

Instruction Manual

DODGE TRUCKS

Built for

UNITED STATES ARMY



1/2 TON 4 x 4 CHASSIS

BODY TYPES

Panel Body

Pick-up and Closed Cab

Pick-up and Bucket Seats

Reconnaissance

Radio

Ambulance

Carry-all

Bid Numbers

398-40-222

398-41-8

Contract Numbers

W-398-QM-8039 (O. I. 2536)

W-398-QM-8286 (O. I. 204)

Dodge Sales Symbols: WC-1 USA, WC-3 USA, WC-4 USA,
WC-5 USA, WC-6 USA, WC-7 USA, WC-8 USA, WC-9 USA,
WC-10 USA, WC-11 USA.

Beginning Dodge Serial Number: 8,644,701

U. S. A. Registration Numbers

W-25,792 to W-29,999

W-71,077 to W-71,973

W-71,975 to W-72,249

W-206,490 to W-209,999

W-210,000 to W-215,478

W-215,536 to W-216,409

W-605,100 to W-605,304

W-2,010,000 to W-2,010,500

W-2,010,913 to W-2,015,297



Chrysler Corporation

Dodge Division

Detroit, Michigan

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This Instruction Manual is published for drivers and mechanics as a guide and shop reference relating to Dodge Trucks as described above.

Instructions for driving and operating are given together with miscellaneous pointers on public highway safety. While certain points covered will not apply to some Army maneuvers, under certain conditions, yet there are many miles of travel on the public highways which should be made in accordance with public traffic and highway safety rules.

Brief descriptions of major units are given so mechanics will have a general knowledge of the truck construction. Further in the book are detailed instructions for removing and installing parts, adjustments and maintenance. The last section is a tabulated summary of technical data which may be used as a quick reference when making service adjustments or replacements.

Special service tools, illustrated in use or mentioned in this manual, are obtainable from Miller Tool and Manufacturing Company, Detroit, Michigan. U. S. Army Posts can order such tools through their regularly established channels of material procurement.

CHRYSLER CORPORATION

Dodge Division

DETROIT, MICHIGAN

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KEYS

Three keys are supplied with each truck. The keys of each set are identical; they will turn the ignition switch and lock one cab door from the outside. When the key is removed from the ignition switch the ignition is locked "off."

"BREAKING IN" SPEEDS

The life of a truck depends largely upon the care it receives during the first 500 to 1500 miles of operation.

New engines should never be driven at speeds equivalent to a truck speed of more than 25 miles per hour in direct drive during the first 500 miles of operation. During the next 1500 miles the speed may be gradually increased to complete the "breaking in" process. The truck must not be driven at continued full speed nor should it be subjected to heavy load pulls during the first 2000 miles. Maximum power and speed should not be required from the truck until after it has been driven about 2000 miles. This mileage is necessary to make sure of all internal friction of the engine being minimized.

LUBRICATION—NEW ENGINES

Under no circumstances should an oil having a body heavier than that of S.A.E. viscosity No. 20 for summer, and No. 10-W for winter be used in the engine during the first 1000 miles. See the "Lubrication" section of this manual for seasonal changes.

THE CONTROLS

It is important that you, the driver, learn the location and operation of each control lever, pedal and button before driving; then you will find the driving easier than trying to develop your knowledge while driving. All the controls are placed for your convenience and ease of operation.

TRANSFER CASE LEVER

The first lever at the right of the driver, when sitting at the steering wheel, is for shifting gears in the transfer case. When the lever is back toward the seat, the gears are meshed so as to drive the front and rear axles.

When the transfer case lever is forward, the gears for connecting the drive to the front axle are out of mesh and the truck may be driven with power applied only to the rear axle.

For driving under normal load conditions, when driving traction is not required at all four wheels, the transfer case lever should be in the forward position.

TRANSMISSION GEAR SHIFTING LEVER

The second lever toward the right from the driver is the transmission gear shifting lever. It controls the shifting of all gears in the transmission. The diagram in the illustration of the transmission shows the different positions of this lever for the different speed selections in the transmission. Always have this lever in the neutral position when starting the engine.

HAND BRAKE LEVER

The hand brake lever is the third lever toward the right from the driver. The brake is released when the lever is in the extreme forward position and applied when moved back toward the seat. When pulled back the lever will lock in position but may be released by pressing the release button (on top of the lever) down and pushing the lever forward.

WINDSHIELD WIPERS

The windshield wipers can be operated only while the engine is running. Each has an independent control button on the panel above the windshield. Push or pull the buttons to control the operation of the wipers.

IGNITION SWITCH

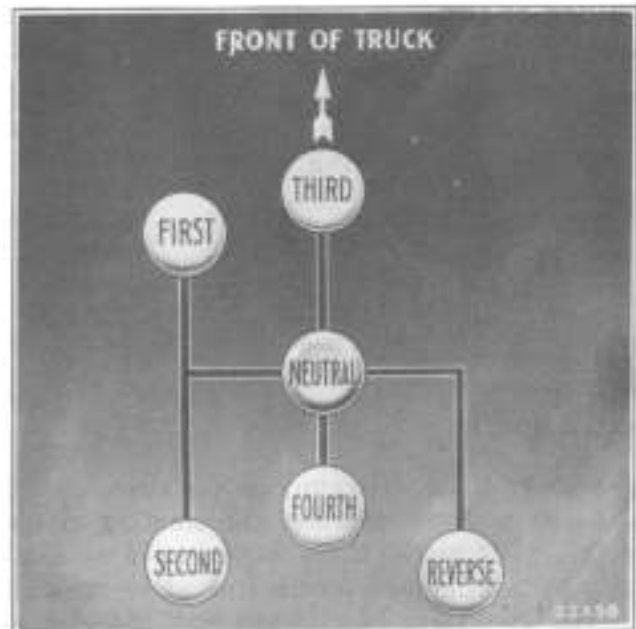
The ignition switch is of the locking type and is directly in the center of the group of button controls. It can be operated only when the key is inserted and turned to the right (clockwise). This position turns on the ignition and fuel gauge. The switch is in the "off" position when the thumb piece of the key is vertical.

THROTTLE CONTROL

The accelerator pedal is used most for opening or closing the carburetor throttle, but sometimes it is desirable to control the throttle by hand instead of by foot. The hand control for the throttle is the first control knob toward the left from the ignition switch. Pulling the button outward opens the throttle.

CHOKE CONTROL

The carburetor choke control button is next toward the right from the ignition switch. The choke is closed when the control button is pulled "out" to the limit of its travel. Close the choke when starting a cold engine and gradually open it as the engine becomes warm. Always run the engine with the choke open (the button pushed inward) as much as you can and still have the engine run evenly because excessive use of the choke causes a flooding condition in the engine.



Transmission Gearshift Lever Positions

and excess fuel works its way past the pistons into the crankcase diluting the engine oil. It also increases fuel consumption unnecessarily.

HEADLIGHT BEAM

The button on the toe board, next to the left side panel of the cowl, is for controlling the high and low beams of the powerful headlights. (This only operates when they are turned on by the hand operated switch on the instrument panel.) Press the button and the beams of light will raise or lower. It is not necessary to hold your foot on the button because the switch locks in position each time the button is pressed.

HEADLIGHT BEAM INDICATOR

When the lights are on the high beam a red jeweled light will show on the instrument panel.

NOTE: Never use the high beam of light, when driving in the city or meeting another car.

CLUTCH PEDAL

The clutch pedal is to the right of the light beam control button. This pedal, when pressed down to the floor board, disengages the clutch so that the gears may be shifted into engagement ready to drive the truck. You will notice the easy action of this pedal, but do not drive with your foot resting on it. This would cause unnecessary wear on the clutch release bearing and also clutch slippage.

SERVICE BRAKE

The service brake pedal is next to the right of the clutch pedal. You will find that comparatively light pressure on this pedal is all that is ordinarily necessary to bring the truck to a quick, easy stop.

ACCELERATOR

The long flat pedal at the right of the brake pedal is the accelerator. It is used to control the engine speed.

STARTER

Just above the accelerator, on the dash, is the foot button which operates the starting motor switch. It is placed there so you have no difficulty in locating the accelerator after pushing the starter button. Or, if you stall the engine, just raise your foot straight up to the starter button and push it to start the engine again.

THE INSTRUMENT PANEL

The instruments are illuminated by indirect edge lighting so as to eliminate light reflection or glare in your eyes.

Directly ahead of the steering wheel on both sides of the speedometer are four gauges which show you the most important items in the operating condition of the engine.

The oil pressure gauge may register a low pressure when the engine is running at slow idle speed, but at speeds above 30 miles per hour, the gauge should show from 30 to 45 pounds pressure. You should watch this gauge frequently and if you notice that the pointer fluctuates a lot between zero and about 45 pounds (except slow engine speed) be sure to find out why and have it corrected quickly. Usually, fluctuation of the pointer is caused by insufficient oil in the engine.

The fuel gauge operates when the ignition switch key is turned to the right (clockwise). It is electrically operated and indicates the level of the fuel in the tank. The letter "E" means empty, the letter "F" means full and "½" sign means half full. Do not try to squeeze out a few extra miles when the pointer is close to the empty side. It is best to "fill-up" when below "½."

The heat gauge (thermometer) shows the temperature of the water in the engine if higher than 100 degrees. You will notice that the pointer raises to normal operating temperature in a very few minutes after starting cold. That is because of a thermostat which prevents the cooling water circulating through the radiator until the water in the engine reaches its normal operating temperature. Never warm the engine quickly by running it fast just after starting. While driving, glance at the heat indicator occasionally to see that it does not register too hot. If it registers 200 degrees or more, the engine is too hot and should be stopped. Usually this is caused by insufficient water in the radiator, broken or loose fan belt.

The ammeter registers the amount of electricity flowing into or out of the battery. The generator makes the electricity and sends it to the battery and other electrical units such as the lights, ignition coil, etc. When the electrical units are drawing more electricity than the generator is charging, the pointer on the ammeter will be on the negative (—) side of zero and when charging more than is being consumed, the

pointer will be on the positive (+) side of zero. Electricity consumed by the starting motor is not registered by the ammeter. If, when all electrical units are switched off, the ammeter pointer registers on the negative (—) side of zero there is a leakage of electricity somewhere in the system. Unless you are able to locate and correct

this condition, be sure to have it corrected in a shop quickly, because it will soon cause the battery to become exhausted of electrical energy, making it impossible to run the engine. The ammeter keeps you posted on the charging condition of the generator and the consumption of electricity in the system.

OPERATING INSTRUCTIONS

STARTING THE ENGINE

Just before starting the engine make sure that the transmission gear shifting lever is in the neutral position.

If the Engine is Cold Proceed as Follows:

1. Disengage the clutch.
2. Pull out choke full distance of its travel.
3. Turn on ignition (turn key to right, clockwise) and step on starter pedal, keeping it engaged until engine starts. After engine starts, gradually push in choke button to give proper operation.

NOTE: Under extreme cold starting conditions it is advisable, to insure good starting, to pull out the hand throttle control button to give approximately one third throttle opening.

CAUTION: Do not pump the foot accelerator before or during starting, as this will cause difficult starting.

If the Engine is Warm proceed as follows:

1. Disengage the clutch.
2. Turn on ignition switch and step on starter pedal, keeping it engaged until the engine starts.

NOTE: Under extreme hot starting conditions it is advisable, to insure good starting, to pull out the hand throttle to give approximately one third throttle opening.

CAUTION: Do not pump the foot accelerator before or during starting as this will cause difficult starting.

CAUTION: Never run the engine in a garage with the garage doors closed. The exhaust gas contains carbon monoxide which is a deadly poison. It is tasteless, odorless and colorless, therefore very difficult to detect. Be sure to fasten the doors open before starting the engine inside a closed garage.

STARTING THE TRUCK

If the truck is to be started under normal conditions of load, such as on a level hard road, the *transfer case* lever should be in the forward position.

Press the clutch pedal down to the floor, then move the *transmission* gear shifting lever to 2nd speed forward position. Next press the accelerator to speed up the engine a little and at the same time gradually relieve pressure on the clutch pedal. This engages the clutch and starts the truck moving. When the clutch is fully engaged (no pressure on the foot pedal), press the accelerator slowly to pick up speed until the engine reaches its high governed speed. Then press the clutch pedal to the floor and release the accelerator at the same time. Then move the *transmission* gear shifting lever to the 3rd speed position, engage the clutch—press the accelerator as before. Then, when the engine reaches its governed speed, disengage the clutch—release the accelerator—shift the *transmission* gears to 4th speed, engage the clutch and press the accelerator. Then control the truck speed with the accelerator.

If it becomes necessary, due to load or condition of the road surface, to apply more power at the wheels when starting or to drive the truck in reverse, the *transfer case lever* should be moved to the rear position. The rear position of this lever engages the power drive to the front axle. After starting the truck and shifting to higher transmission speeds, as in the conventional drive, the power may be disconnected from the front axle by pressing the clutch pedal to the floor board first and then shifting the *transfer case lever* to the forward position. This can be done while the truck is running but the clutch must be disengaged before moving the lever.

DRIVING DOWNHILL

When going down a steep grade, move the transmission gear shifting lever to the third or second speed position. (Disengage the clutch first.) This causes the truck to drive the engine instead of the engine driving the truck and will reduce the amount of brake application required. It may be necessary to shift the gears to first speed in order to have the engine hold the truck speed low enough for safety. This, of course, is only necessary on very steep and long down grades. Continuous or long time application of the brakes is not good practice, because it causes excessive wear of the linings. If brake application is necessary on long down grades, it is best to apply and release them alternately and perhaps more severely but it gives the brakes a chance to cool a little.

DRIVING UPHILL

When driving upgrade, some drivers have an inclination to try reaching the top without shifting gears. The governor limits the speed of the engine to its maximum power. Therefore, if the highest speed is desired, shift the transmission gears to the next lower when the engine or truck speed begins to decrease. This will permit driving the truck at the maximum possible speed up a hill or through soft surface road. If the transmission gears have been shifted from 4th speed downward through 3rd and 2nd and still more power is required, shift the transfer case lever to the rear position and shift the transmission gear shifting lever to the 1st speed position; then engage the clutch.

Always remember to disengage the clutch whenever shifting gears in either the transmission or transfer case.

SAND AND GRAVEL

Drive slowly in loose dry sand or fresh thick gravel, even though the engine will drive the truck through faster, difficulty may be encountered in steering the truck because the wheels, when turned to the right or left, may slide some.

The sand or gravel under the tires is loose and rolls by the force of the truck. When you see that you are approaching a sand or loose gravel road, slow down, because it is quite probable that if you have been driving on a smooth, hard surfaced road, you will be going too fast for good steering control on the soft road. You may be able to

speed up a little after you get the "feel" of the soft road and know just how well you may be able to guide the truck. Sometimes a strip of fresh loose gravel will be in the track for one side of the truck and hard smooth surface in the track for the other side. *Never drive into such a road surface at high speed.* The soft surface material has a tendency to pull the truck further toward the side on which the soft material is laid. When starting the truck in sand or loose gravel, release pressure on the clutch pedal slowly so as not to spin the wheels. Spinning the wheels causes them to work their way down. It wears the tires unnecessarily.

ROAD SIGNS

All along the highways in the country and in large cities as well as in small villages you will see "Road Signs" for the guidance of motorists. Be on the alert all the time and be guided by their messages. If a sign indicates "Slow"—go slow; if a sign says—"Use Second Gear"—use it. Such signs are placed on the highway by men who have made a study of the conditions and know what should be done. The signs are for your protection as well as others and their messages should be heeded. Watch for traffic and road signs at all intersections.

STOP AND GO LIGHTS

Different cities have different locations for "Stop and Go" traffic lights, so be alert at all times and see these signals. In all cases a red light means "Stop" and green means "Go." Some cities have an amber or yellow light to indicate that the signal is going to change. Do not try to beat the signal—you and the "other fellow" may have the same idea and arrive at the same place at the same time. Approach traffic lights slowly so you can stop if the light changes to "Stop."

DRIVER'S SIGNALS

The stop light on the truck is turned on when you apply the foot brakes, thereby signalling to those approaching from behind that you are stopping or at least checking your speed. Usually you know, before you apply the brakes, that you are going to stop. Give the driver behind you the hand signal showing him that you are going to stop, so he has some time to slow down or turn and pass you before you apply your brakes. If you are going to turn to the right or left be sure to give the proper signal—it is easy and safe.

SAFETY ON THE HIGHWAY

This Dodge Truck has genuine hydraulic brakes—the safest, surest braking system ever devised. The brakes are always equalized, always dependable, and you always have safer control. The hand brake is entirely independent of the foot brakes—added brake safety.

The headlights are built for safety, too. The powerful beam of light, which penetrates far down the road, may be deflected downward and to the right so as to give even brighter illumination at the curb or ditch at your right and avoid the dazzling glare in the eyes of approaching motorists. This is for the safety of both you and the other fellow. He can better see where he is going and so can you. The direction of the beam of light is controlled by a foot operated switch. Merely press the switch with your foot to change from high or low light beam. The low beam should always be used when meeting and passing an approaching car.

One's first impulse when he sees danger is to stop. That is usually the best thing to do, but not always. There are times when acceleration will take you out of danger, but do not resort to that method unless you *know* it is the proper thing to do; the other fellow may do the same.

The ability of the truck to accelerate quickly and to stop quickly has been developed to a renowned **high degree**, but these qualities should not be abused. One's good driving ability is often indicated by infrequent quick starts and stops. It gives others a feeling of certainty about what you are going to do. The "other fellow" must be able to plan on what you are going to do, and, likewise, you should try to watch and see what the "other fellow" is going to do or at least see what he should do. Drive far enough behind the vehicle in front of you so you will be able to stop easily, making it unnecessary for the vehicle behind you stopping suddenly. Respect the rights of other drivers and pedestrians. Courtesy adds to motoring safety. Signal the driver behind as to your intended change of pace or direction.

Good driving is only one of the essentials for safety on the highway. Safety is built into this Dodge Truck at the factory by use of Genuine Hydraulic Brakes, Safety Steel Cab, Safety Glass, Safety Steering Control, Clear Driving Vision, Headlight Beam Control, and many other features, but through use on the road, service attention is essential for assurance of maximum safety.

BRAKES

May need adjustment or relining.

STEERING

May need adjustment, lubrication, wheel alignment, or wheel balance.

LIGHTS

Aim of headlights may need adjustment; replacement of bulbs in tail or stop lights or of a headlight unit may be necessary.

WINDSHIELD WIPERS

Replace blades if not wiping clean; check operation of wiper motors.

TIRES

Check tire pressures, remove small pieces of glass, stones or nails which may work into the casings and cause a puncture or blowout.

All of these points should be given a periodical check-up so that you know the truck is safe for the highway.

DRAINING THE CRANKCASE AND CRANKCASE VENTILATION

Due to natural conditions in all automotive engines, the engine oil, in use, is constantly being impregnated with fuel, water and acid, depreciating the value of the oil as a lubricant. However, a ventilation system has been built into the engine in this truck which expels a very large percentage of these undesirable elements. With this ventilation the frequency of draining the crankcase oil is also reduced, but nevertheless it is necessary to drain at the intervals specified.

Running the engine with the choke closed (button pulled out) or partially closed increases the amount of fuel drawn into the cylinders, therefore, the engine should be run with the choke as fully open (button pushed in) as possible and still have the engine run evenly.

Fuel accumulates in the engine oil because of a certain excess of fuel in the combustion chambers not burning and working down the cylinder walls into the crankcase. Only certain percentages of vaporized fuel and air, when mixed, will ignite and explode in the combustion chamber. If the mixture contains too much fuel the excess will not burn, some of it will remain on the cyl-

inder walls and work down into the crankcase by the action of the pistons.

Water vapor is a product of combustion. There is approximately as much water vapor formed by weight as fuel consumed. That is why you may notice white vapors and water coming out of the exhaust pipe, especially in cold weather. A certain amount of this vapor condenses on the cylinder walls and is also carried into the crankcase by action of the pistons. A very large percentage of this water and fuel is carried out of the crankcase by means of the crankcase ventilation system.

Fresh air enters at the oil filler pipe which is capped with an air cleaner for catching dust and preventing it entering the crankcase. Due to the rotation of the crankshaft, the air and vapor in the crankcase is kept whirling. The vacuum created by the truck running draws the air and vapor out of the crankcase through the ventilation outlet pipe at the rear of the engine.

This system of crankcase ventilation reduces, to a great extent, a natural formation of sludge in the bottom of the crankcase. An excessive amount of this sludge will interfere with proper engine lubrication.

Acid forms in the combustion chamber also due to natural causes in all automotive engines. Fuel contains varying percentages of sulphur and, when burned, changes to sulphur dioxide. The sulphur dioxide unites with water in the combustion chamber, making sulphurous acid.

These accumulated non-lubricating elements in the engine oil have damaging effects on the highly finished steel surfaces. Fuel thins the oil, reducing its lubricating ability. Water is a non-lubricant and is likely to freeze, causing stoppage of the oil circulation. The sulphurous acid attacks highly finished steel surfaces and causes excessive wear. The rapidity of accumulation of these elements increases as the temperature decreases. That is why it is recommended that the engine oil be drained more frequently in cold weather than in warm weather.

The best time to drain the crankcase is after a run and while the engine is still heated. The oil is thinner when it is hot and also thoroughly mixed. It will, therefore, carry off sediment more completely.

Kerosene should never be used for flushing out the oil pan and lubricating system. A certain amount will remain in the system, collecting in pockets from which it cannot readily be drained

and will dilute the oil. For flushing, always use a good flushing oil.

U. S. ARMY ROAD RULES AND TRAFFIC REGULATIONS

The following general rules are prescribed for the regulation of motor vehicle operation:

1. Operators will keep well to the right of the road, whether moving or standing.
2. When changing direction or stopping, always give appropriate hand signals.
3. Pay careful attention to road signs.
4. Never proceed on a road in a direction opposite to that prescribed for traffic regulation.
5. Always give way promptly to faster-moving vehicles.
6. On dry dusty roads, it is necessary to reduce speed in order to keep down dust.
7. Loaded vehicles have the right of way over empty vehicles.
8. Drive slowly at night when the use of lights is prohibited.
9. If driving with lights, dim them at the approach of a vehicle.
10. Dim lights in towns and cities.
11. Unnecessary noise with horns should not be made.
12. In passing vehicles traveling in the same direction, sound the horn and pass the vehicle on the left.

DOUBLING

The following is forbidden:

1. Doubling when going around corners or sharp curves.
2. Doubling when there is a block ahead.
3. Doubling in towns or villages.
4. Doubling while descending steep hills or grades.
5. Doubling just before reaching the top of a hill.
6. Doubling unless the road is wide enough to allow at least 18" between vehicles.

MEETING VEHICLES

1. Pass an approaching vehicle on the right of the road and give it half of the road.
2. Slow down, if the approaching vehicle is throwing clouds of dust across the road.
3. Slow down to half speed if the road is narrow and rough.

4. When there is traffic or other obstacles at the point where two vehicles would otherwise meet, the vehicle having the clear road has the right of way, and the other vehicle must slow or stop.

CROSSROADS

Approaching crossroads, vehicles should be slowed down unless the crossroad can be seen for

200 yards, and is clear, in both directions.

RAILROAD CROSSINGS

1. Slow down and shift into second.
2. If gates are closed do not start before both are open.
3. In case the road passes under the railroad make sure that there is adequate clearance between the bridge and the top of the vehicle.

LUBRICATION

Present day motor trucks perform an entirely different type of service to those of a short time past. Higher speeds are developed and longer distances are traveled in shorter time. This type of performance demands very exacting lubrication. The necessary mechanical changes have brought about a need for a variety of lubricants to take care of the lubrication requirements.

The paragraphs following, on this subject, show just what lubricants should be used in the major units of the trucks. It is important that these instructions be studied carefully by all concerned with the lubrication of motor trucks and imperative that the proper lubricants be provided and used according to the lubrication chart.

ENGINE OIL RECOMMENDATIONS

Custom, in the past, was to use heavier (higher viscosity number) oils than at present. The use of light engine oil is an aid in cold weather starting, fuel economy, and the proper lubrication of parts.

To assist in the selection of oil having the proper viscosity, the following recommendations are outlined for your information and guidance:

First 1000 Miles

During the first 1000 miles, it is recommended that you use the engine oil which is in the crankcase when the truck is delivered. If necessary to add oil during the first 1000 miles, No. 10-W should be used regardless of the season of the year or regardless of climatic conditions.

After 1000 Miles

When your speedometer registers 1000 miles, the crankcase should be drained while the engine is warm and refilled with the proper viscosity oil according to the anticipated atmospheric temperature.

Oil changes should then be made, under normal conditions, every 1500 to 2000 miles during winter and every 2500 to 3000 miles during summer, according to the following recommendations:

If you anticipate that the minimum atmospheric temperature will be:

Not lower than 90° F.	—Use—S.A.E. 40
As low as 32° F.	—Use—S.A.E. 30
As low as +10° F.	—Use—No. 20-W
As low as -10° F.	—Use—No. 10-W
Below -10° F.	—See Army Officer.

The interpretation of this table means that S.A.E. 30 is recommended as a general summer oil for trucks having a mileage above 1000. It may also be used in tropical climates during the winter months where it is known that the lowest temperature will not be lower than 32° F., and where the average temperature will be close to normal summer conditions. For extreme temperatures, exceeding 90° F., S.A.E. 40 engine oil is recommended.

The use of No. 20-W oil should be confined principally to territories during the winter months where mild winter conditions are known to prevail, and where the temperature will not fall below 10° F. It must not be interpreted that