

CyRide

Ames Transit Agency

Revised June 2011

Vehicle Maintenance Plan



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I. Organizational Structure

CyRide operations and maintenance is governed by the Ames Transit Agency. The Transit Agency is an administrative agency of the City of Ames, Iowa established pursuant to Chapter 392, Code of Iowa, 1979. The purpose of the agency is the establishment, acquisition, operation, management, control and governance of transit services in and for the City of Ames.

II. Vehicle Maintenance Plan Objective

The objective of the CyRide Vehicle Maintenance Plan is to optimize the value of the funded dollar while protecting stakeholder investment. The primary goals of the plan are:

- Maintain vehicles in safe operating condition.
- Ensure each vehicle is operating at peak efficiency.
- Maximize vehicle life.
- Minimize vehicle service failures (road calls).
- Minimize loss of accessibility due to equipment failure.
- Meet or exceed manufacturers' maintenance requirements.
- Maintain vehicle exterior and interior appearance.
- Maintain a system of permanent vehicle maintenance records.
- Adhere to a strict preventive maintenance schedule.
- Administer an aggressive equipment warranty recovery program.

CyRide, along with the City of Ames, subscribes to a philosophy of continuous improvement. The Vehicle Maintenance Plan and the procedures detailed in it will be subject to constant review and improvement. The plan will also be updated as the mix of rolling stock equipment changes

III. Vehicle Inspection Procedures

The preventive maintenance program at CyRide consists of daily inspections and mileage based inspections.

Daily Inspections

A. Pre-Service Inspection (M-F)

The general operating condition of each vehicle is checked before being placed in service through the following two procedures on weekdays:

Morning Laneworker Inspection: While charging bus air systems with the building's air supply, the morning laneworker visually inspects the tires and exterior condition of the bus. The floor around the bus is checked for fluid leaks. Problems are reported immediately to the lead mechanic for evaluation.

Fleet Status Board: The lead mechanic verifies vehicles are ready for service by checking this board in the dispatch office before pullout.

B. Driver Pre-Trip Inspection

Every day of the week, drivers perform a pre-trip inspection prior to the start of their shift. Wheelchair lifts are cycled at pullout and at intervals throughout the day. Problems are reported immediately to the dispatcher. If a problem may affect safety, service, accessibility or cause further component damage, the vehicle is removed from service.

C. Maintenance Cards

The reporting of mechanical problems to the maintenance staff from drivers and operations supervisors is accomplished through a Maintenance Card. All mechanical problems identified during the pre-trip inspection or driving shifts are recorded by the driver or dispatcher on a Maintenance Card. The Maintenance Card specifically identifies the bus, the problem, and the time identified. The Maintenance Card is forwarded to the either the lead mechanic or the senior mechanic on duty for repair coordination. Upon completion of repairs, a copy of the card with the repairs performed is returned to the driver. The Maintenance Coordinator reviews a sampling of the cards on a monthly basis.

D. Service Lane Inspection

Vehicles are serviced at the end of each day. During the servicing process, the following maintenance procedures are followed:

Tires visually checked.

Fuel tank filled.

Interior swept and cleaned.

Exterior washed as needed.

Engine belts and general engine condition checked.

Motor oil, transmission fluid, coolant, and diesel exhaust fluid (DEF) checked.

Exterior lights checked – bulbs replaced.

Interior checked – seats, windows, lights, etc.

Preventive Maintenance Inspections

CyRide has a diverse fleet of vehicles spanning several model years. This diversity requires different approaches to maintenance scheduling. There are three main schedules.

- 1.** Older vehicles that acquire less than 10,000 miles per year are scheduled by time based intervals. Some vehicles are based on 4 month time intervals with a yearly heavy inspection. The remaining with little usage are based on a 6 month interval with a yearly heavy inspection.
- 2.** Large buses older than model year 1995 are scheduled on a 2,500 mile cycle. There are four levels of preventive maintenance, (A) 2,500 miles; (B) 5,000 miles; (C) 10,000 miles; and (D) 20,000 miles. The preventive maintenance schedule is A, B, A, C, A, B, A, D and then it repeats in that cycle.
- 3.** Large buses newer than model year 1996 are scheduled on a 5,000 mile cycle. There are 3 levels of inspections, (A) 5,000 miles, (B) 10,000 miles, and (C) 20,000 miles. The preventative maintenance schedule is A, B, A, C and continues repeating. Additional Maintenance may be performed seasonally as needed such as; washing out radiators in fall, rinsing salt off W/C lifts and radiators in winter, and other seasonal factors.

For diesel mini buses (Ford E series), the intervals are (A) 3,000 miles; (B) 6,000 miles; (C) 12,000 miles; and (D) 24,000 miles. The preventative maintenance schedule is A, B, A, C, A, B, A, D and then repeats in that cycle.

For gasoline mini buses (Ford E series), the intervals are (A) 5,000 miles; (B) 15,000 miles; (C) 30,000 miles; (D) 50,000 miles; (E) 60,000 miles. The preventative maintenance schedule is A, A, B, A, A, C, A, A, B, D, A, E and then repeats the cycle.

Preventive maintenance inspections are to be performed on time. CyRide defines an on-time inspection as being within (+/-)10 percent of schedule. A list of items inspected at the above intervals can be found on the inspection sheets in the appendix.

The mechanic assistant performing the inspection will repair minor defects at the end of the inspection. This includes minor Maintenance Card repairs deferred until inspection. Repairs that can't be completed in the allotted inspection time are reported to the lead mechanic or Maintenance Coordinator. Generally, any remaining repairs are assigned and completed by another mechanic. If parts are not available and the defect is not safety sensitive, the bus will be released for service and scheduled for repairs at a later date.

Brake and tire wear are recorded on a spreadsheet. Repairs are scheduled when wear reaches a predetermined level. CyRide's tire replacement policy follows DOT regulations. Steer tires are replaced at 4/32-tread depth and drive tires are replaced at 2/32-tread depth. Brake linings are replaced when linings reach a point between ¼ of their original usable thickness and the minimum thickness allowed by the lining manufacturer. Linings are also replaced when excessive noise is noted during brake application.

Deep interior cleanings will be done during the periods of the year when service is drastically cut; full bus cleanings may be done at other times on a case by case basis as deemed necessary by shop personnel. Buses will be cleaned based on availability and time since last deep cleaning.

IV. Reactive Vehicle Maintenance

All other vehicle maintenance is performed in response to detected problems. Reactive maintenance cannot be eliminated and is often a function of vehicle miles, fleet age, and preventive maintenance intervals. It is the intent of this maintenance program to minimize this type of maintenance – including road calls. Constantly reviewing and improving upon the existing Vehicle Maintenance Plan will accomplish this.

The reactive vehicle maintenance policy is as follows:

- All problems are to be reported, no matter how minor.
- The supervisor, dispatcher, lead mechanic or senior mechanic on duty / on call shall make an immediate determination whether the vehicle should be removed from service.
- Failures of accessibility equipment shall require prompt resolution. An alternate vehicle or immediate repair will be provided.
- The driver or dispatcher records all detected problems on a Maintenance Card.
- All repairs are documented on the Maintenance Card, mechanic's time card, and Collective Data maintenance software.

V. Documentation and Evaluation of Vehicle Maintenance

Documentation and evaluation of vehicle maintenance activities are the primary means for the maintenance program to attain its goals. CyRide utilizes the following documentation in its maintenance program:

1. *Collective Data Maintenance Software:* Vehicle repair information is transferred from employee timecards to work orders on the Collective Data system. A log of repairs segregated by unit number can be retrieved from the program.
2. *Maintenance Card:* As outlined previously, this form is used to report any mechanical problems to the maintenance staff.
3. *Oil Analysis Report:* Oil sampling is done every 5,000 miles on large buses and every 6,000 miles on minibuses. The lead mechanic and/or the Maintenance Coordinator review these reports to determine if there are any problems with the engine.
4. *Parts Log:* A log of the parts used in repairing buses is kept in the parts room.
5. *Daily Commodities Usage:* Petrovend software records daily mileages along with fuel and fluids consumption. This data is also exported to the Collective Data Maintenance software to track fuel and fluid use.
6. *Road Call Log:* The Dispatch office keeps track of all Road Calls, it is also kept track of in Collective Data.
7. *Inspection Schedule:* The Maintenance Coordinator monitors and schedules preventive maintenance inspections via spreadsheet and Collective Data.

VI. Vehicle Accessibility Equipment

In order to maintain service availability to persons with disabilities, the following procedures are followed:

1. Pre-trip cycling of wheelchair lifts and inspection of securement stations at bus pull out and at intervals dictated by Operations throughout the day.
2. Vehicles experiencing equipment failures are removed from service and repaired as soon as possible.
3. Replacement of wheelchair lifts occurs when the unit cannot be repaired.
4. Equipment maintenance and inspection is incorporated into preventive maintenance inspection procedures.

Appendix

2,500 MILE INSPECTION

Bus No. _____ Odometer Miles: _____ Date _____
Previous Miles: _____
Actual Miles: _____

Symbol Definition:
/ O.K.
X ADJUSTED
O REPAIRS NEEDED

PICK UP ALL MAINTENANCE CARDS

INTERIOR INSPECTION

- ___ Check drivers' door, entrance & exit door & operation - when applicable
- ___ Check door sensitive edges & step treadles - when applicable
- ___ Inspect drivers' foot box area. Clean if necessary
- ___ Visually inspect interior for damage, loose or missing equipment, cleanliness & overall appearance
- ___ Inspect Heater/ A/C filter. Change if necessary
- ___ Check wheelchair lift operation

EXTERIOR INSPECTION

- ___ Check all exterior lamp operation
- ___ Check fluid levels. Add if necessary
- ___ Engine Oil
- ___ Transmission Fluid
- ___ Coolant
- ___ Washer Fluid
- ___ Power Steering/Hydraulic Fluid
- ___ Brake Fluid (Mini-Buses)
- ___ Hub Oil Level - When applicable
- ___ Visually inspect engine compartment
- ___ Check & adjust tire pressure. Visually inspect tires for damage.
- ___ Check lug nuts for signs of looseness & tighten if needed
- ___ Visually inspect under chassis for loose & or damaged parts
- ___ Check brake adjustment & visually inspect brake components
- ___ Drain wet air tank on buses with air systems
- ___ Drain blower box catch tank - When applicable
- ___ Wash radiator, A/C condenser, battery box, engine compartment & wheelchair lift platform
- ___ Torque all lug nuts (450 ft lbs - 500 ft lbs)
- ___ Torque all lug nuts on Service Vehicles to mfg specs.
- ___ Check 1st Aid Kit & Accident Pkt - Restock drivers' cabinet

FILL OUT & RETURN ALL MAINTENANCE CARDS W/INSPECTION SHEET

GILLIG & ORION INSPECTION
5,000 10,000 20,000 40,000

Bus No. _____ Odometer Miles: _____
 _____ Previous Miles: _____
 _____ Actual Miles: _____
 _____ Last Oil Change: _____
 _____ Miles on Sample: _____

Date _____

Definition:
 / O.K.
 X ADJUSTED
 O REPAIRS NEEDED

___ **UPDATE COMPUTER AND DBS**

___ **PICKUP AND RETURN MAINTENANCE CARDS**

DRIVERS' AREA

- ___ FREE PLAY IN STEERING WHEEL
- ___ STEERING TILT MECHANISM
- ___ HORN OPERATION
- ___ DRIVERS' SEAT & SEAT BELT OPERATION
- ___ SERVICE BRAKE & ACCELERATOR PEDAL OPERATION
- ___ SPRING BRAKE OPERATION - CHECK CONTROL KNOB
CONDITION & FOR EXCESSIVE AIR LEAKAGE
- ___ DOOR MASTER CONTROL & INTERLOCK OPERATION
- ___ REAR DOOR OVERRIDE SWITCH OPERATION
- ___ REARVIEW MIRRORS & CHECK FOR MIRROR TOOLS
- ___ ALL INSTRUMENT PANEL GAUGES - OPERATION &
DIMMING
- ___ ILLUMINATOR LAMPS - OPERATION & DIMMING
- ___ AIR COMPRESSOR OPERATION : CUT-IN/OUT PRESSURES
- ___ INSTRUMENT PANEL INDICATOR & WARNING LAMP
OPERATION
- ___ TRANS SELECTOR PAD & BUTTON OPERATION
- ___ MASTER SWITCH OPERATION
- ___ EMERGENCY ENGINE SHUTDOWN - WHEN APPLICABLE
- ___ HEADLIGHT & DIMMER SWITCH OP – CHECK AIM
- ___ WINDSHIELD WIPER/WASHER OPERATION
- ___ FOOT MOUNTED TURN SIGNAL SWITCH OPERATION
- ___ HAZARD/4-WAY SWITCH OPERATION
- ___ RADIO OPERATION & MTG
- ___ PA SYSTEM OPERATION & MTG
- ___ DRIVERS' SIDE WINDOW OPERATION
- ___ FRONT DESTINATION SIGN & LIGHT OPERATION
- ___ DRIVERS' HEATER/ A/C CONTROLS & FAN OPERATION
- ___ DRIVERS' BOOSTER FAN OPERATION - WHEN APPLICABLE
- ___ PASSENGER HEATER/ A/C CONTROLS & FAN OPERATION
- ___ AUXILIARY COOLANT HEATER OPERATION –IF APP
- ___ RUN A/C
- ___ FAREBOX MTG OPERATION & LAMP
- ___ DRIVERS' LAMP OPERATION
- ___ PASSENGER DOME LAMP OPERATION
- ___ INSPECT DRIVERS' FOOT BOX - CLEAN IF NECESSARY
- ___ CHECK 1ST AID KIT , ACCIDENT PKT, AND FIRE EXT - RESTOCK IF NEEDED

PASSENGER AREA

- ___ SEAT FRAMES & COVERINGS FOR DEFECTS
- ___ GENERAL INTERIOR CONDITION - PAINT, PANELS, ETC
- ___ ENTRANCE & EXIT DOOR OPERATION
- ___ DOOR AIR MOTORS FOR LEAKS, ETC.
- ___ LIMIT SWITCHES MOUNTING & OPERATION
- ___ BODE DOOR SPRINGS - WHEN APPLICABLE
- ___ EXIT DOOR STEP TREADLES & SENSITIVE EDGES
- ___ ENTRANCE / EXIT STEP WELLS FOR LOOSE COVERINGS
& DEFECTS
- ___ LAMP OPERATION
- ___ "GREEN" LAMP OPERATION W/ EXIT DOORS AUTHORIZED
- ___ STANCHION & GRAB RAILS FOR DEFECTS
- ___ FLOOR COVERING FOR LOOSENESS & DEFECTS
- ___ PASSENGER CHIME & PULL CORDS
- ___ SIDE DESTINATION SIGN & LAMP OPERATION
- ___ WINDOWS, LATCHES & OPERATION
- ___ EMERGENCY EXIT OPERATION
- ___ REPLACE A/C EVAPORATOR FILTER
- ___ INSPECT HEATER FILTER –REPLACE IF NEEDED
- ___ CHECK HEATER CORES FOR LEAKAGE & MTG
- ___ CHECK A/C EVAPORATOR -CLEAN IF NECESSARY
- ___ CLEAN STEERING WHEEL AND DRIVERS DASH
- ___ MOP FLOOR DURING WINTER MONTHS
- ___ INSPECT SEATS FOR CLEANLINESS - CLEAN IF DIRTY
- ___ INSPECT INTERIOR FOR CLEANLINESS -CLEAN IF DIRTY
- WHEELCHAIR LIFT**----
- ___ PERFORM INSPECTION (ATTACH SHEET)
- ___ CHECK LIFT OPERATION
- ___ FOLDING SEAT OPERATION
- ___ CLEAN RELATED BELTS. CHECK RETRACTOR & LATCH
OPERATION

EXTERIOR INSPECTION

- GENERAL BODY & PAINT CONDITION
- EXTERIOR LIGHTS - CLEARANCE, SIDE, MARKER, STOP, ETC.
- BACK-UP ALARM OPERATION
- WHEEL & AXLE FLANGE NUTS
- WIPER ARMS & BLADES, ETC
- WASH RADIATOR, A/C CONDENSER, BATTERY BOX, ENGINE COMPARTMENT & W/C LIFT PLATFORM
- FRONT HUB OIL LEVEL
- DOOR & FENDER RUBBERS
- CHECK & SERVICE BATTERIES
- TORQUE ALL LUG NUTS (450 FT LBS - 500 FT LBS)

UNDER CHASSIS INSPECTION

- VISUALLY INSPECT ALL UNDER CHASSIS COMPONENTS
- CHECK FOR LEAKS - AIR, COOLANT, OIL, FUEL, ETC.
- DRAGLINK & TIE RODS
- KING PINS FOR LOOSENESS
- SHOCK ABSORBERS - FRONT & REAR
- RADIUS RODS & BUSHINGS - FRONT & REAR
- STEERING SHAFT & U-JOINTS IF APPLICABLE
- STEERING GEAR
- CHECK & ADJ BRAKES - RECORD APPROX . BRAKE LINING THICKNESS
- BRAKE HOSES
- WHEEL SEALS FOR LEAKAGE
- WHEEL BEARING ADJUSTMENT
- VISUALLY CK. TIRES FOR WEAR & TREAD DEPTH
- RECORD DEPTH
- CHECK TIRE PRESSURE & ADJUST TO TIRE MFG. SPEC
- COMPLETE CHASSIS LUBRICATION
- EXHAUST SYSTEM - MUFFLER, EXHAUST PIPING & MTG
- INTERCOOLER & PLUMBING -PIPING, HOSES, CLAMP & MTG
- CHECK MUD FLAP MTG & CONDITION
- FUEL TANK MTG, DAMAGE & FOR LEAKAGE
- TRANS OUTPUT SHAFT SEAL FOR LEAKAGE
- DRIVE SHAFT & U-JOINTS FOR LOOSENESS
- DIFFERENTIAL LUBE LEVEL
- DIFFERENTIAL/PINION SEAL & HOUSING FOR LEAKS
- AIR COMPRESSOR INLET PIPING
- DRAIN & INSPECT AIR TANK
- TAKE ENGINE OIL SAMPLE

--IF APPLICABLE--

- SERVICE AIR CLEANER (5,000) (94,95,96,97 ORION V)
- CHANGE ALLISON TRANS SPIN-ON FILTERS
- DRAIN BLOWER BOX CATCH TANK & INSPECT VENT TUBE

10,000 MILE INSPECTION

- REPLACE VOITH SPIN-ON FILTER IF APP
- REPLACE FUEL FILTER(S)
- REPLACE COOLANT FILTER
- SERVICE AIR CLEANER
- CHECK & SHAKE FIRE EXTINGUISHER
- CHANGE ENGINE OIL & FILTER* 6V71 & 6V92 - 40 W OIL
- SERIES 50 & CUMMINS - 15 W 40 OIL
- REAR AXLE PLANETARY HUBS - DRAIN & REFILL (LOW FLOORS)

20,000 MILE INSPECTION + 10K

- SERVICE TRANSMISSION -DRAIN & REFILL
- CHANGE TRANSMISSION FILTER
- SERVICE HYD SYSTEM - DRAIN & REFILL
- REPLACE SUCTION FILTERS (GILLIG)
- STEAM CLEAN ENGINE/TRANS
- HYDROMETER TEST BATTERIES

40,000 MILE INSPECTION + 10K & 20K

- SERVICE DIFFERENTIAL - DRAIN & REFILL
- SERVICE HYD SYSTEM - DRAIN & REFILL--
- REPLACE SUCTION & PRESSURE FILTERS (ORION)

ENGINE COMPARTMENT INSPECTION

- REAR RUN SWITCHES, GAUGES & COMPARTMENT LAMP OPERATION
- VISUALLY INSPECT FOR LEAKS - WATER, OIL, FUEL & AIR LINES
- AIR COMPRESSOR INLET & DISCHARGE LINES
- STARTER OPERATION & MTG
- HYDRAULIC FLUID PUMP FOR LEAKAGE
- BELT CONDITION & TIGHTNESS
- RADIATOR COOLING FAN, HUB, MOTOR & OPERATION
- RADIATOR & SURGE TANK MTG & FOR LEAKAGE
- RADIATOR FILL CAP & GASKET OPERATION & FOR LEAKAGE
- COOLANT HOSE CONDITION & CLAMP TIGHTNESS
- CHECK BELT TENSIONERS
- CHECK FLUID LEVELS-----
- ENGINE OIL
- TRANSMISSION FLUID
- HYDRAULIC FLUID
- COOLANT

--IF APPLICABLE--

- ENGINE GOVERNOR COVER LINKAGES
- THROTTLE CYLINDER OPERATION WHEN APPLICABLE
- SHUTTER OPERATION

FALL SERVICE INSPECTION

Bus No. _____ Odometer Miles: _____ Date _____
Previous Miles: _____
Actual Miles: _____

Symbol Definition:
/ O.K.
X ADJUSTED
O REPAIRS NEEDED

PICK UP ALL MAINTENANCE CARDS

INTERIOR INSPECTION

- ___ Check drivers' door, entrance & exit door & operation - when applicable
- ___ Check door sensitive edges & step treadles - when applicable
- ___ Inspect drivers' foot box area. Clean if necessary
- ___ Visually inspect interior for damage, loose or missing equipment, cleanliness & overall appearance
- ___ Dust seats, dash, floor. Mop floor if needed.
- ___ Check wheelchair lift operation

EXTERIOR INSPECTION

- ___ Check all exterior lamp operation
- ___ Check fluid levels. Add if necessary
- ___ Engine Oil
- ___ Transmission Fluid
- ___ Coolant
- ___ Washer Fluid
- ___ Power Steering/Hydraulic Fluid
- ___ Brake Fluid (Mini-Buses)
- ___ Hub Oil Level - When applicable
- ___ Visually inspect engine compartment
- ___ Check & adjust tire pressure. Visually inspect tires for damage.
- ___ Check lug nuts for signs of looseness & tighten if needed
- ___ **Torque all Lug Nuts (450 Ft Lbs - 500 Ft Lbs)**
- ___ Visually inspect under chassis for loose &or damaged parts
- ___ Check brake adjustment & visually inspect brake components
- ___ Drain wet air tank on buses with air systems
- ___ Drain blower box catch tank - When applicable
- ___ Check battery voltage - Charge/Service as needed.
- ___ Check 1st Aid Kit & Accident Pkt - Restock drivers' cabinet

FILL OUT & RETURN ALL MAINTENANCE CARDS W/INSPECTION SHEET

GM INSPECTION
5,000 10,000 20,000

Bus No. _____ Odometer Miles: _____
 _____ Previous Miles: _____
 _____ Actual Miles: _____
 _____ Last Oil Change: _____
 _____ Miles on this Oil Sample: _____

Date _____
 Symbol Definition:
 / O.K.
 X ADJUSTED
 O REPAIRS NEEDED

PICK UP ALL MAINTENANCE CARDS & TEST DRIVE

INTERIOR INSPECTION

DRIVERS' AREA

- FREE PLAY IN STEERING WHEEL
- HORN OPERATION
- DRIVERS' SEAT & SEAT BELT OPERATION
- SERVICE BRAKE & ACCELERATOR PEDAL OPERATION
- SPRING BRAKE OPERATION - CHECK CONTROL KNOB CONDITION & FOR EXCESSIVE AIR LEAKAGE
- HAND BRAKE OPERATION & ADJUSTMENT
- DOOR MASTER CONTROL & INTERLOCK OPERATION
- REAR DOOR OVERRIDE SWITCH OPERATION
- REARVIEW MIRRORS & CHECK FOR MIRROR TOOLS
- ALL INSTRUMENT PANEL GAUGES - OPERATION & DIMMING
- ILLUMINATOR LAMPS - OPERATION & DIMMING
- AIR COMPRESSOR OPERATION : CUT-IN & CUT-OUT PRESSURES
- INSTRUMENT PANEL INDICATOR & WARNING LAMP OPERATION
- TRANS GEAR SELECTOR SWITCH OPERATION - WHEN APPLICABLE
- TRANS GEAR SHIFT LEVER - WHEN APPLICABLE
- MASTER SWITCH OPERATION
- EMERGENCY ENGINE SHUTDOWN - WHEN APPLICABLE
- HEADLIGHT & DIMMER SWITCH OPERATION - CHECK HEADLIGHT AIM
- WINDSHIELD WIPER/WASHER OPERATION
- FOOT MOUNTED TURN SIGNAL SWITCH OPERATION
- HAZARD/4-WAY SWITCH OPERATION
- RADIO OPERATION & MTG
- PA SYSTEM OPERATION & MTG
- DRIVERS' SIDE WINDOW OPERATION
- FRONT DESTINATION SIGN & LIGHT OPERATION
- DRIVERS' HEATER CONTROLS & FAN OPERATION
- DRIVERS' BOOSTER FAN OPERATION - WHEN APPLICABLE
- PASSENGER HEATER CONTROLS & FAN OPERATION
- FAREBOX MTG OPERATION & LAMP
- DRIVERS' LAMP OPERATION
- PASSENGER DOME LAMP OPERATION
- INSPECT DRIVERS' FOOT BOX - CLEAN IF NECESSARY
- CHECK & SHAKE FIRE EXTINGUISHER (10,000)
- CHECK 1ST AID KIT & ACCIDENT PKT & RESTOCK DRIVER'S CABINET

PASSENGER AREA

- SEAT FRAMES & COVERINGS FOR DEFECTS
- GENERAL INTERIOR CONDITION - PAINT, PANELS, TRIM, ETC.
- ENTRANCE & EXIT DOOR OPERATION
- DOOR AIR MOTORS FOR LEAKS, ETC.
- LIMIT SWITCHES MOUNTING & OPERATION
- EXIT DOOR STEP TREADLES & SENSITIVE EDGES
- ENTRANCE / EXIT STEP WELLS FOR LOOSE COVERINGS & DEFECTS
- STEP WELL LAMP OPERATION
- "GREEN" LAMP OPERATION W/EXIT DOORS AUTHORIZED
- STANCHION & GRAB RAILS FOR DEFECTS
- FLOOR COVERING FOR LOOSENESS & DEFECTS
- PASSENGER CHIME & PULL CORDS
- SIDE DESTINATION SIGN & LAMP OPERATION
- WINDOWS, LATCHES & OPERATION
- EMERGENCY EXIT OPERATION
- INSPECT SEATS FOR CLEANLINESS - CLEAN IF NECESSARY
- CLEANLINESS - CLEAN IF NECESSARY
- INSPECT INTERIOR FOR CLEANLINESS - CLEAN IF NECESSARY
- CHECK CIRC PUMP OPERATION

FILL OUT & RETURN ALL MAINTENANCE CARDS W/INSPECTION FORM

EXTERIOR INSPECTION

- GENERAL BODY & PAINT CONDITION
- EXTERIOR LIGHTS - CLEARANCE, SIDE, MARKER, STOP, ETC.
- BACK-UP ALARM OPERATION
- WHEEL & AXLE FLANGE NUTS
- TORQUE ALL LUG NUTS (450 FT LBS - 500 FT LBS.)**
- WASH RADIATOR, A/C CONDENSER, BATTERY BOX, ENGINE COMPARTMENT**
- WIPER ARMS & BLADES, ETC.
- DOOR & FENDER RUBBERS
- CHECK & SERVICE BATTERIES
- HYDROMETER TEST BATTERIES (20,000)**

UNDER CHASSIS INSPECTION

- VISUALLY INSPECT ALL UNDER CHASSIS COMPONENTS
- CHECK FOR LEAKS - AIR, COOLANT, OIL, FUEL, ETC.
- DRAGLINK & TIE RODS
- KING PINS FOR LOOSENESS
- SHOCK ABSORBERS - FRONT & REAR
- RADIUS RODS & BUSHINGS - FRONT & REAR
- STEERING SHAFT & U-JOINTS IF APPLICABLE
- STEERING GEAR & LUBRICATE
- CHECK & ADJ BRAKES - RECORD APPROX . BRAKE LINING THICKNESS
- BRAKE HOSES
- WHEEL SEALS FOR LEAKAGE
- WHEEL BEARING ADJUSTMENT
- VISUALLY CK. TIRES FOR WEAR & TREAD DEPTH - RECORD DEPTH
- CHECK TIRE PRESSURE & ADJUST TO TIRE MFG. SPEC
- COMPLETE CHASSIS LUBRICATION
- INSPECT HEATER FILTER -CHANGE AS NEEDED
- CHECK HEATER CORES FOR LEAKAGE & MTG
- REPLACE COOLANT FILTER - WHEN APPLICABLE (10,000)
- MOTOR MOUNTS - FRONT & REAR
- EXHAUST SYSTEM - MUFFLER, EXHAUST PIPING & MTG
- CHECK MUD FLAP MTG & CONDITION
- FUEL TANK MTG, DAMAGE & FOR LEAKAGE
- TRANS OUTPUT SHAFT SEAL FOR LEAKAGE
- DRIVE SHAFT & U-JOINTS FOR LOOSENESS
- DIFFERENTIAL LUBE LEVEL
- DIFFERENTIAL/PINION SEAL & HOUSING FOR LEAKS
- HAND BRAKE LINKAGE & ADJUSTMENT
- AIR COMPRESSOR INLET PIPING
- DRAIN & INSPECT AIR TANK
- DRAIN BLOWER BOX CATCH TANK & INSPECT VENT TUBE
- CHANGE TRANS SPIN-ON FILTERS**
- CHANGE ENGINE OIL & FILTER***
- CHANGE BYPASS OIL FILTER***
- * 6V71 & 8V92 - 15,000 MILE INTERVAL - 40 W OIL
- SAMPLE ENGINE OIL & FILTER
- SERVICE TRANSMISSION -DRAIN & REFILL (20,000)
- SERVICE POWER STEERING SYSTEM - DRAIN & REFILL
- REPLACE SUCTION FILTERS (20,000)
- STEAM CLEAN ENGINE/TRANS (20,000)
- SERVICE DIFFERENTIAL - DRAIN & REFILL (40,000)

ENGINE COMPARTMENT INSPECTION

- REAR RUN SWITCHES, GAUGES & COMPARTMENT LAMP OPERATION
- VISUALLY INSPECT FOR LEAKS - WATER, OIL, FUEL & AIR LINES
- CHECK FLUID LEVELS
- ENGINE OIL
- TRANSMISSION FLUID
- COOLANT
- HYDRAULIC FLUID
- AIR COMPRESSOR INLET & DISCHARGE LINES
- STARTER OPERATION & MTG
- ALCOHOL EVAPORATOR BOTTLE & PLUMBING - FILL AS REQUIRED
- ALTERNATOR OPERATION & MTG
- ENGINE GOVERNOR COVER LINKAGES
- THROTTLE CYLINDER OPERATION WHEN APPLICABLE
- RADIATOR COOLING FAN, HUB, MOTOR & OPERATION
- RADIATOR & SURGE TANK MTG & FOR LEAKAGE
- RADIATOR FILL CAP & GASKET OPERATION & FOR LEAKAGE
- COOLANT HOSE CONDITION & CLAMP TIGHTNESS
- SHUTTER OPERATION
- HYDRAULIC FLUID PUMP FOR LEAKAGE
- SERVICE AIR CLEANER (10,000)**
- REPLACE FUEL FILTER(S) (10,000)**

5,000 10,000 20,000

Bus No. _____ Odometer Miles: _____ Date _____

Previous Miles: _____

Actual Miles: _____

Last Oil Change: _____

Miles on this Oil Sample: _____

Symbol Definition:

/ O.K.

X ADJUSTED

O REPAIRS NEEDED

PICK UP ALL MAINTENANCE CARDS & TEST DRIVE

INTERIOR INSPECTION

DRIVERS' AREA

___ FREE PLAY IN STEERING WHEEL

___ STEERING TILT MECHANISM

___ HORN OPERATION

___ DRIVERS' SEATBELT OPERATION

___ BRAKE & ACCELERATOR OPERATION

___ PARK BRAKE PEDAL OPERATION

___ REAR VIEW MIRRORS & CHECK FOR MIRROR TOOLS

___ ALL DASH GAUGES & ILLUMINATOR LAMPS - OPERATION & DIMMING

___ INSTRUMENT PANEL INDICATOR LAMPS

___ IGNITION SWITCH OPERATION

___ SHIFT LEVER OPERATION

___ OVERDRIVE BUTTON OPERATION

___ HEADLAMP SWITCH - CHECK HEADLAMP AIM & DTRL OPERATION

___ WINDSHIELD WIPER/WASHER OPERATION

___ HAZARD/4-WAY SWITCH OPERATION

___ RADIO OPERATION & MTG

___ PA SYSTEM OPERATION & MTG

___ DRIVERS' DOOR & WINDOW OPERATION

___ FRONT DESTINATION SIGN & LIGHTS

___ DRIVERS' HEATER/ A/C CONTROLS & FAN OPERATION

___ PASSENGER HEATER/ A/C CONTROLS & FAN OPERATION

___ RUN A/C

___ CHECK FAREBOX MTG, OPERATION & LAMP

___ DOME LAMP OPERATION - DRIVERS' & PASSENGER

___ PASSENGER DOOR CONTROL SWITCH & OPERATION

___ INSPECT DRIVERS' FOOT BOX - CLEAN IF NECESSARY

___ CHECK & SHAKE FIRE EXTINGUISHER (10,000)

___ CHECK 1ST AID KIT & ACCIDENT PKT - RESTOCK IF NECESSARY (10,000)

PASSENGER AREA

___ CHECK SEAT FRAMES & COVERINGS FOR DEFECTS

___ GENERAL INTERIOR CONDITION, PAINT, PANELS, TRIM, ETC.

___ PASSENGER DOOR OPERATING MECHANISM & MOTOR

___ STEP WELL FOR LOOSE COVERINGS & DEFECTS

___ STANCHION & GRAB RAILS FOR DEFECTS

___ PASSENGER CHIME & PULL CORDS

___ SIDE DESTINATION SIGN & LIGHTS - WHEN APPLICABLE

___ WINDOWS, LATCHES & OPERATION

___ EMERGENCY EXITS

___ FLOOR COVERINGS FOR LOOSENESS & DEFECTS

___ DECALS

___ INSPECT SEATS FOR CLEANLINESS - CLEAN IF NECESSARY

___ CHECK FOR PASSENGER SEAT BELT EXTENSIONS: 3 - PASS/ 1 - W/C

___ INSPECT INTERIOR FOR CLEANLINESS - CLEAN IF NECESSARY

WHEELCHAIR LIFT

___ PERFORM INSPECTION (SEE ATTACHED INSPECTION FORM)

___ CHECK OPERATION

___ CHECK DOOR & LATCH OPERATION

___ CHECK FLOOD LAMP OPERATION

___ CLEAN SEATBELTS & CHECK SWITCH OPERATION

FILL OUT & RETURN ALL MAINTENANCE CARDS W/INSPECTION SHEET

EXTERIOR INSPECTION

- GENERAL BODY & PAINT CONDITION
- WHEEL & AXLE FLANGE NUTS
- EXTERIOR LAMPS - MARKER, CLEARANCE, STOP/TAIL , ETC.
- BACK-UP ALARM & LAMP OPERATION
- WASH RADIATOR, A/C CONDENSER & BATTERY BOX**
- CHECK & SERVICE BATTERIES
- CLEAN & LUBE BATTERY TRAY SLIDES
- WIPER ARMS & BLADES
- DOOR & FENDER RUBBERS
- HYDROMETER TEST BATTERIES (20,000)**

UNDER CHASSIS

- VISUALLY CHECK ALL UNDER CHASSIS COMPONENTS
- CHECK FOR LEAKS - COOLANT, OIL, ETC.
- DRAGLINK & TIE ROD ENDS
- SHOCKS - FRONT & REAR
- RADIUS RODS & BUSHINGS
- BALL JOINTS
- CHECK & ADJUST BRAKES - RECORD PAD THICKNESS
- BRAKE HOSES & LINES
- COMPLETE CHASSIS LUBRICATION
- CHECK WHEEL SEALS FOR LEAKS - FRONT & REAR
- CHECK WHEEL BEARING ADJUSTMENT - FRONT & REAR
- VISUALLY CHECK TIRES FOR WEAR & DAMAGE
- MEASURE & RECORD TIRE TREAD DEPTH
- TORQUE ALL LUG NUTS (126 FT LBS - 170 FT LBS - MINI BUSES)
- TORQUE ALL LUG NUTS (100 FT LBS - MINI VANS)
- TORQUE ALL LUG NUTS ON SERVICE VEHICLES TO MFG SPECS.
- PULL REAR BRAKE DRUMS (10,000)-
- INSPECT & RECORD LINING THICKNESS (10,000)**
- CHANGE IN-LINE TRANSMISSION FILTER (10,000)**
- CHECK & ADJUST TIRE PRESSURE TO TIRE MFG. SPECS.
- MOTOR & TRANSMISSION MOUNTS
- CHECK EXHAUST SYSTEM: HANGERS, PIPES & MUFFLER
- MUD FLAP MTG
- FUEL TANK MOUNTING - LEAKAGE OR DAMAGE
- TRANS OUTPUT SHAFT SEAL FOR LEAKAGE
- DRIVE SHAFT & U-JOINTS FOR LOOSENESS
- DIFFERENTIAL LUBE LEVEL
- DIFFERENTIAL/ PINION SEAL & HOUSING FOR LEAKS
- SAMPLE ENGINE OIL**
- CHANGE ENGINE OIL & FILTER**
- SERVICE DIFFERENTIAL - DRAIN & REFILL (20,000)
- SERVICE TRANS - DRAIN, CHANGE FILTER & REFILL (20,000)

ENGINE COMPARTMENT

- CHECK FOR LEAKS - COOLANT, OIL, FUEL, ETC.
- CHECK ACCESSORY DRIVE BELT
- CHECK ACCESSORY DRIVE BELT TENSIONER & IDLER PULLEYS FOR ALIGNMENT & OPERATION
- CHECK ALT. MTG & OPERATION
- CHECK & SERVICE ENGINE AIR FILTER (10,000)
- CHANGE FUEL FILTER (10,000)
- CHECK FLUID LEVELS
- ENGINE OIL
- TRANSMISSION FLUID
- BRAKE FLUID
- COOLANT
- POWER STEERING FLUID
- WASHER SOLVENT
- SERVICE FUEL FILTERS (#938 & #939 & #949) (20,000)**

MINI-BUS INSPECTION (GASOLINE)

5,000 15,000 30,000 50,000 60,000

Bus No. _____

Odometer Miles: _____

Date: _____

Last Oil Change: _____

Symbol Definition:

Miles on this Oil Sample: _____

/ - O.K.

PICK UP ALL MAINTENANCE CARDS & TEST DRIVE

X - ADJUSTED

O - REPAIRS NEEDED

INTERIOR INSPECTION

DRIVERS' AREA

- FREE PLAY IN STEERING WHEEL
- STEERING TILT MECHANISM
- HORN OPERATION
- DRIVERS' SEATBELT OPERATION
- BRAKE & ACCELERATOR OPERATION
- PARK BRAKE PEDAL OPERATION
- REAR VIEW MIRRORS & CHECK FOR MIRROR TOOLS
- ALL DASH GAGES & ILLUMINATOR LAMPS - OPERATION AND DIMMING
- INSTRUMENT PANEL INDICATOR LAMPS
- IGNITION SWITCH OPERATION
- SHIFT LEVER OPERATION
- OVERDRIVE BUTTON OPERATION
- HEADLAMP SWITCH - CHECK HEADLAMP AIM & DTRL OPERATION
- WINDSHIELD WIPER/WASHER OPERATION
- HAZARD/4-WAY SWITCH OPERATION
- RADIO OPERATION & MTG
- PA SYSTEM OPERATION & MTG
- DRIVERS' DOOR & WINDOW OPERATION
- FRONT DESTIANTION SIGN & LIGHTS
- DRIVERS' HEATER/ A/C CONTROLS & FAN OPERATION
- PASSENGER HEATER/ A/C CONTROLS & FAN OPERATION
- RUN A/C
- CHECK FAREBOX MTG, OPERATION & LAMP
- DOME LAMP OPERATION - DRIVERS' & PASSENGER
- PASSENGER DOOR CONTROL SWITCH & OPERATION
- INSPECT DRIVERS' FOOT BOX - CLEAN IF NECESSARY
- CHECK 1ST AID KIT & ACCIDIENT PKT - RESTOCK DRIVERS' CABINET

WHEELCHAIR LIFT

- PERFORM INSPECTION (SEE ATTACHED INSPECTION FORM)
- CHECK OPERATION
- CHECK DOOR & LATCH OPERATION
- CHECK FLOOD LAMP OPERATION
- CLEAN SEATBELTS & CHECK SWITCH OPERATION

BRAKES	TREAD DEPTH			
FRONT:				
REAR:				

PASSENGER AREA

- CHECK SEAT FRAMES & COVERINGS FOR DEFECTS
- GENERAL INTERIOR CONDITION, PAINT, PANELS, TRIM, ETC
- PASSENGER DOOR OPERATION MECHANISM & MOTOR
- STEP WELL FOR LOOSE COVERINGS & DEFECTS
- STANCHION & GRAB RAILS FOR DEFECTS
- PASSENGER CHIME & PULL CORDS
- SIDE DESTINATION SIGN & LIGHTS
- WINDOWS, LATCHES & OPERATION
- EMERGENCY EXITS
- FLOOR COVERINGS FOR LOOSENESS * DEFECTS
- DECALS
- INSPECT SEATS FOR CLEANLINESS - CLEAN IF NECESSARY
- CHECK FOR PASSENGER SEAT BELT EXTENSIONS: 3-PASS/1-W/C
- INSPECT INTERIOR FOR CLEANLINESS - CLEAN IF NECESSARY

EXTERIOR INSPECTION

- GENERAL BODY & PAINT CONDITION
- WHEEL & AXLE FLANGE NUTS
- EXTERIOR LAMPS - MARKER, CLEARANCE, STOP/TAIL, ETC
- BACK-UP ALARM & LAMP OPERATION
- WASH RADIATOR, A/C CONDENSER & BATTERY BOX
- TORQUE ALL LUG NUTS (126FT LBS - 170FT LBS)
- CHECK AND SERVICE BATTERIES
- CLEAN AND LUBE BATTERY TRAY SLIDES
- WIPER ARMS, BLADES & SPRAY PATTERN
- DOOR & FENDER RUBBERS

UNDER CHASSIS

- ___ VISUALLY CHECK ALL UNDER CHASSIS COMPONENTS
- ___ CHECK FOR LEAKS - COOLANT, OIL, ETC
- ___ DRAGLINK & TIE ROD ENDS
- ___ SHOCKS - FRONT & REAR
- ___ RADIUS ARMS & BUSHINGS
- ___ BALL JOINTS
- ___ CHECK & ADJUST BRAKES - RECORD PAD THICKNESS
- ___ BRAKE HOSES & LINES
- ___ COMPLETE CHASSIS LUBRICATION
- ___ CHECK SHEEL SEALS FOR LEAKS - FRONT & REAR
- ___ CHECK WHEEL BEARING ADJUSTMENT - FRONT & REAR
- ___ VISUALLY CHECK TIRES FOR WEAR & DAMAGE
- ___ MEASURE & RECORD TIRE TREAD DEPTH
- ___ CHECK & ADJUST TIRE PRESSURE TO THE TIRE MFG. SPECS.
- ___ MOTOR & TRANSMISSION MOUNTS
- ___ CHECK EXHAUST SYSTEM: HANGERS, PIPES & MUFFLER
- ___ MUD FLAP MTG
- ___ FUEL TANK MOUNTING - LEAKAGE OR DAMAGE
- ___ TRANS OUTPUT SHAFT SEAL FOR LEAKAGE
- ___ DRIVE SHAFT & U-JOINTS FOR LOOSENESS
- ___ DIFFERENTIAL LUBE LEVEL
- ___ DIFFERENTIAL/PINION SEAL & HOUSING FOR LEAKS
- ___ **SAMPLE ENGINE OIL**
- ___ **CHANGE ENGINE OIL & FILTER**

ENGINE COMPARTMENT

- ___ CHECK FOR LEAKS -COOLANT, OIL FUEL, ETC
- ___ CHECK ACCESSORY DRIVE BELT
- ___ CHECK ACCESSORY DRIVE BELT TENSIONER & IDLER PULLEYS FOR ALIGNMENT & OPERATION
- ___ CHECK ALT. MTG & OPERATION
- ___ CHECK FLUID LEVELS
 - ___ ENGINE OIL
 - ___ TRANSMISSION FLUID
 - ___ BRAKE FLUID
 - ___ COOLANT
 - ___ POWER STEERING FLUID
 - ___ WASHER SOLVENT

MILEAGE-BASED SERVICING

15,000

- ___ TORQUE REAR U-BOLT NUTS
- ___ TEST BATTERIES

30,000

- ___ REPACK WHEEL BEARING GREASE ON FRONT HUBS
- ___ REPLACE GREASE SEALS ON FRONT HUBS
- ___ REPLACE ENGINE AIR FILTER

50,000

- ___ REAR AXLE LUBRICANT REPLACEMENT

60,000

- ___ REPLACE SPARK PLUGS
- ___ CHANGE TRANSMISSION FLUID

FLUSH & CHANGE COOLANT AT THESE MILEAGES

- ___ 105,000
- ___ 150,000
- ___ 195,000
- ___ 240,000
- ___ 285,000
- ___ 330,000
- ___ 375,000
- ___ 420,000
- ___ 465,000

BRAUN LIFT

NL - MELINIUM 2

(BUSES: 133-138)

BUS NUMBER _____

MILEAGE _____

TOTAL CYCLES _____

INSPECTION # _____

INSPECTION #1, #2, #3 (MAN. 750 CYCLE)	INSPECTION #4 (MAN. 1500 CYCLES)
<p><i>SEE LUBRICATION DIAGRAM FOR TYPE OF OIL</i></p> <ul style="list-style-type: none"><input type="checkbox"/> Oil Outer barrier pivot points (2)<input type="checkbox"/> Oil Outer barrier latch pivot point<input type="checkbox"/> Grease Outer barrier latch slot <input type="checkbox"/> Oil Outer barrier lever bearings (2)<input type="checkbox"/> Oil Lift-Tite latches (tower pivot points - 2)<input type="checkbox"/> Oil Lift-Tite latch gas (dampening) spring pivot points (2 springs - 4 points)<input type="checkbox"/> Inspect Lift-Tite latches and gas springs for wear or damage (bent, deformed or misaligned), positive securement (lock nuts / external snap rings) and proper operation<input type="checkbox"/> Inspect outer barrier for proper operation<input type="checkbox"/> Inspect outer barrier latch for proper Operation, positive securement, and detached or missing spring<input type="checkbox"/> Adjust fold pressure and outer barrier fold pressure<input type="checkbox"/> Verify FMVSS 403/ 404 Certification Checklist<input type="checkbox"/> Inspect lift for wear, damage or any abnormal condition<input type="checkbox"/> Inspect lift for rattles<input type="checkbox"/> Check roll stop cylinder for leaks	<p><i>PREFORM 5,000 MILE INSPECTION AS WELL</i></p> <ul style="list-style-type: none"><input type="checkbox"/> Grease Inner/outer fold arms (2)<input type="checkbox"/> Oil Platform pivot pin bearings (4)<input type="checkbox"/> Oil Outer fold arm bearings (8)<input type="checkbox"/> Oil Inner roll stop pivot bearings (2)<input type="checkbox"/> Oil Inner roll stop lever bearings (2)<input type="checkbox"/> Oil Inner roll stop lever slot (2)<input type="checkbox"/> Oil Saddle support bearings (8)<input type="checkbox"/> Oil Inner fold arm roller pin bearings (4)<input type="checkbox"/> Oil Inner fold arm cam followers (4)<input type="checkbox"/> Oil Parallel arm pivot pin bearings (16)<input type="checkbox"/> Oil Handrail pivot pin bearings (4)<input type="checkbox"/> Oil Hydraulic cylinder pivot bushings (8)<input type="checkbox"/> Outer barrier lever guide slot<input type="checkbox"/> Inspect Lift-Tite™ latch rollers for wear or damage, positive securement and proper Operation (2)<input type="checkbox"/> Inspect inner roll stop for:<ul style="list-style-type: none">• Wear or damage• Proper operation. Roll stop should just rest on top surface of the threshold plate.• Positive securement (both ends)<input type="checkbox"/> Inspect handrail components for wear or Damage, and for proper operation<input type="checkbox"/> Inspect microswitches for securement and proper adjustment.<input type="checkbox"/> Make sure lift operates smoothly<input type="checkbox"/> Inspect external snap rings:<ul style="list-style-type: none">• Outer fold arm (6)• Lift-Tite™ latch roller (2)• Lift-Tite™ latch gas (dampening) spring (4)• Inner fold arm cam followers (4)• Inner fold arm roller pins (4)• Outer barrier hydraulic cylinder mounting pin(2)• Inner roll stop lever bracket pins (2)<input type="checkbox"/> Inspect inner roll stop locks (2) and torsion springs (2) for wear or damage and for proper operation.<input type="checkbox"/> Inspect outer fold arm pins (2), axles (2) and bearings (8) for wear or damage and positive securement<input type="checkbox"/> Remove pump module cover and inspect:<ul style="list-style-type: none">• Hydraulic hoses, fittings and connections for wear or leaks• Harness cables, wires, terminals and connections for securement or damage• Relays, fuses, power switch and lights for securement or damage

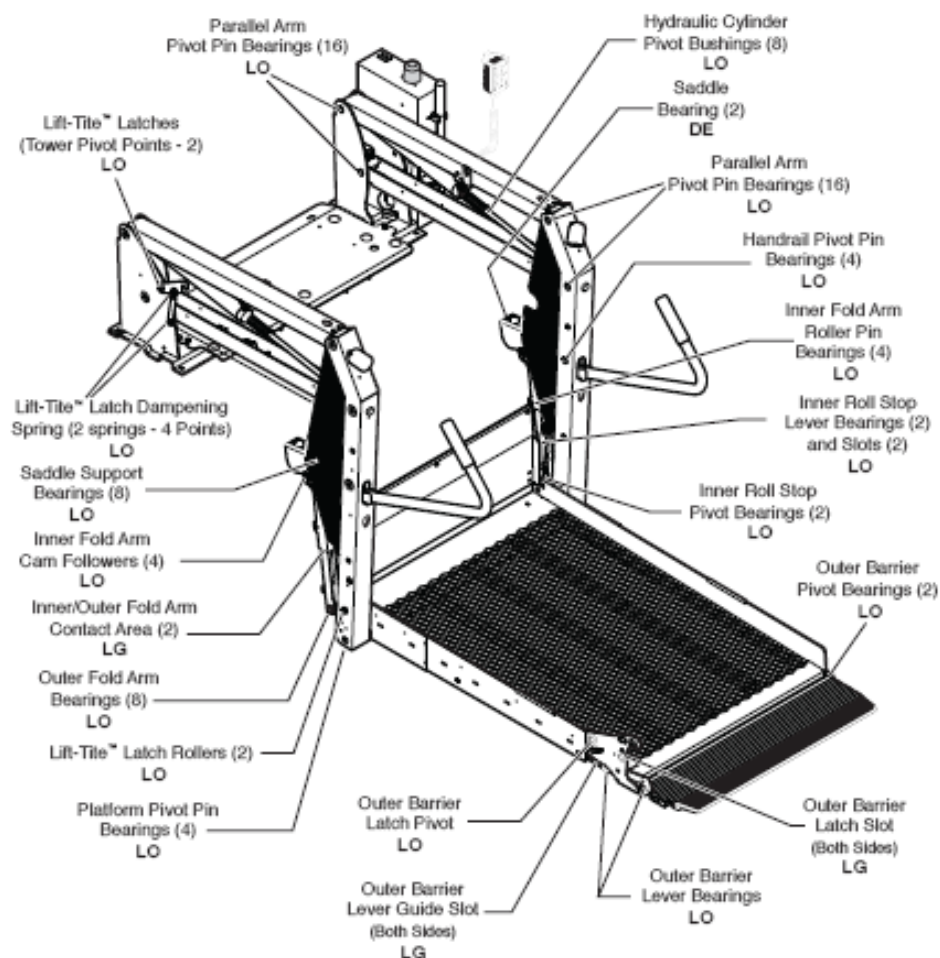
INSPECTION # 4 CONTINUED...

__Inspect cotter pins on platform pivot pin (2)
 Hydraulic Fluid (Pump) - Check level. Note: Fluid should be changed if there is visible contamination.
 __Inspect the hydraulic system (cylinder, hoses, fittings, seals, etc.) for leaks if fluid level is low.
 __Inspect cylinders, fittings and hydraulic connections for wear, damage or leaks
 __Inspect outer barrier cylinder hose assembly (hose, fasteners, connections, etc.) for wear, damage or leakage
 __Inspect parallel arms, bearings and pivot pins for visible wear or damage

__Inspect parallel arm pivot pin mounting bolts (8)
 __Inspect platform pivot pins, bearings and vertical arms for wear, damage and positive securement
 __Inspect inner/outer fold arms, saddle, saddle support and Associated pivot pins and bearings for visible wear or damage
 __Inspect gas springs (cylinders - 4) for wear or damage, proper operation and positive securement
 __Inspect saddle bearing (UHMW - 2)
 __Inspect vertical arm plastic covers
 __Inspect power cable
 __Inspect Mounting
 __Inspect Decals and Antiskid

Maintenance and Lubrication

Lubrication Diagram



See the Maintenance/Lubrication Schedule for recommended applications per number of cycles.

Lubricant	Type	Specified (recommended) Lubricant	Available Amount	Braun Part No.
LO - Light Oil	Light Penetrating Oil (30 Weight or equivalent)	LPS2, General Purpose Penetrating Oil	16 oz. Aerosol Can	15807
DE - Door-Ease	Stainless Stick Style (tube)	Door-Ease Stick (tube)	1.68 oz.	15806
LG - Light Grease	Light Grease (Multipurpose)	Lubriplate	14 oz. Can	15805

BRAUN LIFT INSPECTION

(#978, #979)

DATE:

BUS #: _____ **MILEAGE :**

General Appearance

__ __ Check general appearance of lift

Lift Mountings & Support Points

__ __ Ensure that all lift mountings & support points are in proper order & free from damage

__ __ Ensure that all mounting bolts are of appropriate grade & sufficiently tight

Main Lifting Pivots

__ __ Ensure all traveling frame pins are installed properly, free from damage & locked in position with proper fasteners

Platform and Platform Attachment Points

__ __ Ensure platform operates properly during lift "up/down" functions without obstructions

__ __ Ensure that all welds on traveling frame are in proper order

Inner Rollstop and Inner Rollstop Operation

__ __ Ensure that inner rollstop functions properly during "up/down" operations without obstructions

__ __ Ensure that inner rollstop deploys fully as the platform stops at the proper vehicle floor level

Platform Rollstop and Rollstop Operation

__ __ Ensure that rollstop operates properly on contact with the ground

__ __ Ensure that rollstop opens, closes and locks properly without obstruction

Handrail and Handrail Attachment

__ __ Ensure that all fasteners are present and properly tightened

Hydraulic Fluid Level

__ __ Ensure that the hydraulic fluid level is maintained at the required "**Full Level**"

Hydraulic Cylinders, Flow Control Valves and Hoses

__ __ Inspect the hydraulic hoses, valves and seals for leaks

__ __ Ensure that hydraulic hoses and lines are not damaged

Clean and Lubricate

__ __ Lubricate as per Manufactures' recommendations

Occupant Restraining Belt &

__ __ Check occupant restraining belt for proper operation & check condition of restraint belt -
Replace belt if needed

GILLIG LOW FLOOR - LIFT-U RAMP INSPECTION

DATE:

BUS#: _____

MILEAGE:

General Appearance

- Inspect ramp platform surface, stow guides & wear strip for wear, damage &/ overload characteristics
- Inspect ramp pivoting lever arms, bearings & cam bolt heads for wear, damage &/ overload characteristics
- Inspect stow/deploy belt for wear, damage &/ overload characteristics
- Inspect manual release wire rope(s) for wear, damage &/ overload characteristics

General Cleaning

- Ramp platform surface
- Ramp enclosure interior & closeout hinge

NOTE: Avoid direct pressure washing of the limit switch, interlock switch, relay junction box & cable connections. Once water is forced into these components, corrosion or electrical short-circuiting may damage them. This damage may cause the ramp to malfunction.

General Rust Prevention

- Grind or brush affected area to remove existing rust
- Prime area with primer paint
- Finish paint area with high quality gloss black paint

NOTE: Proper preventative maintenance requires that visible surface rust be addressed & corrected in a timely & appropriate manner. Failure to do so may cause irreversible damage to the ramp mechanism.

STEP LIFT PREVENTATIVE MAINTENANCE

DATE :

5,000 MILE INSPECTION

BUS # : _____

20,000 MILE INSPECTION

- PASSENGER SENSOR
- TOP OF STEP TREAD - 14"

MILEAGE:

- INSPECT HANDRAILS
- STRUCTURAL INTEGRITY
- CRACKS IN TUBING

(INCLUDE 5,000 MILE INSPECTION WHEN DOING 20,000 MILE INSPECTION)

- INSPECT RAMP/BARRIER LINKAGE & CYLINDER
- STRUCTURAL INTEGRITY OF BARRIER
- BARRIER ANGLE
- PIVOT POINTS FOR DAMAGE OR WEAR
- STRUCTURAL INTEGRITY OF LINKAGE
- CYLINDER ATTACHMENT BOLTS
- HYDRAULIC HOSES/FITTINGS FOR LEAKS
- BARRIER LATCH PIN FOR DAMAGE
- SPRAY LUBE

- INSPECT RAMP/BARRIER LINKAGE & CYLINDER
- LUBRICATION (LUBE WITH ANTI-SEIZE COMPOUND)
- LINKAGE AND LINKAGE PINS

- INSPECT SUPPORT ARM
- STRUCTURAL INTEGRITY OF SUPPORT ARM
- MOUNTING BOLTS
- DOWEL PINS

- INSPECT LEAF CHAIN
- RUST & CORROSION
- ABSENCE OF COTTER PIN/KEEPERS
- PROPER ADJUSTMENT
- LUBRICATION (LUBE WITH P/N P515-0012)
- ADJUSTMENT NUTS SECURED

- INSPECT HINGES
- RUST/CORROSION
- BINDING
- DAMAGE
- STEP HEATER & WIRING

- INSPECT HYDRAULIC HOSE/ELECTRICAL CABLE BUNDLE
- PROPER ROUTING
- LEAKS
- CHAFING

- INSPECT ROLLER CHAIN
- RUST & CORROSION
- ABSENCE OF COTTER PINS/KEEPERS
- LUBRICATION (LUBE WITH P/N P515-0012)
- ADJUSTMENT NUTS SECURED

- INSPECT STEP ACTUATION CYLINDER
- CYLINDER PINS FOR FREE MOVEMENT
- HYDRAULIC HOSES/FITTINGS FOR LEAKS
- SET SCREW IN PIVOT PINS

- INSPECT CONTROL ENCLOSURE
- FITTINGS FOR LEAKS
- HARD LINES FOR LEAKS

- INSPECT BARRIER LATCH LIMIT SWITCH
- LOOSE LIMIT SWITCH ARM

- INSPECT STEP ACTUATION CYLINDER
- RUST & CORROSION

- INSPECT ULTRASONIC SENSING DEVICE(PASSENGER SENSOR)
- SENSING FACE

- INSPECT BARRIER LATCH LIMIT SWITCH
- SWITCH MUST ACTIVATE WHEN THE BARRIER IS IN THE BARRIER POSITION

- INSPECT PROXIMITY SWITCHES
- DAMAGE TO THE SENSOR END
- GAP BETWEEN SENSING END AND TARGETS (GAP .30 - .060)

- INSPECT HYDRAULIC FLUID
- CONTAMINATION

- INSPECT HYDRAULIC POWER SOURCE
- FLUID LEVEL AT FLOOR LEVEL

- INSPECT HYDRAULIC POWER SOURCE
- RELIEF VALVE PRESSURE (1250 PSI)
- CHANGE FILTER ELEMENT

- MANUAL OPERATION OF HYDRAULIC SYSTEM
- STOW & DEPLOY
- RAISE & LOWER
- RAMP/BARRIER UP & RAMP BARRIER DOWN

- INSPECT LIFT MOUNTING BOLTS
- REFER TO BUS MFG TORQUE SPECS

- INSPECT MAIN LIFT CYLINDER
- CYL SWIVEL BEARINGS MUST BE FREE OF RUST & CORROSION
- CYL SWIVEL BEARINGS MUST MOVE FREELY
- CYL PIN KEEPERS
- JAM NUT MUST BE TIGHT AGAINST THE CLEVIS

- INSPECT TOWER ASSEMBLY
- TOWERS ARE VERTICAL
- TOWERS ARE PERPENDICULAR TO THE ROADSIDE CLOSEOUT

- INSPECT EMERGENCY CYLINDER
- CYL SWIVEL BEARINGS MUST BE FREE OF RUST & CORROSION
- CYL SWIVEL BEARINGS MUST MOVE FREELY
- CYLINDER PIN KEEPERS
- JAM NUT MUST BE TIGHT AGAINST THE CLEVIS
- CHECK FLUID LEVEL WITH LIFT AT FLOOR LEVEL

- INSPECT SLIDE BEARING ON SLIDING PLATFORM ASSEMBLY
- WEAR & DAMAGE
- INSPECT BEARING STRIP ON VERTICAL FRAME ASSEMBLY
- WEAR & DAMAGE
- INSPECT FOR MANUAL OPERATING PROCEDURE DECAL
- CHECK BOTTOM CLOSE-OUT HINGE FOR FREE OPERATION
- INSPECT ALL FASTENERS FOR TORQUE

PLATFORM LIFT PREVENTATIVE MAINTENANCE

DATE :

5,000 MILE INSPECTION

BUS # : _____

20,000 MILE

INSPECTION

MILEAGE: _____

(INCLUDE 5,000 MILE INSPECTION WHEN DOING 20,000 MILE INSPECTION)

TEST SAFETY FEATURES

- PRESSURE SENSITIVE MATS
- PRESSURE SENSITIVE EDGES

INSPECT CURBSIDE BARRIER/LINKAGE & BARRIER

- STRUCTURAL INTEGRITY OF BARRIER
- BARRIER ANGLE
- PIVOT POINTS FOR DAMAGE OR WEAR
- LINKAGE SET SCREWS/JAM NUTS (20,000)
- HYDRAULIC HOSES/FITTINGS FOR LEAKS
- LUBRICATION (LUBE WITH ANTI-SEIZE COMPOUND):
- SLIDE LINK & ROD GUIDE - LUBE
- SHOULDER BOLT & LINKAGE PINS - LUBE (20,000)

INSPECT STOW/DEPLOY LIMIT SWITCH

- STOW SWITCH MUST ACTIVATE 1/2" BEFORE FULLY STOWED
- DEPLOY SWITCH MUST ACTIVATE 1/2" BEFORE FULLY STOWED
- LOOSE LIMIT SWITCH
- CYLINDER ATTACHMENT BOLTS
- INSPECT CHAIN LIMIT SWITCH (SLACK CHAIN)
- ADJUSTMENT BETWEEN LIMIT SWITCH ARM & TRIP (20,000)
- LOOSE LIMIT SWITCH ARM
- FORWARD LIFT CYL MUST OPERATE FREELY UP & DOWN WHICH ALLOWS THE CHAIN SWITCH TO OPERATE PROPERLY
- LIFT CYL CHAIN MUST BE FLEXIBLE WHICH ALLOWS THE CHAIN SWITCH TO OPERATE PROPERLY

INSPECT ROADSIDE BARRIER/LINKAGE/CYLINDER

- STRUCTURAL INTEGRITY OF BARRIER
- BARRIER ANGLE
- PIVOT POINTS FOR DAMAGE OR WEAR
- LINKAGE/CYLINDER JAM NUTS
- HYDRAULIC HOSES/FITTINGS FOR LEAKS
- CYL CLEVIS PINS - REMOVE, INSPECT & LUBE

INSPECT HYDRAULIC POWER SOURCE

- FLUID LEVEL
- FLUID PRESSURE (1150 - 1200 PSI) (20,000)
- CHANGE FILTER ELEMENT (20,000)

INSPECT LIFT MOUNTING BOLTS

- REFER TO BUS MFG TORQUE SPECS (20,000)

INSPECT LIFT MASTER CHAINS & CONN LINKS

- RUST & CORROSION
- ABSENCE OF COTTER PIN/KEEPERS
- PROPER ADJUSTMENT
- LUBRICATION (LUBE WITH P/N P515-0005)

INSPECT CLUTCH BEARING

- PROPER ADJUSTMENT
- GALLING - TRANSFERRING OF BRASS CLUTCH BEARING PARTICLES TO TORQUE SHAFT COUPLING
- LUBRICATION (MULTI-PURPOSE GREASE)

INSPECT SLAVE CHAINS AND CONN LINKS

- RUST & CORROSION
- ABSENCE OF COTTER PIN/KEEPERS
- PROPER ADJUSTMENT
- LUBRICATION (LUBE WITH P/N P515-0005)
- JAM NUTS SECURED

INSPECT TORQUE SHAFT COUPLING SET SCREWS (20,000)

- INSPECT SLIDE CHANNEL BEARING BLOCKS (20,000)

MANUAL OPERATION OF HYDRAULIC SYSTEM

- STOW & DEPLOY
- RAISE & LOWER
- ROADSIDE BARRIER UP & DOWN
- CURBSIDE BARRIER UP & DOWN
- INSPECT FOR MANUAL OPERATING PROCEDURE DECAL

INSPECT STOW & DEPLOY CHAINS & CONN LINKS

- RUST & CORROSION
- ABSENCE OF COTTER PIN/KEEPERS
- PROPER ADJUSTMENT
- LUBRICATION (LUBE WITH P/N P515-0005)
- JAM NUTS SECURED

INSPECT MAIN LIFT CYLINDERS, FORWARD/REAR

- CYL CLEVIS PINS MUST BE FREE OF RUST & CORROSION & MUST MOVE FREELY
- CYL CLEVIS PINS - REMOVE, INSPECT & LUBE (20,000)
- CYL CLEVIS PIN KEEPERS
- JAM NUTS MUST BE TIGHT AGAINST CYL ROD
- MIN THREAD ENGAGEMENT OF 1" ON TURNBUCKLE BOLTS
- SPEED OF LIFT IN CUSHION AREA
- APPLY LUBRICANT TO CUSHION ADJUSTMENT SCREW CAVITIES

INSPECT STOW MOTOR CHAIN & CONN LINK

- RUST & CORROSION
- ABSENCE OF COTTER PIN/KEEPERS
- PROPER ADJUSTMENT
- LUBRICATION (LUBE WITH P/N P515-0005)
- JAM NUTS SECURED

INSPECT STOW LATCH/CYLINDER

- PROPER STOW LATCH ENGAGEMENT (20,000)
- HYDRAULIC HOSE/FITTINGS FOR LEAKS
- LUBRICATION ON STOW LATCH FACE (LUBE W/DOOR-EASE)

INSPECT HYDRAULIC HOSE/ELECTRICAL CABLE BUNDLE

- PROPER ROUTING
- LEAKS (HOSES)
- CHAFING

INSPECT ALL FASTENERS FOR TORQUE (20,000)

- INSPECT PUSH-OFF SPRINGS)
(REPLACE SPRINGS EVERY 6 YEARS OR 8,000 CYCLES)

INSPECT STOW MOTOR & STOW SHAFT

- SPROCKET ALIGNMENT (20,000)
- SET SCREW IN SPROCKETS (20,000)
- HYDRAULIC HOSES/FITTINGS FOR LEAKS
- SET SCREW IN BEARINGS (20,000)
- SPROCKETS FOR WEAR & DAMAGE (20,000)

INSPECT PROXIMITY SWITCHES

- DAMAGE TO THE SENSING END
- GAP BETWEEN SENSING END & TARGETS (GAP .030 TO .060)