

Amtrak Equipment Maintenance Department  
Standard Maintenance Procedure

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**SMP NO.:** 28603

**ISSUE DATE:** January 12, 1982

**REVISION DATE:** March 4, 2011

**TITLE:** Mechanical Standard for Operating Privately Owned Cars in Amtrak Trains

EQUIPMENT TYPE			
All Passenger Trains			
Locomotives		Cars	
All Locomotives		All Cars	X All Types
Acela HST Power Car		Acela	Baggage
AEM-7		Amfleet I	Cafe
Cab Car: (Under Cars)		Amfleet II	Coach
Car Movers		Auto Carrier	Diner
Commuter		Commuter	Dinette
F59PHI		Freight	Lounge
GP38-3		Heritage HEP	Sleeper
GP15D		Horizon	Other:
HHP8		Material Handling Cars	
MP15	X	Private Cars	
Non Powered Control Units		Superliner I	
P32-8		Superliner II	
P32AC-DM		Surfliner	
P-40		Talgo	
P-42		Turboliner	
SW1001		Viewliner	
SW1200		Other:	
SW1500			
Turboliner			
Talgo			
Other:			

MAINTENANCE TYPE	
	L – Locomotive C – Cars
<b>C</b>	All Maintenance – L/C
	Daily – L/C
	30 Day – C
	Quarterly –L/C
	Semi-Annual – L/C
	Annual – L/C
	720 Day – L
	COT&S – C
	Initial Terminal – L/C
	Intermediate Terminal – L/C
	Modification – L/C
	Overhaul – L/C
	Running Repair – L/C
	Seasonal – C
	Wheels – L/C
	Facility
	Other:

## 1.0 PURPOSE

This document describes the Amtrak Mechanical Department requirements for the handling in Amtrak trains of privately owned passenger cars, as well as railroad-owned business cars of freight carriers which have an Amtrak operating agreement. For the purpose of this document, a passenger car is defined as a vehicle meeting Association of American Railroads (AAR) or American Public Transportation Association Standard S-034 for the construction of passenger equipment cars, or similar standard for older cars, for operation in passenger train service, and does not include caboose cars, freight cars, or maintenance of way equipment. Separately issued Amtrak requirements will apply for the handling of privately owned locomotives in Amtrak trains. The Federal Railroad Administration (FRA) and carriers may impose additional requirements.

## 2.0 SCOPE

This SMP contains examples of the necessary Amtrak forms, which includes

- PC-1 (NRPC 3307)
- PC-1A (NRPC 3310)
- PC-2 (NRPC 3308)
- PC-2A (NRPC 3309)
- PC-3 (NRPC 3311)
- PC-4 (NRPC 3312)
- PC-5 (NRPC 3313)

## 3.0 HISTORY

The initial version of this SMP was issued on January 12, 1982. Previous revisions were made on June 1, 1991.

## 4.0 SAFETY PRECAUTIONS

4.1 Prior to starting work on equipment ensure all Code of Federal Regulations (Title 49, Part 218 Subpart B) and Amtrak's SMP 25028 Blue Signal Protection and Lock-Out / Tag-Out procedures are followed.

4.2 Wear approved PPE (Personal Protective Equipment).

4.3 Any Employee working on or around 480-volt HEP equipment should be familiar with NRPC 1905, Maintenance of Equipment Employees safety Rules and Instructions, rules 1800 through 1818.

4.4 Power must be shutdown/de-energized before working on or around the HEP system.

4.5 Do not touch electrical contactors or contacts any time a megger is connected to the system.

4.6 To prevent personal injury when using compressed air, observe all Amtrak and Government regulations including, but not limited, to the following:

4.6.1 **Do not** use compressed air to blow dirt from your body or clothing.

4.6.2 **Compressed air used for cleaning purposes must have an OSHA approved nozzle tip.** This means the downstream pressure of the air at the nozzle (nozzle pressure) or opening of a gun, pipe, cleaning lance, etc., used for cleaning purposes will remain at a pressure level below 30 psi for all static conditions (i.e. should the tip become blocked air flow is diverted holding the pressure at the

nozzle tip to less than 30 psi). This requirement is necessary in order to prevent a back pressure buildup in case the nozzle is obstructed or dead-ended. There is no intent to restrict the diameter of the nozzle orifice or the volume (CFM) flowing from it.

- 4.7** Secure equipment according to Amtrak’s Air Brake and Train Handling Rules and Instruction manual.

**5.0 ADDITIONAL REFERENCES**

Title	Supplied by
Amtrak drawing A-002-5079, Car Numbers - Private Cars	Paradigm/Amtrak Intranet
Amtrak Specification 221 (formerly DM-77-22), Diaphragm Modification	Paradigm/Amtrak Intranet
Amtrak Specification 265, revision F or newer, Conversion of Conventional Type Cars to Run with Amtrak Head End Power Train Consists	Paradigm/Amtrak Intranet
AAR Interchange Rules Field Manual, Appendix A, Passenger Car Interchange Code of Rules, 1982 edition	Association of American Railroads
AAR Manual of Standards and Recommended Practices (Section A, Part III and Section G, Part II)	Association of American Railroads
AAR Specification Instruction Pamphlet No. 5039-4	Association of American Railroads
American Steel Foundries Report No. 509-A, revised June 19, 1968, Maintenance of Controlled Slack Couplers	ASF-Keystone, Inc.
APTA RP-M-001-97, Recommended Practice for Air Connections	American Public Transportation Association
APTA RP-M-002-98, Recommended Practice for Inspection of Type H Tightlock Couplers	American Public Transportation Association
APTA SS-M-005-98, Revision 2 or newer, Code of Tests for Passenger Single Car Air Tests	American Public Transportation Association
Code of Federal Regulations, Title 49, Parts 218, 221, 223, 231, 238, 239	Federal Railroad Administration
Hyatt Roller Bearing Railroad Journal Boxes instructions	General Bearing Corporation
SMP 25603, Design Criteria for Operating Speeds of Private and Railroad Business Cars	Paradigm/Amtrak Intranet
SMP 46603, Procedure for Reclaiming Passenger Car Truck Equalizers	Paradigm/Amtrak Intranet
SMP 46605, Reclamation of Truck Crossbars and Swing Hanger	Paradigm/Amtrak Intranet
SMP 46617, Heavy Truck Overhaul Procedure	Paradigm/Amtrak Intranet
SMP 48001, Repair of Truck Frames and Bolsters by Welding	Paradigm/Amtrak Intranet
SMP 49602, Repair and Reinforcement of Equalizer Spring Seats	Paradigm/Amtrak Intranet

## 6.0 DEFINITIONS

**AAR** - Association of American Railroads

**APTA** - American Public Transportation Association

**CFR** - Code of Federal Regulation

**COT&S** - Clean, Oil, Test and Stencil

**FRA** - Federal Railroad Administration

**HEP** - Head End Power

**KW** - Kilowatts

**SMP** - Standard Maintenance Procedure

## 7.0 REFERENCED TOOLS

Description	Quantity	AAMPS Number	Photo
Flashlight	1	26-333-00300	
Tape Measure	1	45-474-04904	
Single Car Test Device (Passenger)	1	22-756-35610	
Single Car Test Device (Freight)	1	22-756-35629	
Test Coupling	1	22-946-42415	
Steel Wheel Gage (Finger Gage) W601-4A	1	45-795-73403	
Combined Wheel Gage, W620-4	1	45-795-06204	
Thin Flange Quick Reference Gage	1	45-795-06205	

Note: The photos in the above chart are for pictorial reference only.

## **8.0 GENERAL REQUIREMENTS**

- 8.1** All privately owned and carrier owned railroad passenger cars must comply with the requirements of this and other referenced Amtrak SMPs, as well as all applicable FRA requirements. Requirements of the AAR Manual of Standards and Recommended Practices may also apply, especially for cars with obsolete designs or components. All mechanical inspections and interpretations, in the event of disputes, shall be subject to the final decision of the Amtrak Manager of Private Car Standards, as designated by the Senior Director of the Amtrak Mechanical Department Bureau of Rolling Stock Engineering.
- 8.2** Certain Amtrak Mechanical Department forms, PC-1 through PC-5, are identified in this SMP for the purpose of documenting the mechanical characteristics and inspections of a private car. It is required that the car owner always maintain a current copy of each form in the private car's electrical locker, which is in addition to any Amtrak reporting requirements.
- 8.3** Prior to any initial movement on an Amtrak train, a private car must be fully equipped with Amtrak Head End Power (HEP) electrical trainlines, a main air reservoir trainline, and the Amtrak Door Control/Communication pass-through trainline. The car must undergo a physical dimensional examination and a mechanical examination, and will be issued a unique Amtrak identification number.
- 8.4** Each private car must undergo a twelve (12) month Annual Inspection commencing from the last inspection date, prior to any operation in an Amtrak train. Upon reaching 40 years from the original date of car manufacture, a private car must undergo a comprehensive mechanical inspection, including truck disassembly, followed by periodic detailed inspections on a specified time or mileage basis.
- 8.5** If a car is determined following any inspection to be unfit for movement in Amtrak service, the car owner will be advised in writing of defects necessary to correct before the car will be reinspected for Amtrak certification. Amtrak will not be required to make such repairs.
- 8.6** All costs incurred in performing any inspection and/or repairs to comply with the requirements of this or other Amtrak SMP, or any Federal requirement, will be at the car owner's expense. Routine calendar day inspections, however, that occur prior to or during train movement are not chargeable to the owner, but the owner will be liable for the cost of any repairs found necessary.
- 8.7** It is mandatory that all private car inspections must be performed by an Amtrak authorized inspector, so designated by the Amtrak Mechanical Department's Manager of Private Car Standards. The authorized inspector must also be certified by Amtrak to be a FRA Qualified Maintenance Person (QMP), as defined under 49 CFR Part 238.109, trained and certified specifically by the Amtrak training

department, and maintained as a QMP on the Amtrak training roster database. Railroad-owned business cars of freight carriers which have an Amtrak operating agreement may perform these inspections on their business cars using their own QMP personnel, per the provisions of their operating agreement.

- 8.8** An inspection of a private car may be performed at any suitably equipped privately owned shop facility (i.e., shop has level track if clearance measurements are required, can safely jack up the car when truck roll-out is required, etc.). An inspection can also be performed at any Amtrak car facility with advance arrangement with the facility manager. In any case, all inspections will be at the owner's expense. Movement to an Amtrak facility will be at the owner's expense and, if the car is then determined to be not approved for movement in Amtrak service, the car must be removed from the Amtrak facility within seven (7) days at the owner's expense.
- 8.9** All work performed to a private car must comply with all aspects of the applicable standards and recommended practices adopted by the AAR, APTA and the FRA. All gauges, inspection devices and testing devices used to inspect a private car must be maintained in current calibration.

## **9.0 OPERATING SPEED**

- 9.1** The maximum operating speed of a private car shall be determined using SMP 25603 - Design Criteria for Operating Speeds of Private and Railroad Business Cars, for either 90 miles/hour or 110 miles/hour.
- 9.2** Generally, a car with trucks having either bolt-on pedestals, arch bar side bearings, cast iron brake shoes, or cast pedestal trucks with standard center plates and clearance type side bearings, will be restricted to 90 miles/hour. A car with cast pedestal trucks with standard center plates and constant contact side bearings, or cast pedestal trucks with central bearings (large center plates in excess of 20" diameter) with clearance type side bearings, will be authorized for 110 miles/hour.
- 9.3** Car owners are warned that pending Amtrak rolling stock upgrades over the next several years may not make it practical to limit train speed to 90 miles/hour, and Amtrak may prohibit operation of private cars limited to 90 miles/hour on some routes in the future.

## **10.0 CLEARANCE INSPECTION**

- 10.1** Prior to a private car's first movement in an Amtrak train, the car owner must arrange to have an Amtrak authorized inspector perform or supervise a complete dimensional clearance measurement of the car on level track. All data shall be documented on Amtrak form PC-5, which shall be submitted to the Amtrak clearance bureau for approval processing.
- 10.2** It is the car owner's responsibility that, if any subsequent change is made to the car configuration which alters its dimensions (such as addition of an antenna, underfloor tanks, generator, etc.), the car owner must immediately have the clearance measurement process repeated, and a revised form PC-5 must be submitted for Amtrak approval prior to requesting any car movement.

## **11.0 CAR OPERATION**

- 11.1** The car owner is responsible to document a continuous record of all trips taken with the private car (both Amtrak and non-Amtrak) on Amtrak form PC-3 Route/Mileage Log, and to document all repairs and modifications to the car on Amtrak form PC-4 Shop Report. Both of these forms must be given to the Amtrak authorized Inspector for inclusion with each submission of the Amtrak PC-1 Annual Inspection form.
- 11.2** The Amtrak standard for passenger car air brake system design is for use of the graduated release feature. A private car equipped with an ABDW or other brake system which operates solely in direct release will only be operated in Amtrak trains subject to various Amtrak operating restrictions. This includes minimum train consist requirements, and a maximum number of cars operating in direct release in a train consist.
- 11.3** A private car operating on trains with Superliner or Surfliner equipment must have two (2) 480 volt HEP extension cables which are 33" long and supplied by the car owner, to ensure proper trainline connection with this equipment.
- 11.4** A private car equipped with butane, propane or other compressed flammable gas system is prohibited from movement through Pennsylvania Station, New York City or its adjacent tunnels unless all such gasses have been drained or otherwise removed from the car, in accordance with Amtrak Northeast Corridor Employee Timetable system special instruction 41-S1.
- 11.5** When a calendar day daily inspection is performed on a private car, the private car is to receive a copy of the completed Daily Inspection form at all Amtrak facilities where Qualified Maintenance Persons (QMP's) perform the inspections. At facilities where there is no QMP available, the private car's Amtrak MAP 10C (NRPC 3126)

or equal daily inspection form from the previous trip will be used to permit the attachment of a private car to an Amtrak train. The completed Daily Inspection form and/or MAP 10C form are to be given to the private car on-board representative, or securely attached to the platform or vestibule area of the car.

- 11.6** Where no specific requirements are listed herein regarding aspects of car maintenance, and there are no conflicts with this SMP or Federal regulations, the now-obsolete AAR Manual of Standards and Recommended Practices, Part A, Section III, Standard S-045-84 for passenger car maintenance requirements may be used as a guide, supplemented by the Appendix A passenger car interchange Code of Rules contained in the 1982 edition of the Field Manual of the AAR Interchange Rules. Such guidelines shall be adapted by the car owner as necessary to suit present-day conditions.

## **12.0 EQUIPMENT REQUIREMENTS**

- 12.1** A private car when on Amtrak trains or Amtrak property must display its assigned Amtrak car identification number (800000 series) per Amtrak drawing A-002-5079.
- 12.2** The car owner is responsible to have its private car registered in the AAR UMLER vehicle database, and to fully equip the car with AEI transponder tags in compliance with AAR requirements. The car shall be registered and tagged with a private owner or railroad AAR reporting mark (use of the Amtrak AMTK reporting mark is expressly prohibited). The use of the Amtrak-assigned 800000 series car number is recommended as the UMLER car number.
- 12.3** Private cars are responsible for full compliance with all applicable regulations of the Federal Railroad Administration, especially those identified in 49 CFR Parts 221, 223, 231, 238 and 239. Private cars intended to operate on Amtrak trains into the Dominion of Canada must also comply with the applicable regulations of Transport Canada.
- 12.4** All private cars operating on Amtrak trains must be equipped with a main air reservoir trainline, and Amtrak 480 volt Head End Power (HEP) and 27 point Door Control/Communications pass-through trainlines which comply with the following requirements:
- 12.4.1** The car must meet all requirements of Amtrak Specification 265, revision F or newer, Conversion of Conventional Type Cars to Run with Amtrak Head End Power Train Consists. This shall include both 480 volt Head End Power and 27 point Door Control/Communication pass-through trainline systems, which must be located on both A and B ends and right and left sides of the car. The 480 volt trainline connections must conform to the current Amtrak pigtail and receptacle arrangement. At the time of initial installation, and after replacement of any 480 volt

pigtail or receptacle, a Trainline Complete circuit test must be performed and documented.

- 12.4.2** Upon completion of the Head End Power installation, a single line schematic or equal depicting all car loads fed from the Head End Power system must be maintained, and furnished to Amtrak. Phase load balance must be within 5 percent. Maximum HEP electrical load on private cars when using Head End Power must not exceed 85 KW. Final testing results and documentation shall be submitted to Amtrak for approval.
- 12.4.3** All materials and workmanship used in Head End Power conversion must meet Amtrak specifications. On completion of Head End Power conversion, a revised clearance diagram PC-5 must be completed and furnished to Amtrak.
- 12.4.4** A car not currently equipped with a 27 point Door Control/Communication pass-through trainline must have it installed by the time of its next PC-1 annual inspection following January 1, 2014.
- 12.5** The exterior carbody must be in sound condition, and all car sheathing, roof sheets, skirting and other exterior components securely attached. All carbody structure and strength members must be of all-metal construction. The carbody must be restored to its "as built" or repaired "in kind" to its original configuration and structural strength in effect at the time of the car construction, especially if corrosion of the carbody structure has taken place. Lightweight cars (typically constructed between 1935 and 1970) shall generally need to meet the strength requirements of the AAR Manual of Standards and Recommended Practices, Part A, Section III, Standard S-034 for the construction of passenger equipment cars. Heavyweight cars (typically constructed in the time period between 1920 and 1935) shall be restored to their original as-built design strength. Cars constructed prior to 1920 shall have their structural requirements established by the Amtrak Manager of Private Car Standards.
- 12.6** Particular attention shall be given to the repair of corrosion damage to the base of the collision posts and corner posts, center sills, side sills and underfloor cross bearers. Unless required by Amtrak on a case-by-case basis, there is no need to exceed the car's original structural strength requirements when no structural modifications have taken place. However, if any structural modifications beyond the original carbody design have been performed to the car, these modifications (but not the entire car) must meet the applicable current strength requirements for Tier I Passenger equipment of the Federal Railroad Administration contained in 49 CFR Part 238 Subpart C.
- 12.7** Any structural modifications to be performed, or any structural repairs which are required to repair corrosion damage, must first have a repair procedure submitted to the Amtrak Manager of Private Car Standards for approval prior to start of work.

The procedure shall provide basic documentation of the process, including description of the design of the repair/modification, strength calculations, dimensioned drawings for all structural components which identify the material used, complete installation instructions, and testing procedure of all welds. American Welding Society (AWS) weld symbols or equal nomenclature must be supplied on installation drawings. Any welder used must be suitably trained in performing structural welding, but does not need to be AWS certified. All welds shall be tested by use of dye penetrant, magnetic particle, or equal methods by an operator knowledgeable of weld inspection procedures. This procedure documentation shall be performed by a registered Professional Engineer familiar with railway car structural analysis, or other knowledgeable party approved by Amtrak. The car owner shall provide a copy of the approved procedure to the Amtrak authorized inspector, who will perform an inspection of all structural work prior to being concealed.

- 12.8** Additional openings may be needed in the car underfloor structure for the installation of HEP or pneumatic trainlines, which shall be suitably reinforced so as to not adversely affect the structural strength of the carbody. Any holes through the car floor from removed equipment shall be metal covered. Holes which are flame cut into the car center sill, end sills, carbody bolsters or cross members shall be smoothly finished by grinding to avoid sharp corners or stress risers. Holes added to center sills shall be gusseted. As a general guideline, stainless steel structural members shall not be welded unless approved.
- 12.9** The car exterior must be neatly finished and lettered, and not detract from the appearance of the Amtrak train to which it will be attached. Primer paint finish, incomplete car painting, hand lettering and other examples of incomplete or unsightly exterior finish are not permitted.
- 12.10** All underfloor equipment must be securely attached to the carbody. Any equipment with exposed moving parts, such as fan blades or drive belts, shall be shielded by covers or safety guards to protect maintenance personnel from injury from accidental contact. Any "Nylock" elastic lock nuts used on the car must have at least 2 but no more than 5 bolt threads projecting beyond the end of the nut, and any excess bolt length may only be hand cut.
- 12.11** The car trucks, axles, truck components and attachment to the carbody must have adequate documented capacity for the fully loaded weight of the car in its current configuration, and be capable for operation at either 90 or 110 miles/hour, in accordance with Amtrak SMP 25603, Design Criteria for Operating Speeds of Private and Railroad Business Cars. If the car has been modified from original configuration, weighing of each end of the car may be required in order to verify the present load on the trucks. If the trucks are inadequate for the current car weight or will be replaced, the replacement trucks must have documentation presented to Amtrak to verify adequate center plate capacity, carbody attachment strength and operating clearances. If the truck to carbody bolster interface requires modification

to the carbody structure, the services of a registered Professional Engineer will be required.

- 12.12** The car trucks must be equipped with roller journal bearings. Use of AP style rotating end cap journal bearings of no field lubrication (NFL) design are strongly preferred. Whenever roller journal bearings are refurbished, they shall be equipped with new hydrodynamic labyrinth (HDL) seals (preferred) or type K seals, suitable for high speed passenger car service to 110 miles per hour. A car which has had its journal bearings submerged in water must have the bearings recertified by an AAR approved journal bearing shop. The AP bearing cap center hole plastic shipping plug must be installed.
- 12.13** Use of oil lubricated journal bearings will be prohibited at the time of the car's next PC-1 annual inspection after January 1, 2020. The mixing of both oil and grease lubricated bearings within a truck is not recommended. If any car journal bearings are not of NFL design, it is the car owner's responsibility to have the proper periodic lubrication of its journal bearings performed at its expense, which must be performed using only AAR specified lubricants, with the LUBE date stenciled onto the trucks. Refer to the Appendix A passenger car interchange Code of Rules contained in the 1982 edition of the Field Manual of the AAR Interchange Rules for specific bearing lubricants.
- 12.14** Journal box stops must be present on all pedestals, with the use of pedestal tie bars preferred. Pedestal tie bars and stops must be secured with suitably sized fasteners, such as "Huck" fasteners, high strength bolts and elastic lock nuts meeting the requirements of Society of Automotive Engineers (SAE) standard J429 for Grade 5 or better, or plain nuts welded to a SAE Grade 5 bolt. Each truck shall be attached to the car with a locking center pin. Effective January 1, 2015, use of an axle drive for a generator system (either Spicer or belt) is prohibited at the time of the car's next PC-1 annual inspection, and the drive apparatus must be removed from the axle by that time.
- 12.15** Use of a rim stamped straight plate wheel is prohibited if on-tread braking is used. It is preferred that all wheels be of wrought steel, and not of cast construction. When a brake disc rotor is renewed which is fastened to the wheel, only a solid hub disc rotor shall be applied. Wheel positions on the truck shall be numbered using AAR nomenclature.
- 12.16** The car must have any steam trainline connectors and air signal trainline connectors removed. A call bell (door bell) system shall be installed at each end of the car, required to permit Amtrak train crew to signal to gain admission to the car when required for operational reasons.
- 12.17** The car must be equipped at each end with one or more marker lights that comply with 49 CFR Part 221, Rear End Marking Device. The marker lights must have a

battery power source that will illuminate the lights for at least two (2) hours. Detachable marker lights that are fully compliant with the regulation are permitted so long as they are mounted to permanent brackets designed for the purpose.

- 12.18** The car must be equipped with a Tightlock type H, CS or F coupler on both ends, and the draft gear free slack shall not exceed 1/2". The car must be equipped with walkway footplates (buffer plates) at both ends of the car (Amtrak may waive this requirement for the round end of observation cars). The height of the buffer or adapter must be 52" to 54" from top of rail for single level cars, and 104" to 105" for bi-level Superliner type cars.
- 12.19** The car must be equipped with an Amtrak Superliner-compatible diaphragm on both ends, as per Amtrak Specification 221 (formerly DM-77-22). An exception may be made for the round end of an observation car. However, if a car is not equipped with a diaphragm on the observation end, it will be restricted to first or rear passenger carrying car in train, is not guaranteed rear position, and is subject to cutoff or set out without notice due to operational problems.
- 12.20** The air brake system shall be either 26C or D22 configuration with a graduated brake release feature. A car may also be equipped with an ABDW, ABDX or DB-60 brake system operating in direct brake release, but will be subject to Amtrak operating restrictions and may be prohibited from operation in a train consist of less than seven cars. Use of a UC brake system is prohibited by the time of the car's next PC-1 annual inspection after January 1, 2012. The car brake system shall be properly designed for passenger service, be suitable for the existing weight of the car, and have the proper relay valve applied. At least one Conductor's valve shall be located inside the car near an end doorway. A car equipped with disc brakes shall have a disc brake applied indicator on each side of the car, visible from the vestibule.
- 12.21** The brake system shall be maintained in accordance with Amtrak specified dates for Clean, Oil, Test and Stencil (COT&S) including rubber hose replacement intervals. The car must be equipped with suitable air test connections, and the brake valve must be mounted in a manner that allows access to all exhaust ports and test connections that are necessary to complete the single car air test for the specific system, without interference from the car structure or other equipment. It is preferred that any on-tread brake shoe be of standard composition design. Use of a wheel slide protection system is recommended. The car must have a functioning hand brake system. The air brake system connection to the Brake Pipe shall use the AAR dirt collector/cutout cock properly orientated to take air from the top of the trainline pipe. The truck cutout cocks shall be easily accessible by the train crew from the side of the car, and should be identified. Whenever a car has any air brake system valves submerged in water, it shall require a COT&S to be performed on the affected valves and all lines cleaned before returning to service.

- 12.22** The car must be equipped with a 1" main air reservoir trainline with a vented cutout cock at each end of the car. Conversion of an existing 0.75" internal diameter air signal trainline to a main air reservoir trainline use is permissible, provided that all signal system valves and apparatus are removed, the branch pipes are removed from the trainline and plugged, and that 1" vented cutout cocks and 1" hoses are installed. Any newly installed trainline shall be 1" internal diameter. The trainline shall employ sweep bends in place of 90 degree angle fittings where possible. The arrangement of Brake Pipe and Main Reservoir Pipe connections at each end of the car shall comply with APTA recommended practice APTA-RP-M-001-97. A private car is permitted to use the main air reservoir trainline for the charging of its brake system supply reservoir when in service on an Amtrak train.
- 12.23** The air supply for any air consuming auxiliary functions on the car, such as a water raising system or pneumatically operated doors, must be furnished by the supply reservoir of the air brake system in accordance with AAR Manual of Standards and Recommended Practices, Part A, Section III, Recommended Practice RP-019-64. It is also permissible to use the main air reservoir trainline as a supply. The supply connection must be equipped with a cutout cock to allow single car air tests to be correctly performed. A governor and regulator valve shall be used. Direct connection to the Brake Pipe trainline is prohibited, even when a metering choke is used. These air auxiliary devices shall undergo regular maintenance including replacement of seals and gaskets as recommended by their manufacturer to support the COT&S maintenance of the air brake system.
- 12.24** If the car is equipped with an underfloor engine, it shall have the engine exhaust outlet directed away from any car air intakes or fuel lines, and orientated to avoid false activation of wayside hot journal or hot wheel detector systems. Any exposed exhaust piping shall be shielded or guarded to protect workers against injury from thermal burns from inadvertent contact. Coolant, oil and other fluid system piping shall be shielded to protect from foreign object damage. All fuel, oil and coolant systems shall be free of leaks. Accumulation of fuel or oil leakage in engine compartments is prohibited.
- 12.25** If an on-board electrical generator system is used, it must use a load transfer switch having interlocked contactors with a manual lockout when operating in Amtrak service, to isolate the generator system output from the 480 volt Head End Power trainlines. This is to prevent Amtrak employee electrical injury from exposure to an unexpected backfeed energization of the HEP trainlines, when the normal HEP power source (locomotive or wayside) is disconnected from the train.
- 12.26** A car equipped with a liquid fuel tank is restricted to the use of either diesel fuel or fuel oil. Use of gasoline or similar volatility fuels is prohibited. Any fuel tank, fuel supply line and fuel return line shall be positioned or shielded to protect against foreign object damage, and shall be electrically grounded to the carbody. The fuel supply line connection to the fuel tank shall be equipped with a valve which is

readily accessible and identified. The tank shall be properly vented to avoid fuel spillage from slosh.

- 12.27** Amtrak will no longer accept for initial application any private car equipped with butane, propane or other compressed flammable gas system. Private cars approved for movement in Amtrak service prior to 2011 which were originally equipped with a propane compressed gas system must keep the system maintained in accordance with the appropriate sections of the AAR Manual of Standards and Recommended Practices, Part A, Section III, Recommended Practice RP-037, 1955 revision. Once a private car is approved for movement in Amtrak service, it is prohibited to convert a car to a compressed gas fuel system that was not initially equipped at the time of approval. All compressed gas system piping must be metallic. Compressed gas cylinders are not permitted in the interior or vestibule of a car.
- 12.28** No storage of tools, parts or materials is permitted in the car electrical locker. No flammable liquids may be stored in the interior of a car occupied by passengers.
- 12.29** All toilet systems on a private car must be equipped with either a retention (holding) tank or a biological treatment system. Use of original style "dump to the trackbed" toilet systems is prohibited. Each holding tank drain outlet connection shall have a cap, and shall have the drain valve located adjacent, so as to minimize retained effluent spillage when disconnecting the drain hose. Use of a remote drain valve control device from the interior of the car is prohibited. Operation of the drain valve handle shall be obvious to the maintainer or be properly identified. As information, Amtrak uses an Andrews quick-disconnect 4" male cam lock fitting as its standard retention tank drain hose connection.
- 12.30** Installation of the Amtrak 27 point locomotive Multiple Unit (MU) push-pull control trainline currently is optional, but is strongly recommended and may be required for operation on certain trains.

### **13.0 ANNUAL INSPECTION REQUIREMENTS**

- 13.1** Every private car must undergo an Annual Inspection by an Amtrak authorized inspector. This inspection is only valid for a period of twelve (12) months from the date of the last inspection and certification. It is a mandatory condition for Amtrak movement of a private car that its last Annual Inspection has neither gone out of date, nor will expire prior to the end of any movement request.
- 13.2** A car owner must provide a minimum of 14 calendar days notice to Amtrak to request an Annual Inspection of a private car. The car owner is responsible for the cost of providing the proper Single Car Testing Device which is within calibration date for the annual air test of the car, as well as a source of dry 120 psi compressed air.

**13.3** An Annual Inspection of a private car requires the submission to Amtrak of a completed Amtrak form PC-1 (Annual Inspection Report) and form PC-1A (Car Data), which must be completed by an Amtrak authorized inspector, along with the submission of Amtrak form PC-3 (Route/Mileage Log) and PC-4 (Shop Report) which must be completed by the car owner and provided to the authorized inspector.

**14.0 INSTRUCTIONS FOR ANNUAL CAR INSPECTION (Amtrak Form PC-1)**

Note: some items on the form are only a suggested defect list, and may not be all inclusive.

**14.1** Check that the Amtrak 800000 series car identification number is properly displayed on both the left and right side of the car at the B end or blind end. Verify that both sides of the car are equipped with AEI transponder tags in compliance with AAR requirements.

**14.2** Verify that the car is fully equipped with Amtrak Head End Power (HEP) electrical trainlines, the Amtrak 27 point Door Control/Communication pass-through trainline, and a main air reservoir trainline. The HEP trainlines must be located on both A and B ends and right and left sides of the car, and the HEP trainline connections must conform to the current Amtrak pigtail and receptacle arrangement. Any missing Door Control/Communication pass-through trainline must be installed by the time of the PC-1 inspection following January 1, 2014.

**14.3** Verify that carbody is in sound condition without excessive corrosion, and that all car sheathing, roof sheets, skirting and other components are securely attached. Verify that car exterior is neatly finished and lettered.

**14.4** Verify that the exterior measurements have not changed since the last Amtrak form PC-5 Clearance Form inspection was performed.

**14.5** Check all truck journal roller bearings for signs of overheating, bearing seals for leaking, and for signs of being submerged in water, improperly installed.

**14.6** Check that journal roller bearing lubrication dates and quantities are in accordance with Amtrak form MAP 33 (Oil - 30 day, Grease - 90 day, AP bearing - 1 year). Do not lubricate NFL bearings.

**14.7** Check for defective journal roller bearing boxes, such as cracked, excessive wear or broken, damaged covers.

**14.8** Check for excessive wheel lateral motion causing wheel contact or abrasion with truck frame or parts.

- 14.9** Check journal roller bearing cap screws and lock plates/safety wire. Check if AP bearing cap center hole plastic shipping plug is missing.
- 14.10** Check pedestal jaws and liners for visible defects, such as broken, loose, bent or broken weld, excessive clearance, or defective elastomer linings if so used. Check for cracks at the bottom attaching tab of non-metallic liners.
- 14.11** Check all pedestal tie bars or journal box stops for securement, correct fasteners, and not loose or missing. Must be present on all pedestals.
- 14.12** Visual inspect in general all truck equalizers, shock absorbers, swing hangers, springs, truck frames, bolsters, stops, center plate, spring planks, pins, bushings, center plate liner, and fasteners for unusual wear, rubbing or defective conditions. Verify that there are no visible defects such as cracked, broken or collapsed springs, shiny/rubbing area, loose bolster anchor rods, defective rubber anchor rod bushings, evidence of truck swing contacting carbody, evidence of truck components rubbing on wheel, truck contacting carbody, etc.
- 14.13** Visual inspect all axles, wheels and brake discs for defects. Verify no loose/cracked brake discs, disc surface wear exceeding 1/4", loose bolts, or missing disc lock plates or safety wires. Disc surface scratches are permissible. Nicks on outside edges of brake discs shall not exceed 3/4" wide radially or more than 1/4" deep into braking surface. Disc thermal cracks shall not exceed 3", be located within 1/2" of the outer or inner edge of the ring, or reach the edge of the ring.
- 14.14** Check brake shoes and brake pads to ensure adequate service, alignment and proper application. Minimum thickness is 1/4" for disc brake pads, and 3/4" for tread brake shoes.
- 14.15** Check brake system slack adjusters, brake rigging, bushings, brake cylinders and brake heads. Verify no loose bolts, pins or worn bushings, misadjusted/inoperative slack adjusters, binding. Inspect safety chains or safety lug on brake frame side bearing arms of "C" Frame (CFM) disc brakes. Verify that all levers, rods, brake beams and hangers are properly secured and not worn more than 30% of original dimension.
- 14.16** Check any Spicer drive unit for proper amount of lubrication (dip stick level). Inspect drive shaft clutch and Spicer drive. Check play in universal joints and grease. Effective January 1, 2015, use of an axle drive for a generator system (either Spicer or belt) is prohibited at the time of the car's next PC-1 annual inspection.
- 14.17** Gauge all wheels in accordance with the applicable AAR Manual of Standards and Recommended Practices (Section G, Part II). Record the rim thickness, flange height and flange thickness dimensions for every wheel. Inspect for other defects.

- 14.18** Inspect all underfloor equipment and mountings for security of attachment to the carbody. Any loose or broken bolts and rivets must be renewed with high strength bolts and elastic lock nuts meeting the requirements of SAE standard J429 for Grade 5 or better. Visually inspect all undercar equipment that there are no loose pipes, frayed wires, etc. Verify that all trainline piping is properly secured. Verify that safety guards or shields are in place over moving machinery parts. Verify there are no holes through the car floor from removed equipment which have not been covered. All elastic lock nuts shall have at least 2 but not more than 5 bolt threads projecting from the end of the nut.
- 14.19** On cars equipped with an engine or generator, check that a load transfer switch having mechanically-interlocked contactors is used to isolate the generator system output from the 480 volt Head End Power trainlines. Verify that a shielded exhaust system is used which is directed away from any car air intakes, fuel lines or wayside detectors. Check that all coolant, oil and other fluid system piping is shielded from debris damage. Verify there are no fuel, oil or coolant leaks, and no accumulation of leaked fuel or oil in engine compartments.
- 14.20** Verify that any undercar fuel tank and fuel lines are not damaged, are protected against foreign object damage, electrically grounded to the carbody, and that the fuel supply line connection to the fuel tank is equipped with a valve.
- 14.21** If the car is authorized to be equipped with a propane compressed gas system, verify that it is maintained in accordance with the appropriate sections of AAR Recommended Practice RP-037, 1955 revision, metallic piping is used, and no gas cylinders are stored in the car interior or vestibule.
- 14.22** Verify that no tools, parts or materials are stored in the car electrical locker, and that flammable liquids are not stored in the interior of a car occupied by passengers.
- 14.23** Verify that all toilet systems are equipped with either a retention (holding) tank or a biological treatment system. Retention tank drain piping shall be equipped with a valve and an Andrews 4" male cam lock fitting with cap, with no provision for remote drain valve operation from inside the car.
- 14.24** Perform a visual inspection of all couplers, draft gear and components. Cars must be equipped with a Tightlock type CS, F, or H coupler on both ends, with draft gear free slack not to exceed 1/2". The couplers shall be gauge tested. Verify no worn knuckles, worn knuckle pin, loose carrier iron bolts, broken springs, etc. Check operating rod clearance. Measure coupler height (maximum height of 35", preferred height of 34-1/2", minimum height of 34").
- 14.25** Inspect and check operation of diaphragm, buffer, suspension rods, and springs at A and B end of car. Check that buffer height or adapter is 52" to 54" from top of rail

for single level cars, and 104" to 105" for bi-level Superliner type cars.

- 14.26** Check sill steps, hand holds and other safety appliances for compliance with FRA safety appliance standards. Verify that all hand holds have a minimum clearance of 2", sill steps have required lateral braces for two or more steps, etc.
- 14.27** Verify that there is a FRA approved marker light per 49 CFR Part 221 at both the A end and B end of the car and that it has a self-contained battery backup source. Detachable marker lights must be tested to verify that associated electrical outlets are functioning at all locations where they may be placed during car operation.
- 14.28** Inspect all 480 volt HEP trainlines, Door Control/Communications trainlines and any Locomotive MU Control trainline cables and jumpers for any defects, deterioration in the insulation, debris damage, cracking or fraying of insulation. Inspect conduit over trucks for securement. Inspect for missing High Voltage warning signs.
- 14.29** Check the call bell (doorbell) system at the A end and B end for proper operation.
- 14.30** Check if Amtrak air brake COT&S date is past due:
- UC - use is prohibited by time of next PC-1 inspection after January 1, 2012;
  - D22 - 3 years;
  - 26C and KE - 4 years;
  - ABD, ABDW, ABDXL and DB-60 - 6 years.
- 14.31** Verify that at least one Conductor's valve is located inside the car near an end doorway. Verify that a car equipped with disc brakes has a labeled "disc brake applied" indicator on each side of the car.
- 14.32** Verify that the car is equipped with suitable test connections and vent access to permit a passenger car single car air test to be conducted. Check that the air brake system connection to the brake pipe uses the AAR dirt collector/cutout cock properly orientated to take air from the top of the trainline pipe. Check that the truck cutout cocks are easily accessible by the train crew from the side of the car, and should be identified by label or handle color.
- 14.33** Check that all brake pipe hoses, main reservoir trainline hoses and intermediate air brake hoses (such as carbody to truck) are not damaged. Any hose assemblies using AAR M-601 fabric reinforced style hose must be changed out at 8 years maximum, as determined by the date marked on the hose tube or whenever the date is found obliterated. Any wire reinforced hose assemblies using AAR M-618 or M-927 style hose must be changed out at 12 years maximum (10 years preferred) as determined by the date marked on the hose tube or whenever the date is found obliterated. Hoses under 5/8" inside diameter need not be AAR M-618 or M-927 style hose, but they must be wire reinforced, in good condition, and changed out at 12 years maximum (10 years preferred) as determined by the date marked on the

hose tube or whenever the date is found obliterated.

- 14.34** Verify that any auxiliary air devices (water raising system, etc.) are supplied by the supply reservoir of the air brake system using a cutout cock, governor and regulator valve, and has regular maintenance performed.
- 14.35** Inspect and test the hand brake for proper application and release, regardless of brake wear, with no binding of chain or linkage. Inspect each brake shoe/disc brake pad location for proper application and release. Stencil date and location where tested.
- 14.36** Perform an air brake system test using a passenger car Single Car Testing Device to test the car for proper brake operation and piston travel. The testing device must be within calibration date. A car with a 26C air brake system shall be tested according to APTA SS-M-005-98, Revision 2 or newer, Code of Tests for Passenger Car Equipment Using Single Car Testing Device. Include the following sections from the APTA procedure: section 7.1.1 (if equipped with main reservoir trainline, close the cut-out cock on opposite end of car from the Device); section 7.2.1 (with the 120 psi test air supply cut-out cock closed, open the main reservoir cut-out cock at the end of the car opposite the supply air connection); and section 7.2.4 (move the Device handle to Position No. 3 (Lap)). Other passenger car air brake systems must pass the single car air test according to AAR Specification Instruction Pamphlet No. 5039-4 (refer to the introduction of APTA standard SS-M-005-98 for testing details for various types of systems).
- 14.37** A car with an ABDW air brake system shall be tested using the freight single car testing device using AAR S-486 test codes. In accordance with test code Section 4.3, Auxiliary Devices, other auxiliary devices (such as relay valves and modulating valves) shall be tested in accordance with the original equipment manufacturer's specifications. These may be found in APTA SS-M-005-98, Revision 2 or newer. The APTA tests to be performed include Sections 10.2 (brake cylinder leakage), 11 (Emergency brake (Conductor's) valve), 11.1 (valve test), and 11.2 (remaining valves). Record the brake cylinder full service and emergency application air pressures.
- 14.38** Attach any additional notes to the completed form as required. Only sign the completed form when all items are corrected and in compliance. Also complete the Amtrak form PC-1A Car Data for the car. Submit the completed forms to Amtrak.

## **15.0 ADDITIONAL REQUIREMENTS FOR CARS OVER 40 YEARS OLD**

- 15.1** Any private car which is more than 40 years old from the date of original manufacture must undergo an additional comprehensive inspection and documentation process conducted by an Amtrak authorized inspector. This inspection shall be performed using Amtrak form PC-2 within the 40th year of the

date of original car manufacture, or prior to its first Amtrak trip if older. This inspection shall be performed in two steps; initially with the trucks removed from the car and dismantled, and again with the trucks assembled and installed under the car. An Amtrak form PC-1 Annual Inspection shall also be performed and submitted with the form PC-2 or form PC-2A.

- 15.2** After the initial 40 year inspection, the car shall thereafter be inspected using Amtrak form PC-2A and its instructions on either a time basis (every 10 years) or a mileage basis (at 200,000 miles, 350,000 miles, and 500,000 miles) from the initial 40 year inspection, whichever occurs first.
- 15.3** The car owner must maintain and report a log of non-Amtrak routes and mileage traveled, using Amtrak form PC-3 route mileage log. Amtrak will maintain a route mileage record in the Amtrak ARROW system for mileage requirements.
- 15.4** If the trucks are replaced on a car which has received a PC-2 inspection, the replacement trucks must also receive the dismantled truck portion of the inspection procedure, which shall be documented with an updated PC-2 form for the car.

#### **16.0 INSTRUCTIONS FOR INITIAL 40 YEAR CAR INSPECTION (Amtrak Form PC-2)**

Note: the word "Clean" in this Section refers to any of the following methods for cleaning which include sand blasting, grit blasting, walnut shell blasting, wire brushing, high pressure steam cleaning, or high pressure water cleaning, which results in adequate ability for performing the required inspections.

- 16.1** Jack the car and remove the trucks. Prior to disassembly of the trucks, perform measurements of wear of pedestal liners and journal box liners. Inspect, perform repairs if needed to the following, then replace the trucks.
- 16.2** When the car is jacked and the trucks are removed, remove the underfloor equipment, apparatus and draft gear sufficient to expose the length of the center sill, side sills, end sills, center plates, side bearings, carbody bolsters, significant cross members, and other structural members including the base of the collision posts and corner posts. Clean, inspect for corrosion and perform a dye penetrant inspection of these items to verify no structural cracks are present. Any cracks, deterioration, corrosion or other defects must be documented and repaired to restore the carbody to its "as built" structural design strength, as described above. Any asbestos under the car must be removed.
- 16.3** Clean and inspect truck bolsters, body bolster, bolster center plates, and top center plates. Must comply with instructions and requirements of SMP 46617 and SMP 48001.

- 16.4** Remove swing hangers and pins (6 wheel truck). Remove swing hangers, crossbars and pins (4 wheel truck). Clean and inspect swing hangers and crossbars. Must comply with instructions and requirements of SMP 46605 except not necessary to Brinell test, but must Magna-Flux or Dye Check. If any repairs are required on swing hangers or crossbars, they must be heat treated and Brinell tested. Renew any swing hanger pins or bushings that are worn more than 10% of their original dimension. It is recommended that all pins and bushings be renewed.
- 16.5** Remove equalizer bars, springs, and spring seats. Clean and inspect equalizer bars. Must comply with instructions and requirements of SMP 46617 and SMP 46603 except not necessary to Brinell test, but must Magna-Flux or Dye Check. If any repairs are required on equalizer bars, they must be heat treated and Brinell tested.
- 16.6** Clean and inspect equalizer springs. Test springs for resiliency, cracks, or broken springs. Must be renewed if weak, cracked, or broken.
- 16.7** Clean and inspect equalizer spring seats. Must comply with instructions and requirements of SMP 46617 and SMP 49602. Must Magna-Flux or Dye Check.
- 16.8** Clean and inspect truck frame and spring plank. Must comply with instructions and requirements of SMP 46617, SMP 48001, and tramping instructions. Renew any truck frame pins or bushings that are worn more than 10% of their original dimension. It is recommended that all pins and bushings be renewed.
- 16.9** Clean and inspect pedestal liners for cracks in the parent metal or in welds holding liners to truck frame. Check that pedestal liners having elastomer cushioning are in good condition with no cracking or delamination of any elastomer bond. Maximum allowable clearance is 1/4" between the pedestal liner and journal housing. The total allowable lateral clearance per wheel set with Hyatt journal boxes is a minimum of 3/8" and a maximum of 5/8", including lug liner clearance and thrust block clearance. The total allowable lateral clearance per wheel set between thrust lugs of the journal housing and pedestal liners, using 3/8" lug liners, is a minimum of 3/8" and a maximum of 5/8". The total allowable lateral clearance per wheel set between thrust lugs of journal housing and pedestal liners, using 7/16" lug liners, is a minimum of 1/4" and a maximum of 9/16". The center wheel of a six (6) wheel truck must have a minimum lateral clearance of 5/8" and maximum lateral clearance of 7/8". To determine if wear is in the pedestal liner or journal box liner, the measurements must be made previous to dismantling of truck. If pedestal liners are cracked or worn, they must be renewed. All cracked welds must be properly repaired to ensure proper securement. Any non-metallic pedestal liner must be replaced if wear to any face exceeds 10% of original dimension, or the lateral lug surface at the top is curling away from the truck frame more than the liner thickness.

- 16.10** Clean and inspect anchor rods, anchor rod bolts, and rubber bushings. Cracked or broken anchor rods must be renewed. Anchor rod bolts worn more than 15% of their original dimension or having pulled or worn threads must be renewed. Any anchor rod rubber bushings which are worn, aged, or cracked must be renewed.
- 16.11** Inspect wheels and axles in accordance with the applicable AAR Manual of Standards and Recommended Practices (Section G, Part II). In addition, any wheel with flange height of 1-1/4" or more must be restored to full contour, any wheel with flange thickness of 1" or less must be restored to full contour, and any wheel with 1/16" or less above passenger scrap must be renewed.
- 16.12** Inspect all brake discs for thermal cracks. Perform a dye penetrant test of any spoked hub disc brake rotors. Any Budd/WABCO bolt-on disc with less than 7/16" service metal on either rotor must be renewed. Any Knorr bolt-on disc with more than 7 mm wear on either rotor braking surface must be renewed. Any replacement disc must be solid hub type. Inspect the outer periphery of the disc for chips or indentations. If chips or indentations are greater than 3/4" wide radially and 1/4" deep into the braking surface, the disc must be renewed. Inspect to ensure all discs are secure, all bolts tight, and bolt locking tabs properly bent. Any loose disc must be properly secured.
- 16.13** If the journal roller bearings and boxes have not either been replaced with new bearings or recertified by an AAR approved journal bearing shop as part of the truck rebuilding, they shall be inspected as follows:
- 16.13.1** Grease lubricated non-rotating end cap journal bearings: Remove roller bearing faceplate, visually inspect condition of rollers, cage and grease, rotate box to determine any signs of distress by sound and feel. Inspect grease for any discoloration, dirt, rust or water; if present the box must be entirely cleaned and new grease applied. If no defects are found, apply roller bearing faceplate and secure bolts with safety wire. Lubricate journal bearing as recommended in the AAR Manual of Standards and Recommended Practices, Section A, Part III, Standard S-045, Section 4.0. The lateral clearance of Hyatt roller bearings must be adjusted according to the instructions for Hyatt Roller Bearing Railroad Journal Boxes.
- 16.13.2** Oil Lubricated Hyatt boxes: Drain oil, remove boxes from journal, inspect roller bearings, cages, seals, thrust bearing and clean and flush box with light oil. If no defects are found, remount boxes on journals and fill with oil as recommended in the AAR Manual of Standards and Recommended Practices, Section A, Part III, Standard S-045, Section 4.0. Safety wire mounting bolts, fill plug and drain plug. The lateral clearance of Hyatt roller bearings must be adjusted according to the instructions for Hyatt Roller Bearing Railroad Journal Boxes.

- 16.13.3** Oil Lubricated Timken boxes: Drain oil, remove face plate, visually inspect bearings and boxes, fully rotate boxes to determine any sign of distress by sound and feel. If no defects are found, apply roller bearing box face plate and secure bolts with safety wire. Lubricate boxes as recommended in the AAR Manual of Standards and Recommended Practices, Section A, Part III, Standard S-045, Section 4.0. Safety wire mounting bolts, fill plug and drain plug.
- 16.14** Any AP style rotating end cap roller bearing must only be serviced at an approved AAR wheel and roller bearing shop.
- 16.15** Clean and inspect all brake rigging, pins, levers, bushings, guides and component parts for cracks, broken, or worn conditions. Verify that all levers, rods, brake beams, guides and hangers are properly secured and not worn more than 10% of their original dimension. It is recommended that all pins and bushings be renewed.
- 16.16** Tread brake: Renew all brake pins and bushings when worn more than 10% of their original dimension. It is recommended that all pins and bushings be renewed. All tread brake shoe heads must be capable of fully holding the brake shoe with no side play nor overlap of wheel rim.
- 16.17** Disc Brake: Inspect all brake tongs, shoe heads, bolts, and component parts for cracked, broken, or worn conditions. All pins and bushings must be renewed if worn more than 10% of their original dimension. Remove all shoe heads and inspect shoe head pins for cracks. Cracked shoe head pins must be renewed. Inspect shoe head retaining buttons to ensure they are tight and have a full contour. Worn or loose buttons must be renewed. All bolts must have retaining plates or safety wire. When equipped with Truck Frame Mounted (TFM) brakes, verify that the fulcrum pivot pin is retained by plugs or tabs. When equipped with "C" frame (CFM) brakes, clean and inspect C frames for cracks. Rubber back bushing must be renewed. Inspect rubber donut segments and renew if worn. Inspect safety chains or safety lug on brake frame side bearing arms. All C frames must have safety chains of a minimum of 1/4" through hanger box assembly connecting to truck frame transom.
- 16.18** Verify that truck is properly assembled, all parts properly placed, coil springs are properly nested, proper clearances and dimensions, brake rigging properly aligned, slack adjusters properly adjusted, etc.
- 16.19** Any axle belt drive system or Spicer axle drive system with Spicer axle drive, clutch, and drive shaft must be removed from the car after January 1, 2015. Any generators and components no longer being used must be removed.
- 16.20** Clean, inspect and gauge all couplers and operating rods. Type H Tightlock couplers must meet the requirements of APTA Recommended Practice RP-M-002-98. Type F Tightlock couplers must meet the requirements of the AAR Manual of

Standards and Recommended Practices, Section A, Part III, Specification M209B-74. Controlled slack type couplers must meet the maintenance recommendation of American Steel Foundries Report No. 509-A, revised June 19, 1968 and AAR Alternative Standard S-026.

- 16.21** Inspect draft gear for slack in excess of 1/2". Remove draft gear pan and inspect draft gear. Clean and inspect area around draft gear for cracks, loose, or worn parts. If any cracks are located, they must be welded and reinforced according to APTA or AAR specifications.
- 16.22** Inspect battery boxes, air conditioning units, electrical circuit breaker boxes, equipment boxes, generator sets and all other boxes and enclosures attached to the car. Undercar equipment boxes or apparatus weighing in excess of 150 pounds shall be structurally supported and not rely solely of the strength of mechanical fasteners to retain them to the carbody. Boxes with cracks or broken areas must be repaired and reinforced. All box support straps which are cracked or broken must be completely renewed. Any loose or broken bolts and rivets must be renewed with high strength bolts and elastic lock nuts meeting the requirements of SAE standard J429 for Grade 5 or better. Inspect all areas where the boxes are attached for cracks, worn holes, and fatigued metal. Any of the above conditions found must be reinforced.
- 16.23** Inspect cables, wiring, and conduit of 480 volt Head End Power system, 27-point Door Control/Communications and Locomotive MU Control trainline systems. Any defective wires, cables with cuts or abrasions, or any conduit that is broken, loose, damaged or cracked must be repaired to meet Amtrak engineering specifications.
- 16.24** Inspect marker lights for proper operation. All marker lights must have the capability of illuminating 2 hours from battery power. Detachable marker lights must be tested to verify that associated electrical outlets are functioning at all locations where they may be placed during car operation.
- 16.25** Inspect and test with soap suds all brake pipe lines and main reservoir lines for any leaks. All loose connections must be tightened and all cracked, damaged or broken pipes or cutout cocks must be renewed. Inspect all braking system air hoses and main reservoir hoses for defects and being within date. Undated or armored hoses must be renewed. Any 90 degree elbows or bends in the brake pipe trainline shall be replaced with suitable ASTM Schedule 80 swept bends or 45 degree fittings. All car and truck piping shall be securely clamped. All cutout cocks shall be readily accessible and not otherwise hidden or obstructed. All auxiliary air systems on the car, such as the water raising system, must be properly maintained and have seals and gaskets replaced as necessary.
- 16.26** Inspect, test, and stencil the handbrake for proper operation. Handbrake must apply and release properly and work in conjunction with the air brake system.

Return springs must be provided as required to assure reliable release. Any repaired or oversize links in chains must be located to not contact or become wedged in wheels, guides or tubes. All levers and components must have adequate travel to allow for worn shoes or pads without contacting stops, axles, truck components or car structures. The handbrake must be located so it can safely be operated while the car is in motion. Lubricate all sheave wheel pins.

- 16.27** Inspect all FRA safety appliances for proper clearance, application, and worn conditions. Hand holds must be constructed of minimum 5/8" diameter rod, must be tight, free of breaks and cracks, and have a minimum clearance of 2". Cracked or broken hand holds and safety appliances must be renewed and comply with FRA safety appliance requirements. Sill steps having two or more steps shall be laterally supported.
- 16.28** Inspect all vestibule side doors, body end doors and vestibule trap door catches for proper securement. Must not be loose and heavyweight type must be secured with tapped bolts of not less than 1/4". Trap door must raise enough to clear locking device when opening to ensure sufficient clearance to avoid personal injury to hands.
- 16.29** Inspect all entrance steps for proper securement and conditions of step treads and risers. They must not be loose, cracked, or broken. All loose steps must be secured with high strength bolts and elastic lock nuts meeting the requirements of SAE standard J429 for Grade 5 or better, or welded. Heavyweight type risers which are broken or cracked must be renewed with minimum 1/4" thick wrought iron or steel. Step treads must have a nonskid tread.
- 16.30** Upon completion of the PC-2 Inspection, perform a complete PC-1 Annual Inspection, including an air brake system test using a Single Car Testing Device. Submit all inspection forms and associated testing reports to Amtrak.

**17.0 INSTRUCTIONS FOR FOLLOW-UP 40 YEAR CAR INSPECTION (Amtrak Form PC-2A)**

- 17.1** Following the completion of the 40 year (PC-2) inspection, a private car shall have a periodic heavy inspection (PC-2A) perform at the time or mileage intervals as identified above. The PC-2A inspection shall generally comply with the requirements for the PC-2 inspection, including the jacking of the car and rollout of the trucks. However, the trucks do not need to be disassembled, nor is disassembly required of undercar components to perform the inspection of the car underframe, unless it is necessary to repair any defects found. Particular attention shall be given to inspection of structural corrosion, truck wear items such as pins and bushings, couplers/draft gear, and elastomeric parts. This inspection shall be performed in two steps; initially with the trucks removed from the car, and again with the trucks installed under the car. Upon completion of the PC-2A Inspection,

perform a complete PC-1 Annual Inspection, including an air brake system test using a Single Car Testing Device. Submit all inspection forms and associated testing reports to Amtrak.

Amtrak Equipment Maintenance Department  
Standard Maintenance Procedure

**18.0 APPENDIX A – PC MAP FORMS**

<h2 style="margin: 0;">Amtrak</h2> <p style="margin: 0;"><b>PRIVATE CAR ANNUAL INSPECTION REPORT</b></p> <p>Amtrak Car Number: _____ Car Name/Number: _____</p> <p>Inspection Date: _____ Location: _____</p> <p>Car Type: _____ Year Built: _____</p> <p>Amtrak Authorized Inspector: _____ Phone: _____</p> <p>Owner's Name: _____</p> <p>Address: _____ Phone Number: _____</p> <p>City: _____ State: _____ Zip Code: _____</p> <p>Air Brake Type: _____ Relay Valve Type: _____</p> <p>COT&amp;S Date: _____ COT&amp;S Location: _____</p> <p>Lube Date: _____ Type Coupler: A: _____ B: _____</p> <p>Amtrak Authorized Inspector shall Initial each line when that item is in compliance, any item not applicable should be marked N/A. Car must have all defects repaired before Inspector signs the completed form.</p> <p>*Note - star items in list are only a suggested defect list, and may not be complete.</p>	<p>PC-1 Page 1 of 3 Requires PC-1A, PC-3, PC-4, PC-5 if clearances were modified</p>																								
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">INSPECTION ITEMS</th> <th style="text-align: center;">INITIAL</th> </tr> </thead> <tbody> <tr> <td>1. Check that Amtrak 800000 ID number is on both left and right sides of car at B or blind end. Verify that both sides of car are equipped with AEI transponder tags.</td> <td></td> </tr> <tr> <td>2. Verify that car is fully equipped with Amtrak HEP electrical trainlines, 27 point Door Control/Communication pass-through trainline (must have by January 1, 2014), and a main air reservoir trainline. HEP trainlines are on both A and B ends, and right and left sides. HEP trainline connections conform to Amtrak pigtail and receptacle arrangement.</td> <td></td> </tr> <tr> <td>3. Verify that carbody is in sound condition* without excessive corrosion, and all car sheathing, roof sheets, skirting and other components are securely attached. 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<p>NRPC 3307</p>																									

Amtrak Equipment Maintenance Department  
Standard Maintenance Procedure

Amtrak Car Number:	Inspection Date:	PC-1 Page 2 of 3
INSPECTION ITEMS	INITIAL	
12. Visual inspect all axles, wheels and brake discs for defects*. Verify no loose brake disc, disc surface wear exceeding 1/4", loose bolts, missing lock plates or safety wires. Disc surface scratches are permissible. Nicks on outside edges of brake discs shall not exceed 3/4" wide radially or more than 1/4" deep into braking surface. Disc thermal cracks shall not exceed 3", be located within 1/2" of the outer or inner edge of the ring, or reach the edge of the ring.		
13. Check brake shoes and brake pads for adequate service, alignment and proper application. Minimum thickness: 1/4" for disc brake pads, 3/4" for tread brake shoes.		
14. Check brake system* slack adjuster, brake rigging, bushings, brake cylinders and brake heads. Verify no loose bolts, pins or worn bushings, misadjusted/inoperative slack adjusters, binding. Verify that levers, rods, brake beams and hangers are properly secured, and not worn more than 30%. Inspect safety chains or safety lug on brake frame side bearing arms of "C" Frame (CFM) disc brakes.		
15. Check any Spicer drive unit* (prohibited after January 1, 2015) for proper amount of lubrication (dip stick level). Inspect drive shaft clutch and Spicer drive. Check play in universal joints and grease.		
16. Inspect all wheels for defects. Gauge all wheels to or applicable AAR Manual of Standards and Recommended Practices (Section G, Part II). Record rim thickness, flange height and flange thickness.		
17. Verify all underfloor equipment is securely mounted to carbody*, no loose or broken bolts or rivets, no loose pipes, frayed wires, all trainline piping is properly secured, safety guards or shields in place, no uncovered holes through floor from removed equipment, elastic lock nuts have 2-5 threads showing, etc.		
18. Verify that any engine system* has no fuel, oil or coolant leaks, and no fluid accumulation in engine compartment. Check that all fuel, oil, coolant, or other fluid system piping is shielded from debris damage. Verify that engine set has shielded exhaust system directed away from air intakes, fuel lines or wayside detectors. Verify that any on-board generator uses a load transfer switch.		
19. Verify that any undercar fuel tank and fuel lines are not damaged, protected against foreign object damage, electrically grounded to carbody, and line connection to tank has a valve.		
20. Verify that all toilet systems are equipped with retention (holding) tank or biological treatment system. Retention tank drain piping is equipped with a valve and an Andrews 4" male cam lock fitting with cap, with no provision for remote drain valve operation from inside the car.		
21. Verify that any propane compressed gas system* is maintained in accordance with AAR Recommended Practice RP-037, 1955 revision, metallic piping is used, and gas cylinders are not stored in the car interior or vestibule.		
22. Visual inspection of all couplers, draft gear and components*. Verify coupler at both ends is Tightlock type CS, F, or H, with draft gear free slack not to exceed 1/2". Gauge test both couplers. Verify no worn knuckles, worn knuckle pin, loose carrier iron bolts, broken springs, etc. Check operating rod clearance. Measure coupler height (maximum 35", preferred 34-1/2", minimum 34").		
23. Inspect and check operation of diaphragm, buffer, suspension rods, and springs at A and B ends*. Buffer height or adapter is 52"-54" from top of rail for single level cars, and 104"-105" for bi-level Superliner type cars.		
24. Check sill steps, hand holds and other safety appliances* for compliance with FRA safety appliance standards. Verify that all hand holds have a minimum clearance of 2", sill steps have required lateral braces for two or more steps, etc.		
25. Verify operation of FRA approved marker light at both the A and B ends, and that it has a self-contained battery backup source.		
26. Verify that no tools, parts or materials are stored in the car electrical locker, and that flammable liquids are not stored in the interior of a car occupied by passengers.		
27. Inspect* all 480 volt HEP trainlines, Door Control/Communications trainline and any Locomotive MU Control trainline, cables and jumpers for any defects, deterioration in the insulation, debris damage, cracking or fraying of insulation. Inspect conduit over trucks for securement. Inspect for missing High Voltage warning signs.		



Amtrak Equipment Maintenance Department  
Standard Maintenance Procedure

**Amtrak**

PC-1A  
Page 1 of 1  
Includes PC-1

**PRIVATE CAR DATA**

Amtrak Car Number: \_\_\_\_\_ Car Name/Number: \_\_\_\_\_

Inspection Date: \_\_\_\_\_ Location: \_\_\_\_\_

Car Type: \_\_\_\_\_ Year Built: \_\_\_\_\_

Amtrak Authorized Inspector: \_\_\_\_\_ Phone: \_\_\_\_\_

Owner's Name: \_\_\_\_\_

Address: \_\_\_\_\_ Phone Number: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Last PC-1 Date: \_\_\_\_\_ PC-1 Location: \_\_\_\_\_

PC-2 Date: \_\_\_\_\_ PC-2 Location: \_\_\_\_\_

Last PC-2A Date: \_\_\_\_\_ PC-2A Location: \_\_\_\_\_

Maximum Speed: \_\_\_\_\_

Amtrak Clearance Restriction (*Circle One*): A B C D PB (Prohibited) ND (No Data)

Air Brake Type: \_\_\_\_\_ Relay Valve Type: \_\_\_\_\_

COT&S Date: \_\_\_\_\_ COT&S Location: \_\_\_\_\_

COT&S Performed By: \_\_\_\_\_

Circle or Answer Every Item:			
480 Equipped – A-End – Left Side	Yes - No	480 Equipped – B-End – Left Side	Yes - No
480 Equipped – A-End – Right Side	Yes - No	480 Equipped – B-End – Right Side	Yes - No
Communications Jumper – A-End	Yes - No	Communications Jumper – B-End	Yes - No
Diaphragm – A-End – Amfleet	Yes - No	Diaphragm – B-End – Amfleet	Yes - No
Diaphragm – A-End – Superliner	Yes - No	Diaphragm – B-End – Superliner	Yes - No
Diaphragm – A-End – Tube Style	Yes - No	Diaphragm – B-End – Tube Style	Yes - No
Vestibule – A-End	Yes - No	Vestibule – B-End	Yes - No
Blind End – A-End	Yes - No	Blind End – B-End	Yes - No
Open Platform – A-End	Yes - No	Open Platform – B-End	Yes - No
Round Observation – A-End	Yes - No	Round Observation – B-End	Yes - No
FRA Markers – A-End	Yes - No	FRA Markers – B-End	Yes - No
Self Contained Electrical Supply	Yes - No	Propane	Yes - No
Main Reservoir Trainline Pipe	Yes - No	NFL Bearings	Yes - No
Disc Brakes	Yes - No	Grease Lube Bearings	Yes - No
Tread Brakes	Yes - No	Oil Lube Bearings	Yes - No
MU Loco Control Trainline	Yes - No		

Complete this form at each annual inspection and send with the PC-1 form. All items must be answered.  
NRPC 3310

Amtrak Equipment Maintenance Department  
Standard Maintenance Procedure

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**Amtrak**

PC-2  
Page 1 of 2  
Requires PC-1, PC-1A, PC-3, PC-4

**PRIVATE CAR 40 YEAR OR OLDER INSPECTION**

Amtrak Car Number: \_\_\_\_\_ Car Name/Number: \_\_\_\_\_  
 Inspection Date: \_\_\_\_\_ Location: \_\_\_\_\_  
 Car Type: \_\_\_\_\_ Year Built: \_\_\_\_\_  
 Amtrak Authorized Inspector: \_\_\_\_\_ Phone: \_\_\_\_\_  
 Owner's Name: \_\_\_\_\_  
 Address: \_\_\_\_\_ Phone Number: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_  
 Air Brake Type: \_\_\_\_\_ Relay Valve Type: \_\_\_\_\_  
 COT&S Date: \_\_\_\_\_ COT&S Location: \_\_\_\_\_  
 Maximum Speed: \_\_\_\_\_ Type Coupler: A \_\_\_\_\_ B \_\_\_\_\_

Amtrak Authorized Inspector shall Initial each line when that item is in compliance, any item not applicable should be marked N/A. Car must have all defects repaired before Inspector signs the completed form.

Inspection Steps	Initial Inspection Signature, when trucks are disassembled	Final Inspection Signature, with trucks installed and all car work complete
1. Jack car and remove trucks.		
2. Clean and inspect truck bolsters, body bolsters, bolster center plates, and top center plates.		
3. Remove swing hangers and pins (6 wheel truck). Remove swing hangers, crossbars and pins (4 wheel truck).		
4. Clean and inspect swing hangers and crossbars.		
5. Remove equalizer bars, springs and spring seats.		
6. Clean and inspect equalizer bars.		
7. Clean and inspect equalizer springs.		
8. Test springs for resiliency, cracks or broken.		
9. Remove, clean and inspect spring seats.		
10. Clean and inspect truck frame and spring planks.		
11. Clean and inspect pedestal liners.		
12. Clean and inspect anchor bars, anchor bar bolts and rubber bushings.		

NRPC 3308

Amtrak Equipment Maintenance Department  
Standard Maintenance Procedure

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Amtrak Car Number: \_\_\_\_\_ Inspection Date: \_\_\_\_\_

PC 2  
Page 2 of 2

Inspection Steps	Initial Inspection Signature, when trucks are disassembled	Final Inspection Signature, with trucks installed and all car work complete
13. Clean and inspect anchor bars, anchor bar bolts and rubber bushings.		
14. Inspect wheels, axles, discs and roller bearing boxes.		
15. Clean and inspect brake rigging, pins, levers, bushings and component parts.		
16. Clean and inspect and gauge coupler and coupler operation rods.		
17. Verify that truck is properly assembled, all parts properly placed, coil springs properly nested, proper clearances and dimensions, brake rigging properly aligned, etc.		
18. Inspect draft gear for excessive slack.		
19. Remove draft gear pan. *Clean and inspect area around draft gear.		
20. Inspect battery boxes, air conditioning units, electrical breaker boxes, equipment boxes and all other boxes attached to car.		
21. Inspect all areas where boxes are attached.		
22. Inspect generators, generator supports and securing devices.		
23. Inspect cables, wiring and conduit on cars with 480 power and 27-point train line systems.		
24. Inspect marker lights for proper operation.		
25. Test and inspect all air lines and main reservoir lines for leaks.		
26. Single car test car for proper brake operation.		
27. Inspect, test and stencil hand brake.		
28. Inspect all hand holds for proper clearance, application and worn conditions.		
29. Inspect all trap doors for proper securement.		
30. Inspect all entrance steps for proper securement and conditions of step treads and risers.		

Also perform the PC-1 Annual Inspection. Submit all inspection forms and associated testing reports to Amtrak.

I certify that each item on this form was inspected and found to be in compliance.

Inspector Signature: \_\_\_\_\_

Inspection Date: \_\_\_\_\_

NRPC 3308

Amtrak Equipment Maintenance Department  
Standard Maintenance Procedure

**Amtrak**

PC-2A  
Page 1 of 2  
Requires PC-1, PC-1A, PC-3, PC-4

**PRIVATE CAR FOLLOW-UP INSPECTION AFTER AMTRAK 40 YEAR INSPECTION**

Check the inspection being performed:  
 \_\_\_ 200,000 miles    \_\_\_ 350,000 miles    \_\_\_ 500,000 miles    \_\_\_ Other Mileage \_\_\_\_\_

PC-2 Date: \_\_\_\_\_ PC-2 Location: \_\_\_\_\_

Last PC-2A Date: \_\_\_\_\_ PC-2A Location: \_\_\_\_\_

Amtrak Car Number: \_\_\_\_\_ Car Name/Number: \_\_\_\_\_

Inspection Date: \_\_\_\_\_ Location: \_\_\_\_\_

Car Type: \_\_\_\_\_ Year Built: \_\_\_\_\_

Amtrak Authorized Inspector: \_\_\_\_\_ Phone: \_\_\_\_\_

Owner's Name: \_\_\_\_\_

Address: \_\_\_\_\_ Phone Number: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Air Brake Type: \_\_\_\_\_ Relay Valve Type: \_\_\_\_\_

COT&S Date: \_\_\_\_\_ COT&S Location: \_\_\_\_\_

Maximum Speed: \_\_\_\_\_ Type Coupler: A \_\_\_\_\_ B \_\_\_\_\_

Amtrak Authorized Inspector shall Initial each line when that item is in compliance, any item not applicable should be marked N/A. Car must have all defects repaired before Inspector signs the completed form.

Inspection Steps	Initial Inspection Signature, with trucks rolled out from car	Final Inspection Signature, with trucks installed and all car work complete
1. Jack car and remove trucks.		
2. Inspect truck bolsters, body bolsters, bolster center plates, and top center plates.		
3. Inspect swing hangers, crossbars and pins.		
4. Inspect equalizer bars.		
5. Inspect equalizer springs and equalizer spring seats.		
6. Inspect truck frame.		
7. Inspect pedestal liners.		
8. Inspect anchor bars, anchor bar bolts and rubber bushings.		

NRPC 3309

Amtrak Equipment Maintenance Department  
Standard Maintenance Procedure

Amtrak Car Number: \_\_\_\_\_ Inspection Date: \_\_\_\_\_

PC-2A  
Page 2 of 2

Inspection Steps	Initial Inspection Signature, with trucks rolled out from car	Final Inspection Signature, with trucks installed and all car work complete
9. Inspect wheels, axles, discs and roller bearing boxes.		
10. Inspect brake rigging, pins, levers, bushings and component parts.		
11. Verify that truck is properly assembled, all parts properly placed, coil springs properly nested, proper clearances and dimensions, brake rigging properly aligned, etc.		
12. Inspect and gauge coupler and coupler operating rods.		
13. Inspect draft gear for excessive slack.		
14. Inspect area around draft gear.		
15. Inspect battery boxes, air conditioning units, electrical breaker boxes, equipment boxes and all other boxes attached to car.		
16. Inspect all areas where boxes are attached for cracks, worn holes, and fatigued metal.		
17. Inspect generators, generator supports and securing devices.		
18. Inspect cables, wiring and conduit on cars with 480 power and 27-point train line systems.		
19. Inspect marker lights for proper operation.		
20. Test and inspect all air lines and main reservoir lines for leaks.		
21. Single car test car for proper brake operation.		
22. Inspect, test and stencil hand brake.		
23. Inspect all hand holds for proper clearance, application and worn conditions.		
24. Inspect all trap doors for proper securement.		
25. Inspect all entrance steps for proper securement and conditions of step treads and risers.		

Also perform the PC-1 Annual Inspection. Submit all inspection forms and associated testing reports to Amtrak.

I certify that each item on this form was inspected and found to be in compliance.

Inspector Signature: \_\_\_\_\_

Inspection Date: \_\_\_\_\_

NRPC 3309





Amtrak Equipment Maintenance Department  
Standard Maintenance Procedure

**Amtrak**

MAP PC-5  
Page 1 of 2

**PRIVATE CAR CLEARANCE FORM**

Amtrak Car Number: \_\_\_\_\_ Car Name/Number: \_\_\_\_\_  
 Measured Date: \_\_\_\_\_ Location: \_\_\_\_\_  
 Measured by: \_\_\_\_\_ Phone Number: \_\_\_\_\_  
 Car Type: \_\_\_\_\_ Year Built: \_\_\_\_\_  
 Owner's Name: \_\_\_\_\_  
 Address: \_\_\_\_\_ Phone Number: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

**Instructions:**

1. A separate form is to be completed for each private car. A revised form must be submitted following exterior modification of the car. It is the responsibility of the car owner to ensure that measurements are accurate and complete. Failure to provide accurate and complete measurements will result in withdrawal of authorization for movement on Amtrak trains.
2. Car must be located on level, straight track for measurement.
3. Provide measurements for the following critical appliances:

Appliance Name	Applicable (Circle selection)	Height Above Top of Rail	Width From Centerline
Antenna	YES or NO	___ ft ___ in (max)	___ ft ___ in
Exhaust Stack	YES or NO	___ ft ___ in (max)	___ ft ___ in
Marker Lights	YES or NO	___ ft ___ in (max)	___ ft ___ in
Grab Irons	YES or NO	___ ft ___ in (min)	___ ft ___ in
Steps (Stirrup)	YES or NO	___ ft ___ in (min)	___ ft ___ in
Steps (Vestibule Fixed)	YES or NO	___ ft ___ in (min)	___ ft ___ in
Steps (Vestibule Folding)	YES or NO	___ ft ___ in (min)	___ ft ___ in
Battery Box	YES or NO	___ ft ___ in (min)	___ ft ___ in
Generator Box	YES or NO	___ ft ___ in (min)	___ ft ___ in
Water Tank	YES or NO	___ ft ___ in (min)	___ ft ___ in
Miscellaneous Box/Tank	YES or NO	___ ft ___ in (min)	___ ft ___ in

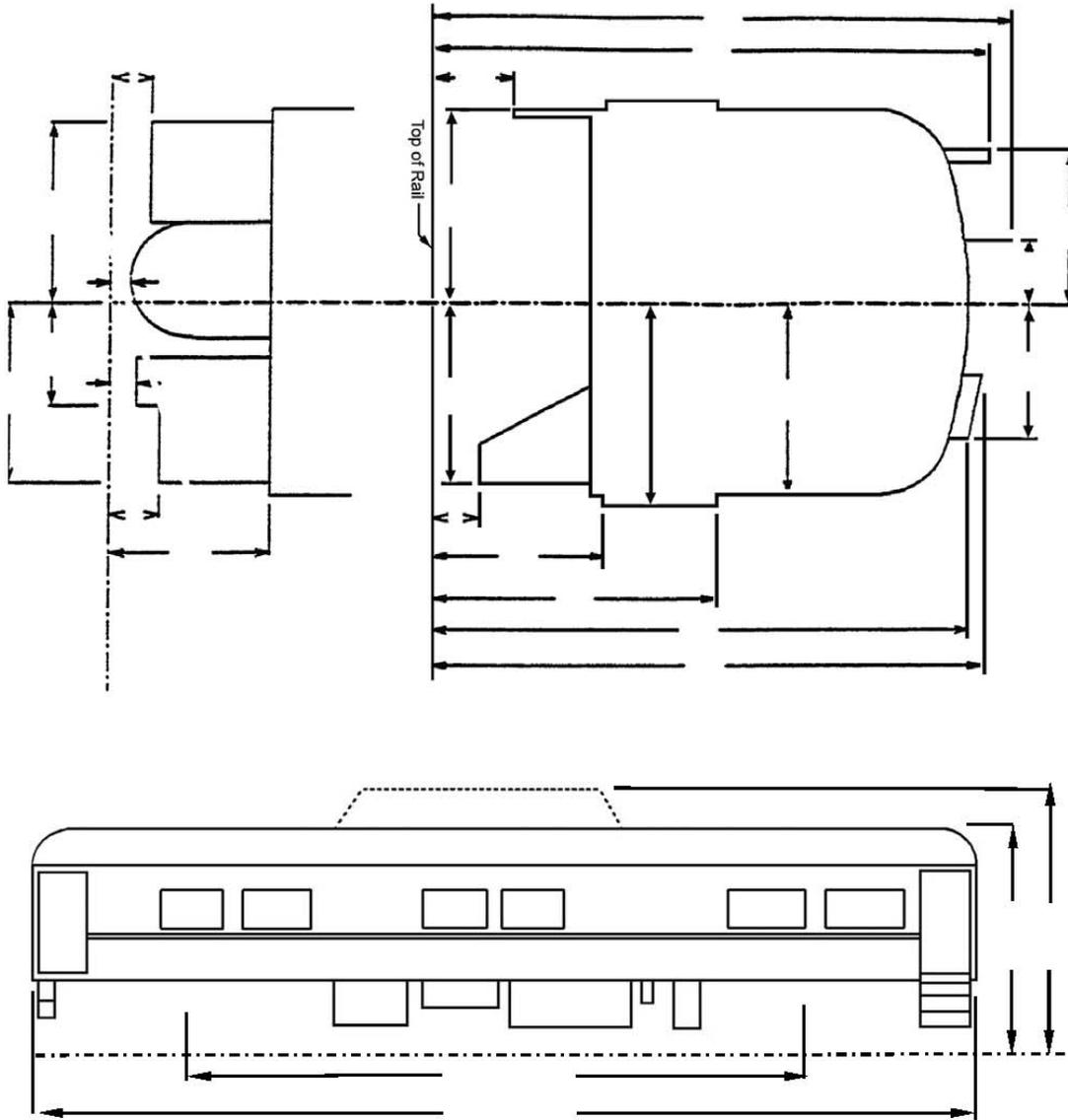
Note: max – show maximum height of appliance. min - show minimum height of appliance.

4. Complete the general car diagrams on the Page 2 of this form to clarify measurements of critical appliances, and to provide overall car dimensions (height, width, and length).

NRPC 3313

Owned Cars in Amtrak Trains

**PRIVATE CAR CLEARANCE FORM**



5. Return completed form to: Amtrak, Office of the Clearance Engineer, 2955 Market Street, Box 16, Philadelphia, PA 19104, fax 215-349-1710.

NRPC 3313