Studebaker

SERVICE BULLETIN

JUNE NO. 224 STUDEBAKER 1949

IGNITION TIMING WITH NEON LIGHT REQUIRES FULL RETARD OF MODIFIER

Please record this article on page 60 of your 1947 Passenger Car Shop Manual and on page 73 of your 2R Series Trucks Shop Manual.

It has been found that at idle speeds the vacuum spark advance modifier sometimes assumes a slightly advanced position of from 1^0 to 4^0.

Ignition timing set with a neon (or stroboscopic) light under this condition, will be correspondingly late at full throttle since the manifold suction is then sufficiently low to insure full retard.

It is important, therefore, that the spark advance modifier be in its full retard position in order to insure accuracy of the setting. To obtain full retard in such cases, disconnect the spark advance modifier suction pipe at the carburetor and temporarily plug the fitting hole in the throttle body before reading and setting the timing with the neon light.

As a final step reconnect the modifier and check for free operation and response to the throttle.

FRONT SPRING LUBRICATION

Please record this article on pages 111 and 140 of your 1947 Shop Manual.

This article is a reprint of Passenger Car Service Letter No. 801, which may now be discarded from your files.

Adequate lubrication of the front spring on passenger cars is essential to provide free rebound of the spring and to eliminate the possibility of complaints of stiff front spring action.

Lubrication of the front spring is a part of the recommended procedure for the preparation of new passenger cars for retail delivery. It is also our recommended procedure that passenger car front springs be lubricated at the regular 1,000 mile lubrication interval. A graphite spring lubricant should be used.

To adequately lubricate the front spring through the lubrication fittings provided, it is recommended that the front end of the car be jacked up or supported in order to relieve the load on the spring. The simplest way to do this is to jack up the front end of the car under the front spring center plate until the front wheels are off the floor so the lower control arms will release the load on the spring.

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COMMANDER-TYPE STRIPPED ENGINE ASSEMBLIES

For Service Installation in Models 7A-15A, K5, K15, L5, M16, 2R16, and 2R17 Inclusive

Please record this article on page 91 of your 1947 Shop Manual and on page 107 of your 2R Series Trucks Shop Manual.

This article is a reprint of Passenger Car Service Letter No. 794, which may now be discarded from your files.

Effective with the start of production of 1949 Commander 16A model passenger cars and with 2R16A and 2R17A trucks beginning with engine No. 4R-101 (Serial Nos. R16A-13201 and R17A-7201), the engine stroke was increased from 4-3/8" to 4-3/4" resulting in an increase in piston displacement from 226.2 cubic inches to 245.6 cubic inches. This new engine has a maximum horsepower rating of 100 @ 3400 R.P.M. and a maximum torque rating of 200 lbs. ft. @ 1600 R.P.M. This compares with a maximum horsepower of 94 @ 3600 R.P.M. and maximum torque rating of 176 lbs. ft. @ 1600 R.P.M.

developed by the former Commander engine, or an increase of approximately 6% in developed horsepower and 14% in maximum torque.

From the standpoint of service, all of the component parts of both the old type and the new type Commander engine will be supplied by the Parts Department. However, only stripped engine assemblies of the new type (Part No.525802) will be furnished for service. This arrangement on stripped engine assemblies has been inaugurated so that owners may receive the benefit of the increase in power and performance when purchasing this unit. It is applicable to Commander passenger car models 7A through 15A, and truck models K5, K15, L5, M16, 2R16, and 2R17. Therefore, when the present supply of the stripped engine assemblies of the earlier type is exhausted they will no longer be available.

When the new Commander stripped engine, Part No. 525802, is installed in passenger car models 7A, 8A, 9A, and 10A and in truck models K5, K15, and L5 the original standard cylinder head will maintain the compression ratio of 6.5 to 1. If the 525802 stripped engine is installed in passenger car models 11A, 12A, 14A, and 15A, and in truck models M16, 2R16, and 2R17, use of the original standard cylinder head will result in a 7.0-1 compression ratio, which, depending on altitude and gasoline used, may result in complaint of detonation, carbon accumulation, noise, etc. To maintain the 6.5-1 compression ratio on stripped engine installations in passenger car models 11A through 15A and truck models M16 through 2R17, it will be necessary to install Cylinder Head, Part No. 523141.

In addition to the consideration just outlined regarding the cylinder head, there are certain other parts that it may be necessary or desirable to change when installing the new type stripped engine assemblies in prior model vehicles. Consequently, you should observe the following instructions when making stripped engine assembly replacement in prior model vehicles:

14A PASSENGER CARS: Install stripped engine assembly, Part No. 525802.

The oil pump and vacuum booster assembly may be transferred from the original engine or the improved type combination fuel and vacuum booster pump kit AC-1858 may be installed.

M16 TRUCKS (Before Engine No. 3M-15547): Install stripped engine assembly, Part No. 525802.

If truck carries standard cooling equipment, install fan blade assembly, Part No. 525047. If it carries heavy duty cooling equipment install fan blade assembly, Part No. 678916.

M16 TRUCKS (After Engine No. 3M-15547): Install stripped engine assembly, Part No. 525802.

The oil pump and vacuum booster assembly may be transferred from the original engine or the improved type combination fuel and vacuum booster pump kit, AC-1659, may be installed.

If truck carries standard cooling equipment, install fan blade assembly, Part No. 525047. If it carries heavy duty equipment install fan blade assembly, Part No. 678916.

2R16, 2R17 TRUCKS (Before Engine No. 3R-19566. Serial Nos. R16-12682, and R17-6842): Install stripped engine assembly, Part No. 525802.

If truck carries standard cooling equipment, install fan blade assembly, Part No. 525047. If it carries heavy duty equipment install fan blade assembly, Part No. 678916.

Servicing Internal Parts

There is a metal tag attached to the cylinder block just below the engine number pad which carries the stripped engine assembly part number 525802, and a caution concerning ordering of internal replacement parts.

It is most important to remember that when it becomes necessary to replace any of the component parts of the new stripped engine assembly, Part No. 525802, after it has been installed in a prior model car or truck, you should refer to the Model 16A Parts List in the Passenger Chassis Parts Catalog, entitled "Special Section of Service Parts for Commander Stripped Engines" dated March 1, 1949, or the 2R Series Trucks Parts Catalog for model 2R16A and 2R17A trucks, for correct part numbers.

SPARE TIRE BOLT - 8G, 16A

Please record this article on page 182 of your 1947 Shop Manual.

In some of the 8G Champion and 16A Commander models the spare tire bolts are so long that it is impossible to slip the wheel lug wrench over the bolt to engage the retaining nut for removal when it is necessary to change a tire on the road.

Dealers are urged to inspect all 8G Champions and 16A Commanders which enter their service departments for evidence of this long bolt. When one is found, correct the situation by shortening the bolt one-half inch.

BE SURE TO CLEAN UNITS BEFORE SHIPPING

Dealers and service managers are urged to be sure that all transmission and differential assemblies are drained and cleaned of lubricant before returning them to the factory or to parts depots for claims consideration.

Failure to clean such units may result in refusal of transportation companies to handle them because of the danger of grease damage to other articles being shipped.

TRUCK SERVICE ITEMS

STEERING KNUCKLE AND KING-PIN - M5

Please record this article on page 198 of your 2R Series Trucks Shop Manual.

The greater king-pin and bushing area in use on the 2R5 and 2R10 model trucks can be obtained for the M5 truck by installing the 2R Series steering knuckles and king-pins. The advantages in making such an installation are increased ease of steering and longer potential life of the parts involved.

The following parts are required to make the conversion:

Part No.	Description	Quantity
677604	Knuckle, right, steering	1
677605	Knuckle, left, steering	1
678171	King-Pin Kit	1

DIAGNOSING VALVE CONDITIONS

Please record this article on page 107 of your 2R Series Trucks Shop Manual.

Should difficulty be experienced with rapid valve burning, the following instructions will aid in locating the cause of the condition. It is essential that all the items mentioned be carefully checked and correction made where necessary.

1. **VALVES** Valve life in operation is dependent upon the use of the proper valve, valve tappet clearance, condition of valve seat and valve face, valve spring tension, and valve guide clearance. In many cases, non-standard parts have been installed as service replacements which do not equal the specifications of standard Studebaker valves and thus contribute directly to premature valve failure.

   Valve tappet clearance is, of course, a factor which should be maintained to the correct specifications.

   Some reseating and resurfacing tools used in valve reconditioning can result in out-of-round or non-concentric valve seats and valve faces. It is important that these tools be periodically checked to assure that they are in proper alignment. The most desirable valve seat contact is a surface 1/16" wide, and within .002" concentricity as measured with a dial indicator. Wider contact surfaces tend to accumulate more carbon and contribute to early valve failure.

   Proper torquing of cylinder head cap screws is very important. Improper torquing will distort valve seats and cause valve failures. Valve spring tension should be maintained to the correct specification as given in the Shop Manual. Likewise, valve guide clearances should meet specifications and the valve should move freely in the guides. Any evidence of galled surfaces or stickiness should be removed.

2. **TIMING** It is important that both the valve timing and the ignition timing in relation to piston travel be definitely proved correct. The method of proving the valve timing without disassembly of the engine is contained on page 97 of the 2R Series Trucks Shop Manual. In setting the ignition timing, we have found that it is advantageous to disconnect the vacuum spark modifier from the intake manifold and temporarily plug the fitting hole in the carburetor throttle body, to assure that it is not in action at idle speeds. With this disconnected the ignition should be set on the mark with the timing light. This will usually result in an advance of about 2^{0} over a setting secured without disconnecting the spark modifier. When this has been accomplished a more accurate setting can be made as indicated on page 70 of the 2R Series Trucks Shop Manual under the heading, "Octane Selector". After connecting, be sure the spark modifier operates freely.

3. **AIR LEAKS** The leakage of air into the intake manifold system through any of the carburetor or manifold gaskets as well as the various vacuum lines, including windshield wiper, Hydrovac, and two-speed rear axle control, will have a definite effect on valve life. Leaks in the systems may be detected by installing a vacuum gage at the intake manifold windshield wiper hose connections and noting if any difference exists in the reading on the vacuum gage with these systems connected or disconnected. Where a truck is used in towing another piece of equipment which has any vacuum controls, this equipment should be examined for the possible presence of leaks.

4. **CARBURETOR** Trucks which are operated under abnormal conditions on lean carburetor mixtures will normally experience short valve life. Examination for correct fuel-air ratio should include high speed and constant full throttle operation at low vacuum as well as idling speed. The carburetor should be checked according to instructions on page 118 through 123 in the 2R Series Trucks Shop Manual.

5. **FUELS** The use of regular grades of gasoline manufactured by reputable concerns should be encouraged. The use of heavily leaded gasolines will cause an unusual amount of lead deposit which will build up on the valve seat and flake out under heavy duty operation, allowing the burning exhaust

gases to escape through this opening, cutting the valve face like a torch.

6. **COOLING** A valve which runs at a temperature beyond that which was anticipated cannot be expected to give long service. Cooling of the valve is secured by metal-to-metal seat contact during the short period it is closed and through the stem to guide contact. Therefore, it is important that the coolant reach all valve port areas without undue interference. An improperly positioned head gasket, restricted or plugged metering hole in the block or head, or a plugged or deteriorated water distributing tube in the block will result in high temperatures for the valve in question and result in early failure. This condition is not readily apparent on the truck radimeter as these are local hot spots, which are quickly lost in the larger passages of the cooling system.

   It is important, of course, that the engine operate at normal temperatures and does not overheat. If overheating is noted a careful check should be made for the following:

   a. Leakage of exhaust gases past the cylinder head gasket. (See page 98 of the 2R Series Trucks Shop Manual.)
   b. Leakage of air into the system through hoses, connections, and water pump.
   c. Hoses which collapse at high engine speed.
   d. Adjustment of fan belt.
   e. Free flow of coolant through the radiator as well as a reasonably clean and unrestricted frontal area.
   f. The presence of a heavy duty radiator for abnormal operation. A 5-or 6-blade fan and shroud must be used with the heavy duty radiator.
   g. Loss of water in operation from surging which may be overcome by the installation of a surge tank.

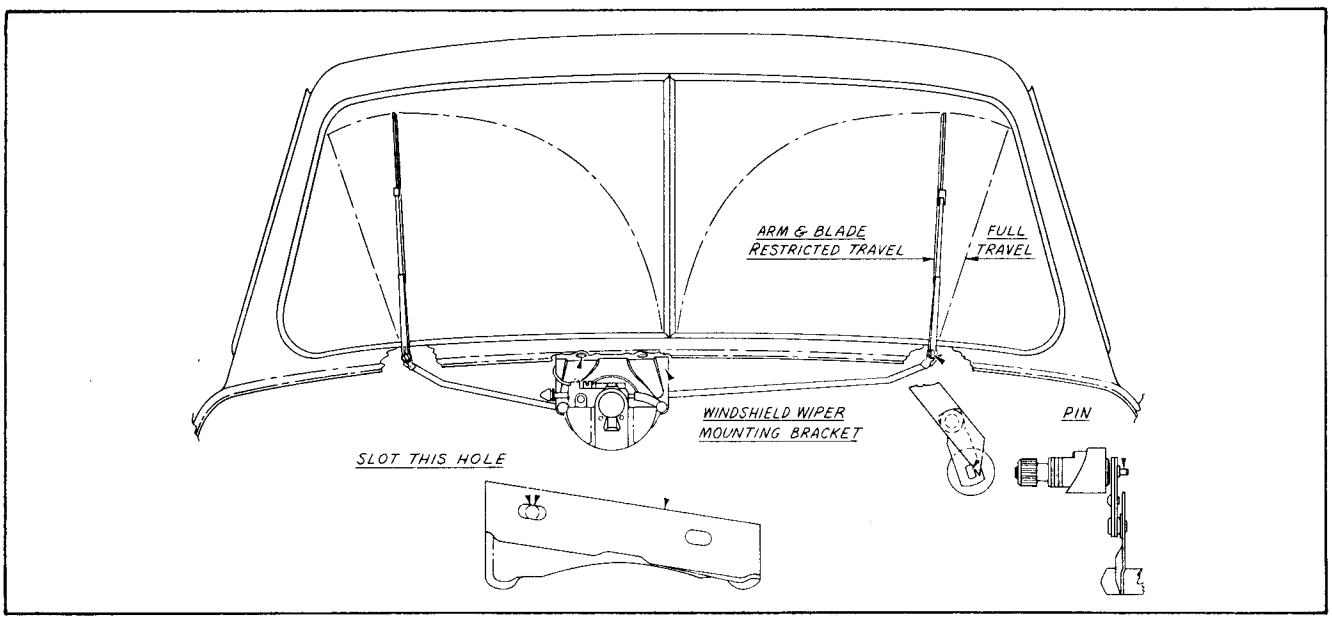
7. **EXHAUST SYSTEM BACK PRESSURES** The presence of abnormal pressure in the exhaust manifold system will usually be manifest by a lack of power at high speeds and under load but will also increase the operating temperature of the exhaust valves to a point where their service life may be shortened. This is especially true if the manifold heater valve is inoperative. If stuck or seized in the "heat on" position, excessive back pressures and temperatures will result under full throttle operation. Back pressure may also be caused by a plugged muffler, tail pipe, or restrictions by water or metal objects.

WINDSHIELD WIPER BLADE TRAVEL ADJUSTMENT - 2R SERIES

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

It is possible that the pointed outer end of the windshield wiper link on the left side of the truck may strike the pin in the blade arm shaft, thus restricting the travel of the blade and cause noisy operation.

To correct this condition, remove the windshield wiper mounting bracket and slot the round bolt hole as shown in the accompanying illustration. Reassemble and adjust the bracket to obtain 1/8" clearance between the end of each link and the pin when the wiper blades are at the extreme outer limit of their travel. *Do not file or cut off the pin or remove the pointed end of the link,* as either procedure will allow the link to move past the center position and lock itself.



SPEEDOMETER PINION CHART - 2R SERIES TRUCKS

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

The speedometer pinion charts printed below cancel and supersede the charts shown on pages 214 and 215 of your 2R Series Trucks Shop Manual and on pages 205 and 206 of the Parts Catalog for 2R Series Trucks, dated February 15, 1949. It is suggested that you mark out the charts in the Manual and the Parts Catalog and make a marginal reference to the charts printed in this Service Bulletin.

2R5 with 3-SPEED TRANSMISSION

LESS OD							WITH OD						
4.82 AXLE RATIO							4.82 AXLE RATIO						
TIRE SIZE	PLY	GEAR	TEETH	PINION	TEETH	ADAPTER	TIRE SIZE	PLY	GEAR	TEETH	PINION	TEETH	ADAPTER
6.00x16	4 or 6	677743	4	677745	14	--	6.00x16	4 or 6	678975	4	677745	14	--
6.50x16	6	677743	4	677745	14	--	6.50x16	6	678975	4	677745	14	--

2R5 with 4-SPEED TRANSMISSION

4.82 AXLE RATIO						
TIRE SIZE	PLY	GEAR	TEETH	PINION	TEETH	ADAPTER
6.00x16P	4 or 6	636131	4	664522	14	--
6.00x16T	6	636131	4	664522	14	675979
6.50x16P	6	636131	4	664522	14	675979
6.50x16T	6	636131	4	665106	13	--

2R10 with 3-SPEED TRANSMISSION

LESS OD							WITH OD						
4.857 AXLE RATIO							4.857 AXLE RATIO						
TIRE SIZE	PLY	GEAR	TEETH	PINION	TEETH	ADAPTER	TIRE SIZE	PLY	GEAR	TEETH	PINION	TEETH	ADAPTER
6.50x16	6	677743	4	677745	14	--	6.50x16	6	678975	4	677745	14	--
7.00x16	6	677743	4	677744	13	--	7.00x16	6	678975	4	677744	13	--
7.50x16	8	677743	4	677744	13	--	7.50x16	8	678975	4	677744	13	--
5.571 AXLE RATIO							5.571 AXLE RATIO						
6.50x16	6	677743	4	678239	16	--	6.50x16	6	678975	4	678239	16	--
7.00x16	6	677743	4	677746	15	--	7.00x16	6	678975	4	677746	15	--
7.50x16	8	677743	4	677745	14	--	7.50x16	8	678975	4	677745	14	--
8.25x16	10	677743	4	677744	13	--	8.25x16	10	678975	4	677744	13	--

2R10 with 4-SPEED TRANSMISSION

4.857 AXLE RATIO							5.571 AXLE RATIO						
TIRE SIZE	PLY	GEAR	TEETH	PINION	TEETH	ADAPTER	TIRE SIZE	PLY	GEAR	TEETH	PINION	TEETH	ADAPTER
6.50x16P	6	636131	4	664522	14	--	6.50x16P	6	636131	4	664521	16	--
6.50x16T	6	636131	4	665106	13	--	6.50x16T	6	636131	4	664524	15	--
7.00x16	6	636131	4	665106	13	--	7.00x16	6	636131	4	664524	15	--
7.50x16	8	636131	4	665106	13	675979	7.50x16	8	636131	4	664522	14	--
8.25x16	10	636131	4	665106	13	675980	8.25x16	10	636131	4	665106	13	--

2R15 with 4-SPEED TRANSMISSION

5.83 AXLE RATIO							6.6 AXLE RATIO						
TIRE SIZE	PLY	GEAR	TEETH	PINION	TEETH	ADAPTER	TIRE SIZE	PLY	GEAR	TEETH	PINION	TEETH	ADAPTER
6.50x20	6	636131	4	664522	14	--	6.50x20	6	636131	4	664521	16	--
7.00x17	6	636131	4	664522	14	--	7.00x17	6	636131	4	664521	16	--
7.00x20	8	636131	4	665106	13	--	7.00x20	8	636131	4	664524	15	--
7.50x17	8	636131	4	664522	14	--	7.50x17	8	636131	4	664521	16	--
7.50x20	8	636131	4	665106	13	--	7.50x20	8	636131	4	664524	15	675979
8.25x20	10	665106	4	665106	13	675979	8.25x20	10	636131	4	664522	14	--

P - Passenger Car Type Tire
T - Truck (Transport) Type Tire

2R16 and 2R16A with 4-SPEED TRANSMISSION and STANDARD REAR AXLE

5.66 AXLE RATIO							6.66 AXLE RATIO						
TIRE SIZE	PLY	GEAR	TEETH	PINION	TEETH	ADAPTER	TIRE SIZE	PLY	GEAR	TEETH	PINION	TEETH	ADAPTER
6.50x20	6	636131	4	665106	13	--	6.50x20	6	636131	4	664521	16	--
7.00x17	6	636131	4	664522	14	--	7.00x17	6	636131	4	665108	17	675979
7.00x20	8	636131	4	665106	13	--	7.00x20	8	636131	4	665524	15	--
7.50x17	8	636131	4	664522	14	675979	7.50x17	8	636131	4	664521	16	--
7.50x20	8	636131	4	665106	13	675979	7.50x20	8	636131	4	664521	16	675980
8.25x20	10	636131	4	665106	13	675980	8.25x20	10	636131	4	664522	14	--
9.00x20	10	636131	4	665106	13	675980	9.00x20	10	636131	4	664522	14	675979
10.00x20	12	636131	4	665106	13	675981	10.00x20	12	636131	4	665106	13	--
11.00x20	12	636131	4	665106	13	675981	11.00x20	12	636131	4	664522	14	675980
12.00x20	14	636131	4	665106	13	675982	12.00x20	14	636131	4	665106	13	675979

2R17 and 2R17A with 4-SPEED TRANSMISSION and STANDARD REAR AXLE

6.8 AXLE RATIO						
7.50x20	8	636131	4	664524	15	--
8.25x20	10	636131	4	664522	14	--
9.00x20	10	636131	4	664522	14	--
10.00x20	12	636131	4	664522	14	675979
11.00x20	12	636131	4	665106	13	--
12.00x20	14	636131	4	665106	13	675979

2R16-2R17 and 2R16A-2R17A with 4-SPEED TRANSMISSION and 2-SPEED REAR AXLE

6.13 AXLE RATIO						
6.50x20	6	636131	4	664522	14	--
7.00x17	6	636131	4	664524	15	--
7.00x20	8	636131	4	664522	14	--
7.50x20	8	636131	4	664522	14	675979
8.25x20	10	636131	4	665106	13	--
9.00x20	10	636131	4	665106	13	675979
10.00x20	12	636131	4	664524	15	675982
11.00x20	12	636131	4	665106	13	675980
12.00x20	14	636131	4	664522	14	675982

STUDEBAKER SERVICE TOOL GUIDE MAILED

As stated in Passenger Car Service Letter No. 795 of February 8th, the Kent-Moore Organization plan to revise the Studebaker Service Tool Guide approximately every 90 days. Mailed with this issue of the Service Bulletin is the May revision of the Guide. Included in the Guide is a new Price List of all the tools in the Guide as of May 1, 1949. Prices are subject to change without notice.

DOYLE VAC-IT VACUUM CLEANER

Mailed with this issue of the Service Bulletin are two catalog insert sheets describing the Doyle Model 200 Vac-it automotive vacuum cleaner and attachments. A price list-order form is also enclosed. Prices are subject to change without notice.

This vacuum cleaner is unusually powerful and has a large dirt collection capacity. It can also be used to recover slush, snow, and water from floors anywhere in the dealership.

Among other uses, in addition to the common one of car interior cleaning, are parts bin cleaning and general maintenance cleaning in the dealership. With the large array of attachments available, the Vac-it can be used on any cleaning job where high power suction is an aid.

Orders for the Vac-it should be placed directly with the Doyle Vacuum Cleaner Company, Grand Rapids, Michigan.

NOTE.--*Export dealers may order from The Studebaker Export Corporation in the usual manner.*