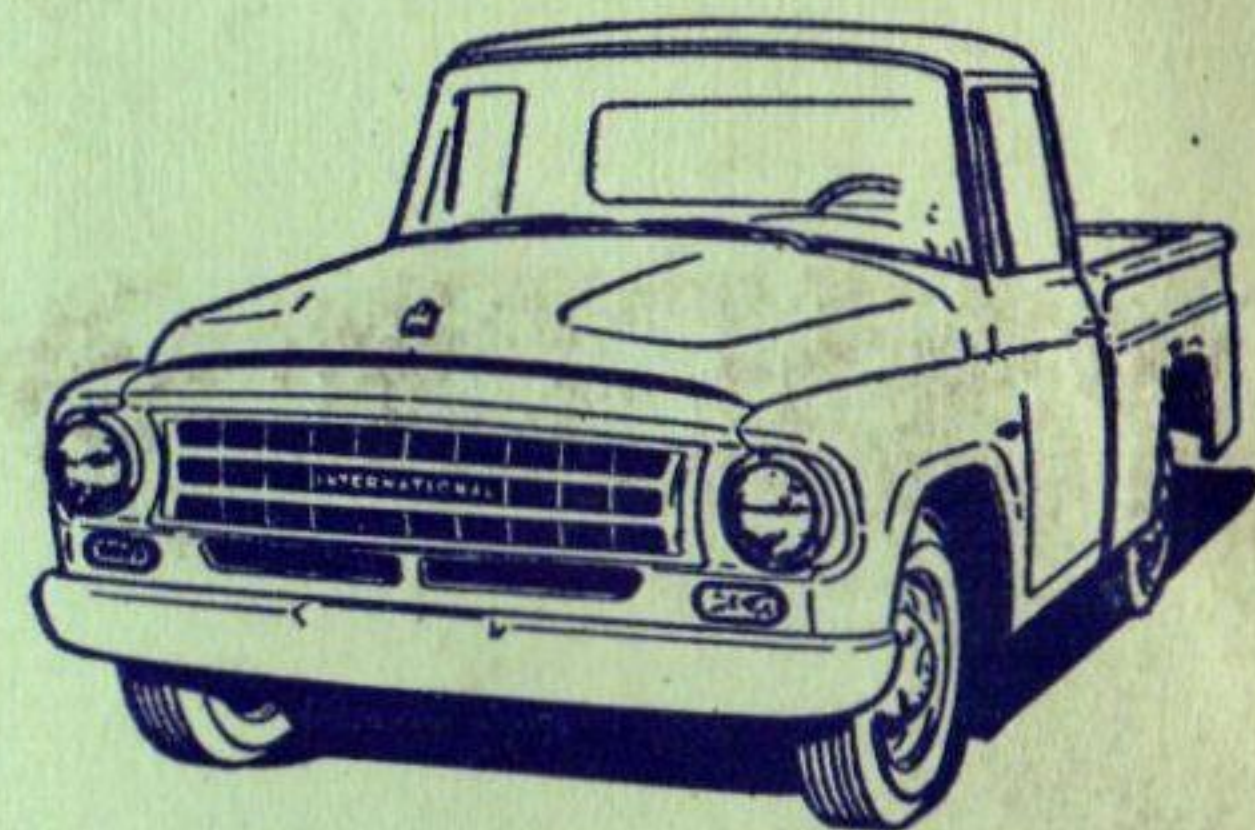


Operator's Manual



OPERATION • MAINTENANCE • LUBRICATION

INTERNATIONAL[®] motor trucks

C-900, C-1000, C-1100,
C-1200, C-1300, C-1500,
C-1200 4x4, C-1300 4x4
and TRAVELALL SERIES

HOW TO OBTAIN THE RIGHT PARTS FOR YOUR TRUCK

Many engines, transmissions, axles, etc., and many combinations of these optional units must be available in order to provide an International motor truck for every need.

A CODE NUMBER has been assigned to each of these units so you can positively identify each unit used in building **your** truck when it is necessary to obtain parts to service it. This is important to **YOU** since individual parts in optional units are not interchangeable.

These code numbers are listed on CODE CARDS, one of which is attached to the upper side of the sun visor and one of which is in an envelope in the parcel compartment.

IT IS VERY IMPORTANT THAT THESE CODE CARDS REMAIN WITH THE TRUCK and that you take the one in the parcel compartment with you when it becomes necessary to pick up parts to service your truck. Although you won't have to use a code number to identify all parts, you will have to use it for some.

You can always be assured of getting the right parts - thereby saving your time and money - if you take this card with you when it becomes necessary to pick up parts to service your truck.

MT-2330

MODEL WB	
FRAME AND BUMPER	443023
AXLE FRT	01000
SPRING FRT	02070
SPRING RR WITH ASM	03010
BRAKE PARKING	03210
CONTROL AIR BRAKE	04000
CONN. SEMI TRAIL AIR W/SAV	04031
VALVE HAND CONT. AIR	04601
STEERING GEAR	04622
DRIVE LINE	05020
EXHAUST SYSTEM HORIZONTAL	06135
ELECTRICAL SYSTEM VOLT	07000
SIGNAL DIR DBL FACE FRONT	08005
SHEET METAL RUNNING BDS.	08561
SPEEDOMETER, TOOLS & MISC.	09000
CLUTCH CONTROL 12 INCH	10000
ENGINE W/12 IN CLCH	11120
TRANSMISSION	12050
AXLE REAR	13077
GEAR RATIO 6/5, 9/041 1 SC	
TANK SIDE MTD. 31 GAL LT.	
CAB REGULAR	
HEATER RE CIRCULATING	
WHEEL CAST FRT 20 W/7007	
WHEEL CAST 12P TIRES FRT	
WHEEL CAST DUAL RR	
WHEEL CAST 12P TIRE	
PAINT CHART	

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TO THE OPERATOR

The purpose of this manual is to familiarize you with the vehicle controls of the models covered by this manual and to provide sufficient instruction to enable you to perform the minor routine services necessary for continued efficient operation. To protect your equipment, study the manual before starting or operating your vehicle.

When in need of parts, always state the unit code number, vehicle model and chassis serial number, as well as the serial number of the unit for which the parts are required. We suggest that you write these serial numbers in the spaces provided below for ready reference when parts are required. Request the salesman to assist you in securing and recording these serial numbers when the vehicle is delivered to you.

VEHICLE
MODEL

(Stamped on plate, cab door inner panel, left side.)

ENGINE
SERIAL
NUMBER

(6 cylinder engines stamped on crankcase right side, upper front; 4 cylinder engines left side, upper front; 8 cylinder engines left bank, upper front.)

TRANSFER CASE

(From specification card.)

If you should need major information not given in this manual, or require the services of a trained mechanic, we urge you to use the extensive facilities offered by IH Branches or Dealers in your locality. They are kept informed on the best methods of servicing and are equipped to provide prompt, first-class service in an up-to-date Service Station. International Branches or Dealers carry ample stocks of essential International service parts.

NEW VEHICLE INSPECTION

After you have driven your new International 1,000 miles or 45 days (whichever occurs first), we recommend that you return it to the International Harvester branch or dealer for complete inspection.

CHASSIS SERIAL NUMBER

(Stamped on frame left side rail, front.)

TRANSMISSION NUMBER

(From specification card.)

FRONT AXLE NUMBER

(From specification card.)

REAR AXLE NUMBER

(From specification card.)

SPECIFICATIONS

ENGINE

IH Model	4-152	BG-241	V-266	V-304
No. of Cylinders	4	6	8	8
Bore	3-7/8"	3-9/16"	3-5/8"	3-7/8"
Stroke	3-7/32"	4-1/64"	3-7/32"	3-7/32"
Piston Displacement (Cu. In.)	152	240.3	266	304
Maximum Idle Range (No Load) R.P.M.	450-500	350-400	450-500	450-500
Maximum Recommended Speed R.P.M.	4,000	3,400	4,000	3,900
Compression Ratio	8.19 to 1	7.5 to 1	8.4 to 1	8.19 to 1
Firing Order	1-3-4-2	1-5-3-6-2-4	1-8-4-3-6-5-7-2	1-8-4-3-6-5-7-2
Engine Weight (Dry) (Less Accessories) Lbs.	414.5	570	619.7	617.6
Horsepower (A.M.A.)	24.1	30.4	42.1	48.1

(A.M.A. horsepower rating is based on the bore of the engine and is no index to actual engine power. It is required in some states for licensing purposes.)

VALVES

Valve tappet clearance (intake and exhaust) (hot).	BG-241	.024 to .026
	4-152, V-266, V-304	Hydraulic tappets - no adjustment needed.

ELECTRICAL

Electrical System - 12 Volts		Negative Ground
Spark Plug Gap	BG-241	.028" to .033"
	4-152, V-266, V-304	.025" to .030"
Distributor Contact Point Gap	BG-241	New Points .019", Reset .016"
	4-152, V-266, V-304	New Points .016", Reset .014"
Ignition, Initial Timing - Gasoline only	BG-241 4° B.T.D.C.	
	V-266 4° B.T.D.C.	
	V-304 T.D.C.	
	4-152 5° B.T.D.C.	

Specifications subject to change without notice.

OPERATION

BREAK-IN

Your International engine must be properly broken-in before maximum performance is demanded of it. A new engine, given an opportunity to wear-fit its parts by following the proper break-in procedure, will give smoother and quieter operation with greater economy and longer life.

For the first 500 miles, hold the vehicle speed below 40 miles per hour. Do not overspeed the engine to high r.p.m., and avoid lugging the engine at any time. Most larger vehicles are tachometer equipped and the engine speed should not be allowed to exceed 2,500 r.p.m. for the first 500 miles of operation.

Consistent low speed driving (10 to 25 m.p.h.) during the first 500 miles of operation is not recommended nor is it the proper way to break in a new engine. Although prolonged speeds in excess of 40 m.p.h. should be avoided for the first 500 miles, occasional acceleration up to 40 m.p.h. will materially assist engine break-in.

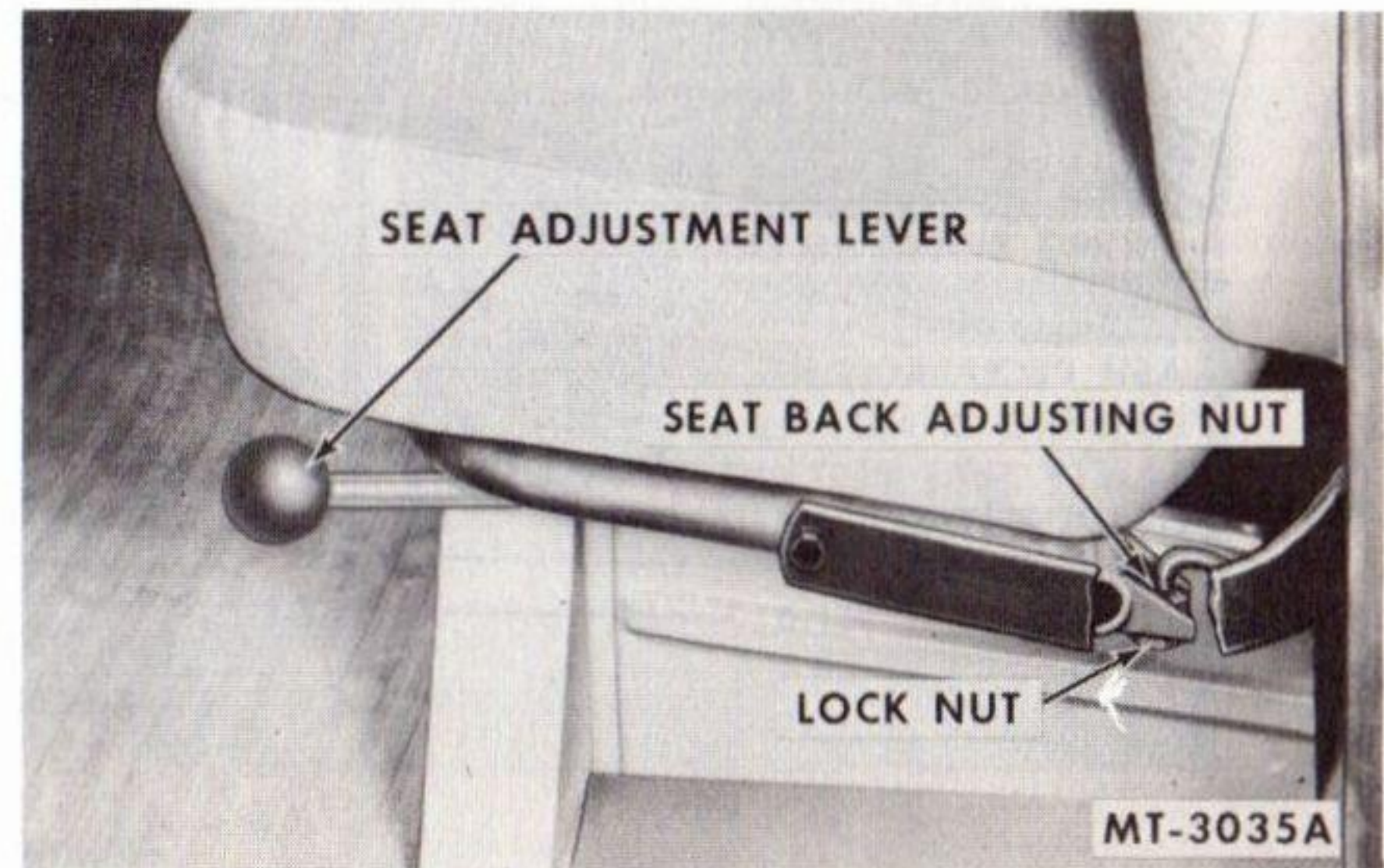
"After the vehicle has been driven 500 miles, occasional acceleration up to the governed or maximum recommended engine RPM is permissible and desirable. Sustained high speed driving must be avoided until the vehicle has been driven at least 1,000 miles. The engine in your International must not be operated beyond the maximum recommended RPM at any time."

Your new engine is filled at the factory with heavy duty break-in oil. This break-in oil and Oil Filter Element must be changed at the 1,000 mile (or 45 day) inspection period. Refill the engine with oil of the proper viscosity as outlined under Lubrication Instructions in this manual.

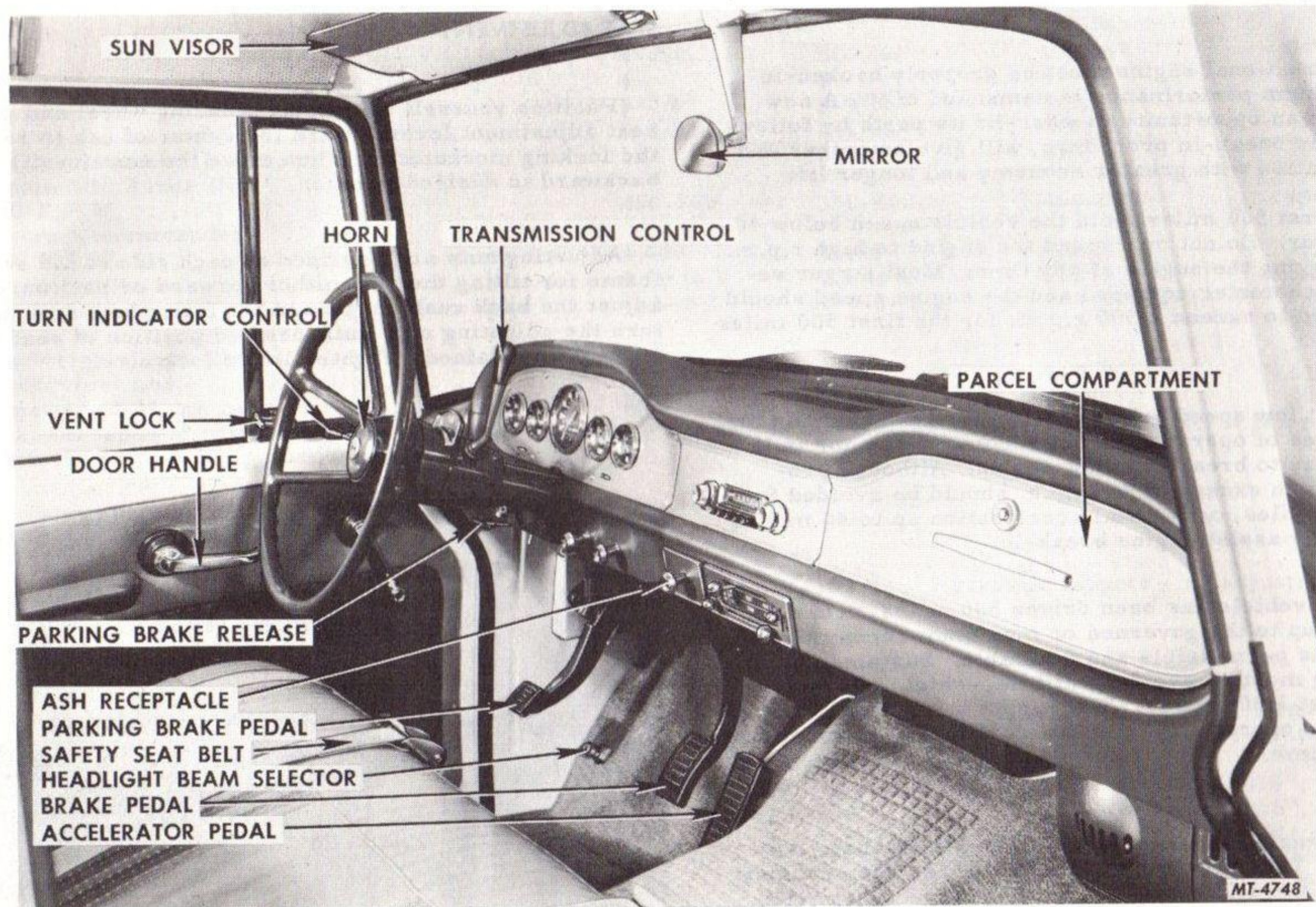
SEAT ADJUSTMENT

Position yourself behind the steering wheel and push the seat adjustment lever toward the center of cab to release the locking mechanism. Then move the seat forward or backward to desired position.

Adjusting nuts are provided at each side of the seat back frame for tilting the seat either forward or backward. To adjust the back cushion, loosen the lower lock nuts, then turn the adjusting nuts until desired position of seat back cushion is obtained. Tighten lower lock nuts.

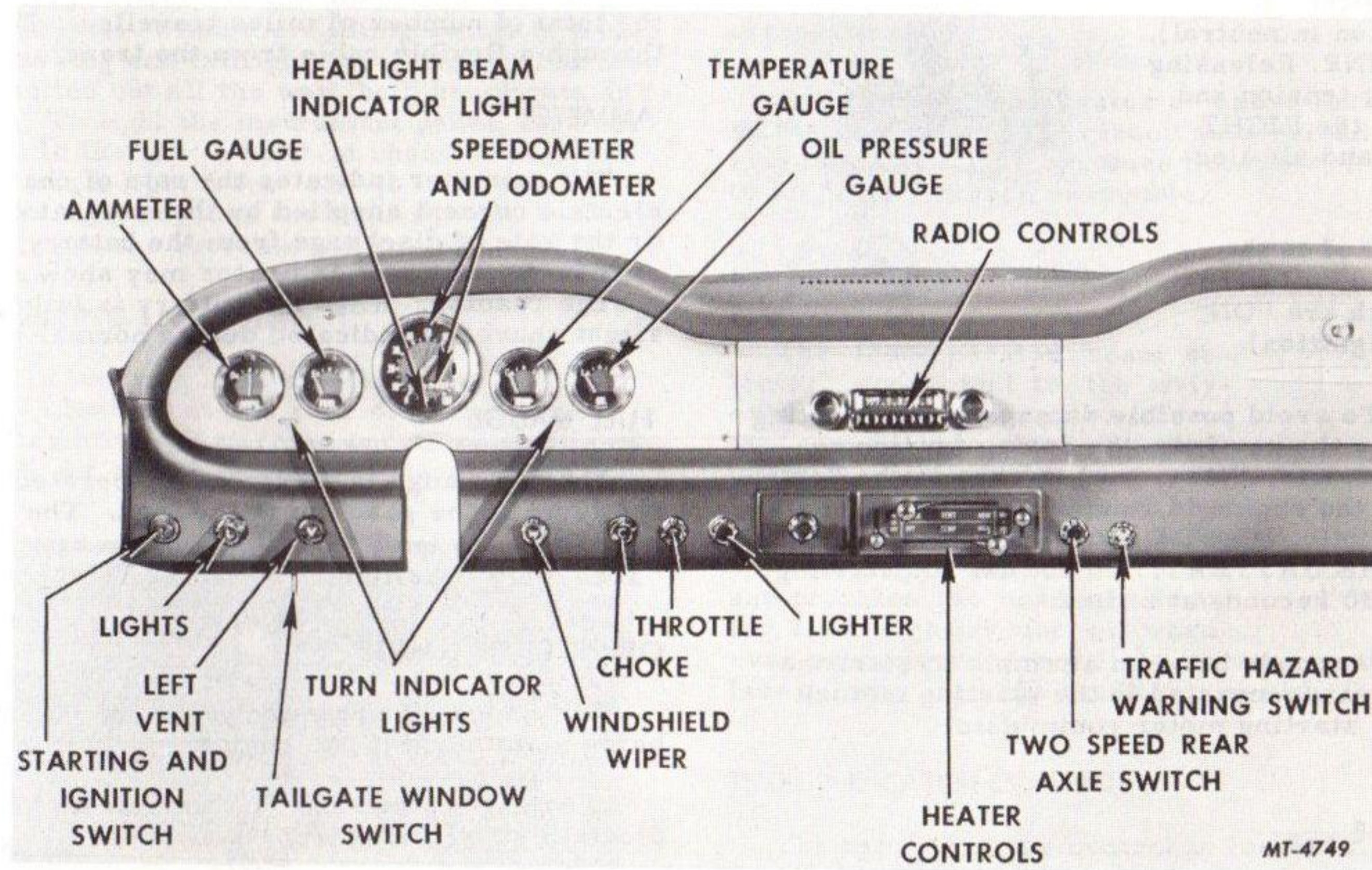


OPERATION



Cab Interior View

OPERATION



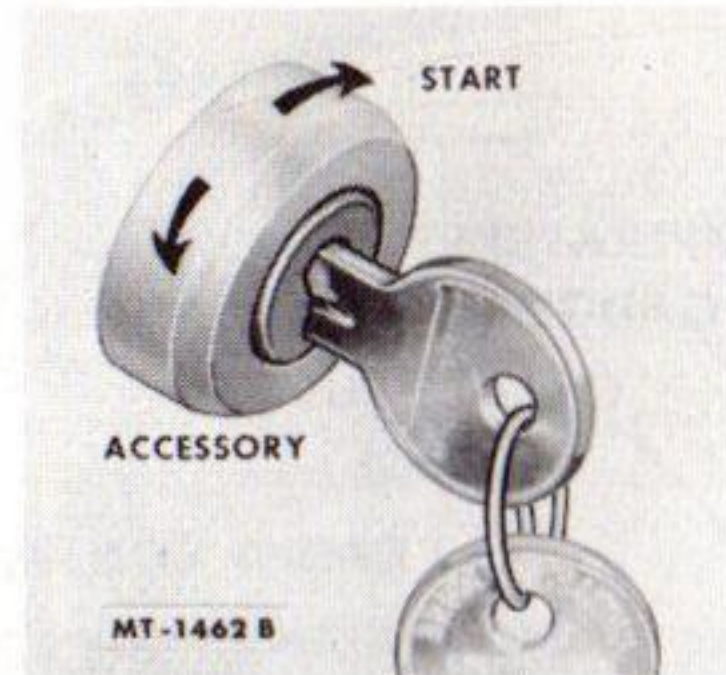
Instrument Panel

OPERATION

STARTING IGNITION SWITCH AND KEYS

Turning key to the extreme RIGHT, overcoming the spring tension (transmission in neutral), STARTS THE ENGINE. Releasing the key from spring tension and leaving it turned to the RIGHT leaves the ignition and all electrical units "ON".

With the key turned to the LEFT, all electrical units controlled by the switch are "ON" (except the engine ignition).



IMPORTANT: To avoid possible damage to the starting mechanism, release the key from the spring tension as soon as the engine starts. Never turn the key to the "starting" position while the engine is running. If the engine does not start promptly, DO NOT OVERTAX THE STARTING MOTOR OR THE BATTERY. Do not use the starting motor longer than 30 seconds at a time.

Wait at least 15 seconds between attempts to start the engine to prevent heat (generated in the starting motor) from scorching the starting motor commutator.

TEMPERATURE GAUGE

The temperature gauge indicates the temperature of the coolant in the cooling system. The gauge operates only when the ignition switch is turned to the "on" position, or is turned to the left to operate the accessories. If the indicator suddenly rises to the "hot" position, the engine should be stopped and the cause of overheating determined.

SPEEDOMETER AND ODOMETER

The speedometer indicates the vehicle speed in miles (or kilometers, if so adapted) per hour. The odometer records the total of number of miles travelled. The units operate through a flexible cable from the transmission.

AMMETER

The ammeter indicates the rate of charge or flow of electric current supplied by the alternator to the battery, or the rate of discharge from the battery. At low engine speeds the ammeter indicator may show a negative or discharge reading. When the battery is fully charged, a very slight charge is indicated during normal vehicle operation.

FUEL GAUGE

The fuel gauge is electrically operated and indicates the level of the gasoline in the tank. The gauge registers only when the ignition is "on" or the key is turned to the "accessory" position.

OIL PRESSURE GAUGE

The engine oil pressure gauge indicates the oil pressure being maintained in the engine.

The gauge is marked "L" to indicate low and "H" to indicate high oil pressure.

A low reading is normal at idling speeds with a warm engine.

If the gauge fluctuates or does not register when the engine is operating, stop the engine immediately and correct cause.

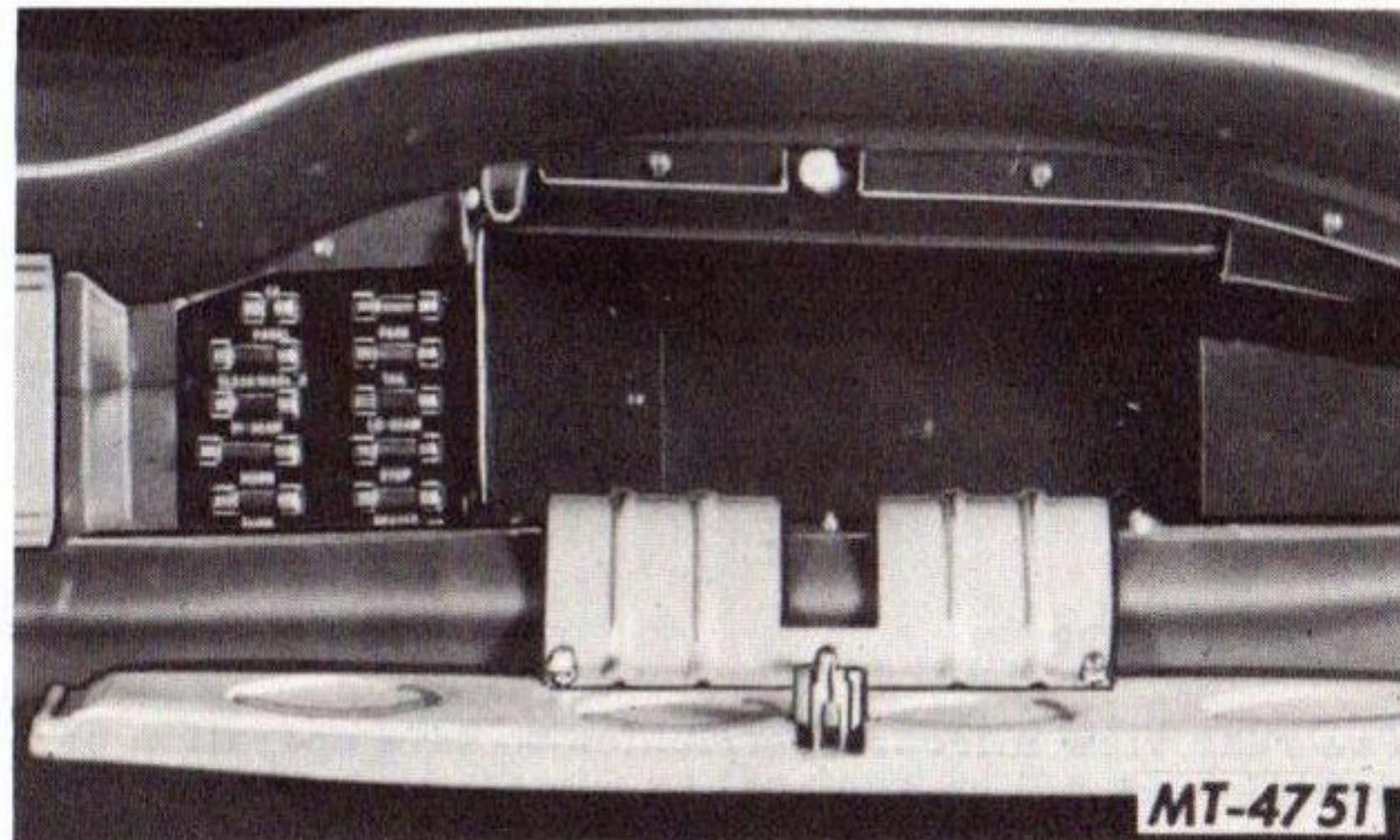
OPERATION

LIGHTING SWITCH

The lighting switch on the instrument panel controls the headlights, parking lights, instrument panel lights, cab interior light and taillights. When the lighting switch is pulled out halfway, both parking and taillights are "on". When the lighting switch is pulled out all the way, both headlights and taillights are "on". To light the instrument panel, turn the light switch control to the left; a built-in rheostat controls the intensity of the panel light from "off" to full "on". To turn the cab interior light on, turn the lighting switch control counterclockwise to the extreme left position.

TRAFFIC HAZARD WARNING LIGHT SWITCH

The traffic hazard warning light switch on the instrument panel will flash both front and rear direction signal lights on and off intermittently warning oncoming traffic of an emergency. Pull out switch to operate signal lights.



FUSES

The electrical circuits are protected by fuses which are conveniently grouped in a fuse panel located in the parcel compartment.

A "blown" fuse indicates a "short" in the circuit served by the fuse or that the circuit is overloaded. When replacement of a fuse becomes necessary, check the circuit to locate the source of trouble.

HEADLIGHT BEAM SELECTOR

The foot-operated beam selector, convenient to the driver's left foot, is used to control the upper and lower headlight beams. Use of the beam selector permits the driver to lower the headlight beam when approaching or passing vehicles, and to raise the headlight beam for open highway use or whenever necessary. A red light (located on the speedometer face) glows when the headlights are on "upper" beam.



TURN INDICATOR CONTROL

The turn indicator control is located on the steering column below the steering wheel. To signal for a right turn, push the control away from you. For a left turn, pull the control toward you. Signal lights on the front and rear of the vehicle and on the instrument panel "blink" on and off when the turn indicator is operating. The indicator control automatically returns to the "off" position and the signal lights go "out" when you complete the turn.

OPERATION

WINDSHIELD WIPER CONTROL (Electric)

Turning the knob to the right starts the electric wipers. The electric wiper has two speeds, "high" and "low".

NOTE: To avoid damage to mechanism of the electric windshield wiper, DO NOT MOVE THE WIPERS BACK AND FORTH BY HAND. Lift the blade outward when cleaning the windshield.

CARBURETOR CHOKE CONTROL

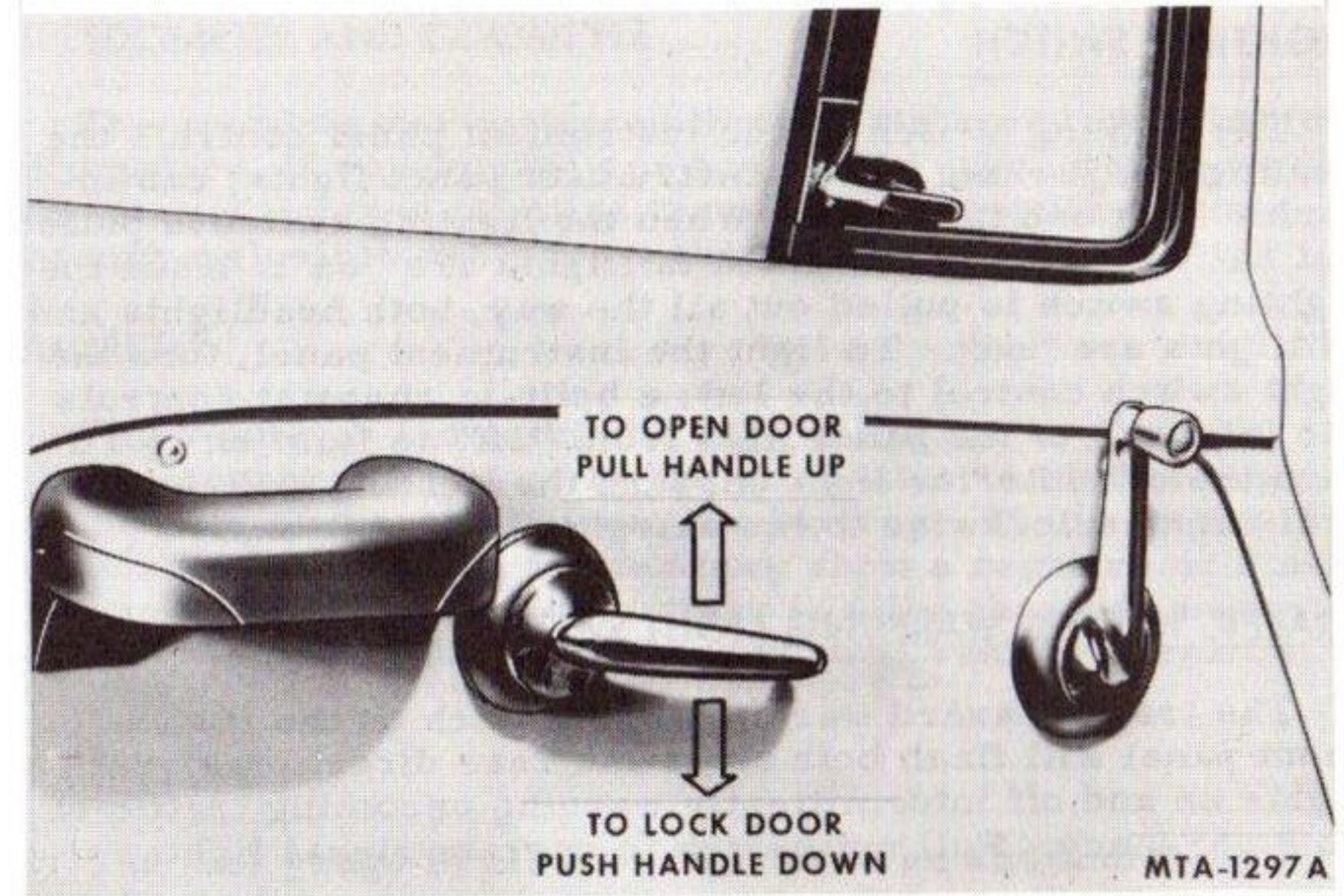
The choke is used to enrich the fuel mixture by restricting the air flow to the carburetor. The distance the choke control is pulled out regulates the fuel-air mixture and increases the engine speed to a fast idle to prevent stalling during the engine warm-up period. Push the choke in when the engine is warmed up.

CARBURETOR THROTTLE CONTROL (Where Equipped)

The throttle control may be used to open the throttle slightly when starting the engine, or to set the throttle at any position to maintain a constant engine speed.

DOOR CONTROL AND LOCK (Inside and Outside)

To lock the doors from inside the cab, push the door handle downward. To open the doors, pull the handle upward.



VENT WINDOW LOCK

To open the vent windows, turn the lock clockwise and push the window outward to the position desired.

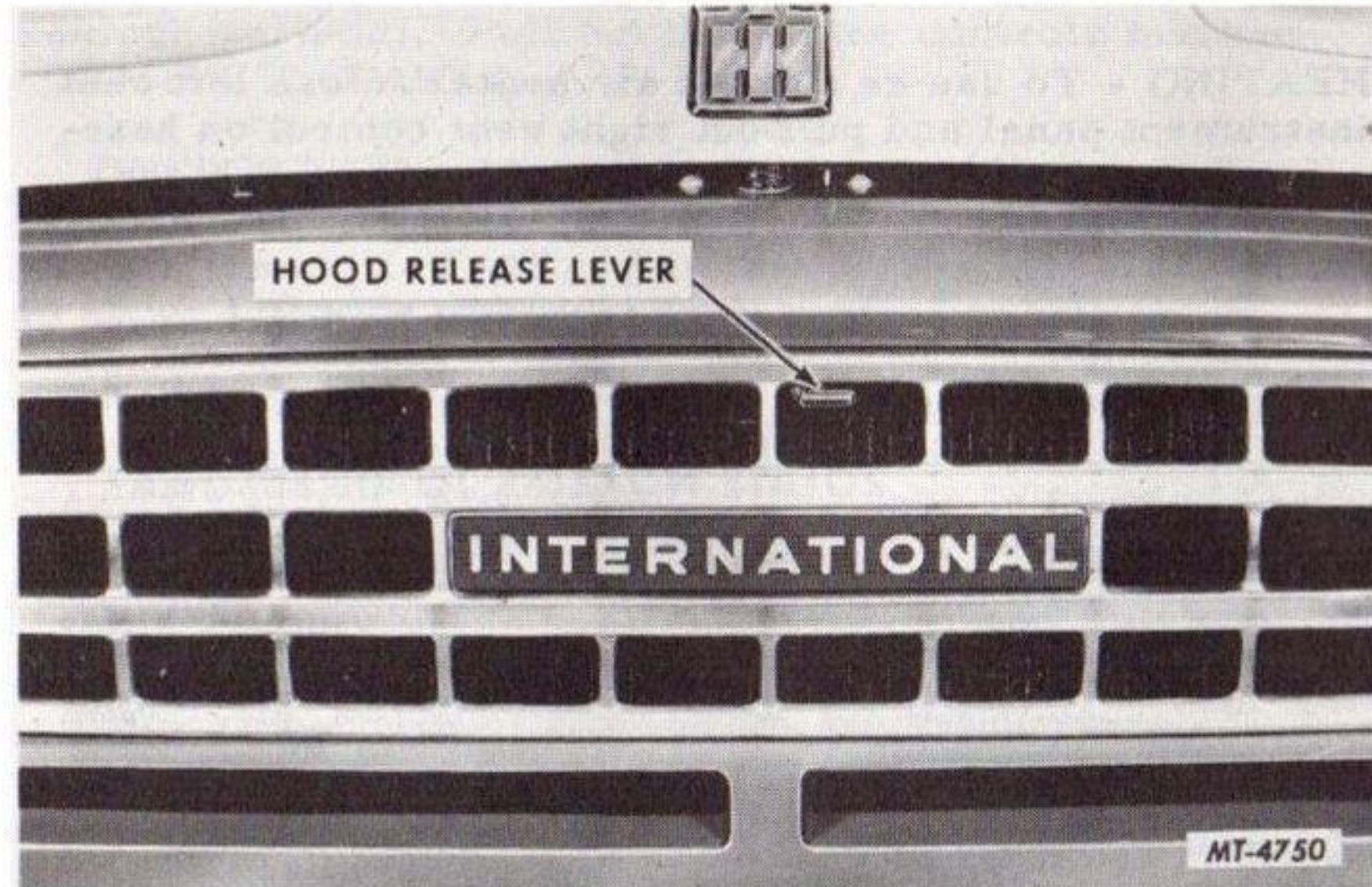
REAR VIEW MIRROR

The rear view mirror contributes to safe operation of the vehicle and can be adjusted to the position desired by the operator.

OPERATION

RAISING THE HOOD

To raise the hood, reach through the upper center of the grille and pull outward on the hood release lever. While holding the release lever in the extreme outward position, raise the hood until the safety latch passes its point of engagement. Spring-loaded hood supports will then assist in raising the hood and holding it open.



To close the hood, lower it to the safety latch position and then push down firmly on the front of the hood to engage the lock.

PARKING BRAKE CONTROL

The primary purpose of this brake is to hold the vehicle in a parked position or to assist in bringing it to an emergency stop. The parking brake should not be used to brake the vehicle during normal driving.

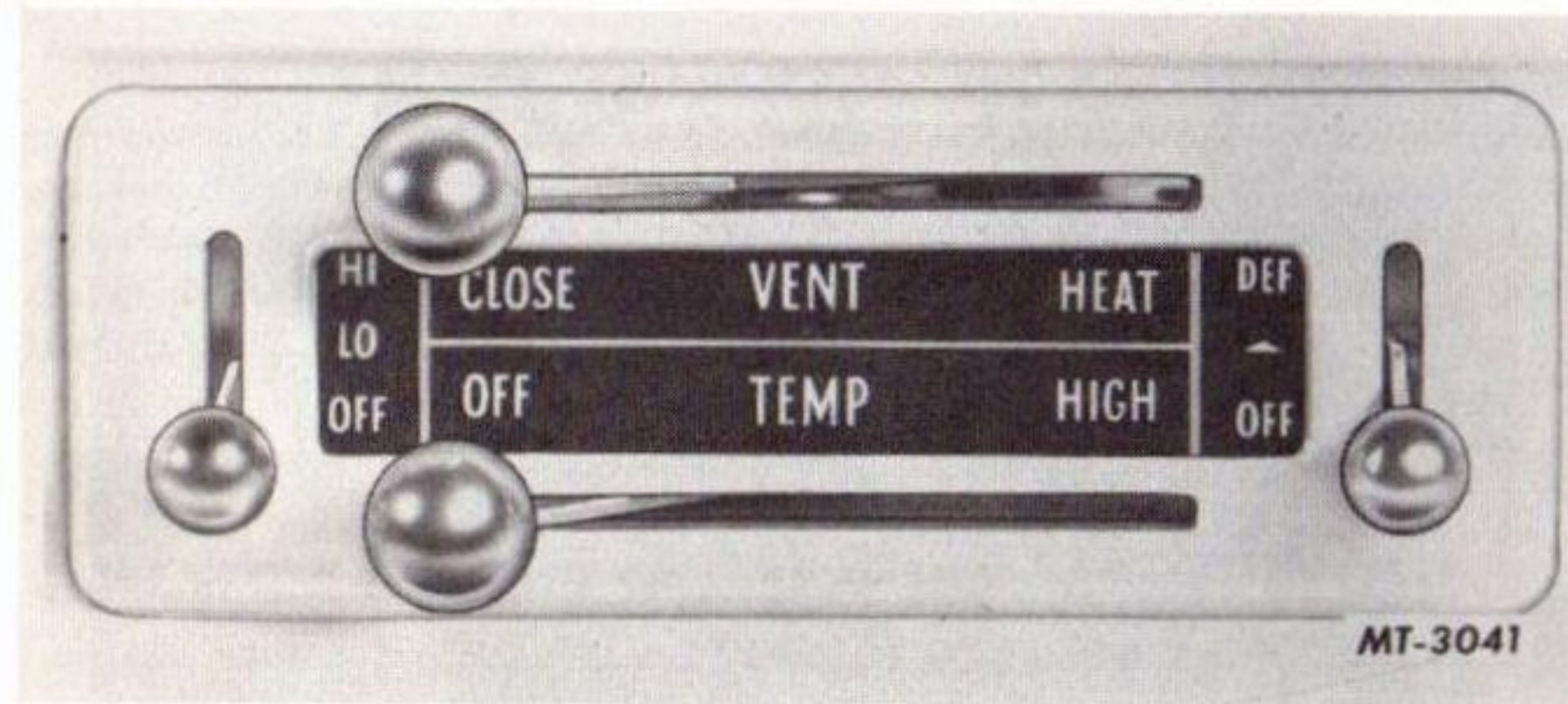
The parking brake can be applied by pushing the foot-operated parking brake pedal down as far as it will go. To release the parking brake, push down on the "BRAKE RELEASE" lever.



OPERATION

AIR VENTS AND HEATER CONTROLS (Fresh Air Heater)

HEATING - To use as a fresh air heater, slide the upper heater control lever to the "HEAT" position and set the lower lever for desired air temperature. "HIGH" position will provide maximum heat. Then move the heater blower switch to either "HI" or "LO" to provide the desired air circulation. At normal road speeds, the motion of the vehicle will usually provide ample flow of air through the heater without the use of the heater blower. To supply heat to the center of cab, open the door (upper left side of heater) in heater air duct.



To use as recirculating type heater, slide the upper heater control lever to the "CLOSE" position and set lower lever for desired air temperature. Then move the heater blower switch to either "HI" or "LO" position.

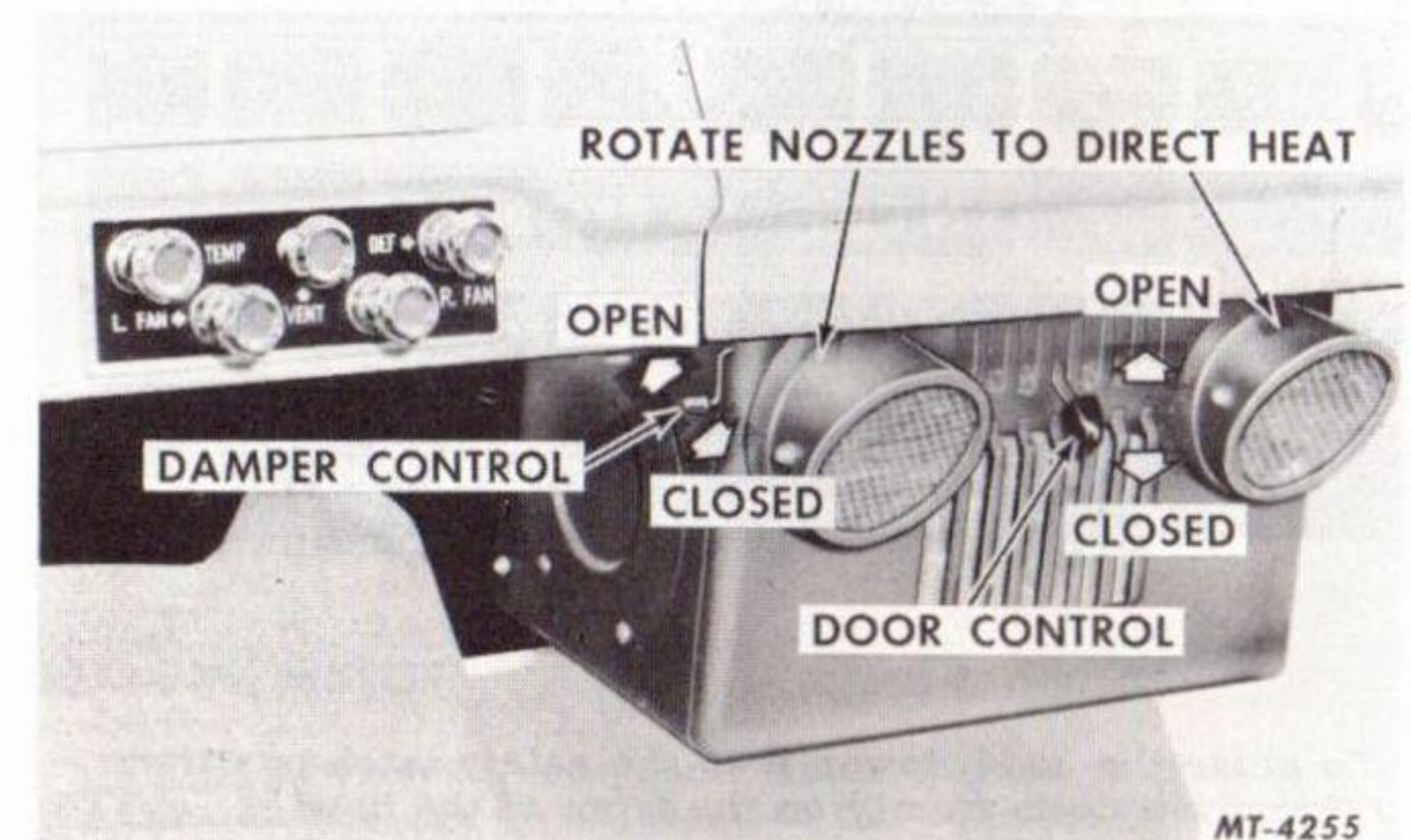
DEFROSTING - Set heater controls as for heating and move defroster control lever to "DEF" position. For fast defrosting, move blower switch control to "HI" and temperature control to "HIGH".

FRESH AIR VENTILATION - To permit fresh air to enter the cab, pull out the left vent control and move the upper heater control to "VENT" position. The heater blower may be used if desired. The temperature and defroster controls should be in the "OFF" position.

Vehicles not equipped with a heater have two vent controls located on the instrument panel. Pull out the controls to permit the entrance of outside air.

IH SUPER-CAPACITY HEATER CONTROLS

HEATING - To use as a fresh air heater, close left vent on instrument panel and pull out right vent control on heater control panel. Close door in front of heater (push control down). Pull out controls marked "TEMP", "L-FAN"



OPERATION

and "R-FAN". The control marked "TEMP" regulates the heater air temperature. The controls marked "L-FAN" and "R-FAN" regulate the speed of the two heater blowers. At normal road speeds, the motion of the vehicle will usually provide ample flow of air through the heater without the use of the heater blowers. Rotate the heater nozzles to direct heat as desired. To direct the entire heat output of the left blower to the drivers side of the cab, close damper in upper left side of heater (pull control back).

To use a recirculating type heater, open the door in the front of heater (raise up on control) and close the right vent control (push-in). Pull out the heater controls marked "TEMP", "L-FAN" and "R-FAN".

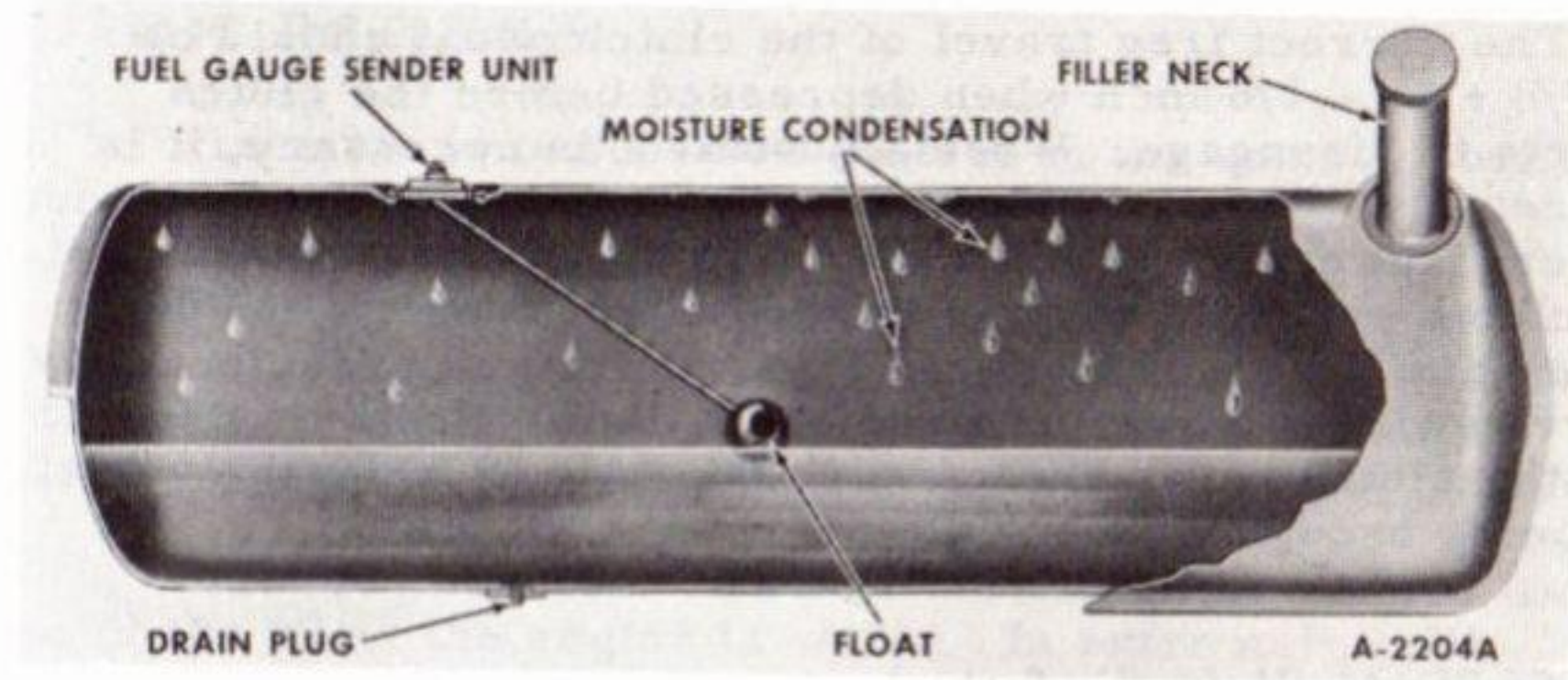
DEFROSTING - Close door in front of heater and pull out right "VENT" control. Pull out controls marked "DEF", "TEMP", and "L-FAN". For fast defrosting, close damper in upper left side of heater (pull control back).

FRESH AIR VENTILATION - Pull out the right and left vent controls to position desired. Push in the controls marked "TEMP" and "DEF". Open door in front of heater.

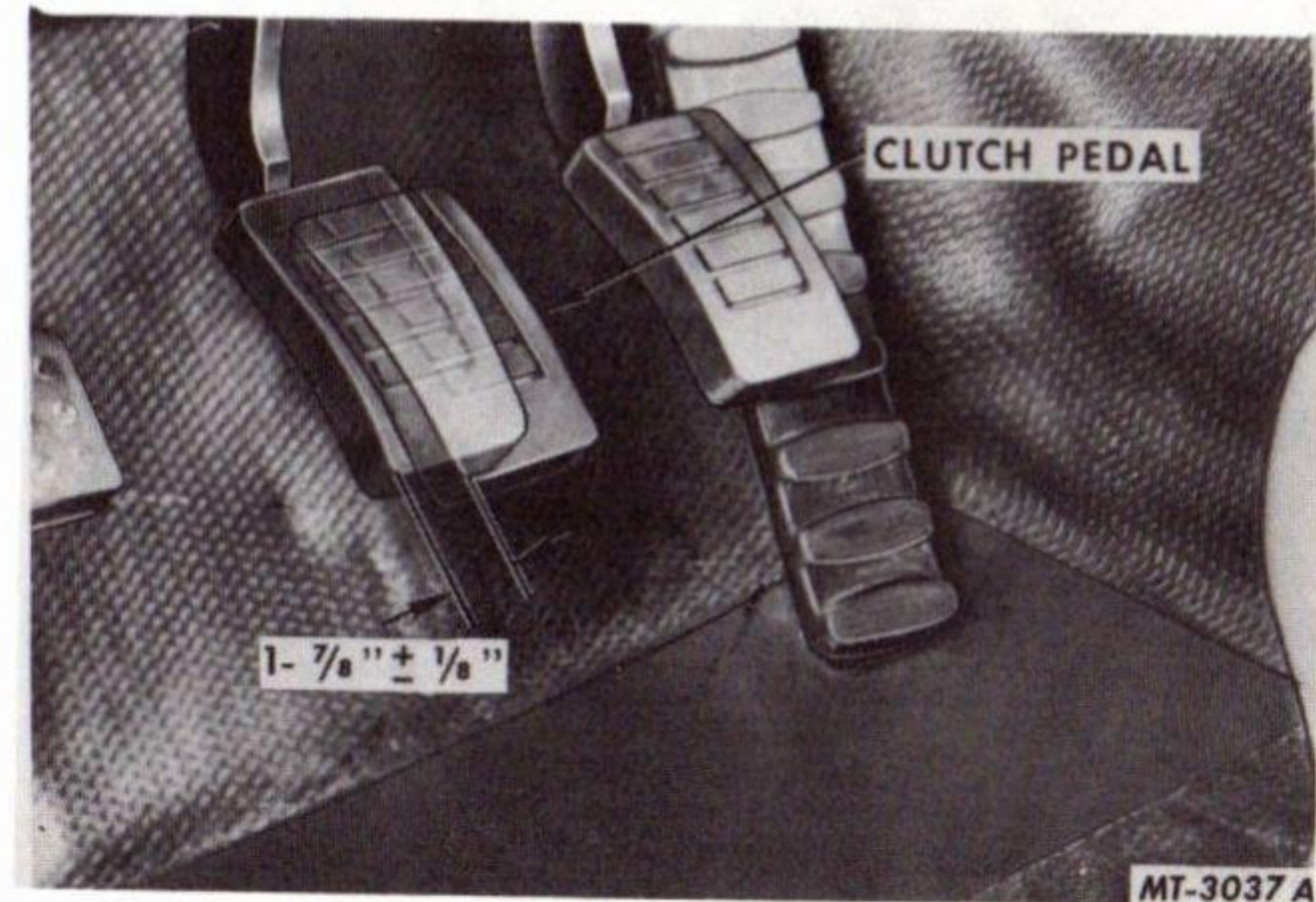
FUEL TANK

As fuel is consumed, air is drawn through the vent into the fuel tank. Under certain climatic conditions, with a quick drop in temperature and the vehicle inoperative, moisture may accumulate in the fuel tank. Therefore, keep the fuel tank filled, as much as practical, to avoid moisture accumulation.

CAUTION: Never light matches near gasoline, because the air within a radius of several feet is permeated with a highly explosive vapor. Keep the filler spout or nozzle in contact with the metal of the tank to avoid possibility of an electric spark igniting the gas.



CLUTCH PEDAL-HYDRAULIC OPERATED CLUTCH

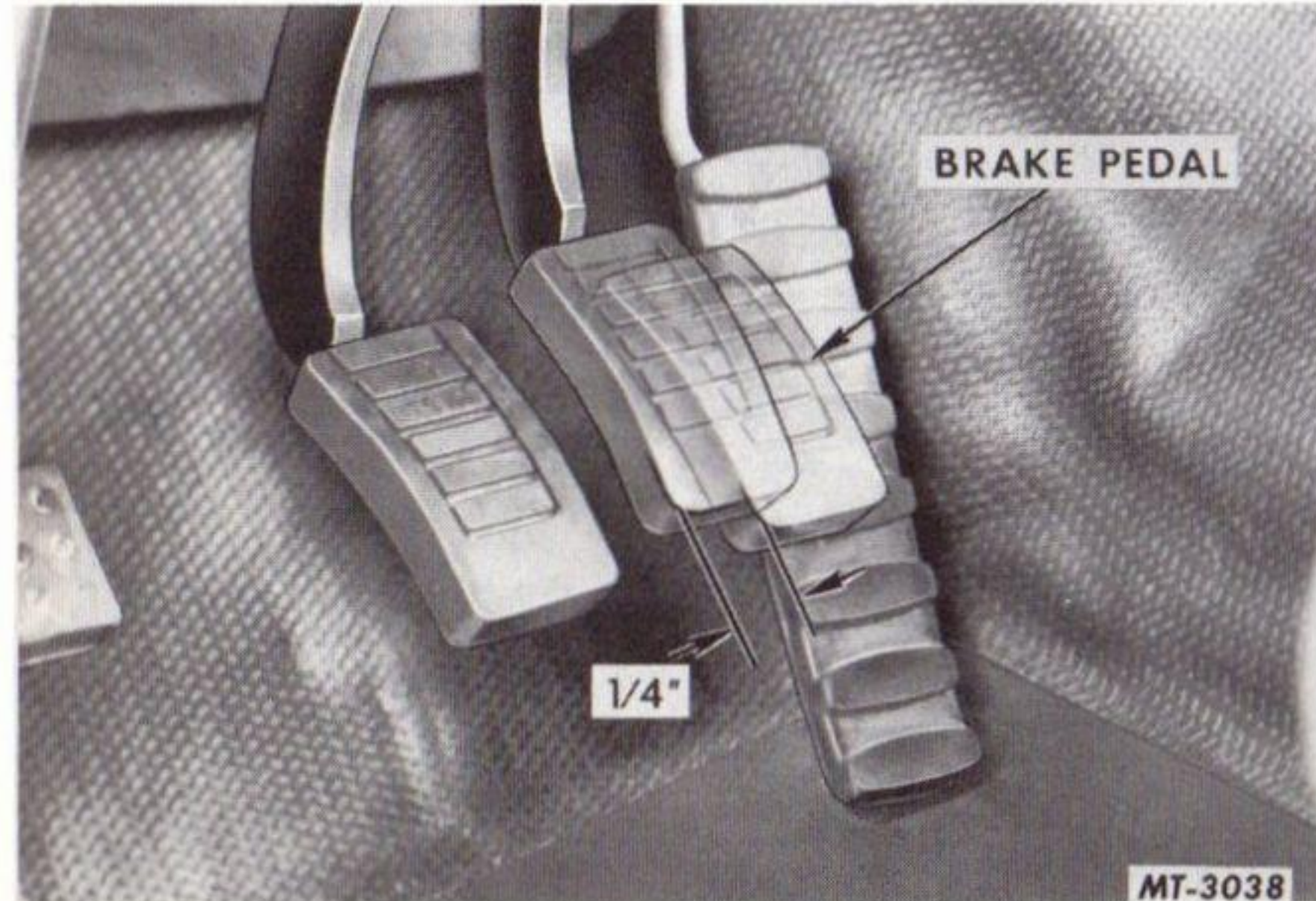


OPERATION

The correct free travel of the clutch pedal should be $1-7/8$ + or - $1/8$ inch when depressed before the clutch starts to disengage. When adjustment is necessary, it is extremely important that the work be properly performed; otherwise, early failure of the clutch will result and a costly clutch overhaul becomes necessary. To avoid needless delay and expense, allow only competent and experienced servicemen to perform these operations. Keep your foot off the clutch pedal except to shift gears or when the vehicle is being brought to a stop.

BRAKE PEDAL (Hydraulic Brakes)

When the brake pedal is in the full release position, the pedal should have $1/4$ -inch free travel before the pressure

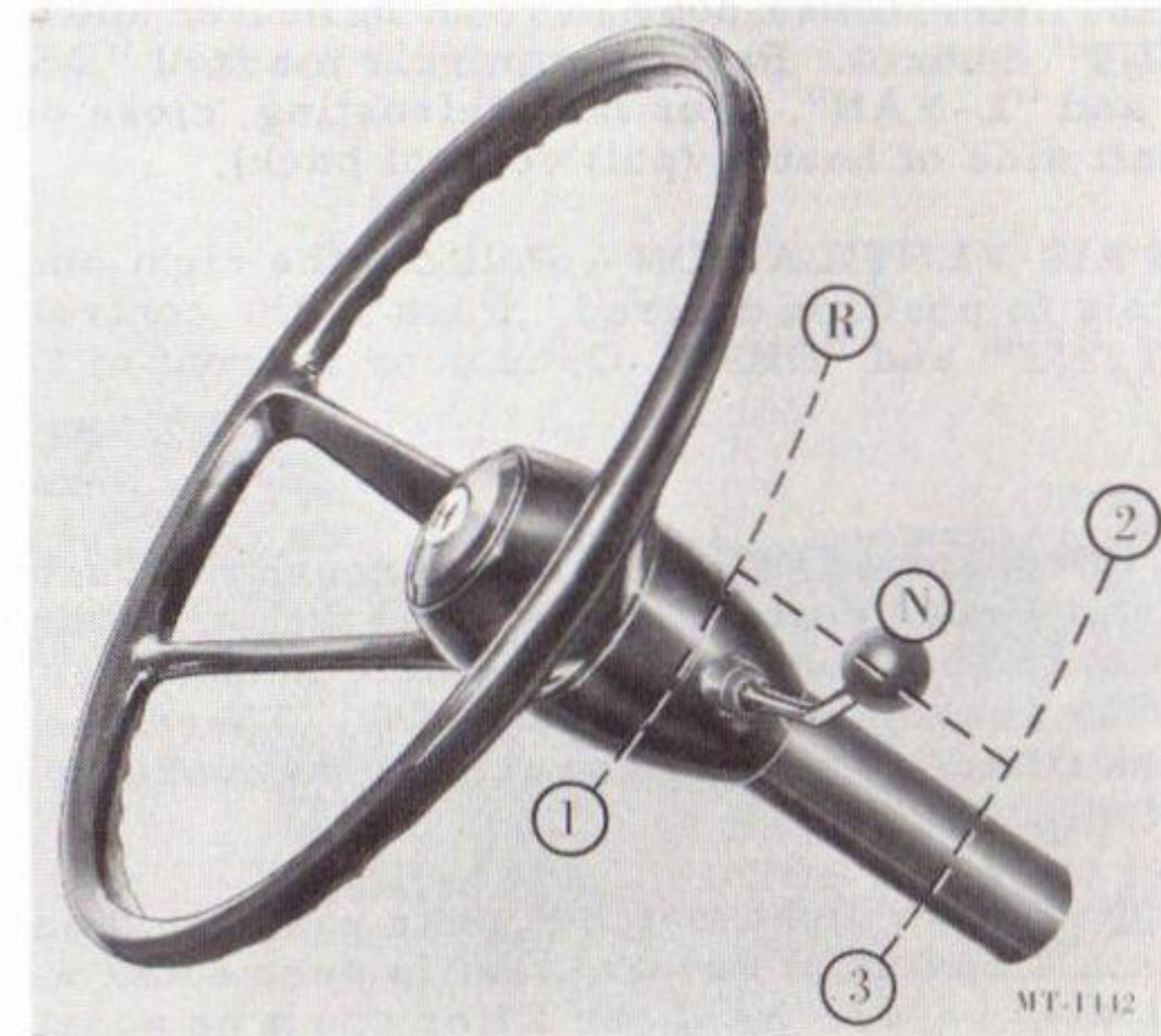


is noticeable. The $1/4$ inch free travel is necessary to prevent the brakes from dragging.

Should the brakes become wet, immediately dry them while the vehicle is moving by light application of the brake pedal.

TRANSMISSION CONTROLS

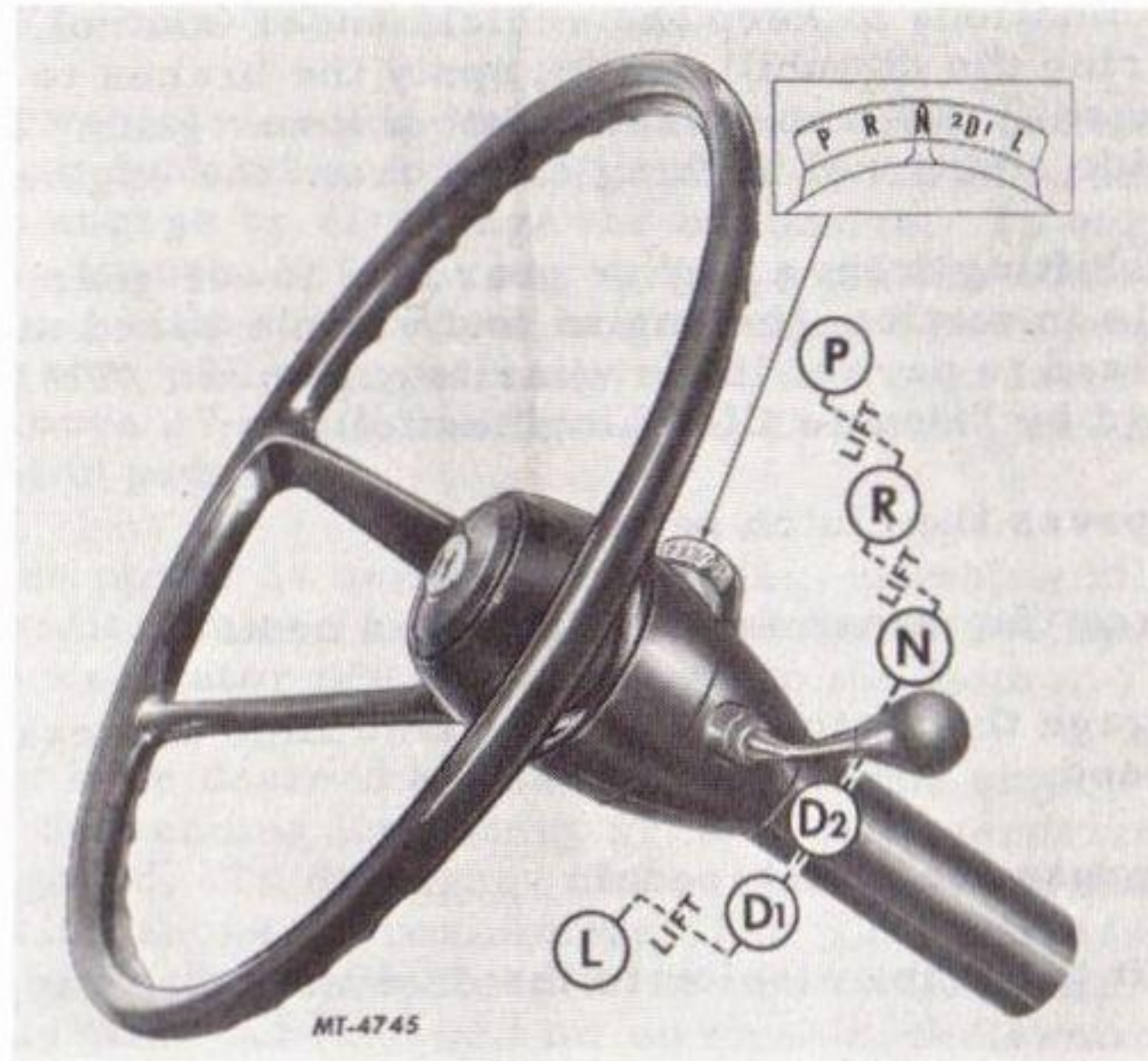
The main transmission control, convenient to the driver's right hand, is used to select the various gear ratios or speeds provided within the transmission.



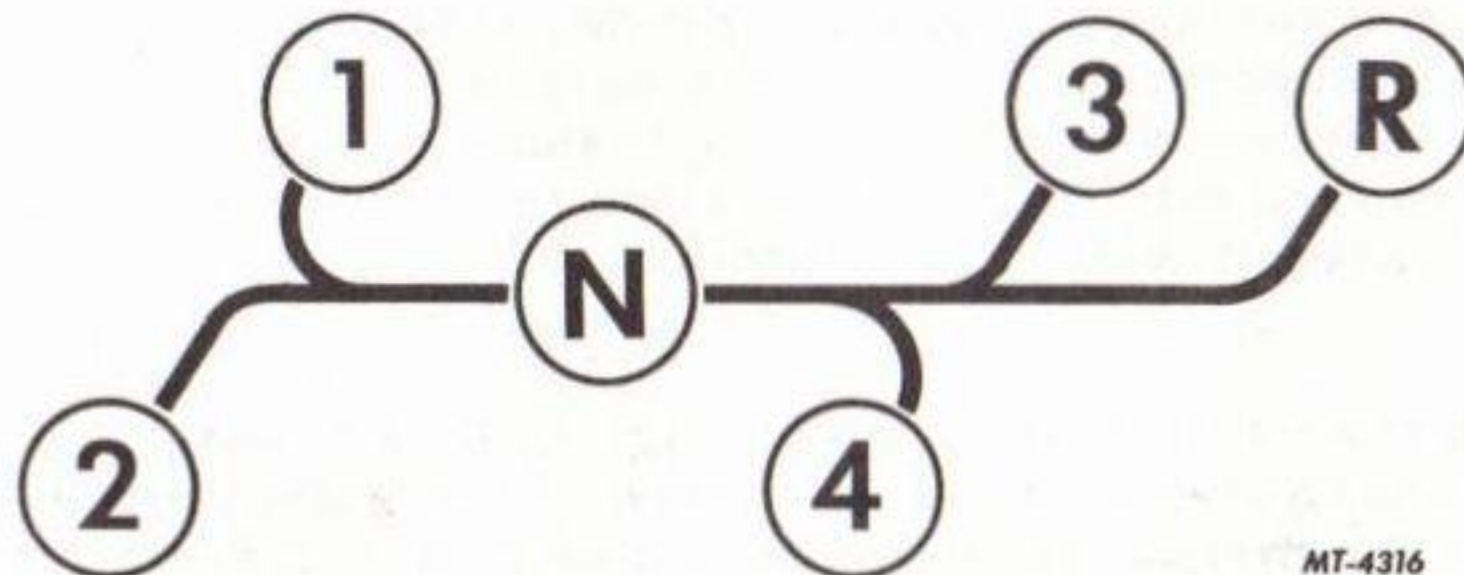
Codes 13004, 13008

OPERATION

STARTING THE ENGINE



Code 13028



Codes 13015, 13016

1. Place the transmission control in the neutral position and apply parking brake.

2. Pull out the throttle control or depress the accelerator sufficiently to "crack" the throttle; the engine will then run at "fast-idle" speed. The throttle control should be gradually pushed in until the proper idling speed is obtained.

3. Pull the choke out one-half the distance. Do not use the choke when the engine is warm. In extremely cold weather, the choke may be pulled out the full distance but must be immediately pushed part way in when the engine starts.

NOTE: The frequent use of the choke control dilutes the crankcase oil. For this reason, we recommend a more frequent complete oil change in winter, using new oil of good quality.

4. Depress the clutch pedal (manual shift transmission only) and keep it depressed until the engine is running.

5. Turn the ignition switch key to the extreme right and release it the instant the engine starts.

NOTE: Do not run the starting motor for more than approximately 30 seconds at any time. If the engine fails to start or makes a false start, do not turn the ignition switch key again until the engine has come to a complete stop.

6. When the engine starts, the choke must be pushed in as far as possible without disturbing smooth engine operation. Push the choke control all the way in as soon as the engine warms up and operation permits.

OPERATION

Do not start or run an engine in a closed garage.

Exhaust gas from all internal combustion engines contains poisonous carbon monoxide gas which is odorless, tasteless, and colorless. Keep the garage doors wide open when starting and keep your vehicle completely ventilated at all times to avoid drowsiness.

DRIVING THE VEHICLE (Manual Shift Transmission)

1. Always check the hydraulic brake system by depressing the brake pedal before attempting to drive the vehicle. This will familiarize you with the brake pedal action and indicates whether sufficient pedal reserve exists.

2. Depress the clutch pedal.

3. Shift the transmission into first gear position.

4. Release the parking brake.

5. Depress the accelerator pedal to speed up the engine sufficiently to pick up the load. Release the clutch pedal slowly and further depress the accelerator pedal to prevent the engine from stalling while the vehicle moves forward.

6. As the speed increases, release the accelerator and at the same time depress the clutch pedal. Then shift the transmission to the next higher transmission gear. Release the clutch slowly and depress the accelerator as described above. Repeat this procedure as you shift progressively into the higher speed ranges.

Driving Downhill

A safety rule followed by all experienced drivers when driving downhill, is to use the brakes and transmission

gear combinations to keep the vehicle under control. Before entering the downhill grade, apply the brakes to reduce speed and shift the transmission into a lower gear. This will provide additional braking effort from the engine.

When shifting from a higher gear to a lower gear with the vehicle in motion, the engine and vehicle speed must be synchronized to permit lower gear engagement. This is accomplished by "Double Clutching" as follows:

1. Depress the clutch pedal.

2. Place the transmission control in neutral.

3. Engage the clutch and at the same time increase the engine speed.

4. Depress the clutch pedal.

5. Shift the transmission to the desired lower range.

6. Synchronize the engine speed with the vehicle speed as the clutch is engaged.

After entering the downhill grade, reduce the vehicle speed with the brakes from time to time as required, to prevent engine speeds exceeding maximum engine r.p.m. Use hard "on-off" brake application to "snub down" the vehicle to keep it well under control.

With the vehicle driving the engine, it is possible for the engine speed to reach far in excess of the maximum recommended r.p.m., causing serious damage to the engine. In other words, on a downhill grade the vehicle should never be driving the engine any faster than the engine would normally be operating in the same gear pulling the load.

OPERATION

OVERDRIVE TRANSMISSION

If your vehicle is equipped with an overdrive transmission, there is an overdrive control (located on the instrument panel) to engage or disengage the overdrive. To engage the overdrive transmission at any speed, push the control all the way in. With the control in the engaged position, the transmission will automatically shift into overdrive at speeds above 27 m.p.h. by momentarily letting up on the accelerator pedal.

If extra power is needed for passing, climbing hills, etc., the transmission can be returned to direct drive by depressing the accelerator pedal all the way to the floor.

Should it be desired to use the drag of the engine as a brake in descending long steep grades, the overdrive must be disengaged. To disengage the overdrive when the vehicle is in motion above approximately 27 m.p.h., depress the accelerator pedal to the floor to return to direct drive, then pull the control outward and let up on the accelerator pedal. If the control is not pulled outward to disengage the overdrive, the overdrive will automatically disengage at approximately 21 m.p.h.

NOTE: When the vehicle is not in motion, the overdrive unit can be disengaged by pulling the control outward.

TWO-SPEED REAR AXLE SWITCH

A switch on the instrument panel permits selection of either the high or low axle ratio. When the switch control is pushed in, the rear axle is in low (power) ratio. When the switch control is pulled out, the rear axle is in high (speed) ratio.

Shifting the Two-Speed Rear Axle

Shifting into the low speed ratio:

a. On level grades or at high truck speeds:

1. Keep the accelerator pedal depressed and push the control in.

2. To complete the shift, release the accelerator pedal and then depress the accelerator again as quickly as possible. Do not operate the clutch.

b. On upgrades or at slow truck speeds:

1. Keep the accelerator depressed and push the switch control in.

2. To complete the shift, keep the accelerator depressed and disengage and reengage the clutch as quickly as possible.

c. On downgrades against the engine:

1. Release the accelerator pedal and push the switch control in.

2. To complete the shift, press down on the accelerator pedal enough to synchronize the gears, then immediately release the accelerator. Do not operate the clutch.

Shifting into the high speed ratio:

a. On downgrades against the engine:

1. Release the accelerator pedal and pull the switch control out.

OPERATION

2. To complete the shift, disengage and reengage the clutch with the accelerator pedal released.

b. At any time except on downgrades against the engine:

1. Keep the accelerator pedal depressed and pull the switch control out.

2. Gradually release the accelerator to complete the shift. Do not depress the accelerator until the shift is completed.

Split Shifting

To shift to the next higher gear in the transmission and at the same time from the high to the low speed axle, shift the transmission in the usual way and push the switch control in just before engaging the clutch.

To shift to the next lower gear in the transmission and at the same time from the low to the high speed axle, pull the switch control out and release the accelerator, then complete the transmission shift in the usual way.

Always park and start in low range.

ENGINE SHUTDOWN

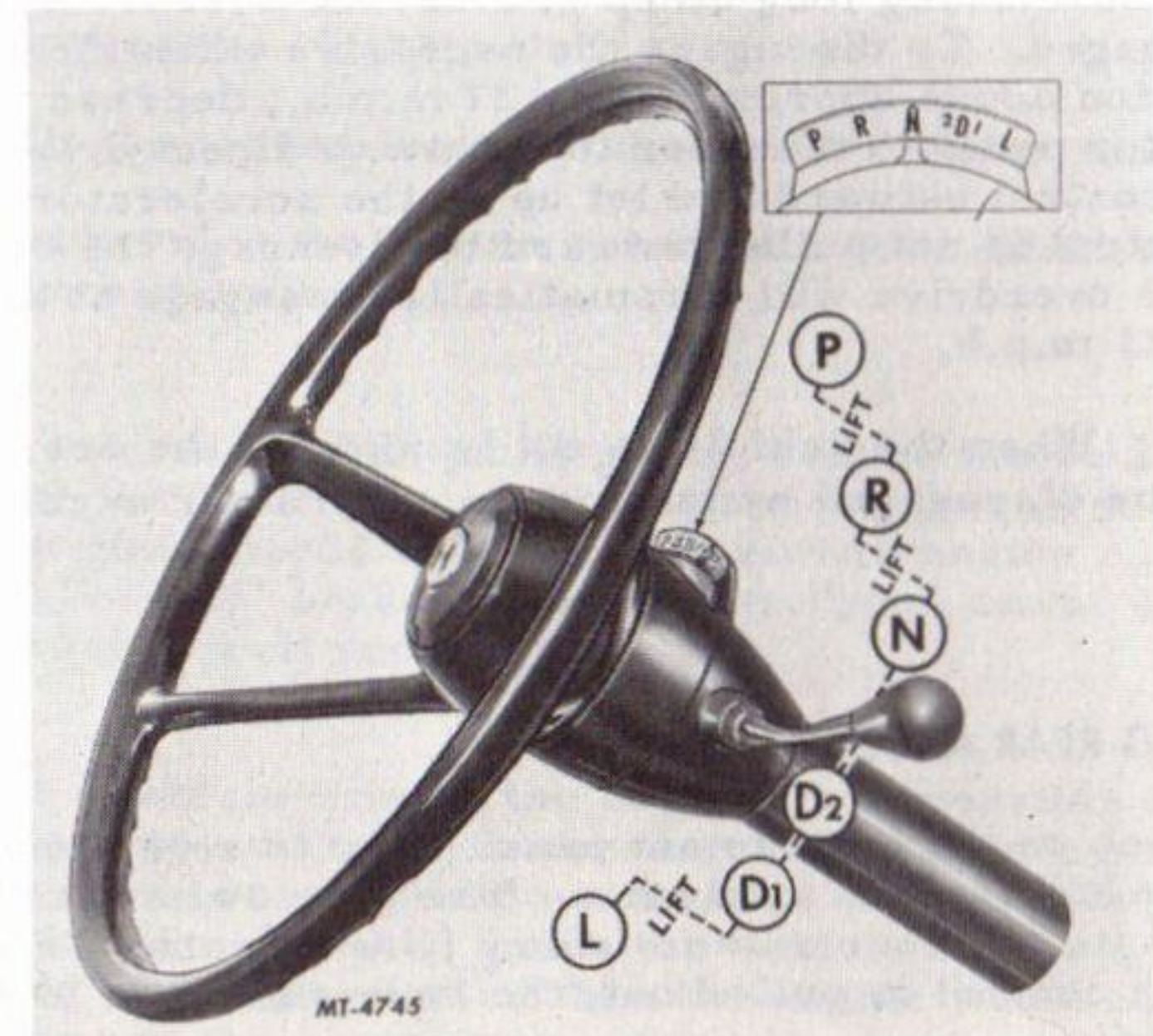
A basic rule of good engine operation concerns the importance of idling the engine from three to five minutes before shutting down. This few minutes idling allows the lubricating oil and water to carry heat away from the iron masses.

The larger the engine, the greater the need for this idling period and of course, the length of the idling period should

somewhat follow the size of the engine in order to overcome gasoline percolation in the carburetor and to avoid seals or like features of an engine being damaged by rising heat.

DRIVING THE VEHICLE (T-28 Dual Range Automatic Transmission)

Operation of the automatic transmission is controlled by a selector lever mounted on the steering column. The position of the lever is clearly shown by a range indicator. When the instrument panel lights are turned on the quadrant is illuminated. The selector lever has the following six positions:



OPERATION

"D1" - Drive Range

Most normal forward driving is done with the selector lever in the "D1" (drive) position. In this position, the transmission will automatically upshift low to intermediate to direct and downshift direct to intermediate to low, at speeds varying with throttle movement.

"D2" - Drive Range

With the selector lever in this position, the transmission will automatically upshift intermediate to direct and downshift direct to intermediate, at speeds varying with throttle movement.

"L" - Low Range

Lift the selector lever and move to "L" position. This range is used for ascending very steep grades or pulling through deep sand, mud or snow, and it is not ordinarily used for normal driving. Low is also used when descending steep grades in order to take advantage of the additional braking effort from the engine. When starting from a standstill in "L" range, the transmission will not upshift into a higher ratio. Therefore, do not drive faster than 30 MPH. The selector lever may be moved from "D1" or "D2" to "L" at any speed. The transmission will shift either directly into low or into intermediate and then to low, depending on the vehicle speed. Once in low, the transmission will remain in this ratio regardless of engine speed. The selector lever may be moved from "L" to "D1" or "D2" at any speed.

"R" - Reverse

Bring the vehicle to a full stop, lift the selector lever

and move to the "R" position and upon depressing the accelerator pedal, the vehicle will move in the reverse direction. To rock the vehicle back and forth, maintain a steady pressure on the accelerator pedal and move the selector lever back and forth between the "R" and the "L" positions.

"P" - Parking

Bring the vehicle to a full stop, turn off the ignition switch. Lift the selector lever and move to the "R" position, then lift the lever and move to "P" position. This movement engages a mechanical pawl, which firmly anchors the vehicle so that it cannot be moved either forward or backward.

"N" - Neutral

With the selector lever in this position, engine may be started and idled.

When to Use the "D1" or "D2" Range

Since most vehicle operation is done with the vehicle loaded, the selector lever should normally be moved to the "D1" position for this kind of driving. However, when empty or lightly loaded, the "D2" range will give the driver sufficient driving torque for all ordinary situations. Within a short time most drivers are readily able to choose which driving range is best for their load or operation.

Downshift - "D1" Range

When maximum acceleration is desired in order to pass a slow moving vehicle or to negotiate a steep grade, the transmission may be down-shifted from high to intermediate

OPERATION

by fully depressing the accelerator pedal. However, if the vehicle is being operated in intermediate gear and the accelerator is fully depressed, the transmission will shift from intermediate to low. If the pressure is released on the accelerator pedal, the transmission will automatically upshift through intermediate to high.

Downshift - "D2" Range

When maximum acceleration is desired in order to pass a slow moving vehicle or to negotiate a steep grade, the transmission may be down-shifted from high to intermediate by fully depressing the accelerator pedal. Releasing accelerator pedal pressure will automatically upshift the transmission to high.

TOWING THE VEHICLE (T-28 Dual Range Automatic Transmission)

To tow the vehicle equipped with automatic transmission, transmission fluid level must be up to "Full" mark on dipstick. Place transmission control in "N" (neutral) position. Towing more than 100 miles is not recommended.

CAUTION" If the transmission is inoperative, the vehicle must be towed with the rear wheels raised, or the propeller shaft removed at the rear axle; and tie the end of shaft securely so that it won't loosen and drop down on the road.

TOWING INSTRUCTIONS (T-4 or T-8 Transmission)

When towing a vehicle equipped with a T-4 or T-8 transmission, the rear end must be picked up or the propeller shaft removed. Towing the vehicle with the propeller shaft connected and the transmission in neutral results in opera-

tion of the mainshaft assembly without the countershaft in motion to carry the lubricant to the synchronizing unit, mainshaft bearing, and gears, causing premature transmission failure.

CAUTION: Be sure the propeller shaft has been properly reinstalled.

PUSHING THE VEHICLE TO START THE ENGINE (T-28 Dual Range Automatic Transmission)

Should it be necessary to start the engine by pushing or towing the vehicle, move the selector lever to the "N" (neutral) position. When the vehicle reaches a speed of approximately 15 - 20 m.p.h., turn the ignition switch on, lift the selector lever and move to the "L" (low) position. When the vehicle starts moving under its own power, shift the selector lever to the desired drive position.

NOTE: It is recommended that the vehicle be pushed rather than towed, because the vehicle will attain considerable speed as soon as the engine starts, unless the brakes are applied immediately.

POWR-LOK DIFFERENTIAL

The axle Powr-Lok differential permits the axle to transmit the major driving force to the wheel with better traction.

CAUTION: If your vehicle is equipped with a Powr-Lok differential, power will be transmitted to the opposite wheel should one of the wheels slip. Both wheels must be raised free of the ground should it be necessary to operate one wheel with the vehicle stationary, otherwise the wheel that is not raised will pull the vehicle off its supports.

OPERATION

TRAVELALL TAILGATE WINDOW

The tailgate window is smoothly raised or lowered by an electric motor in the tailgate. Two switches may be used to open the electrically operated tailgate window. They are:

1. A switch on the left side of the instrument panel. Pull to raise the window, push to lower the window.
2. A key operated switch on the tailgate. (Use ignition switch key.) Turn key "clockwise" to lower the window, "counterclockwise" to raise the window.

NOTE: A safety switch prevents window movement when the tailgate is lowered.



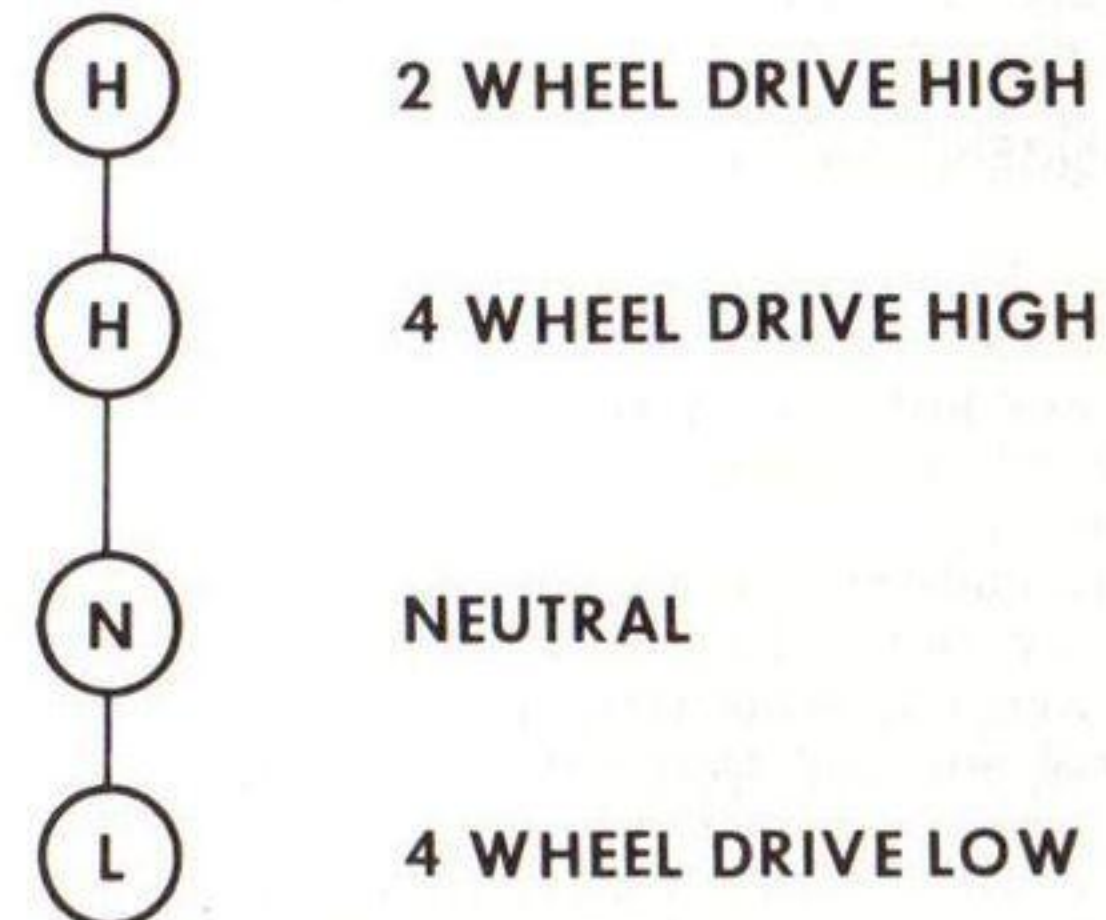
LOWERING THE TAILGATE

Lower the tailgate window to full down position. Lift up on tailgate release lever on inner panel to open tailgate.

NOTE: The tailgate latch has a safety mechanism which will not permit the gate to be opened unless the window is in full down position.

FRONT AXLE AND TRANSFER CASE CONTROL (4x4 Vehicles)

The front axle and transfer case single lever control engages or disengages the front axle and also selects the high or low speed range of the transfer case. The four positions of the control are as follows:



**DO NOT USE 4 WHEEL DRIVE ON DRY
HARD SURFACE ROAD.**

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OPERATION

TWO-WHEEL DRIVE HIGH: Control is in extreme forward position. Rear axle engaged, transfer case in high range. Front axle disengaged. The control may be left in this position for NORMAL OPERATION.

FOUR-WHEEL DRIVE HIGH: Control is slightly forward of neutral position. Front and rear axles engaged, transfer case in high range.

NEUTRAL: Control is slightly forward of extreme rear position. Both axles disengaged.

NOTE: Do not run the transfer case in neutral for extended periods of time when power-take-off is disengaged.

FOUR-WHEEL DRIVE LOW: Control is in extreme rear position. The front and rear axles are engaged and the transfer case is in low range.

When the front axle is engaged, a "RED" light on the instrument panel will glow to alert the operator.

FRONT AXLE ENGAGEMENT (4x4 Vehicles)

The front axle can be engaged with the vehicle in motion by pulling the front axle control back to four-wheel drive high position. It is not necessary to stop the vehicle or to disengage the clutch when engaging the front axle.

If difficulty is encountered in engaging the front axle when the vehicle is not in motion, it means the splines on the engaging clutch are not matched. Using forcing action or kicking the control will not make it engage but may damage the control linkage. Shift the transmission into low gear and roll the vehicle forward, keeping pressure on the control. When the splines are matched, it will engage. It is easier to engage the front axle with the vehicle in motion.

NOTE: Do not keep the front axle engaged when operating on DRY, HARD surfaced roads EXCEPT where it is absolutely necessary to operate with both the transmission and transfer case in low gear.

FRONT AXLE DISENGAGEMENT (4x4 Vehicles)

To disengage the front axle with the vehicle in motion, it is necessary to relieve the torque build-up between the front and rear axle by either slacking off abruptly on the accelerator and/or releasing the clutch while pressure is applied to the front axle control.

In some instances it may be necessary to stop the vehicle and move it slightly in the reverse direction before disengagement of the front axle can be completed.

TRANSFER CASE "HIGH" TO "LOW" SPEED SHIFTING (4x4 Vehicles)

The shift from "high" to "low" speed range can be made with the vehicle in motion whenever load or road conditions require additional power. The shift can be accomplished whenever the engine speed is equalized with that of the transfer case; however, shifting to the low speed range while the vehicle is in motion is recommended only in the lower speeds of the transmission. The following procedure, known as "double-clutching", should be used when shifting the transfer case from "high" to "low" range to prevent gear clash:

1. Ease off on the accelerator and disengage the clutch.
2. Move the transfer case control from "high" to "neutral" position and engage the clutch. At the same time, accelerate the engine sufficiently to bring about an equalization of engine speed and transfer case gear speed.

OPERATION

3. Disengage the clutch, ease off on the accelerator, and, without applying excessive pressure, pull the transfer case control back to "low" speed position.

4. Engage the clutch and depress the accelerator sufficiently to pick up the load.

TRANSFER CASE "LOW TO "HIGH" SPEED SHIFTING (4x4 Vehicles)

The transfer case can be shifted from "low" to "high" speed at any time regardless of vehicle speed provided the engine speed is equalized with that of the transfer case. The following procedure, known as "double-clutching", should be used when shifting the transfer case from "low" to "high" speed position.

1. Ease off on the accelerator and disengage the clutch.
2. Move the transfer case control from "low" to "neutral" position.
3. Engage and disengage the clutch. Move the control to "high" speed position.
4. Engage the clutch and depress the accelerator.

REAR AXLE - 4x4 Vehicles

Operation of rear wheels with rear wheels raised from ground.

PRECAUTIONARY INSTRUCTIONS

Should it be necessary to operate the rear wheels (with engine power) with the vehicle stationary and the rear

wheels raised from the ground, first disengage the front axle, otherwise the driving front axle will pull the vehicle off its support.

SUBMERGED OR FORDING OPERATION

Vehicle used in off-the-road operations that encounter submersion of various chassis components in mud and water should be inspected at frequent intervals for contamination of the lubricant. Should inspection reveal that water or mud has entered the engine, transmission, transfer case or axles, drain, flush, and refill with new lubricant.

Check the wheel bearings and wheel hubs, clean and re-pack if necessary.

A complete chassis lubrication is also recommended to force out any water or dirt that is present.

The front axle universal joints on 4x4 vehicles should be inspected and, if contamination of the lubricant is found, the universal joints should be removed and both the joints and housing cleaned and refilled.

WINCH

The power-take-off control to operate the winch is located on the cab floor convenient to the driver's right hand.

A control lever located on the right side of the winch is used to engage and disengage the winch drum.

To operate the winch:

1. Move drum clutch control lever toward winch drum to disengage drum.

OPERATION

2. Pull on end of wire cable until required length has been unreeled. Take care not to kink cable.

CAUTION: Always wear gloves when handling wire cable. Never let cable run through hands. Broken wires can cause painful injuries.

3. Move drum clutch control lever away from winch drum to engage clutch.

4. Disengage the engine clutch and pull the power-take-off control up to wind the cable. On vehicles equipped with a power-take-off having a forward and reverse gear, pull control up to "R" position to wind the cable or push control down to "F" position to unwind the cable. Use the engine and clutch to apply power as required.

To rewind cable:

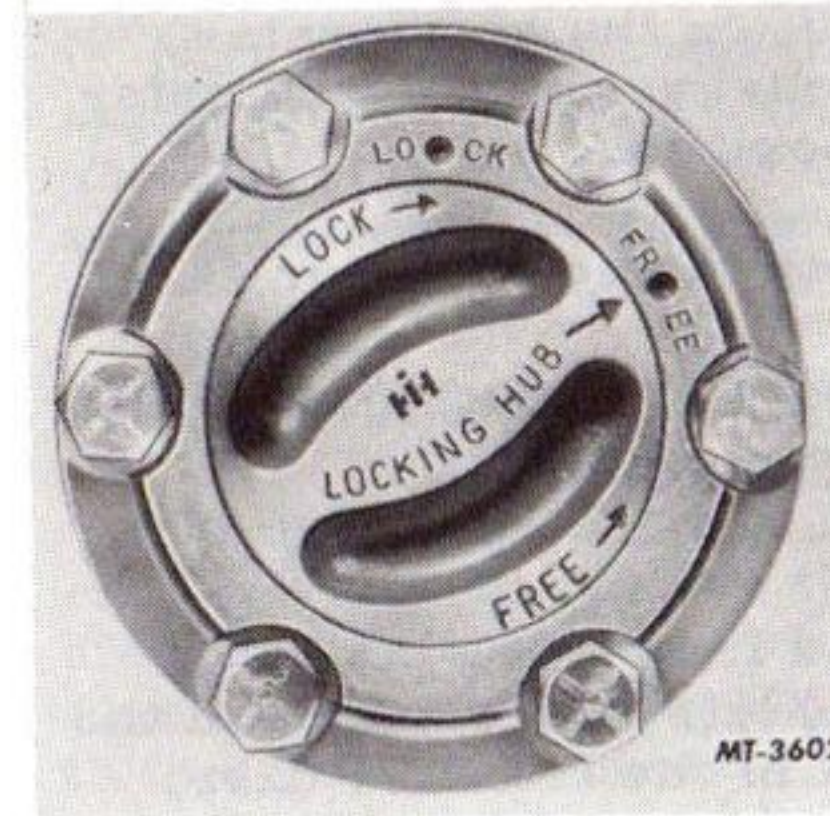
Operate winch placing a light load on wire cable to insure a tight and neat wind on drum. Make sure each layer of cable is evenly wound on drum.

FRONT WHEEL LOCKING HUBS (4x4 Vehicles)

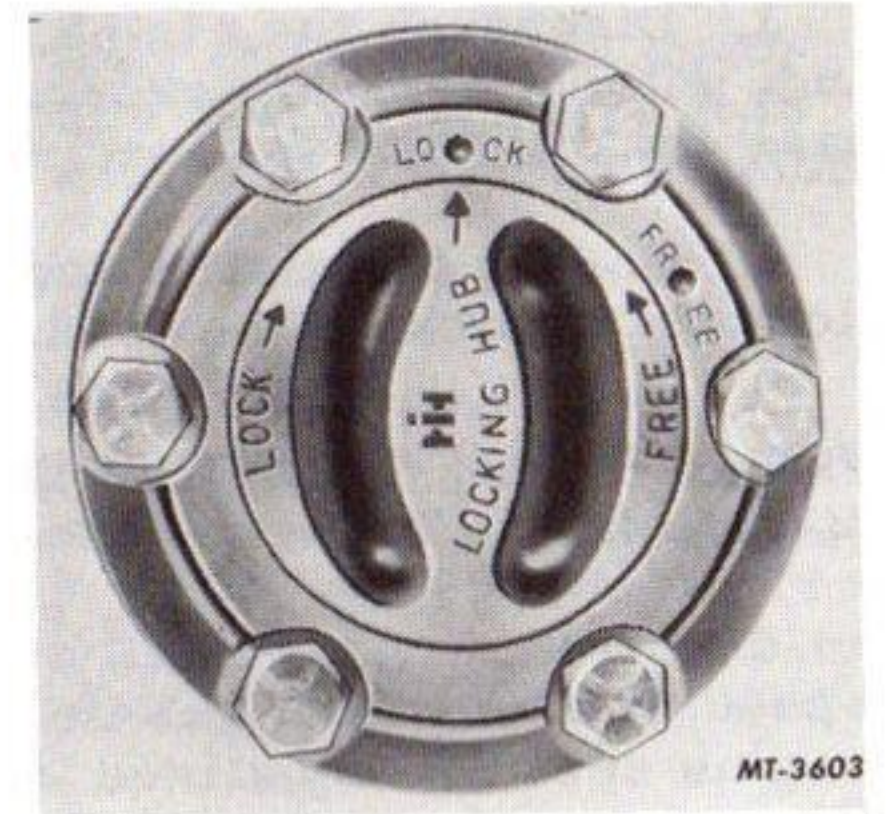
Locking hubs provide a means of controlling the engagement of the front wheels with the front drive axle. When engaged, full power is transmitted to both wheels. Disengagement with front axle not driving allows the front wheels to "Free Wheel," and the axle shafts and differential gears to remain idle, saving unnecessary wear.

CAUTION: DO NOT DRIVE unless controls on both hubs are set properly and both are set the same!

BE SURE THAT BOTH HUBS are in either "FREE" position (TURN COUNTERCLOCKWISE TO FREE) or "LOCK" position (TURN CLOCKWISE TO LOCK). Arrow in center



Free Position



Lock Position

of control must always point directly to one of the dots on the rim of the hub. Controls "SEAT" when in position! You can feel the control "SEAT" itself when it is properly set. If arrow does not point to one of the dots, it will not seat. Both hubs must always be set the same!

USE FINGERS ONLY TO TURN CONTROLS. If controls do not turn freely with your fingers, move vehicle slightly either way in two-wheel drive, standard gear range, and try again. DO NOT FORCE CONTROLS WITH TOOLS.

WHEN TO USE "FREE" OR "LOCK" POSITION: Use "FREE" for all driving that does not require four-wheel drive power and traction.

USE "LOCK" whenever four-wheel drive is used.

NOTE: To avoid excessive torque loads on the rear axle, DO NOT drive vehicle in low range of transfer case with locking hubs set in "FREE" position.

MAINTENANCE

OPERATOR'S MAINTENANCE

The following pages cover minor servicing and maintenance instructions which should be performed to assure efficient operation of the vehicle.

PAINT, BRIGHT METAL AND UPHOLSTERY MAINTENANCE

Frequent and regular washing, waxing and polishing will lengthen the life of your vehicle's painted finish and bright metal trim.

Washing. Wash your vehicle often with warm or cold water to remove dirt and preserve the original luster of the paint. Never wash or wax the vehicle in the direct rays of the hot sun nor when the sheet metal is hot to the touch, as this may cause streaks on the finish. Do not use hot water or strong soaps or detergents or wipe off dirt when the surface is dry as this will scratch the paint.

With the painted surfaces thoroughly cleaned, apply a good automobile wax or wax polish. This will protect the finish for several months.

Bright Metal Care. Bright metal such as anodized aluminum, chrome and stainless steel require the same washing as painted surfaces. A non-abrasive chrome cleaner may be used sparingly to clean the bright metal. Do not use steel wool. Use of automobile wax or polish on bright metal usually will restore the original brightness.

Upholstery Care. Use a whisk broom and vacuum cleaner to remove loose dust and dirt from the upholstery and floor. Vinyl and woven plastic upholstery can be washed with warm water and mild soap, wipe dry. If commercial cleaners are used, follow instructions supplied with cleaner.

LUBRICATION

Have the vehicle properly lubricated at regular intervals according to the lubrication instructions and diagrams shown in this manual.

ENGINE OIL

IMPORTANT: Be sure the oil level in the crankcase is between the "ADD" and "FULL" marks on the oil dipstick (located on the left side of the engine on 6 cylinder engines and on the right side front on 4 and 8 cylinder engines).



MAINTENANCE

When checking the oil level, the dipstick must be withdrawn and wiped clean, then inserted all the way and again withdrawn for a true reading.

Never check the oil level with the engine running as an inaccurate reading will be obtained.

Use only a good grade and proper viscosity engine oil.

ENGINE OIL FILLER (Breather Cap)

The oil filler or breather cap should be removed and the wire mesh thoroughly cleaned by submerging in kerosene or commercial solvent. Dry thoroughly and oil the mesh element liberally with engine oil. Shake the excess oil from the mesh element.

OIL FILTER-ENGINE (Full Flow)

The frequency of oil filter element change depends entirely upon the type of vehicle operation, road conditions, mechanical condition of engine, and quality or type of oil being used. Filter element life cannot be determined by mileage or hours of operation alone, as operating conditions vary.

Should changing the oil filter element be neglected, the filter will cease to function. This will shorten the life of future elements and new oil until such time as the engine is again clean.

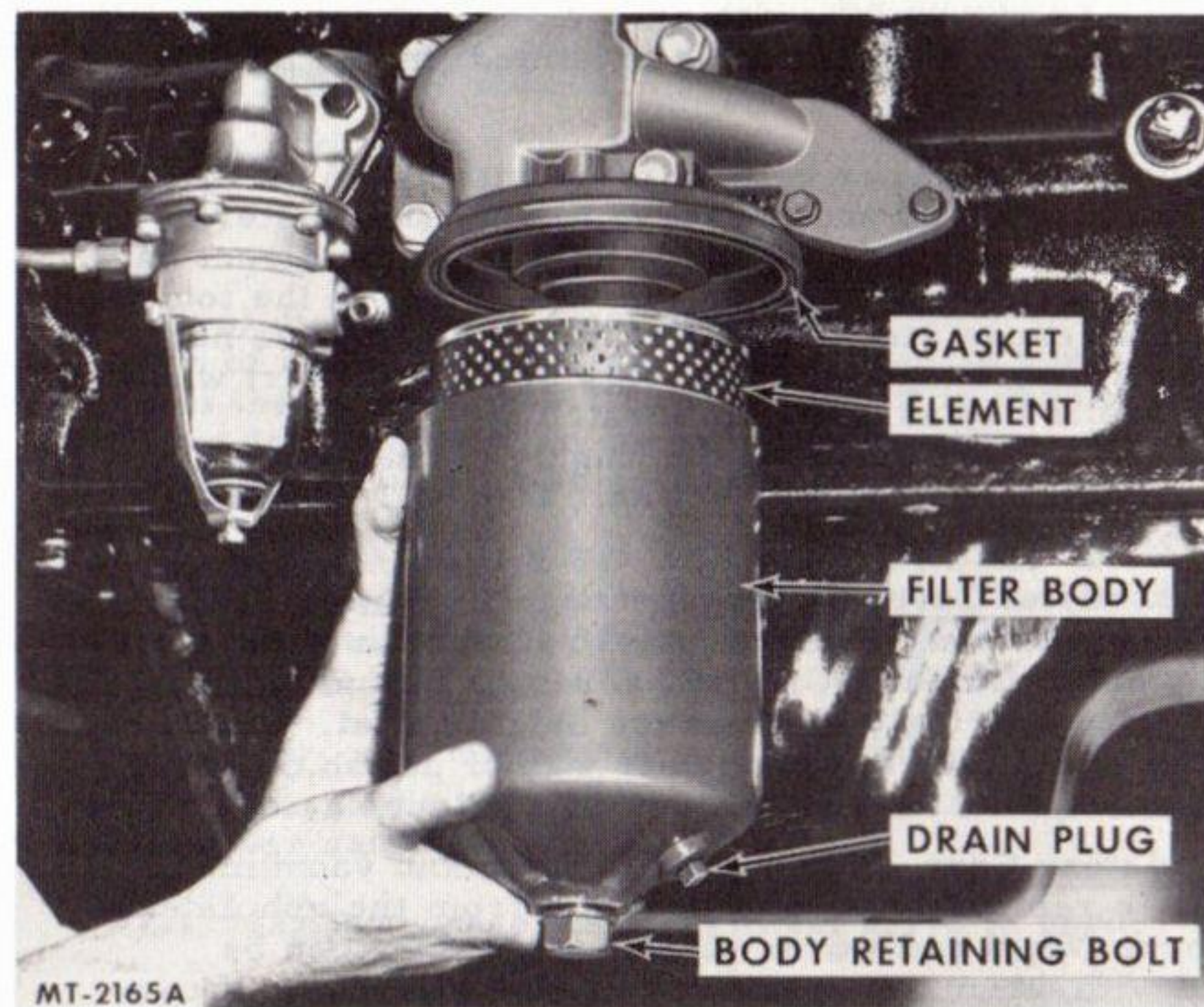
Procedure for servicing the oil filter is as follows:

1. Remove drain plug in bottom of filter and drain oil from filter, reinstall drain plug.

2. Loosen filter body retaining bolt and remove filter body and element. Check condition of filter body to base gasket; replace if necessary.

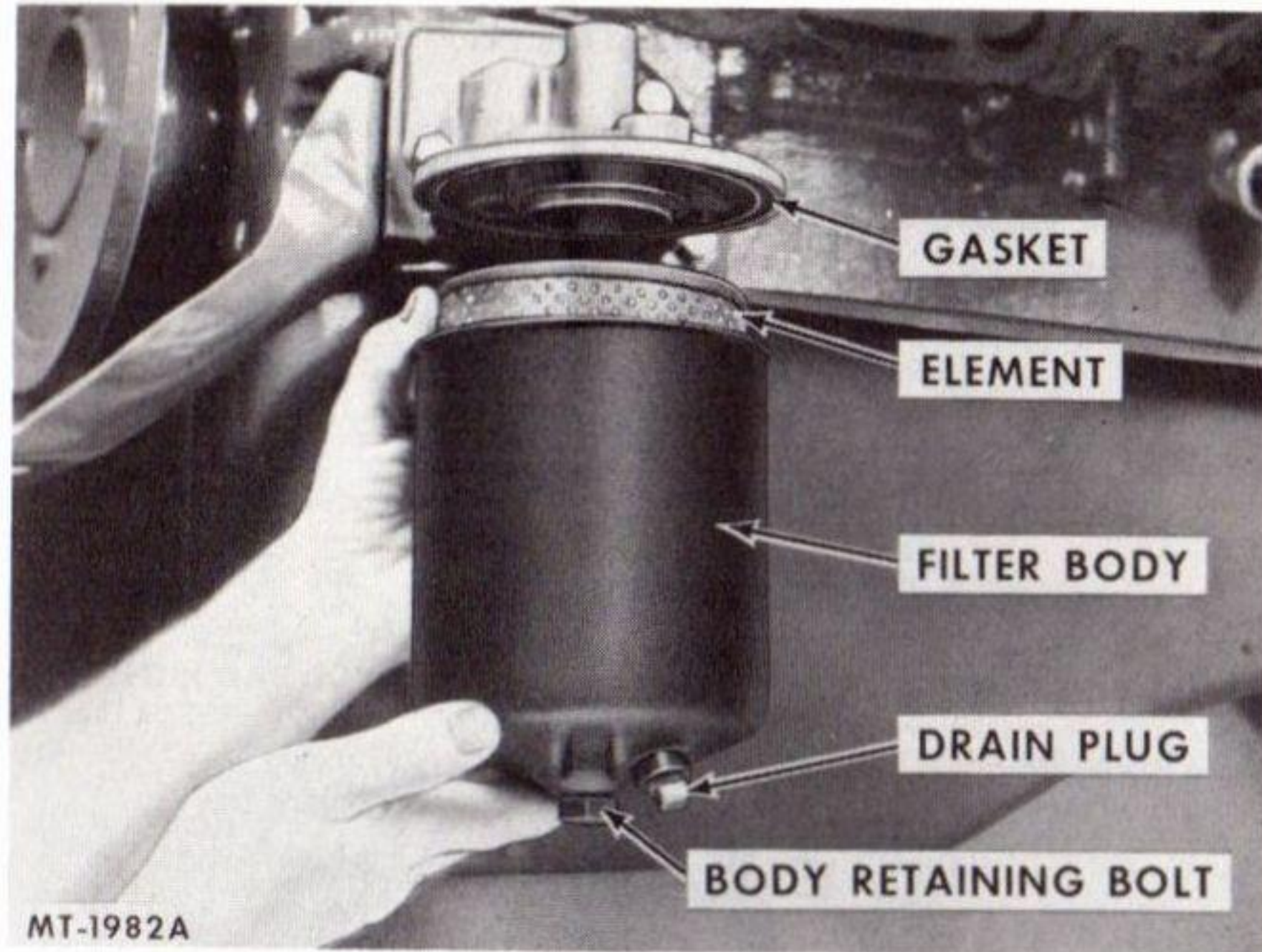
3. Wash filter body in cleaning fluid making sure all the sediment is removed from inside of filter body.

4. Position new filter element to oil filter base. Large hole end of element toward filter base. NOTE: Filter element must be seated on pilot on filter base to avoid damage to element when filter body is installed.



BG-241 Oil Filter Illustrated

MAINTENANCE



V-266, 304 Oil Filter Illustrated

5. Install filter body and bolt with spring assembly to filter; make sure filter body seats on seal in filter base. Tighten filter body retaining bolt to 30 to 35 foot pounds torque.

6. Start engine and run for at least five minutes to warm oil and check for leaks. Also check engine oil level.

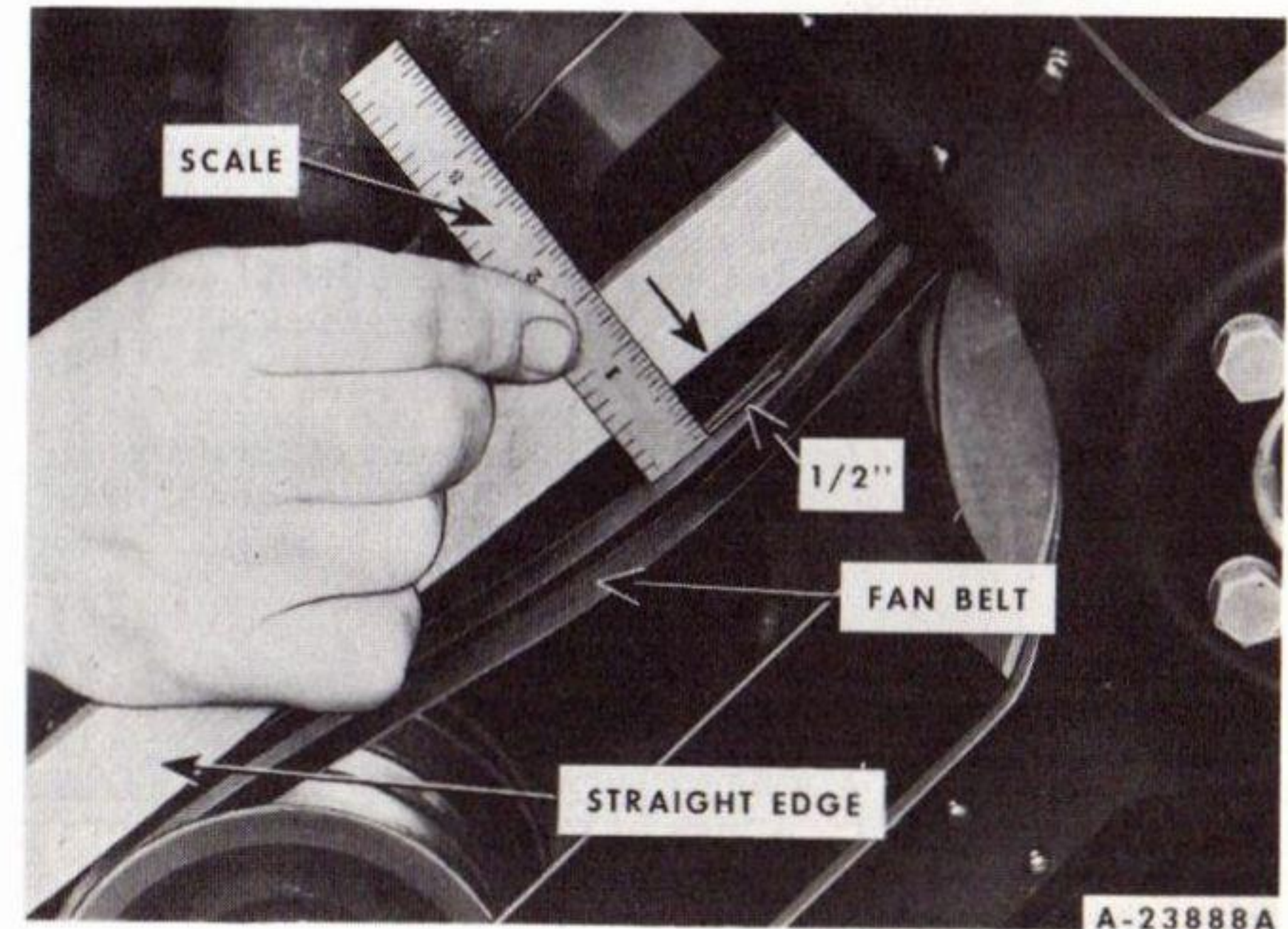
CRANKCASE VENTILATION

The engine crankcase positive ventilator system provides dust free air (from the engine oil filler breather cap)

to the engine crankcase at all engine speeds thus retarding the accumulation of harmful substances in the engine. To maintain crankcase ventilation at maximum efficiency, service the breather cap as outlined under lubrication instructions.

Have your IH Branch or Dealer service the crankcase ventilator metering valve at regularly established periods (approximately 10,000 miles).

FAN BELT ADJUSTMENT



MAINTENANCE

The tension of the fan belt should be checked periodically. Proper tension is obtained when the belt can be depressed approximately 1/2 inch halfway between the fan pulley and alternator.

To adjust the belt, loosen the alternator mounting and brace cap screws, then move the alternator in or out as required. After the adjustment has been made, be sure to tighten the cap screws.

NOTE: When tightening the alternator belt tension, apply pressure only to the laminations centered between the end frames.

FUEL PUMP AND FILTER

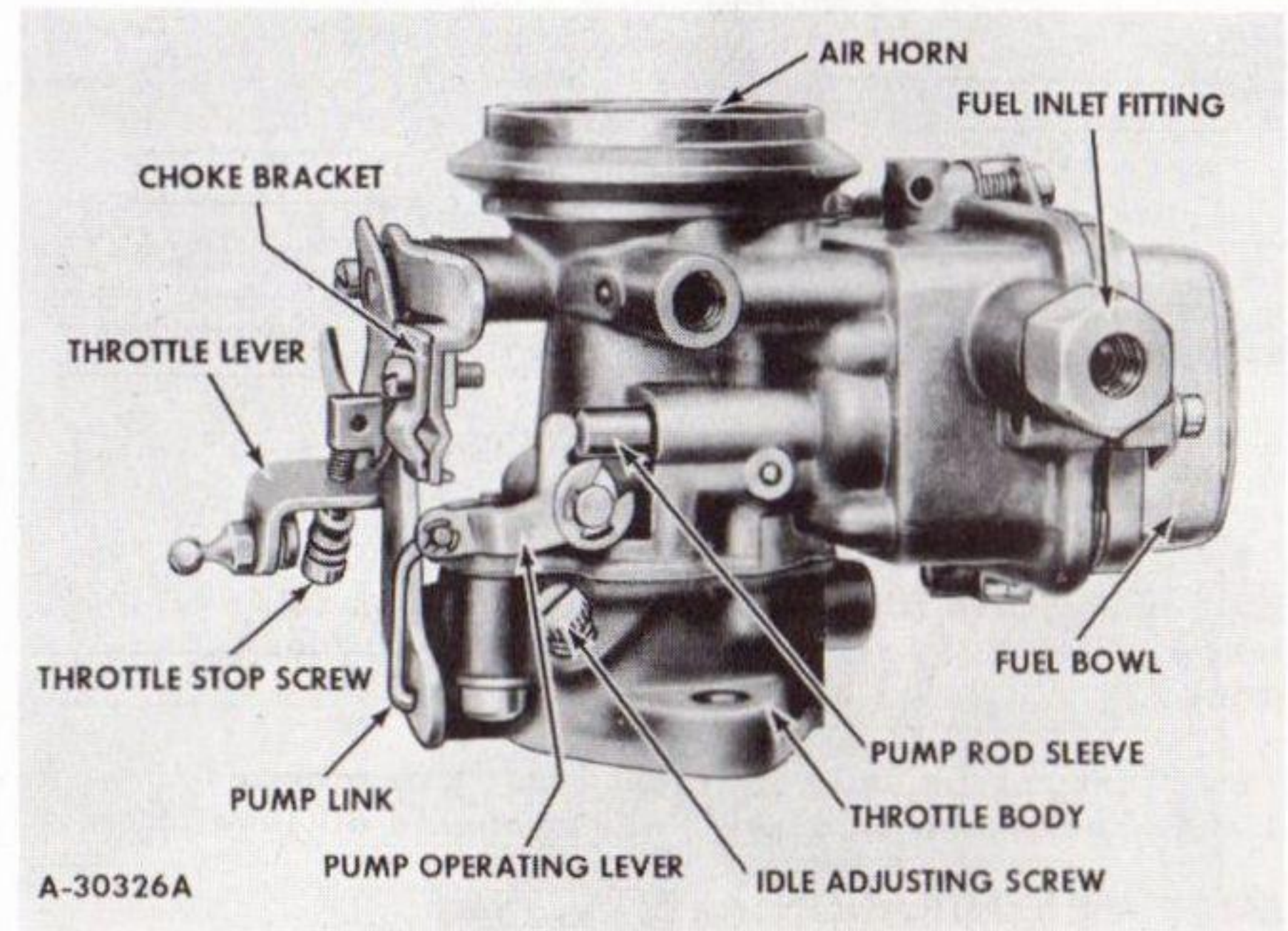
Periodically check the fuel pump sediment bowl for accumulation of water, dirt, and other foreign elements. To clean the fuel bowl and filter element, loosen the clamp screw at the bottom of the fuel pump bowl. Remove the bowl and filter element and wash in a commercial carburetor cleaning solvent, and dry with compressed air.

The interval for cleaning or replacement of the filter element is dependent upon the type of operation and cleanliness of the fuel used.

When reinstalling the fuel filter bowl, make sure the gasket and spring are in place and that the clamp screw is tight. DO NOT USE A WRENCH OR PLIERS TO TIGHTEN THE CLAMP SCREW. A leak at the gasket will cause erratic action of the fuel pump and thus retard delivery of fuel to the carburetor.

ENGINE IDLE - CARBURETOR ADJUSTMENT

The engine idling speed can be increased by turning the carburetor throttle stop screw "inward", or decreased by turning the throttle stop screw "outward".



Used on 4-152, BG-241 Engines

MAINTENANCE

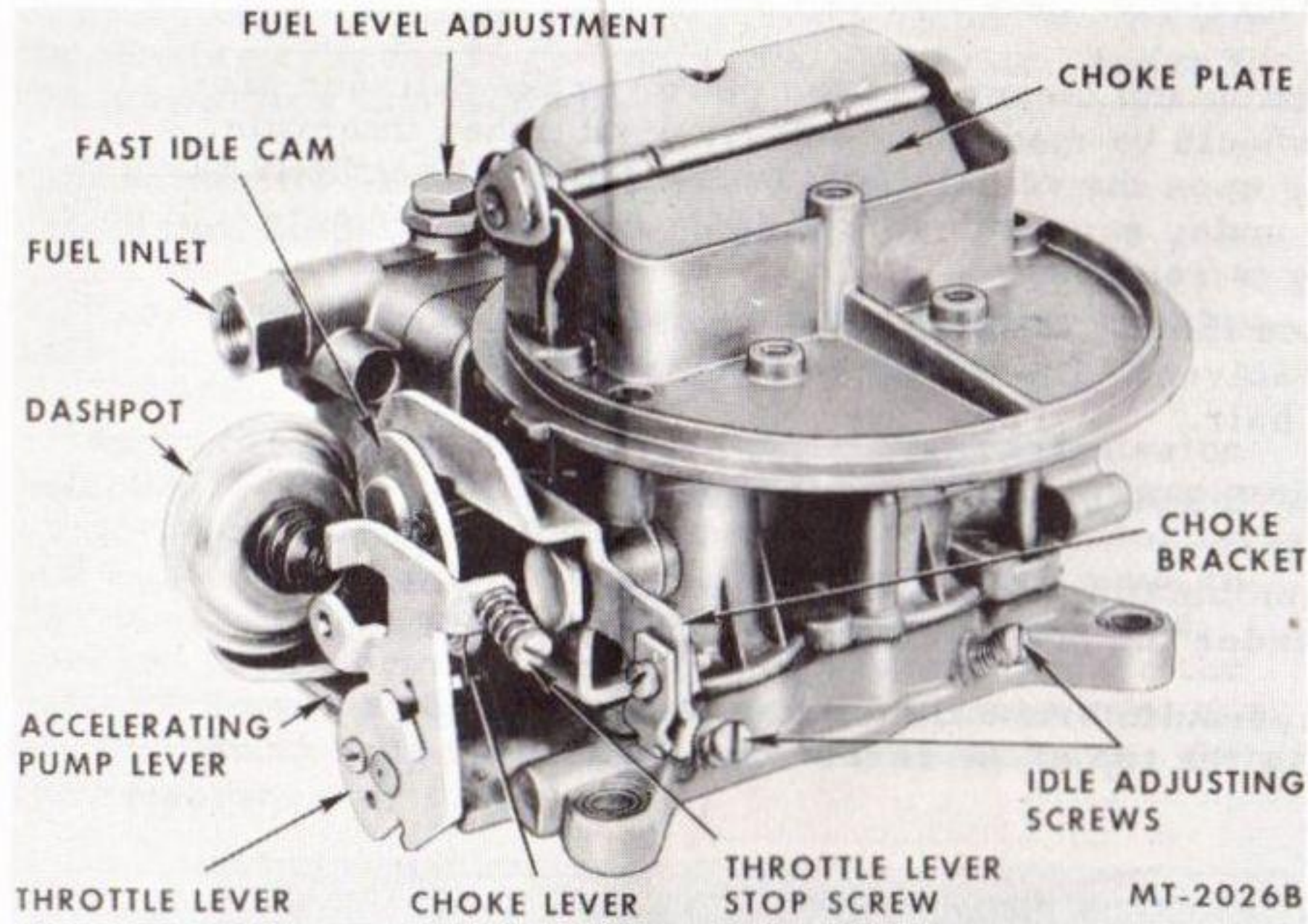
IGNITION TIMING

To assure efficient operation of the engine, the timing should be checked with a timing light attached to No. 1 spark plug on 4 and 6 cylinder engines and No. 8 spark plug on 8 cylinder engines. Refer to specification for proper setting.

NOTE: Unusual operating conditions or fuel octanes above or below those generally encountered may require modification of the initial ignition timing. Advance or retard from specified setting as required to take full advantage of available fuels.



For 4-152 Engines

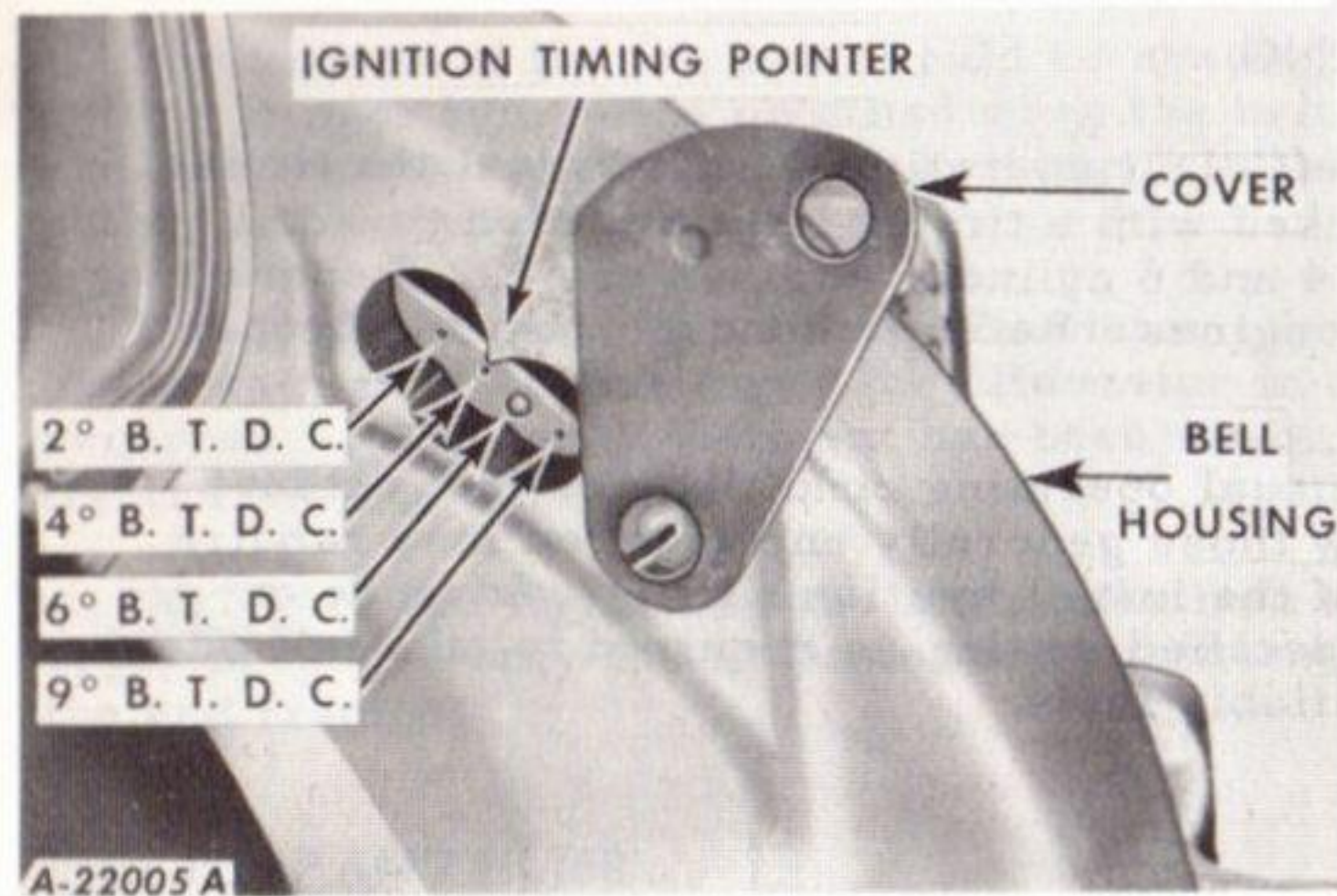


Used on V-266, 304 Engines

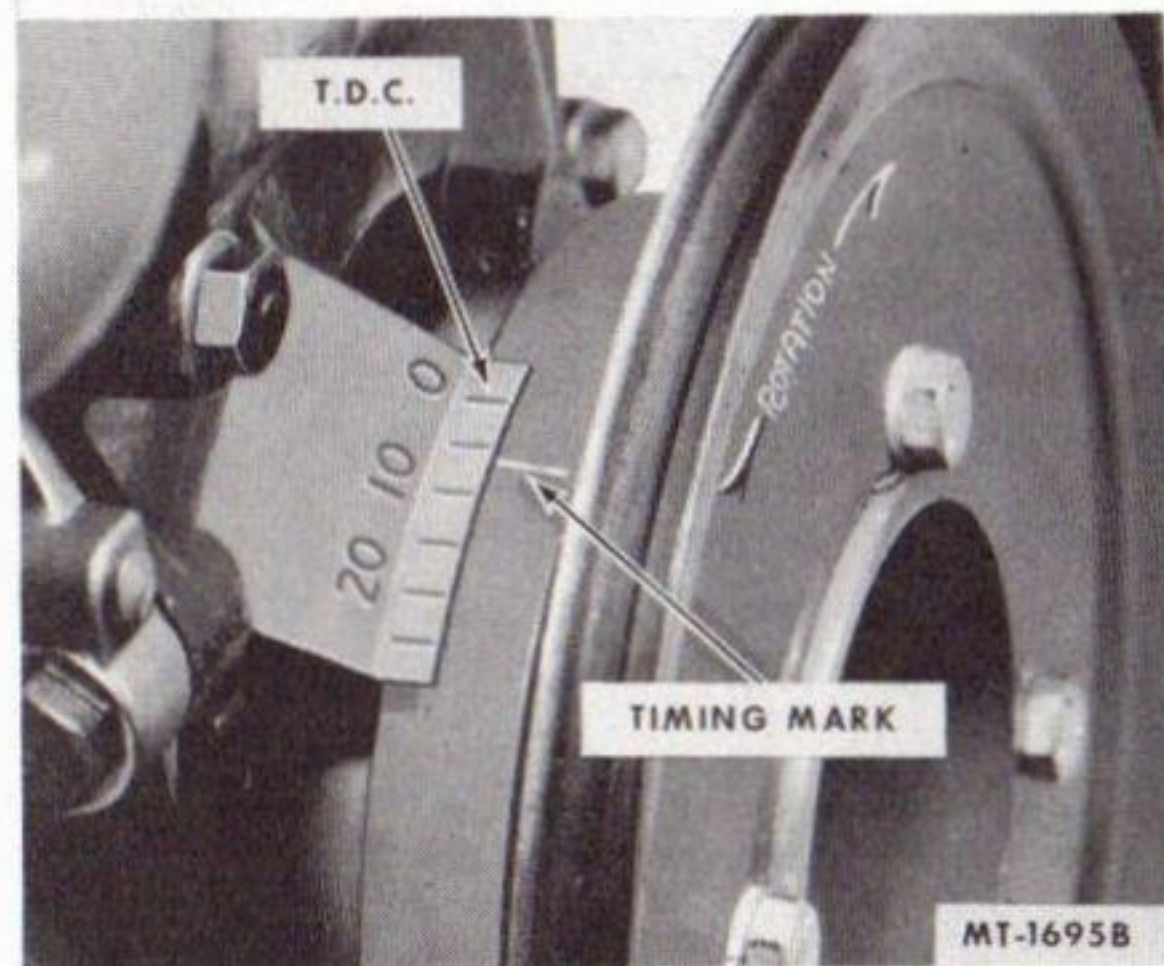
AIR CLEANER (Oil Bath)(Engine)

See that the oil in the air cleaner is up to the indicated level and use the same grade of oil as used in the engine crankcase. REFER TO THE LUBRICATION INSTRUCTIONS.

MAINTENANCE



For BG-241 Engines



For V-266, 304 Engines

AIR CLEANER (Power Brake Cylinder)

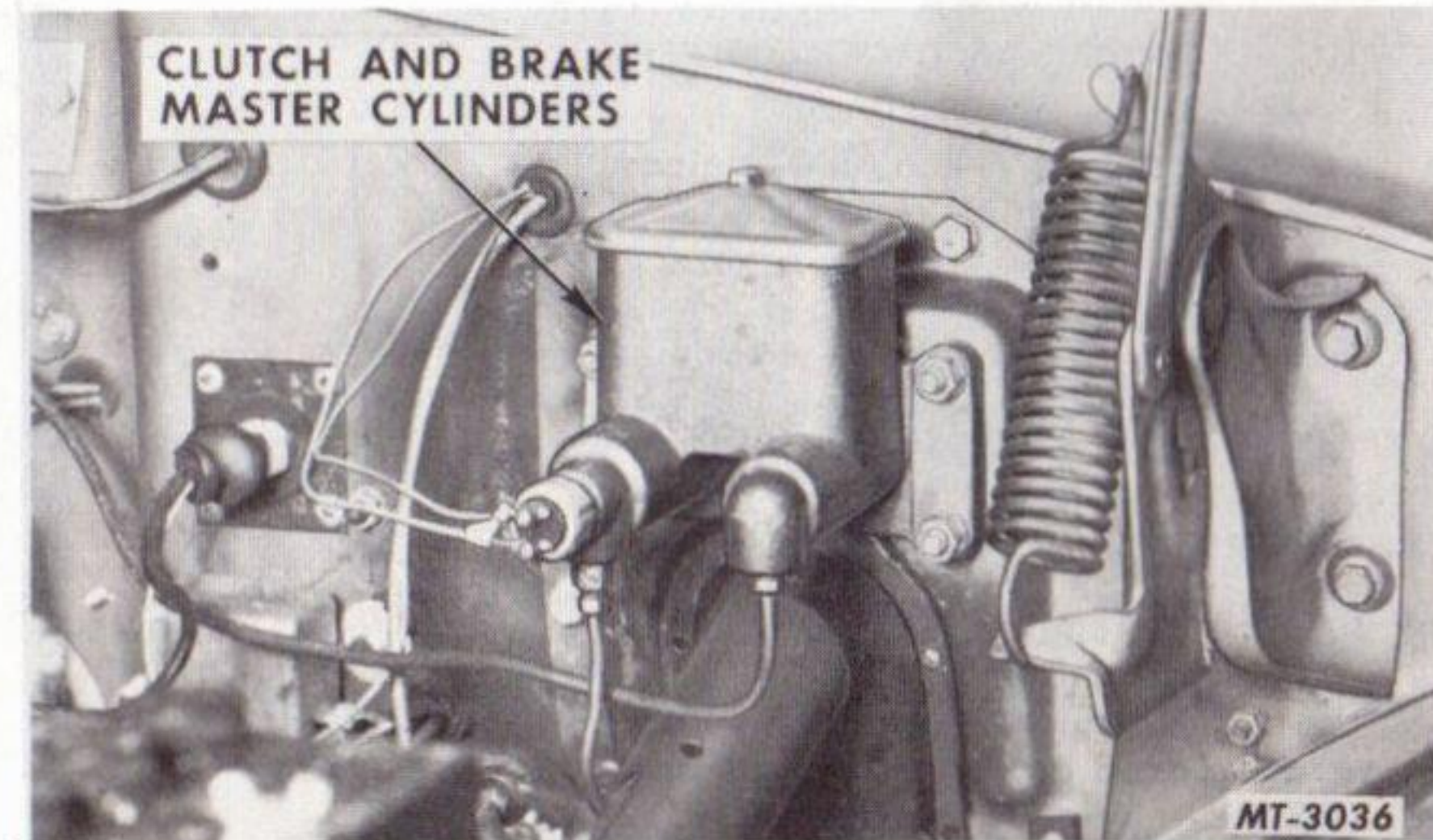
Inspection and cleaning of the power brake cylinder air cleaner should be made at regularly established intervals, depending upon the vehicle operation. Where the vehicle is operated under severe dusty conditions, more frequent servicing is required.

Replace the air cleaner hair, or wash the old hair in cleaning solvent. Dip the hair in engine oil. Shake excess oil from hair.

CLUTCH AND BRAKE MASTER CYLINDERS

The combination clutch and brake master cylinder is located under the hood on the left side of the dash panel.

The hydraulic brake fluid must be maintained at a level $\frac{3}{4}$ " below the top of the reservoir. Use only a good grade



MAINTENANCE

of heavy duty "Automotive Type" brake fluid. Do not fill the master cylinder to the top of the reservoir. Refer to the lubrication instructions.

CHECKING THE TRANSMISSION FLUID LEVEL (T-28 Dual Range Automatic Transmission)

Check the transmission fluid level at 1,000 mile intervals, using the following procedures:

Apply the parking brake, then place the transmission selector lever in the "N" (neutral) position. Run the engine at idle speed for about four minutes, lift the selector lever and move to "R" position then lift the lever and move to "P" position. When the engine and transmission have reached their normal operating temperatures, move the selector lever through all the positions to make sure that the fluid is distributed throughout the transmission. Return the selector lever to "P" (park).



Raise the hood, then clean all dirt from the transmission fluid level dipstick cap before removing the dipstick. Pull the dipstick out of the tube, wipe it clean, then insert it back in the tube. Be sure that the dipstick is pushed down all the way. Remove the dipstick and check the fluid level. If necessary, add enough Automatic Transmission Fluid, Type "A", to raise the fluid level to the "F" (full) mark on the dipstick. Add oil through the dipstick tube.

FLUID CHANGE AND BAND ADJUSTMENT PERIOD (T-28 Automatic Transmission)

Automatic transmission bands must be adjusted after the first 1,000 miles of operation.

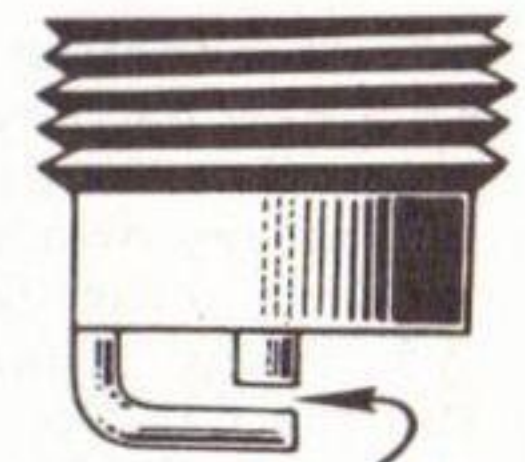
Fluid should be changed and bands adjusted at 15,000 mile intervals thereafter.

SPARK PLUGS

To maintain efficient engine performance, the spark plugs should be checked, cleaned and regapped at periodic intervals (approximately 3,000-4,000 miles).

Certain operations, engine condition and fuel grades will alter the cleaning and regapping interval.

To change the spark plug gap, bend the outer electrode; never bend the center electrode. Be accurate - use a round wire gauge to check the electrode gap. Check the gap of new spark plugs before installation and tighten to specified torque.



SET GAP TO
SPECIFICATIONS
A-7375C

MAINTENANCE

IH Branches and Dealers are equipped with spark plug cleaning and testing equipment which renders dependable service.

POWER STEERING PUMP OIL RESERVOIR

The power steering pump is located on the left side of the engine, upper front. Keep reservoir filled to oil level mark on filler neck with SAE-10W "MS" engine oil. DO NOT OVERFILL. Check oil level with engine at normal operating temperature.

BELT TENSION (Power Steering Pump)

The power steering pump belt must be re-tightened after the first 1,000 miles of operation.

Inspect and maintain the belt tension periodically. Pump belt tension is obtained by loosening the pump mounting bracket bolts and moving the pump upward and outward. The proper belt tension is obtained when the belt can be depressed approximately 3/8-inch halfway between the two pulleys. Tighten the bolts that were loosened when making belt adjustment.

ALTERNATOR - Self Rectifying

Precautions Regarding Alternators

Before connecting a fast charger, booster battery or installing a new battery extreme caution must be used to make sure that the ground polarities of the fast charger, booster battery or alternator (when installing a battery) are matched to the ground polarity of the vehicle battery. Improper usage of fast charger, hook-up of booster battery or installing battery can cause damage to the electrical system or to the alternator.

CAUTION: Do not attempt to polarize the alternator.

RADIATOR CAP

The radiator cap is the pressure-sealing type. Its purpose is to maintain the cooling system under slight pressure, increasing the boiling point of the cooling solution and preventing loss of the solution due to evaporation or overflow.

CAUTION: When removing the pressure type cap from the radiator perform the operation in two steps. Loosen the cap slowly to its first notch position, then pause a moment. This will avoid possible scalding by hot water or steam. Then continue to turn the cap to the left until you can remove it.

RADIATOR COOLANT LEVEL

Do not fill the radiator completely full. Maintain the coolant level about one inch below the top of the radiator upper tank to allow for coolant expansion.

If the coolant in the radiator should get extremely low and the engine very hot, let the engine cool for approximately 15 minutes before adding coolant; then, with the engine running, add coolant slowly. Adding a large quantity of cold water or coolant to a hot engine may crack the cylinder head or crankcase.

FILLING THE COOLING SYSTEM

To eliminate air being trapped within the engine or heater, the following procedure should be followed when filling the engine coolant system.

1. Fill cooling system until coolant reaches bottom of radiator filler opening. Install radiator cap.

MAINTENANCE

2. Set parking brake and start engine.
3. Allow engine to operate at a fast idle (approx. 2,000 RPM) until the engine reaches its normal operating temperature.
4. After engine reaches its normal operating temperature, trapped air will be expelled from system.
5. With engine still running, add sufficient coolant to bring level to approximately one inch below bottom of filler neck.

THERMOSTAT

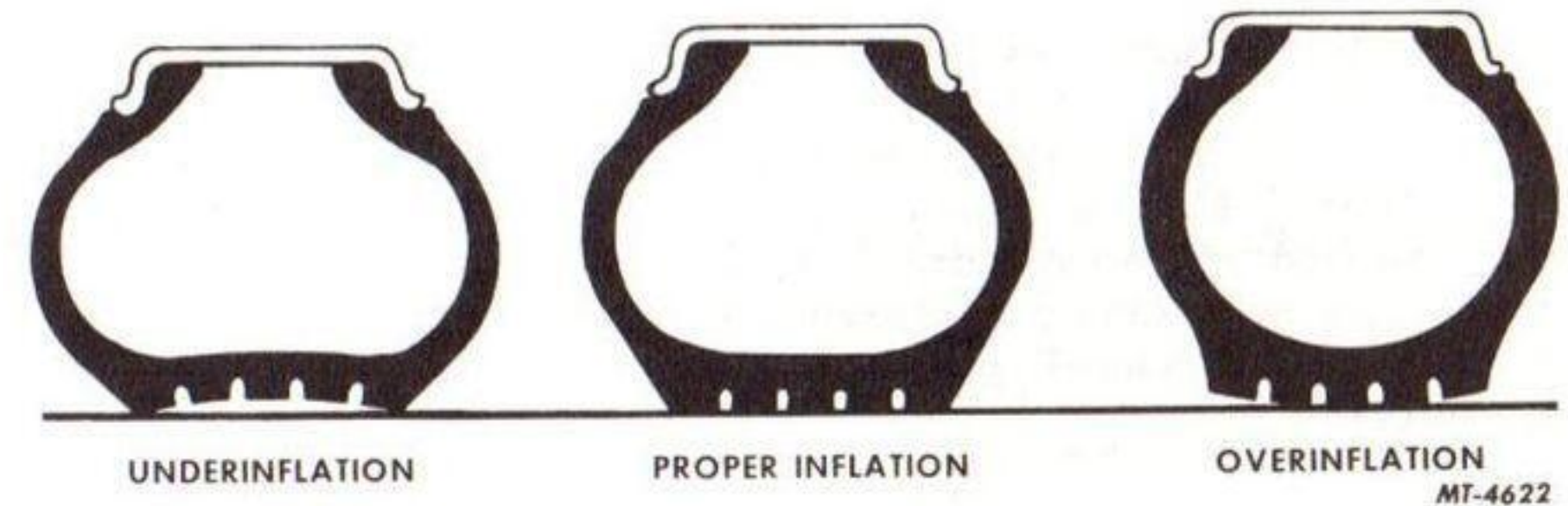
Your new vehicle is equipped at the factory with a standard temperature thermostat for 6 cylinder engines and a high temperature thermostat for 4 and 8 cylinder engines. However, high temperature thermostats are available at your IH Branch or Dealer, if desired.

The high temperature thermostat is recommended for cold climates, to provide higher engine operating temperatures and increase heater output temperature. Permanent type antifreeze must be used with high temperature thermostats.

TIRES

Inflation pressures should be checked when tires are cool, using an accurate tire pressure gauge. Check pressures at regular intervals.

Bleeding the air from hot tires is dangerous and should not be attempted. While the pressure will be reduced, an increase in temperature of the tire will take place as soon as driving is resumed and tire failure will result.



Underinflation

Too little air pressure increases deflection, causes the tread to wipe and scuff over the road, results in extra strain on the tire, and increases the chances for bruising.

Proper Inflation

Maintaining the proper air pressure provides maximum road contact and results in increased tire life.

Overinflation

Overinflation reduces tire deflection and tire contact area, causing the tire to ride on the crown, and results in rapid wear in the center of the tread.

Tire and Wheel Balance

Front wheel shimmy, wandering, and cupped tires are caused by an out-of-balance condition of one or both front tires. If the tires are changed because of a flat tire or to equalize wear, it is advised that they be checked for balance before operating the vehicle.

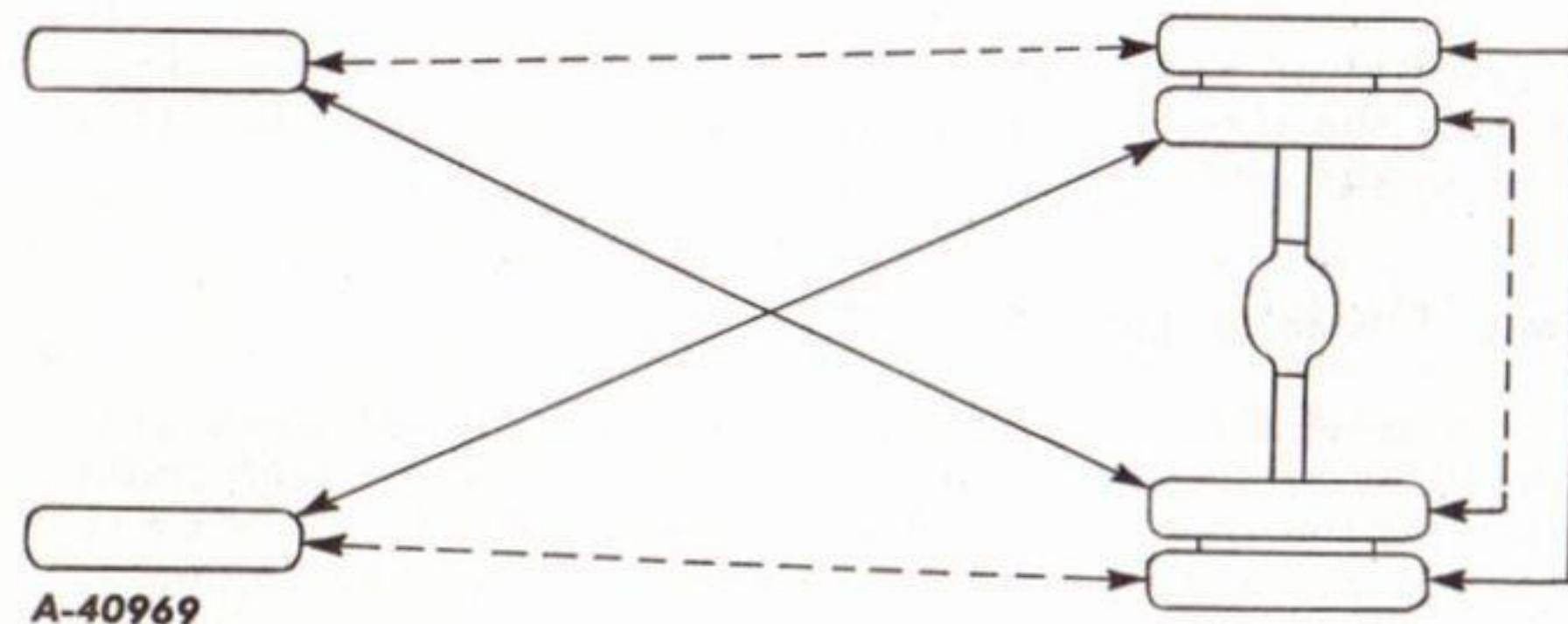
MAINTENANCE

Tire Matching Dual Tires

Use care in matching dual tires. Tires which differ more than 1/4-inch in diameter or 3/4-inch in circumference should not be mounted on the same dual wheel. Should it become necessary to mount two tires of unequal size on the same dual wheel, place the larger or less worn tire on the outside.

Tire Switching Sequence

Tires should be cross switched at regular intervals to attain maximum tire life. Suggested methods of interchanging tires on vehicles with dual rear wheels are shown in the diagram. If the inside duals show the most wear, change tires according to the solid lines. If the outside duals show the most wear, change according to the broken lines. New tires should be installed on the front wheels.



Tire Inflation Chart (Tubeless)

Size	Ply	Pounds Pressure
6.00 x 16	4	28
6.00 x 16	6	45
6.50 x 15	4	45
6.50 x 16	4	28
6.50 x 16	6	45
6.70 x 15	4	30
6.70 x 15	6	36
7.00 x 15	6	45
7.00 x 16	6	45
7.10 x 15	4	30
7.10 x 15	6	36
7.60 x 15	4	30
7.60 x 15	6	36
7 - 17.5	6	45
7 - 17.5	8	60
8 - 17.5	6	45
8 - 17.5	8	60
8 - 19.5	6	50
8 - 19.5	8	65

Tire Inflation Chart (Tube Type)

Size	Ply	Pounds Pressure
6.00 x 16	4	28
6.00 x 16	6	45
6.50 x 16	4	28
6.50 x 16	6	45
6.70 x 15	4	30
6.70 x 15	6	36

MAINTENANCE

Tire Inflation Chart (Tube Type) - Continued

Size	Ply	Pounds Pressure
7.00 x 15	6	45
7.00 x 16	6	45
7.00 x 16	8	60
7.00 x 17	6	45
7.00 x 17	8	60
7.10 x 15	4	30
7.10 x 15	6	36
7.50 x 16	6	45
7.50 x 16	8	60
7.50 x 17	8	65
7.60 x 15	4	26
7.60 x 15	6	36
9.00 x 16	8	50
9.00 x 16	10	60

WHEEL AND RIM MOUNTING NUTS

Cast Wheels

On cast type wheels, the rim clamp nuts should be inspected at regular intervals to see that they are tight. The rim and tire alignment, in relation to the wheel, should also be inspected to be sure that the tire is running true. Keep the rim clamp bolts tight.

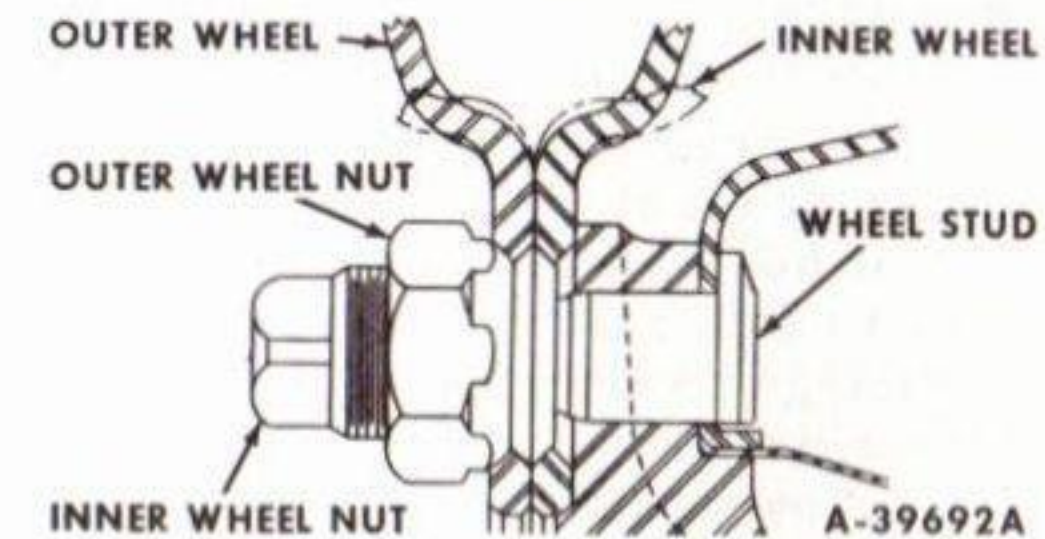
Disc Wheels

1. Mounting faces of the hub, wheel, and nut must be free from dirt or excess paint. Mounting faces which have been damaged from wear or abuse must be repaired or replaced.

2. Right hand threads are used on the right side of the vehicle and left hand threads on the left side.

3. Tighten the wheel nuts alternately.

4. On dual wheels, the outer nut should be backed off before attempting to tighten the inner nut.



It is good practice to repeatedly (daily) tighten the wheel nuts during the first 500 miles of service on new vehicles and any time the wheels have been removed. Regular inspection periods should be established to assure keeping the nuts tight.

FRONT WHEEL ALIGNMENT

To guard against excessive tire wear, have the front wheel alignment inspected occasionally by your IH Branch or Dealer for toe-in, camber, and axle caster.

BATTERY

The battery is located under the hood in the engine compartment. Keep the battery fully charged and check the solution level at least every 15 days during hot weather and 30 days in cold weather.

MAINTENANCE

The solution in each cell should be 3/8-inch above the separator plates, or to the indicator level. When the solution is below this level, add distilled water, using a clean syringe. Acid or electrolyte should never be added except by skilled battery personnel.

Under no circumstances add any special battery "dopes", solutions, or powders.

Test the specific gravity of the electrolyte in each cell with a hydrometer at least once a month. A hydrometer reading of 1.260 at 80°F. indicates a full charge. Never allow the battery to fall below 1.225 which indicates half charged. A discharged battery will freeze at 20°F. above zero. A fully charged battery will withstand temperatures as low as 80°F. below zero.

Battery cable terminals must be clean and tight. Use hot water and common baking soda for removing terminal corrosion and for cleaning the top of the battery. Brighten the contact surface with steel wool, apply a light coat of vaseline or chassis lubricant, and reassemble. Be sure the terminals are clamped tightly and that the battery is clamped securely in the battery box.

When working around the terminals and battery, use extra care to avoid shorting. A good practice is to insulate pliers and screwdrivers used with this system. DO NOT CHECK BATTERY CONDITION BY SHORTING (FLASHING) ACROSS TERMINALS.

CAUTION: Hydrogen gas is produced in the normal operation of the battery. Therefore, to prevent a fire or dangerous explosion, it is imperative that flames or sparks be kept away from the vent openings of the battery.

Battery Warranty

The battery in your new vehicle has a separate warranty and your IH Branch or Dealer will be pleased to assist you in registering the battery.

COOLING SYSTEM CLEANING

Twice a year or more often, depending upon the type of coolant used, the cooling system should be drained and thoroughly flushed. This is particularly important before using antifreeze.

Unless the water in the cooling system is treated with a corrosion preventive, rust and scale will eventually clog up passages in the radiator and water jackets. This condition is aggravated in some localities by formation of insoluble salts from the water used.

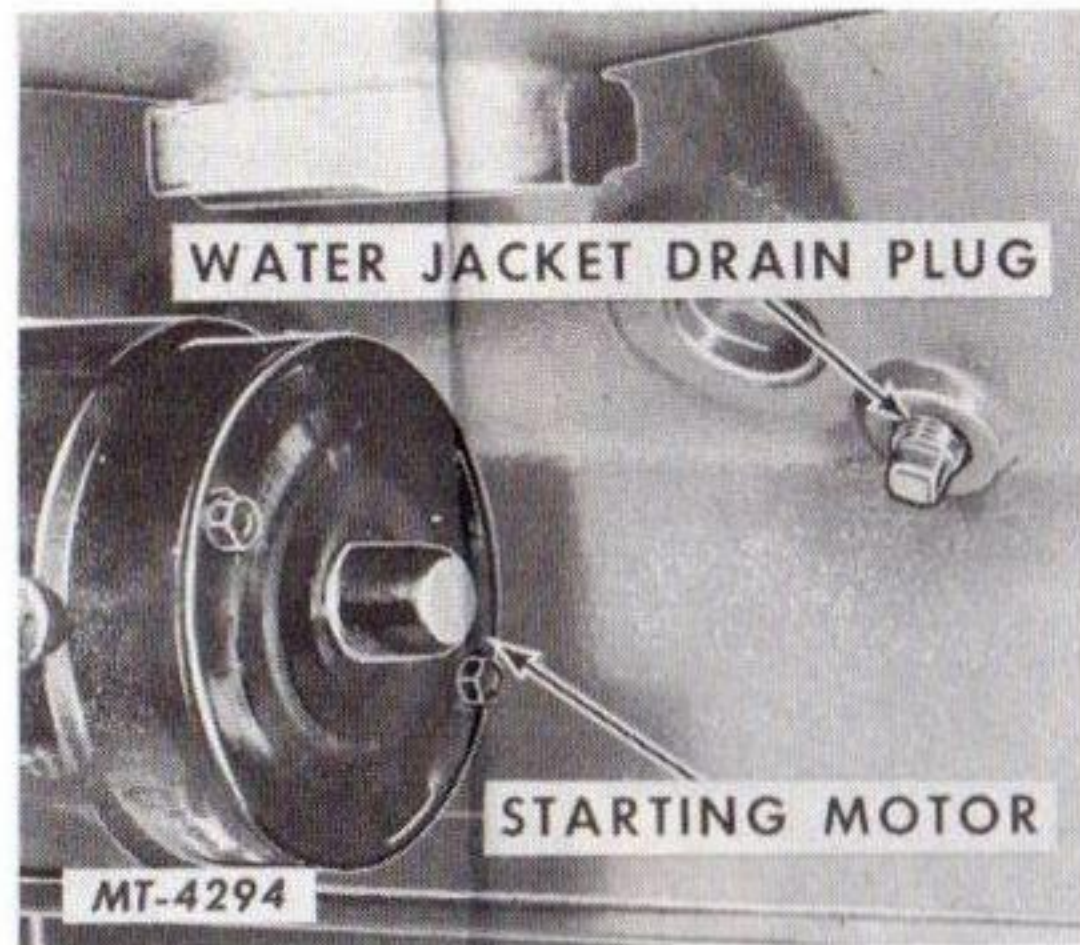
IH cleaning solutions are available which have proven very successful in removing accumulation of rust, scale, sludge, and grease. This solution should be used according to the recommendation on container.

NOTE: Do not use chemical mixtures to stop radiator leaks except in an emergency. Never use such solutions instead of needed radiator repair.

When draining the cleaning solution, disconnect the radiator outlet hose, as large particles of sediment will not pass through the drain.

Also open the crankcase drains (right rear side on 6 cylinder engines) (right and left sides on 8 cylinder engines) (4 cylinder engines right side center).

MAINTENANCE



COLD WEATHER PREPARATION

If the vehicle is to be operated in temperatures of 32°F. or lower, observe the following precautions:

Vacuum Power Brake Cylinder (Piston Type)

Perform the vacuum power brake cylinder lubrication service operation just prior to the cold weather period. This will provide the working parts of the unit with lubrication during the winter months. Tighten the vacuum hose connections to prevent entry of dirt or moisture. See the lubrication instructions.

Engine Oil

The intervals at which engine oil must be changed depend upon the type and quality of oil used, and the type and

severity of the operation. Oil changing is closely related to filter element and air cleaner cleaning and changing.

Laboratory tests of used oils, by oil suppliers, will assist in determining the advisable oil drain period.

NOTE: The frequent use of the choke thins the oil to such an extent its value as a protecting film between moving parts is destroyed. For this reason, we recommend a more frequent complete oil and oil filter element change in cold weather.

Axle and Transmission

Severe cold weather may make it advisable to change to a lighter grade lubricant in the transmission and in the rear axle differential. A lubricant of lighter viscosity will provide better lubrication to the moving parts.

Cooling System

The cooling system of vehicles, manufactured during cold weather periods, is filled at the factory with antifreeze containing a rust inhibitor.

For cold weather protection, use an IH antifreeze containing an effective rust corrosion preventive.

Before adding the antifreeze, check the following:

1. Inspect all hoses. Tighten all hose clamps. Check for leaks.
2. Inspect the water pump for leaks.
3. Inspect the fan belt and adjust to proper tension. If the belt is worn or oil-soaked, replace it.

MAINTENANCE

4. Position the vehicle so the engine is level. This will permit all water to drain from the cooling system.

5. Remove the radiator filler cap and open the radiator drain; also open the crankcase water drains and thoroughly drain the cooling system. Then close both drains and use recognized cleaning solutions, following the manufacturer's instructions.

6. Leave the radiator filler cap off and run the engine for about one-half hour or until the engine gets hot. Then disconnect the radiator outlet hose to allow the larger particles of sediment to pass through; also open both drains. Drain and flush thoroughly with clean water. Close both drains and securely fasten the radiator outlet hose.

7. Put the required amount of antifreeze into the cooling system. Add soft or rain water if available and inspect the hose connections for leaks.

If a solution of alcohol and water is used, add a small amount of alcohol from time to time to compensate for evaporation. Do not use calcium chloride or salt solutions.

Testing Antifreeze

When testing antifreeze with a hydrometer the engine must be warmed to at least 110°F . to obtain an accurate reading.

Radiator Shutters or Winterfront

The use of radiator shutters or proper size winterfront, to maintain an engine operating temperature between 160° and 180°F . for 6 cylinder engines and 175° to 190°F . for 8 and 4 cylinder engines is recommended. Use of a high

temperature thermostat together with permanent type antifreeze is also recommended. During freezing weather, if antifreeze is not used, the entire cooling system must be drained when the vehicle is not in use. Be sure to open all drains.

HEADLIGHT REMOVAL

1. Remove the headlight rim retaining screw and remove the headlight rim.



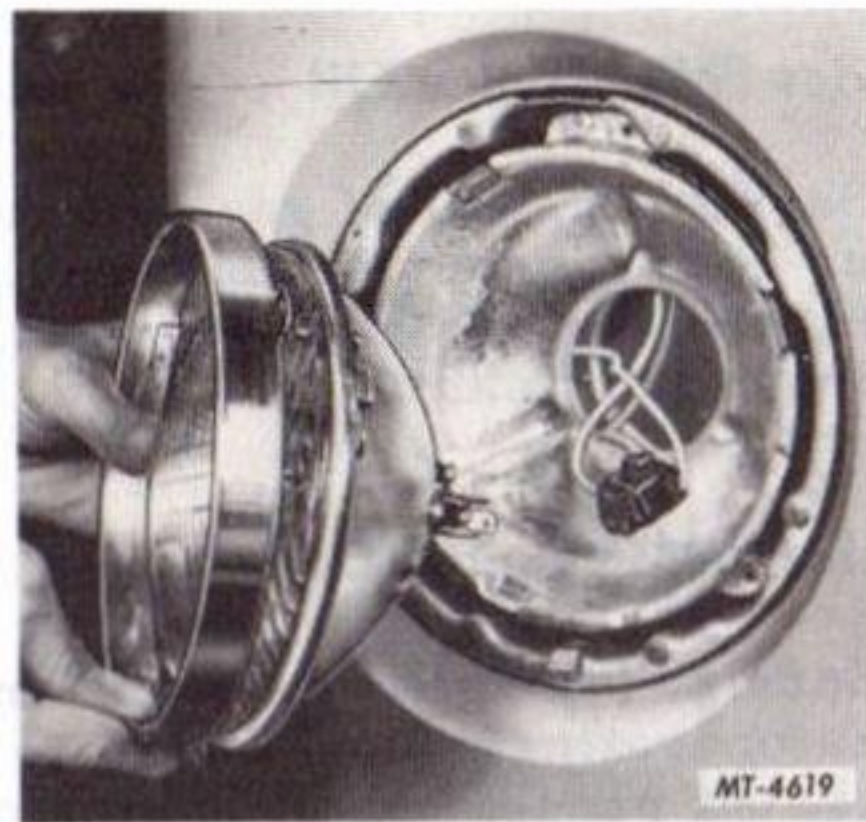
2. Remove the retaining ring attaching screws.

NOTE: Do not disturb the horizontal or vertical adjusting screws.

3. Remove the retaining ring and sealed beam unit from the headlight.

4. Disconnect the connector plug from the sealed beam unit and remove the unit. Hold the connector plug firmly to avoid damage to the wiring.

MAINTENANCE



All IH Branches and Dealers include in their service tools, equipment scientifically developed for aiming headlight beams. The use of this equipment will result in maximum illumination for night driving and assure that the headlight aiming does not conflict with existing laws and regulations. It is good practice to avail yourself of this service when a sealed-beam unit has been replaced or the headlight beam pattern does not give adequate illumination.

PARKING LIGHTS

The parking lights are equipped with ordinary filament bulbs. Should it become necessary to replace either a parking light lens or bulb, remove the lens retaining screws, replace the necessary parts and reassemble.

IMPORTANT: All major overhauling or adjustment of the electrical system should be done by an International Branch or Dealer.

HOURLY METER

In certain types of operations, the speedometer (odometer) reading is not an accurate guide for engine or chassis lubrication intervals.

For example: Vehicles equipped with winches, pumps, etc. accumulate periods of unrecorded operation. The same applies to short haul operations involving considerable reverse gear work.

Thirty-three (33) miles is equivalent to one hour of engine operation, therefore, to record proper lubrication or maintenance periods, the installation of an hour meter is recommended.

Hour meters are available from your International Dealer or Branch.

Vehicle Storage Instructions

When a vehicle is not to be used for an extended period of time certain precautionary measures must be observed to prevent deterioration of the various units. It is recommended that you contact your dealer who will advise you of measures to be taken when storing vehicles, as well as precautions to be followed when a vehicle is to be returned to service.

LUBRICATION

MULTI-VISCOSITY ENGINE OILS

Many of the oil refiners now market multi-viscosity engine oils which are listed as SAE-5W-20 and SAE-10W-30. These oils are designed to combine the easy starting characteristics of the lower SAE number with the warm weather operation characteristics of the higher SAE number. Refer to lubrication instructions for the recommended viscosity oils to be used for the various atmospheric temperature ranges.

ENGINE OIL TYPES

The American Petroleum Institute and the automotive manufacturers have agreed that engine oils shall now be marketed under three classifications or categories; namely, Service "MS", Service "MM", and Service "ML". These are more fully defined as follows:

Service "ML" Engine Oil

Service typical of gasoline and other spark ignition engines operating under light and favorable service conditions, the engines having no design characteristics sensitive to deposit formation.

Service "MM" Engine Oil

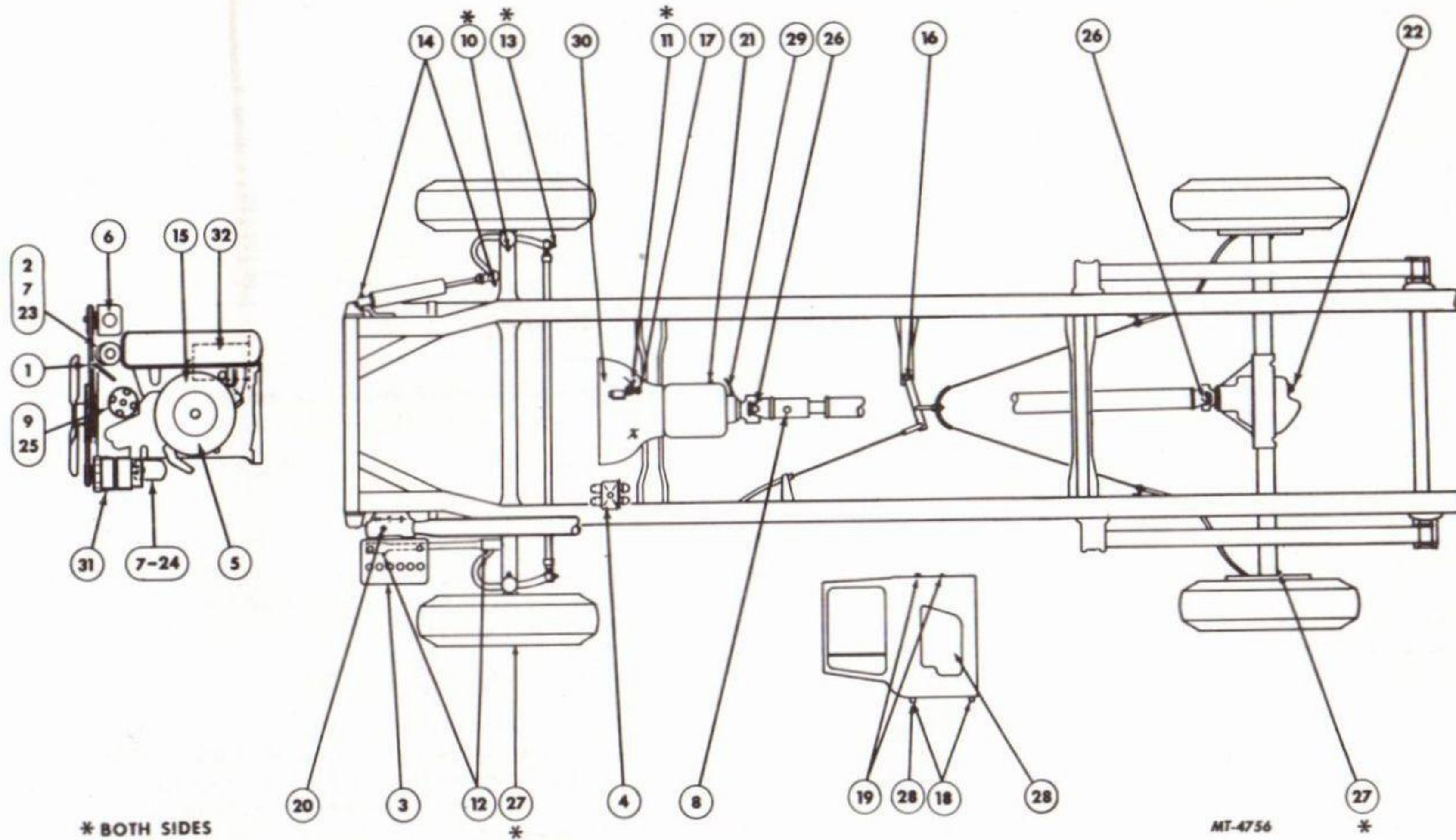
Service typical of gasoline and other spark ignition engines operating under moderate to severe service conditions, but presenting problems of deposit or bearing corrosion control when crankcase oil temperatures are high.

Service "MS" Engine Oil

Service typical of gasoline or other spark ignition engines operating under unfavorable or severe types of service conditions, and where there are special lubrication requirements for deposit or bearing corrosion control due to operating conditions or to fuel or engine design characteristics.

LUBRICATION DIAGRAM

C-900



LUBRICATION INSTRUCTIONS

C-900

Daily

1. Engine: Crankcase oil level must be maintained between "Add" and "Full" marks on dipstick. Select oil viscosity grades from chart below.

TEMPERATURE	OIL VISCOSITY GRADE	MULTI-VISCOSITY OIL GRADE
* 32° F and up	SAE-30	-----
10° F to 32° F	SAE-20W	SAE-10W-30
-10° F to 10° F	SAE-10W	SAE-10W-30
Below -10° F	-----	SAE- 5W-20
Use "MS" or "MS-S1" Heavy Duty oils having a quality which equals or exceeds the MIL-L-2104A specification.		

* Hot Climate, High Speed. For vehicles operating on the highway or other services demanding sustained higher engine speeds, use engine lubricating oil having a viscosity of SAE-30.

As Required

2. Oil Filler (Breather Cap): Submerge cap in cleaning solvent, dry thoroughly. Oil mesh element liberally with SAE-30 engine oil. Shake excess oil from cap before installation.
3. Battery: Add distilled water to indicator level. Do not overfill.
4. Clutch and Brake Master Cylinder: Fill 3/4" from top of reservoir. Use heavy duty brake fluid.
5. Air Cleaner (Engine): (Oil Bath) Remove air cleaner from engine every 5,000 miles or 150 hours. Remove cover or sump and wash mesh element and sump in cleaning solvent or kerosene and dry with compressed air. Refill sump to oil level mark and oil mesh element freely with engine oil of same viscosity used in crankcase. Allow excess oil to drip from element before installation.
- NOTE: For vehicles operating in dusty areas, the air cleaner should be cleaned more often. Under extreme dusty conditions cleaning once a day may be necessary.

LUBRICATION INSTRUCTIONS

C-900

As Required - Continued

6. Power Steering Pump Reservoir: Keep reservoir filled to oil level mark with SAE-10W "MS" engine oil. DO NOT OVERFILL. Check level with engine at normal operating temperature.

1,000 to 2,000 Miles or 30 to 60 Hours

7. Engine Crankcase and Oil Filter: At first 1,000 miles (30 hours) or at the 45-day inspection period, drain engine break-in oil and replace filter element. Refill crankcase using proper viscosity oil selected from chart.
8. Propeller Shaft Slip Joint: Remove plug and install lubricator fitting. Under low pressure, force small amount of viscous chassis lubricant into joint. Excessive pressure and lubrication will damage oil seals. Reinstall plug.

9. Distributor Reservoir: Fill with SAE-20W engine oil until oil cup remains full.

- | | | |
|---|---|---|
| 10. Steering Knuckles: | } | Lubricate through fittings until old lubricant, dirt and water are expelled. Use viscous chassis lubricant. Do not overlubricate clutch release fork shaft as lubricant will reach clutch facings. <u>NOTE:</u> Tie rod ends without fittings require no lubrication. |
| 11. Clutch Release Fork Shaft: | | |
| 12. Drag Link: | | |
| 13. Tie Rod Ends: | | |
| 14. Power Steering Cylinder Ball Sockets: | } | Lubricate linkage, clevis pins, pivot pins and sliding surfaces with light engine oil. |
| 15. Accelerator Linkage: | | |
| 16. Parking Brake Linkage: | | |
| 17. Clutch Slave Cylinder Yoke Pin: | | |
| 18. Door Hinges: | } | Lubricate with stick lubricant. |
| 19. Door Latch and Striker Plate: | | |

20. Steering Gear: Keep filled to plug level. Use SAE-90 multi-purpose type gear lubricant.
21. Transmission (Standard): Keep filled to plug level. Drain and flush twice each year or every 10,000 miles. Use straight mineral oil SAE-90 for temperatures 0°F and up. Use SAE-80 for temperatures below 0°F.

SPECIAL RECOMMENDATIONS: Where temperature is consistently below 0°F and where parked vehicles are exposed to unusual cold for long periods use SAE-75. Where temperatures are consistently above 90°F (unusually hot), use SAE-140 straight mineral oil.

LUBRICATION INSTRUCTIONS

C-900

1,000 to 2,000 Miles or 30 to 60 Hours - Continued

22. Rear Axle:

Keep filled to plug level. Drain and flush twice each year or every 10,000 miles. Use either a SCL extreme pressure lubricant or a multi-purpose gear lubricant suitable for hypoid axles and supplied by a reputable refinery. Viscosity of the lubricant should be SAE-90 for atmospheric temperatures below 40° F. For temperatures above 40° F, use SAE-140.

Hood Latch and Linkage:
(Not shown on diagram)

Coat latch liberally with lubricant comparable to "Lubriplate 110" and oil linkage with light engine oil.

3,000 to 4,000 Miles or 90 to 120 Hours

23. Engine Crankcase:

Drain and refill (engine hot). NOTE: More frequent oil changes are required depending upon the rate of oil contamination caused by extreme dusty conditions, multi-stop and cold weather operation. Select oil viscosity grades from chart.

24. Oil Filter - Engine:

Remove oil filter body and element. Clean inside of filter body and install new element. Operate engine a few minutes and check filter for leaks. NOTE: More frequent element changes are required depending on the rate of oil contamination caused by extreme duty conditions, multi-stop and cold weather operation.

3,000 to 5,000 Miles or 90 to 150 Hours

25. Distributor Breaker Lever Pivot Pin:
Distributor Shaft Breaker Lever Cam:

Place one drop of SAE-10W engine oil on pin. Remove excess oil. Apply a light coat of cam and ball bearing lubricant to shaft cam.

26. Propeller Shaft Universal Joints:

Joints without fitting. Remove plug and install lubricator fitting. Lubricate under low pressure. Use SAE-140 gear oil. IMPORTANT: Too much pressure will damage oil seals. Reinstall plug.

LUBRICATION INSTRUCTIONS

C-900

10,000 to 20,000 Miles or 300 to 600 Hours

27. Wheel Bearings, Front and Rear:

Clean and inspect bearings and wheel hubs. Repack with short fiber wheel bearing grease. Adjust bearings. For rear wheel inner bearings, remove plug and inject one ounce of lubricant (use short fiber wheel bearing grease). NOTE: Premium wheel bearing greases are available and if used will considerably extend the lubrication intervals.

Door Lock Cylinders:
(Not shown on diagram)

Twice each year or every 20,000 miles inject 3 or 4 drops of lock oil through keyhole.

15,000 to 20,000 Miles or 450 to 600 Hours

28. Window Regulator and Door Check:

Lubricate Regulator Gear Teeth, Pin, Slide and Door Check with lubricant comparable to "Lubriplate 110".

29. Speedometer Cable:

Apply a thin coat of graphite-impregnated non-hardening grease evenly over the cable core.

Seat Adjuster Slides:
(Not shown on diagram)

Clean and lubricate with lubricant comparable to "Lubriplate 110".

30. Clutch Release Sleeve, Bearing and Fork:

Remove flywheel housing cover (under chassis) and lubricate sleeve and bearing under low pressure. Completely fill the sleeve cavity with lubricant through the lubricator fitting. Rotate the bearing to four 90° positions when lubricating the sleeve. Pack lubricant between the release fork and contact pade on the sleeve. Use short fiber wheel bearing grease. Do not over-lubricate. Lubricate every 15,000 to 20,000 miles under normal operating conditions. Under unusual "stop-and-go" driving conditions lubricate every 10,000 miles.

At Reassembly or Overhaul

31. Alternator:

Bearings are pre-lubricated, no periodic lubrication required. At reassembly or overhaul, fill drive end bearing reservoir one-quarter full with cam and ball bearing lubricant.

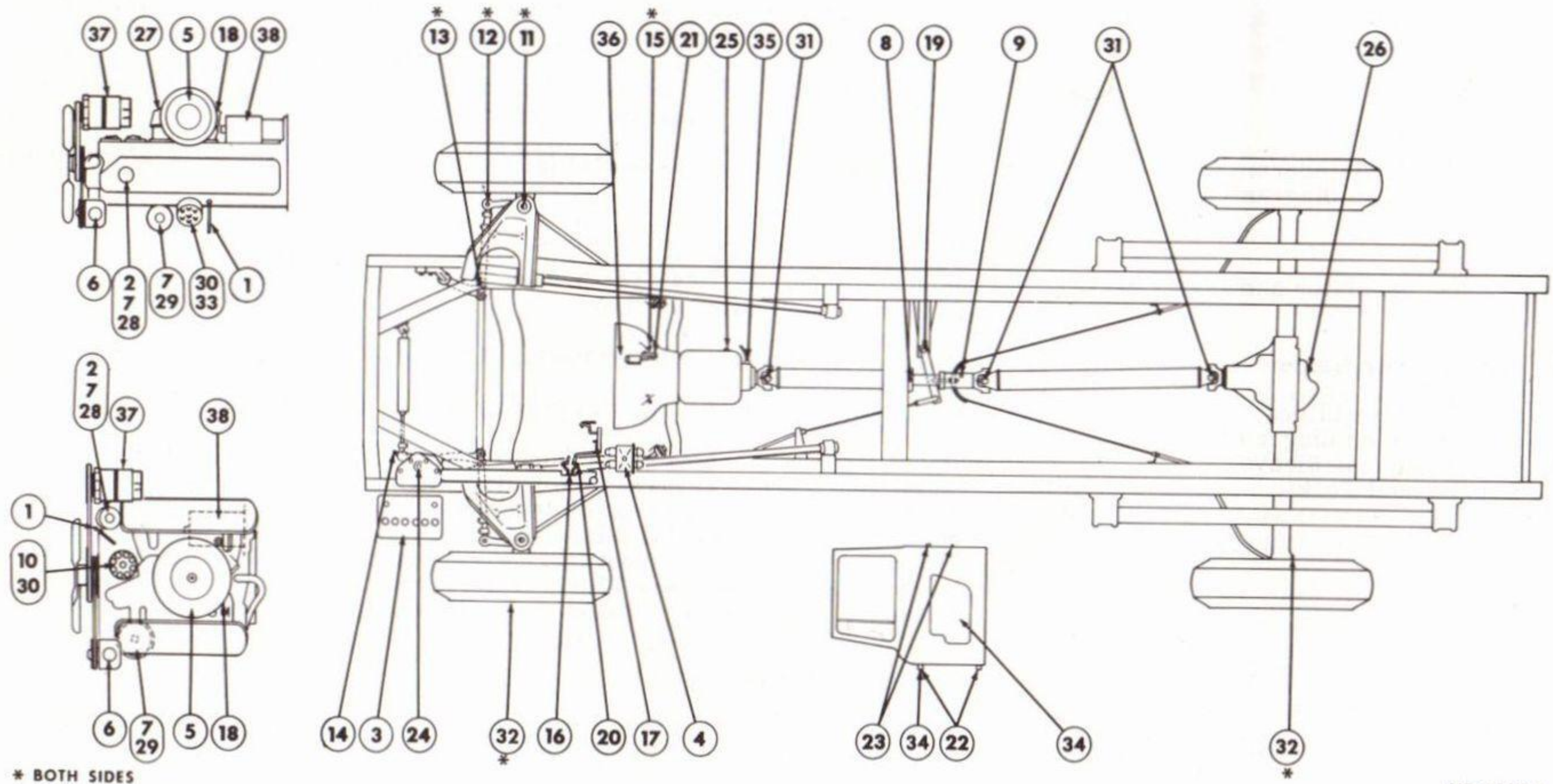
32. Starting Motor:

Lubricate bushings with SAE-30 engine oil.

Lubrication periods provide an excellent opportunity to inspect and check for maintenance service that may be needed. Early attention to minor service needs at this inspection will usually prevent serious breakdown later.

LUBRICATION DIAGRAM

C-1000 SERIES



MT-3088A

LUBRICATION INSTRUCTIONS

C-1000 SERIES

Daily

1. **Engine:** Crankcase oil level must be maintained between "Add" and "Full" marks on dipstick. Select oil viscosity grades from chart below.

TEMPERATURE	OIL VISCOSITY GRADE	MULTI-VISCOSITY OIL GRADE
* 32° F and up	SAE-30	-----
10° F to 32° F	SAE-20W	SAE-10W-30
-10° F to 10° F	SAE-10W	SAE-10W-30
Below -10° F	-----	SAE- 5W-20
Use "MS" or "MS-S1" Heavy Duty oils having a quality which equals or exceeds the MIL-L-2104A specification.		

* Hot Climate, High Speed. For vehicles operating on the highway or other services demanding sustained higher engine speeds, use engine lubricating oil having viscosity of SAE-30.

As Required

2. **Oil Filler (Breather Cap):** Submerge cap in cleaning solvent, dry thoroughly. Oil mesh element liberally with SAE-30 engine oil. Shake excess oil from cap before installation.
3. **Battery:** Add distilled water to indicator level. Do not overfill.
4. **Clutch and Brake Master Cylinder:** Fill 3/4" from top of reservoir. Use heavy duty brake fluid.
- Vacuum Power Brake Hydraulic Cylinder:** Fill 3/4" from top of filler neck. Use heavy duty brake fluid.
- Vacuum Power Brake Cylinder Air Cleaner (Felt Type):** Remove air cleaner element (felt) every 25,000 miles or 750 hours. Wash element in cleaning solvent. Dry thoroughly before installation. NOTE: For vehicles operating in dusty areas, the air cleaner should be cleaned more often.

LUBRICATION INSTRUCTIONS

C-1000 SERIES

As Required - Continued

5. Air Cleaner (Engine):
(Oil Bath) Remove air cleaner from engine every 5,000 miles or 150 hours. Remove cover or sump and wash mesh element and sump in cleaning solvent or kerosene and dry with compressed air. Refill sump to oil level mark and oil mesh element freely with engine oil of same viscosity used in crankcase. Allow excess oil to drip from element before installation.
NOTE: For trucks operating in dusty areas, the air cleaner should be cleaned more often. Under extreme dusty conditions, cleaning once a day may be necessary.
6. Power Steering
Pump Reservoir: Keep reservoir filled to oil level mark with SAE-10W "MS" engine oil. DO NOT OVERFILL. Check level with engine at normal operating temperature.

1,000 to 2,000 Miles or 30 to 60 Hours

7. Engine Crankcase
and Oil Filter: At first 1,000 miles (30 hours) or at the 45-day inspection period, drain engine break-in oil and replace filter element. Refill crankcase using proper viscosity oil selected from above chart.
8. Propeller Shaft Center
Bearing: Lubricate sparingly under low pressure with viscous chassis lubricant. Excessive pressure and lubrication will damage oil seals.
9. Propeller Shaft
Slip Joint: Remove plug and install lubricator fitting. Under low pressure, force small amount of viscous chassis lubricant into joint. Excessive pressure and lubrication will damage oil seals. Reinstall plug.
10. Distributor Reservoir:
(V-266, 304 Engine) Fill with SAE-20W engine oil until cup remains full.
11. Steering Knuckle Ball Joints
(Upper and Lower):)
12. Steering Link Ends:)
13. Tie Rod Ends:)
14. Power Steering Cylinder Ball Sockets:)
15. Clutch Release Fork Shaft:)
16. Transmission Shift Lever:)
17. Transmission Shift Relay Bracket:)
- Lubricate through fittings until old lubricant, dirt and water are expelled. Use viscous chassis lubricant. Do not overlubricate clutch release fork shaft as lubricant will reach clutch facings. NOTE: Tie rod ends without fittings require no lubrication.

LUBRICATION INSTRUCTIONS

C-1000 SERIES

1,000 to 2,000 Miles or 30 to 60 Hours - Continued

- | | | |
|--|--|--|
| 18. Accelerator Linkage: | } | Lubricate linkage, clevis pins, pivot pins and sliding surfaces with light engine oil. |
| 19. Parking Brake Linkage: | | |
| 20. Transmission Shift Linkage: | | |
| 21. Clutch Slave Cylinder Yoke Pin: | | |
| 22. Door Hinges: | | |
| 23. Door Latch and Striker Plate: |) | Lubricate with stick lubricant. |
| | | |
| 24. Steering Gear: | Keep filled to plug level. Use SAE-90 multi-purpose type gear lubricant. | |
| 25. Transmission (Standard): | Keep filled to plug level. Drain and flush twice each year or every 10,000 miles. Use straight mineral oil SAE-90 for temperatures 0° F and up. Use SAE-80 for temperatures below 0° F. (Fill overdrive unit before filling main transmission.) | |
| Transmission (Overdrive): | | |
| | | |
| <u>SPECIAL RECOMMENDATIONS:</u> Where temperature is consistently below 0° F and where parked vehicles are exposed to unusual cold for long periods use SAE-75. Where temperatures are consistently above 90° F (unusually hot), use SAE-140 straight mineral oil. | | |
| Transmission (Automatic): | Keep filled to "Full" mark on dipstick with Type "A" automatic transmission fluid. | |
| | <u>NOTE:</u> Do not overfill. Refer to "Fluid Checking and Changing Period" instructions in Automatic Transmission Section. | |
| | | |
| 26. Rear Axle: | Keep filled to plug level. Drain and flush twice each year or every 10,000 miles. Use either a SCL extreme pressure lubricant or a multi-purpose gear lubricant suitable for hypoid axles and supplied by a reputable refinery. Viscosity of the lubricant should be SAE-90 for atmospheric temperatures below 40° F. For temperatures above 40° F, use SAE-140. | |
| | | |
| 27. Manifold Heat Control Valve:
(BG-241 Engine) | Lubricate shaft liberally with penetrating oil. Valve shaft must operate freely in manifold. | |
| Hood Latch and Linkage:
(Not shown on diagram) | Coat latch liberally with lubricant comparable to "Lubriplate 110" and oil linkage with light engine oil. | |

LUBRICATION INSTRUCTIONS

C-1000 SERIES

3,000 to 4,000 Miles or 90 to 120 Hours

28. Engine Crankcase: Drain and refill (engine hot). NOTE: More frequent oil changes are required depending upon the rate of oil contamination caused by extreme dusty conditions, multi-stop and cold weather operation. Select oil viscosity grades from chart.
29. Oil Filter-Engine: Remove oil filter body and element. Clean inside of filter body and install new element. Operate engine a few minutes and check filter for leaks. NOTE: More frequent element changes are required depending on the rate of oil contamination caused by extreme dusty conditions, multi-stop and cold weather operation.

3,000 to 5,000 Miles or 90 to 150 Hours

30. Distributor Shaft Felt (Under Rotor): Remove rotor and place three or four drops of SAE-10W engine oil on felt.
(BG-241 Engines)
Distributor Breaker Lever Pivot Pin: Place one drop of SAE-10W engine oil on pin. Remove excess oil.
Distributor Shaft Breaker Lever Cam: Apply a light coat of cam and ball bearing lubricant to shaft cam.
Tachometer Drive Gears (In Distributor Housing) (V-304 Engines): Fill with chassis lubricant through fitting until lubricant is expelled from relief hole in distributor housing.
31. Propeller Shaft Universal Joints: Joints without fitting. Remove plug and install lubricator fitting. Lubricate under low pressure. Use SAE-140 gear oil. NOTE: Too much pressure will damage oil seals. Reinstall plug.

10,000 to 20,000 Miles or 300 to 600 Hours

32. Wheel Bearings, Front and Rear: Clean and inspect bearings and wheel hubs. Repack with short fiber wheel bearing grease. Adjust bearings. For rear wheel inner bearings, remove plug and inject one ounce of lubricant (use short fiber wheel bearing grease). NOTE: Premium wheel bearing greases are available and if used will considerably extend the lubrication intervals.

LUBRICATION INSTRUCTIONS

C-1000 SERIES

10,000 to 20,000 Miles or 300 to 600 Hours - Continued

33. Distributor Reservoir:
(BG-241 Engines)

Remove plug every 10,000 miles and fill with SAE-20W engine oil until reservoir remains full. Coat plug threads with non-hardening sealer, and re-install. NOTE: More frequent refilling is required when unusual heat or other operating conditions are experienced.

Door Lock Cylinders:
(Not shown on diagram)

Twice each year or every 20,000 miles inject 3 or 4 drops of lock oil through keyhole.

15,000 to 20,000 Miles or 450 to 600 Hours

34. Window Regulator and Door Check:

Lubricate Regulator Gear Teeth, Pin, Slide and Door Check with lubricant comparable to "Lubriplate 110".

35. Speedometer Cable:

Apply a thin coat of graphite-impregnated non-hardening grease evenly over the cable core.

Seat Adjuster Slides:
(Not shown on diagram)

Clean and lubricate with lubricant comparable to "Lubriplate 110".

36. Clutch Release Sleeve,
Bearing and Fork:

Remove flywheel housing cover (under chassis) and lubricate sleeve and bearing under low pressure. Completely fill the sleeve cavity with lubricant through the lubricator fitting. Rotate the bearing to four 90° positions when lubricating the sleeve. Pack lubricant between the release fork and contact pads on the sleeve. Use short fiber wheel bearing grease. Do not over-lubricate. Lubricate every 15,000 to 20,000 miles under normal operating conditions. Under unusual "stop-and-go" driving conditions, lubricate every 10,000 miles.

At Reassembly or Overhaul

37. Alternator:

Bearings are pre-lubricated, no periodic lubrication required. At reassembly or overhaul, fill drive end bearing reservoir one-quarter full with cam and ball bearing lubricant.

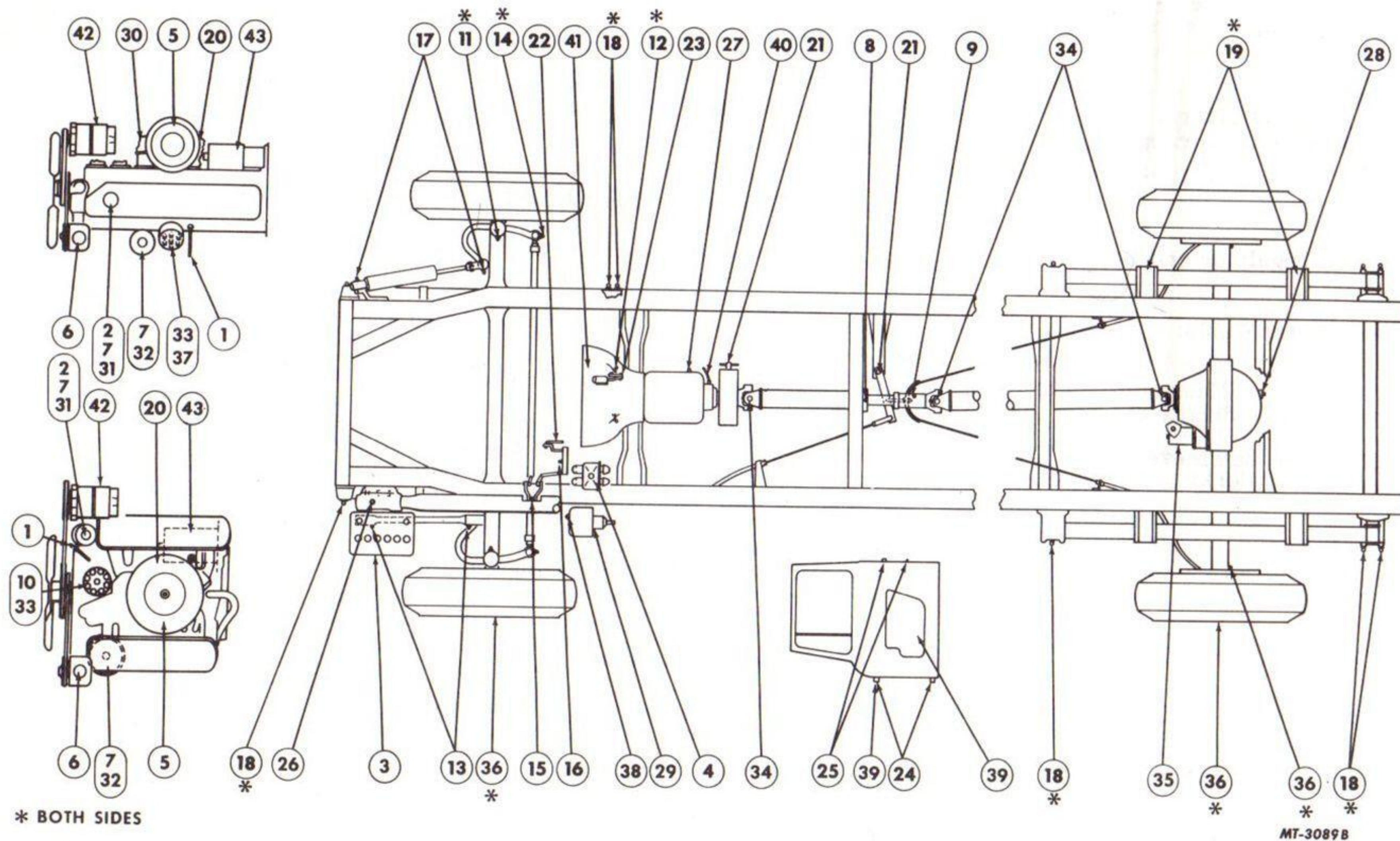
38. Starting Motor:

Lubricate bushings with SAE-30 engine oil.

Lubrication periods provide an excellent opportunity to inspect and check for maintenance service that may be needed. Early attention to minor service needs at this inspection will usually prevent serious breakdown later.

LUBRICATION DIAGRAM

C-1100, C-1200, C-1300, C-1500 SERIES



LUBRICATION INSTRUCTIONS

C-1100, C-1200, C-1300, C-1500 SERIES

Daily

1. Engine: Crankcase oil level must be maintained between "Add" and "Full" marks on dipstick. Select oil viscosity grades from chart below.

TEMPERATURE	OIL VISCOSITY GRADE	MULTI-VISCOSITY OIL GRADE
* 32° F and up	SAE-30	-----
10° F to 32° F	SAE-20W	SAE-10W-30
-10° F to 10° F	SAE-10W	SAE-10W-30
Below -10° F	-----	SAE- 5W-20
Use "MS" or "MS-S1" Heavy Duty oils having a quality which equals or exceeds the MIL-L-2104A specification.		

- * Hot Climate, High Speed. For vehicles operating on the highway or other services demanding sustained higher engine speeds, use engine lubricating oil having a viscosity of SAE-30.

As Required

2. Oil Filler (Breather Cap): Submerge cap in cleaning solvent, dry thoroughly. Oil mesh element liberally with SAE-30 engine oil. Shake excess oil from cap before installation.
3. Battery: Add distilled water to indicator level. Do not overfill.
4. Clutch and Brake Master Cylinder: Fill 3/4" from top of reservoir. Use heavy duty brake fluid.
- Vacuum Power Brake Hydraulic Cylinder: Fill 3/4" from top of filler neck. Use heavy duty brake fluid.
- (C-1100 only)
- Vacuum Power Brake Cylinder Air Cleaner (Felt Type): Remove air cleaner element (felt) every 25,000 miles or 750 hours. Wash element in cleaning solvent. Dry thoroughly before installation. NOTE: For vehicles operating in dusty areas, the air cleaner should be cleaned more often.
- (C-1100 only)

LUBRICATION INSTRUCTIONS

C-1100, C-1200, C-1300, C-1500 SERIES

As Required - Continued

5. Air Cleaner (Engine):
(Oil Bath)

Remove air cleaner from engine every 5,000 miles or 150 hours. Remove cover or sump and wash mesh element and sump in cleaning solvent or kerosene and dry with compressed air. Refill sump to oil level mark and oil mesh element freely with engine oil of same viscosity used in crankcase. Allow excess oil to drip from element before installation.

NOTE: For vehicles operating in dusty areas, the air cleaner should be cleaned more often. Under extreme dusty conditions cleaning once a day may be necessary.

6. Power Steering
Pump Reservoir:

Keep reservoir filled to oil level mark with SAE-10W "MS" engine oil. DO NOT OVERFILL. Check level with engine at normal operating temperature.

1,000 to 2,000 Miles or 30 to 60 Hours

7. Engine Crankcase
and Oil Filter:

At first 1,000 miles (30 hours) or at the 45-day inspection period, drain engine break-in oil and replace filter element. Refill crankcase using proper viscosity oil selected from above chart.

8. Propeller Shaft
Center Bearing:

Lubricate sparingly under low pressure with short fiber wheel bearing grease. Excessive pressure and lubrication will damage oil seals.

9. Propeller Shaft
Slip Joint:

Remove plug and install lubricator fitting. Under low pressure, force small amount of viscous chassis lubricant into joint. Excessive pressure and lubrication will damage oil seals. Reinstall plug.

10. Distributor Reservoir:
(V-266, 304 Engine)

Fill with SAE-20W engine oil until oil cup remains full.

11. Steering Knuckles:

12. Clutch Release Fork Shaft:

13. Drag Link:

14. Tie Rod Ends:

15. Transmission Shift Lever:

16. Transmission Shift Relay Bracket:

17. Power Steering Cylinder Ball Sockets:

18. Spring Pins:

(C-1500 only)

} Lubricate through fittings until old lubricant, dirt and water are expelled. Use viscous chassis lubricant. Do not overlubricate clutch release fork shaft as lubricant will reach clutch facings. NOTE: Tie rod ends without fittings require no lubrication.

LUBRICATION INSTRUCTIONS

C-1100, C-1200, C-1300, C-1500 SERIES

1,000 to 2,000 Miles or 30 to 60 Hours - Continued

- | | | |
|--|---|--|
| 19. Auxiliary Springs: |) | Apply coating of chassis lubricant at spring pads. |
| 20. Accelerator Linkage: |) | |
| 21. Parking Brake Linkage: |) | Lubricate linkage, clevis pins, pivot pins and sliding surfaces with light |
| 22. Transmission Shift Linkage: |) | engine oil. |
| 23. Clutch Slave Cylinder Yoke Pin: |) | |
| 24. Door Hinges: |) | |
| 25. Door Latch and Striker Plate: |) | Lubricate with stick lubricant. |
| | | |
| 26. Steering Gear: | | Keep filled to plug level. Use SAE-90 multi-purpose type gear lubricant. |
| 27. Transmission (Standard): | | Keep filled to plug level. Drain and flush twice each year or every 10,000 miles. Use |
| Transmission (Overdrive): | | straight mineral oil SAE-90 for temperatures 0° F and up. Use SAE-80 for temperatures below 0° F. (Fill overdrive unit before filling main transmission.) |
| | | |
| <u>SPECIAL RECOMMENDATIONS:</u> Where temperature is consistently below 0° F and where parked vehicles are exposed to unusual cold for long periods use SAE-75. Where temperatures are consistently above 90° F (unusually hot), use SAE-140 straight mineral oil. | | |
| | | |
| Transmission (Automatic): | | Keep filled to "Full" mark on dipstick with Type "A" Automatic transmission fluid. |
| | | <u>NOTE:</u> Do not overfill. Refer to "Fluid Checking and Changing Period" instructions in Automatic Transmission Section. |
| | | |
| 28. Rear Axle: | | Keep filled to plug level. Drain and flush twice each year or every 10,000 miles. Use either a SCL extreme pressure lubricant or a multi-purpose gear lubricant suitable for hypoid axles and supplied by a reputable refinery. Viscosity of the lubricant should be SAE-90 for atmospheric temperatures below 40° F. For temperatures above 40° F, use SAE-140. |
| | | |
| 29. Vacuum Power Brake Cylinder Air Cleaner (Hair Type): | | Replace with new hair or wash old hair in cleaning solvent. Dip hair in SAE-30 engine oil. Shake excess oil from hair. |
| | | |
| 30. Manifold Heat Control Valve:
(BG-241 Engine) | | Lubricate shaft liberally with penetrating oil. Valve shaft must operate freely in manifold. |
| Hood Latch and Linkage:
(Not shown on diagram) | | Coat latch liberally with lubricant comparable to "Lubriplate 110" and oil linkage with light engine oil. |

LUBRICATION INSTRUCTIONS
C-1100, C-1200, C-1300, C-1500 SERIES
3,000 to 4,000 Miles or 90 to 120 Hours

31. Engine Crankcase: Drain and refill (engine hot). NOTE: More frequent oil changes are required depending upon the rate of oil contamination caused by extreme dusty conditions, multi-stop and cold weather operation. Select oil viscosity grades from chart.
32. Oil Filter-Engine: Remove oil filter body and element. Clean inside of filter body and install new element. Operate engine a few minutes and check filter for leaks. NOTE: More frequent element changes are required depending on the rate of oil contamination caused by extreme dusty conditions, multi-stop and cold weather operation.

3,000 to 5,000 Miles or 90 to 150 Hours

33. Distributor Shaft Felt (Under Rotor): Remove rotor and place three or four drops of SAE-10W engine oil on felt.
(BG-241 Engines)
Distributor Breaker Lever Pivot Pin: Place one drop of SAE-10W engine oil on pin. Remove excess oil.
Distributor Shaft Breaker Lever Cam: Apply a light coat of cam and ball bearing lubricant to shaft cam.
Tachometer Drive Gears (In Distributor Housing) (V-304 Engine): Fill with chassis lubricant through fitting until lubricant is expelled from relief hole in distributor housing.
34. Propeller Shaft Universal Joints: Joints without fitting. Remove plug and install lubricator fitting. Lubricate under low pressure. Use SAE-140 gear oil. NOTE: Too much pressure will damage oil seals. Reinstall plug.
35. Electric Shift Motor (Two-Speed Axle): Keep filled to plug level. Twice each year remove cover drain and flush. Use SAE-10 engine oil for temperatures 0° F. and up. For temperatures below 0° F. use three parts SAE-10 engine oil to one part kerosene. This mixture can safely be used in temperatures up to 32° F.

10,000 to 20,000 Miles or 300 to 600 Hours

36. Wheel Bearings, Front and Rear: Clean and inspect bearings and wheel hubs. Repack with short fiber wheel bearing grease. Adjust bearings. For C-1100, 1120 rear wheel inner bearings, remove plug and inject one ounce of lubricant (use short fiber wheel bearing grease). NOTE: Premium wheel bearing greases are available and if used will considerably extend the lubrication intervals.

LUBRICATION INSTRUCTIONS

C-1100, C-1200, C-1300, C-1500 SERIES

10,000 to 20,000 Miles or 300 to 600 Hours - Continued

37. Distributor Reservoir:
(BG-241 Engines)

Remove plug every 10,000 miles and fill with SAE-20W engine oil until reservoir remains full. Coat plug threads with non-hardening sealer and re-install. NOTE: More frequent refilling is required when unusual heat or other operating conditions are experienced.

Door Lock Cylinders:
(Not shown on diagram)

Twice each year or every 20,000 miles inject 3 or 4 drops of lock oil through keyhole.

15,000 to 20,000 Miles or 450 to 600 Hours

38. Vacuum Power Brake Cylinder:
(C-1200, C-1300, C-1500)

Lubricate when installation is made and every 20,000 miles thereafter (preferably before cold weather sets in). Remove pipe plug (in air inlet end of cylinder) when lubricating. Keep filled to plug level with vacuum cylinder oil.

39. Window Regulator and Door Check:

Lubricate Regulator Gear Teeth, Pin, Slide and Door Check with lubricant comparable to "Lubriplate 110".

40. Speedometer Cable:

Apply a thin coat of graphite-impregnated non-hardening grease evenly over the cable core.

Seat Adjuster Slides:
(Not shown on diagram)

Clean and lubricate with lubricant comparable to "Lubriplate 110".

41. Clutch Release Sleeve,
Bearing and Fork:

Remove flywheel housing cover (under chassis) and lubricate sleeve and bearing under low pressure. Completely fill the sleeve cavity with lubricant through the lubricator fitting. Rotate the bearing to four 90° positions when lubricating the sleeve. Pack lubricant between the release fork and contact pads on the sleeve. Use short fiber wheel bearing grease. Do not over-lubricate. Lubricate every 15,000 to 20,000 miles under normal operating conditions. Under unusual "stop-and-go" driving conditions, lubricate every 10,000 miles.

LUBRICATION INSTRUCTIONS

C-1100, C-1200, C-1300, C-1500 SERIES

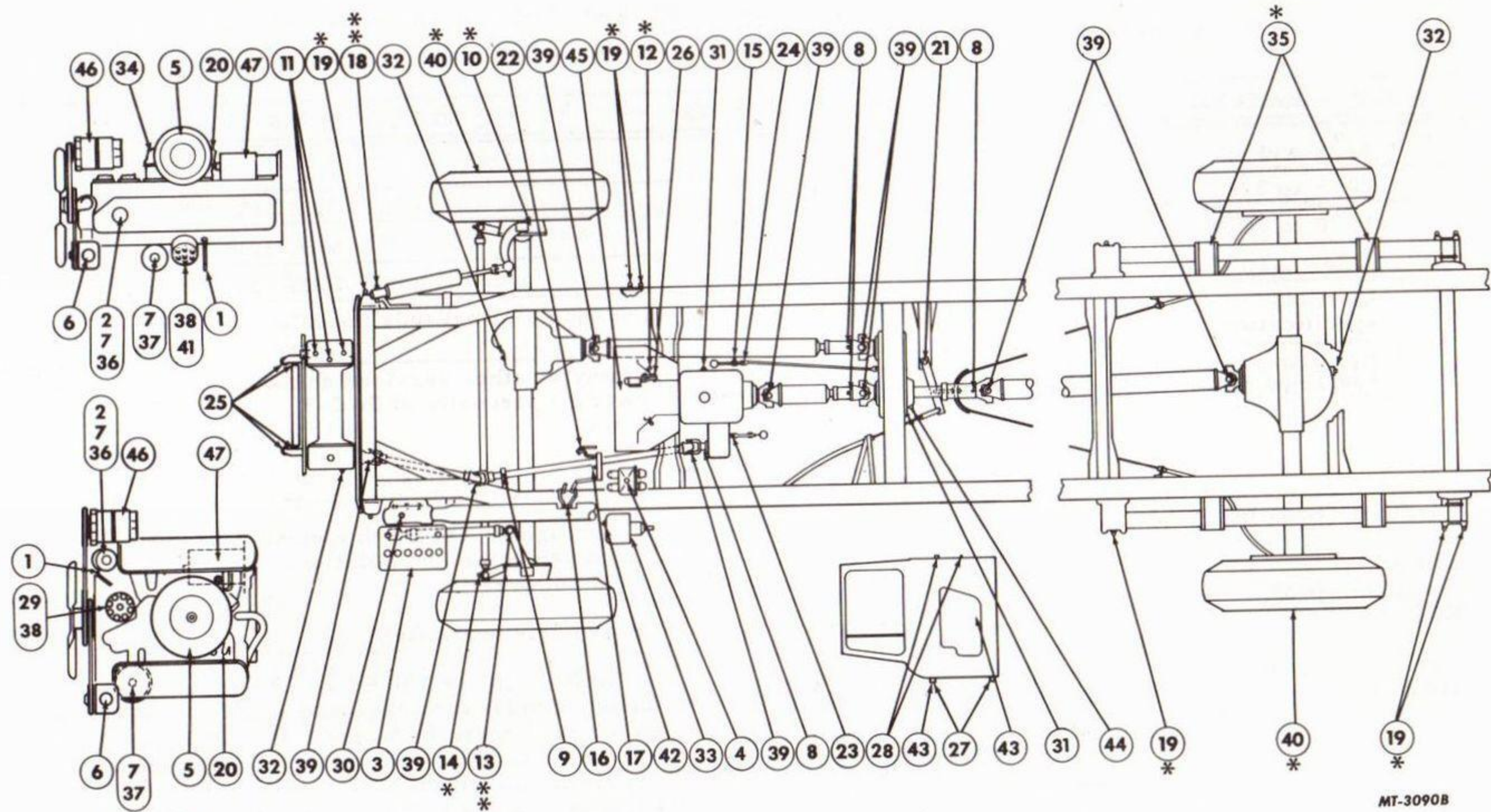
At Reassembly or Overhaul

42. Alternator: Bearings are pre-lubricated, no periodic lubrication required. At reassembly or overhaul, fill drive end bearing reservoir one-quarter full with cam and ball bearing lubricant.
43. Starting Motor: Lubricate bushings with SAE-30 engine oil.

Lubrication periods provide an excellent opportunity to inspect and check for maintenance service that may be needed. Early attention to minor service needs at this inspection will usually prevent serious breakdown later.

LUBRICATION DIAGRAM

C-1200-4x4, C-1300-4x4 SERIES



LUBRICATION INSTRUCTIONS

C-1200-4x4, C-1300-4x4 SERIES

Daily

1. Engine: Crankcase oil level must be maintained between "Add" and "Full" marks on dipstick. Select oil viscosity grades from chart below.

TEMPERATURE	OIL VISCOSITY GRADE	MULTI-VISCOSITY OIL GRADE
* 32° F and up	SAE-30	-----
10° F to 32° F	SAE-20W	SAE-10W-30
-10° F to 10° F	SAE-10W	SAE-10W-30
Below -10° F	-----	SAE- 5W-20
Use "MS" or "MS-S1" Heavy Duty oils having a quality which equals or exceeds the MIL-L-2104A specification.		

* Hot Climate, High Speed. For vehicles operating on the highway or other services demanding sustained higher engine speeds, use engine lubricating oil having a viscosity of SAE-30.

As Required

2. Oil Filler (Breather Cap): Submerge cap in cleaning solvent, dry thoroughly. Oil mesh element liberally with SAE-30 engine oil. Shake excess oil from cap before installation.
3. Battery: Add distilled water to indicator level. Do not overfill.
4. Clutch and Brake Master Cylinder: Fill 3/4" from top of reservoir. Use heavy duty brake fluid.
5. Air Cleaner (Engine):
(Oil Bath) Remove air cleaner from engine every 5,000 miles or 150 hours. Remove cover or sump and wash mesh element and sump in cleaning solvent or kerosene and dry with compressed air. Refill sump to oil level mark and oil mesh element freely with engine oil of same viscosity used in crankcase. Allow excess oil to drip from element before installation.
NOTE: For vehicles operating in dusty areas, the air cleaner should be cleaned more often. Under extreme dusty conditions, cleaning once a day may be necessary.
6. Power Steering Pump Reservoir: Keep reservoir filled to oil level mark with SAE-10W "MS" engine oil. DO NOT OVERFILL. Check level with engine at normal operating temperature.

LUBRICATION INSTRUCTIONS

C-1200-4x4, C-1300-4x4 SERIES

1,000 to 2,000 Miles or 30 to 60 Hours

- | | |
|---|---|
| 7. Engine Crankcase and Oil Filter: | At first 1,000 miles (30 hours) or at the 45-day inspection period, drain the engine break-in oil and replace filter element. Refill crankcase using proper viscosity oil selected from above chart. |
| 8. Propeller Shaft Slip Joint: | Remove plug and install lubricator fitting. Under low pressure, force small amount of viscous chassis lubricant into joint. Excessive pressure and lubrication will damage oil seals. Reinstall plug. |
| 9. Winch Propeller Shaft Center Bearing: | Lubricate sparingly under low pressure with viscous chassis lubricant. Excessive pressure and lubrication will damage oil seals. |
| 10. Front Axle Drive Joint: | Keep filled to side plug level with viscous chassis lubricant. Fill through side plug opening. |
| 11. Winch: | } Lubricate through fittings until old lubricant, dirt and water are expelled. Use viscous chassis lubricant. Do not overlubricate clutch release fork shaft as lubricant will reach clutch facings. |
| 12. Clutch Release Fork Shaft: | |
| 13. Drag Link: | |
| 14. Tie Rod Ends: | |
| 15. Transfer Case Shift Control: | |
| 16. Transmission Shift Lever: | } Lubricate linkage, clevis pins, pivot pins, and sliding surfaces with light engine oil. |
| 17. Transmission Shift Relay Bracket: | |
| 18. Power Steering Cylinder Ball Sockets: | |
| 19. Spring Pins:
(C-1300-4x4) | |
| 20. Accelerator Linkage: | |
| 21. Parking Brake Linkage: | |
| 22. Transmission Shift Linkage: | |
| 23. Power-Take-Off Shift Linkage: | |
| 24. Transfer Case Shift Linkage: | |
| 25. Winch Rollers: | |
| 26. Clutch Slave Cylinder Yoke Pin: | } Lubricate with stick lubricant. |
| 27. Door Hinges: | |
| 28. Door Latch and Striker Plate: | |
| 29. Distributor Reservoir:
(V-266, 304 Engine) | Fill with SAE-20W engine oil until oil cup remains full. |
| 30. Steering Gear: | Keep filled to plug level. Use SAE-90 multi-purpose type gear lubricant. |

LUBRICATION INSTRUCTIONS

C-1200-4x4, C-1300-4x4 SERIES

1,000 to 2,000 Miles or 30 to 60 Hours - Continued

31. Transmission:
Transfer Case: Keep filled to plug level. Drain and flush twice each year or every 10,000 miles. Use straight mineral oil SAE-90 for temperatures 0° F and up. Use SAE-80 for temperatures below 0° F. SPECIAL RECOMMENDATIONS: Where temperature is consistently below 0° F and where parked vehicles are exposed to unusual cold for long periods, use SAE-75. Where temperatures are consistently above 90° F (unusually hot), use SAE-140 straight mineral oil.
32. Front Axle:
Rear Axle:
Winch: Keep filled to plug level. Drain and flush twice each year or every 10,000 miles. Use either an SCL extreme pressure lubricant or a multi-purpose gear lubricant suitable for hypoid axles and supplied by a reputable refinery. Viscosity of the lubricant (except front axle Code 02015) should be SAE-90 for atmospheric temperatures below 40° F. For temperatures above 40° F, use SAE-140. For front axle Code 02015) use SAE-80 for all atmospheric temperatures.
33. Vacuum Power Brake
Air Cleaner
(Hair Type): Replace with new hair or wash old hair in cleaning solvent. Dip hair in SAE-30 engine oil. Shake excess oil from hair.
34. Manifold Heat Control
Valve:
(BG-241 Engine) Lubricate shaft liberally with penetrating oil. Valve shaft must operate freely in manifold.
35. Auxiliary Springs:
Hood Latch and Linkage:
(Not shown on diagram) Apply a coating of chassis lubricant at spring pads. Coat latch liberally with lubricant comparable with "Lubriplate 110" and oil linkage with light engine oil.

3,000 to 4,000 Miles or 90 to 120 Hours

36. Engine Crankcase: Drain and refill (engine hot). NOTE: More frequent oil changes are required depending upon the rate of oil contamination caused by extreme dusty conditions, multi-stop and cold weather operation. Select oil viscosity grades from chart.
37. Oil Filter-Engine: Remove oil filter body and element. Clean inside of filter body and install new element. Operate engine a few minutes and check filter for leaks. NOTE: More frequent element changes are required depending on the rate of oil contamination caused by extreme dusty conditions, multi-stop and cold weather operation.

LUBRICATION INSTRUCTIONS

C-1200-4x4, C-1300-4x4 SERIES

3,000 to 5,000 Miles or 90 to 150 Hours

38. Distributor Shaft Felt (Under Rotor):
(BG-241 Engines) Remove rotor and place three or four drops of SAE-10W engine oil on felt.
Distributor Breaker Lever Pivot Pin: Place one drop of SAE-10W engine oil on pin. Remove excess oil.
Distributor Shaft Breaker Lever Cam: Apply a light coat of cam and ball bearing lubricant to shaft cam.
Tachometer Drive Gears (In Distributor Housing) (V-304 Engine): Fill with chassis lubricant through fitting until lubricant is expelled from relief hole in distributor housing.
39. Propeller Shaft Universal Joints: Joints without fitting. Remove plug and install lubricator fitting. Lubricate under low pressure. Use SAE-140 gear oil. NOTE: Too much pressure will damage oil seals. Reinstall plug.

10,000 to 20,000 Miles or 300 to 600 Hours

40. Wheel Bearings, Front and Rear: Clean and inspect bearings and wheel hubs. Repack with short fiber wheel bearing grease. Adjust bearings. NOTE: Premium wheel bearing grease is available and if used will considerably extend the lubrication intervals.
41. Distributor Reservoir:
(BG-241 Engines) Remove plug every 10,000 miles and fill with SAE-20W engine oil until reservoir remains full. Coat plug threads with non-hardening sealer and re-install. NOTE: More frequent refilling is required when unusual heat or other operating conditions are experienced.
- Door Lock Cylinders:
(Not shown on diagram) Twice each year or every 20,000 miles inject 3 or 4 drops of lock oil through keyhole.

15,000 to 20,000 Miles or 450 to 600 Hours

42. Vacuum Power Brake Cylinder: Lubricate when installation is made and every 20,000 miles thereafter (preferably before cold weather sets in). Remove pipe plug (in air inlet end of cylinder) when lubricating. Keep filled to plug level with vacuum cylinder oil.
43. Window Regulator and Door Check: Lubricate regulator gear teeth, pin, slide and door check with lubricant comparable to "Lubriplate 110".

LUBRICATION INSTRUCTIONS

C-1200-4x4, C-1300-4x4 SERIES

15,000 to 20,000 Miles or 450 to 600 Hours- Continued

44. Speedometer Cable:

Apply a thin coat of graphite-impregnated non-hardening grease evenly over the cable core.

45. Clutch Release Sleeve,
Bearing and Fork:

Remove flywheel housing cover (under chassis) and lubricate sleeve and bearing under low pressure. Completely fill the sleeve cavity with lubricant through the lubricator fitting. Rotate the bearing to four 90° positions when lubricating the sleeve. Pack lubricant between the release fork and contact pads on the sleeve. Use short fiber wheel bearing grease. Do not over-lubricate. Lubricate every 15,000 to 20,000 miles under normal operating conditions. Under unusual "stop-and-go" driving conditions, lubricate every 10,000 miles.

Seat Adjuster Slides:
(Not shown on diagram)

Clean and lubricate with lubricant comparable to "Lubriplate 110".

At Reassembly or Overhaul

46. Alternator:

Bearings are pre-lubricated, no periodic lubrication required. At reassembly or overhaul, fill drive end bearing reservoir one-quarter full with cam and ball bearing lubricant.

47. Starting Motor:

Lubricate bushings with SAE-30 engine oil.

Lubrication periods provide an excellent opportunity to inspect and check for maintenance service that may be needed. Early attention to minor service needs at this inspection will usually prevent serious breakdown later.

UNIT REFILL CAPACITIES

(U. S. MEASURE)

CRANKCASE

Engine Oil	4-152	4 Quarts
	BG-241 Engines:	6 Quarts
	V-266 Engines	5 Quarts
	V-304 Engine in C-1000 thru C-1300, C-1200-4x4	5 Quarts
	C-1300-4x4	7 Quarts
	C-1500	8 Quarts

NOTE: With Oil Filter Element Change Add One Extra Quart.

AIR CLEANER - ENGINE (OIL BATH)	1 Quart
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COOLING SYSTEM

	CAPACITY (QUARTS)		
	6 Cyl. Eng.	V-266 Eng.	V-304 Eng.
C-1000, C-1100, C-1200, C-1300, C-1500, C-1200-4x4, C-1300-4x4	16	19	20
C-900			12 Quarts

NOTE: Capacities listed above are for standard cooling radiators (vehicle equipped with heater requires 1 additional quart). Vehicles with increased capacity radiator add additional coolant to bring level about one inch below the top of the radiator upper tank.

STEERING GEAR

Model	Code		
S-3	05003	1 lb.	3 oz.
S-3	05203	1 lb.	3 oz.
S-14	05014		13 oz.
S-15	05015	1 lb.	8 oz.
S-19	05219		15 oz.

POWER STEERING SYSTEM	3-1/2 Pints
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UNIT REFILL CAPACITIES

(U.S. MEASURE)

TRANSMISSION

Model	Code	
T-4	13004	2-1/2 Pints
T-7	13007	6 Pints
T-8	13008	3-1/2 Pints
T-13	13013	2-3/4 Pints
T-15	13015	7 Pints
T-16	13016	7 Pints
T-28	13028	10 Quarts

FRONT AXLE (DRIVING)

Model	Code		
FA-15	02015	Drive Joints (each side) 6 Ounces - Differential	4-1/2 Pints
FA-18	02018	Drive Joints (each side) 16 Ounces - Differential	4 Pints
FA-52	02052	Drive Joints (each side) 16 Ounces - Differential	5 Pints

REAR AXLE

Model	Code	Description	
RA-1	14001	Single Reduction	3 Pints
RA-3	14003	Single Reduction (with powr-lok differential)	3 Pints
RA-5	14005	Single Reduction	4 Pints
RA-6	14006	Single Reduction (with powr-lok differential)	4 Pints
RA-10	14010	Single Reduction	4 Pints
RA-11	14011	Single Reduction (with powr-lok differential)	4 Pints
RA-15	14015	Single Reduction	5-1/2 Pints
RA-20	14020	Single Reduction	5-1/2 Pints
RA-120	14120	Two Speed	13 Pints

TRANSFER CASE

Model	Code	
TC-141	13141	6-1/2 Pints

FUEL TANKS

C-900	15 Gallons
C-1000	17 Gallons
C-1000, C-1200, C-1300, C-1200-4x4, C-1300-4x4, C-1500	(Standard) 19 Gallons
Travelall Optional Auxiliary	(Optional) 15 Gallons
	19 Gallons



INTERNATIONAL PARTS, SERVICE AND NECESSORIES

Are available at a nearby dealer or Company-owned parts department and service stations.

Branches and Stores in the United States

Aberdeen, S. Dak.	Brinkley, Ark.	Crookston, Minn.	Gainesville, Ga.	Kansas City, Kans.
Abilene, Tex.	Bronx, N. Y.	Culver City, Calif.	Gardena, Calif.	Kansas City, Mo.
Akron, Ohio	Brooklyn, N. Y.	Dallas, Tex.	Gary, Ind.	Knoxville, Tenn.
Albany, N. Y.	Bryan, Tex.	Danville, Ill.	Glendale, Calif.	Kokomo, Ind.
Albuquerque, N. Mex.	Bucyrus, Ohio	Davenport, Iowa	Grand Forks, N. Dak.	LaFayette, Ind.
Alexandria, La.	Buffalo, N. Y.	Dayton, Ohio	Grand Island, Nebr.	Lansing, Ill.
Allentown, Pa.	Burlington, Vt.	Decatur, Ga.	Grand Rapids, Mich.	Lansing, Mich.
Altoona, Pa.	Burlington, Wis.	Decatur, Ill.	Great Falls, Mont.	Las Cruces, N. Mex.
Amarillo, Tex.	Camden, N. J.	Denver, Colo.	Green Bay, Wis.	Lewiston, Idaho
Atlanta, Ga.	Canton, Ohio	Des Moines, Iowa	Greensboro, N. C.	Lexington, Ky.
Aurora, Ill.	Carlisle, Pa.	Detroit, Mich.	Greenville, S. C.	Liberal, Kans.
Austin, Minn.	Carroll, Iowa	Dubuque, Iowa	Harrisburg, Pa.	Lincoln, Ill.
Austin, Tex.	Carrollton, Mo.	Duluth, Minn.	Hartford, Conn.	Lincoln, Nebr.
Baltimore, Md.	Cedar Falls, Iowa	Eau Claire, Wis.	Hays, Kans.	Little Rock, Ark.
Bangor, Maine	Cedar Rapids, Iowa	Elizabeth, N. J.	Hillsboro, Tex.	Long Beach, Calif.
Baton Rouge, La.	Charleston, S. C.	El Paso, Tex.	Houston, Tex.	Long Island City, N. Y.
Beaumont, Tex.	Charlotte, N. C.	Enid, Okla.	Howell, Mich.	Longview, Tex.
Bedford, Pa.	Cheyenne, Wyo.	Ephrata, Pa.	Huron, S. Dak.	Los Angeles, Calif.
Bel Air, Md.	Chicago, Ill.	Erie, Pa.	Hutchinson, Kans.	Louisville, Ky.
Billings, Mont.	Cincinnati, Ohio	Evansville, Ind.	Indiana, Pa.	Lovington, N. Mex.
Birmingham, Ala.	Clarksdale, Miss.	Fabens, Texas	Indianapolis, Ind.	Lubbock, Tex.
Bismarck, N. Dak.	Cleveland, Ohio	Fargo, N. Dak.	Iowa Falls, Iowa	McKinney, Tex.
Blackwell, Okla.	Columbia, Mo.	Fergus Falls, Minn.	Jackson, Mich.	Madison, Wis.
Boise, Idaho	Columbus, Ohio	Fort Dodge, Iowa	Janesville, Wis.	Manchester, N. H.
Boston, Mass.	Corpus Christi, Tex.	Fort Wayne, Ind.	Jersey City, N. J.	Manhattan, N. Y.
Bowling Green, Ky.	Cortland, N. Y.	Fort Worth, Tex.	Jonesboro, Ark.	Mankato, Minn.
Breckenridge, Mich.	Council Bluffs, Iowa	Frederick, Okla.	Kalamazoo, Mich.	Marshalltown, Iowa
Bridgeport, Conn.	Creston, Iowa	Fresno, Calif.	Kankakee, Ill.	Mason City, Iowa

Branches and Stores in the United States

Continued

Mattoon, Ill.	Phoenix, Ariz.	San Leandro, Calif.	Trenton, N. J.	West Springfield, Mass.
Medford, Oreg.	Pittsburgh, Pa.	Santa Ana, Calif.	Tulsa, Okla.	Wichita, Kans.
Memphis, Tenn.	Pittsfield, Ill.	Savannah, Ga.	Tuxedo, Maryland	Wichita Falls, Tex.
Milwaukee, Wis.	Portland, Maine	Scranton, Pa.	Utica, N. Y.	Wilkes-Barre, Pa.
Minneapolis, Minn.	Portland, Oreg.	Seattle, Wash.	Van Nuys, Calif.	Wilmington, Del.
Montebello, Calif.	Poughkeepsie, N. Y.	Shreveport, La.	Waco, Tex.	Wilmington, Ohio
Muskogee, Okla.	Prairie du Chien, Wis.	Sidney, Nebr.	Walla Walla, Wash.	Windom, Minn.
Nashville, Tenn.	Pratt, Kans.	Sioux City, Iowa	Washington, Iowa	Winston-Salem, N. C.
Newark, N. J.	Presque Isle, Maine	Sioux Falls, S. Dak.	Waterbury, Conn.	Wolcott, N. Y.
New Orleans, La.	Providence, R. I.	Somerville, Mass.	Waterloo, Iowa	Worcester, Mass.
New York, N. Y.	Quincy, Ill.	South Bend, Ind.	Watertown, S. Dak.	York, Nebr.
Norfolk, Va.	Reading, Pa.	South Omaha, Nebr.	Wausau, Wis.	York, Pa.
North Hollywood, Calif.	Richmond, Va.	Spencer, Iowa	Wayne, Nebr.	Youngstown, Ohio
North Judson, Ind.	Roberts, Ill.	Spokane, Wash.	West Haven, Conn.	Zumbrota, Minn.
Norwalk, Calif.	Rochester, N. Y.	Springfield, Ill.	West Memphis Ark.	
Oakland, Calif.	Rosemead, Calif.	Springfield, Mo.		
Oklahoma City, Okla.	Roswell, N. Mex.	Springfield, Ohio		
Omaha, Nebr.	Sacramento, Calif.	Springfield, Tenn.		
Onawa, Iowa	Saginaw, Mich.	Stockton, Calif.		
Orangeburg, S. C.	Salem, Oreg.	Streator, Ill.		
Oreana, Ill.	St. Cloud, Minn.	Stuttgart, Ark.		
Orlando, Fla.	St. Joseph, Mo.	Syracuse, N. Y.		
Ottumwa, Iowa	St. Louis, Mo.	Tacoma, Wash.		
Pampa, Tex.	St. Paul, Minn.	Tekamah, Nebr.		
Paris, Ill.	St. Petersburg, Florida	Terre Haute, Ind.		
Parsons, Kans.	Salt Lake City, Utah	Tilton, Ga.		
Paterson, N. J.	San Antonio, Tex.	Toledo, Ohio		
Peoria, Ill.	San Diego, Calif.	Topeka, Kans.		
Peru, Ind.	San Francisco, Calif.	Toppenish, Wash.		
Philadelphia, Pa.	San Jose, Calif.	Temple, Texas		

• Branches in Canada •

Calgary, Alta.	Prince George, B. C.
Chatham, Ont.	Quebec, Que.
Edmonton, Alta.	Regina, Sask.
Hamilton, Ont.	St. John, N. B.
Lethbridge, Alta.	Saskatoon, Sask.
London, Ont.	Toronto, Ont.
Montreal, Que.	Vancouver, B. C.
Newmarket, Ont.	Winnipeg, Man.
North Bay, Ont.	Yorkton, Sask.
Ottawa, Ont.	

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Canadian address: International Harvester Company of Canada, Ltd., Hamilton, Ont., Canada

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FOR QUICK AND EFFICIENT REPAIRS

See your nearest IH dealer or branch for genuine IH parts and for quality service. The IH branches and stores in the United States and Canada are listed on the last two pages of this manual. A list of the 5,000 IH dealers in the United States can be had on request (Form No. CR-155-K) from IH dealers or branches.

In addition to the International truck parts stocked by IH dealers and branches, parts are available to them from twelve huge depots which are strategically located throughout the United States.

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A complete line of "necessary accessories," thoroughly tested and approved by International engineers, IH Necessaries provide the best in comfort, appearance, utility and safety for your International Trucks.

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