1956 CHEVROLET FEATURES

Truck Engineering Achievements

1956

CHEVROLET

FEATURES

TRUCK ENGINEERING ACHIEVEMENTS

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The 1956 line marks the entry of Chevrolet into the 2-1/2 ton truck field. With 21 new heavy-duty models, including a tandem axle option, the new vehicles provide a broader coverage of trucking requirements than ever before offered by Chevrolet.

A major development of the new model year features Powermatic, an all new, fully automatic transmission. Another Chevrolet "first", designed specifically for truck operation, the new transmission boasts outstanding driving ease, safety and operating economy.

Presented here in the Engineering Features Book are pictorial and written descriptions of the many new mechanical and styling features which mark the continuing progress of Chevrolet in the truck field.

E. N. Cole
Chief Engineer

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THE 1956 CHEVROLET TRUCK

Chevrolet for 1956 broadens its area of operations with four new 2-1/2 ton series in its expanded model line-up. Offering a choice of either Low Cab Forward models in the 7000 and 9000 series or conventional cab design in the 8000 and 10000, the new series comprise a total of 21 models. Each of the new models is available with a 2-1/2 ton rated capacity. Maximum gross vehicle weights range from 21,000 pounds for Series 7000 and 8000 models to 25,000 pounds for Series 9000 and 10000 vehicles. Gross combination weights are also listed for the medium and heavy-duty series. Optional tandem axle equipment is available on Series 10000, providing these models with a GVW of 32,000 pounds and a GCW of 50,000 pounds.

The "load pulling" look, introduced with a complete appearance change in 1955 is further enhanced with five new exterior colors, newly designed hood emblems and new series designation plates. Black and charcoal are the interior colors of the standard cab models. The optional deluxe cab features three interior color schemes which harmonize with the exterior color combinations.

The basic differences between the 7000 and 8000 series in comparison with the 9000 and 10000 is that the latter incorporate heavy-duty components, including a heavy-duty engine, five-speed transmission, higher capacity rear axles and a 13-inch coil spring clutch.

The Taskmaster 265 cubic inch V-8 engine powers the lighter duty 2-1/2 ton models while the new 322 cubic inch Loadmaster V-8 is regular equipment for models of the 9000 and 10000 series.

The 265 cubic inch V-8 engine, released in mid-season 1955 as optional equipment for the 3000 and 4000 conventional models, is made available in the forward control models, while the heavy-duty version of this engine, specified as regular equipment in Series 5000 and as an option in Series 6000, is now also available as regular equipment for 7000 and 8000, and as an option in Series 4000. Engine life is prolonged by the use of a new full-flow filter which is regular equipment on all V-8 engines. Another outstanding feature of the drive train used with the Trademaster and Taskmaster engines is the coil spring clutch, first introduced in mid-season 1955. The coil spring clutch is also used with the new Loadmaster engine.

Power rating of the Thriftmaster six cylinder engine, which has a higher compression ratio and a new high-lift camshaft in 1956, is increased to 140.

Fully automatic transmissions are now available for all models in the line-up with the exception of Model 4502. The Hydramatic transmission, previously optional on 1/2 ton through 1 ton models, is now offered on 1-1/2 ton models as well, and a new automatic transmission is introduced for 2 ton and 2-1/2 ton trucks. In addition, two new 5-speed transmissions are available on 2 and 2-1/2 ton models.

SERIES AND MODELS

Twenty-one heavy-duty models on eight new wheelbases are added to the Chevrolet truck line-up for the new year. Maximum gross vehicle weight ratings on the new models range from 21,000 to 32,000 pounds. The revised and expanded truck line now consists of 86 models with 23 different wheelbase dimensions, which includes the 65 models on 15 wheelbases carried over from the previous year. All vehicles available in 1955 are continued for the new year, with the exception of the cab and platform trucks which are discontinued as specific models. Platform bodies, however, are available optionally. Also available as an option is tandem axle equipment for the 10000 series which increases their capacity.

Some changes were made in the nominal classification of the existing series. All 3000 series vehicles are rated as light-duty models, while the Series 4-5-6000 models are in the medium-duty class.

Maximum gross vehicle weight ratings of Series 5-6000 models are increased to 19,500 pounds with the exception of the school buses. These both have a maximum GVW of 18,000 pounds. Maximum gross vehicle weight ratings of all other models, carried over from the previous year, continue unchanged.

The newcomers to the Chevrolet line are all in the heavy-duty class. Four new series are featured --the 7000 and 9000 Low Cab Forward and the 8000 and 10000 conventional models, all available with a nominal rating of 2-1/2 tons. Obtainable as cab and chassis or cab and stake rack vehicles, the Low Cab Forward models are on three different wheelbases, two of which are new. The conventional models are available as cab and chassis, cab and stake rack and flat face cowl vehicles, with six all new wheelbases. Cab and stake rack models, due to insufficient tire clearance are not available in the 9000 and 10000 series.

Models of the 10000 series with optional tandem axle equipment, available on three different wheelbases, have a maximum gross vehicle weight of 32,000 pounds. The rating of Series 7000 and 8000 vehicles is 21,000 pounds with a Gross Combination Weight of 35,000 pounds while that of the Series 9000 and 10000 models is 25,000 pounds with a GCW of 48,000 pounds except the tandem axle vehicles and the school bus. Optional tandem models have a GCW of 50,000 pounds.

The school bus line for 1956 is expanded to five vehicles with the addition of two new models, one each in the 8000 and 10000 series. The nominal rating of both is 60 pupils. Model 8802 however, carries a maximum gross vehicle weight classification of 19,000 pounds while model 10802 is rated at 22,000 pounds.

86 MODELS ON 23 WHEELBASES . . .

	1/2 TON			3/4 TON			1 TON			1-1/2 TON		
		WB	GVW		WB	GVW		WB	GVW		WB	GVW
VEHICLE TYPE	1500	115	4100	3400	104	10,000	3800	135	8800 *	4100	130	14,000
	3100	114	5000	3500	125					4400	154	14,000
				3700	137							
	3200	123-1/4		3600	123-1/4	6900				4500	154	12,000
SEDAN DELIVERY 	1508											
FLAT FACE COWL 	3102			3602			3802			4102 4402 4502		
WINDSHIELD COWL 	3112			3612			3812			4112 4412		
CAB CHASSIS 	3103			3603			3803			4103 4403		
PICKUP 	3104 3124 3204			3604			3804					
PANEL 	3105						3805					
SUBURBAN CARRYALL 	3106 3116											
STAKE 				3609			3809			4109 4409		
FORWARD CONTROL 				3442 3542 3742								

* - Maximum GVW of models 3804 and 3805 is 7000 pounds.

¢ - Models 10403, 10503 & 10703 with tandem axle option have a maximum GVW of 32,000 pounds.

$ - Models 10403, 10503 & 10703 with tandem axle option have a maximum GCW of 50,000 pounds.

1-1/2 TON SPECIAL			2 TON				2-1/2 TON							
	WB	GVW		WB	GVW	GCW		WB	GVW	GCW		WB	GVW	GCW
5100	112-5/8	15,000	5100	112-5/8	19,500	32,000	7100	112-5/8	21,000	35,000	9100	112-5/8	25,000	48,000
5400	124-5/8		5400	136-5/8			7200	124-5/8			9200	124-5/8		
5700	160-5/8		5700	160-5/8			7700	172-5/8			9700	172-5/8		
6100	130		6100	130			8100	132-1/2			10100	132-1/2		
6400	154		6400	154			8200	144-1/2			10200	144-1/2		
6500	172		6500	172			8400	156-1/2			10400	156-1/2		
			6700	194	17,000	—	8500	174-1/2			10500	174-1/2	25,000 ¢	48,000 $
			6800	220	18,000		8700	192-1/2			10700	192-1/2		
							8800	240	19,000	—	10800	240	22,000	—
6102S 6402S 6502S			6102 6402 6502 6702 6802				8802 10802							
6112S 6412S 6512S			6112 6412 6512											
5103S 5403S 5703S 6103S 6403S 6503S			5103 5403 5703 6103 6403 6503				7103 7203 7703 8103 8203 8403 8503 8703				9103 9203 9703 10103 10203 10403 10503 10703			
5409S 6109S 6409S			5409 6109 6409				7109 8109 8409							

$2\frac{1}{2}$-TON CAB AND CHASSIS

MODEL 10103

HEAVY-DUTY MODELS . . .

Model 10103 typifies the powerful and capable appearance of the 1956 Chevrolet heavy-duty trucks. The "load-pulling" look, introduced in 1955, is given greater emphasis by the large front end sheet metal and the distinctive grille of the new 2-1/2 ton models. The massive exterior styling is a perfect match for the outstanding capacity and performance of these vehicles.

2-TON STAKE
MODEL 5409

MEDIUM-DUTY MODELS . . .

With the exterior appearance proportional to the work that they perform, all models of the 4000, 5000 and 6000 series are classified for 1956 as medium-duty vehicles. Differences in grille styling, series designation plates and a smaller overall size with smaller components make the 1-1/2 ton Special and 2 ton models easily recognizable.

STYLING

EXTERIOR STYLING

Chevrolet truck models for 1956, identical in basic design with their 1955 counterparts, are nevertheless easily distinguished by new colors, new hood emblems and variations in the series designation plates. Models of the new heavy-duty 7-8-9-10000 series are very similar to the other models, however with several distinguishing differences in addition to their inherent greater massiveness.

The hood emblems of all models are entirely new and are relocated to a position directly above the lip at the forward edge of the hood. Series designation plates for 1956 are basically identical in appearance to those of light and medium-duty vehicles of the previous year. However these identify the transmission used, as well as the series, and have been relocated on the medium and heavy-duty models to a position above the crease which extends along the fender from the hood over the headlights.

Models of the 3000 series feature hub caps which are similar in appearance to those of the previous year, but with a black insert on which the trademark is mounted. The rest of the hub cap is painted Arabian Ivory. The Cameo Carrier again features distinctive, new, full-width wheel trim disks which display a central spinner surrounded by bright metal Chevrolet trademarks. Black depressions, located near the outer periphery simulate spokes.

Several differences easily distinguish the 2-1/2 ton models from their 2 ton counterparts. Wheel openings are framed by a massive flange to provide for the wider front wheel treads. The wider fenders blend into the cab in an abrupt contour directly in front of the doors on the conventional models and on doors of models in the 7000 and 9000 series.

A low and wide air scoop, located below the grille supplies additional air to the radiator. The air intake continues the grille styling, also being painted Arabian Ivory.

Cab models of the 10000 series are equipped with an exposed running board to permit easier entry and exit. A fender extension continues the fender contour to the running board.

A total of fifteen exterior colors are used for 1956 to provide thirteen solid color exteriors as well as thirteen two-tone combinations. The five colors new for 1956 are Forest Green, Cardinal Red, Regal Blue, Golden Yellow and Arabian Ivory. The latter is used only for two-toning as well as being the grille, headlight bezel, and bumper color.

The Cameo Carrier, previously available in only one color combination, now may be had in any of eight two-tone exteriors.

Color charts in the Appendix provide a more detailed interpretation of color usage and application.

AIR SCOOP . . .

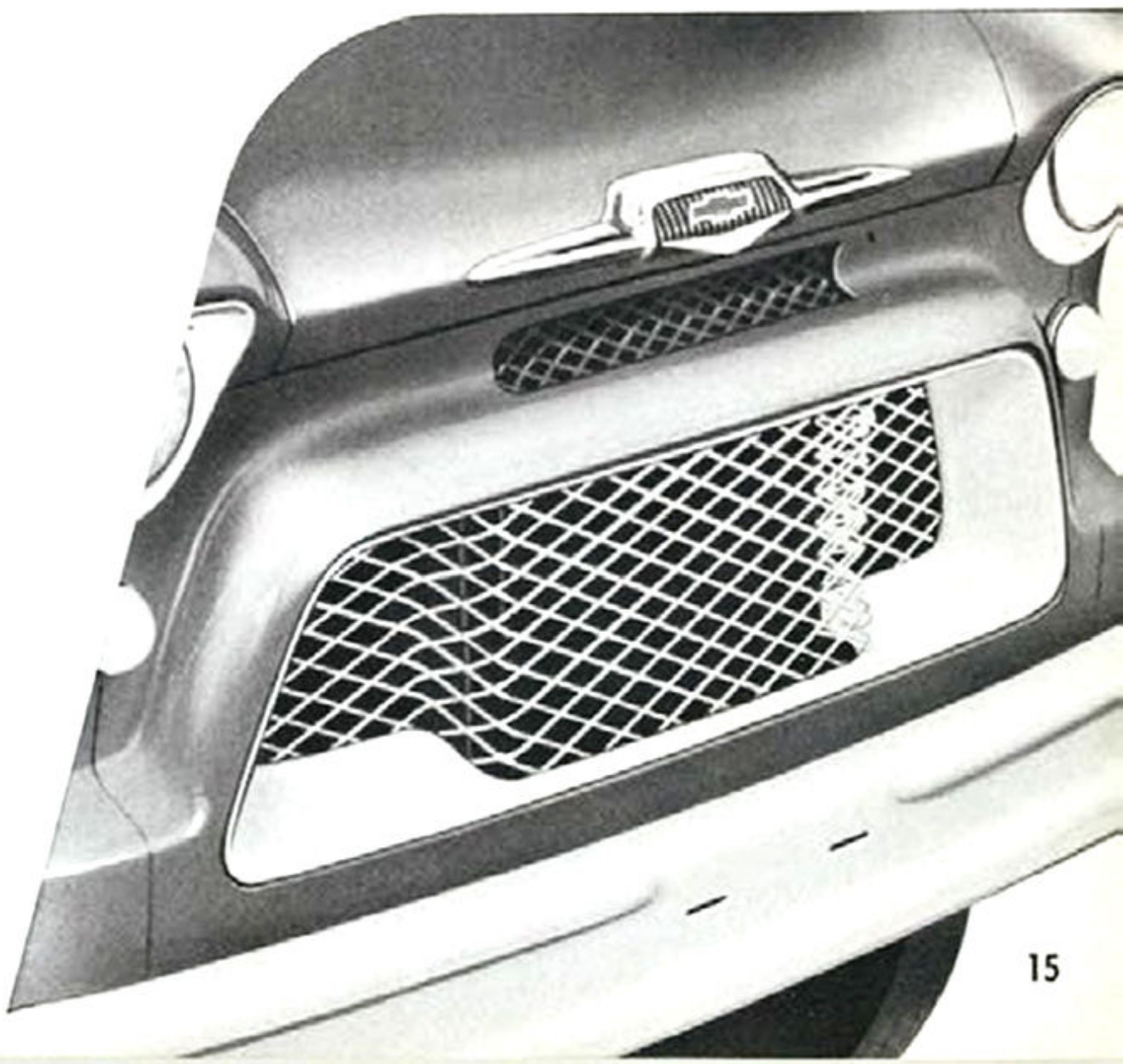
The long narrow air scoop, located below the grille is a distinguishing feature of the front end styling of all heavy-duty models. With the grille located somewhat higher in relation to the ground, the grille extension is functional as well as decorative, furnishing additional air to the radiator. The air scoop, as well as the grille, is painted Arabian Ivory for an integrated appearance, the combination providing a look of massiveness to the front end styling.

LCF GRILLE WITH POWERMATIC . . .

Powermatic transmission equipped models of the 5-7-9000 series display a grille which differs considerably from that of the conventional medium and heavy-duty vehicles. This design is required to provide additional air to the radiator which also serves to cool the transmission oil.

The main portion of the grille has the same limiting extremities as do other models, being framed by a large air scoop. However the heavy central element is replaced by an expanded metal, diamond shaped mesh which covers the entire opening and permits less restricted air entry. To enclose the radiator the central section of the mesh is projected forward of the two end sections. The entire grille is painted Arabian Ivory.

An extra air intake, painted body color, also of expanded metal is located immediately above the main portion of the grille, in the filler panel.



RUNNING BOARD . . .

Easier entry and exit is provided on cab models of the 10000 series with the exposed running board which is in addition to the step concealed by the doors. With the greater height of these models, an extension continues the fender contours down below the lower extremities of the cab to blend into the black painted step.

An optional exposed running board is available on cab models of the 4000, 6000 and 8000 series.

WHEEL OPENING . . .

The theme of massiveness is emphasized by the heavy flanges which frame the front fender wheel openings on all heavy duty models and Series 5000. The flanges add rigidity to the fenders as well as provide room for wheel travel with the wider front treads of Series 7000, 8000, 9000 and 10000 models.

SERIES DESIGNATION PLATES . . .

Models of all series feature the spear-type series designation plate for 1956. Along with the series numerals, the plate of vehicles with synchro-mesh transmissions carries the word "Chevrolet" on a black painted background. This is replaced by the words "Chevrolet Hydramatic" or "Chevrolet Powermatic" on models with either of the two optional automatic transmissions. In addition, models with V-8 engines, either as standard or optional equipment are provided with flat V-8 emblems which are located on the fender below the series numerals of the designation plates.

HOOD EMBLEM . . .

Front end width is emphasized by the wide horizontal wings of the hood emblem which is located directly above the lip at the forward edge of the hood. The central identifying portion of the emblem displays a red Chevrolet trademark on a vertically ribbed, black and bright metal background. A bright metal V, located below the trademark identifies vehicles with eight cylinder engines.

INTERIOR STYLING

Interiors of all regular cab, panel and the Suburban Carryall models, except for colors and trim, are generally identical to those of the 1955 vehicles. Seats are upholstered in black and charcoal. The durable black vinyl facings blend with the attractive and lasting gray fabric of the cushions and backrests which is woven from rayon and plastic. The balance of the interior, including the instrument panel and steering wheel is in two shades of gray, matching the seat trim.

Models with the optional custom cab feature a choice of three interior combinations which blend with the exterior colors. Thus the seats display light blue, light green or gray vinyl facings and backrest bolsters with cushions and backrests upholstered in a dark green, dark blue or charcoal colored nylon-faced pattern cloth of the same design as the previous year. The rest of the interior matches the seat in color. Foam rubber seats are provided with the custom cab option and are also available optionally on all deluxe cabs. No custom cab option is available on the Suburban Carryall. Panel models have a separate custom option which provides all the extra equipment of the other models with the exception of the seat trim, which limits them to one interior color combination, black and charcoal gray. Included in all custom options is an arm rest on the driver's side, bright metal control knobs, cigar lighter, door trim panels, and an extra sunshade.

The Cameo Carrier has the custom cab with all features as standard equipment. In addition to the three interiors available on the other custom cab models, the Cameo Carrier has a fourth, the beige and red of the previous year.

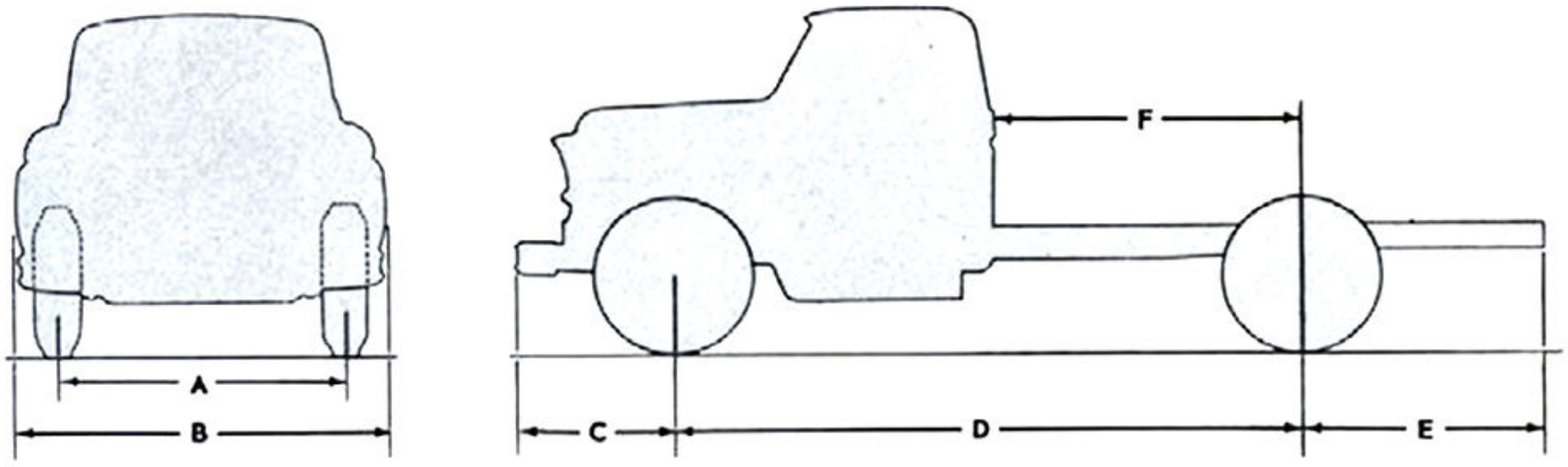
Additional seat durability is gained on all cab and panel models with an optional gray leather grain vinyl cushions and backrests.

Interior fabrics, colors and areas of all models are described in greater detail in the Appendix.

HORN BUTTON . . .

Steering wheels of all models are distinguished by new horn buttons. A bright metal bezel frames a depressed ribbed background for the bright metal Chevrolet trademark which rises above it. The background is painted to match the steering wheel, which in turn matches the interior color.

The steering wheel of custom cab models is painted in two colors to match the instrument panel.



SIZE AND ROOMINESS

Chevrolet light and medium-duty models for 1956 are fundamentally unchanged in components which would affect their size. Heavy-duty models however, with larger front axles and sheet metal as well as eight new wheelbases, differ considerably in exterior size from their 2 ton counterparts. All heavy-duty models feature heavier and wider front axles with a resultant increase in front wheel tread. This in turn necessitates certain modifications in sheet metal. Massive flanges framing the wheel openings extend away from the fender to permit unobstructed wheel travel, thereby increasing maximum overall width. Models of the 5000 series also have a greater width since they use the same fenders as those of the other Low Cab Forward models of the 7000 and 9000 series.

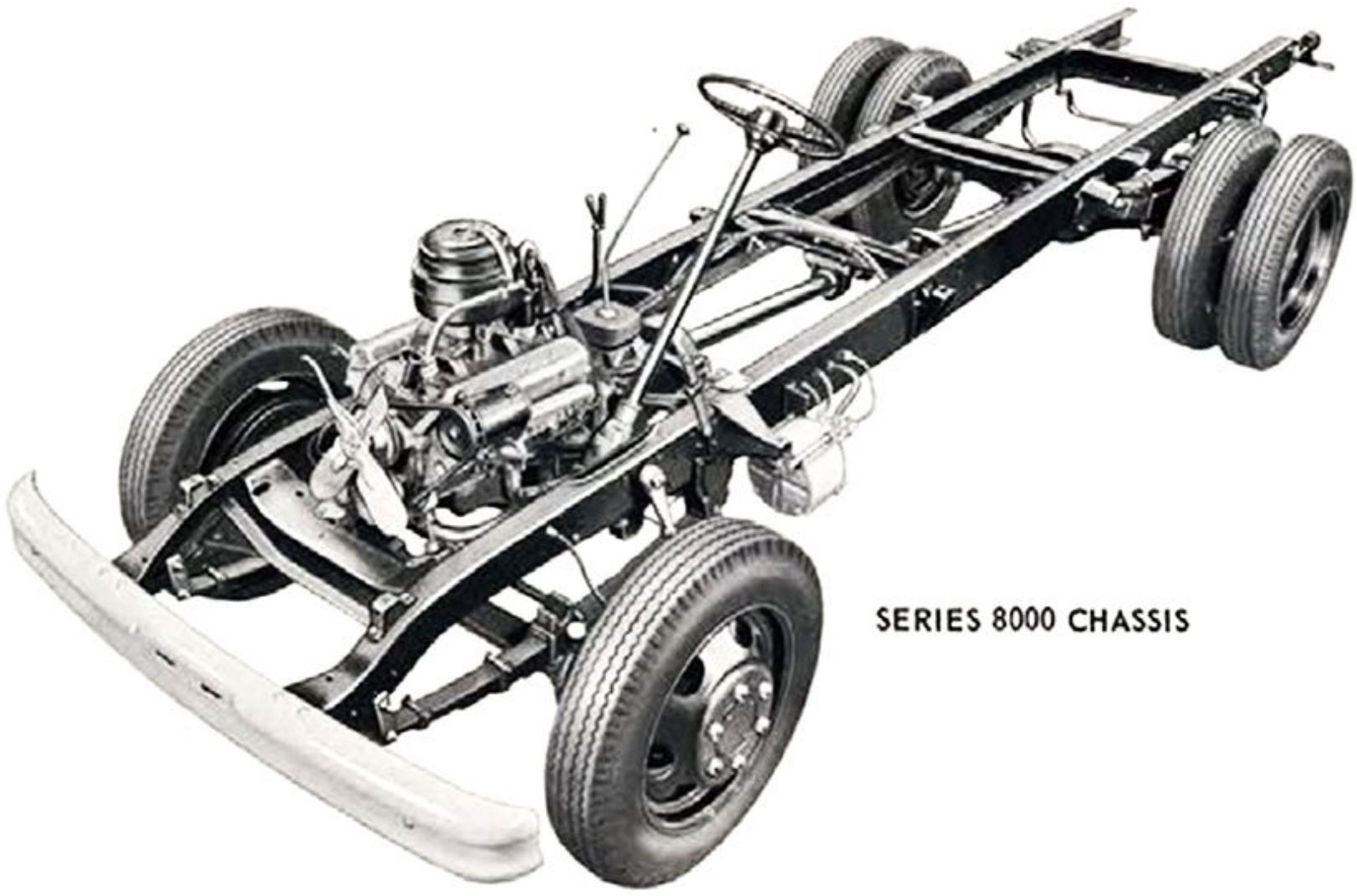
Eight of the nine available wheelbases are peculiar to the 2-1/2 ton models, therefore, cab to rear axle dimensions also differ from the 2 ton vehicles. However, these are similar enough to permit the use of a standard nine foot stake rack body on models 7109 and 8109 and the twelve foot body on model 8409.

Interior roominess is continued unchanged with basically the same cab used for all models, including those of the 7000, 8000, 9000 and 10000 series.

MODEL	A FRONT TREAD	B OVERALL WIDTH	C FRONT OVERHANG	D WHEELBASE	E REAR OVERHANG	F CAB TO REAR AXLE
7100 9100	67.88	84.00	36.74	112.62	48.0	60.15
7200 9200	67.88	84.00	36.74	124.62	56.0	72.15
7700 9700	67.88	84.00	36.74	172.62	84.0	120.15
8100 10100	67.88	83.88	33.94	132.5	48.0	60.11
8200 10200	67.88	83.88	33.94	144.5	56.0	72.11
8400 10400	67.88	83.88	33.94	156.5	60.0	84.11
8500 10500	67.88	83.88	33.94	174.5	72.0	102.11
8700 10700	67.88	83.88	33.94	192.5	84.0	120.11
8802	67.88	83.88	33.94	240.0	103.26	211.74*
10802	66.82	83.88	33.94	240.0	103.26	211.74*

* - Cowl to rear axle

CHASSIS



SERIES 8000 CHASSIS

THE 1956 CHASSIS

All 2-1/2 ton models, the new additions to the Chevrolet line, feature completely new chassis, designed for extended and diversified heavy-duty operation. The lighter Series 3000 through 6000 models however, continue with virtually no chassis changes.

New frames are provided for all models of Series 7-8-9-10000 with greater strength and durability through a greater side member section modulus, heavier crossmembers and additional crossmember gussets. Frame reinforcements are available as optional equipment on all Series 9-10000 models, and are also a part of the tandem axle option.

The heavy-duty truck line features new front suspension and steering components. The front axle I-beams are of sturdy construction, providing over 55 per cent increase in capacity as compared to the Series 5-6000 units. Steering knuckles are also heavier, as are the wheel spindles and steering arms. Featured is a new roller-type anti-friction thrust bearing at each kingpin which receives the thrust load and provides maximum steering ease. Heavier ball studs are used on a stronger steering connecting rod, with the steering shaft and pitman arm also reinforced to provide more positive steering and operating smoothness. Power steering, previously available on all but the Forward Control models, has been extended optionally to Series 7-8-9-10000, and is provided as part of the tandem axle option.

The same 15,000 pound capacity rear axle as used on Series 5000 is made available as standard equipment on the new Series 7-8000 and the 10802 School Bus Chassis. A new 16,000 pound capacity rear axle is available as standard equipment on the 9-10000 series and as optional equipment in the 7-8000 series. Ratios available are a 7.17:1 single speed and a planetary 6.50/9.04:1 2-speed.

Still another new rear axle, an 18,000 pound capacity spiral bevel unit is offered as optional equipment in the 9-10000 series. Ratios available are a 7.17:1 single speed and 6.50/8.87:1 with the planetary 2-speed rear axle.

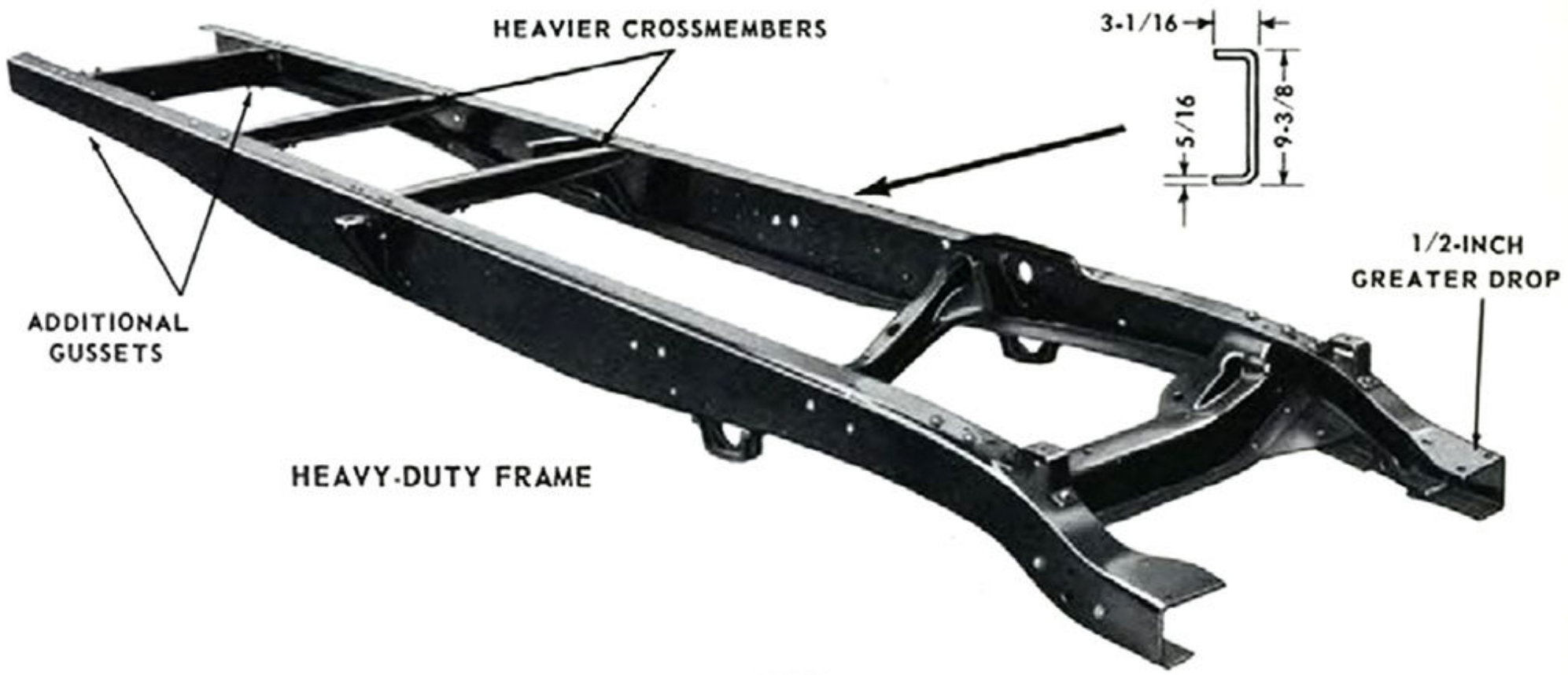
These heavy-duty axles provide high mechanical efficiency coupled with rugged dependability, assuring long life and economical operation.

Both front and rear brakes of Series 3-4-5-6000 models remain unchanged from 1955. The heavy-duty vehicles however, have new, larger 15 x 2-1/4, dual-cylinder front brakes while the same 15 x 4 rear brakes as provided on Series 5-6000 are standard on all Series 7-8000 models and the tandem axle vehicles. New, large 15 x 5 dual-cylinder rear brakes are included with the 16,000 pound capacity rear axle which is standard on Series 9-10000 and optional on Series 7-8000 models. The 18,000 pound capacity rear axle option includes larger diameter 16 x 5 brakes. The 9-1/2 inch Hydrovac brake booster, continued as optional equipment on Series 5-6000 is standard equipment on models of the 7-8-9-10000 series. The complete line of new heavy-duty models as well as 5-6000 series models feature optional air-over-hydraulic brake equipment.

All Chevrolet trucks for 1956 utilize new tubeless tires and multi-piece rims are replaced by lighter,

safer, drop-center rims. Engineered for safety and economy, tubeless tires and one-piece drop center rims materially cut operating costs and increase operating mileage. Greater resistance to the more common type of tire failure means less lost time, an important factor in profitable truck operation. One-piece drop center rims contribute to easier and safer service with decreased repair expense. Providing increased wheel durability with more convenient dual wheel serviceability, all medium and heavy-duty models feature new conical-faced wheel attaching bolts arranged in a larger circle.

Front and rear springs for the new heavy-duty series trucks are designed to provide the greatest possible protection for the vehicle and load. Compared to the 5-6000 series, the new spring leaves are fewer in number but are wider and thicker to provide greater capacity and increased deflection rates in keeping with the larger loads permitted in the 7-8-9-10000 series.



HEAVY-DUTY FRAME

FRAMES

All Chevrolet trucks for 1956 continue to feature the parallel side member, uniform 34-inch width frames introduced in 1955. However, while the frames for Series 3-4-5-6000 remain unchanged, those for the new 7-8-9-10000 heavy-duty series are completely new and feature heavier construction for greater load carrying ability.

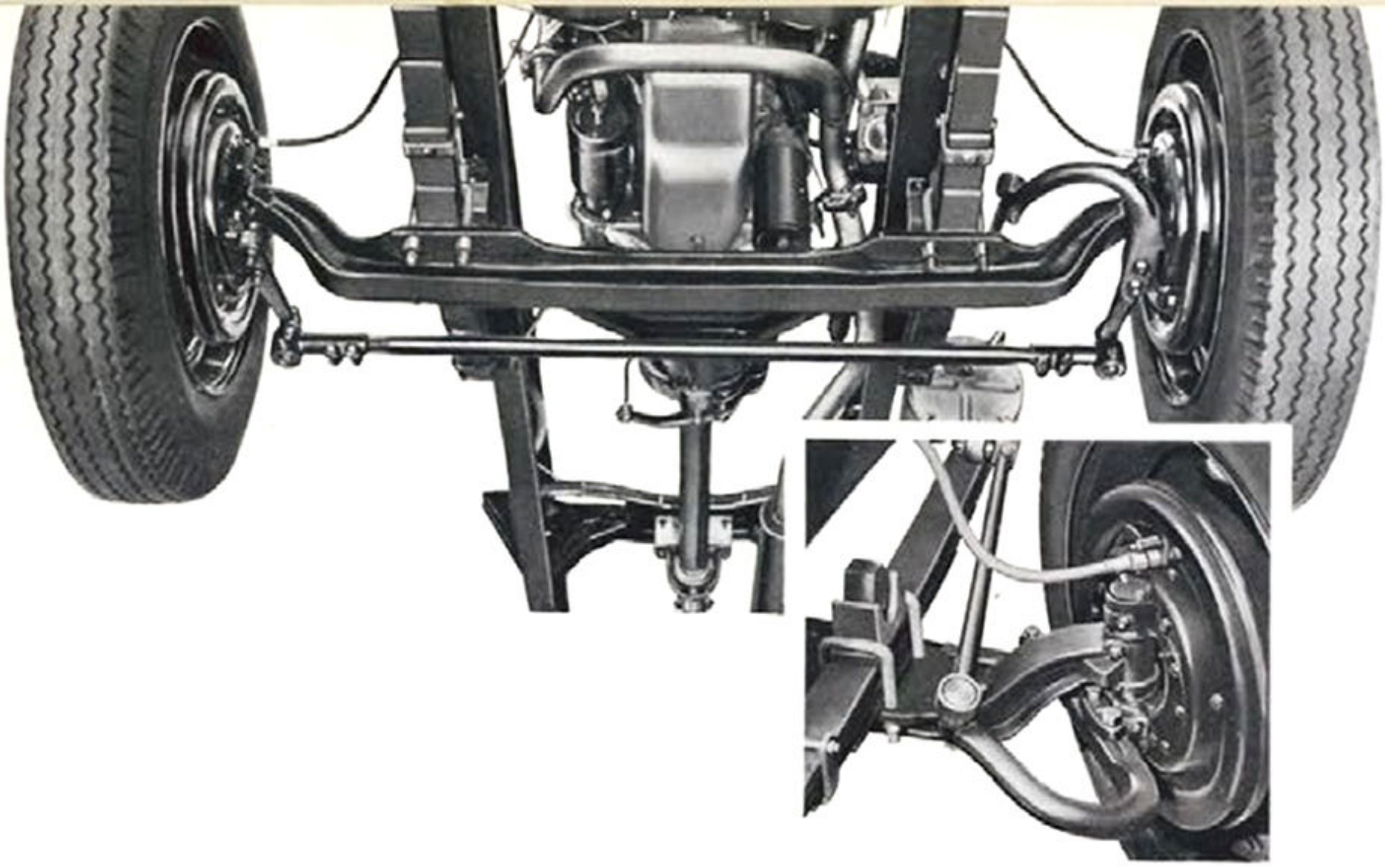
Compared to Series 5-6000 components in maximum section dimensions, the new heavy-duty frames achieve greater beam strength through the use of 1/16-inch heavier gauge side members. The 5/16-inch stock used provides side member maximum section dimensions of 9-3/8 inches in height and 3-1/16 inches in width, which increased the section modulus to 11.88 inches cubed, 25 per cent greater than that of the medium-duty models. The 8802 and 10802 School Bus Chassis have the same maximum section dimensions as other 8-10000 models, unlike the 6702 and 6802 chassis which have heavier sections than other 6000 series models. In appearance, the new heavy-duty frames differ from the 5-6000 series types by an additional downward slope of 1/2-inch forward of the front axle to permit a reasonable bumper mounting height, and provide additional entry space for cooling air to the radiator.

Frames for models equipped with the tandem axle option are similar to others in the 10000 series except for the side member section which does not reduce in height over the rear axles. An extra reinforcement covers the top flange and side of the side member, which provides a combined section modulus of 15.82 inches cubed.

All other models in the 9-10000 series have optional reinforcements to provide the same maximum section modulus as models equipped with the tandem axle option, and are mandatory with the 25,000 GVW rating. The other optional reinforcements, unlike those used with the tandem option, extend to a point just forward of the rear spring front hanger. From the end of the reinforcements to the rear end of the frame side members, strip shims are added to the top of the side members to provide a uniformly level body or equipment mounting surface.

The crossmembers for the heavy-duty frames are similar in type and attachment to those of the 5-6000 series, but are of 1/32-inch heavier stock, contributing to the greater strength of the new frames. In addition, the channel section rear crossmembers are each further reinforced by two more gussets, which gives these members complete top and bottom gusseting for extra alignment rigidity.

Models in the 7-8-9-10000 series equipped with the Powermatic transmission have an extra channel section crossmember to support the transmission. This additional crossmember is not counted as a structural part of the frame.



FRONT SUSPENSION AND STEERING

To provide the additional load carrying capacity required for their use, Series 7-8-9-10000 models feature a new front suspension and steering system of heavier components throughout.

A new and heavier front axle I-beam for Series 7-8-9-10000 models is rated at 7000 pounds, providing 55 per cent greater capacity than the corresponding member standard on 2 ton trucks. Section height of the new axle I-beam is 3-1/4 inches, compared to a 2-1/2 inches for the Series 5-6000 front axle I-beam. Similarly, the top and bottom flanges are 1/2-inch wider, and web thickness is proportionately increased.

Roller type anti-friction thrust bearings are provided at each king pin in the new axle assembly for maximum steering ease even with capacity loads. Tapered roller wheel bearings have a 2-inch internal diameter, while outer wheel bearings of the same type measure 1-3/8 inches over the wheel spindle. Use of heavier alloy steel for spindles, steering knuckles, and steering arms provides maximum durability with least danger of metal fatigue.

To provide a responsive and durable steering system for the increased requirements of the heavy-duty series, new heavier linkage and steering gear are used. Power steering equipment, very similar to that continued on 2 ton models, is offered as an option on 7-8-9-10000 series, and is also a component of the tandem axle option.

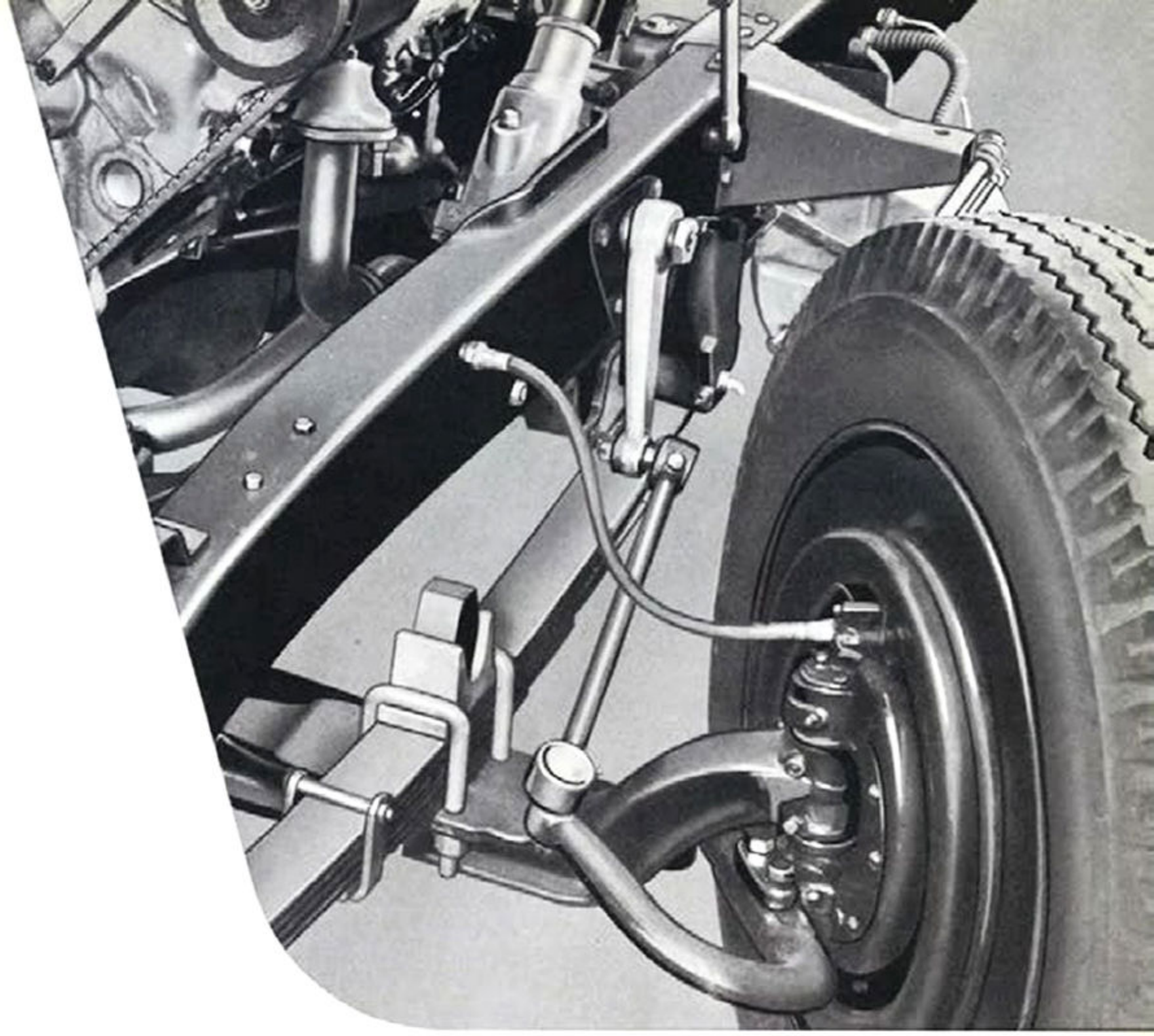
New base front springs for Series 7-8-9-10000 trucks permit a loaded capacity of 3000 pounds at ground. The new springs are composed of seven leaves that are 2-1/2 inches wide and have a combined thickness of 2.643 inches to insure the greatest possible degree of protection to the heavy-duty vehicle and its load.

Front springs of the tandem axle option use eight leaves for a combined thickness of approximately 3-1/3 inches, and capacity of 3500 pounds to counteract the extra heavy loads imposed during braking on these models.

The following chart illustrates the pertinent specifications of the optional 2 ton heavy-duty and all 2-1/2 ton front springs.

FRONT SPRINGS

MODEL APPLICATION	LENGTH X WIDTH	NO. OF LEAVES	TOTAL THICKNESS	DEFLECTION RATE	CAPACITY AT GROUND
H.D. 5000	52 x 2.25	9	3.24	616	2600
H.D. 6000	44 x 2	10	3.07	628	2500
7-9000 Base	50 x 2.5	7	2.643	700	3000
7-9000 H.D.	50 x 2.5	7	2.899	930	3500
8-10000 Base	50 x 2.5	7	2.643	700	3000
8-10000 H.D.	50 x 2.5	7	2.899	930	3500
10000 Tandem Option	50 x 2.5	8	3.30	1050	3500
8802 & 10802	50 x 2.5	7	2.899	930	3500



STEERING . . .

All 1956 2-1/2 ton models feature sturdy, durable steering gears to provide for heavy-duty usage. Steering and third arm included with the 7000 pound capacity front axle assembly are notably heavier than those of the medium-duty models. Increased durability and safety are provided through the use of large 1-1/4 inch ball studs at the ends of the steering connecting rod. Steering shafts are of 7/8-inch diameter compared to the 13/16-inch shafts continued in 2 ton vehicles. Pitman shafts are 1-3/8 inches in diameter, with the 1-1/4 inch shafts continued for the Series 5-6000 models.

The efficient recirculating-ball gear principle is incorporated not only for greater steering ease but also for outstanding durability. The numerical ratio of 28.14-to-1 of the Series 7-9000 gear assembly is higher than the 27.76-to-1 in Series 5000 because of the possible greater front axle loading of the Low Cab Forward 2-1/2 ton trucks. Conventional 8-10000 series vehicles have a ratio of 23.6-to-1, the same as in Series 6000.

Power steering for trucks, introduced in 1955 as an option for all except forward control models, is continued for 1956, with availability extended to the new 2-1/2 ton series. The power steering option for the new series is very similar to the equipment designed for the 2 ton models. A new power cylinder with a longer stroke is included however, to match the increased tie rod travel and greater leverage in steering and third arm of the new front axle assembly. Power steering is also a part of the tandem axle option.

REAR SUSPENSION

Four new heavy-duty rear axles are introduced for use as standard and optional equipment in the new 7-8-9-10000 series and the availability of existing axles is revised to include many of the new vehicles. Mechanically, the standard and optional axles for the light and medium-duty models continue without change except for the wheel hubs of Series 5-6000 vehicles where a larger wheel attaching six-bolt circle is introduced. The optional Chevrolet 15,000 pound 2-speed axle with ratios of 6.40/8.72:1 is continued in Series 5000 and 6000 and extended for optional use in Series 4000, 7000 and 8000. The same axle, with ratios of 5.83/7.95:1 previously used in Series 4-5-6000, is discontinued.

The standard axle for Series 7-8000 and model 10802 school bus is the same 15,000 pound capacity axle that is continued on Series 5000. The ratios are the standard 6.17:1 and optional 7.2:1 on all except models 8802 and 10802 which have the 7.2:1 ratio as standard equipment. This axle with 7.2:1 is used as part of the tandem equipment.

A new 16,000 pound hypoid single speed axle is regular equipment on Series 9000 and 10000 except the school bus model 10802 where it is optional equipment. This axle is also used as an option on Series 7000 and 8000 except school bus model 8802. Features of this axle include a larger diameter six bolt wheel attachment, 15 x 5 inch brakes, and a ratio of 7.17:1. Also available as optional equipment in all series 7000 through 10000, except school bus models, is a 16,000 pound planetary 2-speed axle featuring positive electric shifting and ratios of 6.50/9.04:1.

Another new heavy-duty axle, with a capacity rating of 18,000 pounds is available as optional equipment on all models of the 9-10000 series except the 10802 school bus chassis. Most features and available ratios of the 18,000 pound capacity axle are similar to those of the 16,000 pound axle, but the heavier unit has the additional advantages of stronger construction, with larger diameter 10-bolt wheel attachments, and 16 x 5 inch brakes. Ratios available are a 6.50/8.87:1 electric shifting, planetary 2-speed unit and a 7.17:1 single speed axle. When the optional 18,000 pound axle is specified, a different front axle assembly with matching 10-bolt hubs is supplied to permit use of identical wheels, front and rear.

Rear springs of Series 7-8-9-10000 are also new, designed with greater capacities and higher spring rates for compatibility with higher gross vehicle ratings. All main springs for heavy-duty models are 56 inches long and 3 inches wide while auxiliary springs measure 42 inches in length and three inches in width. Capacity for the various GVW ratings varies with the number of leaves incorporated into the spring. A 9-leaf main and 6-leaf auxiliary spring is standard equipment on all heavy-duty models except school bus chassis, and is rated at 6725 pounds capacity. Available as options on all but school bus models are higher capacity rear springs of 7400 and 7800 pounds capacity, with a 10-leaf main and 6-leaf auxiliary, and 11-leaf main and 7-leaf auxiliary respectively. The school bus models 8802 and 10802 use a 12-leaf, 2-stage spring rated at 6750 pounds.

HEAVY-DUTY REAR AXLES

The new heavier rear axles supplement the continued 15,000 pound capacity unit in the 7-8-9-10000 series, and feature capacity ratings of 16,000 and 18,000 pounds, and single speed or 2-speed drives for the greatest possible vocational adaptability.

Both single speed axles have a 7.17:1 ratio while the 16,000 pound capacity 2-speed axle has ratios of 6.5/9.04:1, and the 18,000 pound capacity unit has ratios of 6.5/8.87:1. The 16,000 pound capacity single speed axle is standard on all 9-10000 series except model 10802, and is optional equipment on the 10802 and all 7-8000 series except model 8802. With the exception of the 8802 and 10802 school bus models, the 16,000 pound capacity 2-speed axle is available optionally on all 7-8-9-10000 series. The 18,000 pound capacity single and 2-speed axles are optional equipment on all 9-10000 series with the exception of model 10802.

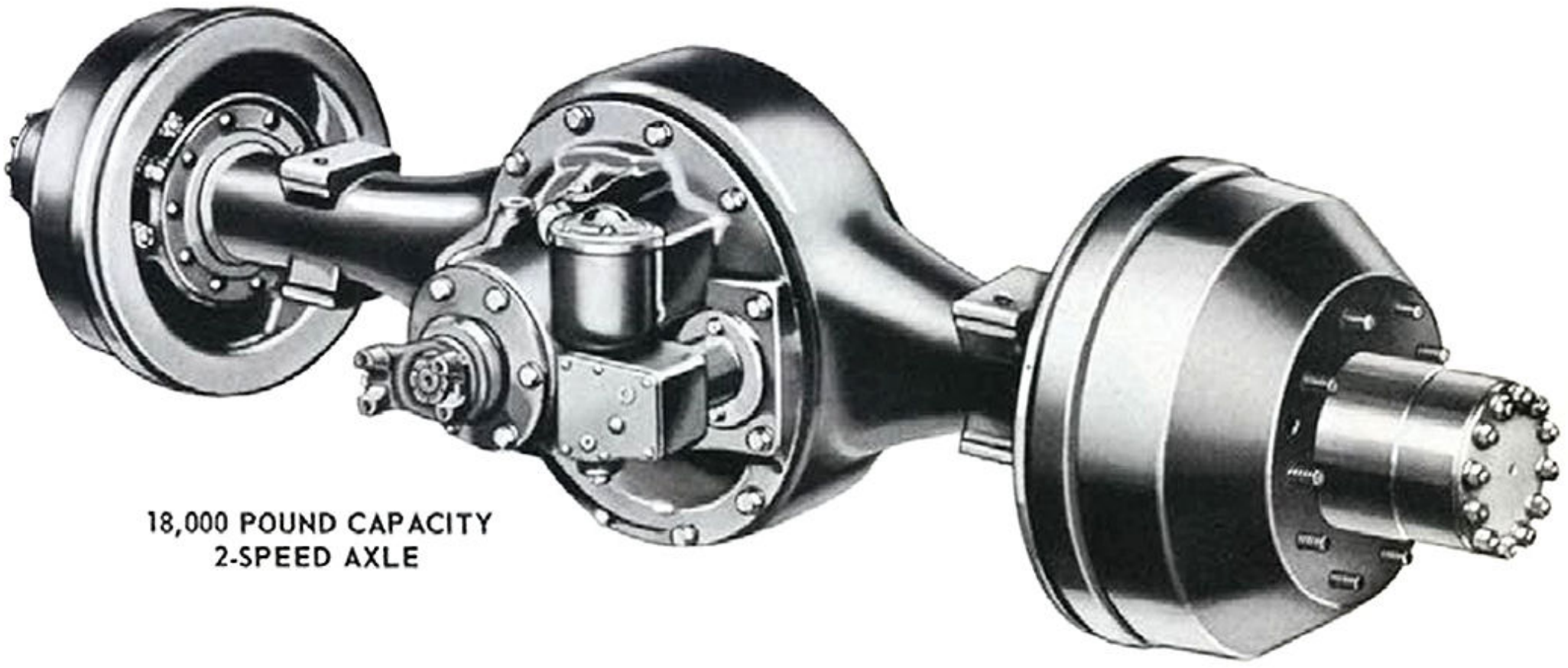
Standard rear axle equipment on the 7-8000 series and model 10802 is the 15,000 capacity single speed unit, with a standard ratio of 6.17:1 or optional 7.2:1 on all but the 8802 and 10802 models where the 7.2:1 ratio is standard. The 15,000 pound capacity 2-speed axle with ratios of 6.4/8.72:1 is available as optional equipment on 7-8000 series.

As compared to the 15,000 pound capacity axle, the 16,000 pound capacity single speed axle features a 1/2-inch larger, 14-1/4-inch hypoid driven gear, heavier wheel hub bearings, and more durable axle shaft to wheel hub connections. These attachments permit no lash between the axle shaft and wheel hub by driving through eight studs and split tapered washers, rather than splined flanges.

The 18,000 pound capacity rear axle, also compared to the 15,000 pound unit, features heavier construction throughout. The axle housing is 5-1/8 inches or 5/8 inches larger in diameter, and the spiral bevel ring gear is 15-1/2 inches in diameter, which is 1-3/4 inches larger than the hypoid type ring gear of the 15,000 pound axle. The 1-13/16 inch diameter axle shafts are 1/8-inch larger than those used on the lighter unit.

Wheel hubs are driven by the axle shaft through the same type of attachment as is utilized on the 16,000 pound capacity unit, however four more studs for a total of twelve are used.

Available as optional equipment with either the 16,000 or 18,000 pound capacity housings are efficient, rugged, planetary type 2-speed axles featuring extremely convenient electric controls. The 2-speed



18,000 POUND CAPACITY
2-SPEED AXLE

axles feature forced flow lubrication to all critical points whenever the axle is turning. This specialized lubrication is provided by a sheet metal oil collector drum mounted concentrically over the planetary carrier. Whenever the axle turns, the oil collector drum revolves through the axle oil supply and carries oil to a tubular scoop which picks up and channels the oil to the drive pinion bearings and the differential bearings. The planet gears are then lubricated by the oil draining from the left differential bearing, while the remaining gears are lubricated by rotation in the axle sump.

Highest mechanical efficiency is obtained with the planetary type 2-speed axles because in high range all planet gears are locked to revolve with the main ring gear, and internal loss of power minimized in comparison to double-reduction gearsets. This same feature increases durability because the planet pinions, though still conveying torque to the differential carrier in high-range, are stabilized between the large ring gear and central sun gear and do not rotate individually until shifted to low range.

Power shifting between low and high range of the axle is provided by a small high-speed D. C. motor mounted on the forward side of the differential carrier. In preselection of axle range, the motor winds a coil spring with a pressure of over 100 pounds. Rapid axle shift then takes place whenever torque load is momentarily removed from the drive line and drive gears, as by relaxing, then reapplying accelerator pedal pressure. This principle of operation is very similar to that employed in the 15,000 pound 2-speed axle optional on 4-5-6-7-8000 series Chevrolet trucks, the main difference being the utilization of vacuum power for loading the shifting spring instead of electro-motive power.

ELECTRIC SHIFT CONTROL . . .

The electric shift control in the heavy-duty 2-speed axle consists of a simple two-way switch neatly incorporated in a special gearshift knob which replaces the standard knob. This switch selects direction of rotation for the control motor. The motor, lubricated and sealed for life, shuts itself off as the drive nut nears the end of its travel and automatically breaks a connection in an adjacent switch.

HEAVY-DUTY FRONT BRAKE

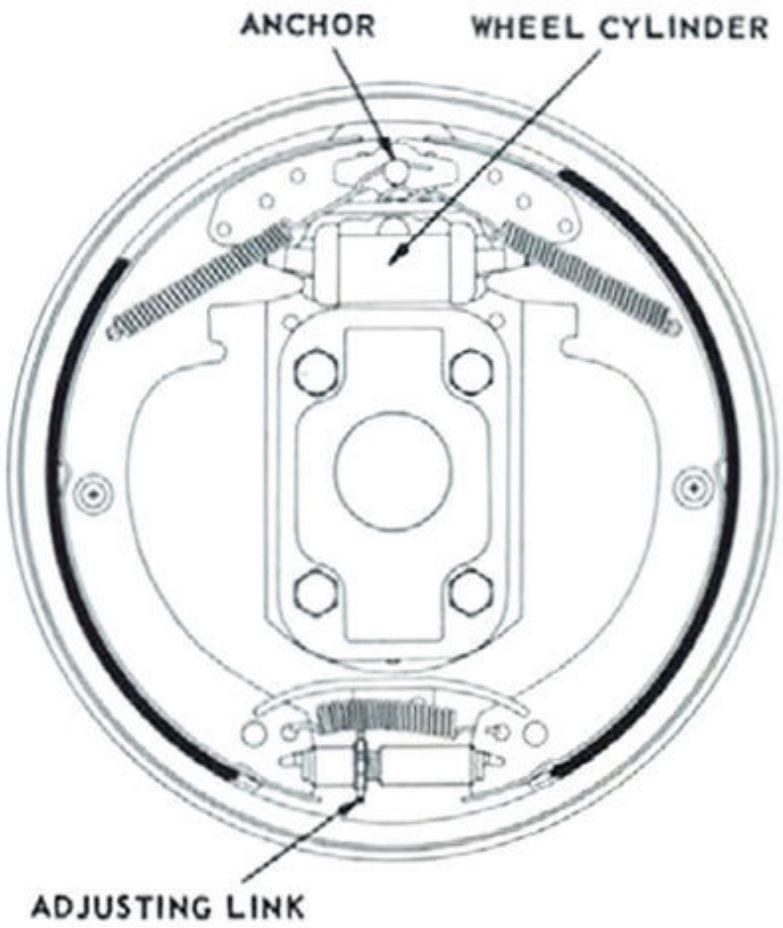
BRAKES

Front wheel service brakes of a new design with a greater effective lining area are featured by all new heavy-duty models. The new brake contains two single-acting wheel cylinders, arranged 180 degrees apart, each actuating a single shoe. Fifteen inches in diameter with a 2-1/4 inch lining width, the new brakes provide an effective lining area of 150 square inches, a 12 per cent increase over the single cylinder-type continued on Series 4-5-6000.

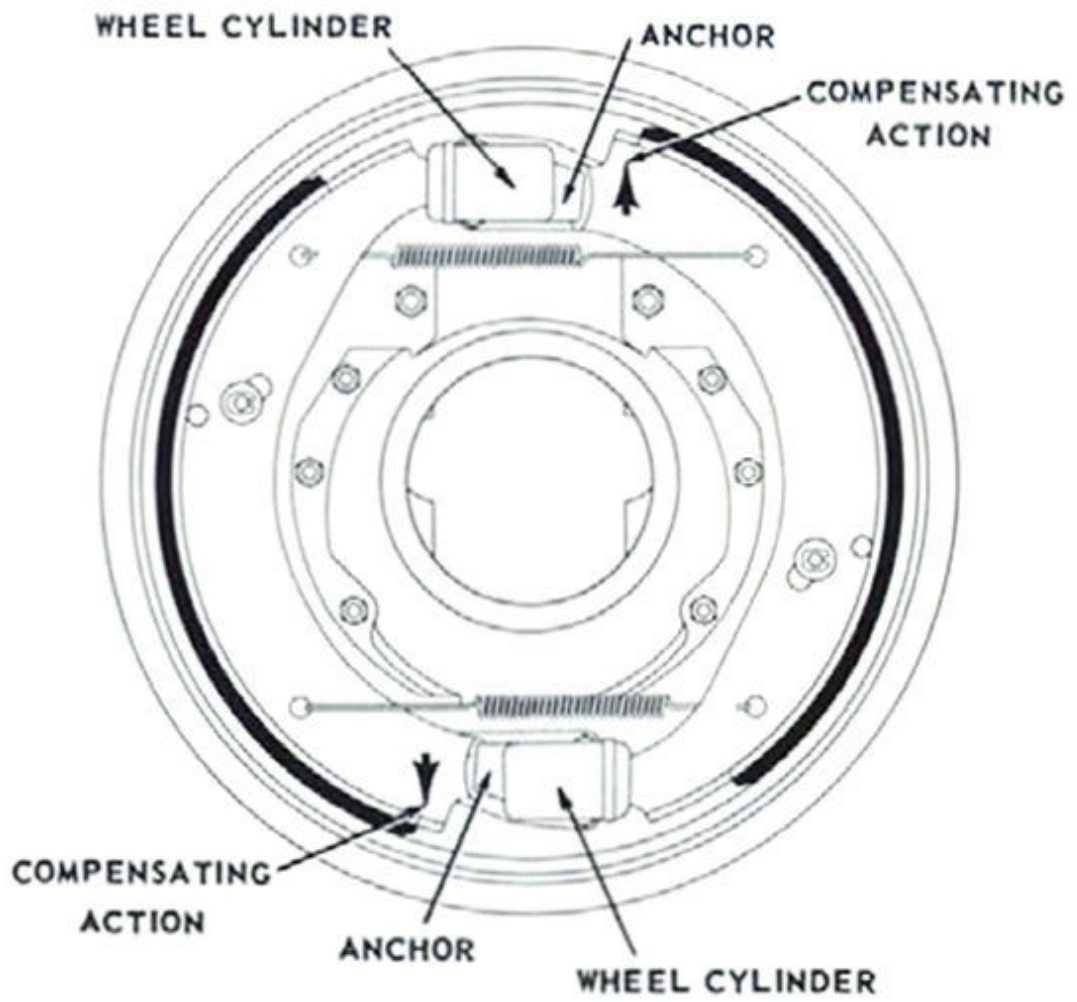
Rear brakes on Series 7-8000 models equipped with the 15,000 pound capacity axle are the same 15 x 4 inch dual cylinder units continued on Series 5-6000. Those models of the 7-8-9-10000 equipped with the 16,000 pound capacity axle feature rear brakes of 25 per cent greater effective lining area with 15-inch diameter and 5-inch lining width. Models of the 9-10000 series equipped with the 18,000 pound capacity axle have still larger rear brakes with a 16-inch diameter and 5-inch lining width. The 9-1/2 inch Hydrovac booster, continued as optional equipment on Series 5-6000, is provided as standard equipment on Series 7-8-9-10000, giving additional assistance for safer, more positive operation in heavy-duty service.

Air-over-hydraulic assistance is offered as optional equipment in conjunction with the standard service brake system on all 2 and 2-1/2 ton models. Compared to the Hydrovac booster, the air-over-hydraulic system provides a much greater reserve of braking assistance as well as providing a source of power for trailers equipped with air brakes.

Parking brakes for Series 7-8-9-10000 are of the propeller shaft type. Series 7-8000, with the standard 4-speed transmission have the same dual shoe type continued on Series 4-5-6000. A 9-1/2 inch diameter external contracting band-type brake, 3 inches wide, is used in Series 9-10000 with the 5-speed transmission. All optional transmissions used in the heavy-duty models also use the external contracting band-type brake.



TORQUE-ACTION TYPE



TWIN-CYLINDER TYPE

FRONT BRAKE DESIGNS . . .

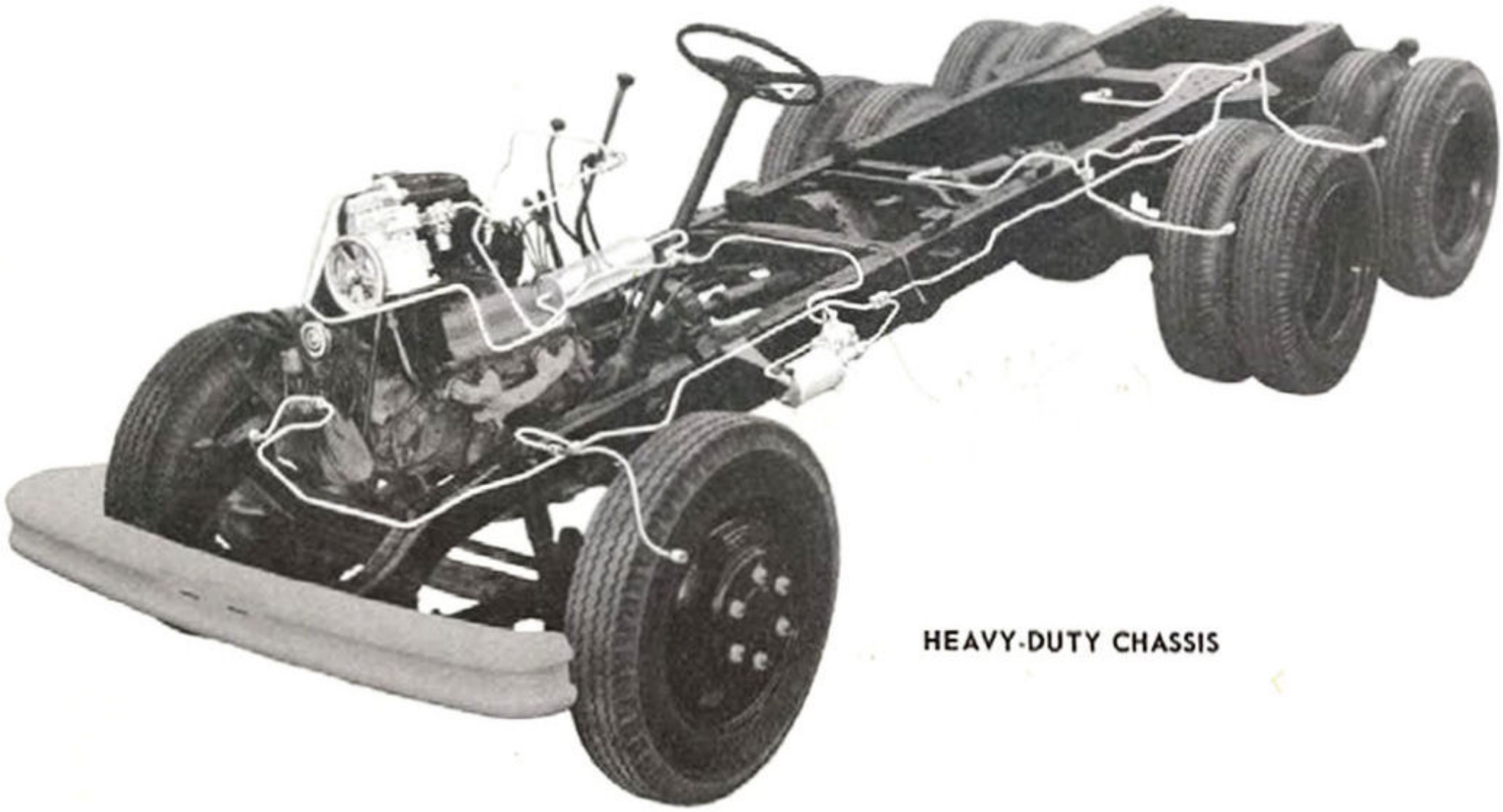
To provide the increased braking capacity desirable in the heavy-duty series trucks, and at the same time promote more even lining wear, a new twin-cylinder front brake is used on all 7-8-9-10000 models.

For increased capacity, the twin-cylinder front brake has a 15–inch diameter compared to 14 inches for the torque-action brake continued on the 4-5-6000 series trucks. Lining width of the twin-cylinder unit is 2-1/4 inches, 1/4-inch less than the torque-action design, but has 13 square inches more effective lining area for a total of 150 square inches.

Aside from the considerations of size, the basic difference between the new twin-cylinder and the familiar torque-action units lies in the different utilization of servo, or self-energizing forces. As may be noted in the above illustration, the new twin-cylinder brake utilizes two, single piston actuating cylinders arranged 180 degrees apart. Each piston actuates one brake shoe whose action is completely independent of the other, although rotationally, both shoes are actuated in the same direction. Compensating anchors are provided by permitting the free end of each shoe to butt against the back side of the opposite cylinder, where it has freedom of movement up and down.

In forward stop, each shoe is actuated by its own piston and its own self-energizing action, while the compensating type anchor insures full contact of the lining and the drum for maximum braking with even wear. This type of braking action is identical to that provided by the twin-action rear brakes used so successfully on medium and heavy-duty Chevrolet trucks for several years.

In reverse stops, the twin-cylinder front brake has no self-energizing action, which prevents locking the wheels and subsequent loss of steering during severe braking.



HEAVY-DUTY CHASSIS

AIR-OVER-HYDRAULIC BRAKE SYSTEM

Featuring greater braking reserve while retaining the safety of a complete hydraulic brake system, and providing a source of power for trailer brakes, an air-over-hydraulic brake system is available as optional equipment on the heavy-duty Chevrolet trucks in 1956.

The system consists of three major components - an engine mounted and driven air compressor, an air pressure reserve storage tank, and the air-over-hydraulic power brake unit. The new option more than satisfies the need for greater braking reserve power created with the higher GVW ratings of the new heavy-duty series.

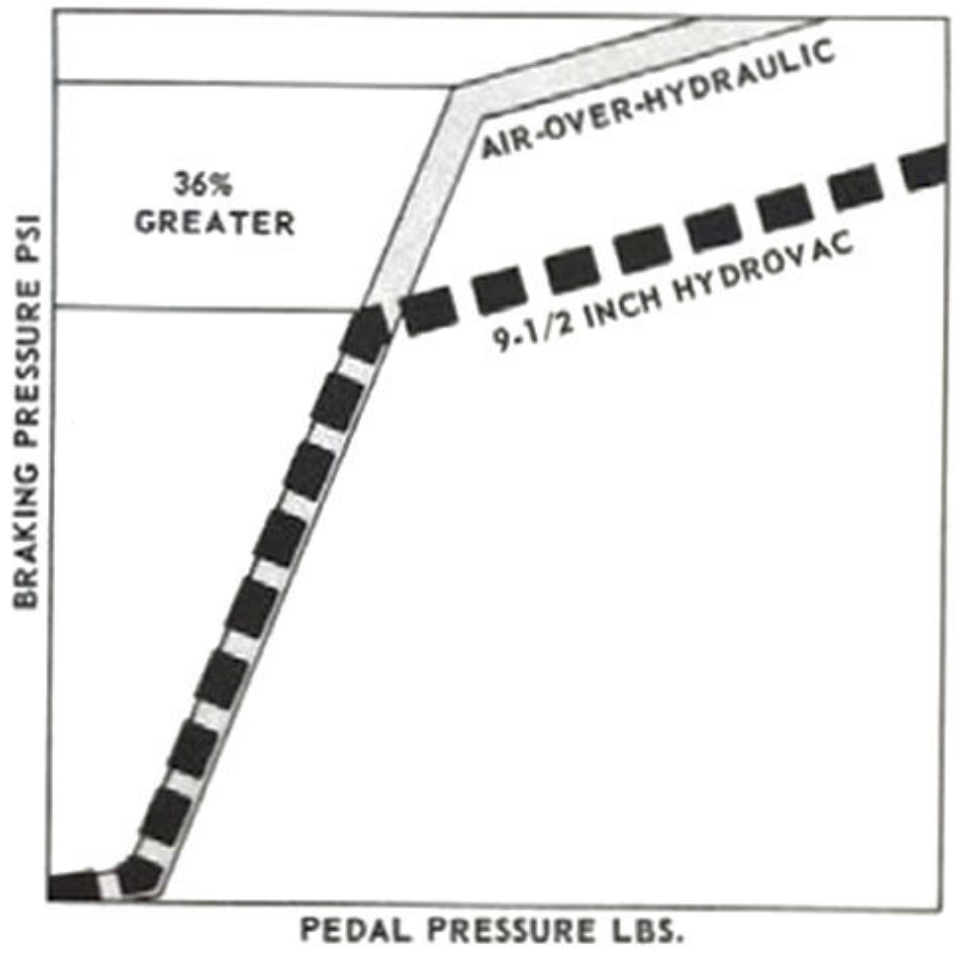
Similar in appearance and operation to the familiar Hydrovac, the air-over-hydraulic power brake unit is particularly suited for heavier duty operations. Its source of motive force is nearly nine times greater than that of the Hydrovac which has a maximum effective pressure of approximately 10 psi, where the air-over-hydraulic power brake unit has a mean pressure of 90 psi. This condition permitted designing the air-over-hydraulic unit power cylinder to be less than half the diameter of the Hydrovac, yet capable of providing over 30 per cent more braking assistance.

Control of the new unit is identical to that of the Hydrovac, except that where the latter meters atmospheric air to the power cylinder, the new unit meters compressed air.

Providing an adequate reservoir of compressed air to insure several safe stops with the compressor stopped is a 900 cubic inch storage tank. When trailer brakes are operated from the tractor air supply however, regulations specify that additional compressed air reservoir volume be provided in excess of the standard storage tank.

GREATER BRAKING ASSISTANCE . . .

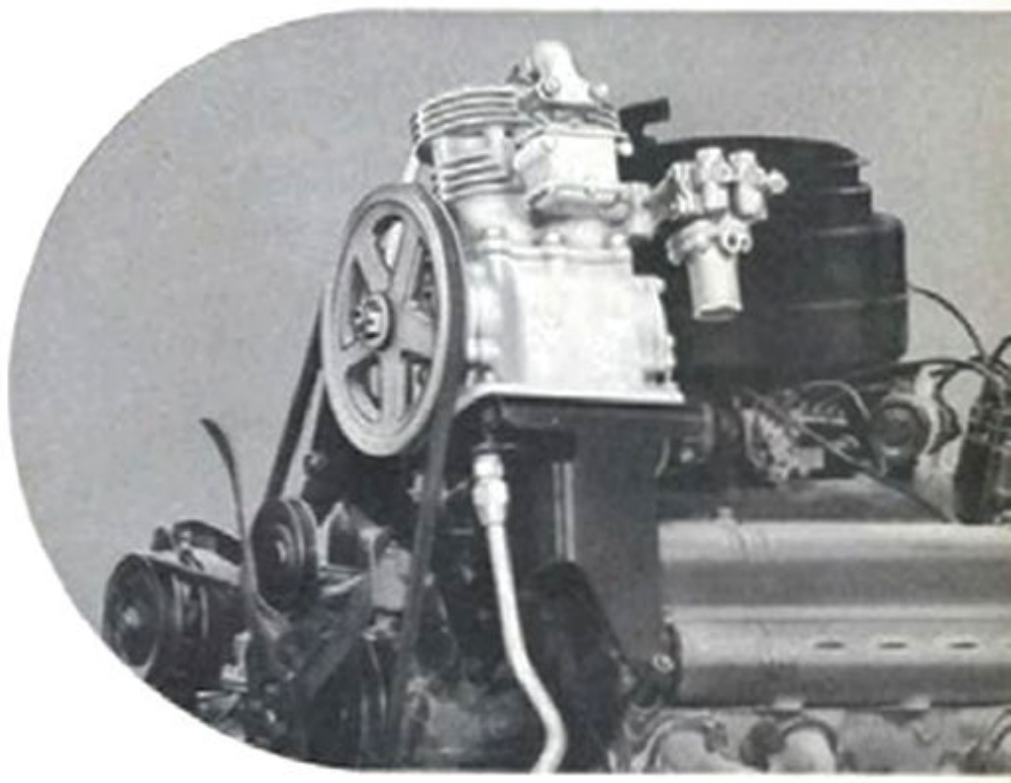
Comparative curves of brake hydraulic line pressure versus pedal pressure illustrate the higher level of braking assistance provided by the air-over-hydraulic power brake, as opposed to the Hydrovac. The proportion of auxiliary power to pedal effort is the same with either power unit to retain the proper feel of the brakes. The greater source of supplementary power of the air-over-hydraulic power brake however, enables it to provide a 36 per cent higher level of braking assistance than that provided by the 9-1/2 inch Hydrovac.



AIR COMPRESSOR . . .

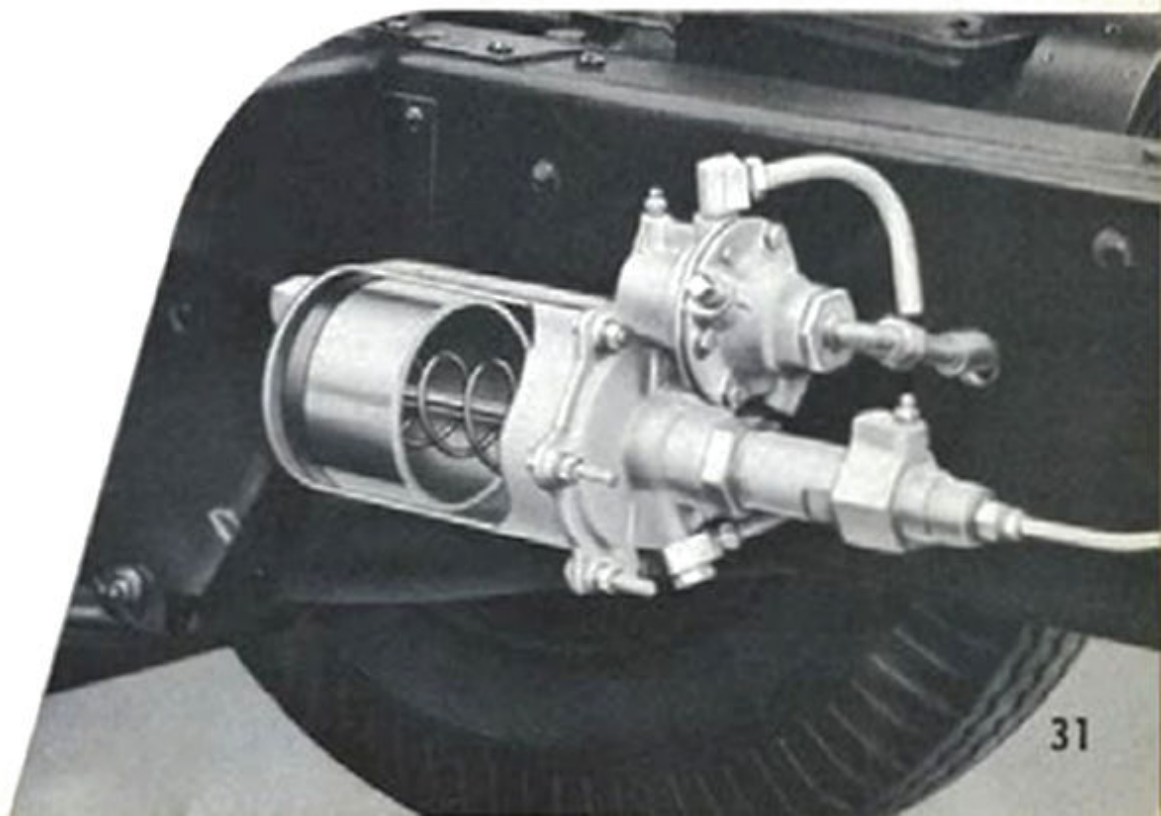
The sturdy construction details of the two-cylinder air compressor provide long unit life with a minimum of maintenance. Design features include ball-type anti-friction main bearings, four piston rings, a sufficiently large displacement to permit the low drive ratio of .75 to crankshaft speed and full-pressure lubrication from the engine lubrication system.

Oil under pressure from the engine oil pump enters the compressor through the rear main bearing retaining cover and enters the crankshaft which is drilled to channel oil to each of the grooveless-type rod bearings. Once each revolution, each connecting rod journal oil hole registers with a drilled hole in the connecting rod to supply oil to the wrist pin bearing. Cylinder walls and main bearings are then lubricated by the oil mist thrown off the pressurized bearings. The oil then settles to the bottom of the compressor where a drain line returns it to the engine oil sump through the timing chain cover.



AIR POWER BRAKE UNIT . . .

Similar to the familiar Hydrovac unit in appearance and operative design, the new air-over-hydraulic power brake unit differs only in basic size and several construction details. Consisting of an integrated air control valve, an air power cylinder, and a hydraulic slave cylinder, the new unit, because of its greater output, is designed for long life at increased operating pressure. To accomplish this, the leather packing in the power cylinder is piloted in its bore with a full-skirted piston, unlike the Hydrovac which places all piloting stress on the push rod to the hydraulic slave cylinder. At the same time, the power cylinder length is extended to compensate for the length of the piston skirt, to preserve the stroke length.



WHEELS AND TIRES

Greater blowout and puncture protection plus reduced weight and number of parts are the basic features of the new tubeless tires standard on Chevrolet trucks. Yet another benefit lies in the fact that tire makers have collaborated with the rest of the trucking industry in re-aligning tire size nomenclature to a more contemporary standard. As a result, Chevrolet replaces the seventeen previous truck tire sizes with fourteen tubeless sizes, at no sacrifice of intermediate GVW ratings within any series. A fifteenth size is added to provide the largest single-axle GVW rating available in the new 9-10000 series.

With the inner tube eliminated, truck tubeless tires have a layer of butyl cured to the inside of the casing which serves only as an air pressure retainer and is under no stress when the tire is inflated. Thus, an object puncturing a tubeless casing will be surrounded by the butyl layer which will tend to cling to the object. As long as the puncturing object remains in the casing, very little if any air will escape, and if the object is removed, the rate of leaking is much less than with a conventional tire and tube.

Damage to the tire cord structure in a tubeless tire usually manifests itself in a slow leak since the butyl liner is bonded to the casing and cannot stretch over a damaged area. In a conventional tire and tube assembly, however, the tube will attempt to bridge over a casing damage area until chafing or the size of the damage causes the tube to rupture severely or suddenly "blow-out".

Tubeless tires in any application require air-tight wheel rims. And, in the development of truck tubeless tires, the need for new rim designs permitted a complete re-evaluation of tire sizes, rim contours and construction.

Tire section dimensions over the years have become larger than nominal ratings indicate. This condition was brought about by the widebase rim program, but with the new tubeless tires, the nominal section ratings are again based on use with new standard rim widths. The 8.25 x 20 conventional tires and tubes have a section of about 9 inches on the 6-inch rims, while the replacement tubeless size, 9 x 22.5 has a 9-inch section on a 6-inch rim.

Load capacity ratings for both conventional tires with tubes, and tubeless tires have recently been established. These new, more realistic, capacity ratings do not indicate actual increases in tire capacity, but instead reflect the tire manufacturers' approval of the past industry practice of overloading rear tires up to 15 per cent. The new tire capacity ratings are not intended to include any latitude for overloading, and with the re-aligned section dimensions of tubeless tires, care must be exercised to prevent the possible overloading of the new tires.

The increased bead diameter of tubeless tires results from the new lighter, safer, one-piece, drop-center rims. In order to maintain proper brake drum clearance, the drop-center area of the new rims could be no smaller in diameter than the minimum diameter of the previous, almost flat, multi-piece rims. Since the drop-center rims require that the diameter of the bead seat be somewhat larger than the diameter in the drop-center area, the bead diameter of the tires is arbitrarily increased. The overall tire diameter does not increase, and the sidewall flexing area is very little less because the height of the rim side flange above the bead seat is reduced enough that the outside diameter of the drop-center rim is only slightly greater than that of a multi-piece rim.

The low rim side flange provides another feature for the tubeless tire by contributing to sidewall flexibility. Stresses in the lower region of the sidewall are reduced by the lower rim side flange which does not require the tire cord to abruptly change direction at the point that the tire leaves the rim. Thus, without overstressing the tire casing, the tire deflection rate is decreased which contributes to better ride for increased driver comfort and greater chassis and load protection.

Assembly or disassembly of truck tubeless tires and one-piece, drop-center rims is facilitated by providing a 15 degree seat for the rim bead as compared to 5 degrees on the previous multi-piece truck or drop-center passenger car type rims. This increased slope for the bead seat also insures that the tire and rim will not "freeze" together.

1955

1956

TIRE DESIGN . . .

Comparative sections of a conventional tire and tube and a new tubeless tire, show the basis for the many new features.

The integral, airtight inner liner of the tubeless tire replaces the conventional tube and flap, and provides increased protection against blowouts and flats. Also, the integral air retaining liner permits much better heat transfer for a cooler running tire.

Through elimination of parts, the drop center rims are lighter, safer in service and operation, and permit less complicated removal or assembly of the tire on the wheel. The 15 degree bead seat taper provides positive sealing of the tubeless tire and permits the low rim side flange which preserves sidewall flexing height and at the same time presents a better configuration of the lower sidewall for easier flexing and smoother ride.

COMPARABLE TIRE SIZES

1955 CONVENTIONAL TIRES AND TUBES			1956 TUBELESS TIRES		
TIRE SIZE	RIM SIZE	CAPACITY	TIRE SIZE	RIM SIZE	CAPACITY
6.70-15 x 4 *	15 x 5K	925	6.70-15 x 4	15 x 5K	925
6.70-15 x 6 *	"	1055	6.70-15 x 6	"	1055
6.50-16 x 6 *	16 x 5K	1215	6.50-16 x 6	16 x 5K	1215
15-6	15 x 5.50F	1605	7-17.5 x 6	17.5 x 5.25	1520
15-8	"	1900	8-17.5 x 6	"	1735
7.00-17 x 6	17 x 5.0	1730	8-17.5 x 8	"	2060
7.00-17 x 8	"	2060	8-19.5 x 6	19.5 x 5.25	2090
7.50-17 x 8	"	2440	8-19.5 x 8	"	2440
7.00-18 x 8	18 x 5.0	2140	7-22.5 x 6	22.5 x 5.25	1870
6.50-20 x 6	20 x 5.0	1870	7-22.5 x 8	"	2180
7.00-20 x 8	"	2310	8-22.5 x 8	"	2740
7.00-20 x 10	"	2580	"	22.5 x 6.00	"
7.50-20 x 8	20 x 6.0	2740	9-22.5 x 10	"	3330
7.50-20 x 10	"	2970	"	22.5 x 6.75	"
8.25-20 x 10	"	3330	9-22.5 x 12	"	3600
8.25-20 x 12	"	3600	10-22.5 x 10	"	3960
9.00-20 x 10	20 x 6.5	3960	"	22.5 x 7.50	"
			11-22.5 x 12	"	4580

* - These tires were tubeless in 1955.

WHEEL ATTACHMENT . . .

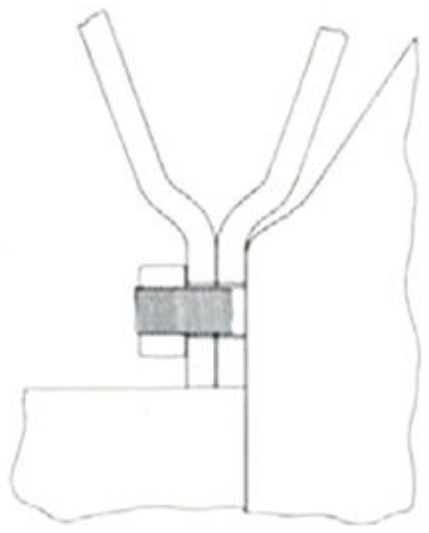
To increase wheel durability and obtain more convenient dual wheel servicing, the 5-6-7-8-9-10000 series feature new wheel mountings using single and double cone-type nuts.

At the same time, with the 13,000, 15,000, and 16,000 pound capacity rear axle equipment, both front and rear bolt circle diameters are increased an inch and a half to 8-3/4 inches and six bolts are used. With the 18,000 pound capacity rear axle equipment, both front and rear bolt circle diameters are increased to 11-3/4 inches and ten bolts are used. The cone-type wheel attachments feature a conical faced nut bearing against a matching surface formed around the wheel bolt holes. This provides positive concentricity of the wheel in relation with the hub to eliminate possible wear between the wheel and its retaining studs.

The previous type of wheel attachment utilized straight shouldered studs bearing directly against regular cylinder shaped holes in the wheel disk. This arrangement is quite satisfactory for GVW ratings up to a point, but beyond that point there is occasionally a tendency for the wheel holes to wear, permitting the wheel to assume an eccentric position and necessitating eventual scrapping of the wheel.

The cone-type attachment on the front wheels uses taper faced nuts. However on the rear dual wheels, conical faced cap nuts with both internal and external threads are used to hold the inner wheel. Nuts similar to those used in front then hold the outer dual wheel when assembled over the external threads of the cap nut.

In this manner each of the dual wheels is retained separately, which permits the outer wheel to be removed without disturbing the inner wheel. Thus in the event of a flat tire on the outer wheel, the inner wheel may be run onto a block and the tire repaired without using a jack.



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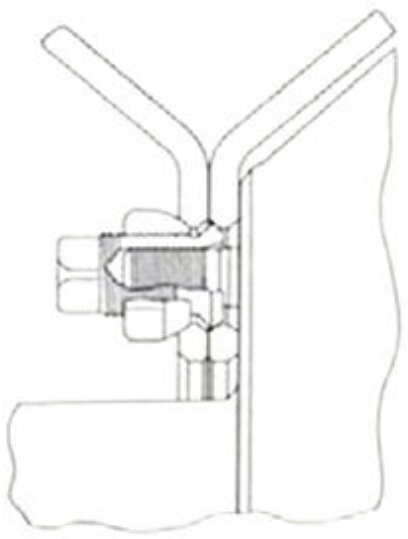


1956

COOLING AND FUEL SYSTEMS

COOLING. A dual fan belt drive is used on Taskmaster engines in the 5-6-7-8000 series, replacing a single belt, to improve cooling by reducing the possibility of belt slippage, and to prolong belt life.

Tube and center radiators, which are well suited to heavy-duty truck operation because of their rugged construction, are used on all Series 7-8-9-10000 installations. The radiator cores are 1-3/4 inches thick, and a nine pound pressure cap is used. The new pressure caps provide a calculated air-to-boil rating of 235 degrees, compared to 230 degrees for the seven pound cap used in the 3-4-5-6000 series. The nine pound pressure system used with the tube and center radiators minimizes the possibility of after-boil and coolant loss after hard engine operation on very hot days.

A new heavy-duty tube and center radiator with a 2-5/8-inch thick core is available as an RPO in the 7-8-9-10000 series, and mandatory with all Powermatic transmission options. This heavy-duty radiator provides up to ten per cent gain in cooling capacity over the regular equipment radiator. It has three rows of tubes, compared to the two rows in the regular 1-3/4-inch production core.

FUEL SYSTEM. Fuel tanks for school bus usage are made of 16 gauge steel, replacing the lighter weight 18 gauge of 1955. The heavier gauge tanks are stronger to minimize the possibility of puncturing, and comply with new school bus standards.

A larger fuel tank is used in Series 7-8-9-10000 cab units, with a total filling station capacity of 21-1/2 gallons, four gallons more than used in the other cab units.

POWER TRAINS

ENGINES

In addition to one completely new V-8, two other eight-cylinder and four six-cylinder engines are offered by Chevrolet for 1956. The new 322 cubic inch engine is the most powerful ever offered for Chevrolet trucks, while the others all feature increases in horsepower and torque.

The former heavy-duty six-cylinder 235 cubic inch Loadmaster engine has been renamed Thriftmaster Heavy Duty, and continues under its new name as regular equipment for the 6000 series and RPO for 4000. An updraft carburetor version of the regular production 235 cubic inch six-cylinder Thriftmaster engine, under the name Thriftmaster Special, is now used in forward control models, replacing the heavy-duty updraft model used in 1955. Gross horsepower output of all Thriftmaster engines, including the regular production model, has been increased to 140 at 4200 rpm, with the high gross torque of 210 foot pounds at 2000 rpm, through the use of a new high lift camshaft and a higher compression ratio of 8-to-1.

The 261 cubic inch Jobmaster six cylinder engine retains its high lift camshaft of 1955, but the higher compression ratio of 7.8-to-1 boosts total horsepower output to 148 at 4000 rpm for an increase of 8 horsepower.

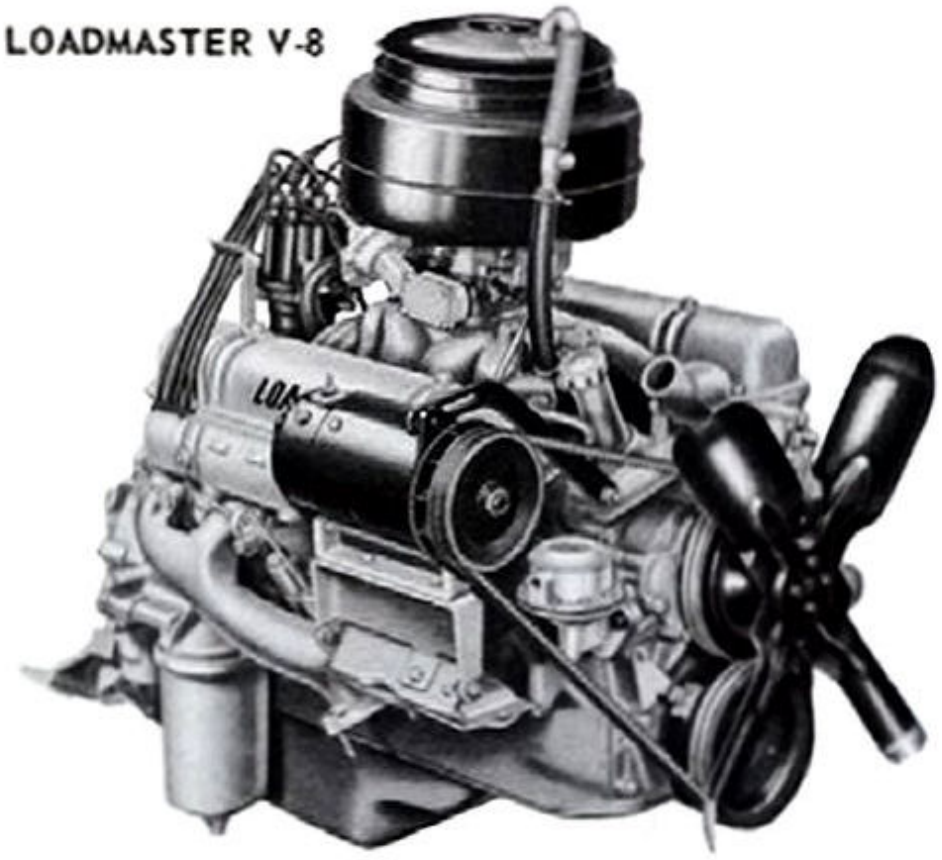
During the 1955 model year, the Trademaster V-8 engine was introduced as optional equipment in conventional 3000 and 4000 series, and for 1956 this engine is also available as an RPO in the forward control models. The Taskmaster V-8 engine for 1955 was regular equipment in the 5000 series, and became optional for 6000. This usage is continued for 1956, plus the additional use of this engine as regular equipment for the 7000 and 8000 series, and optional equipment for the 4000.

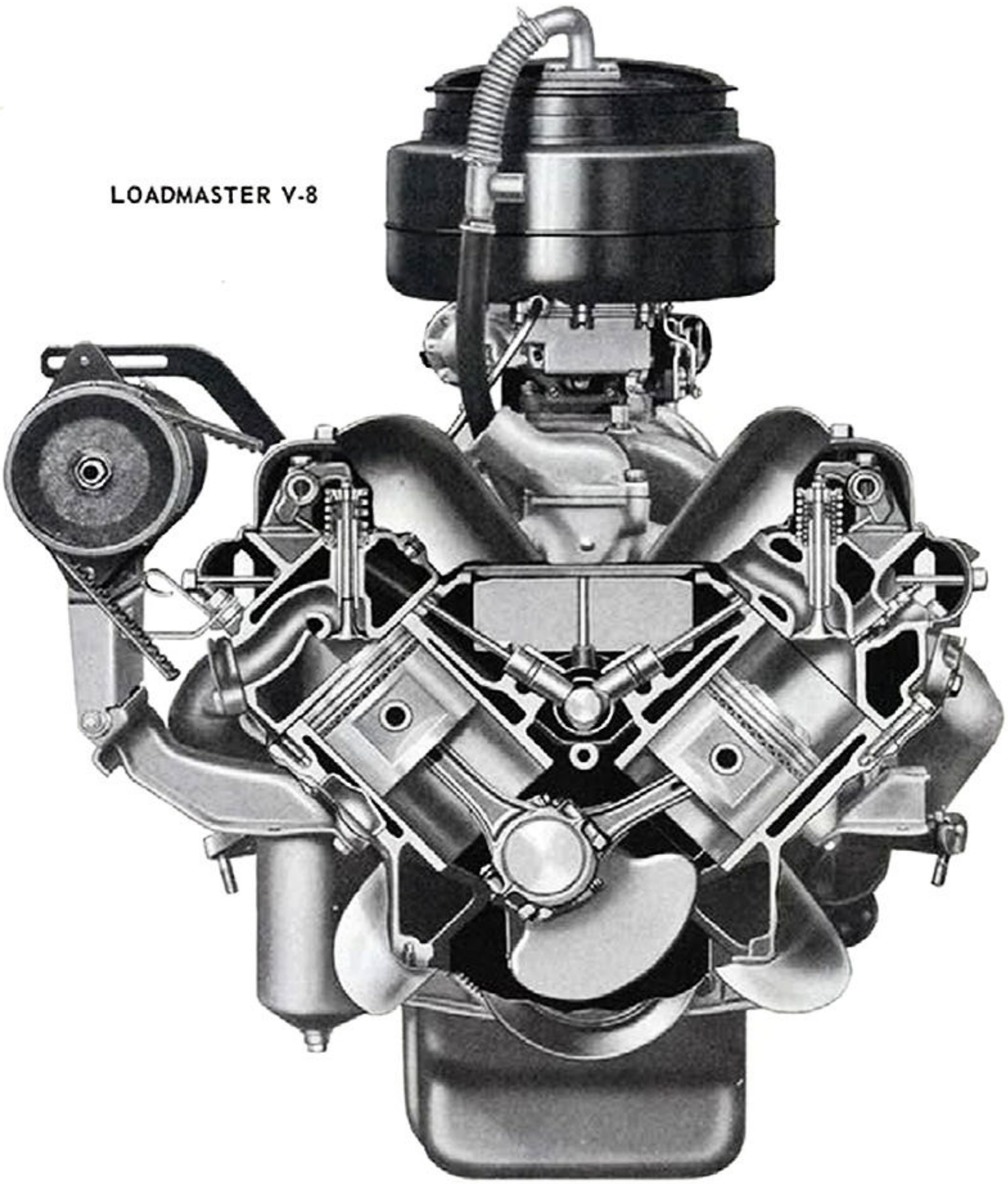
A new full-flow oil filter is now included as standard equipment on all V-8 engines. The lubricating oil normally passes through the filter element, providing filtered lubricating oil to the bearings, cylinder walls and moving parts of the engine, reducing wear and prolonging engine life.

TASKMASTER V-8

THRIFTMASTER SIX CYLINDER

LOADMASTER V-8





LOADMASTER V-8 ENGINE

The Loadmaster V-8, one of the lightest and most compact engines for its displacement in the industry, is also one of the most powerful ever offered by Chevrolet. The high power ratings as well as its many heavy-duty features make it ideally suited for use on the 2-1/2 ton trucks. A short stroke to large bore ratio of .8-to-1 provides low piston travel per vehicle mile with reduced friction and wear on pistons, rings, crankshaft, cylinder walls and bearings.

The new engine, identified by a "Loadmaster V-8" decalcomania on each rocker cover, has the following general specifications: bore 4.0 inches, stroke 3.2 inches, 7.7-to-1 compression ratio, 322 cubic inches displacement, gross horsepower 195 at 4000 rpm, gross torque 310 foot pounds at 2200 rpm, net horsepower 170 at 4000 rpm and net torque 282 foot pounds at 1800 to 2400 rpm.

The central location of the spark plug in the top of the fully machined, symmetrical, inverted "V" form combustion chamber, combined with the high compression ratio of 7.7-to-1, provide optimum fuel economy on regular grade fuel, and high power output per cubic inch displacement. The two barrel downdraft carburetor utilizes a manual choke. For prevention of carburetor icing, exhaust heat to the intake manifold carburetor riser is provided by two cross-over ports from each bank of cylinders which lead to a central heat chamber under the riser. A mechanical, pulsator-type fuel pump, located on the right hand side of the timing chain cover, is driven by an eccentric on the camshaft sprocket.

Stamped steel covers with open ends for ventilation protect the spark plugs and ignition wires from moisture and exhaust manifold radiant heat. These covers are also effective in reducing radio and television interference. Another stamped cover, which includes the oil filler tube, is used to seal the valve lifter chamber.

Intake and exhaust valves of each bank of cylinders are arranged side by side at an angle of 45 degrees to the cylinder bore axis, and therefore are in a vertical plane with respect to the ground. Conventional-type rocker arms and solid push rods are actuated by hydraulic valve lifters. Because the hydraulic lifters maintain zero valve lash and do not require adjustment, no adjusting studs or screws are provided in the valve train.

Nickel-chrome alloy intake valves with aldipped faces are provided with dual valve springs. Exhaust valves are made from high alloy austenitic steel, with hard-faced valve seats, for long life. A spring, damper, and positive rotator is used with each exhaust valve. The cylinder heads have removable valve guides and integral valve seats.

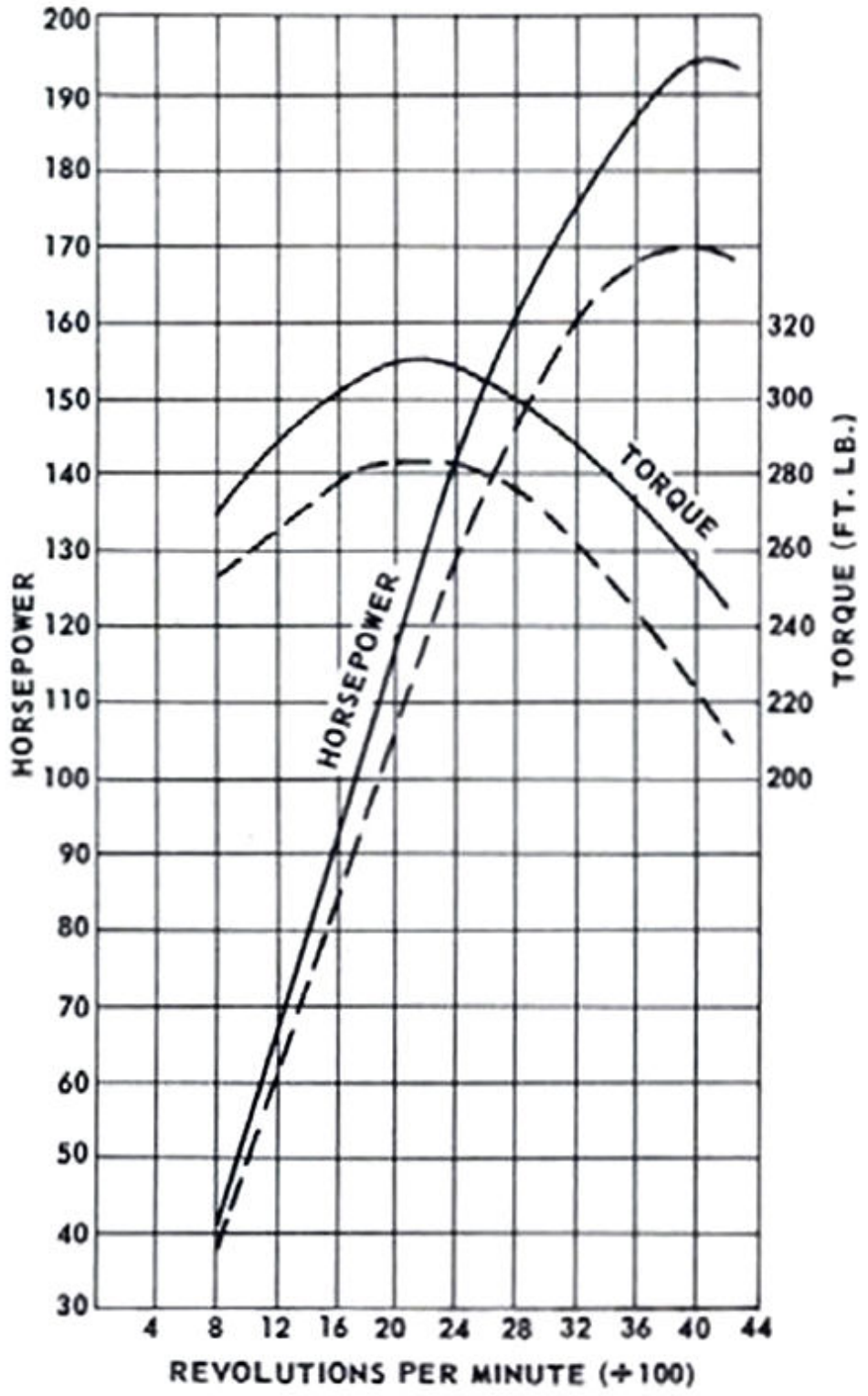
The piston, of aluminum alloy, has a raised crown which is shaped to conform to the combustion chamber contour, and shallow depressions to provide clearance between the piston and valves. The pin bore is not offset. Three piston rings are used. The top compression ring is chrome plated, while the second compression ring is lubrited. A four-piece oil control ring consists of a spacer, expander, and two chrome plated steel rails. Two slots in the oil ring groove extend through the piston wall and permit drain back of oil collected by the oil ring.

Connecting rods are steel drop forgings of I-beam section, having bosses on each side so that metal may be removed as required for balancing. The lower end of the rod is fitted with a steel-backed precision-type bearing and the piston pin is pressed into the upper end. The crankshaft is exceptionally rigid because of the great bearing journal overlap, and is supported in the cylinder block by five steel backed precision type bearings. Both the upper and lower halves of the main bearings are grooved and interchangeable.

All rotating and reciprocating parts of this engine are balanced individually and the entire engine assembly dynamically balanced as a unit on a special balancing machine.

Fourteen bolts attach each cylinder head to the block. The bolts screw into the water jacket walls of the cylinder block rather than in the cylinder barrels, thus minimizing distortion of the bores.

Engine coolant is distributed by the single water pump to the water jackets of each cylinder bank. The jackets encircle the cylinder barrels and extend below the lower limit of the piston ring travel for uniform cooling of these critical areas. From rear of the block the coolant passes up into the cylinder heads, then travels forward, cooling the valves and seats, exhaust ports and quench areas, passing into a common manifold containing the thermostat. Dual



fan belts assure positive fan and water pump action.

For high volumetric efficiency and optimum scavenging of exhaust gases, the cylinder heads have an individual water cooled exhaust port for each cylinder and a dual exhaust system is regular equipment with the new Loadmaster engine.

The basic 4-point dynamically balanced engine mounting system used with the Taskmaster engine it also applied to the Loadmaster, making it possible to use the same chassis for the 7000 and 9000 series, and another chassis for both the 8000 and 10000. The difference in engine lengths is compensated for by two sets of mounting holes in the frame front crossmember of the Low Cab Forward unit, and by cantilever brackets attached to the Loadmaster engine for conventional models. Heavy-duty engine rear mounts, wider than those used on two ton models, and larger, more durable mounting bolts are used on Loadmaster installations.

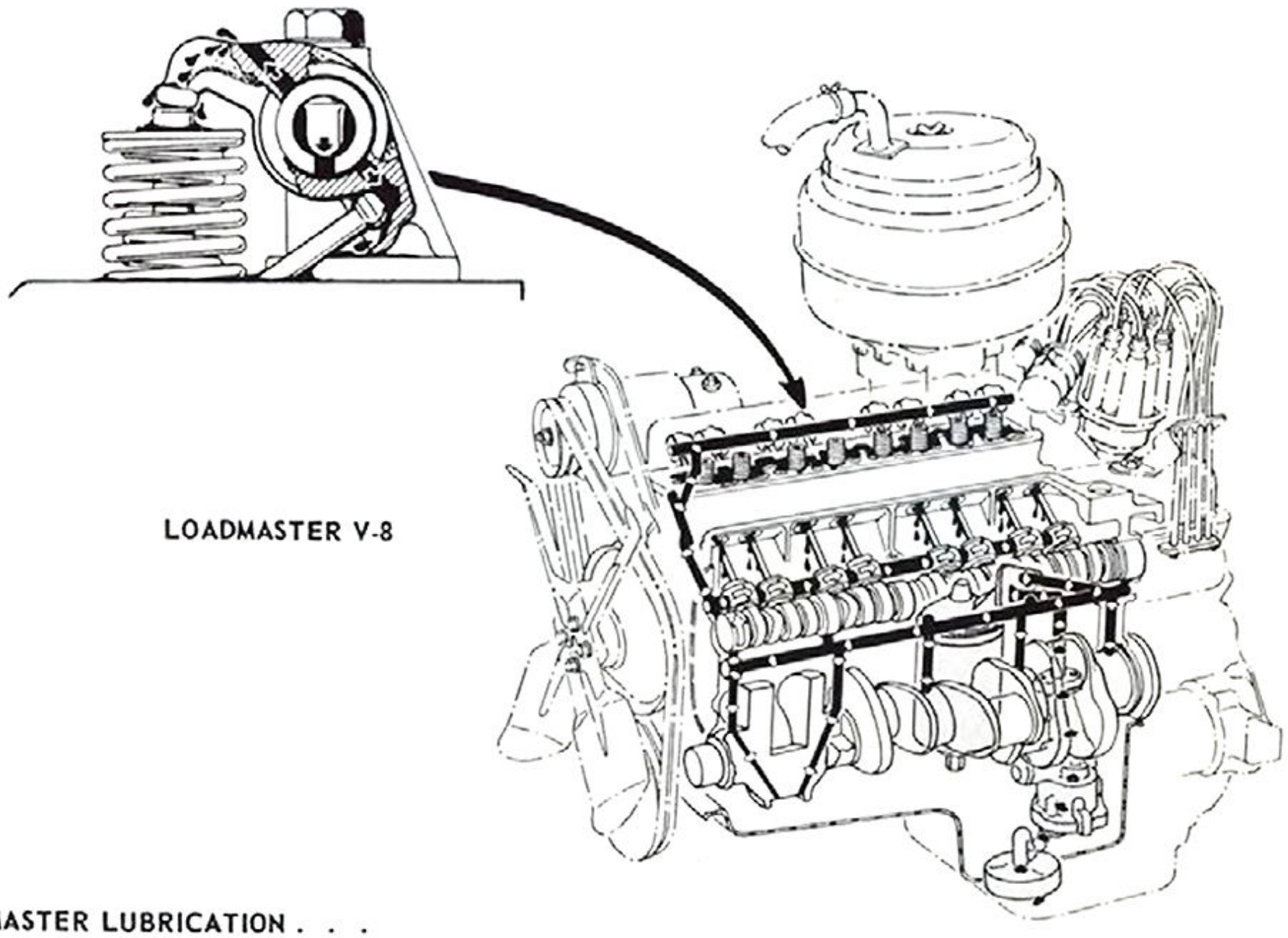
A 12-volt system, with its adequate reserve for the high ignition voltage required for spark plug firing in the high compression combustion chambers, and for the many regular production and accessory electrical items, is standard equipment.

Power output and performance are increased almost ten per cent through the greater breathing capacity and higher volumetric efficiency of a four barrel carburetor, high capacity oil bath air cleaner, and special intake manifold, regular equipment in Loadmaster trucks with gross vehicle weight of 24,000 or over, and optional in all other Loadmaster installations. The word "Super" precedes the name Loadmaster on the valve rocker covers to identify this higher output engine.

The primary side of the carburetor completely controls the fuel mixture metering to the engine throughout the idle and part throttle range. The fuel mixture to the engine from the primary side is supplemented by the secondary side throughout the power or wide open throttle range. The carburetor retains the six basic systems of carburetion: idle, part throttle, power, accelerator pump, float, and choke. As in the regular production two barrel carburetor, fixed-type main metering jets are used, and no wear takes place at the jet orifice.

An automatic means is used to actuate the primary power system to provide proper power mixtures upon demand, regardless of the degree of throttle opening. It is not necessary, therefore, to open the throttle completely to enrich the mixture sufficiently for power operation.

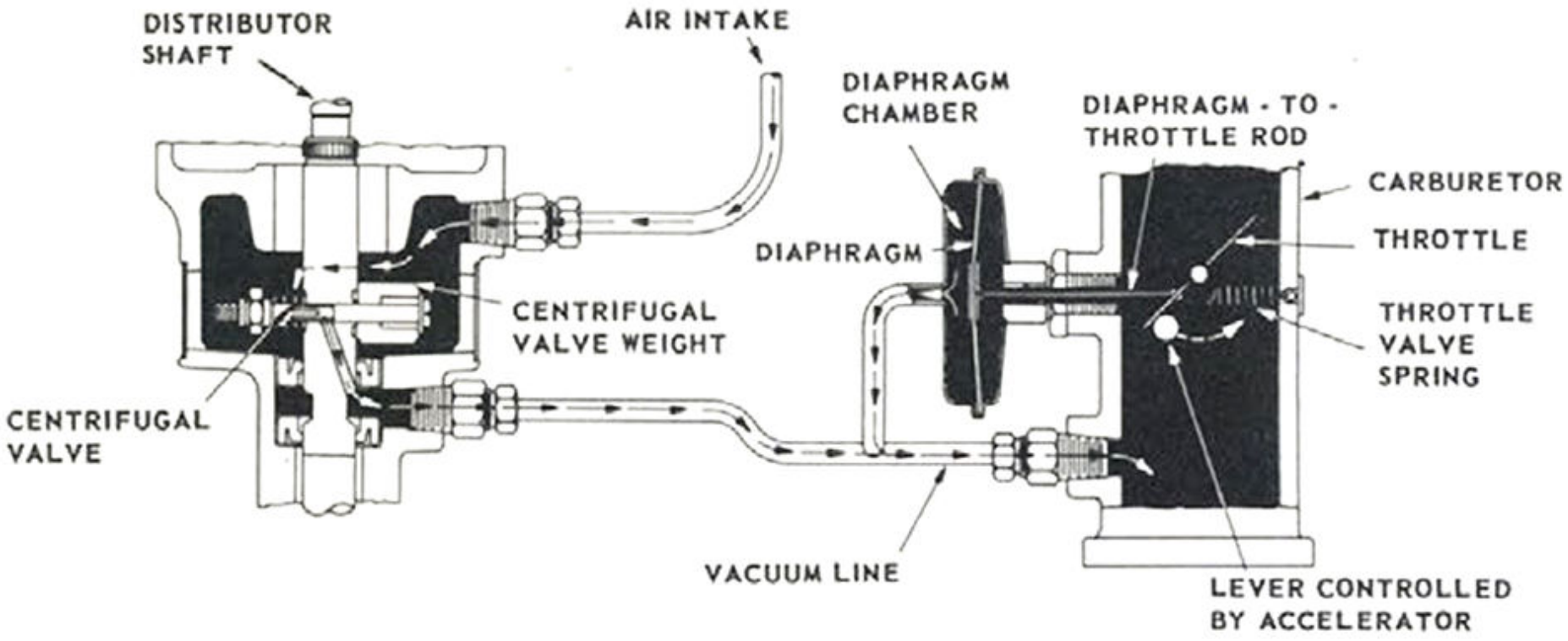
A feature of the new four barrel carburetor is the secondary side, which incorporates three of the six basic systems of carburetion, those being idle, power and float. The secondary side incorporates an auxiliary velocity-controlled valve above the secondary throttle valves. The auxiliary valve opens only when air velocity in the secondary side is great enough to overcome a torsion spring. The throttle valve of the secondary side is controlled by linkage up to engine speeds of 4000 rpm, and by the governor at 4000 rpm.

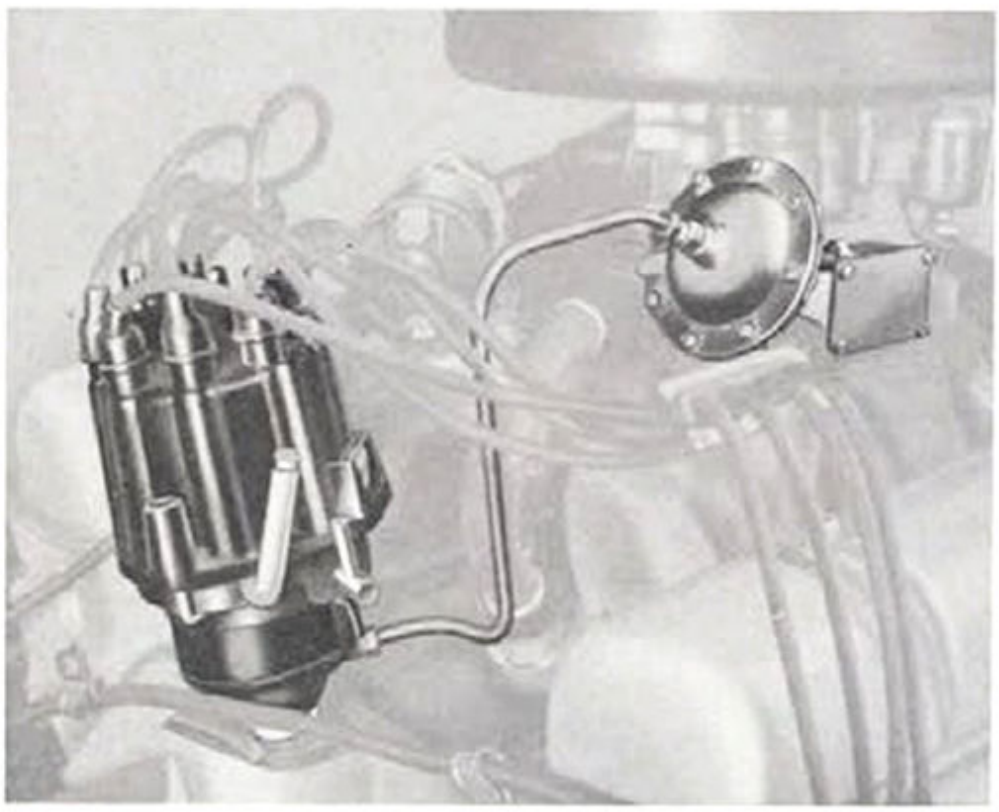


LOADMASTER V-8

LOADMASTER LUBRICATION . . .

In the new Loadmaster engine, oil under full pressure is supplied to the main bearings, connecting rod bearings, and camshaft bearings. Piston pins are splash lubricated, and oil splash and nozzle lubrication from the opposite connecting rod is provided for cylinder walls. Oil drip from the camshaft front bearing lubricates the timing chain. A gear-type oil pump delivers lubricating oil from the pan to the full-flow oil filter, which is regular equipment. From the filter, the oil is routed to the main oil gallery in the center of the block above the crankshaft. Drilled holes in the block carry oil from the gallery to the main and camshaft bearings, and to the connecting rod bearings through the drilled crankshaft. A groove in the camshaft front journal meters the oil and reduces its pressure before passage to the valve lifter oil galleries, from where it is routed to the cylinder heads. The oil in the heads passes through the rocker shafts to lubricate the rocker arms, push rods, and valves. Positive crankcase ventilation is provided as regular equipment on all Loadmaster engines.





GOVERNORS . . .

A mechanically operated, vacuum actuated governor is regular equipment in the 7000, 8000, 9000, and 10000 series, and optional on 5000 and 6000 Taskmaster engines. It is set to limit engine speed to a maximum of 4000 rpm at full load, assuring the fleet operator or truck owner protection against excessive engine speed. The maximum setting not only is within the range in which full advantage can be taken of the high horsepower of the engines, but it also provides an excellent transmission shift pattern control.

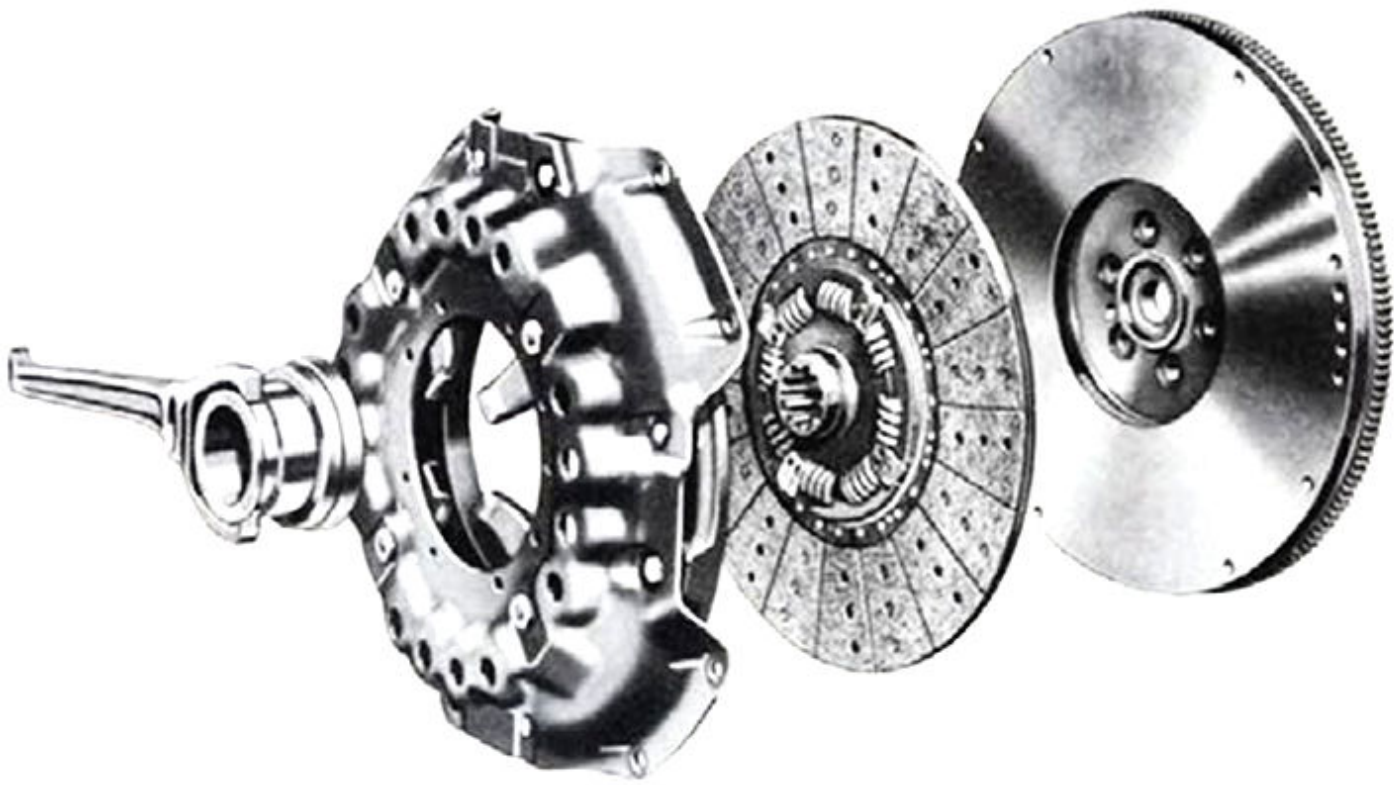
The governor consists of two primary units, one a centrifugal control valve built into the ignition distributor, and the other a vacuum operated diaphragm which is part of the carburetor and directly linked by a rod to the throttle. The two units are connected by tubing.

In operation, the accelerator, through linkage, controls a lever in the carburetor. As the accelerator pedal is depressed, it moves the lever forward to call for higher engine speed. The spring-loaded throttle valve, which is pressing against the back of this lever, then is able to open wider. As engine speed increases, the centrifugal valve closes, causing vacuum to move the diaphragm. When the governed speed is reached, the diaphragm takes full control of the throttle valve through the direct link rod. This control by the governor, holding the throttle valve back from the advanced position of the lever, renders the accelerator system ineffective for further engine speed increase. Any slight change in engine speed or load will induce the centrifugal valve to act, causing the diaphragm to increase or decrease the throttle opening, thus assuring optimum engine output with a high degree of safety to the equipment. When the accelerator is released, the lever on its return again contacts the throttle valve, moving it back to a smaller opening, taking control away from the governor and controlling the engine to any desired lower speed.

DISTRIBUTOR . . .

A new distributor of advanced design is regular equipment on all Loadmaster engines and on the Taskmaster in the 7000 and 8000 series. It is also standard in the 5000 and 6000 series Taskmaster engine when the governor option is used.

Maintenance of greater accuracy of distributor point gap setting throughout the entire operating range of the engine is provided by transposing the usual locations of the distributor breaker point plate and the ignition governor weights. This places the breaker points directly above the shaft bearing, thus minimizing fluctuations in the gap setting due to wear of the bearing or any movement of the shaft. A new access door is provided in the distributor cap for facility in setting the breaker gap when the engine is running. Opening the access door uncovers the gap adjusting screw.



CLUTCHES . . .

High capacity coil spring clutches are featured as regular equipment with the Trademaster and Taskmaster engines. These replaced the diaphragm spring clutch in mid-season of 1955 and are continued for 1956. Nine heat treated thrust springs provide almost twenty per cent additional pressure on the clutch pressure plate, compared to the former design. The construction of the coil spring clutch provides excellent ventilation near the pressure plate surface, making this unit more suitable for the high engine torque and the hard clutch usage associated with truck operation. The pressure plate is centered and driven by lugs which register with openings in the clutch cover. A clutch assembly with a 10-1/2 inch woven-faced driven disk and 11-inch cover assembly is regular equipment with the Trademaster engine. The nominal capacity of this clutch is 295 foot-pounds. A 11-inch driven disk is available optionally. This 11-inch disk together with an 11-inch cover assembly is released as standard equipment with the Taskmaster engine and the nominal torque capacity of this clutch is 305 foot-pounds. Clutch release is through three levers.

A coil spring clutch with a nominal torque capacity of 340 foot-pounds is regular equipment with the Loadmaster engine. Eight thrust springs replace the diaphragm spring previously used with all truck clutches. The woven-faced clutch driven disk is thirteen inches in diameter. Pressure plate centering and drive is through four straps, and the clutch release mechanism utilizes four levers.

The diaphragm spring clutches of 1955 are continued unchanged with the six cylinder engines.

TRADEMASTER AND TASKMASTER ENGINES

The 265 cubic inch V-8 truck engine, originally released for the Low Cab Forward models, was made available optionally during 1955 for the conventional models of the 3000, 4000 and 6000 series. In 1956, this engine, featuring increased horsepower and a number of improvements, is also obtainable optionally on the forward control models and provided as standard equipment in Series 7-8000.

Horsepower rating of Trademaster and Taskmaster engines has been increased to 155 at 4200 rpm, compared to 145 of the previous year. Net horsepower is increased to 132 at 3800 rpm. The new gross torque rating is 249 foot pounds at 2200 rpm, while net torque is 230 foot pounds at 2000 rpm.

The Trademaster V-8 engine, specified as RPO equipment in the 3000 and 4000 series, has a four quart oil pan, one pint oil bath air cleaner, high alloy steel exhaust valves which are aluminum dipped on the seats, flash chrome plated top compression rings and road draft tube type crankcase ventilation. Features of the Taskmaster V-8 engine which is regular equipment in the 5000, 7000 and 8000 series as well as optional equipment for the 4000 and 6000 models include a five quart oil pan, one quart oil bath air cleaner, high alloy steel exhaust valves with rotators, full chrome plated top compression rings and positive crankcase ventilation.

A full-flow oil filter, available as regular equipment on all Trademaster and Taskmaster engines, assures the cleanest possible supply of oil in the engine lubrication system. Mounted in a vertical position on the side of the cylinder block, the new oil filter features a cured phenolic resin impregnated filter element which is replaceable from underneath the vehicle. A safety bypass valve assures constant oil circulation, and no external oil lines are used.

To provide installation clearance for the new full-flow oil filter, and at the same time additional room for the steering linkage, the oil pan is reshaped and the oil level indicator is recalibrated. In conventional models, a new flexible steel, ribbon-type oil level indicator features easier accessibility in checking the oil level. Longer than the previous rigid gauge, the new unit provides a higher, easier to reach location because the flexible steel ribbon material permits use of a curved pilot tube.

To insure a constant oil supply under all operating conditions, a stationary type, screened oil pump intake is located near the bottom of the oil sump on all six and eight cylinder truck engines.

New stamped metal heat shields are provided on Taskmaster engines to protect the spark plug boots from exhaust manifold heat. This engine also features new pistons with small notches in their crowns to minimize the possibility of the pistons touching the valves on engine overspeeding conditions. The exhaust valve rotators are redesigned to permit the use of a longer valve spring and a new spring damper, which improve valve train performance in the engine top speed range. A new damper is also used with the intake valve spring.

Installation of the optional Trademaster V-8 engine in forward control models follows the general pattern of conventional models, with the exception of the air cleaner, positive crankcase ventilation system, generator and throttle linkage. To provide necessary overhead clearance in the engine compartment, the oil bath air cleaner is mounted on a bracket attached to a frame side member, and air is piped from the air cleaner to the carburetor and positive crankcase ventilation system. The generator is mounted on the right hand exhaust manifold, instead of the left, necessitated by the location of the steering linkage, clutch pedal, and accelerator linkage peculiar to these models. Also, the radiator is moved rearward and is mounted on a bracket over the frame front crossmember, similar to the Series 5000 installation.

Over ten per cent additional power and performance through increased breathing capacity and higher volumetric efficiency is provided by a four barrel carburetor and a high capacity oil bath air cleaner, together with a special intake manifold, available as an option on all Series 5-6-7-8000 Taskmaster engines. The Taskmaster four barrel carburetor is similar in operation to the one used on Loadmaster engines and also features a mechanically driven, vacuum-actuated governor which limits engine speed through control of the primary throttle.

SIX-CYLINDER ENGINES

Four powerful six-cylinder truck engines are provided as regular and optional equipment in 1956. The 235 cubic inch Thriftmaster engine with a higher compression ratio and a high lift camshaft is provided as regular equipment for the 3000 and 4000 series. "Thriftmaster Special", with an updraft carburetor, is regular equipment for forward control models. The former Loadmaster engine has been renamed "Thriftmaster Heavy Duty" and is regular equipment in the 6000 series and RPO for 4000. Retaining the high lift camshaft from 1955, the Jobmaster engine with a higher compression ratio continues as an RPO for the 6000 series.

The new high lift camshaft facilitates entry of the fuel mixture into the cylinders, and more complete expulsion of the exhaust gases. As a result,

less inert gas remains to dilute the next intake charge, making it possible to take full advantage of the increased octane values now being supplied in regular grade gasolines. Through the use of the new high lift camshaft and higher compression ratio of 8-to-1, compared to 7.5-to-1 for 1955, the power output of the 235 cubic inch engines has been increased to 140 at 4200 rpm, which represents an increase of 21 horsepower in forward control models, and 17 horsepower in conventional models. The higher compression ratio of the Jobmaster engine results in an engine with 148 horsepower, an increase of 8 from the previous year.

The addition of oil bath air cleaners as regular equipment on all 3000 and 4000 series marks the first time they have been specified at no extra cost on 1/2 to 1-1/2 ton units with six-cylinder engines, and the first time they have been regular equipment on all Chevrolet truck engines. Use of the new oil bath air cleaner on Thriftmaster engines provides greater engine durability, less piston and ring wear, and improved oil economy because the cleaner minimizes the possibility of dust and foreign matter entering the engine.

Another improvement in six-cylinder engines is the use of new high alloy steel exhaust valves. The material of the new valves greatly lengthens valve life because of its greater heat resisting properties which reduces the possibility of valve scoring or burning. All six-cylinder truck engines have mechanical-type valve tappets, as in 1955, in combination with the high lift camshafts.

Six-cylinder truck engines for 1956 also feature new "roll-out" type upper main bearing inserts. A tang on one edge of the new inserts bears against the bearing cap and fits in a matching recess in the cylinder block, preventing both rotation and longitudinal movement of the insert. The new upper main bearing inserts can be rolled out by removing the bearing cap, inserting a special plug in the crankshaft oil hole, and then turning the crankshaft. In the former design it was necessary to loosen all main bearing caps and lower the crankshaft far enough to permit the insert retaining dowel to drop out of its matching hole in the cylinder block.

To insure a constant oil supply under all operating conditions, a new fixed-type, screened oil pump intake is located near the bottom of the oil sump.

Starting of the engine under adverse conditions is improved by the adoption of new ribbed-insulator spark plugs, and longer neoprene spark plug boots. Adding ribs to the spark plug insulator increases the surface distance that an electrical charge would have to travel to bypass the electrodes, thereby decreasing the possibility of ignition failure. Longer neoprene boots increase protection against moisture and dirt accumulations on the spark plug insulator for still greater insurance against ignition failure.

ENGINE AVAILABILITY AND OUTPUT RATINGS

ENGINE	USED IN SERIES	GROSS		NET	
		HP AT RPM	TORQUE AT RPM	HP AT RPM	TORQUE AT RPM
Thriftmaster	3000, 4000 Conventional	140 - 4200	210 - 2000	123 - 4000	195 - 2000
Thriftmaster Special (updraft)	3400, 3500, 3700 Forward control	140 - 4200	210 - 2000	120 - 3800	192 - 2000
Thriftmaster Heavy Duty	6000 Regular equipment RPO on 4000	140 - 4200	210 - 2000	123 - 4000	195 - 2000
Jobmaster	RPO on 6000	148 - 4000	232 - 2000	125 - 3800	216 - 2000
Trademaster	RPO on 3000, 4000	155 - 4200	249 - 2200	132 - 3800	230 - 2000
Taskmaster	5000, 7000, 8000 Regular equipment RPO on 4000, 6000	155 - 4200	249 - 2200	132 - 3800	230 - 2000
Loadmaster	9000, 10000 Regular equipment	195 - 4000	310 - 2200	170 - 4000	282 - 1800 - 2400
Super Taskmaster	RPO on 5-6-7-8000	167 - 4200	254 - 2000 - 2800	148 - 4000	234 - 2200 - 2800
Super Loadmaster	RPO on 9000, 10000	210 - 4000	320 - 2800	185 - 4000	286 - 1800 - 2800

ELECTRICAL SYSTEM

Safer night driving, new instruments and simplified servicing are provided by many improvements to the electrical system for 1956. Included are a new battery, new headlamp aligning method, new sealed beam headlamps, new RPO direction signals and electric tachometers.

An improved sealed beam headlamp, introduced in mid-season 1955 and continued for 1956, increases low beam visibility by as much as 80 feet along the right hand side of the road. This is accomplished by revising the optics of the lens to more accurately control and intensify the light from the lower beam. Also, a cap over the low beam filament deflects stray light beams to reduce reflection of light into the driver's eyes from dust and moisture particles in the air.

New for 1956 is the addition of three gauge points per headlamp, accurately located with respect to the optics of the headlamp unit which greatly simplifies service adjustment. With the addition of three raised glass bosses, a feature exclusive to General Motors vehicles, service adjusting procedure is reduced to a matter of attaching a simple gauging device to each lamp and then adjusting the position of the headlamp unit. This system eliminates the former need for a large service area for headlamp aiming.

A more durable battery with microporous rubber separators, a new grid alloy, and baffles in the plastic vent caps replaces the former unit which had wood separators. Battery life and capacity is so increased that the warranty period is extended up to 41 per cent. Battery over-charge life is increased significantly by the new separators and grid materials, which, at the same time, improve the discharge characteristics up to a point where the battery is rated at 53 ampere hours instead of the previous 50. The new baffles in the vent caps help prevent the discharge of battery liquid with escaping gas and thereby extend the normal service interval.

Other improvements in the electrical system include better waterproofing of the voltage regulators through a redesigned cover and base and improved rubber seals, and the addition of a fuse on the main light switch to protect the instrument panel light circuit from overload.

Self-canceling direction signals, previously offered only as a dealer installed accessory, are now available as a regular production option on all models except school buses and forward control units.

More accurate engine temperature readings are registered with the adoption of an electrically operated temperature gauge. Relocation of the new sending unit to the water manifold section of the intake manifold on Trademaster and Taskmaster engines permits more accurate readings. The electric unit also provides easier replacement since it is composed of separate gauge and sending units connected by a wire. This takes the place of the former thermometer type bulb and the capillary tube which were hermetically sealed and had to be replaced as an entire assembly.

An electric tachometer is available as an RPO for the first time on V-8 truck engines for 2 and 2-1/2 ton models. Through the use of this new instrument, vehicle drivers can avoid lugging or overspeeding of the engine, and at the same time prolong engine life and conserve fuel by maintaining the most efficient operating range. This instrument consists of a sending unit connected by a wire to the distributor and a receiving unit on the instrument panel which indicates engine speed.

TRANSMISSIONS

All three-speed, three-speed with Overdrive, heavy-duty three-speed and four-speed transmissions in the 1955 line-up are again available for 1956. The heavy-duty four-speed is standard equipment on the 7000 and 8000 series.

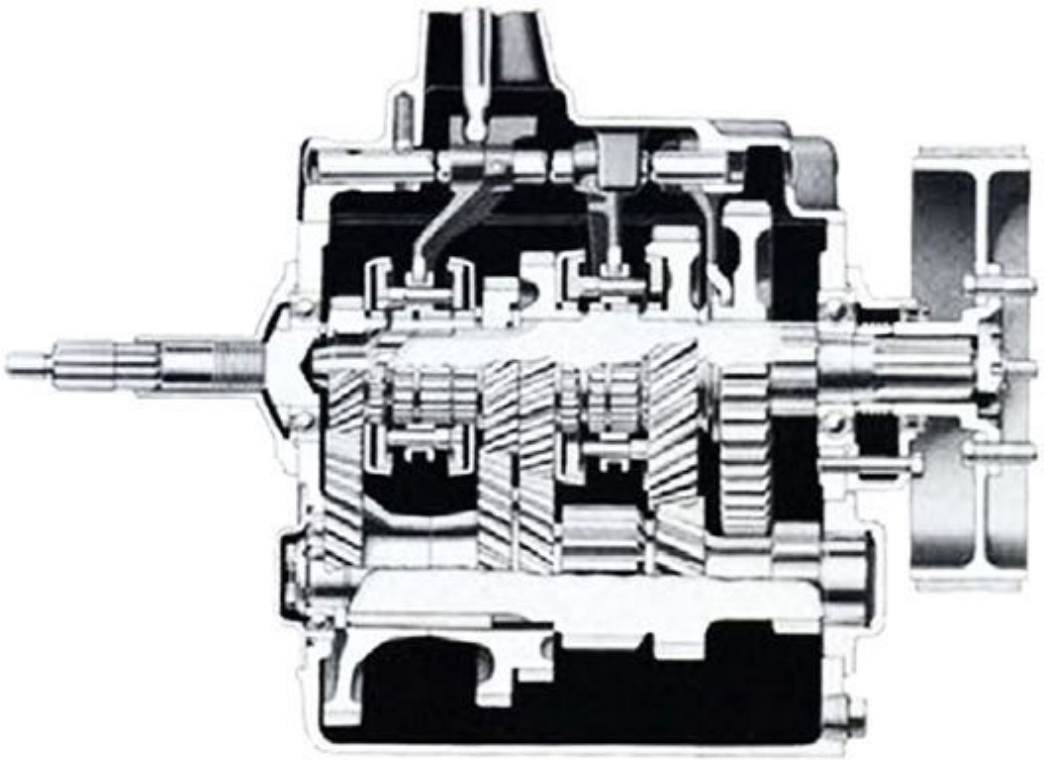
Hydramatic availability is extended to Series 4100 and 4400. An oil cooler, included with the RPO for Series 38-4100 and 4400 trucks, is optional on forward control models.

Important additions are a new five-speed transmission standard on Series 9-10000 and optional in the 5-6-7-8000 series, an optional heavy-duty five-speed transmission for 9000 and 10000 series, and an optional six-speed automatic transmission in the 5-6-7-8-9-10000 series including the school bus models.

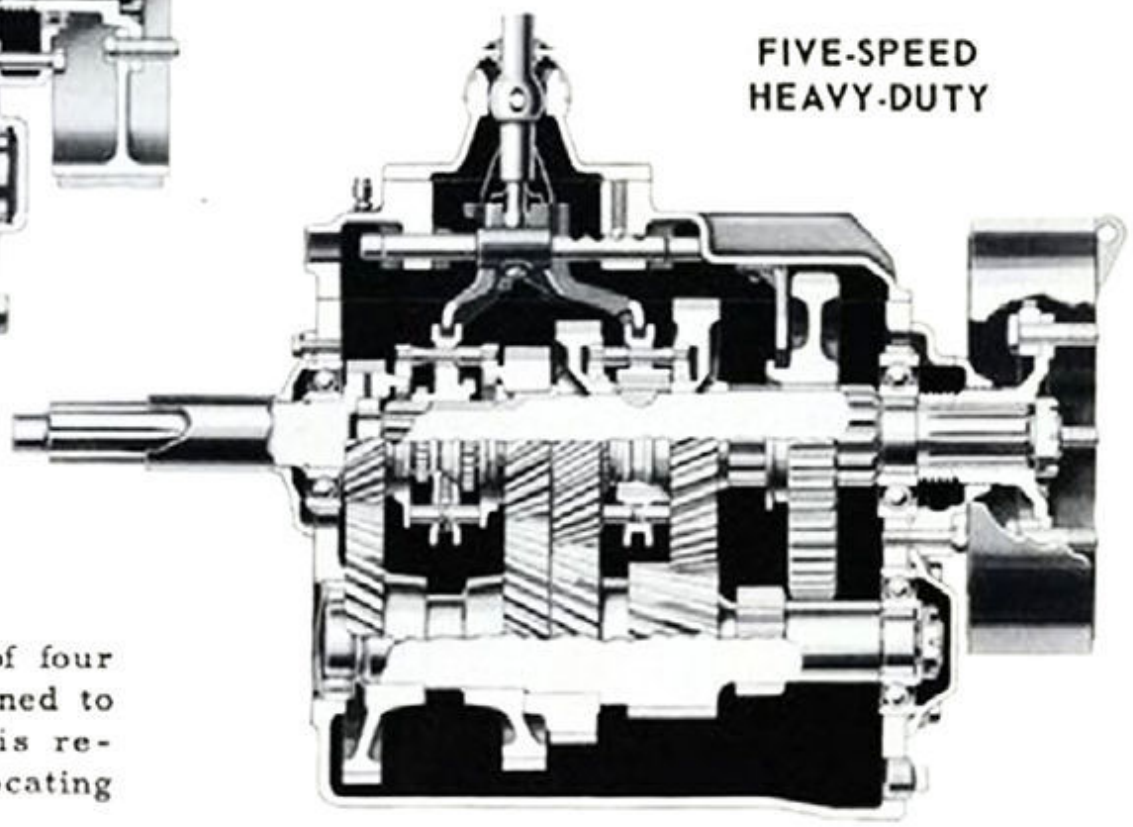
In choosing between a four and five-speed transmission, it must be recognized that each has its advantages depending upon the use to which the truck is to be put. Generally, four-speed ratios are adequate for most operations Chevrolet trucks are called upon to perform. However, when a heavy-duty truck is consistently subjected to heavy loads, extended stop-go or hilly driving, or any combination of conditions where the gears must be used almost constantly, the five-speed transmission may be used to good advantage.

Because the five-speed transmission allows the engine to operate in its high output speed range more consistently, the performance flexibility, or low and mid-range response, is improved. Starting torque is greater due to the higher numerical low speed ratio, and the steps between ratios, particularly from first to second gear, are considerably smaller, so that less synchronizing time is needed. These advantages equip the truck to meet tighter schedules.

A second important advantage of minimizing the need for high-speed engine operation is the economy factor. Engine efficiency drops off rather sharply at the high end of its usable speed range. Since maximum response is obtainable by changing gears



FIVE-SPEED



FIVE-SPEED
HEAVY-DUTY

at a lower engine speed, when five instead of four ratios are available, the driver is not inclined to race the engine needlessly; fuel consumption is reduced; and the wear and tear of high reciprocating loads are avoided.

In both new five-speed transmissions, the need for double-clutching is eliminated. The four top ratios are taken through synchronized, constant mesh helical gears.

The shift lever positions are pressed and painted on the knob of the shift lever for easy identification.

The standard 9-10000 series five-speed transmission is a Synchro-mesh type housed in a cast iron case. All gears except first and reverse are helical. The mainshaft, countershaft, reverse idler shaft, and all gears are machined from alloy steel and carburized for durability. All gear teeth are shot peened for high fatigue resistance.

The main drive gear bearing is a single row ball type. The mainshaft is supported at the front by a roller bearing and at the rear by a single row ball bearing. The countershaft is mounted on a single row ball bearing at the front and on a roller bearing at the rear. The reverse idler cluster rotates on steel-backed bronze bushings.

A 9-1/2 by 2-1/2 inch band-type parking brake is mounted on the rear of the transmission, and standard S.A.E. six bolt power take-off openings are provided on both sides of the case.

The heavy-duty five-speed is optional in the 9000 and 10000 series and mandatory equipment when the 25,000 pound GVW is specified. Second, third, fourth and fifth gears are of helical design. The main drive gear bearing is a single row ball type. The mainshaft is supported by a straight roller pilot bearing at the front and a single row ball at the rear. The countershaft is mounted on a straight roller bearing at the front and a single row ball bearing at the rear. The reverse idler cluster rotates on two straight roller bearings.

A 9-1/2 by 3-inch band-type parking brake is mounted on the rear of the transmission. Standard power take-off openings are provided on both sides of the case.

TRANSMISSION GEAR RATIO COMPARISON

SPEED	4-Speed	5-Speed	H.D. 5-Speed
FIRST	7.06:1	7.41:1	7.55:1
SECOND	3.58:1	4.05:1	4.17:1
THIRD	1.71:1	2.40:1	2.45:1
FOURTH	Direct	1.48:1	1.45:1
FIFTH		Direct	Direct
REVERSE	6.78:1	7.85:1	7.44:1

POWERMATIC TRANSMISSION

THE POWERMATIC TRANSMISSION

Powermatic, an entirely new, fully automatic transmission designed in one compact package, brings new driving ease, performance and operating economy to the heavy and medium-duty truck lines.

Available as optional equipment on all two and two and one half ton models including school buses, Powermatic is a full power shifting, heavy-duty, torque converter type transmission with six speeds forward and one reverse, plus an integral "hydraulic retarder" for controlled deceleration and continuous downhill braking. The combination of automatically accurate ratio selection for acceleration and higher safe speed deceleration lets a Powermatic equipped truck get up to highway speeds faster and stay there longer. The resultant portal-to-portal time advantage promotes efficient scheduling. Together with new standards of performance, greater maneuverability and ease of control, Powermatic offers the truck user a significant maintenance advantage. The shock free shifting assures a long trouble free life and, since no periodic adjustments are required, down-time is held to a minimum.

Three specialized drive ranges tailor performance characteristics to the job at hand. A four speed Drive range handles all normal driving. Intermediate, a two-speed range, is particularly effective in mountainous terrain. A two speed Low range gives extra-low ratios for controlled power operations. The three drive ranges also effect three ranges of hydraulic retarding.

The transmission consists basically of a torque converter in series with a six speed, hydraulically controlled, automatic gearbox. Three clutch actuated simple planetary gear sets give the six mechanical forward speed ratios. A fourth planetary set functions only in Reverse.

The high torque multiplication converter is used primarily as a variable ratio starting gear in all drive ranges. So that high fuel economy and a feel of positive control may be realized when underway, a lock-up clutch, arranged in parallel with the torque converter, automatically locks the converter in direct drive at high engine speed. The governor actuated lock-up clutch is then released at a much lower engine speed so that the advantages of smooth powerful starts, and low speed, converter multiplied, acceleration are automatically restored.

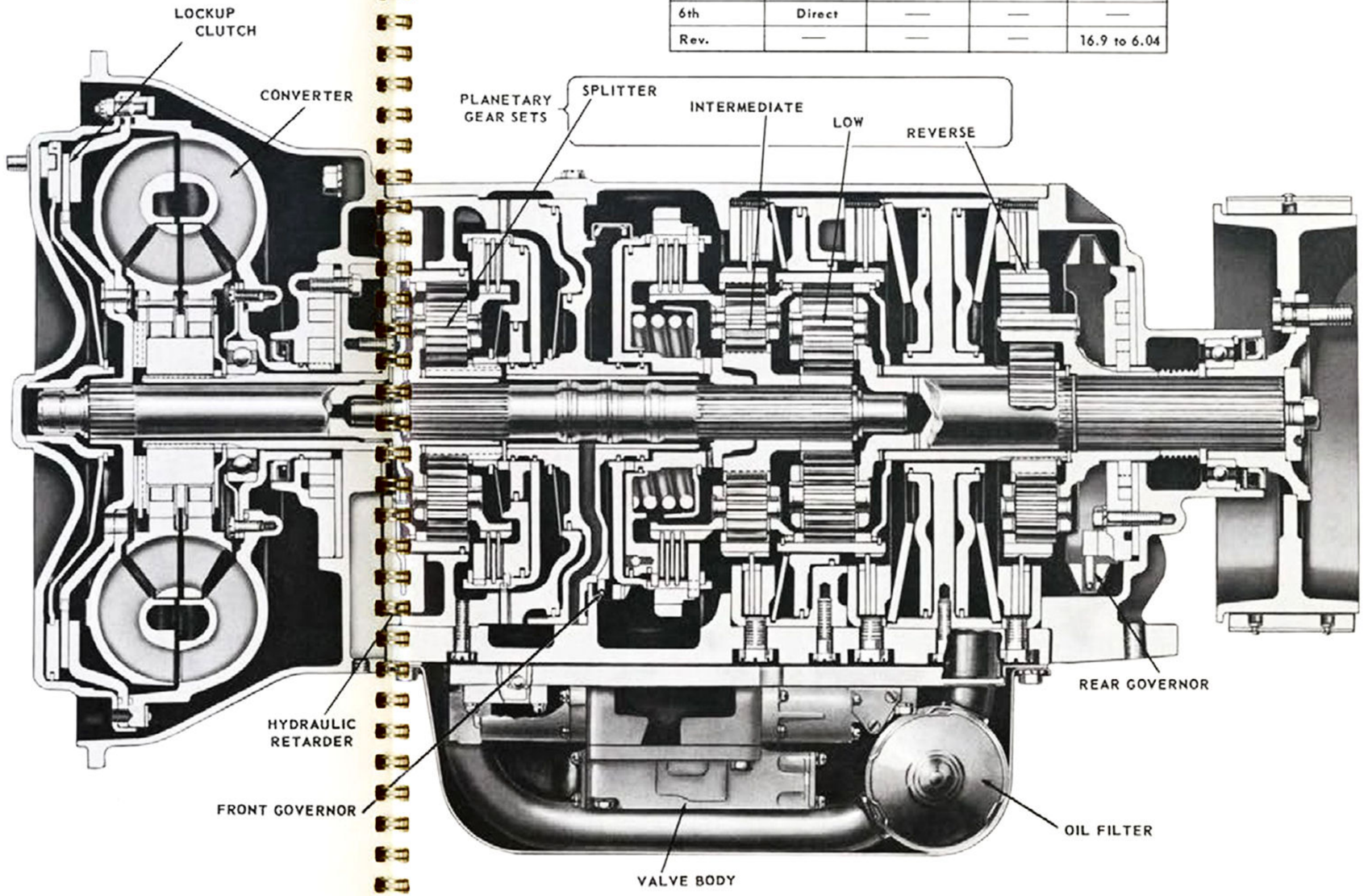
To take full advantage of the shock cushioning effect of the fluid coupled drive line, the control circuit is arranged to disengage the lock-up clutch during the brief instant it takes to effect an automatic gear shift.

Entirely independent of the torque converter, a second, internally vaned housing, called a "hydraulic retarder" is located in series with the gear train. Its retarding action is similar to engine braking but up to six times more effective.

The hydraulic retarder pedal occupies the conventional clutch pedal position and may be used to augment engine braking to any degree considered necessary by the driver. The maximum assistance is reached when the pedal is fully depressed.

Standard SAE 6-bolt power take-off openings, offered in no other automatic transmission on the market today, are provided on both the right and left sides of the case. Drive is taken through the converter and the first planetary set, so that high starting torque smoothly applied, is available to drive auxiliary equipment.

GEAR	RANGE			
	DRIVE	LOW	INT.	REV.
1st	—	14.8 to 5.3	—	—
2nd	—	3.8	—	—
3rd	7.5 to 2.69	—	7.5 to 2.69	—
4th	1.94	—	1.94	—
5th	1.39	—	—	—
6th	Direct	—	—	—
Rev.	—	—	—	16.9 to 6.04



DRIVING TECHNIQUE

It is the nature of the trucking business to expect a single truck to meet widely varying operating conditions from full load to dry run, across flat country, over the mountains and through the cities. To equip the driver with the greatest versatility in meeting every challenge, three specialized drive ranges are provided. Each answers a specific type of demand. Relieved of over eighty per cent of conventional manipulation, and given a more rapid and satisfying command of power, the truck operator soon masters a new, safer, easier and faster kind of driving.

NEUTRAL (N). As a safety feature, the wiring is arranged so that the range selector must be in Neutral to start the engine. This position is also recommended for brief stops with the engine idling. In Neutral the power take-off gear is driven through the converter. In lock-up, take-off gear speed is .72 times engine speed.

DRIVE (Dr). This range may be used to advantage under all but the most adverse driving conditions. When stopped with the engine idling the truck stands still. When the accelerator is depressed, the response is immediate -- the transmission starts in converter and third gear and shifts automatically and progressively through lock-up and four ratios. The driver determines the rate of acceleration by the pressure he exerts on the accelerator pedal exactly as he would in a conventional transmission, except that he does not have to declutch and hand shift through the gears.

If at any time during the shifting cycle the situation demands sudden acceleration or extra pulling power, a rapid downshift is accomplished by pushing the accelerator pedal through a "detent" resistance to the floor. The transmission will remain in the lower ratio only so long as the ratio is most advantageous. It permits the downshift only when it will prove effective and will not overspeed the transmission gears.

In bringing the truck to gradual stop, the driver may apply the hydraulic retarder pedal to reduce speed and the service brakes to stop the truck. Although the range is completely automatic, the driver is not deprived of the "veto power" or manual overcontrol for unusual driving conditions. The selector lever may be moved at will from any drive range to another, the only restriction being that road speed should not exceed 30 mph for a Drive to Intermediate shift or 15 mph for an Intermediate to Low shift.

INTERMEDIATE (N). This range keeps the transmission operating in third and fourth speeds so that hilly country can be traversed with greater ease and safety. When traveling through foothills, for instance, even though the truck may be going either up or down a hill almost constantly, conditions are continually simulated that would ordinarily call for an upshift or a downshift. The conditions are momentary, but the transmission is built to respond quickly to changing demands. Unremedied, this would result in unnecessary gear changing, or "hunting." By restricting the available mechanical ratios to third and fourth, the necessary pulling power and engine braking are kept constantly in action. Sustained hill climbing ability and controlled downhill coasting are achieved automatically without the continual manual shifting required for safe operation in a conventional truck. The range also keeps the engine operating at a speed ideally suited to effective operation of the retarder.

LOW (Lo). For controlled power operations, Low range keeps the truck operating in first and second speeds. In negotiating steep grades, or pulling through deep sand, or for many "off road" emergencies the driver commands "infinite ratio" matching of engine power to the job at hand, up to a maximum multiplication of 14.8 to 1. In descending long steep grades, Low range, in combination with the hydraulic retarder, enables the driver to keep the truck under control with little or no help from the service brakes.

REVERSE (R). Smooth engagement of Reverse is made possible by the hydraulic drive and the constant mesh, planetary reverse gear set. The large reduction gives a powerful reverse drive.

With Powermatic, accurate application of engine power is as easy for the novice as it is for the experienced driver. The usually difficult job of starting on glare ice, for example, is reduced to depressing the accelerator pedal as gently as necessary to avoid spinning the wheels. The fluid smooth power application of the converter greatly supplements driver skill.

In rocking the truck out of deep ruts, quick advantage of vehicle momentum may be taken simply by running the engine steadily at a low speed, moving the selector back and forth between Drive and Reverse in time with the rocking motion.

For push starts, the selector lever is placed in Neutral until a vehicle speed of twenty-five miles per hour is reached, at which point the driver shifts into Drive range.

FEATURES

Driving medium and heavy-duty trucks requires a rather high degree of skill, as well as tedious manipulation. The actual worth of a conventionally equipped truck is largely determined by the driver's ability and willingness to use all the available performance aids as they were designed to be used.

Powermatic, in one compact package, offers the means of reducing the driver's skill requirement, the driving effort, hazardous distractions, the fuel bill, the portal-to-portal time and the down time - all of which have a direct bearing on the earning capacity of the vehicle.

The large number of optional equipment items offered in the medium and heavy-duty lines testify to the multiplicity of operating conditions to which these trucks must be adapted. This fact makes even more significant the versatility and ease of control with which Powermatic handles the wide variations in loads and routes peculiar to medium and heavy duty truck operation.

DRIVING EASE. Powermatic reduces driving to its simplest terms. In any range, the driver simply steps on the accelerator pedal to go and on the brake pedal to stop. The "automatic pilot" handles the details of delivering engine power matched to the demand as dictated by the driver through the accelerator. There can be no jerky starts or erratic shifting. The torque converter picks up the load smoothly and cushions the shifts. There are no power pauses from standstill to top speed.

PERFORMANCE. To realize the full potential of any internal combustion engine, the transmission must supply ratios between engine and drive line speeds that will allow the engine to operate within a relatively narrow speed range. Powermatic accomplishes this feat automatically and with a degree of accuracy that the most expert truck driver, manipulating conventional gears, would find extremely difficult to match.

The converter acts as an "infinitely variable" ratio starting gear. In full throttle acceleration from standstill, the converter allows the engine to reach its high output range quickly. There, in effect, it holds engine speed steady while the drive line catches up.

Torque multiplication is greatest where the need is greatest - at standstill. As vehicle speed increases and the need for multiplication diminishes, the converter approaches a one to one ratio. At this point, the converter locks out and the gears take over. Because the starting ratio range has been covered, the steps between mechanical ratios are small. Again the engine is allowed to drive through a very narrow speed range. From standstill, or when underway, Powermatic is uniquely equipped to utilize to the fullest the high output capacities of the new engines.

A truck's performance, or ability to regain road speed quickly after a slowdown, is important to an owner because it saves travel time. Important for the same reason is the hydraulic retarder feature - a Chevrolet Truck exclusive for highway vehicles. The speed at which a trucker may descend hills safely is considerably higher because braking is cushioned and easily controlled.

The combination of high acceleration and controlled deceleration tailors performance to the basic need - to maintain highway speeds a greater percentage of the travel time.

SAFETY. Because the driver has so few manual operations to go through and to think about, he is free to give his undivided attention to the road and traffic conditions. He is more relaxed and has quicker physical reactions in an emergency.

The cushioned braking action of the hydraulic retarder aids materially in preventing skidding. Because the use of the service brakes is so limited, the danger of brake "fade" or "grab" is virtually eliminated.

ECONOMY. Powermatic eliminates reliance on the driver's ability and willingness to match engine output to power demand. Engine performance is consistently smooth, unlabored and efficient.

The basic design concept is aimed at keeping the fuel bill low. The lockup clutch eliminates useless slippage in the converter at highway speeds.

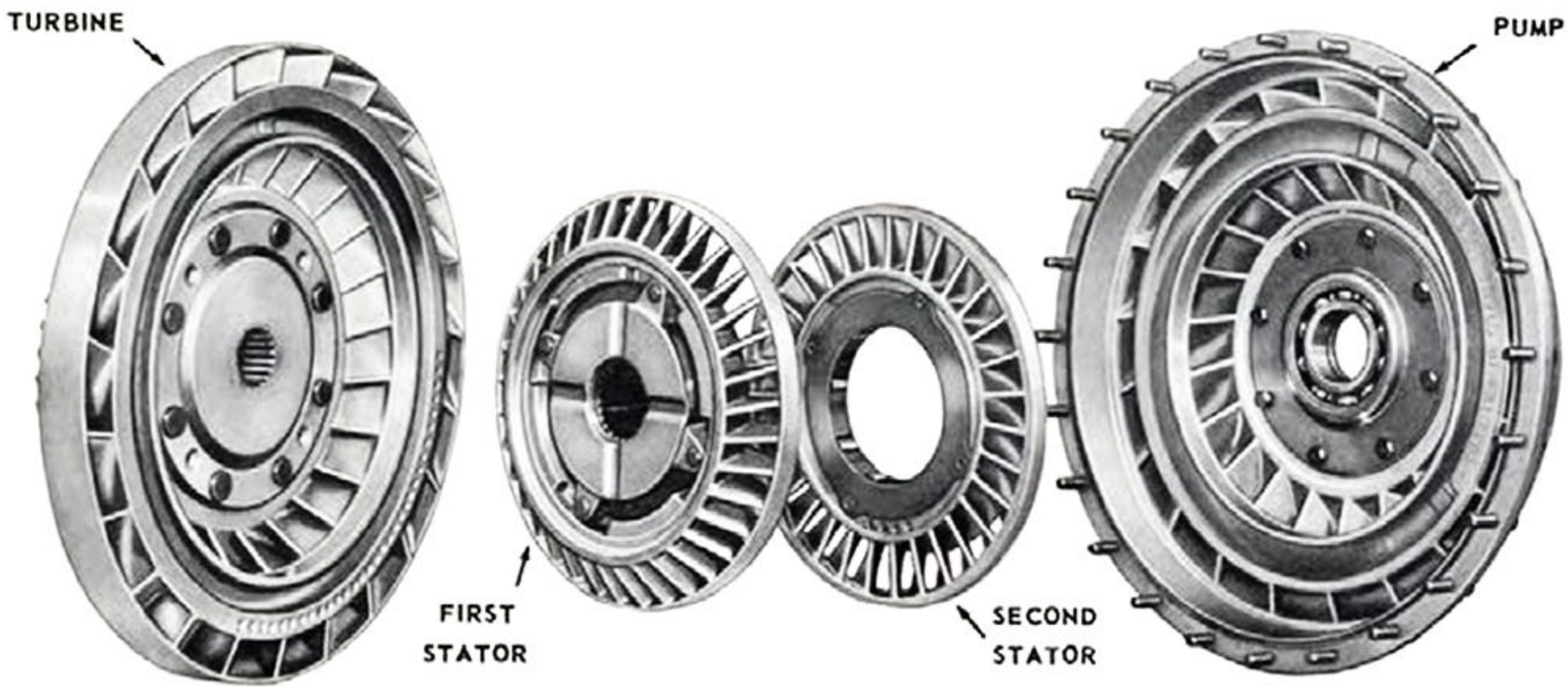
Further, because the converter is not assigned the additional function of serving as a direct drive fluid coupling, it is designed for high efficiency as a torque multiplier only. High efficiency continues through the gears because the steps are small and the ratios automatically and accurately selected.

Maintenance cost and down time are reduced to minimum. Periodic conventional clutch maintenance is eliminated. The all self-compensating clutch design precludes periodic band adjustments. Because all moving parts operate in a continuously circulating bath of oil, mechanical wear is no problem. Gear clashing is impossible since all gears are in constant mesh. The governors, unlike centrifugal types, cannot stick because they have no moving parts.

The durability gains are not confined to the transmission. Erratic shock loads caused by inexpert gear shifting are absent. Because engine loads are accurately and smoothly applied, not only is the fuel bill lower but engine life is prolonged.

The life of the service brakes is increased in proportion to the use the hydraulic retarder gets. Tests prove that in some applications brake life can be increased by as much as 200 to 300 per cent.

A conventional transmission continually demands the driver's attention, physical effort and time to execute the shifts. By eliminating these demands and placing easier, more accurate uphill and downhill control at the driver's disposal, Powermatic gives the most basic economic advantage - the ability to cover more territory in less time.



THE TORQUE CONVERTER

The torque converter serves three fundamental purposes. At idle, because its transmission efficiency is zero, it disconnects the engine from the driveline. In starting from standstill, it applies engine power smoothly. In performing these two functions, the converter replaces the conventional clutch pedal. Its third basic function is that of a variable ratio torque multiplier.

The torque multiplication action could be likened to that of two gears -- a small one, driven by the engine, meshing with a large one connected to an output shaft. Then, to allow the engine to drive at its optimum operating speed for the load encountered while the output shaft speed catches up, the small gear would have to increase in size gradually while the large gear decreased until both gears became the same size. This, in effect, is what the converter accomplishes hydraulically.

The torque converter consists of four members: a driving member, or pump; a driven member, or turbine; and two reaction members called stators. The torque converter pump is bolted to the turbine cover, forming an oil filled enclosure within which the turbine and stators operate.

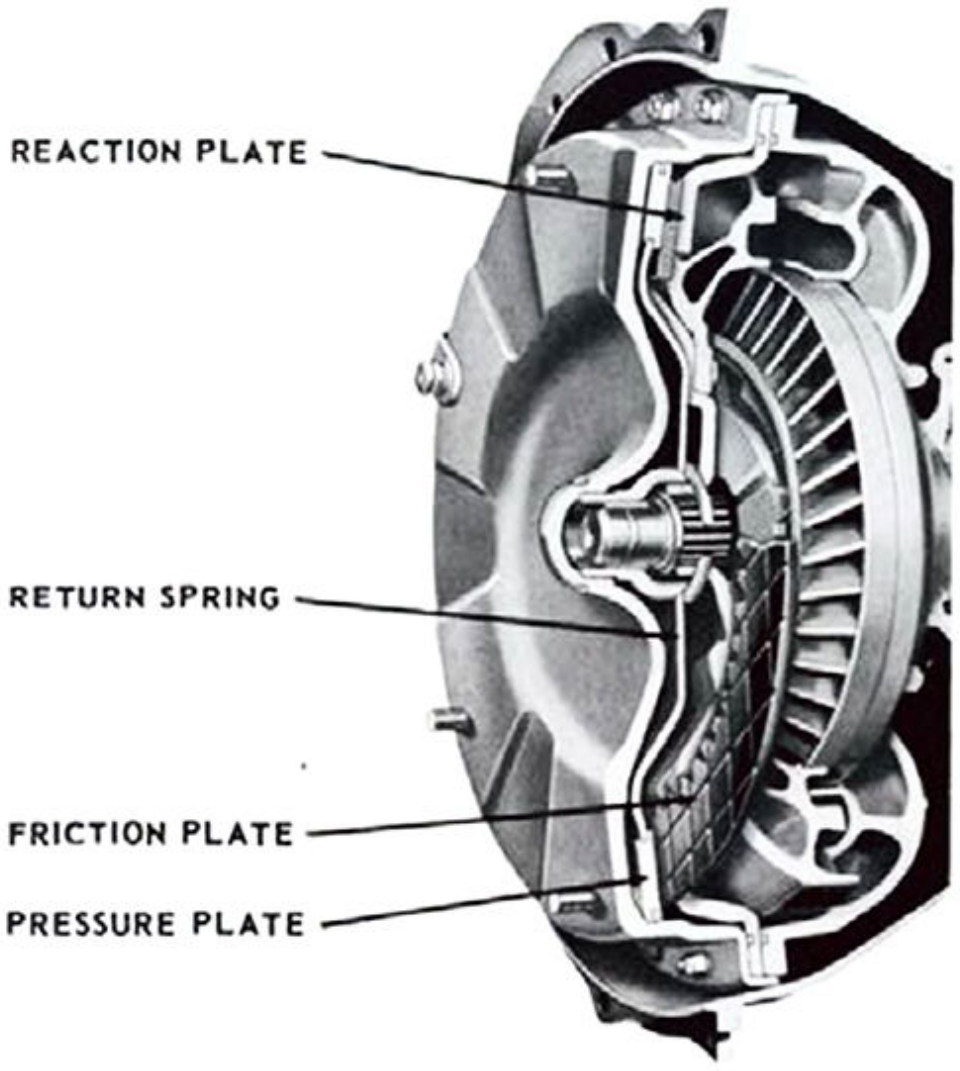
As the engine-driven pump turns, it imparts centrifugal force to the oil within its cells. The oil moves radially outward with sharply increasing force as engine speed increases. The oil enters at the outer extremity of the concave vanes of the turbine, gives up part of its energy to drive the turbine and leaves at the inner end of the vanes. If the oil were allowed to go to the sump, its remaining energy would be wasted. If it were aimed directly back at the pump, its energy would be spent in opposing pump rotation. The stators, therefore, are contoured to receive the oil leaving the turbine and turn it around so that it re-enters the pump smoothly and in the driving direction. There it joins forces with oil receiving its initial energy from the pump to drive the turbine.

The flow described so far, called vortex flow, is responsible for the torque multiplication that takes place. Vortex flow simply transforms engine power from its characteristic torque and speed form to a higher torque, lower speed form.

As the speed of the driven turbine increases, it too, begins to impart centrifugal force to the oil within its cells. At low vehicle speeds, the force is not enough to stop vortex flow but it does tend to slow it down. As vehicle speed increases, turbine resistance to vortex flow increases and multiplication dimishes until finally vortex circulation virtually ceases. When this happens, the oil in the pump and turbine is revolving almost as a unit or a fluid flywheel.

The reason for having two stators mounted on one-way free-wheeling clutches is to broaden the efficiency range. The entrance angle of the first stator is designed for maximum efficiency at very low turbine speed. Beyond that speed, the oil actually strikes the back of the vanes. The first stator then moves out of the way and allows the second stator to direct the oil. When the turbine and pump approach a one to one ratio, the second stator also free-wheels. As the unit begins to function as a fluid coupling, the converter locks out.

In many torque converter applications, the unit is designed to function efficiently both as a torque multiplier and a direct drive torque transmitter. This involves many design compromises in the angles and curvature of the vanes. Because the Powermatic converter is designed as a multiplier only, the necessary compromises are reduced and the efficiency, consequently, is high.



LOCKUP CLUTCH . . .

The hydraulically-actuated lockup clutch is located between the turbine and the converter cover. The clutch piston is a shrink fit on its own diaphragm return spring.

When operating in converter, the clutch piston is held out of engagement both by its return spring and the hydraulic forces within the converter. At a predetermined turbine speed, oil from the front governor moves a lockup valve against a spring. This opens an oil passage to the clutch piston cavity. At the same time it effects a reduction in the hydraulic forces tending to keep the clutch disengaged. The rate of fill of the piston cavity is timed to give a smooth, "feathered" engagement.

When the accelerator pedal is depressed past the full throttle position, the lockup valve spring is assisted, so that a higher governor speed is required to effect lockup. This arrangement automatically keeps the converter in operation up to a higher vehicle speed whenever the driver deems it advisable.

To take full advantage of the shock cushioning effect of the converter during gearshifts, the circuit is also arranged to trip the lockup valve and momentarily drain the clutch piston cavity.

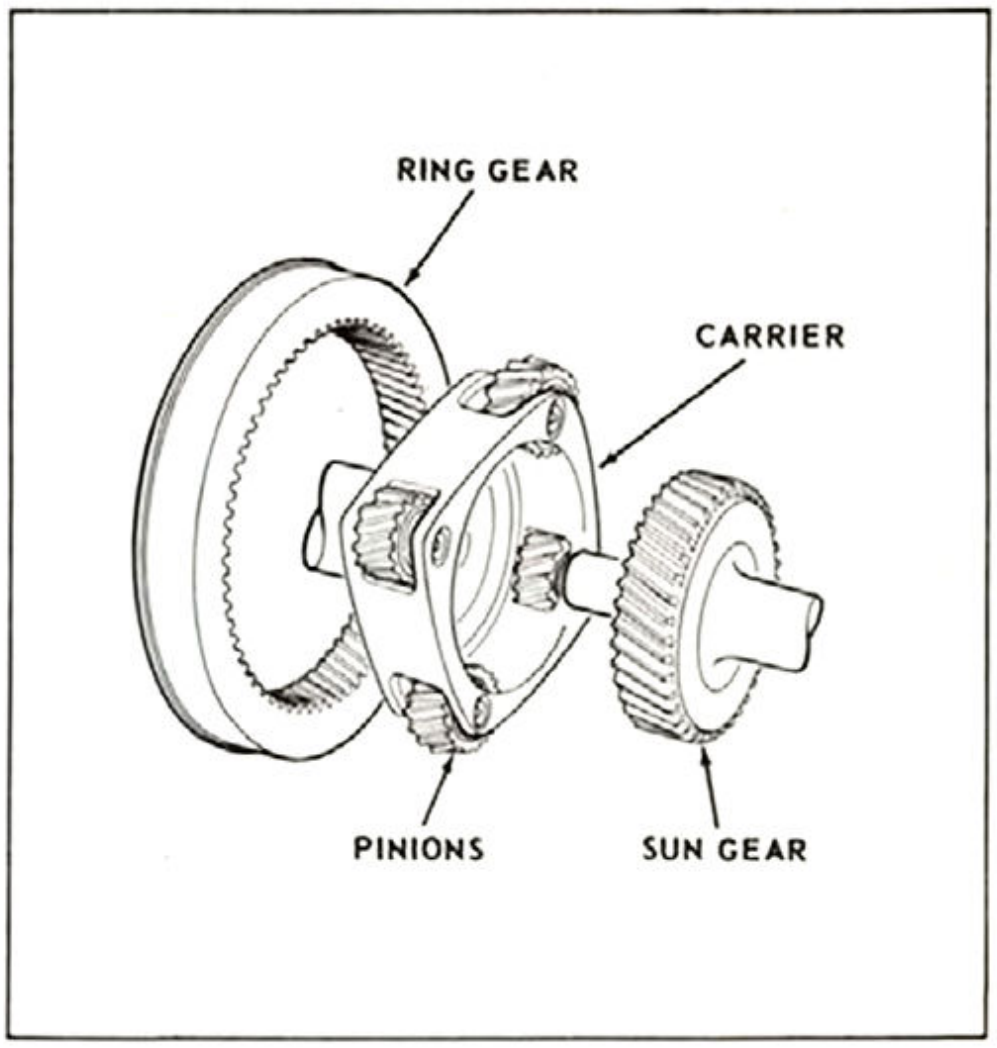
THE POWER TRAIN

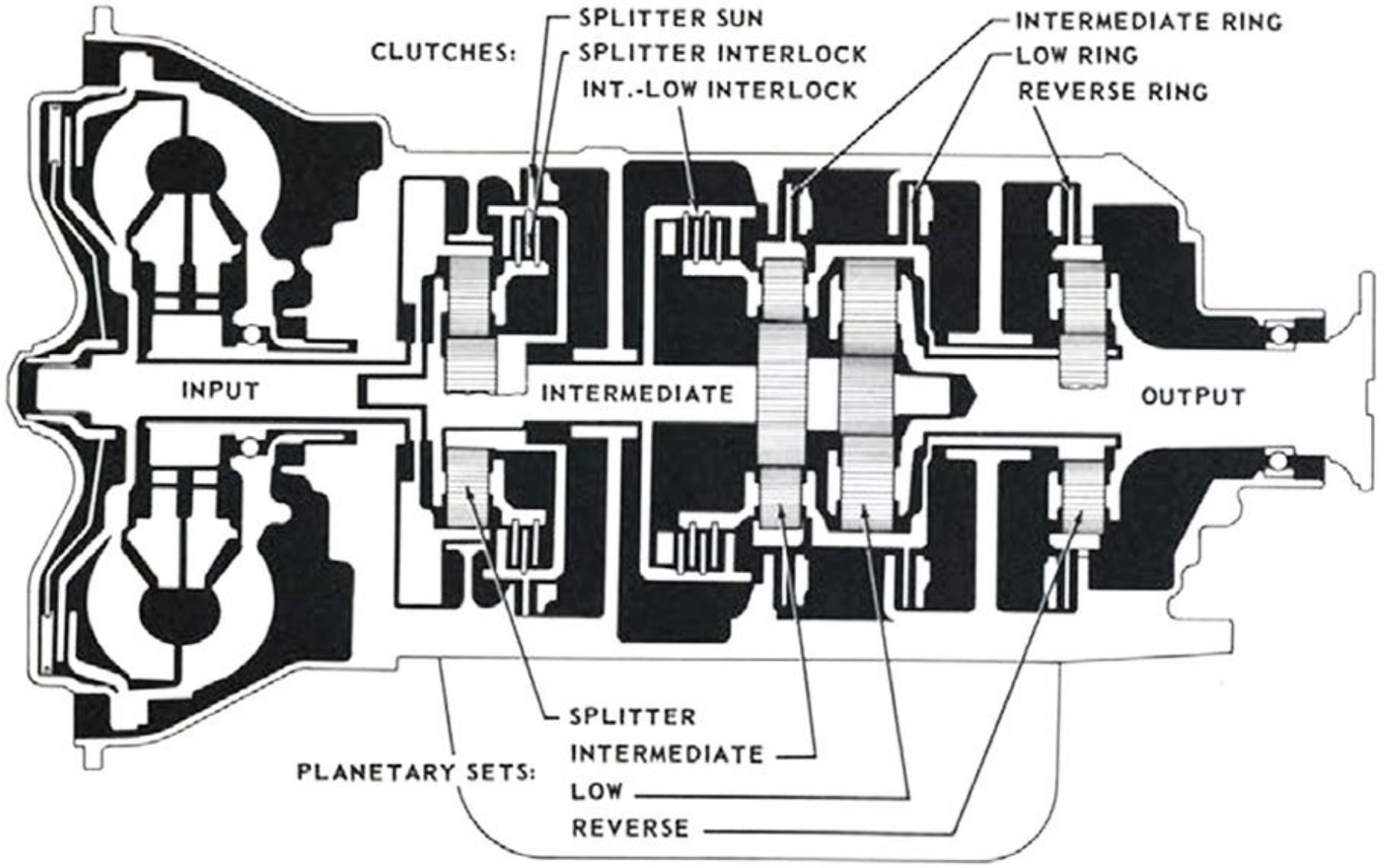
The all constant mesh planetary gear system makes the full power shifting feature possible.

To execute conventional shifts, the engine must be disconnected from the driveline long enough to permit teeth rotating at different speeds to be synchronized and slid into engagement. The necessary power interruption allows the vehicle to coast and lose momentum. In upshifting when traveling uphill, for instance, vehicle slow down can be great enough to make the upshift impractical.

In Powermatic, ratio changes are accomplished by engaging and disengaging clutches to which the individual members of the planetary sets are attached. Engine power is continuously applied to the driveline while the ratio changes take place. The shock of power shifts is cushioned through the converter fluid and the smoothly applied clutches.

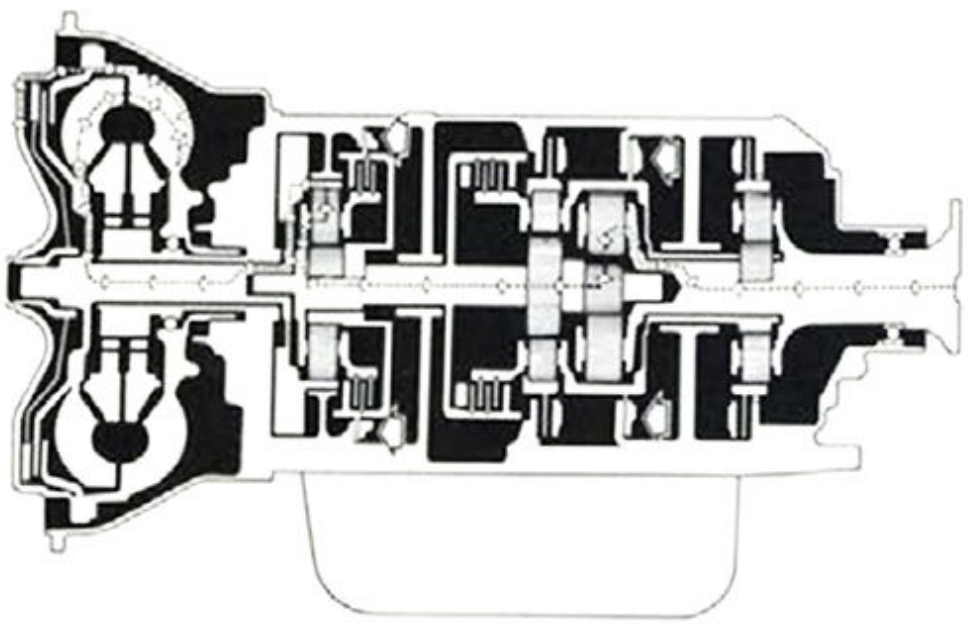
The transmission employs four simple planetary sets, each consisting of three members. A sun gear in the center meshes with four equally spaced planet pinions which, in turn, mesh with a surrounding ring gear. The pinion shafts are attached to a common carrier. How power is transmitted through the train depends upon how the members are controlled with respect to each other.





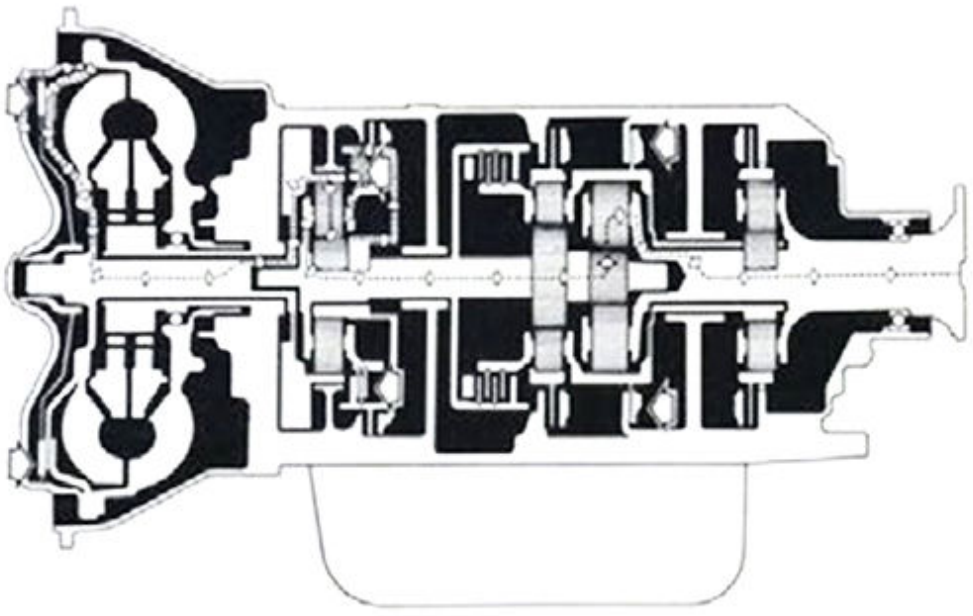
NEUTRAL. With the engine idling, converter efficiency is extremely low. However, the small energy transfer that does take place from driving to driven torus member, drives the transmission input shaft and the Splitter ring gear. The Splitter sun gear is held stationary by its clutch. The planet pinions, therefore, are forced to walk around the sun gear. In so doing, they carry the intermediate shaft around at a speed lower than that of the input shaft.

At this point, because there are no further reaction members, nothing stationary to push against, the power path is interrupted. The two sun gears splined to the intermediate shaft drives the planet pinions but, since the Low carrier is held by the output shaft, the Low pinions simply idle and drive their ring gear and the Intermediate carrier in the opposite direction. The purpose of engaging the Splitter sun gear clutch is to supply a drive for the power take-off gear on the intermediate shaft.



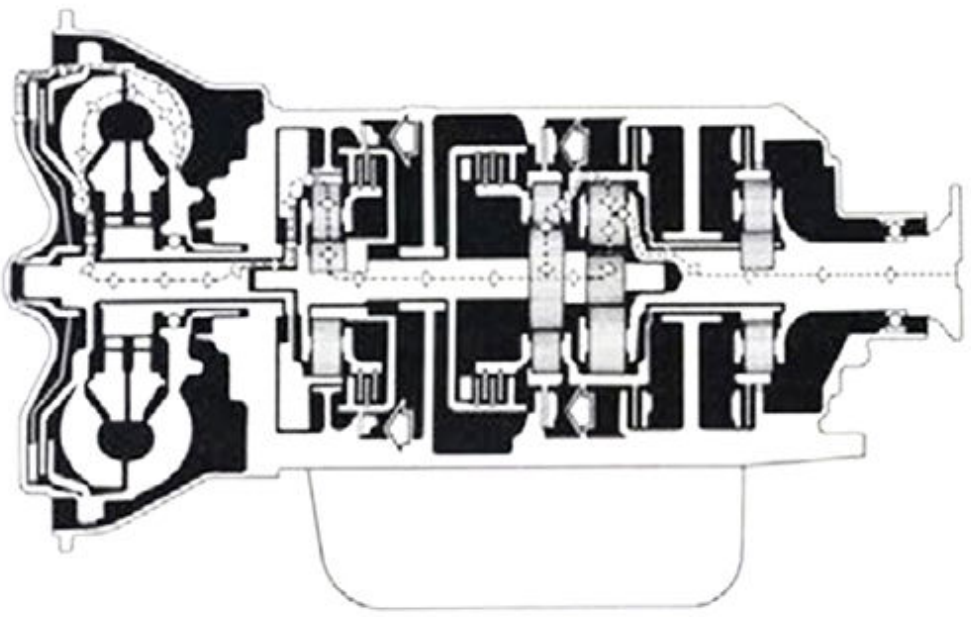
CLUTCHES ENGAGED: SPLITTER SUN, LOW RING
RELEASED: ALL OTHERS

FIRST. Engine power is delivered through the converter to the input shaft. With the sun gear held as in Neutral, speed is reduced and torque multiplied through the Splitter set to the intermediate shaft. The Low sun gear drives the Low pinions which, in turn, tend to drive the ring gear in the opposite direction. Since the ring gear is held stationary by its clutch, the pinions walk around the sun gear and pull their carrier and the output shaft at a reduced speed. Torque is multiplied in the same proportion that speed is reduced.



CLUTCHES ENGAGED: SPLITTER INTERLOCK, LOW RING
RELEASED: ALL OTHERS

SECOND. Drive is taken through the lockup clutch to the input shaft. Since the Splitter sun gear and planet carrier are locked together, no member can rotate with respect to another. All, therefore, revolve together in direct drive. Torque multiplication through the Low planetary occurs as it does in first speed.

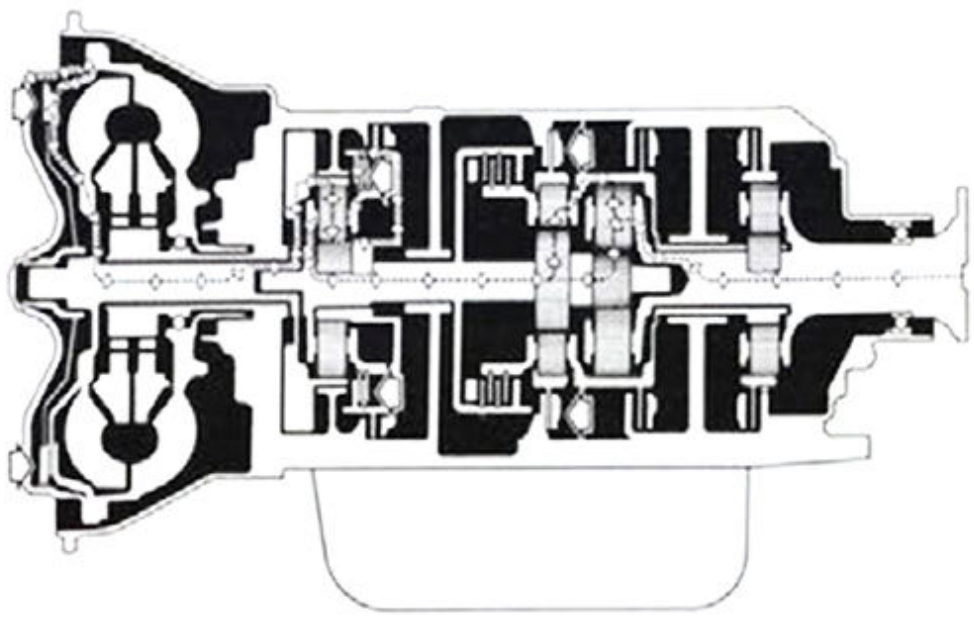


CLUTCHES ENGAGED: SPLITTER SUN, INT. RING
RELEASED: ALL OTHERS

THIRD. Engine torque is multiplied through the converter, or transmitted unchanged through the lockup clutch, to the input shaft. Torque is multiplied through the Splitter set to the intermediate shaft.

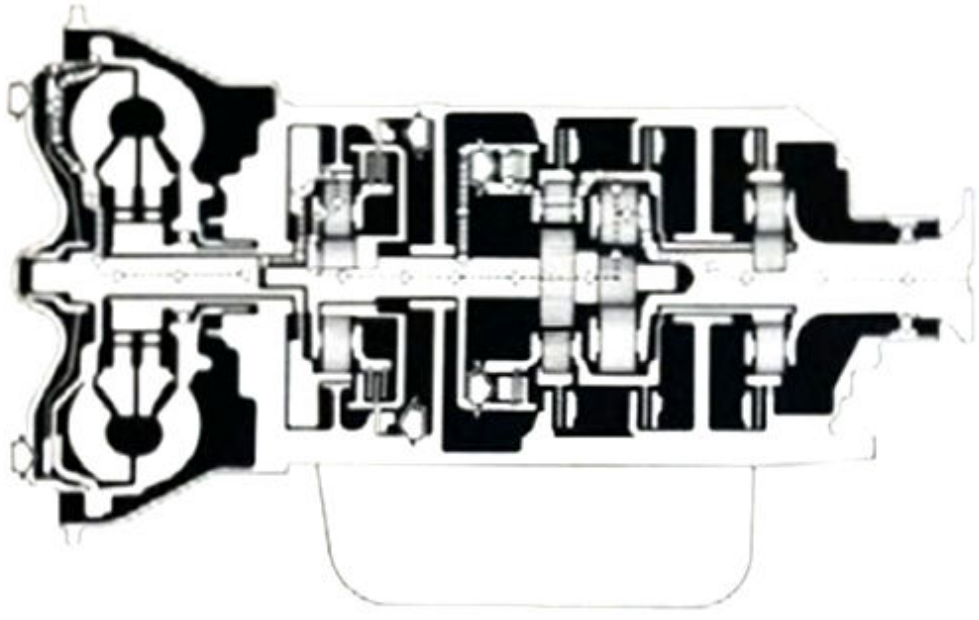
The intermediate shaft then drives the Intermediate sun gear which, in turn, drives the Intermediate pinions. Since the ring gear is held, the Intermediate pinion carrier and the Low ring gear to which it is attached, rotate in the same direction at a lower speed.

The Low pin gears thus are driven both by the Low sun gear and, at a lower speed, by the Low ring gear. The Low pinion carrier and output shaft, therefore, must rotate at a speed greater than that of the ring gear but lower than that of the sun gear. The exact speed relationship, and therefore torque multiplication is established by the gear ratios of both sets.



CLUTCHES ENGAGED: SPLITTER INTERLOCK, INT. RING
RELEASED: ALL OTHERS

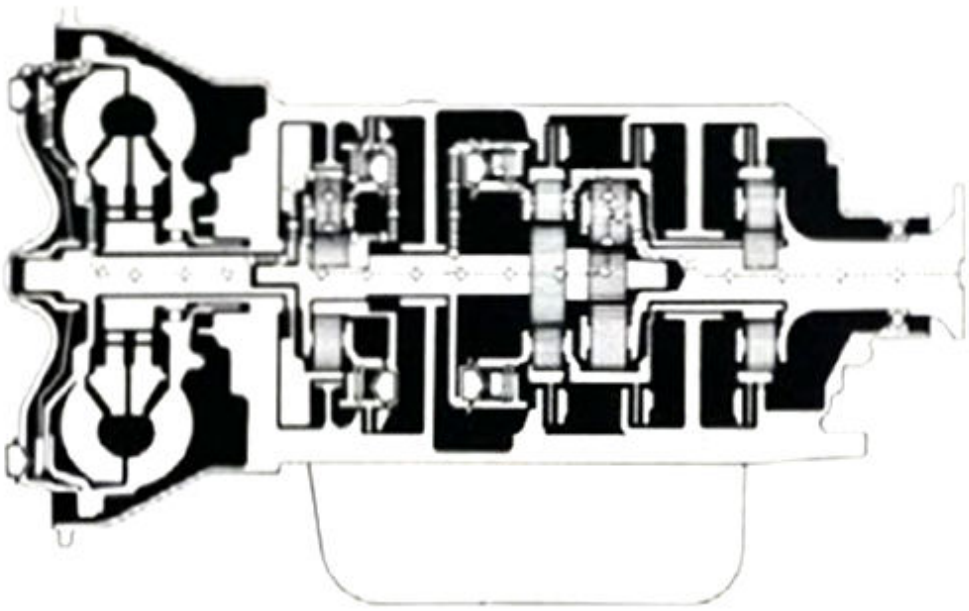
FOURTH. With the interlock clutch engaged, the Splitter planetary members rotate as a unit in direct drive. Total reduction occurs in the Intermediate and Low sets, the action being identical to that in third speed.



CLUTCHES ENGAGED: SPLITTER SUN, INT.-LOW INTERLOCK
RELEASED: ALL OTHERS

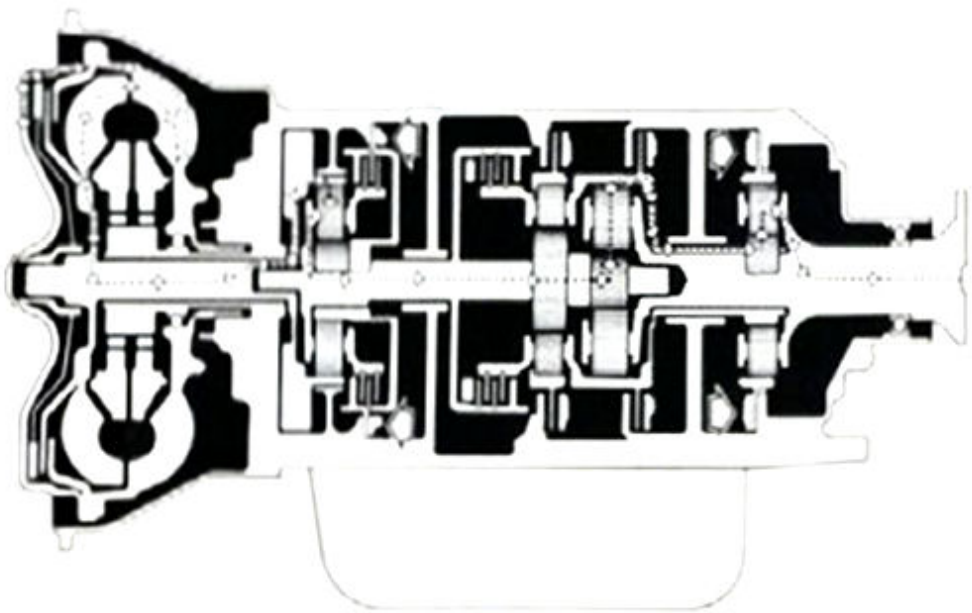
FIFTH. As in first and third speeds, with the Splitter sun gear held, the intermediate shaft is driven at a reduced speed.

Since the intermediate sun gear is locked to the intermediate carrier and the Low sun gear is locked to the Low ring gear, both sets revolve as a unit. The total reduction, therefore, takes place in the Splitter set.



CLUTCHES ENGAGED: SPLITTER INTERLOCK, INT.-LOW INTERLOCK
RELEASED: ALL OTHERS

SIXTH. Since no planetary members are free to rotate with respect to the others, drive is direct from the input shaft, through the intermediate shaft, to the output shaft.



CLUTCHES ENGAGED: SPLITTER SUN, REVERSE RING
RELEASED: ALL OTHERS

REVERSE. Torque delivered to the intermediate shaft is multiplied by both the torque converter and the Splitter set.

The action that follows is perhaps best visualized by considering the output shaft and therefore the Low planetary carrier as momentarily held by the propeller shaft.

The Low sun gear, then, drives the pinions which, in turn, drive the Low ring gear in the opposite direction. This reverse rotation is transmitted by direct mechanical connection to the Reverse sun gear. Since the Reverse ring gear is held, the sun gear drives the pinions, their carrier, and the output shaft in the same reverse direction at a lower speed.

The reverse rotation thus transmitted to the Low carrier confirms the assumed "idler" rotation of its pinions and agrees with its action as the "held" or reaction member of the Low planetary set.

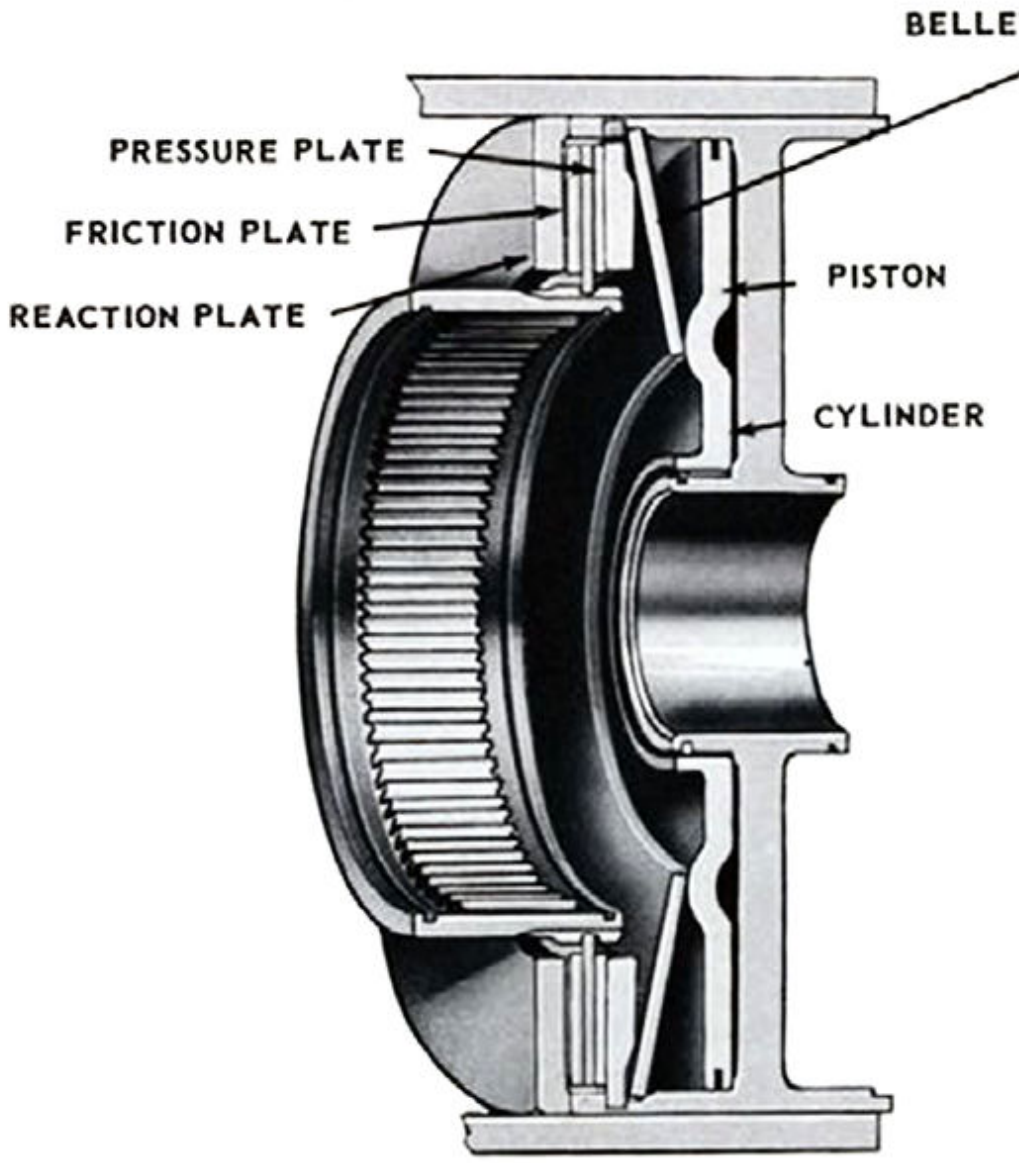
RANGE CLUTCHES

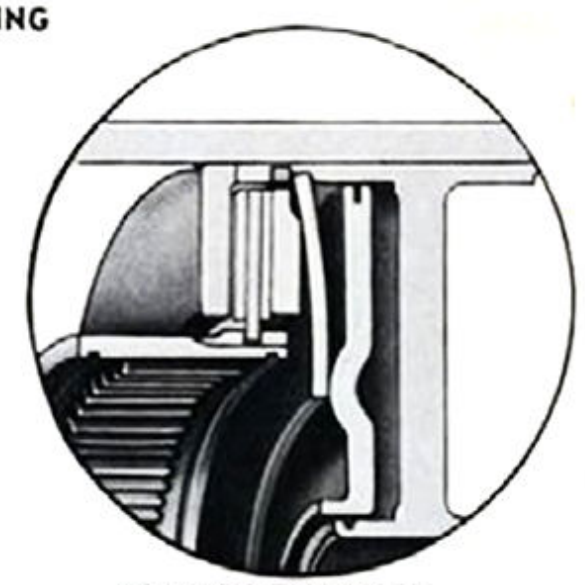
The use of all-clutch control has many unique advantages over the usual band and clutch arrangement. A significant customer advantage is the fact that because clutch loads are always uniformly distributed, the clutch friction surfaces wear better. Moreover, since the clutches are not mechanically actuated, no mechanical adjustments are ever necessary. The oil pressure against the piston is independent of wear and, consequently, the clutches are completely self-compensating.

Clutches, unlike bands, are equally effective in either direction. This characteristic alone makes them ideally suited to meet the additional reverse holding requirement imposed by the retarder. The absence of self-energizing action, characteristic of band engagement, makes clutch engagement inherently smoother. Moreover, because clutch loads are co-axial, they have no tendency to exert bending forces on the shafts. Thus gear tooth loading is uniform across the face of the teeth and bearing wear is reduced.

The all-clutch design also lends itself to a "polar lever" arrangement that produces high torque on a single plate clutch using reasonably moderate oil pressures. The polar lever is actually a diaphragm spring slightly pre-loaded to hold the clutch out of engagement. During application, the force of the apply piston acts at the internal diameter of the spring. Using the case anchor surrounding the outside diameter of the spring as fulcrum, the piston forces the spring to act against the back of the clutch pressure plate at a short distance from the fulcrum. The lever advantage is such that to hold the Low ring gear, for example, requires less than one quarter of the hydraulic pressure required for a direct-acting piston.

Applying the clutches through springs has the added advantage of giving a feathered application. By releasing its stored energy, the spring also gives a clean disengagement. All clutch friction surfaces are non-metallic type with a high coefficient of friction to give a high capacity in a small area.





CLUTCH ENGAGED

HYDRAULIC CONTROL SYSTEM

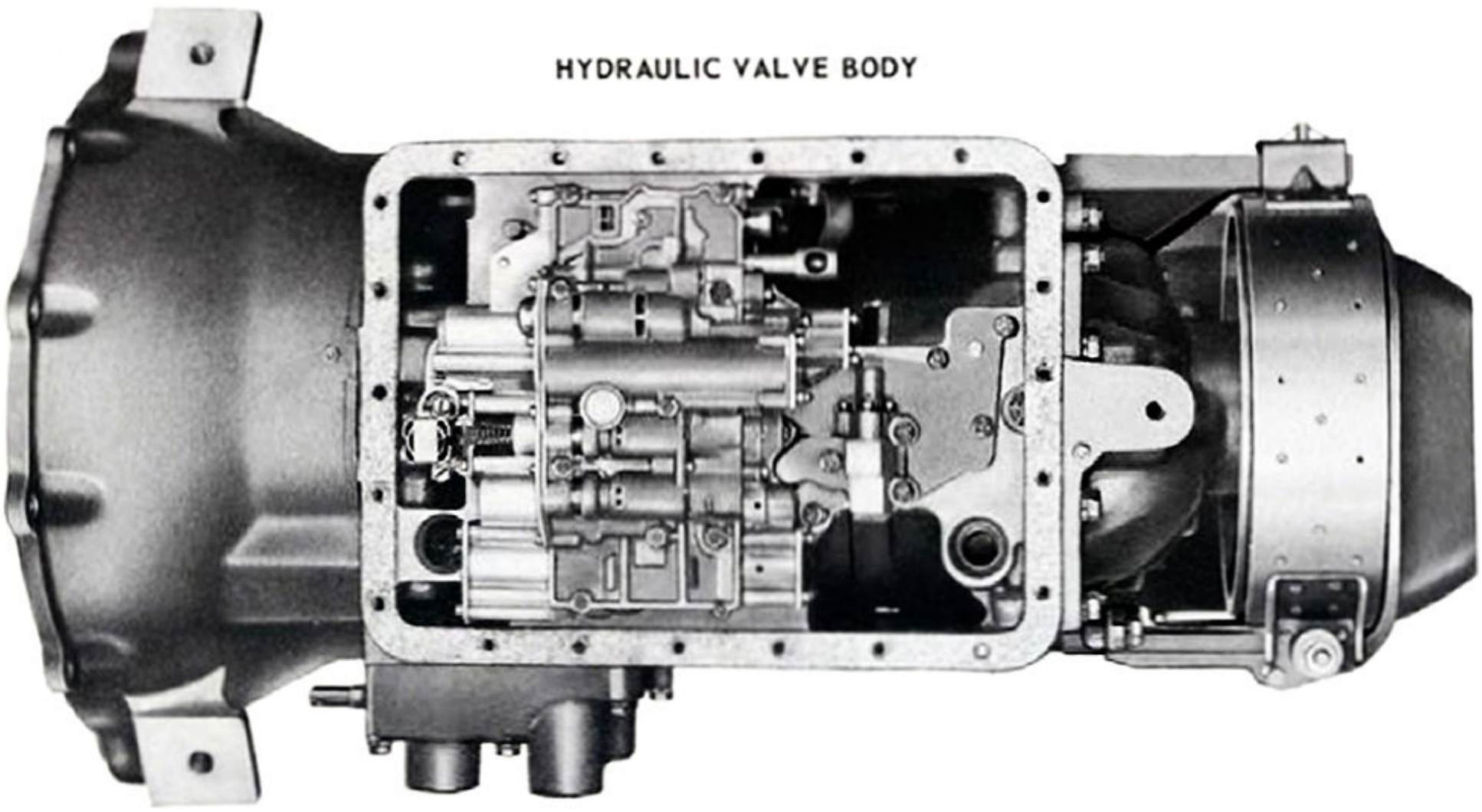
What the converter and the planetary gears make possible, the hydraulic control system carries out--completely automatic shifting.

The system is designed to "sense" the factors that determine the advisability of operating in a particular gear ratio, and whether the converter should be working or locked out. It then accurately synchronizes the engagement and release of the control clutches to produce smooth, positive shifts to meet each driving situation as it arises.

The clutches are actuated by means of oil pressure against spring loaded pistons. To develop, regulate and direct the necessary pressures, the following basic components are included:

UNITS	FUNCTION
Front and Rear Pumps	Develop hydraulic pressure Supply oil to converter and hydraulic retarder Provide pressure lubrication Force oil circulation
Valve Body	Provides oil distribution passages Houses control valves
Pressure Regulator	Determines mainline pressure level
Manual Valve	Selects hydraulic operation by range
Shift Valves	Control oil passages to clutches
Governors	Provide speed sensitive oil pressure for shift valves
Throttle Valve	Provides load sensitive oil pressure for shift valves
Clutch Pistons	Actuate the clutches

HYDRAULIC VALVE BODY



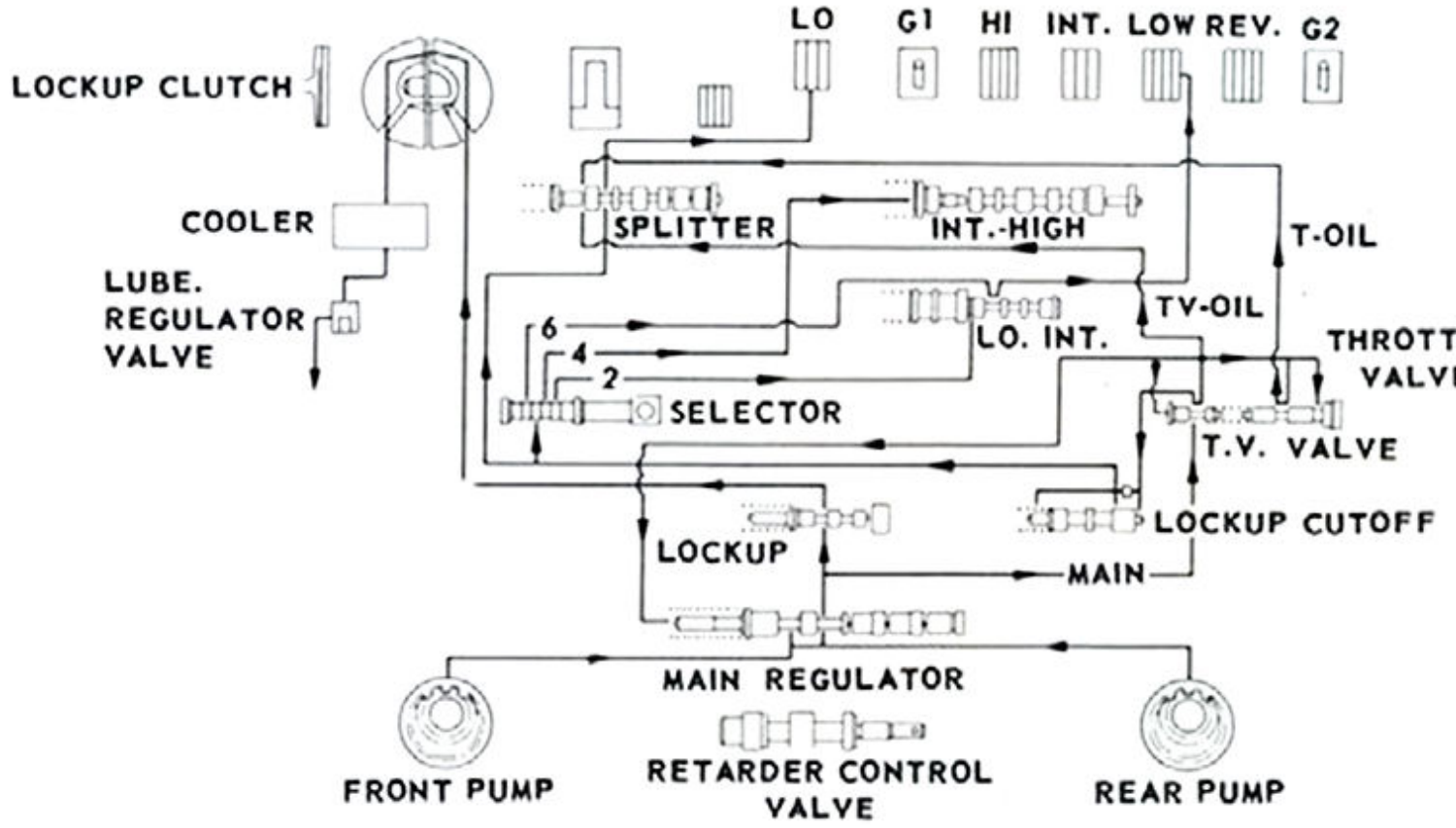
BASIC CIRCUIT

In its simplest form, a control circuit has few components. A manual selector valve passes oil from the pumps to the shift valves. Its purpose is to permit only those shift valves to move that are involved in the drive range selected by the operator. The shift valves in the range selected are held shut by springs so that they block oil passages to the control clutches until they receive information that a shift should take place. This information comes in the form of two separate variable regulated oil pressures, one tending to open the shift valve, the other tending to hold it closed. When the force tending to open the shift valve overcomes the opposing forces, the valve moves and uncovers a passage through which mainline oil passes to the range clutch cavities to complete the mechanical shift.

The oil pressure tending to move the shift valve is governor regulated and increases in direct proportion to vehicle speed. The stiffness of the shift valve spring establishes the lowest speed at which a shift takes place. With governor pressure alone, all shifts would occur at the same low truck speed.

To satisfy the wide range of performance demands, the second variable oil pressure is created by a throttle regulator valve. Because the need for a higher shift point coincides with the need for greater engine output, the regulator is designed to translate accelerator pedal movement into oil pressure of corresponding magnitude. This pressure assists the shift valve spring in delaying the shift.

TYPICAL CONTROL CIRCUIT ACTION



TYPICAL VALVE ACTION . . .

With the manual selector valve in Low range and the engine driving at full throttle through the converter, oil from the front and rear pumps is directed to the main regulator valve where mainline pressure is adjusted to meet the existing requirements.

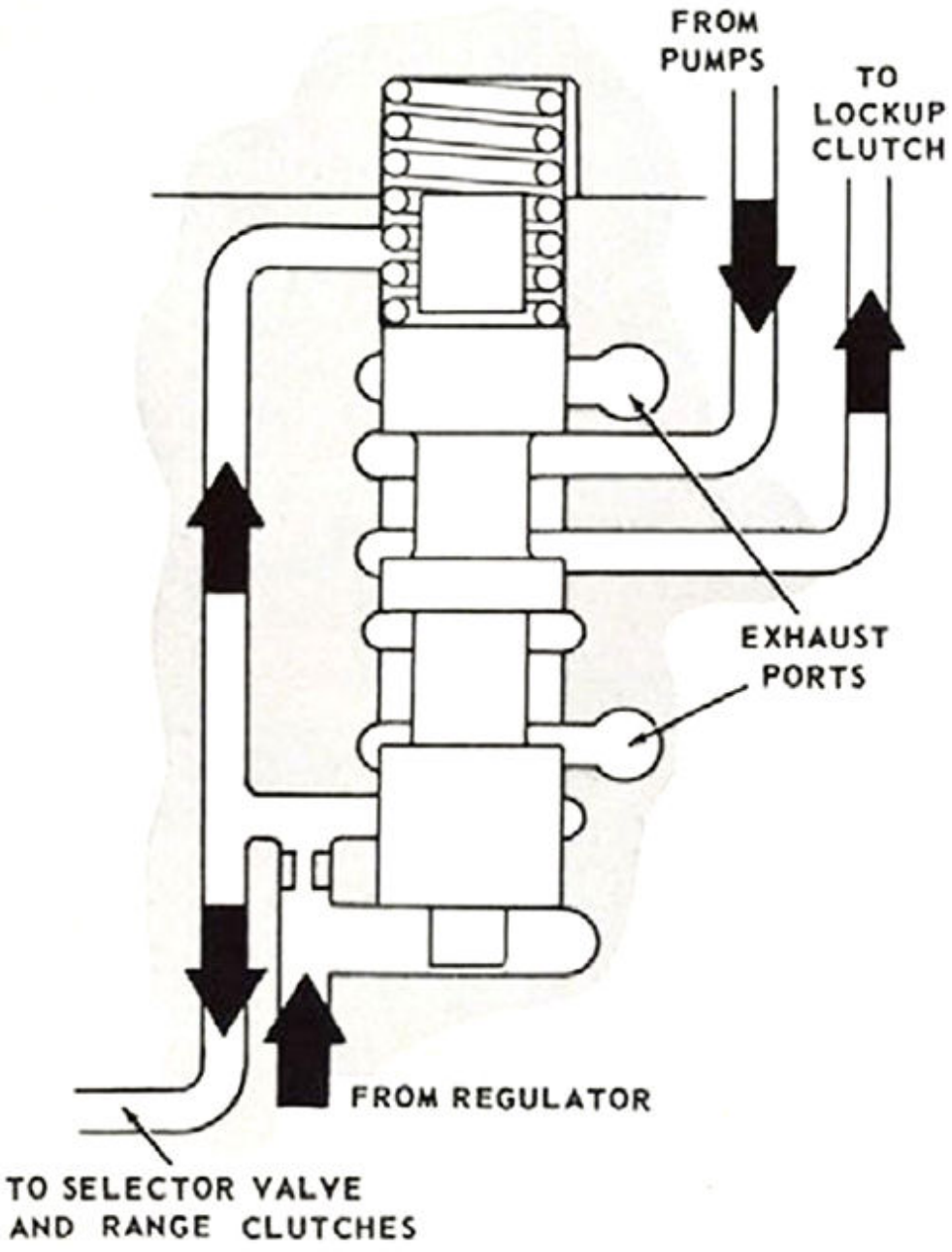
Oil under mainline pressure then follows one path through the throttle regulator valve to the lockup cutoff valve, through an orifice to both the splitter valve and the selector valve. The selector valve directs the oil into lines numbered 2, 4, and 6. The splitter valve directs the oil into the Low splitter clutch cavity.

Number 2 line pressure enters between the splitter relay valve and the Low-Intermediate shift valve, moving them apart against spring pressure. Number 4 line pressure inhibits movement of the Intermediate-high shift valve. Number 6 line pressure acts upon the Low-Intermediate shift valve, which has been moved by Number 2 pressure, and is directed into the Low gear piston cavity.

The converter charging oil is supplied by the main pressure regulator valve through the lockup clutch valve.

The mainline oil entering the throttle regulator valve is also used to create an oil pressure proportional to throttle opening. This TV pressure acts against the main regulator valve to increase the mainline pressure level so that clutch holding force is increased according to need. It is also used to hold the splitter valve and the Intermediate-high shift valves in their proper position to make possible transmission operation in first gear.

Because this is full throttle operation, the throttle valve is moved to its extreme position which opens an additional path for TV oil. The pressure level of this T oil is equivalent to the maximum reached by TV oil. When the splitter valve and the Intermediate-high valve are in the upshift position, this T oil acts on valve area cut off from TV oil.



LOCKUP CUTOFF VALVE ACTION . . .

To simplify the explanation of the hydraulic system, only those valves necessary to basic operation have been considered. The quick, smooth response to every driving situation requires a system considerably more complex than that described.

The main regulator valve, for instance, controls main line pressure at various levels depending upon which gear the transmission is in, the position of the throttle and whether or not the hydraulic retarder is in operation. The rate of fill and the rate of exhaust of the clutch apply pistons are also independently controlled to suit the variable conditions such as forced downshifts, and closed throttle, part throttle or full throttle upshifts.

Typical of the ingenuity displayed in the myriad hydraulic circuits is that found in the lockup cutoff valve arrangement.

So that advantage may be taken of the fluid cushioning effect of the torque converter, the lockup clutch is momentarily disengaged during gearshifts. The lockup cutoff valve, a simple but foolproof device, accomplishes this with automatically accurate timing and, at the same time, aids in giving a smooth, "feathered-in" engagement of the range clutches.

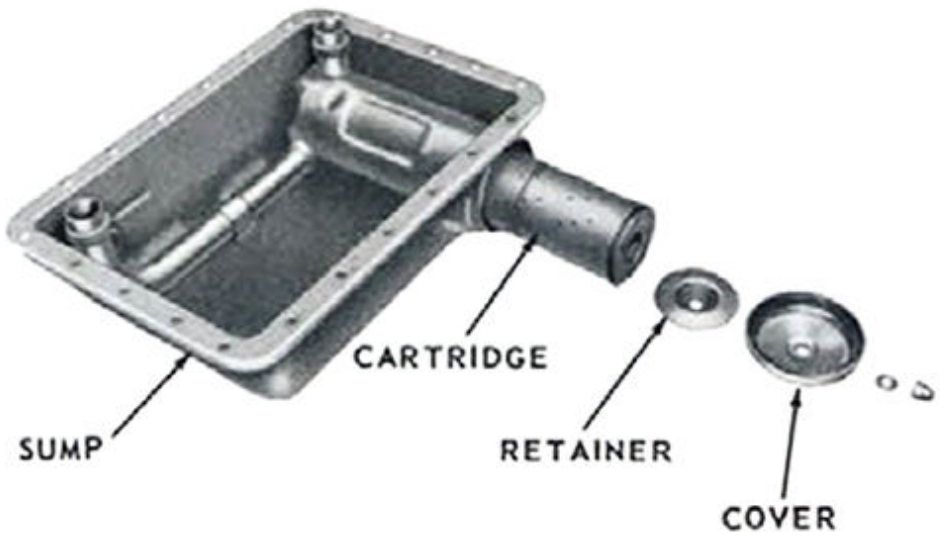
The oil sent to actuate any of the range clutches to effect a shift must first pass through a metered orifice in parallel with the lockup clutch cutoff valve. As a result, the piston cavity of the clutch, or clutches, being applied fill gradually. One end of the cutoff valve therefore feels full line pressure while the far end feels a low pressure. The pressure differential forces the cutoff valve against its spring. This uncovers an exhaust port which dumps lockup oil to the sump.

When the range clutch cavities are completely filled, flow stops and the pressure rises on the far end of the cutoff valve. The spring then returns the valve to its original position and the lockup clutch re-engages.

OIL FILTER . . .

The full-flow oil filtering system has a disposable cartridge located in the sump pan. The filter is removable simply by removing one nut on the oil pan cover.

In automatic transmissions, the absence of contaminants in the oil takes on new significance. Impurities not only increase wear, but, because of the close clearances in the control system, very often cause malfunctioning of the valves. By isolating these impurities for periodic removal, the filter promotes long, trouble free life for the transmission.



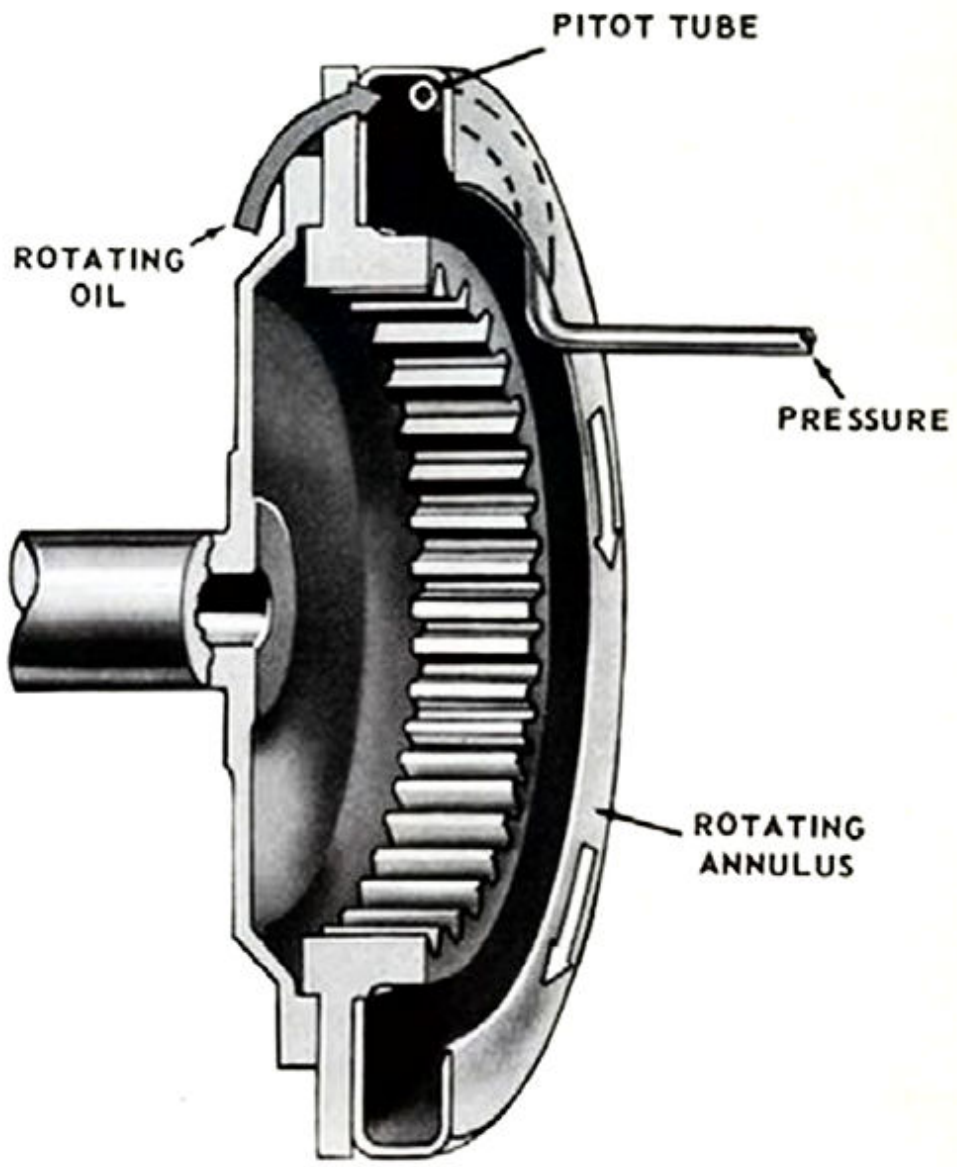
GOVERNORS . . .

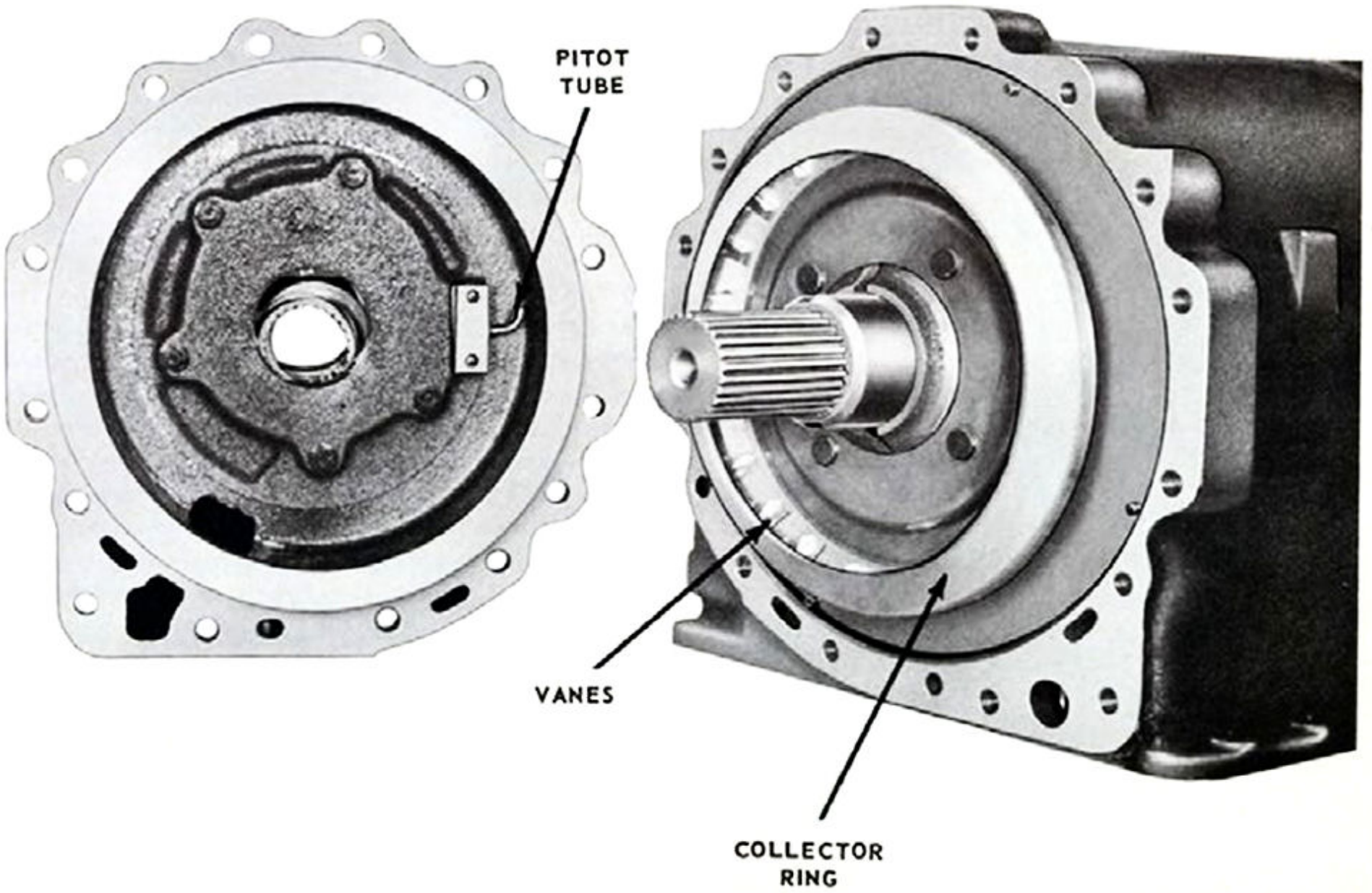
The shift schedule is influenced by "speed sensitive" oil pressure from the front and rear governors.

The front governor is driven at Intermediate shaft speed, and controls the lockup shift in all ranges, and the first-to-second gearshift in Low range. Whenever it is acting to effect a shift, therefore, the front governor is driven at turbine speed times the reduction of the splitter set. The rear governor, attached to the output shaft, delivers the vehicle speed message on all subsequent shifts.

A circular vaned collector driven, in the case of the rear governor, by the output shaft, carries with it a rotating ring of oil. This oil is driven against the open end of a pitot tube leading down to the rear governor oil passages in the valve body. Because the pitot tube is stationary, the velocity of the oil at the point of contact is reduced to zero. The pressure rise caused by stopping the oil and the centrifugal pressure caused by the weight of the rotating oil are both proportional to the square of the speed of rotation. As is the case with centrifugal governors, at shifting speeds, this is virtually a straight line function and, as a result, can be accurately calibrated in terms of vehicle speed.

The value of this type of governor lies in its mechanical simplicity. The absence of "shuttle" valve action precludes sticking or malfunction of any kind. Further, the unit is just as accurate in cold oil as it is after the oil warms up. Another advantage is that because practically the only cause of erratic functioning of the governors would be a low oil level, they also serve to warn the driver of an impending danger.





THE HYDRAULIC RETARDER

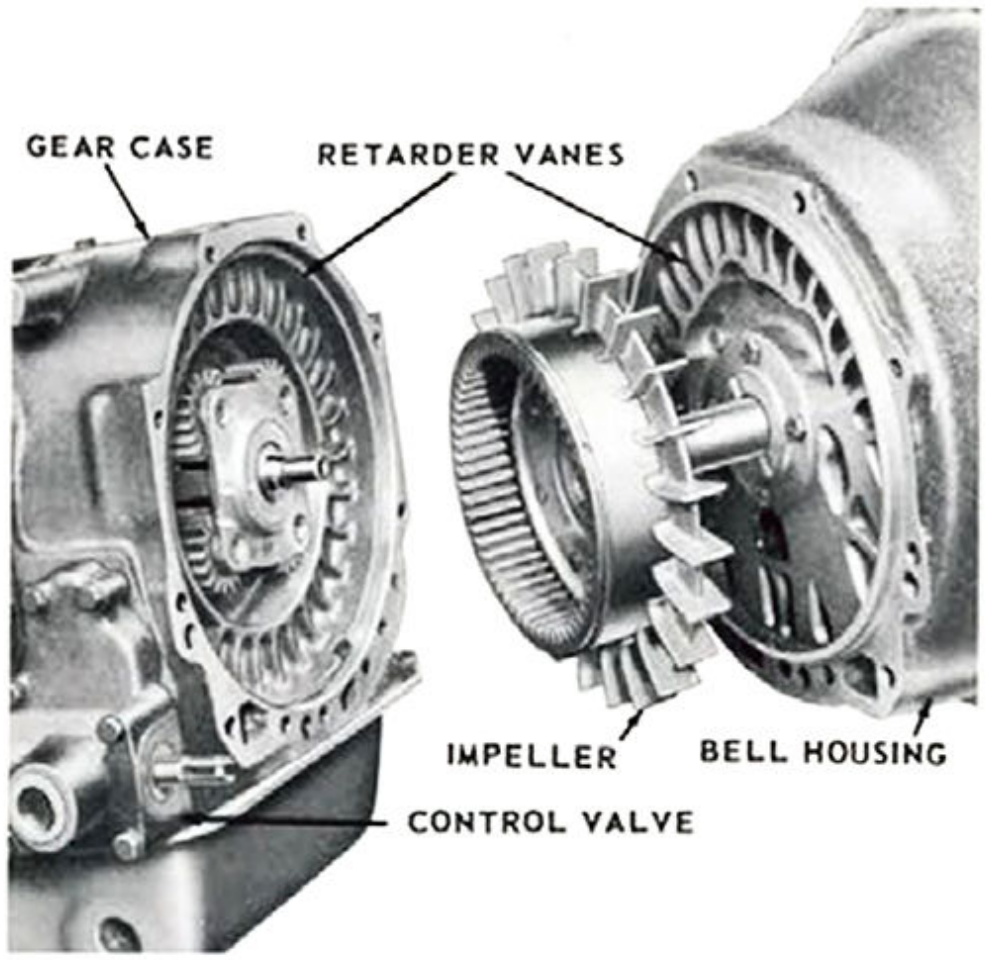
The hydraulic retarder, like the service brakes, operates on friction, converting the kinetic energy of the moving vehicle into heat. The retarder uses transmission fluid as the energy converting medium while the brakes use solid friction materials. The combination gives Powermatic equipped trucks braking control unmatched in highway vehicles as well as longer, safer life for the service brakes.

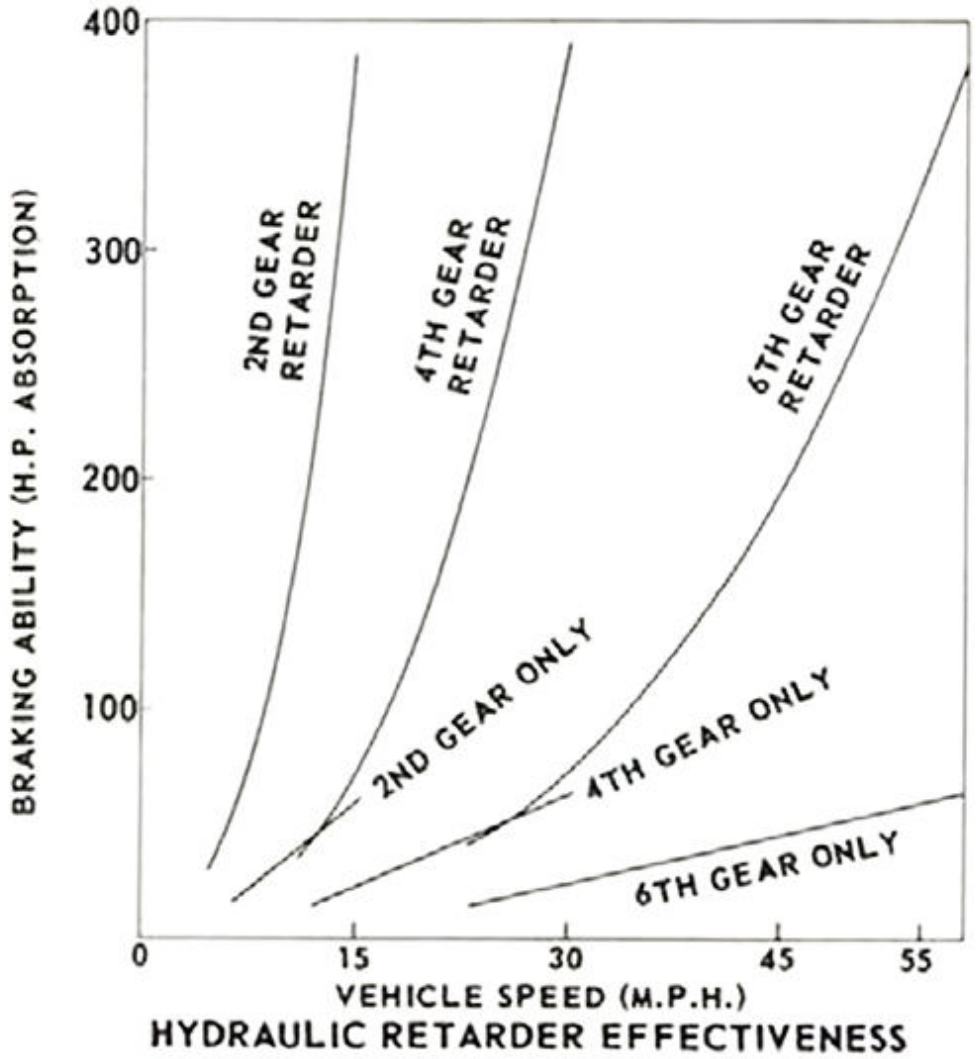
The hydraulic retarder consists of two internally vaned members between which a third, called an impeller, revolves at engine speed. The impeller functions, in effect, like the driving member of two fluid couplings placed back-to-back. Because the "driven" members are stationary, the impeller, driven by the rear wheels, creates great turbulence in the oil. The action may be thought of as an infinite number of oil particles receiving a large supply of motion energy from the impeller. Since there is no place to go, they expend their energy fighting each other for a path, giving off heat due to the friction of their countless contacts.

When the retarder cavity is filled with oil, braking torque varies as the square of impeller speed However, braking effort can be reduced to any degree the driver desires by partially applying the retarder pedal. The braking action is of nature that will limit vehicle speed but will never grab, induce skidding, or stop the truck. The cushioning effect is similar to that ordinarily gained by partially applying the service brakes, but the desired degree of braking can be more easily ascertained by the driver because the "feel" is better, and can be safely maintained for a longer period because the heat transfer provision is more efficient.

The front and rear retarder vanes are cast into the mating faces of the converter cover and the gear case respectively. The arrangement not only conserves space but contributes substantially to the structural strength of the castings.

The impeller is attached to the splitter sun gear and is driven through the gears by the transmission input shaft. Thus it does not tend to drive the engine or use it as an air compressor for additional engine braking, but instead, joins forces with the engine to resist rotation of the transmission shafts and, therefore, the forward motion of the truck.



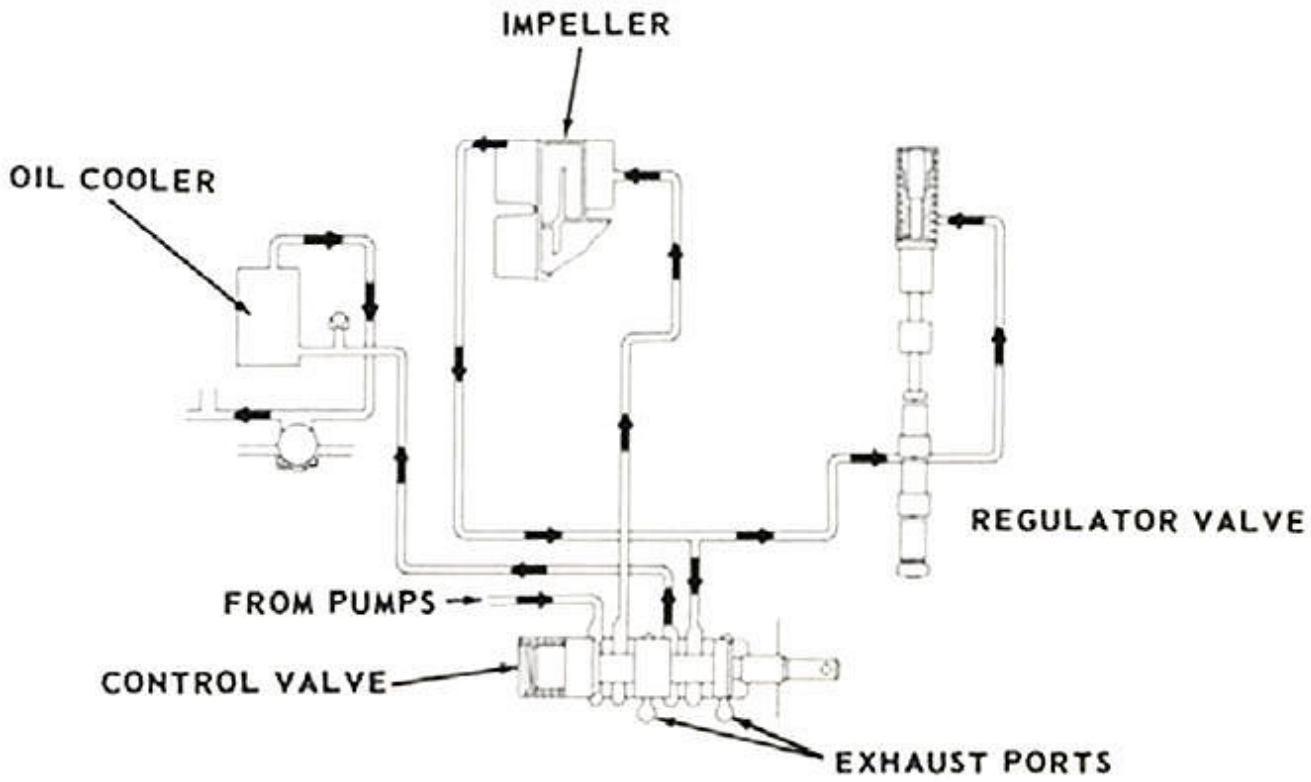


HYDRAULIC RETARDER EFFECTIVENESS

RETARDER EFFECTIVENESS . . .

The actual horsepower absorbing capacity of the hydraulic retarder increases as the cube of the impeller speed. So that the greatest braking assistance may be realized then, engine speed should be maintained at a high level for the vehicle speed involved.

Intermediate range fulfills this requirement for almost all applications by preventing the transmission from shifting above fourth speed. When descending extremely steep grades while heavily loaded, Low range, which prevents the transmission from shifting above second speed, should be selected.



CONTROL VALVE . . .

Oil as a heat absorbing medium has the distinct advantage of being easily transportable from the source of heat to a place where the heat can be more conveniently dissipated. In the retarder circuit this is accomplished by circulating the heated oil from the retarder through a heat exchanger located in the bottom tank of the radiator. Here it gives up its heat to the engine cooling system.

When the retarder pedal is depressed, it moves the control valve against a spring. This uncovers a port which directs oil from the pumps to the retarder cavity. The oil circulates through the retarder and back through the valve to the heat exchanger where it is cooled and sent through the lubrication system. The control valve entrance and exit openings leading to the retarder cavity are arranged so that their sizes are determined by the position of the valve. Braking effort for a given impeller speed then is controlled by the amount of oil allowed to circulate through the retarder. With the retarder pedal fully depressed, the cavity is completely filled and braking effort is at a maximum. To increase the holding force of the clutches under this condition, pressurized oil from the retarder is directed to assist the regulator valve spring in increasing mainline pressure. When the retarder pedal is released, two exhaust ports are uncovered and the oil is returned directly to the sump.

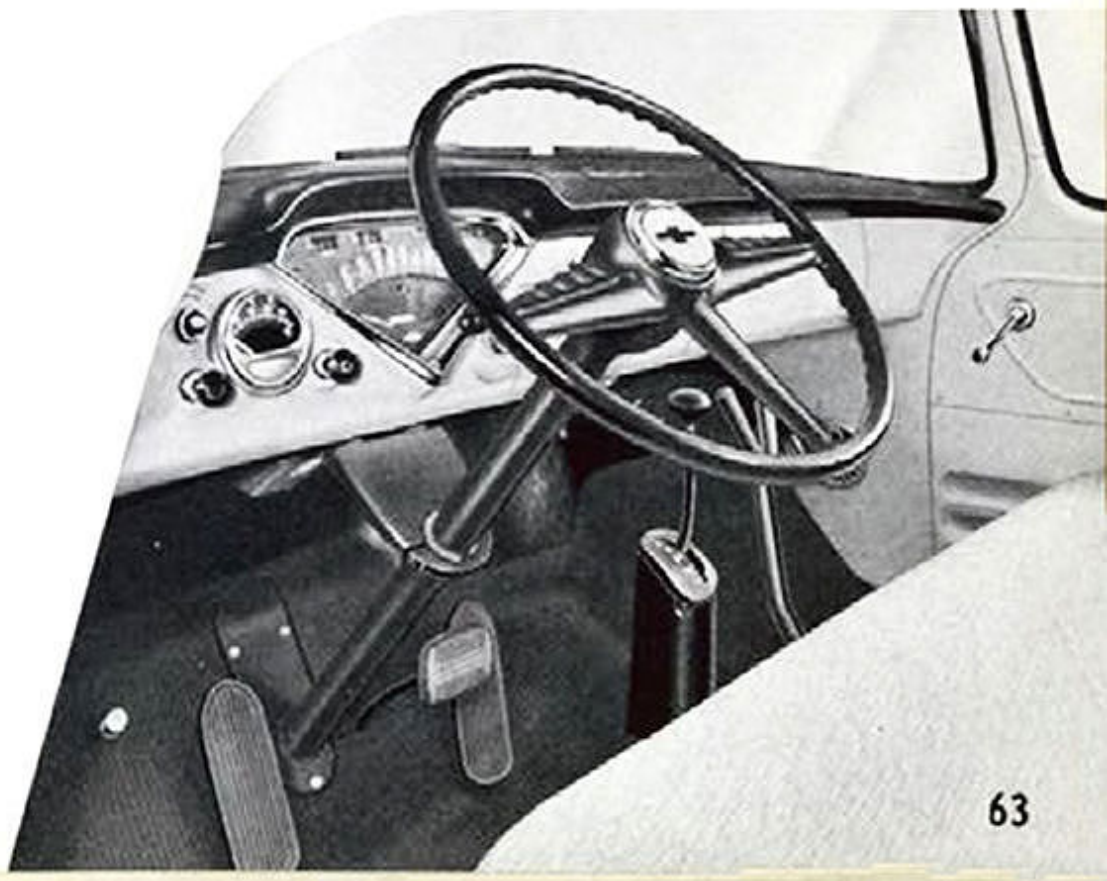
In all Powermatic installations, a 2-5/8 inch tube and center radiator and a nine pound pressure cap supply the additional cooling capacity needed for retarder operation.

So that retarder heat may be dissipated satisfactorily before the engine is warmed up, a special engine thermostat and radiator by-pass hose are used. When closed, the thermostat by-passes coolant through the radiator bottom tank. If the retarder is used, the heat given off is then carried through the engine block where it assists in raising engine temperature to its normal operating level. This eventually opens the thermostat which cuts off the by-pass and allows the coolant to circulate through the radiator in the usual manner.

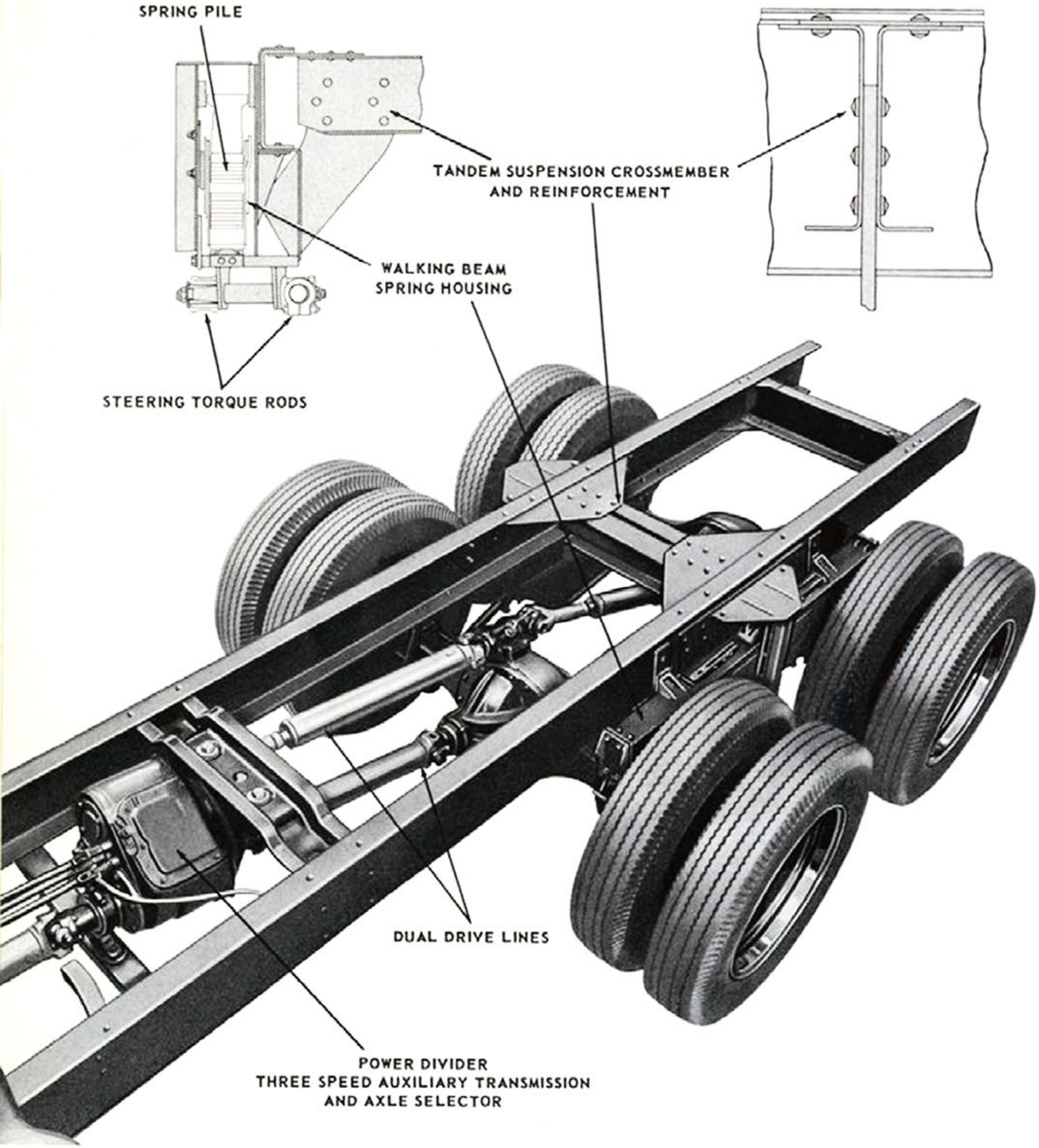
CAB CONTROLS . . .

The Powermatic driver controls consist of the accelerator pedal, the range selector and the hydraulic retarder pedal.

A decal on the instrument panel warns the driver against shifting from Drive to Intermediate above thirty miles per hour and from Intermediate to Low above fifteen miles per hour. The tell-tale light indicates when the retarder pedal should be momentarily released to allow the oil to be cooled.



TANDEM AXLE


SPRING PILE
TANDEM SUSPENSION CROSSMEMBER
AND REINFORCEMENT
WALKING BEAM
SPRING HOUSING
STEERING TORQUE RODS
DUAL DRIVE LINES
POWER DIVIDER
THREE SPEED AUXILIARY TRANSMISSION
AND AXLE SELECTOR

TANDEM AXLE

Big new Series 10000 trucks with tandem axles, positive power divider, and a unique suspension offer more performance and overall economy with fewer working parts and less power train loss than any other competitive dual-drive system offered as original equipment. Three different wheelbases in models 10403, 10503 and 10703 assure many varied applications in every branch of the trucking industry. The vehicles with the tandem axle option feature a maximum GVW of 32,000 pounds and a Gross Combination Weight of 50,000 pounds.

Chassis components include the 322 cubic inch, Loadmaster V-8 engine, 13-inch coil spring clutch, and a heavy-duty, 5-speed transmission, the same as available on all Series 9000 and 10000 trucks. The front axle for tandem models is also a conventional unit, of 7000 pound capacity. Front springs, however, incorporate an additional leaf to provide a capacity of 3500 pounds and take weight transfer in quick stops. Power steering is standard equipment for easier maneuverability with capacity loads.

The tandem option also features a heavily reinforced frame, a 3-speed auxiliary transmission combined in one gear box with a positive-type power divider, plus a very flexible single-point rear suspension with special provision for automatic axle tracking. Two-stage spring piles are contained in and protected by large walking beams which absorb shock in case of any momentary spring overload. Matching rear axles are Chevrolet heavy-duty single speed units with a ratio of 7.2-to-1, each with a capacity of 15,000 pounds. Effective brake lining area, as compared to that of other 2-1/2 ton models, is considerably increased by the additional rear axle employed. Standard equipment includes a new 9-1/2 inch diameter Hydrovac brake booster with an extra long stroke, plus a 1-3/4 inch hydraulic master cylinder. Especially desirable for use with trailers, an optional air-over-hydraulic system with a 2-cylinder compressor is available at extra cost.

Tandem axle operation offers attractive economies to the truck or fleet owner because payload weight may be greatly increased in comparison to single-axle operation, while trip time and gasoline costs remain practically the same. Increased safety for vehicle, load, and driver is another prime advantage because more tire area in contact with the road affords better braking with less tendency to skid, side-slip, or to jackknife in the case of tractor trailer combinations. More traction with dual-axle drive permits all-weather operation, and additional flotation increases mobility on unimproved roads and in off-highway operation.

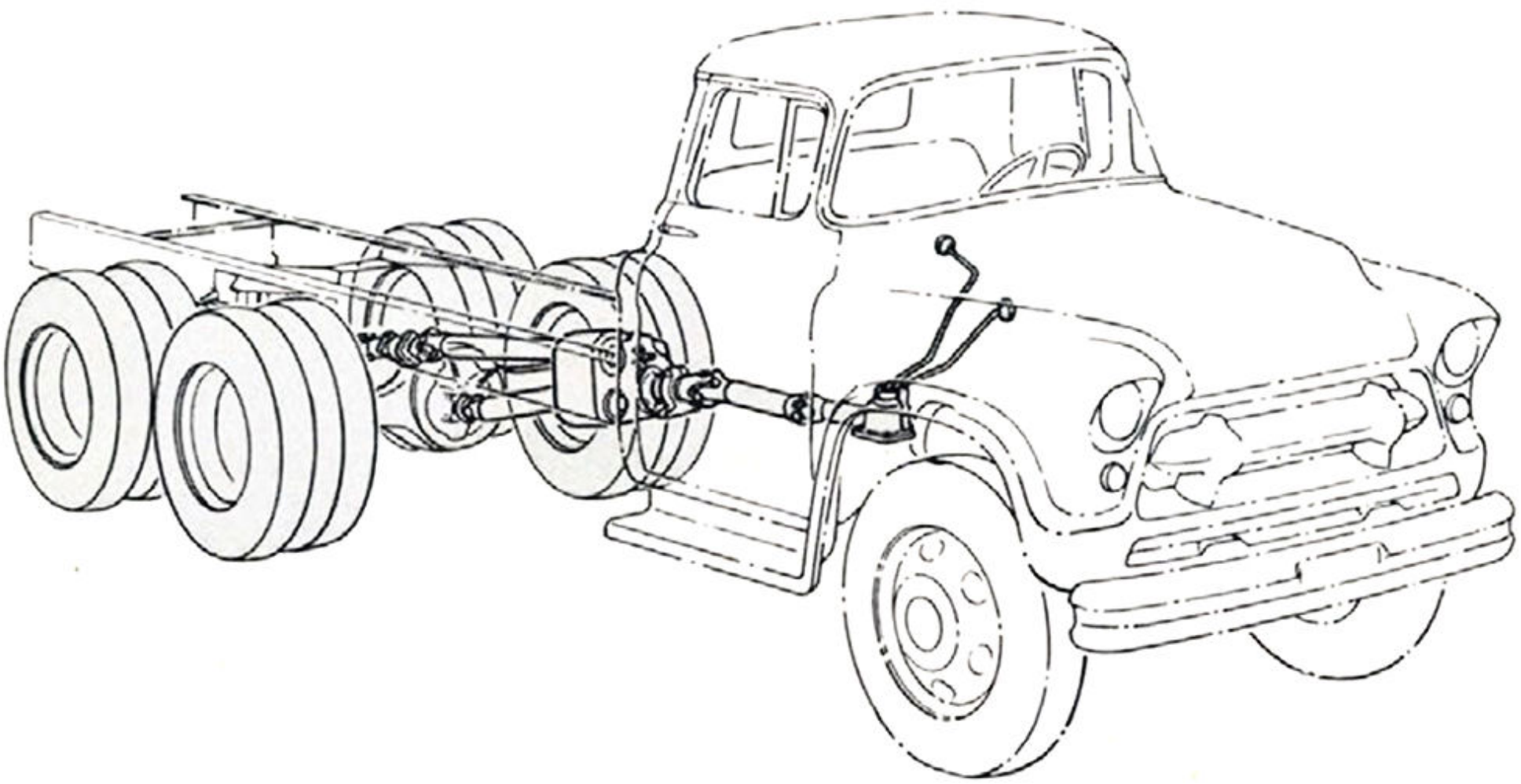
Another advantage of tandem axle operation derives from stringent axle load limitations enforced in various states. Payloads are severely limited where single axles are used, and to avoid penalty very careful attention must often be paid in cargo arrangement and weight distribution. With tandem axles, however, worthwhile payloads may be hauled without necessity for special cargo arrangement and with little likelihood of penalty for axle overload.

In tandems utilizing the single point suspension principle, as exemplified by the walking beam and trunnion of the Chevrolet tandem suspension, there is less road shock to frame and load because bogie action, in effect, reduces the height or depth of every bump or pot-hole by approximately 50 per cent. Cargos therefore receive extra protection and cushioning while in transit.

Where tire durability figures as a cost item, tires on tandem trucks give best mileage because of better flotation and more equal load distribution. Rear tire durability on Chevrolet tandem trucks is even greater as a direct benefit of the automatic axle tracking feature which permits an exceptional degree of rear axle steering on highway curves and for all practical purposes reduces tire scrub and scuff to the small and almost unmeasurable amount which occurs, unavoidably, between inner and outer tires of each dual wheel.

In contrast to costly and cumbersome "third" differential systems in other dual-drive tandems which invariably incorporate such mechanism on or within the forward axle, the Chevrolet tandem employs positive type power division with a few simple parts contained in the same gearbox with the auxiliary transmission. Because this gearbox is hung from the frame in a midship location, unsprung weight is kept to a minimum to allow maximum efficiency in absorption of road shock and vibration by the 2-stage spring piles.

Elimination of the third differential permits use of standard heavy-duty single-speed axles for both forward and rear units of the tandem to lower first cost and to facilitate axle service and parts replacement if needed. A further benefit to the owner of a Chevrolet tandem truck accrues through the reduced power train losses obtainable with positive drive to a single (forward) axle for all normal highway operation. In this case, the rear axle is completely disengaged to function very much as a trailing axle, except that it may be instantly engaged to provide doubled traction simply by movement of an axle interlock control lever located on the floor of the cab.

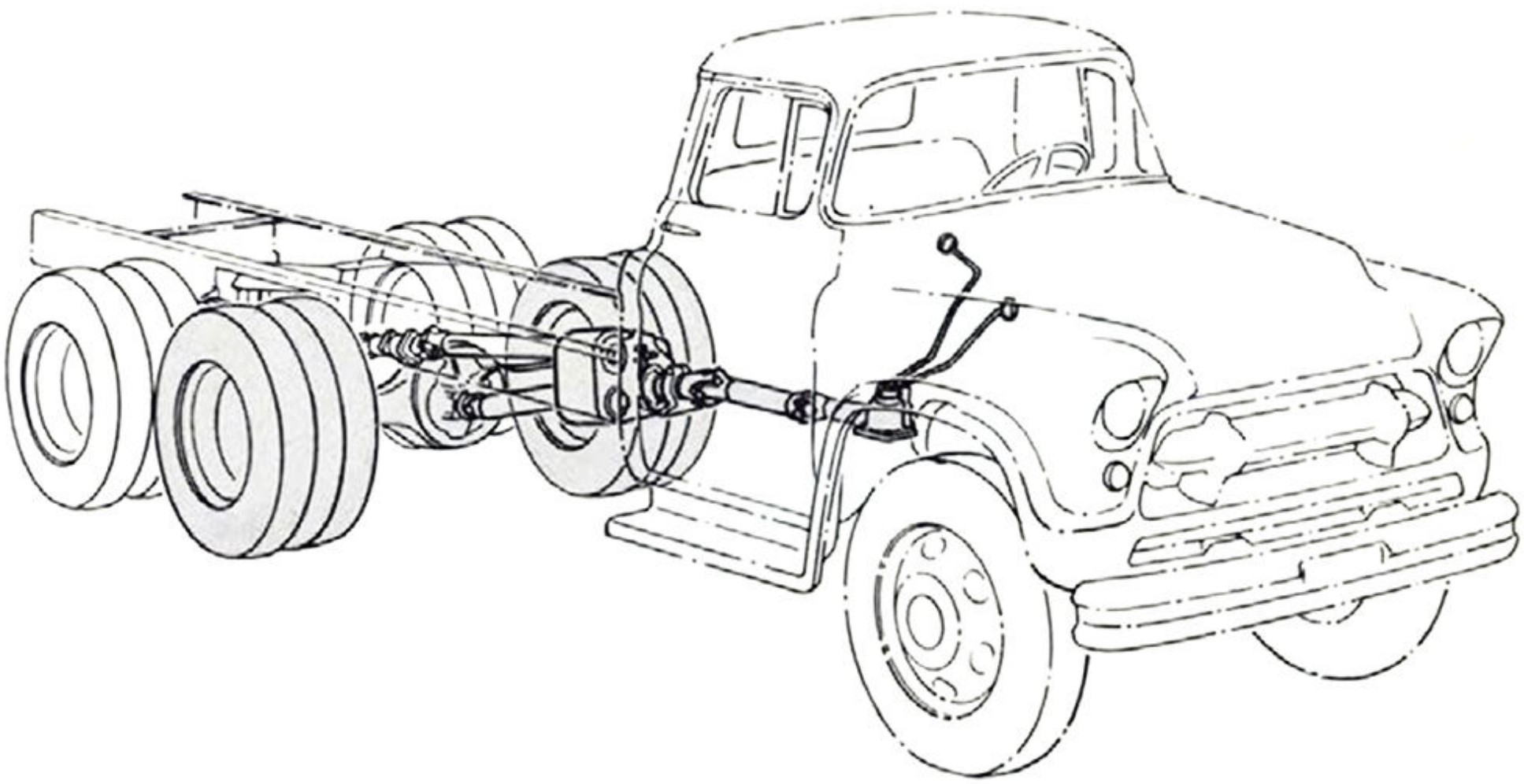


DUAL AXLE DRIVE . . .

Illustrated here is the condition where the rearmost axle is engaged for maximum traction. Power is distributed equally and positively to both rear axles so that no inter-axle wheelspin may occur, even if one wheel were to be completely lifted from the ground. Ordinary types of dual drive tandems employ a third or inter-axle differential, and loss of traction by one wheel can result in almost complete immobilization of the truck. A manual lockout is incorporated in many tandems employing third differentials to eliminate inter-axle wheelspin, but this adds to cost and a usual disadvantage is that the driver must slow his truck almost to a stop before the device can be engaged.

The axle interlock in the Chevrolet power divider may be engaged quickly and easily at any speed. Such engagement is automatic when the auxiliary transmission is shifted into puller gear. This feature enables Chevrolet tandems to pull through in situations where other tandems would mire down after slowing or stopping to engage the differential lockout. A safety feature of the automatic interlock in puller gear is that the forward axle of Chevrolet tandems is thus well protected against torque overload and resultant damage to axle shafts or hypoid gears.

Puller ratio in the auxiliary transmission is 2.22-to-1. Other ratios are a 1.22-to-1 underdrive and a 1-to-1 direct drive, controlled by means of a separate selector lever in the cab.

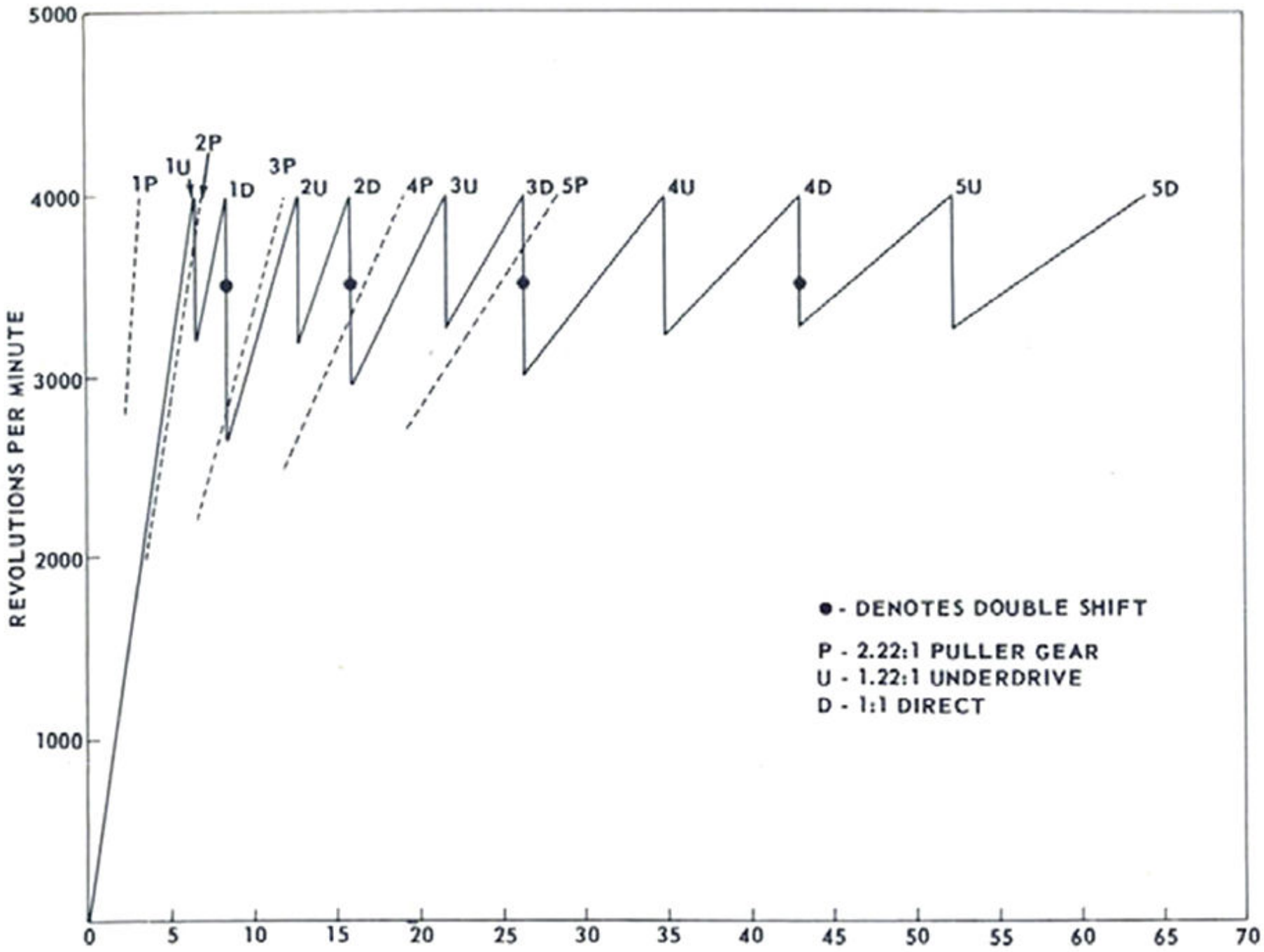


SINGLE AXLE OPERATION . . .

Positive drive to a single forward axle, as offered in Chevrolet tandem options, combines all the efficiency and operating economy of a trailing axle with handy provision for instantly doubling traction when conditions necessitate. With positive drive applied to the forward axle only, power train losses are somewhat less than with dual axle drive. Greater economy and faster trips are direct benefits of this feature.

The rearmost axle is disengaged with an axle selector lever which is located immediately to the right of the main shift lever in the floor of the cab. Since speeds of the spring loaded clutch and gear in the auxiliary gear box are synchronous, no gear clash can occur, and no slowdown or declutching is necessary in changing from single to dual drive, or from dual drive to single axle operation. Light weight splined clutch blocks engage quietly and easily with constant mesh gears at synchronized speed to eliminate gear clash and excessive loss of speed while shifting.

In a single axle drive condition the puller gear ratio of the auxiliary transmission is not usable since it was designed primarily to obtain maximum traction and tractive effort. The available 1.22-to-1 underdrive and the 1-to-1 direct drive serve, in effect, as a two-speed rear axle with ratios of 7.20 and 8.78 to 1. The broad ratio spread is aptly suited to the varying conditions of loads and grades met in highway operation. Torque capacity of the auxiliary transmission is an ample 2625 foot pounds. All gears, helical cut with crowned tooth surfaces, are of alloy steel to assure maximum durability.



PERFORMANCE . . .

The above shift chart shows actual road speeds obtainable with each of the fifteen forward ratios obtainable in Chevrolet tandem axle vehicles. Top engine speed with each gear combination is limited by a governor which cuts in at 4000 rpm to prevent excessive reciprocating loads on engine parts and to assure operation within the most favorable portion of the torque curve.

Using all gears in the main transmission, by only underdrive and direct ratios of the auxiliary transmission, four double shifts are required for progression through ten gear combinations to direct drive. Dashed lines in the chart show characteristic speeds in puller gear. The lower ratios so obtainable may of course be used whenever conditions warrant, as in starting uphill, in towing, or in off-road operation.

SERIES 10000 FRAME
WITH TANDEM EQUIPMENT

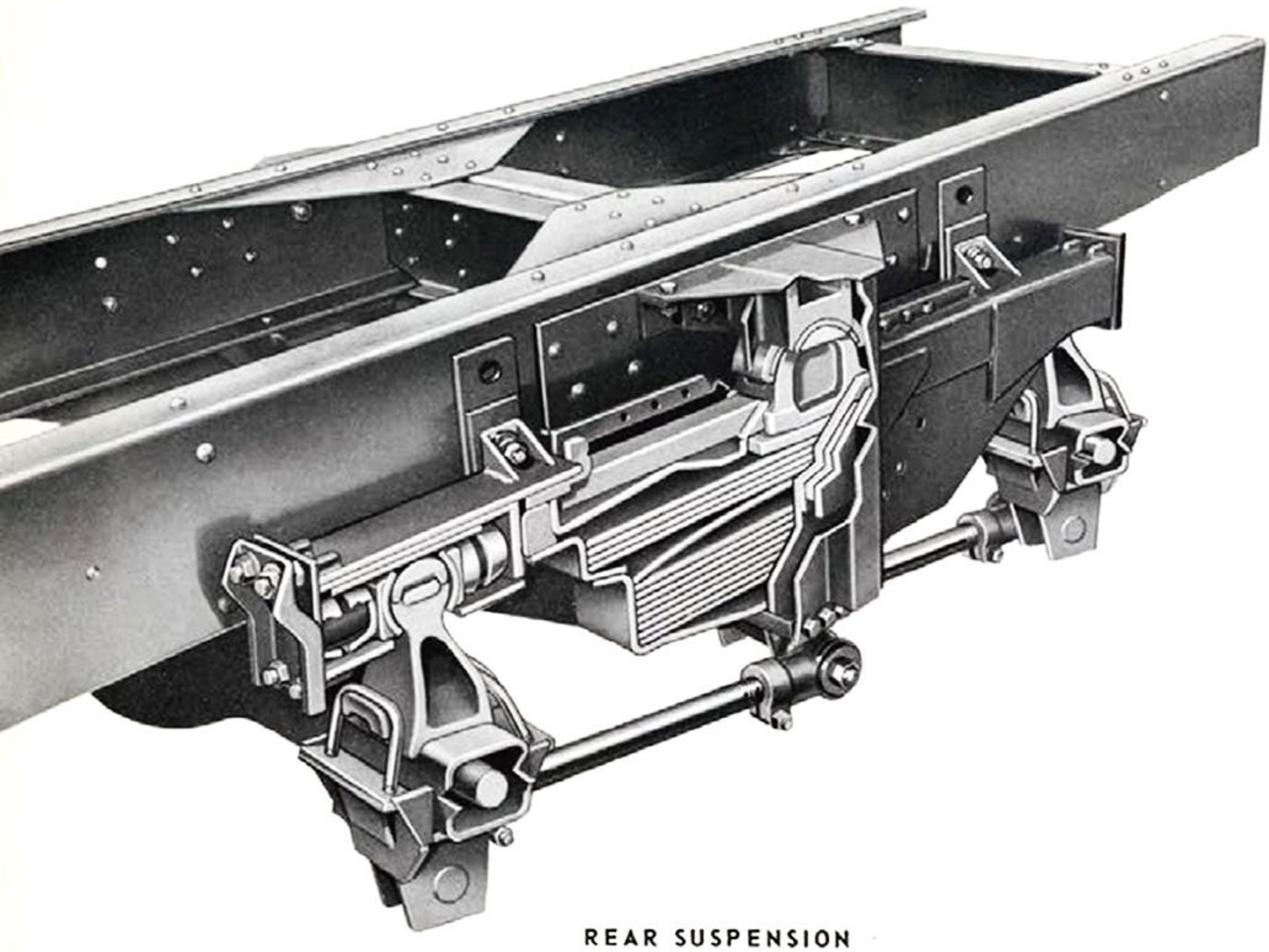
FRAMES

Frames for Series 10000 tandem options are basically the same as those for conventional Series 10000 models. They differ, however, in that tandem axle frames are further strengthened with the addition of side member reinforcements and heavier crossmembers and gussets in the area of the rear suspension mounting trunnion. The combined section modulus of the basic side member plus the reinforcement is 15.82 inches cubed, resulting in an increase of 33 per cent over conventional Series 10000 models frames.

The reinforcement consists of a 3/16-inch steel angle member, lapping over the upper flange and extending the full depth of the side member. Starting in the area immediately behind the front spring rear hanger, the reinforcement extends rearward the full length of the frame. For additional strength to the rear-end section, both the regular side member and reinforcement maintain full section height to the end of the frame.

The rear suspension crossmember serves as the main reinforcement at the point where all of the load is absorbed by the frame. This unit consists of two heavy channel section members integrated back-to-back and forming an I-beam type structure. The crossmember spans nearly the entire width of the frame and is attached to the frame side rails at the upper flange by trapezoidal shaped gussets. The lower side of the crossmember is supported and reinforced by heavy vertical gusset plates sandwiched between its channel sections and extending downward where they are rigidly attached to the inner trunnion plates.

The inner trunnion plates extend downward from the side member lower flanges and are connected laterally to the outer trunnion plate which extends downward from the outside of the frame side rail. This forms a solid box-like structure for support of the walking beam as well as a sturdy attachment for the rear suspension torque rods.



REAR SUSPENSION

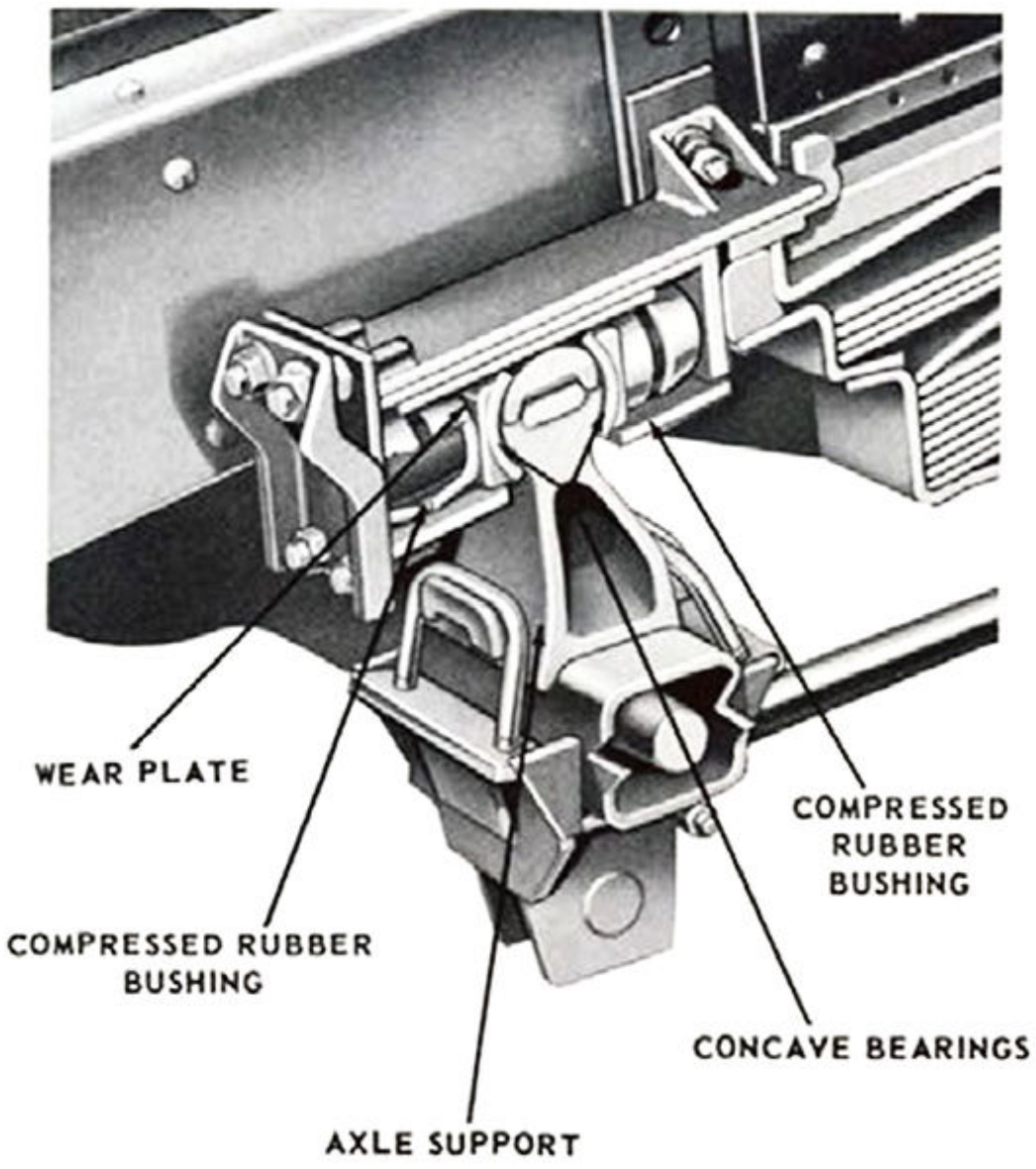
The rear suspension on Chevrolet tandem options is designed to eliminate all spring eyes, clips and center bolts by incorporating a unique walking beam housing containing non-cambered steel spring leaves. The leaves are stacked within the housing in a manner providing 2-stage action. The first stage provides easy ride for the unloaded truck or light loads. The progressive action provided by the second stage results in a progressively higher spring rate with heavier loads. The spring cannot be overloaded because as the leaves are compressed they seat solidly in the walking beam housing. The walking beam then, becomes the main load supporting member which receives the shocks under maximum payload conditions.

Load is transmitted to the springs and walking beam through a rocker type trunnion which rests directly on the spring piles. The large convex bearing surfaces of the heavy cast steel trunnion allow complete, friction free articulation of each axle.

Rubber bushed steering torque rods hold the axles in position and take most of the driving and braking thrusts. The rods are attached to reinforced trunnion plates on a vertical centerline with the trunnion supports and extend forward and rearward to the lower half of the axle supports. The upper half of the axle support is housed within the end of the walking beam housings. These members, the walking beams, torque rods, and axle supports form a parallelogram configuration, assuring equal loading of each axle. True bogie action is obtained with a high degree of flexibility so that wheels may follow ground contours without loss of traction.

The upper end of the axle supports is retained in the end of the walking beam housing by pairs of solid rubber biscuits that not only tend to center the axles in straight road operation, absorb impact and road shock, but provide the flexibility contributing to a considerable degree of automatic tracking. Cupped steel plates bear against the spherical shaped axle support ends, to shield the rubber biscuits and prevent wear.

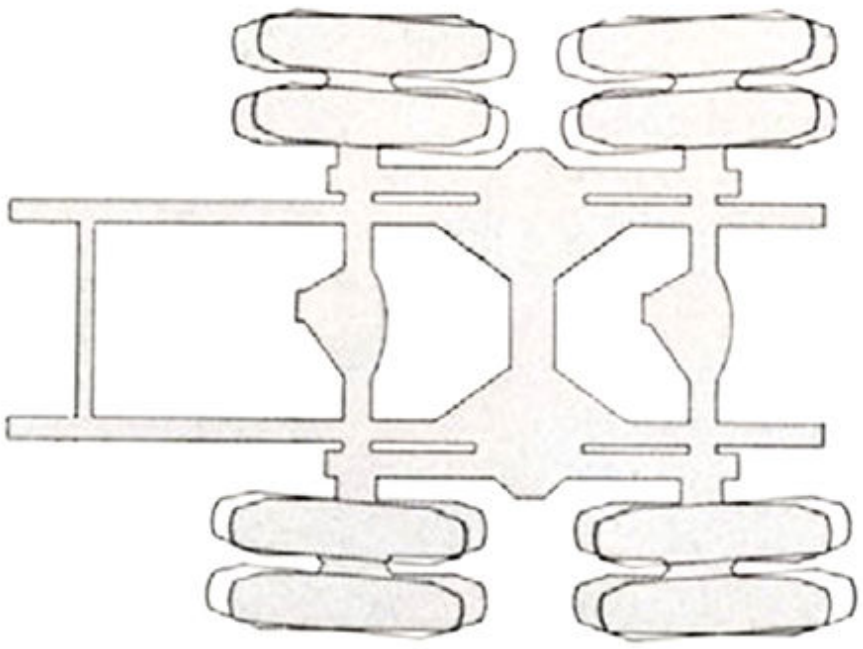
Both axles of the unit are Chevrolet heavy-duty single-speed axles, each with a capacity of 15,000 pounds and 7.2-to-1 ratio. Square housings are employed to permit secure attachment of the load carrying axle supports which articulate in the walking beam ends.



WALKING BEAM AXLE SUPPORTS . . .

To provide free articulating action between the axle housings and the walking beam spring housing, these unique support connections are used which also feature modulation of driving and braking momentary impacts.

All vertical loads are carried by the steel on steel contact of the convex surface of the axle support upper end against a wear plate in the walking beam spring housing. Centering the axle support arm upper ends in forward or rearward movements are two opposed concave metal bearings, each of which is loaded by a compressed rubber bushing. In this manner vertical loads are positively carried by the chassis rear springs, but impact type braking or pulling loads to the rear suspension are modulated through the compressed rubber bushings.

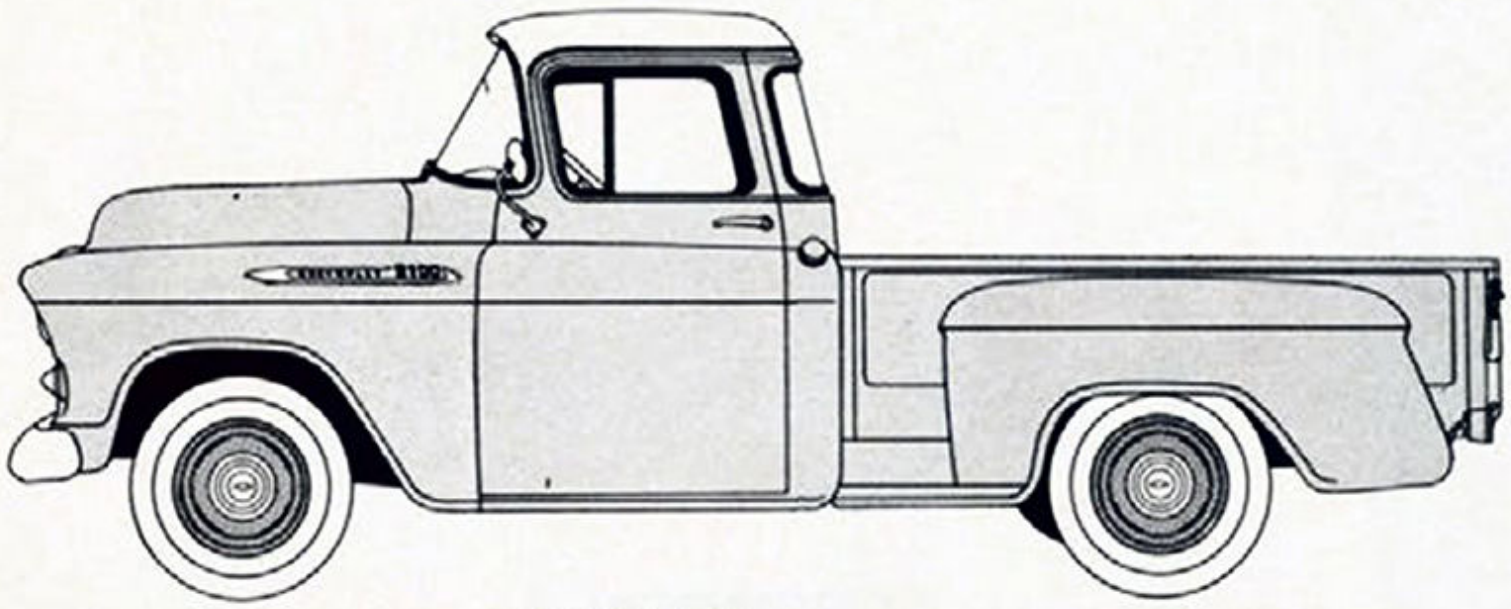


TRACKING . . .

Tire scuff, drag, and side slip are reduced by the automatic tracking tendency provided by the Chevrolet tandem suspension. This feature is the result of the flexibility built into the rubber bushed joints in the steering torque rod and walking beam ends. As the truck is steered around a highway curve, natural steering forces compress the rubber joints, allowing the rear axles to steer around an exceptional degree of curvature.

APPENDIX

APPENDIX



DELUXE CAB

EXTERIOR COLORS

Solid Color - All Models except 3124 Main Color - Two-Tone Combinations	Two-Toning Color	Wheel Color A
Forest Green	Arabian Ivory	Arabian Ivory
Ocean Green*	Arabian Ivory	Arabian Ivory
Empire Blue	Arabian Ivory	Arabian Ivory
Crystal Blue*	Arabian Ivory	Arabian Ivory
Sand Beige*	Cardinal Red	Cardinal Red
Cardinal Red*	Arabian Ivory	Arabian Ivory
Regal Blue*	Arabian Ivory	Arabian Ivory
Golden Yellow*	Jet Black	Jet Black
Granite Gray*	Arabian Ivory	Arabian Ivory
Jet Black	Golden Yellow	Golden Yellow
Omaha Orange	Arabian Ivory	Arabian Ivory
Yukon Yellow	Arabian Ivory	Arabian Ivory
Pure White	None	
Bombay Ivory$	Cardinal Red	Cardinal Red

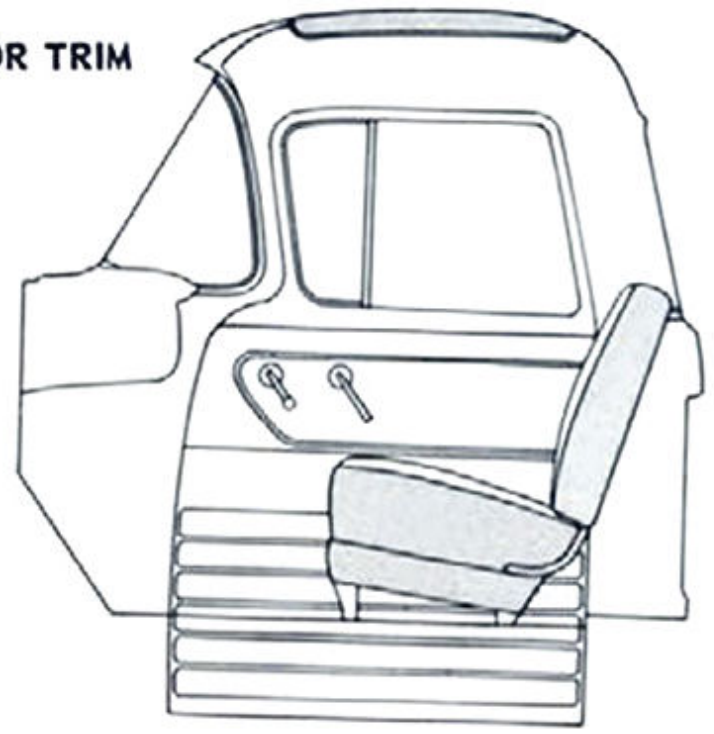
* - Used also on Cameo Carrier.

$ - Used only on Cameo Carrier.

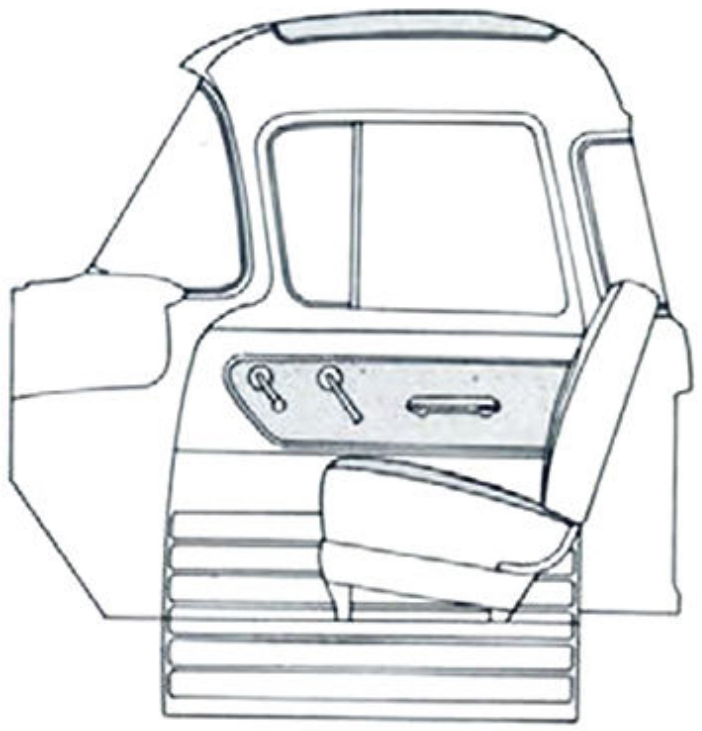
A - Colored wheels available only on Series 3000 models with two-toning. Solid color Series 3000 models and all Series 4-5-6-7-8-9-10000 models have Jet Black wheels.

APPENDIX

INTERIOR TRIM



DELUXE CAB



CUSTOM CAB

INTERIOR COLORS

AREA		MATERIAL		COLOR				
				Deluxe Cab	3124 only	Custom Cab and Model 3124		
		Deluxe Cab	Custom Cab & Model 3124	Gray	Red	Blue	Green	Charcoal
Seats	Cushion and Backrest	Plastic & Rayon Pattern Cloth	Nylon-Faced Pattern Cloth	Gray	Red	Dk. Blue	Dk. Green	Charcoal
	Facing	Leather Grain Vinyl		Black	Beige	Lt. Blue	Lt. Green	Gray
Interior Paint		Paint		Gray	Beige	Lt. Blue	Lt. Green	Gray
Side Doors	Door Panel							
	Trim Panel	None	Paint$	None	Red	Dk. Blue	Dk. Green	Charcoal
Cowl Side Kick Panel		Paint		Gray	Beige	Lt. Blue	Lt. Green	Gray
Headlining		Leather Grain Vinyl		Charcoal	Red	Dk. Blue	Dk. Green	Charcoal
Sunshade								
Arm Rest	Upper	Leather Grain Vinyl		None	Beige	Lt. Blue	Lt. Green	Gray
	Lower	Plastic		None	Red	Dk. Blue	Dk. Green	Charcoal
Floor Covering		Rubber		Charcoal	Red	Charcoal		
Instrument Panel	Upper	Paint		Charcoal	Red	Dk. Blue	Dk. Green	Charcoal
	Lower	Paint		Gray	Beige	Lt. Blue	Lt. Green	Gray
Garnish Moldings	Side Window							
	Windshield	Paint		Charcoal	Red	Dk. Blue	Dk. Green	Charcoal
Steering Wheel and Column		Paint						
Gearshift Shaft and Lever - 3000 and 4000 Hyd.								
Control Knobs		Plastic	Metal	Black	Bright			
Gearshift and Directional Signal Lever Knobs		Plastic		Black				

$ - Applied trim panel on 3124 of same material as cushion and backrest trim.

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