# ARKANSAS SCHOOL BUS INSPECTION HANDBOOK



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THE DIVISION OF PUBLIC SCHOOL ACADEMIC FACILITIES AND TRANSPORTATION

# **TABLE OF CONTENTS**

INTRODUCTION	Ι
SECTION I - PREVENTIVE MAINTENANCE	1
Preventive Maintenance	1
SECTION II-BRAKES	2
Service Brake Performance Tests-Roads	2
Leakage-Pedal Reserve – Hydraulic System	3
Hydraulic System	4
Wheel Cylinders and Drums	5
Linings	6
Mechanical	7
Vacuum System	8
Air System – Function	9
Air Leakage and Reserve	10
Air System	11
Emergency System – Function	12
Emergency System – Performance	13
Parking Brakes	14
Definitions	15
SECTION III - TIRES AND WHEELS	16
Tire Inspection	16
Tire and Wheel Inspection	17
SECTION IV – TRANSMISSION/CLUTCH	18
SECTION V – SUSPENSION AND STEERING	19
Binding – Lash	19
Steering Column	20
Wheel Bearings – Linkage Play	21
Chassis Springs and Shocks	22
Power Steering	23
SECTION VI – LIGHTING AND ELECTRICAL SYSTEM	24
Lamps – Function	24
Electrical System	25
Connections - Automatic Transmission Starting	26
SECTION VII – VEHICLE GLAZING	27
Vehicle Glazing	27
SECTION VIII – BODY AND SHEET METAL	28
Outside Rearview and Crossview Mirrors	28
Inside Rearview Mirror	29
Windshield Wipers	30
Windshield Washer	31
Metal - Bumpers - Fenders	32
Doors - Service – Emergency	33
Hood	34
Floor Plan	35

Seats – Stanchions – Rails – Crash Barriers	36
Visors – Defroster	37
Heater – Stepwell – Vents	38
Emergency Equipment Body Fluid Kit	39
SECTION IX – EXHAUST AND FUEL SYSTEM	40
Exhaust System	40
Drive Line	41
Fuel System	42
SECTION X – GENERAL	43
Interior – Cleanliness – Appearance	43
SECTION XI – SPECIAL NEEDS	44
Procedure	44
General Diagram	45

#### SECTION I – PREVENTIVE MAINTENANCE

PREVENTIVE MAINTENANCE

Before beginning the inspection of a school bus, the inspector should first determine if an adequate preventive maintenance program exists. He must then determine the adequacy of the records which indicate whether or not the program has been followed, and make an overall evaluation. Although this item is considered ADMINISTRATIVE, a practical comparison must be made between the VEHICLE condition and what the RECORD states about it.

PROCEDURE	REJECT VEHICLE
PREVENTIVE MAINTENANCE PROGRAM	
A. Inspect program for technical adequacy and for compliance with applicable laws or regulations.	
B. Inspect vehicle records for compliance with maintenance program instructions. Each entry should be checked against the actual condition of the item.	
RECOMMENDED MAINTENANCE PROGRAM	
Each vehicle should be brought to the central shop once each month for monthly inspection and maintenance. The vehicle should be checked in the same manner that it is checked by the State Inspector and all items needing correction be fixed before the vehicle returns to the route.	

#### SERVICE BRAKE PERFORMANCE TESTS - ROADS

<u>SIMPLES TESTS AND VISUAL INSPECTION PROCEDURES</u> – Service brake tests should be conducted on a substantially level, dry, hard, smooth surface road or area that is free from loose material, oil or grease. Tire pressures should be at recommended values. Using the service brake only, the stopping ability of the vehicle should be tested by one of the following methods:

PROCEDURE	REJECT VEHICLE
SERVICE BRAKE TEST – <u>Method (a) – On Road</u> At a speed of 20 mph, apply service brake firmly. Vehicle must come to a smooth stop within the distance prescribed by state law for its class, without pulling to the right or left causing it to leave a lane 12 feet wide. Driver should have firm control of the steering wheel throughout the test.	If the vehicle swerves enough for any wheel to leave the 12 foot lane.
(20 MPH = 32 km/h)	

LEAKAGE – PEDAL RESERVE – BACK-UP SYSTEM - HYDRAULIC SYSTEM

<u>SIMPLE TESTS AND VISUAL INSPECTION PROCEDURES</u> – recommended for inspection programs which must accommodate a large volume of vehicles. Results will indicate whether or not a vehicle has reasonable safe brakes at the time of inspection. The engine should be running when checking vehicles with vacuum or air assisted hydraulic systems. "Pumping" or repeated application of brake pedal is not permitted.

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PROCEDURE	REJECT VEHICLE
TEST BRAKE HYDRAULIC SYSTEM FOR LEAKAGE AND PEDAL RESERVE	
Hydraulic System with Vacuum Assist	
1. <u>Test Leakage</u>	
• With engine running and vehicle stopped, inspector shall apply a moderate foot force to brake pedal and maintain for one minute.	If service brake pedal moves slowly in applied direction while foot pressure is maintained for one minute.
2. <u>Test Pedal Reserve/Pedal Pad Condition</u>	
• <u>On vacuum-assisted hydraulic systems</u> with line pressure booster. Apply moderate foot force and observe remaining available pedal travel and pad condition.	When less than 50 per cent of the total available pedal travel remains. Excessively worn or missing pad.
3. <u>Test Back-Up System</u>	If motor does not operate.
• With engine off apply brake pedal, check to see if electric motor activates.	

HYDRAULIC SYSTEM

NOTE: It is imperative that the hydraulic system reservoir cover and the surrounding area be thoroughly cleaned before the cover is removed for inspection to assure that No Dirt is mixed with the brake fluid.

PROCEDURE	REJECT VEHICLE
<ul> <li>HYDRAULIC SYSTEM – Visually inspect condition of hydraulic.</li> <li>Inspect hydraulic hoses and tubes for leaks, cracks, chafing, flattened or restricted sections and improper support.</li> <li>Inspect master cylinder for leakage and fluid level. (Be sure no dirt or water gets into reservoir when cover is removed, and that the gasket is serviceable.)</li> <li>DUAL HYDRAULIC CIRCUITS – In addition to the above – if vehicle is equipped with a brake warning light:</li> </ul>	<ul> <li>IF:</li> <li>Hoses or tubing leak, or are cracked, chafed, flattened, restricted or are insecurely fastened.</li> <li>Master cylinder leaks.</li> <li>The gasket is torn or misshapen.</li> </ul>
<ul> <li>Test for operation of light by turning ignition to start position.</li> <li>With ignition switch on and engine running, apply 125 – 150 pounds of pedal force and observe light.</li> </ul>	<ul> <li>IF:</li> <li>Light comes on when brake pedal is depressed.</li> </ul>

WHEEL CYLINDERS AND DRUMS

It is recommended that wheels and/or drums be removed for inspection of linings on drum brakes if problems are suspected.

PROCEDURE	REJECT VEHICLE
<ul> <li><u>WHEEL CYLINDERS</u> –</li> <li>Inspect wheel cylinders for leaks. <u>DO NOT</u> DISTURB DUST BOOT!</li> </ul>	<ul><li>IF:</li><li>Wheel cylinder leaks.</li></ul>
<ul> <li><u>BRAKE DRUMS</u> –</li> <li>Inspect the condition of the drum friction surface for substantial cracks extending to the open edge of the drum. (Short hairline heat check cracks should not be</li> </ul>	<ul> <li>IF:</li> <li>There are substantial cracks on the friction surface extending to the open edge.</li> </ul>
<ul> <li>considered.)</li> <li>Inspect for cracks on the outside of the drum.</li> </ul>	<ul> <li>IF:</li> <li>There are external cracks.</li> <li>There is evidence of mechanical damage other than wear.</li> </ul>
<ul> <li>Inspect for mechanical damage.</li> <li>Inspect for contaminated friction surface.</li> <li>Measure inside diameter of drum.</li> </ul>	<ul> <li>Friction surface is contaminated with oil, grease or brake fluid.</li> <li>Inside diameter of drum is greater than diameter stamped on drum. For unmarked drums, maximum diameter is usually.090" greater than standard drum diameter up to and including 14 1/8" nominal diameter</li> </ul>
	for larger drums maximum diameter is .120".

# LININGS

PROCEDURE	REJECT VEHICLE
<ol> <li><u>RIVETED LININGS</u></li> <li>Inspect for loose or missing rivets.</li> <li>Measure lining thickness above rivet head at thinnest point.</li> </ol>	<ul> <li>IF:</li> <li>Any rivets are loose or missing.</li> <li>Lining is worn beyond acceptable industry standards. See CDL for thickness.</li> </ul>
<ul> <li>2. <u>ALL LININGS</u></li> <li>Inspect for broken or cracked linings, and parts of linings not firmly attached to shoe. Also inspect for contamination and excessively uneven lining wear.</li> <li>3. <u>BRAKE ADJUSTMENT</u></li> <li>Check for proper adjustment.</li> </ul>	<ul> <li>IF:</li> <li>Lining is broken, cracked, or not firmly and completely attached to shoe.</li> <li>Friction surface is contaminated with oil or grease.</li> <li>Lining wear is extremely uneven.</li> <li>IF:</li> <li>Brake adjustment is incorrect.</li> </ul>

# MECHANICAL

PROCEDURE	REJECT VEHICLE
CONDITION OF MECHANICAL COMPONENTS 1. Inspect for worn pins and missing or defective cotter pins.	<ul> <li>IF:</li> <li>Mechanical parts are missing, broken or badly worn.</li> </ul>
2. Inspect for broken or missing springs and worn cables, clevis, couplings, rods and anchor pins.	
3. Inspect for frozen, rusted, or inoperative connections, missing spring clips and defective grease retainers.	IF:
4. Inspect pedal shaft and bearings for high friction, wear and misalignment.	<ul> <li>There is excessive friction in pedal and linkage, or in brake components.</li> </ul>
5. Inspect for restriction of shoe movement at backing plate and for bind between brake shoes and anchor pins.	• Pedal levers are improperly positioned or misaligned.

#### VACUUM SYSTEM

PROCEDURE	REJECT VEHICLE
CONDITION OF VACUUM SYSTEMVisually and aurally inspect system for collapsed, broken, badly chafed and improperly supported hoses and tubes, loose or broken hose clamps and audible leaks.OPERATION OF VACUUM SYSTEMDetermine if system is operating by first stopping engine - then depress brake pedal several times to destroy all vacuum in system.	<ul> <li>IF:</li> <li>Hoses or tubes are leaking, or if collapsed, broken, badly chafed, improperly supported or loose because of broken clamps</li> </ul>
<ul> <li>THEN:</li> <li>Depress pedal with light force (25 lbs).</li> <li>While maintaining this force on the pedal, start engine, and observe if pedal moves slightly when engine starts.</li> <li>VACUUM RESERVE AND LOW VACUUM INDICATORS</li> <li>Build full vacuum – then shut off engine and make as many full brake applications as possible.</li> <li>On trucks with low vacuum indicators, build full vacuum – then shut off engine and reduce vacuum by making a series of moderate brake applications. A flashing or buzzing signal should function when vacuum reaches 8 inches hg on gauge.</li> </ul>	<ul> <li>IF:</li> <li>Service brake pedal does not move slightly as engine is started while pressure is maintained on pedal</li> <li>IF:</li> <li>Vacuum reserve is insufficient to make three full applications after engine shutoff.</li> <li>Indicator fails to function when system is reduced to 8 inches Hg vacuum.</li> </ul>

# AIR SYSTEM - FUNCTION

# AIR – LEAKAGE AND RESERVE

PROCEDURE	REJECT VEHICLE
AIR LEAKAGE IN SYSTEM Inspection for air leakage is to be done in two ways:	IF: Leakage in psi per minute exceeds the following limits:
<ol> <li>With fully charged system, strop engine and record pressure drop in psi per minute <u>with brakes released.</u></li> </ol>	1. Two (2) psi per minute.
2. With fully charged system, stop engine and record pressure drop in psi per minute with brakes fully applied.	2. Three (3) psi per minute.
COMPRESSED AIR RESERVE	IF:
With fully charged system, turn engine off. Then make a series of brake applications until low pressure warning signal operates. Then make one full brake application.	• Air reserve is not sufficient to permit one full brake application after warning signal operates.
With fully charged system, stop engine and make one full brake application. Measure dropping reservoir pressure.	<ul><li>IF:</li><li>Reservoir pressure is lowered more than 20 percent of first reading.</li></ul>

# AIR SYSTEM

PROCEDURE	REJECT VEHICLE
<u>GENERAL CONDITION</u> Inspect all air hoses, tubes and connections. Check attachments of all connecting lines and look for proper supporting parts. Be sure lines are free from contact with frame, axles, exhaust system or other lines.	<ul> <li>IF:</li> <li>There are leaks, breaks, crimps, or cracks in the air hoses, tubes or connections.</li> <li>Lines are being chafed by any item, or are touching the exhaust system.</li> </ul>
• Inspect for leaks that may be heard from valves, diaphragms and piston cups.	• Leaks in valve, diaphragms, or piston cups can be heard.
<ul> <li>Inspect air pressure relieve valve, tension and condition of compressor drive belts; check air intake cleaner for clogging and dirt.</li> <li><u>BRAKE ADJUSTMENT</u></li> </ul>	<ul> <li>Air pressure relief valve does not operate.</li> <li>Compressor drive belts are badly worn, frayed or loose.</li> <li>Air intake cleaner clogged enough to prevent proper air intake.</li> </ul>
• Check for proper adjustment. SLACK ADJUSTERS	• If slack adjuster has too much free travel (over one (1) inch).
<ul> <li>Check for proper operation and conditions.</li> <li>Slack adjusters shall be the same design on all wheels.</li> </ul>	<ul> <li>If loose, binding, frozen, or if unit has excessive play.</li> <li>If automatic and manual slack adjusters are used on same bus. Or are not of same manufacture.</li> </ul>

#### **EMERGENCY SYSTEM - FUNCTION**

PROCEDURE	REJECT VEHICLE
EMERGENCY SYSTEM – FUNCTION	
Apply the emergency operating control fully, or – release air pressure from the spring brake actuators using the manual control valve.	
THEN:	IF:
<ol> <li>Observe locking and holding feature of the actuating mechanism.</li> </ol>	<ol> <li>Operating mechanism fails to hold brakes in applied position without manual effort.</li> </ol>
2. Observe operating mechanism for "bottoming" before brakes are fully applied.	2. Operating mechanism "bottoms" before brakes are fully applied.
3. Observe if spring brakes apply when control valve is manually operated.	3. Spring brakes fail to apply when control valve is operated.
4. Inspect for worn, missing, or defective cotter pins, springs, rods, yokes, couplings or anchor pins and cables.	4. Mechanical parts are missing, broken or badly worn, or pull cables are badly worn, stretched, frayed, or not operating freely.
5. Observe if mechanism releases brakes when release control is operated.	5. Brakes do not fully release when release control is operated.
<ol> <li>Observe operation of the emergency valve to determine if automatic function of valve is met between 20-40 psi.</li> </ol>	6. Valve does not pop-out between 20-40 psi.

#### EMERGENCY SYSTEM - PERFORMANCE

PROCEDURE	REJECT VEHICLE
EMERGENCY SYSTEM - PERFORMANCE Method (a) From stopped position with emergency brakes on put bus in gear and try to move forward.	• If vehicle moves.

PARKING BRAKES

- An "emergency" brake can also serve as a "parking brake" but a parking brake is not adequate to serve as an emergency brake.
- Most large vehicles with hydraulic systems and large vehicles with air brake systems will have a parking brake located on the propeller shaft. This type of parking brake is usually open and is easily inspected.

PROCEDURE	REJECT VEHICLE
<u>PARKING BRAKE</u> Set the parking brake firmly to determine the reserve travel of the hand lever or foot pedal.	<ul><li>IF:</li><li>There is no reserve travel in the lever (or pedal).</li></ul>
Inspect the band type parking brake on the propeller (drive) shaft for the presence of oil or grease, condition of lining, and tightness.	<ul><li>IF:</li><li>There is oil or grease on the drum or lining.</li><li>The lining is worn through to the steel band.</li><li>The lining fails to make proper contact with the drum when brake is applied.</li></ul>
Inspect condition of lever, linkage and attachment points.	• There is missing linkage, cracks, loose or missing mounting components.

#### ADDITIONAL BRAKING INFORMATION

#### **DEFINITIONS**

Deceleration is the rate of reduction of the speed of the vehicle, expressed in feet per second.

<u>Equivalent Braking Ratio</u> is the percentage ratio of sum of the retarding forces developed by each braked wheel to the "as tested" gross weight of the vehicle or combination.

<u>Stopping Distance</u> is the distance traveled by a vehicle from the point of application of force to the brake control to the point at which the vehicle reaches a full stop.

<u>Brake System</u> is a combination of one or more brakes and their related means of operation and control.

<u>Service Brake System</u> is a brake system used for retarding, stopping and controlling the vehicle under normal operating conditions.

<u>Parking Brake System</u> is a brake system used to hold and maintain a vehicle in a stationary position. (A positive mechanical means is employed to hold the brake applied when the vehicle is unattended.)

<u>Emergency Brake System</u> is a brake system used for retarding and stopping the vehicle in the event of a malfunction in the service brake system (This function may be performed by the parking brake system or by a portion of the service brake system or by separate system.)

<u>Pedal Reserve</u>, as applied to hydraulic, mechanical, or power-assisted hydraulic brakes, is the amount of total pedal travel left in reserve when the pedal is depressed to the brake-applied position. (The purpose of the pedal reserve check is to ascertain the degree of the brake adjustment and to demonstrate satisfactory brake actuating system condition.)

# SECTION III – TIRES AND WHEELS

TIRE INSPECTION

Reference is made to the figures in ADDITIONAL TIRE AND WHEEL INFORMATION for visual aid in determining tire wear. This inspection is visual. There will be no regrooving of tires permitted.

PROCEDURE	REJECT VEHICLE
<ul><li>A. Check tire pressure.</li><li>B. Inspect for tire wear.</li></ul>	<ul><li>IF:</li><li>A. Too much or too little air pressure.</li><li>B. You need at least4/32 inch tread depth in every major groove on front tires.</li></ul>
	You need 2/32 inch on other tires. No fabric should show through the tread or sidewall. No recaps on front wheels.
C. Inspect for fabric breaks, boots, blowout patches, and exposed or damaged body cords, and tread separation.	C. If tire has an unrepaired fabric break or a break which has been repaired with a blowout patch or boot that is visible. If tire sidewall has damaged body cords.
D. All wheel - inspect for reinforcement repairs to the cord body.	D. If tire has a reinforcement repair to the tire.

#### SECTION III – TIRES AND WHEELS

# TIRE AND WHEEL INSPECTION

NOTE: It is suggested that: (a) Radial ply tire should never be on the same axle with a conventional-type tire (bias or belted bias); (b) Tires on significantly different sizes or type, such as one snow tire and one regular tire, should never be used on the same axle; (c) On vehicles under 10,000 lbs. GVW only, bias ply or as belted tires should not be used on rear axle when radial ply tires are used on front axle and, (d) The "safest" condition exists when all four tires are either "conventional" or "radial" and not mixed.

	PROCEDURE	REJECT VEHICLE
E.	Inspect for bulges, knots or separations.	E. If tire has visible bulges or knots indicating partial failure or separation of the tire
F.	<ul> <li><u>On all wheels.</u></li> <li>1. Inspect for mismatching of tire types (bias, bias belted, radial ply).</li> </ul>	structure. IF: 1. Front tires are incompatible as to type.
	2. Inspect for mismatching of tire construction (i.e., radial and bias), sizes, inflation, and wear on any pair of duels, or on any axle.	2. Radial and non-radial tires are mixed on same axle.
G.	Inspect valve stems for damage of cracks.	<ul><li>IF:</li><li>G. If valve stem is cracked or damaged or shows evidence of wear because of misalignment.</li></ul>
H.	Inspect rims and lock rings for improper matching, condition, tightness of nuts and clamps, (and evidence of slipping with cast spoke shells.)	<ul> <li>H. –If rims and rings are mismatched.</li> <li>If rims and/or rings are bent, sprung, cracked or otherwise damaged.</li> <li>If clamps or nuts are loose, damaged or missing.</li> </ul>
I.	Inspect wheel nuts, studs and/or clamps for tightness, general condition and thread engagement.	<ul> <li>IIf wheel nuts are loose or have improper thread engagement.</li> <li>-If wheel nuts, studs and/or clamps are broken, excessively rusted, missing or mismatched.</li> </ul>
J.	Inspect disc wheels for elongated stud holes. Inspect cast wheels for cracks in the casting.	<ul> <li>J. <u>Disc Wheels</u> <ul> <li>If stud holes are out-of-round.</li> <li>If there are cracks between the hand holes and/or the stud holes in the disc.</li> <li><u>Cast Wheels</u></li> <li>If the casting is cracked or there is evidence of wear in the clamping area.</li> </ul> </li> </ul>

# SECTION IV - TRANSMISSION-CLUTCH

TRANSMISSION/CLUTCH

PROCEDURE	REJECT VEHICLE
<ul> <li><u>STANDARD TRANSMISSION OR CLUTCH</u></li> <li>A. Check Gearshift Operation</li> <li>1. Check for looseness, binding, and freeplay.</li> </ul>	IF: Loose, binding, slipping or excessive play.
<ul><li>B. Check Clutch Operation.</li><li>1. Check for correct adjustment.</li><li>2. Check for slippage.</li></ul>	IF:
C. Check Dust Covers and Clutch Springs.	Missing or Broken.
AUTOMATIC TRANSMISSION A. Check for proper mounting of linkage, switches, filler tubes.	IF: A. Any are not properly mounted.
B. Check for loose mounts and or case bolts, worn supports.	B. Loose or excessively worn supports.
C. Check for leakage.	C. Excessive leaks.
D. Check for cracks or breaks.	D. Excessive cracks or breaks.

BINDING - LASH

The steering system of the vehicle must be inspected to determine if excessive wear and/or maladjustment of the linkage and/or steering gear exists. On vehicles equipped with power steering, the engine must be running and the fluid level, belt tension and condition must be adequate before testing.

PROCEDURE	REJECT VEHICLE
A.       LASH         With road wheels in straight ahead position         -turn steering wheel until the turning motion         can be observed at the road wheels. Align a         reference mark on steering wheel with mark on         ruler and slowly turn wheel in opposite         direction until front road wheel motion is again         detected. Measure lash at steering wheel.	REJECT VEHICLE         If a total movement greater than shown in the following table is encountered at the steering wheel rim before the front road wheels indicate movement.         Steering Wheel Diameter         Lash         16"       2"         18"       2 ¼"         20"       2 ¼"         20"       2 ¼"         21/2"       2 ¾"         If front wheels are incapable of being turned to right and left design steering stops without binding or interference.

#### SECTION V – SUSPENSION AND STEERING

#### STEERING COLUMN

All vehicles have flexible connection in the steering column located just above the steering gear, usually known by names such as "rag joint," or "U joint."

The energy absorbing steering column may be used on light vehicles, but seldom if ever on medium and heavy vehicles. If present, it should be inspected in the same manner as on a passenger car.

PROCEDURE	REJECT VEHICLE
<ul> <li>B. <u>STEERING COLUMN</u></li> <li>Inspect flexible couping in steering column (if the vehicle is so equipped) for excessive misalignment and tightness of clamp bolt (or nut), or locking roll pin.</li> <li>Check upper and lower mast jacket bearings.</li> <li>Check dust boot at firewall.</li> </ul>	<ul> <li>IF:</li> <li>The "pot joint" or "rag joint" is badly misaligned, loose or binding.</li> <li>Clamp bolt (nut) or locking roll pin is loose or missing.</li> <li>Upper or lower mast jacket bearing is loose or missing.</li> <li>Broken or missing.</li> </ul>

# SECTION V - SUSPENSION AND STEERING

#### WHEEL BEARINGS – LINKAGE PLAY

Wheel Bearings – Improperly adjusted front wheel bearings can cause wander, erratic front brake action, and noise from interference of parts.

PROCEDURE	REJECT VEHICLE
<ul> <li>C. <u>FRONT WHEEL BEARINGS</u></li> <li>With front end of the vehicle raised properly, attempt to move wheel relative to the spindle either by grasping front tire top and bottom or by using a bar for leverage. Bearing maladjustment or wear is determined by the relative movement between the brake drum (or disc) and the backing plate (or splash shield).</li> <li>D. <u>"I" BEAM OR TUBE TYPE AXLE</u></li> <li>Check vehicle with weight on axle by</li> </ul>	<ul> <li>C. If relative movement between drum and backing plate is excessive.</li> <li>D. IF:</li> <li>Linkage is loose or if joints are not</li> </ul>
<ul> <li>moving steering wheel. One man shaking steering wheel, one checking under vehicle.</li> <li>Inspect pitman arm, drag link, and tie rods for looseness and locked joints.</li> <li>Inspect for loose spring "U" bolts, broken center bolt in spring, and broken spring leaves.</li> <li>Turn wheels from full right to left and inspect for tire rub on frame steel metal, or other chassis parts.</li> </ul>	<ul> <li>secured with cotter pins or other devices.</li> <li>IF:</li> <li>Spring "U" bolts are loose or damaged.</li> <li>Spring center bolt is broken or sheared.</li> <li>Spring leaf is broken or shifted.</li> <li>Steering stops allow a tire to rub on frame, metal or other chassis parts.</li> </ul>
E. <u>STEERING SECTOR AND MOUNTING</u>	<ul><li>E.</li><li>Loose, excessive leakage, binding or other improper operation.</li><li>Grime cracked at mounting points.</li></ul>

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#### CHASSIS SPRINGS AND SHOCKS

PROCEDURE	REJECT VEHICLE
<ul> <li>F. <u>CHASSIS SPRINGS AND</u> <u>ATTACHMENT</u></li> <li>Inspect for broken or sagging suspension springs.</li> <li>Inspect spring shackles, spring center bolts, "U" bolts, clips and other attaching parts.</li> <li>G. <u>SHOCK ABSORBERS</u></li> <li>Inspect shock absorbers and mountings for oil leakage, condition of bushings and attachments.</li> <li>H. <u>BODY BOLTS-BODY TIE DOWNS</u></li> <li>Check for overall condition</li> </ul>	<ul> <li>IF:</li> <li>A broken spring is detected.</li> <li>Spring attaching parts are loose, badly worn, broken or missing. Excessive sagging is visible.</li> <li>IF:</li> <li>Severe leakage (not slight dampness) is evident.</li> <li>Rubber bushings are destroyed or missing.</li> <li>Mountings are loose, broken, or missing.</li> <li>IF:</li> <li>Loose, broken or missing.</li> </ul>

# SECTION V - SUSPENSION AND STEERING

#### POWER STEERING

PROCEDURE	REJECT VEHICLE
<ul> <li>I. <u>POWER STEERING</u></li> <li>Inspect power steering belts for proper condition and tension.</li> </ul>	<ul><li>IF:</li><li>Belts are badly frayed or cracked on the inner edge or have excessive play.</li></ul>
• Inspect power steering system including gear, hoses, hose connections, cylinders, valves, pump and pump mounting for condition, rubbing and leaks.	<ul> <li>Hoses or hose connections have been rubbed by moving parts, or are leaking.</li> <li>Cylinders, valves or pump show evidence of leakage.</li> </ul>
• Inspect fluid level at operating temperature.	• Fluid is below proper level.
• Inspect system for excessive free-play.	• Free play is above manufacturers specifications.

# SECTION VI – LIGHTING AND ELECTRICAL SYSTEM

#### LAMPS - FUNCTION

PROCEDURE	REJECT VEHICLE
<ul> <li>VISUAL CHECK OF LAMP FUNCTION</li> <li>Turn on night driving lights and visually check the following: <ol> <li>Function of turn signal lights and indicators (tell-tale) when actuated by the control lever – right and left.</li> <li>Check function of the following: <li>Headlamps – upper and lower beams</li> <li>Indicator lamps for headlamps</li> <li>Red flasher lamps</li> <li>Amber flasher lamps</li> <li>Indicators for flasher lamps</li> <li>Tail lamps</li> <li>Stop lamps (apply brake)</li> <li>Brake warning lamps</li> <li>Side marker lamps</li> <li>Clearance lamps</li> <li>Identification lamps</li> <li>License plate lamps</li> <li>Reflex reflectors</li> <li>Stepwell light</li> <li>Back-up lamps</li> <li>All other</li> </li></ol> </li> </ul>	<ul> <li>IF:</li> <li>Any bulb or sealed beam unit fails to light.</li> <li>Turn signals do not properly indicate right and left when so switched.</li> <li>Red and amber flasher lamps do not alternate properly.</li> <li>Lamp shows color contrary to law.</li> <li>Lamp fails to light the proper filament indicated at switch position.</li> <li>Head lamp that does not direct light properly.</li> <li>Auxiliary equipment is placed on, in or in front of any lamp.</li> <li>Lamp has a cracked, broken, or missing lens.</li> <li>Lights do not operate properly</li> <li>Light out or dim</li> <li>Excessive bushing wear</li> <li>Poor condition or operation of stop arm.</li> </ul>

# SECTION VI – LIGHTING AND ELECTRICAL SYSTEM

# ELECTRICAL SYSTEM

PROCEDURE	REJECT VEHICLE
<ul> <li><u>INSPECT ELECTRICAL SYSTEM</u></li> <li>1. Horn Button</li> <li>Should be securely fastened and located as per manufactures specification.</li> </ul>	<ul><li>IF:</li><li>Loose</li><li>Fails to function properly</li></ul>
<ul><li>2. Switches</li><li>Should all function properly.</li></ul>	• Fails to function
<ul><li>3. Wiring</li><li>Should be well insulated</li></ul>	<ul> <li>Insulation is worn or rubbed bare</li> <li>Shows any evidence of burning or short-circuiting.</li> </ul>
<ul><li>4. Battery</li><li>Check general condition and mounting</li></ul>	<ul> <li>Is broken or excessively corroded</li> <li>Connections are loose or not held down securely.</li> </ul>
<ul><li>5. Gauges</li><li>Check for proper operation</li></ul>	• Do not operate properly
<ul><li>6. Crossing Gate</li><li>If equipped check for proper operation</li></ul>	• Loose or improper operation
<ul><li>7. Alternator</li><li>Proper operation and mounting.</li></ul>	<ul> <li>Not charging properly</li> <li>Mounting, bolts and brackets, loose or broken.</li> </ul>

#### SECTION VI - LIGHTING AND ELECTRICAL SYSTEM

#### CONNECTIONS AUTOMATIC TRANSMISSION STARTING

PROCEDURE	REJECT VEHICLE
INSPECT ELECTRICAL SYSTEM         8. Connections         • Should be tight and secure	<ul><li>IF:</li><li>Are loose</li><li>Show signs of excessive corrosion</li></ul>
<ul> <li>9. Automatic Transmission Only</li> <li>Neutral Safety Starting Switch- Determine that starter operates with gear selector in "P" or "N" <u>only</u>.</li> </ul>	• Starter operates with gear selector in any gear other that "P" or "N".
<ul><li>10. Back Up Alarm (if equipped)</li><li>Check for proper operation</li></ul>	• It does not operate properly

#### **DANGER!**

**ON GASOLINE/IGNITION ENGINES** –Remove center wire from coil or distributor before checking to be sure that <u>engine does not start</u> with vehicle in a running gear. (On Delco Remy High Emergency Ignition systems, disconnect harness connector at distributor on V6 and V8 engines- disconnect at coil on in-line 4 and 6 cylinder HEI engines.)

**ON DIESEL ENGINES** – Apply parking brakes, <u>fully</u> apply service brakes, and pull engine stop out to No-fuel position <u>before</u> checking.

# VEHICLE GLAZING

Automotive safety glazing is marked with the manufacturer's trademark and the letters "As" followed by a number 1 through 11. Only AS1 (or AS10-Bullet Resistant) may be used in the windshield. Safety glazing for 1966 and later models also has a glass manufacturer's model number or a DOT code number.

PROCEDURE	REJECT VEHICLE
<ul> <li>A. <u>PROPER MARKINGS</u> Inspect glass for proper markings</li> <li>B. <u>SIDE WINDOWS</u> Determine whether all full side windows can be opened readily to provide at least a</li></ul>	<ul> <li>IF:</li> <li>1. Improper or unmarked glazing materials are used for specific positions.</li> <li>2. Non-transparent materials such as plywood, etc., are used to replace glass.</li> <li>Any side window cannot be readily opened to permit at least a 9 inch unobstructed emergency opening.</li> </ul>
9 x 22 inch emergency opening for each. Also check closing.	• Any side window does not close properly.
C. <u>STICKERS- TINTING</u> Inspect all glass for unauthorized material or conditions that obscure driver's vision.	<ol> <li>Glazed surfaces contain any stickers not permitted by law or regulation.</li> <li>Unauthorized tinting material which limits vision has been used.</li> </ol>
<ul> <li>D. <u>CRAKCKS-CHIPS-DISCOLORATION</u></li> <li>(The work "discoloration" used below refers to anything which impairs the transparency of the glazing.) Inspect windshield and all windows for hazardous cracks, chips, sharp edges and discoloration of the laminate.</li> </ul>	<ol> <li>There are cracks, discoloration or scratches to the front, right, left or rear of the driver which interferes with his vision.</li> <li>Any windows are broken or have exposed sharp edges.</li> </ol>
<ul><li>E. <u>EDGING</u></li><li>Inspect for unbounded exposed edge of glass.</li></ul>	<ul><li> If any exposed edges of glass are not banded.</li><li> If banding is loose or broken.</li></ul>

# OUTSIDE REARVIEW AND CROSSVIEW

PROCEDURE	<b>REJECT VEHICLE</b>
A. <u>EXTERIOR REARVIEW</u> <u>MIRROR</u> From the driver's position, visually inspect exterior mirrors on both sides for clear and reasonably unobstructed views past left and right rear of bus. Look for correct location, stable mounting, cracks, sharp edges, unnecessary protrusion, and ease of adjustment.	<ol> <li>IF:</li> <li>Mirrors not mounted on stable support.</li> <li>Mirrors protrude and unnecessary amount beyond line offering satisfactory rear vision.</li> <li>Mirrors obscured by pillars or unwiped portions of windshield.</li> <li>Mirrors cracked, pitted or clouded to the extent that rear vision is obscured.</li> <li>Missing mirror.</li> </ol>
B. <u>CROSSVIEW MIRROR</u> From the driver's position, visually inspect crossview mirrors for clear and unobstructed view. Look for correct location, stable mounting, cracks, sharp edges, unnecessary protrusion, and ease of adjustment.	Same as above.

# INSIDE REARVIEW

Rearview Mirror - Interior

A large interior rearview mirror at least 6 x 30 inches overall for a good view of pupils as well as roadway to the rear.

PROCEDURE	<b>REJECT VEHICLE</b>
C. <u>INTERIOR REARVIEW MIRROR</u> From the driver's position, visually inspect interior mirror for proper mounting, location, cracks, sharp edges and ease of adjustment.	<ol> <li>IF:</li> <li>Mirror is loosely mounted.</li> <li>Mirror does not provide a clear view of highway at least 200 feet to rear.</li> <li>Mirror is cracked, broken, has sharp edges or cannot be cleaned – such that rear vision is obscured.</li> <li>Mirror is very difficult to adjust or will not maintain a set adjustment.</li> <li>Any unauthorized stickers or objects attached to mirror surface or frame.</li> </ol>

#### WINDSHIELD WIPERS

Windshield Wipers

- Vehicle produced after January 1, 1969, must be equipped with wiper systems capable of operating at two or more speeds.
- A CYCLE shall consist of blade movement from one extreme of the wiper pattern to the others and return.

PROCEDURE	REJECT VEHICLE
WINDSHIELD WIPERS         Inspect for satisfactory operation, (If vacuum operated, engine must be idling and control full on.) Windshield must be free of bugs, oil film or other foreign matter, and must be continuously wet when tested.         Inspect for damaged, torn or hardened rubber elements of blades.         Inspect for damaged metal parts of wiper blades or arms.	<ul> <li>IF:</li> <li>1. If vehicles produced after January 1, 1969, do not have two or more speed systems.</li> <li>2. Blades smear or severely streak windshield.</li> <li>If blades show signs of physical breakdown of rubber wiping element.</li> <li>If parts of blade or arms are missing or are severely damaged.</li> <li>If arm fails to return to original position</li> </ul>
Inspect for proper contact of blades with windshield. Raise arm away from windshield and release. Arm should return to original position and wiper blade should contact the windshield firmly.	• If arm fails to return to original position or the blade fails to contact the windshield firmly.

WINDSHIELD WASHERS

Windshield Washers

Vehicle produced after January 1, 1969, must be equipped with wiper systems capable of operating at two or more speeds.

PROCEDURE	<b>REJECT VEHICLE</b>
E. <u>WINDHIELD WASHER</u> Inspect for proper operation of hand or foot control and an effective amount of fluid delivered to the outside of the windshield.	<ul><li>IF:</li><li>1. System fails to function.</li><li>2. Fluid in system is frozen.</li><li>3. System not capable of cleaning an effective wash area.</li></ul>
NOTE: • System must function when temperature is both above and below the freezing point of water.	

METAL - BUMPERS - FENDERS

Body exterior components and sheet metal parts if damaged and/or dislocated so that they protrude from the vehicles to present a safety hazard to occupants, pedestrians or other vehicles, may be cause for rejection of the vehicle.

PROCEDURE	<b>REJECT VEHICLE</b>
F. <u>PROTRUDING METAL</u>	IF:
Inspect for torn metal parts, moldings, rub rails, etc. which may protrude.	• Torn metal, glass, or other loose or dislocated parts protrude from the surface of the vehicle causing a safety hazard to pedestrians, cyclists, or pupils.
G. <u>BUMPERS</u>	
Inspect bumpers for hazardous conditions or unsafe mounting.	• Bumper is badly misplaced, loosely attached, or a broken or torn portion is
H. <u>FENDERS</u>	protruding, creating a hazard.
Inspect for removal of front or rear fenders.	• Any fender has been removed.
I. PAINT AND LETTERING	
All paint and lettering to meet Arkansas school bus specifications.	• Paint and/or lettering is missing, extremely faded or rusted.

DOORS – SERVICE - EMERGENCY

DOORS – Service door may be split type, sedan type, or jackknife type with vertical closing edges covered with flexible material to protect children's fingers.

PROCEDURE	<b>REJECT VEHICLE</b>
J. <u>SERVICE DOOR</u>	J. <u>SERVICE DOOR</u>
<ol> <li>From driver's position, inspect function of opening and closing operation.</li> </ol>	1. If power or manual opening and closing device shows evidence of binding, jamming, excessive wear, or malfunction.
<ol> <li>Inspect condition of flexible material on vertical closing edges.</li> </ol>	<ol> <li>If flexible material on vertical closing edges of service door is excessively loose, torn or missing.</li> </ol>
K. <u>EMERGENCY EXITS</u>	K. <u>EMERGENCY EXITS</u>
<ol> <li>Inspect for clear passageway to door.</li> <li>Inspect inside and outside quick release</li> </ol>	<ol> <li>If passageway to emergency door is blocked or restricted in any way, to less than or as required by FMVSS 217.</li> <li>If door release mechanism fails to</li> </ol>
<ul> <li>mechanism.</li> <li>3. Check length of stroke on slide bar/cam operated lock.</li> <li>4. Check function of buzzer indicating door is not fully closed.</li> </ul>	<ul><li>function positively when activated, from both inside and outside of bus or if it opens accidentally or too easily.</li><li>3. If slide bar has less than one inch stroke length.</li><li>4. If buzzer fails to function in driver's compartment when slide bar is moved.</li></ul>
5. Check for proper labeling.	5. If missing or defaced.
6. Check device that holds emergency exits in the open position.	6. If missing or not operating properly.
7. Check operation of emergency windows and roof hatches.	7. If release mechanism or warning buzzer fails to operate properly.

## HOODS

PROCEDURE	<b>REJECT VEHICLE</b>
<ul> <li>L. <u>HOOD</u></li> <li>Open hood and inspect safety catch for proper operation. Close hood and inspect for proper full closure. Manually inspect latch or remote control for proper operation.</li> <li>(If engine is rear mounted, make a similar inspection of engine compartment door.)</li> </ul>	<ul> <li>IF:</li> <li>Hood latch does not securely hold hood in its proper fully-closed position.</li> <li>Secondary or safety catch does not function properly.</li> <li>Latch release mechanism or its parts are broken, missing or badly adjusted so that the hood cannot be opened and closed properly.</li> <li>Hood rusted through at corners or hinge points.</li> </ul>

# FLOOR PAN

PROCEDURE	<b>REJECT VEHICLE</b>
<ul> <li>M. FLOOR PAN</li> <li>Inspect floor pan for rusted-out areas or holes which could permit entry of exhaust gases or which would not support occupants properly.</li> <li>Inspect floor covering for cracking, adhesion, and sealing.</li> </ul>	<ul> <li>IF:</li> <li>Floor pan (or floor) is rusted through sufficiently to cause a hazard to an occupant, or so that exhaust gases could enter the occupant compartment.</li> <li>Floor covering is cracked, curled, or worn so that it is not waterproof at the seams, or presents a tripping hazard.</li> </ul>

## SEATS – STANCHIONS – RAILS – CRASH BARRIERS

PROCEDURE	<b>REJECT VEHICLE</b>
N. <u>SEATS AND SEAT BELTS</u>	IF:
1. Inspect seats to see that they are securely anchored to floor pan.	1. All seats anchor bolts are not securely fastened to floor or are missing.
2. Inspect seats for condition of frames, springs, and over material.	2. Cover material is torn, padding broken down or any metal is exposed.
3. Inspect driver's seat belt for frayed, split or torn webbing; malfunctioning buckles; loose or damaged anchorage's or floor pan.	3. No seat belt is installed for driver.
4. Inspect for torn interior metal trim, etc. which may present a hazard to pupils.	<ul> <li>4. Seat belt webbing is frayed, split or torn.</li> <li>Buckles do no operate properly.</li> <li>Belt anchorages are loose, badly corroded, or not fastened to belt.</li> <li>Belt mounting surfaces are badly damaged, or corroded.</li> </ul>
5. Inspect seat belts for proper functions.	5. Retractor fails to hold "extended" belt length or fails to roll belt back when disconnected.
<ul> <li>O. <u>STANCHIONS, GUARD RAILS,</u> <u>AND CRASH BARRIERS</u></li> <li>Inspect all stanchions, guard rails, crash barriers, grab handles, etc. for tightness and conditions.</li> </ul>	O. If any looseness is detected, or fastening parts are missing, or metal showing Cover material is torn, padding broken down, or any metal is exposed.

# **VISORS - DEFROSTER**

PROCEDURE	<b>REJECT VEHICLE</b>
P. <u>SUN VISOR</u> Inspect sun visor for broken, bent or loose parts which prevent it from being positioned; or for visor which will not stay in a set position.	<ul><li>IF:</li><li>Driver visor is missing or broken.</li></ul>
Q. <u>WINDSHIELD DEFROSTER</u> Inspect for a properly functioning windshield defroster, if vehicle is driven under conditions where frost or condensation might collect on the outside or inside of the windshield. The device and/or auxiliary fans (etc.) must keep windshield, window at driver's left and glass in service door clear of fog, frost, and snow.	• Windshield defroster/defogger fails to function properly.

# HEATER – STEPWELL – VENTS

PROCEDURE	REJECT VEHICLE
<ul> <li>R. <u>INTERIOR HEATERS</u></li> <li>Inspect heater(s) for proper operation.</li> <li>Inspect for leakage and general</li> </ul>	<ul><li>IF:</li><li>Heaters do not operate properly.</li><li>Any leakage or malfunction of heater is</li></ul>
condition of heating system. S. <u>STEPWELL</u>	detected.
• Inspect general condition of stepwell at service door entrance.	• Stepwell is blocked, cluttered, open or surface material is loose.
T. <u>VENTILATION</u>	
• Check for function and general condition of ventilating system.	• System fails to furnish proper quantity of fresh air under operating conditions.

# EMERGENCY EQUIPMENT BODY FLUID

A dry chemical-type fire extinguisher with a rating of not less than 10-B:C, labeled by Underwriters Labs., Inc.

A Grade A First Aid Kit as set forth in current Bureau of Motor Carrier Safety Regulations.

PROCEDURE	<b>REJECT VEHICLE</b>
U. <u>FIRE EXTINGUISHER</u> Inspect for presence of, location, and readiness of the fire extinguisher. It must be a dry chemical-type.	<ul> <li>IF Extinguisher:</li> <li>Is missing or not securely fastened</li> <li>Is not functional</li> <li>Is not readily accessible to driver</li> <li>Is not dry chemical-type</li> <li>Pin is missing</li> <li>Is not proper size</li> </ul>
V. <u>FIRST AID KIT – BODY FLUID KIT</u> Inspect for presence of, and general condition of a first aid kit approved by local jurisdiction.	<ul> <li>IF First Aid Kit –Body Fluid Kit:</li> <li>Is missing</li> <li>Does not contain all required items in good condition</li> </ul>
W. <u>REFLECTORS</u> Inspect for presence of, location, and general condition.	<ul><li> Is missing, broken or not functioning properly</li><li> Is not readily accessible to drive</li></ul>
X. <u>BELT-CUTTERS (SPECIAL NEEDS</u> <u>BUSES</u> Inspect for presence of belt cutters.	• Is missing

## SECTION IX – EXHAUST AND FUEL SYSTEM

EXHAUST SYSTEM

The exhaust system includes the piping leading from the flange of the exhaust manifold to and including the mufflers, resonators and the tail piping.

PROCEDURE	REJECT VEHICLE
EXHAUST SYSTEM Visually examine muffler, resonators, catalytic converters, tail pipes, exhaust pipes, heat shields and supporting hardware. Rusted or corroded surfaces should be given particular attention.	<ul> <li>IF:</li> <li>Vehicle has no muffler or tail pipe.</li> <li>There are loose or leaking joints.</li> <li>There are holes, leaking seams or patches on muffler, or pipes.</li> <li>Tail pipe end is pinched excessively</li> <li>Elements of system are not securely fastened.</li> <li>There is a muffler cut-out or similar device that allows excessive noise.</li> <li>If any part of system passes through occupant compartment.</li> </ul>

## SECTION IX – EXHAUST AND FUEL SYSTEM

DRIVE LINE

PROCEDURE	REJECT VEHICLE
<u>DRIVESHAFT, U JOINTS, GUARDS</u> <u>CENTER BEARINGS</u>	<ul> <li>IF:</li> <li>Loose, missing, excessive wear.</li> <li>Loose, missing, excessive wear.</li> </ul>

## SECTION IX – EXHAUST AND FUEL SYSTEM

FUEL SYSTEM

The fuel system includes the fuel take, fuel pump and necessary piping to carry the fuel from the tank to the carburetor.

PROCEDURE	REJECT VEHICLE
<u>FUEL SYSTEM</u> Visually examine the fuel tank, fuel tank support straps and cage, filler tube (rubber, plastic, metal) tube clamps, fuel tank vent hoses or tubes, filler housing drain, overflow tubes, and filler cap.	<ul> <li>IF:</li> <li>Any part of system is not securely fastened or supported.</li> <li>There is fuel leakage at any point in the system.</li> <li>Fuel tank filler cap is missing.</li> <li>There is excessive physical damage caused by aging or chafing.</li> </ul>

## SECTION X – GENERAL

#### INTERIOR – CLEANLINESS-APPEARANCE

PROCEDURE	REJECT VEHICLE
INTERIOR	IF:
1. No trash receptacles larger then 12" x 12"	1. Any of the conditions are noted.
2. No loose papers, trash, bottles, cans, coffee cups, etc.	
3. No tobacco products used on bus by driver or students period.	
4. No hazardous or flammable materials (oil, bleach, aerosol cans, etc.)	
5. Clean and unobstructed drivers compartment.	
6. Interior bus cleanliness, floors, walls, glass and ceiling.	
<ol> <li>No stickers on any glass except authorized stickers by SDE.</li> </ol>	
<ol> <li>No carry on items on floor of bus.</li> <li>Absolutely nothing blocking aisle and emergency exits.</li> </ol>	
EXTERIOR	
<ol> <li>No padlocks</li> <li>No bumper stickers unless authorized by SDE.</li> </ol>	

#### SECTION X – SPECIAL NEEDS

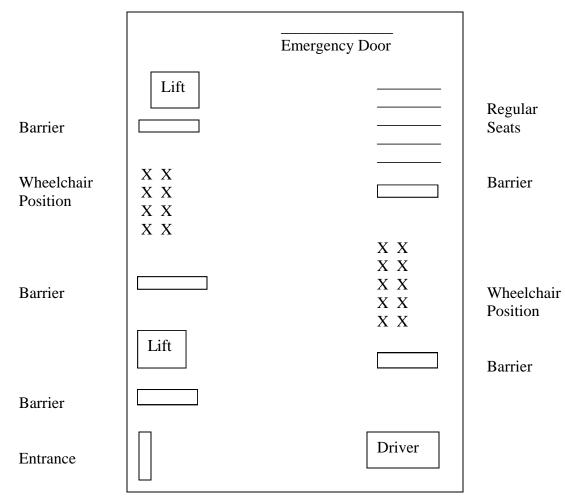
	PROCEDURE
PROCEDURE	REJECT VEHICLE
<ul> <li><u>WHEELCHAIR LIFT – EQUIPPED</u></li> <li><u>BUSES</u></li> <li>Check condition of lift, ramp, controls, switches.</li> </ul>	<ul><li>REJECT IF:</li><li>1. Any cracks, loose pins, motion, missing components.</li></ul>
<ol> <li>Check for leakage, cracks, alignment, loose or frayed wiring.</li> </ol>	<ol> <li>Any excessive leakage of lift or ramp components, loose or frayed wiring.</li> </ol>
3. Check operation.	3. Erratic or Improper operation.
4. Check tie downs and restraints	4. Loose or frayed tied downs or restraints.
5. Check impact safety barriers.	5. Loose or missing safety barriers.
6. Check warning light for lift door.	6. Light does not operate.
<ol> <li>Check seat belts and child restraints, or infant seats.</li> </ol>	<ol> <li>Loose or frayed belt, improper latching, or not in safe condition.</li> </ol>
SUPPORT EQUIPMENT AND ACCESSORIES	REJECT IF:
1. Check if any are present.	1. Loosely mounted or broken.

#### SECTION XI – SPECIAL NEEDS

#### GENERAL DIAGRAM

#### CRASH BARRIERS – NORMAL POSITIONING CHART

- 1. Behind drivers seat
- 2. By entrance door
- 3. In between lift and any occupant (wheelchair or regular)
- 4. In between any normal seat and wheelchair position.



#### GENERAL DIAGRAM

(General Diagram - maybe configured differently)