Studebaker

SERVICE BULLETIN

SEPTEMBER NO. 318 1956

1957 PASSENGER CARS AND TRANSTAR 3E MODEL TRUCKS

This service bulletin covers a review of 1957 model features for the service man as well as pertinent servicing and adjustment procedures.

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GENERAL MODEL IDENTIFICATION

Model Name	Body Style	Model Symbol	Engine	WB
Champion-Custom	2 Dr. Club Sedan	57G-F2	6 cyl.-185	116½
Champion-Custom	4 Dr. Sedan	57G-W2	6 cyl.-185	116½
Champion-Deluxe	2 Dr. Club Sedan	57G-F4	6 cyl.-185	116½
Champion-Deluxe	4 Dr. Sedan	57G-W4	6 cyl.-185	116½
Champion-Pelham	2 Dr. Station Wagon	57G-D4	6 cyl.-185	116½
Commander-Custom	2 Dr. Club Sedan	57B-F2	8 cyl.-259	116½
Commander-Custom	4 Dr. Sedan	57B-W2	8 cyl.-259	116½
Commander-Deluxe	2 Dr. Club Sedan	57B-F4	8 cyl.-259	116½
Commander-Deluxe	4 Dr. Sedan	57B-W4	8 cyl.-259	116½
Commander-Parkview	2 Dr. Station Wagon	57B-D4	8 cyl.-259	116½
Commander-Provincial	4 Dr. Station Wagon	57B-P4	8 cyl.-259	116½
President	2 Dr. Club Sedan	57H-F6	8 cyl.-289	116½
President	4 Dr. Sedan	57H-W6	8 cyl.-289	116½
President-Classic	4 Dr. Sedan	57H-Y6	8 cyl.-289	120½
President-Broadmoor	4 Dr. Station Wagon	57H-P6	8 cyl.-289	116½
Silver Hawk - 6	Coupe	57G-C3	6 cyl.-185	120½
Silver Hawk - V-8	Coupe	57H-C3	8 cyl.-289	120½
Golden Hawk	2 Dr. Hard Top	57H-K7	8 cyl.-289 (supercharged)	120½

Starting Engine Numbers

	57G-Champion (185 cu. in.)	57B-Commander (259 cu. in.)	57H-President (289 cu. in.)	57H-K7 Golden Hawk (289 cu. in. Supercharged)
South Bend	1202101	V-390001	P-39601	PS-1001
Canada	C-71401	VC-10701	PC-1501	

Starting Serial Numbers

	57G-Champion	57B-Commander	57H-President	57H-K7 Golden Hawk
South Bend	G-1379201	8454101	7188901	6100001
Canada	G-769101	8962601	7901501	

BODY

Front Grille

The grille on sedans and station wagon models is all new with the grille being carried around to the side of the front fenders (see Fig. 1). The Hawk grilles are basically the same as past models.

FIG. 1
PRESIDENT CLASSIC

FIG. 2
GOLDEN HAWK

Hoods

The hood on the sedan and station wagon models is similar in contour to the present hood except that it is carried several inches further down in the front. On the Hawk series, the character line on the top is changed (see Fig. 2). On the Golden Hawk, the character line is brought up high enough to give clearance for the supercharger.

Doors

Except for moulding holes, these remain the same as past models.

Rear Fenders

Rear fenders on all models are changed slightly as required to match the new tail lights (see Fig. 3). On station wagon models, a new one-piece fender construction is used which eliminates the Fiberglas fin used on the past models. On the Silver and Golden Hawk models, new metal fender fins are used instead of Fiberglas (see Fig. 4).

FIG. 3
PRESIDENT CLASSIC

Front Fenders

Except for moulding mounting holes and a small section of the front fenders required to match the new grille, these are the same as past models. On station wagon and sedan models the directional and parking lights are now located in the lower section of the fenders below the bumper.

Deck Lids

No change except for moulding mounting holes.

FIG. 4
GOLDEN HAWK

Front and Rear Bumpers

All sedans and station wagon models have new one-piece bumpers. The exhaust stacks will not come out through the rear bumper as in present models. The Hawk series bumpers are the same as past models.

Mouldings

There is an entirely new moulding treatment on all models. The method of fastening is the same as past models.

Headlining, Door Trim and Arm Rests

Cloth or vinyl trim is used for headlining on all models. The door trim foundations are of a different pattern and arm rests are separate from the panels, similar to 1954 and 1955 models.

Seat Trim

Seat trim changes involve new material and revised designs. The center arm rest has been eliminated on the Y model.

Instruments

The instrument arrangement and instrument board in general are the same as used on 1956 models except that toggle switches are used on all models for the lights, Climatizer, air, and defroster. Individual switch for headlights and instrument lights are used. The slide type switch, similar in appearance to the heat control of the 1956 C and K models, is used on all models for both the wiper control and heat control. The exterior housing of the cyclops eye speedometer of the W, F, Y, D, and P models has been broadened to give a lower appearance. (See Fig. 5.)

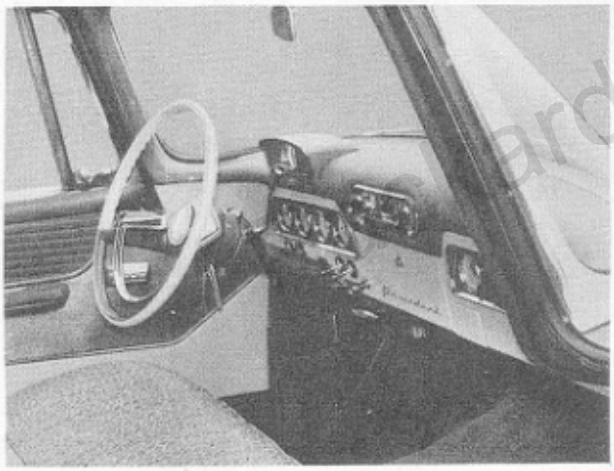

FIG. 5

Four Door Station Wagon

A four door station wagon (see Fig. 6) is available in the Commander and President series. Basically, the only difference between the new four door model and the two door model is the additional rear doors. Construction and servicing of the doors is the same as other four door models. The front seat back is of one-piece design similar to four door sedans. The rear seat operation, spare tire access, and tail gates are the same for all models. The rear quarter window is fixed and does not open.

License Plate Lamp and Bracket

On the station wagons, the license light and bracket is mounted on the lower tail gate. The bracket is hinged and operated by a remote control link, extended through the gate, attached to the body so that as the tail gate is lowered the bracket swings down and the license retains its vertical position. The bracket is so constructed that it can be used as a handle to lift the lower tail gate.

BRAKES

There are no major brake changes; however, the parking brake cable brackets are now fastened to the backing plate with metal screws instead of bolts, and the brake drum seal rib has been eliminated on the 57G and 57B models.

CLIMATIZER-DEFROSTER AND AIR CONDITIONER

On sedan and station wagon models the heater air inlet has been moved from the cowl vent to the right front of the car behind the grille. The blower motor is mounted in the same location as previous models except that it is turned so that the inlet faces the front. A flexible duct positioned under the fender connects the inlet to the blower housing (see Fig. 7). A damper valve is located in the duct between the blower and heater

FIG. 6
PRESIDENT BROADMOOR

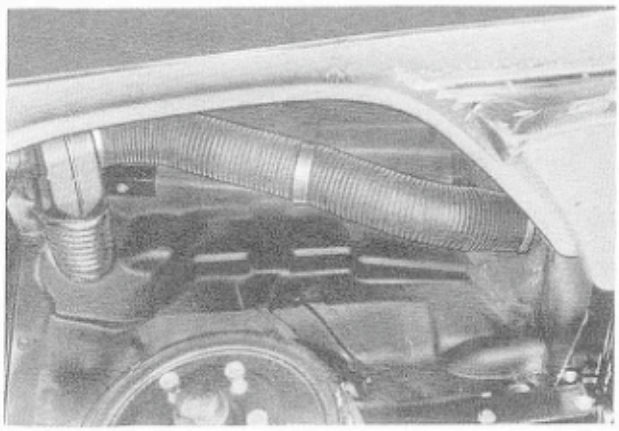

FIG. 7

core just inside the fender. The damper is operated by a Bowden wire which is located at the present cowl control position. The knob pushes in to open the damper.

There is no change in the air conditioning system.

CLUTCH

On the 57B models, the springs of the pressure plate have been changed to give a total spring pressure of 1,594 lbs. (722,9 kg.) (94 lbs. [42,6 kg.] greater than 56B).

The same number of springs (9) are used. Six springs are painted dark blue and the other three a light green.

When checking the tension, it should require 190 lbs. ± 7 lb. (86,1 kg. ± 3,1 kg.) to compress the dark blue springs to a height of 1-11/16" (42,8 mm.) and 175 lbs. ± 5 lb. (79,5 kg. ± 2,27 kg.) to compress the light green springs to a height of 1-11/16" (42,8 mm.).

The pressure plate otherwise is the same.

A Borg and Beck 10-1/2" (26,67 cm.) clutch, Model No. 1451, is used in the 57H-K7. The pressure plate assembly is the same as used on the other models except for size. The total spring pressure is 2,054 lbs. (931,0 kg. Nine springs are used, six white and three orange. The white springs should test to 245 lbs. ± 5 lbs. (111,1 kg. ± 2,27 kg.) when compressed to 1-1/2" (38,1 mm.) and the orange springs 170 lbs. ± 5 lbs. (77,1 kg. ± 2,27 kg.) when compressed to 1-1/2" (38,1 mm.).

ELECTRICAL

The auxiliary circuit which carries the body and stop lights is protected by a fuse instead of a circuit breaker. The fuse is located in the block with the directional signal light fuse.

The horn switch parts have been completely redesigned. On conventional steering equipped cars, the horn wire comes up through the steering post shaft, the same as in the past, but at the top it snaps into a terminal receptacle located on the switch assembly. This construction fastens the wire securely at the top and turns as the wheel is turned.

On the power steering equipped cars, a collector ring and brush contact is located just under the steering wheel. The horn wire comes out of the side of the steering post jacket along with the directional signal harness.

Horn buttons are held in place by an "O" ring, the same as on past models; however, the sponge rubber cushion has been eliminated.

Figs. 8 and 9 illustrate the cross section of the steering wheel hub and horn button assembly.

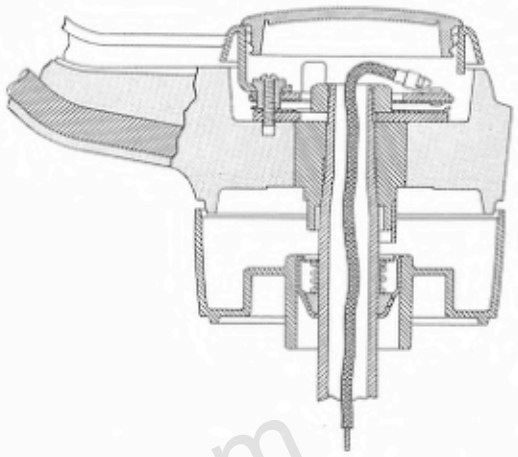

FIG. 8—WITH CONVENTIONAL STEERING GEAR

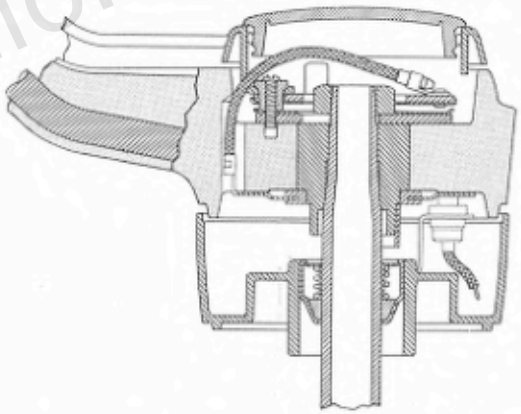

FIG. 9—WITH POWER STEERING GEAR

Delco-Remy equipment is used on the Golden Hawk. This is the same as used on the B and H models.

NOTE: Although the Golden Hawk distributor is the same as used on the 57B and other 57H models, the timing must be checked and set at 600 rpm with the spark modifier line disconnected. After the timing check is made the idle speed should be reset to the desired 550 rpm setting.

Champion H10 spark plugs are used in the 57H-K7. The gap is .033" - .038".

ENGINE

The Golden Hawk is equipped with the 289 cu. in. engine supercharged. Other than the changes listed in the supercharger section which were necessary for the

supercharger adaptation, the engine is the same as used in the President models. No changes in the other engines.

The compression ratios are:

57G

7.8-1 Standard, Domestic and Export
7.1-1 Optional, Export only

57B, 57H except K7

8.0-1 Standard, Domestic
7.5-1 Standard, Export; Optional, Domestic
7.0-1 Optional, Export only

57H-K7

7.5-1 Standard, Domestic
7.0-1 Standard, Export

Dual exhaust system standard on all 57H models.

FRAMES AND CHASSIS

Tread on all models except Champion remains the same. But on the Champion, because of the shape of the rim of the 15x4-1/2 wheel, the tread is increased to 57-3/16" (145,25 cm.) front — 56-3/16" (142,7 cm.) rear.

The frame dimension of the station wagon is the same as in the 1956 but side rails have been extended 3" (7.6 cm.) beyond the rear crossmember.

FRONT SUSPENSION AND STEERING

The lower control arm is changed only in the area around the spring to accommodate the new shock absorber mounting.

The design of the safety steering wheel puts the hub several inches (approx. 4) below the line of the rim (see Fig. 10). Therefore it is necessary to have the steering post shorter. Obviously with the shorter post the jacket is also shorter. On sedans and station wagons, the post has not been shortened by the full amount of dish in the wheel. Instead, the steering wheel is positioned so that it is no longer above the high point of the seat but rearward of this point (2" [50,8 mm.]) to give a greater wheel-to-seat clearance (6-1/4" [15,88 cm.]).

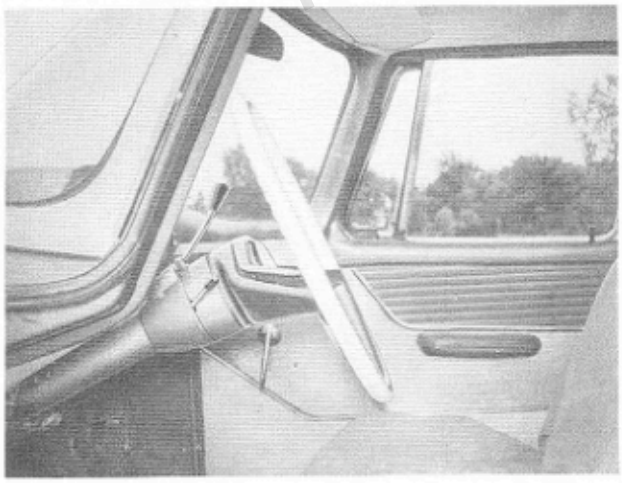

FIG. 10

The steering post angle on the sedans and station wagons has been decreased slightly by raising the steering gear so that the wheel is more toward the vertical plane.

The diameter of the steering wheel is 17-1/4" (43,82 cm.) on all models.

The Ross TL-12 gear (which was used on all models except Champion in 1956) is now used on Champion W4, F4, and D4 but will have the shorter post. The present stock TL-12 with the original post will be used on the 57G - F2, W2 and C3. The SL-54 steering gear is used on all 57B and 57H models. On all models the post upper bearing will be a nylon spring-loaded bearing.

SL-54 Ross Gear

The SL-54 Ross Gear employs a steering lever shaft with a single cam lever (see Fig. 11). For ease of operation a cam lever follower bearing is employed. Two sets of 13 tapered roller bearings are used.

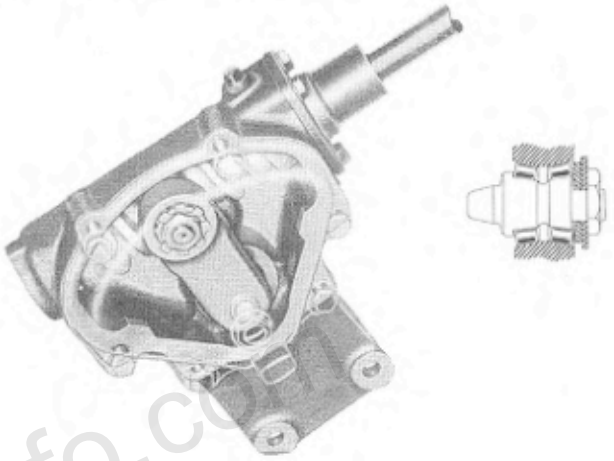

FIG. 11

The adjustment of the cam lever follower bearing is as follows: Hold the cam follower and tighten the adjusting nut sufficiently to take out all play, then back off the adjustment so that the cam follower can be turned by hand with a slight drag. This check should be done with the unit lubricated. Bend the locking tang to hold the adjusting nut securely in place.

The steering post and the cam lever end play adjustment is made in the same manner as in past models.

GASOLINE

Higher capacity fuel pump (Model M2573-S) is used on the 57H models but modified on the Golden Hawk because of the supercharger.

On the Golden Hawk, the pump is provided with a fitting in the cover to permit supercharger pressure to act on the diaphragm to increase fuel pressure as required. Obviously, because of supercharger pressure above the diaphragm, the pump does not have the vent hole. This pump also has a different diaphragm spring so that the fuel pressure is increased to 5-1/2 - 7 lbs.

The higher fuel pump pressure requirements made it necessary to use a 3/8" pipe from gasoline tank to the fuel pump. Because of the large size fittings, it is important to use care when disconnecting or connecting the line at the pump to prevent damage to the pump casting.

Stromberg WW6-121 carburetor is used on the Golden Hawk. The carburetor is essentially the same as the two barrel WW6-117 except that it has a straight air horn, slightly different throttle linkage, and different jet sizes (.057" main metering jets). The disassembly and reassembly procedures and adjustments are the same as for the WW6-117 with the exception of float level which is 7/32" instead of 3/16".

A dry type (Fram plasticized paper) air cleaner only is used on the Golden Hawk. This element is of the same general construction as the dry type used on the 1956 models, except that it is shorter but of considerably larger diameter.

To remove the air cleaner element, slip the hose off the cleaner outlet, remove the two mounting bracket screws and the wing nut from the cleaner stud under the center of the cleaner and separate the housing from the element. The element is serviced in the usual manner.

SUPERCHARGER SYSTEM — GOLDEN HAWK 57H-K7

Description — The supercharger system on the Golden Hawk consists of a variable-ratio supercharger unit, carburetor, carburetor air chamber, fuel pump, and a control system. (See Figs. 12 and 13.)

The supercharger unit is mounted on a bracket located on the top of the engine water manifold at the water outlet opening. A passage in the bracket also serves as a connection to the water manifold to direct engine coolant to the water outlet connection and thermostat located on the outer left hand side of the bracket.

The supercharger is belt driven from a pulley on the crankshaft. The belt passes over a pulley on a spring loaded belt tensioning arm. The belt tensioning arm and idler pulley, apply pressure against the drive belt to pull the belt into the supercharger pulley and separate the flanges of the variable-ratio pulley during the shifting cycle from "low" to "high" blower. The belt tensioning arm and spring is mounted on the supercharger mounting bracket.

A Stromberg double barrel carburetor is used. The carburetor is mounted in a cast aluminum air chamber. The air chamber, consisting of a base and cover, is connected to the discharge side of the supercharger, the supercharger thereby pressurizing the complete carburetor assembly. The fuel and modifier lines are connected externally to the air chamber base which is mounted

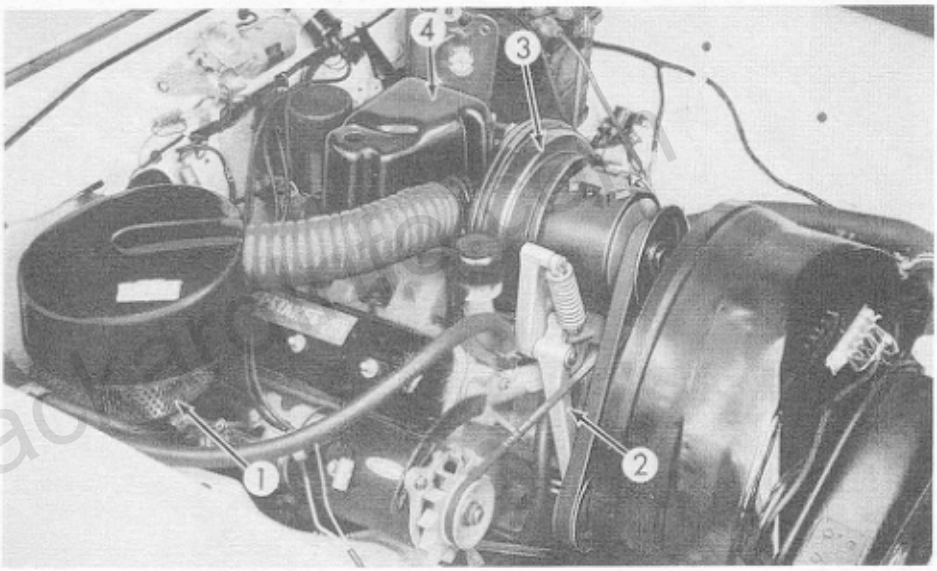

FIG. 12

1. FRAM DRY TYPE AIR CLEANER
2. BELT TENSIONING ARM AND IDLER PULLEY
3. SUPERCHARGER
4. AIR CHAMBER COVER

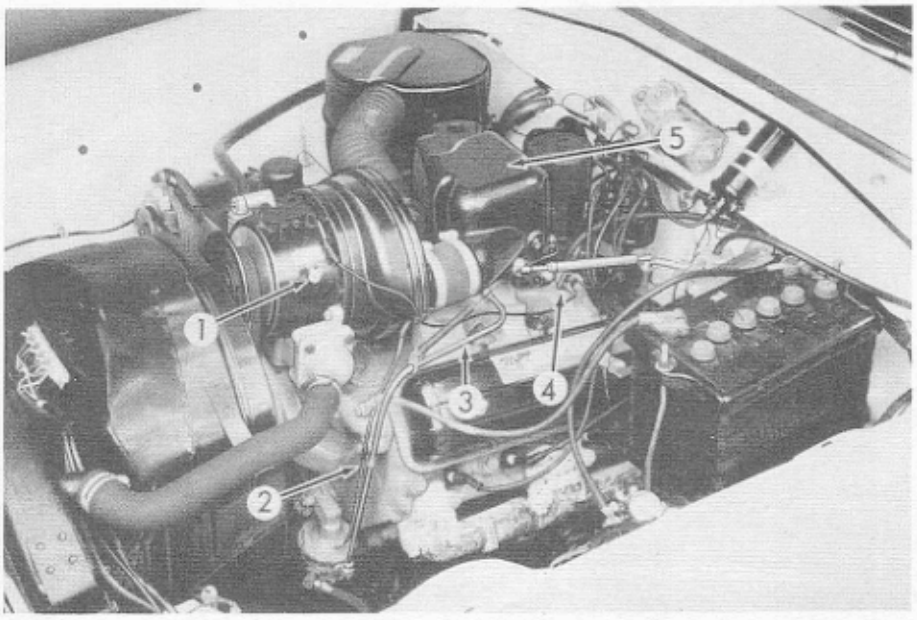

FIG. 13

1. OIL LEVEL DIPSTICK
2. PRESSURE LINE TO FUEL PUMP
3. FUEL LINE
4. SOLENOID KICK-DOWN SWITCH
5. AIR CHAMBER COVER

between the intake manifold and the carburetor. The fuel and modifier lines also have internal connections from the air chamber base to the carburetor. The choke heat tube is connected directly to the carburetor from the choke stove which extends upwards from the manifold through the base of the air chamber. Two flapper type vent valves are located in the air chamber, one in the base and one in the cover. The valves are open when the engine is not running to prevent the accumulation of gas vapor within the air chamber.

The carburetor throttle lever is actuated by an auxiliary throttle shaft and an inner and outer lever arrangement located in the air chamber base. Throttle linkage is connected to the outer lever which also actuates the supercharger kick-down switch.

Screw type plugs in the air chamber base and cover provide access to the idle mixture and idle speed adjustments.

A pressure line from the discharge throat of the supercharger to the fuel pump directs supercharger pressure to the topside of the fuel pump diaphragm, increasing the fuel pump pressure to balance the pressure against the topside of the fuel in the carburetor when the induction system becomes pressurized.

Air enters the supercharger through a dry type air cleaner. Depending upon the demands of the engine, the induction system pressure is regulated to a maximum of approximately 5 lbs. (0,35 kg/sq. cm.) pressure when measured at the supercharger discharge throat. A drop of approximately 1 to 1-1/2 lbs. (0,07 to 0,11 kg/sq. cm.) will occur at the carburetor. Therefore, the manifold pressure when taken at the manifold connection will indicate within the range of 3 to 4 lbs. (0,21 to 0,28 kg/sq. cm.) manifold pressure.

The system pressure is controlled by a solenoid-type regulator. The supercharger is calibrated at the factory and the solenoid adjustment is then sealed. A change in the setting may result in severe damage to the supercharger, engine, or related parts. Therefore, this adjustment must not be disturbed. Tampering with the adjustment will void the warranty.

Cylinder heads with a ratio of 7.5-1 will be used on supercharged engines to accommodate the denser fuel-air mixture delivered under pressure to the cylinders. Cylinder heads with higher ratios would be subject to severe detonation.

The engine is equipped with tri-metal connecting rod bearings.

A premium-grade (high-octane) gasoline, marketed by a reputable company, must be used in the supercharged Golden Hawk Sweepstakes engine. Consistent use of regular gasoline may cause severe damage to the engine and, under the circumstances, will void the warranty.

SUPERCHARGER

Description—The Supercharger, Model VS-57S, is of the single-stage, centrifugal type.

Drive power is taken from the engine crankshaft through a single, cog-type "V" belt, and a variable-ratio pulley fitted to the input shaft of the supercharger.

A planetary drive system (see Fig. 14) is incorporated between the input and the output shafts to increase the speed of the impeller. It is a ball bearing, friction-type system which eliminates the use of gears. Spring-loaded ball races automatically take up any wear that might develop in the drive.

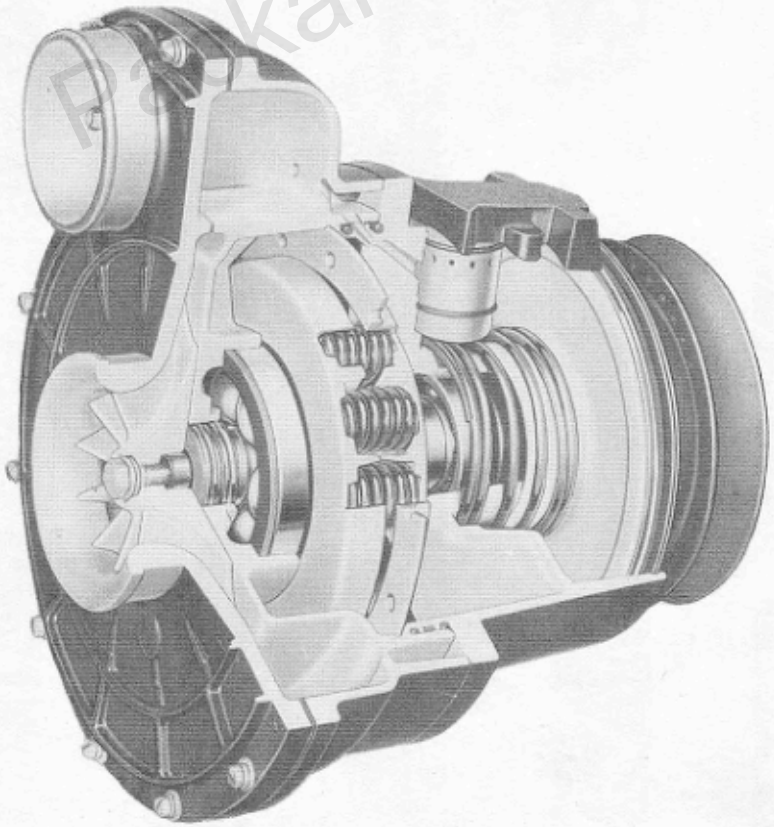

FIG. 14
CUTAWAY OF SUPERCHARGER ASSEMBLY

The lubrication system is completely self-contained and does not require any connections to the engine lubricating system. An internal oil sump holds eight (8) ounces of Type "A" automatic transmission lubricant. The piston-type oil pump works off a cam ground into the input shaft. A dip-stick oil gauge, located in the bearing housing assembly, is marked to indicate the "safe" operating level and the "add oil" level of the lubricant in the sump.

Supercharger Testing

1. With the engine at rest or idling, the belt should be in the bottom of the groove (high blower position).
2. With the engine running at approximately 1500 rpm, the belt should start to leave the bottom of the groove and begin to climb up.
3. With the engine running at 3500 rpm (no load), the belt should be running near the top of the pulley (low blower position).
4. With the engine at 3500 rpm (no load), manually operate the regulator kick-down switch. The belt should go immediately to the bottom of the pulley groove (high blower position). Releasing the kick-down switch should allow the belt to return immediately to the top (low blower position).
5. Remove the 3/8" pipe plug located at the rear of the cover, normally used for setting the idle speed, and using a low reading pressure gauge, connect it to the air chamber cover. Pressure at this point should indicate approximately 5 lbs. at 3500 rpm with the kick-down switch closed (in high blower position).
6. Fuel pump pressure should be checked at idle by disconnecting the line at the air chamber base and hooking the gauge on the open line. A reading of 5-1/2 to 7 lbs. should be recorded.

Supercharger Diagnosis

I. If variable-ratio pulley does not operate or operates sluggishly — Supercharger does not shift.

1. Spline may be burred.
2. Spline dirty and sticky — This could be caused from belt material.
3. Rough or gummy pulley — Pulley should have polished faces.
4. Tensioning arm binding — Should be free on pivot pin and have a slight end play so washers will turn free.
5. Solenoid regulator not operating — An audible click should be heard with the ignition on each time the switch is depressed. The circuit should be connected to the 12 volt side of the ignition coil resistor.

II. Supercharger Boost Pressure Too Low. Pulley — Shifts Okay —

1. Improperly operating solenoid regulator.
2. Hose leakage between supercharger inlet and carburetor air chamber.
3. Carburetor air chamber, leaking air, could be gaskets or leaking flapper valves.
4. Dirty air cleaner.
5. Malfunction of supercharger such as air leakage by seals, etc. Necessary to overhaul supercharger.

Special Tools

The following special tools are required for servicing the supercharger:

1	J-6684	Impeller Holding Clamp
1	J-6690	Impeller Puller Screw
1	J-6693	Spline Hub Puller
1	J-6729	Bearing Remover Adapter (set of 2) (Part of HM925 and J-1298 Tool Sets)
1	J-6686	Input Shaft Bearing Centering Button (small) (Part of HM925 Tool Set)
1	J-6685	Pulley Bearing Centering Button (large) (Part of HM925 Tool Set)
1	J-6687	Scroll Housing Bearing Race Anvil Plug
1	J-6688	Front and Rear Bearing Installer
1	J-6689	Supercharger Holding Fixture

THROTTLE RETURN CHECK — ADJUSTMENT

Remove the carburetor air chamber cover.

Loosen the throttle return check assembly screw lock nut. Adjust the return check assembly in the bracket until the plunger just breaks contact with the tab on the throttle lever.

Mark the position of the check assembly relative to the bracket, then turn the check assembly 1-3/4 to 2 complete turns toward the lever. Tighten the lock nut.

Install the carburetor air chamber cover.

CARBURETOR IDLE ADJUSTMENTS (STROMBERG MODEL WW6-121)

Idle Speed

1. Remove the two pipe plugs located in the left rear of the air chamber cover.
2. Sight through the outer plug hole and insert a small shank screwdriver through the rear hole in the air chamber cover and adjust the *outer* idle adjusting screw (see Fig. 15). Adjust to obtain an idle speed

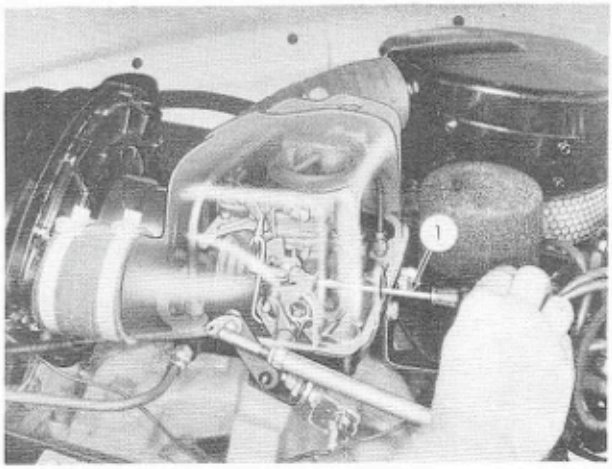

FIG. 15
1. SCREWDRIVER

of 550 rpm. NOTE: If the ignition timing is to be adjusted, the idle speed must be set at 600 rpm. Set ignition timing on the IGN mark and readjust idle speed to the desired 550 rpm.

3. Replace the two pipe plugs removed.

Idle Mixture

1. Remove the two pipe plugs located in the forward side of the air chamber base.
2. Use a flexible shank screwdriver and turn idle mixture adjustment screws as required to obtain a smooth idle. (See Fig. 16.)
3. Replace the two pipe plugs removed.

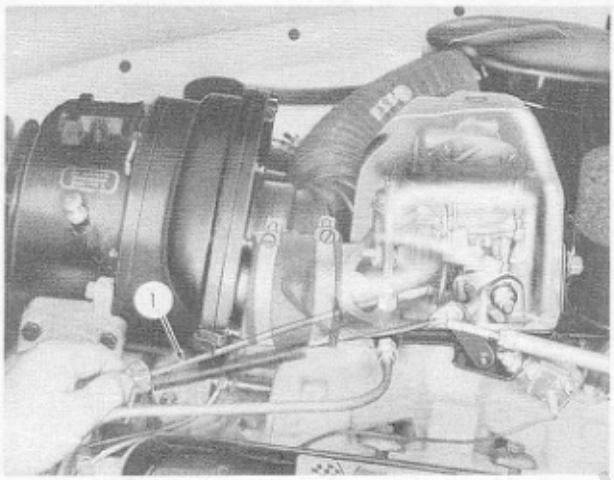

FIG. 16
1. FLEXIBLE SHANK SCREWDRIVER

SUPERCHARGER KICK-DOWN SWITCH ADJUSTMENT

Adjust supercharger kick-down switch by loosening the lock nuts on each side of the switch bracket. Adjust the switch so that with wide open throttle the switch plunger will be depressed and the auxiliary throttle outer lever will rest against the threaded sleeve of the kick-down switch (see Fig. 17). In effect, this adjustment will also provide a wide open throttle stop.

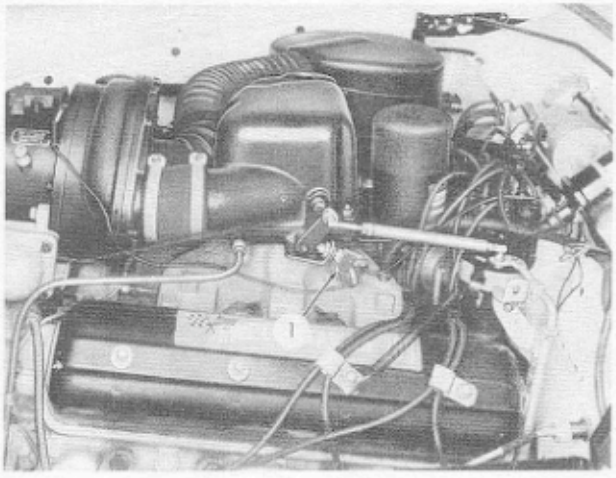

FIG. 17
1. KICK-DOWN SWITCH

IGNITION TIMING ADJUSTMENT — GOLDEN HAWK

The ignition timing must be adjusted at 600 engine rpm and with the distributor modifier pipe removed. The ignition timing should be adjusted so that the IGN mark on the vibration damper is directly under the pointer on the timing gear cover. After checking the timing, reset idle speed to 550 R.P.M.

LUBRICATION

Ross (SL54) Steering Gear — SAE 90 Steering Gear lubricant is recommended. Check level at 1,000 mile intervals. Remove filler hole plug to check level. To drain the housing it will be necessary to loosen the cover screws and separate the cover from the housing.

Oil Filter (Golden Hawk only) — A new type Fram, paper element, partial flow oil filter is used on all models. This is the throwaway type whereby the entire unit (element and housing) are replaced (see Fig. 18). Simply

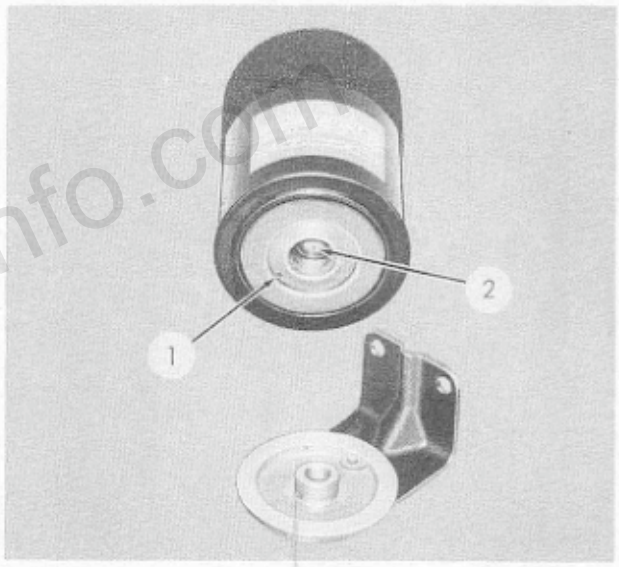

FIG. 18
1. INLET 2. OUTLET

unscrew the unit from the base mounted on the bracket and install a new unit in its place. Its construction is so that as the unit is removed, the oil in the filter is trapped automatically and the oil does not run out of the filter outlet as it is taken from the mounting base. However, some oil may come out of the hole if the filter is removed immediately after stopping the engine.

It is mounted on the rear of the carburetor air chamber base by means of an L-shaped bracket.

Twin-Traction—The lubricant capacity and type is the same as for the conventional axle.

Supercharger — The Supercharger has its own oil supply and oiling system. Use Studebaker Type A Automatic Transmission Fluid. Check the oil level every 1,000 miles (1.609 km.). The oil level should be maintained between the two punch marks on the dipstick. If

fluid is needed, add through the dipstick tube. Do Not Overfill. Drain and refill every 15,000 miles (24,000 km.).

PROPELLER SHAFTS AND UNIVERSAL JOINTS

The front shaft length has been changed on the 57H-Y6 for the T86E transmission.

On the 57H-K7 equipped with overdrive, the front shaft is shorter than that used on 56J but has the same wall thickness (.095").

On the 57H-K7 equipped with the Flightomatic, the front shaft length is the same as used on the 57H-C3 but with a heavier wall thickness (.095").

Midship Bearing Bracket

All L.H.C. sedans and station wagons, and Golden Hawks (with O.D.) — When looking from rear, bracket is mounted in upper left inner hole and lower right outer hole. All R.H.C. sedans and station wagons use upper left outer hole and lower right inner hole. On all Silver Hawks and Golden Hawks (with Flightomatic) bracket is mounted in upper left inner hole and upper right outer hole.

REAR AXLE

The Twin-Traction differential is available as optional equipment at extra cost on the 57B, 57H, and 57H-K7 models. It is the same unit that is available as optional equipment in the 2E Series truck models.

Axle Ratios — Conventional Axle

	Std. Trans.		O.D.		Auto.	
	Std.	Opt.	Std.	Opt.	Std.	Opt.
57G	4.10	4.56	4.56	4.1 & 4.88	3.54	
57B	3.54	3.92	3.92	3.54 & 4.27	3.31	3.07
57H	3.54	3.92	3.92	3.54, 4.27, 3.73 & 4.09	3.31	3.07
57H-Y6	3.54	3.92	4.09	3.54, 4.27 & 3.73	3.31	3.07
57H-K7			4.27	3.54, 3.92, 3.73, 4.55 & 4.09	3.31	

The Twin-Traction differential is available in the same ratios as the conventional axle.

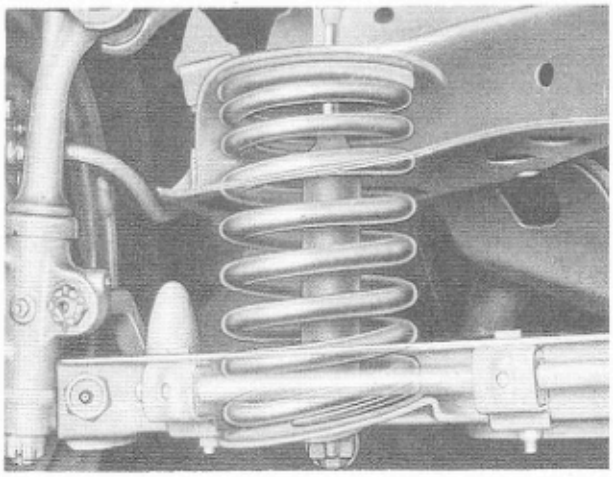

FIG. 19

SPRINGS AND SHOCK ABSORBERS

Variable rate front springs are used in all sedan models. This spring has the coils closer together at one end and when installed these coils should be at the top (see Fig. 19). Coil ends should be placed toward the inside (centerline of the car). Three-leaf rear springs are used on the Champion W and F models to provide a softer ride.

The shock absorber valving has been changed because of the use of variable rate springs.

The front shock absorber upper mounting is the same but at the lower mounting a horizontal bar is set in a bushing in the mounting eye (see Fig. 20). It has slotted ends through which the mounting bolts are inserted, then bolted to the control arm in a manner similar to the bracket mounting on the 1956 models. The bar and bushing are integral with mounting eye.

The rear shock absorber mounting is the same, but the bushings and spacers are integral with the shock mounting eye.

On all models rear spring right shackle is 3" and the left shackle is 3-1/2".

FIG. 20

TRANSMISSION

Standard and Overdrive

The T85 overdrive transmission is used on the 57H-K7; T86E modified transmission on all President except Golden Hawk; T86 transmission on all Commanders.

Overdrive Relay

The construction of the overdrive relay has been changed so that the relay has only three terminals, which eliminates the ignition switch-to-relay wire. The solenoid and kick-down switch terminals are located at the ends (one at each end) and the battery terminal which carries the fuse is located on the side.

Flightomatic — Golden Hawk

The Flightomatic transmission used on the 1957 Golden Hawk has been modified. It is Model AS2-7A and identified by the copper name plate.

A new transmission case is used similar to the case used on the truck transmission. This case has provision for the oil cooler adaptation. The regulator body cover is also changed (like the truck) to incorporate the oil cooler circuit. The oil cooler is the same as used on the 56J model, being incorporated in the bottom tank of the radiator.

The oil return from the cooler is directed to the front band and drum at the point of band gap. A wider front band is used together with a wider shot peened front drum. The front band lining is molded (Raybestos).

The primary sun gear to planetary *Thrust Washer* has been changed to a new lead coated type. The primary sun gear now has a lubrication hole added to direct oil onto the above mentioned thrust washer to assist in lubricating the thrust surfaces.

A different compensator valve plug and sleeve are used. This valve is smaller in diameter. A new separator plate is used with a different hole location. The re-location of this hole results in a more positive reverse application under all temperature conditions and also raises the inhibited 2-1 downshift from 5 miles per hour or less up to 10-12 miles per hour. A heavier control pressure regulator spring (painted white) is used. Since control pressure is increased in the unit, a new governor is used to control shift speeds.

The control pressure at idle is 52-95.

The control pressure at 1000 R.P.M. is 95-100.

The control pressure at stall is 132-184 — D and L.
184-203 — R.

The stall speed is 1850 R.P.M.

WHEELS AND TIRES

Tubeless tires are used throughout but the tires for 1957 production will have a wider rib on the sidewall to prevent scuffing the sidewall. Because of the wider rib on white sidewall tires, the white portion will be narrower.

Tire sizes and pressures are:

57G	6.40x15	24 F	20 R
57G Station Wagon	6.70x15	24 F	24 R
57B and 57H except Y & K7	6.70x15	24 F	20 R
57H-Y and 57H-K7	7.10x15	24 F	20 R

Under conditions where car loading of four or more passengers is considered normal with 4-ply tires, 26 lbs. pressure front and rear is recommended.

When special 6-ply tires are used and under conditions where loading in excess of four passenger weight is considered normal, 26 lbs. front and 30 lbs. rear pressure is recommended.

For sustained high speed operation tire pressures should be increased to 30 lbs. For safety reasons, it is recommended that standard tires not be subjected to extreme driving conditions such as racing.

A 15x4-1/2K wheel is used on all Champions except the station wagon.

1957 TRANSTAR TRUCKS

Starting Serial Numbers

3E5	E5-123001	3E13	E13-1501
3E6	E6-15501	3E14	E14-2401
3E7	E7-7601	3E28	E28-5701
3E11	E11-12401	3E38	E38-9801
3E12	E12-3001	3E40	E40-101

Starting Engine Numbers

3E5 — 185 cu. in. — 6 cylinder	1E—10101
3E6, 3E11, 3E14 — 245 cu. in. — 6 cylinder	4E—3401
3E7, 3E12, 3E13, 3E28 — 259 cu. in. — 8 cylinder	3E—2701
3E38 — 259 cu. in. heavy duty — 8 cylinder	5E—6501
3E40 — 289 cu. in. — 8 cylinder	6E—101

The 1957 production will continue to use the same numerical designation for the 1/2, 3/4, 1, 1-1/2, and 2 ton models. The model designation is now the 3E Series.

In addition to the models produced last year, an entirely new model, the 3E40 2 ton heavy duty, has been added to the line. This new model permits us to compete in the 19,000 lb. G.V.W. class when used as a truck, and a 35,000 lb. G.V.W. when used as a tractor in a tractor-trailer combination.

The front axle of the 3E40 model has a ground rating of 5,000 lbs., while the rear axle has a ground rating of 15,000 lbs., a substantial increase in carrying capacity over the 3E38 model.

It is significant to note that with the new, flat front bumper and the bumper frame extension shortened approximately 4-5/16″ (10,95 cm.) the 3E38 and 3E40

FIG. 21

3E7 - 122" W. B. WITH 8 FT. PICKUP BOX

models with 131" wheel bases, when used with a 35 ft. trailer, are well within the 45 ft. over-all length specified in some states.

The new models are as follows:

½ Ton	¾ Ton	1 Ton
3E5	3E11	3E13
3E6	3E12	3E14
3E7		
1½ Ton	**2 Ton**	**2 Ton H.D.**
3E28	3E38	3E40

Wheel Base

In response to dealers' requests, the 195" wheel base in the 3E38 and 3E40 models has again been added. The wheel base, by models, is as follows:

3E5-3E6-3E7	3E11-3E12	3E13-3E14
112"	122"	131"
122"		
3E28	**3E38**	**3E40**
131"	131"	131"
155"	155"	155"
	171"	171"
	195"	195"

BRAKES

There are two changes in brakes for the 3E production that are different from 2E production.

1. The 3E40 model truck is equipped with Wagner hydraulic type brakes, front and rear. The rear brakes are similar to the 3E38 brake except that it is designated as the FR3 type and is 1/2" (12,8 mm.) wider. Thus, the rear brakes are 15x4-1/2" (38,1 x 11,4 cm.). Servicing procedures are exactly the same as for the FR2 brake.

   The front brake is of a different design than formerly used. It is a type F, 15x2-1/4" in diameter. The unusual feature is that the shoes are at the top and bottom instead of front and back as is the case in the usual design (see Fig. 22).

   Each shoe is activated by an individual wheel cylinder with one piston. The rear portion of the wheel cylinder acts as the anchor end for the brake shoe.

   Hydraulic fluid is brought into the wheel cylinders by a fitting to which is attached the flexible hose and an individual pipe for each wheel cylinder (see Fig. 23).

   The brake is adjusted by means of an eccentric and the bleed valve for the wheel cylinder is adjacent to the pipe connection.

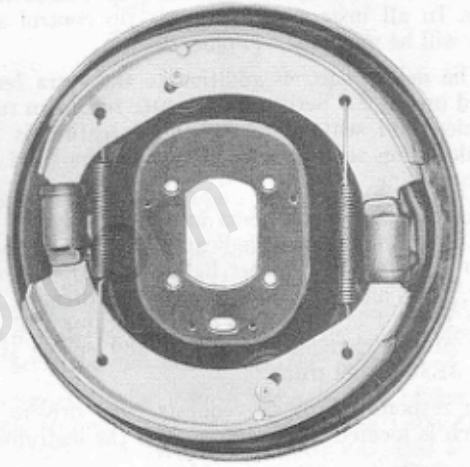

FIG. 22

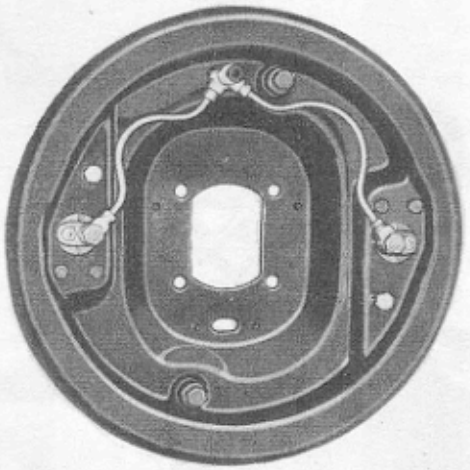

FIG. 23

2. Power brakes are now available on all models at the time of production. The 6-3/4" hydrovac is available on models from the 1/2 ton to 1-1/2 ton inclusive as optional equipment at extra cost. The 9-1/2" hydrovac will continue to be standard equipment on the 3E38 and on the 3E40 models. A vacuum reserve tank is also offered as optional equipment on these two models.

CAB

The new massive looking grille on the 3E Series is a plastic, Fiberglas composition. It is attached in the same manner as the grille on the 2E Series. However, the headlight is fastened to the grille on the 3E Series. The space between the headlight and fender is filled with a rubber grommet to keep out dirt and water.

The cab will again be offered as standard and deluxe. In all instances, the finger tip control adjustable seat will be standard equipment.

The deluxe cab, in addition to the extra features offered on the 2E Series, will feature full foam rubber seat cushion and seat back. An added feature is a chrome moulding on each door to emphasize the hood and pick-up body line.

Some of the instruments have been changed (see Fig. 24). The oil pressure indicator and the ammeter have been replaced with flasher lights. The 3E40 model, however, will have the gauge type oil pressure indicator (see inset, Fig. 24). This type indicator will also be a part of the changeover when a 289 engine is installed in a 3E38 model truck.

In response to many requests from drivers, the light switch is located at the left side of the instrument panel.

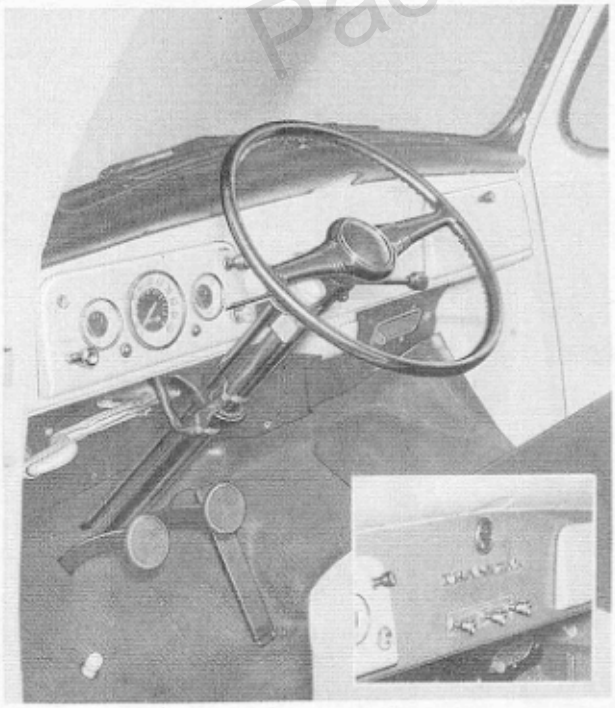

FIG. 24—3E5 CAB INTERIOR
INSET Shows Heater and Defroster Controls.

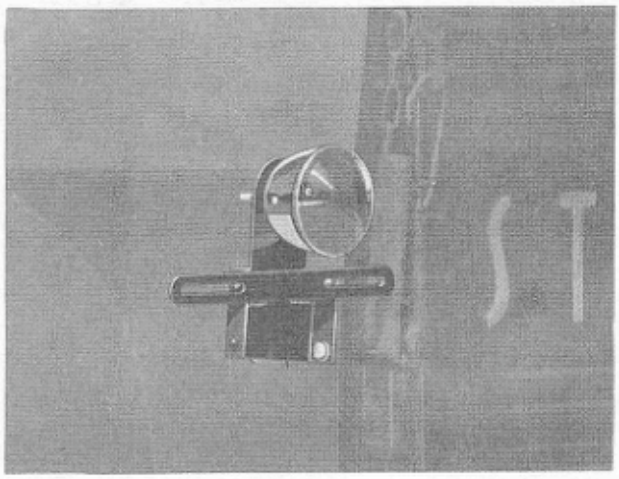

FIG. 25

It is a new pull, rotary type switch. Pulling out on the switch turns on the parking lights and then the headlights. Turning the knob to the right turns on the instrument lights. Continuing to turn the knob to the right progressively dims the instrument lights.

Seat covering on the standard cab is an improved Saran material with vinyl facing. On the deluxe cab, the seat covering is Naugahyde with vinyl facing.

Another "first" in the trucking industry has been initiated by Studebaker. All trucks equipped with a pick-up body will have a spring loaded tail and stop light mounting bracket. (See Fig. 25.) Should the driver, in backing up, hit an object in line with the tail and stop light, the spring mounting bracket permits the light to "fold" out of the way.

CARBURETOR

Carburetors on all 3E Series models will have a manually operated choke (see Fig. 26). The four barrel optional carburetor for all V8 engines will have an automatic choke.

All carburetors will have the high idle feature.

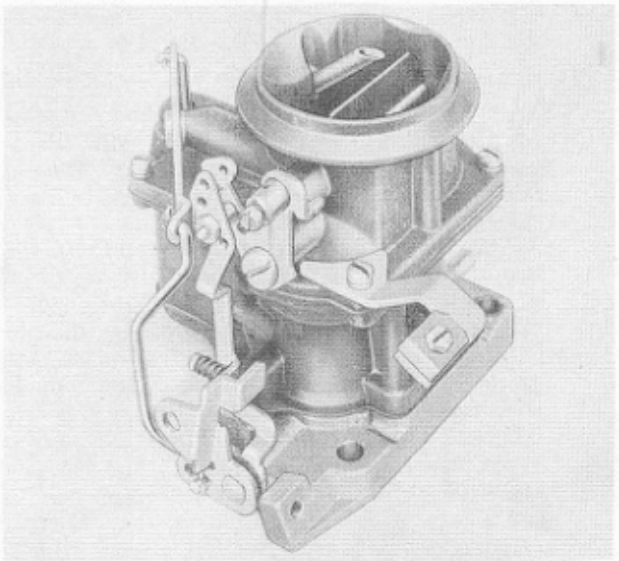

FIG. 26

CLUTCH

The only change on clutches for the 1957 models is the larger clutch used in the 3E40 model. All other models use the same clutch as in 2E production.

The 3E40 clutch is a Borg and Beck Model 1448 having an 11" driven plate. It uses 2 facings .133" thick with an 11" outside diameter and a 6-1/2" inner diameter. Total effective area in square inches is 123.7. The material for the facings is Rusco 1838 - 19G.

Servicing procedures are the same as for the E and 2E models.

ENGINES

Two important changes on engines for the various models has been made in the 3E production.

1. The 224 cu. in. V8 engine has been discontinued.
2. The 289 cu. in. V8 is used for the first time in the 3E40 model. This same engine is available as optional equipment at extra cost for the 3E38 models.

When the 289 cu. in. engine is installed in the 3E38 models, it is mandatory that a heavy duty type transmission be used. (See Transmissions.)

The premium features — top chrome ring, heavy duty intake and exhaust valves, roto-caps, tri-metal connecting rod and intermediate main bearings and aluminum timing gear are standard in the 3E38 and 3E40 models. These premium features are also available as optional equipment at extra cost in the 259 cu. in. engines used in other models.

The engines now used in the 3E Series trucks are as follows:

3E5	6 cyl.	3"x4-3/8"	185.6 cu. in.
3E6-3E11-3E14	6 cyl.	3-5/16"x4-3/4"	245.6 cu. in.
3E7-3E12-3E13-3E28-3E38	V8	3-9/16"x3-1/4"	259.2 cu. in.
3E40	V8	3-9/16"x3-5/8"	289 cu. in.

There is no change in servicing procedures for these engines.

FRONT AXLE

The front axles on all models will continue to be Clark axle used so successfully in past production. There is no change in servicing procedures.

REAR AXLES

The same type rear axle assemblies used on the latter part of 2E production will continue in 3E production. The 3E40 model will have the Timken single speed axle as standard with a 2-speed Timken axle as optional equipment.

Servicing procedures, including the 3E40 model axles, are the same as listed in the E Series Trucks Shop Manual.

The rear axle ratios available, by model, are as follows:

3E5-3E6-3E7	3E11-3E12	3E13-3E14
3.73	4.10 std.	5.14 std.
4.09 std. 3E6-3E7	4.88	3E13 4.86
4.27 std. 3E5 4.89		5.83 std. 3E14

3E28	3E38 Single Speed	3E40
5.14 std.	6.80 std.	6.80 std.
5.83	6.20	6.20

3E28-3E38 Two Speed — Eaton or Timken		3E40 Timken
5.83	5.93	6.16
8.11	8.10	8.48
6.33	6.48	6.61
8.81	8.84	9.09

TRANSMISSIONS

There are four major changes in transmissions for the 3E Series trucks.

1. A heavier 3-speed transmission model T89C is standard on 3E7 and 3E12 models. Although the transmission case and gears are substantially stronger than those of the T90B transmission previously used, servicing procedures are the same.
2. An automatic drive transmission is now offered as optional equipment at extra cost for the 1 ton 3E13 model truck. For all practical purposes, this is the same transmission used on the 2E7 and 2E12 models.
3. A new heavy duty 4-speed New Process Gear Corp. transmission model 92380 is used on the 3E40 model truck as standard equipment. It is synchronized in 3rd and 4th speeds only. The synchronizer assembly is the same as that used on the 2E model 5-speed transmission. The shifting sequence is the same as the T9A Warner transmission.

   This type transmission is a mandatory option when the 289 cu. in. engine is used in the 3E38 model truck.
4. Two new heavy duty New Process Gear Corp. transmissions, one 5th direct, the other 5th overdrive, are available as optional equipment for the 3E38 and 3E40 models.

   Basically, these transmissions are similar to the 5-speed transmissions used in 1956 production. Due to the heavier case and gear components the shifting sequence, shifting fork and rod arrangement, and the reverse idler are different. The reverse idler arrangement is the same as that described in the E Series Trucks Shop Manual for the T98 transmission. Other service adjustments are the same as for the 5-speed transmission previously mentioned. The 5-speed direct and 5-speed overdrive transmission used in 2E production will be optional equipment on the 3E13, 3E28, and 3E38 models until present stocks are exhausted.

SPRINGS

There is no change in the front or rear springs on the 3E5, 3E6, 3E7, 3E11, and 3E12 model springs.

On the 3E13, 3E14, 3E28, 3E38, and 3E40 models, a Berlin type spring eye is used on both ends of the front spring and the front end of the rear spring (see Fig. 27).

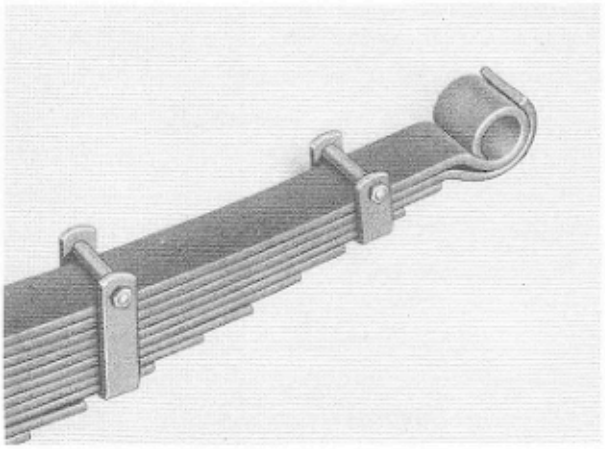

FIG. 27

This type design lessens the possibility of spring eye breakage by placing the spring main leaf load in direct relation to the center of the spring hanger pin or spring shackle pin.

A new type Silentbloc spring bushing assembly is used in the front spring assemblies on 3E13, 3E14, 3E28, 3E38, and 3E40 models. The mushroom head type rubber bushings are continued in use in the front eye of the rear springs on these same models.

The Silentbloc spring bushing has a flange at one end. The diameter of the flange is large enough to almost cover the thickness of the spring eye metal.

Springs equipped with Silentbloc bushing assemblies will not interchange with springs having the rubber bushings because of the difference in spring eye diameter. Should it be necessary to replace the Silentbloc bushing assembly for any reason, it will be necessary to cut through the metal sleeve and drive the bushing out.

The passenger car spring bushing remover and installer tool, J-6317, can be used to install new bushings.

WHEELS AND TIRES

All models for Domestic and Canadian delivery are equipped with tubeless tires at the time of production unless specifically ordered with tube and tire assemblies. Tire with tube is standard for Export and optional for Domestic.

The standard tire and wheel sizes, by model, are as follows:

3E5-3E6-3E7
6.00x16-4 ply
Single Rear

3E11-3E12
7.00x16-6 ply
Single Rear

3E13-3E14
8-17.5-6 PR (Domestic)
7.00x17-6 ply (Export)
Single Rear

3E28
8-19.5-8 PR (Domestic)
7.50x17-8 ply (Export)
Dual Rear

3E38
8-22.5-8 PR Frt. } Domestic
9-22.5-10 PR }
7.50x20-8 ply Frt. } Export
8.25x20-10 ply }
Dual Rear

3E40
8-22.5-8 PR (Domestic)
8.25x20-10 ply (Export)
Front and Dual Rear

Wheel and Rim

3E5-3E6-3E7
Budd 5 Studs
16x4.05E Standard

3E11-3E12
Kelsey-Hayes 8 Studs
16x6L Standard

3E13-3E14
Budd 6 Studs
17.5x5.25 (Domestic)
*17x5.5 (Export)

3E28
Motor Wheel 5 Studs
19.5x5.25 (Domestic)
**17x5.5 (Export)

3E38
Motor Wheel 5 Studs
22.5x6.00 (Domestic)
*20x6.00 (Export)

3E40
Motor Wheel 6 Studs
22.5x6.00 (Domestic)
*20x6.5 (Export)

All Domestic wheels have one-piece, drop center, 5° rim.

*These wheels have RH5° two-piece rim.
**R5° three-piece rim.

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