

Studebaker

SERVICE BULLETIN

APRIL

NO. 239



1950

NO LUBRICATION FOR REAR SPRING LEAF INSERTS OF CUSTOM CHAMPION

While there is no change from present recommendations for the lubrication of Champion Deluxe and Regal Deluxe, it is important that you note in your lubrication charts and advise your lubrication men that the rear spring leaf inserts of Custom Champion models require no lubrication.

The following paragraphs are included in the Lubrication section of Champion Owner's Guides which will be installed in the cars as soon as possible.

"REAR SPRING LUBRICANT Covered rear springs on Champion Deluxe and Regal Deluxe models should always be lubricated with a good quality graphite spring lubricant which is especially compounded for this purpose.

"The long leaves of the rear springs on Champion Custom models are equipped with interleaf tip inserts. These inserts require no lubrication and care should be taken not to permit oil, grease, or other petroleum products to come into contact with them."

USE TORQUE WRENCHES AND USE THEM CORRECTLY

Many repair jobs that have "come back" - often with added troubles more serious than in the original complaint - could have been avoided if capscrews or nuts had been correctly tightened with a torque (or torsion indicating) wrench to the torque limits specified in manuals. Improper torquing of nuts or screws is time and again definitely established as the cause of failure of an assembly where brinelling, warping, or other surface distortion is present.

Use of a torque wrench in itself is not sufficient to guarantee against this type of distortion. The wrench must be used correctly and inspection of threads to detect rundown resistance must be made.

A torque wrench is a wrench handle with provision for attaching standard sockets and so constructed that a gage, usually placed near the grip of the handle, will indicate to the mechanic the foot-pounds (or inch-pounds, on



	PAGE
CYLINDER HEAD GASKET INSTALLATION -	
2R SERIES.	5
ELIMINATION OF CLUTCH CHATTER - 6G, 7G,	
8G, 9G	3
NELSON AUTOMATIC TIRE INFLATOR	6
NEW COLOR FORMULA - 2R SERIES.	4
NO LUBRICATION FOR REAR SPRING LEAF	
INSERTS OF CUSTOM CHAMPION	1
REAR WHEEL HUB AND DRUM ASSEMBLY - 2R10.	4
SAFETY LIGHTING SERVICE MANUAL	6
SEAT ADJUSTMENT, ANTI-RATTLE SPRING -	
2R SERIES.	5
SPEEDOMETER ASSEMBLY - 2R SERIES	4
TORQUE CHART - 2R SERIES TRUCKS.	7
USE THE BULLETIN REFERENCE PAGES IN YOUR	
SHOP MANUALS	2
USE TORQUE WRENCHES AND USE THEM	
CORRECTLY.	1
2-SPEED AXLE CONTROL CABLE, PROTECTOR	
CONDUIT - 2R16A, 2R17A	4

some wrenches) of torquing effort he is exerting as he tightens the nut, screw, or capscrew. Since some wrenches are calibrated in inch-pounds (in. lbs.) and some in foot-pounds (ft. lbs.) it may be necessary to convert a torque table from one system to the other. To convert from inch-pounds to foot-pounds, divide the number of inch-pounds by twelve: 120 in. lbs. torque equal 10 ft. lbs. torque. Conversely, to convert foot-pounds torque to inch-pounds, multiply the number of foot-pounds by twelve: 20 ft. lbs. torque equal 240 in. lbs. torque.

If the threads of either the nut or bolt, or the capscrew or the threaded hole into which it is inserted, are rusted, corroded, clogged with grit, or otherwise changed so as to result in poor mating of the matching thread surfaces, resistance from the threads themselves will add to the torquing effort required and a false reading will be given.

Before tightening nuts or screws with a torque wrench, therefore, try the threads by

finger-turning the nut or screw the full distance of its threaded travel. If rundown resistance is noticeable, it will be necessary either to clean the threads thoroughly with a wire brush or die, or, in the case of threaded holes, run a tap in the hole to assure proper mating of the threaded surfaces. Always lubricate the threads.

Torque readings, once the threads have been determined to be free running, should be made after the nut or capscrew head has made snug contact with the bearing surface. Having determined the factory recommended torque for the particular nut, screw, or capscrew being installed, the mechanic should then begin taking the torque readings during sweeps of the wrench as he tightens the work until the specified torque range is reached.

On such work as a cylinder head, for example, where many capscrews are required to hold the mating surfaces of the work together, it is extremely important to prevent any possibility of warpage of the cylinder head or distortion of the cylinder bores through uneven torquing of the many capscrews. For this reason, to secure as uniform torque as possible on all the screws, the tightening patterns (that is, the sequence in which the capscrews are to be tightened) furnished by the factory should be followed every time and the specified torque limits should be observed.

This care to secure uniformity of torque is equally important whenever securing any cover to a body, whether or not a gasket is employed, and wherever two or more threaded fasteners are employed. Draw all nuts or screws snug before starting to take torque readings.

Special attention on the part of mechanics

to uniformity, freeness of threads, and observance of specified torque limits will materially reduce subsequent failures of replaced or repaired parts and assemblies and will likewise reduce the amount of business lost and the number of comebacks resulting from these failures.

There are many good and accurate torque or tension indicating wrenches on the market. Every repair mechanic should understand how to use this tool and how to eliminate rundown resistance before using it.

More detailed information regarding the tightening of cylinder heads will be found on page 5 of this Service Bulletin under the heading of "Cylinder Head Gasket Installation."

USE THE BULLETIN REFERENCE PAGES IN YOUR SHOP MANUALS

Do you make use of that little notice in *italics* at the beginning of nearly every Service Bulletin article? It can be a great aid to you in keeping your Shop Manuals up to date, because the majority of Service Bulletin articles is supplemental to the information given in your Shop Manuals for current models.

Only a Few Minutes Needed

At the end of each section of the Shop Manuals (passenger car or truck) there is a space with the heading "Service Bulletin Reference." This space is ruled in columns to permit entry of Service Bulletin number, page number, and title of the pertinent article.

To make it easier for you to find the right

2R SERIES TRUCKS SHOP MANUAL		ENGINE 107
SERVICE BULLETIN REFERENCE		
NUMBER	PAGE	SUBJECT
209	1	VALVE CHAMBER OIL Baffle Plates - 2R5-2R10-2R15
211	2	Oil Filler Pipe - COMMANDER Stripped ENGINE
212	1	AIR CLEANER MAINTENANCE
216	2	REAR MAIN BEARING Oil Seal - INSTALLATION - 2R16-2R17
222	5	CAMSHAFT BEARING SETS
224		Stripped Engine - 2R15, 2R16, 2R17

reference page, each article which should be recorded in the Shop Manual carries a reference just after the article headline reading like this: *Please record this article on page XX of your 2R Series Trucks (or 1950 Passenger Car Shop Manual).*

As you read the Service Bulletin, keep your Shop Manuals handy. Each time you see the italicized reference note at the top of the article, turn to the suggested page of the designated Shop Manual and enter the Service Bulletin number, page, and article title, as indicated in the accompanying illustration.

Here's How It Helps You

Recording articles will save much time in locating recent service information without having to thumb through an accumulation of Service Bulletins or waiting for the annual issue of the Service Bulletin Index. Making these notations will also help to keep the subjects in mind and will help prevent complaints of slow or incomplete service because the service manager and service salesmen will be fully informed.

By keeping this "posting" of Service Bulletin article references current on receipt of each issue, you have a running index to the latest service information available. Moreover, this information is segregated into the same major groupings (Engine, Gasoline System, Transmission, etc.) as the Shop Manuals.

Then, every time you refer to a particular section of your Shop Manual, you can first run

down the list of Service Bulletin articles recorded on the reference page at the end of the section and determine whether there are any articles you should read in conjunction with the Shop Manual material you are looking up.

**ELIMINATION OF CLUTCH CHATTER
CHAMPION MODELS - 6G, 7G, 8G, 9G**

Please record this article on page 40 of your 1947 Shop Manual.

The following is a reprint of Passenger Car Service Letter No. 823, which may now be discarded from your files.

We have received reports of difficulty being experienced in the elimination of clutch chatter in 1950 model Champions. There are, of course, several conditions which may produce clutch chatter. Included in this category are grease or oil on the clutch facings, excessive engine movement resulting from rough engine operation or improperly adjusted engine mountings. The corrections for these common causes are quite obvious.

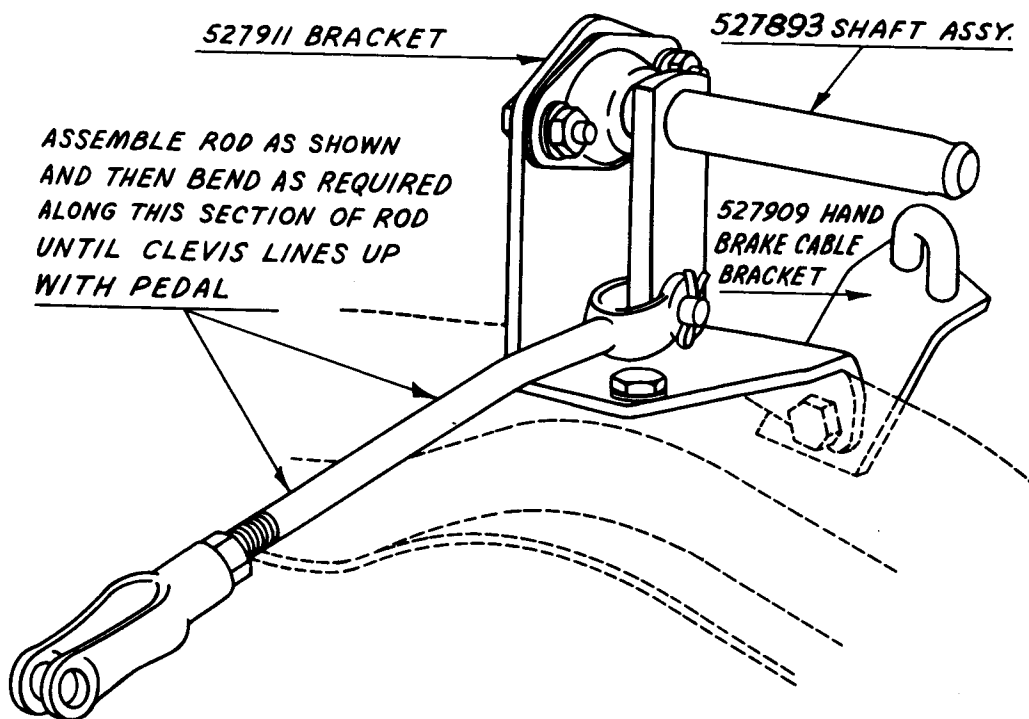
There are cases, however, where clutch chatter is caused by movement of the engine in its flexible mountings as starting torque is being absorbed. This creates the effect of an erratic clutch engagement. To eliminate this condition, certain elements of the clutch linkage on left hand control Champions have been redesigned and entered production with Serial No. G-573846 at South Bend and G-717327 in Canada.

When clutch chatter in 1950 Champions is the result of movement in the engine in its flexible mountings as described above, you should install the following redesigned elements of the clutch linkage.

1 Part No. 527893
Clutch Operation
Shaft and Lever

1 Part No. 527909
Hand Brake Cable
Bracket

1 Part No. 527911
Operating Shaft
Bracket



The installation of these parts is illustrated in the accompanying sketch and the following will give you the details as to the proper procedure:

1. Remove the old clutch operating shaft and lever, support bracket, and clutch pedal shaft-to-operating shaft lever rod.
2. Install the new brackets, Part Nos. 517911 and 527909, and the new clutch operating shaft and lever, Part No. 527893. It is suggested that a new bearing and retainer kit, Part No. 527424, be used.
3. Attach the front end of the pedal shaft-to-operating shaft lever rod to the clutch operating shaft lever and then bend the back half of the rod as required to align it with the clutch pedal lever. Attach the rod to the clutch pedal lever.
4. Adjust the clutch pedal free travel so that it is not more than one inch or less than one-half inch.

The newly designed parts are adaptable to 1947 (6G), 1948 (7G), and 1949 (8G) Champion models, as well as the 1950 (9G) Champion models. It is recommended, however, that they be used in sets whenever installation is made on any 1947, 1948, or 1949 Champion models, or on 1950 Champion models prior to Serial G-573846.

Where the installation is made on a 1950 (9G) Champion models, prior to June 30, 1950, the old parts removed may be returned for credit accompanied by a properly executed B865 Claim Form.

We suggest you place your order immediately with your local Parts Depot for the number of these parts you may require to take care of those 1950 Champions where owners have complained of excessive clutch chatter.

NOTE.--Clutch chatter on right hand control Champions is being investigated but changes have not yet been released.



NEW COLOR FORMULA - 2R SERIES

COOK'S #8413 TUSCIN TAN BAKING ENAMEL - SYMBOL W-VS (TRUCKS ONLY)

Routile non-chalking titanium dioxide	89.94%
Imported Burnt Sienna	9.50
Carbon Black	.56
	100.00%

REAR WHEEL HUB AND DRUM ASSEMBLY - 2R10

Please record this article on page 30 of your 2R Series Trucks Shop Manual.

To eliminate the possibility of sand and gravel entering openings in the 2R10 brake drums at the point where the drum is attached to the hub, these openings have been eliminated. This change became effective with Truck Serial No. R10-22204.

The part number of the hub and drum assembly, Part No. 677862-3, remains the same and when stocks of the older type are depleted, only the closed type will be available.

SPEEDOMETER ASSEMBLY - 2R SERIES

Please record this article on page 221 of your 2R Series Trucks Shop Manual.

An oiler has been installed in the speedometer head boss through which the drive shaft passes on all 2R Series trucks speedometer assemblies. The oiler consists of an oil wick, Part No. 679879, and an oil wick housing, Part No. 679880. These parts will be available as service parts on order to your nearest parts depot. There is no change in the speedometer assembly part number.

It is recommended that the wick housing be removed every 10,000 miles or at the beginning of cold weather each year and filled with Rislone or its equivalent.

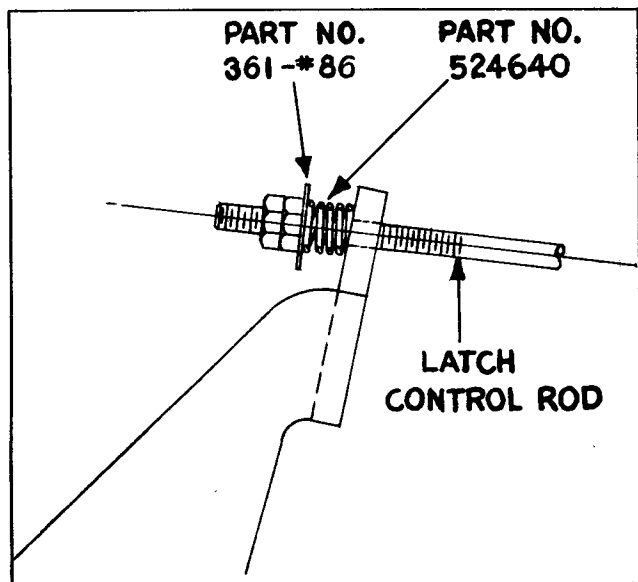
Mounting of the new type speedometer assemblies was described in Service Bulletin No. 237, p. 4, under the heading, "Modifying Instrument Bracket to Accommodate New Speedometer - 2R Series."

2-SPEED AXLE CONTROL CABLE PROTECTOR CONDUIT - 2R16A, 2R17A

Please record this article on page 177 of your 2R Series Trucks Shop Manual.

As a protective covering over that portion of the 2-speed axle control cable that contacts the transmission, it is recommended that a 10" length of windshield wiper hose (Part No. 959) be slipped over the cable. Part No. 959X10 can be ordered for this purpose, the 959 being regular windshield wiper hose and the X10 being a 10" length of this hose.

This change entered production with truck Serial Nos. R16A-24902 and R17A-14046.



SEAT ADJUSTMENT ANTI-RATTLE SPRING - 2R SERIES

Please record this article on page 37 of your 2R Series Trucks Shop Manual.

A coil spring, Part No. 524640, and washer, Part No. 41X507, are now available for installation as shown in the above drawing to eliminate possibility of rattle in the seat latch and latch control rod of 2R Series trucks equipped with the new adjustable seat.

To install the spring and washer, remove the rod lock nut and adjusting nut, slip the spring on the rod followed by the washer. Install the adjusting nut and adjust it so that the spring is compressed approximately one-half of its free length. Install and tighten the lock nut.

This spring and washer entered production with the following truck serial numbers: 2R5-45030; 2R10-21027; 2R15-10907; 2R16A-24856; and 2R17A-14007.

For service of trucks produced prior to those serial numbers, springs and washers may be purchased through your nearest parts depot.

CYLINDER HEAD GASKET INSTALLATION - 2R SERIES

A new type cylinder head gasket (see next paragraph), which is approximately .020" thinner than the one that has been used, is now in production. The new gasket can be identified by the steel material on the bottom side and copper on top; also by the lettering VIC-2-FOLD in the gasket facing.

The new gaskets are carried under the following part numbers and entered production as indicated.

Part No.	Part No.
Former gasket: 196585 (Note 1) 191922 (Note 3)	
Present gasket: 527058 (Note 2) 527057 (Note 4)	
Note 1 - Used on engines before Model 2R5-2R10 - Engine No. 1R-49060 and 2R15 - Engine No. 2R-10283.	
Note 2 - Used after above engine numbers.	
Note 3 - Used on engines before Model 2R16A-2R17A - Engine No. 4R-12946.	
Note 4 - Used after above engine number.	
Cylinder head gaskets and heads should be installed as described in the following paragraphs. To assure careful attention to all details given below, the time allowance of Operation No. L-12, "Cylinder Head Gasket: install new" has been increased for Models 2R16A and 2R17A from 1.7 to 2.4 hours. Time allowance for Models 2R5, 2R10, and 2R15 remains unchanged.	
Installing Cylinder Head Gaskets	
When installing a new cylinder head gasket, certain precautions should be taken to provide a good seal between the head and the block. Such precautions include cleaning the surfaces on head and block, cleaning cap screw threads, cleaning threads in block and using proper gasket cement. The gasket and head should be installed over properly located dowel bolts and the cap screws torqued with an accurate tension indicating wrench in the sequence shown in the drawing and to the following specifications.	
CYLINDER HEAD CAP SCREW TORQUE (FOOT-POUNDS)	
2R5-2R10-2R15	2R16A-2R17A
46 - 50 ft. lbs. Thread size: 7/16x14	80-85 ft. lbs. 7/8x13
If difficulty has been encountered with blown head gaskets, further precautions should be taken. In some cases it will be necessary to install a new cylinder head or have the original one planed due to warpage or brinell marks in the head. Planing must be held to a maximum of .015 inch.	
When replacing a gasket due to failure, check the surface of the cylinder head with a straight edge to determine whether the high localized temperatures from previous leakage have resulted in warpage or low spots. If so, the face can be planed or refaced up to approximately .015 without generally disturbing the uniformity of the combustion chambers. It should be recognized that any amount removed from the face of the head increases the compression ratio accordingly. As an example, if approximately .030" is removed from a 6.5:1 head, the ratio will be changed to approximately 7:1, providing the latest thin gasket is used. When too much stock is removed there is possibility in some cases that the valves may hit the cylinder head.	

A loose cylinder head will not only cause brinelling of the head, but in many cases will allow exhaust gases to be admitted into the cooling system, displacing the coolant and causing overheating. Also, a loose head will move enough to allow the gasket to wear into it. Clean all capscrew holes in the block with a tap. The top of the block should be thoroughly cleaned; use a mill file and remove all raised metal around the threaded cap screw holes. After cleaning the carbon from the head, use the file to remove any remaining carbon and rough spots that may be on the gasket surface.

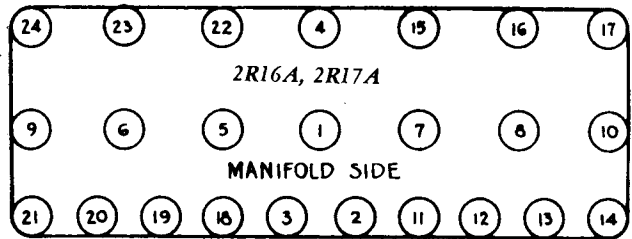
Capscrew threads should be cleaned with a wire brush or wire wheel and in some cases it may be necessary to run a die over the threads or replace the capscrews, especially if they appear to be stretched. If the capscrew has been stretched to a point where it has lost its elasticity, it should be replaced. This usually is noticeable at the point where the die cut the last threads. Check the end of all cap screws to be sure none of them bottom in the threaded holes in the block.

In some cases, additional brackets are placed on the head for such accessories as air compressors, etc., and are held in place by the cylinder head capscrews. If this is the case, capscrews long enough to make up for the thickness of the bracket should be used.

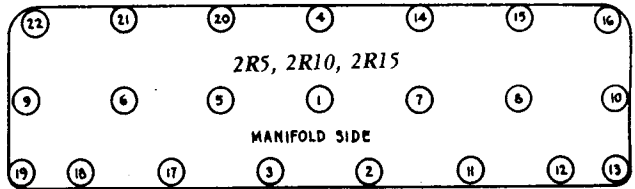
Dowel bolts should be used in No. 9 and No. 10 capscrew locations (see drawing). Cover the gasket on both sides with a thin coat of Perfect Seal or similar suitable gasket cement. Place the gasket in place over the dowel, then lower the cylinder head in place. Dip the threaded end of the capscrews in engine oil; this reduces the friction on the threads and helps to assure a correct torque reading. Install the capscrews, removing the dowels and replacing them with the remaining two capscrews. Torque all capscrews in sequence as shown in the drawing (right). Retorque again before starting engine and again after the engine has warmed to normal operating temperature. In cases where any difficulty has been previously experienced, it is advisable to torque the head once again after 100 to 200 miles.

Proper torque wrench readings are important to eliminate possibility of distortion of the block. It is also advisable to give an engine a short break-in period at reduced R.P.M. after changing head or gasket.

Some cases have been reported where a dealer will not have our .031" thick cylinder head water outlet gasket in stock, but will use instead some thicker material to make a gasket. This thick gasket will tend to compress more than normal, leaving the two water outlet cap screws loose, and should not, therefore, be used.



Torque Sequence Charts



SERVICE EQUIPMENT

SAFETY LIGHTING SERVICE MANUAL

Mailed with this issue of the Service Bulletin is a copy of the General Electric "Safety Lighting Service Manual" which gives information on How to Sell Lighting Service, How to Replace Lamps, How to Aim Headlamps, and What to Stock.

This booklet is full of valuable data and tips which every dealer can put to use in his warm weather conditioning and safety inspection programs.

On page 3 of this Manual is a chart showing the high proportion of cars requiring lighting corrections among those inspected during various state safety drives.

Capitalize on complete lighting service facilities and you'll find it leads to other service sales, for lighting troubles usually indicate a need of service in related parts of the car's electrical system.

NELSON AUTOMATIC TIRE INFLATOR

Mailed with this issue of the Service Bulletin is Bulletin No. 34 as published by Kent-Moore Organization describing the Nelson Automatic Tire Inflator.

This inflator is light in weight but ruggedly built to withstand impacts of dropping and can be run over by cars without damage. It is controlled by a simple dial setting which meters pressure in one pound graduations from 15 to 50 pounds per square inch.

Like all tire gages, this one should be checked with a master gage periodically, say every four to six months. Adjustments which can be made to keep the gage accurate are described in the maintenance instructions accompanying each inflator.

TORQUE CHART - 2R SERIES TRUCKS

Please record this article on page 230 of your 2R Series Trucks Shop Manual.

The accompanying charts list, for your information, the torsion specifications of nuts and screws by size, thread, and location for the 2R Series trucks. Mechanics should as far as possible memorize the torque specifications check-marked (+) on the chart. These are the most important. The other specifications are given for convenience of reference as required but need not necessarily be committed to memory by the mechanic.

Nuts and screws specified should be tightened to within certain torque limits with an accurate tension indicating wrench so that uniform tightening will result. Unless the mechanic knows how tight each nut or screw is, he cannot expect to obtain uniform tightening. Even or uniform tightening is important because it

eliminates to a great degree the danger of cracking or breaking a part in which two or more nuts or screws are used to hold it in position. It is vitally important that parts which require the use of gaskets be evenly tightened if the gaskets are to provide adequate sealing.

Overtightening can result in stripping threads in nuts and screws thus rendering them unsound or possibly resulting in cracked or broken parts.

Undertightening will not, of course, properly secure the bolt or permit gaskets, where used, to seal properly.

If a tension indicating wrench is suspected of being inaccurate, test it by comparing with several other tension indicating wrenches. If doubt as to the accuracy of the wrench persists send it to the maker for checking.

NAME	TORQUE REQD.		THREAD SIZE	TORQUE REQD.	
	2R5-10-15	FOOT LBS.		2R16A-17A	THREAD SIZE
ENGINE					
Cylinder head screw	+	46-50	7/16-14	80-85	1/2-13
Piston pin lock screw nut		20-25	3/8-24	20-25	3/8-24
Connecting rod cap bolt nut	+	28-32	11/32-24	52-54	3/8-24
Crankshaft main bearing cap screw	+	89-93	1/2-13	88-93	1/2-13
Crankshaft vibration damper nut or screw		130-140	11/16-16	160-170	7/8-14
Valve tappet adj. screw or locknut		25 in. lbs. min.	3/8-24	25 in. lbs. min.	3/8-24
Camshaft timing gear fastening screw		20-22	3/8-24	20-22	1/2-20
Timing gear cover screw		13-17	5/16-18	13-17	5/16-18
Timing gear cover bolt nut		13-17	5/16-24	13-17	3/8-16
Spark plug	+	25-30	14 mm.	25-30	5/16-24
Oil pan screw		13-17	5/16-18	13-17	14 mm.
Oil pan drain plug		22 1/2-25	3/4-16	22 1/2-25	5/16-18
Flywheel to crankshaft bolt nut	+	33-35	3/8-24	33-35	3/4-16
Oil pump body to block screw		13-15	5/16-18	13-15	3/8-24
Oil filter cover screw		25-33	7/16-20	25-33	5/16-18
Fuel pump mounting screw		12-15	5/16-18	12-15	7/16-20
Manifold to block stud nut		18-22	3/8-24	25-30	5/16-18
Fan blade fastening screw		13-17	5/16-18	13-17	3/8-24
Water pump supt. plate to body screw				28-32	5/16-18
Water pump to cyl. block screw		13-17	5/16-18	28-32	3/8-16
Engine front plate screw		13-17	5/16-18	13-17	3/8-16
Engine rear plate screw		28-32	3/8-16	28-32	5/16-18
Engine front support bracket stud nut		35-40	3/8-24	35-40	3/8-16
CLUTCH					
Pressure plate cover to flywheel screw		13-15	5/16-18	26-30	3/8-24
Housing to cylinder block screw		28-32	3/8-16	28-32	3/8-16
Housing to eng. rear plate bolt nut		13-17	5/16-24	28-32	3/8-24
Housing to eng. rear plate dowel bolt nut		28-32	3/8-24	28-32	3/8-24
TRANSMISSION					
Trans. case to clutch housing screw		70-80 *60-70	7/16-14	70-80	9/16-12
ENGINE MOUNTINGS					
Eng. rr. supt. insulator to frame bolt nut		35-40	3/8-24	35-40	3/8-24
Eng. rr. supt. insulator to clutch housing screw		35-40	3/8-16	35-40	3/8-16

+ - Must be observed.

* - 2R5-10-15 4 speed transmission.

	TORQUE REQD.		THREAD SIZE	TORQUE REQD.		THREAD SIZE	TORQUE REQD.	
	2R5-10 FOOT LBS.			2R15 FOOT LBS.			2R16A-17A FOOT LBS.	THREAD SIZE
Eng. rr. insulator bolt nut							25-30	1/2-20
Eng. front supt. insulator bolt nut	25-30		1/2-20	25-30	1/2-20		25-30	1/2-20
PROPELLOR SHAFT								
Trans. shaft flange nut	140-180		3/4-16	180-220	7/8-16		180-220	7/16-16
Rear Axle pinion shaft flange nut	A 140-180 B 300 min.		3/4-16 7/8-20	300 min.	1-20		300 min.	1-20
Univ. joint flange U-bolts	20-22		5/16-24	25-30	3/8-24		25-30	3/8-24
Univ. joint to trans. flange bolt nut				30-35	7/16-20		30-35	7/16-20
Prop. shaft support screw	20-25			20-25	1/2-13		20-25	1/2-13
SPRINGS								
Front spring U-bolt nut +	63-68		7/16-20	90-95	9/16-18		90-95	9/16-18
Rear spring U-bolt nut +	A 63-68 B 80-90		7/16-14 9/16-18	180-190	5/8-18		180-190	5/8-18
Shackle bolt nut - front	25-30		7/16-20	35-40	9/16-18		35-40	9/16-18
Shackle bolt nut - rear	A 25-30 B 35-40		7/16-20 9/16-18					
Rear spring front hanger screw				100-120	5/8-18		100-120	5/8-18
BRAKES								
Front brake backing plate bolt nut +	36-40		3/8-24	85-95	1/2-13		36-40	3/8-24
Rear brake backing plate bolt nut E +	B 85-95		9/16-18	85-95	9/16-18		85-95	9/16-18
Rear brake backing plate bolt nut	A 36-40		3/8-24					
Front brake anchor pin nut				45-55	1/2-20		75-85	5/8-18
Rear brake anchor pin nut				145-155	5/8-18		145-155	5/8-18
Rear brake anchor pin locknut(15x4H.D.)							175-185	3/4-16
WHEELS								
Front wheel hub stud nut	A 75-83 B 150-180		1/2-20 9/16-18	290-325	3/4-16		290-325	3/4-16
Rear wheel hub stud nut	A 75-83 B 150-180		1/2-20 9/16-18	290-325	3/4-16		290-325	3/4-16
Rear wheel brg. adj. nut locknut				200-250	2 1/4-16		200-250	2 1/4-16
STEERING GEAR								
Mounting bolt nut or screw	35-40		3/8-24	40-45	7/16-14		40-45	7/16-14
Steering wheel nut	23-27		13/16-20	23-27	13/16-20		23-27	13/16-20
Pitman arm nut	110-140		3/4-16	110-140	7/8-14		110-140	7/8-14
Steering reach rod ball nut	50-55		1/2-20	50-55	1/2-20		50-55	5/8-18
FRONT AXLE								
Steering knuckle arm nut	130-140		3/4-16	200-250	7/8-16		200-250	7/8-16
Steering knuckle tie rod ball nut	90-100		9/16-18	80-90	1/2-20		100-120	5/8-18
REAR AXLE								
Bevel drive gear screw	40-50		3/8-24					
Diff. brg. cap screw	70-80		1/2-13					
Housing cover screw	25-30		3/8-16					
Axle shaft to hub nut	A 170-200		1-14					
Axle shaft to hub stud nut				30-35	7/16-14		30-35	7/16-20
Diff. case screw	B 28-35		3/8-16	70-80	7/16-14		C 70-80 D 85-100	1/2-13 1/2-20
Diff. carrier bolt or stud nut +	B 20-26		3/8-24	60-70	7/16-20		60-70	7/16-20
Pinion frt. brg. adj. nut locknut	B 300 min.		1 5/16-20	300 min.	1 1/2-20		300 min.	1 9/16-20
Pinion frt. brg. cover screw	B 23-30		3/8-24	70-80	9/16-12		70-80	9/16-12
Diff. brg. cap screw +							155-170	5/8-11
Pinion cage to carrier screw							70-90	9/16-12
Carrier to housing nuts							65-75	7/16-20
Diff. brg. adj. nut lock screw							15-20	5/8-18
Diff. brg. cap screw F							155-170	9/16-12
Cross shaft brg. lock plate screw F							45-55	3/8-16
Cross shaft brg. cover stud nuts F +							80-90	1/2-13
Cross shaft brg. cage stud nuts F							80-90	1/2-13
Spur drive low gear bolt nut F							80-90	9/16-18
Spur drive high gear & diff. case bolt nut F							70-90	9/16-18
Pinion gage to carrier screw F							80-90	9/16-12
Shift fork lock screw F							25-35	7/16-20
Shift unit to carrier stud nuts F							25-35	3/8-24

A - 2R5
 B - 2R10
 C - 2R16A
 D - 2R17A
 E - Service only - rivets used in production - 2R10-2R15-2R16A-2R17A
 F - 2 speed rear axle
 + - Must be observed.