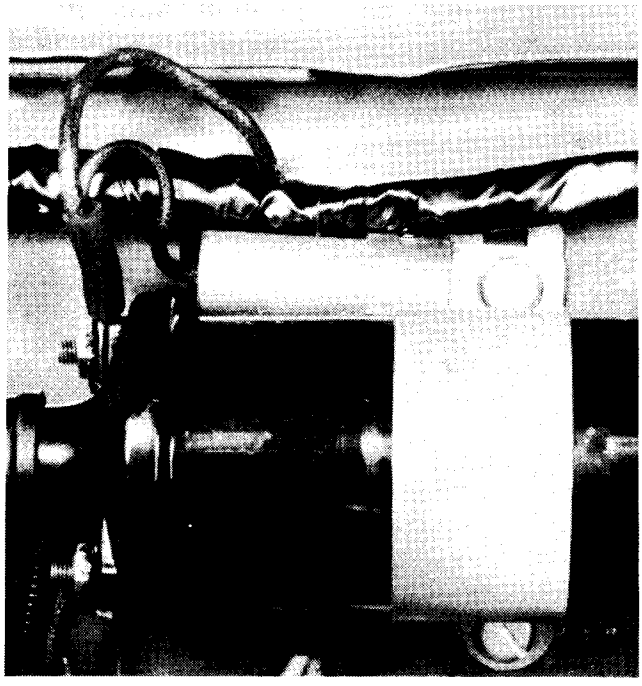
Studebaker

SERVICE BULLETIN

JULY NO. 253 STUDEBAKER 1951

RADIO IGNITION NOISE CAUSED BY INCORRECT CONDENSER MOUNTING

Please record this article on the Service Bulletin reference page at the end of the Electrical section of your 1951 Shop Manual.



It is important that the radio condenser be mounted under the top mounting screw of the coil and that the pigtail be connected to the ignition switch side of the coil on 1951 Commander (H) models.

If this condenser is connected to the distributor side of the coil it will result in ignition interference in the radio reception and will also cause greatly reduced distributor breaker point life.

The above recommendation holds true for 1950 Commander and Champion models, although the condition of improper mounting has been found only on the V8 Commander models.

TEST FUEL PUMP PRESSURE AT PUMP OUTLET

Please record this article on the Service Bulletin reference page at the end of the Gasoline System section of your 1951 Shop Manual.

In this issue

Service men are urged to review the instructions on page 5 of the Gasoline System section on the 1951 Passenger Car Shop Manual relative to making pressure test of the fuel pump.

Disconnect the fuel pump-to-carburetor pipe at the carburetor and at the fuel pump. Connect the pressure gage to the outlet opening of the fuel pump. Run the engine at a speed corresponding to approximately 30 mph road speed, using the fuel remaining in the carburetor, and check the pressure reading on the gage. The fuel pump pressure for all Studebaker engines should be from 4 to 5 lbs. (0,2812 to 0,3515 kgs.).

Pressure tests taken elsewhere would be meaningless, since these specifications are the pressure range to be expected *at the outlet of the fuel pump with the fuel line disconnected from the carburetor.*

VAPOR LOCK IN FUEL SYSTEM IN HOT WEATHER - 1951 COMMANDER (H) MODELS

The following article is a reprint of Passenger Car Service Letter No. 857 which may now be discarded. Please record this article on the Service Bulletin reference page at the end of the Gasoline System section of your 1951 Shop Manual.

During extremely hot weather, you may find a condition of stalling and subsequent hard starting which appears to be caused by a vapor lock in the fuel system.

If you should encounter such a condition, we suggest you check the car as follows:

1. **AIR LEAK IN FUEL SYSTEM** Check for air bubbles in the fuel in the fuel pump bowl. If present, check the gasoline system flexible line leading to the inlet side of the fuel pump to make sure that the connections are tight. The absence of fuel leakage at these connections is not conclusive evidence that air leakage is not occurring under suction. Retighten the fittings or replace the flexible line as necessary to eliminate air leaks.

   Another place to look for air entering the fuel system is at the fuel pump bowl. The bail nut may be loose or the gasket may not be seating properly. Adjust or replace the parts as required. Tightness of all other fuel inlet line fittings should be checked if bubbling in the fuel bowl continues after these previous checks and corrections have been completed.

2. **GASOLINE TANK-TO-FUEL PUMP PIPE** It is important that the gasoline pipe running from under the frame up along the radiator edge to the fuel pump flexible coupling be held in the clip provided on the radiator core support (see Fig. 1) and also be held away from metal-to-metal contact except within the clip. If this pipe is not held by the clip, it may move over sufficiently to pick up added heat from the radiator core air and cause fuel vaporization in the pipe at that point; similarly, if this pipe rests against the radiator, vaporization from heat transference may result. Make corrections as indicated by your inspection.

3. **FUEL PUMP STROKE** After any air leaks in the fuel system have been eliminated, and the gasoline tank-to-fuel pump pipe is properly positioned, if the stalling condition continues, it is possible that the fuel pump stroke may be inadequate due to the mounting holes on the support being too high. The bottom of these holes should be not more than 4-33/64" from the base of the fuel pump support casting (see Fig. 2). If the bottom of the mounting holes is higher than 4-33/64", replace with a new fuel pump mounting support, Part No. 529122, known to be correct as to this dimension. NOTE.--With the fuel pump support removed, be sure to check the fuel pump push rod for being bent or for evidence of scoring. If the rod is bent, replace the rod, Part No. 529123. If the rod is

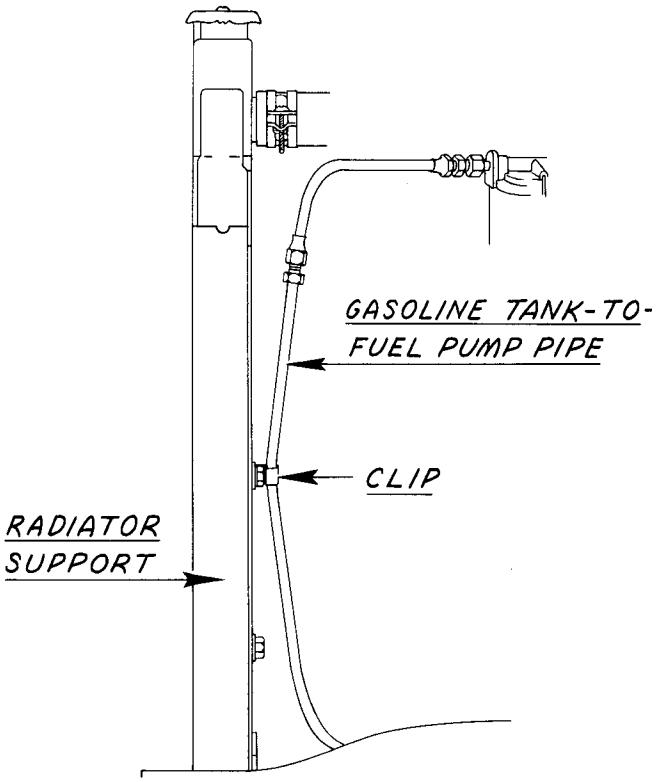


FIG. 1

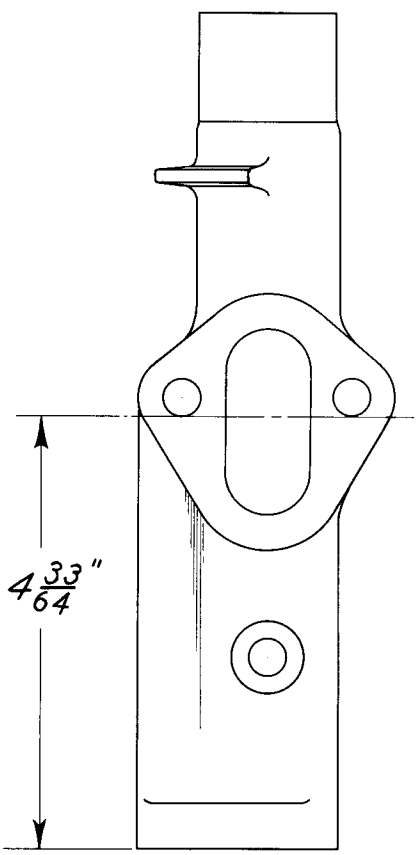


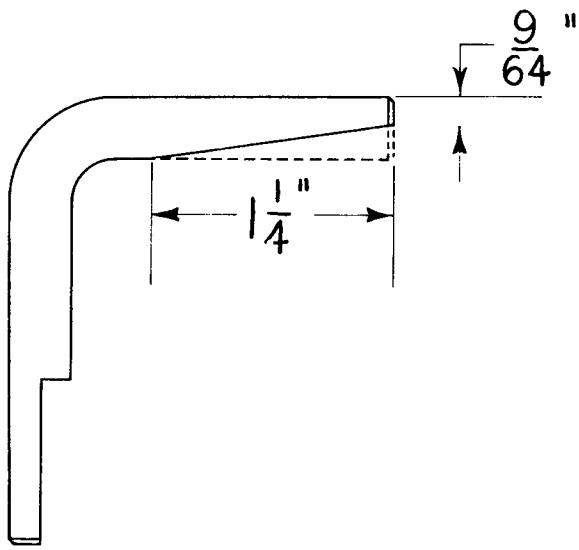
FIG. 2

scored, polish affected areas until the rod slides freely in the guide bore.

4. **FUEL PUMP** If items 1 through 3 check satisfactorily, test the pressure of the fuel pump *at the outlet on the pump and with the fuel line disconnected from the carburetor.* This should be from 4 to 5 pounds per square inch. If pressure is outside these limits, repair or replace the fuel pump.

SHIFT ROD ADJUSTING TOOL J-4690 MODIFIED

Please record this article on the Service Bulletin reference page at the end of the Transmission section of your 1951 Shop Manual.



As a result of a small change in the shift rod box of 1951 passenger car models equipped with standard or overdrive transmissions, the shift rod adjusting tool, J-4690, may not perform as expected.

To use this tool, it may be necessary to modify it by scribing a vertical line across the round end of the tool 9/64" from the outer surface, as the tool appears when lying flat (see illustration). Make another mark on the inner surface of the tool 1-1/4" from the round end of the tool.

Next grind or mill the material away from the inner surface of the tool until a flat incline is produced connecting the mark on the end with the mark 1-1/4" inward from the end. This will result in a wedge-shaped end that can be inserted into the shift box to lock the shift rod levers on those standard or overdrive equipped 1951 models for which the step-shaped end of the tool cannot be used.

OIL LOSS FROM FUEL PUMP SUPPORT (OIL FILLER TUBE) OR FROM EXTERNAL OIL LEAKS — COMMANDER V-8 ENGINE

This is a reprint of Passenger Car Service Letter No. 861, which may now be discarded. Please record this article on the Service Bulletin reference page at the end of the Engine section of your 1951 Shop Manual.

Oil loss from the V-8 engine as evidenced by accumulations of oil on the underside of the hood, or on the front or top of the engine can usually be traced to one of the several possible causes described below.

1. **OIL LOSS FROM FUEL PUMP SUPPORT (OIL FILLER TUBE)** The fitting at the fuel pump which lubricates the fuel pump rocker arm should have a restricted hole of 1/32" diameter. If a non-restricted fitting has inadvertently been installed, too much oil will go to the fuel pump rocker arm and the excess will be thrown up into the fuel pump support (oil filler tube) and out, at the oil filler cap, into the air stream of the fan, splashing the underside of the hood and top of the engine. Therefore, check this fitting by *actual disconnection and inspection.* If it does not have the 1/32" restricted hole, replace with the correct fitting, Part No. 530918.

   NOTE.--Check the fuel pump support (oil filler tube) and oil filler cap of early production cars to be sure they are of the new type. The new type support has an air baffle flange half way around the support about 2" below the top. The oil filler cap has a semi-circular apron to match the flange on the pipe. Replace any of the old type with the new type.

2. **EXTERNAL OIL LEAKS** The accumulation of oil on the underside of the hood may come from external oil leaks at the timing gear cover, rocker arm cover gaskets, or oil pipe connections. Any of these sources may leak slightly or severely and on this will depend how heavy is the accumulation of oil on the engine and hood. In most cases, the leaking oil is picked up by the fan air stream and transferred to the underside of the hood and upper engine parts.

   To check for the presence of such oil leaks, clean carefully and wipe dry the entire timing gear cover, rocker arm covers and top of engine, the oil filter (where so equipped) and the oil pipes and connections on the upper part of the engine. Run the engine at normal operating temperature and at full oil pressure (40 lbs.). Then stop the engine and inspect in the following order:

a. **Timing Gear Cover Oil Seal Retainer** In most cases of timing gear cover oil seal retainer leakage, oil will be seen draining from the point where the end of the crankshaft extends through the timing gear cover. If you are in doubt, run the engine again and inspect with the engine running. If leak is found, replace the timing gear cover assembly. If a leakage occurs at the timing gear cover gasket, replace the gasket or the cover if necessary.

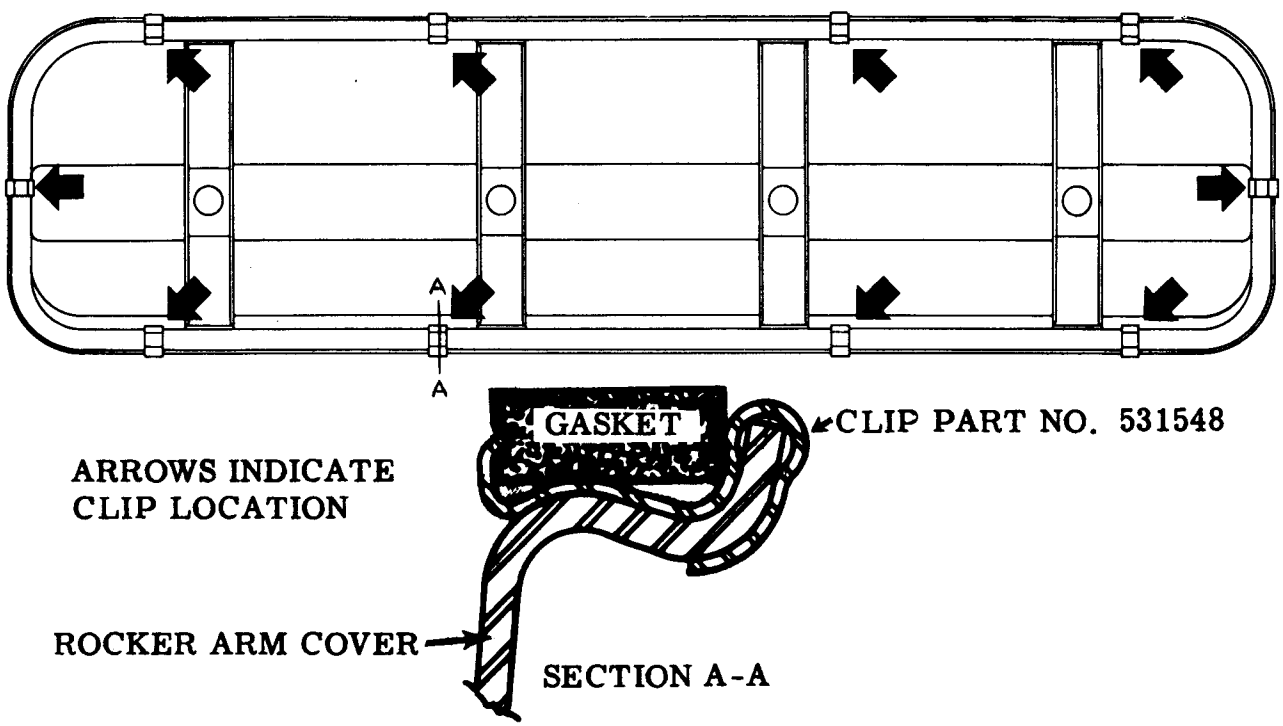
b. **Rocker Arm Cover Gaskets** Inspect all around the edges of the rocker arm covers for evidence of oil leaking. If you are in doubt, inspect with engine running. Leaks found here can be corrected by replacing the cover gaskets as outlined in the first article on page 5.

c. **Oil Pipe Connections** Cracked, distorted, or broken flanges or fittings will result in leaks that should be easily seen after running the engine. It is possible, however, that a poor seat is permitting only slight oil loss and that the oil mists, rather than flows. This will result in a filmy accumulation on the underside of the hood or on engine parts, instead of a solid or runny mass of oil. To test for the misting type of oil loss, wipe connections clean and dry, then coat them with a mixture of water and Bon Ami and allow to dry. Run the engine at normal operating temperature and full oil pressure (40 lbs.); the oil loss will be seen as a definite stain on the Bon Ami mixture. Such connections found to be leaking should be disconnected and the fittings and flares carefully and thoroughly cleaned or pipes or fittings replaced so that a firm, tight seat is obtained on reconnection.

3. **CRANKCASE OVERFILLING** It is possible that a case of oil loss is actually the result of repeated overfilling of the crankcase. This extra oil will soon foam and splash away, much of it leaving by the fuel pump support (oil filler tube), entering the air stream and accumulating on the underside of the hood and top of the engine.

   a. **Oil Level Gage** A possible cause of maintaining too high an oil level in the crankcase is an improperly marked oil level gage. Check this gage. It should measure 13-1/8" from the stop to the FULL mark. If it doesn't, replace with a correct gage.

   b. **Drain Time** Your attention is called to a second, though remote, possibility of overfilling for it may answer otherwise baffling reports of repeated oil addition to an engine where no leaks are present. The oil content of the engine takes longer to drain into the pan of the V-8 after the engine is stopped than in the former Commander engines. This is typical of overhead valve engines. If insufficient time for draining is given when the level is checked, a "low" reading may result and oil might be added which is not needed.



ROCKER ARM COVER GASKET RETAINING BANDS AND RETAINING CLIPS -- 1951 COMMANDER (H) MODELS

The six articles following are reprinted from Passenger Car Service Letter No. 858 which may now be discarded. Please record this article on the Service Bulletin reference page at the end of the Engine section of your 1951 Shop Manual.

Effective with Commander V-8 Engine No. V-60197 a new type rocker arm cover entered production. This cover contains two gasket retaining bands which fit around the inside perimeter so as to hold the gasket in place and keep it from moving out of position.

The gasket has been made slightly thicker and a tab has been added on the inside edge of one side of the gasket. This tab should be placed toward the inside or high side of the cover as it is seen when in place on the cylinder head.

The part numbers are as follows: Part No. 531475 Rocker Arm Cover Assembly and Part No. 531414 Rocker Arm Cover Gasket (this number was incorrectly printed as "531424" in Letter 858).

For Service of Cars Before Engine No. V-60197

The gasket retaining bands now used in production in the rocker arm covers, are not adaptable for use in the rocker arm covers on V-8 engines prior to V-60197. Therefore, when it is necessary to replace the rocker arm cover gasket on cars produced before Engine No. V-60197, it is recommended that the original cover be fitted with ten gasket retaining clips, Part No. 531548, as shown in the illustration at the bottom of page 4.

These clips should be installed as follows:

1. Remove the rocker arm cover and scrape out the old gasket.
2. Assemble ten of the Part No. 531548 clips in the approximate positions shown in the drawing at left.
3. Insert the gasket (Part No. 531414) in the clips making sure that the tab on the gasket is toward the inside or high side of the cover. (This will ensure that the radii of the gasket match the radii of the cover.)

   NOTE.--Stock of original-type gaskets may be used if care is taken to make sure that radii of gaskets are matched to radii of cover.
4. Reinstall the rocker arm cover.

AT LEFT -- PLAN VIEW OF ROCKER ARM COVER AS SEEN FROM THE UNDERSIDE, SHOWING CLIP LOCATIONS. THE CROSS SECTION SHOWS HOW CLIPS RETAIN THE GASKET IN PLACE.

HOTTER SPARK PLUGS FOR SERVICE ONLY -- PASSENGER CARS AND TRUCKS

Please record this article on the Service Bulletin reference page at the end of the Electrical section of your 1951 Shop Manual.

Where the major part of the driving is under city traffic conditions, the possibility of spark plugs fouling may be minimized by the use of a slightly hotter spark plug than the standard production spark plug.

The hotter spark plug recommended for such use in 1951 Champion (10G) models is Champion J8 and for Commander (H) models, Champion H10. These spark plugs are one step hotter than the standard production spark plugs, J7 and H8, respectively. The hotter spark plugs are for service use only; they are not being furnished in production.

The Champion J8 spark plug may be used in all 2R Series trucks and in all Champion and Commander six engines from 1942 through 1950 where operating conditions appear to warrant such a change.

To order the hotter spark plugs, specify your order to your parts depot as AC-88(J8) or AC-88(H10).

SPARK PLUG CABLE TERMINALS MUST BE TIGHT -- 1951 COMMANDER (H) MODELS

Please record this article on the Service Bulletin reference page at the end of the Electrical section of your 1951 Shop Manual.

In diagnosis of ignition malfunction on Commander (H) models, it is suggested that the condition of the terminals at both ends of the spark plug cables be checked first.

These terminals should be firmly anchored to the cable. Furthermore, they should be clean and should join either the distributor cap sockets or the spark plug terminal caps with a distinct and firm snap.

If poor terminal connections are found, adjust or replace the terminals or cables as necessary.

Another cause for ignition malfunction may be oil, dirt, or moisture deposits on the exterior of spark plug porcelain insulators. These deposits may be cleaned off with a cloth.

OVERHEATING DUE TO POSITION OF RADIATOR INLET WATER HOSE -- 1951 COMMANDER (H) MODELS

Please record this article on the Service Bulletin reference page at the end of the Cooling System section of your 1951 Shop Manual.

Overheating from water loss in Commander (H) models may be caused by the upper curve in the radiator inlet water hose being higher than the opening in the radiator upper tank. This situation may create an "air dome" effect that results in coolant loss from the overflow pipe.

If it is found, when checking for water loss, that the curve in the hose is higher than the inlet opening of the radiator, reverse the hose to determine whether this corrects the condition. If not, cut off the lower end of the hose as necessary to have the top of the hose level with the top of the radiator inlet and reinstall the hose. Shortening the hose in this manner will tend to cause it to remain level at the upper end when the hose clamps are tightened.

OVERHEATING DUE TO CYLINDER BLOCK WATER OUTLET OR WATER PUMP MANIFOLD RESTRICTION -- 1951 COMMANDER (H) MODELS

Please record this article on the Service Bulletin reference page at the end of the Cooling System section of your 1951 Shop Manual.

Some cases of overheating may be due to a restriction in the water outlet of the left or right cylinder bank of the V8 Commander engine caused by a metal flash or web just inside the machined face of the water outlet. Also a restriction may be found inside the water pump manifold.

To check for this condition, remove the water pump manifold assembly. Look (or feel with the fingers) for any rough metal in the openings in the cylinder block which may reduce the size of opening and impede the full flow of the coolant. Remove any such metal flashing found. First, place wadding or cloth behind the flash. Then carefully remove the flash with a chisel and hammer. Remove all particles of metal, then remove the wadding or cloth used to prevent metal particles from entering the water passages. *On the left cylinder bank, care should be taken to see that the chisel or hammer does not damage the oil passage at the inner side of this water outlet opening.*

The presence of any restriction in the water pump manifold assembly itself may be determined best by the use of a marble or steel ball of 5/8" diameter. This marble or steel ball should pass freely in both directions thru the water pump manifold assembly. Any restriction found to be present, if accessible, may be removed with a chisel and hammer; otherwise, replace the water pump manifold assembly.

CLUTCH OPERATING SHAFT -- 1951 CHAMPION (10G) AND COMMANDER (H) MODELS

Please record this article on the Service Bulletin reference page at the end of the Clutch section of your 1951 Shop Manual.

In order to eliminate the possibility of the clutch operating shaft lever breaking loose where it is copper brazed to the clutch operating shaft, the thickness of the lever is being changed from 1/4" to 5/16", thus providing greater brazing surface. In addition, the length of the chamfer on the shaft has been increased as well as a chamfer having been added to the sharp edge of the hole in the lever. This provides better assembly and fit of the lever on the shaft, thus assuring the effectiveness of the copper braze.

When it is necessary to replace the clutch operating shaft-and-lever assembly, use Part No. 531489 for Champion (10G) models and Part No. 531488 for Commander (H) models with left hand control; use Part No. 531493 for Champion (10G) models and Part No. 531492 for Commander (H) models with right hand control.

CLUTCH COVER-AND-PRESSURE PLATE ASSEMBLY - COMMANDER (H) MODELS

Please record this article on the Service Bulletin reference page at the end of the Clutch section of your 1951 Passenger Car Shop Manual.

Effective with Engine No. V-77353 (1951 Commander with overdrive) and V-82303 (1951 Commander less overdrive) a new clutch cover-and-pressure plate assembly, Part No. 531576, entered production.

This new clutch cover-and-pressure plate assembly differs from that used up to this time in that it contains nine Part No. 531577 springs with weight specification of 150 lb. plus or minus 5 lb. at 1-1/2" length. These springs are lavender in color. The former springs were painted yellow and were rated at 140 lb. plus or minus 5 lb. at 1-1/2" length.

The new Part No. 531577 springs can be installed in 1951 Commanders before the above serial numbers if all nine springs are used. The springs must not be mixed. *However, these springs should not be used in 17A or earlier Commander models.*

HIGH ALTITUDE CYLINDER HEAD - 1951 COMMANDER

Please record this article on the Service Bulletin reference page at the end of the Engine section of your 1951 Shop Manual.

A high compression, 7.5:1 cylinder head-and-valve stem guide assembly, Part No. 531375, is available as optional equipment for use on 1951 Commander V8 model cars where all or the greater part of their operation is at altitudes above 5000 feet.

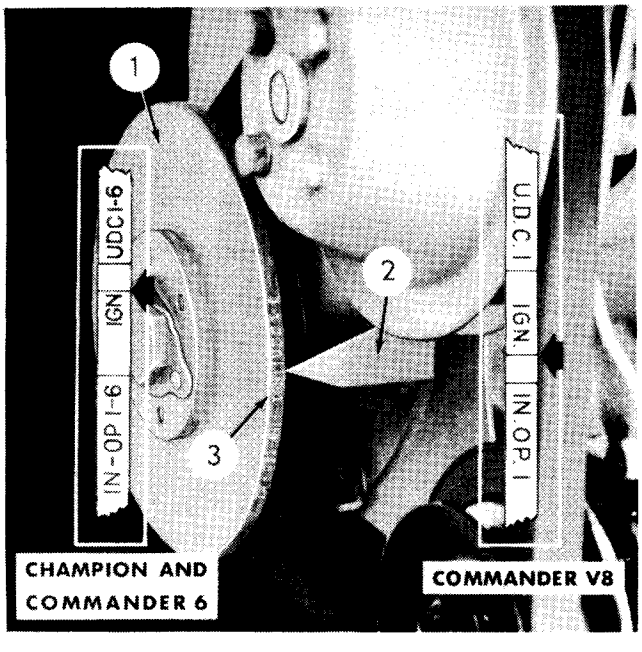
For use on Commander V8 engines before Engine No. V-48481, it will be necessary to remove the water pump body and enlarge the four top mounting holes from 3/8" to 15/32".

Commander V8 engines after Engine No. V-48481 were furnished in production with a new water pump body, Part No. 531380, which has the 15/32" mounting holes.

TIMING MARKS - 1951 CHAMPION (10G) AND COMMANDER (H)

Please record this article on the Service Bulletin reference page at the end of the Electrical section of your 1951 Passenger Car Shop Manual.

The boxed inserts in the accompanying illustration are designed to show the difference in location of the IGN marks used for timing on the Commander-6 (17A and earlier) and Champion (10G) engine, and the Commander (H) V8 engine.



1-VIBRATION DAMPER 2-POINTER 3-IGN MARK

The Champion and Commander-6 timing marks are best seen from the left and slightly to the rear of the vibration damper; the Commander V8 marks are best seen from the front of the car.

To avoid the possibility of using the wrong mark for timing, mechanics should be advised of two things: (1) the correct timing IGN mark is the straight line immediately following the letters IGN (to the right of the letters as they are read) on the edge of the vibration damper flywheel; (2) this mark should be painted yellow or white. If paint has accidentally entered any other mark, it should be removed. If the IGN mark does not stand out clearly under the neon timing light, it might be advisable to polish the area clean with sand paper and then chalk the letters IGN, as well as the mark immediately following them, to make them more prominent.

In the illustration the heavy black arrow points out the IGN mark as it is seen on each vibration damper flywheel.

ENGINE OIL RECOMMENDATIONS

Please record this article on the Service Bulletin reference page at the end of the Engine section of your 1951 Passenger Car Shop Manual.

At this time of year, with vacation trips in the offing, the question whether to use the same viscosity of engine oil all year round is raised by many owners.

Studebaker's recommendations for the use of various viscosities are given on page 33 of the Owner's Guide as follows:

Lowest Temperature Anticipated	Oil Recommendation
+ 32° F. (0° C.)	S.A.E. 30
+ 10° F. (-12.2° C.)	S.A.E. 20
- 10° F. (-23.3° C.)	S.A.E. 10W *
Below - 10° F. (-23.3° C.)	S.A.E. 5W **

* Oil in cans marked 10W or S.A.E. 10-10W is satisfactory for use where S.A.E. 10W is recommended.

** The engine should not be operated at sustained high speeds when using S.A.E. 5W engine oil.

Studebaker engines are designed with predetermined clearances between all moving parts. It is the intention that, in operation, these clearances be filled with lubricant of sufficient film strength to prevent actual metal-to-metal contact regardless of the temperatures encountered. Laboratory and operational tests

indicate that some "light" (low viscosity) oils, S.A.E. 10, for example, do not accomplish this purpose satisfactorily under operating conditions of high temperatures.

It is our firm recommendation, therefore, that the above table be followed in the selection of viscosity of engine oil to be installed. In the summer season of the year, therefore, we recommend S.A.E. 30 engine oil.

TRUCK SERVICE Information

FRAME REAR SHOCK ABSORBER MOUNTING BRACKET MODIFIED 2R5, 2R6, 2R10, AND 2R11 MODEL TRUCKS

Please record this article on page 185 of your 2R Series Trucks Shop Manual.

In order to prevent the possibility of damage to the frame at the rear shock absorber bracket on 2R5, 2R6, 2R10, and 2R11 model trucks, the bracket has been lengthened and an additional rivet added in the side rail near the frame lower flange. This bracket entered production with the following truck serial numbers: R5-76199, R6-2889, R10-30740, R11-2531, and HR5-4264 (Canada).

The new bracket contains four rivet holes, three of which are identical to those in the original type bracket. For service installation, the three holes similar to the original bracket should be aligned with the matching holes in the frame so as to locate the fourth hole, which can then be easily drilled through the frame side rail. Part numbers of the new brackets, obtainable through your nearest parts depot, are as follows:

Part No.	Part Name	No. Per Truck
680796	Frame rear shock absorber bracket - right	1
680797	Frame rear shock absorber bracket - left	1

GAS TANK ASSEMBLIES STRENGTHENED - 2R SERIES TRUCKS

Please record this article on page 126 of your 2R Series Trucks Shop Manual.

To strengthen the gasoline tank in all 2R Series Trucks, the reinforcing ribs in the upper half of the tank have been changed by locating them at an angle to the centerline of the truck. In addition, five ribs have been added. There is no change in the part number of the gasoline tank.

This change became effective in production with Truck Serial Numbers R5-76817, R6-3007, R10-30929, R11-2714, R14-438, R15-12590, R16A-32597, R17A-22212, and HR5-4158 (Canada).

FERRIC-ALLOY PISTONS

Please record this article on page 107 of your 2R Series Trucks Shop Manual and discard Truck Service Letter No. 94.

We are now using Ferric-alloy, precision machined, cam ground pistons in the Econ-o-miser engines for Models 2R5, 2R10, and 2R15 trucks. The pistons are Parko-Lubrized to assist in preventing piston scuffing and cylinder wall scoring. This type piston entered production with Engine No. 1R-104926 in the 2R5 and 2R10 models, and 2R-12490 in the 2R15 models, and Canadian 2R5 models with H1R-4033.

To fit the Ferric-alloy piston correctly to the cylinder bore, use a .0015" feeler, 1" wide, to a 15-20 lb. pull. If a .002" feeler is used, fit to 20-25 lb. pull. The piston pins should be fitted to .0004" clearance at room temperature, or until the piston pin will just drop through the piston bushings by its own weight. Do not use oil on the piston pin when making this test.

Since the pistons are cam ground, it is important that the thrust side of the piston be installed correctly in the cylinder bore. For this reason a small boss, or rib, is cast inside the skirt of the piston and in line with the piston pin bosses. Pistons having the piston size marked in white should be assembled with the boss *toward* the camshaft. Those pistons having the piston size marked in yellow should be assembled with the boss *away* from the camshaft.

WRECKER TRUCK FOR SALE

Behrend Garage, 504 West Main Street, Fredricksburg, Texas, has for sale a new W-45 Holmes wrecker mounted on a 1949 Studebaker truck.

Anyone interested in further information should contact Mr. Helmuth Behrend, owner, at the above address.

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