ELECTRO-MOTIVE

M.I. 9675

MAINTENANCE INSTRUCTION

MODERNIZATION RECOMMENDATION

HT-C TRUCK - CONVERSION FROM CLASP TO SINGLE SHOE BRAKE ARRANGEMENT

PURPOSE: To provide instructions to convert from the original clasp brake to a single shoe brake arrangement.

APPLICATION: All HT-C Clasp Brake trucks.

REFERENCE:

8465096 Truck Sub Asm – Clasp Brake
8481629 Brake Rigging Application – Clasp Brake
8464905 Truck Sub Asm – Single Shoe Brake
8479531 Brake Rigging Application – Single Shoe Brake
9576297 Truck Frame Modification
9576309 Brake Rigging Set
8438194 Brake Cylinder Piping
9533888 Air Piping Diagram – Clasp Brake
9573597 Air Piping Diagram – Single Shoe Brake
9561251 Relayair Valve Application
8441050 Relay Valve Application
9576650 Brake Rigging Parts Set
9577370 Brake Rigging Set

DISCUSSION: If a railroad finds it necessary to convert the brake rigging arrangement of HT-C trucks on SD locomotives from clasp brake to single shoe brake arrangement, the option is herewith provided with detailed instructions.

MATERIAL: Two Options of brake heads are available when ordering brake rigging sets.

A. Brake Rigging With EMD Basic Foolproof Brake Heads

The following material is required for the proposed clasp brake to single shoe brake conversion on SD locomotives equipped with HTC trucks wherein single shoe brake rigging with EMD basic foolproof brake heads is provided. These brake heads are used with conventional locomotive type 14″ or 16″ composition brake shoes:

Parts List A

ITEM	PART NO.	PART NAME	QUANTITY/ LOCOMOTIVE
1.	9577370	Brake Rigging Set	2
2.	9576650	Brake Rigging Parts Set	2
3.	6928776	J1.6-16 Relay Valve	1
4.	8372987	HB-5D Relayair Valve	1

B. Brake Rigging With Non-foolproof Brake Heads

In past years certain customers have specified brake rigging with non-foolproof brake heads for use with special COBRA V-103 16 composition brake shoes. Therefore the following material is required for the proposed clasp brake to single shoe brake conversion on SD locomotives equipped with HTC trucks where non-foolproof brake heads are specified by the customer:

Parts List B

ITEM	PART NO.	PART NUMBER	QUANTITY/ LOCOMOTIVE
1.	9576309	Brake Rigging Set	2
2.	9576650	Brake Rigging Parts Set	2
3.	6928776	J1.6-16 Relay Valve	1
4.	8372987	HB-5D Relayair Valve	1

COST OF MATERIAL: The approximate price of new material for one SD locomotive conversion is $7110 for a kit with foolproof brake heads or for a kit with non-foolproof brake heads.

PROCEDURE

TRUCK DISASSEMBLY

EMD recommends that the trucks be removed from the locomotive and disassembled for best possible access to the truck frame areas to be reworked. After untrucking, the bolster should be removed and the truck turned upside down so that the traction motor, axle, wheels, and journal box assemblies can be removed. All pedestal liners should then be removed so as to expose the original machined pedestal faces.

The existing clasp brake levers can now be removed. Referring to 8481629, all brake rigging should be removed with the exception of the four outboard brake cylinders, cross-over levers, and clevises at the No. 1 and No. 3 axle positions.

The brake cylinders, cross-over levers, and clevises at the center (No. 2) axle position should be removed. All remaining brake levers and brake stabilizers shown on 8481629 should also be removed.

Truck Frame Modification 9576297

The truck frame can now be modified as shown on drawing 9576297. The modification entails the finishing of eight stabilizer bar support lugs as shown in Section B-B of drawing 9576297. Eight 13/16" diameter holes should then be drilled in these lugs as shown in Section C-C. A simple template can be made to locate these holes in relation to the 15/16" diameter pedestal liner mounting holes. Stabilizer bars 8431472 and 8431473 may also be used as templates to check the proper hole spacing. It is important that the lug surfaces be finished flat and parallel to the pedestal side faces and the 13/16" diameter holes properly located as shown on the drawing.

In the event that machining or hand grinding of the stabilizer bar mounting lugs is not practical, an alternate method is shown as Option II on drawing 9576297. In this method a notch is carefully cut in each inside pedestal leg as shown in view "H". Again, a simple template can be made to locate the cut-out section relative to the pedestal liner mounting holes. Pre-drilled pad 9576298 should then be welded in place as shown in Sections B-B and C-C. Simple templates can be made to properly locate the pads in relation to the pedestal mounting holes. Again, stabilizer bars 8431472 and 8431473 can be used to check the hole spacing.

After completion of the stabilizer bar support lugs, the two brake anchor brackets 8429724 can be welded in place as shown in the top plan view and in Section A-A. The two anchor brackets should be carefully located in relation to the inside pedestal faces and must be parallel to the truck centerline. Use AWS class E-308-1C or #-310-16 welding electrode for all welding shown on drawing 9576297.

Single Shoe Brake Application - 8479531

The single shoe brake rigging provided in Brake Set 9576309 and Parts Set 9576650 can now be assembled into the modified truck frame as shown on drawing 8479531. All stabilizers should be assembled as shown so that the adjusting pins are properly oriented when the truck is turned to an upright position.

All parts provided are the same standard single shoe brake parts except Item 12, where a new longer pin assembly 9576296 has been provided to extend through the clasp brake hanger bracket to provide support for the dead lever (Items 2 and 3 of 8479531), which should be pinned in the center slot of the support bracket at each center wheel position.

After the new single shoe brake rigging is applied, the truck can be turned over to an upright position where the cross-over levers can be connected to the vertical levers, air ducts reapplied, and bolster placed in position on the truck frame.

Brake Cylinder Piping 8438194

The brake cylinder piping is shown on drawing 8438194. Inasmuch as the center brake cylinders have been removed, the 1/2" pipes that were connected to each cylinder should be cut off approximately 2" away from the truck frame mounted pipe tees. 1/2" weld x 1/2" PT fitting 8265260 should then be welded onto each 1/2" pipe. 1/2" pipe plugs 103880 can then be applied to provide a seal at the former center cylinder positions.

The locomotive can now be re-trucked and all truck connections reconnected.

Brake Cylinder Relay Valve

The conversion from a clasp brake cast iron brake shoe system to a single shoe brake composition shoe system requires that the brake cylinder relay valve be changed from a J-1 valve, as shown on Air Piping Diagram 9533888 (clasp brake), to a J1.6-16 valve as shown on Air Piping Diagram 9573597 (single shoe brake). The J-1 relay valve should be removed and the J1.6-16 relay valve 6928776 applied as shown on drawing 8441050. The brake cylinder relay change is necessary so as to provide the increased independent brake cylinder pressure necessary for satisfactory static holding with composition brake shoes.

In addition to the brake cylinder relay valve change, installation of an HB-5D Relayair valve is also recommended to prevent a simultaneous independent and automatic brake application which could result in wheel slide. Installation of the HB-5D Relayair valve 8372987 is shown on drawing 9561251.

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