1949

CHEVROLET

ENGINEERING FEATURES

TRUCKS

CHEVROLET
1949
ENGINEERING FEATURES

TRUCKS

BOOK NO. _____

ISSUED TO _____

Prepared by
ENGINEERING DEPARTMENT-TECHNICAL DATA GROUP
CHEVROLET-CENTRAL OFFICE
Division of General Motors Corporation
Detroit 2, Michigan
JANUARY 31, 1949

FOREWORD

This book has been prepared to serve you as an authoritative source of engineering information on the complete line of Chevrolet trucks for 1949.

For convenient reference, the book is arranged in two sections. Section One is devoted to the new features of Chevrolet's regular trucks, while Section Two describes the new Sedan Delivery, Model 1508.

Sincerely,

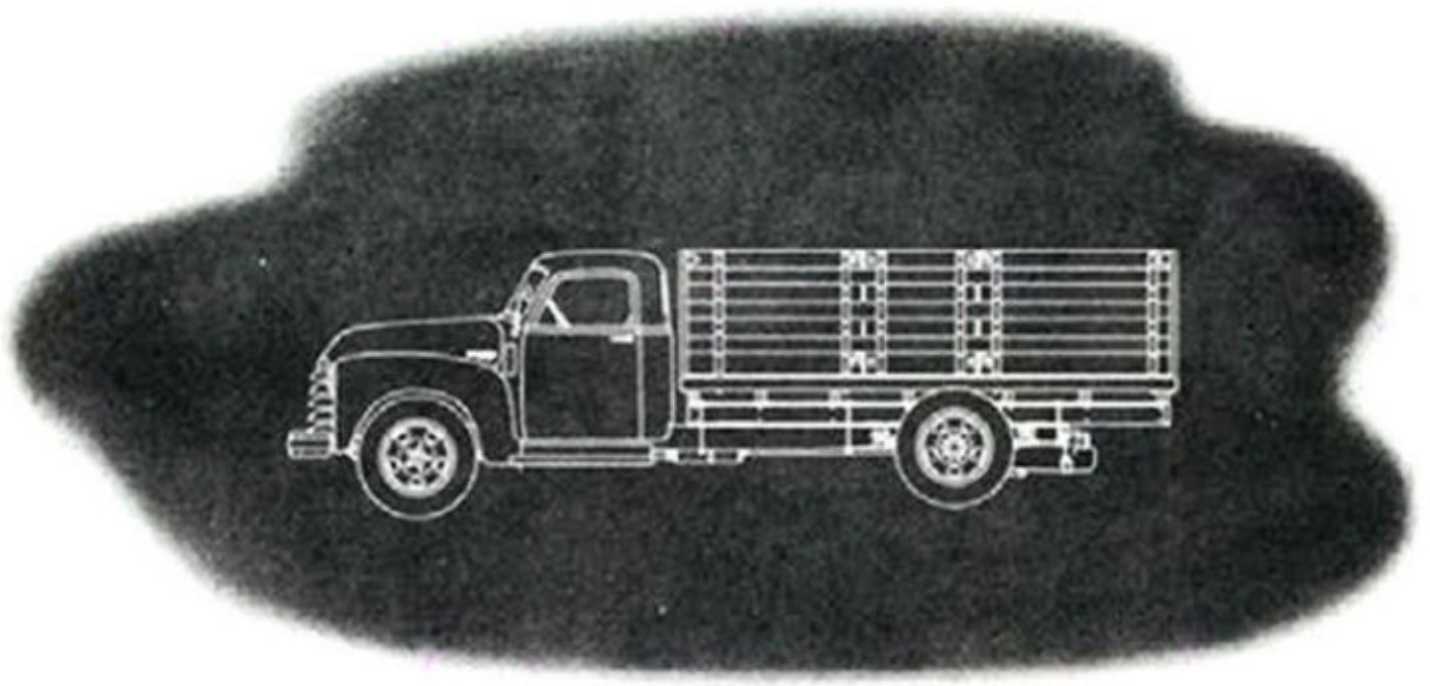
Chief Engineer

CONTENTS

SECTION ONE—REGULAR TRUCKS

SECTION TWO—SEDAN DELIVERY

Section One . . .



Regular Trucks

81 Versatile Models—9 Practical Wheelbases . . .

TYPE	LIGHT DUTY		MEDIUM DUTY		HEAVY DUTY													
LINE	CONVENTIONAL				FORWARD CONTROL		CONVENTIONAL								CAB-OVER-ENGINE					
SERIES	1500	3100	3600	3800	3700	3900	4100	4400	6100S	6400S	6100	6400	4500	6700	5100S	5400S	5700S	5100	5400	5700
WHEELBASE	115	116	125¼	137	125¼	137	137	161	137	161	137	161	161	199	110	134	158	110	134	158
MAXIMUM GVW	4100	4600	5800	8800*	7000	10000	12500	12500	15000	15000	16000	16000	12000	15000	15000	15000	15000	16000	16000	16000
SEDAN DELIVERY	1503																			
FLAT FACE COWL CHASSIS		3102	3602	3802			4102	4402	6102S	6402S	6102	6402	4502	6702						
FLAT FACE COWL STRIPPED CHASSIS		3122	3622	3822			4122	4422	6122S	6422S	6122	6422								
WINDSHIELD COWL CHASSIS		3112	3612	3812			4112	4412	6112S	6412S	6112	6412			5112S	5412S	5712S	5112	5412	5712
WINDSHIELD COWL STRIPPED CHASSIS		3132	3632	3832			4132	4432	6122S	6432S	6122	6432								
FORWARD CONTROL CHASSIS					3742	3942														
CAB CHASSIS		3103	3603	3803			4103	4403	6103S	6403S	6103	6403			5103S	5403S	5703S	5103	5403	5703
PLATFORM TRUCK			3608	3808			4108	4408	6108S	6408S	6108	6408			5108S	5408S		5108	5408	
EXPRESS PLATFORM TRUCK								4418		6418S		6418				5418S			5418	
STAKE TRUCK			3609	3809			4109	4409	6109S	6409S	6109	6409			5108S	5409S		5109	5409	
EXPRESS STAKE TRUCK								4429		6429S		6429				5429S			5429	
HIGH RACK AND STOCK TRUCK								4419		6419S		6419				5419S			5419	
PICKUP TRUCK		3104	3604	3804																
PANEL TRUCK		3105		3805																
CANOPY EXPRESS TRUCK		3107		3807																
SUBURBAN CARRYALL		3116																		

*—6700 on 3804, 3805, and 3807.

Shaded areas indicate discontinued models.

THE GRILLE STANDS OUT AGAINST A NEW, LIGHT BACKGROUND

RADIATOR GRILLE

An appearance of greater depth and more detail is given to the radiator grille by the application of a different color to the inner grille bars.

As in 1948, the radiator grille comprises five, two-piece horizontal bars. The rounded outer bar is enameled body color, as before, but the inner bar is now enameled Silver Gray. The effect is to emphasize the width and depth of the radiator grille, since the outer bars now stand out sharply against the light-colored background. The stripes, which previously decorated the outer grille bars to serve the same purpose, are removed in 1949.

SERIES NAMEPLATE MAKES IDENTIFICATION EASY

SERIES NAMEPLATE

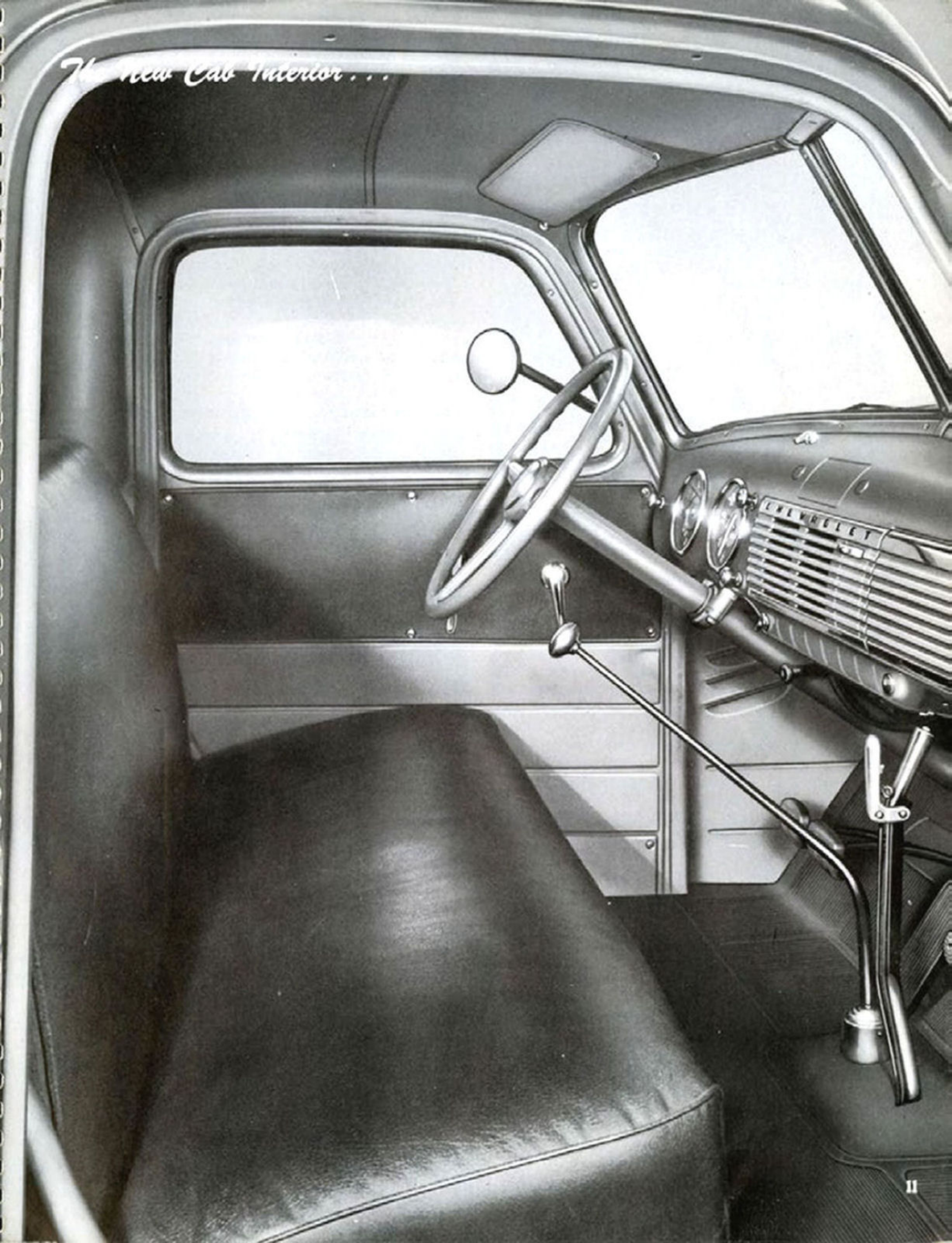
On all 1948 models, a plate on each side of the hood contained the name, Chevrolet, and the word, Thriftmaster or Loadmaster to identify the capacity group to which the truck belonged. Because this terminology was too general, it was not adequate to describe the many different groups available. Consequently, 1949 Chevrolet trucks are no longer called Thriftmaster and Loadmaster, but are identified by the number of the series to which they belong (3100, 3600, 3800, 4100, etc.). For quick and easy identification, these series numbers are die cast to form nameplates, which are attached to each side of the hood, replacing the Thriftmaster and Loadmaster plates. Separate nameplates, just above these, contain the name, Chevrolet, in block letters, as in previous years. Both plates are chrome-plated.

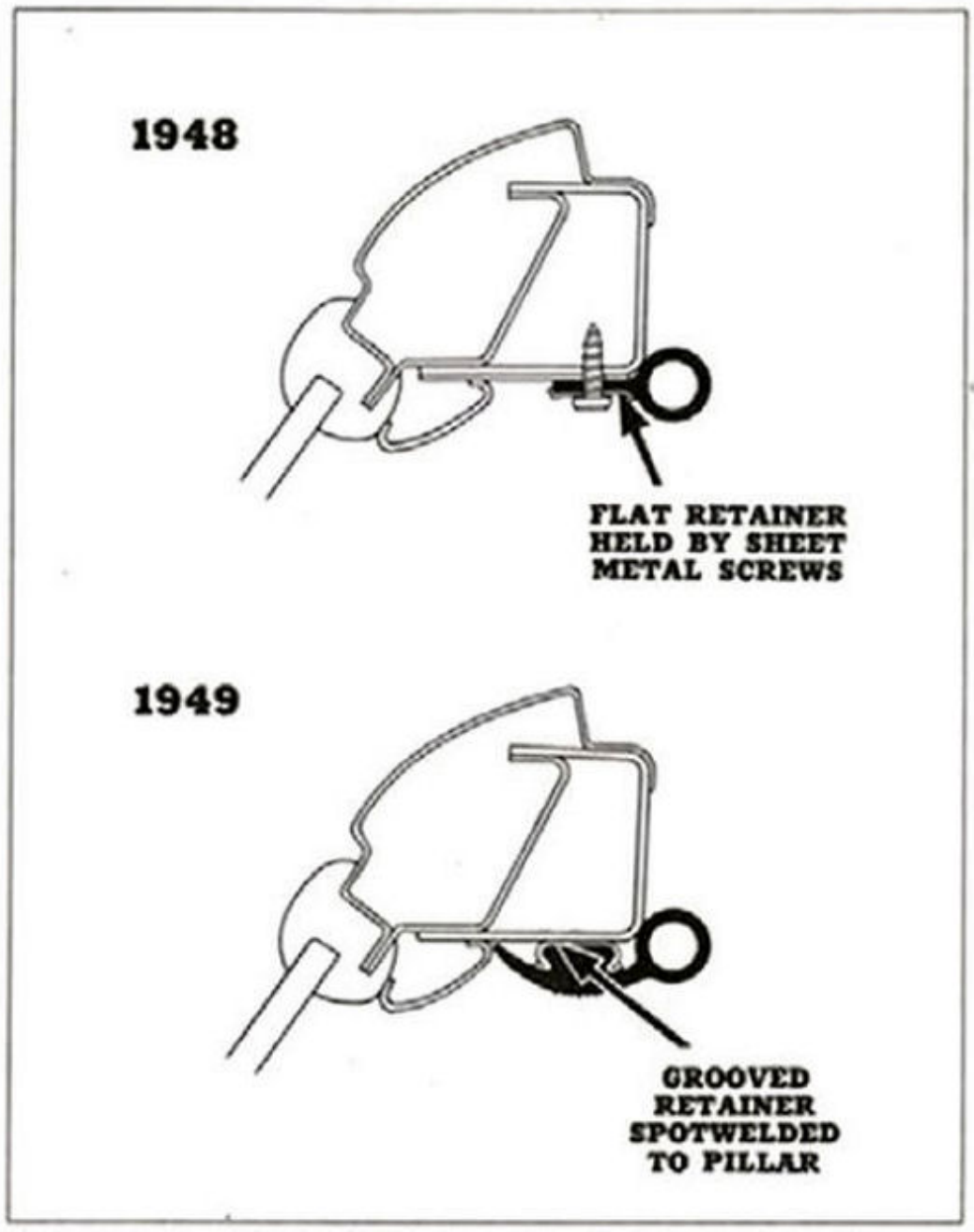
SIDE DOOR WEATHERSTRIP

Soon after the start of 1949 production, the side door opening weatherstrip will be changed to improve its appearance. Also, a grooved retainer will be used for attachment of the weatherstrip, instead of sheet metal screws.

In the new design, the grooved retainer is spot-welded around the door opening. To install it, the assembler simply slides the rubber weatherstrip

Roomy Cab Interior . . .





SIDE DOOR WEATHERSTRIP ATTACHMENTS COMPARED

into place, since a mating section is formed in the weatherstrip.

In the old design, the attaching screws pinched the weatherstrip, making it wavy and uneven. The new weatherstrip, however, is held smoothly and firmly in place and has a much neater appearance.

INSIDE DOOR HANDLE ACTION REVERSED

During the 1948 model year, the action of the inside door handle was reversed, making it more convenient to operate. To open the door, the handle is now pulled instead of pushed. To change the action, the end of the remote control link is now located above, instead of below the handle.

OTHER INTERIOR CHANGES

The instrument panel in the Suburban Carryall model is changed in color for 1949. Previously two shades of gray, the panel was not in harmony with the brown seats and interior trim. Now, it is finished in a two-tone combination of Wicker Brown and Pecan Brown, the same colors that are used elsewhere in the Suburban Carryall. The instrument panel in all other models remains gray.

To improve readability, the instrument cluster and speedometer pointers in all trucks are changed from red to white.

The foot-operated parking brake release bracket in Series 3100 and 3600 trucks is again mounted below the instrument panel but, in 1949, it is made smaller and neater in appearance. All corners are rounded, making it less likely that anyone will catch his clothing on the bracket.

THE DOOR REMOTE CONTROL LINK IS RELOCATED

BODY AND SHEET METAL CONSTRUCTION

INSIDE-OF-CAB FUEL TANK

Since the frame-mounted gasoline tank interfered with the installation of certain special bodies on 1948 Chevrolet truck chassis, it is mounted on the cab floor, behind the seat, in 1949. Rigidly supported in its new location, the tank is less subject to structural failure, and safe from damage.

Except for the holes necessary for the drain plug, the filler neck, and the gasoline gauge, the two halves of the tank are identical. The tank is seam-welded and has three, deep vertical ribs in each half to add strength. The ribs are located to avoid interference with the three structural columns in the rear wall of the cab.

Because the filler neck diameter is reduced one inch, a vent pipe is added to the gasoline tank to maintain the high filling rate that Chevrolet truck tanks have always had. The vent pipe is attached to the outside of the filler pipe for its full length. It is connected to the tank at the upper right corner, and enters the filler pipe less than two inches below the filler cap. As the tank is filled, the air that is displaced by the gasoline escapes through the vent pipe. Without a vent pipe, air would have to force its way out against the incoming gasoline, causing enough turbulence in the pipe to retard the filling rate.

Two metal straps attach the tank to the floor. Its capacity is 17-1/2 gallons, and filling of the tank is on the right side, as before.

A combination shutoff and drain valve is added to the tank at the fuel outlet, making it possible to shut off the gasoline flow when servicing that part of the system that is below the tank level.

THE GASOLINE FILLER IS RELOCATED IN CAB MODELS

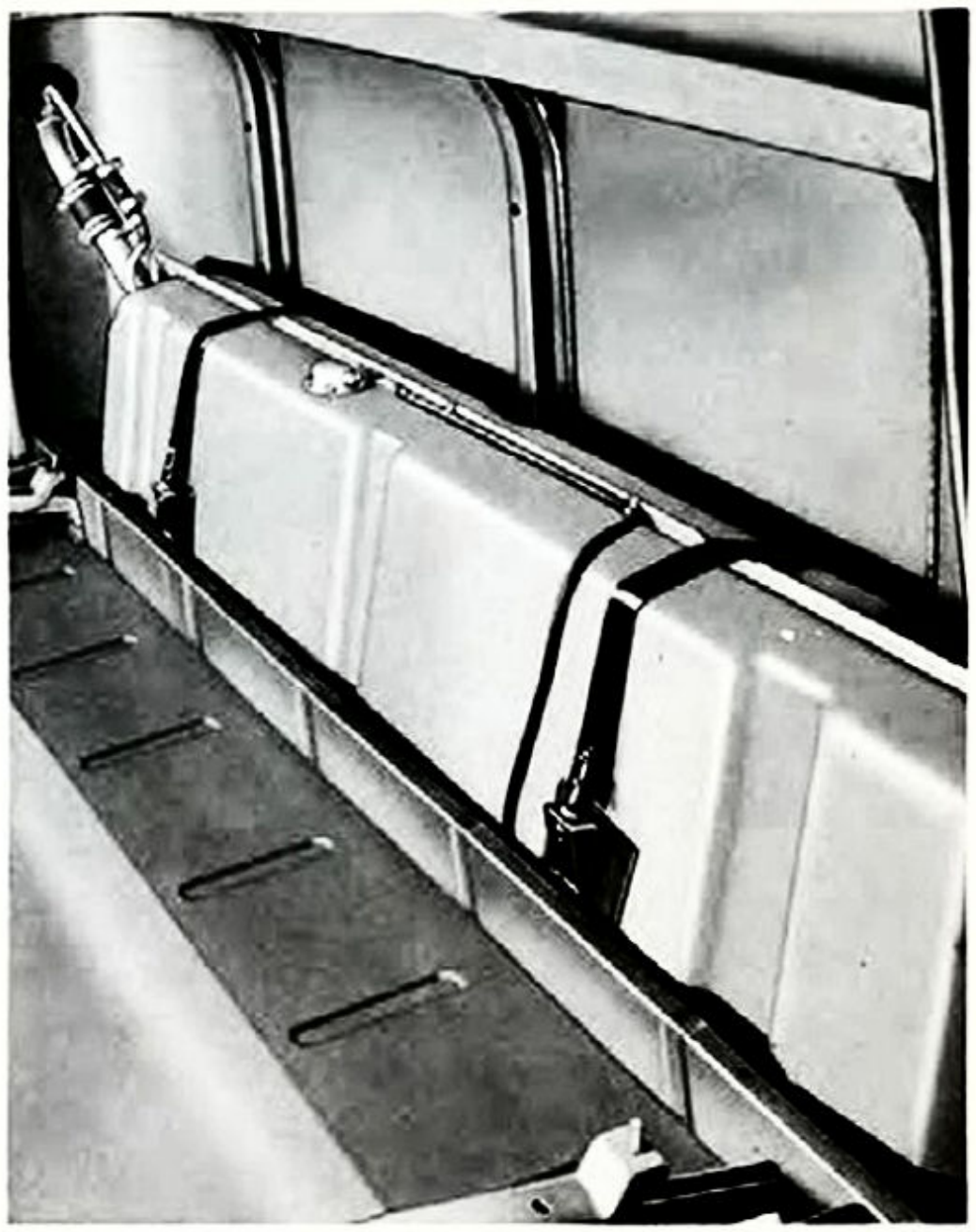
Placing the fuel tank in the cab has raised it above its former location and would allow fuel to drain out of the tank whenever a repair, such as removing the fuel pump, is made. In addition, the valve may be used to drain the tank, if necessary.

WATER DRAIN BEAD ADDED TO COWL

Better protection for the electrical wiring on the front of dash is assured by the addition of a water drain gutter to the top panel of the cowl. Water that drains under the hood and past the anti-squeak is now collected and directed to the cowl sides. Several assembly plants made this change during the 1946 model year.

COWL SIDE VENTILATOR LOCK ADDED

To obtain a tighter seal at the cowl side ventilator, a lock is added to the vent mechanism. A notch is placed in the upper rear end of the vent handle guide plate. Because the vent handle has upward tension against the slot, the handle snaps into the notch when it is drawn to a closed position, effecting a better dust and water seal. Most assembly plants adopted this change in 1948.



THE GASOLINE TANK IS NOW INSIDE THE CAB

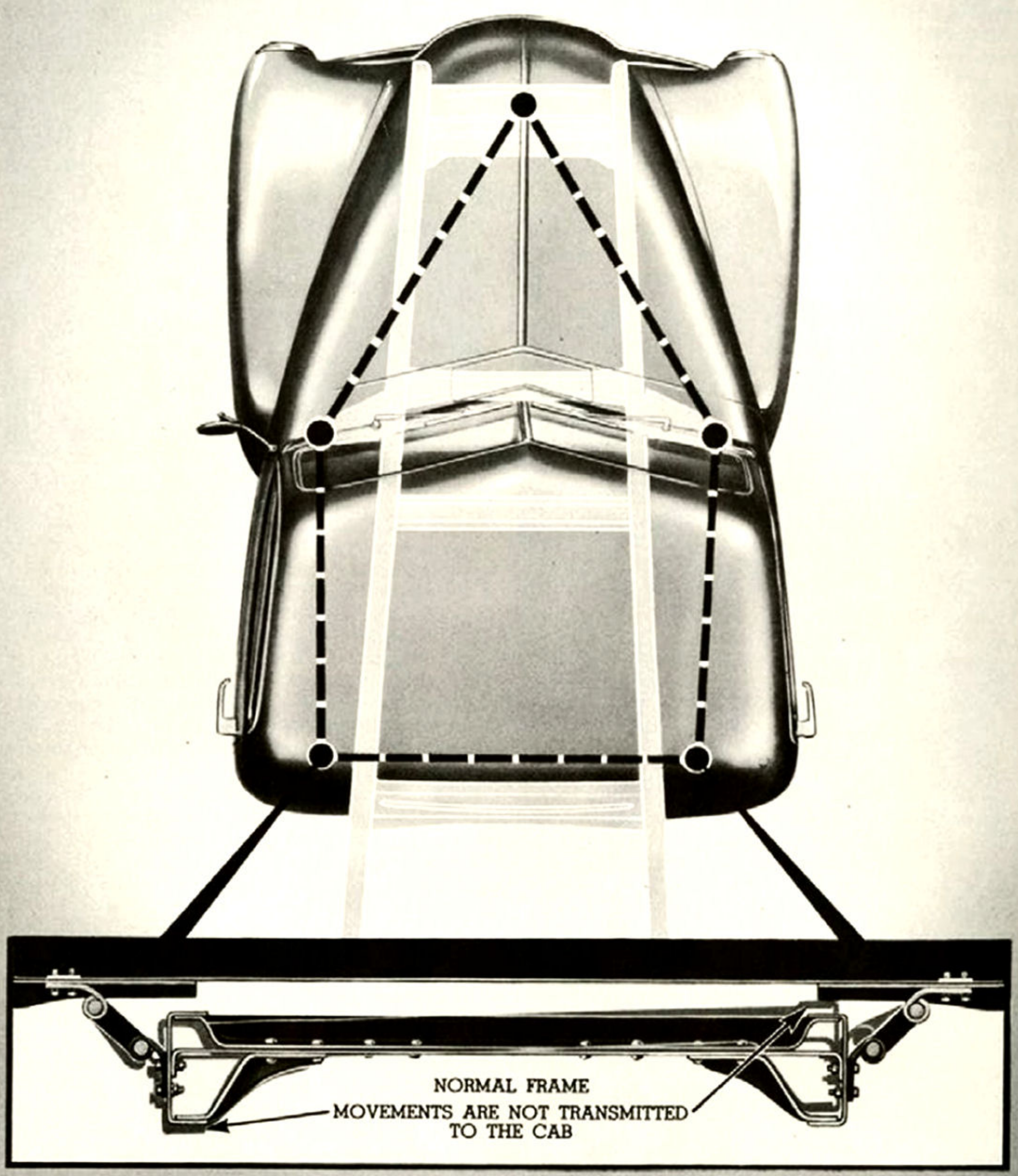
IMPROVED CAB MOUNTING

Shackle mounting of the rear of the cab, with the single central support, was introduced in 1947. The shackle type of mounting permits the chassis to twist and move laterally without imposing excess loads on the cab. Because of the central location of the single shackle, a large center column and rear corner inner panels were important parts of the lower rear wall structure. These structural members were necessary to make the back of the cab sufficiently rigid to withstand the concentration of loads at a single point.

The size of the center column, which was located directly over the single rear cab support, hampered the mounting of the gasoline tank inside the cab. This difficulty was overcome by dividing the support of the cab between the two rear corners, eliminating the central shackle. Thus it was possible to reduce the size of the central column, and, since the new rear cab supports are located near the door lock pillars, to omit rear corner inner panels. To maintain adequate strength, three flanged channel-type columns replace those parts that are removed.

In the new arrangement, a shackle is located at each rear corner of the cab. The flexibility of the former design is retained, since the attachment is not rigid. Eye-shaped brackets are bolted to both the frame and cab underbody. Each shackle has two links, and is bolted to the eye

Twin-Shackle Cab Mounting . . .



SERIES 4100 CONSTRUCTION SHOWN

through rubber bushings. The shackle resembles the type used on chassis springs. Rubber bumpers, previously necessary at the rear corners to stabilize the mounting, are now eliminated.

Although no difficulty was experienced in the previous design with the concentration of loads at a single point, it is fundamentally more practical to distribute the load over two points, instead of one. Also, the removal of the rear corner inner panels provides even greater accessibility to the outer panels, if repairs are necessary.

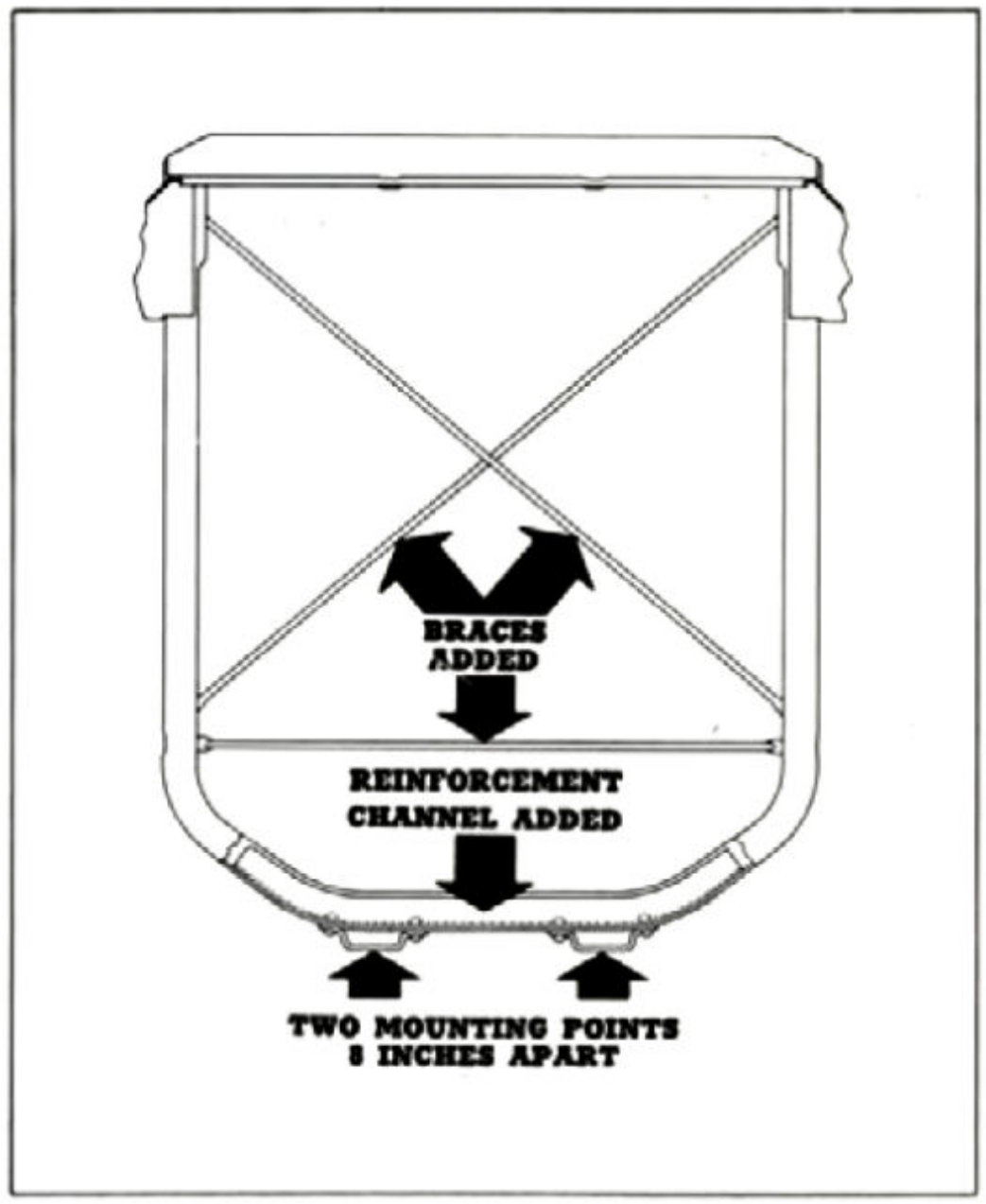
A special advantage is obtained in Series 3800 trucks, where the propeller shaft was located directly beneath the center shackle. This provided a direct path for the transmission of noise to the cab. The new mounting eliminates that condition.

STRONGER RADIATOR SUPPORT - SERIES 3100

In Series 3100 trucks, a new radiator support arrangement gives the frame and sheet metal unusual stability, even on rough roads. In 1948, an excessive amount of twisting movement at the front end of the chassis frame was experienced when traveling on roads that were in poor repair. This excessive movement was transferred to the front fenders and the radiator mounting, creating a condition which might eventually cause failure of the radiator core or sheet metal.

It was found that this frame movement could be controlled by employing the radiator support and fender unit as a stabilizer. Accordingly, the radiator support is now mounted at two points, eight inches apart, to the frame front cross member.

Since the radiator and its support are more closely allied to frame movements with the new sheet metal mounting, the radiator support is made stronger. Two braces are welded to opposite corners of the support, in an "X" arrangement. Below the "X" a horizontal brace is also welded. In addition, a channel reinforcement is added to the lower part of the support. Together these braces add the necessary strength to prevent distortion of the support. The new design will become effective soon after the start of production.



THE RADIATOR IS HELD MORE RIGIDLY—SERIES 3100

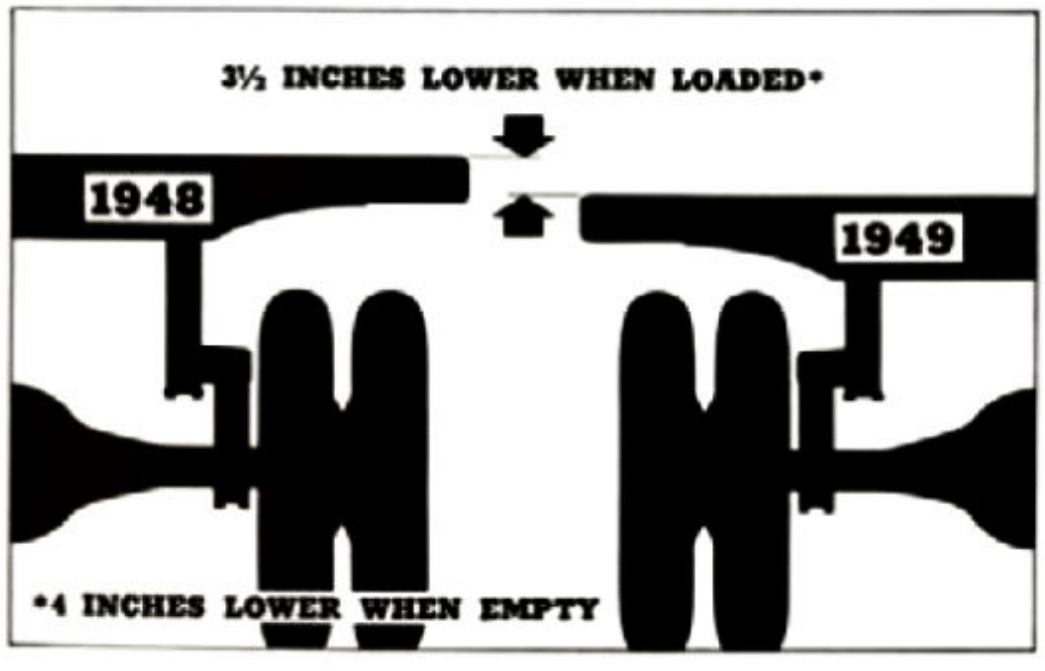
PLATFORM HEIGHTS REDUCED

Loading heights are reduced 3-1/2 inches on platform, stake, and high rack trucks in Series 5000 and 6000, and in Series 4000, when optional 7.50-20 tires are used. This is an appreciable change in the dimension from the ground to the platform area, making it easier to load the truck from the ground.

Reducing the side sill height three inches, and lowering the spring height 1/2 inch, account for the 3-1/2 inches change. To maintain sufficient tire clearance, the lower flange of the rub rail, next to the tires, was turned up. In response to field complaints, these changes were put into effect late in the 1948 model year.

When optional 9.00-20 tires are used on Series 5000 and 6000 trucks, it is necessary to raise the platform. This is done by adding 1-1/2-inch wooden risers between the side sills and the frame. Side sills, 8-1/2 inches tall, are continued on Series 3600, when optional 7.00-17 or 7.50-17 tires are used, to provide space for the spare tire to be mounted underneath the platform.

PLATFORMS ARE LOWER FOR EASIER LOADING



HOOD BRACE RODS ADDED

Brace rods are added to the hood panels of Series 3000, 4000, and 6000 trucks to strengthen them against twisting. The brace rods are arranged diagonally across the front corners of the hood. One end of each rod is attached to the hood lock plate and the other end to the hood side flanges. Most assembly plants made this change in 1948.

FRONT AND REAR SUSPENSIONS

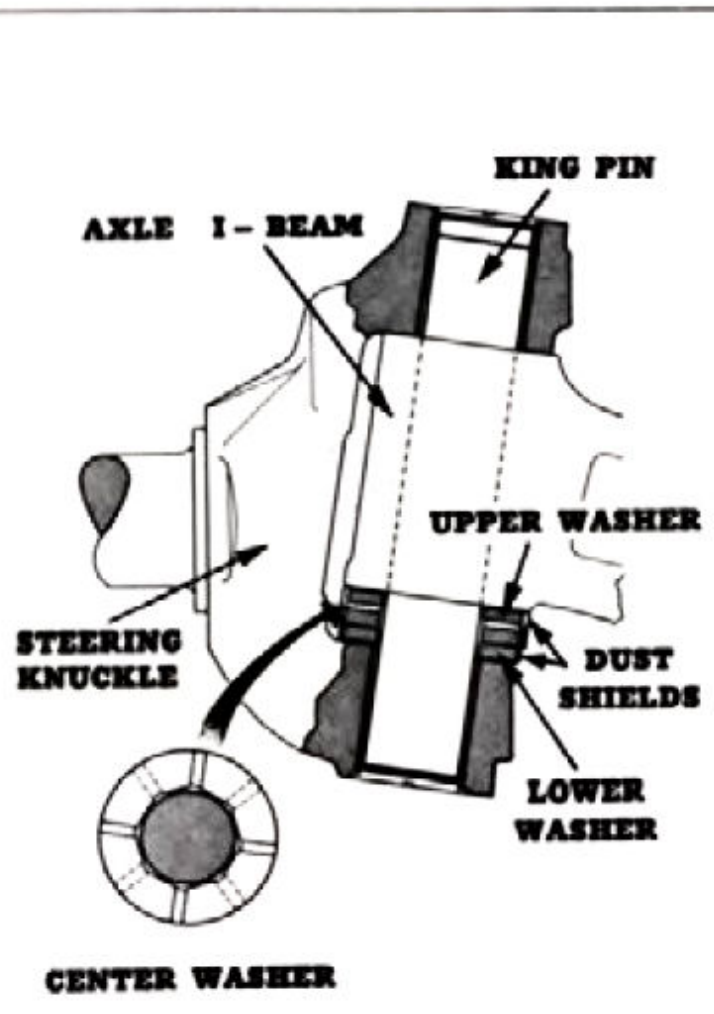
MODIFIED STEERING KNUCKLE BEARING

To promote better lubrication and sealing, a change was made during 1948 in the steering knuckle bushings, thrust washers, and dust shields of trucks in Series 3700, 3900, 4500, 5000, and 6000. Previously, the knuckle bushings incorporated only one oil groove emanating from the oil hole. In the new design, the oil grooves form an "X", with the punched hole located at the intersection point.

The concentric hole in the thrust washer is octagonal in shape, with the corners providing grease passages to insure lubrication at all times. Better distribution of lubricant is obtained by extending the oil grooves completely across the face of the thrust washer, rather than partially across, as before.

To seal out dust and splash, and to retain the lubricant, the open end, cap-type shield, previously used, is replaced by two telescoping shields which completely enclose the thrust washers.

STEERING KNUCKLE THRUST WASHER SEALING IMPROVED



REAR SPRINGS MODIFIED

During 1948, several modifications were made in truck rear springs. Following is a summary:

The schoolbuses have stiffer and heavier rear springs of improved design. The front eye is partially wrapped for greater strength under severe, off-the-highway operation. The first two leaves are each increased in thickness to .360 from .323.

As mentioned previously, the loaded height is reduced on stake and platform models in Series 5000 and 6000. For this reduction, the side sills were made smaller and the rear springs reshaped to reduce height from the spring eye to the top leaf. Thus, the frame-to-ground dimension is reduced approximately 1/2 inch (the reduction amounts to one inch when the truck is not loaded). Since this spring, less the auxiliary, is also used in Series 4100 and 4400 trucks, there is also a reduction of one inch in the frame height of these models.

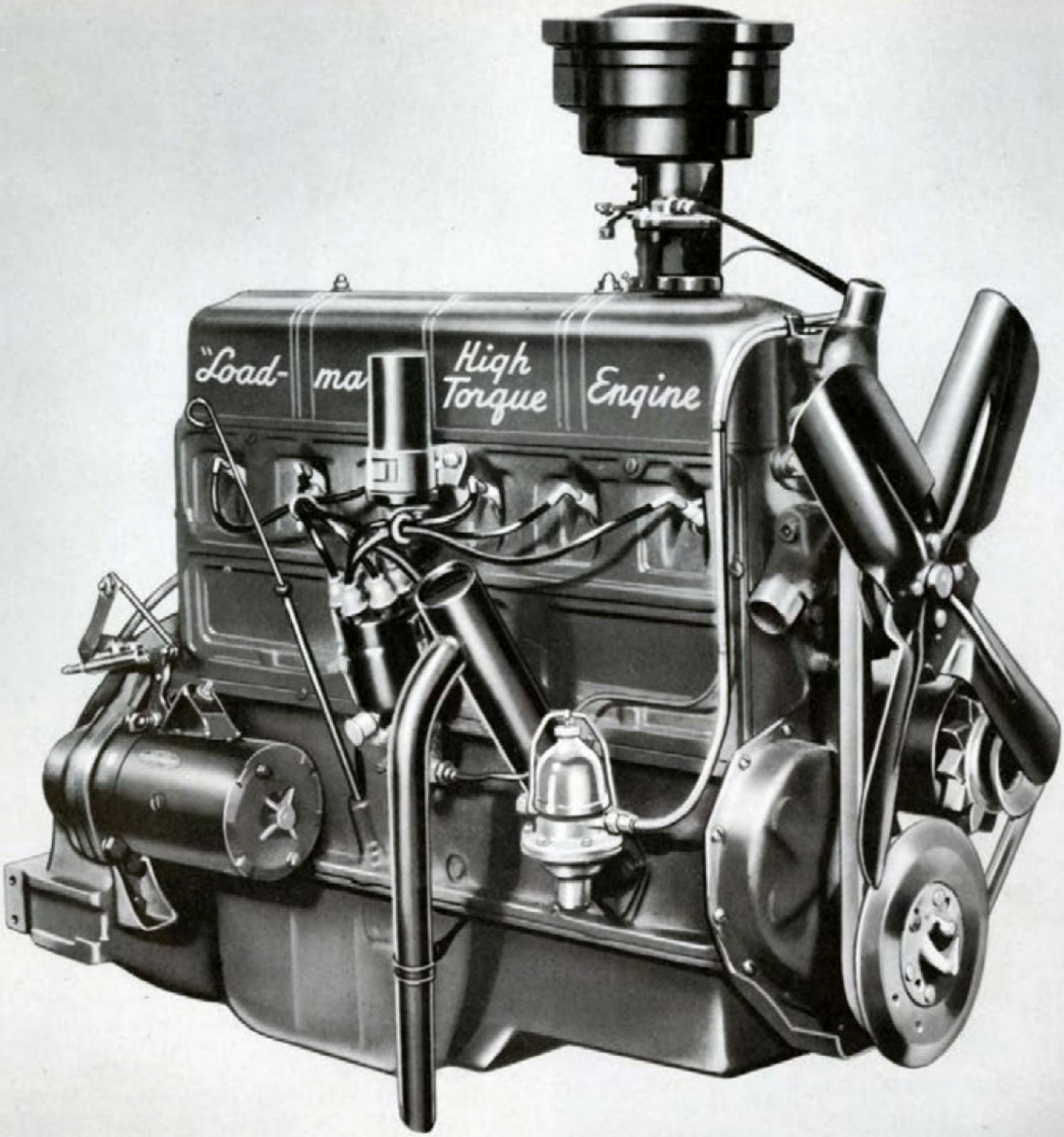
To permit the installation of tire chains when dual rear wheel equipment is used on Series 3800 and 3900 trucks, the rear springs were moved inward 1/2 inch on each side. Springs are now placed 41-1/2 inches apart, providing more space between the rear wheels and springs. This change was made by moving the mounting spacers to the outsides of the eyes and shackles, and moving the two spring pads inward 1/2 inch on the axle housing. This increase in rear wheel-to-spring space is also made in Series 3600 models.

ENGINE IMPROVEMENTS

As they have been for the past twenty years, Chevrolet trucks are equipped with the famous Chevrolet valve-in-head, six-cylinder engines. Their displacements are 216.5 cubic inches for the Thrift-Master engine, and 235.5 for the Load-Master. The 1949 engines have the same superior ability to develop more power from each gallon of gasoline, when compared with other truck engines of the same size and displacement. This superiority is only one of the many advantages inherent in Chevrolet's highly regarded Thrift-Master and Load Master engines. Although there are no basic changes in the new truck engines, many refinements are made.

Compression ratios are raised slightly, to 6.6 to 1 from 6.5 to 1 on the Thrift-Master, and 6.7 to 1 from 6.6 to 1 for the Load-Master engine. These are relatively small changes, arising from incidental modifications, and they do not affect engine performance. However, many improvements are made in the 1949 engines for greater operating and servicing convenience, and for even more dependable performance.

Load-Master engines again are furnished in Series 5000 and 6000, and available at extra cost in Series 4000 models. Other models are again equipped with Thrift-Master engines.

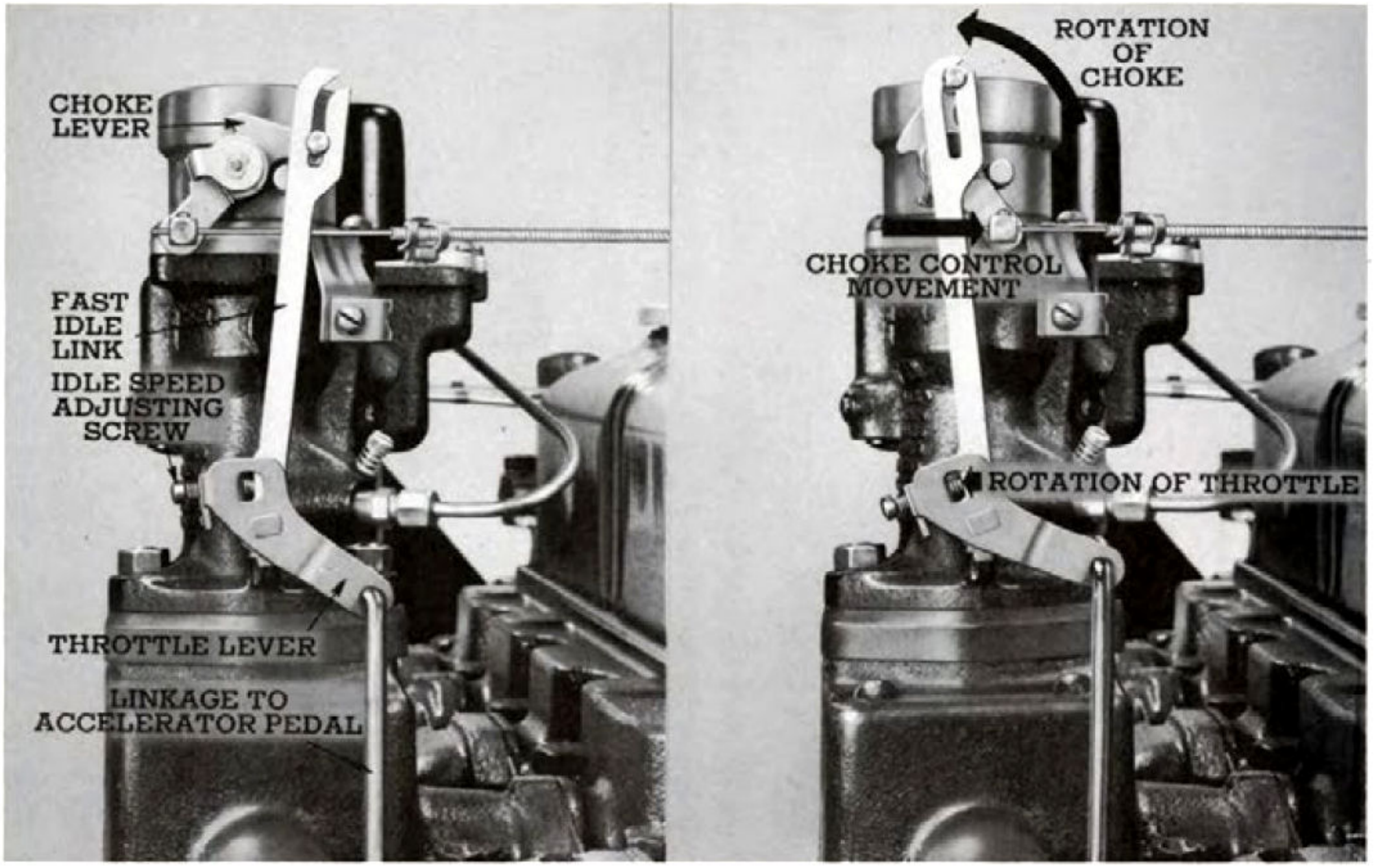


THE LOAD-MASTER ENGINE FOR 1949

NEW FAST-IDLE MECHANISM

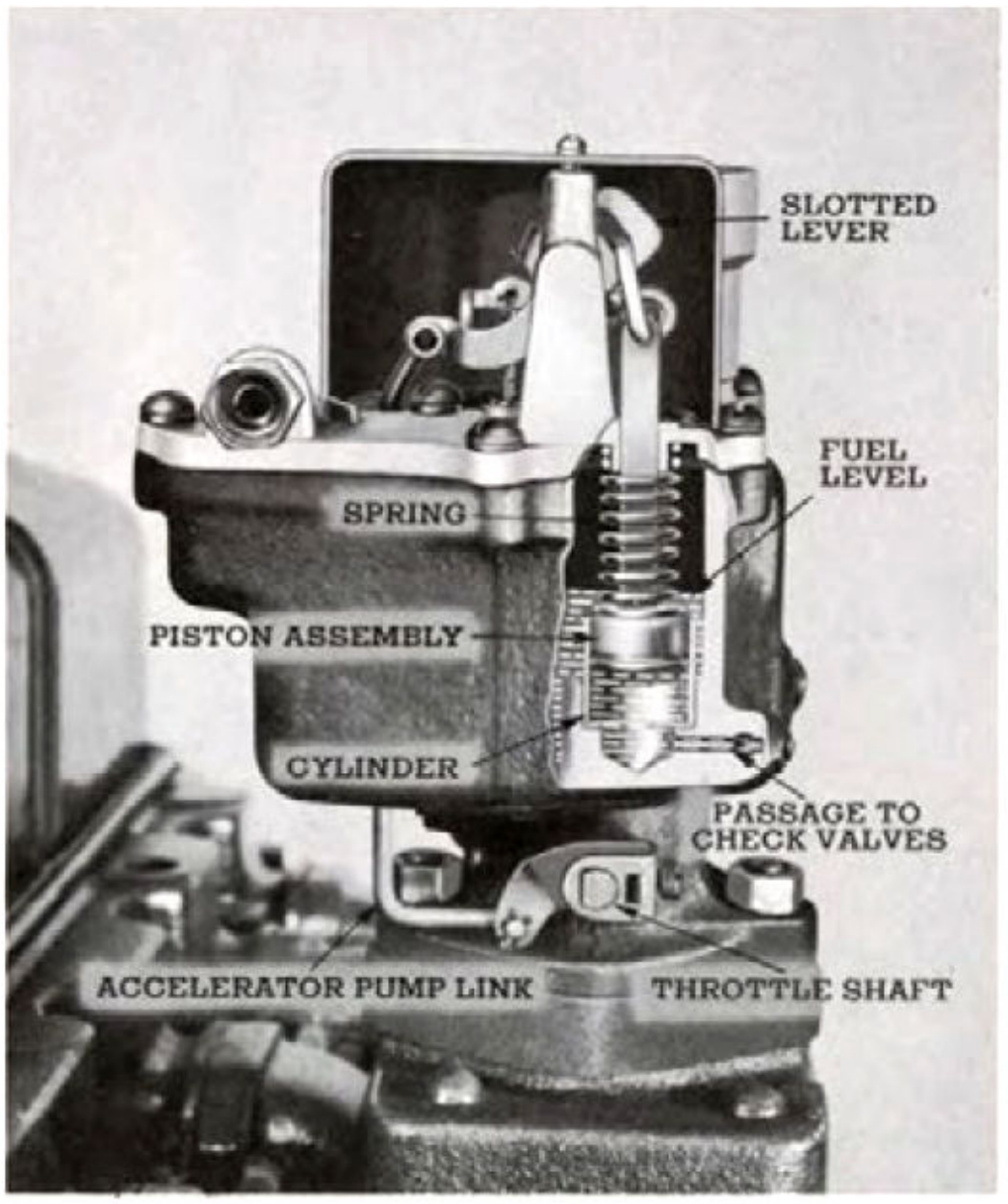
The 1949 carburetor for all except Cab-Over-Engine trucks and Forward Control Chassis features a new fast-idle mechanism, which facilitates starting and eliminates stalling of the engine during warm-up periods. Hand operation of the throttle control for starting and warm-up is unnecessary, since, whenever the choke is used, the throttle is automatically opened far enough to keep the engine running. The throttle opening varies with the choke position, and is carefully calibrated for smooth engine operation.

In the 1948 design, the idle speed adjusting screw rested on a boss that was cast in the carbu-



THE FAST-IDLE MECHANISM IS CONTROLLED BY THE CHOKE

THE ACCELERATOR PUMP PISTON IS NOW SUBMERGED



retor body. By modifying the design, the 1949 idle adjusting screw seats on the lower end of a fast-idle link. When the choke is operated, as shown in the accompanying illustration, the upper end of the fast-idle link is rotated, forcing the idle adjustment screw to open the throttle the required amount. Since the idle speed adjusting screw rests on the fast-idle link, and is not attached to it, the throttle lever moves independently and does not change the position of the choke, when the accelerator pedal is actuated.

The upper end of the fast-idle link contains a slot, in which the choke lever slides. The slot is curved to provide the proper amount of throttle movement with relation to choke movement. The movements of choke and throttle are co-ordinated to cause proportionately greater throttle movement, as the choke approaches the fully closed position.

FUEL-LUBRICATED ACCELERATOR PUMP

In the 1949 Thrift-Master and Load-Master engines, the accelerator pump piston is entirely submerged in gasoline under all operating conditions. The gasoline acts as a lubricant, assuring uniform operation of the accelerator pump at all times. And, because the leather is constantly wet, a continuous seal is effected between piston and cylinder. The new accelerator pump is made up

of parts similar to those in the old design, but they are assembled differently. The coil spring, instead of being located under the piston, is now above the piston, allowing the piston to occupy a lower position in the cylinder. The accelerator pump is that part of the carburetor which supplies the extra fuel required for rapid acceleration.

A slot at the attaching point of the piston shaft and actuating link allows the piston to move downward at its own rate. A spring was formerly used at this point to make the joint flexible. As before, when the throttle is opened rapidly, the accelerator pump acts like a syringe, forcing fuel out of the carburetor at the desired rate as the coil spring pushes the piston slowly downward. A much lighter seal is used on the piston, since it no longer must seal the pump against the entrance of air. Using a lighter seal that creates less friction decreases the effort necessary to operate the pump and increases its useful life.

MODIFIED CARBURETOR - FORWARD CONTROL MODELS

Because models 3742 and 3942 are equipped with vacuum-operated crankcase ventilation, a certain amount of air is bled into the intake manifold. Unless something were done about it, this excess air would upset the ratio of fuel and air, also delivered to the engine through the intake manifold. Consequently, on these models, the fuel-air mixture strength is increased slightly, at the carburetor, to compensate for the extra air supplied through the crankcase ventilating system.

The increased mixture strength is primarily accomplished by enlarging the inside diameter of the carburetor discharge nozzle. Other changes are made to re-establish balanced carburetion.

MOISTURE-PROOFED DISTRIBUTOR NIPPLES

Moisture in the ignition distributor may cause engine misfiring, or even failure to start. For better sealing against the entrance of moisture, vinylite nipples replace the rubber nipples, to protect all of the ignition wires, where they enter the distributor. The new molded plastic nipples are flexible, forming a tight seal, and tests show that they are far more durable.

LARGER, STRONGER SPARK PLUGS

New spark plugs of the 14-millimeter size replace the 10-millimeter spark plugs, used in 1948. To retain the desirable wide heat range, characteristic of the smaller plug, the same type of insulator is used, but with a larger shell. Being larger and stronger, the new spark plugs allow more flexibility in design. Manufacturing control is simplified, assuring a more uniform product, and installation is less critical. In addition, the larger clearance column in the combustion pocket of the 14-millimeter shell makes the possibility of fouled plugs more remote.

IGNITION LOCK SIMPLIFIED

All Chevrolet trucks for 1949 have a two-position ignition switch, replacing the three-position type. It is considered unnecessary to provide trucks with the unlocked-off position, since operators nearly always lock the ignition when leaving the truck for extended periods.

SLOGAN ADDED TO IGNITION KEY

All General Motors car divisions in 1949 will have this slogan on the ignition key: YOUR KEY TO GREATER VALUE. As before, the key contains a knock-out plug, on which the key number is stamped, and one key opens all locks.

POLARITY-REVERSING SWITCH DISCONTINUED

Due to field maintenance problems, the polarity-reversing switch was removed in April, 1948. Its removal permitted the adoption of a simplified ignition distributor, and the substitution of a direct coil-to-distributor wire, in place of the reversing switch harness. Before the polarity-reversing switch was eliminated, both the stationary and moving contacts of the breaker points were insulated. The distributor now has an internally grounded stationary contact, eliminating the insulation for the breaker plate, and an extra terminal. A condenser with a capacity of .2 microfarads replaces a .3 microfarad condenser to give the necessary protection against pitted points.

IMPROVED VOLTAGE AND CURRENT REGULATOR

The same type of voltage and current regulator is used in 1949, but the method of adjustment is modified. It is no longer necessary to bend the spring retainers to adjust the tension on the voltage regulator, the current regulator, and the cut-out relay. Instead, adjustment is made by means of screws - a much more accurate method, and one which is easier and faster to use.

The shunt-wound type of generator is again used, but minor improvements are made in the structure of the pole shoes and in the field coil insulation.

PRESSURE-LUBRICATED TIMING GEAR TEETH

Chevrolet's Specialized Four-Way Engine Lubrication in both Thrift-Master and Load-Master engines is improved for 1949 by pressure lubrication of the timing gears, instead of gravity feed.

A passage from the front camshaft bearing leads oil between the engine front plate and the cylinder block. From that point, a nozzle directs oil onto the timing gears. The previously used gravity feed system allowed sediment in the oil to settle to the bottom of the supply pocket, occasionally clogging the passageway and nozzle. By eliminating the oil pocket, this condition is obviated. In the 1949 design, all of the oil that enters the passageway finds exit only at the nozzle. Sediment is separated from the oil in the bottom of

the oil pan and removed when the oil is changed. Tests prove that, with the new system, more oil is supplied to the timing gears at slow speeds.

OIL FILLER RELOCATED

To facilitate the addition of engine oil, in Series 3100 models, a filler opening is now provided on the top and at the front of the valve rocker cover as in all other conventional trucks. When oil is added, it flows down to the crankcase through the same drain passages that return oil from the valve operating mechanism. Also, to make checking of the oil level more convenient, the oil level gauge, or dip stick, is lengthened. In the 1948 models, the proximity of heater hoses, spark plug wires, and other engine parts hampered oil filling.

OTHER IMPROVEMENTS

By changing the head shape of the intake valves, a tendency of the engine toward pinging is reduced.

Enlarging the size of the spark plugs and changing the valve shape increases the compression ratio from 6.5 to 1 to 6.6 to 1 for the Thrift-Master engine, and from 6.6 to 1 to 6.7 to 1 for the Load-Master engine, but these changes, as mentioned previously, are not significant.

EXTRA-COST EQUIPMENT

LARGER TIRES - SERIES 5000, 6100, AND 6400

Beginning in 1948, 9.00-20-10 pr dual rear tires, with 8.25-20-10 pr front tires, all on 20x6.00T wheels, were made available for Series 5000, 6100, and 6400 trucks. With this combination, the maximum gross vehicle weight remains 16000 pounds.

HEAVY DUTY REAR SPRING - SERIES 3100

A heavier, 1730-pound capacity rear spring was released for Series 3100 models during the 1948 model year. The new spring has nine leaves of .291 thickness, and an average rate of deflection of 220 pounds per inch. The capacity of the spring regularly used is 1450 pounds.

COMBINATION FUEL AND VACUUM PUMP

Operation of windshield wipers from intake manifold vacuum is continued in 1949. However, a combination fuel and vacuum pump was made available during 1948 at extra cost, eliminating the annoyance of wipers that slow down during acceleration or hill climbing. The vacuum booster section is actuated by the same rocker arm as the fuel pump. Pressure created by diaphragm movement expels air through an outlet port into the intake manifold. The return stroke creates vacuum for the windshield wipers. When the wiper is not in use, or the manifold vacuum is sufficient for wiper action, the diaphragm is held off the rocker arm by manifold vacuum until it is needed.

RUNNING BOARD SAFETY TREAD

For all except Cab-Over-Engine models, a running board safety tread is made available. The tread is an abrasive-coated fabric and is permanently cemented to a steel panel, which, after drilling six small holes in each running board, is easily bolted in place. The fabric is known for its durability, and is unaffected by oil or water, assuring safe footing at all times. Cab-Over-Engine models are regularly equipped with rubber step treads, as in 1948.

OTHER CHANGES

BRIGHTER TAIL AND STOP LIGHT

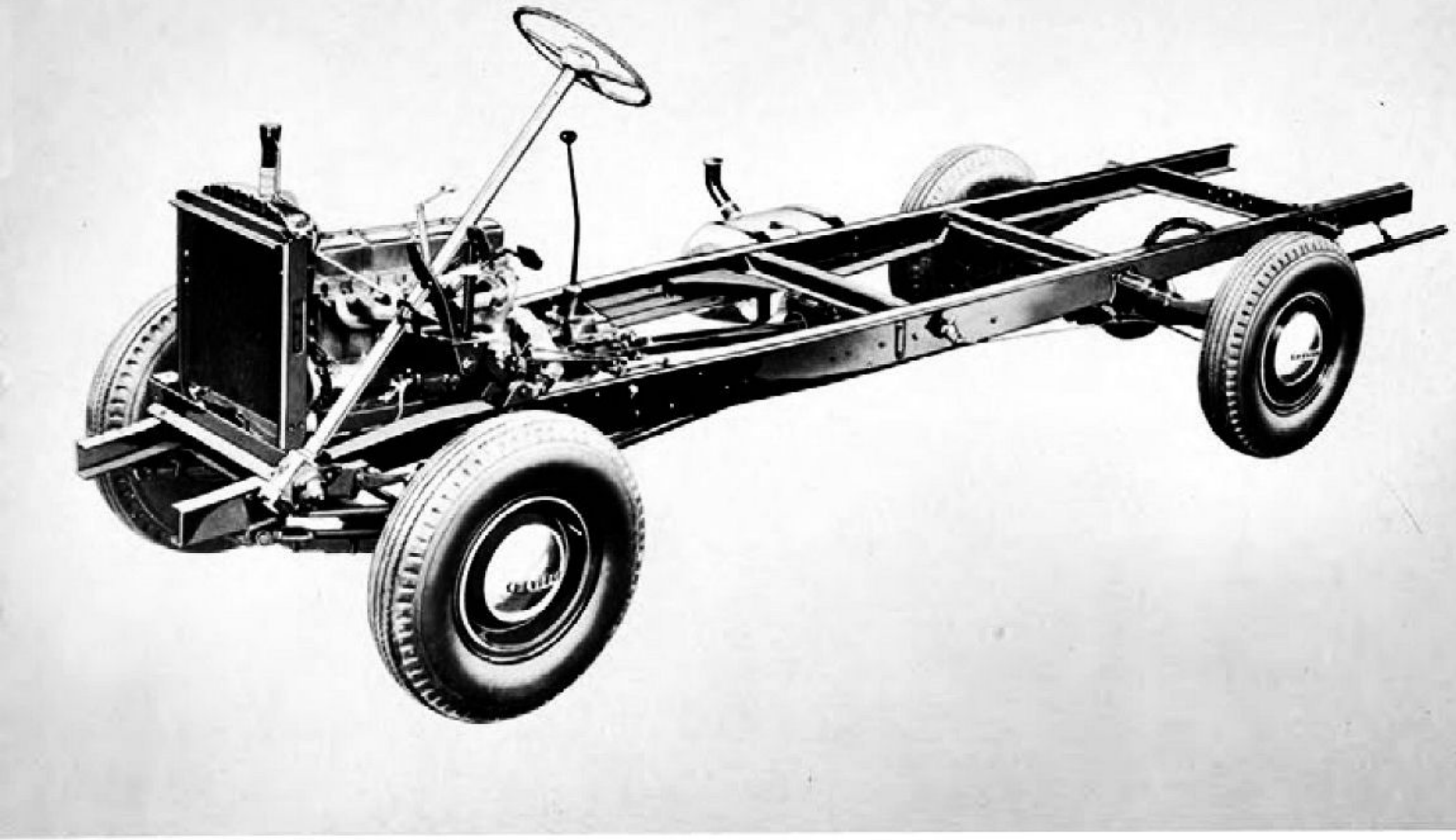
In 1949, the combination tail and stop light is brighter. The lens is molded lucite, instead of glass, and the stop light bulb size is increased from three to twenty-one candle power. With molded glass lenses, it is hard to obtain the sharp prisms that are necessary to direct the light properly. With lucite, however, it is entirely practical. As a result, the new lens has better optical properties, throwing bright beams to the rear of the truck in the desired pattern.

As a safety precaution, the tail light continues to have a special prismatic pattern molded into the lucite to reflect the headlights of following cars, in case of light failure. Since these reflecting prisms are also more accurately molded, they, too, are more efficient, and reflect more light than the previous glass prisms.

Panel, Canopy, and Suburban Carryall models continue to have glass lenses, since they already contain the correct optical pattern for the larger twenty-one candle power bulbs.

BONDED BRAKE FACINGS - SERIES 3000 TRUCKS

Introduced during the 1948 model year on Series 3000 trucks, and regularly used on these models in 1949, a new method of attaching facings to brake shoes, without rivets, doubles their useful life. Details of the new bonded linings may be found in Section Two, in the chapter entitled Brakes.



THE FORWARD CONTROL CHASSIS FOR 10 AND 11 FOOT BODIES, MODEL 3942

BRAKE BOOSTER AIR CLEANER RELOCATED

To make the brake booster air cleaner more accessible for servicing, it was moved to a new location, inside the cab, during 1948. Formerly mounted inside the frame, it was hidden from view, but exposed to road dust, so that it required frequent maintenance. The brake booster is regular equipment on Series 5000 and 6000 trucks.

NEW, SELF-CLEANING WIRING CONNECTORS

For 1949, a new kind of connector replaces the bayonet connectors that were used at the junctions of the chassis wiring harness with those of the tail and stop lights and gasoline gauge tank unit. The new connector is a plastic tube, containing two spring contacts, which firmly grip the flat, eyelet-type terminals on the wires when they are inserted at each end. The connection at one end is permanent to avoid future loss of the connector.

An advantage of the new connectors is that they eliminate the use of solder. Previously, the connections were made between the soldered ends of wires, butted together, and held in place by a coil spring. In the new connectors, however, the welded-on terminals lie between two flat springs, with a larger, more effective area of contact. Vibration, usually a source of trouble in electrical systems, cannot impair the function of the new connectors. On the contrary, it is beneficial, because the continual shifting of the terminals in their contacts keeps them clean and bright.

MODEL 3942 ADDED

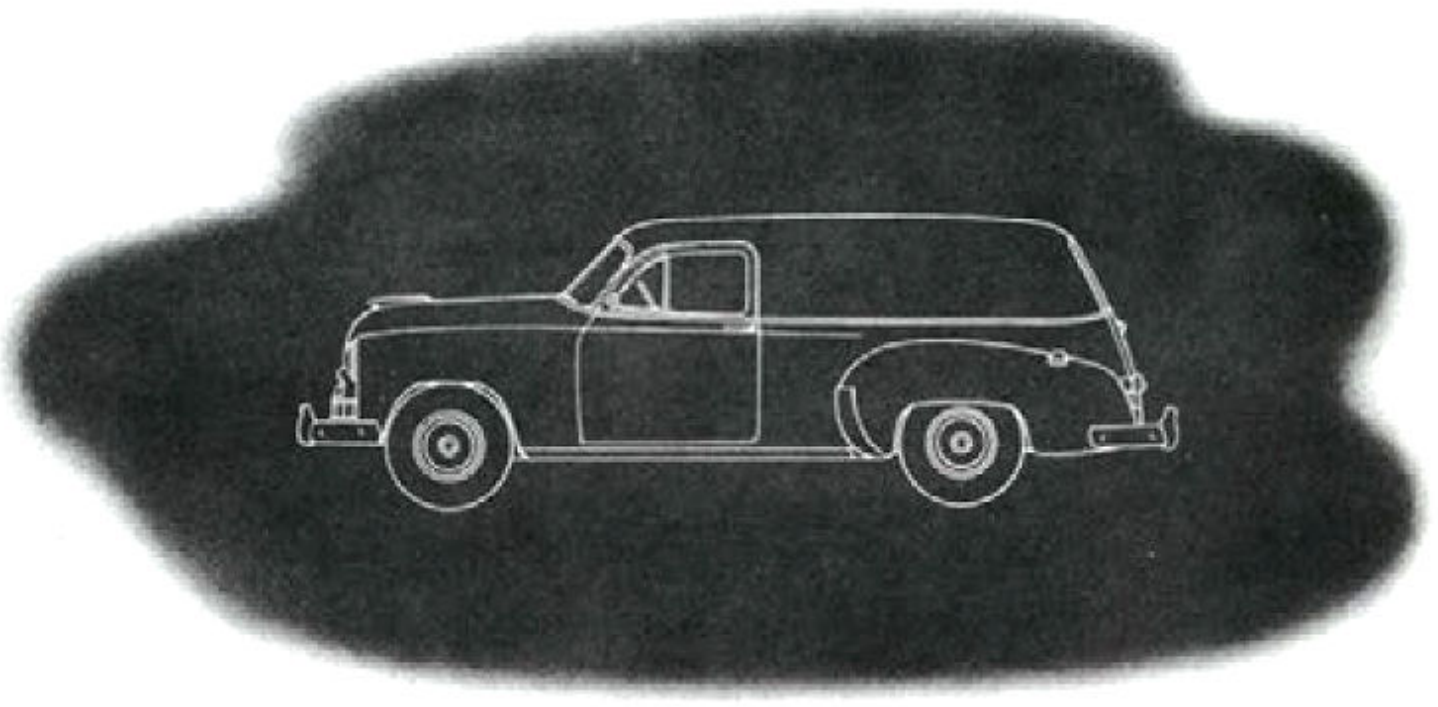
Chevrolet has two forward control delivery chassis in the 1949 model line-up: Model 3742 for nine or ten-foot special bodies, and Model 3942 for ten or eleven-foot bodies. Special bodies of the package delivery type in nine, ten, and eleven-foot sizes are built by many body manufacturers. Production of Model 3742 began in May, 1948. Three months later, Model 3942 was added to the line.

Both models feature the Thrift-Master engine, with vacuum-operated crankcase ventilation and a solenoid-operated push-button starter; 5.14 to 1 ratio, full-floating rear axle; and tires as large as 7.50-17-8 pr for 7000-pound maximum GVW on Model 3742, and 7.00-18-8 pr for 10000-pound maximum GVW on Model 3942. Wheelbases are 125-1/4 and 137 inches, respectively, for models 3742 and 3942.

TOOLS DISCONTINUED

Except for the jack and wheel wrench, all tools are discontinued. On models 3107 and 3807, however, a tire lock wrench is also supplied, and with Series 3800, 4000, 5000, and 6000 trucks, a tire iron is regular equipment, as before.

Section Two . . .



Sedan Delivery

CLASSIC BEAUTY DISTINGUISHES THE NEW FRONT APPEARANCE

THE NEW STYLING

Behind all the beauty in the new Sedan Delivery is an extensive and skillful application of functional design. Looking at it another way, this exceptionally good-looking model is the result of functional design. For, in the conception of such a complicated machine as a motor vehicle, the original purpose of design is function, and styling that is based on function is the most effective and the most beautiful. Contrasted with this modern, practical approach to design, is the outmoded idea of disguising the appearance of automobiles with styling which camouflages or contradicts their functions.

WIDE-BASE RADIATOR GRILLE

The low, wide proportions of the front of the 1949 Chevrolet are given added emphasis by the new radiator grille. Simple and clean-cut in line, it is lower, with a strong broad-based effect. There is purpose in this simplicity of design, for the function of the grille is to admit and direct air to the radiator, while offering the least possible obstruction to it. Also, the distinctive design assures easy recognition of the Chevrolet Sedan Delivery.

WRAP-AROUND FRONT BUMPERS

To give added protection, the chrome-plated front bumper is curved at the corners and carried back to the wheel cutouts in the front fenders. The extension of the bumper ends around the sides of the fenders, frequently called "wrap-around", protects the fenders from much of the damage formerly encountered in parking lots and in minor collisions. The bumper ends are securely braced, in contrast to the unsupported side extensions found on the bumpers of some cars.

Another improvement for 1949 is the addition of a sturdy license guard in the center area of the front bumper, which protects the license plate from scratches and dents. It is more than nineteen inches wide, allowing ample mounting space for any license plate.

SHORTER, LOWER HOOD

With the entire body roof structure moved forward from its previous position, a shorter hood results. It is also lower and wider, like the new bodies, and is set lower between the front fenders.

The cowl ventilator is eliminated in the new Sedan Delivery, so tha' the hood is continuous

THE STYLELINE SPECIAL SEDAN DELIVERY, MODEL 1508

from the top of the grille to the base of the windshield. While it is manufactured in two pieces, the hood appears to be a single panel, because the molding, which covers the joint at the center, is painted the same color as the hood.

Decoration on the hood is confined to a chrome-plated ornament and an emblem with the blue Chevrolet trademark on a vermilion shield.

LARGE, CURVED WINDSHIELD

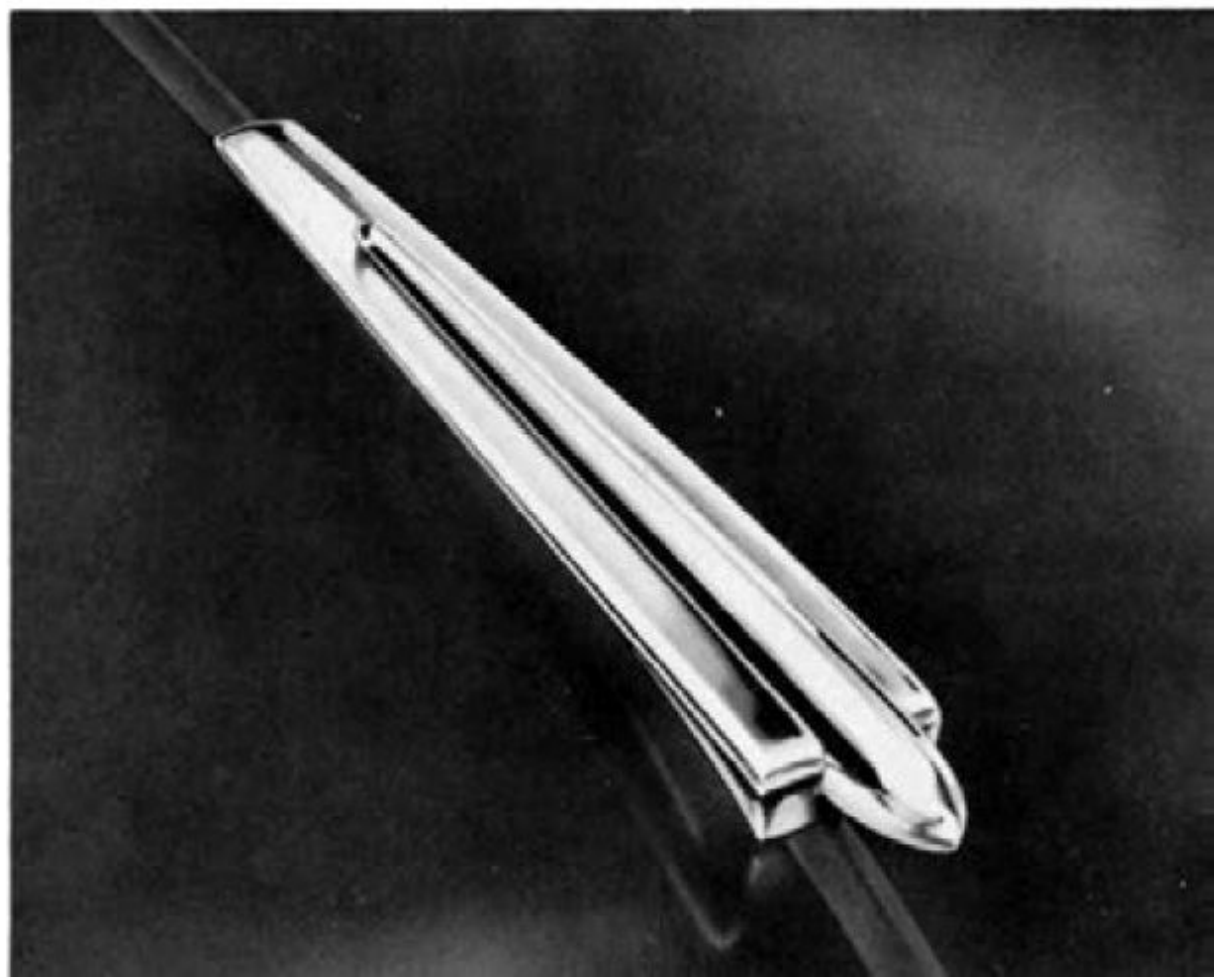
The lower overall height of the new Chevrolet is emphasized by the wider windshield with a lower and broader base. For the first time in Chevrolet's price class, the windshield glass is curved, effecting a smooth transition of lines between the hood and the body top.

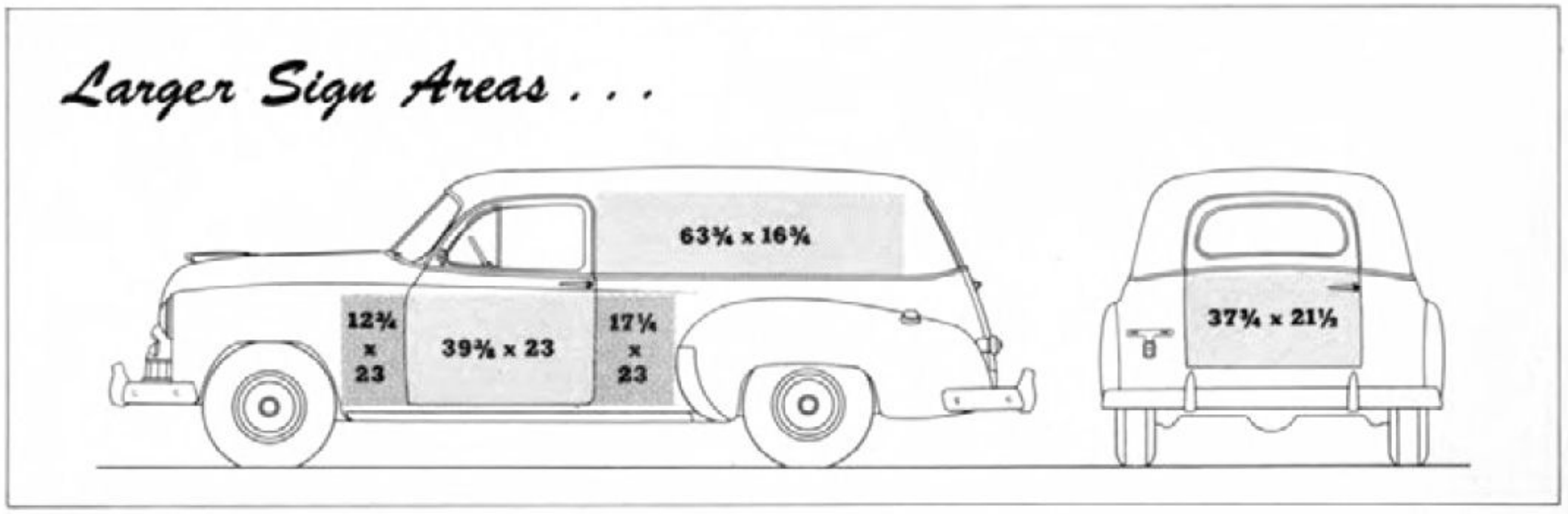
A stainless steel molding covers the joint at the center, and a reveal molding borders the top and sides of the windshield, joining the belt molding at right angles to create a wide, squared effect. The windshield wipers are attached to their drive shafts at the centers of small plates on the belt molding.

THROUGH-BODY FENDER STYLING

When viewed from the side, the 1949 Sedan Delivery reveals a new continuity of lines, accenting its low silhouette and increasing its apparent length.

THE HOOD ORNAMENT IS SIMPLE AND ATTRACTIVE





The somewhat higher front fender line carries through in diminishing form to blend with, and disappear into the rear fender shape embossed in the body. This through-body treatment achieves a trim look, avoiding any suggestion of the bulkiness usually associated with extra-wide bodies.

Functional beauty is well illustrated in the new rear fender, formed integrally with the body panel. The transition between body and fender is uninterrupted by the usual joint, with its many disadvantages.

The door handles are mounted just below the belt molding. They are chrome-plated die castings of streamlined design, with cylindrical push-buttons in the hubs. Since the key locks are located in the push-buttons, the separate locks in the door panels are eliminated.

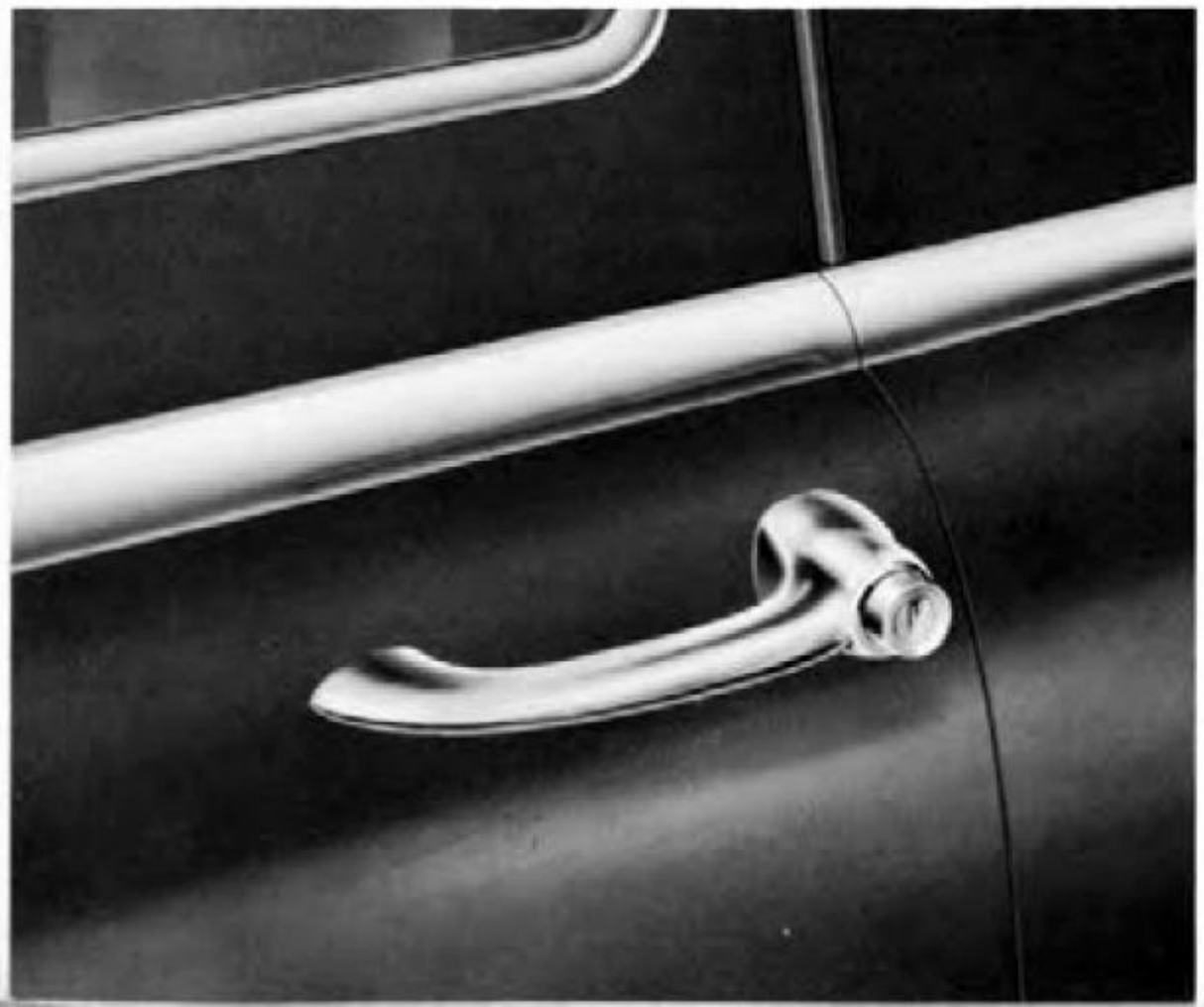
The base of the top structure is underlined by a belt molding, 1-1/8 inches wide, which circles the entire body.

The rear fender crown is high-lighted by a stainless steel molding, extending from the body sill at the front, to the gravel deflector at the rear. It is 5/8 of an inch wide, and serves to emphasize the importance of the fender shape in the overall appearance of the car.

The lower portion of the body and front fender, between the wheel openings, is curved inward, and covered along the bottom edge by a sill molding. Being two inches wide, this stainless steel molding forms a strong horizontal line along the lower edge of the body. A short, black rubber extension fills the space between the tapered rear edge of the sill molding and the rear fender.

The leading edge of the rear fender is protected by a rubber shield, which provides a durable surface to withstand the punishment of gravel or mud thrown against it.

PUSH-BUTTON DOOR HANDLES ARE MORE CONVENIENT



LARGER SIGN AREAS

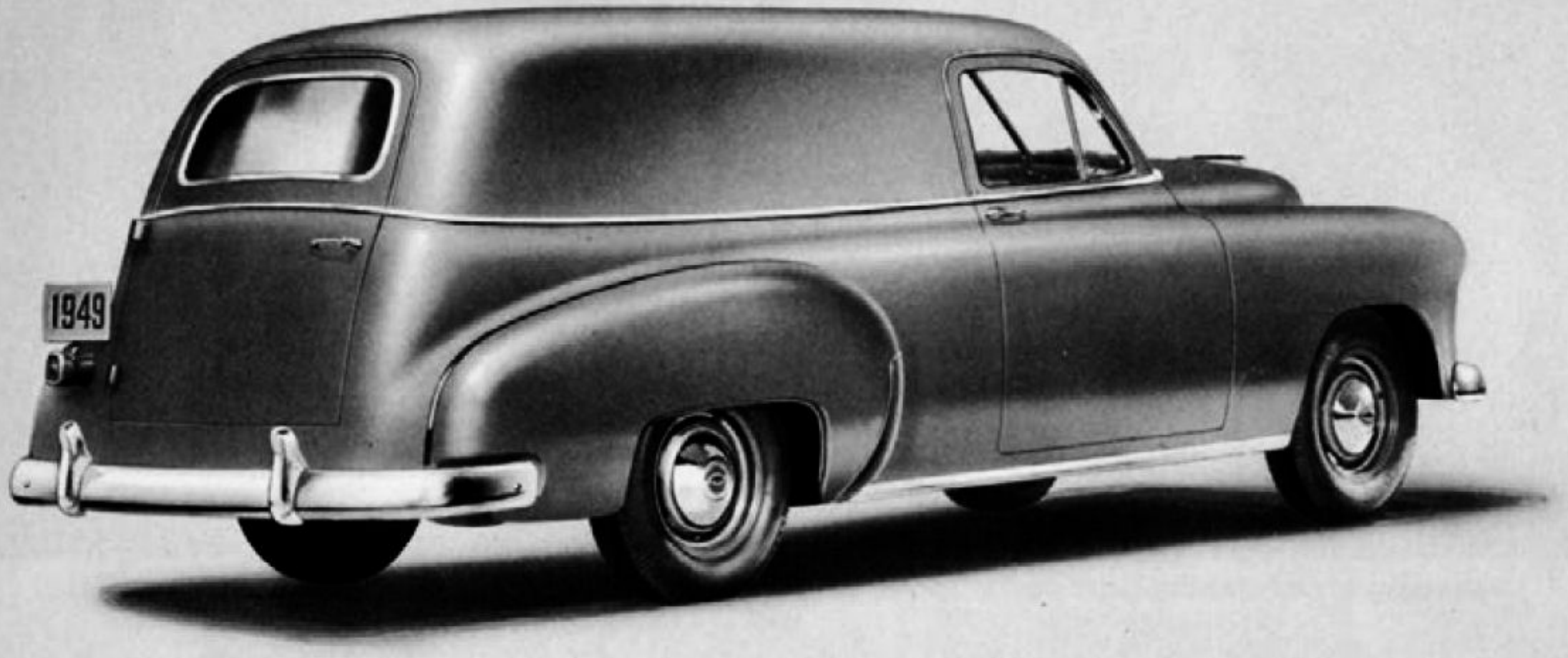
With the elimination of the depression in the body side panel, and the drip molding above the panel, a continuous, smooth surface extends above the belt line from the side door to the rear corner on each side of the body. This larger, unconfined sign panel has an impressive appearance, permits much larger signs, and is easier to keep clean.

Since fender caps are no longer used, the side doors, below the belt line, provide other large areas for advertising.

A wider area on the rear door is also available for signs, since the push-button door handle is the only exposed hardware mounted below the belt molding. The license plate is now mounted on the body panel, to the left of the door opening, and is illuminated by the tail light. Formerly, both the license plate and tail light were carried on the rear door, limiting the area that could be used for advertising. The large, curved glass of the rear window is framed by a stainless steel reveal molding.

WRAP-AROUND REAR BUMPERS

The gravel deflector at the rear of the body is embossed, as in 1948, but the design is a simple, raised pattern, instead of ribbed. The rear bumper, like the front, is of the wrap-around style. It is fitted close to the sides of the fenders in

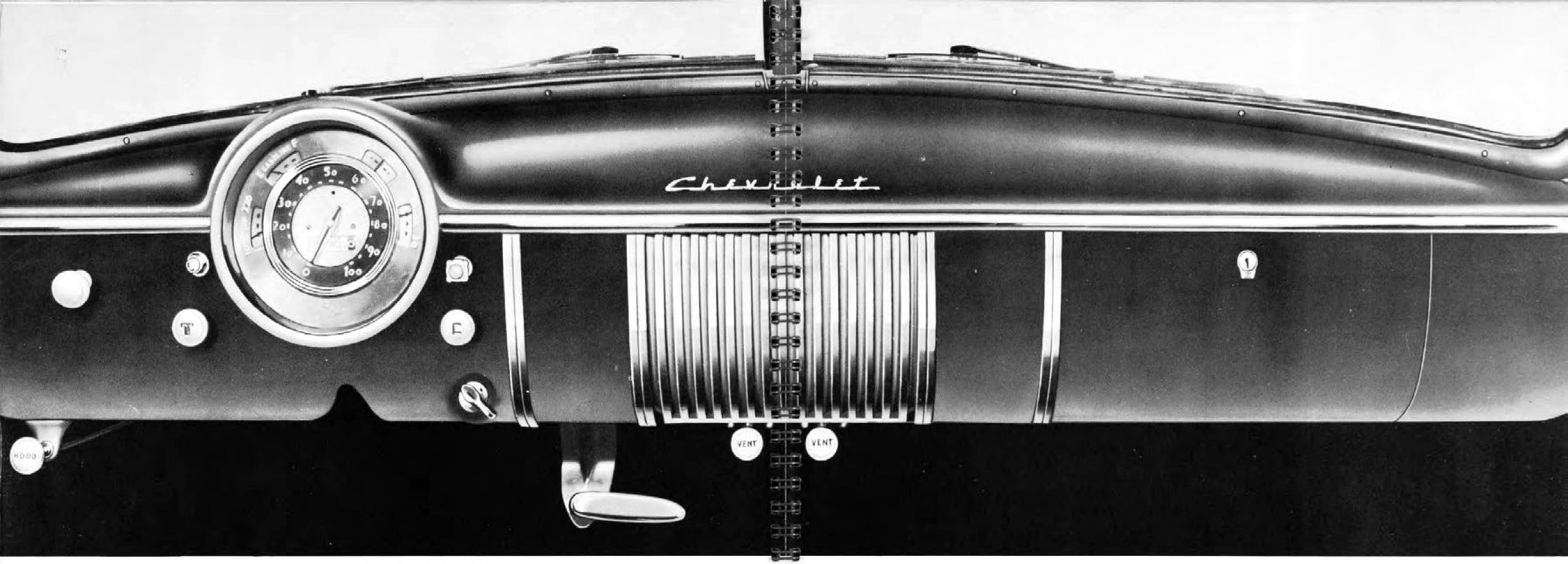


THROUGH-BODY FENDER STYLING ACHIEVES UNITY OF APPEARANCE

depressions formed in the fender surfaces. In this way, the braces, which extend through rubber grommets in the fenders to support the ends of the bumpers, are practically hidden from view.

EXTERIOR COLORS

The Sedan Delivery is offered in a choice of four exterior colors: Mayland Black (regular), Monaco Blue, Grecian Gray, and Liveoak Green.



INTERIOR APPEARANCE

The interior of the 1949 Sedan Delivery is new throughout - new in design, new in color, and new in appointments. The load space is painted light gray and the headlining above is light gray leather fabric. The driver's compartment is brown. Instrument panel and garnish moldings are finished with brown deep-luster metallic lacquer, while sidewalls and seats are brown leather fabric.

Because of the greater widths of the side doors, and the lower seats, the new Chevrolet is much easier to enter and leave than before. Also, the sides of the seats are closer to the outside of the body, so that the driver can be seated directly, without first stepping into the car.

INSTRUMENT PANEL ARRANGED FOR CONVENIENCE

The instrument panel is restyled to enhance the interior appearance. Moreover, the instruments and controls are slightly higher than before, and placed directly in front of the driver, for greater convenience and safety. The instrument panel is approximately 1-1/2 inches farther forward from the seat than in 1948, providing a more spacious front compartment, and reducing the shelf-like area on top of the instrument panel.

The instrument cluster, centered over the steering column, is recessed slightly into the panel surface to prevent reflections in the windshield from the instrument lights. The odometer and speedometer occupy the center of the cluster. The other instruments, arranged conveniently around the speedometer, are the temperature and gasoline gauges on the left, and the ammeter and oil pressure gauges on the right.

The hand controls at the left end of the instrument panel are the light switch, on the face of the panel, and the hood release knob, mounted on the lower flange. Directly to the left of the instrument cluster is the starter push-button, with the throttle just below it. The windshield wiper knob is to the right of the instruments, as are the choke and the ignition switch. This arrangement permits the driver to start the car simply by turning on the ignition, and operating the choke with his right hand, while pressing the starter button with his left hand.

Other controls, placed close to the right of the driver, are the L-shaped parking brake handle and the ventilator control knobs, which operate the valves in the air intakes on the dash panel.

A radio grille is provided at the center of the instrument panel. A removable panel to the left of the radio grille may be replaced by the controls and dial of an accessory radio.

A similar panel on the right hand side, may be removed to install the accessory clock, drawer-type ash tray, and cigarette lighter.

The glove compartment, on the right side of the instrument panel, is equipped with a push-button lock, as in 1948.

STEERING WHEEL DESIGNED FOR SAFETY

For 1949, the steering wheel is located at a lower, more natural angle, adding to driving comfort.

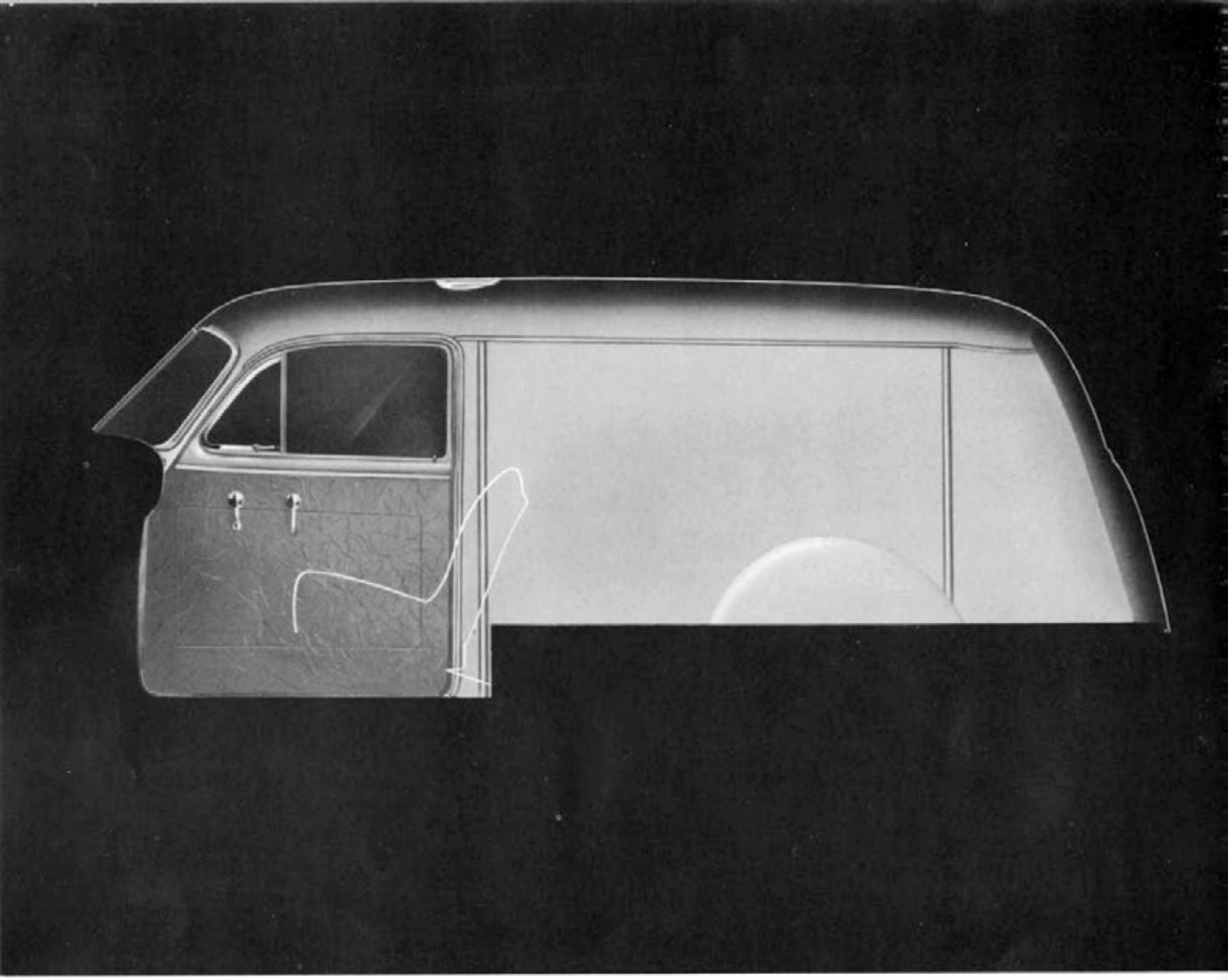
Because it is thinner, the wheel is easier to grip than before. The diameter of 17-1/4 inches remains unchanged. Since the wheel is lower, visibility above it is improved, especially for shorter persons.

The three spokes of the steering wheel are arranged in a T-shape, rather than in a Y-shape, as in 1948, to leave the upper section of the wheel open for visibility. The color of the wheel is brown to match the instrument panel.

HARDWARE AND APPOINTMENTS

All hardware and fittings are new to complete the modern appearance of the interior. The door handles and window regulators are of a low-hub design - that is, the portion that fastens to the door is flatter than before. This feature lessens the outward projection of the handles and reduces the possibility of catching clothing on them. The handles on the front doors are now mounted vertically instead of horizontally, and are pulled instead of pushed to open the doors.

The ventipanes are controlled by locking handles, mounted on the ventipane frames, in place of the hand cranks used in 1948. This eliminates one projecting handle from the door panel, so that



INTERIOR STYLING OF THE SEDAN DELIVERY

the door handle and window regulator can be relocated for greater convenience and better appearance. Also, since a push-button lock is incorporated in the hub of the new ventipane handle, a separate bolt lock is no longer needed.

The dome light is a new shape, incorporating the manual switch in the chrome frame of the light. This is a convenient location for the switch, since it is within easy reach of driver or passenger. Another significant improvement is the stronger plastic lens, which resists breakage much better than the 1948 lens. A larger bulb (fifteen candle power instead of six) in the dome light provides greater interior illumination.

LARGER, MORE USABLE LOAD SPACE

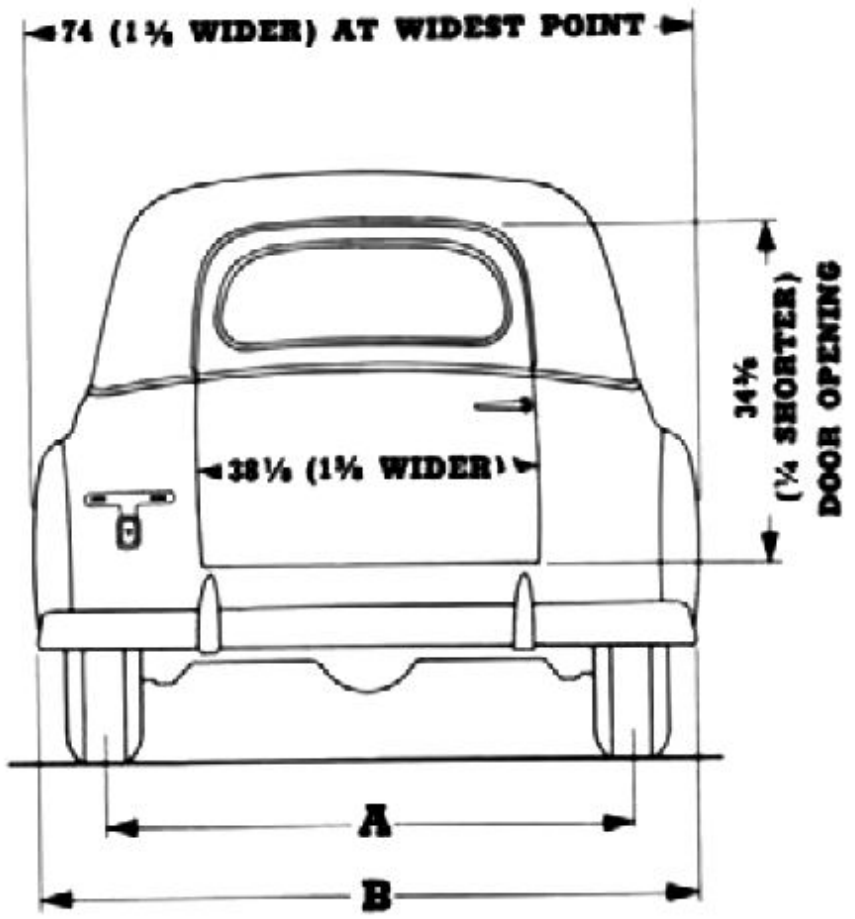
Although the height is lower, and the width between the wheelhouses is slightly less, there is a gain in load space. This is because the body is longer and wider. The distance from the back of the seat to the rear door is 6-3/8 inches greater and the width between lock pillars is increased 1-7/8 inches. The 1948 body had a capacity of 83 cubic feet, whereas the 1949 model provides 92.5 cubic feet - an increase of over eleven per cent.

Smooth, sturdy plywood, 1/2 inch thick, covers the steel underbody, and fiber board panels are attached to the sidewalls. Walls are painted light gray, and the floor, dark brown.

NEW SPARE TIRE COMPARTMENT

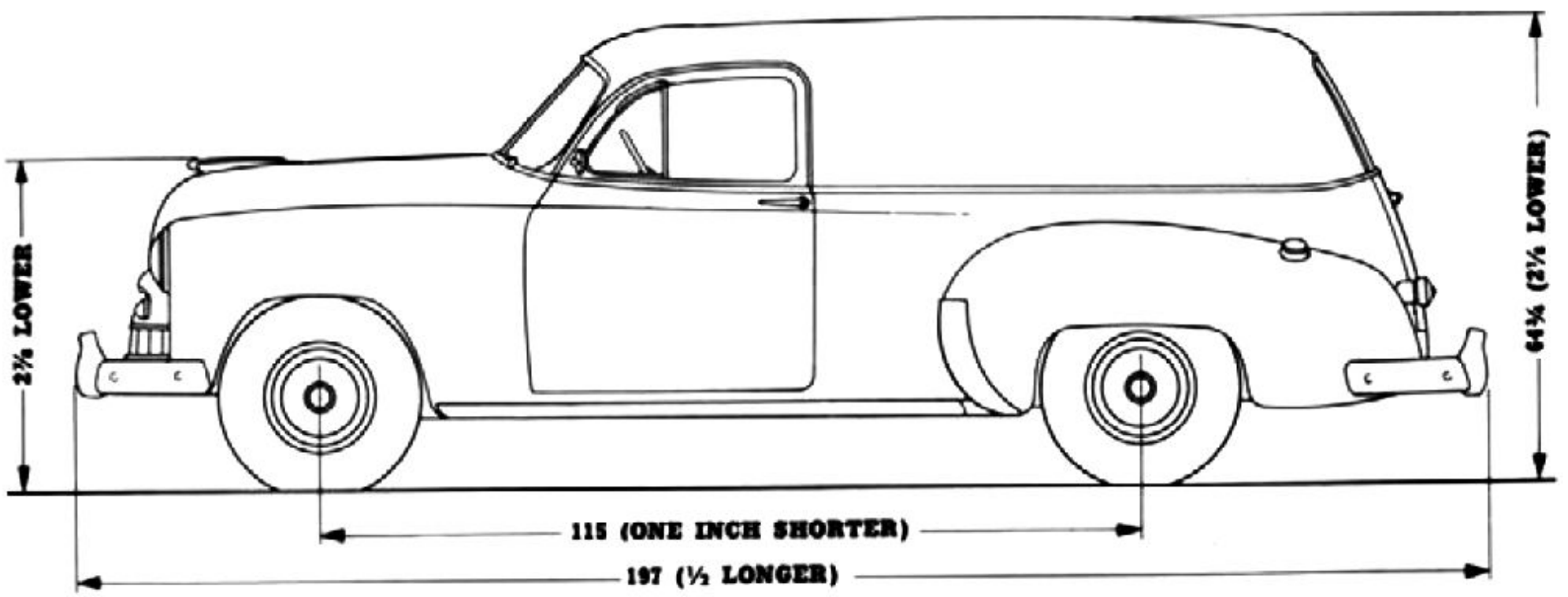
The spare tire and wheel are carried in a new compartment under the floor, at the rear of the body. The compartment is a sheet metal well, located behind the rear axle, and reached by removing a lid that forms a part of the floor. The tire well also provides space for stowing the bumper jack and handle.

Exterior Dimensions . . .



A { FRONT TREAD 57 (⅝ NARROWER)
REAR TREAD 58¾ (1¼ NARROWER)

B { FRONT BUMPER 71⅝ (5⅛ WIDER)
REAR BUMPER 73¼ (7⅛ WIDER)



DIMENSIONAL ANALYSIS

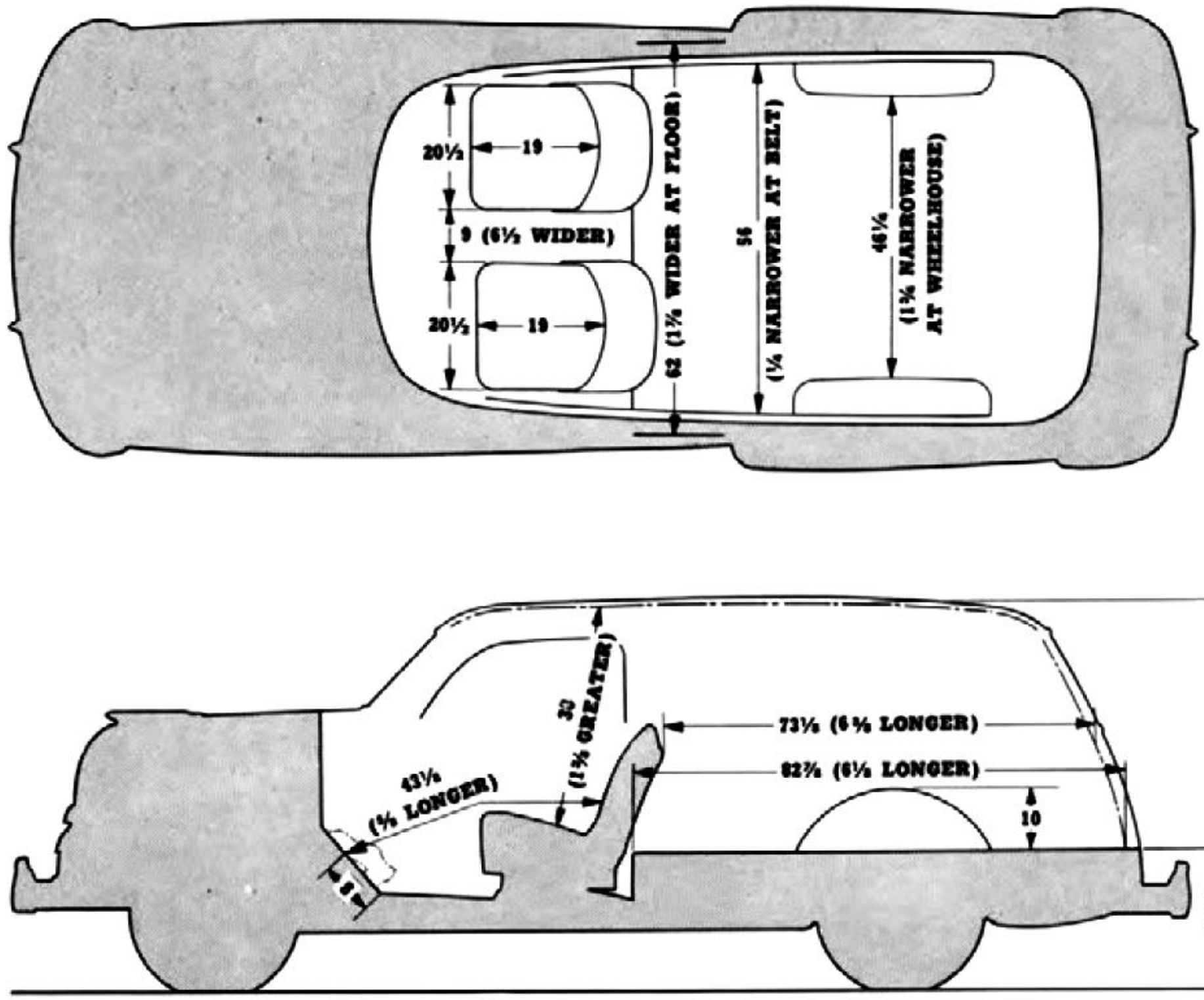
Several striking dimensional changes are evident in the styling of the new Sedan Delivery. Among these is the reduced overall height, which gives it a long, swift appearance. Also, the increased width of the body below the belt line gives evidence of great stability.

MORE COMPACT EXTERIOR DIMENSIONS

The overall height of the Sedan Delivery is now 64-3/4 inches, under design load. This is a reduction of 2-1/8 inches from the previous height. The new model appears considerably longer, because of its lower height and flowing lines, but actually, it is only 1/2 inch longer than before. A one-inch reduction in the wheelbase, coupled with a longer front and rear overhang, makes possible the compact overall length of 197 inches.

The overall width, measured across the rear fenders, is increased slightly more than an inch, because the lower body panels sweep farther outward to create the wider load space. On the other hand, the width across at the front fenders is

Interior Dimensions . . .



reduced more than 1-1/2 inches. This reduction was made possible by narrower wheel treads.

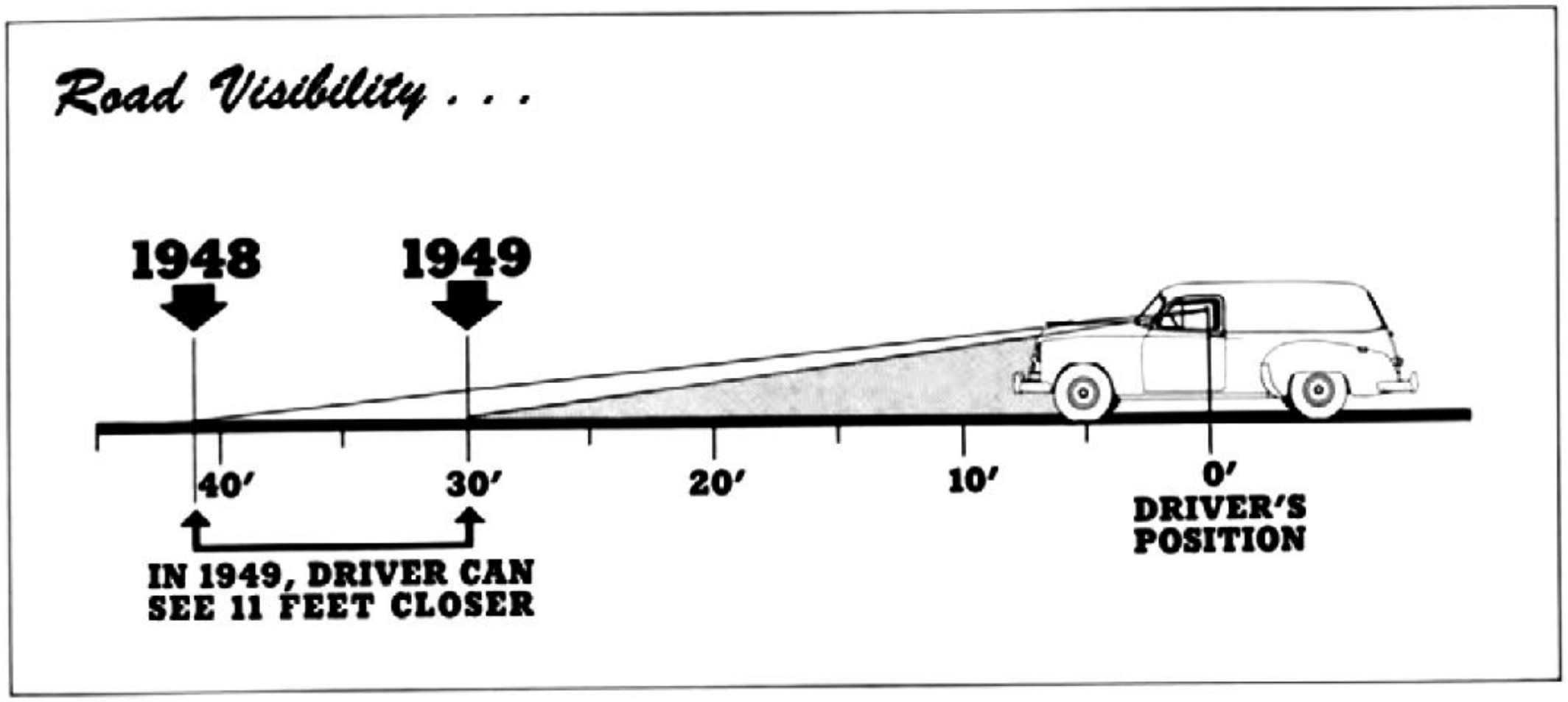
This brief consideration of the measurements of the new Chevrolet brings out the fact that, except for height, the overall dimensions of the vehicle are not greatly affected by the complete change in appearance. This is a feature of special importance to business men whose garage or parking facilities are limited. Through skillful styling and ingenious arrangement of components, the load space and passenger space in the new Sedan Delivery have been increased, while outside dimensions remain practically the same, and are even reduced, in some cases.

LARGER DRIVER COMPARTMENT AND LOAD SPACE

The width of the driver compartment is increased to provide even greater interior roominess than in the 1948 Chevrolet. The widest point of the body is now located much farther forward than formerly, and the body panels flare outward all the way from the belt line down to the floor. Basically, it is these changes which increase usable space without creating the traffic hazard of a much greater overall width.

Carrying the outward flare of the inner body panels down to the junction with the floor results in a much wider floor. The former rubber-covered entrance steps are no longer necessary with the lower floor and seats, so that most of this space is now utilized as floor area. Narrow step plates, finished with brown crinkle paint, replace the entrance steps across the door openings.

The wider forward section of the 1949 body allows the seats to be placed farther apart. Small gains in leg room are also provided in the new Sedan Delivery. Other interior dimensions are changed significantly, and may be studied in detail on the accompanying illustration, showing the principal interior dimensions.



INCREASED VISIBILITY

Virtually surrounded by a semi-circle of glass, occupants of the 1949 Sedan Delivery enjoy a larger field of vision, making driving safer and more pleasant. Greatly enlarged vision openings provide the improvement in visibility, along with a lower hood and body belt line, and smaller blind spots at the windshield pillars.

LARGER GLASS AREAS

The large, curved V windshield in the 1949 Chevrolet is of special advantage to the driver, because it provides so much more visibility than in previous models.

The area of the windshield opening is now more than 860 square inches, representing an increase of thirty per cent over that of 1948. Being curved, the windshield extends around the front corners of the car, and the windshield pillars are moved back from their previous location. Moreover, the blind spot in the windshield pillar area is reduced thirty-two per cent, so that a much wider field of vision results.

The side windows are also materially increased in size. A comparison shows an increase of fifteen per cent, for 1949. Aside from the obvious advantage of greater side visibility, the wider window opening provides increased comfort for the driver, when signaling.

The rear window is now curved to follow the body lines, and its size, like all other windows, is greatly increased, being one inch wider and 2-1/2 inches taller, with an area of 305 square inches. The increased daylight opening provided by this window makes it easy for the driver to glance to the rear, and allows more light to enter the load space.

Improved visibility close to the front of the 1949 Chevrolet is a significant new advantage. The shorter, lower hood now permits the driver to see the road eleven feet nearer to the front of the Sedan Delivery than in 1948.

SAFETY PLATE GLASS

The use of highest quality safety plate glass in the windshield and all windows is continued. This assures Chevrolet buyers of glass which is not only safe, but is also free from distortion or blemishes.

The windshield in the new Chevrolet is curved, laminated safety plate glass, which possesses the same safety features of the former flat windshield. Laminated safety plate glass is used in the ventipanes and side windows, as before. The rear window is curved, safety solid plate glass.

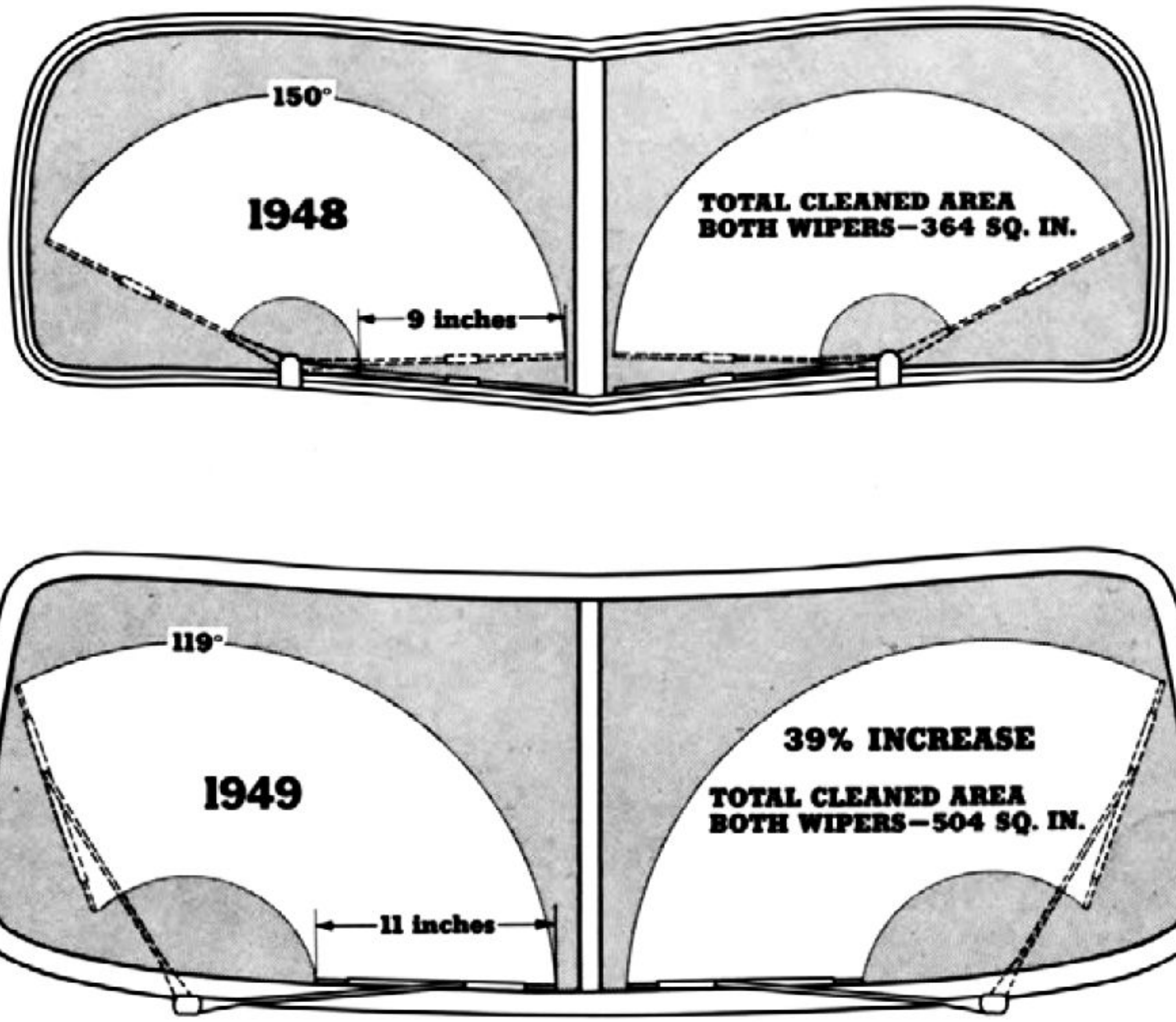
LARGER, MORE EFFECTIVE WINDSHIELD WIPERS

New windshield wipers provide greatly improved visibility for the driver in rain or snow. In addition to being longer than before, the blades are designed to follow the curved windshield surface, and the new motor and direct-drive linkage supply the greater power required by the blades.

The length of the blades is increased two inches, cleaning an area thirty-nine per cent largen than in 1948. Each blade is an articulated unit, built to follow the curvature of the glass. An equalizing device provides for substantially uniform distribution of pressure throughout the longer wiping edge. The wiping rubber is designed as an insert, so that it can be replaced independently of the articulated supporting unit.

A direct drive from the motor to the blades replaces the chain transmission of 1948, reducing the amount of lost motion in the linkage. The direct action is made possible by placing the center of blade rotation farther from the center-

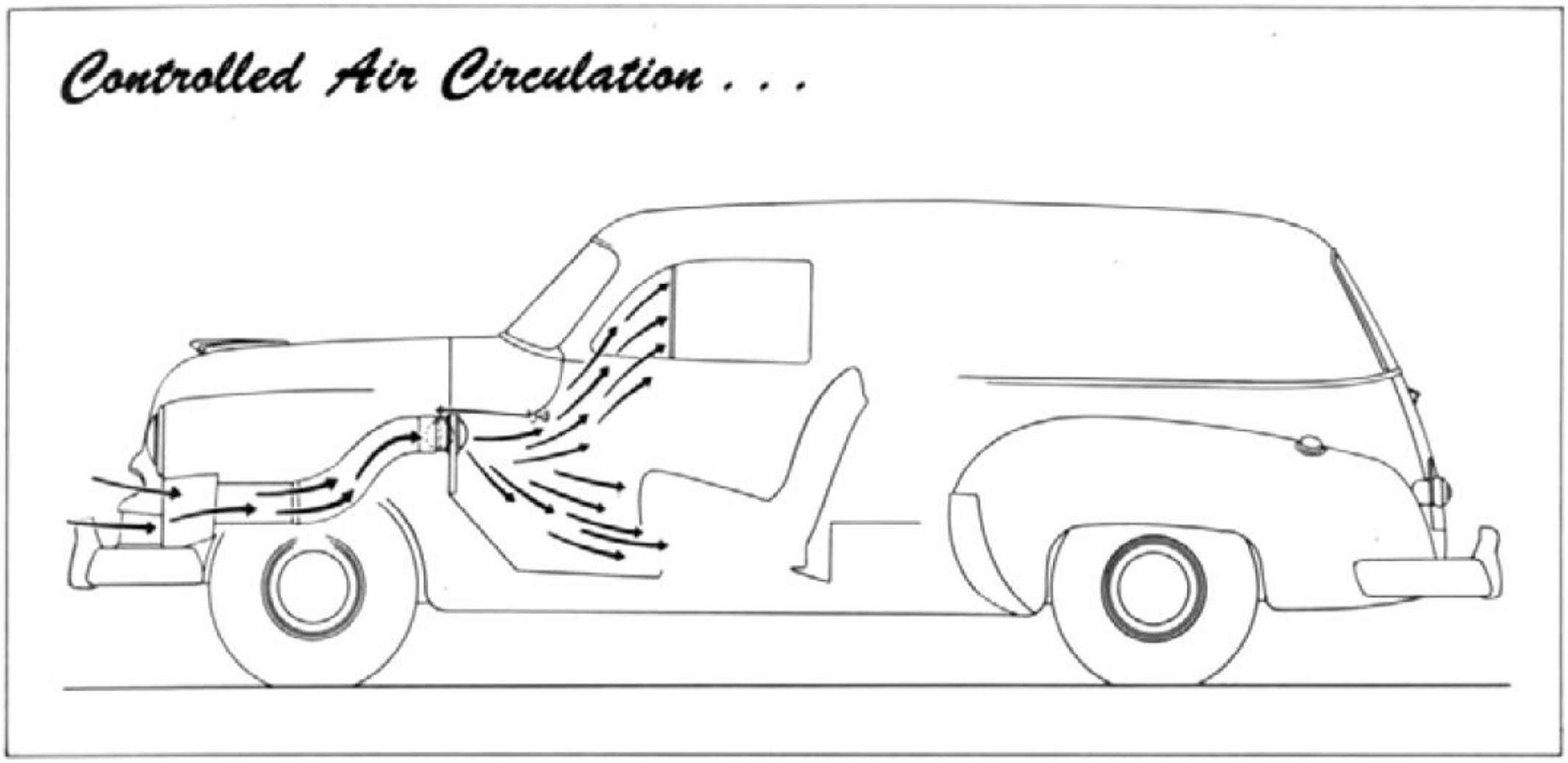
Larger Cleaned Areas . . .



line of the body, reducing the arc of blade travel more than thirty degrees. At the same time, this contributes to the increase in cleaned area, since the longer blades travel at an increased distance from the center of rotation. The results are a better kind of wiper operation for a curved glass surface, and more cleaned area at the extreme sides, near the windshield pillars, than with the chain-driven type.

A vacuum-operated motor, twenty per cent more powerful than before, is supplied, because more force is required to drive the longer blades. However, the maximum wiping speed is reduced, because the blades must follow a curved glass surface, rather than a flat surface. Rubber is generously used to prevent the transmission of operating noises directly to the steel body shell. The wiper motor is mounted in rubber insulators, and the driving links are also rubber-insulated, assuring quiet operation.

As before, the parked position of the blades is along the lower edge of the windshield glass, with both right and left hand blades pointing toward the center of the body. The small vision obstruction of the 1948 wiper hubs, at the base of the windshield, is eliminated. The wiper shafts now extend through a section of the reveal molding, below the windshield.



ALL-WEATHER VENTILATION

The comfort of occupants in the 1949 Sedan Delivery is further assured by new provisions for ventilation. Control is more individualized than before, and air circulation, even in rain storms, is provided. Side window ventipanes, used by Chevrolet since 1933, are improved.

In place of the cowl ventilator, dual air ducts, hidden beneath the hood, pipe outside air from screened openings alongside the radiator to the body, in 1949. The force of air impact against the moving car is utilized to circulate air through the tubes and into the body, the volume of air flow being controlled with an individually operated butterfly valve in each tube. Cables attached to these valves extend to knobs, which are conveniently mounted on the lower flange of the instrument panel, below the radio grille. By this means, either ventilator may be opened to any desired setting, so that a greater amount of air flow may be obtained on one side than on the other, should the occupants so desire.

A stationary deflector covers each air inlet on the dash panel to properly disperse the incoming air. The chosen position was found, after extensive road testing, to be best for all conditions. The upper part of the deflector is a louver, which directs air toward the seats, and slightly downward. Seven louvers in the lower part of the deflector direct air principally toward the center area of the floor, creating a cooling flow of air around the feet.

The twin-duct ventilation system may be used to circulate air during rain storms, keeping the air fresh, and reducing condensation of moisture on the windows to a minimum. This new safety and comfort feature is possible, because baffles protect the air openings behind the radiator grille from direct water splash, and the rise in the "elbow" section of the ducts further guards against the entrance of water into the body.

Quiet operation of the air intakes is assured by felt seals around the butterfly valves, and by insulation applied inside a portion of each duct. Also, rubber sleeves, which connect the ducts to

THE AIR DEFLECTOR ON THE LEFT

the valves on the dash panel, function as insulators to prevent the telegraphing of sound to the body. The new ventilation system also contributes to the cleaner exterior appearance, because it eliminates the necessity for a visible cowl panel to provide a ventilator opening. Instead, the hood now extends to the base of the windshield in a good looking, continuous panel. A potential source of water leaks is also obviated by the elimination of the cowl ventilator.

The controls on all ventipanes are new. Instead of a crank, on the door sidewall, and a separate bolt lock at the window, a compact handle with an integral lock is now mounted on the lower rear corner of the ventipane frame. To open the window, a small lock button in the hub of the handle is depressed, and the handle is rotated from a horizontal to vertical position. The ventipane is then pushed open the desired amount, being held at any position by a friction device in the lower hinge. This quick, easy operation is also evident when closing the ventipane. The window is simply pulled shut, and the handle returned to the horizontal position, where it locks automatically.

BODY AND SHEET METAL CONSTRUCTION

To develop a new body is a long and costly undertaking, and the development for 1949 was no exception. An elaborate testing program was undertaken to insure proper evaluation of proposed designs, and to prove the complete body that was finally chosen.

STRONG, ALL-STEEL UNDERBODY

The general features of box and channel section side rails and welded-in channel cross members, strategically located, are retained from the 1948 all-steel underbody construction, due to its completely satisfactory performance. The floor panel, welded to this framework, is even stronger than before. Since the 1949 Chevrolet is equipped with direct-acting shock absorbers, which, at the rear, are attached directly to the body, heavy-gauge reinforcements have been added to the underside of the body floor. These reinforcements add to the strength of the body, because the ends are welded to the vertical walls of the "kickup" in the floor and the top flanges are welded to the horizontal floor surface.

At the rear door, the spare wheel well is welded to the body floor in the center of the car. On the underside of the floor, and ahead of the wheel well, two flanged channel braces are provided for attachment of the gasoline tank. This construction is similar to that used in 1948, except that the position of the gasoline tank is changed to locate it behind the rear axle, and the fuel tank filler is on the left side of the car.

THE LARGER DASH-TO-FRAME BRACE

BODY-TO-FRAME ATTACHMENT

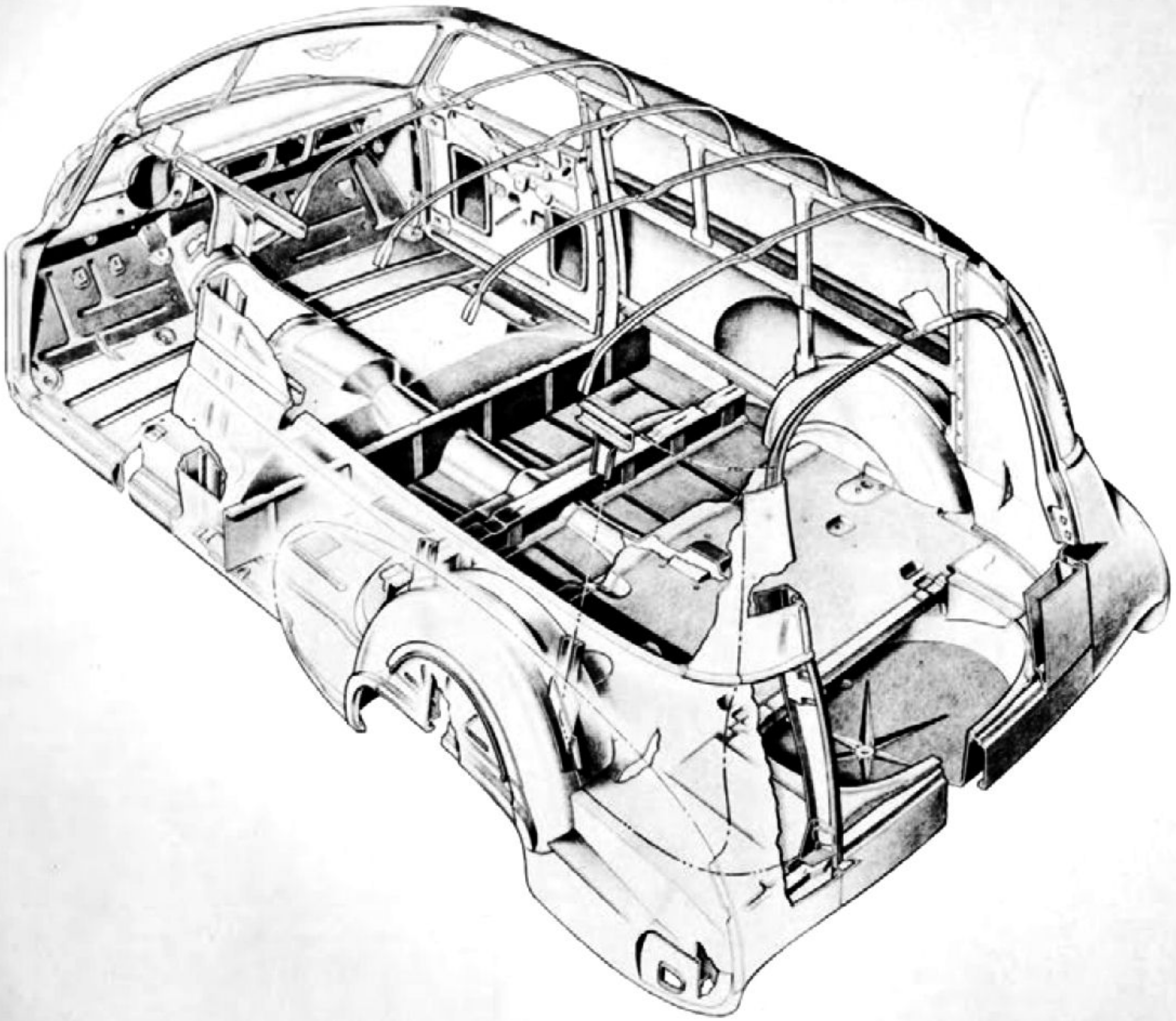
Twenty-two points of body-to-frame attachment are provided for 1949. While this is the same number as before, improvements in the body brackets and braces effect an even closer union of body and frame. This is an important feature, because economies in frame weight are realized when the strength of the body effectively supplements that of the frame.

NEW DASH-TO-FRAME BRACE

The dash-to-frame brace for 1949 is the result of complete redesign, based on the results of extensive body twisting tests. This brace, much larger than its predecessor, is the foremost point of attachment to the frame. In its improved form it reduces front end vibration and contributes to the solid front door support.

The new brace for 1949 slants forward from the body to the frame, whereas, in 1948, it ran vertically. Thus, greater resistance is provided

Improved Unisteel Body . . .



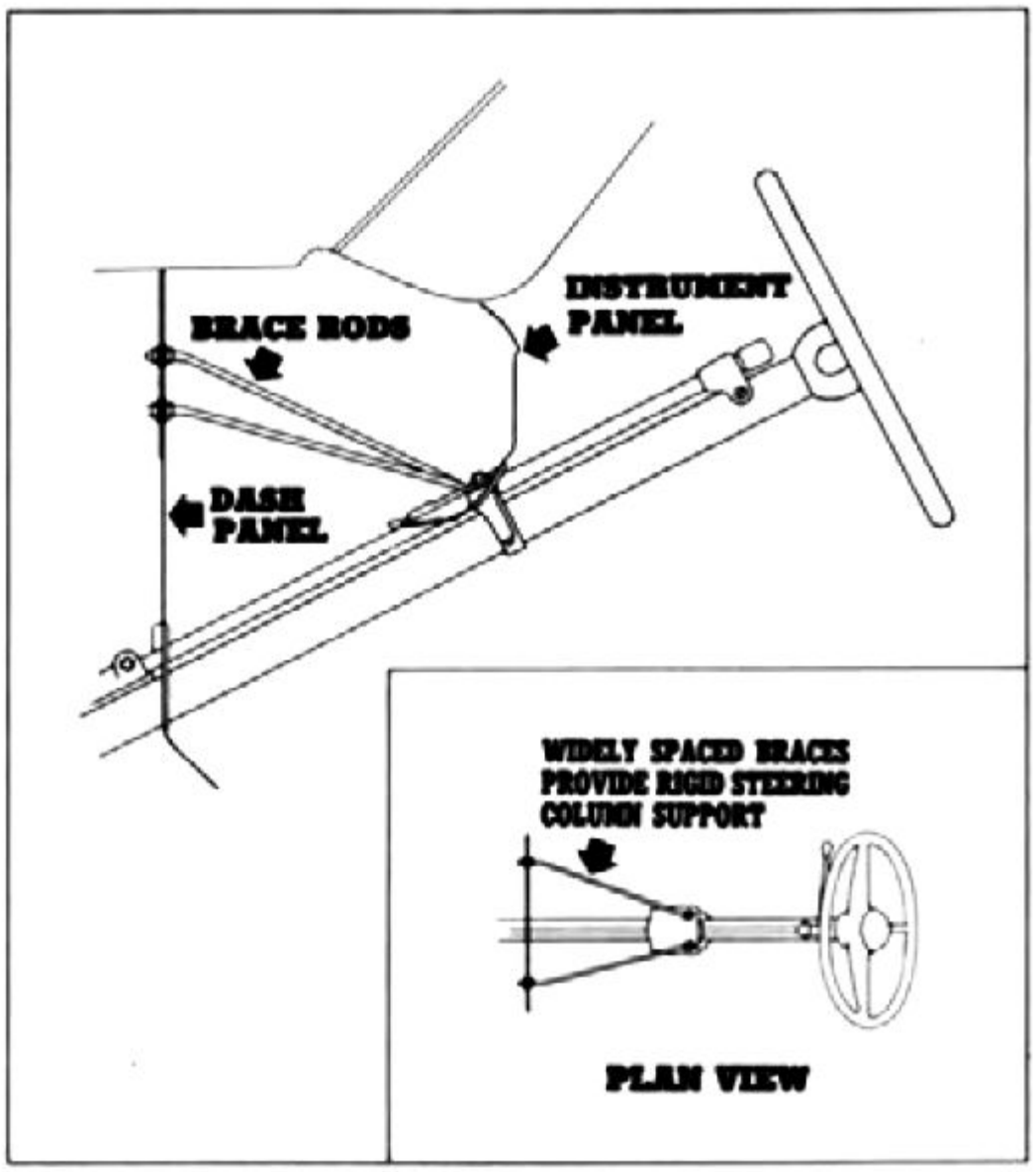
against forces which tend to carry the body forward, such as sudden brake applications. The forward slant of the brace brings the body-to-frame attaching point closer to the front of the frame, uniting the body and frame over a greater length, and providing greater front end stability.

WELDED-IN INSTRUMENT PANEL

In addition to the structural improvement provided by the dash-to-frame braces, further rigidity is added by welding instead of bolting the instrument panel in place. Thus, the instrument panel improves the strength and rigidity of the front of the body with no sacrifice in appearance.

ADDITIONAL STEERING COLUMN BRACING

As in former models, the steering column is attached to the instrument panel by means of a clamp bolted to the bottom of the panel. To insure even greater steering wheel stability in 1949, two braces replace the single brace used previously. These diagonal braces are 5/16 of an inch in dia-



THE NEW STEERING COLUMN BRACES

meter, and extend from the lower flange of the instrument panel, at the steering column clamp, to the dash panel.

NEW "SAFETY" WINDSHIELD MOUNTING

The large, curved V windshield is held in position by a redesigned rubber channel to promote safety, and to facilitate the replacement of glass. The inside edge of the rubber channel is fitted around the windshield opening in the body, the steel lip of the opening extending into a slot in the channel. The windshield glass is installed in a similar, but wider slot from outside the body. In this way, the glass is held to the body in a cushion of rubber outside the actual body shell. Thus, should great impact force be imposed on the glass from the inside, the glass will be unseated from the channel and will fall away from the body.

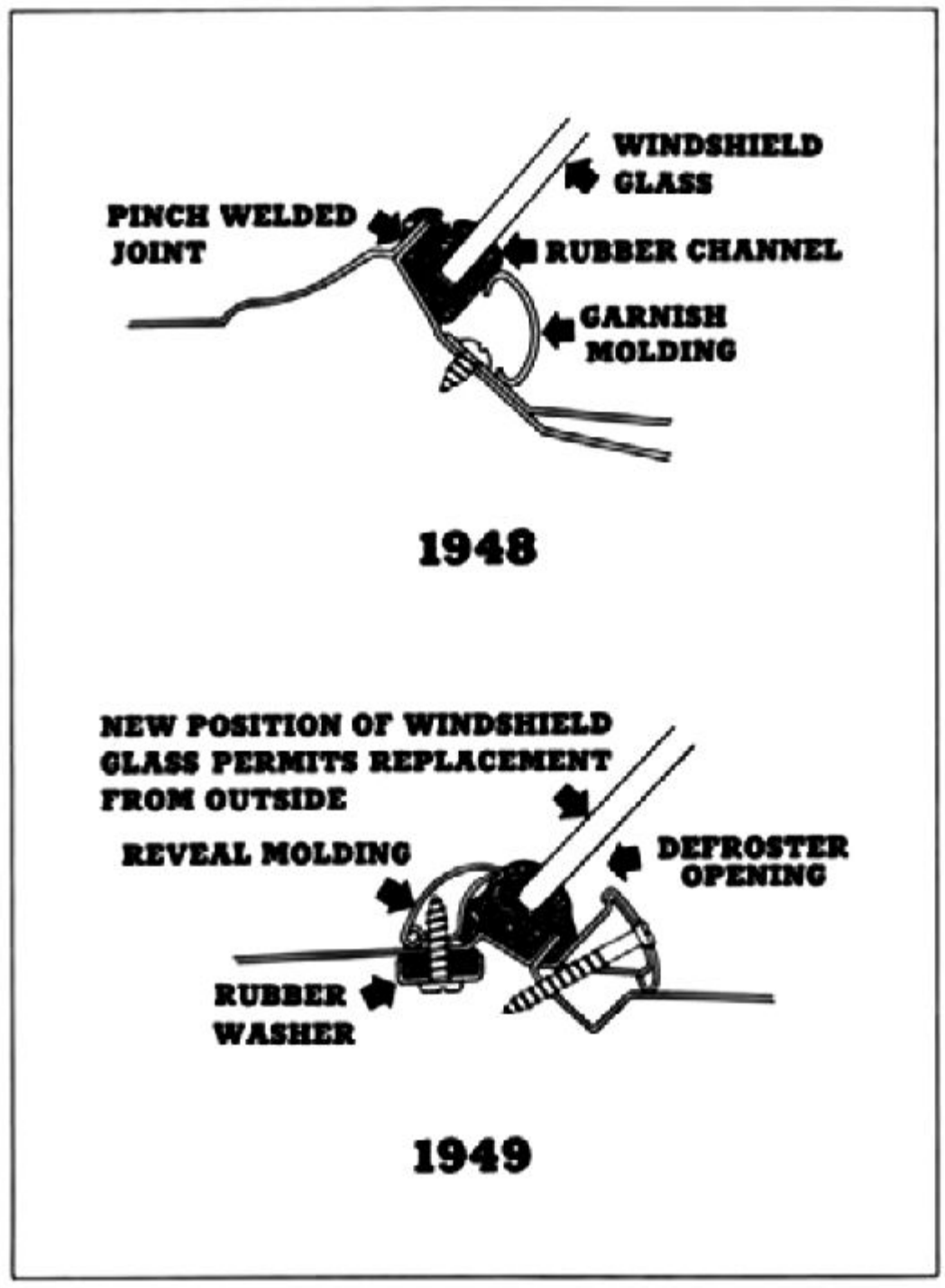
In 1948, the windshield was held in place in a similar manner, except that the rubber channel was reversed. Therefore, the windshield glass was inside the body shell and could not be forced out without breaking it.

OTHER FRONT END CHANGES

Other features in the cowl and dash area include an opening on each side of the dash for the new air inlets, and an opening in the dash panel in line with the instrument cluster. By removing seven screws from the cover plate over this opening, the instruments may be reached from the engine compartment side. The cover plate is insulated with the same material used on the dash panel.

NEW LOCK PILLARS

At the juncture of the lock pillar with the underbody, a generously rounded corner replaces the square corner of 1948, resulting in a twofold advantage. First, the rounded intersection is stronger than one with sharp corners. Second, the rounded corners permit the lower corners of the doors to be rounded correspondingly - an obvious safety feature.



WINDSHIELD MOUNTINGS COMPARED

SIDE STRUCTURE

In the construction of the sides of the body, the rear fenders are now integral parts of the body side panels. This is a marked advance in design over the detachable fender. By combining the fender with the body structure, the anti-squeak material, bolts, nuts, and washers associated with separate fenders, as well as the troublesome fender-to-body joint, are eliminated.

Underneath the fender is a separate wheelhouse, semi-circular in shape, and just large enough for satisfactory wheel running clearance. This creates, in effect, a double-walled fender. When welded to the underbody and side panel, with its integral fender, the wheelhouse provides a rigid support for the rest of the rear structure.

The lower surface of the wheelhouse is coated with a protective material to prevent rust, and to contribute to the silencing of road noises.

It intercepts all mud and gravel thrown from the wheels, so that the outside fender surface will not be dented. Also, the smaller size of the wheelhouse reduces to a minimum the accumulation of mud, snow, or ice.

Making the wheelhouses into compact units, independent of the fender shape, increases the usable space in the load compartment. Also, the gasoline filler pipe is located behind the wheelhouse, where it is better protected from the mud and gravel thrown from the wheels. The filler pipe extends through the side panel as it did in 1948.

ROOF STRUCTURE

The all-steel Turret Top, a popular Chevrolet feature for many years, is continued, being revised in construction, shape, and size for the 1949 body.

Most important among the construction changes is the division of the roof panel into two pieces, each extending down to the belt line. This eliminates the necessity for a joint at the drip molding. In fact, it permits the drip molding to be eliminated, except over the doors. The joint at the body belt line is covered by a decorative molding, while the roof joint is filled with solder for a short distance at each end to make it invisible.

Extending across the body between the center pillars are four new roof bows of large cross-section, which replace the five small bows formerly used. These heavy cross bows contribute materially to the lateral support of the roof rails, completing a body frame, together with side pillars and the underbody cross members.

Spanning the body superstructure from front to rear, the roof rails serve to join the body frame into a rigid unit. The rails extend from the windshield pillars back to the rear corners.

SHEET METAL CONSTRUCTION

The new styling, and the dimensional changes in the 1949 Sedan Delivery, made necessary a complete change in sheet metal design. The hood, front fenders, and radiator grille, while in complete harmony with the exterior and integrated in appearance, still are separate assemblies. This preserves the advantage of economical replacement of parts, should the occasion arise. The new units incorporate added features and improvements, yet they retain the many advantages of former designs.

DUAL VENTILATOR DUCTS ADDED

The general arrangement of the front fender skirts and the hood-fender opening line is revised to provide for body ventilation from the radiator grille. Additional space is required for the air intake tunnels, which extend from the radiator grille to the dash panel on each side of the body.

The battery tray is mounted on the right front fender skirt, just behind the radiator. Formerly, the battery was carried in a tray mounted on the frame, just ahead of the dash. The new location is cooler and more accessible than before.

The voltage regulator and the horn relay, formerly mounted on the dash, are moved to the left fender skirt in 1949. This change was made to gain space on the dash panel for the air intake valves and the new wiring access door.

MORE RIGID HOOD WITH IMPROVED LATCH

The hood is lower, broader, and flatter for 1949. Again, it consists of two halves, riveted together at the center, with a molding and ornament covering the joint. Due to the relatively shallower shape, more rigid reinforcement is required at the rear for the hinge supports. The "alligator-type" front opening is continued, as is the hood mounting on parallelogram hinges. The hinge linkage is heavier for 1949, with pivots of larger diameter. The pivots are held to closer limits to provide smoother action, and to prevent looseness after long service.

The hinge linkage incorporates over-center springs which tend to hold the hood down, when it is in the closed position. When it is raised over the spring centers, the springs hold the hood open for access to the engine compartment. For greater accessibility, when major work is required in the engine compartment, an extra-wide hood opening is obtained simply by opening it farther and providing a prop, or the entire hood may be removed by unhooking the counterbalancing spring and removing two hinge pivot bolts on either side of the hood.

The concealed, easy-action, slam-type hood catch is continued in an improved design. Both the upper and lower catch plate assemblies are more compact and more rigid. The safety catch is moved to the lower catch plate and is made of thicker steel to provide an even stronger catch than in the 1948 Chevrolet. It has a wide range of engagement, which assures positive operation under all conditions. The hood release control is again located inside of the car, with the knob below the left hand end of the instrument panel.

FRONT GRAVEL DEFLECTOR EXTENDED

The sheet metal construction is further simplified and improved because the front gravel deflector is now extended in depth to include the former radiator lower baffle. The one-piece design, thus achieved, eliminates the joint between these two panels as well as the attaching parts. This simpler structure removes unnecessary weight, and is easily removed for service purposes.

SIMPLER, LIGHTER RADIATOR GRILLE

The new radiator grille is constructed entirely of durable steel stampings. This includes the header bar, which was a die casting in 1948. This design provides great strength for the new, wider grille, and is lighter in weight than before.

STURDY, ONE-PIECE FRONT FENDERS

One-piece front fender construction is continued, because of its superior features. The deep-drawn, heavy-gauge steel stampings eliminate the unfinished appearance and potential source of rust associated with joints in fenders of the multiple-piece type.

Since the fender baffles, located just back of the front wheels, are directly subjected to the throw of stones from the tires, a coating of protective material is applied over the paint on the front surface. This coating not only deadens the noise of stones striking the baffles, but prevents chipping of the paint, as well.

THE NEW DOOR CHECK IS SIMPLIFIED

EASILY OPERATED, LARGER DOORS

The front and rear doors in the new Sedan Delivery are noticeably wider, for convenience in entering and leaving. It might be expected that, being larger, the doors would be much heavier, and more difficult to open and close. Such is not the case. Instead, the doors are actually lighter.

The manner in which the front doors are hinged also contributes to their ease of operation. For 1949, the hinge centers are more nearly vertical than previously, so that the doors do not rise so much when opened. This means, of course, that less effort is required to open them.

SIMPLER DOOR CHECK AND HOLD-OPEN DEVICE

The design of the front door check and hold-open device is simplified in the new body. The door check and hold-open, instead of being separate, as in 1948, are combined in a single unit.

The hold-open action is provided when the door is opened, and a roller is forced to pass over a wedge on a spring-steel strap. The tension of the strap is then sufficient to keep the wedge in front of the roller, holding the door open until it is intentionally closed.

The door stop is also very simple for 1949. A hook, formed in the free end of the steel check strap, engages the rear surface of the roller when the door is fully open, preventing further movement.

REAR DOOR CHECK

The design of the rear door check is changed and now includes a greatly improved hold-open device. Also, the new unit has the added feature of assisting the operator to open the door.

The unit consists of two spiral springs, a rubber bumper, two articulated links, and the necessary fastening flanges.

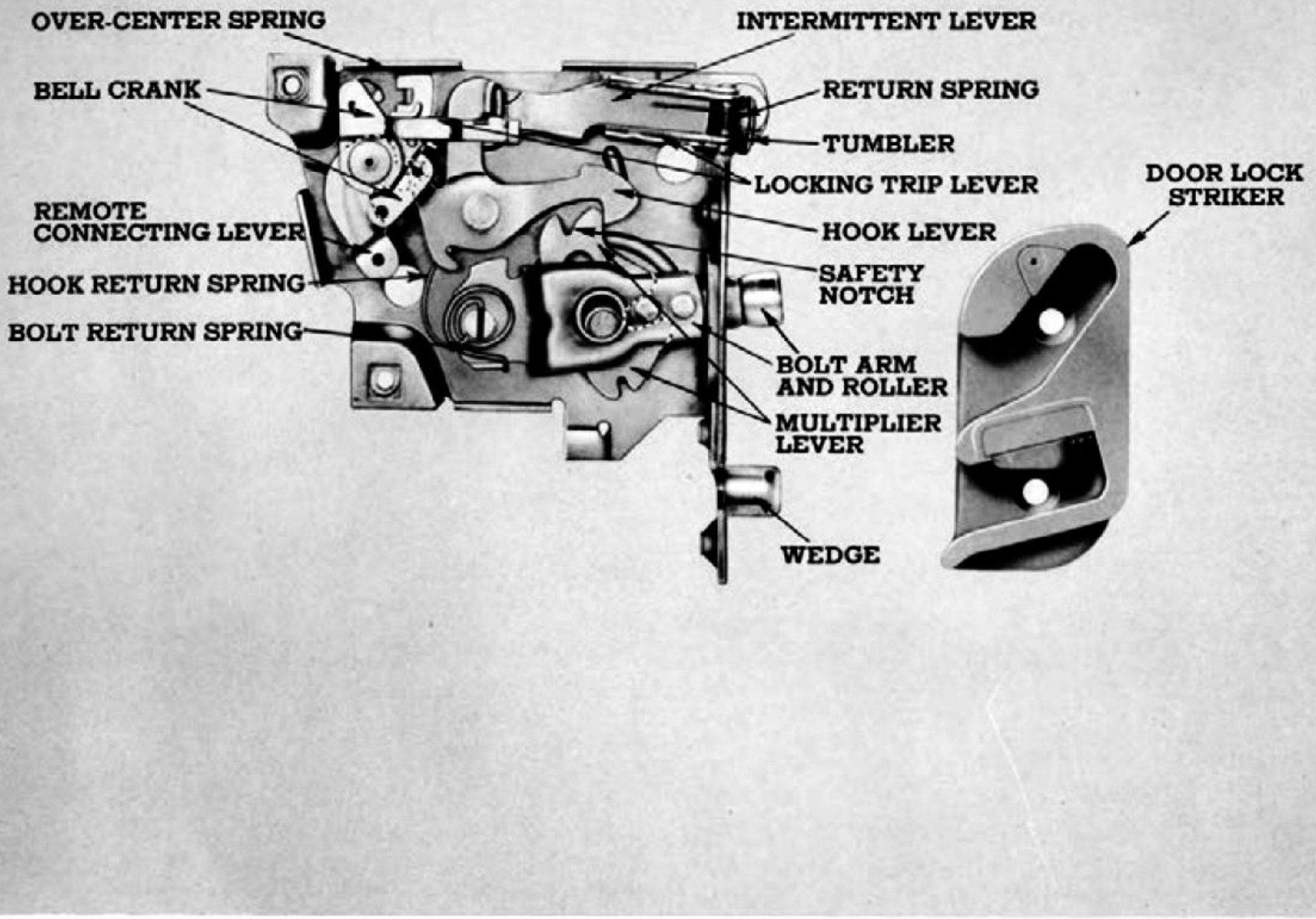
When the door is closed, the spiral springs are wound up by the action of the articulated links. Conversely, when the door is opened, the coil springs unwind, assisting the opening action. In the fully open position, enough spring tension still exists to keep the articulated links in a straight line, acting as a hold-open brace. Applying a force of approximately thirteen pounds at the door's outer edge forces the two links to begin folding, and the door's weight closes it. A rubber bumper cushions the shock, if the door is swung open rapidly.

PUSH-BUTTON DOOR LOCKS

Probably the most noticeable improvement in the operation of all doors is a new kind of lock mechanism that combines ease of operation with push-button control.

The lock bolt is a roller-tipped arm that moves upward, when traveling from the unlocked to locked position. When the door is closed, the bolt engages a cam-shaped slot in the striker plate, mounted on the lock pillar. This cam causes the bolt to rise as the door approaches the closed position, and the bolt reaches the uppermost point when the door is fully closed. The internal mechanism of the lock holds the bolt in this position until it is released by either the outside push-button or the inside handle. There is the usual safety-catch feature to prevent the door from flying open, if it is only partially closed. In this condition, the lock mechanism holds the bolt midway in its upward travel in the cam, so that the door can be opened only by actuating one of the release handles. The use of a roller, on the bolt that contacts the striker, reduces friction to a minimum, so that the door may be closed easily and positively, without repeated slamming.

The door dovetail support is again a sliding wedge type, but is now combined with the striker plate instead of being a separate unit. This new



DETAILS OF THE NEW PUSH-BUTTON DOOR LOCK

assembly assures proper alignment of the lock bolt and striker plate at all times.

For 1949, the outside key lock on each door is moved from its former position, below the door handle, to the center of the push-button.

The ever-popular keyless door-locking feature is retained. Thus, the door can still be locked from the outside simply by pushing down the lock button on the window sill, keeping the outside push-button depressed while closing the door. This procedure leaves the push-button in free-wheeling position, so that it neither engages nor releases the lock.

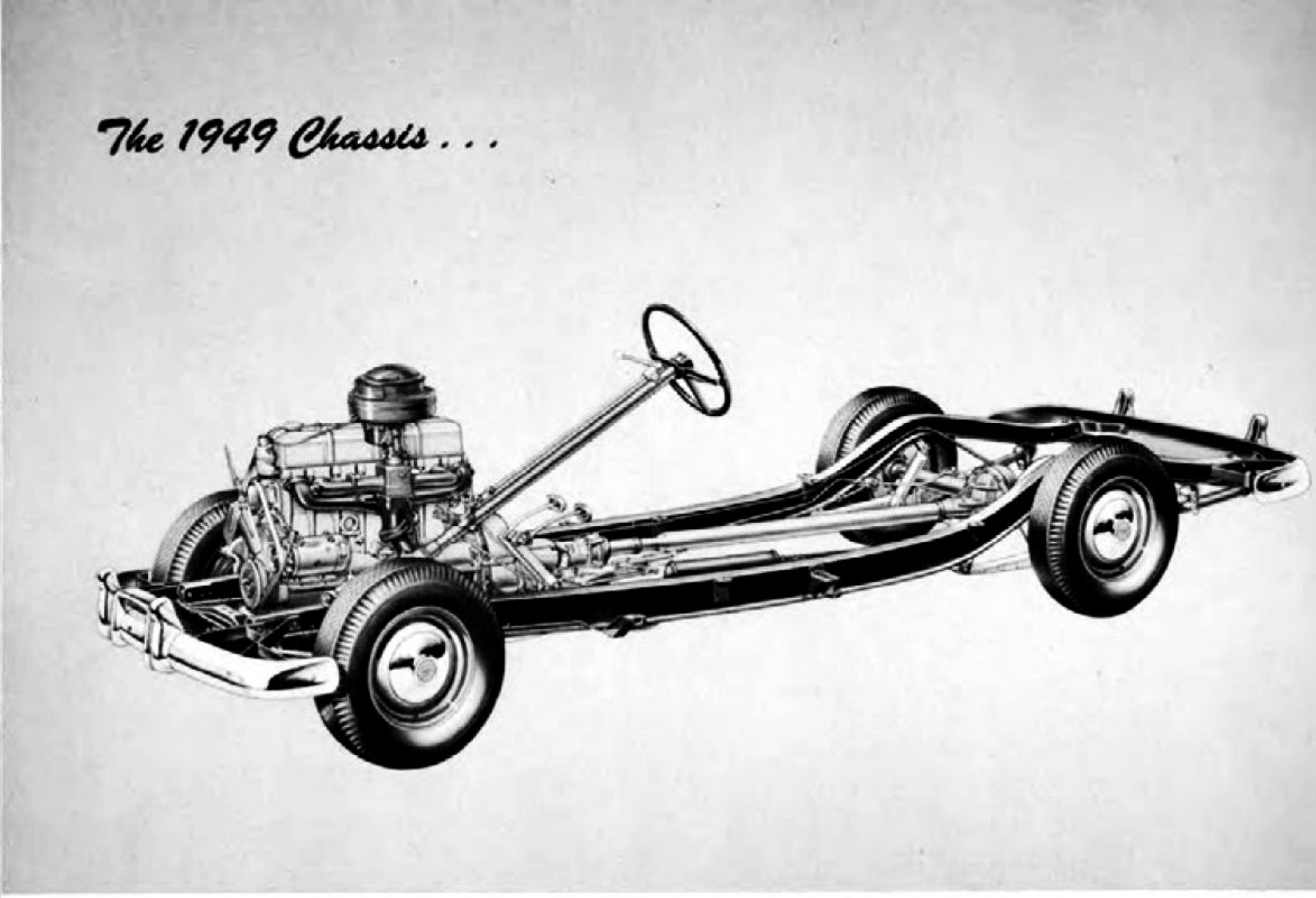
As in previous models, when the inside locking button is pushed down, opening the door from the inside returns the lock button to the unlocked position. This prevents accidental locking of the door when leaving the vehicle.

STRONGER BUMPER JACK

The tool equipment supplied with the Sedan Delivery consists of an improved bumper jack and handle. The redesigned bumper jack has a larger base for greater stability, and a heavier column for increased strength. The base is now eight inches square, whereas it was seven inches square in 1948. The minimum height of the jack is reduced from 7-5/8 to 6 inches, to accommodate the new bumpers. The column mounting is now offset from the center of the base, and an instruction tag specifies the proper locations for operation of the jack. The jack handle is designed to serve also as a wheel wrench and hub cap remover.

The offset column mounting in the base of the new bumper jack provides a much longer footing, which resists the natural tendency of the car to roll away from the jack when one end is raised.

The 1949 Chassis . . .



NEW FRAME STRUCTURE

Again in 1949, Chevrolet frames utilize box section construction. Pioneered by Chevrolet, the Box Girder Frame has long been recognized in the automotive industry as incorporating great resistance to both twisting and bending.

In designing the new frame, a primary objective was to reduce weight. The abundant structural strength incorporated in the 1948 frame is only slightly reduced in 1949, and rigidity is still more than adequate, but weight has been reduced by four per cent.

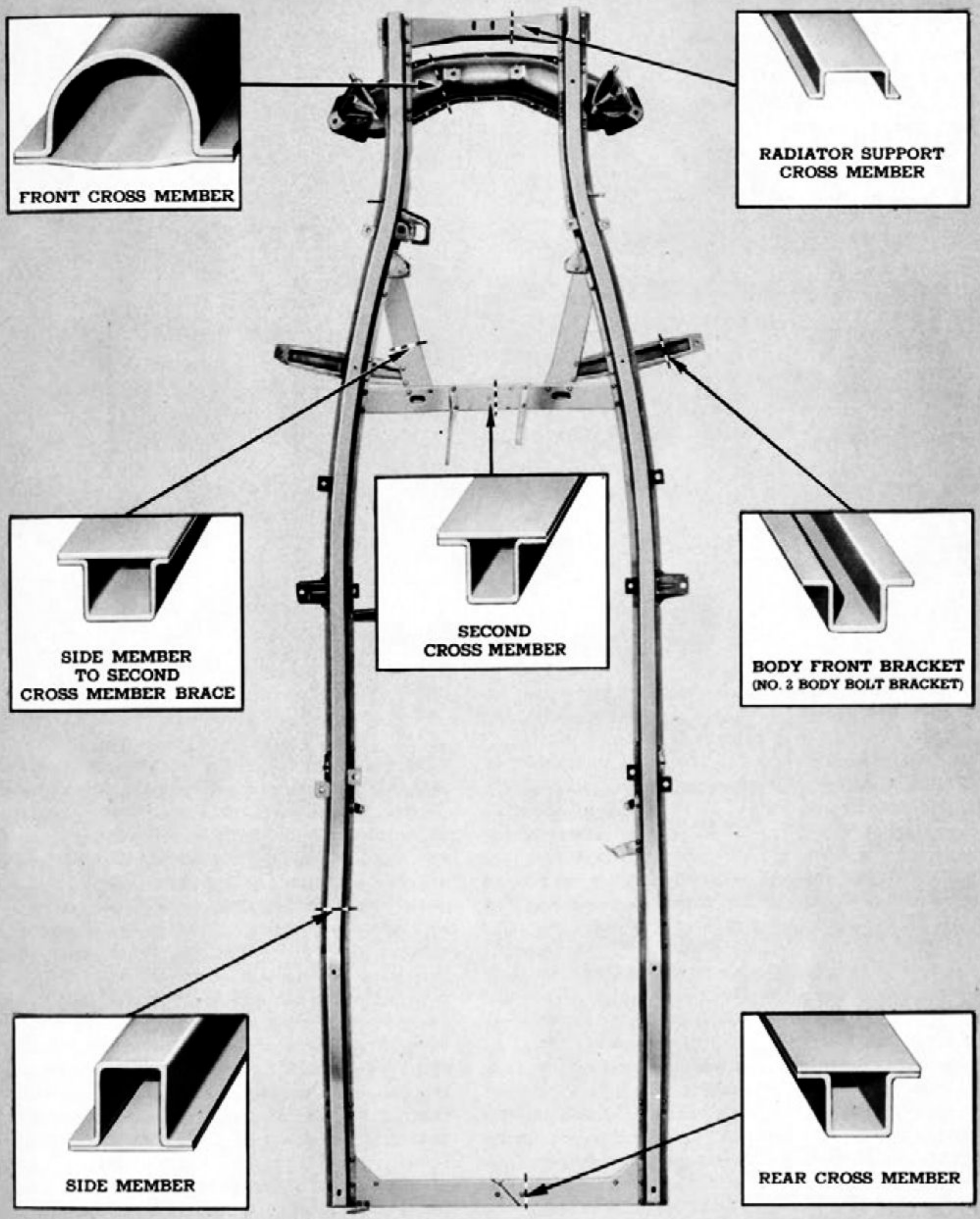
Other factors, such as the completely new body, the one-inch wheelbase reduction, the narrower treads, and the location of the engine three inches farther forward, made revisions in frame design necessary. To accommodate the narrower treads, the frame assembly width is reduced 1-5/32 inches at the front, and two inches at the rear. A lower center of gravity permits these reductions in tread and frame widths without sacrificing the inherent stability so notable in previous models.

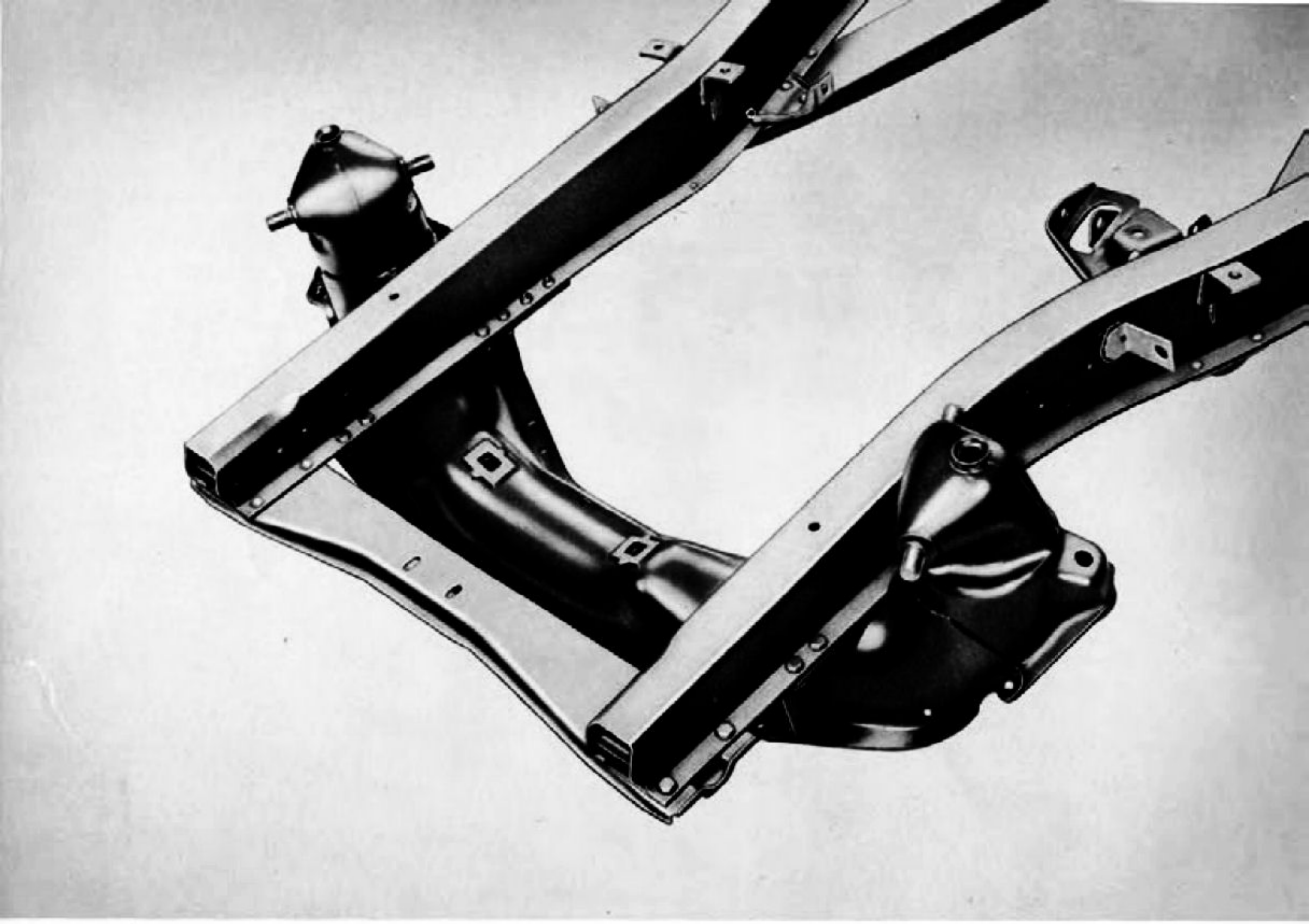
STRONGER FRONT SUSPENSION CROSS MEMBER

The most important change in frame structure, for 1949, is in the front suspension cross member. Completely redesigned, this member is twenty per cent more resistant to twisting and fifteen per cent more resistant to bending than in 1948. The increased stability of the 1949 front suspension cross member has been brought about through the use of semi-tubular construction. With the engine moved four inches forward in relation to the front wheels, it was necessary to reshape the front suspension cross member to maintain engine accessibility. This was done by curving it forward at the center, while the outer ends, which serve as front suspension mountings, sweep to the rear at an angle of 27 degrees, 40 minutes.

The semi-circular structure is well braced for the attachment of the front motor mounts and steering third arm support. Two engine mounting reinforcement plates are projection-welded to the top surface of the member, and the steering idler bracket anchor plate is projection-welded to the inside surface. Pressed steel spring housing towers of 1/8-inch gauge are riveted and welded to the cross member, closing the ends of the semi-tubular, box-like structure, and making it considerably more resistant to distortion. The contours of the semi-circular upper portion of the member, the forward curve at the center, and the upper curves leading to the spring housings are smooth and gradual to facilitate forming, and to reduce stress concentrations.

Frame Structure . . .





THE NEW RADIATOR SUPPORT CROSS MEMBER

Since the cross member is securely attached to the side members, its increased strength naturally benefits the forward portion of the complete vehicle by stabilizing the front wheels and reducing frame and body vibrations. As in previous years, bolts are used for the side member attachments to facilitate removal of the unitized front end for major service operations.

RADIATOR SUPPORT CROSS MEMBER

The radiator support cross member is a new and important addition to the 1949 frame structure. This sturdy, channel section member, 3/32 of an inch thick, is rigidly bolted and riveted to the side members at the front of the frame. A number of interrelated advantages result from mounting the radiator on a special cross member. Road shocks are no longer transmitted directly to the radiator and sheet metal. Since the front suspension cross member is relieved of the bending and twisting forces formerly imposed by the radiator and sheet metal, the stability of the front wheels is improved, and frame and body vibrations are correspondingly reduced.

The principle of the Stabilized Front End is unchanged. As previously, this durable assembly is comprised of a rigid metal frame, which encloses the radiator, and is held in alignment by panels attached to the cowl. The fenders and sheet metal are interconnected with this framework, and, in 1949, the Stabilized Front End unit is supported by the new radiator support cross member. Now located at the front of the frame, this member is very close to the center of gravity of the stabilized radiator and sheet metal unit. As a result, it is mostly subjected to a vertical load. Therefore, it is designed as a channel section to best withstand this kind of force. Its previous location, on the forward portion of the front cross member, created a considerable twisting effect on the front suspension unit.

BODY FRONT BRACKET

The new body bolt brackets, for frame-to-body attachment at the front hinge pillar location, are considerably strengthened and braced, uniting this area of the frame and body in a stiff and sturdy structure. The new flanged channel bracket, of

1-1/2 inches maximum depth, replaces a smaller bracket, with a maximum depth of 1-3/8 inches. This new body front bracket, commonly referred to as the Number Two Body Bolt Bracket, is attached to the frame structure with six rivets, instead of three, as on the 1948 vehicle.

The bracket extends outward and upward from the frame at the body front hinge pillar, forming an ideal locating point for attaching the body and sheet metal to the chassis. This unusually rigid bracket attaches at a point of great body stiffness. Thus, the individual strengths of the body and frame are combined and integrated, enhancing the stability of the complete vehicle structure.

DASH-TO-FRAME BRACE

The dash-to-frame brace is considerably improved for 1949. Completely redesigned, after extensive body twisting tests, this new brace is an important structural member. The benefits of this new method of bracing the front of dash, and attaching the body to the frame are explained in the chapter entitled Body and Sheet Metal Construction.

FRAME SIDE MEMBERS

Chevrolet's famous box girder construction is maintained for 1949 in the frame side members. However, the bottom plate, which was 1/8 of an inch thick in 1948, is now reduced to 3/32 of an inch, while the thickness of the channel portion remains 3/32 of an inch. This results in a twenty-six per cent reduction in the weight of the bottom plate, with very little reduction of the abundant stiffness characteristic of the 1948 frame. Many considerations influenced the decision to make this change, in addition to the sound economics involved in the reduction of costly weight. The greatly increased strength of the front suspension cross member, the forward positioning of the body on the frame, and the improved dash-to-frame brace, all combine to provide a rigid frame and body structure, adequately compensating for the small reduction in the thickness of the frame side member bottom plate for 1949.

For exhaust pipe clearance, the side member to second cross member brace is narrower, but its thickness is increased to 3/32 of an inch.

CENTERPOINT STEERING

A completely new steering system is largely responsible for the smooth handling and "road sense" that will make the 1949 Chevrolet Sedan Delivery one of the most popular delivery cars ever built. These remarkable qualities aroused immediate admiration and approval among the car's first drivers and severest critics - the test crew at the General Motors Proving Ground. This is an important achievement for Chevrolet engineers, since the physical limitations imposed by the relocation of components, and the consequent redistribution of weight, required a brand new approach to the problem of steering control.

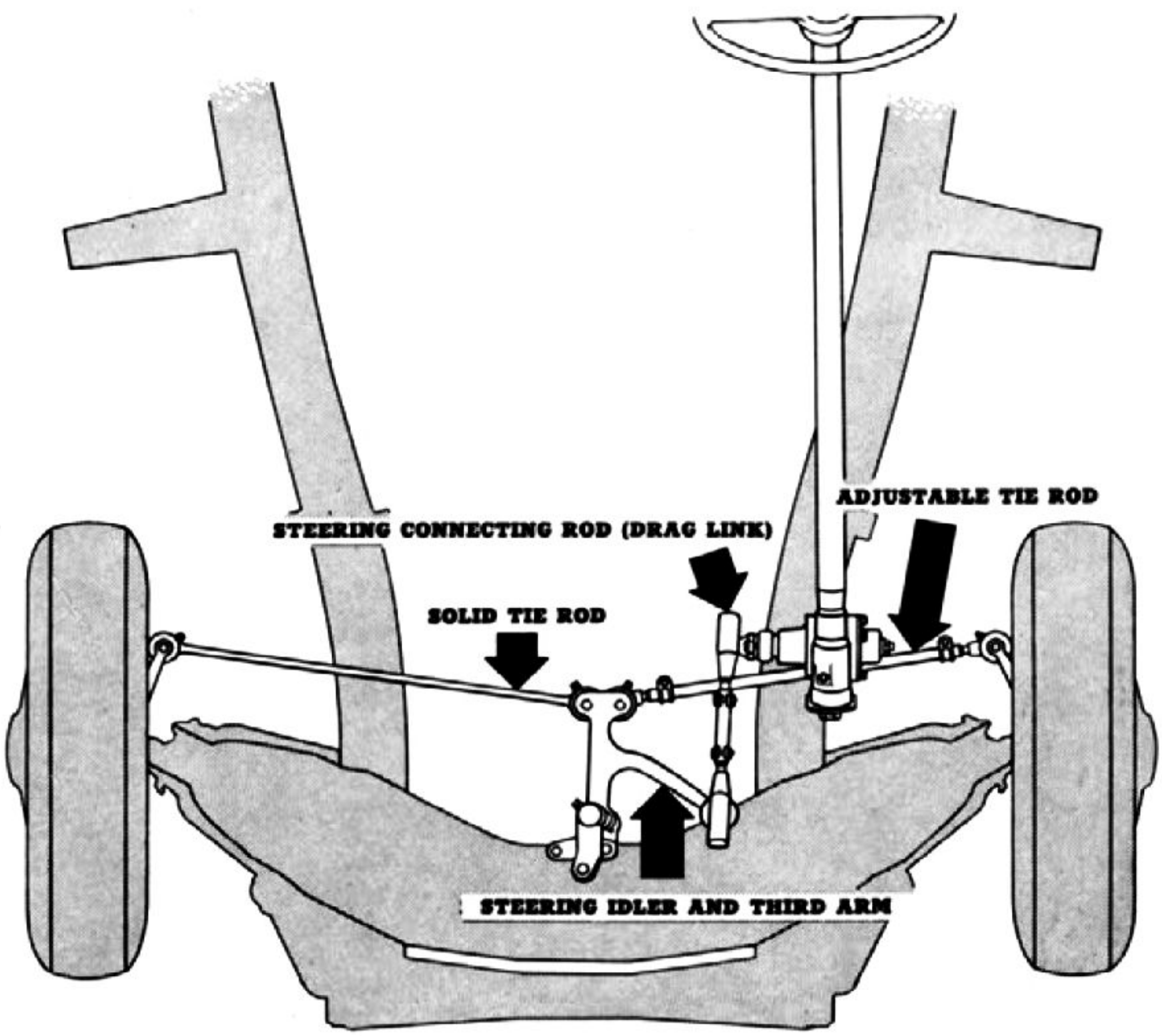
THE CENTERPOINT PRINCIPLE

The principle of centerpoint steering control, adopted in the 1949 Chevrolet, has been available only in more expensive cars in recent years. It is called Centerpoint Steering, because of the central location of the idler lever, through which turning forces are delivered to the tie rods, which are nearly equal in length. Previously, these forces were delivered to the tie rods by the pitman arm alone, from a position as close to the left side of the car as the steering column itself. This meant that the right hand tie rod had to be much longer than the left. This was not a bad condition, but, since vertical movements of the front suspension arms were not parallel with those of the unequal tie rods, unbalanced forces were produced by road shocks.

In Centerpoint Steering, however, the axes of the front suspension lower control arms are focused on a point closely adjacent to the inner pivoting points of the tie rods. Therefore, steering is not affected by road shocks, because the linkage and the independently sprung front wheels swing on nearly the same axes. This symmetrical movement of the wheels and tie rods causes jolts and bumps to be evenly distributed throughout the suspension system and the steering linkage, preventing them from being transmitted to the steering wheel. Also, it reduces the shocks sustained by individual parts of the linkage.

In addition to its effectiveness against road shocks, centerpoint design provides other advantages. Its inherent geometric symmetry contributes also to reduced tire wear, better control in cross-winds, better overall handling, and excellent straight-line steering, with "wheel-fight" virtually eliminated. To paraphrase the words of test drivers, the 1949 Chevrolet Sedan Delivery has considerably more "road sense" than previous models. Pointed down the road, it follows its nose, without requiring continual corrections to hold it on its course.

Centerpoint Steering System . . .

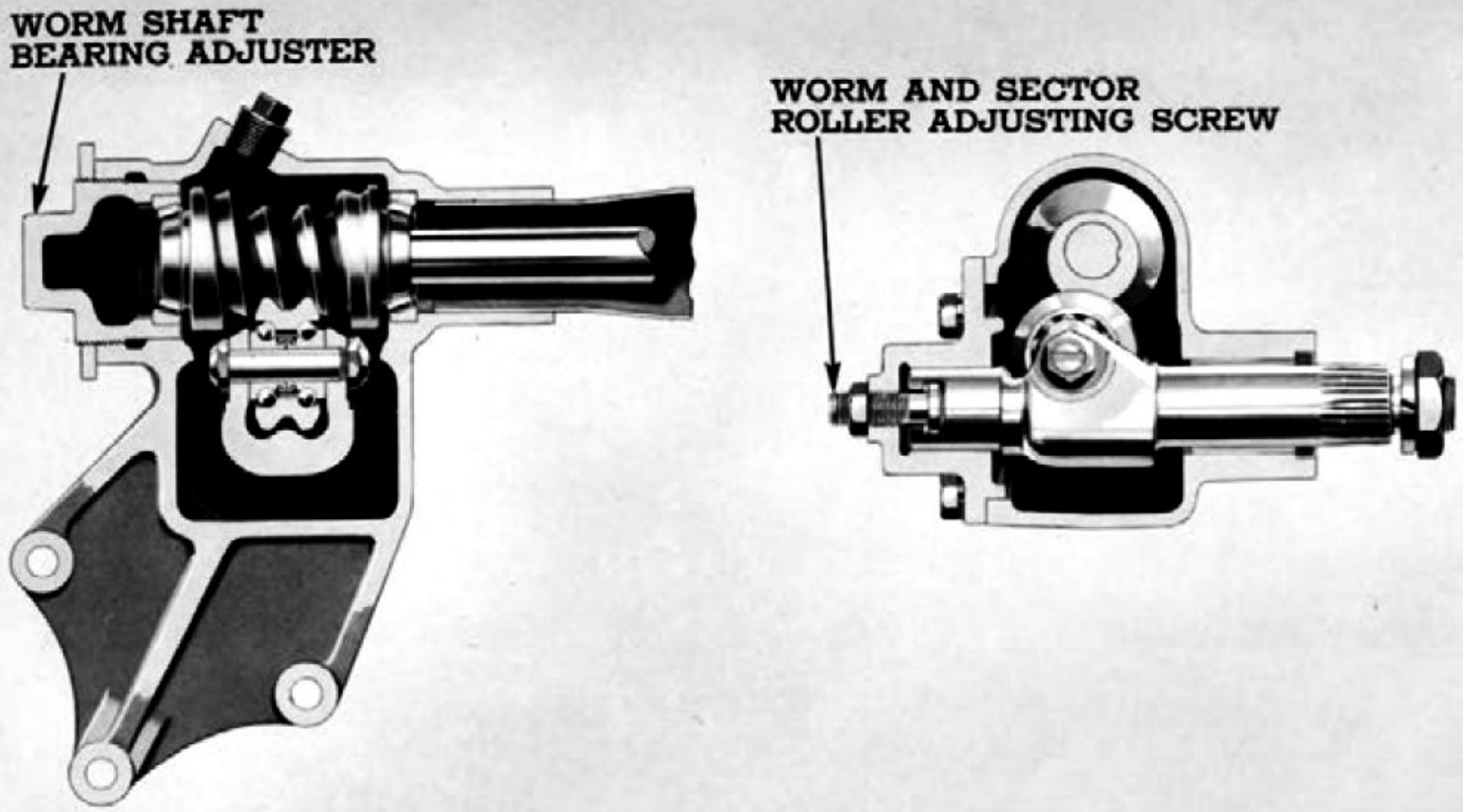


THE NEW STEERING LINKAGE

In the new centerpoint linkage, a forged bracket, forked to accommodate the forward end of the idler lever between its yokes, is securely attached to the front suspension cross member with three bolts. Each yoke is fitted with a burnished bronze bushing, which is sealed against dirt. The idler lever pivot is a hardened and ground alloy steel shaft, which is inserted into the yokes, and to which the idler lever is attached. The lever is a steel forging, which serves as the central connection for the tie rods. The entire assembly is mounted at a slight angle, so that loads on the upper and lower bushings are more nearly equalized, thereby reducing wear and increasing durability.

The new tie rods are now nearly equal in length, with provision for toe-in adjustment incorporated in the left hand rod. The idler lever is forked, so that it also forms a third arm, to which the pitman arm is linked by means of an adjustable steering connecting rod (drag link), an additional member in 1949.

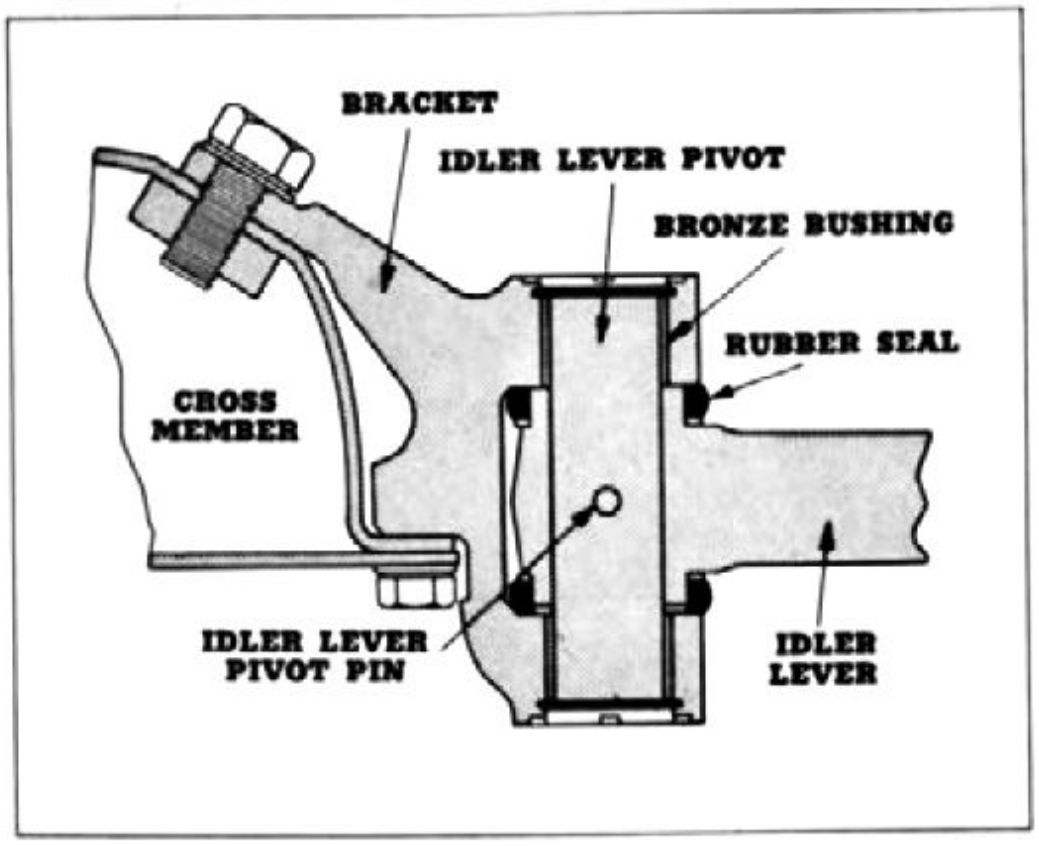
The drag link consists of separate front and rear rods, held together by an adjusting sleeve. The front rod attaches to the third arm ball, and the rear rod to the pitman arm ball. Flexible,



THE NEW STEERING GEAR IS EASIER TO ADJUST

spring-loaded joints are utilized at these ball connections to eliminate rattling, and to absorb road shocks before they can reach the steering wheel. Oil-resistant rubber seals protect the joints from dust, dirt, and water, and also retain the lubricant. The lubrication fittings are installed in holes drilled in the undersides of the rods. Plugs and cotter pins are fitted into the drag link ends to insure positive connections.

THE STEERING IDLER LEVER TURNS IN BRONZE BUSHINGS



Because of the adjustable feature of the drag link, the steering gear can now be accurately set, with the high spot on the sector roller in the exact center of the worm, when the road wheels are in the straight-ahead position. This lash-free position is the most advantageous arrangement, because the steering wheel movements are immediately translated into corresponding road wheel movements by the gear.

The pitman arm is now a one-piece forging, with the ball stud riveted in place, instead of the two-piece rubber-insulated type, formerly used. In spite of this, fewer road shocks are transmitted to the steering wheel in the 1949 car. This is because the inherent symmetry and balanced design of the centerpoint linkage tends to eliminate most road shocks, and also, because the flexible drag link connections absorb those shocks which do get into the steering linkage, before they can reach the pitman arm.

STEERING GEAR ADJUSTMENTS SIMPLIFIED

A new steering gear, considerably easier to adjust, is used in 1949. However, all of the principal features of the excellent 1948 gear are retained. Service adjustments are facilitated in two respects. First, the procedure is simplified, because there are now only two adjusting locations instead of three. Second, these adjusting points

are more accessible than before. When removing worm shaft end play in the 1948 gear, it was necessary to loosen the mast jacket and housing clamp bolts, and then to turn the worm shaft adjuster, which was located at the top of the steering gear housing. In the 1949 design, the worm shaft bearings are adjusted simply by turning an adjusting nut, located at the bottom of the housing, greatly simplifying this service operation. The position is held positively by a jam nut.

When removing backlash between the worm and sector roller, it is no longer necessary to loosen the gear housing-to-pitman shaft housing attaching bolts, breaking the gasket joint. Instead, it is only necessary to loosen the jam nut, and to turn the adjusting screw, which moves the pitman shaft longitudinally to obtain the correct setting. By means of proper shim selection during assembly of the steering gear, the previous need for pitman shaft end play adjustment is eliminated.

A considerably improved method of mounting the pitman shaft is incorporated in the 1949 steering gear. Formerly overhung, the new pitman shaft is shorter, and straddle-mounted for greater rigidity and equalization of bearing loads. The new gear is rigidly attached to the outer wall of the frame side member by three bolts.

The diameter of the new steering column is 1-3/4 inches, an increase of 1/4 of an inch over 1948. The column is attached to the instrument panel by a rubber-bushed die casting, which is securely braced to the dash. The column is pressed into the steering gear housing, instead of being clamped, as before. These changes, along with a reduction in length of more than four inches, provide a steering column with much greater rigidity.

STRONGER FRONT SUSPENSION

Chevrolet's time-tested Knee-Action suspension is retained for 1949, but with many new design changes and refinements. These improvements are manifested in many ways, the most significant being a large contribution to the softer, flatter ride in the new Sedan Delivery. Costly and cumbersome weight has been reduced more than twelve per cent, yet strength and rigidity is even greater than before. Service operations and manufacturing methods are simplified, in line with Chevrolet's established policy of reducing maintenance and operating costs.

The 1949 model is the smoothest riding and best handling Sedan Delivery that Chevrolet has yet produced. Still, no single design change can be given major credit for this improvement. The fact is that the new ride is the composite result of many important design changes: lower center of gravity, better weight distribution, new front springs, uniform-rate rear springs, new, life-sealed, direct-acting shock absorbers, and extra-low pressure tires on smaller wheels with wide-base rims. Therefore, in the following description, no attempt is made to stress one phase of design at the expense of another. Instead, each improvement is treated as an integral part of the new design.

Again in 1949 the Chevrolet front suspension is "unitized", but, since the front suspension cross member itself has already been discussed in its function as a frame structural unit, it is not mentioned here, except as a part of the suspension, along with the coil springs, front shock absorbers, and allied parts.

NEW, HEAVIER COIL SPRINGS

For 1949, Chevrolet again utilizes coil springs in the front suspension unit. The Knee-Action principle of independent front wheel suspension was pioneered by Chevrolet in 1934. Through the years, experience has been the guide for many improvements and modifications in the front suspension unit, which have contributed to the soft, smooth ride that is synonymous with Chevrolet.

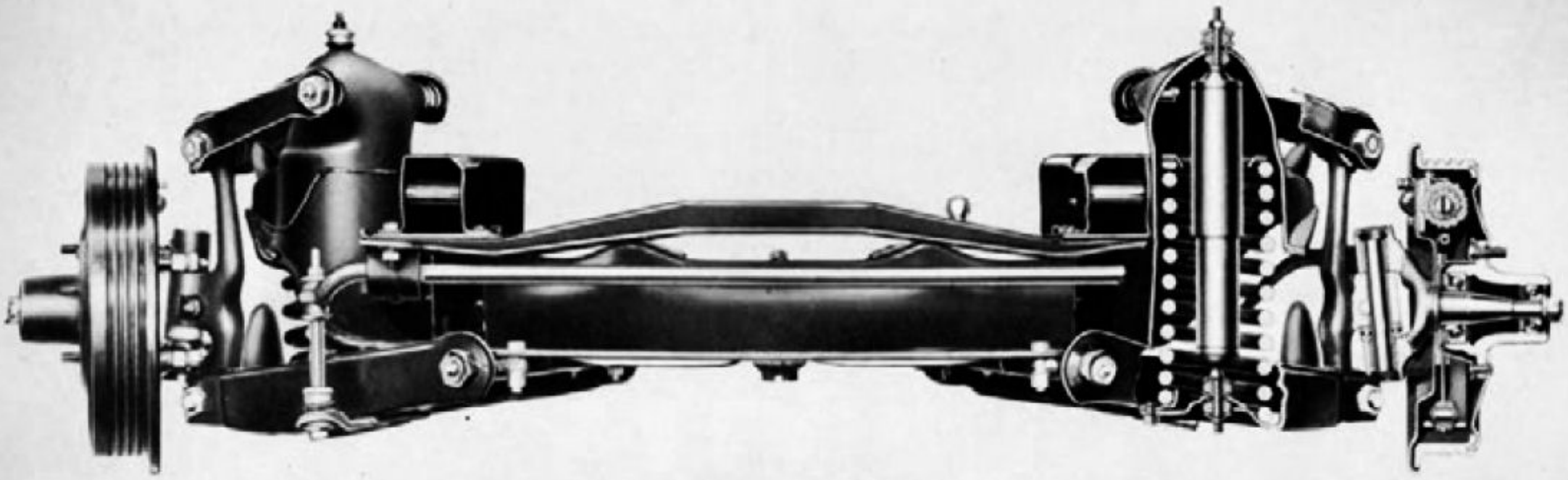
The coil springs are new, with coaxially mounted shock absorbers. To accommodate the heavier load, due to the redistribution of vehicle weight, these shot-peened, chrome alloy steel springs are made from stock that is .016 of an inch heavier, and have a deflection rate of 340 pounds per inch.

The springs are enclosed in welded pressed steel housings, or towers, 1/8 of an inch thick, each closed at the top.

SIMPLIFIED CASTER AND CAMBER ADJUSTMENTS

Two important front wheel adjustments, caster and camber, are greatly simplified through an improved upper control arm pivot bolt. The left hand double thread at the center portion of the pivot bolt is replaced by a central groove, into which the steering knuckle support clamp bolt is recessed.

Caster and camber adjustment is made, as before, by turning the pivot bolt with a headless set screw wrench. After the caster setting is made, the proper camber adjustment is obtained by less than one-half turn of the pivot bolt. With the new groove design, the maximum amount of thread travel during camber adjustment is approximately one-

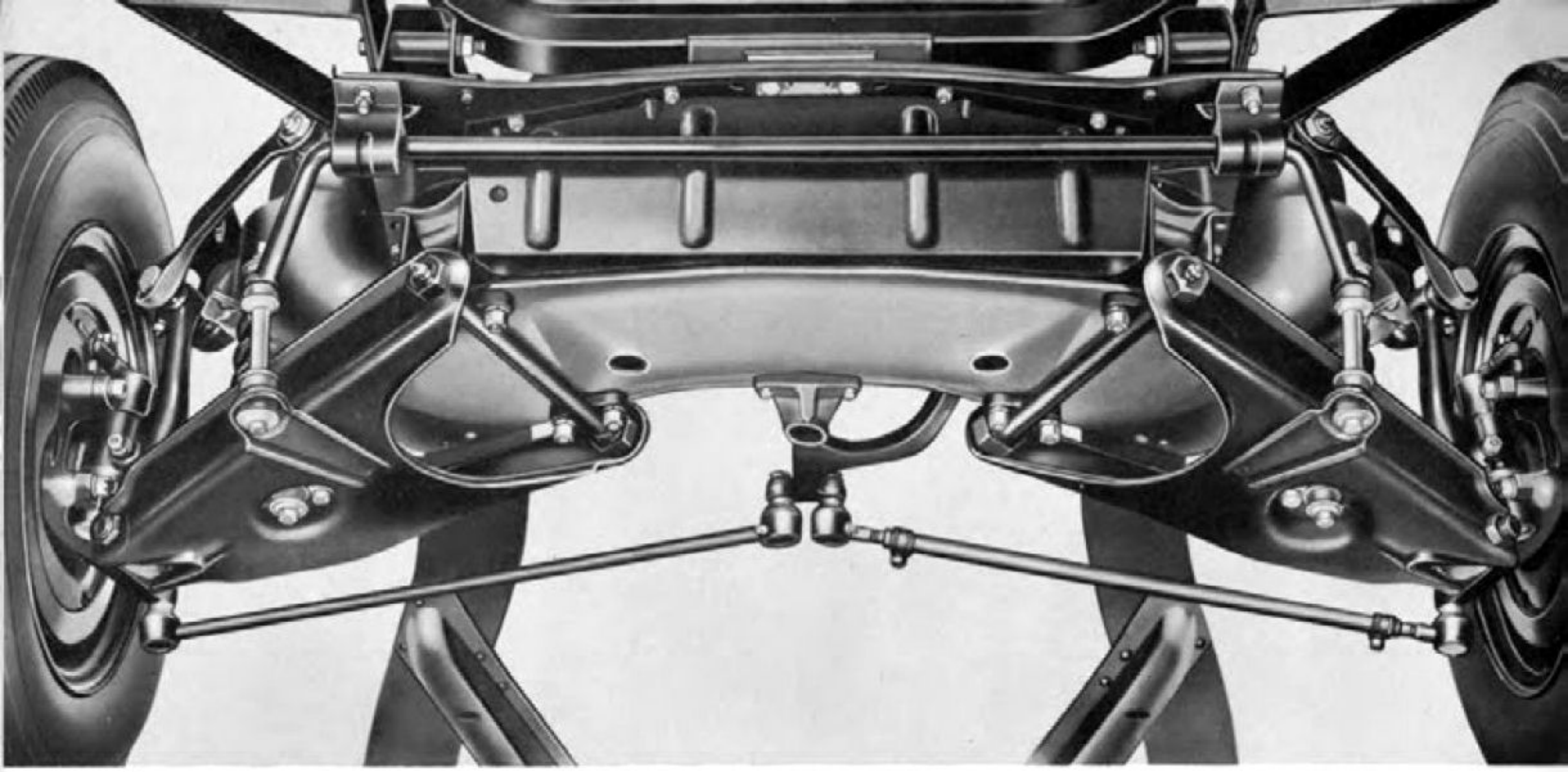


quarter of the available caster adjustment, and, therefore, both settings can be brought within specified limits on the first trial by a straightforward approach. With the left hand double thread, formerly used, the rapid change of caster, while setting camber, frequently required considerable juggling and rechecking during service adjustments.

STEERING KNUCKLE SUPPORT UPPER CONTROL ARM

The design of the upper control arm is completely new, improved, and simplified in 1949. A twenty-nine per cent weight reduction has been effected by making this arm a simple, one-piece steel stamping, 1/8 of an inch thick, and identical for both sides. Formerly, two separate forged arms, one front and one rear, served double duty as shock absorber lever and upper control arm.

Both upper and lower control arms are mounted parallel with the cross member ends, which sweep back at an angle of nearly twenty-eight degrees. The upper control arm bumper, and a pad for contacting the lower arm bumper, are carried on the outer side of the spring tower. This rubber rebound bumper is reshaped, and is forty per cent



THE NEW FRONT SUSPENSION AS SEEN FROM BELOW

longer than in 1948, to come into action sooner, providing better ride cushioning, and protection against jolts that result when a front wheel drops into chuck holes in the road.

STEERING KNUCKLE SUPPORT LOWER CONTROL ARM

Like the upper control arm, the lower control arm is improved and simplified. Here again, it is a one-piece stamping. The central area is formed to provide the lower seat for the coil spring. Right and left hand arms are identical. The only difference between right and left hand assemblies is in the stamped ride stabilizer bracket, welded to the lower surface of each arm.

As before, the compression bumper is bolted to the lower control arm assembly, but its length is increased twenty-five per cent for better ride cushioning, and protection against sudden bumps, experienced when a front wheel strikes a large stone, or other high obstruction.

DIRECT DOUBLE-ACTING SHOCK ABSORBERS

For 1949, direct double-acting shock absorbers play an important role in producing Chevrolet's smoother, flatter ride.

Mounted inside the front coil springs, these highly efficient double-acting shock absorbers function instantly with the slightest spring action, smothering the effects of irregularities in the road. Since they operate on the double-acting principle, as in 1948, they successfully dampen out both compression and rebound motions of the coil springs, through the smooth, dependable operation of their precision-built valve mechanisms.

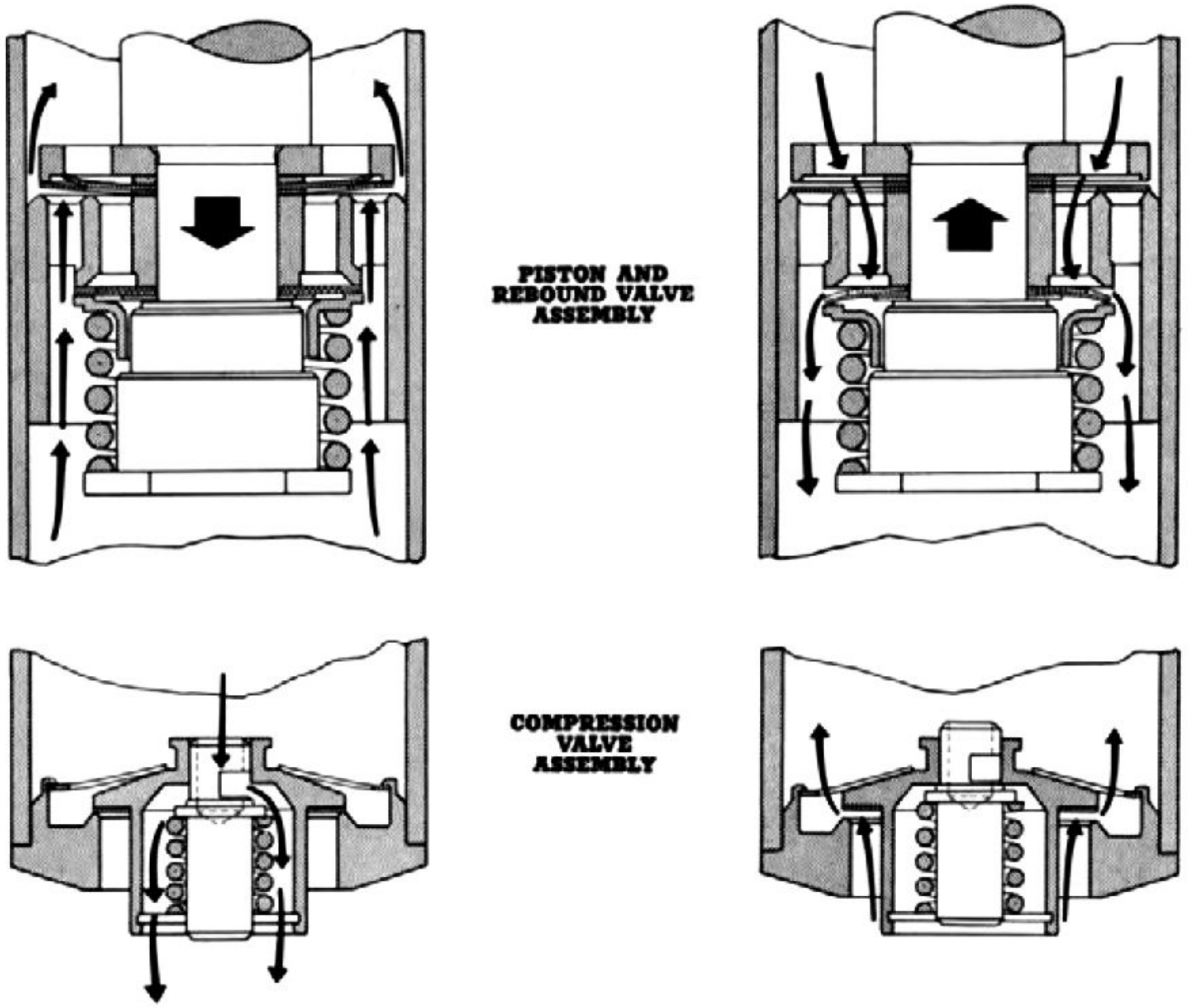
ADVANTAGES OF THE NEW SHOCK ABSORBERS

The new, direct double-acting shock absorbers contribute in large measure to the flatter, more comfortable ride in the 1949 Chevrolet. Their superiority over the cam and lever type of 1948 can be seen in the following list of advantages.

1. Higher flow rate at lower internal pressures produces softer, smoother action.
2. Longer piston stroke puts more fluid to work for improved damping characteristics.
3. Better valve action, because of larger, more accurately machined orifices.
4. Less sensitive to temperature, because of larger valve openings.
5. Lighter in weight.
6. Much quicker and easier to replace, without disturbing wheel alignment.
7. Less complicated in construction.
8. Sealed for life, eliminating maintenance.

The average life expectancy of the new direct-acting shock absorbers is as long or longer than

Shock Absorber Valve Action . . .

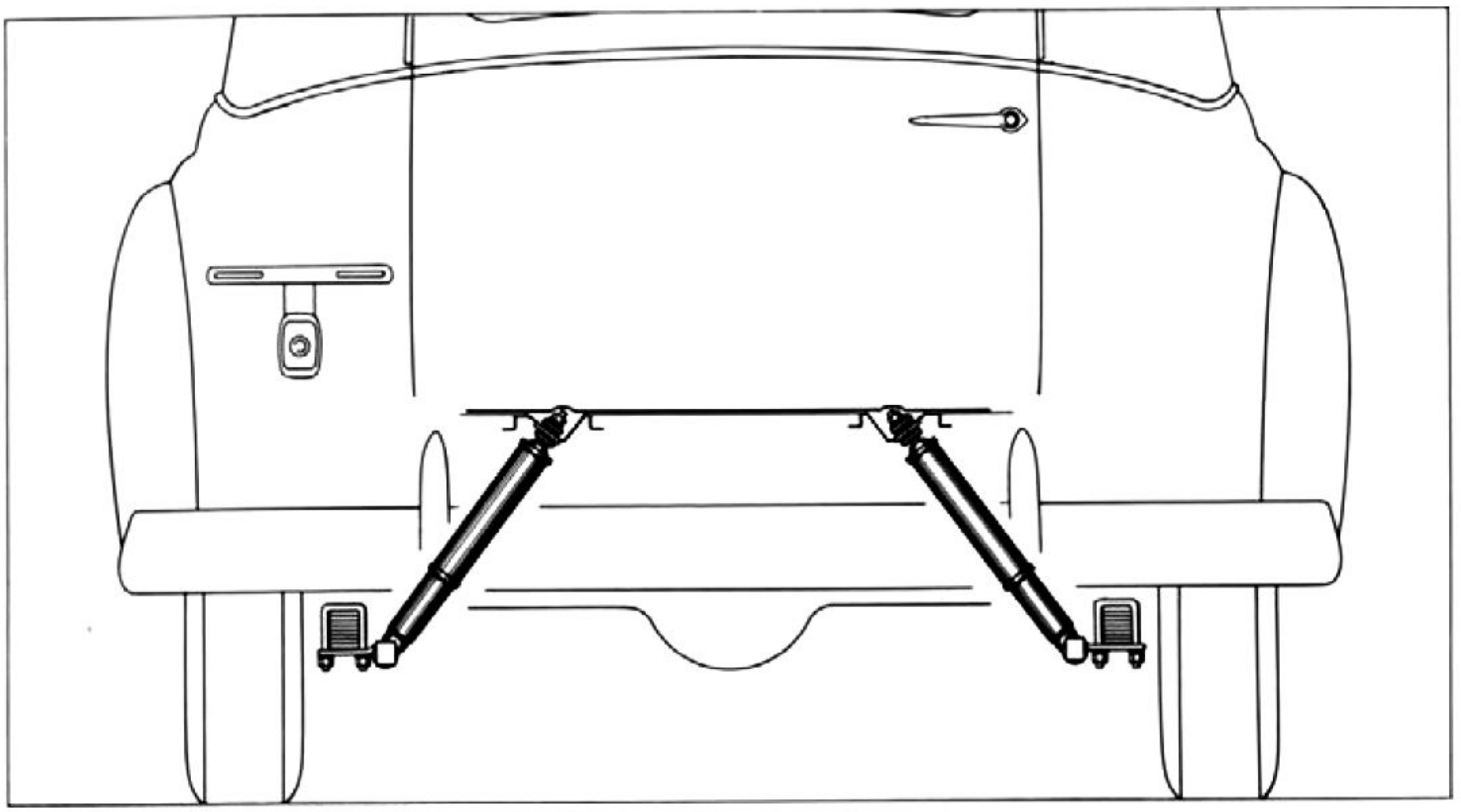


that of the 1948 parallel cylinder type. In general, the life of direct-acting shock absorbers depends upon perfect sealing through precision surface finishing. This was not possible with earlier volume production techniques, nor were sealing materials perfected as they are today. Such techniques were first developed to a high degree of excellence during the war, and now are used by Chevrolet to produce the fine finish that is required. The use of direct-acting shock absorbers on heavy tanks and aircraft demanded extreme durability. Chevrolet's wartime background was utilized to the fullest extent in producing a shock absorber that is designed to make driving more comfortable, and to give greater protection to fragile loads in the new Sedan Delivery.

OPERATION OF THE NEW SHOCK ABSORBERS

As the spring is compressed, the shock absorber starts ón its compression stroke, and the piston moves downward in its tube. Fluid is forced upward through the outer holes in the piston, lifting the intake valve plate, and entering the upper chamber. The amount of fluid that passes through these holes will vary, depending upon the force of impact. The remainder - that which is forced downward, or displaced, by the piston and the piston rod - is forced out of the lower chamber through the valve orifice, and into the reservoir. As this opening is always below the reservoir fluid level, no emulsion of air and fluid can take place.

On the rebound stroke, the piston is pulled upward, and the fluid in the upper chamber is forced



THE REAR SHOCK ABSORBERS ALSO RESIST SIDESWAY

downward through the slot in the intake valve plate and the inner holes in the piston, exerting pressure against the orifice disk. As the pressure builds up, fluid is forced through the orifice, bending the orifice disk downward, and compressing the rebound relief valve spring, letting the fluid pass into the lower chamber. As the piston moves upward, an additional amount of fluid is drawn into the lower chamber from the surrounding reservoir, through the compression valve assembly, filling the space previously occupied by the piston and rod. The compression valve orifice plate is lifted from its seat in this operation, allowing the fluid to enter the chamber.

RIDE STABILIZER MOUNTING

The ride stabilizer is functionally the same as in the 1948 Sedan Delivery. However, it is mounted in a somewhat different manner. The bolts attaching the radiator support cross member to the side members also attach the stabilizer mountings. The ends of the radiator support cross member are formed to serve as stabilizer shaft bracket reinforcements, eliminating these items, which were separate pieces in 1948. The stabilizer is attached at each side to a bracket, which is welded to the underside of the lower control arm. Previously, it was mounted on the spring seat.

DIRECT-ACTING REAR SHOCK ABSORBERS

Direct double-acting shock absorbers are used at the rear of the 1949 Sedan Delivery, replacing the indirect-acting type, used in 1948. In general, they are the same as those now used in the front suspension, and the basic principles of operation and construction described for the front shock absorbers are identical. However, they are not interchangeable with those in front, because they are mounted differently, and are considerably longer. Also, a steel reinforcing plate is welded to the lower portion of the reservoir tube, facing the front of the car, to provide protection against flying stones.

The new direct-acting rear shock absorbers are fifty-four per cent lighter, and have a twenty-two per cent greater fluid capacity than the previous, indirect-acting design. They are mounted diagonally, with the lower ends farthest away from the centerline of the vehicle. This position provides a longer piston travel than could be obtained with a vertical mounting, and it improves lateral stability, or resistance to sideway, as well.

At the top, each rear shock absorber is attached directly to a heavy-gauge steel reinforcement, which is welded to the body floor, just ahead of the rear axle, at the frame kickup. A nut is tightened down on the threaded stud at the top of the shock absorber to hold it firmly in place. Two rubber grommets cushion this top attachment.

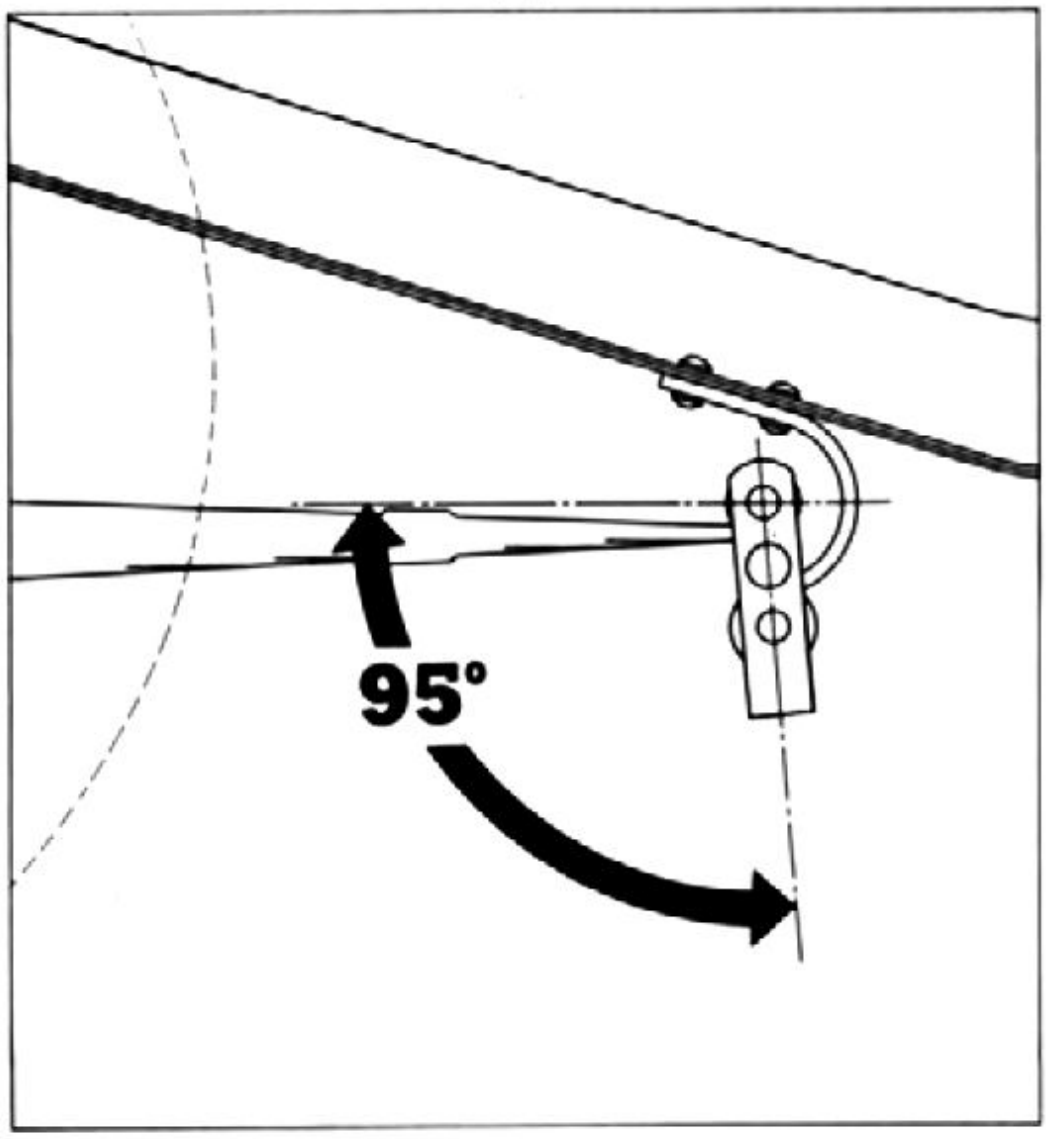
The lower end of the shock absorber is fitted with an eye, which provides attachment to the rear spring. An anchor pin is fitted into natural rubber bushings in the shock absorber eye, and held in place with a nut. The anchor pin is welded to a plate, which is securely bolted to both legs of the rear spring front U-bolt.

IMPROVED REAR SUSPENSION

Along with the adoption of direct-acting shock absorbers, two other basic changes in the rear suspension contribute greatly to the improved riding qualities of the 1949 Chevrolet Sedan Delivery. First, a larger shackle angle makes the spring rate more uniform under varying loads, and, second, a lower spring rate helps to protect delicate loads with softer, smoother spring action.

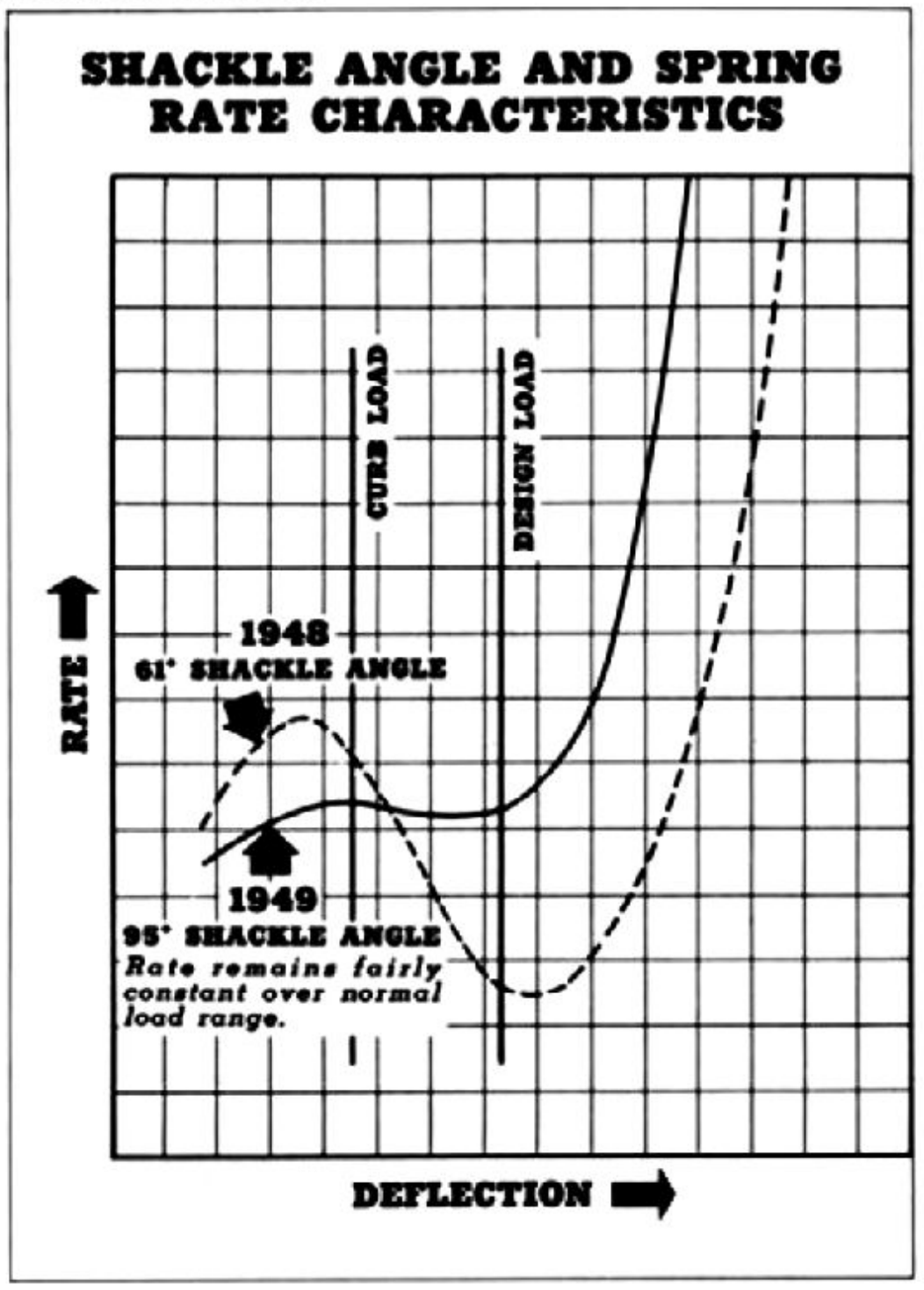
LARGER SHACKLE ANGLE

The shackle angle is increased to ninety-five degrees from the previous sixty-one degrees. This angle is measured between a line connecting spring eye centers and the centerline of the shackle, with the vehicle under design load. The larger angle sets up forces which try to pull the spring rearward from the fixed front eye. This places the spring under tension. When tension forces act on a spring, the spring rate tends to increase as the load becomes greater. But, at a certain point, the rate is stabilized, and remains fairly steady until the spring is overloaded, after which the rate increases sharply under further loading.



LARGER SHACKLE ANGLE PLACES SPRING UNDER TENSION

This phenomenon has been put to excellent use in the new rear spring mounting, which has been designed so that the period of normalized spring rate extends throughout the load range. Therefore, the shackle angle becomes the largest factor in obtaining a uniform spring rate. Riding qualities are not sacrificed at either of the extremes represented by curb and design loads. In other words, the spring need not be made so stiff that it produces a hard ride when the vehicle is empty.



LARGER SHACKLE ANGLE INFLUENCES SPRING RATE

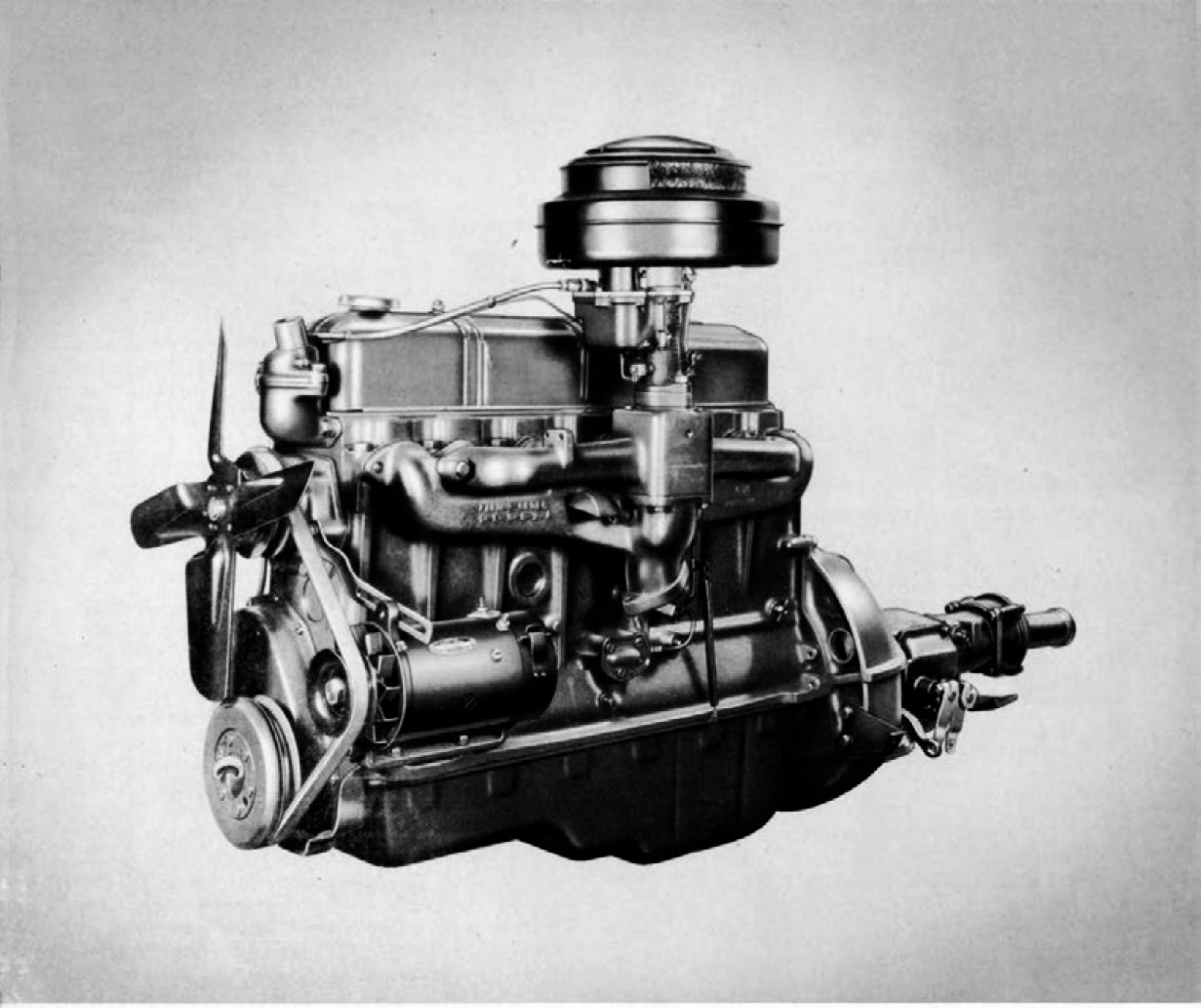
The 1948 suspension was not excessively stiff at driver load, but there was an appreciable variation in riding qualities over the load range, because the spring rate did not remain nearly so constant as in the 1949 design.

In 1949, the shackled ends of the rear springs are rubber-bushed and, therefore, require no lubrication. In the 1948 models, threaded bushings were a manufacturing option.

SOFTER REAR SPRINGS

Three factors made possible the adoption of softer rear springs in 1949. One of these - the uniform spring rate obtained with the larger shackle angle - has already been discussed. The others have to do with weight. As a result of the new load distribution, the center of gravity is moved forward. Lastly, the total weight of the vehicle is slightly reduced.

In 1949, the Sedan Delivery is equipped with an eight-leaf spring, having a deflection rate of 115 pounds per inch. This results in a weight saving of over twelve per cent, and a softer suspension than in 1948, when springs with rates of 145 pounds were used. The spring capacity, at the ground, is decreased to 1135 pounds.



THE 1949 CHEVROLET VALVE-IN-HEAD ENGINE

ENGINE IMPROVEMENTS

As it has been in the past, the Chevrolet Sedan Delivery is equipped with the famous Chevrolet valve-in-head, six-cylinder engine. Its displacement is again 216.5 cubic inches, but the compression ratio is raised slightly, to 6.6 to 1 from 6.5 to 1. This is a relatively small change, resulting from incidental modifications, and it does not affect the engine performance. However, many improvements are made in the 1949 engine for greater operating and servicing convenience, and for even more dependable performance. Following is a list of these changes:

1. FAST-IDLE MECHANISM, COUPLED WITH CHOKE.
2. FUEL-LUBRICATED ACCELERATOR PUMP.
3. LARGER, STRONGER SPARK PLUGS.
4. PRESSURE-LUBRICATED TIMING GEAR TEETH.
5. MORE EFFICIENT AIR CLEANER.
6. EFFORTLESS PUSH-BUTTON STARTING.
7. LARGER RADIATOR CORE.
8. MORE EFFECTIVE COOLING.
9. MODIFIED ENGINE FRONT MOUNTS.

Since the first four listed features were described in detail in Section One, devoted to regular trucks, they are omitted here. Other engine changes, common to both regular trucks and the Sedan Delivery, and also described previously, are: moisture-proofed distributor nipples, reshaped intake valves, relocated oil filler, and the removal of the polarity-reversing switch.

MORE EFFICIENT AIR CLEANER

Because the hood line is lower than on conventional trucks, a new air cleaner and silencer assembly was developed for the Sedan Delivery. It is 3-1/2

A SOLENOID REPLACES THE STARTER PEDAL LINKAGE

inches larger in diameter, and nearly 2-1/2 inches shorter than the previous unit. These changes provide a slightly greater volume in the silencing chambers, and, by redistributing this larger volume, the unit is made more effective as a silencer. Likewise, the filter element is larger in diameter, and contains 1-1/4 ounces more material, making it, too, more effective.

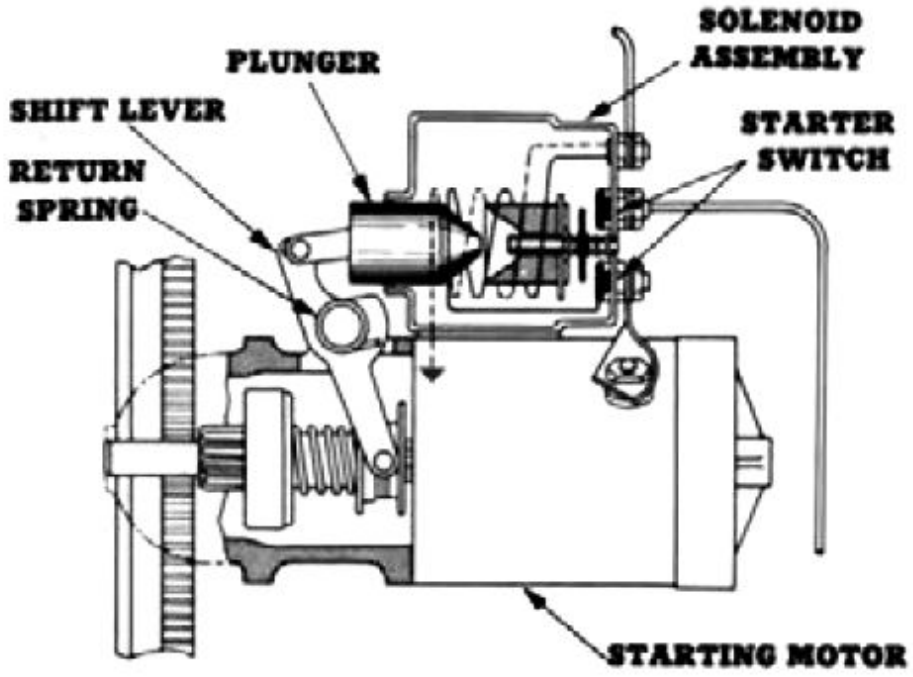
To make the air cleaner easier to remove, the attaching clamp screw is now fitted with an extension that can be turned with the fingers. Previously, it was necessary to use a screw driver to loosen the clamp.

EFFORTLESS PUSH-BUTTON STARTING

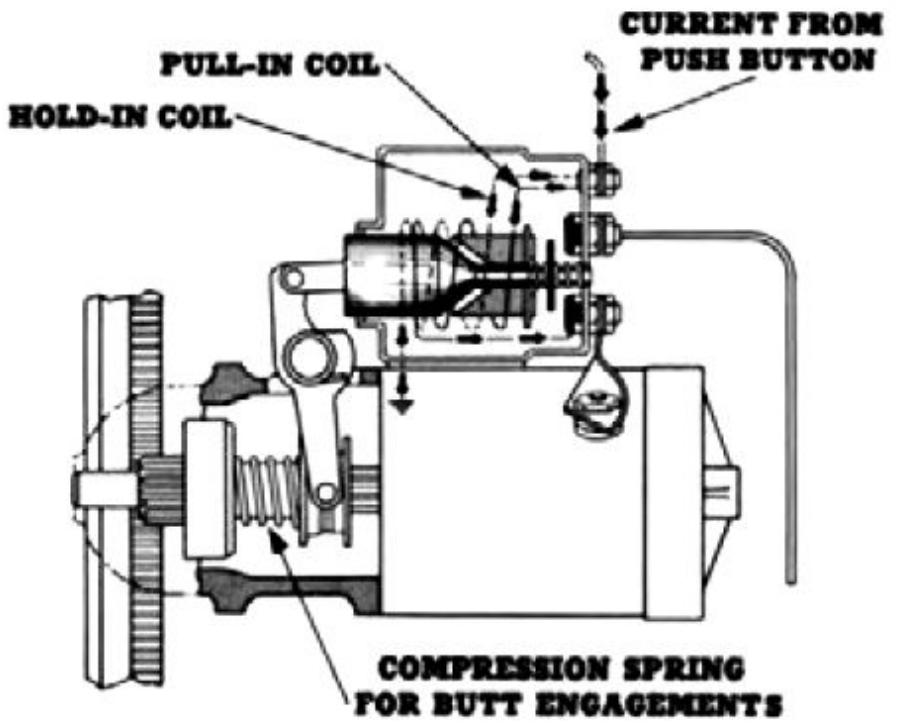
Outstanding among the many changes in the Sedan Delivery engine electrical system is the new push-button starter. Although practically all the starting effort has been removed by the adoption of push-button design, the time-tested features of positive engagement and an over-running clutch are retained. Many cars, including those of competitors in the low-priced field, do not have a continuous engagement device. Instead, they employ a device that automatically disengages the starter pinion from the flywheel as soon as the engine fires. In the event the engine fires, but does not start, the driver must wait for the starting motor to slow down, and then repeat the starting procedure. Such annoying delays cannot occur when starting a Chevrolet, because the over-running clutch allows the flywheel and pinion to turn faster than the starting motor, while the driving pinion remains engaged with the flywheel. Thus, cranking of the engine continues for as long as the button is depressed.

An electrically magnetized solenoid and a steel plunger replace the foot-operated linkage of the 1948 Chevrolet design. When the new push-button on the instrument panel is pressed, electric current

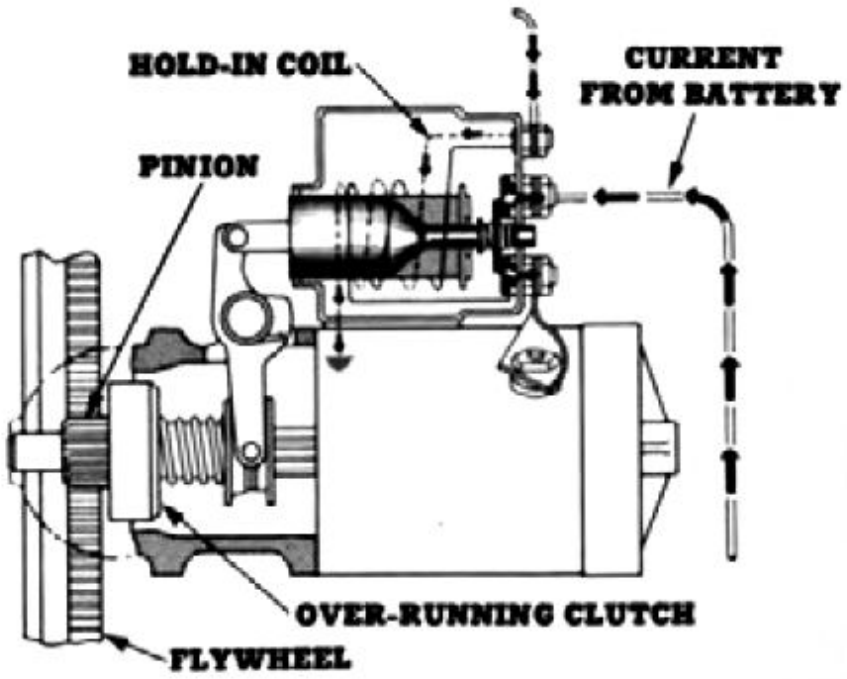
Push-Button Starting . . .



DISENGAGED



SOLENOID OPERATION PINION PARTIALLY ENGAGED



SOLENOID OPERATION—PINION FULLY ENGAGED AND STARTING MOTOR CRANKING

flows through a solenoid, mounted on the starting motor. In general, the solenoid operates like a large electro-magnet. Electro-magnets are simply coils of wire that are wound around a core of steel, in which a magnetic field is established when direct current (such as current from the battery) passes through the wire. Electro-magnetic forces are used in many ways. An example is the huge electric crane that lifts great quantities of steel by means of a magnet.

Like the electric crane, the magnetism established by the starter solenoid attracts a steel plunger that is attached to a shift lever, forcing the pinion into mesh with the flywheel ring gear. The plunger also closes the battery-to-starter switch, and the starter begins to crank the engine. After the push-button is released, a return spring withdraws the pinion.

Actually, the solenoid is two parallel coils of wire. One is called a pull-in coil, the other a hold-in coil. The hold-in coil is grounded directly, and is energized whenever the push-button is pressed. The pull-in coil, however, is grounded through the starter armature, and, since assistance from the pull-in coil is necessary only up to the point when cranking begins, the wiring circuit is so arranged that the pull-in coil is shorted out when the starter circuit is closed. The magnetism produced by the hold-in coil is sufficient to hold the plunger in, and shorting out the pull-in coil reduces the drain on the battery.

Heavy wire is used in the pull-in coil, since it draws up to forty-five amperes. The hold-in coil is of lighter wire, drawing but ten amperes.

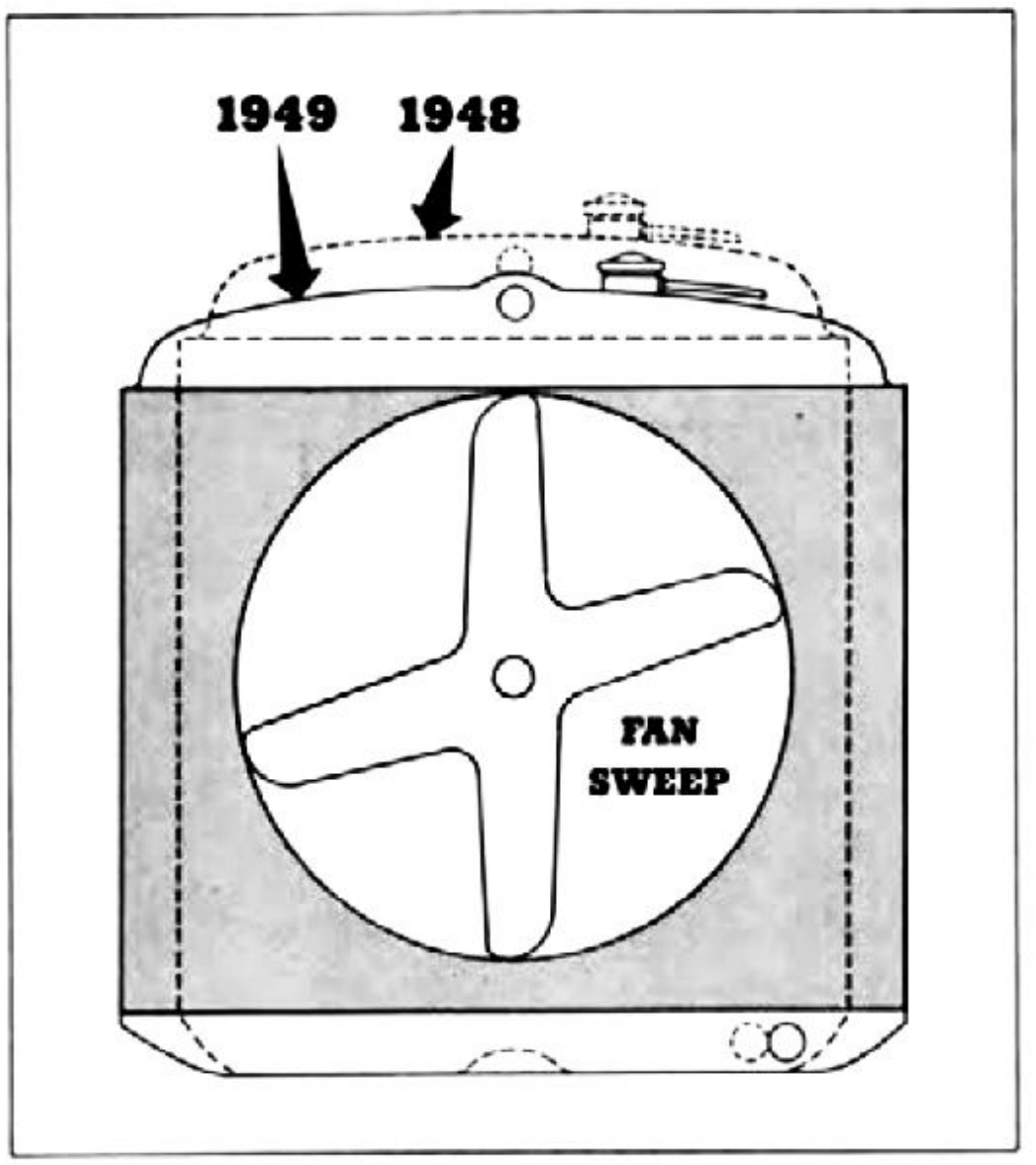
Since a fast-idle mechanism is now added to the carburetor, and, since the driver's right foot is now free for accelerator operation during starting, the throttle-opening linkage between the starter and the accelerator is eliminated.

Durability tests of the flywheel ring gear proved that the chamfer, which was machined on the gear teeth, was unnecessary. In fact, its removal actually decreased gear tooth wear. Therefore, this change was made on 1948 models, in May. The chamfer on the starter pinion is retained, however.

IMPROVED VOLTAGE AND CURRENT REGULATOR

Two modifications are made in the voltage and current regulator. It is now mounted on the left front fender skirt, making the space on the front of the dash available for an access door, through which the instrument wiring may be reached. Also, it is no longer necessary to bend the spring retainers to adjust the regulators and cut-out relay. Instead, adjustment is made by means of screws - a much more accurate method, and one which is easier and faster to use.

The shunt-wound type of generator is again used, but minor improvements are made in the structure of the pole shoes and in the field coil insulation.



THE REPROPORTIONED CORE AIDS COOLING

LARGER RADIATOR CORE AND BETTER COOLING

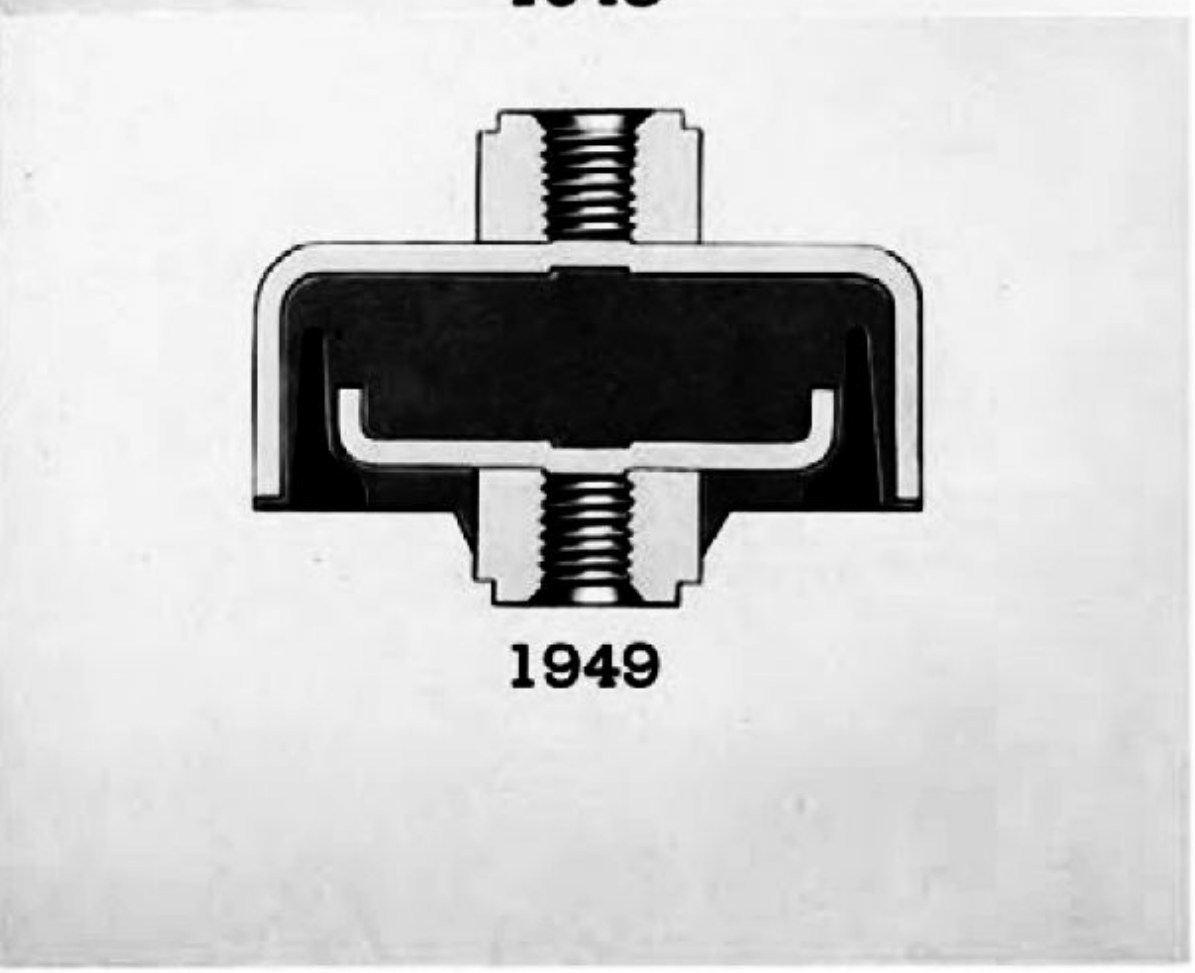
Many improvements have increased the effectiveness of the engine cooling system in the Sedan Delivery. They are: increased radiator core area, increased capacity, more effective sweep of the fan blades, larger air cells, and faster rate of coolant flow at high speeds.

Since the radiator is located directly behind the radiator grille, it must conform to the shape of the grille. This year, therefore, the radiator is shorter and wider. Consequently, the frontal area is increased more than eight per cent to 408 square inches, and the cooling system capacity is sixteen quarts instead of fifteen, as in 1948.

Because the radiator core is shorter, fan cooling is more effective. Previously, the fan blades did not sweep the upper area of the core, where temperatures are the highest. Now that the core is shorter, the fan is closer to the upper edge of the core and sweeps a greater part of the high temperature area, improving the cooling efficiency.

Since 1933, Chevrolet has used ribbed cellular construction in the radiator core. In 1949, the size of the air cells (air passages) is changed, making them ten per cent larger. The air cell size is now .22 x .560 instead of .20 x .560, as in 1948. Because of the larger air cells, air passes through the core more freely.

Increasing the width of the core adds five rows of water passages, and shortening the height of the core decreases the water passage length. This, in turn, allows a greater flow of coolant at high speeds. Because the radiator is less of a re-



IMPROVED FRONT MOUNTS LIMIT VIBRATION

striction to the flow of coolant, cooling is more efficiently accomplished.

Extensive laboratory testing shows that this improvement in the effectiveness of the cooling system makes a pressure sealing cap unnecessary in 1949. However, if extreme cooling requirements are encountered, the design of the filler neck permits the use of a pressure cap that operates as high as 7-1/2 pounds per square inch, although a four-pound cap is usually satisfactory. To safeguard against leaks, when a pressure cap is used, the radiator is tested at a pressure of ten pounds per square inch. This is 2-1/2 pounds more than the highest permissible operating pressure.

MODIFIED ENGINE FRONT MOUNTS

To remedy a condition in which clutch vibrations could reinforce engine vibrations until the total amplitude became annoying, a relatively simple change in the front engine mounts decreases the maximum amplitude of horizontal engine vibration.

The function of the new engine mounts is to permit horizontal engine movement, but to limit that movement to a predetermined maximum. When this maximum amplitude is reached, the steel-backed rubber walls of the mounts come into contact, acting as snubbers, to restrict further movement.

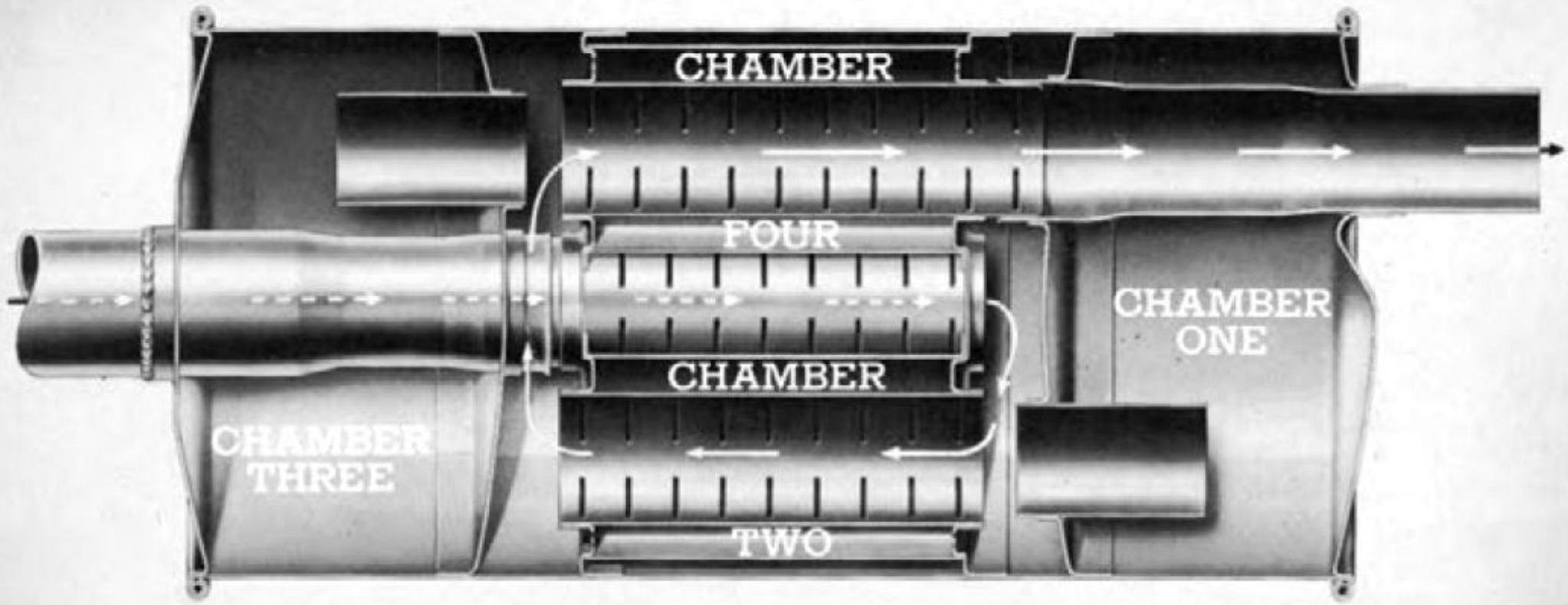
During a vibration study, it was determined that, at certain low speeds, during clutch engagement, vibrations of negligible amplitude in the clutch would be synchronized with horizontal vibrations of the same frequency occurring in the engine. When this happened, the amplitude of one vibration was added to the other, and the total intensity was great enough to be felt by passengers in the car.

The new front engine mounts are especially designed to prevent this build-up of vibration, by limiting the horizontal movement of the engine, without interfering with normal movement of the engine in any direction. This does not mean that clutch vibrations themselves are eliminated, but that conditions under which clutch vibrations could become annoying are obviated. Chatter, due to an improperly operating clutch, on the other hand, is not eliminated by the new engine mounts.

OTHER IMPROVEMENTS

As required by the wider Sedan Delivery body, the clutch pedal and all other driving controls are moved farther to the left. The Tiptoe-Matic diaphragm spring clutch is retained.

Water leakage at the so-called "freeze plug" (actually used to fill a water jacket core hole, used in casting) is eliminated by reshaping the clutch housing bolt flange to cover the plug, and coating the area with a sealing compound. Loss of coolant, about which there were customer complaints, was due in part to the use of anti-freeze having a poor rust inhibitor, or no rust inhibitor at all. Also, the ice expansion of frozen cooling water sometimes unseated the plug, causing leakage. In 1949, if the same conditions should exist, the double sealing of the clutch housing will prevent the escape of coolant.



THE MUFFLER NOW HAS FOUR SILENCING CHAMBERS INSTEAD OF THREE

FUEL TANK AND EXHAUST SYSTEM

The fuel tank used in the Sedan Delivery, as before, has a sixteen-gallon capacity, and is mounted below the underbody. But, because it is now mounted between the rear axle and the spare tire, a new shape was required. The filler pipe remains two inches in diameter, which is large enough to make the addition of a vent pipe to this model unnecessary. The filler neck extends through the left rear fender in a manner similar to the exposed arrangement used in 1948, and a cap, painted body color, is used.

SEALED UNIT EXHAUST SYSTEM

All joints of the exhaust pipe flange, the exhaust pipe, and muffler are electrically welded, making it a unified structure and providing even greater protection against leakage. Due to the general relocation of chassis components, it was necessary that the exhaust muffler be two inches shorter than the one used in 1948. The height and width of the oval shell are unchanged, but four silencing chambers are used instead of three. In addition, the central area of the muffler acts as an extra silencing chamber around the inlet tube. The result is that the silencing ability of the new muffler is equal to that of the longer unit.

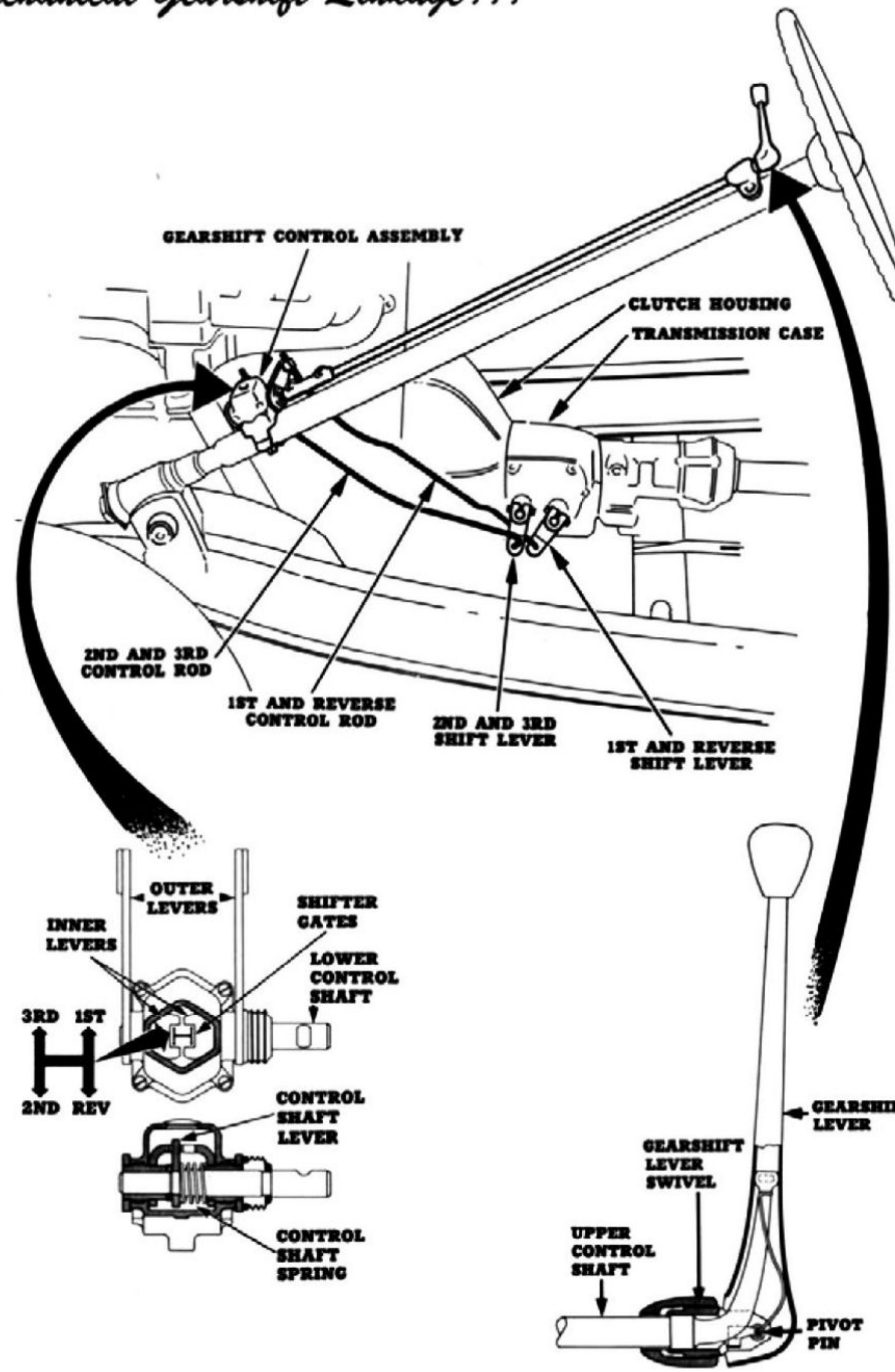
At the front of the exhaust system unit, the joint between the exhaust pipe and the manifold is changed from clamped packing to a stronger, tighter flange and gasket joint. In the new joint, the flange is electrically welded to the exhaust pipe and bolted to an angular flange on the engine exhaust manifold. The angular connection is necessary, so that the exhaust pipe, and the heat radiating from it, will be directed away from the steering gear in its new location.

The exhaust pipe is also electrically welded at the joint where it enters the front end of the muffler, replacing still another clamped joint with a stronger, tighter connection. If the muffler must be replaced at any time, the exhaust pipe must be sawed through to remove it. Replacement mufflers are attached with clamps, as was the regular muffler in 1948.

Electric welding of the muffler parts, as before, assures freedom from looseness and rattles, since failure is virtually impossible. Also, the double-walled construction and the rolled lock joints between shell and head are the same.

THE NEW MANIFOLD-TO-EXHAUST PIPE ATTACHMENT

Mechanical Gearshift Linkage . . .



NEW MECHANICAL GEARSHIFT

In 1939, when Chevrolet first adopted a remote control gearshift, no all-mechanical design existed that met Chevrolet's standards for truly easy shifting. At that time, Chevrolet's solution was the Vacuum Power Gearshift, which has been a popular feature, ever since. However, development work on all-mechanical systems continued, and now, the 1949 Chevrolet has a new gearshift mechanism that meets those standards. The New mechanical gearshift in the Sedan Delivery operates as smoothly and precisely as a fine bolt-action rifle and, in addition, it responds quickly to the lightest touch.

The mechanical gearshift was introduced first in all 1948 trucks that had a three-speed transmission. An examination of the truck installation reveals many of the details of the Sedan Delivery mechanism, since the two are nearly the same.

Customers will find, after trying the new manual gearshift, that gear positions can be found without searching for them. Likewise, gear selections, without the engine running, or in cold weather, are more easily made.

Because it is not a complex design, the new mechanism requires few adjustments, and those are easy to make. Its simplicity also gives the new manual gearshift a neat, efficient appearance at the lower end of the steering column, as well as at the steering wheel.

Fleet operators will welcome the change to the more durable manual gearshift, since the Vacuum Power Gearshift required frequent adjustment, because of continual rough treatment.

GEARSHIFT CONTROLS REDESIGNED

Ample mechanical advantage is designed into the new gearshift linkage to provide the same, easy shifting, notable in previous Chevrolet Sedan Delivery cars.

The gearshift lever is less than three inches away from the steering wheel, and has a relatively short travel. Attachment of the gearshift lever to the upper end of the steering column is identical with that used previously. However, the shifter lever is longer, and the upper portion of the control shaft is not enclosed in a housing, as it was in the past.

Both rotational movement (as in shifting from 2nd to 3rd) and pivotal movement are transmitted to the gearshift upper control shaft, which is attached to the lower control shaft by a clamp.

Below the dash, at the end of the steering column jacket, a die cast housing encloses a selector mechanism. During assembly, lubricant is added through a hole in the housing cover. The hole is covered by a spring-retained plug button. Attached to the lower control shaft is a short lever, or key, which engages one of two inner levers when the gearshift lever is pivoted. The inner levers form shifter gates for selection between 1st or reverse, and 2nd or 3rd gears. A light spring, at the lower end of the control shaft, holds the shaft in the down position, so that, when shifting from 1st to 2nd, there is the familiar drop (cushioned by a felt pad in the lower control housing), as the lever passes through Neutral.

THE INTERLOCK MECHANISM

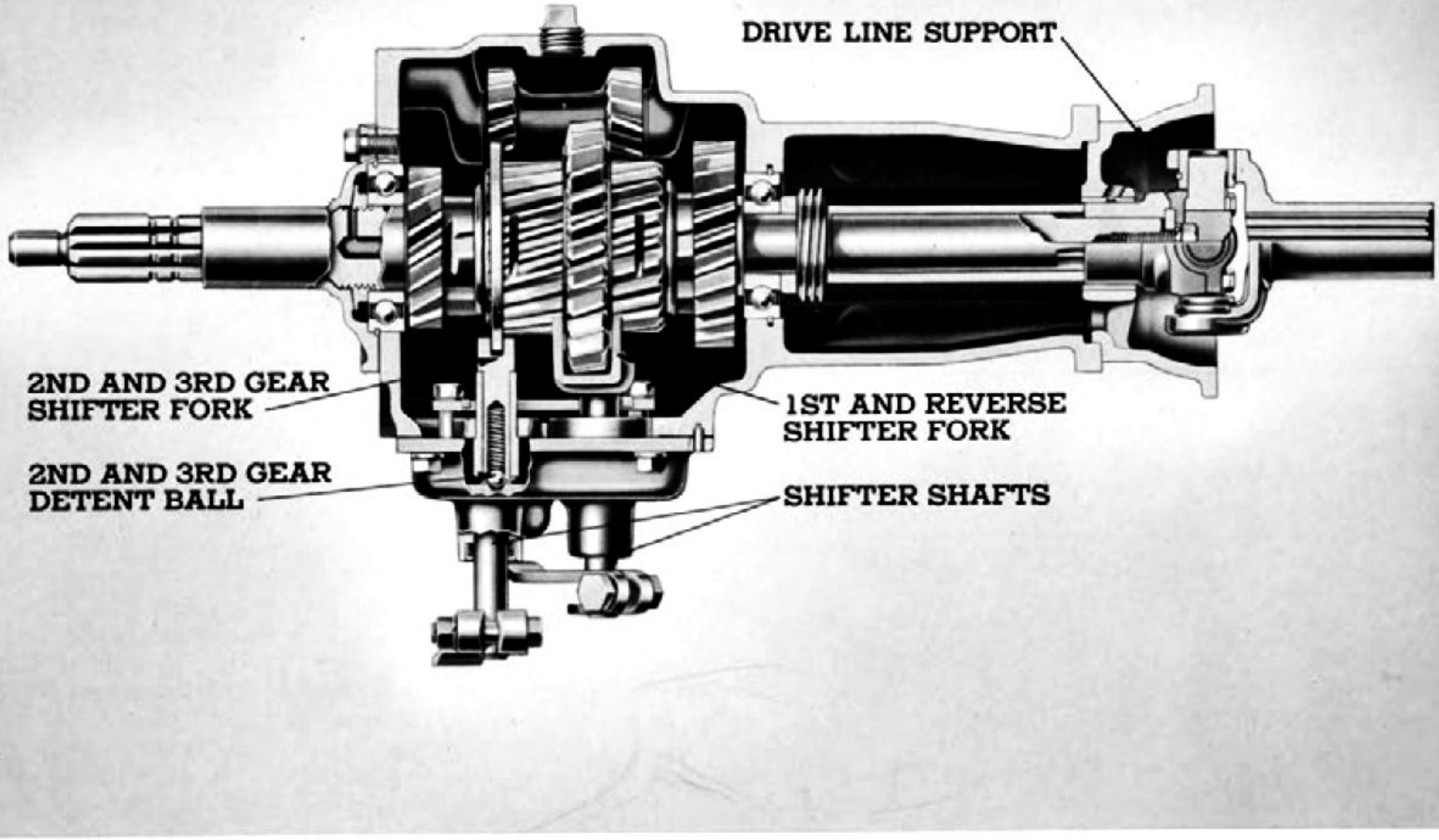
Within the transmission case, shifting of the gears is accomplished by two rotating forks - one for 1st and reverse gears, and one for 2nd and 3rd gears. Both forks are hardened for durability. They are lightly held in each gear position by ball and detent stops, whose action can be felt at the gearshift lever. Attached to each fork are shifter plates, or cams, that play an important role in the new interlock unit. The interlock unit is that part of the shifting mechanism which holds one shifting member in a neutral position while the other is moved. An interlock shaft, or crank, is anchored between notches in the cams.

When a shifter fork is moved toward a gear position, the interlock crank is squeezed into a cam notch, locking that cam and fork in a neutral position. When the ball drops into place, the driver can feel at the gearshift lever that the gears are properly engaged. However, there are over-shift stops on each cam to prevent movement of the ball beyond the detents.

ADDITIONAL DRIVE LINE SUPPORT

The 1949 transmission mainshaft is supported by three bearings instead of two. And, because of this three-point support, the universal joint at the rear of the mainshaft is held in even steadier alignment, smoothing the flow of power through the drive line, and making operation quieter. Since the engine is moved forward, and the propeller

THE INTERLOCK FORKS ARE HARDENED FOR DURABILITY



A CROSS-SECTION THROUGH THE TOP OF THE TRANSMISSION

shaft length is unchanged, it was necessary to add an extension to the transmission case, and to extend the transmission mainshaft. Attached to the case extension is the new bearing, which adds the steadiness of another support to the drive line.

The bearing support is a casting, and contains the torque ball socket. It is accurately located and securely held in place by four cap screws. Two holes in the web of the support allow lubricant from the transmission to reach the universal joint. The bearing, which actually supports the U-joint front yoke, is a ball-indented, rolled bronze bushing, pressed into the support casting. The bearing itself is lubricated by splash from the U-joint through a drilled hole at the top of the hub in the bearing support.

The torque ball socket can now be serviced more easily, since the socket is in the removable bearing support. Previously, it was necessary to remove and disassemble the transmission.

REAR AXLE AND DRIVE

The only changes in the rear axle assembly are those required to decrease the tread from 60 to 58-3/4 inches, and modifications in the axle shafts to reduce weight. The shaft flanges are reduced 23/32 of an inch in diameter, and the number of rear wheel hub bolts is reduced from six to five, since tests have shown that five bolts are adequate.

TORQUE TUBE OIL SEAL IMPROVED

Improved sealing characteristics are obtained with a new, "limited contact" torque tube oil seal. The smaller seal lip makes a narrow, line-contact around the propeller shaft, rather than a wide contact, providing better sealing for a longer period of time.

BRAKES

The 1949 service brakes retain the basic design used previously, but incorporate bonded linings, which practically double their useful life, eliminate drum scoring, and increase overall brake performance. The shoes are the same double-articulated type, and the brake drum diameter remains eleven inches. A general increase in brake durability results from the fact that brake sizes have not been reduced, even though the car is lighter.

THE NEW BONDED LININGS

By means of an improved method of attaching the brake facing to the shoe, the brake lining life is approximately doubled. The lining is securely bonded to the shoe by utilizing high temperatures and pressures, under carefully controlled conditions. Formerly, the brake lining was attached to the shoe by means of countersunk brass rivets. When rivets are used, only a portion of the total lining thickness can be used before the rivet heads are exposed and scoring of the brake drum begins. Even before this, abrasive dust collects in the rivet holes, promoting drum scoring.

After many exhaustive tests, Chevrolet provided bonded brake linings during the 1948 model year on Series 3000 trucks. Excellent field reports of their durability and life characteristics led, naturally, to their adoption on the 1949 Sedan Delivery. However, the actual development of the bonded lining process ranges back approximately fifteen years, which is the reason for today's highly developed materials and techniques.

IMPROVED FRONT BRAKE PIPE SYSTEM

Greater protection against loss of hydraulic fluid is obtained by a new, more direct piping system to the front brakes. Compared with the previous design, the new arrangement requires one less pipe and its connections, thereby eliminating several potential sources of leaks. The line for the left front brake now runs along the frame left side member directly from the master cylinder to the brake cylinder. Formerly, this line was incorporated in the network serving the right front brake, and traced a much more circuitous path.

BRAKING EFFORT REVISIONS

A change in the distribution of braking effort exerted at the front and rear wheels permits faster stopping, without sliding the rear wheels. This is a significant safety feature, since skidding more often occurs when rear wheels slide, than when front wheels slide. However, sliding of either the front or rear wheels is certainly undesirable, because the stopping power of a car's brakes is ultimately determined by the friction of the tires at the road surface. Therefore, the 1949 brakes are balanced to minimize sliding, and to obtain the greatest possible stopping power.

BONDED LININGS LAST TWICE AS LONG

Better proportioned braking is brought about by increasing the amount of work performed at the front wheels, and decreasing the amount performed at the rear. The front brakes now exert 57.7 per cent of the total braking effort, and the rear brakes, 42.3 per cent. In 1948, the front brakes performed 52.5 per cent, and the rear, 47.5 per cent. These changes are made in accordance with the forward shift of vehicle weight, brought about by the new engine location. Rebalancing of the brakes was accomplished by changing the wheel cylinder diameters, with those in the front increased to 1-5/16 inches from 1-1/4, and those in the rear decreased to 1-1/8 inches from 1-3/16.

IMPROVED PARKING BRAKE CONTROL

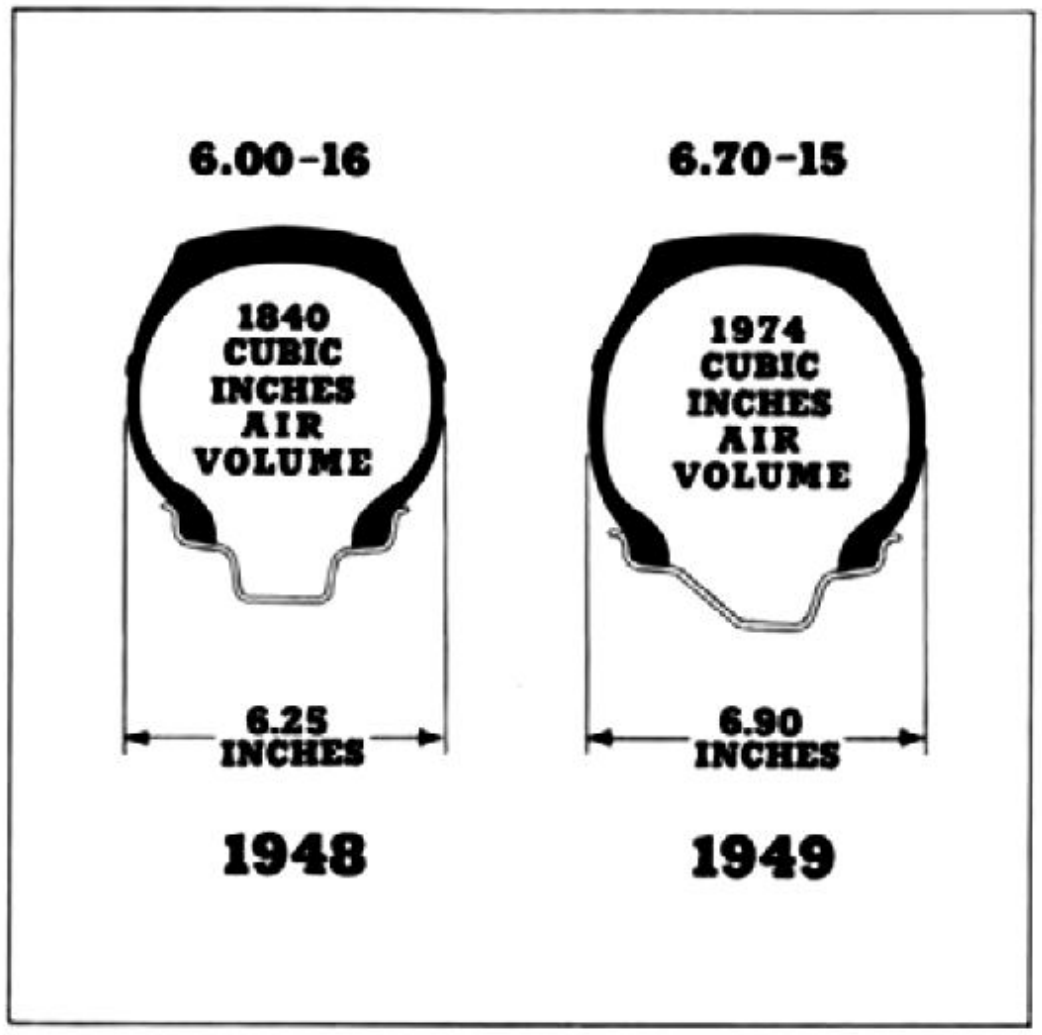
Greater convenience, safety, and ease of operation are provided in the 1949 parking brake control. The mechanical use of the rear brakes for parking is unchanged, but a new hand control is provided on the right side of the steering column, instead of on the left. This is a better location, because, even when the brake is on, the handle never obstructs the driver's doorway. The brake is applied by pulling the L-shaped handle straight back with the right hand. A simple, sixty-degree clockwise turn of the handle releases the brake. The mechanical advantage of the new system is approximately twenty-two per cent greater than in 1948. This means that the new parking brake is much easier to operate, producing greater braking effectiveness for the same amount of pull on the handle.

WHEELS AND TIRES

In assessing the value of the various factors that go to make up the excellent riding quality of the 1949 Chevrolet, an important amount of credit goes to the new tires. The size is 6.70-15, and the wheel used is 15 x 5K. This extra-low pressure tire carries a recommended pressure of twenty-four pounds, cold. However, the pressure is increased to thirty in the rear, when six-ply tires are used for the maximum GVW of 4100 pounds.

Comparatively, the 1948 regular tire equipment was 6.00-16, on a 16 x 4.00E wheel, and pressures were twenty-six pounds front, and twenty-eight rear.

The new equipment cushions the car with a larger volume of air at lower pressure, the result being a softer, more restful ride.



THE 1949 CHEVROLET RIDES ON A LARGER CUSHION OF AIR

The new tires, mounted on five-inch width rims, afford a very appreciable increase in air cushion. The approximate air volume is 1974 cubic inches, compared to approximately 1840 in the 6.00-16 tire on a four-inch rim. Furthermore, the larger air volume is at a lower pressure. The result is that the whole body of the tire is more resilient. Whereas a relatively hard tire, having a smaller carcass, and operating at a higher pressure, will bounce and shake on impact, the larger, low pressure tire will absorb the same impact, so that fewer and lighter shocks are passed on to the car.

Because of the larger volume of low pressure air employed, the ELP tires, as they are called, perform better in many different circumstances. Summarizing these, they line up as follows:

1. Noise and feel of running over road expansion bars is appreciably lessened.
2. Lateral shocks are better absorbed.
3. Tire body stresses are decreased - in other words, the working movements of the carcass are less severe, because of the wider rims and straighter sidewalls - therefore, tire life is expected to at least equal the 6.00-16 for the customer. With the new Centerpoint Steering, it may well improve.
4. Steering effort in parking is virtually unchanged, even though the tires are larger.

In addition, with straighter side walls meaning less concentration of flexing, and, with lower air pressure assuring less heat generation in the tire body, tire failure from heat and pressure build-up will be less.

Traction is improved, because the area of the tire in contact with the road is greater. This is highly important on wet and snowy pavements, in sand or loose gravel.

The design of this tire is such that, although the tire body is much larger, the area of tire tread on the ground is not increased in direct proportion. The width across the footprint is somewhat narrower, but it is quite a lot longer.

It is known that if no effort is made to control the footprint size when the tire cross-section is increased, the amount of tire actually resting on the ground causes slow-speed steering and parking to be extremely stiff.

At the same time, definite advantages are gained with increased ground contact. Traction is improved for starts and stops, and road stability is somewhat better.

The desirable condition is to gain ample ground contact for all forward motion, but to keep it as narrow as possible for easy steering and handling. This is done by designing the tread to obtain a long, narrow contact area, which is the object that has been attained in the ELP tires.

It is imperative that the recommended cold pressures of the ELP tires never be exceeded, otherwise the many advantages of softer tires may be lost.

Butyl inner tubes are continued, because of their great strength and excellent air retention qualities. As many drivers have learned in the past few years, their tires need be checked only every six weeks or so, instead of every week or two, as was the case with natural rubber tubes.

NEW, SMALLER WHEELS

The 1949 wheel-assemblies retain the previous short spoke disk design, but are 15 x 5K, instead of the former 16 x 4.00E, thereby providing a one-inch smaller diameter and one-inch wider rim. The attaching bolt circle diameter is reduced to 4-3/4 inches from the previous 5-1/2 inches, and five bolts of the same size are employed, instead of six.

Other features of these rims include rim bead seats that are 7-1/2 per cent wider to prevent tube pinching, and 1/4-inch wider wells to allow easier tire mounting.

NEW, SELF-CLEANING WIRING CONNECTORS

All wiring harnesses are new for 1949, and a new kind of connector replaces the bayonet connectors that were used at the junctions of the body wiring harness with those of the tail and license light, stop light, and gasoline gauge tank unit. The new connector is a plastic tube, containing two spring contacts which firmly grip the flat, eyelet-type terminals on the wires, when they are inserted at each end. So that the connector cannot be lost, if the wires are separated for servicing, the connection at one end becomes permanent, when it is first made. Provision for this is incorporated in the spring contacts. At one end of the connector, a tang engages the inserted terminal in such a manner that it cannot be removed, while at the other end, the spring contains a detent, which retains the terminal, but permits disconnection.

An advantage of the new connectors is that they eliminate the use of soldered terminals. Previously, the connections were made between the soldered ends of wires, butted together, and held in place by a coil spring. In the new connectors, however, the welded-on terminals lie between two flat springs, with a larger, more effective area of contact. Vibration, usually a source of trouble in electrical systems, cannot impair the function of the new connectors. On the contrary, it is beneficial, because the continual shifting of the terminals in their contacts keeps them clean and bright.

SIMPLIFIED BODY-TO-CHASSIS WIRING

To facilitate the assembly of body-to-chassis wiring in the new Sedan Delivery, all body wiring terminates at a junction block, mounted on the lower flange of the instrument panel. The junction block serves to separate the chassis and instrument panel wiring from the body wiring. An extra terminal on the junction block is connected in the instrument lights dimmer circuit, so that the dial lights of accessories, such as the electric clock, when attached to it, will be controlled by the rheostat in the light switch. The instrument lights dimmer has been a Chevrolet feature since 1940. It is especially appreciated by those who drive long distances at night, when bright lights on the instrument panel interfere with accommodation of the eyes to darkness.

BRIGHTER DOME LIGHT

The bulb with which the dome light is equipped is more than twice as bright as before. The change from six to fifteen candle power assures plenty of illumination for studying delivery orders.

BRIGHTER TAIL AND STOP LIGHTS

In 1949, the tail and stop light lens is molded lucite, instead of glass. With molded glass lenses, it is hard to obtain the sharp prisms that are necessary to direct the light properly. With lucite, however, it is entirely practical. As a result, the new lens is optically superior. For safety, reflex prisms are again incorporated around the lens area.

THE BATTERY IS EASIER TO REACH

MORE ACCESSIBLE BATTERY LOCATION

The position of the battery in the Sedan Delivery is also changed, to make it more accessible for servicing, and to provide a cooler location, as well. It is now mounted on a special structure, attached to the right front fender skirt, close to the front, where it is easier to reach.

EASIER ACCESS TO INSTRUMENT PANEL WIRING

Servicing and installation of instruments, wires, and switches behind the instrument panel is simplified in the new Sedan Delivery. An access hole is added in the left side of the dash so that a mechanic may now reach the instrument cluster easily from the engine compartment, instead of working from an uncomfortable position inside the car.

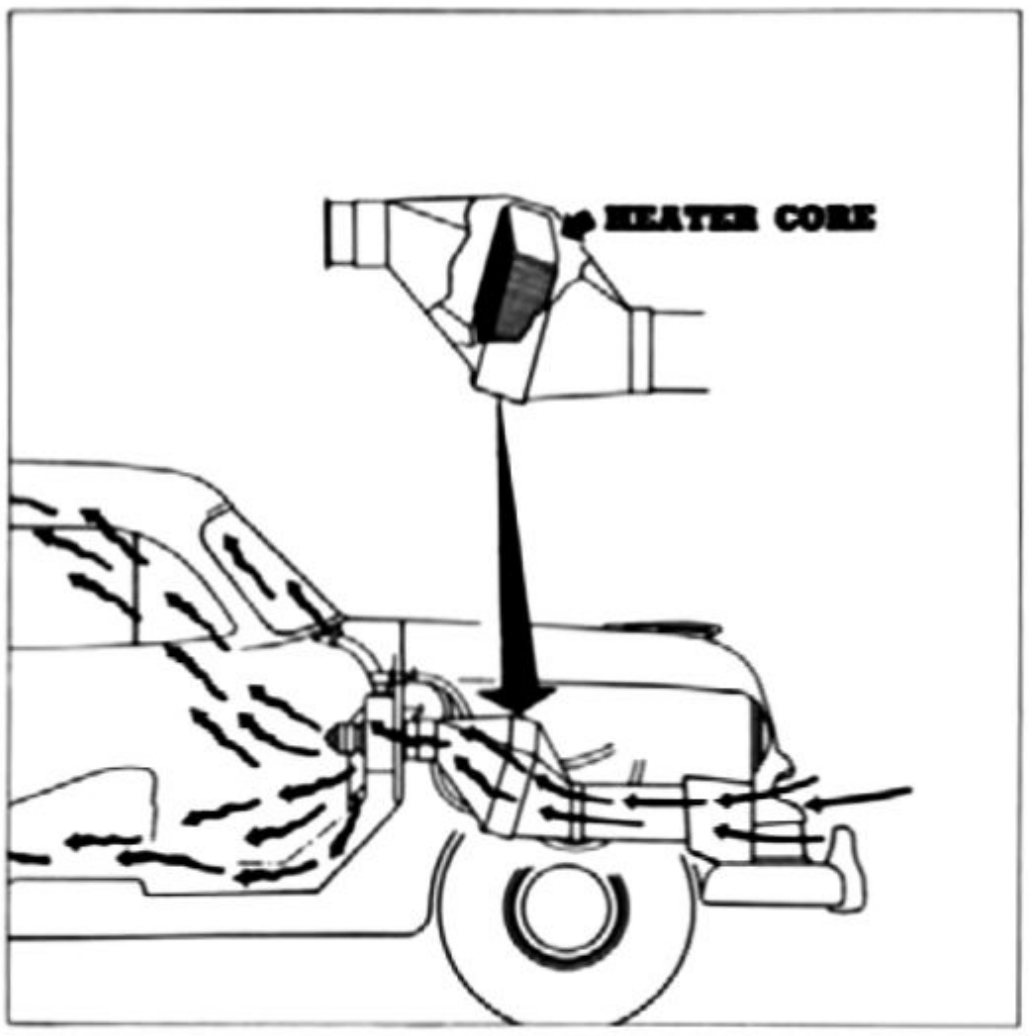
MORE DEPENDABLE HORN-BLOWING CONTACT

The horn-blowing contact has a softer, quicker response than before. A diaphragm spring is used to close the circuit. The principle is the same as that used in Chevrolet's diaphragm spring clutch. Because of its "oil-can" action, the outside edge of the spring is easily inverted by slight pressure on the horn button, completing the circuit through a spring-loaded brush, which rides on the upper flange of the steering column mast jacket.

To keep the horn wire away from the steering shaft, where its insulation might be worn through, causing a short circuit, the lower end of the wire is pulled taut and clamped to the outer surface of the steering column.

HEATING, VENTILATING, AND DEFROSTING UNIT

Accessories for the 1949 Chevrolet Sedan Delivery are redesigned for accommodation to the requirements of the new car, and restyled to compliment its functional beauty. Entirely new, however, is the heating, ventilating, and defrosting unit, which brings in air from the outside, and maintains a pre-set temperature within the car by means of an automatic thermostat. Designed to supply enough heated air to build up a slight internal pressure when the windows are closed, the new heater eliminates annoying drafts and cold spots. Visibility is greatly improved, because fogging and frosting of the windshield and windows is minimized by the continuous changing of air. The moisture content of the air is kept low, so that condensation on the glass, always a problem with recirculating heaters, is considerably reduced.



THE NEW HEATER DRAWS AIR FROM OUTSIDE

The package consists of the heater core and case assembly, blower and air distributor assembly, defrosters, temperature valve, control cluster, and high temperature engine thermostat. The ribbed cellular core and case assembly is mounted in place of the removable section in the right hand ventilator duct, under the hood, and connects to the built-in air valve on the front of the dash. This valve is used to regulate the flow of air into the distributor, after the air is heated by the core.

A sirocco blower and the air distributor are mounted on the passenger side of the dash. The blower is provided to supplement, when necessary, the impact force of the air scooped into the duct from behind the grille.

Windshield defroster nozzles are supplied with air diverted from the distributor by a movable vane in the housing, near the blower outlet. Air flow to the defrosters may be completely shut off, or practically the entire output of the heater may be directed to the windshield for de-icing. The windshield garnish molding is constructed so that it does not touch the glass, except at the outer ends, and at the center division molding. Instead, a narrow slit extends across the base of the windshield, forming a sort of manifold, which spreads air from the defroster nozzles over the entire glass area. This is a welcome improvement, for the greatly increased areas of clear glass promote safer driving in bad weather. Another advantage of the new defroster manifolds is realized when wiper blades are frozen to the glass, since the much wider spread of warm air loosens them very quickly.

Temperature inside the car is controlled by a thermostat, located on the dash, near an opening in the blower housing. In summer, the water supply may be shut off by moving the temperature control knob all the way to the left, so that the blower may be used to augment the left hand ventilator, or to de-fog the windshield in rainy weather.

The control unit for the new heater is arranged for ease of understanding and convenient use. It consists of only three controls, mounted in a single cluster on the lower flange of the instrument panel, to the left of the steering column. All three controls are arranged so that the OFF position is at the left, and the full ON position at the right. The upper lever controls the defroster air valve; the center lever, the main air valve and blower motor; and the lower lever controls the temperature that is to be maintained by the thermostat. The blower is automatically switched on by the air valve control when it is moved to the MED (medium) position, with a higher blower speed available at HI (high).

For light duty and lower cost, a new dash-mounted recirculating heater is also offered for 1949. It is similar to the 1948 heater, but defroster capacity is stepped up approximately twenty per cent, because of the larger windshield area in the new Sedan Delivery.

SPOTLIGHT

The 1949 spotlight is smaller and more attractive. It now incorporates a sealed beam unit, which assures the lasting brightness of the reflector. Because of the narrower windshield pillars, the new spotlight is mounted through the front door, just below the body belt line.

WINDSHIELD WASHER

A new valve, built into the windshield wiper motor, provides centralized control for the accessory windshield washer. To actuate the washer, it is only necessary to turn the wiper control counter-

clockwise, holding it in that position a few seconds before releasing it. The windshield wiper control is now located on the instrument panel to the right of the instrument cluster.

TWO NEW RADIOS

For the new Chevrolet, two new radios are available. Each set is redesigned for better performance and convenience of installation and servicing. Each of the radios consists of two units, one being the speaker, power supply, and amplifier, the other the tuner and control panel. The speaker unit is mounted behind the radio grille, and the tuner unit to the left of the speaker. Controls and dials of both radios are smartly designed to harmonize with the new interior and instrument panel styling. The position of the control panel, to the left of the radio grille, also brings it within easier reach of the driver, a safety feature that is consistent with the relocation of all instruments and controls to the area directly in front of the driver.

The lower priced set is tuned manually, and has six tubes and a six-inch round speaker, while the higher priced model, also a six-tube set, is tuned with five push-buttons, and has a larger, elliptical speaker. The antenna for both radios is now mounted on the left front fender, instead of the cowl, to avoid blocking the driver's vision.

OTHER ACCESSORIES

Nearly all of the accessories offered for 1948 models are again available, in revised and improved forms, for the new Sedan Delivery. Some of these are: front fender shields, grille guard, locking gasoline tank cap, electric clock, direction signals, fog lamps, hood ornament, parking brake alarm, outside sun visor, and ornamental steering wheel.

REGULAR PRODUCTION OPTIONS

OIL BATH AIR CLEANER

As in 1948, an oil bath air cleaner and silencer assembly is available at extra cost. Radical changes in the shape of this unit were necessitated by the lowered hood line. The silencer portion of the assembly is now a long cylinder. It extends from the carburetor across the top of the engine, and the air cleaner is attached to the outer end. All are supported by a bracket, which is attached to the cylinder head at the coil mounting boss.

An oil bath air cleaner is recommended where excessive dust concentrations in the air are encountered, or when a high degree of protection is desired. In this cleaner, as before, oil-washing of the air is combined with an oil-wetted filter. Dust is captured by either unit whenever it comes in contact with the oil. In addition, the air, after leaving the oil bath, carries a steady stream of fresh oil into the filter element, maintaining a high efficiency, and preventing air restriction.

COMBINATION FUEL AND VACUUM PUMP

Operation of windshield wipers from intake manifold vacuum is continued in 1949. However, a combination fuel and vacuum pump is made available at extra cost, eliminating the annoyance of wipers that slow down during acceleration or hill climbing. The vacuum booster section is actuated by the same rocker arm as the fuel pump. Pressure created by diaphragm movement expels air through an outlet port into the intake manifold. The return stroke creates vacuum for the windshield wipers. When the wipers are not in use, or the manifold vacuum is sufficient for wiper action, the diaphragm is held off the rocker arm by manifold vacuum until it is needed.

INDEX

SECTION ONE—REGULAR TRUCKS

SECTION TWO—SEDAN DELIVERY

Lithographed in U.S.A.