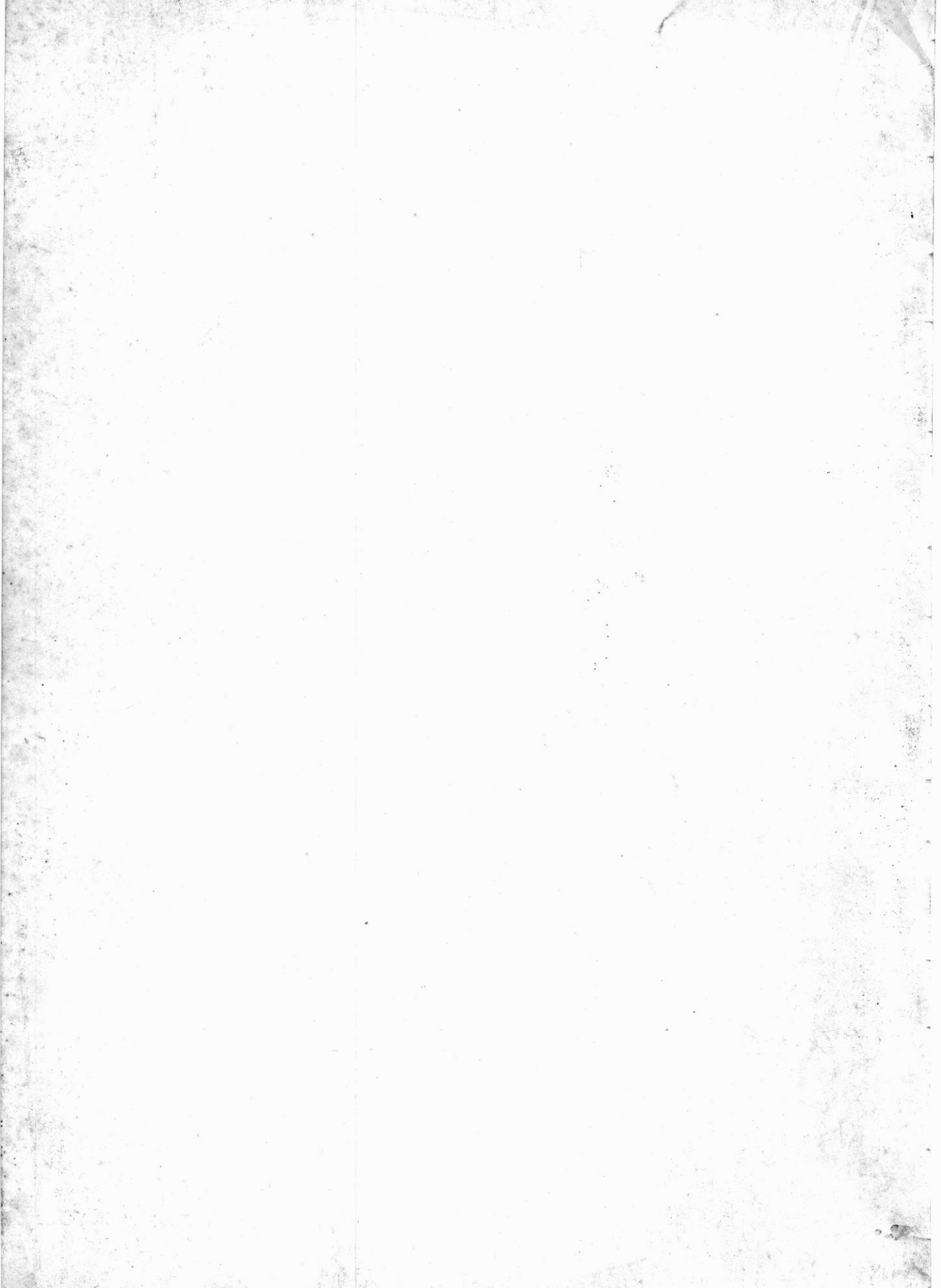
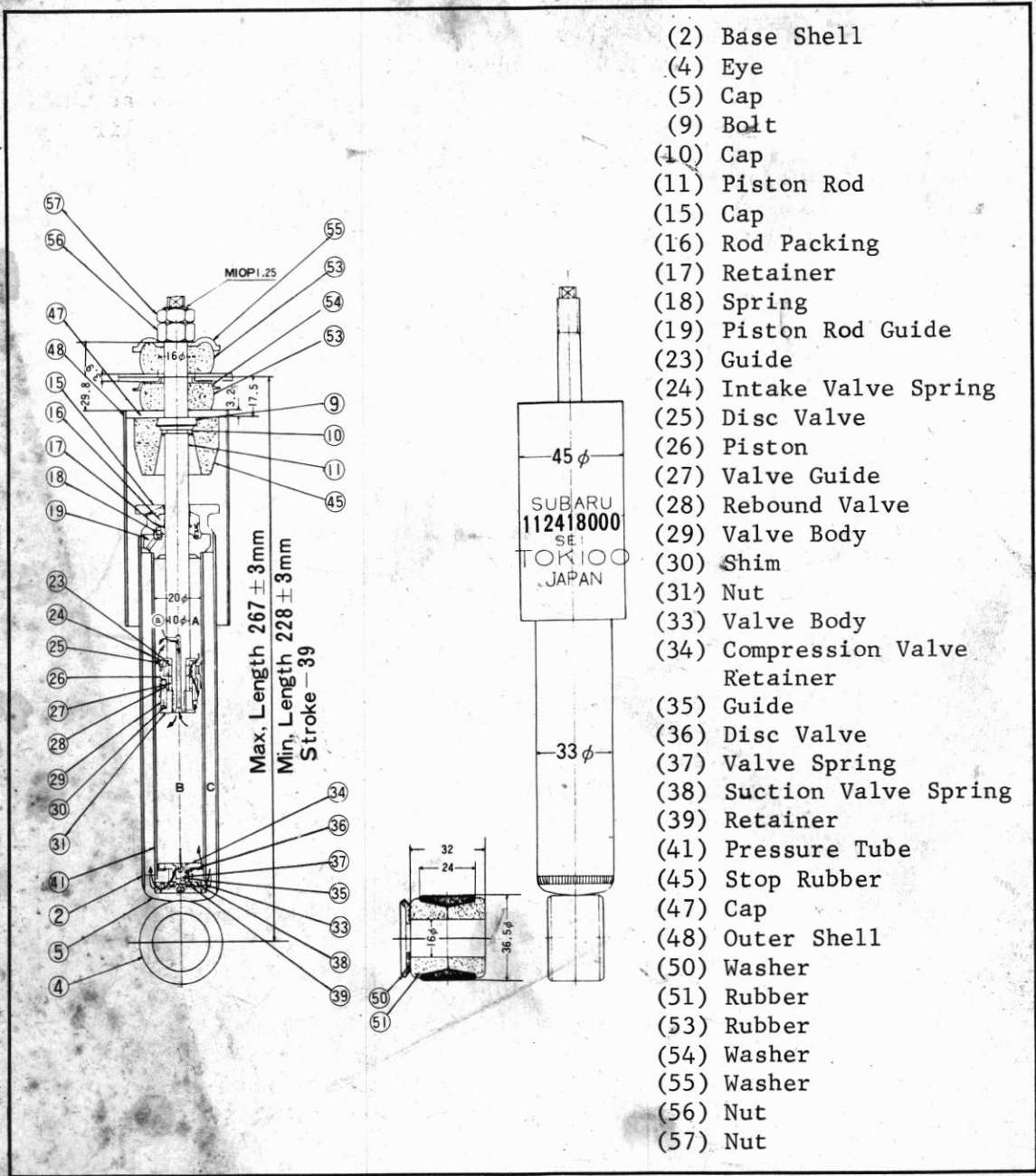


CHAPTER 7: SHOCK ABSORBER

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7-4: CONSTRUCTION AND OPERATION OF THE SHOCK ABSORBER



The principle behind the operation of the hydraulic resistance generating mechanism of the shock absorber is as follows:

A. COMPRESSION

When the shock absorber is compressed due to the reacting force from the road, the oil in chamber "B" below the piston (26) passes through the oil path (a) of the piston rod, and at the same time, it compresses the intake valve spring (24), lifts up the disc valve (25) and flows into chamber "A" above the piston (26) with almost no resistance. Simultaneously, the amount of oil equivalent to the volume of the piston rod (11) that intruded into the pressure tube (41) passes through the hole in the compression valve retainer (34), compresses the valve spring (37), forces down the disc valve (36) on the compression side, passes through the cutaway in the valve body (33) and enters the chamber "C" between the base shell (2) and the pressure tube (41).

The resistance that appears when the oil depresses the disc valve (36) and flows through creates hydraulic pressure which becomes the resisting force when the shock absorber is compressed; that is, the damping force. Furthermore when the shock absorber is compressed, the cap (15) contacts the stopper rubber (45) and compresses the rubber which serves to limit the minimum length of the shock absorber.

B. EXPANSION

When the shock absorber is expanded due to the reaction of the torsion bar, the oil in chamber "A" above the piston (26) flows through the oil path (a) of the piston rod, and passing through the piston hole, it depresses the valve spring (29) and the rebound valve (28) and is forced into chamber "B" below the piston (28).

The resistance occurring when the oil depresses rebound valve (28) and flows through creates hydraulic pressure which becomes the damping force when the shock absorber is expanded.

At the same time, the piston rod (11) is extracted from the pressure tube (41) and the oil equal to the volume of the piston rod flows from chamber "C" and compresses the very weak spring force of the suction valve spring, raises the valve (34), guide (35) and retainer (39) as a unit and fills the chamber "B" below the piston (26).

Further, when the shock absorber is expanded, the oil path (a) in the piston rod becomes closed gradually by the piston rod guide. When the opening is completely closed, the damping force reaches its limit and the maximum extension of the shock absorber is limited.