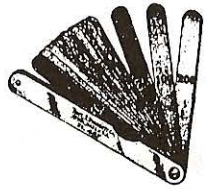


WHEN TO RECONDITION OR REPLACE

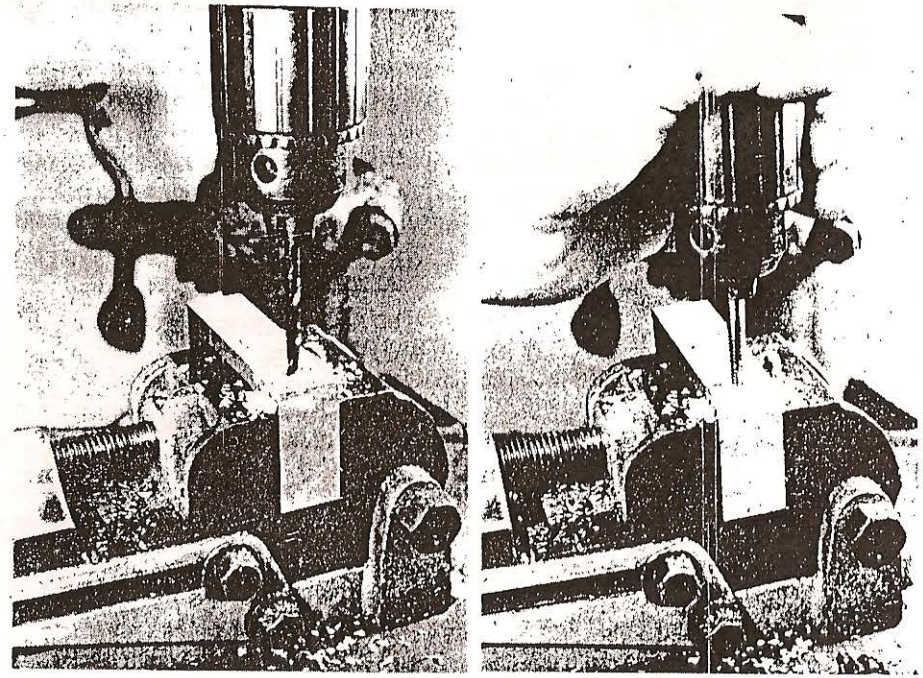
Among the questions most often asked by amateur restorers are those relating to problems of when to recondition or replace parts or components. The best advice we can give is to follow the manufacturers' recommendations because it is impossible to set standards which apply universally to all types of vehicles. When specific recommendations of the manufacturer are not available, the standards suggested below may be used as guidelines. Dimensions in inches unless otherwise stated.

Courtesy of Skinned Knuckles	Good	Fair	Recondition or Replace
Connecting rod journal roundness and taper	0.000-0.001	0.002	0.003
Connecting rod bearing clearance	0.0015-0.0025	0.003	0.005
Connecting rod end clearance	0.005	0.010	0.018
Main bearing roundness	0.001	0.002	0.004
Main bearing journal runout at center of crankshaft	0.001	0.003	0.006
Main bearing clearance	0.0015-0.0025	0.003	0.005
Crankshaft end play clearance	0.005	0.010	0.015
Cylinder bore out of round	0.001	0.002-0.003	0.004
Cylinder bore taper	0.001	0.003	0.005
Piston out of round (except cam ground pistons)	0.001	0.002	0.004
Piston weight variation	¼ ounce	½ ounce	¾ ounce
Piston to cylinder clearance at top of bore for every inch of bore diameter (aluminum 50% more)	0.003	0.005	0.006
Piston to cylinder clearance at skirt for every inch of bore (aluminum 50% more)	0.0008	0.0012	0.0015
Piston pin end gap for every inch of bore diameter	0.002	0.003	0.004
Piston ring groove clearance	0.001	0.002	0.004
Piston pin fit	press fit	0.001	0.002
Camshaft bearing clearance	0.0015	0.003	0.004
Camshaft end play	0.002	0.005	0.007
Tappet clearance in guide	0.0015	0.004	0.005
Valve stem clearance in guide	0.0015	0.005	0.006
Valve spring pressure variation	2 pounds	5 pounds	7 pounds
Allowable compression variation	3 psi	6 psi	10 psi
Flatness of top of cylinder block	0.003	0.007	0.010
Oil pump gear backlash	0.002	0.007	0.010

TABLE CONTINUED ON NEXT PAGE

Oil pump gear and housing clearance	0.002	0.004	0.006
Clearance between oil pump housing and face of gears	0.002	0.004	0.006
King pin clearance in bushings	0.002	0.005	0.007
Steering wheel play at rim of wheel	¼ inch	2 inches	3 inche
Clearance between pitman arm shaft and bushing	0.002	0.004	0.006
Clearance between distributor shaft and bushing	0.001	0.004	0.006
Propeller shaft alignment	0.002	0.006	0.010
Clearance between universal joint pins and bushing	0.002	0.005	0.007 or if noisy
Brake drum roundness	0.002	0.008	0.010
Brake drum taper	0.002	0.004	0.006
Axle shaft end play (typical)	0.004	0.006	0.010

Data taken from publications of Joseph Weidenhoff, Inc., Chicago, Illinois, Chilton Company, Philadelphia, Pennsylvania, and from manufacturers' literature.



SHOP TIP: When tapping holes, unless the tap is lined up precisely with the hole, you will run into trouble, especially in deep holes. Here's one way to insure precise alignment. Drill the hole in the workpiece while it is clamped in a drill press vise. Then without unclamping the piece, replace the drill with the tap. With light pressure on the spindle, turn the tap into the work a couple of turns by hand. Unclamp the tap from the chuck and complete the tapping by hand in the usual way.