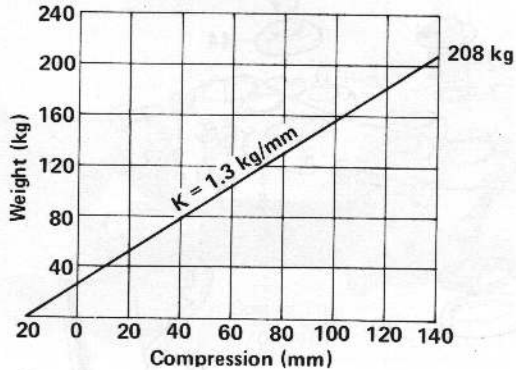


Oil is prevented from leaking out of the tubes by an oil seal on the upper part of the outer tube. A dust seal on the outside of the tubes stops dirt and water from entering and damaging the oil seal and the tube surfaces.

Spring Force



(460)

a. Compression stroke

When a load is placed on the front fork, or when the front wheel hits a bump, the inner tube ① of the shock absorber moves downward (relative to the outer tube ②) and the spring ③ is compressed.

The descending inner tube forces the oil in the outer tube to flow through the hole in the cylinder ④ into the inner tube, thereby compressing the air in the inner tube. At this same time, the oil chamber formed by the cylinder, valve ⑤ and inner tube is growing larger and a negative pressure is developed in it, so oil from the bottom of the outer tube also flows past the piston ⑥, opens the valve, and flows through into that chamber.

Near the end of the compression stroke, the space between the tapered lower end of the cylinder and the piston becomes smaller and offers increased resistance to the flow of oil until, just before the end of the stroke, oil flow is completely prevented and an oil lock condition occurs.

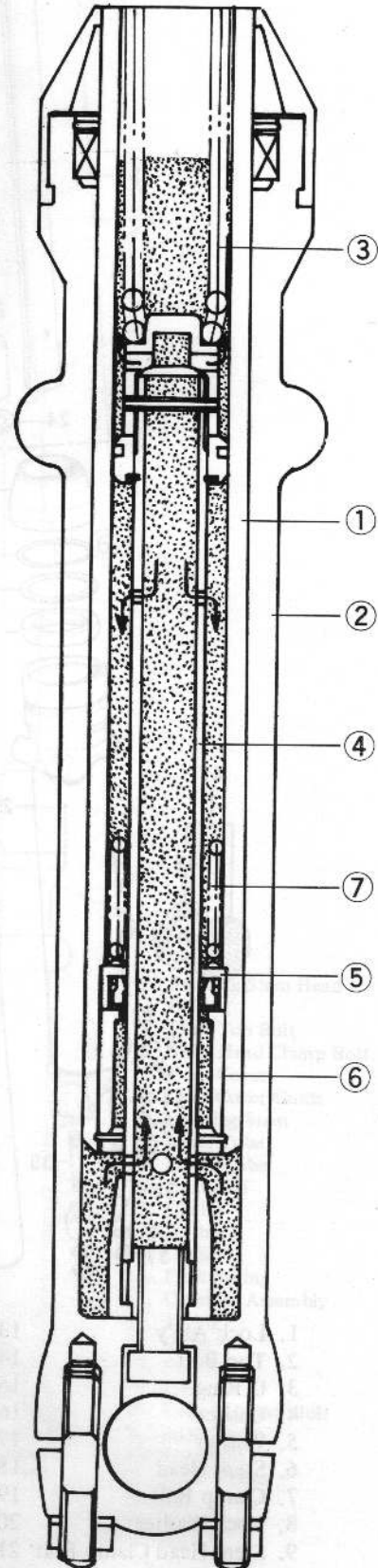
b. Extension stroke

The outer and inner tubes are pushed apart by spring tension whenever the load is taken off the front wheel or the wheel drops into a hole. As the tubes move apart, the oil chamber formed by the cylinder, valve and inner tube grows smaller, but since the valve is a non-return type, the oil cannot return through the valve the way it came. Instead, it flows through a hole in the upper part of the cylinder, and the resistance to this flow through the hole dampens the fork extension. Near the end of the extension stroke, the cylinder spring starts being compressed and further slows fork extension so that it does not suddenly top out.

Either too much or too little oil in the forks will adversely affect their shock damping ability. If there is too much oil or if the oil is too heavy, the shock absorbers will be too hard; too little oil or too light an oil will make the fork soft and decrease damping ability, and may cause the fork to be noisy during operation.

Compression Stroke

(461)



1. Inner Tube
2. Outer Tube
3. Spring
4. Cylinder
5. Valve
6. Piston
7. Spring