

**AMTRAK EQUIPMENT MAINTENANCE DEPARTMENT**

**STANDARD MAINTENANCE PROCEDURE**

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SMP NO. : 46617  
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TITLE : Heavy Truck Overhaul Procedure  
EQUIPMENT TYPE: Private Car Non-Amtrak Owned

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**A. General**

1. Trucks are completely dismantled and parts tagged except brake beams. This is done to ensure that all parts go back into the same truck assembly after overhaul. Completed trucks are returned to the same cars they came off of.

**B. Procedures**

In addition to the following, components must be reworked to the appropriate SMP (Standard Maintenance Procedure) as noted.

**1. Truck Frames**

- a. Remove pedestal liners.
- b. Clean and grit blast.
- c. Visually inspect for defects.
- d. Areas subject to high stress (e.g., where the pedestal intersects with bottom of truck frame, all holes, fillets, and sudden changes in cross-sectional areas) are to be dye checked and inspected for fractures or worn areas.
- e. Cracks are to be ground smooth or scarfed out and repair welded. Repair welds are to be ground smooth.
- f. Weld repairs are to be dye checked and inspected for fractures.
- g. Pedestals must be gauged and inspected. Worn areas must be built up with weld. Repair welds that are visible after truck assembly are to be ground smooth.

h. After repairs are completed, check the tram by the following procedure:

- (1) Positioning Truck Frame: On a faceplate or other level surface, invert the truck frame and level with jacks at spring seat locations.
- (2) Horizontal Pedestal Alignment: The bottom of the pedestals were machined to a common plane or base line. Check the horizontal alignment of all pedestals with a straight edge.

The normal out of plane service limit is  $1/8"$ , that is, the vertical distance from the bottom of one pedestal to the bottom of any other pedestal should not be greater than  $1/8"$ .

- (3) Pedestal Lean: Each pedestal should be checked for leaning condition to determine out of square position. The pedestals are checked using a straight edge or square. Refer to the following paragraphs for alignment criteria.
- (4) Transverse Pedestal Spacing: The transverse pedestal spacing refers to dimension between the inside machined surfaces of pedestal legs on opposite sides of the truck. The nominal tolerance is + or -  $1/16"$ .
- (5) Longitudinal Alignment: The longitudinal alignment of the pedestal liners on the inside of the pedestal legs, can be checked with a straight edge. Liners are to be in longitudinal alignment within  $1/16"$ .
- (6) Wheel Base Spacing: Wheel base spacing is the measured longitudinal distance between pedestal legs. For a service limit, the machined faces of pedestals on one side of truck frame are not to exceed  $1/8"$  from opposite side of frame. The wheel base on one side of truck frame to be within  $1/8"$  of wheel base on other side of truck frame.

- (7) Tramming Truck Frame: The truck pedestals are trammed to determine if they are in correct alignment with each other, that is to determine if the distance between pedestals are within the allowable dimensions service limit.

Tram marks (small punch indications located on the bottom of each pedestal at time of original inspection). These marks are generally located approximately 1/2" in from the face of pedestal and the inner side of pedestal. Tramming is accomplished by using a trammel beam to measure between diagonal tram marks. The service limiting dimension or difference in length of diagonal is 1/8".

- (8) Correct tram as necessary, stress-relieve on corrected areas.

2. Bolsters and Spring Planks

- a. Clean and gritblast.
- b. Inspect visually and magna-flux or dye check. Defects found must be thoroughly examined by dye check.
- c. Cracks must be ground smooth or scarfed out and welded up per SMP: 48001, "Repair of Grade 'A' Truck Frames and Bolsters by Welding" or "Repairing Low Carbon Nickel Steel Truck Frames and Bolsters by Welding".
- d. Weld repairs must be dye checked.
- e. Spring planks and bolsters must be stress-relieved after welding.

3. Spring Seats

- a. Clean and gritblast.
- b. Inspect visually and magna-flux or dye check. Defects found must be thoroughly examined by dye check.
- c. Cracks must be ground smooth or scarfed out, repair welded and ground smooth per SMP: 49602, "Repair and Reinforcement of Equalizer Spring Seats".
- d. Weld repairs must be dye checked.
- e. Spring seats must be stress relieved after welding.

4. Equalizers

For a more detailed procedure, refer to SMP: 46603, "Procedure For Reclaiming Passenger Car Truck Equalizers":

- a. Clean and gritblast.
- b. Inspect visually and magna-flux or dye check. Defects must be thoroughly examined by dye check.
- c. Equalizers with defects and worn areas exceeding the allowable limits are to be scrapped.
- d. Minor surface defects, if possible, will be blended in by grinding.
- e. Spring seat area and equalizer feet are to be built up by welding and then ground to original drawing dimensions.
- f. If after welding, the hardness readings are below the minimum allowable, the equalizer may be renormalized and tempered, after which it must be retested for hardness.

5. Brake Beams

- a. Clean.
- b. Inspect visually, if defects are found magna-flux or dye check. Defects must be thoroughly examined by dye check.
- c. Ends must be gauged and if worn/undersized, repair by welding, and then machine to the proper diameter.
- d. Loose or worn bushings must be renewed. Worn holes must be welded and redrilled.

6. Brake Beam Heads, Brake Levers and Rods

- a. Clean.
- b. Inspect visually, if defects are found magna-flux or dye check. Defects must be thoroughly examined by dye check.
- c. Defects and worn areas are to be built up by welding.
- d. Apply new bushings if out of tolerance.

7. Truck Springs

The following procedures must be used to qualify springs for reuse:

- a. Inspect visually. Any spring with broken, missing, or cracked coils must be scrapped.
- b. Remaining springs must be cleaned.
- c. Any springs found with defects must be scrapped.
- d. Prime or finish paint springs.

8. TFM Brake

Reference: WABCO TFM Disc Brakes, Service Manual and Parts Catalog

- a. Remove and repair old brake equipment.
- b. Reassemble fulcrum pivot assembly.

9. 3-AP Decelostat Equipment

- a. Overhaul per manufacturer's instructions.

10. Swing Hangers and Cross Bars

Inspect and repair per SMP No. 46605, Reclamation of Truck Crossbars and Swing Hangers.

11. Shock Absorbers

Refer to SMP 46604, "Application of Shock Absorbers".

12. Bolster Anchor Rods

Inspect and repair as required. Renew worn, cracked or hardened rubber pads.

13. Center Plates

Remove, inspect and repair. Renew bolts with Grade 5 or better and elastic stop nuts. Renew worn liners and/or pads.

14. CFM Discs Brake Equipment

- a. Remove disc brake assembly.
- b. Inspect and repair C frame. Renew worn liners, rubber-backed bearings. Proper C Frame must be used.
- c. Renew worn wear plates, pins, bolts, nuts, bushings and liners.
- d. Inspect tong assemblies, repair as necessary.
- e. Brake heads, inspect and repair as necessary.
- f. Renew worn brake shoes, brake shoe keys, springs and retainers.