

MOTOR VEHICLE SERVICE ROUTINE

1. GENERAL

1.01 This section describes the operations and procedures for servicing motor vehicles and provides for the forms for scheduling and maintaining a record of such work. Since the economic serviceable life of vehicles depends to a large degree on the quality and extent of the service work, it is important that the procedures in this practice be closely followed.

1.02 This section is reissued to:

- (a) Update the designation of engine oils to be used.
- (b) Change the frequency for lubricating vehicles.
- (c) Include information regarding lubricating greases and engine oil filters.
- (d) Update the service requirements for exhaust and evaporative emission control systems.
- (e) Update the tire inflation pressure tables.

1.03 The routines in this practice cover the vehicle service requirements under normal operating conditions for all types of vehicles. However, where certain vehicles are subjected to abnormal operating conditions, the frequencies of the service work may be increased or decreased to meet such conditions.

1.04 The new vehicle warranty programs by the manufacturers require evidence that the vehicles have been properly serviced over the warranty period. The service work prescribed herein meets the requirements for warranty validation. It is necessary therefore that the service performance records (Part 4) be maintained properly and retained for the life of the vehicle. Lack of evidence that service

work has been performed may jeopardize claims for warranty adjustments.

1.05 Certain service operations such as gassing, checking engine oil level, etc., which are required intermittently are not covered in this practice as a specific routine and no service record need be kept of these operations. (The record of gas dispensed from bulk storage is maintained in accordance with Bell System Practices - Section V62.304, "Motor Vehicle Routine".) In order that these operations are performed with the least effort, establish the following procedure as a routine on each occasion that gasoline is placed in a vehicle:

- (a) Check condition and level of crankcase oil.
- (b) Check water level in battery.
- (c) Clean windshield (and rear window, if required).
- (d) Visually inspect inflation and condition of tires.

2. VEHICLE SERVICE OPERATIONS

2.01 The following paragraphs describe the service work operations in some detail. However, where a Bell System Practice has been issued covering a particular phase of service work, review the section number indicated to assure that all of the work required is performed properly. Additional information may also be found in Section V62.305, "Motor Vehicle Inspection".

2.02 Routine No. 1 - Monthly or Quarterly
The following operations are required for Routine No. 1:

- 2.02.1 Lubricate Chassis and Work Equipment
- 2.02.2 Inspect Tires and Wheels

- 2.02.3 Service and Inspect Battery
- 2.02.4 Check or Service Engine Air Cleaner

At each work center location establish the frequency for performing this routine on the following basis:

Perform Monthly on -

- (a) Vehicles when the chassis lubrication material used does not meet the recommended quality of greases. (See Part 5)
- (b) Vehicles equipped with powered work equipment, such as derricks, winches, aerial lifts, etc., regardless of the quality of chassis grease used.

Perform Quarterly on -

- (a) All vehicles (except as provided in 2.02 (a) & (b)) when the chassis lubrication material used meets the quality of recommended greases.

2.02.1 Lubricate Chassis and Work Equipment (Refer to B.S.P. Section

720-220-300, 720-410-300, 720-415-300 and 649-305-102 SW.) A complete lubrication of the chassis in accordance with the manufacturer's lubrication chart is required. This operation shall include:

- (a) Check lubricant level in steering gear box and add, if required.
- (b) Lubricate gear shift control, brake and clutch linkage.
- (c) Lubricate clutch throw-out shaft, if equipped for lubrication.
- (d) Lubricate water pump, if equipped with grease fitting.
- (e) Lubricate generator, if equipped for lubrication.
- (f) Lubricate hood latch.

- (g) Lubricate body door locks, ladder holding locks, drawer slides, etc.
- (h) Lubricate the work equipment parts as required such as the winch, derrick, digger, equipment drive shafts, and control linkage, etc.

NOTE: Follow the lubrication requirements for truck mounted power work equipment as indicated in Bell System Practices for System designed equipment and the manufacturers' maintenance manuals for commercially designed equipment.

- (i) Check lubricant level in the transmission, differential, power take-off, winch and any work equipment transmissions or speed reducer housings. If required, add the proper type as described in Part 5.

NOTE: Differentials, manual transmissions, power take-offs, winch and other gear housings do not require periodic lubricant changes under normal operating conditions. However, where the manufacturer recommends lubricant changes in automatic transmissions, such recommendations should be followed.

- (j) Observe (while the vehicle is elevated) any defects of the running gear that require attention or correction, such as:
 - (1) Corroded or damaged tail pipe or muffler.
 - (2) Loose or broken springs, spring shackles and U bolts.
 - (3) Loose or broken shock absorbers.
 - (4) Defective or corroded brake or gas lines.
 - (5) Defective seals and boots of sealed lubricated joints.
 - (6) Loose or broken body mounting bolts and fastenings.

- (k) Wipe off the excess grease that exudes from the parts as new lubricant is forced in and replace any missing or damaged lubricating fittings.

NOTE: The steering and suspension systems of some vehicles, generally passenger cars, are equipped with sealed factory prelubricated joints which require relubrication at extended intervals as recommended by the vehicle manufacturer. Such parts should not be lubricated on a monthly or quarterly basis. However, in no case should the relubrication of sealed joints exceed one (1) year using a grease meeting the quality of recommended lubricants.

Also, when relubricating sealed joints, do not install a lubricating fitting (zerk) in the plugged opening. Use a tapered nozzle with the lubricating gun and insert the nozzle in the plugged opening. This method prevents excessive grease pressure being imposed on the sealing boot of the joint. After the cavity of the joint is filled, reinstall the threaded plug.

2.02.2 Inspect Tires and Wheels (Refer to B.S.P. Section 720-305-300) Check the air pressure in each tire (including spare if provided) with an accurate tire gauge. Pressures should be within 5% of the recommended pressure shown in Appendix A. An inspection of the physical condition of the tires and wheels is required checking and observing for:

- (a) Unusual tire wear resulting from mechanical maladjustments.
- (b) The need for tire retreading.
- (c) Broken or damaged sections.

- (d) Foreign matter embedded in the tread.
- (e) Mismatching of dual tires.
- (f) Visible cracks or dents in the wheel rim and hub.
- (g) Loose wheel stud nuts.

2.02.3 Service and Inspect Battery

Service the battery as follows:

- (a) Check the level of electrolyte in each cell and add approved water, if required, to fill to the proper level. (Do not fill beyond the recommended level so as to cause overflow when the electrolyte expands during charging periods.)
- (b) Test the ability of the battery to start the vehicle with the headlights on. If the battery is suspected to be in poor condition, check the specific gravity of each cell. A specific gravity of between 1.225 and 1.250 should be maintained.
- (c) Remove any corrosion from the battery with a solution of two ounces of common baking soda in one quart water and apply rust preventive compound (pressurized can) to terminals if required. (See Part 5)
- (d) Check whether the battery is loose in the carrier and tighten the holding device if necessary.
- (e) Check to assure that the battery cable and ground strap are secure at their termination points and that the cable insulation and strap is in good condition.

2.02.4 Check or Service Engine Air Cleaner

Oil Bath Type

Remove the top cover of the air cleaner and check the level and condition of the oil in the lower body. The level of the oil should not be higher than the level mark embossed on the lower housing and should not be so low that the baffle below the filter media does not make contact with the oil.

Check the amount of dirt that has accumulated in the lower housing. If the accumulation is so great as to show dirt deposits on the baffle or filtering element, service the filter as follows:

(a) Remove the oil bath air cleaner (complete unit) from the carburetor air intake horn and disassemble. Wash out the lower housing with kerosene and wipe dry before refilling with oil. Use engine oil of the viscosity and kind recommended by the manufacturer. Fill to the level mark embossed on the lower housing.

(b) Attach the lower body on the carburetor making sure that the gasket and clamping device fastens it tightly to the air intake horn. Before reassembling the upper section, wash off (with kerosene) any dirt deposited on the baffle or filtering media. Also, check to see that the gasket between the upper and lower bodies is in place and in good condition.

Dry Element Type

Remove the top cover of the air cleaner and observe the amount of dirt deposits on the exterior surface of paper filter element. If any accumulation is

apparent, remove the element and, using compressed air not in excess of 30 PSI, gently clean the element by holding the air nozzle at least two inches from the inside screen. Do not use compressed air on the outside surfaces as this will embed foreign matter in the element paper. After cleaning, examine the outside of the element for dirt and punctures using a light (such as a flash light) on the inside ring of the element. If a heavy accumulation of dirt or oil deposits remains or any punctures or tears are noted, replace the element. Also examine the plastic sealing rings on the top and bottom for smoothness and uniformity. If not satisfactory, replace the element.

NOTE: Dry filter elements should be replaced at least annually. Under unfavorable conditions their replacement may be required semiannually. However, it is important that they be serviced and replaced when required since restriction of air to the carburetor will cause an improper fuel - air mixture resulting in high gasoline consumption, excessive exhaust emissions and loss of engine power.

Polyurethane Element Type

Remove the filter housing cover and remove the element. Visibly check the element for dirt accumulation and for tears or rips. If the element is torn or damaged, replace it. If sufficient dirt accumulation is visible to restrict air flow, the element should be serviced as follows:

(a) Remove the support screen from the element and wash the element in kerosene or mineral spirits; then squeeze out excess solvent.

(b) Dip the element into engine oil and squeeze out excess oil.

NOTE: Never shake, swing or wring the element to remove excess oil or solvent as this may tear the polyurethane material. Instead, "squeeze" the excess from the element.

- (c) Reinstall element on the screen support.
- (d) Clean all accumulated dirt from air cleaner housing and cover.
- (e) Check to see that the air horn to air cleaner housing gasket is in good condition and in place on the carburetor air horn.
- (f) Place the filter element in the filter body housing and replace air cleaner cover.

NOTE: Care must be taken that the lower lip of the element is properly placed in the assembly and that the filter material is not folded or creased in any manner that would cause an imperfect seal.

2.03 Routine No. 2 - Quarterly

Schedule Routine No. 2 in the month which it is due, to coincide with the schedule of the monthly or quarterly Routine No. 1. The operations required for both routines shall be performed. The following operations are required for Routine No. 2:

- 2.03.1 Change Engine Oil and Filter
- 2.03.2 Service Air Cleaners (Other than Engine).

2.03.1 Change Engine Oil and Filter

(Refer to Section 720-220-300)

Drain the crankcase of old oil when the engine is at normal operating temperature. After draining the old oil, replace the oil filter element. Thoroughly clean and remove all old oil and sediment from the filter housing before installing the new element.

Oil changes are not recommended without changing the oil filter. Only use the type of filter or element that is recommended for the particular engine.

Use a filter meeting the quality recommended in Part 5. See that the filter cover gasket is properly seated and clean before tightening the cover.

Install new oil of one of approved brands listed in Appendix B. After the new oil has been installed, operate the engine and check for any oil leaks at the filter gasket and oil drain plug. Stop the engine and after a few minutes, check for proper level on the dip stick. Do not overfill.

2.03.2 Service Air Cleaners (Other than Engine)

Crankcase Breather Filters

Engines not equipped with closed positive crankcase ventilating systems "breathe" fresh air through the oil filter cap. The cap is provided with a steel wool filtering media.

Wash the cap in kerosene removing the dirt deposits on the filter material. Use compressed air, not in excess of 30 PSI, (if available) or drain thoroughly to remove the excess kerosene. Replace the clean breather cap.

Booster Brake Breathers

The brake boosters provided on construction trucks are generally equipped with a steel wool filter on the air inlet of the booster. The booster brake air inlet filter should be removed and cleaned in the same manner as described for Crankcase Breather filters.

2.04 Routine 3 - Semi-Annual

Service Positive Crankcase Ventilating System. Positive crankcase ventilating systems are designed to draw the crankcase vapors and blow by products, by means of the intake manifold vacuum,

back into the combustion chamber. Two types, the "open" and "closed" systems are used.

In the "open" positive crankcase ventilating system fresh air is introduced through the oil filler cap. In the "closed" system the oil filler cap is closed and fresh air is obtained from the engine air cleaner by means of a hose connected between the oil filler cap or engine valve cover and the engine air cleaner housing. In both systems suction hoses are connected from the engine valve cover housing to the intake manifold where the oil vapors and other contaminants are drawn from the crankcase into the combustion chamber with the normal fuel-air mixture.

A regulating (PCV) valve in the suction hose is used in the systems which regulates the flow of air from the crankcase depending on load (manifold vacuum) requirements of the engine. The regulating valve and hose are subject to clogging with sludge and gum residue which will cause the system to become ineffective. This condition not only alters the fuel-air mixture introduced at the engine, but will cause excessive sludge to build up in the crankcase and excessive exhaust emissions.

Semi-annually the systems should be serviced with operations (A) and (B) being performed alternately each six months as follows:

Operation (A)

With the engine running at idle remove the PCV valve from its connection at the engine (do not disconnect it from the suction hose). If the valve is "open" a hissing noise will be heard as air passes through the valve and a strong vacuum should be felt when a finger is placed over the valve inlet. Reinstall the valve on the engine and remove the oil filler cap.

With the engine still running at idle, loosely hold a piece of stiff paper over the oil filler opening. Within a few seconds the paper should be sucked against the opening with a holding force. Inexpensive vacuum gauges designed to fit over the oil filler opening are available to also test the PCV valve. The gauges generally indicate whether the PCV valve (or system) is in a "good", "fair", or "poor" operating condition.

Next, stop the engine, and again remove the PCV valve from the engine. A clicking noise should be heard when the valve is shaken. If not, it is possible the valve is stuck.

If any one of the above tests indicate an inoperative PCV valve, the valve should be replaced and the connecting suction hose cleaned or replaced. Do not attempt to clean the valve. After installing the new valve, retest its operation as above. If the new valve does not test satisfactorily, it is likely the passages in the intake manifold (at the lower part of the carburetor) are plugged. In such case the carburetor must be removed and the passages opened to permit suction to the PCV valve.

NOTE: It is important when replacing positive crankcase regulating valves to use the proper valve calibrated for the engine in which it is to be used.

Operation (B)

Replace the PCV Valve and Suction Hose

Replace the PCV valve and suction hose at anytime the tests in "Operation A" indicate the valve is malfunctioning.

NOTE: If the valve and hose are replaced when performing Operation (A) record the performance of both Operation (A) and (B) on the Service Record Card.

2.05 Routine No. 4 - Annual Service Cooling System - The purpose of this routine is to protect the engine

coolant against freezing and to maintain it in a condition that it will provide adequate heat transfer and will not cause sludge, corrosion and rusting on the interior surfaces of the engine.

Good anti-freeze products of the permanent type (ethyleneglycol) contain the rust and corrosion inhibitor additives to properly condition the coolant solution. When water is used without the benefit of anti-freeze, rust inhibitors must be added. However, since all additives lose their value with use, they must be replaced at least annually if the coolant material is to be used for a longer period.

Experience indicates that it is more economical to use a permanent type anti-freeze over a two-year period, even though the inhibitor must be replaced during that period, rather than replacing the anti-freeze each winter season.

Leave the permanent type anti-freeze solution in the cooling system during the summer period. However, anti-freeze solutions that are lost as a result of repair work to the engine or cooling system during the summer period need not be replaced until the following winter season. Under such conditions, plain water may be installed in the cooling system to which is added the rust inhibitor. (See Operation C.)

In the following procedures, Operations (A) and (B) are required alternately each year. If no anti-freeze is normally used, Operation (C) is required annually.

Operation (A)

Flush Cooling System and Install Anti-Freeze (Refer to B.S.P. Section 720-205-012.) Perform this operation when removing water or old anti-freeze coolant and winterizing the vehicle with new anti-freeze.

Show the trade name of the anti-freeze used. It is important that the hoses and hose connections be checked and the cooling system flushed thoroughly before installing the new anti-freeze.

NOTE: When replacing cooling solutions, if the condition of the solution appears severely rusty or contaminated, or there is evidence of oily or mineral deposits in the radiator, the system should be flushed using Dupont No. 7 Radiator Cleaner, or equivalent, following the directions of use on the container. (See Part 5)

Operation (B)

Add Rust Inhibitor to Permanent Type Anti-Freeze - (Refer to B.S.P. Section 720-205-012.) Perform this operation when preparing the vehicle for the winter period and a permanent type anti-freeze has remained in the vehicle since the last winter season.

Add a pint of approved rust inhibitor to the solution (See Part 5)

Check the freezing point of the solution and add anti-freeze, if required. However, if the solution is rusty or otherwise unclean or if it is so weak that bringing it up to strength is not worthwhile, it should be drained and discarded.

Operation (C)

Flush Cooling System and Install Water and Rust Inhibitor (Refer to B.S.P. Section 720-210-300.) Perform this operation on any occasion when the coolant is removed and water is to be placed in the system. After flushing the cooling system and replacing with water, add a pint of approved rust inhibitor to the water. (See Part 5)

2.06 Routine 5 - Annual

2.06.1 Exhaust Emission Control Systems.

The function of the exhaust emission control systems are to control the amount of unburned hydro-carbons and other noxious gases that are emitted from the exhaust system into the atmosphere. These emissions are normally most heavy at times of engine idling and deceleration operations.

Two types of exhaust emission systems are used:

- (1) The "air injection" type which injects fresh filtered air from belt driven air pump directly into each exhaust valve port. The fresh air ignites the unburned portion of the exhaust gases in the exhaust manifold ports after they leave the combustion chambers. This system is known as the Thermactor and Air Injection Reactor.
- (2) The "improved combustion" type utilizes a specially designed carburetor and distributor, changes in valve timing and a "vacuum advance control valve." Essentially this system leans out the fuel-air mixture and provides a similar distributor timing setting during engine deceleration and idling as exists during acceleration. This system is known as the "Cleaner Air System" and "Improved Combustion".

NOTE: The "closed" type of positive crankcase ventilating system is always used when vehicles are equipped with an exhaust emission control system.

Air Injection System

The air injection systems consist of a belt driven air pump, a mixture control (or anti-back fire) valve, an air manifold assembly and a check valve in the air manifold supply line.

The air pump in the Thermactor system has an air cleaner on the inlet to the pump. The filtering element is not cleanable and when dirty must be replaced. The air pump in the Reactor system is supplied with fresh filtered air through a connection to the housing of the engine air cleaner.

The mixture control (or anti-back fire) valve controls the volume of fresh air to the exhaust ports. The valve is actuated by the intake manifold vacuum. When the manifold vacuum increases during idling and deceleration, the valve permits a greater volume of air from the air pump to enter the exhaust valve ports. The greater amount of fresh air leans out the rich exhaust mixture for better combustion and prevents exhaust system back-fire.

The air manifold assembly consists of a tubing mounted above the engine exhaust manifold. One end of the tubing is connected to the air pump supply hose. Air nozzels which enter each exhaust valve port are connected to the manifold tubing. Thus fresh air is distributed to each exhaust port.

NOTE: In some engine models the air manifold and nozzels are incorporated in the engine block casting with a threaded opening at the end of the casting for the air supply hose connection.

The check valve in the air supply between the air pump and air manifold prevents a backflow of exhaust gases into the air pump during operating periods when the exhaust back pressure exceeds the air pump delivery pressure.

Improved Combustion System

With the exception of the vacuum advance control valve used with the CAP system and changes in the design of the

distributor, carburetor and engine valve train and timing no other components are required with this type of exhaust emission control system.

The vacuum advance control valve is actuated through two vacuum hoses connected to the carburetor throat, one above the throttle plate and one below it (the intake manifold). These hoses are connected at the other end to the control valve which actuate the valve equal to the differential of vacuum above and below the throttle. A single hose connects the outlet of the control valve to the normal distributor diaphragm vacuum advance chamber which is linked to adjust the distributor setting.

Service Requirements

It is important when vehicles equipped with exhaust emission control systems are first placed in service that the components be properly serviced and adjusted in accordance with the vehicle manufacturers' specifications.

Subsequent quarterly inspections, in accordance with Section V62.305, should include checking the condition of the drive belt on air pump systems and all hose and tube connections.

Annually, preferably prior to the winter season, the exhaust gases should be measured to assure the system is operating properly. This operation requires special test equipment which should be available at most dealer service shops. If the exhaust analysis indicates the system is not functioning properly, all components of the system should be checked and adjusted in accordance with manufacturers specifications.

If, between the annual routine exhaust analysis tests, it is suspected the system is not functioning properly causing rough engine operation, the exhaust tests should

be made and the components serviced as required.

NOTE: The timing, ignition and carburetor and other component adjustments for the proper operation of the engine are critical and must be performed by knowledgeable personnel. Under no conditions should the engine be operated with the emission control systems disconnected since the carburetor, distributor and valve mechanisms are designed for use only with the emission control systems.

2.06.2 Evaporative Emission Control Systems

The purpose of the evaporative control system is to prevent the fuel vapors from the gasoline tank and the engine carburetor from being emitted to the atmosphere. The fuel vapors are discharged through a vent line system to a charcoal cannister which is connected to the positive crankcase ventilating system.

The carburetor vent is connected directly to the charcoal cannister. However, the fuel tank venting system incorporates, (1) a filler cap with a vacuum/pressure relief valve to seal the tank, (2) an expansion volume tank inside the main fuel tank to prevent an overflow due to thermal expansion, and (3) a vapor/liquid separator which permits the fuel vapors to be carried through the vent lines to the cannister and the liquid fuel to drain back to the main tank. The separator also prevents a siphoning action through the vent system.

Service Requirements

Annually, at the time the exhaust emission control system is checked, the tubing and hoses of the evaporative control system should be checked to assure that the connections are tight and the lines are properly supported and fastened.

There may be occasions when the charcoal cannister will need replacement, however, at the present time the servicable life of the cannister has not been established.

2.07 Routine No. 6 - As Required

The following operations should be performed when in the judgment of the employee responsible for the service work, they appear necessary. The frequency of these operations may vary considerably depending on the usage and operating conditions of the vehicle.

(A) Polish Vehicle (Refer to B.S.P.-Section 720-090-901.)

The appearance of vehicles should be "commercially" clean. The acrylic vehicle paint finishes are highly resistant to oxidation and generally retain a satisfactory appearance for long periods with washing. Use the standard Bell System car washing detergent. The material can be used with mechanical washers or with the hand method.

Polishing should be performed only on good paint surfaces when washing will not produce a satisfactory appearance. Finishes that are highly oxidized should be considered for repainting. Use the standard Bell System Auto Polish. This polish is the "clean-polish" type, which, if properly applied, will remove normal oxidation and road film and produce a satisfactory lustre.

(B) Clean Engine

The surfaces of the engine and associate components should be maintained in a reasonably clean condition. Heavy deposits of oil, grease or dirt cause overheating and prevents the cooling system from functioning properly. The hazard of fire is also increased. When required, clean these surfaces with the

standard degreasing compound or with the mechanical high pressure detergent and water spray washers.

Before applying the cleaning material, remove the air cleaner from the carburetor and cover the carburetor intake opening with a waterproof material such as "slicker cloth". Also cover or plug other openings such as the oil dip stick tube and open generators or alternators, etc.

Care must be taken to thoroughly rinse the surfaces with water so that the detergent or degreasing materials are removed.

(C) Lubricate Winch Line - (Refer to B.S.P. Section 649-310-011)

Wire rope winch lines are thoroughly lubricated during their manufacture and their need for relubrication depends largely upon their length of service and the type and severity of the operations performed with them. Ropes which show evidence of excessive rust and corrosion should be cleaned to the extent that they are free from caked dirt, grit, sand, etc., and relubricated with a mixture of one part boiled linseed oil and two parts of engine oil in the manner described in B.S.P. - Section 649-310-011.

3. SERVICE WORK PERFORMED BY INDEPENDENT CONTRACTORS

3.01 When the vehicle service work required in this practice is performed by an independent contractor the agreement as to the charges for such work should be based on a unit cost for each operation or routine.

3.02 Appendix D provides a format to be used when negotiating service work agreements and as the contractual document.

3.03 Monthly invoices for the performance of service work should show separate charges for each operation and list the numbers of the vehicles on which the work was performed. If the work is performed on company premises, the charges should be reconciled with the posted schedule of service work and record of gasoline dispensed. If the work is not performed on company premises, the charges should be supported by signed individual work tickets.

3.04 The physical inspection of service work performance as provided in B.S.P. Section V62.305 should also be checked with the Service Routine Record card maintained by the contractor and kept in the holder provided with each vehicle.

3.05 If the contractor drives company vehicles away from the company premises for the purpose of performing service or other work, it must be assured that the contractor has public liability insurance protection in limits of at least \$100,000/300,000 for bodily injury.

3.06 Where there is any question as to the fidelity of the contractor or his employees, particularly in cases where the service work is performed in the larger company work centers, the contractor should be required to furnish fidelity bonds in the amount of not less than \$5,000 for each employee.

4. MOTOR VEHICLE ROUTINE SERVICE RECORD AND SCHEDULE - FORM S-6566 & S-6566-a
Motor Vehicle Routine Record

4.01 Form S-6566 (Exhibit 1 and 2) is used for maintaining a record of the service work performed on every Company-owned vehicle. The form is a 5" x 8"

card and should be kept with the vehicle in the standard holder. The holder should be secured to the right inside door panel and mounted sufficiently high above the cab floor board to avoid accidental foot damage.

4.02 The record card has sufficient entry spaces for a one-year period. Prepare replacement record cards at the first of each year. Prepare cards for new vehicles at the time the vehicles are placed in service to be used for the period remaining in that year. As replacement cards are prepared show the last entry of the old record as the first entry on the new record.

4.03 Retain all service record cards (other than the current year) in the history folder for each vehicle. The history of service work may be required as evidence for validation of warranty repair work.

4.04 Fill in the data required in the top portion of the form at the time the card is prepared for use. Obtain the recommended tire pressures from Appendix A of this section. Enter the Date, Mileage and "Initials" on the record at the time the routines or operations are performed.

4.05 Whether the service work is performed by company employees or by contract personnel, the entries should be made by the person performing the work. Where the service work is performed at filling stations the employee responsible for the vehicle should make the entries as the work is performed.

Motor Vehicle Routine Service Schedule - Form S-6566a

4.06 Form S-6566a (Exhibit 3) is for scheduling the service work performed by company employees or others. It is necessary that the service operations

be scheduled for each vehicle to assure that the required routines are performed at the proper frequencies. The form is particularly advantageous in the larger exchanges having 25 or more vehicles although it may also be used at any location regardless of the number of vehicles involved.

4.07 The form, size 11" x 17", provides sufficient spaces for scheduling the performance dates of all service routines for a year period for 45 vehicles. It is prepared at the beginning of the year to cover each of the vehicles headquartered at one location which are serviced by the same personnel. Post the schedule in an appropriate location for review of those who are to perform and supervise the work.

4.08 Enter the vehicle numbers (by groups, numerically or otherwise) in the left-hand column, and the month and day date that each of the routines are scheduled to be performed in the spaces opposite the vehicle numbers. The scheduled dates of the routines should be properly distributed throughout the year.

4.09 "As Required" operations of Routine 6 should not be scheduled. However, the dates that such work is required should be entered as far in advance as possible. Usually these operations are performed between other scheduled work. When any Routine 6 operations are scheduled, show the Operation Code (A, B, or C) preceding the entry due date. Example - "B-6/16".

4.10 If desirable, when any work scheduled on Form S-6566a is performed a (✓) or (X) mark may be entered in the appropriate space so that it can readily be determined that the schedules are being maintained. However, this entry does not replace the "Service Record Card", Form S-6566, record covered in 4.01.

5. SERVICE MATERIALS AND SUPPLIES

5.01 Lubricants Engine Oils

Bulk requirements of engine oils and lubricating greases may be secured on Western Electric Company requisitions through local representatives of contract suppliers.

Use multi-viscosity, 10 W-30 engine oils having an API classification of SE (Service Station) or CC (Commercial Bulk) and meeting the ASTM, Sequence 5B sludge rating test of 40 or better in all engines. The brand names of the oils meeting these requirements produced by various petroleum companies are listed in Appendix B.

Chassis Greases

Greases containing a Lithium, 12-Hydroxy base with Molybdenum Disulfide and Polyethylene additives are considered of highest quality for general chassis lubrication including the repacking of sealed suspension joints.

The brand names of the greases known to have the above qualities produced by the various petroleum companies are listed in Appendix C.

Gear Lubricants

Use Multi-Purpose Gear Lubricant, SAE-90 for differentials (except friction type differentials) manual transmissions, steering gear, power take-offs, spur gear winches, and other straight gear drive housings.

Use the special lubricants recommended by the manufacturer for traction type differentials.

Use automatic transmission fluid AQ-AFT Suffix A for all makes of automatic transmissions unless the manufacturer specifies otherwise.

Use Jesco #22 lead base lubricant in winches having worm-gear drives.

Secure Jesco #22 winch worm-gear lubricant and Molub-Alloy #2 chassis grease on Western Electric requisitions and order as indicated in the Motor Vehicle Section of the Supply Catalog.

5.02 Engine Oil Filters

All of the types of replacement oil filters can be secured on supply requisitions through the Western Electric Company at a cost considerably below the retail price.

Engine oil filters considered most efficient with the longest life are the depth type (2 stage) filters having their relief valve positioned on the engine end of the filter. The material used in the better quality depth type filters is No. 1 white cotton thread waste and other coarser cellulose fibers. These filters are produced by most of the major engine oil filter manufacturing companies.

It is important that replacements of full-flow, "Spin-on" filters be of the type designed for the engine on which they are to be used.

5.03 Degreasing Compound, Rust Preventive Compound, Cooling System Rust Inhibitor, Car Washing Detergent and Auto Polish. These items are listed in the Motor Vehicle Section of the Supply Catalog and should be ordered on supply requisitions as required. A minimum of stock of these items should be carried.

5.04 Radiator Cleaner

The Dupont #7 Radiator Cleaner is a powder consisting of two chemicals which are introduced in the cooling system. The Radiator Cleaner materials may be secured through the Western Electric Company or they may be obtained locally.

5.05 Anti-Freeze

Annual requirements of anti-freeze are generally secured through the Western Electric Company during the fall of each year. Additional small quantities, if required during the winter period should be purchased locally provided the "approved" makes described in the Motor Vehicle Section of the Supply Catalog can be secured. Otherwise, it should be ordered on supply requisitions through the Western Electric Company.

5.06 Forms S-6566 and S-6566a and Holder for Form S-6566.

The Motor Vehicle Routine Service Record card, Form S-6566, Motor Vehicle Routine Service Schedule, Form S-6566a and the holder for card Form S-6566 are obtained on Stationery and Office Supply requisitions. The forms and holder are listed in the Stationery and Office Supply Section of the Supply Catalog and should be ordered accordingly.

Attached: Exhibits 1, 2 and 3
Appendix A, B, C and D

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MOTOR VEHICLE SERVICE ROUTINE
 Passenger Car Tire
 Load Capacities and Inflation Pressures
 (Tubeless Type)

<u>Bias Ply</u>	<u>Bias and Belted Bias Ply</u>	<u>Max. Inflation Press. (Front & Rear)</u>	<u>Max. Load per tire (lbs)</u>
6.00 x 13-4 ply	A78-13/B	32	1010
6.50 x 13-4 ply	B78-13/B	32	1150
6.50 x 13-6 ply	B78-13/C	36	1230
7.00 x 13-4 ply	C78-13/B	32	1270
7.00 x 13-6 ply	C78-13/C	36	1320
6.45 x 14-4 ply	B78-14/B	32	1120
6.45 x 14-6 ply	B78-14/C	36	1230
6.95 x 14-4 ply	D78-14/B	32	1320
6.95 x 14-6 ply	D78-14/C	36	1410
7.35 x 14-4 ply	E78-14/B	32	1400
7.35 x 14-6 ply	E78-14/C	36	1490
7.35 x 14-8 ply	E78-14/D	40	1580
7.75 x 14-4 ply	F78-14/B	32	1500
7.75 x 14-6 ply	F78-14/C	36	1610
7.75 x 14-8 ply	F78-14/D	40	1700
8.25 x 14-4 ply	G78-14/B	32	1620
8.25 x 14-6 ply	G78-14/C	36	1730
8.25 x 14-8 ply	G78-14/D	40	1830
8.55 x 14-4 ply	H78-14/B	32	1770
8.55 x 14-6 ply	H78-14/C	36	1890
8.55 x 14-8 ply	H78-14/D	40	2010
8.85 x 14-6 ply	J78-14/C	36	1990
8.85 x 14-8 ply	J78-14/D	40	2100
6.85 x 15-4 ply	C78-15/B	32	1230
6.85 x 15-6 ply	C78-15/C	36	1320
6.85 x 15-8 ply	C78-15/D	40	1400
7.35 x 15-4 ply	E78-15/B	32	1400
7.35 x 15-6 ply	E78-15/C	36	1490
7.35 x 15-8 ply	E78-15/D	40	1580
7.75 x 15-4 ply	F78-15/B	32	1500
7.75 x 15-6 ply	F78-15/C	36	1610
7.75 x 15-8 ply	F78-15/D	40	1700
8.25 x 15-4 ply	G78-15/B	32	1620
8.25 x 15-6 ply	G78-15/C	36	1730
8.25 x 15-8 ply	G78-15/D	40	1830
8.55 x 15-4 ply	H78-15/B	32	1770
8.55 x 15-6 ply	H78-15/C	36	1890
8.55 x 15-8 ply	H78-15/D	40	2000
8.85 x 15-4 ply	J78-15/B	32	1860
8.85 x 15-6 ply	J78-15/C	36	1980
8.85 x 15-8 ply	J78-15/D	40	2100
9.15 x 15-4 ply	L78-15/B	32	1970
9.15 x 15-6 ply	L78-15/C	36	2100
9.15 x 15-8 ply	L78-15/D	40	2230

MOTOR VEHICLE SERVICE ROUTINE
 Passenger Car - Radial Ply Tires
 Load Capacities and Inflation Pressures

<u>Size</u>	<u>Max. Load (lbs/tire)</u>	<u>Inflation Pressure</u>	
		<u>Front</u>	<u>Rear</u>
155 R 14	1010	32	32
165 R 13	1010	32	32
165 R 14	1120	32	32
165 R 15	1130	32	32
175 R 13	1150	32	32
175 R 14	1230	32	32
175 R 15	1230	32	32
185 R 13	1270	32	32
185 R 14	1360	32	32
185 R 15	1390	32	32
195 R 13	1370	32	32
195 R 14	1500	32	32
195 R 15	1490	32	32
205 R 14	1620	32	32
205 R 15	1610	32	32
215 R 14	1770	32	32
215 R 15	1740	32	32
225 R 14	1860	32	32
225 R 15	1860	32	32
235 R 15	1970	32	32

MOTOR VEHICLE SERVICE ROUTINE
Truck Type Bias & Radial Ply Tube and Tubeless Tires
Load Capacities and Inflation Pressures

<u>Size & Ply(1)</u>	<u>Max. Load (lbs. per tire)</u>	<u>Inflation Pressure(2)</u>		<u>Size & Ply(1)</u>	<u>Max. Load (lbs. per tire)</u>	<u>Inflation Pressure(2)</u>	
		<u>Front</u>	<u>Rear</u>			<u>Front</u>	<u>Rear</u>
6.00 x 16-6 (C)	1430	35	45	7.50 x 16-6 (C)	2060	35	45
6.50 x 16-6 (C)	1610	35	45	7.50 x 16-8 (D)	2440	45	60
6.70 x 15-6 (C)	1530	35	45	7.50 x 18-8 (D)	2900	55	75
7.00 x 13-6 (C)	1260	35	45	7.50 x 20-8 (D)	3120	55	75
7.00 x 13-8 (D)	1490	45	60	7.50 x 20-10 (E)	3510	70	90
7.00 x 14-6 (C)	1310	35	45	8. - 14.5-10 (E)	2395	55	75
7.00 x 14-8 (D)	1550	45	60	8. - 14.5-12 (F)	2645	75	95
7.00 x 14-10 (E)	1770	55	75	8. - 17.5-6 (C)	2075	35	45
7.00 x 15-6 (C)	1720	35	45	8. - 17.5-8 (D)	2455	45	60
7.00 x 15-8 (D)	2040	45	60	8. - 19.5-6 (C)	2410	45	60
7.00 x 16-6 (C)	1800	35	45	8. - 19.5-8 (D)	2800	55	75
7.00 x 16-8 (D)	2130	45	60	8. - 19.5-10 (E)	3170	70	90
7.00 x 17-6 (C)	2130	45	55	8. - 22.5-8 (D)	3140	55	75
7.00 x 17-8 (D)	2490	50	70	8. - 22.5-10 (E)	3530	70	90
7.00 x 18-8 (D)	2590	50	70	8.25 x 16-8 (D)	2660	40	50
7.00 x 20-8 (D)	2790	50	70	8.25 x 16-10 (E)	2960	45	60
7. - 17.5-8 (D)	1760	45	60	8.25 x 20-10 (E)	4050	60	85
7. - 17.5-10 (E)	2080	55	75	8.25 x 20-12 (F)	4500	85	100
7. - 17.5-12 (F)	2300	75	95	9. - 22.5-10 (E)	4050	60	85
7. - 17.5-6 (C)	1815	35	45	9. - 22.5-12 (F)	4500	85	100
7. - 17.5-8 (D)	2145	45	60				
7. - 22.5-6 (C)	2120	45	60				
7. - 22.5-8 (D)	2470	55	75				
7.50 x 15-8 (D)	2330	45	60				
7.50 x 15-10 (E)	2660	55	75				

- (1) Ply refers to the ply "rating" and "load range" of the tire.
(2) Inflate trailer tires with maximum load inflation indicated above for rear truck tires.

LIST OF PETROLEUM COMPANIES AND BRAND NAMES OF MULTI-VISCOSITY (10W-30)
MOTOR OILS MEETING SE(SERVICE STATION) OR CC(COMMERCIAL BULK) CLASSIFICATION
AND ASTM SEQUENCE 5B SLUDGE RATING TEST OF 40 OR BETTER

<u>Company</u>	<u>Brand Name of Oil</u>
Champlin Petroleum Co.	Champlin - Code 40070 (bulk) Champlin - Transeason
Cities Service Oil Co.	C-600 (bulk) Citgo Premium Plus Citgo Extra (bulk)
Continental Oil Co.	Conco All Season Super
Esso-Standard Div. (Humble Oil & Refining Co.)	Esso - 1980 (bulk) Esso - Uniflo
Gulf Oil Corp.	Gulfpride - Single G Gulflube - XHD (bulk)
Humble Div. (Humble Oil & Refining Co.)	Humble - Uniflo Humble - Code 1904HD or 1905HD (bulk)
Kendall Refining Co.	Kendall - Superb
Marathon Lubricant Co., Inc.	Marathon - Extended Life
Mobile Oil Co. (Socony Mobile Oil Co.)	Delvac "1200" (bulk) Mobiloil - Special Mobiloil - Super
Pennzoil Co. of Calif.	Pennzoil with Z7
Phillips Petroleum Co.	Phillips - Tropartic
Pure Oil Co.	Purelube High HP Purol HD (bulk)
Quaker State Oil Refining Corp.	Quaker State Deluxe
Shell Oil Co.	Shell Premium HD (bulk) Shell X100 Multi-Grade Super Shell
Sears Roebuck	Spectrum
Sinclair Refining Co.	Super Tenol (bulk) Dino Supreme Dino Extra Duty (bulk)
Sun Oil Co.	SunFleet - XL (bulk) Sunco Special
Sunray Oil Co.	DX-Boron Ultra Special
Standard Oil Co. (Ohio)	Sohio - Duron Sohio - Multron (bulk)

<u>Company</u>	<u>Brand Name of Oil</u>
Texaco, Inc.	Havoline - All Temperature Havoline - Code 1825 (bulk)
Valvoline Oil Co.	XLD Motor Oil
Atlantic Refining Co.	Atlantic Imperial
Union Oil Company of Calif.	Super Royal Triton Union T5X (bulk)

LIST OF PETROLEUM COMPANIES AND BRAND NAMES OF CHASSIS GREASES CONTAINING
A LITHIUM 12-HYDROXY BASE WITH MOLYBDENUM DISULFIDE AND/OR POLYETHYLENE
ADDITIVES.

<u>Company</u>	<u>Brand Name of Grease</u>
American Oil Co.	Super Permalube - MIC75B
Phillips Petroleum Co.	Phil Lube #2-MIC75B
Shell Oil Co.	Shell #6295-MIC75B Alvina, EP#2
Marathon Oil Co.	Maralube #529
Imperial Oil Co.	Molub-Alloy #2-MIC75B
Standard Oil of Ohio (Sohio)	Factran - M-2 Boron -BP
Pure-Union Oil Co.	Union - MP
Texaco, Inc.	Marfax-MP Marfax-All Purpose EP
Sun Oil Co.	Sunaflex - 872 EP Sunoco - Prestige

SOUTHWESTERN BELL TELEPHONE COMPANY
MOTOR VEHICLE SERVICE WORK AGREEMENT

- I The work is to be performed on the vehicles located at _____, in _____ (address) _____ (city) accordance with the requirements of B.S.P. 720-020-016SW, Issue B, July, 1967, copy attached.
- II If the work will not be performed on Company premises show the address where the work will be done and furnish a certificate of insurance showing the limits of public liability coverage and expiration date of the insurance policy. _____ (address) is _____
- III A fidelity bond in the amount of \$5,000 is not required.
- IV All materials required to perform the service work will be furnished by _____. (If any materials are to be furnished by the contractor, attach a list to this agreement describing each item and the unit price to the Telephone Company. The cost of materials is not to be included in the quoted charges shown for the service work.)
- V This agreement may be canceled by either party on 30 days written notice.

Service Work Requirements and Charges

<u>Service Routine No.</u>	<u>Work Required</u>	<u>Account Code</u>	<u>Cost</u>
1	Lubricate Chasis and Work Equipment, Gauge and Inspect Tires, Service Battery, Check Engine Air Cleaner	702-13	\$ _____
	Service Engine Air Cleaner	702-13	\$ _____
2	Change Engine Oil and Filter	702-13	\$ _____
	Service Crankcase Breather	702-13	\$ _____
	Service Booster Brake Breather	702-13	\$ _____
3	Check Positive Crankcase Ventilating System	702-13	\$ _____
	Replace PCV Valve and Hose	702-115	\$ _____

- 4A Drain Cooling System, Flush, Install Anti-Freeze 702-115 \$ _____
- 4B Add Rust Inhibitor, Test and Add Anti-Freeze (if req.) 702-115 \$ _____
- 4C Drain Cooling System, Flush, Install Water and Rust Inhibitor 702-115 \$ _____
- 5 Check and Service Exhaust Emission Control System (Delete if contractor is not qualified to perform this operation.) 702-115 \$ _____
- 6A Polish Vehicle 702-16 \$ _____
- 6B Clean Engine 702-115 \$ _____

Other Work

Wash vehicle by mechanical or hand 702-16 \$ _____
 Fill tank with gasoline and related service 702-12 \$ _____ per gal.

Submitted By:

Accepted:
Southwestern Bell Telephone Co.

Name of Contractor

By:

By:

Title Date

Title Date