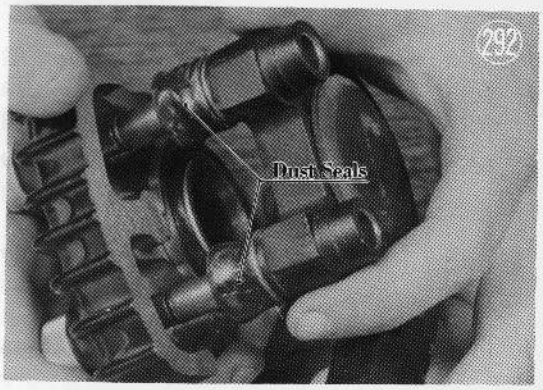
•Insert the two shafts into caliper A, put the first two dust seals onto the caliper mounting, and slide the mounting onto the shafts. Make sure the dust seals are in place around the outside of the mounting.



•Fit the next of dust seal onto each shaft and screw on caliper B.
•Move the caliper mounting back and forth on the shafts to see that it moves smoothly.
•Remove the caliper onto the fork, fit on the brake line pipe, and bleed the line.

Brake Line

When replacing or inspecting the brake line parts, be careful of the following points:

1. The metal pipe should not touch the front fork or frame. Leave at least 5/16-3/8 inch (8-10 mm) clearance to allow for pipe movement with the calipers.

2. When screwing on the hose and pipe fittings hold the pipe or hose so that it does not turn with the screw. Don't mount them so that there are any sharp bends in the line at any point.

3. Use "loc-tite" on the threads when screwing in the pressure switch, but do not use so much that the excess may clog the switch intake.

Maintenance

Adjustment

As explained earlier, the disc brakes are self adjusting, so brake adjustments are neither necessary nor possible.

If brake lever play develops, use the adjuster screw to set it at less than 3/16 inch (5 mm). See Figure 283.

The brake lamp switch for the front brake is a pressure switch and no adjustment is necessary. If the switch will not turn on the brake light with light pressure on the brake lever, it is defective and should be replaced.

Bleeding the Brake

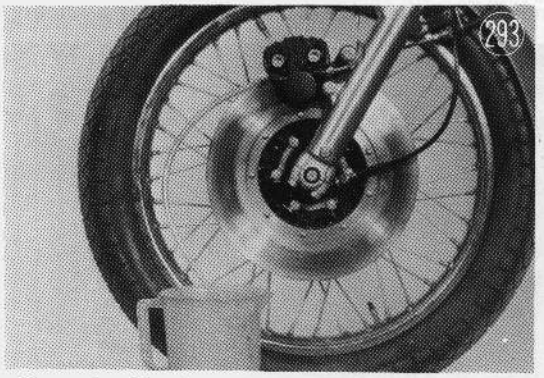
The air must be bled from the brakes:

(a) Any time the brake line is opened at any point (including the bleeder valve).

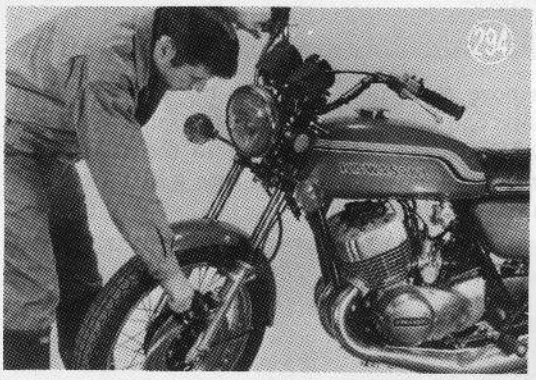
(b) If the brake lever feels soft (easy to pull).

(c) If the fluid in the reservoir gets too low or becomes empty.

•Fill the reservoir and keep the level high at all times during the air bleeding operation.
•Pull off the rubber cap and fit a clear plastic hose onto the bleeder valve. Put the other end of the hose into an open container holding some brake fluid.



•Open the bleeder valve, squeeze the brake lever, close the valve, release the lever. Repeat this sequence several times until the hose is full of fluid.



•Open the bleeder valve, leave it open and keep pumping the brake lever until no air bubbes appear in either the reservoir brake fluid or in the brake fluid from the bleeder valve. During this time, add brake fluid as necessary to maintain the level in the reservoir.
•Close the valve, replace the rubber cap, and fill the reservoir up to the line.

Brake Fluid

1. Specifications

Viscosity

The brake fluid must have a suitable viscosity throughout the operating temperature range. Brake fluid temperature may rise as high as 300°F (150°C) during heavy usage. In colder regions the brakes are expected to operate at -25°F (-30°C) or lower.

Even at those temperatures the brake fluid must operate the piston and lubricate internal moving parts.

Boiling Point

When the brakes are applied, the braking surfaces may be as hot as 500°-650°F (250°-350° C) although a part of this is radiated before it reaches the fluid. While the brakes are being applied the fluid will not boil because of the 300-600 lbs/sq.in. (20-40 kg/cm^2) pressure in the line. As soon as the brake lever is released, however, the effects of the temperature are felt and a fluid with a low boiling point will turn to gas and cause a vapor lock in the brake line.

Care must be taken that no moisture is absorbed into the fluid, or introduced into the fluid through the reservoir since this will lower the boiling point.

Ignition Point

The brake fluid should have a high ignition point to minimize the possibility of fire in the event of brake line leakage.

A fluid with a high boiling point can be expected to have a high ignition point.

Non-Corrosive

The brake fluid must not have a corrosive or deleterious effect on either the metal or rubber parts of the brake mechanism. If the fluid deteriorates or swells the rubber, corrodes metal parts or causes the formation of sludge, it is not suitable for use in disc brakes.

2. Changing the Brake Fluid

Change the brake fluid completely –

(a) After one year or 6,000 miles (10,000 km)
(b) If water or moisture becomes mixed with the fluid.
(c) When the fluid appears dirty or cloudy.

CAUTION:

1. **Never re-use old brake fluid.**
2. **Do not mix two types of fluid for use in the brakes. This lowers the brake fluid boiling point and could cause the brake to be ineffective.**
3. **Don't leave the reservoir cap off for any length of time as moisture may be absorbed into the fluid.**
4. **Don't change the fluid in the rain, or when a strong wind is blowing.**

To change the fluid:

- Attach a hose to the bleeder valve, inserting the other end of the hose into a container.
- Open the bleeder valve and pump the brake lever until all the fluid is drained and only air comes out of the hose.
- Fill the reservoir with new brake fluid and pump the brake lever until the brake line is completely filled with fluid, and no more air bubbles come out of the hose. Do not let the fluid in the reservoir run out at any time during this operation.
- Close the bleeder valve and fill the reservoir up to the line.
- Check that the lever pulls hard.

Master Cylinder

- Check that there are no scratches, rust or pitting on the inside of the master cylinder, and that it is not unduly worn.
- Check the piston for these same faults.
- Inspect the primary and secondary cups. If a cup is worn, damaged or softened (rotted), or swollen, replace it. When inserting the cup into the cylinder see that it is slightly larger than the cylinder (standard values given in the table). If oil leakage is noted at the brake lever, the cups should be replaced. (The secondary cup is part of the piston assembly).
- Check that the spring is not damaged and is not shorter than the service limit.
- Inspect all other rubber parts and replace any that are worn, damaged, etc.

Table 35 Master Cylinder Parts

Measurement	Standard	Service Limit
Cylinder inside diameter	.5512-.5529 inch (14.000-14.043 mm)	.5543 inch (14.080 mm)
Piston outside diameter	.5495-.5506 inch (13.957-13.984 mm)	.5496 inch (13.960 mm)
Primary, secondary cup diameter	.577-.596 inch (14.65-15.15 mm)	.571 inch (14.50 mm)
Spring length (free)	2.01 inch (51 mm)	1.89 inch (48 mm)

Caliper

Pads

Inspect the pads for wear. If the surface of either pad is worn down through the red line, replace both pads as a set.

NOTE: 1. Use only Kawasaki parts for pad replacement.

2. If any oil is spilled on the pads, clean them with trichlorethylene or gasoline. If the oil cannot be thoroughly cleaned off, replace the pads.

Oil Seal

The oil seal around the piston maintains the proper pad/disc clearance. If this seal is bad, pad wear will increase, and constant pad drag on the disc will raise brake and brake fluid temperature.

Replace the oil seal under any of the following conditions: (a) oil leakage near pads; (b) brakes overheat; (c) there is a large difference in A and B pad wear; (d) the seal is stuck to the piston. Also replace the seal every other time the pads are changed.

Piston, Cylinder

Replace the cylinder or piston if it is worn out of tolerance, if it is badly scratched, or if rust has set in.

Seals

Check that the oil and dust seals and O rings are not cracked, worn, swollen or otherwise damaged. Replace as necessary.

Brake Line

The high pressure inside the brake line can cause oil to leak or the pipe to burst if the pipe is not properly maintained.

Bend and twist the rubber hose while examining it. Replace it if any cracks or bulges are noted.

The pipe is made of plated steel, so if the plating is scratched through it will rust. Check the pipe for badly scratched plating, rust, or cracking, especially at the fittings.

Disc

Measure disc thickness and replace the disc if it is worn out of tolerance.

Check runout (warp) as illustrated, replacing the disc if indicated. If the disc is warped it will cause the brake to drag and wear down the pads and disc, and overheat.

If there is any oil on the disc, clean it off with trichloroethylene or gasoline.

Table 36 Caliper Parts

Model	Part	Standard	Service Limit
H1 H2	Cylinder inside diameter	1.5031 – 1.5039 inch (38.180 – 38.200 mm)	1.5045 inch (38.215 mm)
	Piston outside diameter	1.5006 – 1.5019 inch (38.180 – 38.200 mm)	1.5002 inch (38.105 mm)
KH500	Cylinder inside diameter	1.6870 – 1.6890 inch (42.850 – 42.900 mm)	1.690 inch (42.92 mm)
	Piston outside diameter	1.6846 – 1.6858 inch (42.788 – 42.820 mm)	1.683 inch (42.75 mm)

Table 37 Disc

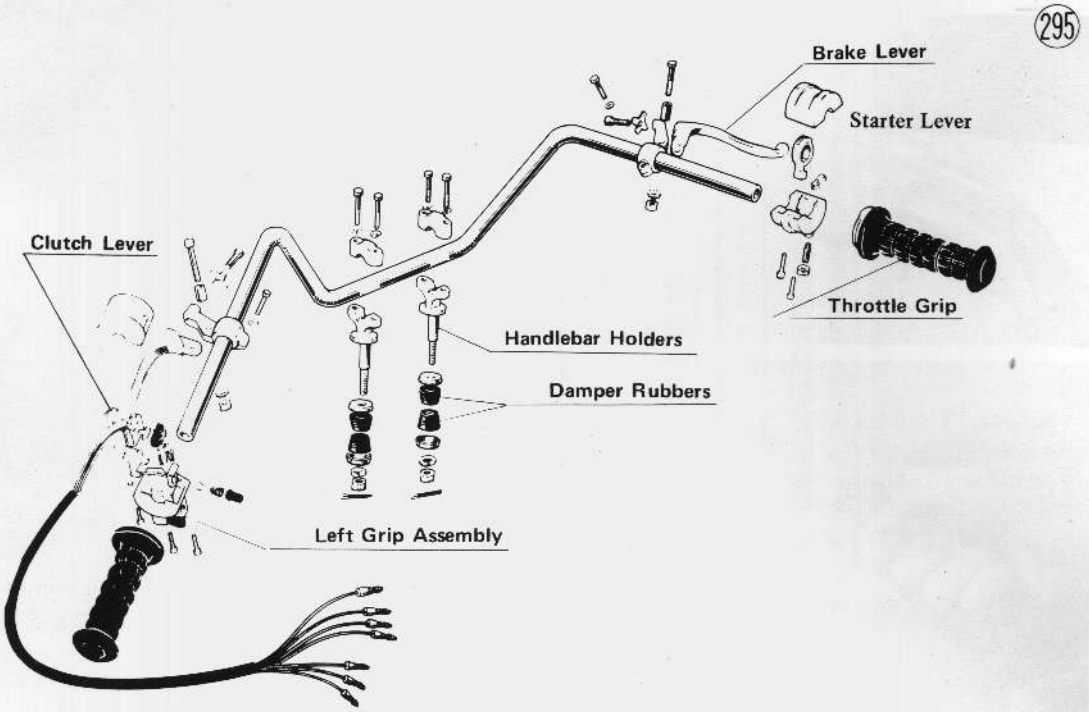
Measurement	Standard	Service limit
Thickness	0.276 inch (6.9 – 7.1 mm)	0.217 inch (6.0 mm)
Runout	less than 0.004 inch (less than 0.1 mm)	0.012 inch (0.3 mm)

5. HANDLEBARS

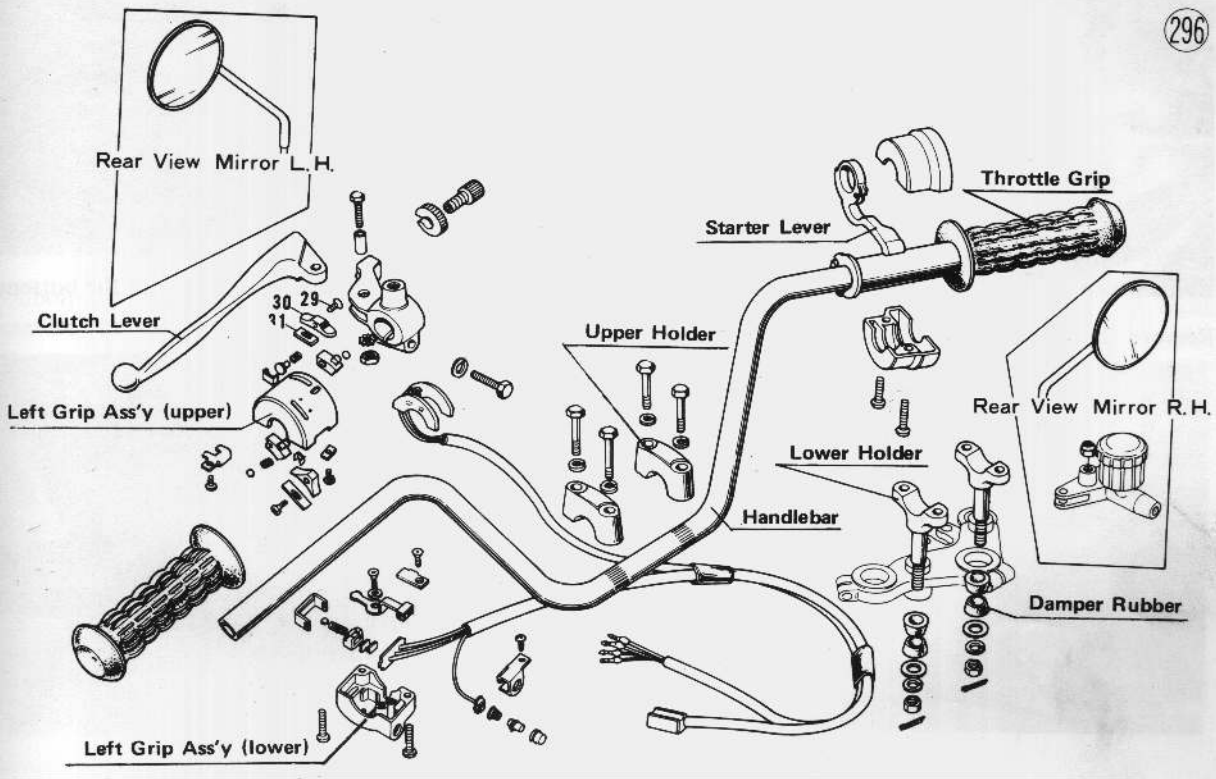
1) Construction

The handlebars are manufactured from drawn steel pipe, the shape of which is designed with consideration to rider comfort during long rides, to high speed riding, and to general riding safety. On the right side of the handlebars are the starter lever, throttle grip assembly, and front brake lever. For disc brake models, the brake fluid reservoir is also located on the right side. Mounted on the left side are the turn signal, horn and headlight switches in the left grip assembly, and the clutch lever.

H1 Handlebar Assembly

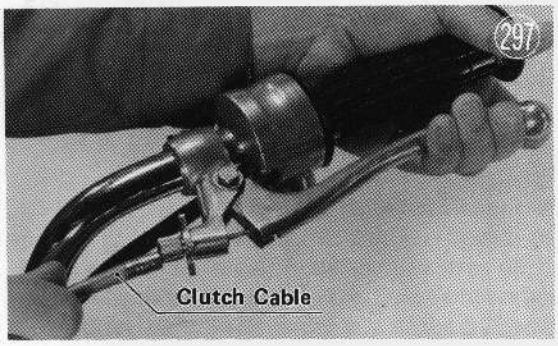


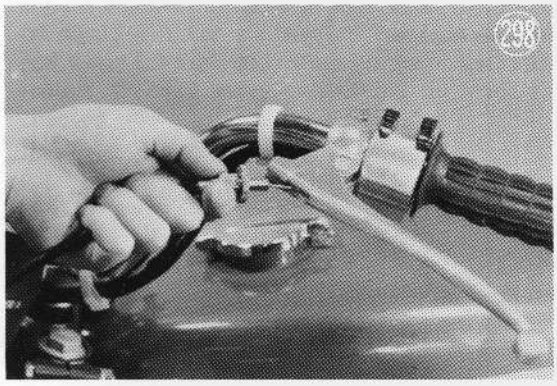
H2 Handlebar Assembly



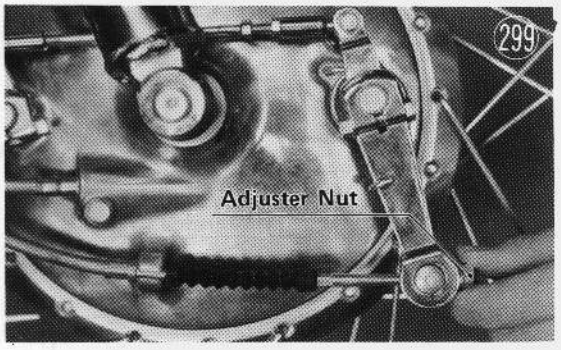
2) Disassembly

Loosen the clutch cable lock nut, and screw in the clutch cable adjusting bolt. This gives the cable sleeve enough play to enable removal of the cable from the clutch lever. To take off the cable, grab the cable outer sleeve with one hand and pull in the clutch lever with the other. While pulling on the cable, release the lever slowly, and pull the cable out of its slot.

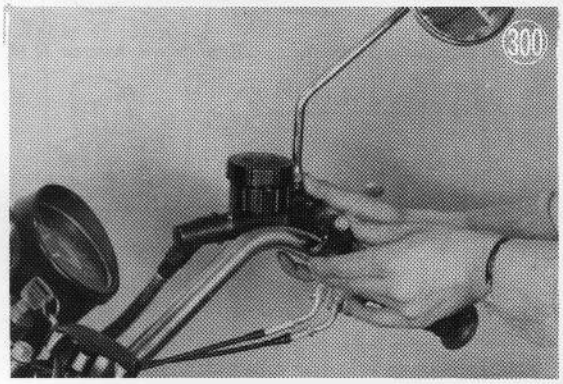




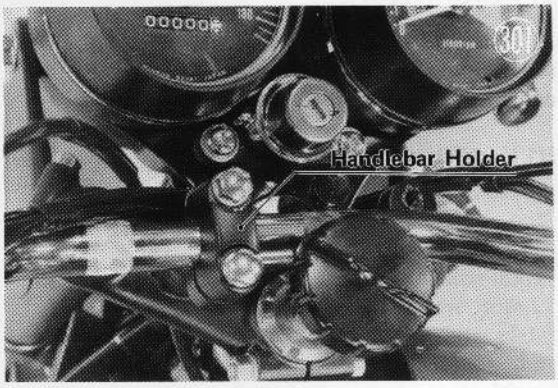
Loosen the front brake adjusting nut and pull the cable off the brake lever. (Expansion brake models)



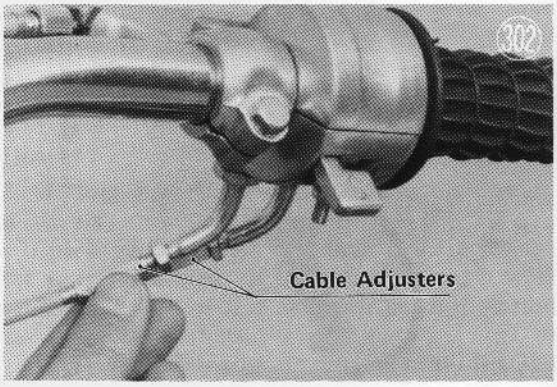
Remove the disc brake master cylinder assembly.



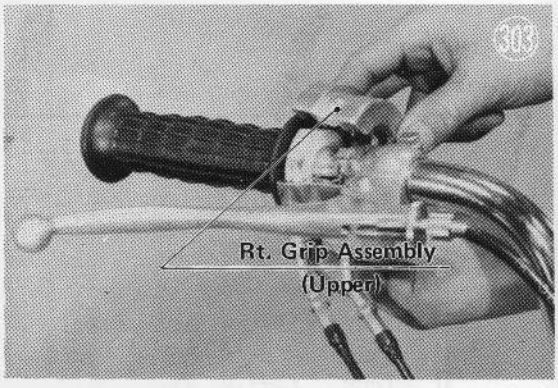
Loosen the handlebar mountings, remove the right upper mount, move the handlebar to the left for easy cable removal, and tighten the left mounting.



Screw in the throttle and starter cable adjusters completely to give the cables plenty of play.



Take off the upper half of the right grip assembly.



Pull the throttle grip off together with the bottom half.