

NC BUS FLEET: *North Carolina School Transportation Fleet Manual*

Preventive Maintenance

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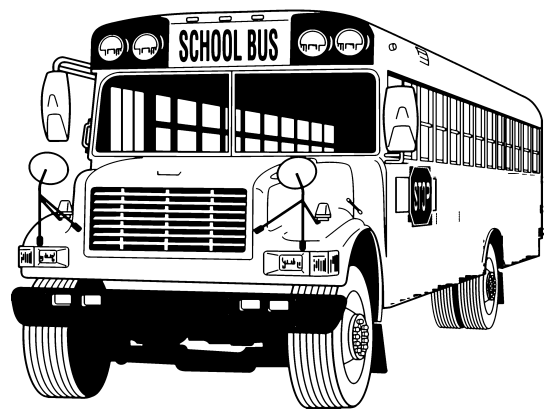


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INTRODUCTION

North Carolina school children deserve the safest transportation possible. A well-maintained school bus driven by a well-trained professional bus driver helps ensure their safety. The state's fleet of school buses is kept safe through the work and dedication of thousands of employees of local education agencies (LEAs). The North Carolina Department of Public Instruction (DPI) Transportation Services section works in partnership with these LEAs, providing consultation on school bus transportation and administering the resources needed for school bus operations.

This manual provides requirements and guidance related to the fleet of school buses and service vehicles. It includes:

- Vehicle Purchase, Replacement and Disposal
- Preventive Maintenance
- Vehicle Inspection

Vehicles

The State Board of Education is given statutory authority to fund public school transportation operations and the replacement of vehicles. Specifically, it is the responsibility of the State Board of Education to periodically

"...adopt such rules and regulations with reference to the construction, equipment, color, and maintenance of school buses. No school bus shall be operated for the transportation of pupils unless such bus is constructed and maintained as presented in such regulations."

North Carolina General Statute 115C-240(c)

The statute assures that public school buses throughout the State are built to the same standards and are uniform in appearance. DPI Transportation Services works in partnership with the Department of Administration, Division of Purchase and Contract, to establish a statewide term contract for vehicles meeting the specifications developed by a statewide Vehicle Specifications Committee. At any time, the latest version of this document standardizes the construction and equipment to be included on North Carolina school buses. This authority does not extend to private contractors that may provide school bus transportation to a local LEA. School buses operated by private contractors should meet all federal motor vehicle safety standards (FMVSS's) applicable to school buses. Similarly, school buses and activity buses owned by an LEA which are not subject to state replacement must also meet all FMVSS's for school buses or multi-function school activity buses.

The purchase of an initial school bus or service vehicle is the responsibility of the LEA. These vehicles are then replaced at state expense after having reached specified mileage or time criteria. In order to be eligible for state replacement, a vehicle must be used only for purposes allowed by general statute and must be maintained as prescribed in this manual. Funds generated from the sale of surplus vehicles are returned to the state fund used to purchase new (replacement) vehicles.

Because the State is responsible for replacing school buses, no school bus is to be altered in appearance, color, lettering, or equipment unless authorized by the Department of Public Instruction, Transportation Services Section. In general, items that are included in subsequent year specifications may be retrofitted to older model buses. Additional equipment may be added to

school buses as described on page 13 "Alterations and Modifications to School Buses" of this manual. It is important that the installation of new equipment or alteration of appearance be coordinated through and approved by DPI Transportation Services to ensure the integrity and longevity of the fleet.

Preventive Maintenance

Essential preventive maintenance activities provide a uniform standard necessary to ensure a safe transportation environment for the students in the Public Schools of North Carolina. It is each LEA's responsibility to maintain school buses as described in this manual. While the maintenance programs presented in this manual represent the minimum requirements for all school buses and service vehicles, more frequent service may be warranted at times. The purpose of the maintenance programs outlined herein is to promote repair consistency and cost efficiency, and to assure that school buses and service vehicles are maintained in safe operating condition.

This manual is used in conjunction with the state's system for fleet management – the Business Systems Information Portal (BSIP), a project of the North Carolina Department of Transportation (NCDOT). BSIP is an online information system through which 100 school bus garages are provided access to their fleet maintenance data. The bus garages share the system with NCDOT and the State Highway Patrol. Data entered by the users are updated in real time and scheduled maintenance activities are reported on a daily basis. The principal areas addressed by BSIP are as follows:

- Vehicle replacement status and basic identifiers (e.g. warranty date, VIN)
- Preventive maintenance and inspection scheduling
- Inventory management for repair parts, fuel and tires
- Vehicle maintenance and repair costs histories

Timely updating of fleet maintenance data in BSIP is a critical component of proper preventive maintenance.

School Bus Inspections

North Carolina General Statute 115C-248(a) states the following:

"The superintendent of each local school administrative unit, shall cause each school bus owned or operated by such local school administrative unit to be inspected at least once each 30 days during the school year for technical defects or other defects which may affect the safe operation of such bus."

Every 30 calendar days, each school bus (and activity bus) is required to be inspected for mechanical or safety-related defects. This manual outlines a consistent set of items to be inspected on each school bus. Further, criteria that require a bus be placed "out of service until repaired" are provided so that each technician has a consistent process by which to assess a bus during the inspection.

The success of this maintenance program will be assured through the cooperation of all LEA transportation employees. Assignment of personnel to the prescribed duties listed in this manual is essential in order for the preventive maintenance program to function properly and to be cost efficient. The prescribed school bus garage operational procedures should be followed as closely as possible.

While state funds are allocated for the replacement and maintenance of school buses, it is the responsibility of the LEA to provide facilities and equipment. This is outlined in General Statute 115C-249 (Purchase and Maintenance of School Buses). Section (e) reads as follows:

"It shall be the duty of the county board of education to provide adequate buildings and equipment for the storage and maintenance of all school buses and service vehicles owned or operated by the board of education of any local school administrative unit in such county. It shall be the duty of the tax-levying authorities of such county to provide in its capital outlay budget for the construction or acquisition of such buildings and equipment as may be required for this purpose."

Additional information concerning NC school bus transportation can be obtained online at www.ncbussafety.org.

Questions regarding the contents of this manual should be directed to DPI Transportation Services at 919.807.3570 (www.ncbussafety.org/contact.html).

PREVENTIVE MAINTENANCE PROCEDURES

PM MANUAL COMMITTEE MEMBERS

The preparation of this preventative maintenance section was a cooperative effort between LEA representatives and NCDPI. The committee would like to thank those around the state that provided input and feedback during the preparation of this manual.

The members of this committee were selected as representatives from the nine NCPTA districts of the state.

District 1 Rick Stiles (Haywood)
District 2 Alfred Schrum (Lincoln)
Kenny Warlick (Cleveland)
District 3 Donnie Rose (Yadkin)
District 4 Al Smith (Alamance)
District 5 Jeff Garmon (Cabarrus)
District 6 Bill Winstead (Wilson)
District 7 Shannon Ennis (Johnston)
District 8 David Twiddy (Dare)
District 9 Wade Tyndall (Lenoir)
NCDPI James Hawkins (Eastern) – PM Committee Chair
NCDPI Charles Ball (Central)
NCDPI Randy Henson (Western)

Ex officio members:

NCDPI - Derek Graham – Section Chief
NCDPI - Craig Warren – Consultant

Preventive Maintenance Overview

The following program must be documented by proper completion of all currently required preventive maintenance forms. Documentation of maintenance is essential to conducting an effective, safe and cost-efficient maintenance program and in justifying budget needs and allocations.

The key operational factor upon which this PM program is based is vehicle mileage since the last recorded preventive maintenance service. Therefore, ***accurate odometer operation and mileage recordings are essential*** as well as accurate record-keeping of all routine daily records.

The performance of this maintenance program must be in accordance with all safety rules and regulations prescribed by the Occupational, Safety and Health Administration, the State Board of Education, and the local education agency.

All brake repairs shall be checked for operating safety and efficiency by using a Tapley Brake Meter or equivalent meter. The percent of brake efficiency shall be recorded for future reference.

Each mechanic should be provided a copy of the Preventive Maintenance Manual.

For pre-2007 engines, 15W40, CI-4 / CI-4+ engine oil, or current manufacturer recommendations, SHALL BE USED IN ALL DIESEL engines. Gasoline service vehicles should use the manufacturer recommended oil.

This vehicle service is to be recorded on a BSIP-generated DP02 Repair Order by the technician performing the service. This form is to be turned in daily to the appropriate person.

Factors that affect oil contamination are as follows:

1. Cold running engine (use at least 185 degree thermostat)
2. Faulty air filtration system
3. Poor operating engine (rich fuel mixture)
4. Weather conditions

Oil Analysis - A proper oil analysis program allows technicians to make more informed maintenance decisions. The timely equipment condition information provided through oil analysis results can help users decrease maintenance expenses through component life extension, extended oil drains, and breakdown avoidance. A garage should keep a large supply of Oil Analysis Kits on hand. Always use recommended procedures when drawing an oil sample in order to ensure accurate results. A copy of the analysis results should be kept in the PM file of the particular bus sampled. If analysis results require that oil be changed, a DP01 work order should be generated under the heading BUS # (Mileage) Unscheduled Oil Change per sample results.

Access to service and maintenance manuals is required to be available at each school bus garage for each year model vehicle. The manuals, CD or website will be made available by the bus manufacturer.

Scheduling

The transportation director or other designated employee shall review BSIP screen ZIP24 (Select variant DPI_ PM) each workday morning. The daily work schedule should be adjusted accordingly dependant upon what vehicles are displayed. One advantage of reviewing the screen daily is that it allows each county to service all vehicles before they exceed the preventive maintenance mileage maximum of the specific maintenance plan for the bus.

Early Display - All vehicles will appear for preventive maintenance 900 miles before they reach the maximum mileage allowed between preventive maintenance services. Vehicles due 30-day inspections will appear ten (10) days before they exceed the maximum days allowed between inspections. During the school year, each school bus and activity bus must be inspected each thirty-calendar day period to meet state statutes. NOTE: BSIP will continue to count days over an extended holiday period.

Goals – The primary goal is to perform each scheduled inspection and preventive maintenance activity on time for each vehicle. BSIP provides notification prior to the due-mileage of a PM. A 900 mile window ensures preventive maintenance service can be performed before the scheduled due-mileage for each bus is reached. BSIP also provides a 10-day advance notification prior to the due date of a 30-day inspection.

Vehicles Displayed - Only active vehicles that are being used should appear on the ZIP24 Screen. For sale, sold or cannibalized vehicles should be reported to the BSIP helpdesk for removal. The help desk will also deactivate the plans for local vehicles (other than activity buses) upon request.

Factors - The preventive maintenance program is supported by an automated scheduling system. The computer system schedules vehicles for preventive maintenance based on mileage that has been entered into BSIP through fuel entry or work orders.

Preventive Maintenance Scheduling - PMs are scheduled at intervals determined by the PM Plan. Scheduled Packaging determines what interval to be scheduled. Please note that PERFORMING PMs EARLY or LATE WILL NOT AFFECT THE SCHEDULE OF THE NEXT PM

Screen Display – A screen shot of the ZIP24, variant DPI_PM is shown below:

Maint. item text	Order	Due packg.	Sort field	CntrRdg	NPCR	TotCtrRdg	Differe...	Work Order Status	MntPlan	Equipment
6008-7012: Light Duty T...	62000717950	6K 12 24		73836	72977	73836	859-	REL PRT NMAT ...	81809	62019477
6008-4003: Medium Dut...	62000724160	6K 12 24 48		95270	95001	95270	269-	REL PRT NMAT ...	81685	62017424
6008-0193: Bus PM	62000747313	5K 15		15185	15000	15185	185-	REL PRT NMAT ...	118799	62109500
6008-0190: Bus PM	62000744754	5K 10 15 30		90078	90000	90078	78-	REL PRT NMAT ...	81629	62015980
6008-0185: Bus PM	62000729974	6K 12		82377	82397	82377	20	REL PRT NMAT ...	81624	62017479
6008-0200: Bus PM	62000744755	5K 10		19930	20000	19930	70	REL PRT NMAT ...	118806	62109507
6008-0183: Bus PM	62000747585	6K 12		76863	76994	76863	131	REL PRT NMAT ...	81622	62018479
6008-0201: Bus PM	62000747346	5K 10		9829	10000	9829	171	REL PRT NMAT ...	123543	62127501
6008-0177: Bus PM	62000744756	6K 12 24 48		93925	94131	93925	206	REL PRT NMAT ...	81596	62017481
6008-0196: Bus PM	62000749715	5K 10 15 30		29746	30000	29746	254	REL PRT NMAT ...	118802	62109503

PMs due in order of mileage

Preventive Maintenance Plans

Technicians should refer to OEM service maintenance manuals for specific preventive maintenance procedures.

New Vehicle Service

The success of any preventive maintenance program is determined by a number of factors. One of the initial factors, and possibly one of the most important, is the proper servicing of new vehicles prior to placing them into daily service. Without proper new vehicle servicing, the durability, service, and vehicle life will be adversely affected. The following section is devoted to explaining what is required in the proper service of new vehicles and how to correctly accomplish this required New Vehicle Service. Refer to the New Vehicle Service Work Order.

The mechanic shall complete the New Vehicle Service Work Order during the new vehicle preventive maintenance service prior to the bus being placed in service. This order is created in BSIP for new vehicles and can be accessed via IW38 with an order type of DP07. The information requested for each item shall be completed. After the inspection is finished, the form shall be reviewed by the shop foreman/transportation director and filed in the Individual Vehicle Maintenance History file along with mechanic's signature and entered in the computer. A sample of the New Vehicle Service Work Order is shown below. NOTE: The mechanic is required to initial each service as it is performed as well as record all test results indicated on the new vehicle service work order

NEW VEHICLE SERVICE WORK ORDER

NOTE: Torque values for any bolt not specified in the vehicle service manual should be obtained from a bolt chart specifying torque .

FRONT AXLE

- _____ Inspect and torque: steering gear mounting bolts and gear case bolts
- _____ Inspect and torque: pitman arm nut _____ ft. lbs.
- _____ Inspect and torque: tie rod, drag link nuts, tie-rod clamp bolts, and/or 3rd arm mounting nut
- _____ Inspect and torque: backing plate or spider mounting bolts
- _____ Inspect and torque: front spring u-bolts _____ ft. lbs.
- _____ Inspect and torque: spring shackle and eye bolts or spring pivot bolts
- _____ Inspect and torque: king pin lock bolt nuts
- _____ Inspect and torque: wheel bolts _____ ft. lbs.
- _____ Check steering shaft u-joints for free movement and trunion snap rings for seating
- _____ Check and set toe-in
- _____ Set Axle Stops for Wheels
- _____ Bar test wheel bearing, Adjust if needed, Check Fluid Level, Use Synthetic fluid if needed

REAR AXLE

- _____ Inspect and torque: spring u-bolts _____ ft. lbs.
- _____ Inspect and torque: backing plate or spider mounting bolts
- _____ Inspect and torque: spring shackles, eye bolts, or spring pivot bolts
- _____ Inspect and torque: differential to axle housing and inspection cover to axle housing bolts
- _____ Inspect and torque: axle bolts _____ ft. lbs.
- _____ Inspect and torque: wheel bolts _____ ft. lbs.
- _____ Bar test wheel bearing, Adjust if needed

UNDERCARRIAGE

- _____ Inspect and torque: Body mounting bolts
- _____ Inspect and torque: Frame fastener bolts
- _____ Inspect and torque: U-joint nut and drive shaft center bearing bracket bolts
- _____ Inspect and torque: Hose clamps and pipe fittings for air lines, air dryer, and tanks
- _____ Inspect and torque: Bolts in transmission case and transmission mounting bolts
- _____ Inspect and adjust: Brake chambers push rod to slack adjuster angle; If needed, refer to OEM Service manual for correct adjustment.
- _____ Inspect routing and mounting of hose, pipes, battery cables, and wiring; Be observant for areas where any of the items may become worn by rubbing or damaged by vibration. Make appropriate corrections or repairs.

Other Miscellaneous

- _____ Pressure test cooling system, visual inspection
- _____ Test Engine DCA levels
- _____ Lubricate all fittings
- _____ Check all fluid levels
- _____ Adjust headlamps
- _____ Equip with tire chains (if needed)
- _____ Perform NC Motor Vehicle Inspection

BODY

- _____ Inspect all lights
- _____ Adjust door controls and air regulator Door control linkage should be adjusted for the rear leaf of entrance door to close just prior to front leaf. Weather seals should lap against, not butt against each other.
- _____ Adjust windshield wiper stroke and/or arms
- _____ Inspect and torque seat mounting bolts, all seat belt mounting and operation
- _____ Inspect and torque glass channel mounting screws
- _____ Inspect and torque turn signal bolts and screws, lens screws
- _____ Adjust mirrors and tighten (check in grid)
- _____ Inspect all electrical connections in body electrical panel; for proper assembly and tightness.
- _____ Inspect and torque: body to cowl bolts
- _____ Inspect and torque: stop sign mounting screws; align and tighten blade mounting bolts
- _____ Inspect and adjust brake pedal free travel
- _____ Lubricate glass channels & latches with silicone (including emergency exits)
- _____ Lubricate drivers seat tracts

ELECTRICAL SYSTEM

- _____ Test starter current draw _____ Amps _____ Volts
- _____ Alternator output test (regulated) _____ Amps
- _____ Voltage regular test _____ volts

ENGINE

- _____ Inspect routing of heater hose, install support brackets if needed, tighten clamps
- _____ Inspect and torque: oil pan, valve cover and rocker arm cover bolts
- _____ Inspect and torque: manifold and exhaust pipe bolts and nuts
- _____ Inspect all electrical connections
- _____ Inspect throttle controls
- _____ Inspect/Adjust engine accessory drive belts

ROAD TEST

- _____ Check travel angle
- _____ Check steering gear operation (lock to lock), lost motion, shimmy
- _____ Check rear axle and drive line noise
- _____ Check transmission: operation, noise
- _____ Automatic shift points up 1-2 _____ 2-3 _____ 3-4 _____ (WOT)
- _____ Automatic shift points down 4-2 _____ 2-1 _____
- _____ Test for maximum mph _____ top speed
- _____ Break meter test _____ % (Brake meter min. 60%)

AFTER ROAD TEST

- _____ Adjust lubricant level in transmission and differential
- _____ Park vehicle in a clean dry area, observe 5 min. later for leaks
- _____ Property complete a TD-30
- _____ Clean Bus: remove metal shavings, loose screws, stickers, etc.

PM Due Packaging

Due Packaging	Description
5K	5,000-Mile Preventive Maintenance Service
5K10K	10,000-Mile Preventive Maintenance Service
5K10K15K	15,000-Mile Preventive Maintenance Service
5K10K15K20K	20,000-Mile Preventive Maintenance Service
5K10K15K20K30K	30,000-Mile Preventive Maintenance Service
5K10K15K20K30K60K	60,000-Mile Preventive Maintenance Service
5K10K15K20K30K60K90K	90,000-Mile Preventive Maintenance Service

PM Task List

The PM task list consist of the operations that need to be completed for each PM. BSIP will track and generate the task list for each set of buses based on mileage and the plan that is assigned to the particular bus.

Most of the tasks have been taken from manufacturer's service recommendations. It is extremely important for each mechanic to become familiar with these manuals. If it is questionable on how the operation should be performed, this manual should be reviewed to ensure the correct service as prescribed by the manufacturer. One manual is usually sent with each bus.

Freightliner 2001 and newer

5000 Mile Intervals

- Lube all fittings (007)
- Oil sample if 0205 not done
- Lube door/hood hinges and latches (007)
- Bus pickup/travel time

10000 Mile Intervals

Inspect engine drive belt (006)
Check Eaton viscous fan drive (006)
Check radiator cap (006)
Replace outer air cleaner element (006)
Insp/lube window latches/tracks (006)
Insp/adj door latches/fasteners (006)
Check alternator, battery, starter (006)
Check and clean ground cables (006)
Check electrical wiring (006)
Check transmission breather (006)
Inspect air dryer (006)
Insp/clean air reservoir auto drain(006)
Inspect exhaust system (006)
Service wheel chair lift (006)
Insp/record brake lining thickness (006)
Record trans. shift points (006)
Road test-record brake panic stop (006)

15000 Mile Intervals

Change engine oil and filters
Change oil by-pass filters (003)
Change fuel filters (003)
Inspect engine and components (006)
Inspect cooling system (006)
Check coolant concentration/PH: (006)
Wash eng/battery comp/axles/slacks(002)

30000 Mile Intervals

Check engine support fastener (006)
Pres flush rad & change coolant (002)
Change trans spin-on filter (003)
Insp seat frames for cracks/mount (006)
Check frame fastener torque (006)
Check springs u-bolt torque (001)
Chk spr brake fastener torque-rear (006)
Check air bag fastener torque (001)
Chk suspension component clearance (006)
Insp suspen component & chk oper (006)
Check air springs u-bolt torque (006)
Check shock absorbers (006)
Check radius rod bushing (Hendr) (006)
Chk spring fastener torque (Hendr) (006)
Clean/repack/adjust wheel bearings (003)
Check wheel nut and rim nut (006)
Repl air dryer desiccant Ben AD-9 (003)
Change pwr str reser fluid/filter (003)
Replace inner air cleaner element (006)

60000 Mile Intervals

Adjust valves-MBE900 only (001)

90000 Mile Intervals

Change diff fluid/clean mag plug (003)
Adjust valves-CAT only (001)

IHC 2001 and newer

5000 Mile Intervals

Lube all fittings (007)
Oil sample if 0050 not done
Lube door/hood hinges and latches (007)
Bus pickup/travel time

10000 Mile Intervals

Change engine oil and filters
Change engine oil by-pass filter (003)
Inspect engine drive belt (006)
Check Eaton viscous fan drive (006)
Check radiator cap (006)
Clean fuel filter pre-strainer (006)
Inspect air cleaner assy/piping (006)
Inspect/lube window latches/tracks (006)
Inspect/adj door fasteners/latches (006)
Check alternator, battery, starter (006)
Check and clean ground cables (006)
Check electrical wiring (006)
Check transmission breather (006)
Inspect air dryer (006)
Insp/clean air reservoir auto drain(006)
Inspect exhaust system (006)
Service wheel chair lift (006)
Insp/record brake lining thickness (006)
Road test-record brake panic stop (006)
Wash eng/battery comp/axles/slacks(002)

20000 Mile Intervals

Change fuel filters (003)
Inspect engine and components (006)
Inspect cooling system (006)
Check coolant concentration/PH: (006)

30000 Mile Intervals

Check engine support fastener (006)
Pres flush rad & change coolant (002)
Change transmission spin-on filter (003)
Insp seat frames for cracks/mount (006)
Check frame fastener torque (006)
Check springs u-bolt torque (001)
Chk spr brake fastener torque-rear (006)
Check air bag fastener torque (001)
Chk suspension component clearance (006)
Insp suspen component & chk oper (006)
Check air springs u-bolt torque (006)
Check shock absorbers (006)
Check radius rod bushing (Hendr) (006)
Chk spring fastener torque (Hendr) (006)
Clean/repack/adjust wheel bearings (003)
Check wheel nut and rim nut (006)

Repl air dryer desiccant Ben AD-9 (003)
Change pwr str reser fluid/filter (003)

60000 Mile Intervals

Change air filter element (003)

90000 Mile Intervals

Change diff fluid/clean mag plug (003)

Generic Bus Plans

5000 Mile Service

Perform Oil Sample
Lube grease fittings/check fluids (007)
Lube door/hood hinges and latches (007)
Bus pickup/travel time

15000 Mile Service

Wash engine/battery compartment (002)
Change oil and filter
Replace fuel filters (003)
Test and service air filter (006)
Check crankshaft end play (006)
Clean heater filter (002)
Adjust governor/throttle (linkage) (001)
Test coolant additive (DCA level) (006)
Replace coolant filter (006)
Pressure test cooling system (006)
Service battery (cable and comp.) (006)
Inspect and adjust engine belts (006)
Record alternator volt/amp reading (006)
Service air comp. (filter/ejector) (006)
Replace AT auxiliary filter (003)
Test steering gear operation (006)
Check spring ubolts (001)
Service wheel chair lift (006)
Visually inspect front end alignment (001)
Check or reline front brakes (006)
Turn front brake drums (if needed) (001)
Repack front wheel bearings (007)
Adjust brakes (001)
Bus pickup and delivery (020)
Brake test (panic stop reading) (006)
Road test (018)
Change auto trans. filter & fluid (007)

30000 Mile Service

Check or reline rear brakes (006)
Turn rear brake drums (if needed) (001)
Bar test rear wheel bearings (007)
Inspect S-cam bushings (006)

60000 Mile Service

Tune engine, Adjust Valves OEM SP (006)
Change power steering fluid & filter
Change air dryer element (007)
Drain/rep. brake fluid (hydraulic) (007)
Change differential fluid(007)
Drain/flush radiator (002)
Remove and inspect all wheel bearings
Undercoat bus (015)

Medium Duty Trucks

5000 Mile Service

Perform oil sample
Lube grease fittings/check fluids (007)
Lube door/hood hinges and latches (007)
Service battery (cable and comp.) (006)

15000 Mile Service

Change oil and filter
Replace fuel filters (003)
Test and service air filter (006)
Check crankshaft end play (006)
Clean heater filter (002)
Test coolant additive (DCA level) (006)
Replace coolant filter (006)
Pressure test cooling system (006)
Inspect and adjust engine belts (006)
Record alternator Amp/Volt reading (006)
Service air comp. (filter/ejector) (006)
Replace AT auxiliary filter (003)
Test steering gear operation (006)
Check spring ubolts (001)
Check front end alignment (toe in) (001)
Check or reline front brakes (006)
Turn front brake drums (if needed) (001)
Repack front wheel bearings (007)
Check brake adjustment (001)
Road test (018)
Change Auto trans. Filter & fluid (007)

30000 Mile Service

Wash eng/bat compart -Low Pressure (002)
Check or reline rear brakes (006)
Turn rear brake drums (if needed) (001)
Bar test rear wheel bearings (007)
Inspect S-cam bushings (006)
Check tension belt pulley (006)

Light Duty Cars/Trucks

5000 Mile Service

Change oil and filter
Lube grease fittings/check fluids (007)
Lube door/hood hinges and latches (007)
Service battery (cable and comp.) (006)
Rotate Tires
Ck. Brake lining, reline as necessary
Repack wheel bearings when brakes relined

15000 Mile Service

Replace fuel filters (003)
Test and service air filter (006)
Pressure test cooling system (006)
Inspect and adjust engine belts (006)
Record alternator Amp/Volt reading (006)
Test steering gear operation (006)
Check or reline front brakes (006)
Turn front brake drums (if needed) (001)
Repack front wheel bearings (007)
Road test (018)

30000 Mile Service

Wash eng/bat compart -Low Pressure (002)
Change auto trans. fluid & filter (007)
Check or reline rear brakes (006)
Turn rear brake drums (if needed) (001)
Repack rear wheel bearings (007)
Check tension belt pulley (006)
Test starter/rec. amp/volt reading (006)
Visually Check all steering linkages
Visually Check front end alignment
Check spring u-bolts

60000 Mile Service

Tune up engine (006)
Change power steering fluid & filter (006)
Drain/rep. brake fluid (hydraulic) (007)
Change differential fluid (007)
Drain/flush/change radiator (002)

90000 Mile Service

Adj. engine valves per service manual (001)
Remove & inspect wheel brngs (006)
Change Manual Transmission Fluid