



REBUILDING a vintage car and building it according to original specifications calls for an uncompromising approach. In that case, it would be unthinkable to replace the stock lever action shocks with modern day counterparts. But what does one do when the old shocks need replacement? Since replacement is virtually impossible, rebuilding is the only answer.

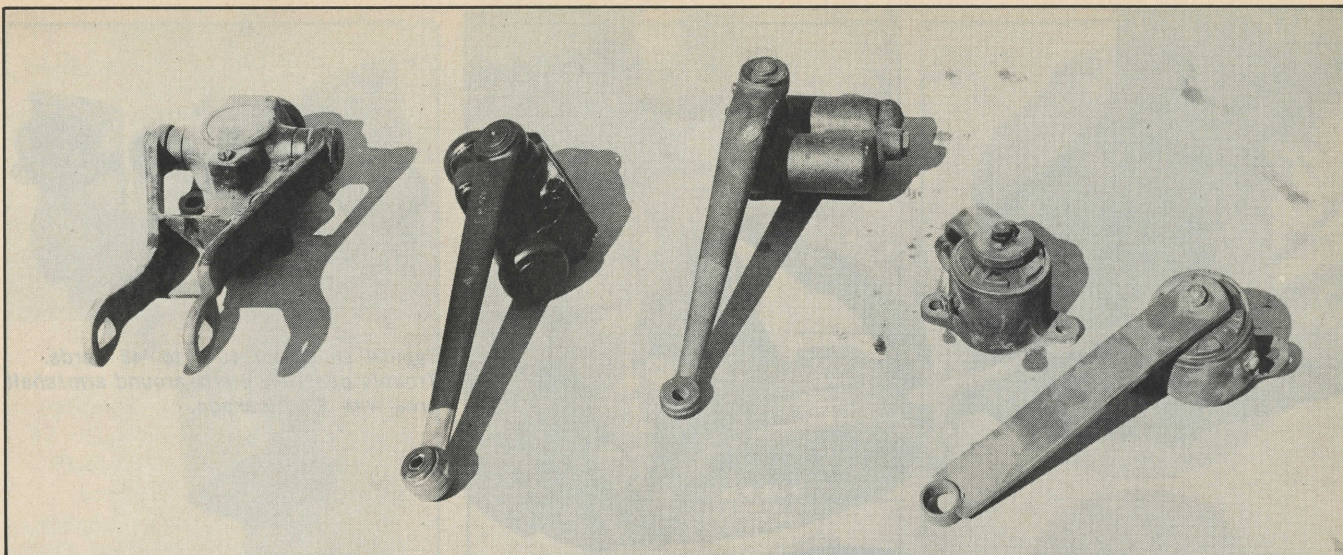
To get the correct approach on rebuilding lever action shocks, I paid a visit to Paul Kagel of Five Points Classic Auto Shocks (Huntington Beach, California) to see how one experienced shock-master handles the problem of breathing new life into tired-out lever-action shocks. For over 15 years, Paul has been solving problems with these old-timer shocks. In some cases, he has modified the insides to update the shock and bring about improved performance and reliability. This means they now last longer and work better while maintaining their original outer appearance. Paul has spent these years rebuilding virtually every type of

Lovejoy, Delco and Houdaille lever action shock one can find. He has even collected the factory-type equipment to take apart and rebuild the shocks. Since it is important to have the correct shock in the correct application, refer to the shock listing in this article for application by model number.

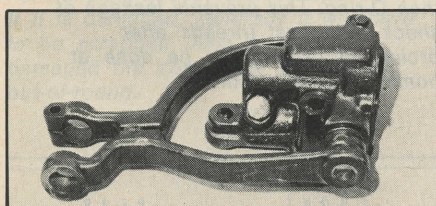
ANTIQUE SHOCKS NEED A MODERN REBUILD

by Brian Brennan

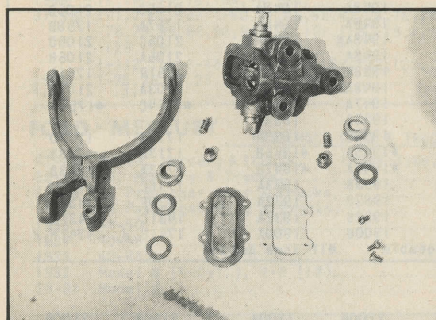
Lever action shocks are very common on early and classic cars, but just try to purchase new ones at the local auto parts store!



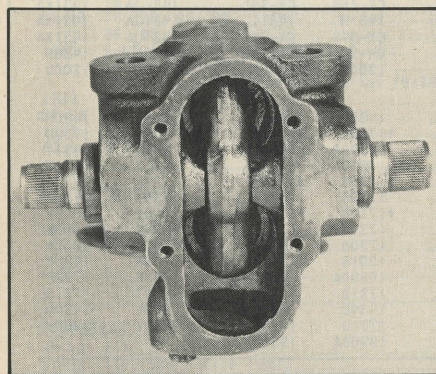
Examples of lever action shocks Paul is consistently rebuilding. Left to right: Cadillac front and rear, Buick, and a pair for Studebaker.



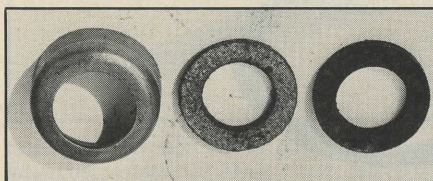
Early Chevrolet shock has arms welded together in front. Check to make sure weld has not broken loose.



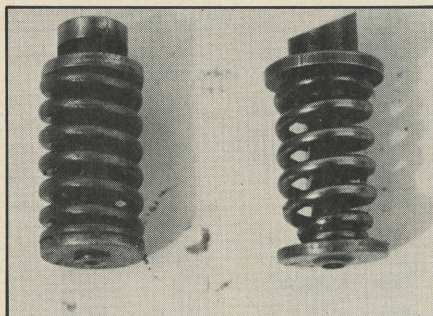
Early Chevy shock for front has two different check valves, each must be fitted into proper position. When going bad, these shocks leak through gland and packing.



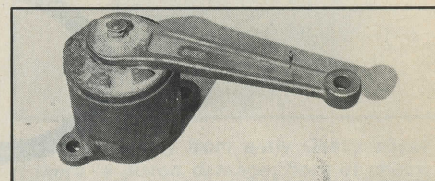
Rocker is activated by upper control arm on Chevrolet double-action piston type. When removing arms from shock, be careful not to damage splines.



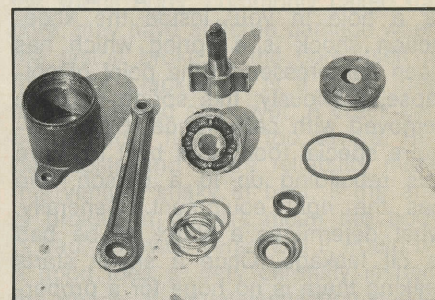
Example of gland and packing is metal cap, cork and rubber gasket. Once removed, do not reuse. It will not properly seal, thereby causing leaks.



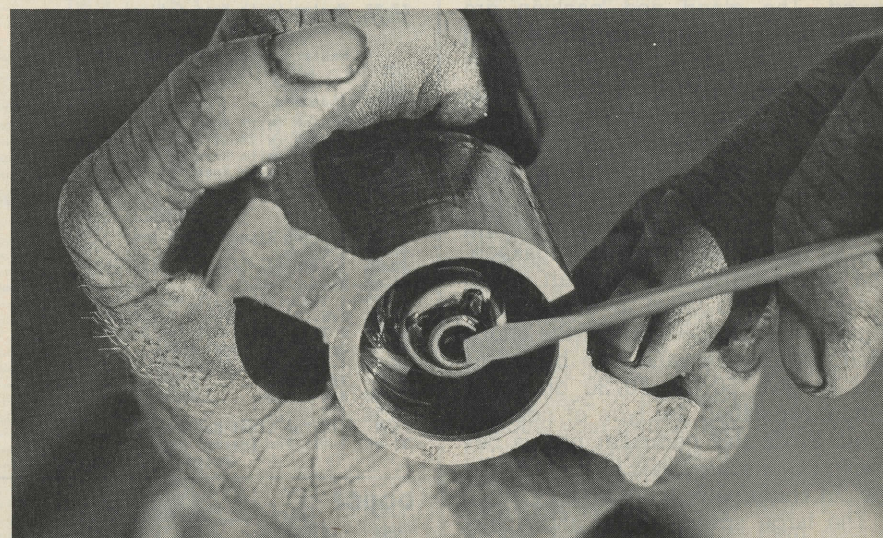
Check valves for early Chevrolet shocks are different, noticeable in this view. If not too badly damaged, they can be rebuilt.



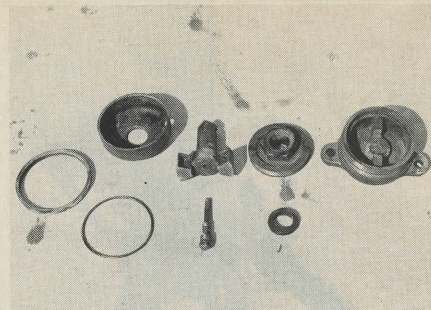
Example of a Ford Model A and B shock. Make sure to check arm and mounting "ears" for cracks, as this will have to be solved by welding or replacement.



Internal workings of Ford Model A and B shocks after modifications by Paul Kagel. Check spring for any cracks or obvious breaks; replace if cracked or broken.



Check valve is inside vane on Ford A and B shocks. Held in place by snap ring, valve can be adjusted for ride control. These valves are scarce.



Typical shock for 1941 to '48 Fords.
Trouble generally starts around arm/shaft
area with fluid leakage.

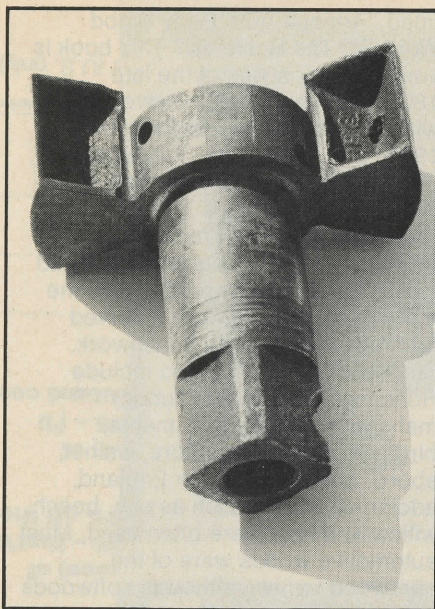
As modified by Paul, cap for 1928 to '32
Ford shocks shows grooved area and
then O-ring. This prevents leakage of
shock fluid past threads after
prolonged usage. Can be done at
home on a shop lathe.

If you have ever disassembled one of these shocks, one of two things may exist. A hole in the garage roof or a hole in you! Inside the knee-action shock is a spring which has been compressed to the point of collapse. Obviously, this spring must be removed with care. Since it does require special tools, it is best to leave this rebuilding up to a person who has the right equipment. Generally, what determines a shock to be bad is oil leakage. Once a shock starts leaking there is no hope for a properly functioning piece of equipment anymore. It must be disassembled and rebuilt.

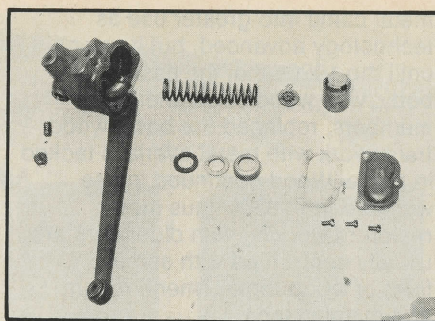
To rebuild a knee action shock, a number of steps must be closely followed. The gland and packing are made up of a metal cap, cork and rubber gasket. This part is designed to keep the shock fluid from escaping around the splined shaft and should always be replaced once removed. Even if the gland and packing were good on the old shock, once it has been removed the seal is broken and cannot be resealed to prevent leakage. The check valve is the heart of an old shock. This valve is designed to regulate the pressure within the shock itself. The check valve can be modified to give 50/50, 70/30 or 60/40 action, regulating the type of ride desired. Since this particular part is becoming very scarce, it is best to rebuild the old check valve if possible.

The large spring, if the shock has one, generally doesn't go bad, but they have been known to break and if this is the case it must be replaced. Next

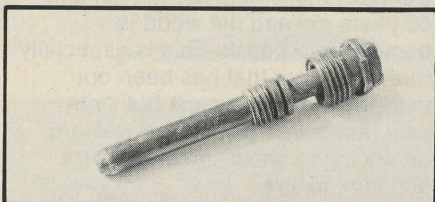
YEARS	CAR and MODEL	FRONT		REAR	
		Right	Left	Right	Left
BUICK					
54-55	40,49,50,60,69,70,100,.....	.....	.....	2105X	2105Y
46-53	40,50,70,.....	1948A	1948A	2105C	2105D
1942	40,50,60,70,.....	1948A	1948A	2105C	2105D
41-42	90,.....	1948A	1948A	1757A	1758B
1941	40,50,60,70,.....	1948AX	1948AX	2105C	2105D
1940	40,50,60,70,.....	1948A	1948A	2105A	2105B
39-40	80,90,.....	1938B,D	1933A,C	1751R	1751S
1939	40,60,.....	1948A	1948A	2103A,E,	2103B,F
1938	40,60,.....	1947A	1947B	1754C	1754D
1937	80,90,.....	1933B	1933A	.....	.....
	40,60,.....	1933B	1933A	1713C	1713D
	.....	or	1945B	1713A	1713B
1936	60,80,90,.....	1947A	1947B	1713A	1713B
	40,.....	1933B	1933A	1746C	1746D
1935	40,.....	1932B	1932A	1439E	1439F
	.....	1932B	1932A	1431C	1431D
34-35	50,60,90,.....	1900B	1900A	1741G,J,	1741H,K
		♦Interchangeable	▲Interchangeable	●If Knee Action	
CHEVROLET					
PASSENGER CARS					
42-48	All Passenger Cars,.....	2200B	2200A	2100A	2100B
40-41	Master DeLuxe, Special DeLuxe,.....	2200B	2200A	2100A	2100B
39-40	Master,.....	.....	.....	1201C,E	1201D,F
37-38	Master (With Knee Action),.....	CK-36R	CK-36L	1431V	1431W
		1200P	1200N	1200M	1200L
		1201B	1201A	1201C	1201D
		1433D	1433C	1431V	1431W
		1733K	1733J	1721S	1721S
		1200G	1200H	1200J	1200K
		1433K	1433J	1433R	1433S
1936	Standard,.....	CK-36R	CK-36L	1431JA	1431KA
		1431M	1431L	1431JA	1431KA
35-36	Master (Without Knee Action),.....	CK-34R	CK-34L	1431JA	1431KA
1935	Master (With Knee Action),.....	CK-34R	CK-34L	1438E	1438F
1934	Master (With Knee Action),.....	CK-34R	CK-34L	1438E	1438F
34-35	Standard,.....	1200F	1200E	1200C	1200D
TRUCKS					
35-49	1/2 Ton Standard Equipment,.....	1430DA	1430CA	1430LP	1430MP
41-49	3/4 Ton,.....	1730B	1730A	1722C	1722D
37-49	3/4 & 1 Ton (Forward Control),.....	1430DA	1430CA	1431X	1431Y
42-46	3/4 & 1 Ton,.....	1731D	1731C	1431X	1431Y
41-49	1 Ton & 1948 1-1/2 Ton Optional,.....	1730B	1730A	1722E	1722F
47-49	1/2, 3/4, 1 & 1-1/2 Ton Optional,.....	1730B	1730A	1731T	1731U
48-49	2 Ton & 1949 1-1/2 Ton Optional,.....	1730B	1730A	2000V	2000W
1940	School Bus Model 4701,.....	1731D	1731C	2000V	2000W
39-48	1-1/2 Ton, C.O.E.,.....	1730D	1730C	2000V	2000W
1938	Taxi Cab,.....	1201B	1201A	1438N	1438P
37-40	3/4 & 1 Ton,.....	1430DA	1430CA	1732N	1732P
34-48	1/2 Ton,.....	1731D	1731C	1731T	1731U
1934	1/2 Ton Light Delivery,.....	1430D	1430C	1430L	1430M
33-46	1-1/2 Ton (except Army),.....	1731D	1731C	2000V	2000W
		1430DA	1430CA	.....	.....
		♦Also Single Acting,			
DODGE					
PASSENGER CARS					
1936	D-2,.....	1736A	1736B	1441R	1441S
1935	DU,.....	1739A	1739B	1444A	1444B
				1441G	1441H
(Continued)					



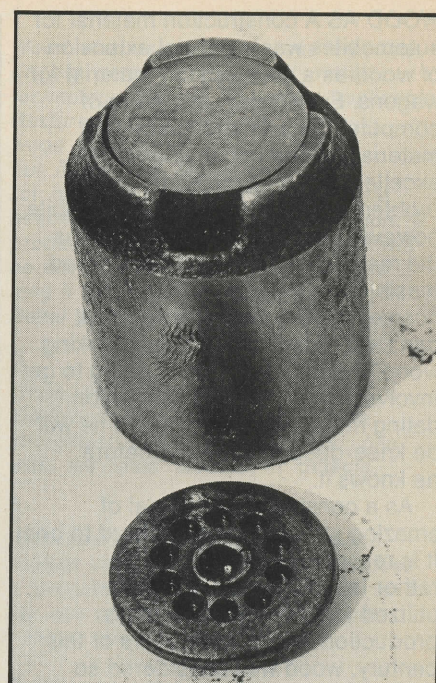
Vane found on the inside of '41 to '48 Ford shocks needs careful inspection. If it is damaged, generally it will have to be scrapped. Also, it may have damaged the core walls by spinning out-of-round.



Early '30's Chevrolet shock must be disassembled carefully as large internal spring is under severe pressure. This shock has one check valve, and typical gland and packing setup.



Shaft runs through shock body, core, and attaches to internal vane. Fluid can leak past shaft after many miles.



Piston assembly from early Chevy shock. If there is piston damage, bore of shock core could be bad, causing more trouble.

(Continued)		TRUCKS			
41-47	WF, WFA, WG, WGA, WH, WHA,	1732J	1732K	2026E	2026F
1940	VF, FVA, VG, VGA, VH, VHA,	1732J	1732K	2026E	2026F
	T-202, T-207,	1732J	1732K	1730W	1730V
	VM, VMA, (Rear Only),			2026E	2026F
1939	TE, TF, TFA, TG, TGA, TH, THA,	1732J	1732K	2026E	2026F
37-48	1-1/2 & 2 Ton T-40, 41, 45, 46, 47, 74, 75, 76, 77, 78, 79, 88, 89, 98, 99, 100, 101, 118, 119, 120, 121, 128, 129,	1732J	1732K	2026E	2026F
	1-1/2 Ton T-48, 82, 83, 102, 103, 122, 123,	1732J	1732K	2026C	2026D
1936	T-25, 26, 27, 28, 29, 32, 33, 34,	1732J	1732K	1732M	1732L
FORD - MERCURY		PASSENGER CARS & TRUCKS			
41-48	6, V8, Mercury & Trucks, if Lever Type,	HF-51FR	HF-51FL	HF-51RR	HF-51RL
39-40	V8, Mercury & Trucks,	HF-01FR	HF-01FL	HF-81RR	HF-81RL
37-38	V8 Passenger Cars & Trucks,	HF-81FR	HF-81FL	HF-81RR	HF-81RL
1936	V8 Passenger Cars & Trucks,	HF-68FR	HF-68FL	HF-48RR	HF-48RL
1935	48-50, 52,	HF-48FR	HF-48FL	HF-48RR	HF-48RL
1934	40-46,	HF-40FR	HF-40FL	HF-40RR	HF-40RL
1933	40-46,	HF-40FR	HF-40FL	HF-40RR	HF-40RL
1932	Model B (4-Cyl.), V-8 (18),	HF-18FR	HF-18FL	HF-18RR	HF-18RL
28-31	Model A,	HF-18FR	HF-18FL	HF-18RR	HF-18RL
OLDSMOBILE					
52-54	88, 98, (All except Sports Car),	1947J	1947K		
1951	88 Standard,	1947J	1947K	2105T	2105U
	88 Super,	1947J	1947K		
	98,	1947C	1947D		
1950	98,	1947C	1947D	2105R	2105S
	76, 88,	1947J	1947K	2105T	2105U
1949	76, 88,	1947J	1947K	2105N	2105P
	98,	1947C	1947D	2105E	2105F
41-48	76, 78, 96, 98,	1947C	1947D	2105E	2105F
	66, 68,	1947C	1947D	2105G	2105H
1940	F-40 (6-Cyl.), L-40 (8-Cyl.),	1947C	1947D	1754M	1754L
	G-40 (After Serial #G-361824),	1947C	1947D	1754M	1754L
	G-40 (First 7000 Cars to Serial #G-361824),	1947C	1947D	1751U	1751T
1939	6 & 8-Cyl.,	1947C	1947D	1751U	1751T
37-38	6 & 8-Cyl.,	1947A	1947B	1713E	1713F
1936	6 & 8-Cyl.,	1944A	1944B	1710D	1710C
1935	6 & 8-Cyl.,	1942A	1942B	1710D	1710C
PLYMOUTH					
1936	P-2 Deluxe,	1736A	1736B	1441R	1441S
	P-1 Standard,	1441N	1441P	1441R	1441S
1935	PJ,	1441J	1441K	1441G	1441H
		1739A	1739B	1444A	1444B
PONTIAC					
39-48	All,	1947C	1947D		
37-38	All 1938 & Late 1937,	1947A	1947B		
1937	Early,	1945A	1945B		
1936	With Knee Action,	PK-36R	PK-36L	1434A	1434B
35-36	Without Knee Action (Early),	1438J	1438K	1431N	1431P
	Without Knee Action (Late),	1438J	1438K	1439A	1439B
1935	With Knee Action (Early),	PK-34R	PK-34L	1438G	1438H
	With Knee Action (Late),	PK-34R	PK-34L	1434A	1434B

comes the shock piston. If this is damaged or broken, the internal wall of the shock body, commonly called the core, may have suffered damage when the piston broke. If the core itself is rough or cracked, it is a good idea to scrap it and start over. A crack can be welded if it is not too severe. Repair costs and future reliability make this venture shaky at best. If the arm is broken, it doesn't mean the body is bad, and vice versa, but it would be a good idea to very carefully inspect the shock. If visual inspection shows any parts to be defective, check closely the rest as the damage may be wider spread. On shocks from a Ford Model A or B, an internal vane is used instead of the piston as on other shocks. If it is damaged, the entire shock is history!

There are other possible modifications, such as machining a groove around the core cap and installing a large rubber O-ring. The intent is to increase the life of the shock; there's less chance of leakage through the threaded area of the cap.

Once the rebuilding process is completed, a special fluid is injected into the shocks. It would be difficult to find this fluid, as Paul has it made especially for him. In summation, we would have to be inclined to say rebuilding your own shocks would be difficult and dangerous if not aware of the pitfalls. But if you are positive you can perform the rebuild, take the time to get some information from people who do this for a living. Besides saving your shocks for future use, it may also save you a couple of fingers! ■