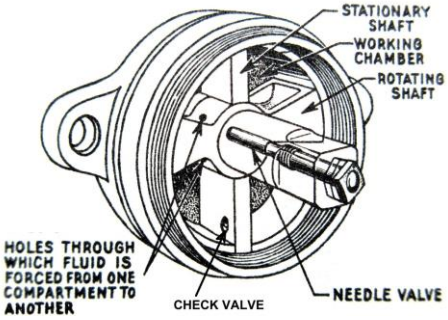
THE MODEL A TOOL BOX

MODEL A SHOCK ABSORBER

by Colin Lawson

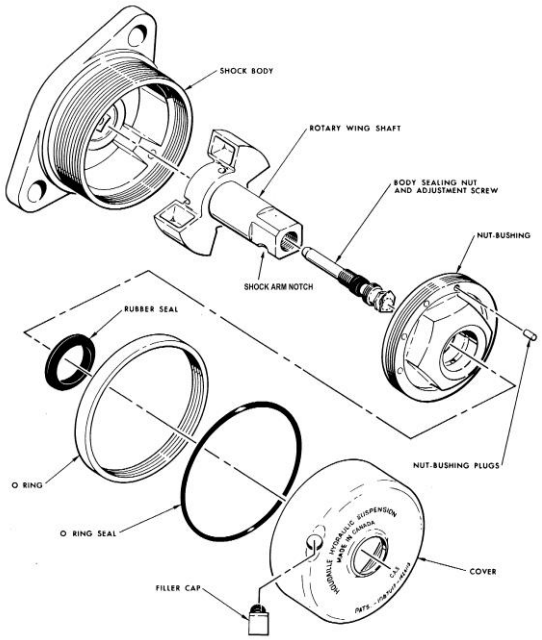
The transverse springs of the Model A tend to allow the body to tilt (body roll) when cornering. The shock absorbers are used to reduce that problem and give a smoother ride. If the shocks are not installed then too much bounce makes a very uncomfortable ride and could break a leaf. The Houdaille shock is a double acting fluid filled rotating shock.

It relies on the fluid being compressed by the vane when the shaft is turned quickly. The holes drilled in the wings of the vane and the two check balls in the base provide the path for the fluid to slowly equalize. The adjusting screw in the centre controls the rate of fluid flow through the vane holes to the chambers. The screw is adjusted to produce about 60% relative resistance in the down direction and 40% in the up direction. The CW (clockwise operating) shock goes on the front right or rear left, the AC (anti-clockwise operating) shock goes on the front left or rear right.

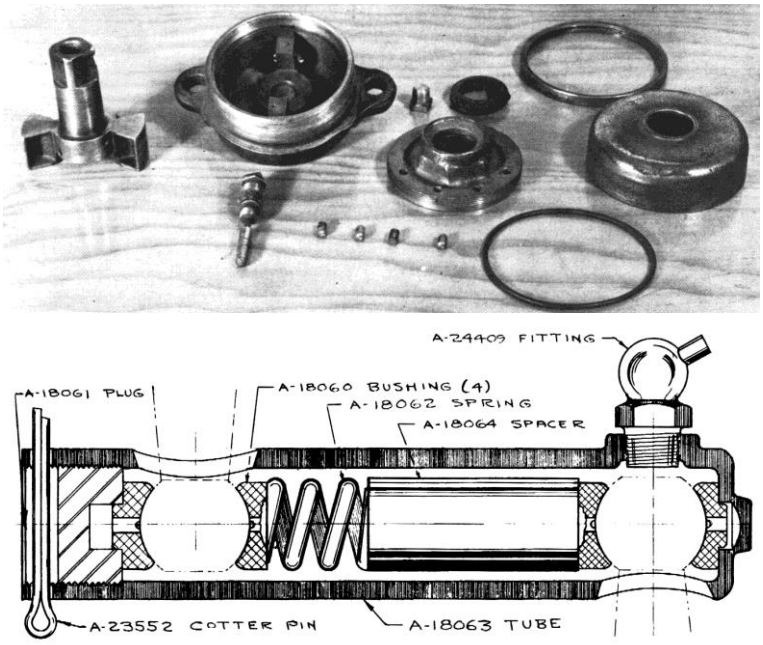


There is a CW or AC stamped on the reservoir cover and usually on one of the mounting tabs to indicate the direction of rotor rotation that causes the check valves to close when the shock arm moves down. During assembly CW and AC shock covers, bodies and stators are not to be interchanged, although some have been seen with the wrong cover installed or the rotor 180° in backwards.

The main components of the shock system are shown here in the exploded and disassembled view.



CW shock showing rotor notch on left side



Shock link diagram showing the order of parts assembly

Component Functions

- The threaded ring locks the reservoir cover in place and compresses the packing ring.
- The needle valve provides the pressure adjustment to control ride quality.
- Fluid leaking around the rotor shaft returns to the reservoir via a port in the side of the nut-bushing boss.
- The replenishing valve ball in the inner nut opens automatically to top off the associated working chamber.
- Two bleed plugs in the inner nut vent air and gas from the working chambers into the reservoir.
- Oil passages in the rotor equalize pressures on both “wings” as controlled by the needle valve.
- One or two ball check valves mounted in the body vanes provide differential pressure.

Getting them apart is a whole different story!

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