# GOLDEN EMPIRE TRANSIT

## MAINTENANCE MANUAL

This Maintenance Manual is designed as a reference tool, to be used in performing maintenance on the fleet. Use of the procedures and policies in this manual will result in a consistent standard of maintenance - which is our goal. This manual should be used as a guide. In some cases you will be referred to an OEM service manual or a Supervisor if additional information is needed.

A comparison of the OEM manuals and this manual will reveal some differences in procedures. This is consistent with our desire to ensure that our policies and procedures work for Golden Empire Transit. Our procedures may differ from the OEM due to our, climate, driving conditions, experience running the vehicle in daily service and other factors unique to GET or Bakersfield.

This manual should be considered a work in progress; vehicle technology is ever changing, as the vehicles change this manual will be updated. Please make sure that your manual is updated when procedure and policy changes are published. If you have questions or suggestions concerning this manual please consult with a Supervisor or the Maintenance Manager immediately.

## SHOP SAFETY

## INJURIES

I. Any injury, no matter how trivial, must be reported immediately. The Supervisor will ensure the injured employee receives proper treatment. If necessary, the Supervisor will fill out the incident report and doctor's slip to authorize treatment by the doctor / clinic / hospital.

II. First aid will be administered, except in the case of an emergency, at the Supervisor's office or at the first aid box located outside the Supervisor's office.

III. Instructions for calling emergency ambulance services are posted near all telephones.

IV. Employees who leave the shop for medical attention must notify the Supervisor prior to returning to duty.

V. Any employee who causes injury, through carelessness or intent, to another employee will be subject to severe disciplinary action.

VI. Employees must exercise reasonable precautions to avoid injury to themselves and others. Experimenting with unsafe or unproved methods or devices is not acceptable.

## HOUSEKEEPING

I. Good housekeeping is essential to a safe and efficient shop. All employees are responsible for maintaining a high standard of cleanliness.

II. Fluid spills must be avoided through use of proper catch pans. Minor spills that occur during routine vehicle maintenance must be cleaned up after the vehicle leaves the bay, and before bringing in another vehicle. Major spills must be cleaned up immediately.

III. Aisles and passageways must be kept clean and clear of obstructions. Free and immediate access to fire extinguishers and electrical panels must be maintained at all times.

IV. Tools, parts and or equipment will be returned to proper storage upon completion of repair work. All tools and stationary machines must be kept clean and orderly both during use and at the completion of the job.

V. Stored materials shall be arranged in an orderly and secure manner. Top heavy or unbalanced stacking is not permissible.

VI. Any observed safety hazard or housekeeping problem must be reported to a Supervisor.

## CLOTHING

I. When working around operating machinery / equipment, loose sleeves, neckties, scarves, jewelry, etc., must be secured, or if practical, removed.

II. When appropriate protective gloves must be worn. Examples of operations requiring gloves include; welding, handling rough or sharp edged materials, or handling hot or hazardous liquids.

III. Long sleeves properly fastened at the cuffs must be worn when welding, cutting, or handling hot or hazardous liquids.

IV. Proper footwear made of leather with oil resistant soles is required.

## SAFETY GLASSES & FACE SHIELDS

I. Safety glasses must be worn at all times inside the maintenance building, on the fuel island and in the CNG compressor area. Wearing safety glasses with a face shield or protective goggles is required for the following procedures:

A. During the use or handling of hazardous chemicals or materials.
B. All grinding, sanding, buffing operations.
C. Any time a power tool is being used over shoulder height.
D. During use of compressed air to blow out debris or to dry parts.
E. During use of steam cleaner / pressure washer.

II. Welding and cutting operations require use of proper eye protection which filters out radiant energy produced by oxy-acetylene or arc welding / cutting equipment. Welding helmets and gloves must be worn when using arc or wire feed welding equipment.

## Bump Hats

I. Bump hats are provided and must be worn by all employees any time there is a possibility of their head being exposed to an injury. Employees are encouraged to wear bump hats at all times.

## Safety Chains

I. Safety chains are located at the front of each service bay. The chains are to restrict unauthorized personal or visitors from entering the work area. The safety chains must be up at all times except when moving vehicles in or out of the service bays.

## Safety Vest

I. Safety vest must be worn at all times by employees working in the parking lot or on the public streets. The reflective vest increase employee visibility and safety while performing their daily assignments.

## HAND TOOLS

I. Unsafe tools or equipment shall be immediately reported to a Supervisor.

II. Replaceable tool handles shall be tight fitting and free of splinters, tape and / or other defects.

III. Hardened metals must not be struck with hardened tools, i.e. hammers, drifts, chisels, etc. Soft surfaced tools made of leather, rubber, plastic, aluminum, brass, copper, rawhide, bronze, etc., will be used when striking hardened metals is required.

IV. Chisels and drifts shall be kept sharp and be free of chips and / or mushroomed striking surfaces.

V. Cheater bars and / or pipes shall not be used to add length to wrenches or prybars.

VI. Gripping surfaces of pipe wrenches, vise grips and pliers must be kept clean and in good condition.

VII. Files must be equipped with proper handles, and should be cleaned with a wire brush or file card. Striking the file against steel or other hard surface is not an acceptable method for clearing the file surface.

VIII. Screwdrivers must not be used as pry bars, punches or chisels. Screwdriver tips must be kept in good condition. Rounded or chipped blades should be refaced or the screwdriver should be discarded.

## PORTABLE POWER TOOLS

I. Air hoses or extension cords used to power portable tools must be kept clear of aisles and passageways.

II. Power tools must not be left unattended on workbenches or toolboxes.

III. Power tools with damaged or frayed cords and / or hoses will be removed from service until proper cords or hoses are installed on the tool.

IV. Chuck keys / wrenches must be attached to the tool cord. Attachment to the cord approximately 18” from the tool is required.

## STATIONARY MACHINERY

I. Safety glasses or face shields must be worn when operating stationary machines.

II. Machines equipped with safety guards shall not be operated with the guard missing or misaligned.

III. Machines shall not be left running unattended. (Brake lathe excepted.)

IV. Machines shall not be started until the piece to be worked is properly secured.

V. Grinding / buffing wheel tool rests will be adjusted and maintained at 1/8” clearance.

VI. Grinding on the flat side of a grinding wheel is prohibited.

VII. Grinding and buffing must be performed above the centerline of the arbor, use of the wheel below the arbor level can result in injury as the piece may be drawn into the wheel housing.

VIII. Drill bits shall be properly fitted for the chuck. Grinding down bit shanks to fit undersized chucks is prohibited.

## MATERIAL HANDLING

I. Always get assistance with heavy loads and use hand trucks, cranes, jacks and dollies whenever necessary.

II. Manual lifting and handling of materials are subject to the following guidelines:

A. Inspect the load for sharp or rough surfaces - wear gloves as needed. Lift using your legs with your back straight and your feet as close to the load as practical. Also be sure footing is secure prior to lifting any load.

B. When it is necessary to change direction, move your feet and legs. Do not twist at the waist or upper back. Do not carry a load that obstructs your forward visibility, in dark areas, or where footing is uncertain.

C. When setting the load down, use your legs to lower the load while keeping your back straight.

III. Drums and barrels over half full will be handled with barrel dollies and / or power equipment (pallet jack or forklift with barrel handling attachment). Barrels handled manually are subject to the following:

A. To upright a barrel, two people are required. One person on each side of the barrel shall grip the top and bottom chime at the highest point. Each person lifts on the top chime while simultaneously pressing down on the bottom chime. As the drum is brought to balance on the bottom chime, release the grip on the bottom chime and push the drum upright.

B. To overturn a barrel two people are required. Standing on either side, each person should grasp the top chime with both hands at the farthest point and pull the drum to balance on the lower chime. One hand of each person is then placed on the bottom chime, and the drum is lowered to rest on its side by resisting the load on the top chime and pressing down on the bottom chime.

C. Always clear the area where the drum will rest and keep your feet clear to avoid injury. Never pull a drum towards you.

IV. Large sheets of metal shall be handled by two people, each wearing protective gloves.

V. Glass will be handled with protective gloves.

VI. Long items such as pipes or ladders should be carried over the shoulder with the front end held high to avoid striking others.

## MATERIAL HANDLING TOOLS AND EQUIPMENT

I. Hand Trucks:

- A. Keep load as low and balanced as possible.
- B. Make sure load is secure and doesn't obstruct vision.
- C. On inclines, keep the truck in front of you going down, and behind going up.

II. Forklifts:

- A. Maintain safe speed.
- B. Seat belts must be worn while operating the forklift.
- C. Slow down at intersections, doorways and blind corners.
- D. Never operate the forklift if your view is obstructed by the load.
- E. Maintain control of the forklift and be prepared to stop within the clear distance ahead in an emergency.
- F. Never carry passengers.

III. Hoists:

- A. Load limits are posted on all hoists. Do not exceed the load limit.
- B. Defective ropes, chains, slings, hooks must be reported to the Supervisor. Do not use any defective or suspect hoist or hoisting appliance.

IV. Jacks:

- A. Unsafe jacks are to be reported to the Supervisor. Do not use any defective or suspect jack.
- B. Vehicles must be blocked or otherwise secured against movement prior to jacking.
- C. Vehicles must be blocked or secured in the raised position with jack stands or other suitable means, do not rely on the jack to support the load. The jack should be relieved once stands or blocking are in place.
- D. Do not work under an air suspension equipped vehicle without blocking the body. The air bellows could deflate pinning you between the bus and the floor. Blocks or stands should be placed under the jack pads at or near the radius rod brackets.

V. Chains, Ropes, Cables, Slings and Hooks:

- A. Never overload, twist, kink, or drag a chain, rope, cable or sling.
- B. Never cross or fasten a chain or rope over sharp edges.
- C. Do not jerk or otherwise apply sudden loads to any chain or rope.
- D. Never hammer a chain or rope into position.
- E. Do not use a chain at acute angles or allow a chain to remain under load for long periods of time.
- F. Do not carry a load on the point of a hook.

G. Do not tip or tumble loads with chains.

H. Do not use chains with stretched or stiff links.

I. Do not use bolts to shorten or join chains. All chains must have proper hooks and eyes.

J. Any defective or suspect chain must be sent out for inspection prior to being used.

K. Wire ropes should be lightly lubricated to prevent rust and excessive wear.

## CLEANING MATERIALS

I. No open flame or spark is allowed within ten feet of any location using a flammable cleaning solution.

II. Cleaning solutions may not be heated to speed cleaning action.

III. Powdered cleaning materials in a loose state must be handled using safety glasses and a dust mask or respirator (use proper respirator if material is hazardous).

IV. Volatile cleaning materials shall not be left in open containers. Use of proper receptacles for storage of volatile and or flammable materials is required.

V. Volatile or flammable cleaning solutions will not be applied to hot engines.

## FLAMMABLE LIQUIDS

I. All flammable liquids must be stored in properly designed and marked containers. When not in use the containers shall be stored in areas approved for storage of flammables, such as the lube room, flammable storage lockers in the paint shop, or other approved flammable storage fixtures within the shop.

II. Mixing of flammable liquids is prohibited.

## PRESSURIZED LIQUID AND GAS, OR COMPRESSED AIR

I. Use of compressed air to clean oneself or clothing being worn is strictly prohibited.

II. The jet stream of compressed air or gas must never be directed at or toward a person.

III. Safety glasses must be worn when using compressed air or gas.

IV. Compressed air must not be used to pressurize any glass or crockery bottle, jug or container.

V. Never use your hand to check for hydraulic leaks in a pressurized system.

VI. Always use a pressure regulator set to the lowest reasonable pressure when using air or compressed gases to test tanks, reservoirs, radiators, etc.

VII. Compressed gas cylinders must be stored on approved cylinder trucks or on a smooth floor, and securely chained or secured against or to a fixed solid object (wall, post, etc.). Cylinders should be moved using a hand truck or by rolling. Dragging a cylinder across the floor or ground is prohibited. Valve protection caps must be in place if no regulator valve is installed on the cylinder.

VIII. Cylinder valves should be completely closed when not in use. If a special wrench or tool is required to open the valve, the wrench or tool should be left in place to allow quick shut off in the case of an emergency.

## BATTERY STORAGE AND HANDLING

I. Battery handles should be checked for secure mounting and good condition prior to lifting the battery. Use material handling equipment to move 8D or larger batteries.

II. Safety glasses are required when working with batteries.

III. Open flames and or smoking is prohibited in close proximity to battery storage or charging areas.

IV. Do not use batteries with loose or broken posts.

V. Used batteries should be rinsed off with water prior to handling.

VI. Double check for polarity when connecting booster cables. Connect positive to positive and negative to negative.

VII. Make sure all switches are off before disconnecting or working on battery cables or connections.

VIII. Turn off power to battery charger prior to disconnecting battery charger cables.

IX. Battery acid spills must be immediately neutralized and cleaned up using baking soda and water. Acid burns on the skin or in the eyes should be immediately flushed with clean water. Baking soda may be used to neutralize acid on the skin.

## WELDING

I. Only qualified personnel will be permitted to use gas or arc welding equipment.

II. Proper protective clothing and equipment shall be used when welding or cutting. This includes welding glasses or helmet, welding gloves, and in some cases welding leathers (sleeves and / or aprons). Clothing should be grease and oil free, and must be secured at the neck, wrists and ankles.

III. Welding curtains shall be used when welding to avoid eye damage to others.

IV. All gas welding hoses and valves shall be kept in good condition. Safety valves shall be installed on the tanks to prevent flashbacks.

V. Prior to lighting a gas torch the tip shall be tight in the handle and regulators shall be adjusted to proper pressure settings. Only approved strikers shall be used to ignite the torch. Cigarette lighters and matches shall not be used. Oxygen will be off during lighting. Acetylene shall be turned off first when extinguishing the flame.

VI. Proper ventilation is required when brazing, soldering or welding materials that produce harmful gases.

VII. Welding within 50 feet of flammable liquids is prohibited.

VIII. Precautions must be taken when welding at heights or elevations which may allow falling sparks or slag to strike another person.

IX. Confined space welding requires the presence of an attendant person in case of an emergency. Immediate access to the welder power switch and a fire extinguisher by the attendant is required.

X. Stock materials heated or cut must be clearly marked “hot” or allowed to cool prior to being left unattended.

XI. Open ends of pipes or tubes being welded or cut must be directed away from people.

XII. Never weld cut or heat a container, tank or pipe which has handled gasoline or other flammable liquid. Such equipment must be thoroughly cleaned with appropriate materials prior to any welding, cutting or heating operation.

XIII. Observers of welding and cutting operations are required to wear appropriate protective equipment, especially protective eye shields.

## LADDERS

I. Both rails of a ladder must have secure footing prior to use. Any danger of slipping must be eliminated through secure fastening of the rails or attendance by another person.

II. The ladder base must be angled away at least 1/4 of the distance to be climbed unless securely braced, fastened or attended by another person.

III. Ladders must not be placed in front of doors that open toward the ladder, unless the door is secured open, locked or attended by another person.

IV. Face the ladder when ascending or descending. Grasp the side rails with your hands and use the steps in proper sequence. Do not skip steps.

V. Damaged ladders must be removed from service for repair or disposal.

VI. Ladders are not to be painted. Only inspection code markings are allowed.

VII. Never lean a ladder against live electrical equipment.

## SCAFFOLDS

I. Scaffolds must be thoroughly inspected prior to use. Weak boards, bad welds, missing pins or other safety defects must be repaired prior to use of any scaffold. Report all safety defects to a Supervisor.

II. Do not overload scaffolds.

III. Scaffold legs must be placed on a firm foundation. Scaffold platform should be level. Use of base plates may be required in some situations. If equipped with wheels, the wheels must be securely mounted and in good condition and equipped with operable brakes / locks.

IV. Planking should have at least 12” overlap, and should be secured with cleats. Toe boards and guard rails should be used to prevent falls and spillage of materials from the platform.

V. Planks used to span between ladders must be securely fastened to prevent creeping.

VI. Use caution when moving rolling scaffolds. Get help when moving scaffolds to ensure proper steering and to avoid tipping.

VII. Scaffold height in excess of four times the narrower base dimension requires the scaffold be secured with guy wires or some other means to prevent tipping.

## BUS HOISTS

I. Vehicles to be raised on one end only must have the wheels remaining on the floor securely blocked.

II. Vehicles left on the hoist unattended overnight must be securely supported using support towers.

III. If it is necessary to lower either one of the two posts to perform vehicle repairs two support towers must be used to support the vehicle.

IV. Vehicles must be kept level during raising and lowering operations.

V. Any problems encountered with the hoists must be immediately reported to a Supervisor.

VI. The floor plates covering the moveable posts shall be in place and properly secured at all times.

VII. Portable hoists should be inspected prior to use. Check to ensure that electrical cords are in serviceable condition and are properly connected to the towers.

VIII. Portable hoists should only be used on level surfaces.

IX. Proper tire cradle inserts must be used when lifting medium or light duty vehicles.

X. The hoist towers must be positioned perpendicular to the wheel and the tires must be completely supported by the tire cradle prior to lifting the vehicle.

XI. Vehicle engines should not be started with the lift towers in place, and never with the vehicle in the air. If the vehicle were to go into gear the drive axle lift towers would be ejected with the vehicle falling to the floor.

XII. Report any portable lift operational problems or noises to a Supervisor.

## WORKING ON VEHICLES

I. Use the battery disconnect switch to disable the starting circuit when performing repairs on drive train components or engine driven accessories.

II. Use of the exhaust ventilation system is required when running or testing an engine in the shop.

III. Engine barring tools shall not be left on the engine when not in use.

IV. The driver of any vehicle being moved into or out of the shop building is responsible for the safe movement of the vehicle including the following:

   A. Shop door is completely opened.

   B. Exhaust ventilation system hoses have been removed and secured.

   C. Hoist posts or towers are in full down position with lift adapters removed and do not obstruct free vehicle movement.

   D. No person is under, behind or in front of the vehicle during movement.

E. Backing maneuvers are performed at idle and with extreme caution.

F. Shop bay floor is clear of all tools, hoses, electrical cords, etc.

G. All vehicle compartment doors are properly closed and secured prior to movement of the vehicle.

## AIR CONDITIONER SERVICE AND REPAIR

I. Safety glasses shall be worn while working on air conditioning systems.

II. The following precautions must be observed when handling refrigerants:

A. Cylinders must be turned off and capped when not in use.

B. Do not subject cylinders to high temperatures.

C. Do not weld, braze, solder or steam clean on or near a pressurized system.

D. Do not discharge refrigerant into the atmosphere - use of recovery equipment is required.

E. Do not open high pressure lines if the system is pressurized.

F. Smoking is not permitted while working on or around refrigerant systems.

G. Only sonic or electronic leak detectors may be used. Use of flame type leak detectors is absolutely prohibited. Leak testing with soap bubble solution is also acceptable for low pressure leaks.

III. In case of injury:

A. Liquid refrigerant will cause frostbite if it contacts the skin. Treat injury as frostbite.

B. If refrigerant comes in contact with eyes, seek immediate medical attention. Use following procedures for first aid treatment:

1. Rinse affected eye(s) with cold water to raise temperature above freezing.

2. Apply sterile mineral oil to the affected eye(s) to reduce possibility of infection and to absorb refrigerant.

## STEAM CLEANING & PRESSURE WASHING

I. Steam cleaning and pressure washers shall not be operated at excessive pressures.

II. Steam cleaner and pressure washer hoses shall be in good operating condition. Frayed, kinked, spliced or patched hoses will not be used.

III. Only trained qualified personnel will operate steam cleaning / pressure washing equipment.

IV. Steam cleaning or pressure washing equipment will not be used for cleaning clothing, boots or shoes.

V. Steam cleaner / pressure washer nozzle spray shall never be directed toward another person.

## FACILITY ELECTRICAL WORK

I. Only electricians or employees authorized by a Supervisor are permitted to make repairs, replacements, corrections, additions or adjustments to fixed electrical circuits.

II. Employees are not permitted to work on live circuits. Lock-out / tag-out procedures must be followed.

III. Broken and / or stuck light bulbs shall be removed using approved protective equipment and or tools including gloves, bulb pliers, etc.

IV. Burned out bulbs must be properly discarded, and should not be intentionally broken or shattered. Florescent bulbs should be discarded in appropriate boxes to preclude breakage. All florescent bulbs are required to be recycled and should be stored outside the maintenance building until they can be discarded.

## PAINTING

I. Only trained qualified personnel will be used for painting,

II. Spray painting equipment must be maintained in good operating condition. Thorough cleaning is required after each use. Use only approved solvents, thinners and paint gun cleaners to clean spray painting equipment.

III. All two part paints will be mixed according to the manufacturer's instructions. No experimental mixtures are permissible.

IV. Proper respirators will be used for all painting work. In some cases "air supplied" respirators are required. Consult instructions and requirements printed on the paint can or in the manufacturer's instruction manual for the paint being used.

V. All flammable paints, thinners, hardeners, catalysts, retarders and other additives will be stored in approved containers and cabinets.

## CNG RELEASES / LEAKS SAFETY PROCEDURES

In the unlikely event of a significant CNG release from a vehicle in the shop the following procedures must be followed.

## Shop warning system operation

The shop is equipped with a warning and ventilation system designed to protect the employees and the facility from an explosion if there is a CNG release from a vehicle. The system has two levels of alarm, low level and high level. **Occasional false alarms are not justification for complacency or inattention. It is imperative that all alarms be taken seriously.**

### LOW LEVEL ALARM

A low level alarm will be indicated by a warning klaxon and yellow beacon light alarm activation. Low level alarms should be investigated by checking the display screen on the computer screen in the Supervisor's office. Each shop bay is equipped with a separate sensor, the sensor causing the alarm will be indicating yellow on the computer screen. A check of the vehicle in the affected bay is required to determine the location and cause of the leak. Immediate corrective action should include isolating the vehicle, shutting off fuel supply valves, opening shop doors, etc. Once the leak has been isolated and abated, the alarm system can be reset with the controls in the Supervisor's office.

### HIGH LEVEL ALARM

A high level alarm will result in automatic activation of the ventilation fans located on the roof of the shop, and opening of the ventilation louvers on the North and South walls of the shop. In addition the warning klaxon and beacons will be activated and all electric power to the shop building will be lost.

A high level alarm requires immediate evacuation of the building by all personnel. One person should be designated to check the system computer to determine which sensor(s) activated the system. Investigation and correction of the cause of the alarm should proceed in the same fashion as outlined for a low level alarm.

After the cause is determined and corrected, the alarm system can be reset and employees returned to work. The system reset for a high level alarm requires reset of the Shunt Trip Breakers in the electrical room at the Administration Building. Only authorized personnel (Supervisors or designated trained personnel) may reset the system after a high level alarm.

## DISABLED VEHICLE TOWING / PUSHING PROCEDURES

**MAINTENANCE OBJECTIVE:** Safely move disabled vehicles to and from the maintenance shop and bus parking areas without damage.

| **Frequency** | **Personnel** |
|---|---|
| As needed. | Requires two qualified people. |

The procedures below are designed as guidelines. The primary objective is to eliminate the chances for injury and or vehicle damage**. In all cases, movement of disabled vehicles requires specific attention to possible hazards and extreme caution. Do not attempt close maneuvers or tight turns unless absolutely necessary, and then only with extreme caution.**

**Towing Procedure:**

Use only approved heavy tow chain with proper tow hooks at each end. Attach chain securely to the vehicle frames or tow hooks. A chain length of at least 30-FT. is required. Brake lights and horn must be operational on the towing vehicle. Headlights and four-way flashers must be operating on the towing vehicle and should be operating on the towed unit if possible. Towed vehicle air system must be charged to full pressure (120 -125 psi) prior to towing. Avoid tight turns and proceed with the towing vehicle in **low gear at 6mph or less**. The drivers of both units must be prepared to stop safely in all circumstances. Do not use excessive acceleration to take up slack in the tow chain, smooth slow initial movement must be used. While in motion do not allow slack in the chain, the towed vehicle driver should apply light brake pressure to keep the chain taut.

When entering or exiting maintenance stall with a vehicle in tow, the towing vehicle must sound the horn with short beeps to signal other traffic of a possible hazard.

**Pushing Procedure:**

Only the maintenance service vehicle equipped with a push bumper may be used for pushing disabled vehicles. As above, disabled vehicle air pressure must be charged to 125 psi, horn, headlights, four-ways and brake lights operational if possible. Fixed route buses should be pushed from the rear only, if pushing from the front; the bike rack must be removed. Pushing vehicle should maintain gentle contact with the vehicle being pushed as much as possible. Initiation of contact must be done very slowly to avoid damage. Pushing vehicle must proceed at less than 6mph. Do not attempt tight turns while maintaining contact between vehicles; if a turn is required use the momentum of the pushed vehicle to complete the turn. If momentum is insufficient to complete the turn, reinitiate contact very carefully and push the vehicle through the turn. When entering or exiting a maintenance stall the lead vehicle (vehicle being pushed) must sound the horn using short beeps to signal other traffic of a possible hazard.

**Objective:** The objective of this procedure is to ensure that repair orders completed by mechanics and reviewed by the Supervisor meet the following criteria:

1 The vehicle number, hub reading, open date and close date fields contain legible, accurate information.
2 The repairs requested or required are clearly described in the **"LABOR INFORMATION"** field.
3 The information noted in the "LABOR INFORMATION" field accurately reflects both the specific cause of the problem and the specific corrective measures taken to eliminate the problem.
4 All repair orders are reviewed and initialed by the Maintenance Supervisor before being entered in Fleet Net maintenance database.
5 All repair orders are entered into the Fleet Net data base.

## PROCEDURE:

1 All vehicles requiring repairs must have a repair order opened upon arrival in the shop. Basic information as to vehicle number, hub reading, open date, work order number, scheduled or unscheduled repair, and nature of complaint or problem must be written in the appropriate designated area of the form.

2 Mechanics note repair activity in the **LABOR INFORMATION** area. Notations must describe the nature of the problem or complaint and the corrective action taken to correct the problem. Descriptive words and terms must be used to explain the repairs; i.e. air bag leaking, valve cover leaking oil, tie rod end worn out, etc.

***3*** Labor must be coded according to the system codes listed on the back of the repair order. If more than one **System Code** is affected, each **System Code** must have the labor hours reflected on the repair order. ***Time must be recorded in hours and minutes - 1:45, 1:15, 2:00, etc.***

4 Inventory parts must be entered in the parts area on the repair order. The part number, quantity and description areas must be completed for each inventory part drawn from the parts room.

5 Completed repair orders will be reviewed by the Maintenance Supervisor to ensure that all required information is present and accurate. This includes a review of the labor and parts information to ensure that labor to install or replace parts matches the parts charged to the vehicle. Upon review the Supervisor initials the repair order in the **REVIEWED AND APPROVED** area at the bottom of the repair order, and submits the repair order to the Maintenance Technician for entry into the computer system.

6 The Maintenance Technician enters the Repair Order into the computer system, initials and dates the form in the **ENTERED BY** area at the bottom of the form, and files the form in the appropriate vehicle file jacket.

## VEHICLE REPAIR PARTS

Parts availability is a key component of any maintenance operation. The District has a considerable inventory of vehicle repair parts on hand. Everyone in the maintenance department is responsible for making sure that parts are securely stored and accurately tracked. Parts issued for vehicle repairs must be properly accounted for on the repair order. Several key aspects of our parts storage and tracking procedures are outlined below.

**Inventory Parts**

**Inventory parts** are vehicle parts or components with a per unit dollar value greater than three dollars ($3.00). All **inventory parts** drawn from stock must be charged against a vehicle or component rebuild (engine or transmission) on the repair order. Generally, most **inventory parts** are kept in the stock room and distributed by the Maintenance Technician, Lead Mechanic or Supervisor.

The District parts room is organized by part type, most parts for a particular system or vehicle are stored in the same general area. (i.e. brake parts are stored together, engine parts are stored together, etc.) In addition **inventory parts** are designated by either the bin color or the bar code tag color. Parts stored in **blue** or **red bins**, and parts shelved above a **white colored bar code tag** *are inventory parts and must be charged to a vehicle or component rebuild.*

An inventory of the parts is performed semi-annually. Failure to properly account for parts drawn from stock results in inventory "shortages", which reflect negatively on both the maintenance department and the District.

**Non-Stock Parts**

**Non-Stock parts** are parts or supplies with a per unit dollar value less than three dollars ($3.00). **Non-Stock parts** are not typically charged against a vehicle or component rebuild. However, it is important that adequate care is taken to secure and distribute these parts responsibly. Generally, most **non-stock** parts are kept in the stock room and distributed by the Maintenance Technician, Lead Mechanic or Supervisor.

The **non-stock** parts are organized in the same way as the inventory parts, stored together by system or application. **Non-stock** parts are designated with either bin color or bar code tag color. Parts stored in **yellow bins** or above **yellow bar code tags** are Non-Stock parts.

**Direct Purchase Parts**

**Direct Purchase parts** are parts purchased for a specific vehicle. Typically these parts are not normally kept in stock due to high cost or very low usage. **All direct purchase parts must be charged against the vehicle on the repair order, regardless of unit cost.**

**Accident Repair Parts**

**Accident Repair parts** are parts purchased to repair vehicle accident damage. **All accident repair parts must be charged against the vehicle on the repair order, regardless of unit cost.**

**"Parts Cannibalism"**

**Occasionally a part may be required that is either out of stock, delayed, or subject to special order. Every effort is made to acquire needed parts as quickly as possible. "Cannibalism" results in double work and extraordinary expense and must be avoided. Serviceable parts should not be removed from out of service buses to adjust for parts shortages without specific approval from a Supervision.**

# GOLDEN EMPIRE TRANSIT

## REPAIR ORDER

**Vehicle #** _____
**Mileage** _____

**Repair Order #** _____
**Date Opened** _____
**Date Closed** _____

| LABOR | | | PARTS | | | | |
|---|---|---|---|---|---|---|---|
| | | Work Description | Part Number | QTY. | Description | F/C | Line |
| Emp. # | | 1 | | | | | |
| Date | | 2 | | | | | |
| Sys. Code | | 3 | | | | | |
| Hrs \| Wk Code | | 4 | | | | | |
| Emp. # | | 5 | | | | | |
| Date | | 6 | | | | | |
| Sys. Code | | 7 | | | | | |
| Hrs \| Wk Code | | 8 | | | | | |
| Emp. # | | 9 | | | | | |
| Date | | 10 | | | | | |
| Sys. Code | | 11 | | | | | |
| Hrs \| Wk Code | | 12 | | | | | |
| Emp. # | | 13 | | | | | |
| Date | | 14 | | | | | |
| Sys. Code | | 15 | | | | | |
| Hrs \| Wk Code | | 16 | | | | | |
| Emp. # | | 17 | | | | | |
| Date | | 18 | | | | | |
| Sys. Code | | 19 | | | | | |
| Hrs \| Wk Code | | 20 | | | | | |
| Emp. # | | 21 | | | | | |
| Date | | 22 | Fluids | Qts. | | | |
| Sys. Code | | 23 | 5-20 wt. | | MOTOR OIL | | |
| Hrs \| Wk Code | | 24 | 40 Wt. | | MOTOR OIL | | |
| Emp. # | | 25 | 15W-40 | | MOTOR OIL | | |
| Date | | 26 | 15W-40 CNG | | MOTOR OIL | | |
| Sys. Code | | 27 | Trans Fluid | | | | |
| Hrs \| Wk Code | | 28 | Gear Oil | | | | |
| Reviewed and Approved by | | | Entered by | | | | |

____ Scheduled Repairs
____ Unscheduled Repairs

12/5/03

**GOLDEN EMPIRE TRANSIT**

**Instructions:** Every vehicle brought to the shop for repairs must have a repair order. Repair orders will be opened by the Supervisor or Maintenance technician when ever possible. Mechanics are responsible for entering all LABOR INFORMATION, Date, Emp #, Sys. Code, and hours spent for each Sys. Code. Time must be recorded in hours and minutes 1:00 for one hour, 2:15 for two hours and fifteen minutes, etc. Mechanics must also enter an accurate description of both the original complaint or problem and corrective measures taken to correct the problem of complaint. Mark either the Scheduled or Unscheduled box at the top of the repair order according to the criteria described below for each category.

**Scheduled Repairs:** All preventive maintenance inspections and any repairs identified during inspections are considered **Scheduled Repairs**. This includes any repairs deferred and or scheduled for completion after the PM is completed and the vehicle is returned to service.

**Unscheduled Repairs:** Any repairs resulting from a driver complaint, road failure or discovery by Maintenance personnel during pull-out are considered unscheduled.

**Parts:** All inventory parts used in repairs to the vehicle must be charged out in the parts area of the repair order. In order to draw parts the repair order must be presented at the parts window. Supervisors will be reviewing the repair orders to ensure that labor describing replacement of parts and parts charged to the vehicle are in agreement.

**SYSTEM CODES**

**10 - Air Conditioning / Heating**
**15 - Air System**
**20 - Body / Tires**
**25 - Brakes**
**30 - Cooling System**
**35 - Electrical System**
**40 - Engine**
**45 - Exhaust System**
**50 - Farebox / Radio**
**55 - Kneeling System**
**60 - Fuel System**
**65 - Lead Time**
**70 - Major Clean Up**
**75 - Preventive Maintenance**
**80 - Rear Axle**
**85 - Component Rebuild**
**90 - Steering System**
**95 - Transmission**
**97 - Wheel Chair Lifts / Restraints**
**99 - Service Lane / Shop Labor**

**Repair Order Close Out Procedures:** All completed repair orders will be reviewed and initialed by a Supervisor prior to submission to the Maintenance Technician for data entry. Repair orders with discrepancies will be returned to the mechanic for correction. ***Mechanics are subject to progressive discipline for incorrect or incomplete repair orders, up to and including suspension or termination.***

Data Entry Instructions: ***Supervisor approved*** Repair Orders are entered in the computer system by the Maintenance Technicians. After data entry is complete the Repair Orders are filed in the equipment file jacket. ***Under no circumstances are Repair Orders to be entered in the system prior to review and approval by a Supervisor.***

**Revised 12/10/1999**

## Fixed Route Revenue Vehicle PM Inspections

**MAINTENANCE OBJECTIVE:** By means of regularly scheduled preventive maintenance inspections ensure full compliance with all Federal, State, Local and District regulations and policies, and ensure reliable vehicles are available to operations at a reasonable cost.

| **Frequency** | **Personnel** |
|---|---|
| 4000 mile progressive | Requires two mechanics working together for F/R buses. |

**Preventive Maintenance Inspection Fixed Route Buses**

**Instructions:**
This procedure **requires two mechanics** working as a team. PM inspection paperwork includes two inspection sheets, *one for the top side of the vehicle* and *one for the underside*, and a computer generated form with lubrication and progressive inspection requirements. Examples of the inspection sheets are illustrated on the following slides.

**Basic Vehicle Inspection - applies to all inspections 4K,8K,12K,16K,20K,24K**

Each person is responsible for inspecting the areas and items listed on his assigned form. In some cases both people will participate in inspecting or testing specific components or systems, i.e., steering, brakes, lights, wheel chair lift, etc. Any and all defects should be noted in the comments area for the specific item. Boxes marked **Pass**, **Def.**, **SI***, and **Cor.,** are to be used to denote inspection results. Each classification is defined as follows:

| | |
|---|---|
| **Pass** | Item is serviceable, no repairs or adjustments required. |
| **Def.** | Item is defective, repairs or adjustments may be needed, and specific defect is noted in the comments section. |
| **SI*** | Safety item, **repairs are required before vehicle is returned to revenue service.** |
| **Cor.** | Defective condition ***requiring less than 10 minutes repair time*** has been corrected during the course of inspection. |

**Progressive Inspection Requirements - mileage driven inspection items**

Each vehicle type has specific requirements for mileage driven inspection and or adjustment items. Examples of each type of progressive inspection are shown on the following pages. Examples of some progressive inspection items include the following:

**Engine oil and filter change** at 8000 miles **all buses**.
**Transmission oil change** at 12000, or 16000 miles, **depending on bus model.**
**Gear lube change** at 24000 **depending on bus model.**
**Engine tune-up** at various miles **depending on engine type.**
**Tire brand number, tread depth and inflation pressures**.

It may be necessary to schedule tune-ups dependent on workloads. **Always consult with a supervisor or lead before beginning engine tune-ups**.

**Upon completion of the inspection all inspection sheets shall be reviewed by the Supervisor or Lead, defects and repairs will be prioritized and assigned or scheduled by the Supervisor.**

## DEFERRED MAINTENANCE & PMI REPAIR PROCEDURES

**Maintenance Objective: Through adherence to the procedures below ensure that maintenance work that must be deferred is properly tracked and completed.**

**NOTE: Safety related repairs must never be deferred, buses must always be in compliance with all requirements of the Department of Transportation and California Administrative Code Title 13. If there is any question as to the safety or compliance of the vehicle, the vehicle shall not be placed in service.**

### Deferred PMI Repairs

PMI repairs that must be deferred or scheduled for a later time must be noted on the PM inspection sheet, attached to a work order titled PMI repairs, and placed in the individual horizontal file for the specific bus. The horizontal file is located on the parts room enclosure between the shop control desk and the parts counter.

The specific file for any bus brought in the shop for unscheduled repairs must be checked prior to beginning repair work. When possible, completion of the deferred maintenance should be completed along with the corrections made due to driver's repots, breakdowns, etc. The Supervisor or Lead man is responsible for compliance with this procedure, and also makes the decision as to which deferred items are repaired. Every Friday the dayshift Supervisor shall review the file and schedule completion of the deferred repairs for the weekend and the following week.

### Deferred Running Repairs

Occasionally a bus will have a defect or condition that does not prevent safe operation, but does require repairs be made at some point. On these occasions the needed repairs will be noted on a work order, along with any supporting documentation - i.e. the driver's vehicle inspection report(s), etc., and the work order shall be placed in the deferred maintenance file as described in the PMI repairs section above.

### Short Run Buses

Occasionally there will be need to place certain buses on short runs. A short run is a scheduled run that covers peak hour service; typically the vehicle is in service for a few hours in the morning returning to the yard by 10 a.m. Reasons for short running a bus are varied, perhaps inoperative A/C during cool weather, a pending brake reline (brakes are legal, but a reline is needed within a week), or some other condition that does not compromise safe operation of the bus. Short run buses must be noted on the daily down list located on the shop control desk. The bus number, the needed repair and a notation indicating the bus is on a Short Run must all be noted on the log. The dayshift Supervisor or Lead man is responsible for scheduling the repairs as soon as possible in priority with the other work for the day.

BUS#_____ DATE:_____

EMP#_____

MILEAGE_____ WO#_____

| PASS | DEF | SI | COR | INSPECTED | C/S | R/S | F | R | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | BRAKE LIGHTS | | | | | |
| | | | | HAZARD LIGHTS | | | | | |
| | | | | HEADLIGHTS - HIGH/LOW | | | | | |
| | | | | TAIL LIGHTS | | | | | |
| | | | | CLEARANCE LIGHT | | | | | |
| | | | | BACK-UP LIGHTS | | | | | |
| | | | | TURN SIGNALS | | | | | |
| | | | | LICENSE PLATE LIGHT | | | | | |
| | | | | CHECK ALL FLUID LEVELS | | | | | |
| | | | | W/C HYDRAULIC FLUID | | | | | |
| | | | | RADIATOR | | | | | |
| | | | | CLAMPS & BRACKETS | | | | | |
| | | | | BELTS | | | | | |
| | | | | HOSES & LINES | | | | | |
| | | | | FUEL LEAKS | | | | | |
| | | | | OIL LEAKS | | | | | |
| | | | | COOLANT LEAKS | | | | | |
| | | | | FILTER LEAKS | | | | | |
| | | | | ALTERNATOR MOUNTING | | | | | |
| | | | | AIR COMPRESSOR | | | | | |
| | | | | EXHAUST, TURBO | | | | | |
| | | | | FAN DRIVE | | | | | |
| | | | | TRANSMISSION | | | | | |
| | | | | AUXILIARY COMPONENTS | | | | | |
| | | | | WIRING | | | | | |
| | | | | A/C OPERATION | | | | | |
| | | | | A/C COMP. MOUNT | | | | | |
| | | | | A/C LINES | | | | | |
| | | | | A/C CLUTCH & BELT | | | | | |
| | | | | STEERING COMPONENTS | | | | | |
| | | | | SPRING & BELLOWS | | | | | |
| | | | | RADIUS RODS | | | | | |
| | | | | SWAY BARS, BUSHINGS | | | | | |
| | | | | ENGINE & TRANS. MOUNTS | | | | | |
| | | | | AIR LEAKS | | | | | |
| | | | | U-JOINTS | | | | | |
| | | | | BODY & CHASSIS MOUNTS | | | | | |
| | | | | EXHAUST SYSTEM | | | | | |
| | | | | FUEL TANKS (DIESEL) | | | | | |
| | | | | BRAKE CHAMBERS | | | | | |
| | | | | RELAY VALVES | | | | | |
| | | | | AIR LINES / HOSES | | | | | |
| | | | | SLACK ADJUSTERS | | | | | |
| | | | | AIR TANKS / DRYER | | | | | |
| | | | | WHEEL SEALS | | | | | |
| | | | | BRAKE SHOES / LINING | | | | | |
| | | | | SPRINGS / ROLLERS | | | | | |
| | | | | TIRES / WHEELS | | | | | |

FIXED ROUTE PMI SHEET 4/7/2003

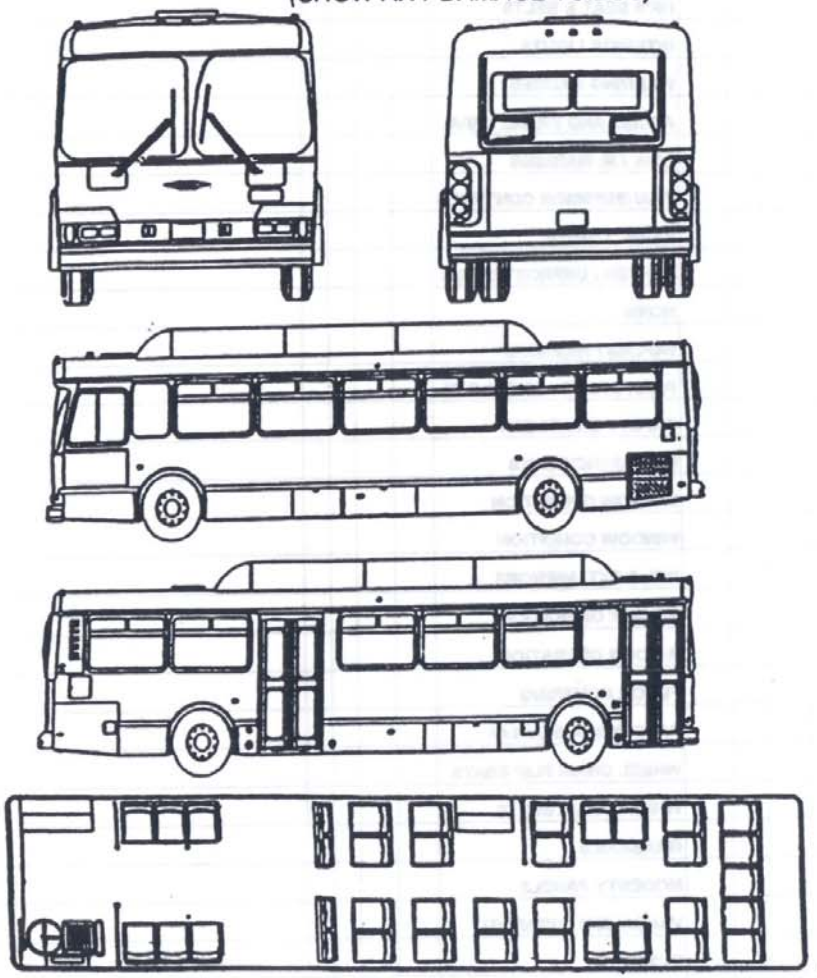
BUS#_____ DATE_____ EMP#_____

MILEAGE_____ WO#_____

| PASS | DEF | SI | COR | INSPECTED | C/S | R/S | F | R | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | STEPWELL TREADS F&R | | | | | |
| | | | | DRIVERS SEAT | | | | | |
| | | | | DR'S DASH AREA | | | | | |
| | | | | DR'S SEAT & BELTS | | | | | |
| | | | | INTERIOR LIGHTS | | | | | |
| | | | | WARNING GAUGES | | | | | |
| | | | | ACCEL. AND BRAKE PEDAL | | | | | |
| | | | | LOW AIR WARNING | | | | | |
| | | | | TRANSMISSION CONTROLS | | | | | |
| | | | | PANEL LIGHTS | | | | | |
| | | | | HEATER / DEFROSTER/ A/C | | | | | |
| | | | | HORN | | | | | |
| | | | | WIPERS / WASHERS | | | | | |
| | | | | PARK BRAKE / INTERLOCK | | | | | |
| | | | | SAFETY EQUIPMENT | | | | | |
| | | | | EMERGENCY EXITS | | | | | |
| | | | | WINDOW OPERATION | | | | | |
| | | | | WINDOW CONDITION | | | | | |
| | | | | INT. & EXT. MIRRORS | | | | | |
| | | | | F-DOOR OPERATION | | | | | |
| | | | | R-DOOR OPERATION | | | | | |
| | | | | FLOOR COVERING | | | | | |
| | | | | PASSENGER SEATING | | | | | |
| | | | | WHEEL CHAIR FLIP SEATS | | | | | |
| | | | | WHEEL CHAIR BELTS | | | | | |
| | | | | GRABRAILS | | | | | |
| | | | | MODESTY PANELS | | | | | |
| | | | | VANDALISM / GRAFFITI | | | | | |
| | | | | BUMPERS | | | | | |
| | | | | GRAPHICS | | | | | |
| | | | | DOOR & HINGES | | | | | |
| | | | | WHEEL LUGS | | | | | |
| | | | | BATTERIES & COMPART. | | | | | |
| | | | | DESTINATION SIGNS | | | | | |
| | | | | W/C COMPART. | | | | | |
| | | | | WCL CONDITION | | | | | |
| | | | | WCL OPERATION | | | | | |

## GRAFFITI AND BODY DAMAGE

*(SHOW ANY DAMAGE TO BUS)*



## Golden Empire Transit District

## Inspection Checklist Items

**Inspection Id:** 08

**Type:** 4K

| Item Number | Description |
|---|---|
| 1 | STEAM CLEAN RADIATOR, BATTERIES AND WHEELS. |
| 2 | CHECK ALL FLUID LEVELS. |
| 3 | DRAIN AIR TANKS. |
| 4 | CHECK FIRE SUPPRESSION SYSTEM. |
| 5 | CLEAN TRANSMISSION BREATHER. |
| 6 | CHECK BATTERIES (CONNECTIONS, WATER LEVEL AND CONDITIO |
| 7 | CHECK TIRES FOR PROPER INFLATION AND WEAR. |

**Golden Empire Transit District**

## Inspection Checklist Items

**Inspection Id:** 08

**Type:** 8K

| Item Number | Description |
|---|---|
| 1 | STEAM CLEAN BATTERIES, RADIATOR. AND WHEELS. |
| 10 | CHECK TIRES FOR PROPER INFLATION AND WEAR |
| 11 | CLEAN A/C FILTERS |
| 2 | LUBE CHASSIS AND CHECK DIFFERENTIAL OIL LEVEL |
| 3 | DRAIN AIR TANKS |
| 4 | CHECK FIRE SUPPRESSION SYSTEM |
| 5 | CLEAN TRANSMISSION AIR BREATHER |
| 7 | REPLACE FUEL FILTER |
| 9 | CHECK BATTERIES (CONNECTIONS, WATER LEVEL AND CONDITIO |

## Golden Empire Transit District

## Inspection Checklist Items

**Inspection Id:** 08

**Type:** 12K

| Item Number | Description |
|---|---|
| 1 | STEAM CLEAN ENGINE, BATTERIES, FRONT AXLE, UNDERCARRIAG |
| 10 | CHECK DIFFERENTIAL LEVEL |
| 11 | DRAIN AIR TANKS |
| 12 | CLEAN TRANSMISSION BREATHER |
| 13 | REPLACE DAMAGED WINDOW GAURDS |
| 14 | LUBE WHEELCHAIR LIFT |
| 15 | CHECK FIRE SUPPRESSION SYSTEM |
| 16 | CHECK BATTERIES (CONNECTIONS, WATER LEVEL AND CONDITIO |
| 17 | CHECK TIRES FOR PROPER INFLATION AND WEAR. |
| 18 | REPLACE SPARK PLUGS |
| 19 | FAREBOX, HEADSIGN AND VIDEO SYSTEM INSPECTION (RADIO SH |
| 2 | CHECK ALL FLUID LEVELS |
| 5 | CHANGE TRANSMISSION OIL AND FILTER (ATF) |
| 6 | CHANGE ENGINE OIL AND FILTER (15 - 40WT CNG) |
| 8 | REPLACE ALTERNATOR BELT |
| 9 | REPLACE AIR FILTER |

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**Golden Empire Transit District**

## Inspection Checklist Items

**Inspection Id:** 08

**Type:** 16K

| Item Number | Description |
|---|---|
| 1 | STEAM CLEAN BATTERIES, RADIATOR. AND WHEELS. |
| 10 | CHECK TIRES FOR PROPER INFLATION AND WEAR |
| 11 | CLEAN A/C FILTERS |
| 2 | LUBE CHASSIS AND CHECK DIFFERENTIAL OIL LEVEL |
| 3 | DRAIN AIR TANKS |
| 4 | CHECK FIRE SUPPRESSION SYSTEM |
| 5 | CLEAN TRANSMISSION AIR BREATHER |
| 7 | REPLACE FUEL FILTER |
| 9 | CHECK BATTERIES (CONNECTIONS, WATER LEVEL AND CONDITIO |

**Golden Empire Transit District**

## Inspection Checklist Items

**Inspection Id:** 08

**Type:** 20K

| Item Number | Description |
|---|---|
| 1 | STEAM CLEAN RADIATOR, BATTERIES AND WHEELS. |
| 2 | CHECK ALL FLUID LEVELS. |
| 3 | DRAIN AIR TANKS. |
| 4 | CHECK FIRE SUPPRESSION SYSTEM. |
| 5 | CLEAN TRANSMISSION BREATHER. |
| 6 | CHECK BATTERIES (CONNECTIONS, WATER LEVEL AND CONDITIO |
| 7 | CHECK TIRES FOR PROPER INFLATION AND WEAR. |

**Golden Empire Transit District**

## Inspection Checklist Items

**Inspection Id:** 08

**Type:** 24K

| Item Number | Description |
|---|---|
| 1 | STEAM ENGINE, BATTS, RADIATOR, FRONT AXLE, UNDERCARRIAG |
| 10 | REPLACE FUEL FILTER |
| 11 | REPLACE WHEELCHAIR LIFT FILTER |
| 12 | CLEAN A/C FILTER |
| 13 | CLEAN TRANSMISSION BREATHER |
| 14 | DRAIN AIR TANKS |
| 15 | CHECK ANTIFREEZE PROTECTION |
| 16 | REPLACE ALTENATOR BELT |
| 17 | TORQUE REAR AXLE BOLTS (500 FT LBS.) |
| 18 | LUBE CHASSIS |
| 19 | LUBE AND SERVICE WHEELCHAIR LIFT PER SERVICE MANUAL |
| 2 | CHECK ALL FLUID LEVELS |
| 20 | ENGINE TUNE UP |
| 21 | CHECK FIRE SUPPRESSION SYSTEM |
| 22 | CHECK BATTERIES ( CONNECTIONS, WATER LEVEL AND CONDITIO |
| 23 | CHECK ALTENATOR VOLTAGE |
| 24 | CHECK TIRES FOR PROPER INFLATION AND WEAR |
| 25 | CNG TANK INSPECTION |
| 26 | REPLACE DAMAGED WINDOW GUARDS |
| 27 | REPLACE AIR DRYER CARTRIDGE |
| 28 | FAREBOX, HEADSIGN AND VIDEO SYSTEM INSPECTION (RADIO SH |
| 29 | REPLACE WINDSHIELD WIPERS |
| 5 | CHANGE ENGINE OIL AND FILTER (15 - 40WT CNG) |
| 6 | CHANGE TRANSMISSION OIL AND FILTER (ATF) |
| 7 | CHANGE POWER STEERING FLUID AND FILTER |
| 8 | REPLACE AIR FILTER |
| 9 | REPLACE DIFFERENTIAL FLUID |

## Golden Empire Transit District

## Inspection Checklist Items

**Inspection Id:** 10

**Type:** 4K

| Item Number | Description |
|---|---|
| 1 | STEAM CLEAN RADIATOR, BATTERIES AND WHEELS. |
| 2 | CHECK ALL FLUID LEVELS. |
| 3 | DRAIN AIR TANKS. |
| 4 | CHECK FIRE SUPPRESSION SYSTEM. |
| 5 | CLEAN TRANSMISSION BREATHER. |
| 6 | CHECK BATTERIES (CONNECTIONS, WATER LEVEL AND CONDITIO |
| 7 | CHECK TIRES FOR PROPER INFLATION AND WEAR. |

**Golden Empire Transit District**

## Inspection Checklist Items

**Inspection Id:** 10

**Type:** 8K

| Item Number | Description |
|---|---|
| 1 | STEAM CLEAN BATTERIES, RADIATOR. AND WHEELS. |
| 10 | CHECK TIRES FOR PROPER INFLATION AND WEAR |
| 11 | CLEAN A/C FILTERS. |
| 2 | CHECK ALL FLUID LEVELS |
| 3 | CHECK BATTERIES (CONNECTIONS, WATER LEVEL AND CONDITIO |
| 4 | CHECK FIRE SUPPRESSION SYSTEM |
| 5 | CLEAN TRANSMISSION AIR BREATHER |
| 6 | REPLACE PRIMARY AND SECONDARY FUEL FILTERS. |
| 8 | LUBE CHASSIS AND CHECK DIFFERENTIAL OIL LEVEL |
| 9 | DRAIN AIR TANKS |

## Golden Empire Transit District

## Inspection Checklist Items

**Inspection Id:** 10

**Type:** 12K

| Item Number | Description |
|---|---|
| 1 | STEAM CLEAN ENGINE, BATTERIES, FRONT AXLE, UNDERCARRIAG |
| 10 | CHECK DIFFERENTIAL LEVEL |
| 11 | DRAIN AIR TANKS |
| 12 | CLEAN TRANSMISSION BREATHER |
| 13 | REPLACE DAMAGED WINDOW GAURDS |
| 14 | LUBE WHEELCHAIR LIFT |
| 15 | CHECK FIRE SUPPRESSION SYSTEM |
| 16 | CHECK BATTERIES (CONNECTIONS, WATER LEVEL AND CONDITIO |
| 17 | CHECK TIRES FOR PROPER INFLATION AND WEAR. |
| 18 | REPLACE SPARK PLUGS |
| 19 | REPLACE PVC FILTER |
| 2 | CHECK ALL FLUID LEVELS |
| 20 | FAREBOX, HEADSIGN AND VIDEO SYSTEM INSPECTION (RADIO SH |
| 5 | CHANGE TRANSMISSION OIL AND FILTER (ATF) |
| 6 | CHANGE ENGINE OIL AND FILTER (15-40WT CNG) |
| 8 | REPLACE ALTERNATOR BELT |
| 9 | REPLACE AIR FILTER |

**Golden Empire Transit District**

## Inspection Checklist Items

**Inspection Id:** 10

**Type:** 16K

| Item Number | Description |
|---|---|
| 1 | STEAM CLEAN BATTERIES, RADIATOR. AND WHEELS. |
| 10 | CHECK TIRES FOR PROPER INFLATION AND WEAR |
| 11 | CLEAN A/C FILTERS. |
| 2 | LUBE CHASSIS AND CHECK DIFFERENTIAL OIL LEVEL |
| 3 | DRAIN AIR TANKS |
| 4 | CHECK FIRE SUPPRESSION SYSTEM |
| 5 | CLEAN TRANSMISSION AIR BREATHER |
| 7 | REPLACE FUEL FILTER |
| 9 | CHECK BATTERIES (CONNECTIONS, WATER LEVEL AND CONDITIO |

**Golden Empire Transit District**

## Inspection Checklist Items

**Inspection Id:** 10

**Type:** 20K

| Item Number | Description |
|---|---|
| 1 | STEAM CLEAN RADIATOR, BATTERIES AND WHEELS. |
| 2 | CHECK ALL FLUID LEVELS. |
| 3 | DRAIN AIR TANKS. |
| 4 | CHECK FIRE SUPPRESSION SYSTEM. |
| 5 | CLEAN TRANSMISSION BREATHER. |
| 6 | CHECK BATTERIES (CONNECTIONS, WATER LEVEL AND CONDITIO |
| 7 | CHECK TIRES FOR PROPER INFLATION AND WEAR. |

## Golden Empire Transit District

## Inspection Checklist Items

**Inspection Id:** 10

**Type:** 24K

| Item Number | Description |
|---|---|
| 1 | STEAM ENGINE, BATTS, RADIATOR, FRONT AXLE, UNDERCARRIAG |
| 10 | REPLACE PRIMARY AND SECONDARY FUEL FILTERS |
| 11 | REPLACE WHEELCHAIR LIFT FILTER |
| 12 | CLEAN A/C FILTERS. |
| 13 | CLEAN TRANSMISSION BREATHER. |
| 14 | DRAIN AIR TANKS. |
| 15 | CHECK ANTIFREEZE PROTECTION. |
| 16 | REPLACE ALTERNATOR BELT. |
| 17 | TORQUE REAR AXLE BOLTS (500 FT LBS.) |
| 18 | LUBE CHASSIS |
| 19 | LUBE AND SERVICE WHEELCHAIR LIFT PER SERVICE MANUAL |
| 2 | CHECK ALL FLUID LEVELS |
| 20 | ENGINE TUNE UP (SPARK PLUGS & VALVES) |
| 21 | CHECK FIRE SUPPRESSION SYSTEM |
| 22 | CHECK BATTERIES ( CONNECTIONS, WATER LEVEL AND CONDITIO |
| 24 | CHECK TIRES FOR PROPER INFLATION AND WEAR |
| 25 | CNG TANK INSPECTION |
| 26 | REPLACE DAMAGED WINDOW GUARDS |
| 27 | REPLACE AIR DRYER CARTRIDGE |
| 28 | REPLACE PVC FILTER |
| 29 | FAREBOX, HEADSIGN AND VIDEO SYSTEM INSPECTION (RADIO SH |
| 30 | REPLACE WINDSHIELD WIPERS. |
| 5 | CHANGE ENGINE OIL AND FILTER (15-40WT CNG) |
| 6 | CHANGE TRANSMISSION OIL AND FILTER (ATF) |
| 7 | CHANGE POWER STEERING FLUID AND FILTER |
| 8 | REPLACE AIR FILTER |
| 9 | REPLACE DIFFERENTIAL FLUID |

## Golden Empire Transit District

# Inspection Checklist Items

**Inspection Id:** 13

**Type:** 4K

| Item Number | Description |
|---|---|
| 1 | STEAM CLEAN RADIATOR, BATTERIES AND WHEELS. |
| 2 | CHECK ALL FLUID LEVELS. |
| 3 | DRAIN AIR TANKS. |
| 4 | CHECK FIRE SUPPRESSION SYSTEM. |
| 5 | CLEAN TRANSMISSION BREATHER. |
| 6 | CHECK BATTERIES (CONNECTIONS, WATER LEVEL AND CONDITIO |
| 7 | CHECK TIRES FOR PROPER INFLATION AND WEAR. |

**Golden Empire Transit District**

## Inspection Checklist Items

**Inspection Id:** 13

**Type:** 8K

| Item Number | Description |
|---|---|
| 1 | STEAM CLEAN BATTERIES, RADIATOR. AND WHEELS. |
| 10 | CHECK TIRES FOR PROPER INFLATION AND WEAR |
| 11 | CHECK ALL FLUIDS |
| 12 | CLEAN A/C FILTER |
| 2 | LUBE CHASSIS AND CHECK DIFFERENTIAL OIL LEVEL |
| 3 | DRAIN AIR TANKS |
| 4 | CHECK FIRE SUPPRESSION SYSTEM |
| 5 | CLEAN TRANSMISSION AIR BREATHER |
| 7 | REPLACE FUEL FILTER |
| 9 | CHECK BATTERIES (CONNECTIONS, WATER LEVEL AND CONDITIO |

## Golden Empire Transit District

## Inspection Checklist Items

**Inspection Id:** 13

**Type:** 12K

| Item Number | Description |
|---|---|
| 1 | STEAM CLEAN ENGINE, BATTERIES, FRONT AXLE, UNDERCARRIAG |
| 10 | CHECK DIFFERENTIAL LEVEL |
| 11 | DRAIN AIR TANKS |
| 12 | CLEAN TRANSMISSION BREATHER |
| 13 | REPLACE DAMAGED WINDOW GAURDS |
| 14 | LUBE WHEELCHAIR LIFT |
| 15 | CHECK FIRE SUPPRESSION SYSTEM |
| 16 | CHECK BATTERIES (CONNECTIONS, WATER LEVEL AND CONDITIO |
| 17 | CHECK TIRES FOR PROPER INFLATION AND WEAR. |
| 18 | REPLACE SPARK PLUGS AND RESET AFR |
| 19 | FAREBOX, HEADSIGN AND VIDEO SYSTEM INSPECTION (RADIO SH |
| 2 | CHECK ALL FLUID LEVELS |
| 20 | REPLACE PVC FILTER. |
| 21 | REPLACE AIR DRYER CARTRIDGE. |
| 5 | CHANGE TRANSMISSION OIL AND FILTER (15-40WT.) |
| 6 | CHANGE ENGINE OIL AND FILTER (15-40WT. CNG) |
| 8 | REPLACE ALTERNATOR BELT |
| 9 | REPLACE AIR FILTER |

## Golden Empire Transit District

## Inspection Checklist Items

**Inspection Id:** 13

**Type:** 16K

| Item Number | Description |
|---|---|
| 1 | STEAM CLEAN BATTERIES, RADIATOR. AND WHEELS. |
| 10 | CHECK TIRES FOR PROPER INFLATION AND WEAR |
| 11 | CLEAN A/C FILTER |
| 2 | LUBE CHASSIS AND CHECK DIFFERENTIAL OIL LEVEL |
| 3 | DRAIN AIR TANKS |
| 4 | CHECK FIRE SUPPRESSION SYSTEM |
| 5 | CLEAN TRANSMISSION AIR BREATHER |
| 7 | REPLACE FUEL FILTER |
| 9 | CHECK BATTERIES (CONNECTIONS, WATER LEVEL AND CONDITIO |

## Golden Empire Transit District

## Inspection Checklist Items

**Inspection Id:** 13

**Type:** 20K

| Item Number | Description |
|---|---|
| 1 | STEAM CLEAN RADIATOR, BATTERIES AND WHEELS. |
| 2 | CHECK ALL FLUID LEVELS. |
| 3 | DRAIN AIR TANKS. |
| 4 | CHECK FIRE SUPPRESSION SYSTEM. |
| 5 | CLEAN TRANSMISSION BREATHER. |
| 6 | CHECK BATTERIES (CONNECTIONS, WATER LEVEL AND CONDITIO |
| 7 | CHECK TIRES FOR PROPER INFLATION AND WEAR. |

## Golden Empire Transit District

# Inspection Checklist Items

**Inspection Id:** 13

**Type:** 24K

| Item Number | Description |
|---|---|
| 1 | STEAM ENGINE, BATTS, RADIATOR, FRONT AXLE, UNDERCARRIAG |
| 10 | REPLACE PRIMARY & SECONDARY FUEL FILTER |
| 12 | CLEAN A/C FILTER |
| 13 | CLEAN TRANSMISSION BREATHER |
| 14 | DRAIN AIR TANKS |
| 15 | CHECK ANTIFREEZE PROTECTION |
| 16 | REPLACE ALTENATOR BELT |
| 18 | LUBE CHASSIS |
| 19 | LUBE AND SERVICE WHEELCHAIR LIFT PER SERVICE MANUAL |
| 2 | CHECK ALL FLUID LEVELS |
| 20 | ENGINE TUNE UP (SPARK PLUGS, VALVES & RESET AFR) |
| 21 | CHECK FIRE SUPPRESSION SYSTEM |
| 22 | CHECK BATTERIES ( CONNECTIONS, WATER LEVEL AND CONDITIO |
| 24 | CHECK TIRES FOR PROPER INFLATION AND WEAR |
| 25 | CNG TANK INSPECTION |
| 26 | REPLACE DAMAGED WINDOW GUARDS |
| 27 | REPLACE AIR DRYER CARTRIDGE |
| 28 | FAREBOX, HEADSIGN AND VIDEO SYSTEM INSPECTION (RADIO SH |
| 29 | REPLACE WINDSHIELD WIPERS |
| 3 | SERVICE AIR COMPRESSOR INTAKE FILTER. |
| 30 | REPLACE PVC FILTER. |
| 5 | CHANGE ENGINE OIL AND FILTER ( 15 - 40WT CNG OIL) |
| 6 | CHANGE TRANSMISSION OIL AND FILTER (15 - 40WT OIL) |
| 7 | CHANGE POWER STEERING FLUID AND FILTER |
| 8 | REPLACE AIR FILTER |
| 9 | REPLACE DIFFERENTIAL FLUID |

**Golden Empire Transit District**

## Inspection Checklist Items

**Inspection Id:** 25

**Type:** 4K

| Item Number | Description |
|---|---|
| 1 | STEAM CLEAN RADIATOR, BATTERIES AND WHEELS. |
| 2 | CHECK ALL FLUID LEVELS. |
| 3 | DRAIN AIR TANKS. |
| 4 | CHECK FIRE SUPPRESSION SYSTEM. |
| 5 | CHECK BATTERIES (CONNECTIONS, WATER LEVEL AND CONDITIO |
| 6 | CHECK TIRES FOR PROPER INFLATION AND WEAR. |

**Golden Empire Transit District**

## Inspection Checklist Items

**Inspection Id:** 25

**Type:** 8K

| Item Number | Description |
|---|---|
| 1 | STEAM CLEAN BATTERIES, RADIATOR. AND WHEELS. |
| 2 | LUBE CHASSIS AND CHECK DIFFERENTIAL OIL LEVEL |
| 3 | DRAIN AIR TANKS |
| 4 | CHECK FIRE SUPPRESSION SYSTEM |
| 5 | REPLACE PRIMARY AND SECONDARY FUEL FILTERS |
| 6 | CHECK BATTERIES (CONNECTIONS, WATER LEVEL AND CONDITIO |
| 7 | CHECK TIRES FOR PROPER INFLATION AND WEAR |
| 9 | CLEAN A/C FILTERS. |

## Golden Empire Transit District

## Inspection Checklist Items

**Inspection Id:** 25

**Type:** 12K

| Item Number | Description |
|---|---|
| 1 | STEAM CLEAN ENGINE, BATTERIES, FRONT AXLE, UNDERCARRIAG |
| 10 | CHECK DIFFERENTIAL LEVEL |
| 11 | DRAIN AIR TANKS |
| 12 | REPLACE HYDRAULIC FILTER |
| 13 | REPLACE DAMAGED WINDOW GAURDS |
| 14 | LUBE WHEELCHAIR LIFT |
| 15 | CHECK FIRE SUPPRESSION SYSTEM |
| 16 | CHECK BATTERIES (CONNECTIONS, WATER LEVEL AND CONDITIO |
| 17 | CHECK TIRES FOR PROPER INFLATION AND WEAR. |
| 18 | REPLACE SPARK PLUGS |
| 19 | REPLACE PVC FILTER |
| 2 | CHECK ALL FLUID LEVELS |
| 20 | FAREBOX, HEADSIGN AND VIDEO SYSTEM INSPECTION (RADIO SH |
| 5 | CHANGE TRANSMISSION OIL AND FILTER (15-40WT) |
| 6 | CHANGE ENGINE OIL AND FILTER (15-40WT CNG) |
| 8 | REPLACE ALTERNATOR BELT |
| 9 | REPLACE AIR FILTER |

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## Golden Empire Transit District

## Inspection Checklist Items

**Inspection Id:** 25

**Type:** 16K

| Item Number | Description |
|---|---|
| 1 | STEAM CLEAN BATTERIES, RADIATOR. AND WHEELS. |
| 2 | LUBE CHASSIS AND CHECK DIFFERENTIAL OIL LEVEL |
| 3 | DRAIN AIR TANKS |
| 4 | CHECK FIRE SUPPRESSION SYSTEM |
| 5 | CLEAN A/C FILTERS. |
| 6 | CHECK TIRES FOR PROPER INFLATION AND WEAR |
| 7 | REPLACE PRIMARY & SECONDARY FUEL FILTERS. |
| 9 | CHECK BATTERIES (CONNECTIONS, WATER LEVEL AND CONDITIO |

## Golden Empire Transit District

## Inspection Checklist Items

**Inspection Id:** 25

**Type:** 20K

| Item Number | Description |
|---|---|
| 1 | STEAM CLEAN RADIATOR, BATTERIES AND WHEELS. |
| 2 | CHECK ALL FLUID LEVELS. |
| 3 | DRAIN AIR TANKS. |
| 4 | CHECK FIRE SUPPRESSION SYSTEM. |
| 6 | CHECK BATTERIES (CONNECTIONS, WATER LEVEL AND CONDITIO |
| 7 | CHECK TIRES FOR PROPER INFLATION AND WEAR. |

**Golden Empire Transit District**

## Inspection Checklist Items

**Inspection Id:** 25

**Type:** 24K

| Item Number | Description |
|---|---|
| 1 | STEAM ENGINE, BATTS, RADIATOR, FRONT AXLE, UNDERCARRIAG |
| 10 | REPLACE PRIMARY & SECONDARY FUEL FILTERS. |
| 12 | CLEAN A/C FILTER. |
| 14 | DRAIN AIR TANKS. |
| 16 | REPLACE ALTENATOR BELT. |
| 18 | LUBE CHASSIS. |
| 19 | LUBE AND SERVICE WHEELCHAIR LIFT PER SERVICE MANUAL |
| 2 | CHECK ALL FLUID LEVELS. |
| 20 | ENGINE TUNE UP (SET VALVES AND REPLACE SPRK PLUGS) |
| 21 | CHECK FIRE SUPPRESSION SYSTEM |
| 22 | CHECK BATTERIES ( CONNECTIONS, WATER LEVEL AND CONDITIO |
| 23 | CHECK ALTENATOR VOLTAGE |
| 24 | CHECK TIRES FOR PROPER INFLATION AND WEAR |
| 25 | CNG TANK INSPECTION. |
| 26 | REPLACE DAMAGED WINDOW GUARDS. |
| 27 | REPLACE AIR DRYER CARTRIDGE. |
| 28 | REPLACE PVC FILTER. |
| 29 | FAREBOX, HEADSIGN AND VIDEO SYSTEM INSPECTION (RADIO SH |
| 30 | REPLACE WINDSHIELD WIPERS. |
| 5 | CHANGE ENGINE OIL AND FILTER. ( 15-40WT CNG ) |
| 6 | CHANGE TRANSMISSION OIL AND FILTER. ( 15-40WT ) |
| 7 | CHANGE POWER STEERING FLUID AND FILTER. ( 15-40WT CNG ) |
| 8 | REPLACE AIR FILTER. |
| 9 | REPLACE DIFFERENTIAL FLUID. |

# *GET A LIFT* REVENUE VEHICLE PM INSPECTIONS

**MAINTENANCE OBJECTIVE**: By means of regularly scheduled preventive maintenance inspections ensure full compliance with all Federal, State, Local and District regulations and policies, and ensure reliable vehicles are available to operations at a reasonable cost.

| **Frequency** | **Personnel** |
|---|---|
| 3000 mile progressive | Can be performed by one mechanic, two mechanics working together is preferred. |

**Preventive Maintenance Inspection GET -A-Lift Buses**

Instructions:
This procedure works best with two mechanics working as a team, but dependant on workload may be performed by one mechanic. PM inspection paperwork includes two inspection sheets, *one for the side* of *the vehicle* and *one for the underside*, and a computer generated form with lubrication and progressive inspection requirements. Examples of the inspection sheets are illustrated on the following pages.

Basic Vehicle Inspection - applies to all inspections 3K.6K.12K.18K.24K
Each person is responsible for inspecting the areas and items listed on his assigned form. In some cases both people will participate in inspecting or testing specific components or systems, Le., steering, brakes, lights, wheel chair lift, etc. Any and all defects should be noted in the comments area for the specific item. Boxes marked Pass, Def., SI, and Cor., are to be used to denote inspection results. Each classification is defined as follows:

| | | |
|---|---|---|
| Pass | - | Item is serviceable, no repairs or adjustments required. |
| Def. | - | Item is defective, repairs or adjustments may be needed, specific defect is noted in the comments section. |
| SI | - | Safety item, repairs are required before vehicle is returned to revenue service. |
| Cor. | - | Defective condition *requiring less than* 10 *minutes repair time* has been corrected during the course of inspection. |

Progressive Inspection Requirements - mileage driven inspection items
Each vehicle type has specific requirements for mileage driven inspection and or adjustment items. Examples of each type of progressive inspection are shown on the following pages. Examples of some progressive inspection items include the following:

Engine oil and filter change at 6000 miles all buses.
Transmission oil changes at 12000 miles all buses.
Engine tune-up at various miles, depending on engine type.
Tires tread depth and inflation pressures.
5-20WT oil is only oil to be used in the Get-A-Lift units.

It may be necessary to schedule tune-ups dependent on workloads. Always consult with a supervisor or lead before beginning engine tune-ups.

Upon completion of the inspection all inspection sheets shall be reviewed by the Supervisor or Lead, defects and repairs will be prioritized and assigned or scheduled by the Supervisor *I* Lead.

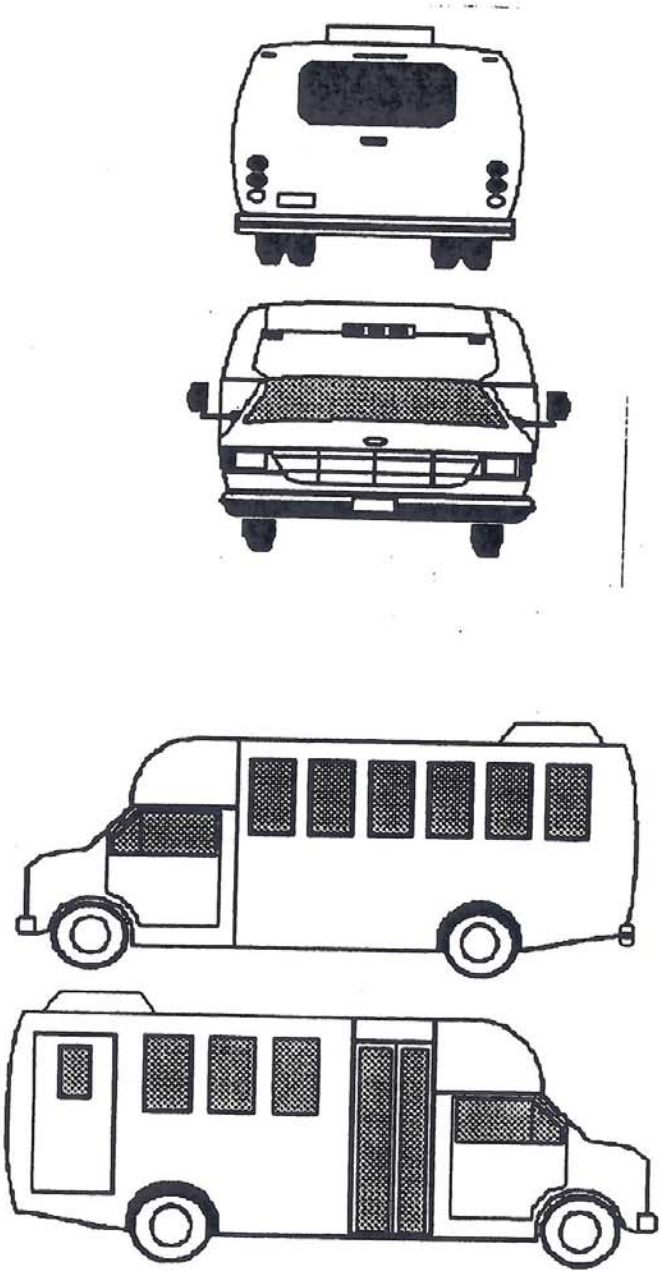
GOLDEN EMPIRE TRANSIT

Bus#_____ Date_____:

Employee#_____

Mileage____: W.O.#____

| PASS | DEF | SI | COR | INSPECTED | CIS | RIS | F | R | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | STEP WELL TREADS F&R | | | | | |
| | | | | DRIVERS SEAT | | | | | |
| | | | | DR'S DASH AREA | | | | | |
| | | | | DR'S SEAT & BELTS | | | | | |
| | | | | INTERIOR LIGHTS | | | | | |
| | | | | SAFETY EQUIPMENT | | | | | |
| | | | | EMERGENCY EXITS | | | | | |
| | | | | WINDOW OPERATION | | | | | |
| | | | | WINDOW CONDITION | | | | | |
| | | | | INTERIOR MIRRORS | | | | | |
| | | | | F-DOOR OPERATION | | | | | |
| | | | | R-DOOR OPERATION | | | | | |
| | | | | FLOOR COVERING | | | | | |
| | | | | PASSENGER SEATING | | | | | |
| | | | | WHEEL CHAIR FLIP SEATS | | | | | |
| | | | | WHEEL CHAIR BELTS | | | | | |
| | | | | GRAB RAILS | | | | | |
| | | | | MODESTY PANELS | | | | | |
| | | | | VANDALISM / GRAFFITI | | | | | |
| | | | | BUMPERS | | | | | |
| | | | | GRAPHICS | | | | | |
| | | | | DOOR & HINGES | | | | | |
| | | | | EXTERIOR MIRRORS | | | | | |
| | | | | TURN SIGNALS | | | | | |
| | | | | WHEEL LUGS | | | | | |
| | | | | BATTERIES & COMPART. | | | | | |
| | | | | ACCEL. & BRAKE PEDAL | | | | | |
| | | | | WARNING GAUGES | | | | | |
| | | | | TRANS. CONTROLS | | | | | |
| | | | | PANEL LIGHTS | | | | | |
| | | | | HEATER / DEFROSTER! AlC | | | | | |
| | | | | HORN | | | | | |
| | | | | WIPERS / WASHERS | | | | | |
| | | | | PARKING BRAKE | | | | | |
| | | | | WCL CONDITION | | | | | |
| | | | | WCL OPERATION | | | | | |
| | | | | WCL INTERLOCK BRAKE | | | | | |



**Golden Empire Transit District**

## Inspection Checklist Items

**Inspection Id:** 12

**Type:** 3K

| Item Number | Description |
|---|---|
| 1 | CK ALL FLUIDS |
| 2 | CHECK FIRE SUPPRESSION SYSTEM |
| 3 | CHECK WHEELCHAIR OPERATION & BRAKE INTERLOCK |
| 4 | CHECK TIRES FOR WEAR AND PROPER INFLATION. |
| 5 | CHECK BATTERIES (WATER LEVEL, CONNECTIONS & CONDITION) |

## Golden Empire Transit District

## Inspection Checklist Items

**Inspection Id:** 12

**Type:** 6K

| Item Number | Description |
|---|---|
| 1 | CHECK ALL FLUID LEVELS. |
| 2 | CHANGE ENGINE OIL AND FILTER ( 5-20 WT OIL) |
| 3 | CHECK FIRE SUPPRESSION SYSTEM. |
| 4 | CHECK TIRES FOR WEAR AND PROPER INFLATION. |
| 5 | CHECK WHEELCHAIR OPERATION & BRAKE INTERLOCK. |
| 6 | CHECK BATTERIES (WATER LEVEL, CONNECTIONS & CONDITION.) |
| 7 | LUBE CHASSIS |

## Golden Empire Transit District

## Inspection Checklist Items

**Inspection Id:** 12

**Type:** 12K

| Item Number | Description |
|---|---|
| 1 | CHECK ALL FLUID LEVELS. |
| 10 | ROTATE TIRES, CHECK FOR WEAR AND PROPER INFLATION. |
| 11 | FAREBOX, RADIO AND VIDEO SYSTEM INSPECTION (RADIO SHOP) |
| 12 | CHECK BATTERIES (WATER LEVEL, CONNECTIONS & CONDITION.) |
| 2 | CHANGE ENGINE OIL AND FILTER. (5 - 20WT OIL) |
| 3 | FLUSH TRANSMISSION FLUID. |
| 4 | REPLACE AIR FILTER. |
| 5 | REPLACE FUEL FILTER. |
| 6 | CHECK DIFFERENTIAL OIL LEVEL. |
| 7 | LUBE CHASSIS. |
| 8 | CHECK FIRE SUPPRESSION SYSTEM. |
| 9 | CHECK WHEELCHAIR OPERATION & BRAKE INTERLOCK. |

**Golden Empire Transit District**

## Inspection Checklist Items

**Inspection Id:** 12

**Type:** 24K

| Item Number | Description |
|---|---|
| 1 | STEAM CLEAN UNDERCARRIAGE AND ENGINE |
| 10 | CHECK DIFFERENTIAL FLUID LEVEL. |
| 11 | LUBE CHASSIS. |
| 12 | INSPECT WHEELCHAIR LIFT PER SERVICE MANUAL. |
| 13 | INSPECT CNG TANKS |
| 14 | FAREBOX, HEADSIGN AND VIDEO SYTEM INSPECTION (RADIO SHO |
| 15 | CHECK WHEELCHAIR OPERATION & BRAKE INTERLOCK. |
| 16 | ENGINE TUNE-UP (SPARK PLUGS, COILS AND WIRES) |
| 17 | CHECK BATTERIES (WATER LEVEL, CONNECTIONS & CONDITION.) |
| 18 | REPLACE WINDSHIELD WIPERS. |
| 2 | CHECK ALL FLUID LEVELS. |
| 3 | CHANGE ENGINE OIL AND FILTER ( 5-20WT OIL) |
| 4 | FLUSH TRANSMISSION FLUID. |
| 5 | REPLACE FUEL FILTER. |
| 6 | REPLACE AIR FILTER. |
| 7 | REPLACE BELTS. |
| 8 | CHECK FIRE SUPPRESSION SYSTEM. |
| 9 | ROTATE TIRES, CHECK WEAR AND PROPER INFLATION. |

# SERVICE VEHICLE PM INSPECTIONS

**MAINTENANCE OBJECTIVE**: By means of regularly scheduled preventive maintenance inspections ensure full compliance with all Federal, State, Local and District regulations and policies, and ensure reliable vehicles are available to operations at a reasonable cost.

Frequency
3000 mile progressive

Personnel
Performed by one mechanic.

Instructions:
PM inspection paperwork includes two inspection sheets, *one for the too side of the vehicle* and *one for the underside,* and a computer generated form with lubrication and progressive inspection requirements. Examples of the inspection sheets are illustrated on the following pages.

Basic Vehicle Inspection - applies to all inspections 3K. 6K.12K.18K.24K

The person assigned is responsible for inspecting the areas and items listed on the checklist form. In some cases two people will participate in inspecting or testing specific components or systems, Le., steering, brakes, lights, wheel chair lift, etc. Any and all defects should be noted in the comments area for the specific item. Boxes marked Pass, Def., SI*, and Cor., are to be used to denote inspection results. Each classification is defined as follows:

Pass - Item is serviceable, no repairs or adjustments required.

Def. - Item is defective, repairs or adjustments may be needed, specific defect is noted in the comments section.

SI* - Safety item, repairs are required before vehicle is returned to service.

Cor. - Defective condition *requiring less than 10 minutes repair time* has been corrected during the course of inspection.

Progressive Inspection Requirements - mileage driven inspection items
Each vehicle type has specific requirements for mileage driven inspection and or adjustment items. Examples of each type of progressive inspection are shown on the following pages. Examples of some progressive inspection items include the following:

Engine oil and filter change at 6000 miles all service vehicles.
Transmission oil changes at 12000 miles all service vehicles.
Engine tune-up at various miles depending on engine type.
Tire treads depth and inflation pressures.

It may be necessary to schedule tune-ups dependent on workloads. Always consult with a supervisor or lead before beginning engine tune-ups.

Upon completion of the inspection all inspection sheets shall be reviewed by the Supervisor or Lead, defects and repairs will be prioritized and assigned or scheduled by the Supervisor / Lead.

UNIT#_____

GOLDEN EMPIRE TRANSIT
SERVICE VEHICLE PMI SHEET

DATE_____ EMPLOYEE#_____

MILEAGE_____ W..O_____

| PASS | DEF | SI | COR | INSPECTED | CIS | RIS | F | R | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | BRAKE LIGHTS | | | | | |
| | | | | HAZARD LIGHTS | | | | | |
| | | | | HEADLIGHTS HIGH/LOW | | | | | |
| | | | | INTERIOR LIGHTS | | | | | |
| | | | | TAIL LIGHTS | | | | | |
| | | | | REFLECTORS | | | | | |
| | | | | BACK- UP LIGHTS | | | | | |
| | | | | PANEL LIGHTS | | | | | |
| | | | | LICENSE PLATE LIGHT | | | | | |
| | | | | TURN SIGNALS | | | | | |
| | | | | HEATER / DEFROSTER / AlC | | | | | |
| | | | | HORN | | | | | |
| | | | | WIPERS AND WASHERS | | | | | |
| | | | | PARKING BRAKE | | | | | |
| | | | | WINDOW OPERATION | | | | | |
| | | | | WINDOW CONDITION | | | | | |
| | | | | INT. & EXT. MIRRORS | | | | | |
| | | | | F-DOOR OPERATION | | | | | |
| | | | | R-DOOR OPERATION | | | | | |
| | | | | FLOOR COVERING | | | | | |
| | | | | PASSENGER SEATING | | | | | |
| | | | | DOOR PANELS | | | | | |
| | | | | BUMPERS | | | | | |
| | | | | GRAPHICS | | | | | |
| | | | | CHECK FLUID LEVELS | | | | | |
| | | | | RADIATOR | | | | | |
| | | | | CLAMPS AND BRACKETS | | | | | |
| | | | | BELTS | | | | | |
| | | | | HOSES AND LINES | | | | | |
| | | | | FUEL LEAKS | | | | | |
| | | | | OIL LEAKS | | | | | |
| | | | | COOLANT LEAKS | | | | | |
| | | | | EXHAUST SYSTEM | | | | | |
| | | | | FAN DRIVE | | | | | |
| | | | | TRANSMISSION | | | | | |
| | | | | WIRING | | | | | |
| | | | | STEERING COMPONENTS | | | | | |
| | | | | SPRINGS | | | | | |
| | | | | SWAY BAR BUSHINGS | | | | | |
| | | | | SHOCKS AND BUSHINGS | | | | | |
| | | | | ENGINE & TRANS. MOUNTS | | | | | |
| | | | | U-JOINTS / C.V. JOINTS | | | | | |
| | | | | DIFFERENTIAL LEVEL | | | | | |
| | | | | BRAKE HOSES & LINES | | | | | |
| | | | | CALIPERS / WHEEL SEALS | | | | | |
| | | | | MASTER CYLINDER | | | | | |
| | | | | FRONT BRAKE LINING | | | | | |
| | | | | REAR BRAKE LINING | | | | | |
| | | | | WHEELS & LUG NUTS | | | | | |
| | | | | TIRES | | | | | |

**Golden Empire Transit District**

## Inspection Checklist Items

**Inspection Id:** 23

**Type:** 6K

| Item Number | Description |
|---|---|
| 1 | CHECK ALL FLUID LEVELS |
| 2 | CHECK TIRE PRESSURES (30 PSI) FRONT & REAR |
| 3 | CHECK ENGINE BELT |
| 4 | CHECK BATTERY (WATER LEVEL, CONNECTIONS AND CONDITION) |
| 5 | CHANGE ENGINE OIL & FILTER (5 -20WT OIL) |

**Golden Empire Transit District**

## Inspection Checklist Items

**Inspection Id:** 23

**Type:** 12K

| Item Number | Description |
|---|---|
| 1 | CHECK ALL FLUID LEVELS |
| 2 | CHECK TIRE PRESSURES (30PSI) FRONT & REAR |
| 3 | CHECK ENGINE BELT |
| 4 | REPLACE ENGINE OIL AND FILTER (5-20WT. OIL.) |
| 6 | ROTATE TIRES (LUG NUT TORQUE 80 FT. LBS.) |
| 7 | CHECK BATTERY (WATER LEVEL, CONNECTIONS & CONDITION) |
| 8 | LUBE CHASSIS |

## Golden Empire Transit District

## Inspection Checklist Items

**Inspection Id:** 23

**Type:** 24K

| Item Number | Description |
|---|---|
| 1 | CHECK ALL FLUID LEVELS |
| 10 | CHECK BATTERY ( WATER LEVEL, CONNECTIONS & CONDITION) |
| 11 | LUBE CHASSIS |
| 13 | REPLACE FUEL FILTER. |
| 14 | REPLACE INTERIOR DUST AND POLLEN FILTER |
| 2 | CHECK TIRE PRESSURES (30 PSI) FRONT AND REAR |
| 3 | CHANGE ENGINE BELT |
| 4 | REPLACE ENGINE OIL AND FILTER ( 5-20WT. OIL) |
| 7 | REPLACE AIR FILTER |
| 8 | REPLACE WINDSHIELD WIPER BLADES |
| 9 | ROTATE TIRES ( LUG TORQUE 80 FT. LBS.) |

**Golden Empire Transit District**

## Inspection Checklist Items

**Inspection Id:** 97

**Type:** 6K

| Item Number | Description |
|---|---|
| 1 | CHECK ALL FLUID LEVELS |
| 2 | CHANGE ENGINE OIL AND FILTER (5-20WT OIL) |
| 3 | CHCK TIRES FOR PROPER INFLATION |
| 4 | CHECK BATTERY ( WATER LEVEL , CONNECTIONS & CONDITION.) |

**Golden Empire Transit District**

## Inspection Checklist Items

**Inspection Id:** 97

**Type:** 12K

| Item Number | Description |
|---|---|
| 1 | CHECK ALL FLUID LEVELS. |
| 2 | CHANGE ENGINE OIL AND FILTER. (5-20WT OIL) |
| 3 | FLUSH TRANSMISSION FLUID. |
| 4 | ROTATE TIRES |
| 5 | REPLACE FUEL FILTER |
| 6 | LUBE CHASSIS |
| 7 | CHECK BATTERY ( WATER LEVEL, CONNECTIONS & CONDITION.) |
| 8 | CHECK TIRES FOR PROPER INFLATION AND WEAR. |

**Golden Empire Transit District**

## Inspection Checklist Items

**Inspection Id:** 97

**Type:** 24K

| Item Number | Description |
|---|---|
| 1 | CHECK ALL FLUID LEVELS. |
| 10 | STEAM CLEAN ENGINE AND UNDERCARRIAGE. |
| 11 | LUBE CHASSIS |
| 12 | INSPECT CNG TANKS |
| 13 | CHECK TIRES FOR PROPER INFLATION AND WEAR |
| 14 | CHECK BATTERY ( WATER LEVEL, CONNECTIONS & CONDITION.) |
| 15 | REPLACE WINDSHIELD WIPER BLADES. |
| 2 | CHANGE ENGINE OIL AND FILTER. (5-20WT OIL) |
| 3 | FLUSH TRANSMISSION FLUID. |
| 4 | REPLACE FUEL FILTER. |
| 5 | CHECK DIFFERENTIAL FLUID. |
| 6 | REPLACE AIR CLEANER |
| 7 | REPLACE BELTS |
| 8 | ENGINE TUNE-UP (SPARK PLUGS AND WIRES) |
| 9 | ROTATE TIRES. |

## WHEEL CHAIR LIFT MAINTENANCE AND INSPECTION

**Maintenance Objective**: By means of regularly scheduled and thorough inspection ensure that all Lift-U wheel chair lifts are in good operating condition. Inspection to include the following specific processes and procedures:

**Frequency** **Personnel**

PM inspections (4K, 8K, 12K,16K, 24K) requires two people working together **or** the use of hand held control unit.

| **Operational Checks** | **Instructions** |
|---|---|
| Lift power and "power on" light | Energize lift power observe illumination of lights and alarms. |
| Front door operation and interlock | Open door ensure full open position and interlock engagement. |
| Lift deployment and operation | Deploy lift observe operation of barriers and lift travel, inner barrier should overlap the floor by 1" + or - .5", lift must deploy flat to the ground at ground level. |
| Lift platform condition and cleanliness | Clean with steam cleaner/pressure washer. |
| Safety system, sensitive edges / mats | With a person on the platform attempt to stow the lift, if lift is equipped with dual mats check both. Operate the lift (either raise or lower) with a person on the platform, carefully activate all sensitive edges and ensure lift movement stops. |

**Inspection Items**

| | |
|---|---|
| Hand railings | Inspect for secure mounting |
| Barrier hinges and hinge pins | Inspect for excessive play or binding |
| Power platform | Inspect drive chains, motors, levers, cams, hoses and electrical harnesses for condition. Report any leaks, misadjustments or other abnormal conditions. |
| Pump and motor compartment | Check for proper fluid level, inspect for leaks, secure mounting of components, presence of handle for manual operation. |
| Lubrication items | Lubricate crutch bearing as part bus chassis lubrication. |

**24K Wheel Chair Lift Inspection**

Includes all items as listed above, additional requirements as listed below:

Remove power platform protective pan, blow out power platform area with compressed air, in extreme circumstances it may be necessary to steam clean the power platform area. If steam cleaning is required lubricate moving parts with **LIFT-U chain lube**, including the drive chains and drive chain sprockets.

**References:**

| MODEL | APPLICATION | PAGE NUMBER |
|---|---|---|
| **Model # LU 0-28-28** | **used in 9700 series buses** | **44** |

# RICON WHEEL CHAIR LIFT INSPECTION

**Maintenance Objective:** By means of regularly scheduled and thorough inspection ensure that all Ricon wheel chair lifts are in good operating condition. Inspection to include the following specific process and procedures.

| **Frequency** | **Personnel** |
|---|---|
| PM inspections (3K, 6K, 12K) | Requires one person. |

| **Operational Checks** | **Instructions** |
|---|---|
| Lift power circuit | Ignition ON, Fast Idle ON, Park Brake Set, Transmission in Park, Platform Safety Belts fastened. |
| Hydraulic Pump Power | |
| Rear Door Access Lights | With lift power energized and doors opens lights should be ON. |
| Deploy Operation | Using had held control pendant press deploy button. Lift should deploy to position parallel with the floor of the bus. |
| Down | Using hand held control pendant press the down button. Ensure that platform lowers to the ground, and stops with the outboard roll stop flat to the ground. |
| Safety Belt Interlock | Unlatch platform Safety Belt and attempt to raise the lift. The lift should not operate with the belt unlatched. |
| Up | Using hand held control pendant press the up button. Ensure that platform rises to floor level of the bus, and stops with the inboard roll stop flat to the bus floor. |
| Stow | Using hand held control pendant press the stow button. While rising, apply pressure to the center of the platform. Lift is equipped with 50 lb. limit switch and should stop moving. Release pressure and allow platform to stow. The inboard roll stop will lock into place in the fully stowed position. |

| **Inspection Items** | **Instructions** |
|---|---|
| Latch springs | Inspect to ensure springs are properly attached and not broken or missing. |
| Lift arms | Inspect for proper alignment, check for cracks and loose or missing pivot pins. |
| Hydraulic System | Inspect pump and hoses for leaks. Check fluid level. Check hose routing for pinch points, abrasions, etc. Check for manual pump handle; ensure handle is secured to pump cover. |
| Assist Rails | Inspect rails for proper attachment and alignment. |

If more information is needed refer to the Ricon Service Manual for S-series wheel chair lifts.

# CUMMINS L10 280G ENGINE TUNE-UP

**Maintenance Objective: By means of regularly scheduled tune-up ensure that maximum engine performance and fuel mileage are achieved**

.

| Frequency | Personnel |
|---|---|
| PM Inspections at 12K & 24K intervals | Requires one mechanic. |

**12000 Mile Tune-Up Procedure**

| Component | Instructions |
|---|---|
| Plug wires | Disconnect and inspect for wear, abrasions, etc. Test resistance with Ohm meter, long wires should be approximately 9000 Ohms (less than 10000 ohms), short wires approximately 8000 Ohms. Replace any wires found damaged or out of spec. |
| Coil towers | Inspect for damage and or pitting, replace as required. |
| Spark Plugs | Remove old plugs, inspect plugs for signs of unusual conditions, i.e. heavy ash or oil deposits, etc. If abnormal condition is found consult with a Supervisor. **ALL SPARK PLUGS MUST BE REPLACED WITH NEW PLUGS FROM STOCK** - see Handling Instructions for Spark Plugs for specific instructions on installation. |
| Plug Wire Boots | Boot extensions must be carefully inspected for signs of damage or arcing. If no damage is noted, clean boots thoroughly with denatured alcohol and lubricate with a light film of di-electric grease prior to installation. |

## Handling Instructions for Spark Plugs -- IMPORTANT

**Oil free latex gloves must be worn when handling new spark plugs. Plugs should be thoroughly cleaned with denatured alcohol and installed using a magnetic socket, or a conventional neoprene insert socket *used ONLY FOR CNG PLUGS*. Any oil present on the plug will result in a misfire. Gaps are preset at the factory (.025"), if gap is obviously wrong get another plug from stock. Occasionally misalignment of the electrode may be noted, it is permissible to gently align the electrode if it is obviously misaligned. If the plug falls out of the socket prior to thread engagement you *MUST RECHECK THE PLUG GAP* before installing the plug. *Proper spark plug gap is absolutely critical to proper engine performance.***

### Additional checks

Check for performance problems using the laptop to monitor engine performance and history.

Check exhaust back pressure per the Cummins L10G manual.

Check fuel pressure High is approximately 100 psi, low pressure is approximately 50 psi.

IF ANY PROBLEMS ARE NOTED CONSULT WITH A SUPERVISOR BEFORE PROCEEDING WITH ANY REPAIRS OR ADJUSTMENTS.

# CUMMINS L10 280G ENGINE TUNE-UP

## 24000 MILE TUNE-UP PROCEDURE

**A 12000 mile tune-up per the above procedures and in addition to the procedures below comprises the 24000 mile tune-up.**

| Component | Instructions |
|---|---|
| **Belt Guard** | Remove belt guard and set aside. |
| **Valve cover** | Remove bolts, rubber washers and steel spacers. Note: Make sure you remove the steel spacers prior to removing the valve cover. Dropping a spacer into the engine may result in serious damage if not corrected prior to restarting the engine. Thoroughly clean the valve cover and set aside for reinstallation. |
| **Valve adjustments** | |
| | Set intake valve clearance at 0.014", set exhaust valve clearance at 0.027". Be sure to recheck clearance after retorquing rocker arm lock nuts-- **do not leave the feeler gauge in place while tightening the lock nut**, as you will eventually crush the feeler gauge resulting in improper clearances (too tight). Use of the chart on pages 7-9 in the Cummins L10G manual is recommended. |
| Valve Sequence | A-5, B-3, C-6, A-2, B-4, C-1. |

## Fixed Route Bus Transmission Service Criteria

**Maintenance Objective:** Achieve best possible transmission performance and service life through regular scheduled fluid and filter service.

**Frequency:** As part of scheduled preventive maintenance inspection and lubrication.

---

**Instructions:**

Remove transmission drain plug to drain fluid. Inspect the magnetic plug for metal debris, clean the plug, and replace copper washer or O-ring as needed. Remove the transmission filter(s), some vehicles are equipped with internal filters accessed via filter covers, other are equipped with external spin-on filters.

Fill spin-on filters with proper fluid and lubricate O-ring seal prior to installation. Spin-on filters are tightened 2/3 to 3/4 turn after contact with the filter base sealing surface - ***DO NOT OVERTIGHTEN***. Inspect internal filter housings, covers and bolts prior to installation of new filters and seals, gaskets or O-rings.

Torque requirements and fluid capacities for the various transmissions are indicated in the chart below.

| TRANSMISSION TYPE | DRAIN & REFILL QTS. | DRAIN PLUG TORQUE | FILTER CAP BOLT TORQUE |
|---|---|---|---|
| | | | |
| ***Allison B400** | 14 | 18-24 lb./ft | 30 lb./ft |
| **ZF HP490**<br>**ZF EST18** | 10 | 37 lb./ft | 18 lb./ft |

***Torque for filter cap bolts must not exceed 30 lb./ft. Bolts must be installed clean and dry. DO NOT USE IMPACT WRENCHES FOR REMOVAL OR INSTALLATION OF THE FILTER CAP BOLTS. Any transmissions with damaged threads in the case must be reported to a supervisor. Thread repair procedures must be approved by a supervisor.**

**NOTE: Replace fluids with like fluid, transmission fluid with transmission fluid, engine oil with engine oil. If you are in doubt about any transmission procedures check with a Supervisor before proceeding.**

**Golden Empire Transit**

CNG Tank Inspection Procedures

Objective: These procedures are designed to ensure the safety of our passengers and personnel. CNG tank inspections are required by Title 13 and the following procedures have been developed to insure that the Districts vehicles remain in compliance.

All CNG vehicles must have the CNG tanks inspected every 24,000 miles or 36 months. CNG tank inspections will be performed during the preventive maintenance inspection at 24,000 miles. Employees are to use the " CNG CYLINDER INSPECTION FORM." This is a three-part form that must be completed for each vehicle tank inspection. Up to 4 tanks can be inspected on each form and the form will be turned in with the PM inspection sheet.

Original Copy:
The white original copy will be attached to the PM inspection sheet.

The Yellow Copy:
The yellow copy will be kept on file.

The Pink Copy:
The pink copy shall be sent to CSA if the employee has a certification. Ten tank inspections per a year will need to be sent to CSA to maintain the employee's certification.

Any defects or damaged tanks will be reported to a supervisor immediately and the vehicle must be removed from service.

Date

CNC CYLINDER INSPECTION FORM

Vehicle Make Model Mileage Year VIN#

| Cylinder No- | I | 2 | 3 | 4 |
|---|---|---|---|---|
| Manufacturer | | | | |
| Serial # | | | | |
| Location | | | | |
| Label Serial # (Applied ) | | | | |

P = Pass F= Fail

| NFPA 52 sect. | GRI Ol!. | CNG CYLINDER EXAMINATION | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|
| 3-3 | 6-12 | Cylinder and mounting! bracket are clean. | | | | |
| 3-3 | 6-13 | Cylinder installation compliant with NFPA-52. | | | | |
| 3-3 | 4-4 | Minimum *112* inch clearance around cylinder and 3/8 inch from shields. | | | | - |
| 3-3 | 6-14 | Rubber mounting! Dads in Place and in good condition. | | | | |
| 3-3 | 6-6 | Cylinder firmly restrained by the brackets (no rocking looseness or cracks). | | | | |
| 3-3 | 6-14 | ALL the bracket securing bolts present and tight. | | | | |
| 3-3 | 6-7 | Bracket and strap bolts torqued to proper specifications. | | | | |
| 3-3 | 6-7 | Mounting brackets in good condition. (no bent. no deformation) | | | | |
| 3-3 | 6-14 | Mounting bracket area free of damage. | | | | |
| 3-3 | 6-14 | Check bracket-to-vehicle mounting for signs of stress. | | | | |
| 3-3 | 6-14 | Brackets and straps corrosion free. | | | | |
| - | 6-19 | Cuts, gouges, and abrasions on the cylinder are less than 0.0 I 0 inch in depth. | | | | |
| - | 7-8 | No signs of cylinder exposure 10 fire or extreme heat. | | | | |
| - | 6-8 | No signs of cylinder involvement in an accident. | | | | |
| - | Sect- 7 | Cylinder is free of impact damage. (surface discoloration. cracked resin. chipping!. loose fibers) | | | | |
| 3-3 | 6-13 | Cylinder service pressure markings not less than vehicle service pressure. | | | | |
| 2-5 | 6-13 | Cylinder has not exceeded the marked service life. | | | | |
| 3-4 | - | Cylinder is properly externally vented. (cylinders enclosed in vehicles only) - | | | | |
| - | 7-2 | Cylinder is free of rust, corrosion or etching of outer surface. | | | | |
| - | Sect- 7 | External paint composite laver or metal surface is free of bubbles or bulges. | | | | |
| 2-8 | 6-16 | Valves, lines and/or Pressure Relief Device (PRO) assemblies are damage free. | | | | |
| 2-5 | 8-2 | PRD is in good condition. (with no visible extrusion of eutectic material) | | | | |
| 3-5 | - | Fuel and vent lines are properly attached to the vehicle. | | | | |
| | | Vehicle history (No incidents Possible damaging! the cylinder) | | | | |
| | | Installation of new inspection slicker. | | | | |

Summary of examination and description of damage and/or adverse findings:

Repairs or replaced brackets or others components as follows:

Cylinder Inspection Results (check one)

_____Return Cylinders to service

_____Repair Cylinder(s) as follows:

_____ Send Cylinder(s) to Mfr. For further inspection as follows:

_____ REMOVE CYLINDER(S) FROM SERVICE AND DESTROY.

[inspector Signature_____

Certificate No._____

Form # cylinsp-v7

# MAINTENANCE BULLETIN

**To: All Maintenance Personnel**

**From: Mel Doherty**

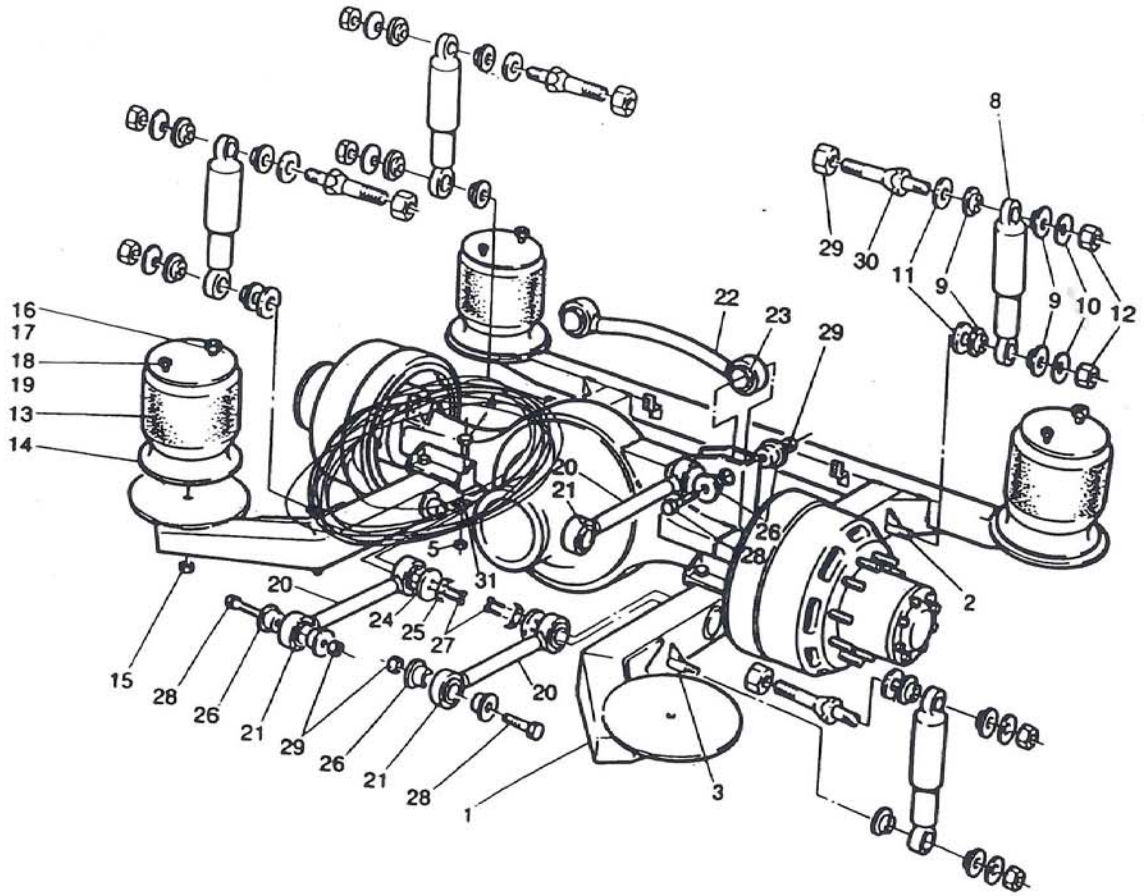
**Date: 12/1/00**

**Subject: Orion V rear suspensions**

Recently an Orion V was discovered with a dangerous suspension problem. **All four of the curbside walking beams to axle housing bolts were found to be broken and or missing.** This resulted in the walking beam hanging well below the axle housing making it impossible to get the vehicle on the hoist for inspection and repairs.

The attached parts illustration depicts the bolts as item 4. Effective immediately all Orion V buses must be checked closely for loose walking beam to axle housing bolts. Loose or missing bolts must be replaced. The bolts are Grade 8 and should be installed as depicted in the diagram. Additionally, the alignment of the bus should be checked to insure the wheelbase is equal (+/- 1/4") on both sides of the vehicle. Vehicles discovered to be mis-aligned will be sent to a local vendor for alignment after the new bolts have been installed. **Note: The new bolt(s) must be installed in exactly the same orientation as the originals.**

This is the precisely the type of defect we should be on the lookout for when performing our PM inspections. Yes, the buses are relatively new; still ***we must closely monitor the condition of the buses and catch these types of problems*** - **before we experience and incident or accident.** If you have any questions regarding this procedure consult with a supervisor immediately. Your help and cooperation in keeping our fleet one of the safest on the road is appreciated.




| REF | REV | QTY | PART NO | DESCRIPTION |
|---|---|---|---|---|
| 19 | | 4 | BS-4520124 | WASHER - LOCK 1/2" ZN PL STL |

# Detroit Series 50G Engine Tune-Up

**Maintenance Objective:** By means of regular scheduled tune-up ensures that maximum engine performance and fuel mileage are achieved.

**Frequency: Personnel:**
Requires one mechanic.
PM Inspections at 12k & 24k intervals.

**Personnel:**
Requires one Inspect rails for proper attachment and alignment.mechanic.

| Component | Instructions |
|---|---|
| **Valve Adjustments** | Set the intake valve clearance at 0.011", set the exhaust valve clearance to 0.036". Be sure to recheck the clearance after retorquing rocker arm lock nuts. Torque rocker arm lock nuts to 33lb-ft. Do not leave the feeler gauge in place while tightening the lock nut. Using a go-no go feeler gauge is suggested when setting the valve clearances. |
| **Valve Cover** | Special care should be given when removing the valve cover not to allow debris or dirt get into the engine. The valve cover should be cleaned and the gasket inspected for reinstallation. If the gasket is damaged or worn, replace the gasket. |
| **Plug Wires / Boots** | The spark plug wires should be removed carefully and inspected for damage. Apply a light coat of dielectric grease between the spark plug and boot. |
| **Coil Packs** | Use caution when removing or installing the 6mm coil pack hold down bolts in the valve cover. Bolts must have sealing o-rings installed prior to reinstallation of the bolts. Bolts should be tighten no more than 10lb-ft. Note: bolts should be removed and replaced with hand tools only. |
| **Spark Plugs** | Spark plugs should be installed and torqued to 27 lb-ft. |

**Additional Checks:**

The air fuel ratio must be reset after the replacement of the spark plug or valve adjustments.

Hook up the computer and open the Detroit 59G troubleshooting software. Open the tool bars and select “clear ARF table”. Slowly start to throttle the engine up to full throttle ( it should take about 30 seconds to get to full throttle) and slowly let the throttle return to idle.(it should take about 30 seconds to return to idle). This procedure should be repeated 2 times.

Using the Timing Circle Chart, see Figure 12-5, locate the cylinder requiring clearance. The timing circle can be started with any cylinder. Ensure that the circle is completed to adjust all valves and injectors.

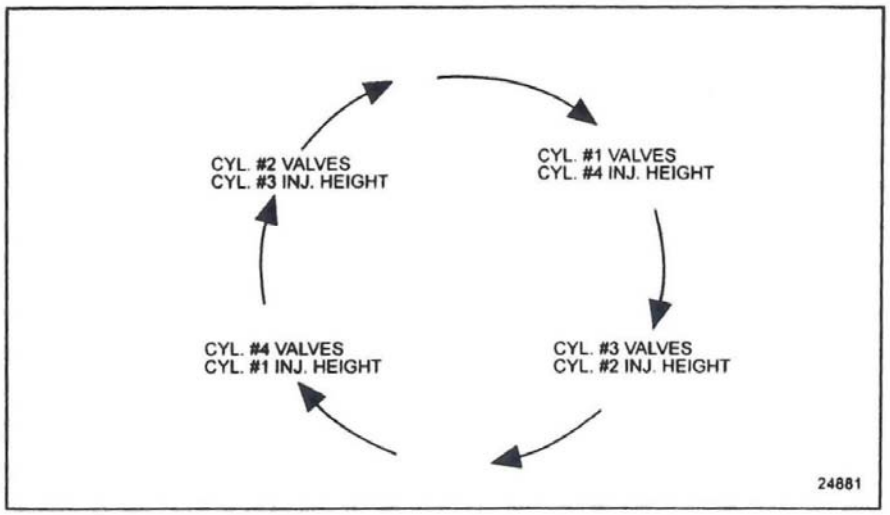



**Figure 12-5 Timing Circle Chart**

**Handling Instructions for Spark Plugs -- IMPORTANT**

**Oil free latex gloves must be worn when handling new spark plugs. Plugs should be thoroughly cleaned with denatured alcohol and installed using a magnetic socket, or a conventional neoprene insert socket *used ONLY FOR CNG PLUGS*. Any oil present on the plug will result in a misfire. Gaps are preset at the factory (.015"), if gap is obviously wrong, adjust spark plug gap to 0.015". Occasionally misalignment of the electrode may be noted, it is permissible to gently align the electrode if it is obviously misaligned. If the plug falls out of the socket prior to thread engagement you *MUST RECHECK THE PLUG GAP* before installing the plug. *Proper spark plug gap is absolutely critical to proper engine performance.***

**Additional checks:**

The air fuel ratio must be reset after replacement of the spark plug or valve adjustments.

**Instructions**

Hook up computer and open the Detroit Series 50G troubleshooting software. Open the tools bars and select "clear AFR table". Slowly start to throttle the engine up to full throttle (it should take about 30 seconds to get to full throttle) and slowly let the throttle return to idle (it should take 30 seconds to return to idle). This procedure should be repeated 2 times.

## ANNUAL AIR CONDITIONER INSPECTION F/R EQUIPMENT

**Maintenance Objective:** To ensure maximum service life of the A/C system and components through routine scheduled inspection and maintenance.

**Frequency:** Annual inspection prior to peak A/C season.

---

The annual inspection is comprised of a thorough inspection and cleaning of the key components in the A/C system. The chart on the following page outlines the various steps and procedures required to complete the annual A/C inspection. As with any procedure, question should be directed to a Supervisor.

# GOLDEN EMPIRE TRANSIT
## Annual A/C Inspection

**Bus#** _____ **Employee#**_____

**Mileage** _____

**Date:** _____

**W.O. #** _____

Note: USE SYMBOLS TO INDICATE WORK PREFORMED: **X** – O.K. **A** - ADJUSTED C – CLEANED **R** – REPLACED
**T** – TIGHTENED **O** – OTHER

---

_____ Pressure Test – Install gauges and check pressures.

_____ Check refrigerant level.

_____ Lube clutch bearing.

_____ Replace A/C drier if needed.

_____ Tighten hoses, check for signs of leakage and hose condition.

_____ Check clutch gap and adjust if necessary.

_____ Check evaporator and condenser motors for proper operation.

_____ Check high side pressure. Record _____ PSI. **DO NOT EXCEED 450 PSI.**

_____ Check low pressure cut out. Record _____ PSI.

_____Check compressor belt condition and replace if needed.

_____ Clean evaporator and condenser cores.

_____ Clean evaporator and condenser drains.

_____ Lube evaporator fan pillow block bearings.

_____ Clean front and rear evaporator filters.

_____ Set thermostat to 68 – 72 degrees.

**Comments:**_____

_____

_____

| | **INSPECTION / CLEANING** | |
|---|---|---|
| | | |
| **Component** | **Task** | **Method / comments** |
| Condenser Coil, Housing and Drains | inspect and clean | Check drains; blow out to clear any obstructions. Blow off condenser coils with air, apply mild detergent, allow soaking for a few minutes, rinsing with water hose. Steam clean condenser, be careful as steam pressure can damage fins. |
| Evaporator | clean | Blow out debris, apply cleaning solution, rinse with water. Do not use high pressure as fin damage will result. Do not overrun drain hose capacity, water will get into interior ducting and fan housings. |
| A/C filters | clean/replace | Reusable filters rinsed out and lightly coated with mineral oil, replace damaged or unusable filters. |
| A/C compressor | inspect/clean | Note any signs of leakage at compressor. Clean compressor and engine area with pressure washer/steam cleaner. |
| | | |
| | | |
| | | |
| | | |
| | **OPERATIONAL / PERFORMANCE CHECK** | |
| | | |
| **Component** | **Task** | **Method / comments** |
| A/C system | Operational Check | Start engine, turn down thermostat to activate system. Check for noises, loose belts, fan operation, etc. Note any defects or problems. Move vehicle to shop. |
| Low Pressure Cut Out | Check | Connect gauges at the compressor, disable condenser fans or cover condenser. Start engine, disable fast idle. Activate A/C system, close low side king valve to check low pressure cut-out - should be between 5 and 30 psi. Repeat process 3 times. |
| High Pressure Cut Out | Check | Open low side king valve from back seated position 6-8 turns, activate fast idle. Observe high pressure reading, clutch should cut out at less than 450 psi. If no cut out within 10 minutes or if pressure exceeds 450 psi shut system down. |
| Clutch Bearings | Lubricate | Lubricate with **hand grease gun** - 12 to 15 pumps - DO NOT OVER LUBRICATE. |
| Fan Shaft Bearings | Inspect and Lubricate | Check pillow block bearing(s), lubricate with grease gun if equipped with grease zert. |
| Compressor Oil Pressure | Check | Remove cardboard or reactivate condenser fans. Connect oil pressure gauge to compressor. Install jumper at low pressure switch, start engine and observe pressures. Oil pressure is oil pressure gauge reading minus low pressure gauge reading. i.e. |
| | | Oil Pressure reading 65 psi minus Low pressure reading - 30 psi = oil pressure 35 psi. |
| | | |
| | | |
| | | |

# Air Brake / Wheel Bearing and Seal Procedures

**Maintenance Objective:** Through routine procedures for inspection and repair ensure that all air brake systems are in safe operating condition. Procedures include inspection, repair and adjustments.

**Frequency:** All preventative maintenance inspections and repairs as required.

**Personnel:** Preventative maintenance inspections require two people. Repairs require one or two people as situation demands. Checking brake adjustment requires two people.

| Operational Checks | Instructions |
|---|---|
| **Check for noise, pulling, grabbing.** | Test drive vehicle, observe brake operation and performance. |
| **Check brake adjustment.** | Place vehicle on lift and raise. Measure from the brake chamber face to the center of the clevis pin. Have an assistant make a full brake application with the air reservoir gage reading 90-100psi. Measure from the brake chamber face to the center of the clevis pin. The difference between the brakes released and the applied measurement is the power stroke measurement. If the stroke is less than the maximum stroke for the chamber size and wheels spin without drag the inspection is satisfactory. Any power stroke measurement exceeding the maximum stroke for the chamber size is considered an "out of service condition" and must be repaired before returning the vehicle to service.<br><br>The gap between the brake drum and brake shoes must be approximately .025 - .030 for proper clearance.<br><br>"S"cam position must be checked to verify that the brakes will not prematurely fail during operation. |

| Inspection Items | Instructions |
|---|---|
| **Return Springs** | Check for broken, stretched or missing return springs. |
| **Slack Adjusters** | Check brake lining for abnormal wear. This is an indication the automatic slack adjuster may be malfunctioning. Please refer to the slack adjusters manufacture for testing procedures.<br><br>Make sure all slack adjuster hardware is in place and tight. Inspect clevis pin and bushing for wear and replace if needed. Inspect slack adjuster and "S" cam splines for excessive wear. |
| **Brake Drum** | Inspect brake drum to make sure it is not broken or cracked. Spin wheel to make sure the drum is not dragging. Strike the edge of the drum with a small hammer. A drum in good condition should ring. |

| | |
|---|---|
| **Brake Chambers** | Inspect brake chamber mounting hardware for missing or loose parts. With the brakes applied check the brake chamber push rod angle. The slack adjuster should not extend past 90 degrees. Check the position of the push rod it should be centered and not extending at below or above center line. |
| **Wheel Seals** | Visually inspect for signs of grease or oil. Visual signs of leaking oil or grease is considered a" out of service condition" and must be repaired before returning the vehicle to service. |

| **Defect Repairs** | **Instructions** |
|---|---|
| **Noisy Brakes** | Check adjustment, loose or missing parts. If no visible defect is found, remove brake drums and inspect brake lining for loose or damaged lining. If there is no visible lining defects, and brakes still noisy, replace brake lining.<br>**Note: Some brake noise is normal, consult a supervisor Before replacing brake lining.** |
| **Popping Brakes** | Check for sticking rollers or shoe anchor ends. WD40 may be used to lube rollers, use sparingly to avoid getting on the drum or lining. Anchor pins should be greased with chassis grease, use sparingly to avoid contaminating lining or drum with grease. |
| **Loose, missing or worn parts** | Typically if there is more than 50 % of the lining remaining, no other defects are noted, worn or missing parts can be replaced. This applies to springs, rollers, roller retainers, etc. |
| **Leaking wheel seals** | Inspect carefully to ensure that the seal is leaking, slight seepage is not necessarily an indication that the seal is in need of replacement.<br>**Note: If the seal is leaking and there is oil soaking of more than 1/3 of the brake lining surface a brake reline is required.** |
| **ABS warning light** | Use OEM troubleshooting procedures outlined in the WABCO manual. In many cases loose wheel bearings will cause problems due to excess or inconsistent wheel speed sensor air gap. |

**Brake Reline Procedures**

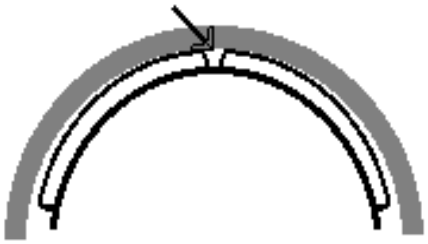
1. Brake relines are performed in full axle sets. That is to say that both sides of the vehicle receive new lining and hardware.
2. Inspect the brake lining prior to removal for signs of uneven or unusual wear. If unusual wear is noted inspect further to determine the cause. Typically worn S-cam bushings will result in a marked difference in lining thickness, the bottom shoe will be significantly more worn than the upper shoe.
3. Relined brake shoes are to be checked with the brake shoe gauge prior to make sure the shoe is not stretched. All lining hardware is to have Loctite (red) applied to the threads before the shoes are installed. Roller and anchor pin bushings must be checked for wear by using test roller and anchor pin.
4. Relined shoes are available in over sizes. Brake lining and new or used drums must be matched for size. Note: Golden Empire Transit does not approve the use of oversized rollers.
5. All hardware is to be replaced when the lining is replaced; hardware kits are available from the parts room. Grease zerks should be drawn from stock, as they are not included in the hardware kit. Note: Only heavy-duty return springs are to be used on Golden Empire Transit vehicles.
6. S-cams should be rotated 180 degrees and checked for excessive vertical play. If S-cam bushing wear is excessive, replacement of the S-cam bushings, S-cam and seals is mandatory before installing the new brake lining.
7. Wheel seals should be carefully inspected and replaced if any sign of leakage or seepage is present.
8. All brake relines must be inspected prior to installation of the brake drums, and again after installation of the drums to ensure proper brake adjustment. It is preferable that a Supervisor perform the inspections; however a "A" mechanic or lead person may also be used. It should be noted on the work order that the brakes were inspected and signed by the inspector.

## Lining Wear Guidelines

The following information is to be used for guidance and is presented as such. Other criteria may determine whether or not a brake job is performed, i.e., present workload and expected miles to run before a brake job is required, etc. Regardless it is absolutely required that no vehicle be sent out with brakes that are not 100% in compliance with all Federal and Local regulations. Consult with a Supervisor if you are in doubt about the condition or compliance of any vehicles brakes.

| **Brake Size** | **32nds** | **Action** |
|---|---|---|
| 16.5" | 18/32" | Schedule reline within 3000 miles. |
| (New Flyer) | 17/32" | Perform brake reline before returning the bus to service. |
| 16.5 | 22/32" | Schedule reline within 3000 miles. |
| (Orion7's) | 20/32" | Perform brake reline before returning the bus to service. |
| 14.5 | 20/32 | Schedule reline within 3000 miles. |
| (Orion V)18/32 | | Perform brake reline before returning the bus to service. |

Lining thickness can be determined using the method illustrated below. A standard tire tread depth gauge can be used. The measurement is taken with the **BRAKES FULLY APPLIED**. The gauge foot is placed the brake shoe table (steel), the depth probe is extended to the brake drum lining contact surface. Consult with a Supervisor or Lead if you are unsure of either the procedure or the serviceability of brakes.



**Measure the lining at the center of the top shoe. Refer to chart above to determine servicability of the brakes. If in doubt consult a Supervisor.**

## ANTI-LOCK BRAKE SYSTEMS

Some vehicles are equipped with ABS (Anti-Lock Brake Systems). Normal procedures for installation of lining, brake adjustments and wheel bearing / seal service apply to these vehicles. Troubleshooting of the ABS equipment must be performed in accordance with the OEM manuals supplied with the vehicle. Buses with ABS problems should not be used in revenue service. ABS must be maintained in proper working condition.

## WHEEL BEARING / SEAL SERVICE

If wheel seal(s) are found leaking the following procedures and guidelines must be followed to ensure the bearings, seals and hubs are installed correctly.

| **Inspection Items** | **Instructions** |
|---|---|
| **Wheel hub** | Inspect hub to ensure that wheels studs, axle studs are serviceable. After steam cleaning the hub (while the hub is hot) check the bearing race to ensure that the races are tight in the hub. If races are loose in the hub replace hub with a new or reconditioned hub. |
| **Wheel bearing nuts** | Inspect nuts to ensure threads and flats are in good condition. Only proper wrenches or sockets may be used to remove or install wheel bearing nuts. **DO NOT USE CHISELS OR OTHER TOOLS THAT WILL DAMAGE THE NUTS.** |
| **Bearing / races** | Inspect to ensure that the bearings and races are free of damage and or excessive wear. |
| **Wheel seal bore** | Inspect to ensure bore is smooth. Wheel seal must fit securely in the bore. |

| Component | Installation Instructions |
|---|---|
| **Bearing races** | Bearing races must be clean and dry before installation in the bore hub, the hub bore also must be clean and dry. Use of a race driver sized for the race is recommended, safety glasses must be worn when installing races. |
| **Wheel bearings** | Wheel bearings must be pre-lubed prior to installation. (Grease packed for some applications, gear lube in others) |
| **Wheel seals** | Wheel seals must be installed according to the seal manufactures instructions. Generally the hub bore and axle seal surface must be in good condition, a proper seal driver is always required to ensure proper installation. The seal must bottom in the bore. |
| **Wheel hub** | The lubricant reservoir must be filled with proper lubricant prior to installation of the outer wheel bearing (grease or gear lube dependent on application) Refer to the chart for wheel bearing torque specifications. Grease packed applications require the installation of an axle tube seal prior to installation of the axle. |

## WHEEL BEARING TORQUE

**ORION V**

Front wheel bearing – Tighten wheel bearing adjusting nut to 100 ft. lbs, rotate hub in both directions, back off adjusting nut and torque nut to 25 ft. lbs. Install lock and torque jam nut to 250 lbs.

Rear wheel bearing – Tighten wheel bearing nut to 150 ft. lbs, rotate hub in both directions, back off adjusting nut and torque to 50 ft. lbs. Install lock and torque jam nut to 250 ft. lbs.

**ORION VII**

Front wheel bearing - Tighten wheel bearing adjusting nut to 100 ft. lbs, rotate hub in both directions, back off adjusting nut and torque nut to 25 ft. lbs. Install lock and torque jam nut to 250 lbs.

Rear wheel bearing – Tighten wheel bearing nut to 150 ft. lbs, rotate hub in both directions, back off adjusting nut and torque to 50 ft. lbs. Install lock and torque jam nut to 250 ft. lbs.

**NEW FLYER (MANN AXLE)**

Refer to service manual for proper assembly and torque specifications.

**** IMPORTANT NOTE****

**Any time rear wheel seals and bearings are serviced you must check rear axle gear lube level.**

# Get-A-Lift Brake / Wheel Bearing Procedures

**Maintenance Objective:** Through routine procedures for inspection and repair ensure that all brake systems are in safe operating condition. Procedures include inspection and repair.

**Frequency:** All preventative maintenance inspections and repairs as required.

**Personnel:** Preventative maintenance inspections require one technician. Repairs one person as situation demands.

| Operational Checks | Instructions |
|---|---|
| **Check for noise, pulling, grabbing.** | Test drive vehicle, observe brake operation and performance. |

| Inspection Checks | Instructions |
|---|---|
| **Brake Lining** | Raise vehicle up on rack. Inspect brake lining at all wheel positions. Front and rear axle brake lining must be recorded in percentages. Recorded percentages shall indicate the remaining usable lining. Front and rear brake lining recorded at 30 percent or less are scheduled for a brake reline within 3000 miles. Lining measurements must be recorded at the thinnest spot. |
| **Brake Hardware** | Inspect all brake and wheel hardware for loose or missing parts. |
| **Brake Hoses** | Inspect all rigid and flexible brake hoses for cracks, leaks or chaffing. |
| **Calipers** | Inspect calipers for signs of piston sticking, loose mounting, leaks and signs of overheating. |

**Brake Reline Procedures**

1. Brake relines are performed in full axle sets. That is to say that both sides of the vehicle receive new lining and hardware.
2. Inspect the brake lining prior to removal for signs of uneven or unusual wear. If unusual wear is noted, inspect further to determine the cause. Typically the caliper piston sticks due to heat and will require the caliper and brake lining to be replaced.
3. Remove rotor and hub assemblies.
4. Rotors should be inspected for condition and measured for thickness. Please refer to the rotor and or the manufacture thickness requirements. All brake relines require new or resurfaced rotors to be installed. **Note: Under no circumstances do we use rotors that have been under cut or undersized**.
5. All calipers that are not in satisfactory condition must be replaced. If you have any questions regarding the condition requirements, please consult with a supervisor.
6. Steam clean hub assembly and inspect for cracks and loose bearing races. If loose bearing races are noted, replace with a new or remanufactured hub.
7. Inspect bearings for unusual wear or damage. Replace bearing and races in sets if defects are found. All grease packed wheel bearings must be repacked with grease at each brake reline.

8. Apply silicone brake caliper grease to the caliper retainer pins and pin grooves before installing the brake caliper retainer pins.
9. All brake reline assemblies must be inspected by a supervisor, lead person or "A" mechanic prior to the installation of the wheels. It should be noted on the work order that the brake assemblies have been inspected and signed by the inspector.

## ANTI-LOCK BRAKE SYSTEMS

Some vehicles are equipped with ABS (Anti-Lock Brake Systems). Normal procedures for installation of lining, brake adjustments and wheel bearing / seal service apply to these vehicles. Troubleshooting of the ABS equipment must be performed in accordance with the OEM manuals supplied with the vehicle.

**** IMPORTANT NOTE****

**Any time rear wheel seals and bearings are serviced you must check rear axle gear lube level.**

# GOLDEN EMPIRE TRANSIT

## Get-A-Lift Tire Specifications / Procedures

**Objective: These procedures are designed to ensure that maximum mileage is achieved from tires applied to District vehicles.**

**INFLATION SPECIFICATIONS:**

Correct inflation for all Get-A-Lift buses is **80 PSI** for the rear wheel positions and **65 PSI** for the front wheel positions.

**INFLATION CHECKS:**

All PM inspections will include inflation checks, with the readings recorded on the PM checklist.

**TREAD DEPTH SPECIFICATIONS:**

Steering axle tires will be replaced when the tread depth reaches **7/32 of an inch.**

Drive axle tires will be replaced when the tread depth reaches **3/32 of an inch.**

**TREAD DEPTH INSPECTIONS:**

All PM inspections will include tread depth checks, with the results recorded on the PM checklist.

**GENERAL TIRE SERVICE PROCEDURES:**

The procedures on the following pages are taken from the **Michelin Commercial Light Truck Tire and Truck Tire Data Book.** These procedures apply to tire service at Golden Empire Transit, and must be followed to ensure both the safety of our employees and best possible tire performance. Any questions regarding tire procedures should be directed to a Supervisor.

# Golden Empire Transit

### Fixed Route Bus Tire Specifications / Procedures

**Objective:** These procedures are designed to ensure that maximum mileage is achieved from tires applied to District vehicles.

| | |
|---|---|
| **Orion V steer axle:** | **115 PSI.** |
| **Orion V drive axle:** | **115 PSI.** |
| **Orion VII steer axle:** | **120 PSI.** |
| **Orion VII drive axle:** | **115 PSI.** |
| **New Flyer steer axle:** | **120 PSI.** |
| **New Flyer drive axle:** | **120 PSI.** |

**Inflation Checks:**

All preventive maintenance inspections will include inflation checks, with the readings recorded on the PM checklist.

**Tread Depth Specifications:**

Steering axle tires will be replaced when the tread depth reaches 7/32 of an inch.

Drive axle tires will be replaced when the tread depth reaches 3/32 of an inch.

**Tread Depth inspections:**

All preventive maintenance inspections will include the depth checks, with result recorded on the preventive maintenance inspection checklist.

**General Tire Service Procedures:**

Tire service procedures as outlined in Michelin's Truck Tire Service Manual will be used as our standard operating procedures for mounting, demounting and repairs.

**Tire Change Procedures:**

Any time a tire is changed a tire change ticket and work order must be completed. This includes tire rotations, when the tire stays on the vehicle but is moved to a new position, - i.e. the LRI and LRO are swapped to even out tread wear, or LF and RF are moved to the rear axle to run out the remaining tread.

## TIRE CHANGE TICKET

**BUS** _____ **DATE:** _____

**MILES:** _____ **MECH:** _____

| POSITION | TIRE OFF | TIRE ON | REASON |
|---|---|---|---|
| LF | | | |
| RF | | | |
| RRO | | | |
| RRI | | | |
| LRO | | | |
| LRI | | | |

### REMOVAL CODES

| | | | |
|---|---|---|---|
| Flat | FL | Road Hazard | RH |
| Balance | BA | Uneven Wear | UW |
| Curbed | CU | Mismatch | MM |
| Rotation | RO | Accident | AC |
| Worn Out | WO | Cut | CT |
| Bad Wheel | BW | Other | OT |

## Revenue Vehicle Cleaning Procedures

The following criteria and procedures are used to keep revenue vehicle interiors clean. The procedures cover three levels of cleaning; daily, shuttles, and display. Only cleaning supplies approved and supplied by the District may be used for cleaning vehicles.

### Daily Cleaning

1. Empty trash containers and replace trash bags.
2. Clean all interior windows with glass cleaning solution and squeegee.
3. Clean all interior mirrors with glass cleaner.
4. Wipe down all stanchions, mirror brackets, modesty panels and interior light lenses.
5. Wipe down dash board and driver's area including radio handset and farebox.
6. Clean seats and seat backs.
7. Remove surface graffiti. Report any graffiti that cannot be easily removed.
8. Clean behind seats, and wheel well areas.
9. Clean step well areas front and rear.
10. Sweep floor, remove gum and spills, and mop the floor.

### Shuttle Bus Cleaning **

The District frequently provides special shuttles for various community or promotional events. The following shuttle procedures apply in addition to daily cleaning requirements.

1. Hands wash the vehicle exterior, including detailing the wheels.
2. Thoroughly clean all interior surfaces and placards.
3. Shampoo or exchange any stained seats.
4. Detail the floor to remove any and all stains, gum, compacted soil, etc.

### Display Bus Cleaning **

Occasionally the District uses buses for promotional displays. It is imperative that display buses present the best possible image. Display buses are typically selected by a Supervisor or the Maintenance Manager. In addition to the requirements for daily and shuttle cleaning the following procedures apply to display buses.

1. Bus body must be generally free of paint, decal and glass damage.
2. Damaged or defective windows and window protectors must be replaced.
3. Shampoo all interior upholstery.
4. Thoroughly clean interior roof and emergency roof hatches.
5. Hand clean and dry exterior window surfaces to eliminate spotting.
6. Hand clean and polish aluminum wheels.
7. Apply rubber dressing to all exterior rubber surfaces including the tire sidewalls.

**** Both shuttle and display buses must be inspected by a Supervisor or Manager prior to being released for dispatch.**

# GOLDEN EMPIRE TRANSIT

## Daily Bus Cleaning Procedures:

**Objective # 1** : To provide operations with clean revenue equipment on a daily basis.

**Objective # 2** : To clean each bus using documented processes, procedures and materials that are both effective and efficient.

**Objective # 3** : To inspect the buses on a regular basis (daily) to ensure procedure compliance.

The process described below ***is the only method to be used for daily cleaning of fixed route buses.*** The process is structured to promote efficiency and to ensure that all cleaning requirements are met consistently.

**Step one**:

Enter the bus at the front door, proceed to the drivers area. Remove papers, trash and transfer debris from the dash areas. Using a cloth dampened with cleaning solution wipe down the entire drivers area, including the dash panels, instruments, overhead panels, top of dash and defroster area, steering wheel, radio handset and farebox. Follow up wiping all areas with a clean dry cloth.

**Step two**:

Starting at the farebox using a cloth dampened with cleaning solution wipe down the overhead, dash, facia panels and passenger assist rails across the front of the bus to the rear of the front door. Follow up wiping all areas with a clean dry cloth.

**Step three**:

Using a dampened cloth wipe down all interior surfaces of the front door and the front door modesty panel. Follow up wiping all areas with a clean dry cloth.

**Step four**:

Beginning at the front door wipe down curbside passenger assist rails and the back of the rear stepwell mirror using a dampened cloth followed with a clean dry cloth. Upon reaching the rear of the bus clean the back wall surfaces using either the damp cloth wipe down followed by a dry cloth wipe for hard surfaces, or an upholstery brush or whisk broom for fabric (carpeted or upholstered) surfaces.

**Step five**:

Beginning at the roadside rear of the bus wipe down roadside passenger assist rails using a dampened cloth followed with a clean dry cloth. Upon reaching the front of the bus using a clean dry cloth wipe method wipe down the lights lenses and ad signs proceeding from the roadside front to the rear and proceeding to the curbside wiping down the lenses and signs working from rear to front.

**Step six**:

Beginning at the first seat adjacent to the front door working to the rear curbside and back down the roadside from the rear to the front use a damp cloth followed by a dry cloth to wipe down the seat frames, seat backs, seat mounted passenger assist rails. Check for and remove trash and or debris from between seats. Remove any gum on the floor or graffiti from the seats and side walls as discovered. Use an upholstery brush or a whisk broom to clean fabric seats.

**Step seven**:

Spray all side windows with window cleaning solution and wipe dry with a lint free cloth. Avoid streaking by changing cloths frequently. Spray windshields with window solution and wipe dry with a lint free cloth. Avoid streaking by using clean dry cloths for the windshields.

**Step eight**:

Sweep the entire floor surface from wall to wall. Using a whisk broom or small brush clean out the drivers area floor around the throttle and brake, the area around the base of the farebox between the driver floor riser and farebox, and the area between the farebox and front heater box area.

**Step nine**:

Beginning at the rear working forward mop the entire floor wall to wall, including the rear step well area. The last area mopped will be the front step well. Be sure to remove all cleaning materials from the bus prior to mopping, upon completion of mopping the front step area you should be ready to move to the next bus. Close the front door after mopping and proceed to the next vehicle.

# GRAFFITI ABATEMENT AND REMOVAL

**Maintenance Objective:** Vehicle appearance to be maintained through regular inspection and daily cleaning with graffiti removed as quickly and efficiently as possible.

The policies and procedures listed below are designed to ensure vehicle appearance presents the best possible image to our riders. The policies and procedures are designed to assist in decision making regarding graffiti removal, which due to expense or complexity needs to be "managed". District budget constraints and limited manpower do not provide adequate resources for a "zero tolerance" graffiti policy. As with any policy or procedure, questionable circumstances or conditions should be immediately discussed with your Supervisor.

**Upholstered Seating**

Daily cleaning procedures provide for removal of light (easily removed) graffiti. Significant graffiti not removable through daily cleaning must be reported to the Supervisor. The Supervisor is responsible for scheduling repairs and or replacements prior to releasing the vehicle for revenue service.

**Seat / Window Frames**

Surface graffiti removed through daily cleaning procedures. Report burn or etching damage to the Supervisor. Supervisor is responsible for inspection of the damage and for decisions regarding scope of repairs, ordering parts and scheduling repairs.

**Windows**

Windows with damage to 25% or more of the window surface area shall be replaced. Typically, window replacements will be performed as part of the PM repairs generated by routine PM inspections. Additionally, any window which is etched with profanity shall be changed upon discovery of the condition.

**Window Protectors**

Window protectors with damage to 25% or more of the protector surface area shall be replaced upon discovery. Additionally, any window protector which is etched with profanity shall be changed upon discovery of the condition. Buses originally equipped with or retrofitted with window protectors shall not be placed in service without the protectors in place.

**Side Walls / Ceilings**

Surface graffiti removed through daily cleaning procedures. Report burn or etching damage to the Supervisor. Supervisor is responsible for inspection of the damage and for decisions regarding scope of repairs, ordering parts and scheduling repairs.

**Modesty Panels**

Surface graffiti removed through daily cleaning procedures. Report burn or etching damage to the Supervisor. Report profanity (not easily removed) to the Supervisor. The Supervisor is responsible for inspection of the damage and for decisions regarding scope of repairs, ordering parts and scheduling repairs.

**Vehicle Exterior**

Vehicles with exterior graffiti damage shall be immediately removed from service. Typically exterior tagging is performed with spray paint or paint sticks. Addressed immediately these materials are readily removed with graffiti remover or paint thinner. Consult with your Supervisor when handling exterior tagging incidents.

**GOLDEN EMPIRE TRANSIT**

## Specified Oils / Lubricants for Vehicle Maintenance

The chart below reflects the proper oil to be used for each application. Your cooperation in dispensing only the correct oil when adding or changing fluids is required to ensure that no lubrication related failures occur. **If there is ever a question regarding proper lubricant for any application consult with a supervisor immediately.** ***Use of unapproved oil can cause serious component damage and possibly void vehicle or component warranty.***

When performing oil and filter change the new oil filter must be filled with motor oil prior to installation. Failure to follow this procedure will result in damage to the engine bearings and crankshaft, and effectively void the warranty. Your compliance with this procedure is both required and appreciated.

| Application | Oil / Lubricant | | |
|---|---|---|---|
| **Cummins L10 - G** | **Chevron HDAX 15W-40** | | |
| **Detroit Diesel 50G** | **Chevron HDAX 15W-40** | | |
| **John Deere 8.1** | **Chevron HDAX 15W-40** | | |
| **ZF Transmissions** | **Chevron HDAX 15W-40** | | |
| | | | |
| **Allison Transmissions** | **Dexron III** | | |
| **Rear end gear lube** | **80WT – 90WT** | | |
| **Get - A - Lift V-10** | **5W-20WT.** | | |
| | | | |
| **Oil Quantities** | | | |
| **Cummins L10** | **38 QTS.** | **Drain Plug Torque** | **40 ft. lbs.** |
| **Detroit 50G** | **32 QTS.** | **Drain Plug Torque** | **25 ft lbs.** |
| **John Deere** | **19 QTS.** | **Drain Plug Torque** | **34 ft. lbs.** |
| **Allison Transmission** | **18 QTS.** | **Drain Plug Torque** | **24 ft lbs.** |
| **ZF Transmission** | **13 QTS.** | **Drain Plug Torque** | **37 ft. lbs.** |
| | | **Filter Bolt Torque** | **18 ft. lbs.** |