KAISER
APPROVED
SERVICE
FRAZER

1951-1952-1953

SERVICE STANDARDS

Henry J

SERVICE DEPARTMENT
KAISER-FRAZER SALES CORPORATION
WILLOW RUN, MICHIGAN, U.S.A.

FOREWORD

General Specifications and Service Standards for 1951, 1952 and 1953 Henry J motor cars are presented in the following pages. The facts and figures are condensed and arranged for quick convenient reference.

The tolerances are, in general, "manufacturing tolerances," rather than "wear limits." These tolerances are provided primarily to guide those who overhaul and rebuild engines, engine accessories, and other units. Only by the careful fitting and adjusting of parts to original factory tolerances can top performance be assured from rebuilt units.

"Wear tolerances" are largely a matter of the good judgment of a skilled and experienced mechanic. The amount of wear permissible before parts are replaced is determined in a large degree by the amount of economical service that can be reasonably expected as compared with the cost of restoring ideal "new car" fits and performance.

LOCATION OF IDENTIFICATION NUMBERS

Car Serial Number	On Serial Number Plate on left door hinge pillar.
Engine Number	Stamped in upper front cylinder block; also on Engine Name Plate on right side of cylinder block.
Body Number	On Body Number Plate on left front side of dash under hood.
Model Number	On Body Code Number Plate on left front side of dash under hood.
Paint Code	
Trim Code	

IMPORTANT NOTE

Specifications in this publication are for standard sizes and this must be considered when working with undersize or oversize replacement parts. Engines fitted with undersize or oversize parts by the factory are identified by letters used with the engine number in accordance with the following:

Letter "A" denotes	.010" Undersize Main and Connecting Rod Bearings.
Letter "N" denotes	.020" Oversize Pistons.
Letters "AN" denote	Combination of "A" and "N".

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GENERAL	4 Cylinder	6 Cylinder
Wheelbase	100"	100"
Overall Length with Bumpers and Guards:		
1951	174-1/2"	176-3/8"
1952	176-21/32"	177-21/32"
1952 with Continental Tire Carrier	181-1/4"	181-1/4"
1953	181-3/4"	182-1/8"
Overall Width:		
1951	68.80"	68.80"
1952	69.38"	69.38"
1953	69.38"	69.38"
Height	61.9"	61.9"
Minimum Road Clearance	7-1/2"	7-1/2"
Tire Size:		
Standard	5.90 x 15	5.90 x 15
Special Equipment (Some 1951 Models Only)	6.40 x 15	6.40 x 15
Recommended Tire Pressure:		
Front	24 lbs. (cold)	24 lbs. (cold)
Rear	20 lbs. (cold)	20 lbs. (cold)
Tread — Front and Rear	54"	54"
Turning Radius — Left and Right	17.5'	17.5'
License Weight (For Registration Only):		
1951	2293 lbs.	2341 lbs.
1952	2370 lbs.	2405 lbs.
1952 Vagabond	2365 lbs.	2385 lbs.
1953	2395 lbs.	2445 lbs.
The following Accessories Increase the foregoing Weights:		
Heater	20-1/2 lbs.	20-1/2 lbs.
Overdrive	40 lbs.	40 lbs.
Radio	17 lbs.	17 lbs.
Deck Lid	15 lbs.	15 lbs.
Body Dimensions:		
Front Seat:		
Width	57.38"	57.38"
Depth-1951 & 1952	17.25"	17.25"
1953	18.00"	18.00"
Height-1951 & 1952	11.40"	11.40"
1953	11.65"	11.65"
Head Room	35.41"	35.41"
Leg Room	43.44"	43.44"
Conventional Rear Seat:		
Width	56.75"	56.75"
Depth	17.66"	17.66"
Height	13.02"	13.02"
Head Room	33.10"	33.10"
Leg Room	37.18"	37.18"
Folding Rear Seat:		
Width	56.75"	56.75"
Depth	18.19"	18.19"
Height	12.20"	12.20"
Head Room	33.64"	33.64"
Leg Room	37.50"	37.50"

GENERAL (Cont'd.)	4 Cylinder	6 Cylinder
Steering Wheel to Cushion-1951 & 1952	7.10″	7.10″
1953	6.85″	6.85″
Windshield Width (Each Half)	27.08″	27.08″
Windshield Height	16.38″	16.38″
Rear Window Width	32.25″	32.25″
Rear Window Height	13.88″	13.88″
Trunk Capacity:		
Conventional Seat	19 cu. ft.	19 cu. ft.
Folding Seat	50.3 cu. ft.	50.3 cu. ft.

ENGINE	4 Cylinder	6 Cylinder
General		
Type	L-Head, Vertical	L-Head, Vertical
Number of Cylinders	4	6
Bore	3-1/8″	3-1/8″
Stroke	4-3/8″	3-1/2″
Piston Displacement	134.2 cu. in.	161 cu. in.
Taxable Horsepower	15.63	23.4
Maximum Brake Horsepower	68 at 4000 RPM	80 at 3800 RPM
Torque	109 ft. lbs. at 1800 RPM	133 ft. lbs. at 1600 RPM
Compression Ratio	7.0 : 1	7.0 : 1
Compression Pressure (At Cranking Speed with Throttle Open)	115-120 lbs.	120-130 lbs.
Cranking Speed	70-100 RPM	70-100 RPM
Idling Speed	550 RPM	500 RPM
Firing Order	1-3-4-2	1-5-3-6-2-4
Cylinder Head Material	Cast Iron	Cast Iron
Engine Mounting	3-Point, Rubber	3-Point, Rubber
Pistons		
Type	Oval Ground, T-slot	Oval Ground, T-slot
Weight (without Rings or Pin) (all pistons in one engine should be of equal weight within .25 oz.)	12.7 oz.	10.8 oz.
Material	Aluminum Alloy	Aluminum Alloy
Finish	Tin Plated	Tin Plated
Length	3-3/4″	3″
Diameter (Near bottom of skirt at right angle to piston pin, but pistons to be selectively fitted to cylinder bores)	3.1221″ - 3.1225″	3.1240″ - 3.1244″
Cylinder Bore:		
Standard Diameter	3.125″ - 3.127″	3.125″ - 3.127″
Maximum Permissible Out-of-Round	.005″	.005″
Maximum Permissible Taper	.015	.015
Clearances:		
Top Land	.017″ - .019″	.018″ - .021″
Piston Skirt (measured on thrust side):		
Used pistons	5 to 10 lbs. pull on .004″ x 1/2″ feeler.	5 to 10 lbs. pull on .004″ x 1/2″ feeler.
New pistons	5 to 10 lbs. pull on .0015″ x 1/2″ feeler.	5 to 10 lbs. pull on .0015″ x 1/2″ feeler.

ENGINE (Cont'd.)	4 Cylinder	6 Cylinder
Piston Groove Depth:		
Oil	.170"	.170"
Compression	.160"	.160"
Piston Groove Width:		
Oil	.1875" - .1885"	.1875" - .1885"
Compression, Intermediate	.0950" - .0960"	.0950" - .0960"
Compression, Upper	.0955" - .0965"	.0955" - .0965"
Piston Pin Hole Bore	.8120" - .8122"	.7498" - .7500"
Piston Rings		
Material	Cast Iron	Cast Iron
Type	One Piece	One Piece
Compression Rings:		
Number per Piston	2	2
Width	.0925" - .0935"	.0925" - .0935"
Thickness	.130" - .140"	.130" - .140"
Oil Rings:		
Number per Piston	1	1
Width	.1860" - .1865"	.1860" - .1865"
Thickness	.135" - .145"	.135" - .145"
Ring Gap (measured in cylinder bore below ring travel):		
Minimum	.007"	.007"
Maximum:		
In new or rebored cylinders	.020"	.020"
In evenly worn cylinders	.045"	.045"
Side Clearance in Groove:		
Upper Compression Ring	.002" - .004"	.002" - .004"
Intermediate Compression Ring	.003" - .007"	.003" - .007"
Oil Ring	.006" - .010"	.006" - .010"
Connecting Rods, Piston Pins and Bearings		
Connecting Rod:		
Length (Center to Center)	9.1845" - 9.1905"	6.343" - 6.347"
Upper Bore	.8115" - .8125"	.7495" - .7505"
Lower Bore		
Connecting Rod Bearings (Crankpin):		
Type	Removable	Removable
Material	Steel Backed Babbitt	Steel Backed Babbitt
Bore (Clamped in Rod)	1.9387" - 1.9400"	1.8751" - 1.8765"
Thickness	.05200" - .05225"	.0520" - .0523"
Clearance	.0005" - .0025"	.0005" - .0025"
Side Play	.004" - .010"	.002" - .008"
Piston Pin:		
Type	Locked in Rod	Locked in Rod
Length	2.7813"	2.6563"
Diameter	.8118" - .8120"	.7494" - .7496"
Clearance in Piston	.0002" - .0006"	.0002" - .0006"
Connecting Rod and Piston Removal	From Above	From Above
Crankshaft		
Material	Forged Steel, Counter-Balanced	Forged Steel, Counter-Balanced
Weight (Stripped)	46.5 lbs.	49.3 lbs.
Permissible Run-Out	.002"	.002"
Permissible Out-of-Round or Taper (Journal and Crankpin)	.001"	.001"

ENGINE (Cont'd.)	4 Cylinder	6 Cylinder
Thrust Taken at	Front Main Bearing	Front Main Bearing
Thrust Adjustment	Shims	Shims
End-Play	.004" - .008"	.004" - .008"
Journal Diameter, Main Bearing (Standard)	2.3331" - 2.3341"	2.249" - 2.250"
Journal Length, Main Bearing:		
Number 1	1.923" - 1.927"	1.304" - 1.308"
Number 2	1.995" - 2.005"	1.240" - 1.260"
Number 3	1.9375"	1.240" - 1.260"
Number 4	None	1.584" - 1.604"
Crankpin Diameter, Connecting Rod	1.9375" - 1.9385"	1.874" - 1.875"
Vibration Damper	None	Steel Plate, Rubber Cushioned
Main Bearings		
Number	3	4
Type	Doweled-in, Remove Crankshaft to Replace	Slip-in, Removable from Below
Material	Steel Backed Babbitt	Steel Backed Babbitt
Bore in Cylinder Block (Diameter):		
Number 1	2.4995" - 2.5000"	2.4065" - 2.4070"
Number 2	2.4895" - 2.4900"	2.4065" - 2.4070"
Number 3	2.4795" - 2.4800"	2.4065" - 2.4070"
Number 4	None	2.4065" - 2.4070"
Permissible Out-of-Round or Taper	.001"	.001"
Thickness:		
Number 1	.08200" - .08225"	.0775" - .0778"
Number 2	.07700" - .07725"	.0775" - .0778"
Number 3	.07200" - .07225"	.0775" - .0778"
Number 4	None	.0775" - .0778"
Effective Lengths:		
Number 1	1.640"	1.005"
Number 2	1.7188"	.972"
Number 3	1.656"	.972"
Number 4	None	1.316"
Clearance	.0014" - .0029"	.0014" - .0030"
Camshaft and Bearings		
Camshaft:		
Material	Cast Iron Alloy	Cast Iron Alloy
Drive Type	Gear	Gear
Permissible Run-out (At Intermediate Journals)	.001"	.001"
End-Play	.003" - .0055"	.003" - .0055"
Journal Diameters:		
Number 1, Front	2.1855" - 2.1860"	1.8755" - 1.8760"
Number 2, Front Intermediate	2.1215" - 2.1225"	1.8425" - 1.8435"
Number 3, Rear Intermediate	2.0590" - 2.0600"	1.8110" - 1.8120"
Number 4, Rear	1.6225" - 1.6230"	1.6245" - 1.6250"
Camshaft Bearing (Replaceable):		
Number	1 (Front)	1 (Front)
Type	Steel Backed Babbitt	Steel Backed Babbitt
Running Clearance	.001" - .0025"	.001" - .0025"
Inside Diameter (Service Bearing Installed):	2.187" - 2.188"	1.877" - 1.878"
Bores in Cylinder Block:		
Number 1, Front	2.3165" - 2.3175"	2.0055" - 2.0065"

ENGINE (Cont'd.)	4 Cylinder	6 Cylinder
Number 2, Front Intermediate	2.1250" - 2.1260"	1.8460" - 1.8470"
Number 3, Rear Intermediate	2.0625" - 2.0635"	1.8145" - 1.8155"
Number 4, Rear	1.6250" - 1.6260"	1.6270" - 1.6280"
Valves, Springs, Guides and Tappets		
Valve Arrangement	L-Head	L-Head
Valves (Intake):		
Material	Chrome Nickel Steel	Chrome Nickel Steel
Overall Length	5.796"	4.562"
Overall Head Diameter	1.531"	1.375"
Minimum Port Diameter	1.3387" - 1.3487"	1.238" - 1.253"
Angle of Seat	45°	45°
Seat Width in Block	.0625" - .0781"	.0625" - .0781"
Stem Diameter	.37225" - .37300"	.34075" - .34150"
Stem to Guide Clearance	.0015" - .00325"	.0015" - .00325"
Lift	.351"	.284"
Tappet Operating Clearance (Cold)	.016"	.016"
Valves (Exhaust):		
Material	Uniloy Steel	Uniloy Steel
Overall Head	5.8125"	4.562"
Overall Head Diameter	1.468"	1.281"
Minimum Port Diameter	1.2762" - 1.2862"	1.120" - 1.130"
Angle of Seat	45°	45°
Seat Width in Block	.0937" - .1094"	.0937" - .1094"
Stem Diameter	.371" - .372"	.3395" - .3405"
Stem to Guide Clearance	.0025" - .0045"	.0025" - .0045"
Lift	.351"	.300"
Tappet Operating Clearance (Cold)	.016"	.016"
Valve Springs (Intake and Exhaust):		
Free Length (Out of Engine)	2.500"	1.890"
Pressure, Valve Closed	53 lbs. at 2.109"	50 lbs. at 1.625"
Pressure, Valve Open	120 lbs. at 1.750"	105 lbs. at 1.328"
Valve Guides (Intake and Exhaust):		
Material	Cast Iron	Cast Iron
Outside Diameter	.6565" - .6575"	.6565" - .6575"
Bore in Cylinder Block	.655" - .656"	.655" - .656"
Press Fit in Cylinder Block	.0005" - .0025"	.0005" - .0025"
Guide Bore (Ream after Installation)	.3745" - .3755"	.343" - .344"
Valve Tappets:		
Type	Mushroom, Self-Locking Adjustment	Mushroom, Self-Locking Adjustment
Material	Case-Hardened Steel	Case-Hardened Steel
Body Diameter	.6240" - .6245"	.6240" - .6245"
Head Diameter	1.302" - 1.317"	1.125" - 1.140"
Bore in Cylinder Block	.625" - .626"	.625" - .626"
Clearance in Bore in Cylinder Block	Select Fit with Slight Drag	Select Fit with Slight Drag
Torque to Turn Self-Locking Tappet Screw	3 - 10 ft. lbs.	3 - 10 ft. lbs.
Tappet Operating Clearance (Cold)	.016"	.016"

Tappet Adjustment Sequence—4 Cylinder Engines:

Valves No. 1 & 3 fully raised-Adjust No. 6 & 8
Valves No. 2 & 5 fully raised-Adjust No. 4 & 7
Valves No. 6 & 8 fully raised-Adjust No. 1 & 3
Valves No. 4 & 7 fully raised-Adjust No. 2 & 5

ENGINE (Cont'd.)	4 Cylinder	6 Cylinder

Tappet Adjustment Sequence—6 Cylinder Engines:

Valves No. 1 & 3 fully raised-Adjust No. 10 & 12
Valves No. 7 & 9 fully raised-Adjust No. 4 & 6
Valves No. 2 & 5 fully raised-Adjust No. 8 & 11
Valves No. 10 & 12 fully raised-Adjust No. 1 & 3
Valves No. 4 & 6 fully raised-Adjust No. 7 & 9
Valves No. 8 & 11 fully raised-Adjust No. 2 & 5

Valve Timing		
Valve Clearance for Timing - Intake and Exhaust	.020"	.020"
Intake Opens	9° BTDC	5° BTDC
Piston Travel	.039" BTDC	.009" BTDC
Intake Closes	50° ABDC	44° ABDC
Piston Travel	3.772" BTDC	3.126" BTDC
Exhaust Opens	47° BBDC	47° BBDC
Piston Travel	3.799" ATDC	3.073" ATDC
Exhaust Closes	12° ATDC	12° ATDC
Piston Travel	.054" ATDC	.049" ATDC
Oil Pump		
Type	Planetary Gear	Planetary Gear
Drive Shafter Diameter	.4994" - .4998"	.4994" - .4998"
Drive Shaft End-Play	.001" - .0045"	.001" - .0045"
Drive Shaft Bushing Material	Steel-Backed Bronze	Steel-Backed Bronze
Drive Shaft Bushing Inside Diameter (Ream)	.5015" - .5030"	.5015" - .5030"
Outer Rotor to Pump Body Clearance	.012" Max.	.012" Max.
Clearance between Lobes of Rotor	.010" Max.	.010" Max.
Gear Face Extends Beyond Pump Body Face	.001" - .003"	.001" - .003"

FUEL	4 Cylinder	6 Cylinder
Tank Capacity	13 Gal.	13 Gal.
Fuel Pump:		
Type	Diaphragm, Camshaft Driven	Diaphragm, Camshaft Driven
Static Pressure (Max.):		
With Vacuum Booster	3-3/4 lbs. @ 1800 RPM	5-1/4 lbs. @ 500 RPM
Without Vacuum Booster	4-3/4 lbs. @ 1800 RPM	5-1/4 lbs. @ 500 RPM
Vacuum (Min.)	10-1/2" Mercury @ 1800 RPM	10" Mercury @ 500 RPM
Carburetor:		
Type	Downdraft, Single, Carter 820S, SA or SB	Downdraft, Single, Carter 814S, 833S, SA or SB
Float Setting (Measured Between Float and Gasket Surface of Air Horn, Air Horn Inverted, Gasket Removed)	9/32"	9/32"
Metering Orifice	.089"	.0935"
Metering Rod Sizes, Standard:		
Step 1	.048"	.045"
Step 2	.060"	.062"
Step 3	.066"	.0715"

FUEL (Cont'd.)	4 Cylinder	6 Cylinder
Fuel Gauge	Electric	Electric
Air Cleaner (Standard)	Oil Wetted Type	Oil Wetted Type
(Optional Equipment)	Oil Bath Type	Oil Bath Type
Fuel Filter	Integral Part of Fuel Pump	Integral Part of Fuel Pump

EXHAUST	4 Cylinder	6 Cylinder
Exhaust Pipe Diameter	1-5/8"	1-5/8"
Muffler	Oval, 7-3/4" x 3-3/4" x 22"	Oval, 7-3/4" x 3-3/4" x 22"
Muffler Tail Pipe Diameter	1-1/2"	1-1/2"

COOLING	4 Cylinder	6 Cylinder
Type	Thermostat Controlled	Thermostat Controlled
Radiator Core Type (1951)	Fin and Tube	Fin and Tube
(1952 & 1953)	Cellular	Cellular
System Capacity:		
Without Heater	10-1/2 Qts.	9-1/2 Qts.
With Heater	11-1/2 Qts.	10-1/2 Qts.
System Drains	Rear Right Side of Radiator Lower Tank and Right Side of Block	Rear Right Side of Radiator Lower Tank and Right Side of Block
Radiator Free Flow (1951)	18.5 Gal. per Min.	18.5 Gal. per Min.
(1952 & 1953)	19 Gal. per Minute	19 Gal. per Minute
Water Pump:		
Type	Centrifugal	Centrifugal
Bearings	Pre-Lubricated Ball	Pre-Lubricated Ball
Seal	Self-Adjusting	Self-Adjusting
Thermostat Opens:		
Standard Type	148° - 156° F.	148° - 156° F.
Permanent Anti-Freeze Type	166° - 174° F.	166° - 174° F.
Thermostat Fully Opens:		
Standard Type	176° F.	176° F.
Permanent Anti-Freeze Type	194° F.	194° F.
Temperature Guage	Electrical	Electrical
Radiator Outlet Hose:		
Inside Diameter	1-1/2"	1-1/2"
Length	Molded	Molded
Radiator Inlet Hose:		
Inside Diameter	1-1/2"	1-1/2"
Length	Molded	Molded
Pressure Relief Valve in Cap (Optional Equipment) Opens at	3-1/2 to 4-1/2 psi	3-1/2 to 4-1/2 psi
Fan Belt:		
Type	Vee	Vee
Outside Length	44-1/2"	37-1/2"
Maximum Width	11/16"	11/16"
Angle of Pulley	38°	38°
Adjustment	At Generator	At Generator
Belt Tension	1/2" belt deflection under thumb pressure exerted between generator and fan pulleys.	1/2" belt deflection under thumb pressure exerted between generator and fan pulleys.

COOLING (Cont'd.)	4 Cylinder	6 Cylinder
Fan:		
Number of Blades	4	4
Diameter	14-1/2"	15"
Drive Pulley	Water Pump Pulley	Water Pump Pulley

CLUTCH — 4 & 6 Cylinder

Type	Single Disc, Dry
Drive	Between Flywheel Face and Pressure Plate
Disc Facings:	
Material	Molded Asbestos
Inside Diameter	5-1/8"
Outside Diameter	8-1/2"
Thickness	.132" - .138"
Pressure Plate Springs:	
6 Spring Clutch, Compressed to 1-7/16"	200 - 210 lbs.
3 Spring (Blue) Clutch, Compressed to 1-9/16"	220 - 240 lbs.
3 Spring (Pink or Black) Clutch, Compressed to 1-9/16"	200 - 222 lbs.
Release Bearing	Ball Thrust, Permanently Lubricated
Crankshaft Pilot Bushing	Oil Impregnated
Pedal Free Play	1"
Flywheel Run-Out	.005" Max.
Clutch Housing Run-out, Bore and Face	.005" Max.

TRANSMISSION — 4 & 6 Cylinder

Type	Three Speed, Selective, Manual Shift
Gears	Helical, Synchronous Mesh
Gear Ratios:	
1st Speed	2.605 : 1
2nd Speed	1.630 : 1
3rd Speed	1.000 : 1
Reverse	3.536 : 1
Overdrive	0.700 : 1
Synchronizer and 2nd Speed Idler Gear End-Play	.003" - .014"
Adjustment	Selectively Fitted Snap Ring
Countershaft Gear End-Play	.005" - .018"
Adjustment	Thrust Washers
Countershaft Gear Roller Bearings:	
Number (Each End)	20
Diameter	.1248" - .1250"
Countershaft Diameter	.684"
Mainshaft Roller Bearings:	
Number	13
Diameter	.1873" - .1875"
Reverse Idler Shaft Diameter	.6215"
Reverse Idler Gear Bushing Bore	.6232" - .6237"
2nd Speed Idler Gear Bushing Bore	1.1275" - 1.1280"
Interlock Poppet Sleeve End Clearance	.001" - .007"

PROP. SHAFTS & UNIV. JOINTS — 4 & 6 Cylinder

Propeller Shafts:	
Number	1
Type	Tubular
Maximum run-out	.012"

PROPELLER SHAFTS AND UNIVERSAL JOINTS (Cont'd.)	4 & 6 Cylinder
Universal Joints:	
Number	2
Type	Cross or Ball and Trunnion

CHASSIS SUSPENSION - FRONT	4 & 6 Cylinder
Type	Independent
Springs:	
Number	2
Type	Coil
Material	Alloy Steel
Length Under Curb Weight	8-1/4"
Steering Knuckles:	
King Pin Bushings	Pressed in, Friction
Thrust Bearing	Ball
Thrust Adjustment	Shims
Method of Checking Thrust	5 lbs. Max. Pull on End of Spindle to Swing Knuckle to Full Right or Left
End-Play Measured on King Pin Line	.002" Max.
Bore in Steering Knuckle	.9360" - .9380"
King Pin:	
Length	4.865"
Diameter	.7950" - .7955"
Front End Alignment:	
Caster	-1^{o} to $+1^{o}$, 0^{o} Preferred
Camber	$+1/4^{o}$ to $+1^{o}$, $+1/2^{o}$ Preferred
King Pin Inclination	4^{o} to $4-3/4^{o}$, $4-1/2^{o}$ Preferred
Toe-In	3/16" to 1/4", 1/4" Preferred
Toe-Out on Turns:	
Outside Wheel	$17-1/2^{o}$
Inside Wheel	20^{o}
Shock Absorbers, Type	Direct Acting, Hydraulic

CHASSIS SUSPENSION - REAR	4 & 6 Cylinder
Type	Hotchkiss
Springs:	
Number	2
Type	Leaf
Material	Alloy Steel
Leaf Inserts	6 Cylinder Models Only
Steel Covers	1951 and 1952 6 Cylinder Models
Eye Bushings	Rubber
Width	1-3/4"
Shock Absorbers, Type	Direct Acting, Hydraulic

REAR AXLE	4 & 6 Cylinder
Type	Semi-Floating, Hypoid
Drive Taken Through	Rear Springs
Final Drive Gears	Hypoid Bevel
Gear Ratios Used:	
With Overdrive Transmission	4.55 : 1
With Standard Transmission	
6 Cylinder	4.10 : 1
4 Cylinder (1951)	4.55 : 1
4 Cylinder (1952 and 1953)	4.27 : 1

REAR AXLE (Cont'd.)	4 & 6 Cylinder
Rear Axle Bearings (All)	Tapered Roller
Bearing Adjustment (All)	Shims
Pinion Bearings Preload	10-20 in. lbs. Torque to Turn Pinion (Between 1 and 2 lbs. Pull with Spring Scale at End of 10" Arm Attached 90° From Pinion)
Differential Side Bearings Preload	.004" - .009"
Axle Shaft Bearings End-Play	.001" - .006"
Drive Gear and Case Permissible Run-Out	.002" Max.
Pinion and Drive Gear Permissible Backlash	.003" - .006"
Adjustment	Shims
Clearance Between Differential Side Gear Hub and Bore in Differential Case	.003" - .006"
Differential Side Gears Total End-Play (Using Original Parts) (If Using New Parts, Gears Should Turn with Considerable Drag to Allow for Initial Wear of New Parts.)	.008" Max.
Axle Housing	Steel Tube, Malleable Iron Center Housing

STEERING	4 & 6 Cylinder
Stearing Gear	
Type	Worm and Roller
Ratio	18.2 : 1
Turns of Steering Wheel from Center to Full Right or Left (Steering Linkage Disconnected at Pitman Arm)	2-5/8 to 2-3/4
Worm Bearings	Tapered Roller
Type of Adjustment	Shims
Adjustment	1/4 - 3/4 lb. Pull at Rim to Move Steering Wheel with Gear 1/8 Turn from Full Right or Left
Worm to Roller Backlash:	
Type of Adjustment	Thrust Screw
Adjustment	1 - 2 lbs. Pull at Rim to Move Steering Wheel Through Center (Straight Ahead) Position.
Housing Bushing Burnish Size	1.12475" - 1.12575"
Tie Rods	Length Adjustable, Ends Self-Adjusting

BRAKES	4 & 6 Cylinder
Type	Non-Servo, Floating Shoe Hydraulic
Adjustments:	
Service Brake	Rotate Cams with Wrench
Hand Brake (Operates Rear Wheel Service Brakes)	Tighten Cable
Master Cylinder Linkage Free Play (Measured at Pedal Pad)	1/4"
Brake Lining:	
Type	Molded
Width - Primary	2"
Secondary	1-3/4"
Thickness:	
Standard	3/16"
Oversize	7/32"
Total Area	132 Sq. In.
Brake Drum:	
Material	Malleable Iron Braking Surface
Diameter	9"

BRAKES (Cont'd.)	4 & 6 Cylinder
Brake Master Cylinder:	
Bore	1"
Piston to Cylinder Clearance (Dia. Difference)	.001" - .005"
Stroke	1-1/8"
Front Wheel Brake Cylinders:	
Bore	1"
Piston to Cylinder Clearance (Dia. Difference)	.001" - .005"
Rear Wheel Brake Cylinders:	
Front and Rear Bore	13/16"
Piston to Cylinder Clearance (Dia. Difference)	.001" - .005"

WHEELS AND TIRES	4 & 6 Cylinder
Front Wheel Bearings	Tapered Roller
Adjustment	Tighten Hub Nut to Take up Play
Rear Wheel Bearings (On Axle Shafts)	Tapered Roller
Adjustment	See "REAR AXLE"

FRAME	4 & 6 Cylinder
Type	Box Channel, Double Drop
Crossmembers:	
Number	4
Thickness:	
Number 1 Crossmember	3/32"
Other Crossmembers	3/32"
Side Rails:	
Depth	4"
Thickness	3/32"

ELECTRICAL	4 & 6 Cylinder
Battery	
Voltage	6 Volts
Capacity	100 Amp. Hr.
Number of Plates per Cell	15
Bench Charging Rate:	
Start	14 Amps.
Finish	7 Amps.
Grounded Terminal	Positive
Generator (Auto-Lite)	
Type	35 Amp. Auto-Lite Model GDZ-6001E 2 Brush, Shunt Wound
Maximum Controlled Charging Rate at 70° F., 1800-2000RPM	35 Amps.
Brush Spring Tension	35 - 53 oz.
Armature End-Play	.003" - .010"
Motoring Test:	
Field Current Draw at 5 Volts	1.3 - 1.5 Amps.
Generator Regulator (Auto-Lite)	
Type	35 Amp. Auto-Lite Model VRP 6001-A-2
Cut-Out Relay:	
Air Gap	.031" - .034"
Closing Voltage:	
Range	6.4 - 7.0 Volts
Recommended Adjustment	6.8 Volts
Reverse Current to Open	4.1 - 4.8 Amps.

ELECTRICAL (Cont'd.)	4 & 6 Cylinder
Current Regulator:	
Air Gap	.048" - .052"
Opening Current:	
Range (70°)	34 - 36 Amps.
Recommended Adjustment	35 Amps.
Voltage Regulator:	
Air Gap	.048" - .052"
Opening Voltage:	
Range	7.2 - 7.5 Volts
Recommended Adjustment	7.4 Volts
Starting System (Auto-Lite)	
Starting Motor:	
Type	Auto-Lite Model EOD-11159,4 Brush, Series Wound with Bendix Drive.
Brush Spring Tension	42 - 53 Oz.
No-Load Test:	
Amperage	65 Amps. Max.
Voltage	5.0 Volts
Speed	4000 RPM
Lock Test:	
Amperage	335 Amps. Max.
Voltage	2 Volts
Torque	4.6 Ft.-Lbs.
End-Play	.005" - .050"
Number of Flywheel Teeth	124
Face Width of Flywheel Teeth	3/8"
Starter to Flywheel Gear Ratio	13.78 : 1
Starting Switch	Solenoid Type

Ignition System (Auto-Lite)	4 Cylinder	6 Cylinder
Ignition Initial Timing	5° BTDC	5° BTDC - 0° TDC
Timing Mark Location	On Flywheel	On Vibration Damper
Firing Order	1-3-4-2	1-5-3-6-2-4
Distributor:		
Type	Auto-Lite, Model IAT-4008A	Auto-Lite, Model IAT-4007
Shaft Bearing Play:		
Radial (Side) Play	.0005" - .005"	.0005" - .005"
End-Play	.003" - .010"	.003" - .010"
Breaker Gap	.020"	.020"
Cam Dwell Angle	41°	39°
Breaker Arm Tension	17 - 20 Oz.	17 - 20 Oz.
Condenser Capacity	.20 - .25 Mfd.	.20 - .25 Mfd.
Centrifugal Spark Advance:*		
Starts	0° @ 700 RPM	0° @ 700 RPM
Reaches Maximum	22° @ 3000 RPM	24° @ 3000 RPM
Vacuum Spark Advance:*		
Starts	0° @ 3-1/2" Mercury	0° @ 3-1/2" Mercury
Reaches Maximum	20° @ 15" Mercury	12° @ 15" Mercury
Ignition Coil:		
Type	Auto-Lite, Model CR-6009A	Auto-Lite, Model CR-6009A
Current Consumption (Hot):		
Engine Stopped (Distributor Points Closed)	5 Amps. @ 6.3 Volts	5 Amps. @ 6.3 Volts
Engine Idling	1.3 Amps.	1.6 Amps.

**Advance data given in Crankshaft Degrees and Crankshaft RPM. Divide Crankshaft Degrees and RPM by 2 to obtain equivalent Distributor Degrees and RPM.*

ELECTRICAL (Con't)	4 Cylinder	6 Cylinder
Spark Plugs:		
Size	14 MM (.55")	14 MM (.55")
Type	Auto-Lite A-7 or equivalent	Auto-Lite A-7 or equivalent
Gap	.030"	.030"

	4 & 6 Cylinder
Generator (Delco-Remy)	
Type	35 Amp. Delco-Remy Model-1102789 2 Brush, Shunt Wound
Maximum Controlled Charging Rate at 70°F., 2050 RPM	30 Amps.
Brush Spring Tension	28 Oz.
Armature End-Play	.005"
Motoring Test:	
Field Current Draw at 6 Volts	1.75 - 1.95 Amps.
Generator Regulator (Delco-Remy)	
Type	35 Amp. Delco-Remy Model-1118731
Cut-Out Relay:	
Air Gap	.020"
Point Opening	.020"
Closing Voltage:	
Range	5.9 - 6.7 Volts
Recommended Adjustment	6.4 Volts
Current Regulator:	
Air Gap	.075"
Opening Current:	
Range (70°)	34 - 42 Amps.
Recommended Adjustment	38 Amps.
Voltage Regulator:	
Air Gap	.075"
Opening Voltage:	
Range	7.0 - 7.7 Volts
Recommended Adjustment	7.4 Volts
Starting System (Delco-Remy)	
Starting Motor:	
Type	Delco-Remy Model-1107131,4 Brush, Series wound with Over-Running Clutch Drive
Brush Spring Tension	24 - 28 Oz.
No-Load Test:	
Amperage	70 Amps. Max.
Voltage	5.65 Volts
Speed	5500 RPM
Lock Test:	
Amperage Draw	550 Max.
Volts	3.25 Volts
Torque	11 ft. lbs.
Number of Flywheel Teeth	129
Face Width of Flywheel Teeth	.375"
Starter to Flywheel Gear Ratio	14.33 : 1
End-Play	.005" - .050"
Pinion to Housing Clearance	3/16"
Starting Switch	Solenoid Type

	4 Cylinder	6 Cylinder
Ignition System (Delco-Remy)		
Ignition Initial Timing	5° BTDC	5° B. 0° TDC

ELECTRICAL (Con't)	4 Cylinder	6 Cylinder
Timing Mark Location	On Crankshaft Pulley	On Vibration Damper
Firing Order	1-3-4-2	1-5-3-6-2-4
Distributor:		
Type	Delco-Remy Model-1110230	Delco-Remy Model-1110231
Shaft Bearing Play:		
End-Play	.002" - .010"	.002" - .010"
Breaker Gap	.022"	.022"
Cam Angle Range	25° - 34°	31° - 37°
Breaker Arm Tension	17 - 21 Oz.	17 - 21 Oz.
Condenser Capacity	.18 - .23 Mfd.	.18 - .23 Mfd.
Centrifugal Spark Advance:*		
Starts	1° @ 600 RPM	2° @ 700 RPM
Reaches Maximum	24° @ 3000 RPM	26° @ 3000 RPM
Vacuum Spark Advance:*		
Starts	0° @ 3" Mercury	0° @ 5" Mercury
Reaches Maximum	22° @ 15" Mercury	14° @ 15" Mercury
Ignition Coil:		
Type	Delco-Remy Model-1115327 (Replacement #1115385)	Delco-Remy Model-1115336 (Replacement #1115385)
Current Consumption (Hot):		
Engine Stopped (Distributor Points Closed)	5 Amps. @ 6.3 Volts	5 Amps. @ 6.3 Volts
Engine Idling	1.3 Amps.	1.3 Amps.
Spark Plugs:		
Size	14 MM (.55")	14 MM (.55")
Type	Auto-Lite A-7 or equivalent	Auto-Lite A-7 or equivalent
Gap	.030"	.030"

Lighting

	4 & 6 Cylinder
Headlights	Sealed Beam

Lamp Chart

Description:	Trade No.	Candle Power
Headlamps	4030	45-35 (Watts)
Parking	63	3
Parking, Stop and Tail, & Direction	1154	21-3
License	63	3
Instrument Panel	55	2
Hi-Beam Indicator	51	1
Oil Pressure Indicator	51	1
Battery Charging Indicator	51	1
Direction Indicator (On Switch)	51	1
Cigar Lighter	51	1
Fog Lamp	4015 A	35 (Watts)
Spotlamp (Small)	4515	30 (Watts)
Spotlamp (Large)	4535	40 (Watts)
Backup Lamp	1129	21
Courtesy	81	6
Radio Dial	44	2

Horns

Type . . . . . Vibrator

**Advance data given in Crankshaft Degrees and Crankshaft RPM. Divide Crankshaft Degrees and RPM by 2 to obtain equivalent Distributor Degrees and RPM.*

ELECTRICAL (Cont'd.) — 4 & 6 Cylinder

Horns (Cont'd.)

Current Draw:

Right Horn - High Pitch	17 Amps. Min. @ 6 Volts
Left Horn - Low Pitch (Optional Equipment)	16 Amps. Min. @ 6 Volts

Cigar Lighter

Type	Automatic Ejection, 8-12 Seconds
Current Draw	15 Amps.

Fuses

Description	Trade No.	Amperes
Headlamp	SFE 30	30
Overdrive	SFE 20	20
Heater	SFE 10	10
Radio	SFE 14	14
Fog Lamp	SFE 14	14

LUBRICATION — 4 & 6 Cylinder

Engine

Type	Pressure to Main Bearings, Connecting Rods, Camshaft Bearings, Tappets & Timing Gears.
Normal Oil Pressure	30 - 40 psi at 30 MPH
Relief Valve Opens	35 psi
Oil Filler Location	Right Side of Engine
Oil Filter (Accessory)	Purolator
Crankcase Ventilation:	
Inlet	Air Cleaner
Outlet	Valve into Intake Manifold
Oil Pan Drain	Hex Head Plug
Oil Pan Capacity:	
4 Cylinder Engine	4 Qts.
6 Cylinder Engine	5 Qts.
Recommended Lubrication:	
First Two Oil Changes (at 500 and 2,000 Miles)	SAE 10W
Oil Changes Thereafter (Every 2,000 Miles)	
+ 32°F. and Above	SAE 20 or 20W
+ 32°F. to + 10°F.	SAE 20W
+ 10°F. to - 10°F.	SAE 10W
- 10°F. and Below	SAE 5W

Subject	
Chassis—Every 1,000 Miles	
Recommended Lubricant	Chassis Lubricant NLGI No. 1 above + 32°F. or No. 0 below +32°F. Use Pressure Gun.

Points to Lubricate	No. of Fittings
Steering Knuckle King Pins	4
Steering Tie Rods	4
Suspension Arms	12
Clutch Pedal Cross Shaft (Most 1951 Models)	1
(Late 1951 and all 1952 and 1953 Models)	2
Clutch Bell Crank Pivot (1953 Models)	1
Brake Pedal Pivot (Late 1952 and all 1953 Models)	1
Propeller Shaft Universal Joints (Cross and Yoke Type)	2
Propeller Shaft Slip Joint (Cross and Yoke Type)	1
Gearshift Housing	Check - refill

LUBRICATION (Cont'd.) 4 & 6 Cylinder

Chassis—Every 2,000 Miles

Points to Lubricate	Recommended Lubricant
Transmission - Check and Maintain Level to Filler Hole	Transmission Gear Lubricant SAE 80; at High Temperatures use SAE 90.
Overdrive - Check and Maintain Level to Filler Hole	Transmission Gear Lubricant SAE 80; at High Temperatures use SAE 90.
Rear Axle - Check and Maintain Level to Filler Hole	Hypoid Gear Lubricant SAE 90; at extremely Low Temperatures use SAE 80.
Steering Gear - Check and Maintain Level to Filler Hole	Steering Gear Lubricant or Multi-Purpose Lubricant SAE 90.
Brake Master Cylinder - Check and Maintain Level to 1/4" of Filler Hole	Hydraulic Brake Fluid Lockheed No. 21 or Equivalent.
Carburetor Air Cleaner:	
Oil Bath Type - Wash in Kerosene. Refill with Engine Oil to Indicated Level	
Oil Wetted Type - Wash in Kerosene. Wet Element with Engine Oil	Engine Oil SAE 40 or 50; below +32°F. use SAE 20.
Uncovered Rear Springs - Spray or Paint	Light Engine Oil
Auto-Lite Generator - 2 oil cups, 2 drops each	Engine Oil SAE 20
Delco-Remy Generator - 2 oil cups, 2 drops each	Engine Oil SAE 10W
Auto-Lite Distributor - Oil at 3 Points, Grease at 1 Point:	
Shaft Bushing Oil Cup, 3 to 5 drops	Engine Oil SAE 20
Cam Shaft Wick Under Rotor, 4 to 5 drops	Engine Oil SAE 20
Breaker Lever Pivot, 1 drop	Engine Oil SAE 20
Breaker Cam - Wipe Cam Lightly	Wheel Bearing Grease
Delco-Remy Distributor - Oil at 4 Points,	Engine Oil SAE 10W
Grease at 1 Point:	
Cam Shaft Wick Under Rotor, 1 drop	Engine Oil SAE 10W
Breaker Lever Pivot, 1 drop	Engine Oil SAE 10W
Breaker Plate Felt Wick, 1 or 2 drops	Engine Oil SAE 10W
Shaft Bushing Reservoir (Fill to filler plug hole every 20,000 miles)	Engine Oil SAE 20
Breaker Cam - Wipe cam lightly	Wheel Bearing Grease

Chassis—Every 10,000 Miles

Points to Lubricate	Recommended Lubricant
Front Wheel Bearings - Remove, Clean and Repack 2-1/2 oz. per Wheel. Do not fill Hub.	Wheel Bearing Grease NLGI No.2
Rear Wheel Bearings - Remove 2 plugs in rear axle housing, install fittings and apply 1/2 oz. at each wheel with low pressure gun.	Wheel Bearing Grease NLGI No.2
Covered Rear Springs - Low Pressure Gun and Special Tool C-408	Chassis Lubricant NLGI No.1; below +32°F. Use No.0.
Oil Filter (Accessory)	Change Element at 10,000 Miles or when Oil appears dirty on Dip Stick.

LUBRICATION (Con't) 4 & 6 Cylinder

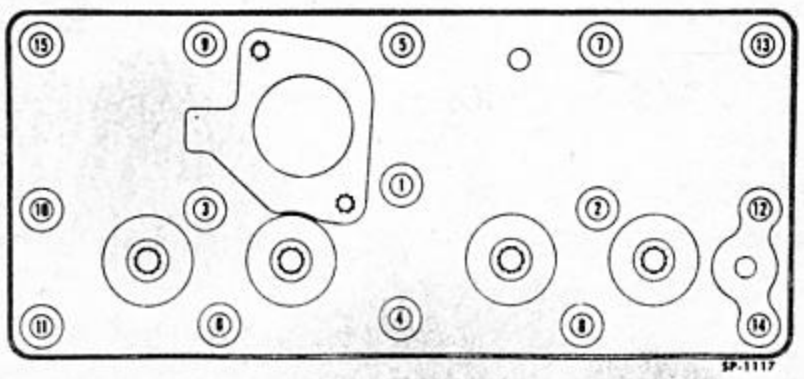
Chassis—Every 20,000 Miles

Points to Lubricate	Recommended Lubricant
Propeller Shaft Universal Joints - (Ball and Trunnion type) Disassemble, clean and repack.	Universal Joint Grease.
Delco-Remy Distributor Shaft Bushing Reservoir - Fill to filler plug hole.	Engine Oil SAE 20

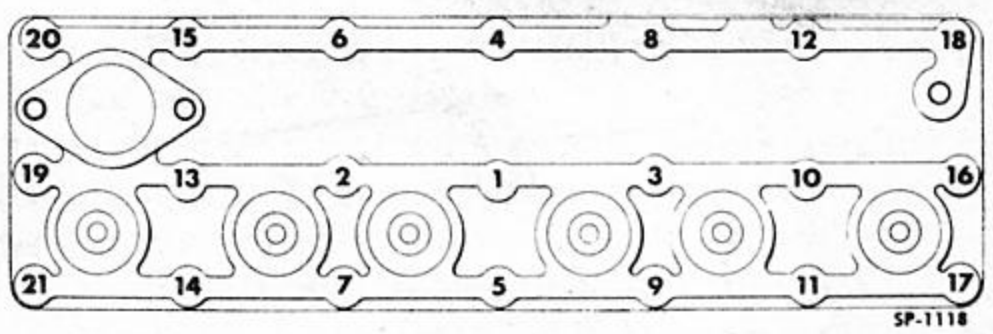
TORQUE SPECIFICATIONS

Note: Torque Specifications that follow for tightening nuts and bolts are for clean dry threads, and are applicable to all Henry J models, unless otherwise indicated.

Description	Size	Foot-Pounds Torque
Engine		
Front Support Insulator to Frame Nut	5/16"-24NF	15-20
Front Support Insulator to Engine Nut	1/2"-20NF	40-50
Rear Support Insulator to Crossmember Nut	3/8"-24NF	25-30
Rear Support Insulator to Transmission Bolt	3/8"-24NF	25-30
Cylinder Head Stud Nuts (Check after engine warm-up)	7/16"-20NF	60-70
Main Bearing Cap Bolts (4 cyl.)	1/2"-13NC	65-70
Main Bearing Cap Bolts (6 cyl.)	7/16"-14NC	65-70
Flywheel to Crankshaft Bolt	3/8"-24NF	36-40
Oil Pan to Cylinder Block Bolts	5/16"-18NC	10-14
Camshaft Gear to Camshaft Bolt	7/16"-14NC	30-35
Camshaft Thrust Plate Bolt (4 cyl.)	3/8"-16NC	15-18
Camshaft Thrust Plate Bolt (6 cyl.)	5/16"-18NC	20-25
Crankshaft Counter Weight Bolts (4 cyl. only)	1/2"-20NF	60-70
Vibration Damper to Crankshaft Bolt (6 cyl.)	7/16"-20NF	25-30
Connecting Rod Cap Bolt Nut (4 cyl.)	3/8"-24NF	35-45
Connecting Rod Cap Bolt Nut (6 cyl.)	11/32"-24NF	30-38
Pulley Hub to Crankshaft Nut (4 cyl.)	1"-16N	140 Min.
Piston Pin Lock Bolt	3/8"-24NF	35-40
Timing Gear Cover Nut to Block (4 cyl.)	3/8"-24NF	15-20
Timing Gear Cover Bolt to Block (6 cyl.)	5/16"-18NC	12-15
Clutch Housing to Cylinder Block Dowel Bolt	3/8"-24NF	18-23
Oil Pump to Block Bolt	5/16"-18NC	12-15
Oil Pump Cover to Body Bolt	1/4"-20NC	7-10
Oil Intake Float Support to Cyl. Block Bolt	5/16"-18NC	12-15
Valve Tappet Cover Bolts	5/16"-18NC	12-15



Cylinder Head Nut Tightening Sequence
4 Cylinder Engine



Cylinder Head Nut Tightening Sequence
6 Cylinder Engine

TORQUE SPECIFICATIONS (Cont'd.)

Description	Size	Foot Pounds Torque
Fuel System		
Fuel Pump to Cylinder Block Bolt	5/16"-18NC	12-15
Fuel Tank Hanger to Frame Nut	3/8"-16NC	10-15
Inverted Flare Nut	1/2"-20	6-10
Fuel Tube Clip to Frame Screw	5/16"-12	8-10
Exhaust		
Exhaust and Int. Manifold to Cyl. Block Nut	3/8"-16NC	31-35
Intake to Exhaust Manifold Bolt (4 Cyl.)	5/16"-18NC	12-15
Intake to Exhaust Manifold Bolt (6 Cyl.)	3/8"-16NC	15-20
Exhaust Pipe to Manifold Nut	3/8"-24NF	18-23
Exhaust Pipe to Clamp Nut	5/16"-18NC	5-10
Muffler Support Strap to Bracket Nut	5/16"-18NC	5-10
Tail Pipe Rear Support Clamp Nut	5/16"-18NC	5-10
Tail Pipe Rear Support Strap Nut	5/16"-18NC	5-10
Muffler Rear Support Bracket to Frame Screw	5/16"-24NF	5-10
Cooling		
Water Outlet Elbow to Cylinder Head	3/8"-16NC	20-25
Water Pump to Cylinder Block Bolt	5/16"-18NC	12-15
Radiator to Shroud Bolt	5/16"-12	4-7
Clutch		
Clutch Housing to Block	3/8"-24NF	18-23
Clutch Pedal to Shaft Nut (1951)	3/8"-24NF	25-30
Clutch Pedal to Shaft Nut (1952 and 1953)	5/16"-18NC	12-15
Clutch Pressure Plate to Flywheel Bolt	5/16"-18NC	12-15
Clutch Shaft Bushing Retainer to Frame Screw	5/16"-24NF	12-15
Clutch Pedal Shaft to Transmission Screw	3/8"-16NC	25-30
Clutch Linkage Adjusting Nut	3/8"-24NF	25-30
Transmission		
Transmission to Flywheel Housing Bolt	7/16"-14NC	35-40
Front Companion Flange to Transmission Shaft Nut	3/4"-16NF	100-140
Propeller Shaft		
Front and Rear Flange Nut (Ball & Trunnion Type)	3/8"-24NF	18-23
Front and Rear Flange U-Bolt Nut (Cross Type)	5/16"-24NF	15-18
Front Companion Flange to Transmission Shaft Nut	3/4"-16NF	100-140
Chassis Suspension - Front		
Lower Arm Pivot to Frame Nut	7/16"-20NF	55-65
Upper Arm Pivot to Frame Nut	1/2"-20NF	70-80
Lower Arm to Inner Pivot Bushing	15/16"-11NC	165 Min.*
Upper Arm to Inner Pivot Bushing	3/4"-11NC	165 Min.*
Upper Arm to Knuckle Support Bushing	3/4"-11NC	165 Min.*
Lower Arm to Knuckle Support Bushing	3/4"-11NC	165 Min.*
Sway Bar Cushion Retainer Nut	5/16"-24NF	10-15

**Bushing shoulder must be seated and begin to cut into arm or support.*

TORQUE SPECIFICATIONS (Cont'd.)

Description	Size	Foot Pounds Torque
Chassis Suspension - Rear		
Rear Spring Front Hanger Nut	7/16"-20NF	35-40
Rear Spring U-Bolt Nut	7/16"-20NF	40-50
Rear Spring Shackle Nut	13/32"-20NF	25-30
Shock Absorbers		
Front Shock to Upper Support Cushion Nut	3/8"-24NF	18-23
Front Shock to Spring Plate Nut	3/8"-24NF	18-23
Rear Shock to Frame Nut	7/16"-20NF	35-40
Rear Shock to Anchor Pin Nut	7/16"-20NF	35-40
Rear Shock Lower Anchor Pin Lock Nut	1/2"-20NF	40-50
Rear Axle		
Rear Axle Shaft Nut	3/4"-16NF	160 Min.**
Flange or Yoke to Drive Pinion Nut	3/4"-16NF	140-150
Drive Gear to Differential Case Bolt (Alloy Steel)	3/8"-24NF	40-50
Differential Bearing Cap Bolt	1/2"-13NC	70-90
Axle Housing Cover Bolt	5/16"-18NC	15-20
Steering and Gearshift		
Steering Gear Roller Shaft Cover Screw	5/16"-18NC	10-15
Steering Gear Worm Shaft Cover Screw	5/16"-18NC	10-15
Pitman Arm Shaft Nut	7/8"-14NF	110 Min.**
Steering Gear Housing to Frame Nut	3/8"-24NF	18-23
Tie Rod Adjusting Link Clamp Nut	5/16"-24NF	6-10
Tie Rod Stud Nut	7/16"-20NF	25 Min.**
Steering Wheel Nut	5/8"-18NF	35-40
Steering Knuckle Arm Screw	7/16"-20NF	35-40
Gearshift Upper Shaft Bracket Screw	1/4"-28NF	7-10
Gearshift Shaft Clamp Nut	5/16"-18NC	5-10
Gearshift Rod Pivot Nut	3/8"-24NF	10-15
Gearshift Control Housing Screw	10-24NC	5-8
Brakes		
Front Brake Backing Plate to Steering Knuckle Nut	3/8"-24NF	25-30
Rear Brake Backing Plate to Axle Nut	3/8"-24NF	25-30
Front Brake Tube Tee to Frame Screw	5/16"-12	8-10
Rear Brake Tube Tee to Axle Screw	1/4"-28NF	7-10
Inverted Flare Nut	3/8"-24NF	6-10
Brake Pedal Bracket to Frame Nut	3/8"-24NF	25-30
Master Cylinder to Bracket Nut	3/8"-24NF	25-30
Master Cylinder Outlet Bolt	1/2"-20NF	35-40
Wheels		
Wheel Mounting Bolts, R.H. Thread	1/2"-20NF	85-95
Frame		
Engine Front Support Bracket to Frame Nut	5/16"-24NF	10-15
Engine Rear Crossmember to Frame Screw	3/8"-24NF	18-23
Body Mounting Bolts:		
No. 1 Body Bolt (Front of Dash)	3/8"-24NF	75-85 Inch-lbs.
All others	3/8"-12	200-250 Inch-lbs.

***Tighten only enough more to permit installation of cotter pin.*

TORQUE SPECIFICATIONS (Cont'd.)

Description	Size	Foot Pounds Torque
Bumpers		
Front Bumper Support to Frame Nut	1/2"-20NF	40-50
Front Bumper Bar to Support Nut	7/16"-14NC	25-30
Rear Bumper Support to Frame Nut	1/2"-20NF	40-50
Rear Bumper Bar to Support Nut	7/16"-14NC	25-30
Bumper Guard Stud Nut	7/16"-14NC	12-15
Electrical		
Generator Bracket (4 Cyl.)	3/8"-16NC	20-25
Generator Bracket (6 Cyl.)	5/16"-18NC	31-35
Generator Adjusting Strap Bolt	5/16"-18NC	31-35
Starter Motor Mounting Bolt:		
Auto-Lite starter	3/8"-16NC	20-25
Delco-Remy starter	1/2"-13NC	20-25
Distributor Hold Down Bolt:		
4 cylinder engine	1/4"-20NC	5-10
6 cylinder engine	5/16"-18NC	5-10
Spark Plugs	14mm.	26-30

Miscellaneous

"Pal" Nuts (Inverted Type, Pressed Steel) Turn Finger Tight and Tighten 1/3 Turn More with Wrench.

NOTES

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