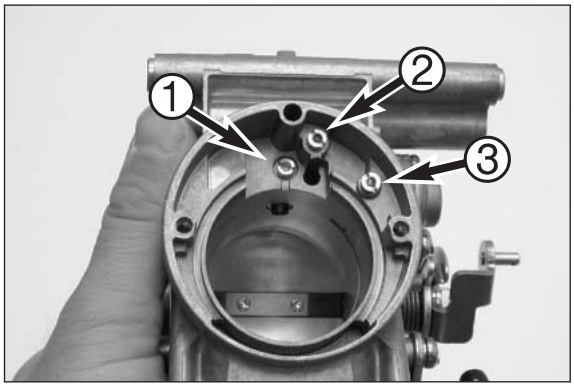
– Loosen the fixing screw ❷ on the float hinge pin ❸ and remove the float ❹ together with the hinge pin and the needle valve.
– Check the needle valve for wear at the conical seat.



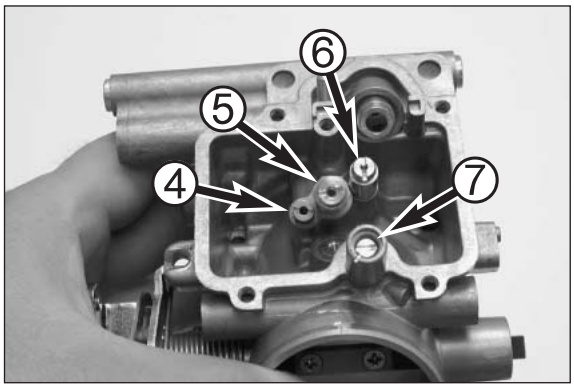
– Unscrew the ACV cover ❺ and remove the spring ❻ together with the diaphragm ❼.



– Remove the O-ring ❽ from the recess around the air jet ❾.
– Check the diaphragm ❼ for cracks or other damage.
– Use a needle or similar tool to press lightly on the ACV valve ❿. The ACV valve should move down. The valve should close completely when you let go.



– Unscrew the main air jet ❶, the ACV jet ❷ and the idle-air jet ❸ with a suitable screwdriver.



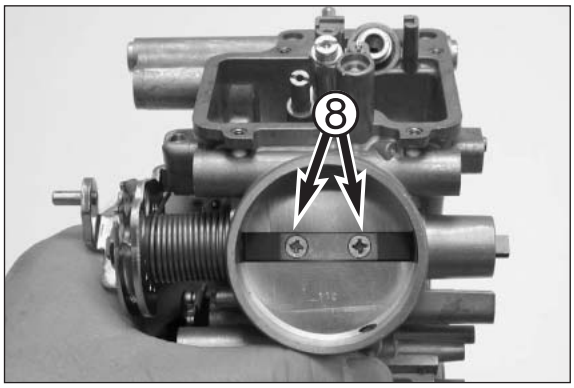
– Unscrew the idle-air jet ❹, the main jet ❺ with the main jet holder and starter jet ❻.
– Before removing the idle-air mixture control screw ❼, screw in to the limit. Count and note down the number of turns. Then remove the mixture control screw together with the O-ring, shim and spring.
– Check the jets for damage and wear.
– Clean all parts thoroughly and blow compressed air through all of the bores.

! CAUTION !

CAREFULLY BLOW THE AIR THROUGH THE ACT JET AIR DUCT FROM THE ACV VALVE SIDE TO AVOID DAMAGING THE ACV VALVE.

– Hold the throttle valve against the light in a closed condition. No light should be visible on the side of the throttle valve.

NOTE: if any light is visible, check the throttle valve and carburetor housing for wear. The throttle valve usually becomes worn on the side near the throttle shaft.



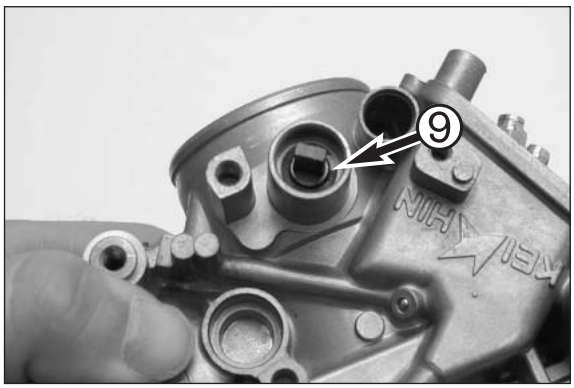
– Remove the screws ❽.

! CAUTION !

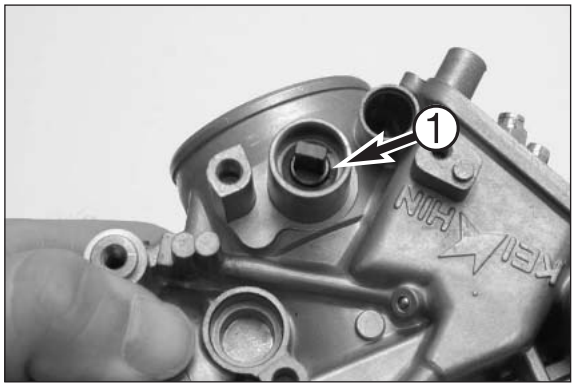
HOLD A SUITABLE MANDREL AGAINST THE THROTTLE SHAFT TO KEEP IT FROM BENDING.

NOTE: bore out the screws if you are unable to loosen them.

– Remove the throttle valve.

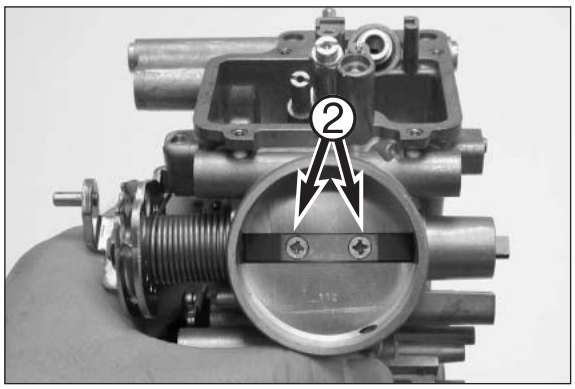


– Remove the lock ring ❾ from the throttle shaft and pull the throttle shaft out from the side of the carburetor.
– Check the throttle shaft for wear and deformation.



Assembling the carburetor

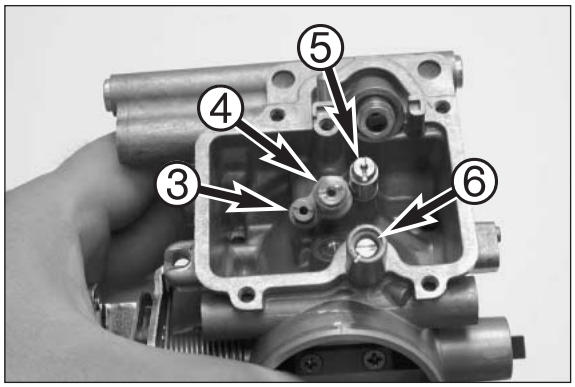
– Push the throttle shaft into the carburetor housing, fit the spring and mount the lock ring ❶.



– Mount the throttle valve ❷, tighten and caulk the screws.

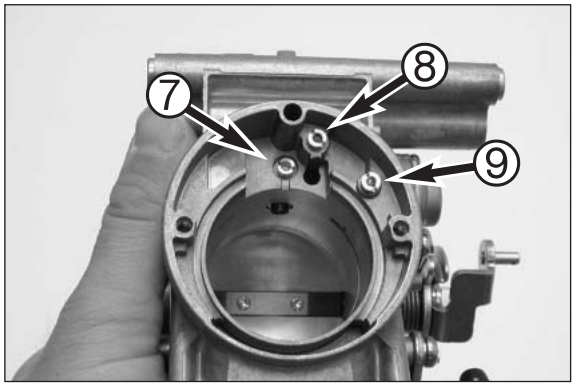
! CAUTION !

HOLD A SUITABLE MANDREL AGAINST THE THROTTLE SHAFT TO KEEP IT FROM BENDING.

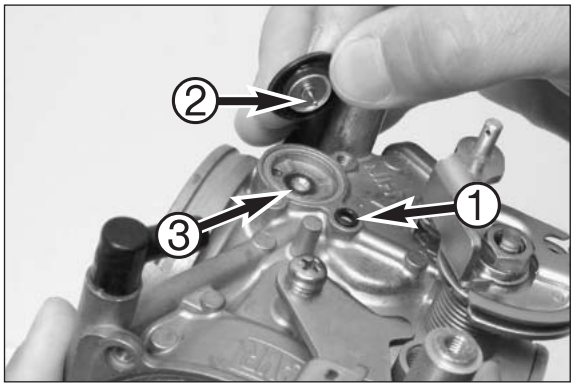


– Screw on the idle-air jet ❸, main jet ❹ with main jet holder and starter jet ❺.
– Screw the idle-air mixture control screw ❻ with the O-ring, shim and spring in to the limit, unscrew the number of turns previously noted.

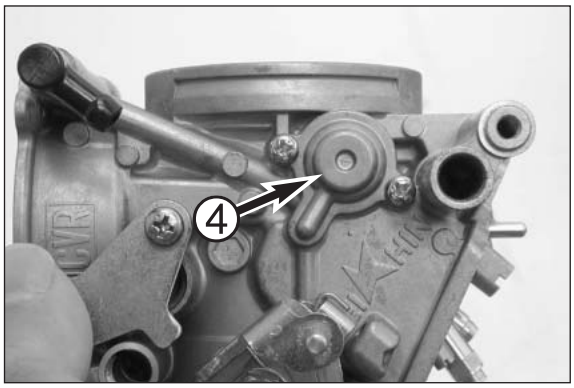
See pages 8-10 to adjust the mixture control screw.



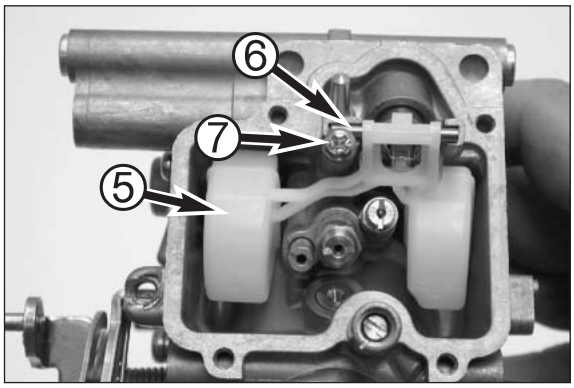
– Mount the main air jet ❼, ACV jet ❽ and idle-air jet ❾ with a suitable screwdriver.



– Place the O-ring ❶ in the recess around the air jet.
– Mount the ACV diaphragm so that the pin ❷ presses on the ACV valve plate ❸.

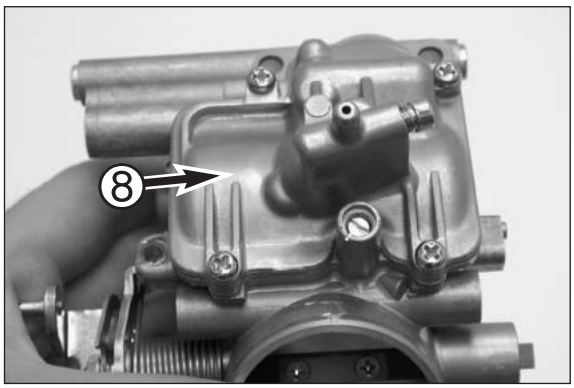


– Place the spring on the diaphragm and mount the ACV cover ❹.

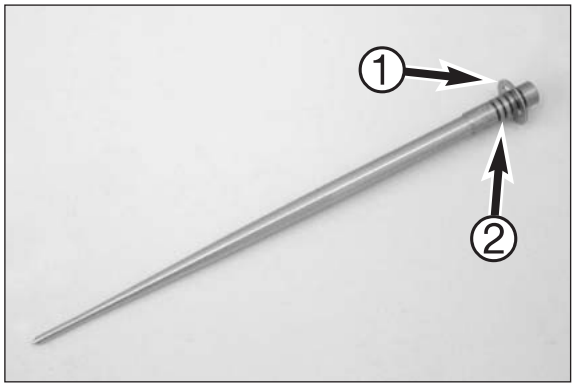


– Position the float ❺ together with the needle valve and float hinge pin ❻ in the carburetor housing.
– Tighten the fixing screw ❼ on the float hinge pin.

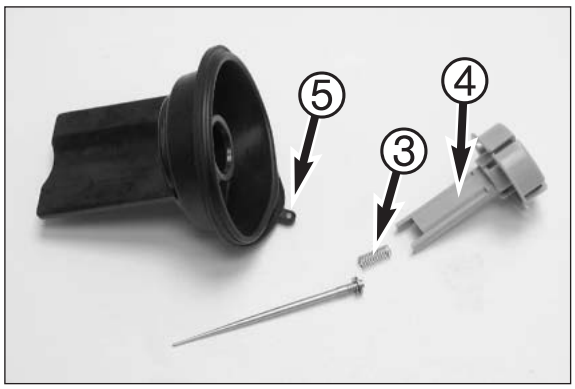
See pages 8-10 to adjust the float level.



– Mount the float chamber ❽ with a new gasket. Tighten the screws.

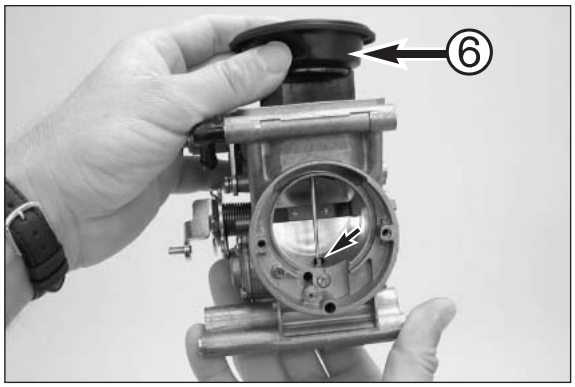


– Mount the lock ring ❶ in the respective position on the jet needle ❷ (2nd notch from the top – see technical specifications).

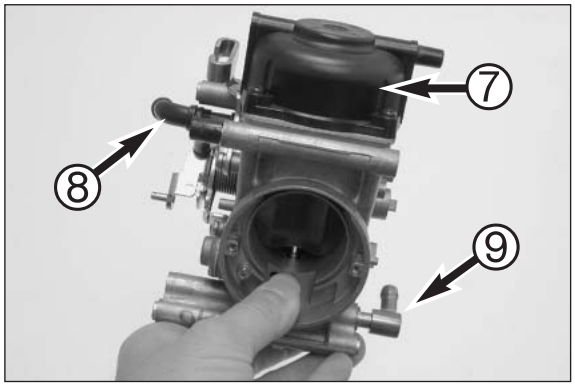


– Insert the spring ❸ in the jet needle holder ❹ and position in the throttle slide together with the jet needle. Clip the jet needle holder into place.

NOTE: a small air jet ❺ should be mounted in the tab of the throttle slide diaphragm.



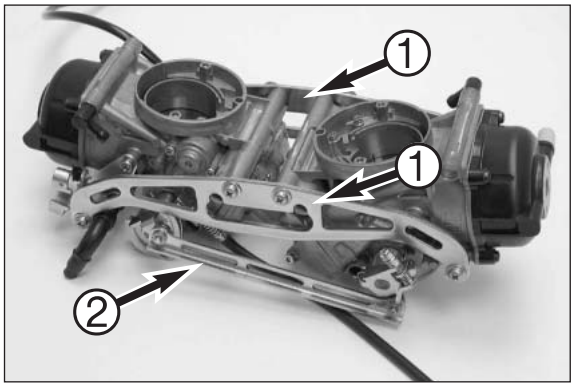
– Insert the throttle slide and diaphragm ❻ in the carburetor, pushing the jet needle in the needle jet (see arrow).
– Mount the throttle slide spring and screw on the diaphragm cover ❼.



– Fit the starter cable in the piston and screw on the connection for the electric starter system ❽.

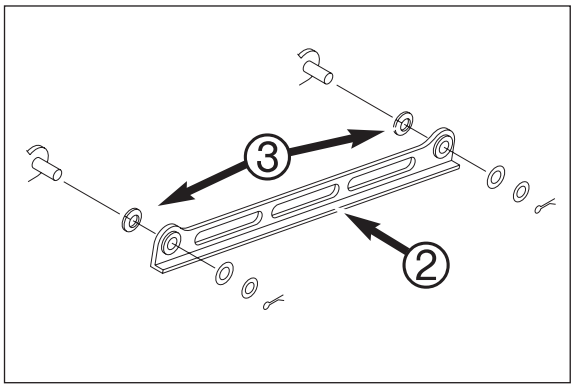
See pages 8-11 to adjust the starter cable.

– Insert the fuel connection ❾ in the bore with new O-rings.



– Position both connecting rods ❶, coat the thread of the screws with Loctite 243 and mount.

NOTE: bend the fuel connections according to the recesses in the connecting rods before mounting the connecting rods.

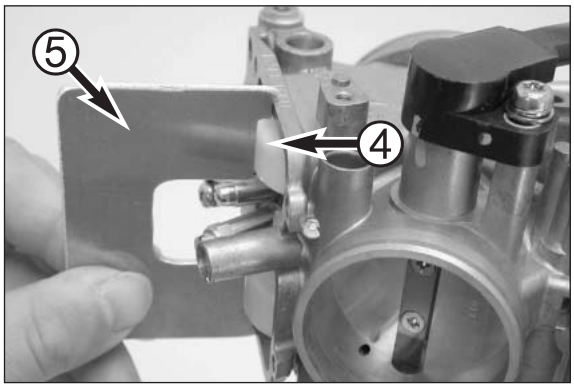


– Mount the throttle linkage arm ❷ with shims as shown in the drawing and secure with the pins.

NOTE: slide the curved plastic shims ❸ on the bolts first.

– Screw on the throttle sensor and cable for the idle setting.

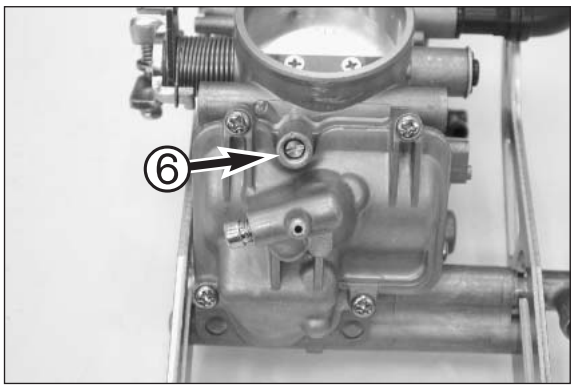
See page 8-11 to adjust/check the throttle sensor.
See Chapter 12 to adjust the idle speed.
See Chapter 12 to synchronize the carburetor.
See page 8-11 to adjust the throttle cable.



Adjusting the float level

NOTE: it is not necessary to separate the two carburetors to adjust the float level.

– Remove the float chamber.
– Turn the carburetor aside until the float ❹ presses lightly against the needle valve.
– Place the setting gauge 600.29.016.000 ❺ on the carburetor at the highest part of the float. The setting gauge should not press against the float but there should not be a gap between the setting gauge and the float. If necessary, bend the arm on the float and check again.
– Mount the float chamber.



Adjusting the idle mixture control screw

NOTE: the idle mixture control screw can only be adjusted when the carburetor is dismounted.

– Screw the mixture control screws in to the limit.
– Screw out the mixture control screws 2 1/4 turns (see Technical Specifications).