

OWNER'S **and** DRIVER'S MANUAL



1952

WARRANTY

There are no warranties, expressed or implied, made by Seller on the GMC motor vehicles, chassis or parts, furnished hereunder, except as follows:

"The manufacturer warrants each new motor vehicle, including all equipment or accessories (except tires) supplied by the Manufacturer, chassis or part manufactured by it to be free from defects in material and workmanship under normal use and service, its obligation under this warranty being limited to making good at its factory any part or parts thereof which shall within ninety (90) days after delivery of such vehicle to the original purchaser or before such vehicle has been driven 4,000 miles, whichever event shall first occur, be returned to it with transportation charges prepaid and which its examination shall disclose to its satisfaction to have been thus defective; this warranty being expressly in lieu of all other warranties, expressed or implied and all other obligations or liabilities on its part, and it neither assumes nor authorizes any other person to assume for it any other liability in connection with the sale of its vehicles.

This warranty shall not apply to any vehicle which shall have been repaired or altered outside of an authorized GMC Service Station in any way so as in the judgment of the Manufacturer to affect its stability and reliability, nor which has been subject to misuse, negligence or accident."

GMC TRUCK & COACH DIVISION
GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN

Battery. The Delco battery is guaranteed. Refer to the "Service Policy" which is inserted into glove compartment on all new trucks.

OWNER'S and DRIVER'S MANUAL

GMC TRUCKS

Series 100-22 thru 350-24
(1952)

OWNER AND DRIVER recommendations on GMC truck models listed on page 2 are included in this manual. Detailed information and procedures are not included as efficient and economical repair and maintenance service on GMC trucks should be accomplished in a well equipped shop and by experienced mechanics. Such service is offered by GMC Dealers and service stations. The information in this manual will serve as a maintenance and operation guide for all Owners and Drivers of GMC trucks.

GMC Truck & Coach Division
General Motors Corporation
Pontiac, Michigan

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General Motors Corporation

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30M FEB. '52

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MODEL DATA

Series	Model	Wheelbase	STD. REAR AXLE Type	Ratio	Standard Transmission	GMC Engine Type
100-22	101-22	116"	Hyp.	4.11	3-spd. (4)	228
	102-22	125 $\frac{1}{4}$ "	Hyp.	4.11	3-spd. (4)	228
150-22 PM150-22	152-22	125 $\frac{1}{4}$ "	Hyp.	4.57; 5.14	3-spd. (4)	228
	PM152-22	125 $\frac{1}{4}$ "	Hyp.	5.14	Hydra-Matic	228
250-22	252-22	125 $\frac{1}{4}$ "	Hyp.	5.14	4-spd.	228
	253-22	137"	Hyp.	5.14	4-spd.	228
280-22	281-22	137"	Hyp.	5.43; 6.17	4-spd.	228
	283-22	161"	Hyp.	5.43; 6.17	4-spd.	228
300-24	301-24	137"	Hyp.	5.43; 6.17	4-spd. (1)	248
	302-24	149"	Hyp.	5.43; 6.17	4-spd. (1)	248
	303-24	161"	Hyp.	5.43; 6.17	4-spd. (1)	248
	304-24	179"	Hyp.	5.43; 6.17	4-spd. (1)	248
S300-24	S305-24	197"	Hyp. (3)	5.43; 6.17	4-spd.	248
350-24	351-24	137"	Hyp. (2)	6.17	4-spd. (1)	248
	352-24	149"	Hyp. (2)	6.17	4-spd. (1)	248
	353-24	161"	Hyp. (2)	6.17	4-spd. (1)	248
	354-24	179"	Hyp. (2)	6.17	4-spd. (1)	248
	355-24	197"	Hyp. (2)	6.17	4-spd. (1)	248
F350-24	F351-24	110"	Hyp. (2)	6.17	4-spd. (1)	248
	F352-24	137"	Hyp. (2)	6.17	4-spd. (1)	248
	F353-24	161"	Hyp. (2)	6.17	4-spd. (1)	248
	F354-24	179"	Hyp. (2)	6.17	4-spd. (1)	248

(1) 5-spd. Direct Optional

(2) 2-spd. Axle Optional

(3) 2-spd. or Heavy Duty Hypoid Optional

(4) 4-spd. Transmission Optional

ENGINE DATA

	Type 228	Type 248
Piston Displacement (Cu. In.)	228.0	248.5
Bore	3 $\frac{9}{16}$ "	3 $\frac{23}{32}$ "
Stroke	3 $\frac{13}{16}$ "	3 $\frac{13}{16}$ "
S.A.E. Horsepower	30.45	33.19
Max. recommended speed (rpm)	3200	3200

FUEL TANK CAPACITY

With GMC Cab	Location	Capacity
All Series	In cab behind driver's seat	17 $\frac{1}{2}$ gal.
Without GMC Cab		
100-22 thru 250-22 (*)	Inside right frame side rail	16 gal.
280-22-300-24-350-24	Outside right frame side rail	18 gal.
S300-24	Outside right frame side rail	31 gal.

(*) 137" W.B. 18 gal.

COOLING CAPACITY

100-22 thru 280-22	17 quarts
300-24 up	18 quarts

SERIAL NUMBERS

GENERAL MOTORS TRUCK
 MANUFACTURED BY
 GMC TRUCK & COACH DIVISION
 GENERAL MOTORS CORPORATION
 PONTIAC, MICHIGAN, U. S. A.

SERIAL NO.
 CERTIFIED NET HORSEPOWER AT RPM
 MAXIMUM GROSS WEIGHT LBS

EXCEPT AS RESTRICTED BY LOAD CAPACITY CHART
 PUBLISHED IN OWNERS MAINTENANCE MANUAL.
 WARRANTY VOID IF GROSS WEIGHT IS EXCEEDED.

TP 3323

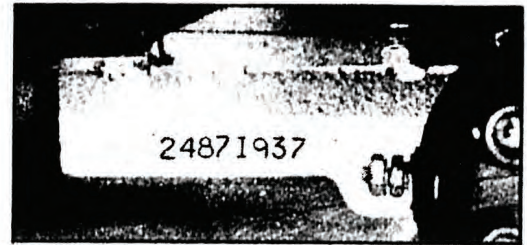
GENERAL MOTORS TRUCK
 MANUFACTURED BY
 GMC TRUCK & COACH DIVISION
 GENERAL MOTORS CORPORATION
 PONTIAC, MICHIGAN, U. S. A.

SERIAL NO.
 CERTIFIED NET HORSEPOWER AT RPM
 MAXIMUM GROSS WEIGHT LBS
 MAXIMUM GROSS COMBINATION WEIGHT LBS

ABOVE WEIGHTS ARE FOR HIGHWAY OPERATION.
 SEE LOAD CAPACITY CHART IN MAINTENANCE
 MANUAL FOR OTHER ROAD SURFACE.
 WARRANTY VOID IF THESE WEIGHTS ARE EXCEEDED

TP 3528

The identification plate (see above), which includes chassis serial number, is mounted on cab left-hand door hinge pillar. The chassis serial number is not shown at any other location. The engine serial number is stamped on crankcase adjacent to distributor.



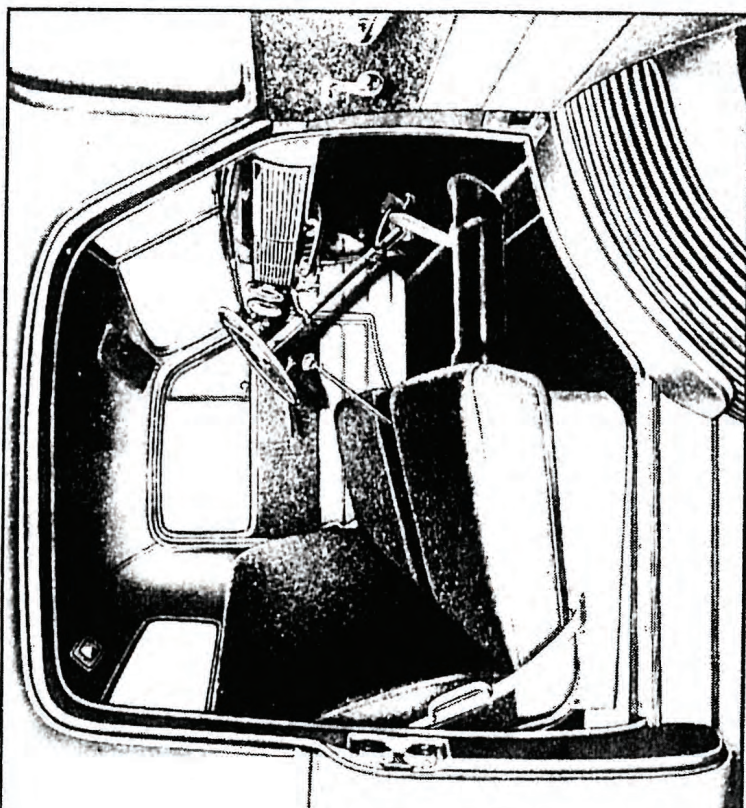
CAPACITY RATINGS

The following chart lists capacity ratings of all series covered by this manual. These ratings are applicable to chassis in any type of service.

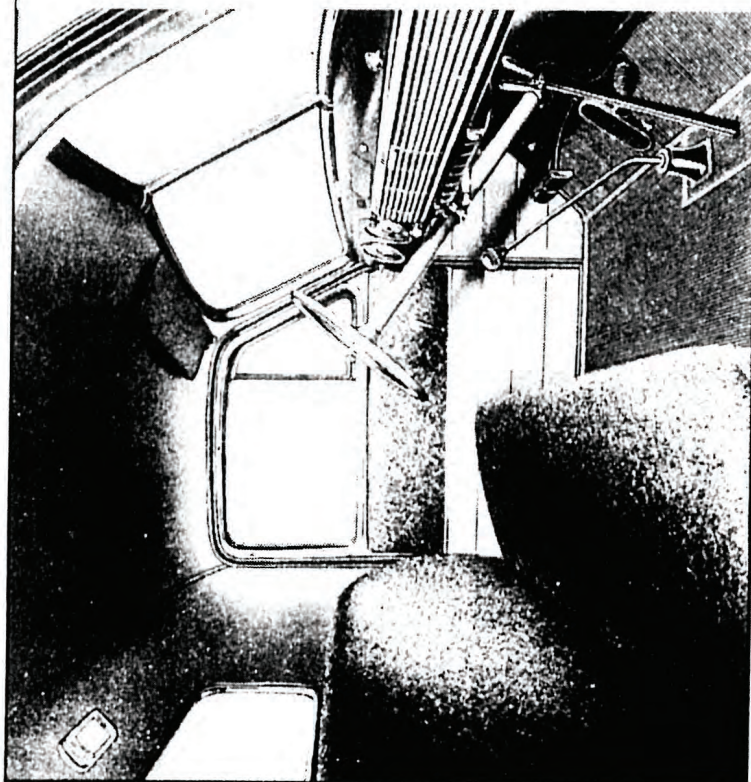
Series	Axle Rating		Gross Vehicle Weight	Gross Comb Weight
	Front	Rear		
100-22	2,200	3,300	4,800	—
150-22	2,500	5,000	5,800	—
PM-150-22	3,500	5,000	7,000	—
250-22	3,500	7,200	8,800	—
280-22	4,500	11,000	11,000	—
300-24	4,500	11,000	14,000	22,000
S-300-24	4,500	11,000	14,500	—
350-24	4,500	13,000	16,000	26,000
F-350-24	4,500	13,000	16,000	26,000

Ratings are maximum. In no case may actual weight at front or rear axle exceed the rated capacity of axle or tires. All tires should be inflated as recommended by the tire manufacturers for the maximum load carried on the tires.

CAB INTERIORS

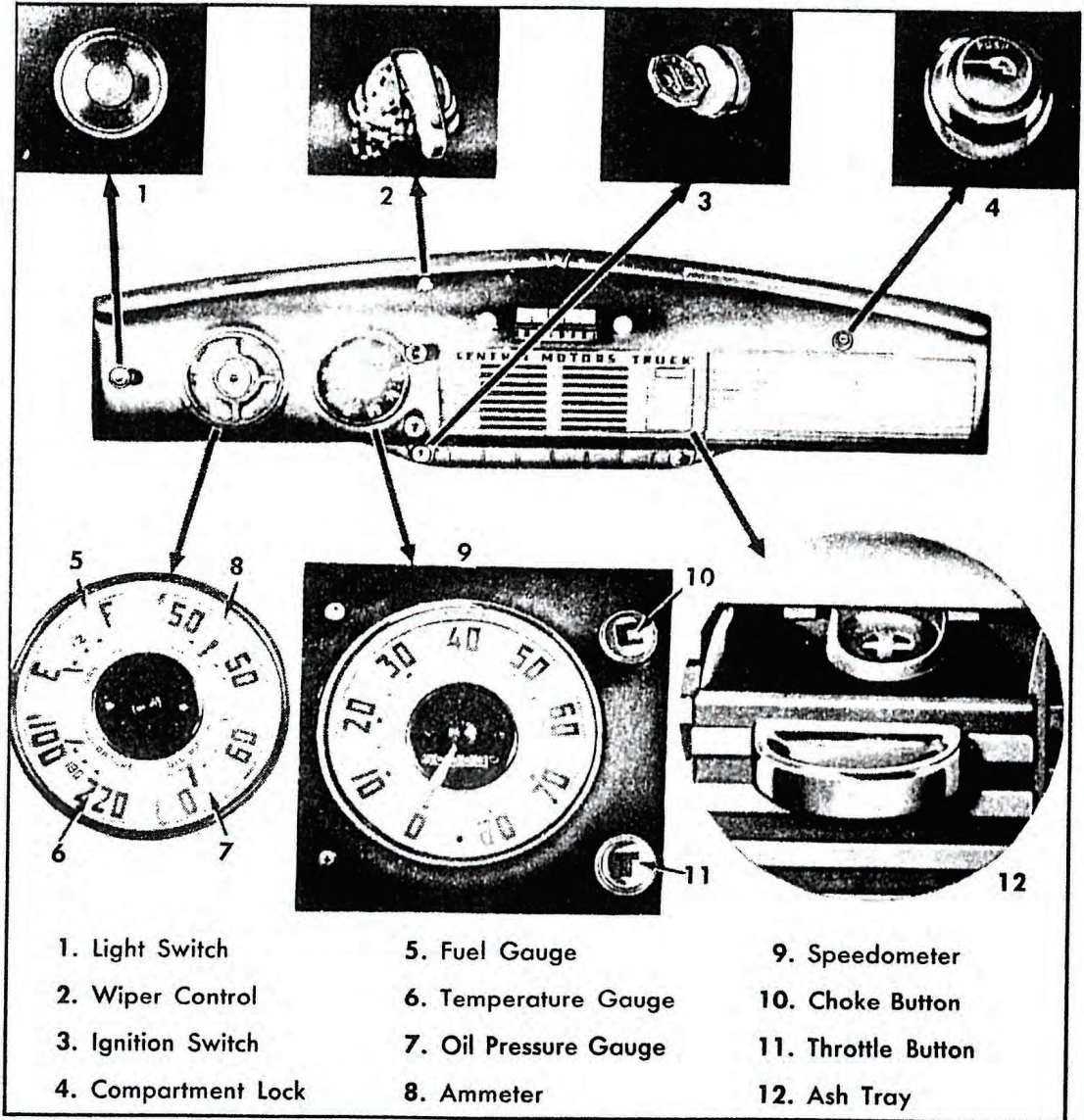


C. O. E. CAB



**CONVENTIONAL CAB
(250-22 and UP)**

OPERATING CONTROLS



DRIVER'S SEAT

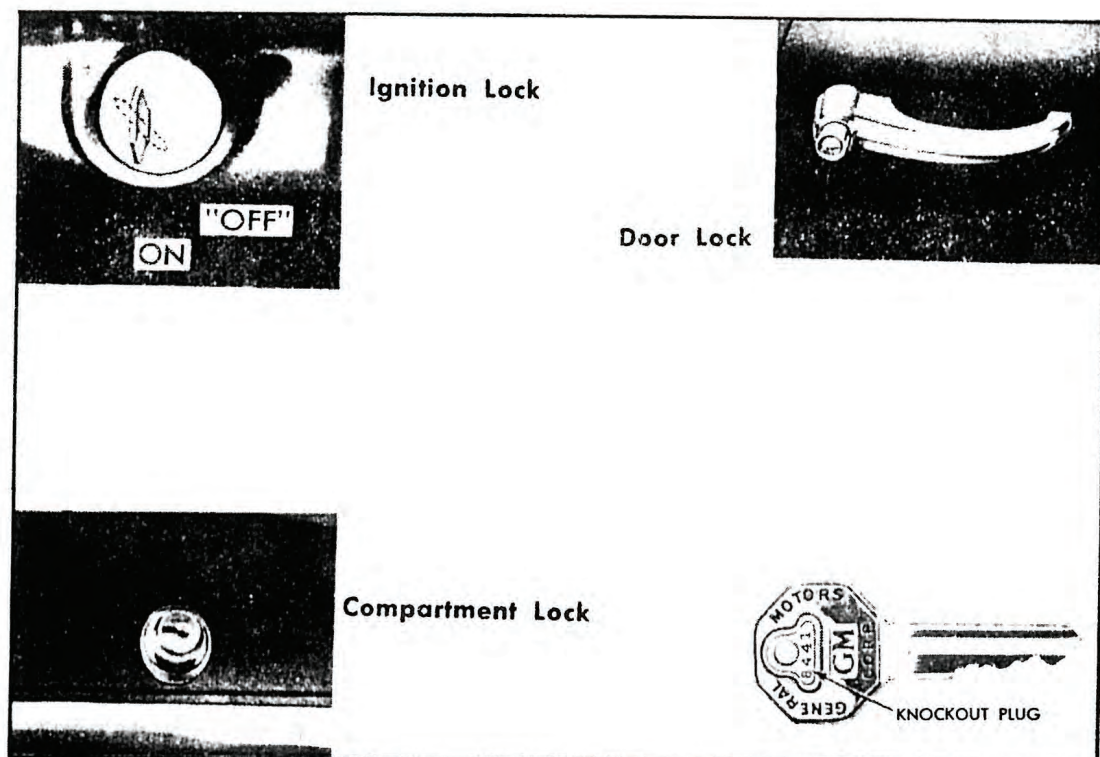
The entire seat assembly can be moved forward or backward to obtain the most comfortable position for the driver. As the seat is moved forward, it raises and tips forward. As it is moved back, it is lowered to accommodate a tall person. Move the adjuster handle forward to release the adjuster lock. The seat can be moved forward or backward as desired as handle is held to released position.



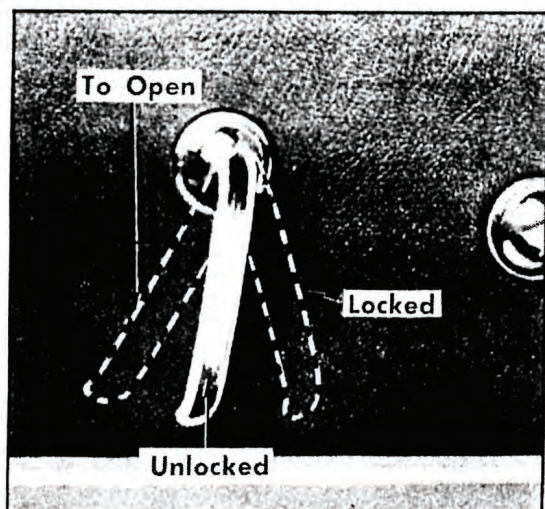
KEYS AND LOCKS

One key, furnished in duplicate, fits ignition switch, front door locks on cabs and single unit bodies, rear doors on single unit bodies, and instrument panel compartment.

The key or lock number is stamped on a knockout plug in the octagon-shaped handle of the key. The plug may be removed after the number is recorded.



Door Inside Locks



The right door lock cylinder is located in the door handle. To unlock the right door insert key in lock and turn key clockwise as far as it will go and back to vertical position to remove key. To lock the door insert key in lock and turn key counter-clockwise as far as it will go and back to vertical position to remove the key.

To lock either door from the inside it is only necessary to move the inside remote control handle forward. Pulling the inside handle to the rear unlocks the door even when it has been locked with a key.

VENTILATION

The cowl ventilator handle (illustrated) extends from the underside of dash panel and must be pushed down and in to open ventilator. This ventilator can be opened in varying degrees and directs outside air toward the driver's feet.

Louvres are provided in the lower right hand corner of cab to provide circulation of outside air when air flow type heater is used.

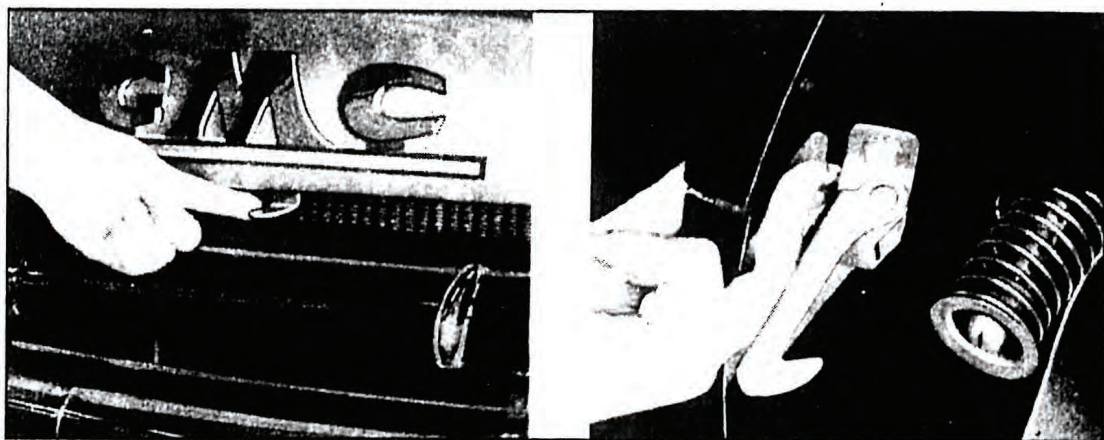


The regulator handle on each door permits the raising and lowering of door window to meet ventilation requirements. In addition each door is equipped with controlled ventilation window at the front. These can be

individually opened and closed to control cab ventilation. The latch handle, at lower part of ventilation window, must be raised to permit opening and closing of the ventilators by hand.

NOTE: To keep out offensive odors and exhaust gases when traveling in congested traffic or when parked behind a car having its motor running, close the cowl ventilator. If an outside air intake is used with a heater or ventilator, close such outside air intake to minimize introduction of contaminated air into the cab. Refer to page 70 for carbon monoxide warning.

HOOD



On conventional models (illustrated above), push lever, just below hood, to the right to release hood. Reach under hood edge with fingers, and pull safety catch forward and up while pressing down slightly on nose of hood. As hood is raised, spring loaded supports will assist in raising hood and holding it up. To close, push down on nose of hood until catches engage.

On cab-over-engine hood, release two hold-down latches, then raise hood until hood prop latch engages. To lower, raise hood slightly to disengage prop latch.

ENGINE OPERATION

STARTING

1. With shift lever in neutral (2-speed axle lever in "LOW"; on PM150-22, the Hydra-Matic control lever must be in "N"), pull choke button out part way. If weather is cold, pull choke out all the way, and hand throttle button about $1\frac{1}{2}$ ".

2. Disengage clutch, turn ignition switch on, and press on starter pedal or button. Release starter the instant engine starts.

3. Do not keep starter engaged over 15 seconds at a time. Wait 10 to 15 seconds before trying again. If engine fails to start, determine the cause. Do not pump accelerator pedal.

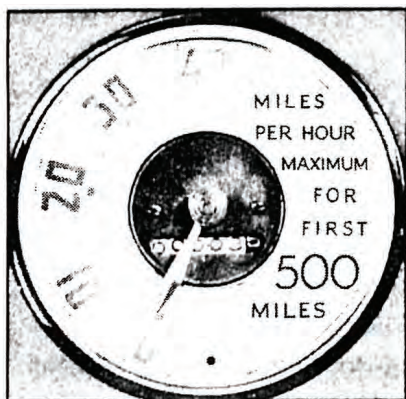
4. After engine starts, keep at fast idle through warm up period. Hand throttle and choke should be adjusted to obtain even firing.

WARM-UP

Warm up engine for short period before placing under load. Operating temperature should be between 140°F. and 180°F. (180°F. preferable.) Oil pressure after warm-up should be approximately a minimum of 5 pounds at idling and 40 pounds minimum at high operating speeds. Engine can be stopped by turning ignition switch off. Do not choke engine to stop.

BREAK-IN PRECAUTIONS

Proper care given a new truck during the first 2,000 miles is generally the basis of trouble-free service during the life of the truck. In addition to the observance of high speed precautions, **wheel nuts should be tightened daily during the first 500 miles of service.** The after-delivery services offered by your GMC Dealer will assist in breaking in the truck properly.

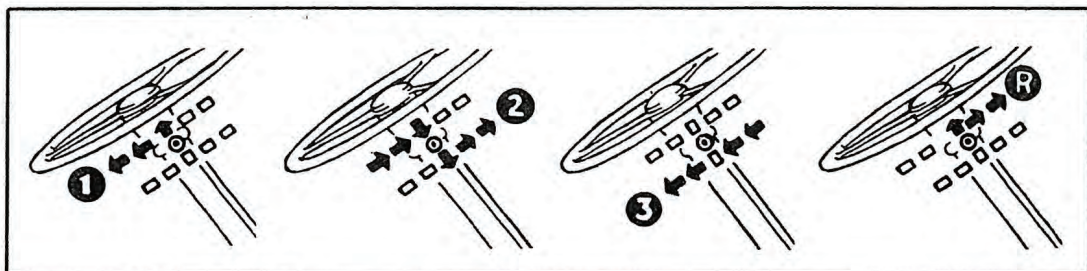


A temporary sticker, placed on the speedometer face, states: "40 MILES PER HOUR MAXIMUM FOR THE FIRST 500 MILES." Do not exceed that speed in **HIGH** gear. In lower transmission speed ranges, the road speed should be correspondingly less. Avoid continuous high speeds for the first 2,000 miles.

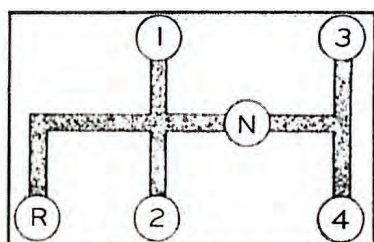
TRANSMISSIONS

Shifting diagrams for the 3-, 4-, and 5-speed mechanical transmissions are illustrated below. Use of the Hydra-Matic (PM150-22) is explained on Page 12.

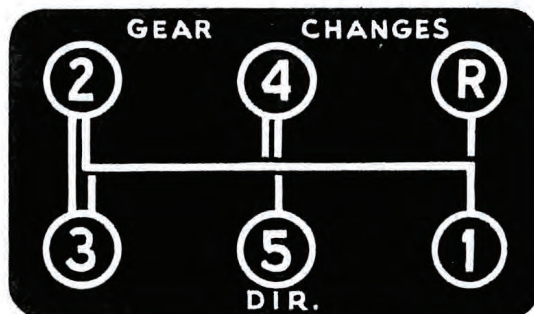
Gear shift lever for the 3-speed transmission and the Hydra-Matic transmission is mounted on steering column. The 4-speed and 5-speed transmissions are shifted with conventional shifting lever.



3-SPEED



4-SPEED



5-SPEED

SHIFTING MECHANICAL TRANSMISSIONS

The 3-speed and 4-speed transmissions are synchromesh type in which gears are automatically synchronized when up shifting. On 5-speed transmission a smoother shift can be made without gear clash if double-clutching is used. When down-shifting any of the mechanical transmissions, double-clutching technique should be used.

To shift the 4-speed transmission into reverse, or to shift the 5-speed transmission into reverse or 1st speed, slight pressure must be exerted to move shift lever to overcome spring tension at lower end of lever.

OPERATING 2-SPEED AXLE

The 2-speed axle is shifted with a control lever (illustrated) mounted near steering column. When lever is in **"High"** position, truck operates in high axle ratio throughout range of transmission gears. With lever in **"Low,"** axle ratio is reduced. Lever must be in either **"High"** or **"Low"** position as there is no neutral position.



SHIFTING AXLE—LOW TO HIGH

Always start truck in **"Low"** range. Truck should also be parked in **"Low"** range.

With accelerator **down**, move lever to **"High."** Release accelerator, disengage clutch—pause—engage clutch, and press down on accelerator.

SHIFTING AXLE—HIGH TO LOW

Do not move lever from **"HIGH"** to **"LOW"** until just before actual shift is to be made.

Hold accelerator **down** as lever is shifted from **"High"** to **"Low."** If driving fast, release accelerator and push down again—**quickly**. If driving slow, hold accelerator down, then **quickly** disengage and engage clutch.

SPLIT-SHIFTING AXLE AND TRANSMISSION

GEAR SHIFT SEQUENCE

1-L0
1-H1
2-L0
2-H1
3-L0
3-H1
4-L0
4-H1
5-L0
5-H1

To maintain power and road speed, progressively shift transmission and axle at the same time.

This means that both axle ranges should be progressively used in each transmission speed, before shifting to a higher or lower transmission ratio. A decal (see illustration) is furnished for the 5-speed transmission; however progressive shifts for the 4-speed transmission are same as the first four speeds of the 5-speed unit.

SPLIT-SHIFTING AXLE AND TRANSMISSION (Cont.)

To Shift Into Higher Transmission Gear and Low Axle Range: Ease up accelerator. Shift transmission, using the double-clutch method, and just before engaging clutch, move lever to "Low"; then press down on accelerator.

To Shift Into Lower Transmission Gear and High Axle Range: With accelerator pressed down, move lever to "High"; then shift transmission using the double-clutch method. Axle shift will take place while transmission is being shifted.

SHIFTING CAUTIONS

Improper driving practices when shifting transmission and 2-speed axle can result in damage to drive units. Damage is more likely to occur when preparing to use engine as braking medium for descending grades, and when down-shifts are made when vehicle is traveling too fast. There will be less possibility of damage if following precautions are observed:

1. Employ double-clutching technique when down-shifting transmission **using special care to synchronize engine speed with drive line speed before engaging clutch.**
2. Engage clutch gradually to avoid too rapid pickup of load and prevent jerking.
3. **Do not coast with transmission in neutral or with clutch disengaged.** Disengage clutch only when shifting gears or when preparing to stop.
4. Do not down-shift at too high a road speed.
5. Use split shifting to maintain even road speed and maximum power, if vehicle has 2-speed axle.
6. Use lowest gear ratio in transmission to set loaded truck in motion. With 2-speed axle, start truck in "Low" range.
7. Shift to lower transmission gear when road and load conditions cause engine to slow down noticeably, but before engine begins to labor.

TOP SPEEDS

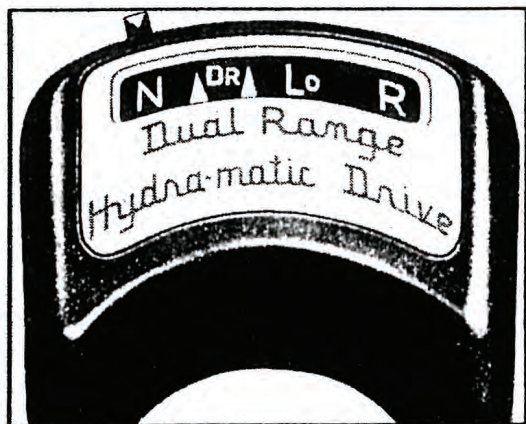
Any of the transmission speeds can be used continuously to meet road and load conditions. Maintain the highest road speed in the proper gear which will keep the engine speed above two-thirds of the recommended maximum (or governed) speed.

HYDRA-MATIC DRIVE

The Hydra-Matic drive, on series PM150-22, consists of a fluid coupling which replaces the conventional clutch, and is combined with a hydraulically controlled automatic transmission having four speeds forward and one reverse. Gear changing is accomplished automatically by the transmission in accordance with the performance demands of the road conditions and the wish of the driver.

SHIFT CONTROL LEVER

The shift lever, just below the steering wheel, is used to select neutral, one of three forward speed ranges, or reverse. Positions are plainly marked on indicator segment which is illuminated when instrument lights are on. These positions are:



N—Neutral (and starting)

ΔDR—Normal forward driving

DRΔ—For faster acceleration and in congested traffic

LO—For controlled power

R—Reverse (and parking)

STARTING ENGINE

The Hydra-Matic control lever must be in **N** (neutral) before engine can be started as starter will not operate with lever in any other position. Procedures for starting engine are same as described on Page 8.

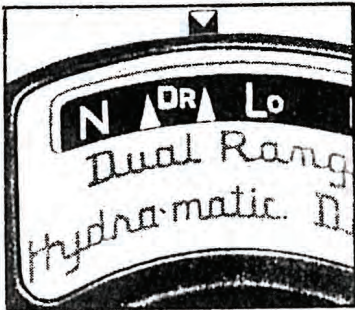
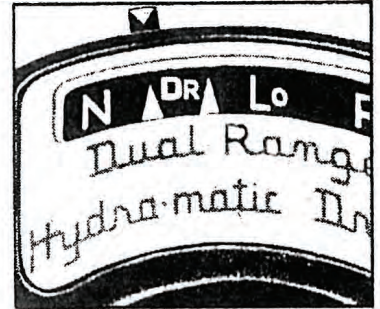
Starting Engine by Pushing

If necessary to start engine by pushing or towing a short distance, move lever to **N** (neutral) position. When vehicle speed reaches approximately 20 mph, turn on ignition switch and move lever to either **DR** position.

HYDRA-MATIC DRIVE (Cont.)

OPERATING IN DRIVE RANGES

There are two drive ranges (DR), indicated on the shift segment plate by **DR** with an arrow on the right and left side of the DR designation. The position marked by the **left-hand** arrow is used for normal forward driving, providing reduced engine speeds, and better driving comfort and fuel economy.



The position marked by the **right-hand** arrow is used for increased acceleration when driving in congested traffic. This position may also be used when ascending and descending long grades. The lever can be moved from one arrow to the other at any vehicle speed on **dry** roads.

Moving and Stopping

After the engine is warmed up, the control lever can be moved from "N" to any of the drive positions. When engine is cold, the vehicle may creep forward when lever is placed in a drive position. Hold vehicle with brakes until ready to move.

After releasing the brakes, the vehicle will move forward when accelerator is depressed. The shift events (1st to 2nd, 2nd to 3rd, 3rd to 4th) will occur at progressively higher speeds depending upon accelerator pressure. With slight accelerator pressure, shifts will occur at lower speeds. As accelerator is depressed, shifts occur at higher speeds.

To stop the vehicle, release accelerator and apply brakes. Do not move the control lever from the drive range selected. This permits use of engine to brake vehicle. When ready to move again, release brakes and step on accelerator as required.

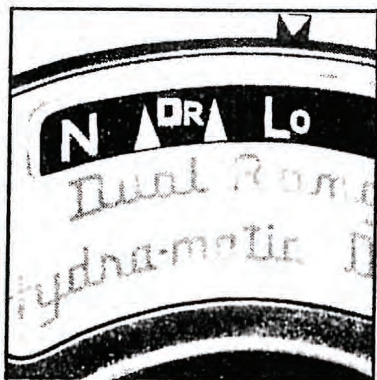
HYDRA-MATIC DRIVE (Cont.)

FORCED DOWNSHIFT

For a needed spurt of "passing" or "pick-up" speed when driving in any of the DR ranges, depress the accelerator pedal completely (past detent). The drive will then change to a lower speed for a rapid pick-up, and will return to a higher speed automatically as vehicle speed is increased.

OPERATION IN LO RANGE

The LO range (second speed) is provided for pulling through sand or snow, and when necessary to ascend and descend steep grades. This position should be used to **place vehicle in motion** on icy roads as vehicle can be moved in 2nd with light to medium throttle. The lever can be moved from either of the DR position to LO at a vehicle speed not to exceed 25 mph. Lever must be raised slightly to move from DR to LO. Release accelerator when making the shift.



CAUTION: Do not change from a DR position to LO while under way on icy or slippery roads, as vehicle may skid. Reduce the vehicle speed by proper use of brakes. This change can be made, however, on dry roads.

Forced Downshift in LO

A forced downshift to first speed can be made while in LO position with vehicle speed less than 5 mph. Completely depress the accelerator pedal. Transmission will automatically shift to second speed at a higher vehicle speed.

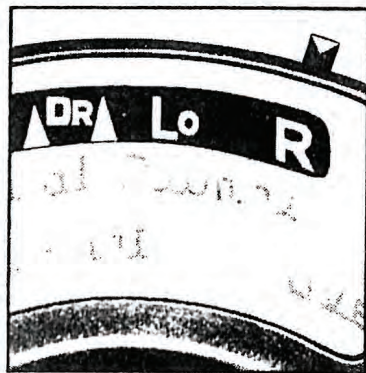
COASTING

Do not coast with lever in neutral. This method will be harmful to the transmission.

HYDRA-MATIC DRIVE (Cont.)

REVERSING

While it is advisable to be at a complete stop before engaging reverse, it is possible to shift into "R" while vehicle is in slight (1 to 2 mph) forward motion. Avoid engaging reverse at forward speeds above 1 to 2 mph. This permits moving the lever between LO and R with light accelerator pedal pressure, permitting rocking the vehicle when required to get out of mud, snow, or sand. Raise the lever when moving to reverse. When moving the lever, while raised, from reverse toward neutral, the lever will stop at the left DR position. This prevents unwanted "over-selecting" into neutral.



STANDING AND PARKING

Under no circumstances should the control lever remain in any other position than neutral when driver leaves the vehicle with engine running. In this case, always apply parking brake.

For additional safety while parking, turn off ignition key, then move lever to reverse position. This permits engagement of transmission providing "in gear" parking. When parking on an incline in this manner, hold vehicle with brakes for a few seconds to permit engagement of transmission parts.

TOWING VEHICLE

If the transmission is not functioning properly, the propeller shaft should be disconnected, or vehicle towed with rear wheels off of the ground.

If being towed for other than transmission failures, propeller shaft need not be disconnected providing the vehicle has been broken-in (over 1000 miles) and the shift lever is placed in neutral. Do not tow vehicle over 25 mph.

USE OF BRAKES

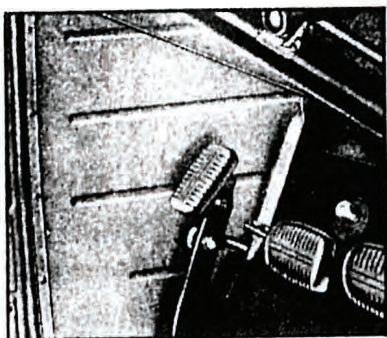
SERVICE BRAKES

Brakes are applied by depressing the brake pedal at right of steering column. Degree of brake application is in direct proportion to the amount of physical pressure applied to the brake pedal. Apply brakes gradually as hard as speed and road conditions permit, then reduce pedal pressure gradually as speed is re-

duced so that a very slight pressure is used at completion of stop. If brakes are applied lightly at beginning and pressure increased as speed decreases, the final high pressure will produce a severe stop, and will require a longer distance to complete the stop. Do not use hand brake for normal stopping.

PARKING BRAKE

Foot Operated Type



Foot parking brake pedal is located at left of clutch pedal. Parking brake is applied by pressing foot pedal forward. To release, pull back on knob marked "Brake Release" on lower edge of instrument panel. Brake pedal will snap back to fully released position.

Hand Operated Type

Hand type parking brake is applied by pulling hand brake lever back toward seat. To release, pull back on lever, at the same time squeezing release handle against lever. Hold release handle against lever while moving lever forward to released position.

Trailer Hand Control

A hand control valve is supplied on some vehicles to apply trailer brakes independently of truck brake system. Varying degrees of trailer brake application ranging from fully released to fully applied position may be made with the hand control. Valve may be set to produce a slight drag on trailer when descending a grade, or trailer brakes may be used alone when stopping on slippery surface to avoid jack knifing. Application of truck brake pedal, however, will "over-rule" valve setting.

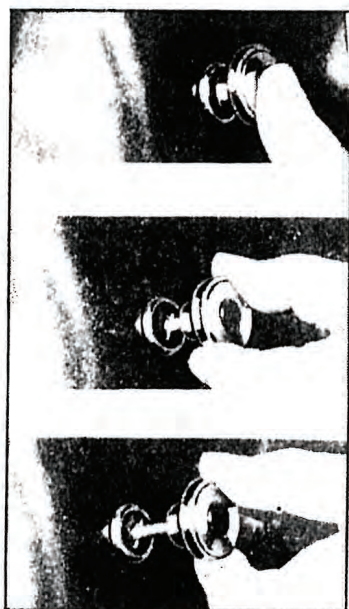
Braking Hints

1. Avoid sudden stops except in cases of emergency. Anticipate stops—use engine as brake, de-clutching when road speed drops to 10 MPH.
2. Do not coast with engine off when Hydrovac is used. Although some degree of brake control is retained without vacuum assistance brake efficiency is considerably reduced.

USE OF LIGHTS

The main light switch in the instrument panel energizes all lights except the stop light and dome light (if used). The stop light operates through a mechanically operated switch only when brakes are applied.

MAIN LIGHT SWITCH



With Main Light Switch Knob Pushed In, all lights are out except stop lights.

With Main Light Switch Knob Pulled Out to First Stop, the parking lights and tail lights are illuminated.

With Main Light Switch Knob Pulled Out to Second Stop, the headlights and tail lights are illuminated. The foot dimmer switch can then be used to control upper and lower headlight beams. A tell-tale light (in speedometer face) illuminates when high beam is used.

Instrument Lights

After main light switch is pulled out to first or second stop, instrument lights are energized. These lights can be dimmed from full bright to completely off by turning switch knob clockwise.



Dimmer Switch

With main light switch in second stop, a foot operated switch on toe board controls lower and upper headlight beams. Lower beam is used on city streets, lighted country highways or when passing approaching vehicles on unlighted highways. Upper beam is used on unlighted country highways.

LUBRICATION

The following charts show lubricating points, recommended intervals, and types of lubricant. Each chart will serve the purpose of locating various lubrication points on models listed on each chart.

Only the items which are periodically lubricated are numbered on charts. Such items that require lubrication only at assembly are listed below and explained in the text following charts.

Descriptions of the various types of lubricant, as indicated by symbols in the right-hand column of chart text, are on pages following charts.

REAR AXLE CAPACITIES (Pints or Pounds)

Series	Standard	Optional 2-spd.	Optional H.D.
100-22	4½	—	—
150-22	6	—	—
PM150-22	6	—	—
250-22	6	—	—
280-22	11	—	—
300-24	11	—	—
S300-24	11	13	12
350-24	12	13	—
F350-24	12	13	—

TRANSMISSION

3-speed (pints)	1½
4-speed (pints)	6
5-speed (pints)	12
Hydra-Matic, Approx. (qts.)....	12

CRANKCASE

Crankcase refill is 8 quarts. If oil filter element is changed, refill is approximately 9½ quarts. Always fill to dipstick "FULL" mark.

At Assembly Items

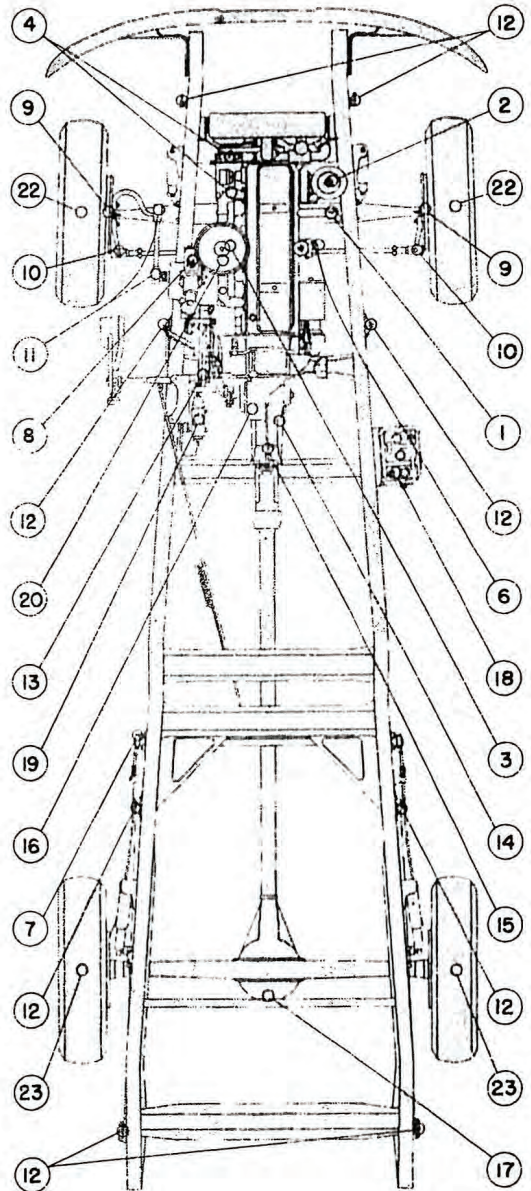
Item	Lubricant
Universal Joint (at trans.)	MP.....100-22, 150-22, PM150-22
Steering Column Upper Brg.	S2All
Speedometer Cable	SGAll
Clutch Release Collar	S2All
Clutch Fork Ball Stud	S2All
Clutch Pilot Brg.	S2All
Clutch Shaft Splines	S5All
Shaft Center Brg. Shield	S4Except 100 and 150
Rear Wheel Bearings	S2All

SERIES 100-22

Item	Name	Miles	Lub. Symbol
1	ENGINE Keep to "Full" mark.....	Daily	E
2	ENGINE OIL FILTER (If used) See instructions.....		E
3	CARBURETOR AIR CLEANER Clean and reoil or refill....	1000	E
4	GENERATOR 2 oil cups.....	1000	E
5	STARTER No lubrication required....		..
6	DISTRIBUTOR Shaft—grease cup..... Breaker cam..... Rotor wick..... Pivot pin.....	1000 1000 1000 1000	S2 S3 E E
	CONTROL LINKAGE Oil can or spray.....	1000	E
8	STEERING GEAR HOUSING To level of plug.....	1000	SG
9	STEERING KNUCKLES 2 fittings each side.....	1000	C
10	TIE ROD ENDS 1 fitting each end.....	1000	C
11	STEERING DRAG LINK 1 fitting each end.....	1000	C
12	SPRING SHACKLES AND BRACKETS (F & R) 6 fittings each side.....	1000	C
13	BRAKE PEDAL 1 fitting.....	1000	C
14	SPEEDOMETER ADAPTER (If used) 1 fitting or grease cup.....	1000	C
15	PROP. SHAFT CENTER BEARING (†) 1 fitting.....	1000	C
16	TRANSMISSION To level of filler plug.....	1000	MP
17	REAR AXLE To level of filler plug.....	1000	MP
18	BATTERY TERMINALS Keep coated.....	1000	S3
19	BRAKE MASTER CYLINDER Keep filled.....	1000	S12
20	GOVERNOR AIR FILTER (If used) Clean and reoil.....	5000	E
21	SHOCK ABSORBERS (F & R) Non-refillable type.....		..
22	WHEEL BEARINGS—FRONT Hand pack or use lubricator	20000 (*)	S2
23	WHEEL BEARINGS—REAR Lubricated from rear axle..	(*)	S16

(†) Model 102-22 only.

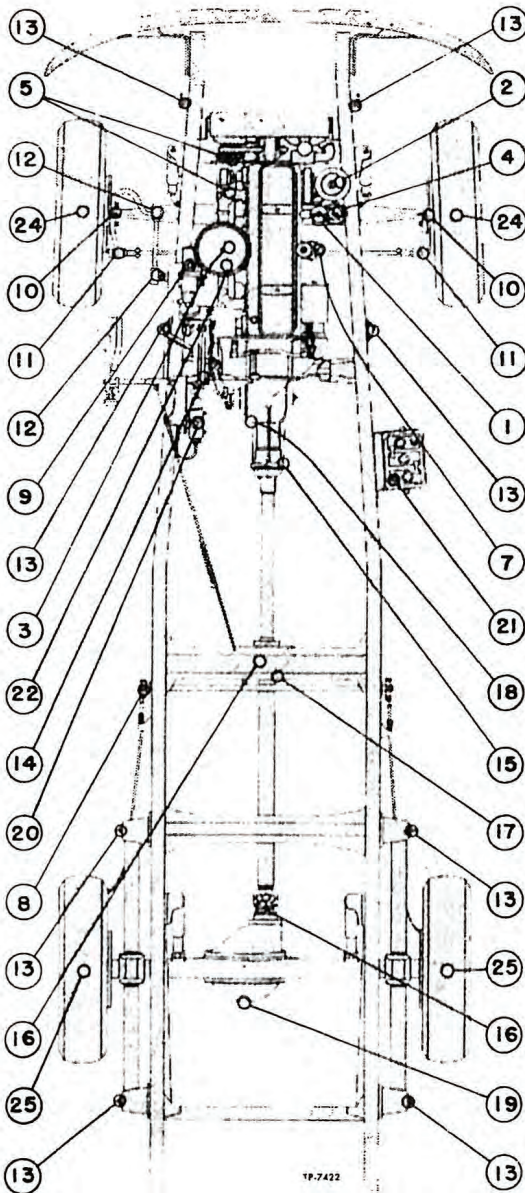
(*) See instructions.



MEANING OF LUBRICANT SYMBOLS

"E."—Engine Oil.
 "MP."—Multi-Purpose Gear Lubricant.
 "S.G."—Steering Gear Lubricant.
 "C"—Chassis Lubricant.
 "S2"—15% Sodium Soap Grease.
 "S3"—Petroleum Jelly.
 "S4"—Waterproof Grease.
 "S5"—Graphite Grease.
 "S6"—Absorber Fluid.
 "S12"—Hydraulic Brake Fluid.
 "S16"—Smooth Soft Grease.

SERIES 150-22



MEANING OF LUBRICANT SYMBOLS

"E."—Engine Oil.
 "MP."—Multi-Purpose Gear Lubricant.
 "S.G."—Steering Gear Lubricant.
 "C"—Chassis Lubricant.
 "S2"—15% Sodium Soap Grease.
 "S3"—Petroleum Jelly.
 "S4"—Waterproof Grease.
 "S5"—Graphite Grease.
 "S6"—Absorber Fluid.
 "S12"—Hydraulic Brake Fluid.
 "S16"—Smooth Soft Grease.

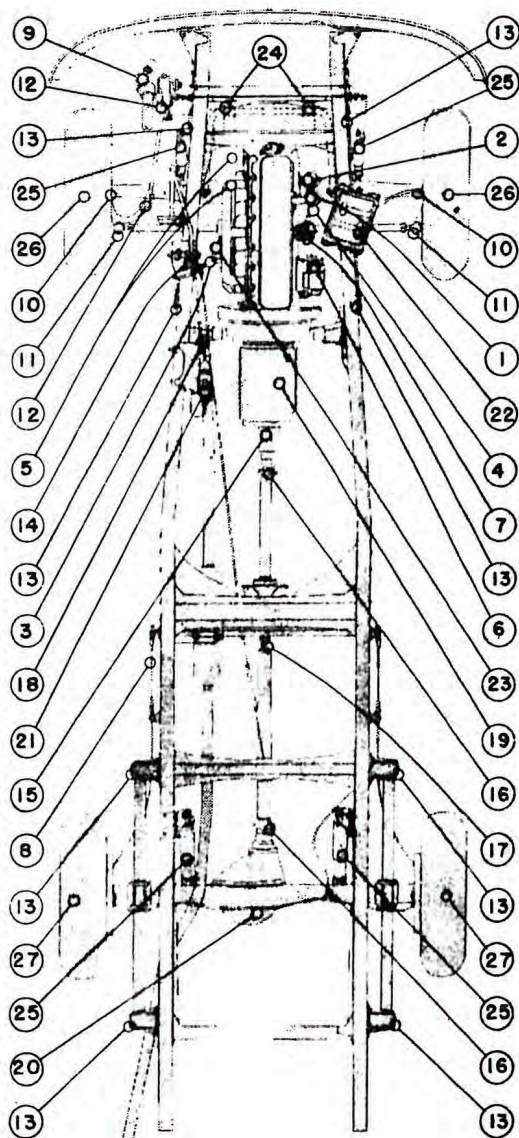
Item	Name	Miles	Lub. Symbol
1	ENGINE Keep to "Full" mark.....	Daily	E
2	ENGINE OIL FILTER (If used) See instructions.....		E
3	CARBURETOR AIR CLEANER Clean and reoil or refill....	1000	E
4	CRANKCASE BREATHER (When Used) Clean and refill.....	1000	E
5	GENERATOR 2 oil cups.....	1000	E
6	STARTER No lubrication required....		
7	DISTRIBUTOR Shaft—grease cup..... Breaker cam..... Rotor wick..... Pivot pin.....	1000 1000 1000 1000	S2 S3 E E
8	CONTROL LINKAGE Oil can or spray.....	1000	E
9	STEERING GEAR HOUSING To level of plug.....	1000	SG
10	STEERING KNUCKLES 2 fittings each side.....	1000	C
11	TIE ROD ENDS 1 fitting each end.....	1000	C
12	STEERING DRAG LINK 1 fitting each end.....	1000	C
13	SPRING SHACKLES AND BRACKETS— F & R 6 fittings each side.....	1000	C
14	BRAKE PEDAL 1 fitting.....	1000	C
15	SPEEDOMETER ADAPTER (If used) 1 fitting or grease cup....	1000	C
16	PROP. SHAFT U-JOINT 1 fitting each joint.....	1000	MP
17	PROP. SHAFT SLIP JOINT 1 fitting each joint.....	1000	C
18	TRANSMISSION To level of filler plug.....	1000	MP
19	REAR AXLE To level of filler plug.....	1000	MP
20	BRAKE MASTER CYLINDER Keep filled.....	1000	S12
21	BATTERY TERMINALS Keep coated.....	1000	S3
22	GOVERNOR AIR FILTER (If used) Clean and reoil.....	5000	E
23	SHOCK ABSORBERS Non-refillable type.....		
24	WHEEL BEARINGS—FRONT Hand pack or use lubricator	20000 (*)	S2
25	WHEEL BEARINGS—REAR Lubricated from rear axle..	(*)	S16

(*) See instructions.

SERIES PM150-22

Item	Name	Miles	Lub. Symbol
1	ENGINE Keep to "Full" mark.....	Daily	E
2	ENGINE OIL FILTER (If used) See Instructions.....		E
3	CARBURETOR AIR CLEANER Clean and reoil.....	1000	E
4	CRANKCASE BREATHER Clean and refill.....	1000	E
5	GENERATOR 2 oil cups.....	1000	E
6	STARTER Oiler.....	1000	E
7	DISTRIBUTOR Shaft-Grease cup..... Breaker cam..... Rotor wick..... Pivot Pin.....	1000 1000 1000 1000	S2 S3 E E
8	CONTROL LINKAGE Oil can or spray.....	1000	E
9	STEERING GEAR HOUSING To level of plug.....	1000	SG
10	STEERING KNUCKLES 2 fittings each side.....	1000	C
11	TIE ROD ENDS 1 fitting each end.....	1000	C
12	STEERING DRAG LINK 1 fitting each end.....	1000	C
13	SPRING SHACKLES AND BRACKETS— F & R 6 fittings each side.....	1000	C
14	BRAKE PEDAL 1 fitting.....	1000	C
15	SPEEDOMETER ADAPTER 1 fitting or grease cup.....	1000	C
16	PROP. SHAFT U-JOINT 1 fitting each joint.....	1000	MP
17	PROP. SHAFT SLIP JOINT 1 fitting each joint.....	1000	C
18	BRAKE OPERATING LEVER 1 fitting.....	1000	C
19	TRANSMISSION Check level..... Drain and refill.....	Daily 15000	S19 S19
20	REAR AXLE To level of filler plug.....	1000	MP
21	BRAKE MASTER CYLINDER Keep filled.....	1000	S12
22	BATTERY TERMINALS Keep coated.....	1000	S3
23	GOVERNOR AIR FILTER (If used) Clean and reoil.....	5000	E
24	SWAY-BAR BUSHINGS Brush or spray.....	1000	S12
25	SHOCK ABSORBERS non-refillable type.....		..
26	WHEEL BEARINGS—FRONT Hand pack or use lubricator.....	20000 (*)	S2
27	WHEEL BEARINGS—REAR Lubricated from rear axle..	(*)	S16

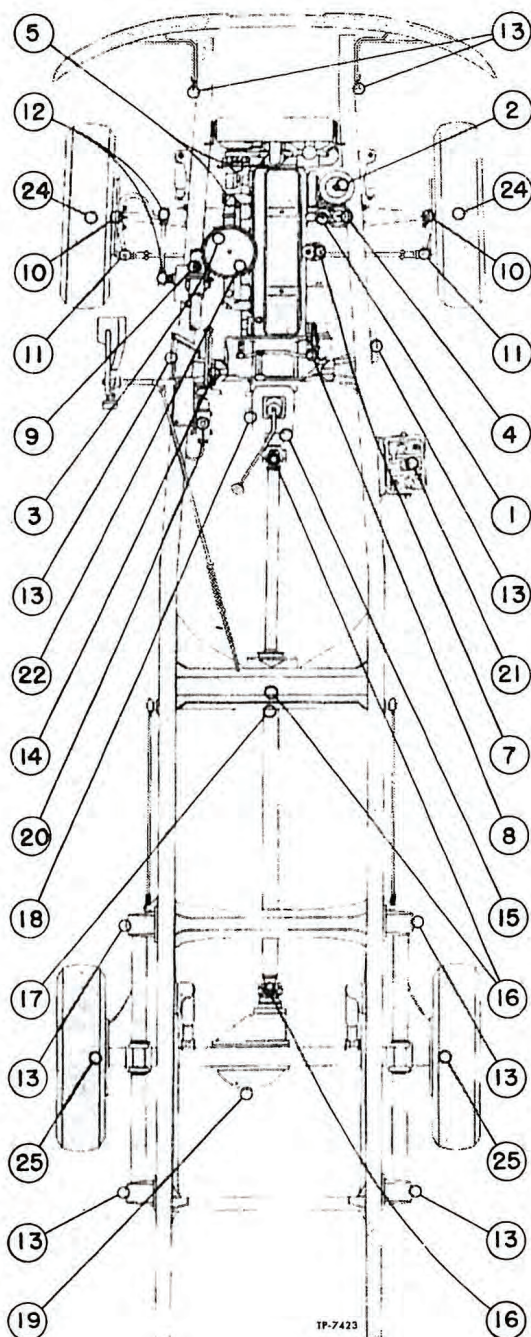
(*) See instructions.



MEANING OF LUBRICANT SYMBOLS

"E"—Engine Oil
 "MP"—Multi-Purpose Gear Lubricant
 "SG"—Steering Gear Lubricant
 "C"—Chassis Lubricant
 "S2"—15% Sodium Soap Grease
 "S3"—Petroleum Jelly
 "S12"—Hydraulic Brake Fluid
 "S19"—Hydra-Matic Fluid
 "S16"—Smooth Soft Grease.

SERIES 250-22



MEANING OF LUBRICANT SYMBOLS

"E."—Engine Oil.
 "MP."—Multi-Purpose Gear Lubricant.
 "S.G."—Steering Gear Lubricant.
 "C."—Chassis Lubricant.
 "S2"—15% Sodium Soap Grease.
 "S3"—Petroleum Jelly.
 "S4"—Waterproof Grease.
 "S5"—Graphite Grease.
 "S6"—Absorber Fluid.
 "S12"—Hydraulic Brake Fluid.
 "S16"—Smooth Soft Grease.

Item	Name	Miles	Lub. Symbol
1	ENGINE Keep to "Full" mark.....	Daily	E
2	ENGINE OIL FILTER (If used) See instructions.....		E
3	CARBURETOR AIR CLEANER Clean and reoil or refill....	1000	E
4	CRANKCASE BREATHER (If used) Clean and refill.....	1000	E
5	GENERATOR 2 oil cups..	1000	E
6	STARTER No lubrication required....		
7	DISTRIBUTOR Shaft—Grease cup..... Rotor wick..... Pivot pin..... Breaker cam.....	1000 1000 1000 1000	S2 E E S3
8	CONTROL LINKAGE Oil can or spray.....	1000	E
9	STEERING GEAR HOUSING To level of plug.....	1000	SG
10	STEERING KNUCKLES 2 fittings each side.....	1000	C
11	TIE RODS ENDS 1 fitting each end.....	1000	C
12	DRAG LINK 1 fitting each end.....	1000	C
13	SPRING SHACKLES & BRACKETS—F & R 6 fittings each side.....	1000	C
14	BRAKE PEDAL 1 fitting.....	1000	C
15	SPEEDOMETER ADAPTER (When used) 1 fitting or cup.....	1000	C
16	PROP. SHAFT U-JOINT 1 fitting each joint.....	1000	MP
17	PROP. SHAFT SLIP JOINT 1 fitting each joint.....	1000	C
18	TRANSMISSION To level of filler plug.....	1000	MP
19	REAR AXLE To level of filler plug.....	1000	MP
20	BRAKE MASTER CYLINDER Keep filled.....	1000	S12
21	BATTERY TERMINALS Keep coated.....	1000	S3
22	GOVERNOR AIR FILTER (If used) Clean and reoil.....	5000	E
23	SHOCK ABSORBERS Non-refillable type.....		
24	FRONT WHEEL BEAFINGS Hand pack or use lubricator 20000 (*)		S2
25	REAR WHEEL BEARINGS Lubricated from rear axle..	(*)	S16
—	HYDROVAC (When used) See Instructions.....	10000	S6

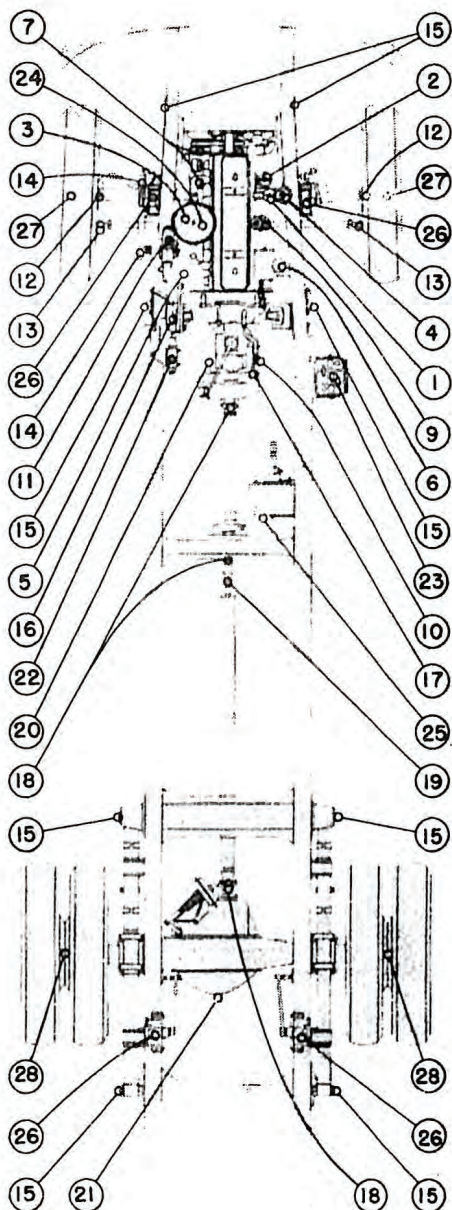
(*) See instructions.

SERIES 280-22, 300-24, S300-24, and 350-24

(2-Spd. Axle Shown)

Item	Name	Miles	Lub. Symbol
	ENGINE		
	Keep to "Full" mark.....	Daily	E
2	ENGINE OIL FILTER (If used)		
	See instructions.....		E
3	CARBURETOR AIR CLEANER		
	Clean and refill.....	1000	E
4	CRANKCASE BREATHER		
	Clean and refill.....	1000	E
5	VACUUM SHIFT CONTROL VALVE AIR STRAINER (2-spd. axle)		
	Clean and install dry.....	1000	..
6	HYDROVAC AIR CLEANER		
	Clean and reoil.....	1000	E
7	GENERATOR		
	2 oil cups.....	1000	E
8	STARTER		
	No lubrication required.....		..
9	DISTRIBUTOR		
	Shaft—Grease cup.....	1000	S2
	Breaker cam.....	1000	S3
	Rotor felt.....	1000	E
	Breaker pivot.....	1000	E
10	HAND BRAKE OPER. LEVER		
	1 fitting.....	1000	C
11	STEERING GEAR HOUSING		
	To level of plug.....	1000	SG
12	STEERING KNUCKLES		
	2 fittings each side.....	1000	C
13	TIE ROD ENDS		
	1 fitting each end.....	1000	C
14	STEERING DRAG LINK		
	1 fitting each end.....	1000	C
15	SPRING SHACKLES AND BRACKETS F & R		
	6 fittings each side.....	1000	C
16	BRAKE PEDAL		
	1 fitting.....	1000	C
17	SPEEDOMETER ADAPTER (If used)		
	1 fitting.....	1000	C
18	PROP. SHAFT U-JOINT		
	1 fitting each joint.....	1000	MP
19	PROP. SHAFT SLIP JOINT		
	1 fitting each joint.....	1000	C
20	TRANSMISSION		
	To level of filler plug.....	1000	MP
21	REAR AXLE		
	To level of filler plug.....	1000	MP
22	BRAKE MASTER CYLINDER		
	Keep filled.....	1000	S12
23	BATTERY TERMINALS		
	Keep coated.....	1000	S3
24	GOVERNOR AIR FILTER		
	Clean and reoil.....	5000	E
25	HYDROVAC		
	See instructions.....	10000	S6
26	SHOCK ABSORBERS (If used)		
	To level of filler plug.....	10000	S6
27	FRONT WHEEL BEARINGS		
	20000 (*)	S16
28	REAR WHEEL BEARINGS		
	Lubricated from rear axle (except 2-spd axle).....	(*)	S16
	On 2-spd axle.....	20000	S16

(*) See instructions.

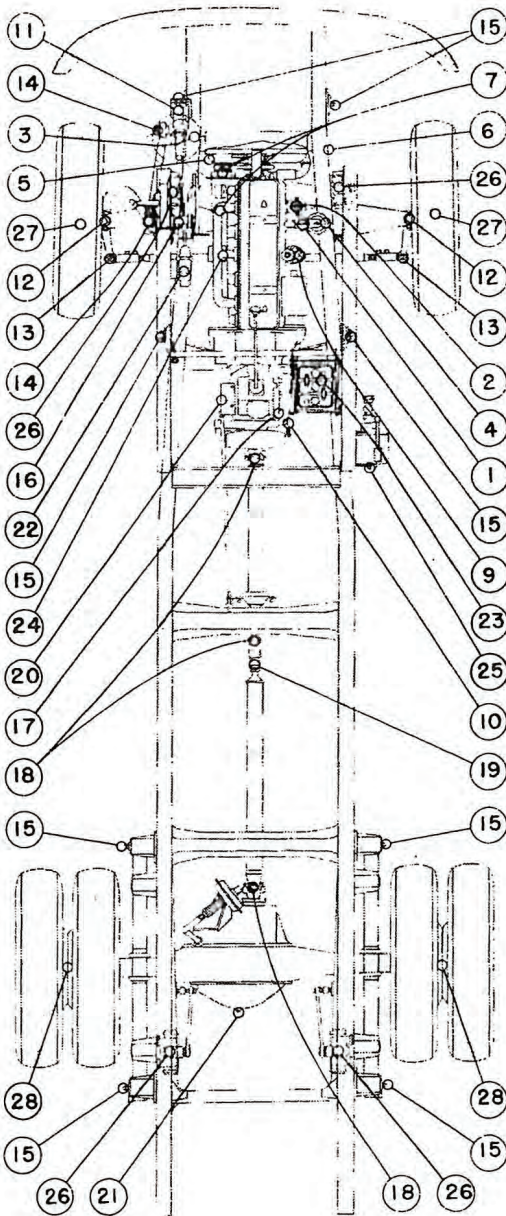


MEANING OF LUBRICANT SYMBOL

"E."—Engine Oil.
 "MP."—Multi-Purpose Gear Lubricant.
 "S.G."—Steering Gear Lubricant.
 "C"—Chassis Lubricant.
 "S2"—15% Sodium Soap Grease.
 "S3"—Petroleum Jelly.
 "S4"—Waterproof Grease.
 "S5"—Graphite Grease.
 "S6"—Absorber Fluid.
 "S12"—Hydraulic Brake Fluid.
 "S16"—Smooth, Soft Grease.

SERIES F350-24

(2-Spd Axle Shown)



MEANING OF LUBRICANT SYMBOLS

"E."—Engine Oil.
 "MP."—Multi-Purpose Gear Lubricant.
 "S.G."—Steering Gear Lubricant.
 "C."—Chassis Lubricant.
 "S2"—15% Sodium Soap Grease.
 "S3"—Petroleum Jelly.
 "S4"—Waterproof Grease.
 "S5"—Graphite Grease.
 "S6"—Absorber Fluid.
 "S12"—Hydraulic Brake Fluid.
 "S16"—Smooth, Soft Grease.

Item	Name	Miles	Lub. Symbol
1	ENGINE Keep to "Full" mark.....	Daily	E
2	ENGINE OIL FILTER (If used) See instructions.....		E
3	CARBURETOR AIR CLEANER Clean and refill.....	1000	E
4	CRANKCASE BREATHER Clean and refill.....	1000	E
5	VACUUM SHIFT CONTROL VALVE AIR STRAINER (2-spd. axle) Clean and install dry.....	1000	
6	HYDROVAC AIR CLEANER Clean and reoil.....	1000	E
7	GENERATOR 2 oil cups.....	1000	E
8	STARTER No lubrication required.....		
9	DISTRIBUTOR Shaft—Grease cup..... Breaker cam..... Rotor felt..... Breaker pivot.....	1000 1000 1000 1000	S2 S3 E E
10	HAND BRAKE OPER. LEVER 1 fitting.....	1000	C
11	STEERING GEAR HOUSING To level of plug.....	1000	SG
12	STEERING KNUCKLES 2 fittings each side.....	1000	C
13	TIE ROD ENDS 1 fitting each end.....	1000	C
14	STEERING DRAG LINK 1 fitting each end.....	1000	C
15	SPRING SHACKLES AND BRACKETS—F & R 6 fittings each side.....	1000	C
16	CLUTCH AND BRAKE PEDALS 2 fittings.....	1000	C
17	SPEEDOMETER ADAPTER (If used) 1 fitting.....	1000	C
18	PROP. SHAFT U-JOINT 1 fitting each joint.....	1000	MP
19	PROP. SHAFT SLIP JOINT 1 fitting each joint.....	1000	C
20	TRANSMISSION To level of filler plug.....	1000	MP
21	REAR AXLE To level of filler plug.....	1000	MP
22	BRAKE MASTER CYLINDER Keep filled.....	1000	S12
23	BATTERY TERMINALS Keep coated.....	1000	S3
24	GOVERNOR AIR FILTER (If used) Clean and reoil.....	5000	E
25	HYDROVAC See instructions.....	10000	S6
26	SHOCK ABSORBERS (If used) To level of filler plug.....	10000	S6
27	WHEEL BEARINGS—FRONT Hand pack or use lubricator.....	20000 (*)	S16
28	REAR WHEEL BEARINGS Lubricated from rear axle (except 2-spd. axle)..... On 2-spd. axle.....	(*) 20000	S16 S16

(*) See instructions.

ENGINE OIL

SYMBOL "E" ON CHARTS

Crankcase oils in service, unless protected against oxidation, may form sludge and varnish, and under some conditions, corrosive acids. To minimize the formation of these harmful decomposition products and to supply the type of oil best suited for the different operating conditions, the oil industry markets several types of crankcase oils.

These types are defined by the General Committee, Division of Marketing of the American Petroleum Institute as follows:

"Regular Type"—This term designates motor oil generally suitable for use in internal combustion engines under moderate conditions.

"Premium Type"—This term designates motor oil having the oxidation stability and bearing corrosion preventive properties necessary to make it generally suitable for use in internal combustion engines where operating conditions are more severe than regular duty.

"Heavy-Duty Type"—This term designates motor oil having the oxidation stability, bearing corrosion preventive properties, and detergent-dispersant characteristics necessary to make it generally suitable for use in both high speed Diesel and gasoline engines under heavy-duty service conditions.

RECOMMENDATIONS

In commercial service the crankcase oil frequently operates at a much higher temperature than in passenger car service, consequently is more subject to deterioration. Varnish on

the pistons, valve stems, and other engine parts causes sluggish operation of the engine. Sludge will eventually clog the oil pump screen, oil passages and oil rings.

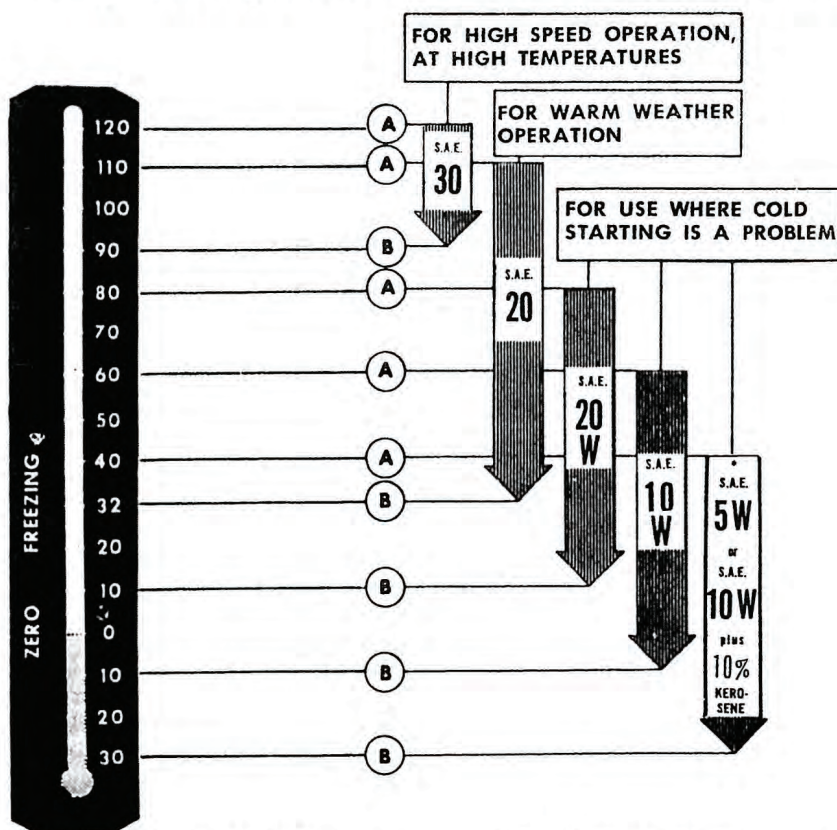
For maximum protection under all driving conditions, it is recommended that Heavy-Duty Motor Oils be used. If the Heavy-Duty Type Oils are not

available. Premium Type Oils may be used. Under no condition, except for extremely light duty, should the Regular Type Oils be used."

ENGINE OIL VISCOSITIES

The proper viscosity of oil for use at various climates and operating conditions may be selected from chart on this page. In cold weather operation, if vehicle is not stored in a heated garage, starting the engine may be difficult if heavier oil than indicated on the chart is used. *The use of lighter oils will not only lessen cold weather starting difficulties, but will result in fuel economy and longer engine life.* The S.A.E. viscosity numbers constitute a classification of lubricants in terms of viscosity or fluidity, but with no reference to any other characteristics or properties.

Select the grade of oil which will give easy starting at lowest temperature expected during the period the oil is to be used.



Top of bars A indicate the highest temperatures recommended. At still higher temperatures, the oils will lubricate satisfactorily, but oil consumption may be excessive.

Bottom of bars B indicate the lowest temperatures at which easy starting can be expected.

*S.A.E. 10W plus 10% kerosene or S.A.E. 5W is recommended for those territories where the temperature falls to and below minus 10° F. for protracted periods. If S.A.E. 5W is used, kerosene or other diluents should not be used.

ENGINE OIL USES

CRANKCASE OIL LEVEL

Oil filler and dipstick are accessible on righthand side of engine. Lower part of dipstick is marked with two level marks. The upper mark is labeled "Full," while lower mark may be labeled "Add Oil" or "Low." Crankcase oil level should be checked daily. Oil should be added if necessary to keep level as close to the upper or "Full" mark as possible. Engine should not be operated with level below lower mark.

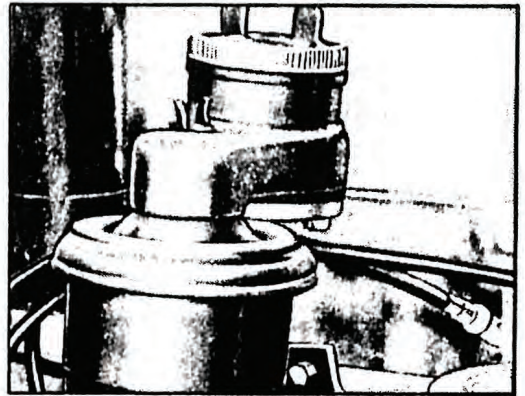
CHANGING OIL

The frequency at which the crankcase oil should be changed depends upon the type and quality of oil used, the severity of operation, and the mechanical condition of the engine. **The oil should therefore be changed often enough to keep it nonabrasive, and noncorrosive.**

Laboratory tests of used oil, conducted by the oil supplier may be helpful in determining oil change intervals. Crankcase should only be drained when engine is at operating temperature and oil is hot. Crankcase should be refilled to the "Full" mark on dipstick.

CRANKCASE BREATHER

Breather, mounted at engine oil filler on some series, is oil bath type should be cleaned at same intervals as the carburetor air cleaner. After wing nut is loosened, element and reservoir can be withdrawn from cover. Clean all parts in cleaning fluid. Dry parts thoroughly. Do not use compressed air on element. Refill reservoir with same grade of oil as used in crankcase. Reinstall parts and tighten wing nut firmly.



LINKAGE

At regular lubrication intervals apply S.A.E. 10 oil at all linkage points, clevis pins, door hinges, etc.

GOVERNOR AIR FILTER

At 5000 miles, remove governor air filter felt and wash in solvent. Moisten felt with light engine oil and reinstall.

ENGINE OIL USES (Cont.)

CARBURETOR AIR CLEANERS

Air cleaners must be cleaned at least every 1,000 miles. Under adverse conditions or extensive operation on dusty or sandy roads, unit should be cleaned every day or at least every 200 miles. Air cleaners on vehicle operating in dust storm areas should be cleaned immediately after such storms occur.

Oil Wetted Type

Loosen wing nut at top of cleaner, then remove cover and element from cleaner body. Clean element thoroughly in cleaning fluid. Use cloth dampened in cleaning fluid to wipe all other parts clean of all dirt. Dry all parts thoroughly. Do not use compressed air on element, as mesh may be damaged and rendered unfit for further use. Pour oil on the element, using same grade oil as being used in engine. Allow surplus oil to drain from the element. Install element and cover on body, then tighten wing nut.

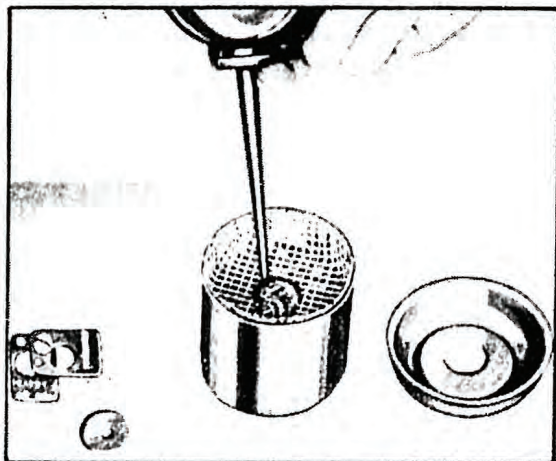
Oil Bath Type

Loosen clamp screw, then lift cleaner assembly from carburetor. Remove wing nut at top, then remove cover and element. Drain oil from reservoir. Clean all parts in cleaning fluid and dry thoroughly. Do not use compressed air to dry element, as mesh may be compressed and rendered unfit for further use. Position reservoir on carburetor and tighten clamp screw. Fill reservoir to "Level Mark" with same grade oil as used in the engine. Install element in reservoir, then install cover and tighten wing nut.

HYDROVAC AIR CLEANER

As cleaner is used to remove dust and dirt particles from atmosphere which operates the Hydrovac, it should be serviced at intervals not exceeding 1,000 miles, in order to maintain good brake efficiency.

Servicing



Remove cover retaining screw and washers, then lift cleaner as an assembly from stem. Remove cover from shell, then remove outer screen, filter element and inner screen from inside shell. Wash all parts in cleaning solvent until clean, then dry thoroughly. Position shell over stem, then install inner screen in shell. Oil element lightly with S.A.E. 10 engine oil, then install evenly around inside of shell. Install outer screen and cover to shell. Install and tighten cover screw.

ENGINE OIL USES (Cont.)

SERVICING OIL FILTER

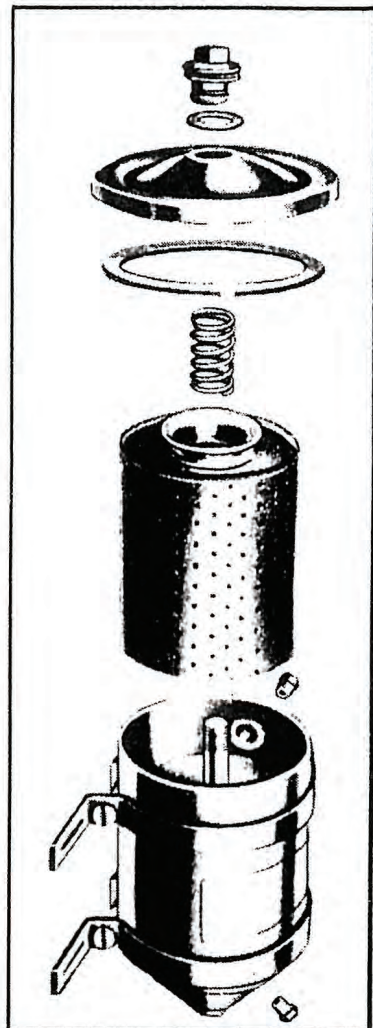
Oil filter, when used, is a replaceable element type. Element changing periods are related to oil changing periods, quality of oil used, and severity of service. Examine element at each oil change. If filled with sludge, replace element as follows:

1. Remove plug in base of filter to remove sediment. Loosen cover nut until free of stud. After removing cover, withdraw element.

2. If element is dirty or filled with sludge, replace with new part. Do not attempt to clean element. Clean inside of shell and base thoroughly.

3. Install element in shell over stud, with projecting cup on top. Install cover over stud. Gasket must be in good condition and hold-down spring in place. Tighten nut firmly to prevent leaks.

4. Run engine for a few minutes. Check level of crankcase. Add oil to bring level up to "FULL" mark on dipstick.



GENERATOR

Generator is equipped with two oilers, one at each end. At intervals specified on lubrication chart, fill reservoir through each oiler with S.A.E. 20 engine oil.

STARTER

Starters (except PM150-22) are equipped with bushings at drive and commutator ends which do not require periodic lubrication. Bushings can be replaced at overhaul periods if excessively worn.

DISTRIBUTOR

Remove distributor cap and rotor. At intervals specified on lubrication chart, apply two or three drops of S.A.E. 20 engine oil to felt under rotor, also one drop to breaker point pivot. Reinstall rotor and cap.

Distributor shaft is equipped with grease cup which must be turned down at stated intervals. Fill cup as required with 15% sodium soap grease (symbol "S2" on charts). Refer to page 31 for type of grease.

MULTI-PURPOSE GEAR LUBRICANT

SYMBOL "MP" ON CHARTS

"Multi-Purpose" gear lubricant must be carefully compounded and of the latest non-corrosive type and of proven quality. The lubricant manufacturer must be responsible for the quality and satisfactory performance of his product. His reputation is your indication of quality.

S.A.E. 90 viscosity may be used year around. If temperature is consistently below 0°F., use S.A.E. 80.

REAR AXLE

Every 1,000 miles, remove filler plug and add sufficient lubricant to bring level up to filler plug opening.

Every 10,000 miles, drain lubricant from housing. Drain lubricant when unit is hot, preferably immediately after operation. A light flushing oil may be used to flush out housing if necessary. Refill with correct lubricant to filler plug opening. Under extremely severe service, axles should be drained and filled at more frequent intervals than noted above.

TRANSMISSIONS

"Multi-Purpose" gear lubricant as described above may be used in transmissions (except PM150-22) covered by this Manual.

Every 1,000 miles, add sufficient lubricant to bring level up to filler plug opening.

Every 10,000 miles, drain while unit is hot. Refill to level of filler plug opening.

If available, special engine oil such as used in heavier duty transmissions may also be used in these transmissions. This oil must be an S.A.E. 50 engine oil of good quality such as Aviation grade engine oil, or S.A.E. 50 Heavy Duty Engine oil having detergent-dispersant properties, oxidation resistance and anti-foam characteristics. Ordinary oils are not satisfactory.

Prop Shaft U-Joints

On "open" type joints use pressure gun and apply through fitting in joint trunnion until lubricant is forced out of relief valve at center of trunnion.

The front universal joints on Series 100-22 and 150-22 (except PM150-22)

receive lubrication from the transmission and require no additional lubricant until overhaul. The bearing retainer screw at top of housing (pipe plug on 4 speed transmission) should be removed to fill universal joint with lubricant at the time of assembly.

STEERING GEAR LUBRICANT

SYMBOL "SG" ON CHARTS

This lubricant is a special steering gear lubricant, No. 1 grade with low cold test characteristics and extreme pressure properties. This lubricant is marketed by many oil companies.

STEERING GEAR HOUSING

Every 1,000 miles, remove filler plug in housing. Add sufficient lubricant to bring level up to filler plug opening. Multi-purpose lubricant as described previously may be used also if additional lubricant is required. Special steering lubricant, as described above, should be used for initial fill after overhaul. **Do not over fill steering gear housing.** Fill only to level of filler plug opening.

SPEEDOMETER CABLE

At assembly, coat speedometer cable **lightly** with steering gear lubricant.

CHASSIS LUBRICANT

SYMBOL "C" ON CHARTS

A high grade calcium or aluminum soap pressure gun lubricant is recommended at points indicated on charts. A sodium soap grease may be used; however more frequent applications may be required during wet weather. Pressure fittings must be clean before applying the gun.

15% SODIUM SOAP GREASE

SYMBOL "S2" ON CHARTS

This lubricant should be a short fibre non-fluid sodium soap (approx. 15%) grease having a high melting point.

FRONT WHEEL BEARINGS (except 280-22 and up). Pack front wheel bearings every 20,000 miles or once a year whichever occurs first **IN SAME MANNER** as described under "S-16" on next page.

DISTRIBUTOR SHAFT. Turn grease cup down at stated intervals. Refill cup when necessary.

AT ASSEMBLY ITEMS. The steering column upper bearing, clutch release collar, clutch fork ball stud, and clutch pilot bearing are lubricated with the above type lubricant only at assembly.

SOFT, SMOOTH GREASE

SYMBOL ``S16'' ON CHARTS

This lubricant should be No. 2½ soft, smooth, cup grease. Fibrous or viscous types of lubricant are not recommended for barrel type roller bearings.

Front wheel bearings (280-22 and up) must be cleaned and lubricated at 20,000 mile intervals or once a year whichever occurs first.

After bearings have been thoroughly cleaned, use lubricator or pack bearings by hand. Coat inside of hub and axle spindle with thin coat of grease to retard rust. Do not fill hub with grease. After bearings have been adjusted, wind thin "rope" of grease next to outer edge of outer bearing on front wheel bearings.

Rear wheel bearings are lubricated from rear axle (except on 2-speed axle) after initial lubrication at time of assembly. Whenever bearings are removed for cleaning or replacement, pack bearings by hand or with lubricator. Rear wheel bearings on 2-speed axle should be lubricated in same manner as front wheel bearings at intervals indicated on charts.

PETROLEUM JELLY

SYMBOL ``S3'' ON CHARTS

This lubricant is a petroleum jelly or petrolatum.

DISTRIBUTOR CAM

Apply small quantity of jelly on distributor breaker cam. Do not use an excessive amount.

BATTERY TERMINALS

After terminals are cleaned and reinstalled, apply petroleum jelly to retard corrosion.

WATER PROOF GREASE

SYMBOL ``S4'' ON CHARTS

This lubricant should be a waterproof grease containing 20% to 35% calcium soap.

On all except Series 100-22 and 150-22, both sides of propeller shaft center bearing should be packed with above lubricant at assembly.

GRAPHITE GREASE

SYMBOL ``S5'' ON CHARTS

This lubricant should be a high temperature grease containing graphite or other inert materials.

At time of installation, apply a thin coat of graphite grease to clutch shaft splines.

SHOCK ABSORBER FLUID

SYMBOL ``S6'' ON CHARTS

Use a special shock absorber fluid (Delco). The telescoping type absorbers are not refillable. Other arm type absorbers are equipped with filler plugs. On Hydrovac, remove plug in end of shell and apply fluid until level with bottom of plug opening. Reinstall plug.

HYDRAULIC BRAKE FLUID

SYMBOL ``S12'' ON CHARTS

A genuine hydraulic brake fluid should be used such as, Delco Super 11 or Wagner Lockheed 21-11 or equal.

MASTER CYLINDER

Check fluid level in master cylinder. Remove dirt from around plug, then remove filler plug in the master cylinder. Fill with fluid until level is within $\frac{1}{2}$ inch of opening. Install and tighten filler plug. Vent hole in filler plug must be clear.

GM HYDRA-MATIC FLUID

SYMBOL ``S-19'' ON CHART

Fluid used in Series PM150-22 Hydra-Matic transmission must be an "Automatic Transmission Fluid, Type A" supplied by a reputable dealer from containers bearing the Armour Institute Qualification Number Prefix "AQ-ATF".

Do not use any other fluid. The refill capacity of the transmission is approximately 11 quarts, however, the correct level is dipstick reading rather than quantity added. Refer to instructions on next page.

CHECKING HYDRA-MATIC FLUID

Transmission dipstick is accessible after raising hinged cover, located on floor to right of driver. **Engine and transmission must be warmed to operating temperature, and engine must be running while fluid level check is being made.**

Set parking brake, place transmission lever in "N" position; then start engine. Run engine for about 1½ minutes at about one-third throttle (approx. 20 mph). Reduce engine speed to normal idle.

Remove dipstick, wipe clean, re-insert, and withdraw again. If level is at "L" mark or below, add fluid to bring to "F" mark. Check again after engine is at operating temperature. See **CAUTION** below.

CAUTION. Transmission does not "burn" or use fluid as does an engine. If level is appreciably below "F" mark from one period to another, transmission is leaking oil and should be repaired. **Never fill above "F" mark when fluid is at operating temperature, as foaming will result.**

DRAINING HYDRA-MATIC FLUID

Transmission should be drained and refilled at intervals indicated on chart. Do not flush transmission after draining.

1. Remove flywheel housing underpan. Turn engine until torus cover plug is at lowest point. Remove plug and thoroughly drain torus.

2. Remove plug from bottom of transmission pan. When drainage is complete reinstall plug. Coat torus cover plug threads with Permatex sealer or equivalent and reinstall. Reinstall underpan.

3. Add 8 quarts of fluid to transmission.

4. With shift lever on "N" position, apply parking brake; then start engine. Run engine at approximately one-third throttle for about 1½ minutes.

5. Slow engine down to normal idle. Add sufficient fluid to bring level to "L" mark on dipstick.

6. Continue to run engine until normal operating temperature is reached. Recheck fluid level; then add sufficient fluid to bring level to "F" mark on dipstick. **Do not overfill.**

ENGINE MAINTENANCE

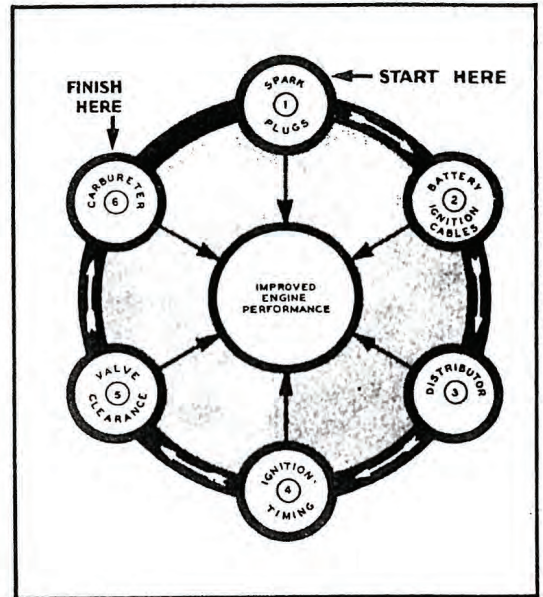
Routine engine maintenance includes periodic and systematic tune-up procedures which are normally required to maintain operating efficiency. As the object of engine tune-up is to keep the power plant operating efficiently, only observance of engine performance can determine tune-up intervals. Such tune-up procedures do not include mechanical repairs on engines.

TUNE-UP PROCEDURES

Satisfactory results can not be obtained if hit-and-miss methods are used. The chart illustrated on this page shows sequence at which the various units should be serviced.

The procedures below should be followed in order given. Those marked with an asterisk (*) are covered in detail in other sections of this manual.

Pre-Tune-Up Operations. Compression tests should be made before tune-up operations are accomplished to determine necessity of internal repairs. Before tune-up is started, change the oil, and service air cleaners, oil filter and breather (if used).

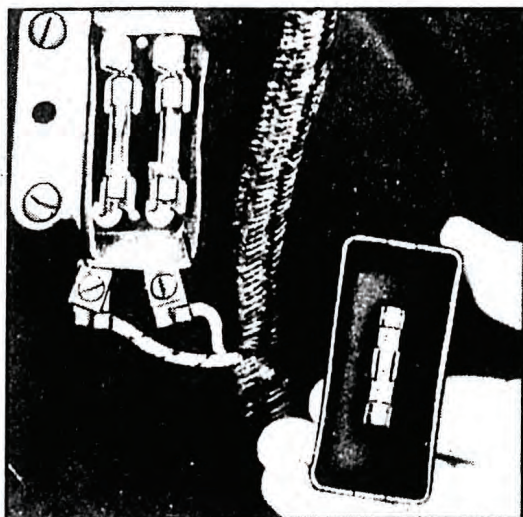


1. **Spark Plugs (*)** Remove, clean, inspect, and adjust.
2. **Battery and Cables (*)** Service battery, and examine ignition cables.
3. **Distributor (*)** Check and adjust points. Examine rotor and cap.
4. **Ignition Timing (*)** Check and adjust timing.
5. **Valve Clearance.** Tighten cylinder head bolts (70-80 ft. lbs.). With engine hot and idling, lash valves. (Intake .012"; exhaust .020".)
6. **Carburetor (*)** Check idling adjustment. Service fuel pump and filter (if used).

ELECTRICAL CIRCUITS

The diagrams following show relative locations of various electrical units in respect to their circuits. Each wire is of a specific size and is insulated with patterned colors to assist in tracing the various circuits.

FUSES



The main light switch includes a circuit breaker which will act to open the light circuits in the event of a short. This circuit breaker will remain open until element cools, then circuit is completed again. In addition, a fuse panel is located on left side of dash (engine side). Panel includes two 20 amp. fuses to protect the stop light and taillight circuits, and are so marked on the panel. A spare fuse is clipped to inside of panel cover (see illustration).

BULBS

Location	Candle Power	Contact	Bulb No.
Headlight.....	45-35 Watts	Sealed Beam
Parking light.....	3	S.C.	63
Taillight	3	S.C.	63
Stop light	21	S.C.	1129
Inst. lights.....	2	S.C.	55
Ign. light	2	S.C.	55
Beam indicator	1	S.C.	51
Dome light	15	S.C.	87
Shift indicator light (PM150-22)	1	S.C.	53

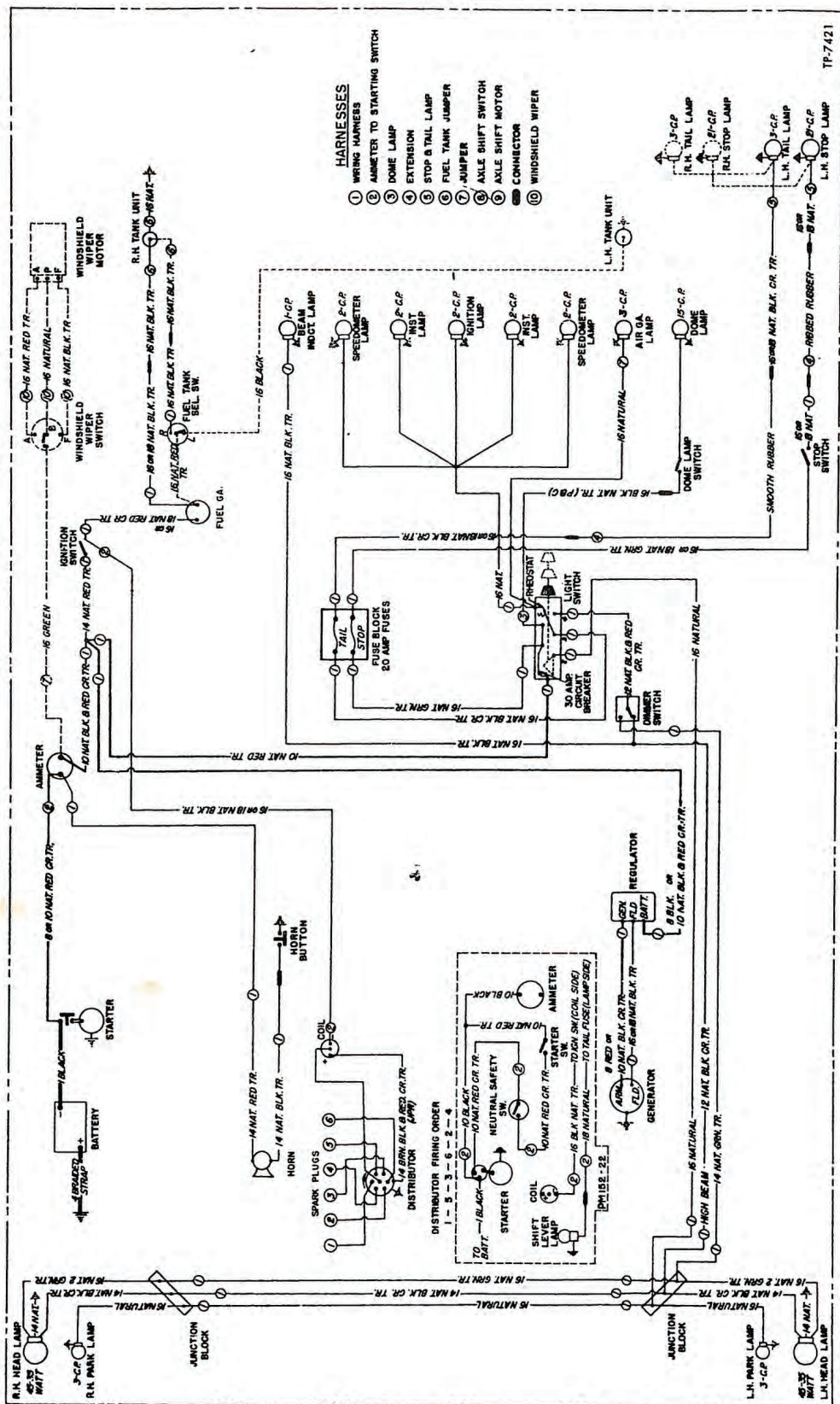
WIRES AND CONNECTIONS

All electrical connections must be clean and tight. Loose or corroded connections will cause shorts in the electrical circuits. All wires should be replaced if insulation is water soaked, oil soaked, or cracked. Always use correct size wire for replacement. Use rosin flux solder if repairing or splicing wires.

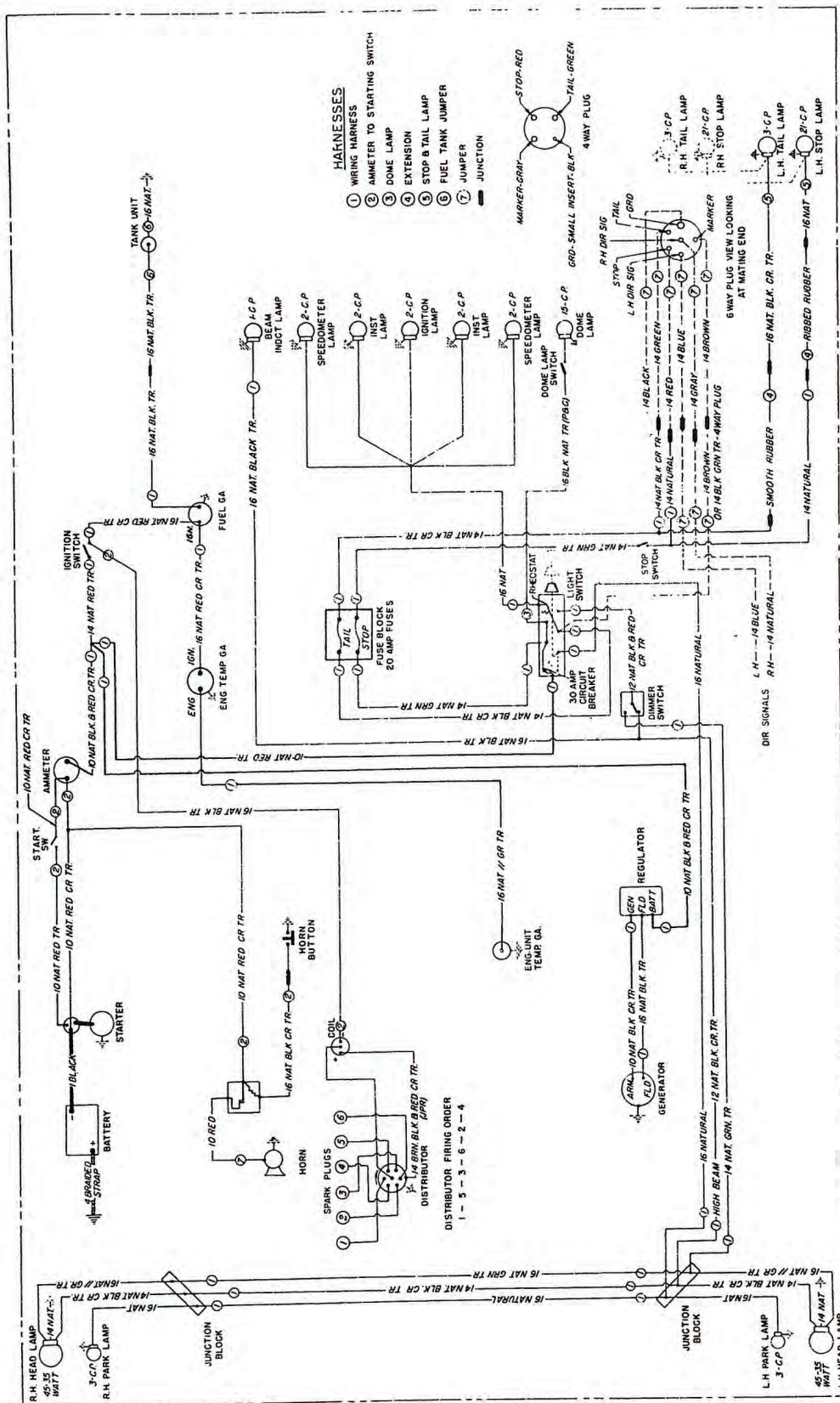
**A clean and tight electrical connection
is a GOOD connection**

HARNESSES

- 1 WIRING HARNESS
- 2 AMMETER TO STARTING SWITCH
- 3 DOME LAMP
- 4 EXTENSION
- 5 STOP & TAIL LAMP
- 6 FUEL TANK JUMPER
- 7 JUMPER
- 8 AXLE SHIFT SWITCH
- 9 AXLE SHIFT MOTOR
- 10 CONNECTOR
- 11 WINDSHIELD WIPER



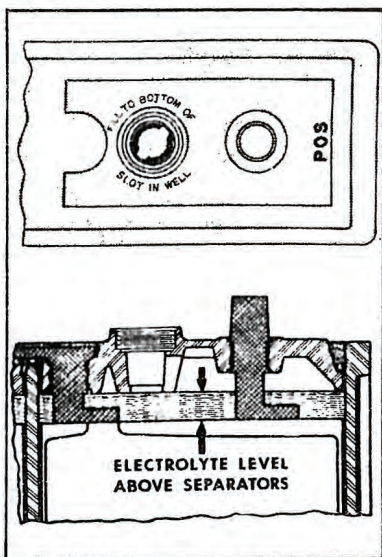
WIRING DIAGRAM **(Cab-Over-Engine Shown)**



BATTERY

On conventional series, battery is located beneath the right-hand floor board. Lift access cover to service battery. On C.O.E. series, battery is located beneath right-hand seat tool compartment. Remove seat.

BATTERY CARE



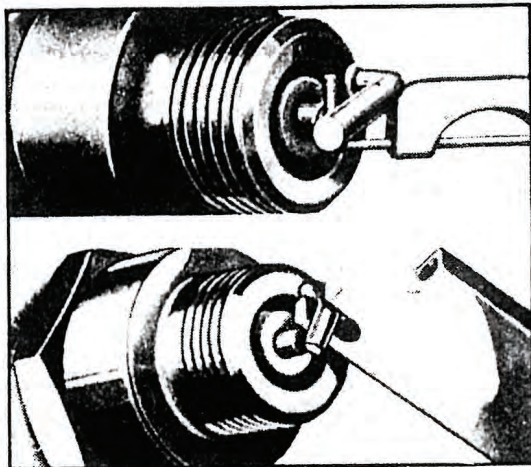
Water Level and Terminal. Add distilled water until water level is up to bottom of slot in each cell filler plug well. Battery terminals should be cleaned, then coated with petrolatum before tightening. Corroded terminals and cables should be replaced. Run engine immediately after filling cells in cold weather.

Testing. Specific gravity of a fully charged battery should be 1.260 to 1.300. Recharge if below 1.200. In tropical climate the battery is adjusted to lower gravity. If voltage of each cell under load is below 1.7 volts at 80° F., or if a cell difference is more than one-tenth volt, further check battery.

STARTER

- 1. Commutator.** Remove the cover band and inspect the commutator at least every 5,000 miles. Clean commutator with a strip of No. 00 sandpaper. **Do not use emery cloth.** Blow dust from the commutator with air pressure.
- 2. Mounting Bolts.** At regular intervals check tightness of mounting bolts. Loose mounting bolts will cause ineffective action of the starter.
- 3. Brushes.** Have worn brushes replaced whenever necessary. New brushes should be seated by the use of a brush seating hone. Do not use emery cloth or sandpaper to seat brushes. Make sure that the brush spring tension is checked at the time of brush replacement and that pigtail connections are tightened firmly.
- 4. Starter Switch.** Keep terminal nut tight on switch. At least once a year, remove switch and clean contact with No. 00 sandpaper.
- 5. Starter Solenoid and Relay (when used).** These units require no maintenance other than keeping contact points and terminals clean and tight.

SPARK PLUGS



The correct plug
is marked "44 Com"

When replacing spark plugs, always use a spark plug wrench, not an ordinary wrench. When installing plug, tighten with plug wrench until it just bottoms on gasket; then tighten $\frac{1}{4}$ to $\frac{1}{2}$ turn more to partially compress gasket. Do not use extreme force to tighten.

Plugs may be cleaned with conventional sand blasting equipment or in a solvent. Plugs with cracked porcelain, excessively burned points and terminals should be replaced.

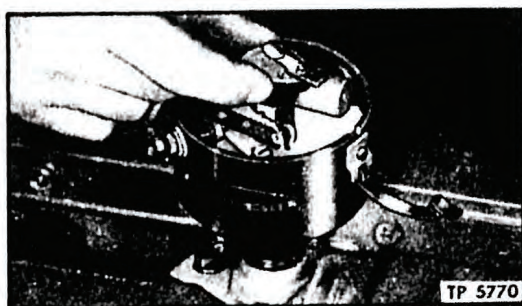
Set gaps with a standard round feeler gauge to .030". Gaps on all plugs should be equal. Bend side electrodes only. Do not bend center electrodes.

DISTRIBUTOR

Distributor model number is stamped on small plate on distributor body. When requesting service or parts always refer to this number. Clean cap sockets with small brush. If cap is cracked or terminals corroded or burned, replace cap. If rotor metal strip is burned, replace rotor.

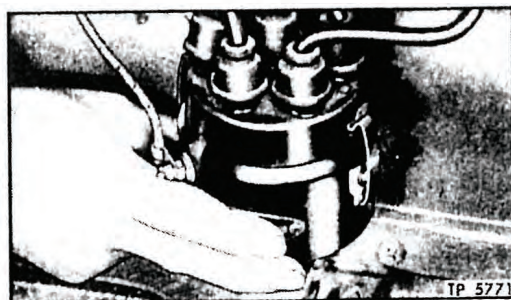
Refer distributor repairs and adjustments to your GMC Dealer.

Centrifugal Control



A simple check for freeness of operation can be made. Remove distributor cap and rotate cam (see illustration) in the direction it rotates. There should be no binding and should return to position when the cam is released.

Vacuum Control



Test by turning distributor body (see illustration) in direction opposite to rotation of cam. The distributor should turn freely, and vacuum advance mechanism should bring it back to normal position when body is released.

DISTRIBUTOR POINTS

Distributor point service is one of the most important items in ignition system maintenance. Cleaning of the points, replacing when excessively worn or pitted, and the proper adjustment of point gap must be accomplished at regular intervals if the ignition system is expected to perform efficiently.

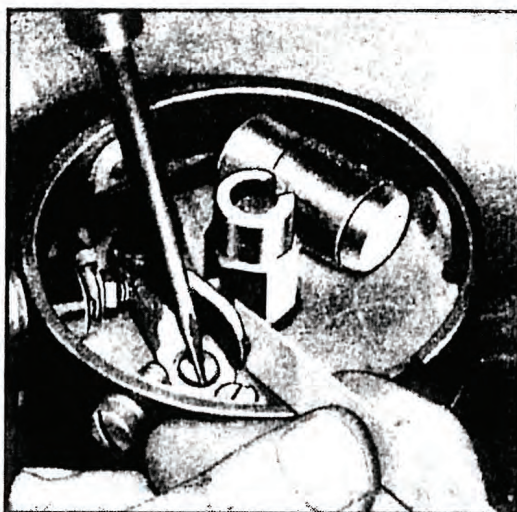
ADJUSTMENT

1. Remove distributor cap and rotor. Clean points with a finecut file.

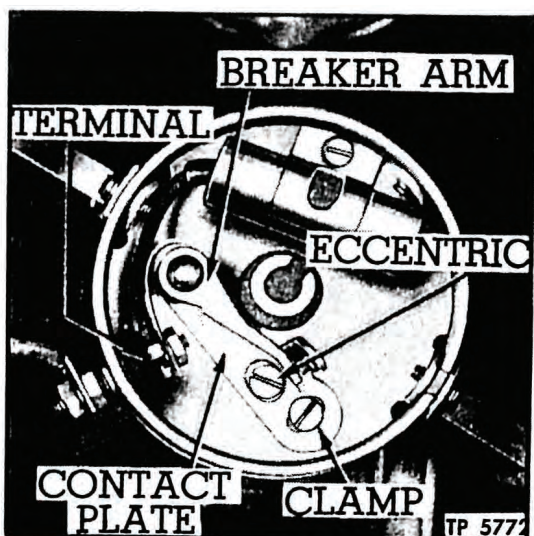
2. Crank engine until breaker arm pad rests on high point of distributor cam.

3. New points can be measured with a feeler gauge; however, correct gap on used points can only be successfully obtained with an angle meter.

4. The correct gap is .018"-.024". Loosen clamp screw and turn eccentric screw to obtain correct opening



REPLACEMENT



1. Remove cap and rotor, then remove condenser pigtail from terminal. Pull up breaker arm to remove, then remove clamp screw to lift contact point plate.

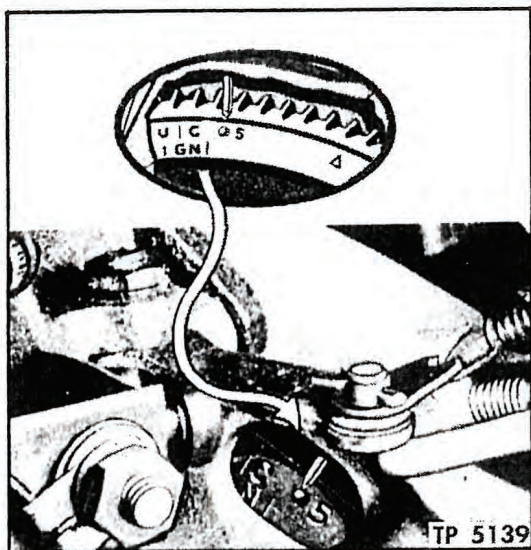
2. Place new contact point plate over eccentric screw, then install clamp screw. Install breaker lever over pivot pin as spring is placed over terminal.

3. Attach condenser pigtail to terminal, and tighten nut.

4. Check the breaker spring tension (17 to 21 oz.); bend spring if necessary to obtain correct tension. Adjust points as described above.

INITIAL TIMING

Initial timing is a setting of the distributor mechanism to permit opening of the points at correct firing intervals. Readjustment of the initial timing is generally only necessary when the distributor has been removed from its mounting. Initial timing can be checked with a timing light with engine running, however, the following operations are accomplished with engine not running:



1. Set manual advance between "R" and "A". Mark distributor body opposite No. 1 plug wire. Crank engine (with switch off) until flywheel mark is exactly in line with pointer (on steel ball). Distributor rotor should point toward No. 1 plug wire mark.

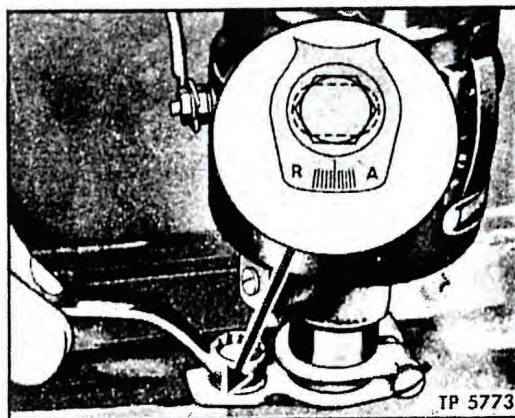
2. Loosen body clamp screw, then turn body clockwise until distributor points close. Pull center wire out of cap. Place end of wire $\frac{1}{4}$ " from ground. Turn body (with switch on) counterclockwise until spark jumps. Tighten body clamp screw at that point. Points should just open with pointer exactly opposite flywheel mark.

MANUAL ADVANCE

The manual advance provides means of retarding or advancing the point opening to compensate for various grades of fuel. If an excessive amount of ping under load and full throttle is present, adjust as follows:

1. Loosen cap screw at base of distributor, then turn body toward "A" (advance) or "R" (retard) on indicator plate until engine runs correctly. Each mark on plate is 2° .

2. Due to various grades of fuel obtainable, operator should adjust manual advance for most satisfactory performance.



GENERATOR

The generator is driven by a belt from crankshaft in connection with water pump. Voltage and current out-put are controlled by a three-unit regulator. Whenever service is required on generator, reference should be made to model number stamped on a plate mounted on generator body.

Commutator should be cleaned at regular intervals with a strip of No. 00 sand paper (not emery cloth). Drive belt adjustment should be maintained regularly. Worn brushes should be replaced.

REGULATOR

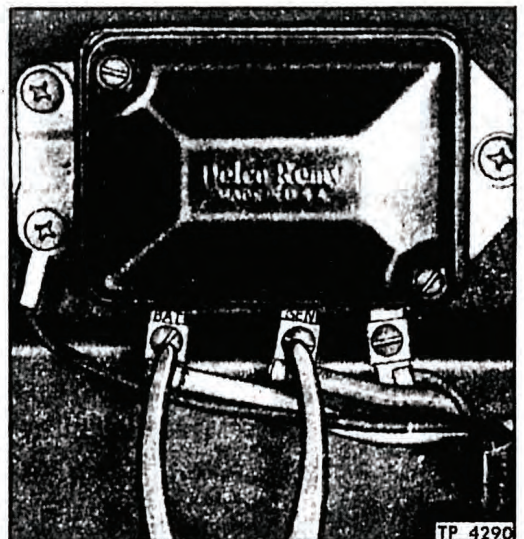
The three-unit type regulator contains a cut-out relay, current regulator and voltage regulator—all mounted on a common base. Whenever service is required, reference should be made to the model number stamped on base at end of unit. Avoid tampering with the regulator. Adjustment and cleaning of points should only be accomplished with proper equipment.

A low charging rate with a "high" battery or a high charging rate with a "low" battery indicates that the regulator is operating correctly and needs no service.

A low charging rate with a "low" battery, or a high charging rate with a "high" battery indicates need of regulator service. Have the regulator serviced.

POLARIZING

When generator or regulator wires have been disconnected, especially when new unit is being installed, generator must be polarized after units are installed—before engine is started. Failure to polarize generator will cause regulator points to vibrate excessively and burn. Use jumper wire or pliers to momentarily short across "GEN" and "BAT" terminals on regulator. This connection allows a momentary surge of battery current to reach generator fields, which automatically gives generator the correct polarity with respect to battery it is to charge.



HEADLIGHTS

The headlights are Sealed Beam type in which the bulb, lens, and reflector are a single unit. The parking lights are recessed into fenders just below headlights.

SEALED BEAM REPLACEMENT



1. Remove screw at bottom of headlight door, then remove door assembly.

2. Remove three screws attaching retaining ring to mounting ring, then remove retaining ring.

3. Pull beam unit out of body, then pull connector plug from unit.

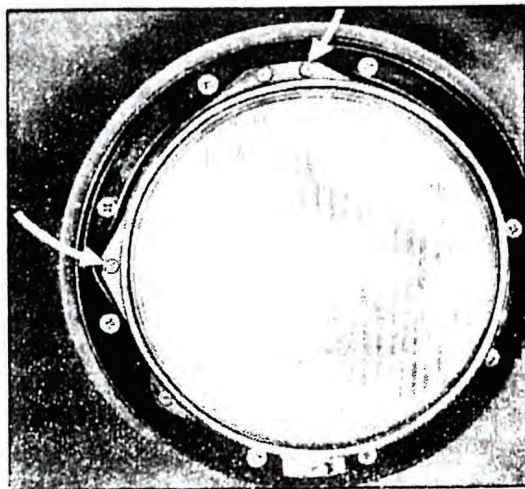
4. Press connector plug onto prongs of new beam unit; then position in mounting ring.

5. Position retaining ring to Sealed Beam unit, then install and tighten three attaching screws.

6. Install door on headlight body, with clip on door engaging slot at top of body. Install screw at bottom of door and tighten firmly.

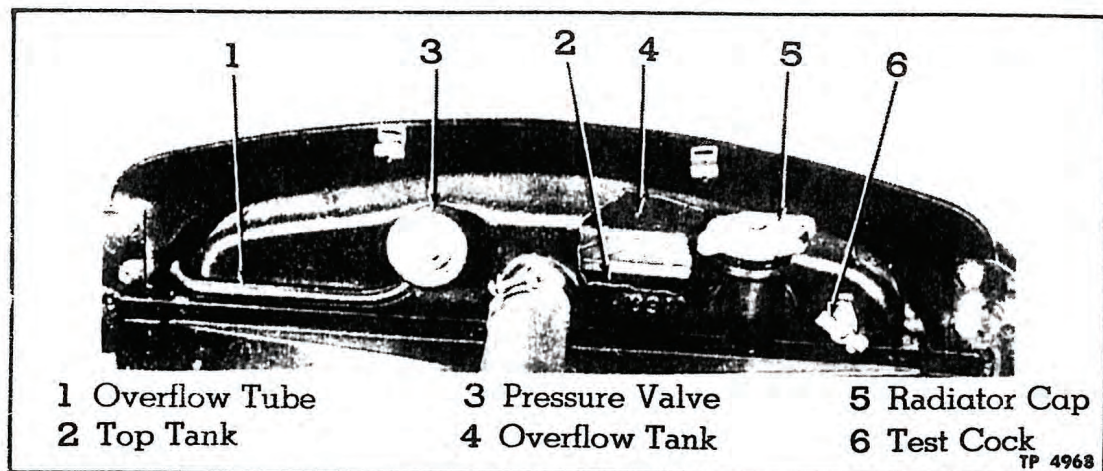
AIMING

Aiming headlights should be done accurately. The headlights may be aimed with a conventional headlight tester or wall chart. Refer this service to your GMC Dealer. The top adjusting screw (see illustration) provides vertical adjustment. The side screw provides horizontal aiming. The lamp door must be removed to reach adjusting screws.



COOLING SYSTEM

Two types of cooling systems are used on these vehicles—**atmospheric** and **pressure** type. Both types include a built-in overflow tank in radiator top tank. The pressure type radiator includes a pressure valve in the overflow tank outlet.



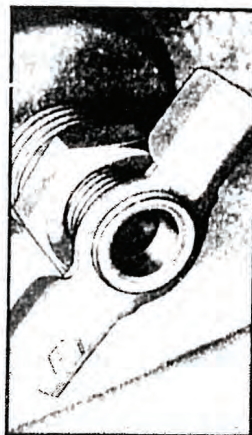
The atmospheric type (without pressure valve) is used as standard equipment on all models except C.O.E. models. The pressure type is standard on C.O.E. With the exception of Series 100-22, the atmospheric type can be changed to pressure system by the addition of a pressure valve. On the Series 100-22, a larger radiator core is necessary, when optional pressure system is used.

In the pressure system, the pressure valve maintains a pressure within the system of approximately 4 pounds when engine has warmed up to normal operating temperature. The overflow tank provides space for expansion of coolant at increased temperatures. Excessive pressure caused by boiling is released through pressure valve. When temperature decreases, liquid forced into overflow tank returns to radiator top tank.

DRAINING COOLING SYSTEM



A drain cock and tube are provided at inside bottom of radiator (pictured at left). A drain cock is also provided at rear of cylinder block (pictured at right). Both cocks must be open to completely drain system. Make sure that water flows freely from the cocks. If equipped with Air-Flow heater, turn temperature control to full on position while draining. As a precaution attach a "No Water" tag on steering wheel after draining.



FILLING COOLING SYSTEM

Care should be taken when initially filling the cooling system. When cold water is poured into the radiator, the thermostat will close even if the engine is warm. This action may trap air in the water passages. As the air escapes through thermostat vent, the water level will be lowered. Adhere to the following instructions when filling system.

1. The water level cock in the radiator top tank (see illustration on preceding page) may be used to check level in radiator and to relieve any pressure in system before cap is removed. No additional water is required if water runs out of level cock.

2. When filling, open level cock to relieve pressure in system, then remove cap. If completely filling system, turn temperature control valve to full on position if an Air Flow heater is used.

3. With truck standing fairly level, fill radiator until fluid can be seen in filler neck. Continue to add water until no more air bubbles can be noticed.

4. Run engine a few minutes to further expel air, then add more liquid if necessary until visible in filler neck.

5. Do not overfill if anti-freeze solutions are used. Do not pour cold water in system while engine is hot.

CARE OF COOLING SYSTEM

Use of water containing lime, alkali and other impurities is a major cause of rust and scale formation. A rust preventive, or inhibitor should be used continuously. A soluble oil inhibitor is recommended for use in plain water or in antifreeze solutions which do not contain an inhibitor. These inhibitors are available under various trade names.

The cooling system should be periodically flushed with a good commercial cleaner obtainable from your GMC Dealer. If pressure flushing system is used, follow instructions given by manufacturer of the equipment.

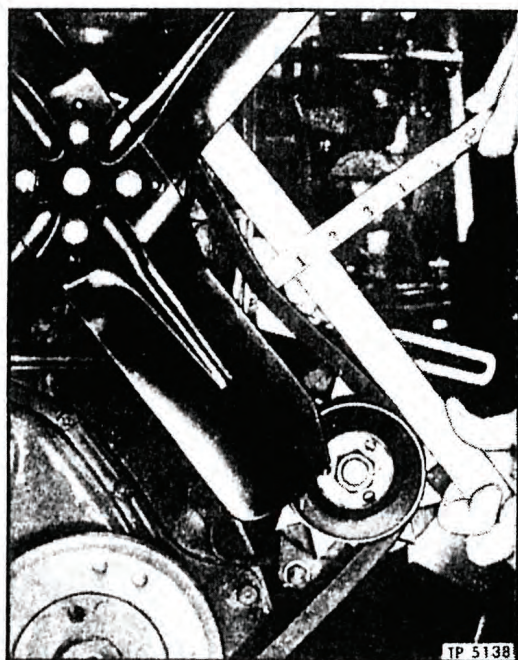
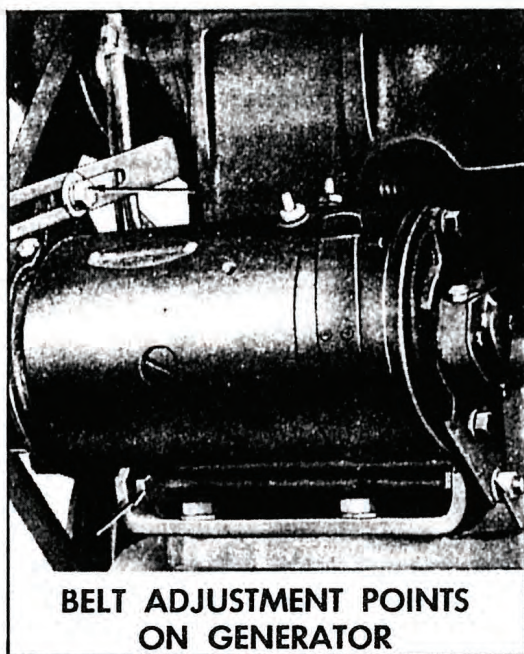
A pressure system must be kept airtight. Check radiator cap seal and all radiator connections. Thermostat should be tested at regular intervals. Remove unit from housing. Submerge in water heated to degree stamped on face of valve. Note opening action, then submerge in cold water and note closing action.

Pressure Relief Valve

Pressure relief valve is held in place with a retainer ring. When removed for inspection, check smoothness of valve seat and condition of gasket. Clean valve with hot water or steam.

FAN BELT

The fan belt must be kept at the proper tension to obtain efficient operation of the fan, water pump, and generator as well as to obtain maximum life of belt. If the belt does not have proper tension ($\frac{1}{2}$ " to $\frac{3}{4}$ " deflection) at point shown in illustration, readjust as follows:



ADJUSTMENT

1. Loosen bolt at generator adjusting arm, and the two pivot bolt nuts at bottom generator support bracket.

2. Move generator either direction to obtain $\frac{1}{2}$ " to $\frac{3}{4}$ " belt deflection at point midway between water pump and generator pulley. Use

only light pressure (10 to 15 lbs.).

3. Do not adjust belt too tight as this will cause wear on generator and water pump bearings.

4. After adjustment is made, tighten bolt at generator adjusting arm, then tighten pivot bolt nuts at bottom generator support bracket.

REPLACEMENT

1. Loosen bolt at generator adjusting arm and the two pivot bolt nuts at generator bottom support bracket.

2. Do not remove bolts or nuts.

3. Move generator in, then remove belt. Thread new belt over crankshaft pulley, then water pump and generator pulleys. Adjust as described above.

ANTI-FREEZE

Several materials are satisfactorily used as anti-freeze solutions. These, marketed under various trade names, are generally treated with inhibitors making the addition of rust preventives unnecessary during the use of such solutions.

Alcohol and Methanol. Denatured alcohol and methanol are used extensively as anti-freeze solutions due to their low cost. The materials are generally subject to evaporation loss, especially under high operating temperatures. Vehicle body finish also may be damaged by contact with such solutions.

Ethylene-Glycol marketed under various trade names, is usually higher priced than alcohol. This solution, however, has a higher boiling point, therefore can be used at higher operating temperatures without loss. Only water is required to replace evaporation loss. Under ordinary conditions, this solution does not injure the body finish.

ANTI-FREEZE CHART

Capacities—See Page 2—Capacities do not include heater.

Protection to Temp. (Fahr.)	Quarts of Methanol based on		Quarts of Ethylene Glycol based on	
	17 qt. cap.	18 qt. cap.	17 qt. cap.	18 qt. cap.
+10° F	3½	3¾	4¼	4½
0° F	4¾	5	5½	5¾
-10° F	5¾	6	6½	6¾
-20° F	6½	7	7¼	7¾
-30° F	7½	8	8	8½

NOTE: Standard thermostats open at 156° F-165° F. If alcohol solutions of lower boiling points are used, thermostat of lower opening range (140° F) should be used to prevent excessive evaporation of solution.

TESTING

All anti-freeze solutions should be used according to manufacturer's instructions. If an inhibitor is not used in solutions, such preventives should be added.

Always test solutions before adding water, with engine warmed up

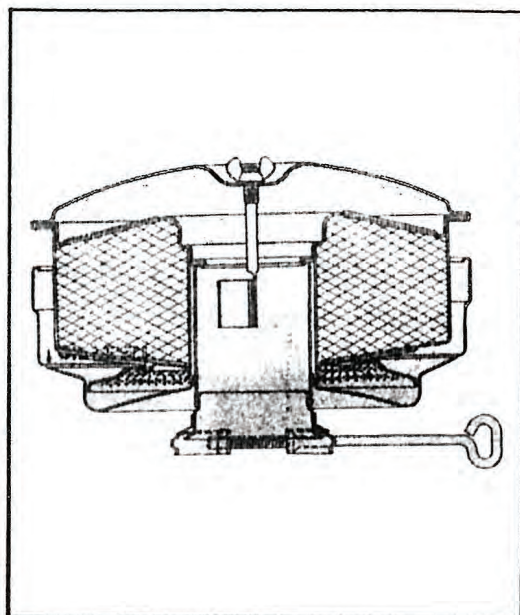
to operating temperature. Make certain that the method used with the type of tester is understood. In most instances, the temperature of the solution must be taken into consideration when the strength of solution is read.

Caution

Kerosene or other oils, or solutions containing calcium chloride, magnesium chloride, sodium silicate, or other inorganic salts, honey, glucose, or sugar are not suitable anti-freeze solutions and should not be used in cooling systems.

CARBURETOR AIR CLEANER

Carburetor air cleaners will successfully remove nearly all harmful dirt from the air provided the cleaners are regularly and correctly serviced. No specific interval can be determined for the regular servicing of air cleaners. These units must be serviced whenever operating conditions require, regardless of mileage. More frequent cleaning is necessary in dust storm areas. Unless the cleaners are serviced regularly, air to the carburetor will be restricted causing increased fuel consumption, engine over-heating, crankcase dilution, and otherwise prevent good engine performance. Refer to the Lubrication section for method of servicing air cleaner.



MANIFOLD HEAT

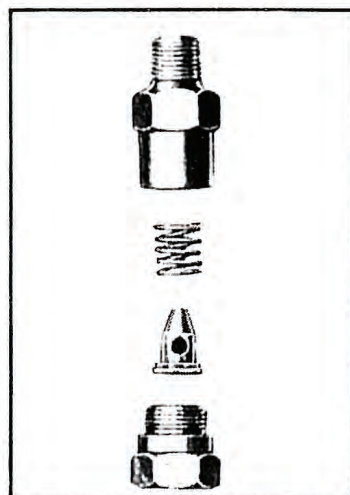
Manifold heat control valve is installed between intake and exhaust manifolds. On Type 228 engine, the valve is controlled by thermostat spring and counterweight and is entirely automatic. On Type 248 engine, the heat control valve is manually set. "OFF" position is used during warm weather, and "ON" position during cold weather. Center position can be used during mild weather.

GOVERNOR

The governor (when used), is a velocity type mounted between the carburetor and intake manifold. The purpose of the governor is to limit the engine speed to a set RPM. The governors are set and sealed at the factory. Unauthorized tampering with the governor will void the vehicle warranty. The unit does not require maintenance except periodic cleaning. Refer this service to your GMC Dealer.

CRANKCASE VENTILATOR

On vehicles equipped with positive type crankcase ventilation (with crankcase breather at oil filler), a tube containing a restriction valve is connected between cylinder head and intake manifold. At regular intervals, the tube and valve should be removed. Disassemble the valve and clean parts in a cleaning solvent. Assemble spring on valve, and coil end over ridge and in groove. Check condition of spring, and replace if stretched or compressed.

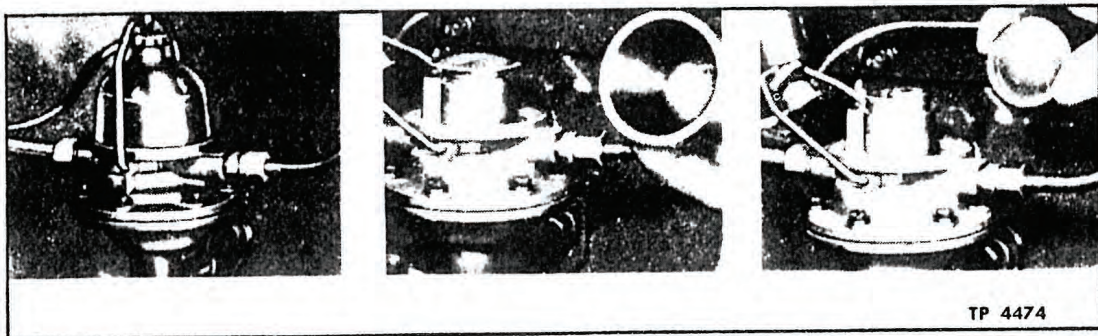


FUEL PUMP

Fuel pump is diaphragm-type and is mechanically operated by a lever which contacts an eccentric on the cam shaft.

Fuel pump screen and bowl require cleaning at regular intervals. After glass bowl has been removed, lift strainer from body. Clean bowl and strainer thoroughly in solvent.

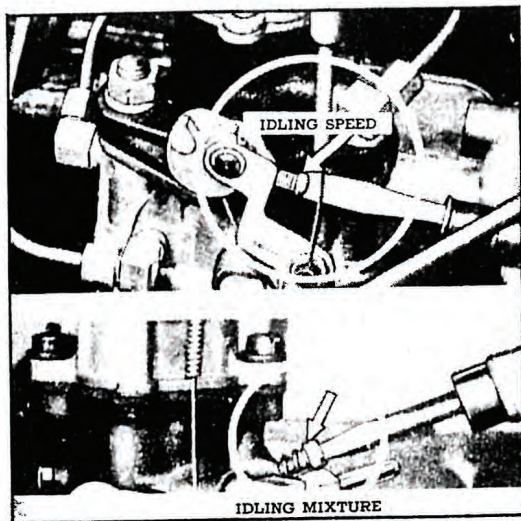
Pressure and capacity tests can be made on the fuel pump to determine the necessity of overhaul. These tests should be made with proper equipment.



CARBURETOR

Carburetors used on these trucks are Zenith downdraft type on conventional models and updraft type on Series PM150 and F-350-24. All mixture adjustments, except idling, are determined by calibration of the various jets. The jets are calibrated to give satisfactory performance and should not be changed. Refer carburetor adjustments to your GMC Dealer. Idling adjustments are given below.

IDLING ADJUSTMENTS



Illustrations show downdraft carburetors; however instructions cover both types.

Idling Speed. The idling speed (approx. 350 rpm.) can be obtained by adjusting stop screw on the carburetor throttle lever. The idling speed should be adjusted before adjusting idling mixture.

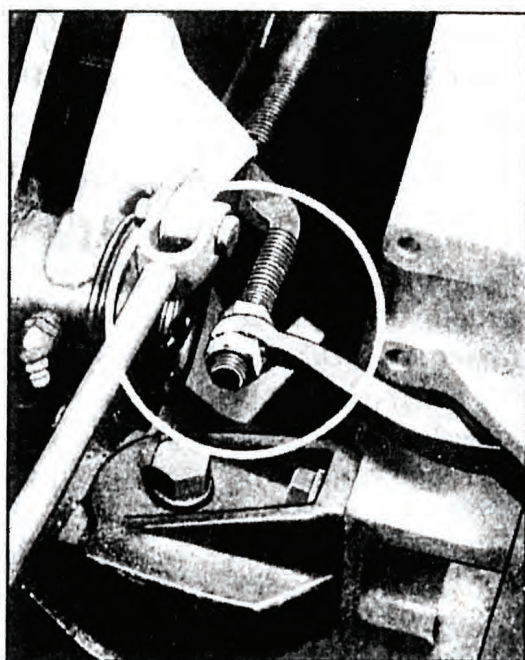
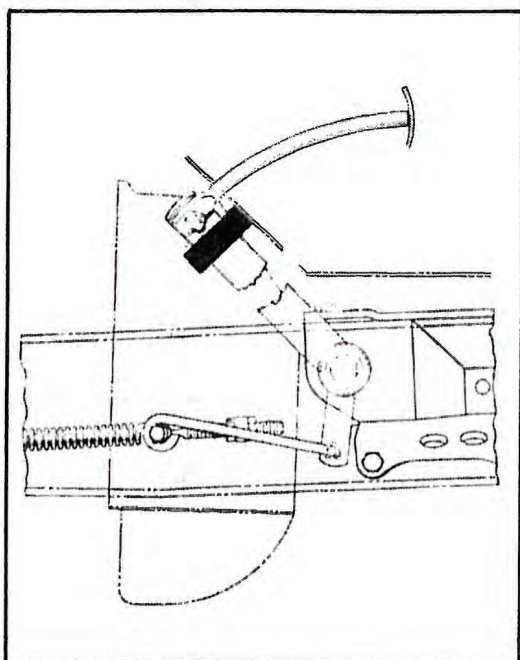
Idling Mixture—Use a vacuum gauge. Turn idling screw *gradually* to right or left to give highest reading on vacuum gauge. If engine idles too fast, readjust carburetor throttle lever stop screw until proper speed is obtained.

CLUTCH

The clutch is a single dry-disc type incorporating the diaphragm type spring. Movement of the clutch pedal is transmitted to release bearing through adjustable linkage and the clutch fork. (The Series PM-150-22 does not have a clutch.)

ADJUSTMENTS

Provision is made for adjustment of clutch pedal free travel to compensate for normal wear of clutch facings. Pedal to floor board clearance is obtained by use of rubber bumper mounted on lower half of pedal as shown.



Typical Conventional Linkage

Free Travel Adjustment

Clutch free-travel is the movement of the pedal before the clutch starts to disengage. As clutch facings wear, amount of pedal free-travel is reduced, which in time will result in clutch slippage. When free-travel is reduced below 1", readjust linkage as follows:

1. Check pedal free-travel with the hand as it is difficult to feel when release bearing contacts diaphragm fingers if foot pressure is used.
2. Loosen lock nut on link at outer end of clutch fork (see illustrations) then turn adjusting nut as necessary to provide at least 1" pedal free-travel before clutch starts to disengage.
3. Tighten lock nut to lock adjustment. Be sure no binding exists in linkage.

SERVICE BRAKE SYSTEM

The standard service brake system on Series 100-22 through 280-22 is straight hydraulic system. On all other models the hydraulic system is vacuum assisted utilizing a Hydrovac unit. Hydrovac system is also optional on Series 150-22, PM150-22, 250-22, and 280-22.

STRAIGHT HYDRAULIC SYSTEM

Hydraulic fluid pressure, created in the master cylinder by manual pressure on foot pedal, is equally distributed through lines to each wheel cylinder. The pressure forces wheel cylinder pistons apart bringing the brake shoes into contact with the drums. When pressure is removed from the brake pedal, action of the brake shoe release springs returns fluid to master cylinder, thus releasing brakes.

HYDROVAC SYSTEM

When the foot pedal, which is interconnected to hydraulic master cylinder push rod, is depressed, brake fluid under pressure is forced through a line to the Hydrovac power unit. After this initial pressure reaches a predetermined point, mechanism of the Hydrovac operates to increase hydraulic pressure at the wheel cylinder. When pressure is removed from pedal, Hydrovac acts to decrease hydraulic pressure, permitting brake shoes to be released.

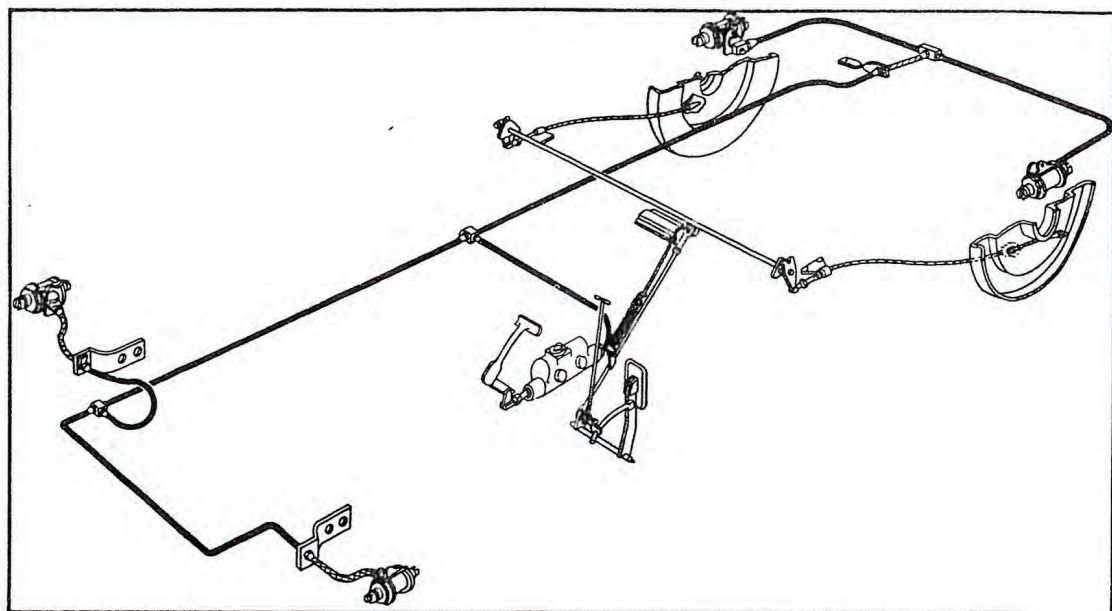
BRAKE LINES

One of the most important items of maintenance is keeping vacuum and hydraulic line connections tight. This is particularly important on vacuum connections. Vacuum leaks can be checked by placing a small quantity of hydraulic fluid (**not oil**) on connections being tested. If a vacuum leak exists, the fluid will be drawn into the opening. Use only recommended hydraulic brake fluid in master cylinder.

Important

Only genuine hydraulic brake fluid as recommended in Lubrication section, should be used. The use of other fluids will cause deterioration of rubber cups in master and wheel cylinders, and may induce corrosion of the metal parts of the cylinders.

SERVICE BRAKE SYSTEM (Cont.)



Typical Straight Hydraulic System (Series 100 Shown)

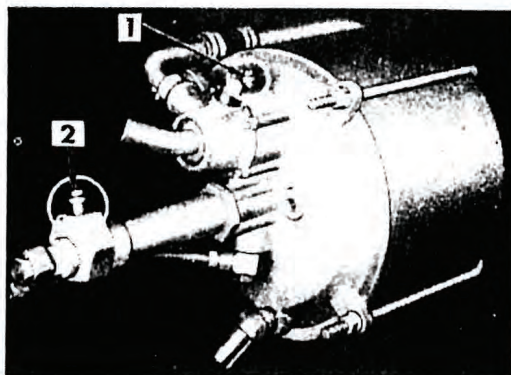
BLEEDING BRAKES

The hydraulic brake system must be bled whenever a pipe line has been disconnected, when a leak has allowed air to enter system, or when any part of the system has been disconnected. The need for bleeding brakes is generally indicated by springy, spongy brake pedal action.

A definite bleeding sequence must be followed when bleeding the systems used in the trucks covered by this manual. In addition proper equipment must be used together with the knowledge of the correct procedures. It is recommended that bleeding operations be referred to your GMC Dealer.

Bleeding Sequence

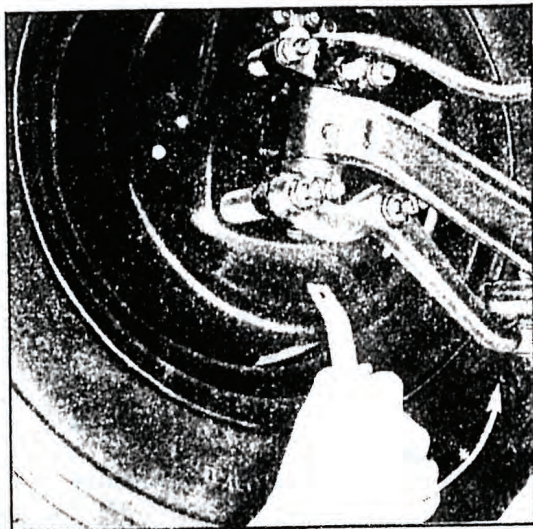
On vehicles equipped with a Hydrovac, this unit must be bled first in sequence as shown in illustration. System must be bled with engine off and no vacuum in power system when Hydrovac is used. On rear brakes, equipped with dual cylinders, the rearward cylinder should be bled first. When bleeding wheel cylinders the proper sequence is left rear, left front, right rear, and right front.



SERVICE BRAKE ADJUSTMENT

The need for service brake adjustment is generally indicated when brake pedal reserve travel is reduced to within 2" of the toeboard. Before adjusting, make certain that linkage is free and that wheel bearings are adjusted.

FRONT AND REAR—SERIES 100-22



1. Jack up the wheel being adjusted. Remove adjusting hole cover at lower end of backing plate.

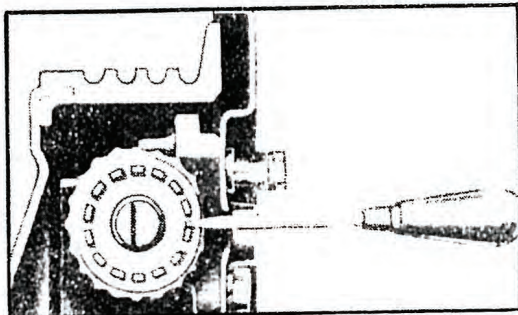
2. Insert adjusting tool into adjusting hole until tool engages notches in adjuster. Turn adjuster until brake starts to drag as wheel is revolved.

3. Back off adjuster approximately 14 notches. Repeat operations at each wheel.

4. Hand brake must be readjusted as later described after each service brake adjustment.

Front and Rear Series 150-22

Front—250-22 thru 350-24



1. Insert screwdriver through adjusting hole, engaging notches on cylinder cover.

2. Turn adjuster (clockwise) until brakes drag as wheel is turned.

Back off approximately four notches (indicated by faint click of cover lock spring).

3. Repeat above operations at each wheel.

Rear Only Series 250-22



1. Turn adjusting shaft with wrench (see above). (Accessible at inner side of backing plate.)

2. Turn shaft clockwise until brake drags slightly as wheel is turned. Back off about $\frac{3}{4}$ turn to provide proper running clearance.

3. Repeat above operations at each wheel.

SERVICE BRAKE ADJUSTMENT (Cont.)

Rear Only—Series 280-22 thru 350.24

These brake assemblies are equipped with two brake cylinders at each wheel. Brake shoes must be adjusted at each cylinder in following manner.

1. Start at rearward cylinder first. The adjusting hole in backing plate is just above the cylinder.
2. Insert tool to engage notches in adjuster. Turn adjuster until brake drags slightly as wheel is turned. Back off four notches for proper running clearance.
3. Repeat above operations on forward wheel cylinder. Then adjust opposite brake in same manner.



PARKING BRAKE

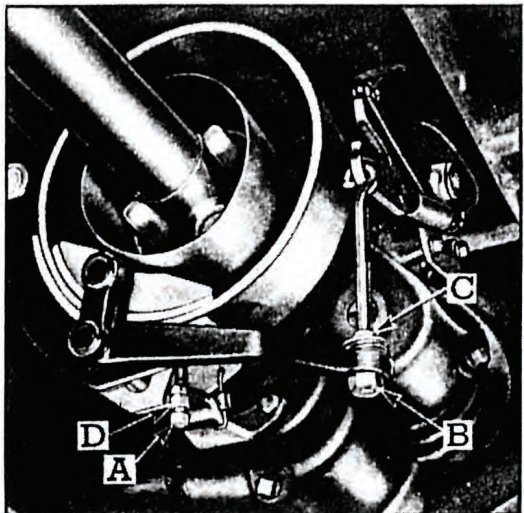
Parking brakes on Series 100-22 thru 250-22 are actuated by a foot pedal. The pedal actuates brake shoes at rear wheels through cable linkage.

Standard parking brakes on 280-22 thru 350-24 are dual shoe, propeller shaft drum type, mounted at rear of

transmission and actuated with conventional hand lever. When 5-speed transmissions are used, an external contracting band type parking brake is used. The various types of parking brakes require different adjusting procedures as described in following text.

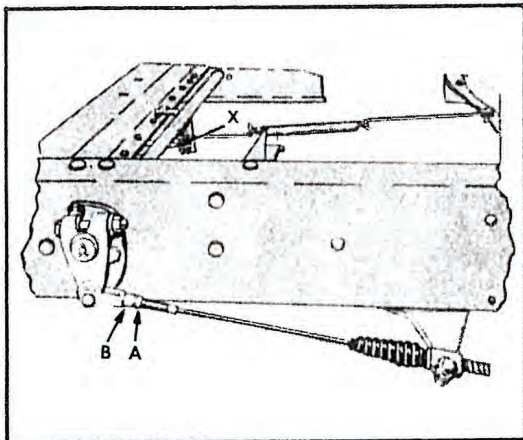
DUAL SHOE TYPE

1. Set hand brake lever in fully released position.
2. Loosen lock nut ("D") and draw up adjusting bolt (A) until .010"-.015" clearance is obtained between outer shoe facing and brake drum, measured at point directly above adjusting bolt ("A"). Hold bolt and tighten lock nut securely.
3. Loosen lock nut ("C") and draw up nut ("B") until .010"-.015" clearance is obtained between inner shoe facing and brake drum. Hold nut ("B") and tighten lock nut ("C") securely. Recheck lining to drum clearance.



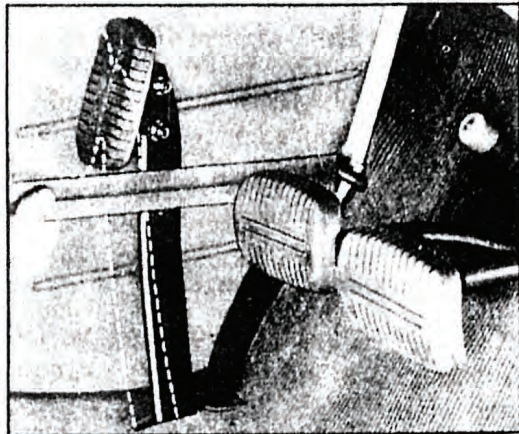
PARKING BRAKE (Cont.)

REAR WHEEL TYPE



1. Parking brakes must be adjusted after each service brake adjustment. Jack up rear wheels, release brake lever or pedal, and then make adjustments as follows: Use steps 2 thru 6 on Series 100-22 and steps 3 thru 6 on other series.

2. **On Series 100-22 Only.** First adjust clevis at rear cross shaft (see "X" on above illustration) to obtain $\frac{1}{8}$ " clearance between cross shaft "hump" and cross member. Depress pedal $1\frac{1}{2}$ " (see above) and block in that position. Proceed to adjust cables as described in following steps.



3. Adjust cables on **each** side. Loosen lock nuts (A above). Remove clevis pin from clevises (B above).

4. Pull on cable by hand until a positive stop is felt. Turn clevis onto cable until clevis pin can be inserted through clevis and lever with all slack removed from cable.

5. After both sides have been adjusted, apply pedal or lever enough to produce a drag at both rear wheels. Back off on tight side rather than tighten on loose side.

6. Install cotters in pins and tighten lock nuts on clevises.

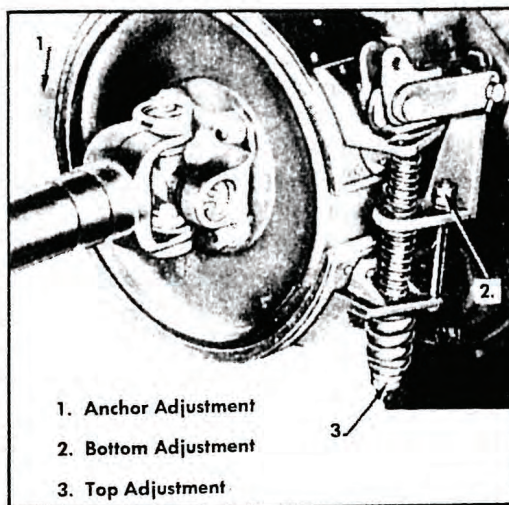
EXTERNAL CONTRACTING BAND TYPE

Adjustments must be made in sequence at three points on brake with brake lever fully released and linkage disconnected. Refer these adjustments to your GMC Dealer. The following lining to drum clearances should be obtained.

1. Anchor adjustment (1 on Illustration)—.010"—.015".

2. Bottom adjustment (2 on Illustration)—.020".

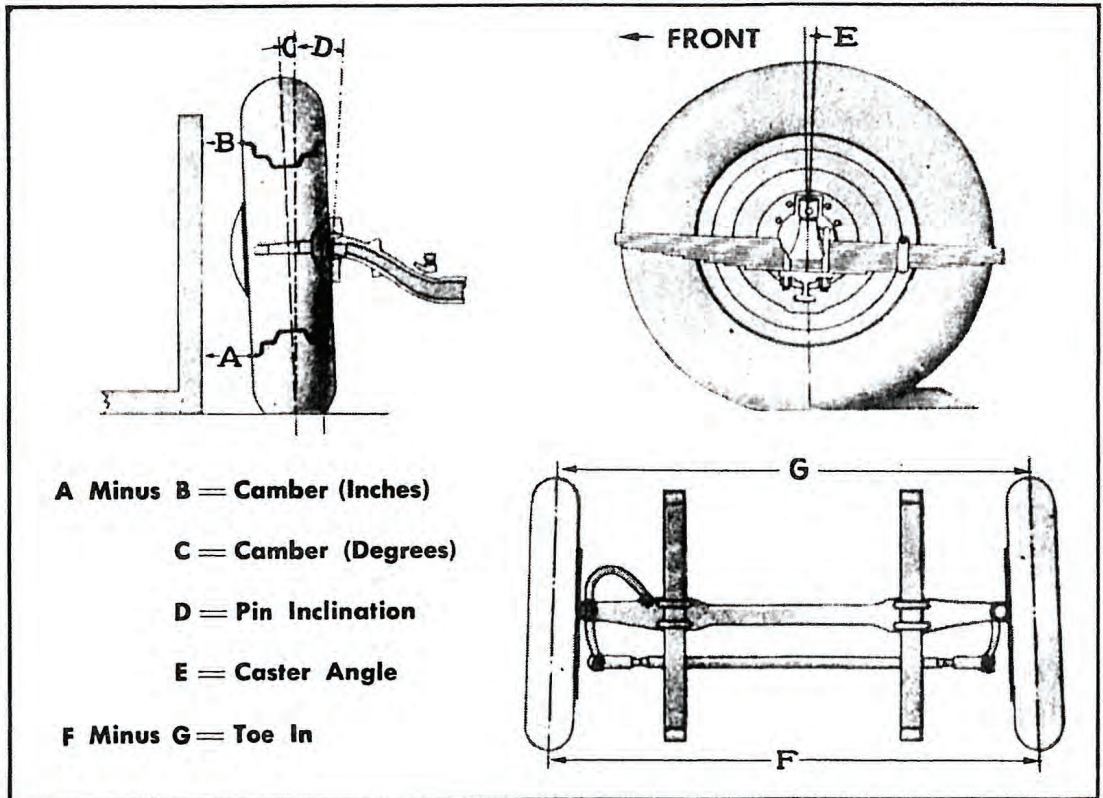
3. Top adjustment (3 on Illustration)—.020".



FRONT END ALIGNMENT

Proper alignment of the front wheels must be maintained to assure ease of steering and satisfactory tire life. Front end alignment should be checked and corrected periodically, and especially after a hard curb bump, or collision.

Front end alignment should be checked with precision equipment and corrected by mechanics thoroughly familiar with alignment procedures. The chart points out the various alignment factors. Refer to your GMC Dealer for correct specifications.



FRONT AXLE MAINTENANCE

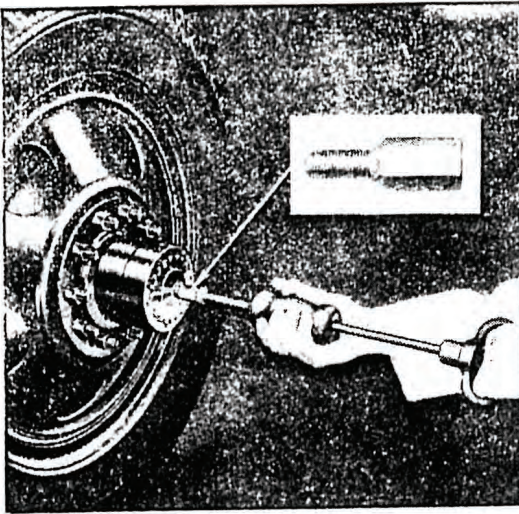
In addition to regular lubrication of associated parts, the front axle and its connections should be checked regularly for wear and looseness. Check for loose spring to axle U-bolts, tie rod and drag link ends, and for bent parts. Have alignment checked at regular intervals.

Check condition of the steering stop plates at each knuckle. If bent or worn, replace with new parts.

REAR AXLES

The standard Hypoid type rear axles used on these GMC trucks require little care or attention. The lubrication level should be checked at intervals shown on lubrication charts previously illustrated in this manual. Check the housing cover bolts for tightness at each lubrication service interval.

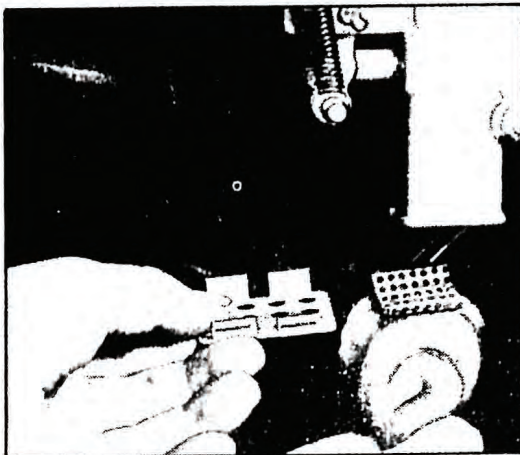
Rear spring U-bolts should be checked and tightened to specified torque. Axle flange bolts on Series 100-22 and 150-22 should be kept tight (85-90 ft.-lbs.). Axle repairs should be referred to your GMC Dealer.



On Series 280-22 and up, the axle shaft is spline attached to hub as shown in illustration. The shaft is retained in the hub by a hub cap. If leakage occurs, remove cap, install new gasket, and replace cap. Illustration also shows method of removing axle shaft with a conventional slide hammer and an axle flange adapter.

2-SPEED AXLE SHIFT

The most important item of maintenance on the axle power shift system is the periodic checking of the system for vacuum leaks—and the immediate corrections of any existing leaks. A leaking vacuum system will prevent proper shifting.



Cleaning Valve Strainer

Unless control valve filter element is cleaned at regular intervals dirt will be drawn into system.

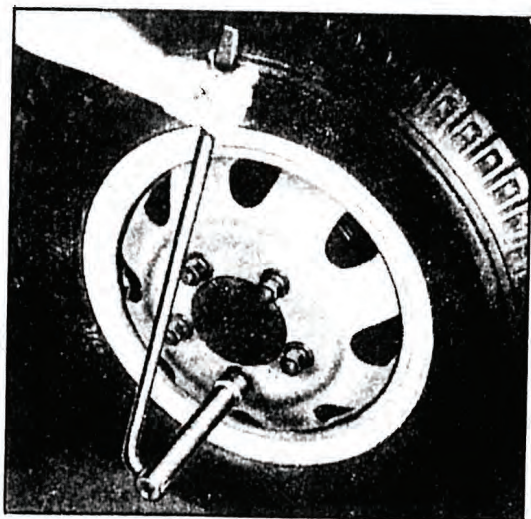
Remove cover from under side of control valve body. Remove filter and screen from inside of body. Wash element thoroughly in dry cleaning fluid, then allow to dry. After installing screen and element inside valve body, install cover to under side of valve.

WHEELS

To avoid excessive tire wear and vibrations, it is extremely important that wheels are mounted properly and that wheel nuts are kept tight.

Always use wrench supplied with vehicle tools to tighten wheel nuts. Do not use an extension wrench or apply excessive pressure by jumping on the handle of the wrench used.

**To Avoid Accidental
Loosening of Wheels
Carefully Follow
These Tightening
Instructions**



**When Truck
Is New**

1. Tighten nuts daily for the first 500 miles of service to compensate for setting-in of clamping surfaces.
2. Successively tighten opposite nuts to assure even tightness.

**After
Each
Wheel
Removal**

1. Before installing wheel, clean all grease, dirt and paint from seating surfaces of hub and wheel. If studs and nuts are dirty or oily, wash in gasoline.
2. Carefully install wheel over hub studs. If dual wheels are used be sure valve stems are opposite each other. Thread nuts onto studs with fingers sufficiently to hold wheel in position.
3. Use wrench provided with tool equipment, and tighten opposite nuts successively and evenly.
4. Retighten nuts daily for first 500 miles of service.

TIRES

One of the most important factors of safe and economical truck operation is systematic and correct tire maintenance. Tires should receive the same careful and regular maintenance as do other operating units.

PROPER INFLATION

The tire manufacturers specify definite tire inflation for each tire depending upon the tire sizes and loads imposed on the tires. Each GMC truck is equipped with the correct size tire to conform with the load the truck is to carry.

For greater riding comfort, prolonged tire life, and to reduce wear and tear on the truck chassis, tires should be inflated for loads carried on tires as indicated in following chart. In no case should this combined front and rear tire load exceed the maximum recommended load shown on Load Capacity Chart on page 3.

TIRES FOR TRUCKS IN HIGHWAY SERVICE LOAD AND INFLATION TABLE

Tire and Rim Association Standard

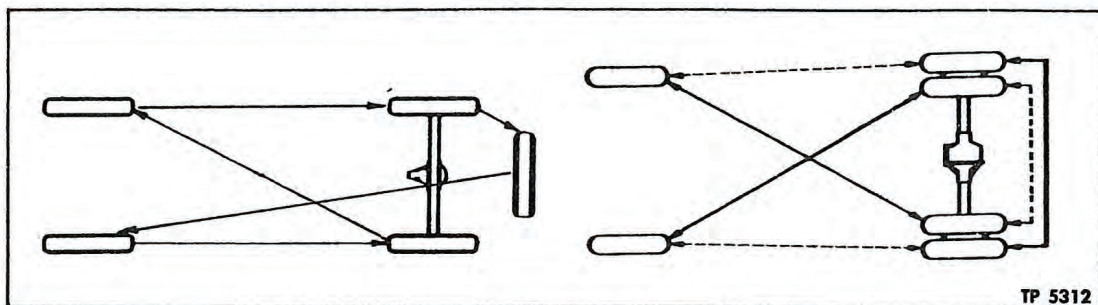
Tire Loads at Various Inflation Pressures

Tire Size	Ply	30	35	40	45	50	55	60	65	70	75
6.00-16	6	1065*									
6.50-16	6	1215*									
15"	6	1410	1500								
7.00-17	6			1575							
6.50-20	6		1500	1600	1700						
7.00-17	8		1475	1575	1675	1775					
7.00-18	8		1525	1650	1750	1850					
7.00-20	8		1650	1775	1900	2000					
7.50-17	8		1650	1775	1900	2000	2100				
7.00-20	10					2000	2075	2150	2250		
7.50-20	8		1875	2000	2125	2250	2375				
7.50-20	10					2250	2375	2500	2600	2700	
8.25-20	10		2175	2325	2475	2600	2750	2900			
8.25-20	12						2750	2900	3025	3150	

NOTE: Bold face figures indicate maximum recommended loads. See note preceding chart.

* Maximum shown at 36 lbs.

TIRES (Cont.)



Tires should be interchanged at regular intervals to obtain maximum life. Suggested method of interchanging tires on vehicles with dual rear wheels is shown in diagram above. If the inside duals show the most wear, change wheels according to solid lines. If outside duals show the most wear, change according to broken lines. New tires should be installed on front wheels.

INSTALLING TIRES AND TUBES

When installing tubes, coat inner diameter of tube and inside of tire beads with a solution of neutral vegetable oil soap. This treatment aids tube in shaping itself properly during inflation.

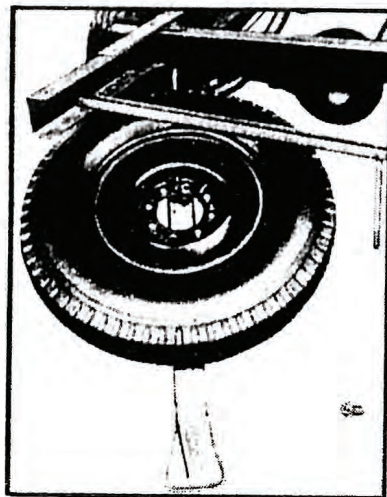
Several types of rims are used on these vehicles including drop- and semi-drop center, and split rim types. With the exception of the drop center rims, the rim assemblies include

clamping or locking rings. Refer to your GMC Dealer or tire dealer for correct methods of mounting and dismounting tires on the particular type of rim used on your truck.

Always inspect seating of clamping or locking ring before starting to inflate. Partially inflate tire, then inspect ring again. **Always stand aside when inflating tire whether it is on the truck or off.**

TIRE CARRIER

Spare tire and wheel on Series 100-22 and 150-22, is carried on a support bar located under frame at rear of wheel. Tire is positioned by plate on bar. Remove nut from rear support bolt. Support with tire and wheel can then be lowered and swung from under vehicle.



CAB MAINTENANCE

A regular inspection and maintenance procedure is recommended to insure that all structural bolts, attaching bolts and mounting bolts are kept properly tightened. In addition, attention should be given to doors, windows and ventilators to be sure they function properly.

Door Hinges. Keep door hinge screws tight. Inspect hinge pins for wear and replace if necessary. Lubricate hinge pins sparingly with light engine oil.

Paint. Vehicle should be kept clean by washing regularly which will preserve the paint. As a protection to paint use a good grade of wax polish when vehicle is new and apply a coat of wax thereafter as required.

Weatherstrip. Maintenance of door inner weatherstrip is important to prevent drafts. If weatherstrip is not damaged, but fails to seal door properly, it can be repositioned, after loosening moulding. If weatherstrip is worn or deteriorated it should be replaced.

Cab Mounting. Keep front mounting bolts tight to maintain proper cab alignment. Tighten rear shackle bracket bolts firmly, at regular intervals.

Cowl Ventilator Adjustment. Loosen screw and nut attaching upper and lower links. Change adjustment one serration at a time, then tighten screw and nut. Check operation of ventilator, then repeat adjustment procedure if necessary.

Fitting Door. By observing edges of door it can usually be determined if door is sprung or warped. Only a competent body repair man with proper tools, is qualified to make such repairs. Examine door rubber bumpers periodically and replace when necessary to prevent rattles.

Calcium chloride and other salts, road tar, excretion from insects ("tree sap"), chemicals from factory chimneys and other foreign matter may permanently damage the finish of trucks. Frequent, regular washing and a thorough cleaning after exposure is recommended to prevent damage by these substances.

CAB LUBRICATION

Hood Mechanism—Apply light engine oil at hood latch lock, hood hold-up arm and spring, and hood hinges.

Door Mechanism—Apply light engine oil at handles, door hinges, and door hold-open.

Door Lock Rotor and Striker Plate—Use "pencil" lubricant.

Door Lock—Blow flake graphite into lock opening.

Seat Mechanism—Apply light film of graphite grease to seat adjustment lock, cable, rollers, and guides.

Windshield Wiper Shaft—Apply one or two drops of light engine oil at wiper shaft.

SPRINGS

Front spring on all models are semi-elliptic type mounted on front axle I-beam with U-bolts. On conventional models, the front of spring is shackled while the rear is pivoted. On cab-over-engine models, the rear of spring is shackled while the front is pivoted.

Rear springs are either single or combined auxiliary of the semi-elliptic type on all models. The combined auxiliary type consists of main spring and auxiliary held together with one common center bolt. The assembly is held in place on axle housing pad with U-bolts. Forward ends of springs are pivoted while rear ends are shackled.

SPRING MAINTENANCE

Lubricate shackles and pins as instructed in Lubrication. Have shackle pins replaced if worn.

Check tightness of U-bolts with truck under normal load as follows: Series 100-22, front and rear, 65-90 ft. lbs., Series PM150-22, front 65-90 ft. lbs.; front on other series, 110-150 ft. lbs.; rear on other series, 210-235 ft. lbs.

STEERING GEAR

The recirculating ball type steering gear assembly is mounted to frame side rail with steering column clamped to instrument panel. The pitman shaft is linked to front steering arm by pitman arm and an adjustable drag link. Provision has been made for adjustments to compensate for normal wear at worm bearings and pitman shaft. No attempt should be made to make these adjustments without proper equipment and knowledge of the correct procedures. Refer such adjustments to your GMC Dealer.

TRANSMISSION

In addition to regular checks for lubricant leaks and the correct lubrication of the transmission as explained in Lubrication section, the transmission mounting bolts should be periodically tightened. Correct shifting will also contribute to long transmission life. Unusual noises and knocks within the transmission should be investigated immediately and corrected.

PROPELLER SHAFTS

Propeller shafts require little maintenance except periodic lubrication of the universal joints as explained in Lubrication section. Routine inspection should be made for indication of damage and looseness of mounting bolts. Propeller shaft vibration should be investigated immediately and corrections made.

WHEEL BEARINGS

Wheel bearing adjustment check should be made at regular preventive maintenance intervals. The importance of keeping bearings properly adjusted cannot be over-emphasized.

Check each wheel separately while tire is clear of floor and wheel is free to rotate. Check sideways movement of wheel by grasping the tire on each side and pulling back and forth. If bearings are correctly adjusted, movement of brake drum in relation to backing plate will be barely perceptible and wheel will rotate freely. If wheel binds and does not rotate freely, or if movement is excessive, need of adjustment is indicated.

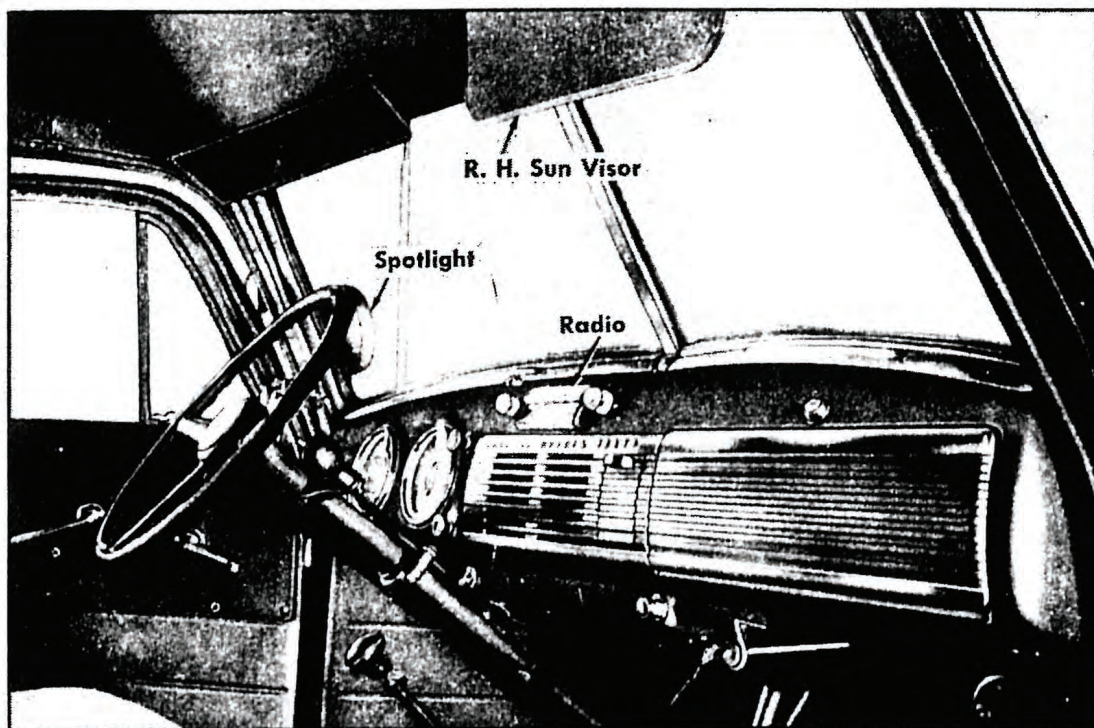
Bearing adjustment procedures vary on different vehicles, and in some cases, special tools are required. When bearings require adjustment, have them adjusted by your GMC Dealer.

MAINTENANCE ON OTHER UNITS

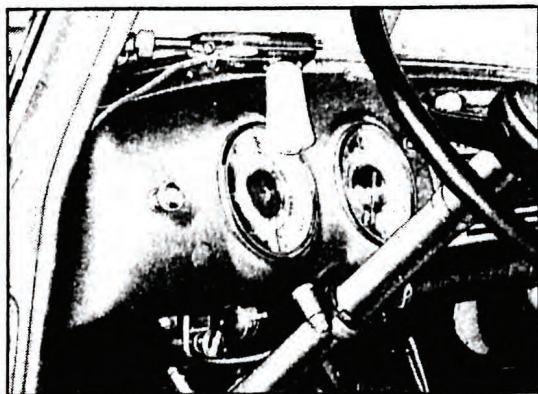
The brief maintenance instructions on preceding pages should serve as a valuable guide to the general maintenance of GMC trucks. The instructions are not in detail, therefore complete and efficient maintenance should be accomplished by experienced mechanics and in a well equipped shop. Your GMC Dealer is qualified to offer efficient maintenance service. The Dealer is in possession of the latest and complete procedure on the proper methods of maintaining your GMC truck.

GMC ENGINEERED ACCESSORIES

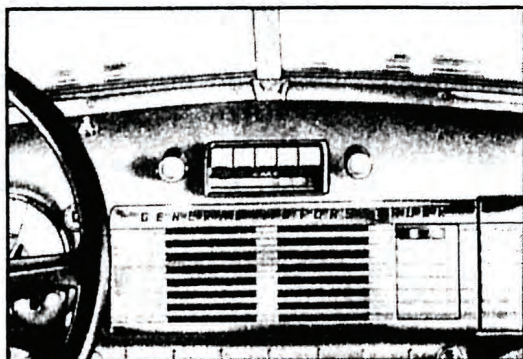
Many GMC accessories are available for your selection at your GMC dealers. They are quality products specifically developed and engineered for your GMC and designed to contribute to operator safety, comfort or convenience. The operating instructions for most of these accessories are self-explanatory, however, the following is a brief summary of some operating tips that will add to accessories performance and operator enjoyment placed here for ready reference.



GMC Engineered Accessories installed in cab (sunshades, radio, direction signal, spot light, heater control)



Heater controls and spot light control



Radio installed in cab

TRUCK RADIO

This radio is a five tube plus rectifier superheterodyne receiver which has been especially designed for use in the 100-350 and F350 Models GMC Trucks. The receiver has been designed in conjunction with the truck and when installed becomes an integral part of the instrument panel. In this type of design the speaker is integral with the receiver and instrument panel which, due to location and baffling, permits exceptionally good tone quality. This model also incorporates a five station mechanical automatic tuning unit of perfected design which permits easy instant tuning and a simplified quick method of setting the stations.

Operation

SWITCH AND VOLUME CONTROL (left knob): The first portion of rotation in a clockwise direction turns on the radio. Further rotation increases the volume.

MANUAL TUNING CONTROL: This control is for manual selection of stations. Careful tuning will produce the best reception possible in line with reception conditions.

STONE CONTROL: The tone control knob in its normal position (horizontal) gives reproduction of music with smooth bass and maxi-

mum treble brilliance. Turning the knob approximately 30° counter-clockwise sets the tone control to give emphasized bass reproduction to either music or voice. Turning the control approximately 30° clockwise from its normal position adds clarity when listening to voice reproduction.

DIMMER CONTROL: The dial light is connected with the instrument panel lights and its illumination is controlled by the panel light switch. The dial can be illuminated only when the radio is turned on and the instrument lights are turned on.

Push Button Setting

The five push buttons are for automatic tuning of five preselected stations, the tuning operations being accomplished by merely pushing one of the buttons in as far as it will go.

Setting the push buttons is a simple procedure which can be done with one hand as follows:

1. Turn on the receiver for TEN minutes or longer to allow various circuits to stabilize. In sub-zero weather allow the receiver to warm up from THIRTY to FORTY-FIVE minutes.

2. Select your five favorite stations in order of frequency. It is suggested that they be arranged with the high frequency stations on the right hand buttons, etc.

3. Pull the button slightly to the

left and out approximately one-half inch.

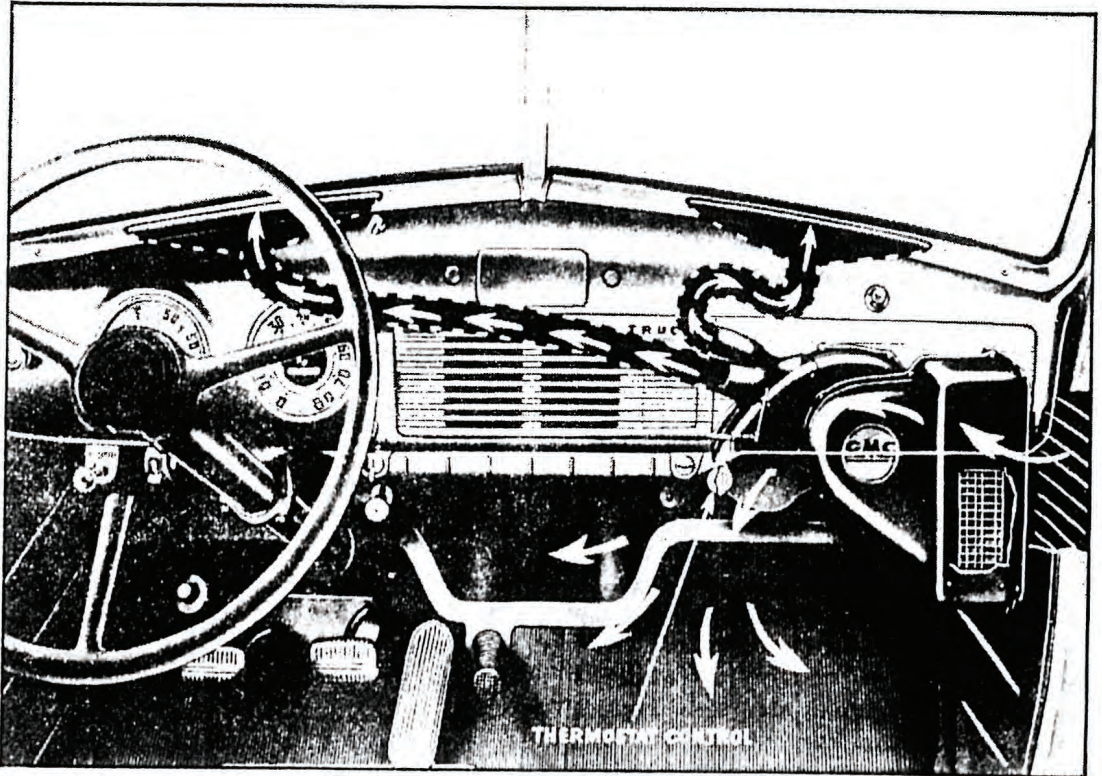
4. Turn the manual control knob until the desired station is tuned in. To secure an accurate set-up turn the manual tuning knob back and forth until the station is tuned in clearly and with a minimum of background noise.

5. Push button in firmly to the end of its travel.

6. Repeat the same procedure to set up the remaining four buttons. A station setting may be changed at any time by following the above procedure.

7. After setting up the push buttons and checking the operation of the receiver, place this instruction manual in the glove box of the truck.

AIRFLOW HEATER & DEFROSTER



This Heater and Defroster is a combination unit operated by one motor and fan. Air intake is through louvers included in right hand side of cowl outer shell.

Controls

The heater control switch for heater motor speed is located on the lower flange of the instrument panel to the left of the steering column. This switch provides two speed motor operation.

The defroster control located to the left of the heater switch controls the position of the valve inside the heater regulating air supply to defroster outlets. The defroster control knob when pulled out to maximum position allows maximum air supply for defrosting, and partial air supply to cab. When the defroster knob is pushed in, full air supply is furnished the cab instead of the defroster.

A temperature control valve is furnished with this heater. The control for this valve, located slightly to the left of the glove compartment and mounted on the lower flange of the instrument panel, controls the flow of water through the heater core. Rotation of this valve from fully closed to open is clockwise. When the valve is in a fully closed position, no water passes thru the heater core and this heater unit may be used as a ventilating unit. Operator may select desired temperature ranges within the limits of this valve and a thermostatic feature of the valve will maintain selected temperature in the cab.

ACCESSORIES (Cont.)

DIRECTION SIGNALS

The Direction Signals are operated by a control switch located on the steering column. The switch lever movement corresponds to the rotation of the steering wheel when making a turn. A pilot bulb is located on this switch and is wired in series with a flasher unit in the signal circuit. This pilot bulb shows intermittent

flashing when either left or right hand lamps are flashing.

Operator should use direction signals in advance of a turn to indicate to following traffic, intention to turn. On the completion of the turn, it is necessary that the direction signal switch be returned to neutral position.

WINDSHIELD WASHER

The Windshield Washer is controlled by a valve located on the lower flange in the instrument panel to the left of the steering column. If a small water charge is required, push in on control valve and release quickly. When a larger water charge is desired, push in the control valve and hold for two or three seconds. If additional water is desired, repeat the operation. For cold weather

operation and also to assist in windshield cleaning, All-Season Windshield Washer Solvent should be used in the washer jar in proportions indicated on the windshield washer solvent bottle. The windshield washer jar itself is conveniently located in the engine compartment to facilitate refilling and checking.

GMC ENGINEERED ACCESSORIES

Description	Part No.	Model Application
Bumper, Rear.....	2233106.....	100
Bumper, Rear.....	2233108.....	150
Bumper and Hitch, Rear.....	2233307.....	100 & 150
Case, Flag with Bracket.....	2233070.....	All
Cover, Seat, Fiber.....	2233282.....	All Conventional
Cover, Radiator.....	2233285.....	All
Extinguisher, Fire—1 Quart.....	2233033.....	All
Extinguisher, Fire—1½ Quart.....	2233035.....	All
Filter, Oil—DeLuxe CUL.....	2233063.....	All Conventional
Filter, Oil—DeLuxe JC.....	2233155.....	All Conventional
Filter, Oil—Fram F482-P2.....	2233214.....	All Conventional
Filter, Gasoline.....	2233092.....	All
Cartridge, Oil Filter Replacement.....	2233164.....	Models Equipped with CUL DeLuxe Filter
Cartridge, Oil Filter Replacement.....	2233166.....	Models Equipped with JC DeLuxe Filter
Cartridge, Oil Filter Replacement.....	2233192.....	Fram Replacement
Cartridge, Oil Filter Replacement.....	2233219.....	Fram F-4 Filters
Flag, 15" x 17"—Red.....	2233069.....	All
Flare, Oil (Set of 3 in Bracket).....	2233073.....	All
Flare, Oil (Set of 3 in Case).....	2233074.....	All
Flare, Reflector—DeLuxe (Set of 3).....	2233032.....	All
Flare, Reflector—Standard (Set of 3).....	2233294.....	All
Fusée, 20 Min.....	2233071.....	All
Guard, Utility Grille.....	2233312.....	100 & 150
Heater, Outside Air.....	2233247.....	All
Heater and Defroster, GMC Standard 6 Volt.....	2233243.....	All

GMC ACCESSORIES (Cont.)

Description	Part No.	Model Application
Hooks, Tow—Pair	2233047	300 & Up Except F-351
Horn, Air Tone—Pair	2233287	All Conventional
Jack, Hydraulic—3 Ton	2233037	All
Jack, Hydraulic—5 Ton	2233038	All
Jack, Hydraulic—8 Ton	2233039	All
Jack, Hydraulic—12 Ton	2233040	All
Jack, Hydraulic—20 Ton	2233041	All
Jet, Adjustable Carburetor	2233002	All Conventional
Light, Armoured C1/Marker—Amber	2233131	All Truck, Tractor and Trailer Application Using 6 Volt System
Light, Armoured C1/Marker—Red	2233132	All Truck, Tractor and Trailer Application Using 6 Volt System
Light, C1/Marker Bee-Hive—Amber	2233143	All Truck, Tractor and Trailer Application Using 6 Volt System
Light, C1/Marker Bee-Hive—Red	2233144	All Truck, Tractor and Trailer Application Using 6 Volt System
Light, C1/Marker Flush Mtg.—Amber	2233146	All Truck, Tractor and Trailer Application Using 6 Volt System
Light, C1/Marker Flush Mtg.—Red	2233147	All Truck, Tractor and Trailer Application Using 6 Volt System
Light, C1/Marker Hinged Brkt.—Red	2233145	All Truck, Tractor and Trailer Application Using 6 Volt System
Light, Extra Stop and Tail	2233253	100-350 & F-350
Light, Extra Stop and Tail	2233254	100-250 with Pickup and Single Unit Bodies
Light, Marker Streamlined	2233129	All Truck, Tractor and Trailer Application Using 6 Volt System
Light, Spot—Corner Post	2233246	All Conventional
Light, Spot—Corner Post	2233212	All
Light, Spot—Roof Type 6 Volt	2233250	All 6 Volt Models
Lighter, Cigarette	2233251	All 6 Volt Models
Mirror, R. H. Extension Arm	2233284	All
Mirror, R. H. Fixed Arm	2233151	All Pickup and Single Unit Bodies
Mirror, Inside Glare-Proof	2233120	All Models and Universal Application
Mirror, Rear View—Large Head	2233266	All
Mirror Brace, Rear View	2233267	All
Mirror Bracket, Inside Rear View	2233304	All
Ornament, Hood	2233301	All
Radiator Core Pressure Valve	2233181	150-350 & F-350
Radio, GMC Special	2233297	All
Antenna, Radio	2233025	All
Reflector, Amber	2233134	All
Reflector, Red	2233133	All
Rest, Arm	2233013	All
Running Board Safety Tread Plate	2233277	All
Signal, Direction—Mech.	2233326	All 6 Volt Models With Cab
Signal, Direction, Front Electric Complete W/Switch	2233257	All 6 Volt Models
Signal, Direction, Rear Flush Mounting Without Switch	2233258	All Truck, Tractor and Trailer Application Using 6 Volt System
Signal, Direction, Rear Side Mounting Without Switch	2233259	All Truck, Tractor and Trailer Application Using 6 Volt System
Signal, Direction, Front and Rear Electric —Class "A", Complete With Self Cancelling Switch	2233303	All 6 Volt Models
Illuminated Arm Signal W/Switch	2233326	300 & Up

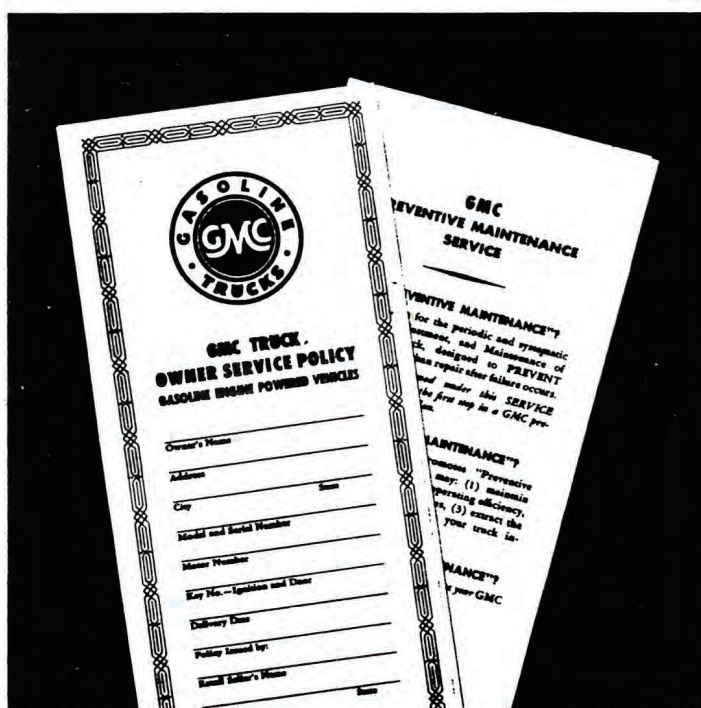
GMC ACCESSORIES (Cont.)

Description	Part No.	Model Application
Springs, Auxiliary.....	2233278.....	100
Springs, Auxiliary.....	2233279.....	150
Vent Shade—Window.....	2233316.....	All
Visor, Sun.....	2233117.....	All
Visor, Sun—Outside.....	2233288.....	All
Washer, Windshield.....	2233276.....	All Conventional
Windshield Wiper Vacuum Booster.....	2233295.....	All
Fluid, Fire Extinguisher—1 Qt. (6).....	2233076.....	
Seal, GMC Ignition—4 oz. Bottle.....	2233078.....	
Seal, GMC Ignition—1 Qt. Can.....	2233080.....	
Solvent, Windshield Washer—6 Oz.....	2233234.....	

WARNING: CARBON MONOXIDE

“Avoid inhaling exhaust gases when any concentration of these is present in the air, i.e., in a garage, in congested traffic, or when stopped closely behind a vehicle with its motor running. Exhaust gases may have strong odors which normally should give warning of their presence. However, the exhaust gases from some vehicles may not be so noticeable under certain conditions and the senses of people react differently. Exhaust gases contain a percentage of carbon monoxide which is a poisonous gas that, by itself, is tasteless, colorless, and odorless.”

OWNER SERVICE POLICY



TP 4304

GMC TRUCK OWNER SERVICE POLICY is placed in the glove compartment or tool carton of each GMC Truck. This policy when properly signed by the dealer entitles the owner to two after-delivery free services, providing the vehicle is returned to the retail seller for both services within mileage periods between 1,000 and 4,000 miles, or within 90 days, whichever first occurs.

SERVICE COUPONS

Two coupons are attached to the policy, and when presented by the owner at the specified mileage, the services outlined on the policy will be accomplished—no charge—except for filter elements, oil and lubricants used in engine, oil bath air cleaners, transmissions, and rear axles.

PREVENTIVE MAINTENANCE

The policy also explains the availability of **GMC Preventive Maintenance Service**, together with a brief explanation of this valuable service offered by your dealer.

FAN BELT	NAPA	25-22443
ROTOR	"	RR83
CONDENSER	"	RR174
POINTS	"	CS-763P
OIL FILTER	"	GOLD LINE 1121
	AC	122

OIL FILTER
NAPA GOLD LINE
1121

IGNITION, DOOR &
GLOVE BOX

B&S 8975

STANT GAS CAP

B&S A 905

