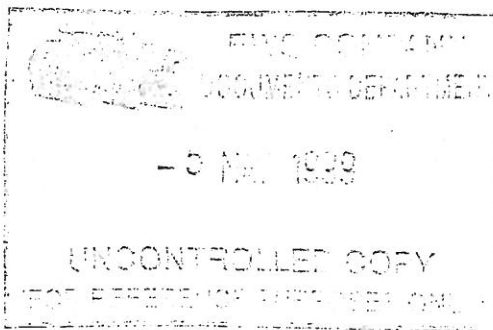


PROCESS SPECIFICATION C.E.P.S. 1087



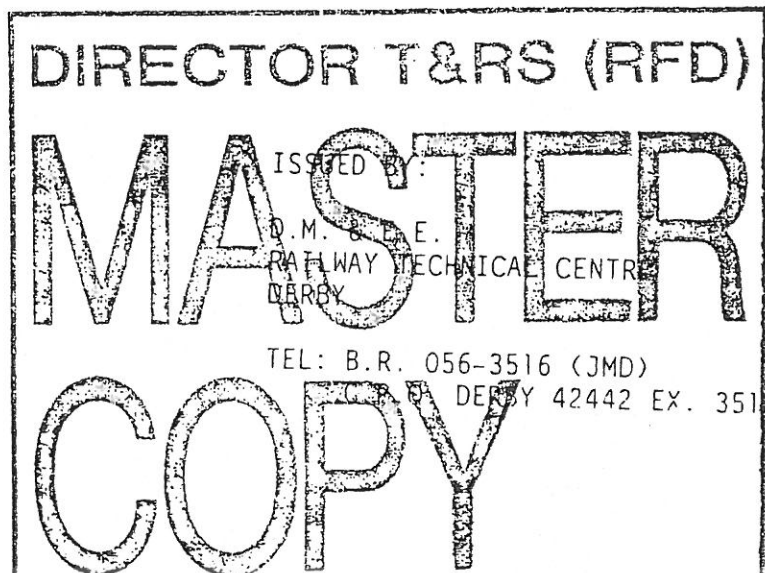
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OVERHAUL OF LOCO-HAULED MK I PASSENGER  
AND N.P.C.C. COACHING STOCK  
COMMONWEALTH BOGIES

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July 1985



## OVERHAUL OF COMMONWEALTH BOGIES

## CONTENTS

1. INTRODUCTION
2. GENERAL NOTES
3. GLOSSARY OF TERMS
4. LUBRICATION SCHEDULE
5. INDEX TO SUBSIDIARY DOCUMENT LIST
6. INDEX TO DRAWINGS
7. DISMANTLING
8. LIST OF COMPONENTS
9. OVERHAUL OF COMPONENTS
  - 9.1 Axlebox (Roller Bearing)
  - 9.2 Roller Bearing (Axlebox)
  - 9.3 Axlebox Insulation Pad
  - 9.4 Axlebox Slipper
  - 9.5 Pedestal Liners (Horn Guides)
  - 9.6 Pedestal Tie Bars
  - 9.7 Pedestal Tie Bar Bolts
  - 9.8 Equalising Springs (Primary Suspension)
  - 9.9 Spring Seat (Equalising Beam)
  - 9.10 Spring Seat Insulation Pad
  - 9.11 Spring Seat Bolt
  - 9.12 Equalising Beam
  - 9.13 Bolster Spring Plank
  - 9.14 Bolster Springs (Secondary Suspension)
  - 9.15 Bolster Spring Insulation Pads
  - 9.16 Primary and Secondary Spring Packing Shims
  - 9.17 Hydraulic Dampers
  - 9.18 Damper Mounting Rubbers
  - 9.19 Damper Mounting Lugs
  - 9.20 Bolster Spring Plank Safety Hangers and Bolts
  - 9.21 Bogie Bolster
  - 9.22 Bolster Centre Bearing Friction Disc
  - 9.23 Bolster Centre Bearing Sleeve
  - 9.24 Bolster Side Bearing Block
  - 9.25 Bolster Lateral Bump Stop
  - 9.26 Bolster Anchor Assembly (Rubbers)
  - 9.27 Bolster Anchor Assembly (Space Tube)
  - 9.28 Bolster Anchor Assembly (Anchor Bolt)
  - 9.29 Bolster Anchor Assembly (End and Adjustment Washers)
  - 9.30 Bolster Swing Hanger Links
  - 9.31 Bolster Swing Hanger Bracket Bushes
  - 9.32 Bolster Swing Hanger Pin Retaining Bolts
  - 9.33 Bolster Swing Hanger Pin
  - 9.34 Bolster Swing Hanger Cross Bar
  - 9.35 Bolster Swing Hanger Bearing
  - 9.36 Bolster Swing Hanger Bearing Liner

1. INTRODUCTION

- 1.1 Each job description is divided into two parts:-  
Schedule) Mandatory work specified.  
Arisings) Work arising from Schedule.
- 1.2 The information contained in this document relates to the workshop overhaul of Commonwealth bogies removed from vehicles undergoing main works repair and returned to main works from regional maintenance depots. These instructions, together with all instructions, specifications and other publications issued by the DIRECTOR OF MECHANICAL AND ELECTRICAL ENGINEERING must be compiled with.
- 1.3 This document does not refer to the overhaul of any electrical components attached to the bogie.
- 1.4 The sizes and tolerances of components manufactured to imperial dimensions are quoted in this document as originally specified and should be measured as such. Wear tolerances for these components are also in imperial sizes. Metric sizes are only quoted where they are called for on the relevant drawing(s).

## 3. GLOSSARY OF TERMS

<u>Term</u>	<u>Action required</u>
CHANGE	Remove the original and fit a new or overhauled part or assembly in its place.
CHECK	Determine a particular nominated condition before, during or after repair, e.g. completeness, security, position.
CLEAN	Take off all dirt and deposits.
DISMANTLE	Take to pieces.
EXAMINE	Determine general condition before repair, e.g. wear, cracks, splits, leaks, scoring, corrosion, breaks, distortion, looseness.
INSPECT	Determine general condition after repair and attention, i.e. conformity to required standards.
OVERHAUL	Do what is necessary to make assembly or sub-assembly re-usable, i.e. dismantle, strip, clean, examine, fit new parts, repair, re-assemble, test and inspect as required.
REASSEMBLE	Put together.
RECORD	Put down in writing a finding from examination, test, inspection or special checks.
RECTIFY	To set right.
REFIT	Put back and re-connect.
REMOVE	Disconnect and take off.
RENEW	Remove and scrap the original part and put new part in its place.
REPAIR	Restore an original part to the required condition by hand-tooling, machining, building-up, welding, patching, bending, setting, heat-treating, re-securing, etc.
STRIP	Take off covering, i.e. paint, polish, fabric, etc.
TEST	Prove correct operation by trial.

(Based on Engineering Instruction G/82)

5. INDEX TO SUBSIDIARY DOCUMENT LIST

- |      |        |  |
|------|--------|--|
| EI   | G 10   | Ultrasonic testing of axles  |
|      | G 11   | Wheelsets with balance plates  |
|      | G 56   | Protective coatings for stem ends of hydraulic dampers   |
|      | G 63   | Roller bearings axleboxes: Securing of front cover   |
|      | G 68   | Commonwealth bogie swing hanger pin  |
|      | G 81   | Tyre tread surface texture   |
|      | G 154  | Assembly and removal of wheels using oil injection   |
|      | G 188  | Hydraulic dampers - definition of leakage  |
|      | G 254  | Axlebox roller bearings - identification and reporting of defects and failures                   |
|      | G 269  | Improvement of axle geometry and reclamation of cracked trailing axles.                          |
|      | G 354  | Standardisation of tyre machining details  |
|      | G 360  | Reclamation of scored axles on trailing wheelsets  |
|      | G 396  | Rationalised brake blocks  |
|      | G 467  | Standardisation of axle centre machine details   |
|      | G 497  | Standardisation of wheel back to back dimension  |
|      | G 498  | Axle attention required to eliminate intrusive signals experienced during ultrasonic examination |
|      | G 577  | Care of steel suspension spring  |
|      | G 681  | Loose and moved tyres, loco-hauled and non-passenger carrying coaching stock.                    |
|      | HC 80  | Fitting of BR C2A brake blocks   |
|      | HC 258 | Axle journal corrosion: detection, treatment and examination for cracks                          |
|      | 8C 684 | Axle protective coating  |
|      | HC 455 | Attention required to wheel centres  |
| CEPS | 1002   | Maintenance of SKF spherical roller bearing axleboxes  |
|      | 1003   | Maintenance of Timken taper roller bearing axleboxes   |
|      | 1004   | Maintenance of Hoffman cylindrical roller bearing axleboxes                                      |

6. INDEX TO DRAWINGS

General Arrangements - Bogie and Brake

Bogie SC/DE 35774

Brake SC/DN 20945

Brake SC/DN 21390

Brake Support Frame SC/DN 21356

Bond Assy. SC/ES 492/1

CEPS 1087

APPENDIX 5

PROCEDURE FOR REMOVING AND REPLACING  
EQUALISER SPRINGS AND/OR PACKINGS FROM A  
FOUR WHEEL OUTSIDE SWING HANGER PASSENGER  
BOGIE WITH THE BOGIE UNDER THE COACH

1. Remove pedestal tie bars.
2. Remove equaliser spring snubbers (if used).
3. Raise the bogie frame by jacking under the coach body until the equaliser contacts the cut-out in the pedestal and the filler block. The locking centre pin will raise the bolster, engaging and raising the bogie frame. The bogie brakework must be released sufficiently to ensure that the brakeblocks do not prevent the wheels from remaining on the rails.
4. The equaliser springs and/or packings can be removed or replaced in the majority of cases by manoeuvring the springs from between the lips of the spring cups. In some cases it may be necessary to remove the equaliser spring seat bolt, and raise the equaliser spring and spring and spring seat.
5. Reverse the above procedures to reassemble the bogie.

CEPS 1087

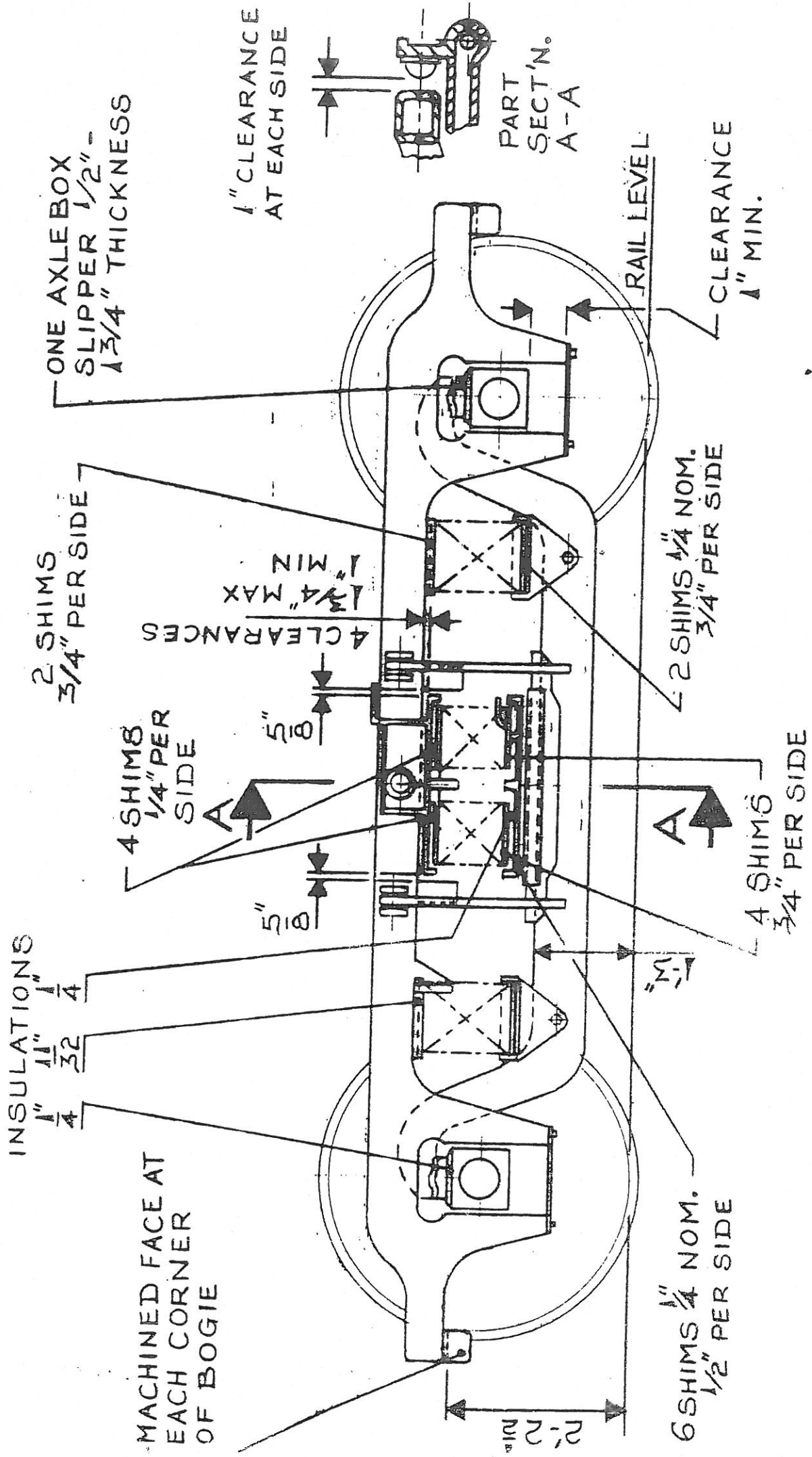
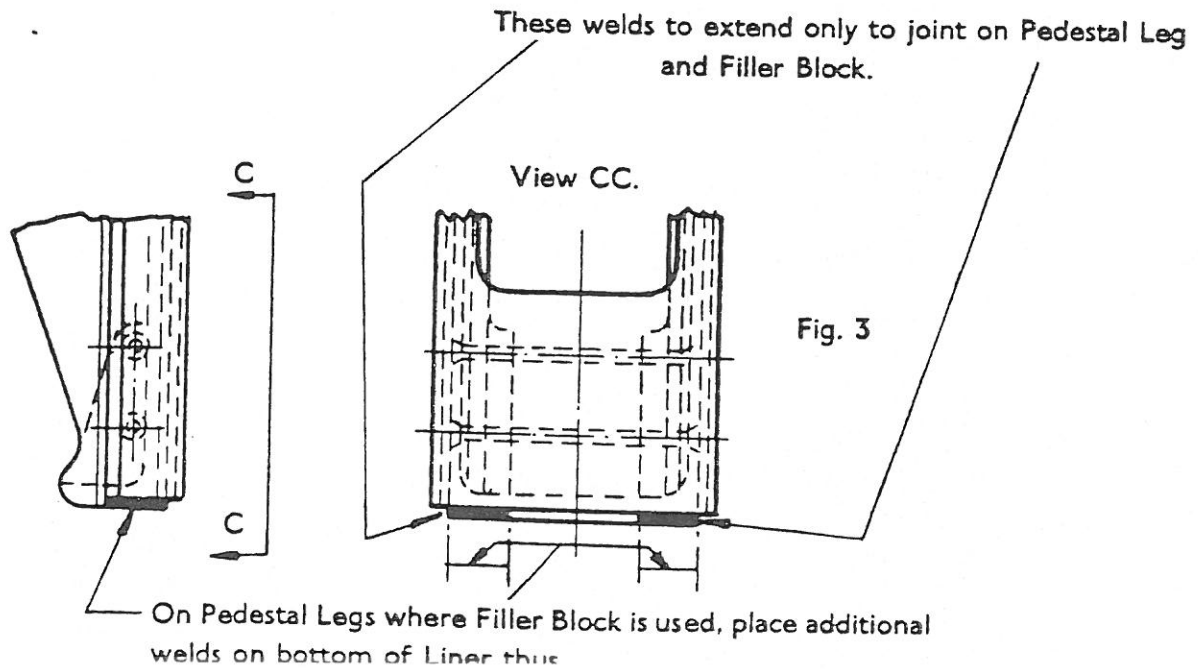
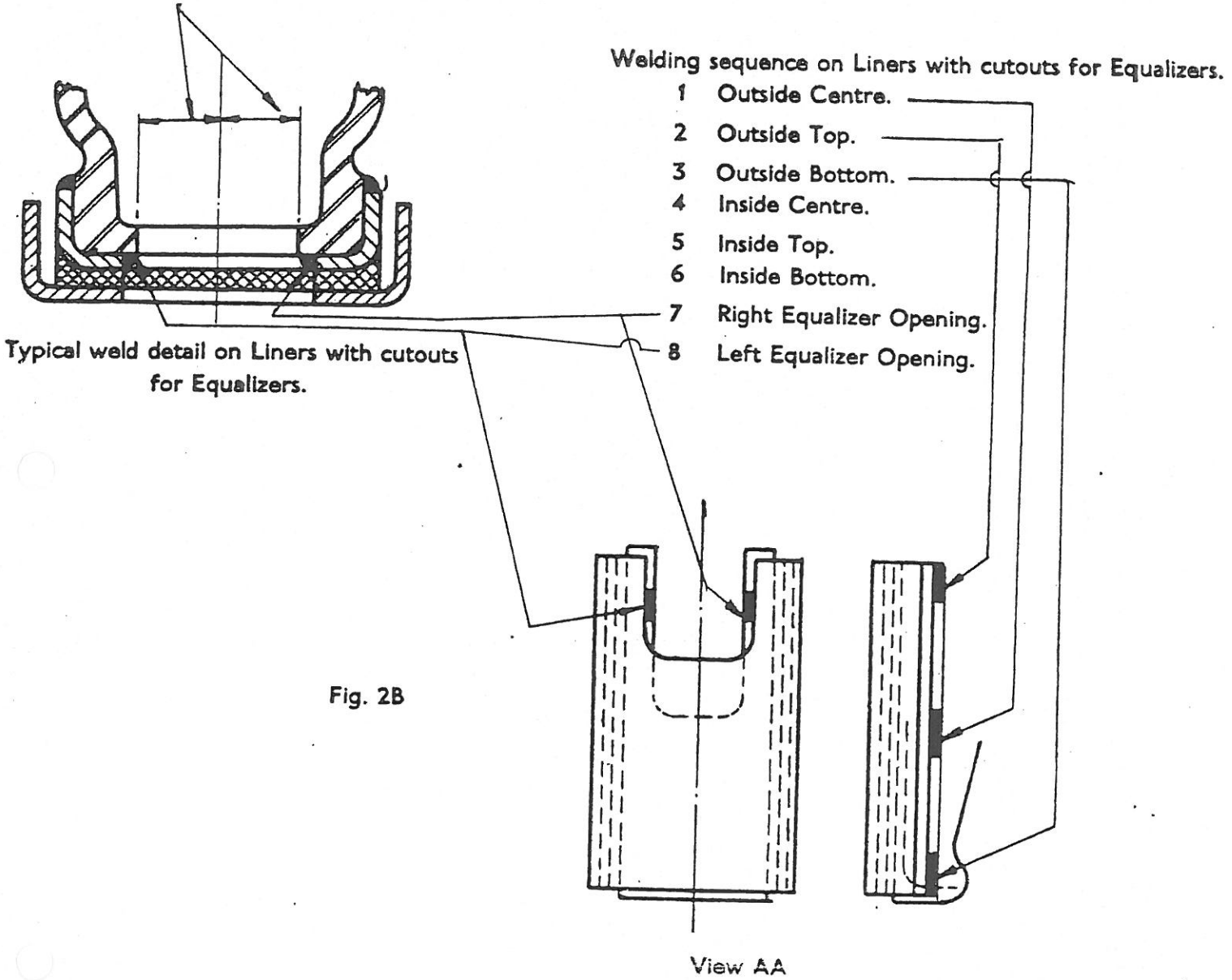
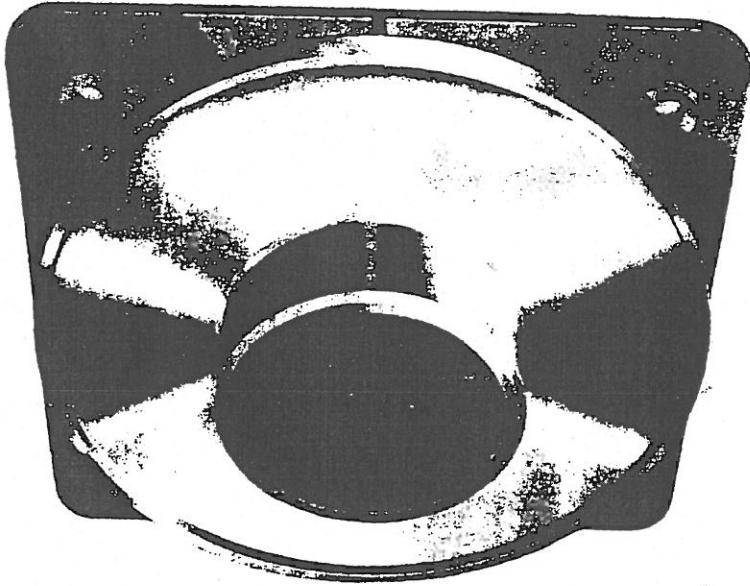


DIAGRAM OF COMMONWEALTH BOGIE



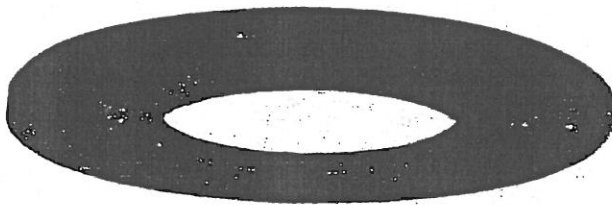
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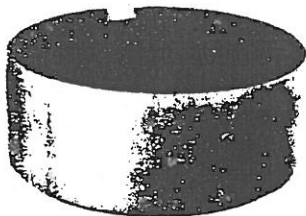
BODY CENTRAL BEARING

FIGURE 7



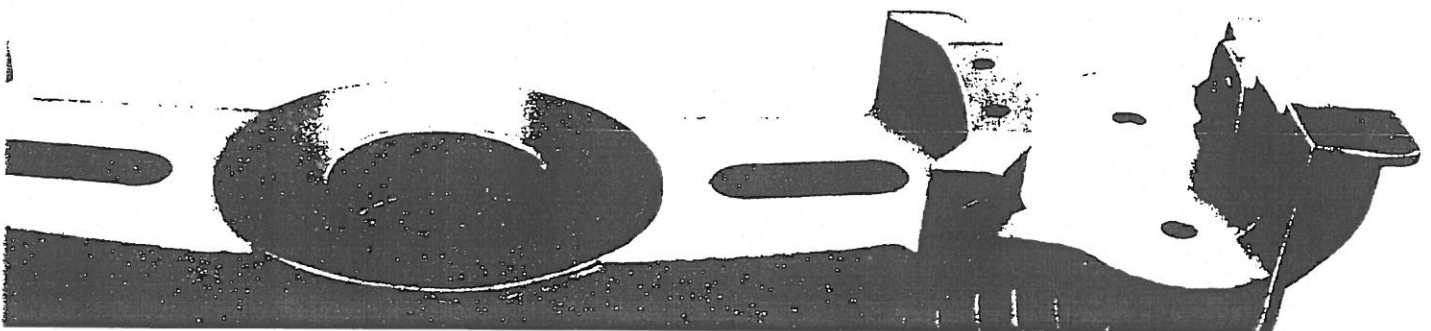
CENTRAL BEARING FRICTION DIS

FIGURE 8



CENTRAL BEARING WEAR SLEEVE

FIGURE 9



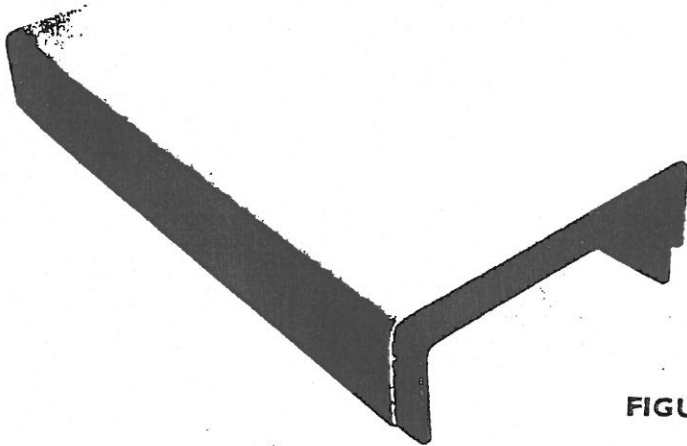


FIGURE 13

PLAIN PEDESTAL LINER

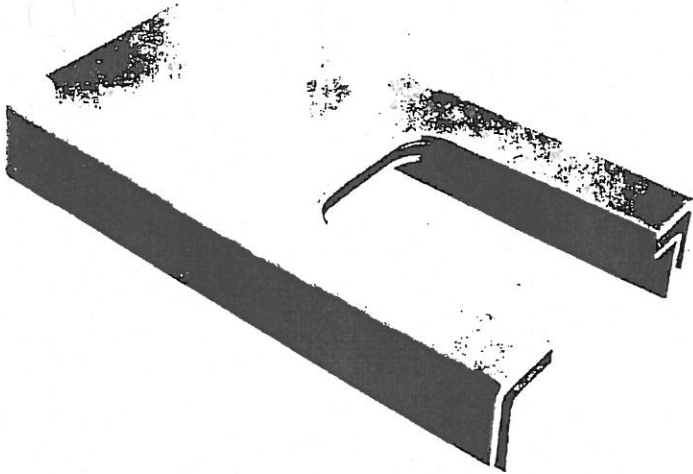


FIGURE 14

CUT-OUT PEDESTAL LINER

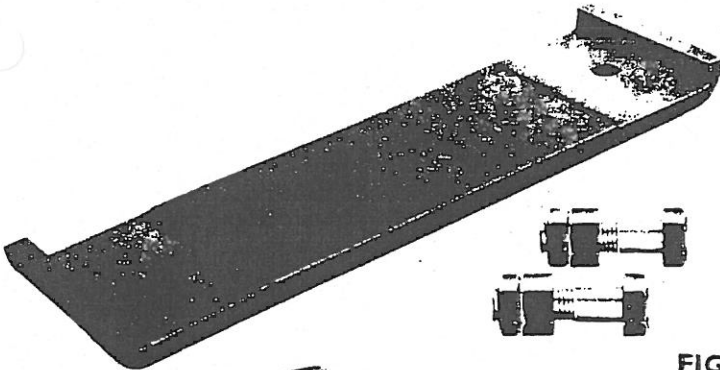


FIGURE 15

PEDESTAL TIE BAR  
AND  
TIE BAR BOLTS

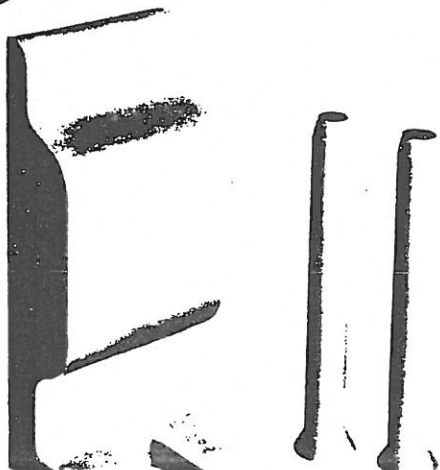


FIGURE 16

PEDESTAL FILLER BLOCK  
AND  
FILLER BLOCK RIVETS

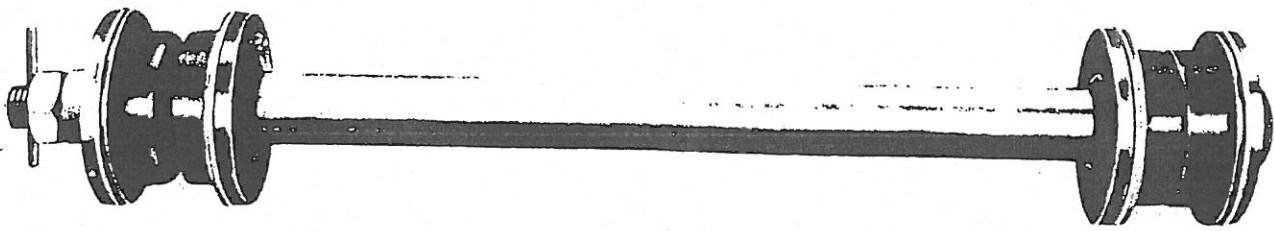


FIGURE 20

BOLSTER ANCHOR ASSEMBLY  
CONSISTING OF:

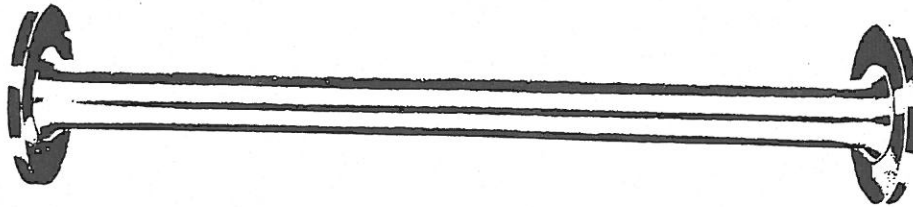


FIGURE 21

BOLSTER ANCHOR  
SPACER TUBE

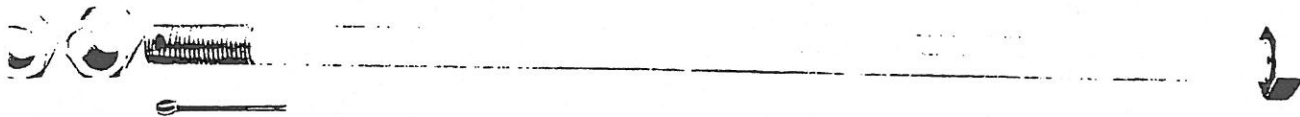
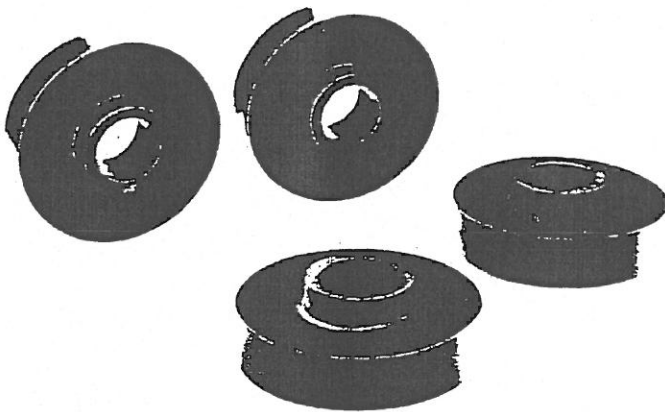


FIGURE 22

BOLSTER ANCHOR  
BOLT, NUT, LOCK  
NUT AND SPLIT PIN



BOLSTER ANCHOR  
RUBBERS

FIGURE 23



BOLSTER ANCHOR  
END AND ADJUSTMENT  
WASHERS

FIGURE 24

CEPS 1087

APPENDIX 8

ALTERNATIVE METHODS FOR ASSEMBLING  
FOUR WHEEL OUTSIDE SWING HANGER  
"E.S.C. COMMONWEALTH" PASSENGER COACH BOGIE

If shop facilities do not include a hydraulic press the following alternative methods of assembling four wheel passenger bogies have been found satisfactory. It is assumed that prior to assembly all drilling has been done on the several bogie parts and accessories applied.

1. To pre-assemble the bolster, bolster springs, packings, insulation pads and spring plank by means of tie bolts and offer this to the bogie as a complete sub-assembly taking care to position bolster centrally by wooden wedges.
2. To follow the normal assembly procedure using load blocks instead of a press, always taking care to ensure that load is applied over the bolster springs to avoid straining the spring plank.

8. LIST OF COMPONENTS

The numbers shown against each item listed below may be used as references for Section 9 'Overhaul of Components'. Reference to Appendix 7 for component recognition.

1. Axlebox (Roller Bearing)
2. Roller Bearing (Axlebox)
3. Axlebox Insulation Pad
4. Axlebox Slipper
5. Pedestal Liners (Horn Guide)
6. Pedestal Tie Bars
7. Pedestal Tie Bar Bolts
8. Equalising Springs (Primary Suspension)
9. Spring Seat (Equalising Beam)
10. Spring Seat Insulation Pad
11. Spring Seat Bolt
12. Equalising Beam
13. Bolster Spring Plank
14. Bolster Springs (Secondary Suspension)
15. Bolster Spring Insulation Pads
16. Primary and Secondary Spring Packing Shims
17. Hydraulic Dampers
18. Damper Mounting Rubbers
19. Damper Mounting Lugs
20. Bolster Spring Plank Safety Hangers and Bolts
21. Bogie Bolster
22. Bolster Centre Bearing Friction Disc
23. Bolster Centre Bearing Sleeve
24. Bolster Side Bearing Blocks
25. Bolster Lateral Bump Stop
26. Bolster Anchor Assembly (Rubbers)

9. ATTENTION TO COMPONENTS

9.1 Axlebox (Roller Bearing)

Schedule

- 9.1.1 Remove front cover
- 9.1.2 Examine (in accordance with CEPS 1002, 1003, 1004 and EI. G/254).
- 9.1.3 Check wear across axlebox liners using gauge No. H/GA 54 M/T 251.
- 9.1.4 Check wear across the width of the axlebox guides using gauge No. H/GA.54, M/T 251.
- 9.1.5 Check slipper seat for wear on width and length, must not exceed 1/16" on drawing dimensions
- 9.1.6 Secure front cover (in accordance with EI. G/63).

Arisings

- 9.1.7 Renew defective liner and (weld in accordance with BR Spec. 528).

9.2 Roller Bearing (Axlebox)

Schedule

- 9.2.1 Clean and examine (in accordance with CEPS 1002, 1003, 1004, EI. G/254).

9.3 Axlebox Insulation Pad

Schedule

- 9.3.1 Renew.

9.4 Axlebox Slipper

Schedule

- 9.4.1 Examine for damage.
- 9.4.2 Check slipper for wear using gauge No. H/GA.36A, M/T 251.

Arisings

- 9.4.3 Renew damage or worn slipper.

Arisings

9.8.3 Renew defective spring.

9.9 Spring Seat (Equalising Beam)

Schedule

9.9.1 Examine for damage and fractures.

9.9.2 Check spring seat for wear using gauge No. H/GA.38, MT/251.

9.9.3 Check bolt hole for wear using gauge No. H/GA.38, MT/251.

Arisings

9.9.4 Repair worn bolt hole, weld (in accordance with welding BR Spec. 528) and redrill to drawing dimensions.

9.9.5 Renew spring seat if damaged or fractured.

9.10 Spring Seat Insulation

Schedule

9.10.1 Examine visually for damage and wear.

Arisings

9.10.2 Renew if damaged or worn.

9.11 Spring Seat Bolt

Schedule

9.11.1 Examine for damage.

9.11.2 Check for wear, should not exceed 1/64" on the minimum manufactured diameter.

Arisings

9.11.3 Renew damaged or if wear exceeds 1/64" on the minimum manufactured diameter.

9.12 Equalising Beam

Schedule

9.12.1 Examine visually for wear.

9.12.2 Check length and width of foot for wear, should not exceed 1/16"

9.12.3 Check width of beam where it passes through the pedestal for wear, minimum thickness 2.11/16"



Arisings

9.16.2 Renew if damaged or excessively corroded.

9.17 Hydraulic Dampers

Schedule

9.17.1 Change.

9.17.2 Damper must be tested and overhauled by an approved workshop in accordance with makers instructions (New dampers in accordance with BR Spec. 543A, EI. G/56 and EI. G/188).

9.18 Damper Mounting Rubbers

Schedule

9.18.1 Examine for general condition and perishing.

Arising

9.18.2 Renew defective rubber.

9.19 Damper Mounting Lugs

Schedule

9.19.1 Examine for damage.

9.19.2 Check thickness for wear, should not exceed 1/32" on drawing dimension.

Arisings

9.19.3 Repair worn lugs by welding (in accordance with BR Welding Spec. 528) and machine to drawing dimensions.

9.20 Bolster Spring Plank Safety Hangers and Bolts

Schedule

9.20.1 Examine for damage and distortion.

9.20.2 Check for security and loose bolts.

9.20.4 Check loose bolt for wear, should not exceed 1/16" on manufactured diameter.

Arisings

9.20.4 Repair damage or distorted hanger.

9.20.5 Secure loose hanger.

9.20.6 Renew worn bolt if wear exceeds limits stated.

Arisings

9.24.4 Resecure loose block.

9.24.5 Repair by machining scored blocks and fit packing to maintain block clearance of 1/4".

9.25 Bolster Lateral Bump Stop

Schedule

9.25.1 Examine rubber for signs of perishing.

9.25.2 Check rubber for wear, should not exceed 1/4".

Arisings

9.25.3 Renew perished rubber.

9.25.4 Renew worn rubber or fit shims to compensate for wear (minimum bolster clearance 1").

9.26 Bolster Anchor Assembly (Rubbers)

Schedule

9.26.1 Renew.

9.27 Bolster Anchor Assembly (Space Tube)

Schedule

9.27.1 Examine for damage.

9.27.2 Check that the tube is not bent and that flange faces are parallel to each other.

Arisings

9.27.3 Repair if bent or if faces of flanges are not parallel.

9.28 Bolster Anchor Assembly (Anchor Bolts)

Schedule

9.28.1 Examine for damage.

9.28.2 Check that the bolt is straight.

9.28.3 Check shank and thread are not worn.

Arisings

9.28.4 Repair bolt if bent.

9.28.5 Renew worn bolt.

9.33 Bolster Swing Hanger Pin

Schedule

9.33.1 Examine for scoring.

9.33.2 Check wear using gauge H/GA.421/1 MT 251.

Arisings

9.33.3 Renew worn pin (new pins in accordance with EI. G.68).  
Note:- (Do not LUBRICATE PINS).

9.34 Bolster Swing Hanger Cross Bar

Schedule

9.34.1 Examine for damage.

9.34.2 Check swing hanger location and cross bar bearing location for wear, i.e. scoring and flatterring of radius using gauge H/GA.40 MT 251.

9.34.3 Check width using gauge H/GA.43/2 MT 251.

Arisings

9.34.4 Repair and re-profiled radii to drawing dimensions.

9.34.5 Renew damaged cross bar.  
Note: (Do not LUBRICATE).

9.35 Bolster Swing Hanger Bearing

Schedule

9.35.1 Examine for damage and scoring.

9.35.2 Check for wear on both bearing radius and bearing end lugs using gauges H/GA.43/1 and 43/2 MT 251.

Arisings

9.35.3 Renew if badly flattened or scored on radiused face or if damaged. Note:- (Do not LUBRICATE).

9.36 Bolster Swing Hanger Bearing Liner

Schedule

9.36.1 Examine for wear and damage.

Arisings

9.36.2 Renew if worn or damage.

9.40 Bogie Frame

Schedule

9.40.1 Examine for damage.

9.40.2 Check for cracks, loose rivets or bolts.

Arisings

9.40.3 Repair any damage in accordance with appropriate drawings.

9.40.4 Secure loose rivet or bolt.

9.41 Bogie Frame Brake Support Frames

Schedule

9.41.1 Examine support frame for damage and fractures.

9.41.2 Check for security.

Arisings

9.41.3 Repair frames if damaged or fractured.

9.41.4 Renew securing bolts if found to be loose.

9.42 Brake Gear Divided Pull Rod Support Brackets

Schedule

9.42.1 Examine for damage.

9.42.2 Check bracket and Ferobestos pads for security.

9.42.3 Check pads for wear, should not exceed 1/8".

Arisings

9.42.4 Secure bracket or pad if loose.

9.42.5 Repair damaged bracket.

9.42.6 Renew pad if wear exceeds 1/8".

9.43 Brake Gear Divided Pull Rod

Schedule

9.43.1 Examine for wear and damage.

9.43.2 Check bushes for wear, this should not exceed 1/64".

Arisings

- 9.46.4 Renew damaged or worn Bow Girder.
- 9.46.5 Renew bush if wear exceeds 1/64".
- 9.46.6 Renew trunnion bush if worn or loose.

9.47 Brake Gear, Brake Block

Schedule

- 9.47.1 Renew (in accordance with MT 191).

Arisings

- 9.47.2 When fitting brake blocks check their alignments with wheel tread so that they lie 7/16" to 9/16" inward of the wheel face when hanging freely and that they will wear evenly at the top and bottom (in accordance with EI. G/396 and EI. HC 80).

9.48 Brake Gear, Brake Block<sup>Back?</sup> and Key

Schedule

- 9.48.1 Examine key for wear.
- 9.48.2 Check key against profile gauge H/GA.34 MT 251.
- 9.48.3 Examine brake block for wear and flaws.
- 9.48.4 Check bushed brake block back bushes for wear, should not exceed 1/64".
- 9.48.5 Check unbushed brake block back holes for wear, should not exceed 1/64".

Arisings

- 9.48.6 Renew worn key.
- 9.48.7 Re-profile distorted key.
- 9.48.8 Renew worn and flawed brake block back.
- 9.48.9 Renew brake block back bushes if wear exceeds 1/64".
- 9.48.10 Renew brake block back if wear in holes exceeds 1/64".

9.52 Wheel and Axle Assemblies Including Generator Pulley

Schedule

- 9.52.1 Examine for damage. ✓
  - 9.52.2 Check wheels for loose tyres and retaining rings. ✓
  - 9.52.3 Check wheel centres, when tyres are removed, for cracks and minimum diameters (in accordance with BR Spec. 164). Wheels removed by oil injection methods (in accordance with EI. G.154) will be on the authority of the D of M & EE Quality Assurance Manager, Derby.
  - 9.52.4 Examine axle for scoring (in accordance with EI. G/360). ✓
  - 9.52.5 Check for bent axle, by measuring the wheel back to back dimension, and alignment in a centre lathe (in accordance with MT11 and EI. G/467). ✓
  - 9.52.6 Check for movement of wheels and generator pulley on axle. ✓
  - 9.52.7 Test, ultrasonically for flaws in the axle (in accordance with EI. G/10 and procedure Chart No. 4). The D of M & EE's Quality Assurance Manager must be informed of any irregular ultrasonic signals observed. ✓
  - 9.52.8 Check tyre thickness with a flange and tyre thickness gauge, to determine thread and flange wear (in accordance with MT11). ✓
- NB: Minimum thickness after final turning as follows:-
- i) Vehicle over 36 tons 1.9/16" HC684
  - ii) Vehicle under 36 tons 1.7/16"
  - iii) Tyre thickness difference, between both wheel sets per bogie, not to exceed a maximum of 1/2"
  - iv) Tyre thickness difference, between the two bogies, per vehicle, not to exceed a maximum of 1" US
- 9.52.9 Remove balance weights from wheel centre. ✓
  - 9.52.10 Examine all balance weight retained bolt holes. ✓
  - 9.52.11 Examine generator (flat belt) pulley particularly at the flanges.
  - 9.52.12 Examine generator (flat belt) pulley for security.

## 10. ASSEMBLY

### 10.1 General

10.1.1 Only new split pins to be used throughout.

### 10.2 Bolster and Suspension Gear

10.2.1 Reassemble bolster, cross bar, swing hanger and shims. Springs, equaliser beam and anchor assembly. (For details, assembly and adjustment see Appendix 2).

### 10.3 Bogie Brakework Gear

10.3.1 Reassemble, bow girders, brake block, back, key and hanger. Fit links, levers, pull off spring and divided pull rod.

10.3.2 Ensure that all pins, bolts bushes and joints are lubricated with grease BR Cat. No. 27/1361.

10.3.3 Check that the brake work adjustment is in accordance with the relevant drawings.

### 10.4 Wheel and Axle Assemblies

10.4.1 Assembly axlebox and roller bearing on journal (in accordance with CEPS 1002, 1003, 1004 and EI. G/254, EI. G/63).

10.4.2 Fill axlebox with grease BR Cat. No. 27/1357.

10.4.3 Fit wheel and axle assemble into bogie frame. Record wheelset serial numbers.

10.4.4 Refit pedestal tie bar and bolts.

10.4.5 Fit earth bond assembly.

### 10.5 Bogie Regulation

10.5.1 Check that the bogie regulation is in accordance with the relevant drawing dimensions, and (in accordance with the method detailed in Appendix 1).

### 10.6 Final Treatment

10.6.1 Completed bogie to be painted in accordance with the Painting Schedule BR2. Ensure that all irrelevant, incorrect or superseded stencilling, lettering or labelling is removed, and all that remains is as specified.

METHOD FOR LEVELLING VEHICLE AND ALL-COIL  
SPRING E.S.C. "COMMONWEALTH"  
4-WHEEL PASSENGER BOGIES

In levelling passenger coach bodies and four-wheel bogies the coach should be placed on a wheel pit with level track (if wheel pit is not available select level track) and the following measurements should be made and recorded:-

1. Height of buffers in relation to rail.
2. Height of coach sole bar at each bogie centre in relation to rail.
3. Obtain the bogie frame height from rail at the four corners. This should be done by placing a straight edge across the rails and measuring to the machined portion on the bogie headstocks.
4. Measure the equaliser and bolster spring heights and check against specified spring heights at tare weight.
5. Check side bearer clearances.

The following levelling procedures should then be followed:-

The greatest cause of differences in bogie frame heights is due to variations in wheel diameter due to wear and turning which changes the distance from rail to equaliser. This should be compensated for in the thickness of the separate axlebox slippers. Some railways have available separate slippers for application on top of the axleboxes which are made in increments of 1/4" thickness, from 1/2" to 1.1/2" to provide for reduction in wheel diameter. Their use will provide 1" vertical height adjustment between axlebox and underside of equaliser. Adjustment due to differences in wheel diameter should be made at this point.

After the equalisers have been levelled by use of the separate slippers, the bogie frame should again be checked for level and the balance of levelling of bogie frame should be taken care of by shimming either the top or the bottom of the appropriate equaliser coil springs. The bogie arrangement drawing should be referred to for proper bogie frame height and packings adjusted to suit. Most new bogies have Fabreeka or equivalent pads at the top and bottom of their equaliser springs. When shimming here the top of the springs should be kept at least half the diameter of the bar inside of the spring pocket at all times. All packings should be steel, inserted between the fabric type pads and the base of the spring pockets.



## APPENDIX 2

ASSEMBLY PROCEDURE FOR FOUR WHEEL OUTSIDE  
SWING HANGER "E.S.C. COMMONWEALTH"  
PASSENGER COACH BOGIE

(See Also Appendix 8 For Alternative Procedure)

In assembling four wheel passenger bogies it will be found that the procedure is somewhat dependent on shop facilities. Generally it will be found that the most satisfactory results can be obtained by assembling the bogie in the inverted position under a hydraulic press. It will be necessary that prior to assembly all drilling has been done on the several bogie parts, and accessories applied. With these qualifications the following bogie assembly procedure is suggested.

1. Invert bogie frame and support on blocks underneath spring caps.
2. Invert bolster and position in bogie frame centering it with wood wedges.
3. Apply bolster anchors loosely between frame and bolster.
4. Position shims, insulation and bolster springs in the bolster.
5. Place insulation pad, shims and spring plank above bolster springs.
6. Position shims, swing hanger cross bar bearings and cross bars on spring plank.  
Note - These items must not be lubricated.
7. Suspend swing hangers from cross bars.
8. Compress bolster springs with press applying load above bolster springs with suitable beams and blocking to avoid straining the spring plank.
9. While springs are being compressed position shock absorber between bolster and spring plank.
10. Insert swing hanger pins and keeper bolts.  
Note - these items must not be lubricated.
11. Apply spring plank safety straps.
12. Release press load.
13. Position equalisers in frame.
14. Apply filler blocks, dressing head of rivets so they do not interfere with pedestal liner.
15. Apply pedestal liners at filler blocks.
16. Raise equalisers until they contact equaliser opening in pedestal.

APPENDIX 2 (Cont'd)

17. Position equaliser spring, shims, insulation and spring seats between frame and equalisers.
18. Apply spring seat bolts - In most cases equaliser is supplied with spring seats already fitted.
19. Secure equalisers to frame with slings to prevent spilling spring assemblies, and turnover frame assembly supporting it at pedestal toes.
20. Brake parts except brake shoes may be applied while in this position or in the earlier inverted position depending on shop convenience.
21. Position frame over wheel, axle and box assemblies after insulation pad and slipper are positioned in axlebox.  
Note:- No lubrication between pedestal liner and axlebox.
22. Remove equaliser slings.
23. Apply brake shoes and keys and complete brake assembly.
24. Remove wedges between bolster and frame.
25. Apply central bearing friction plate and wear sleeve.  
Note:- These items must not be lubricated.
26. Apply coach body on bogies taking care not to damage friction plate or wear sleeve.
27. Apply pedestal tie bar and bolts.
28. Adjust and tighten bolster anchors to drawing dimensions.

Note: The above procedure may be varied to suit shop facilities available  
See Appendix 8 for alternative methods of bogie assembly.

Maintenance Note:- The following items must not be lubricated at any time:

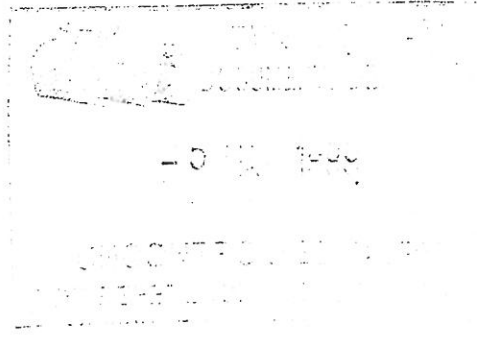
Central bearing friction plate and wear sleeve  
Swing hanger pins and bushings  
Swing hanger cross bars and bearings  
Axlebox guides

PROCEDURE FOR REMOVING AND REPLACING BOLSTER  
SPRINGS AND PACKINGS OF FOUR WHEEL OUTSIDE  
SWING HANGER PASSENGER BOGIE WITH THE BOGIE  
UNDER THE COACH BODY

1. Remove pedestal tie bars.
2. Loosen the bolster anchor. It is not necessary to remove the anchor from the bogie.
3. Raise bogie bolster until it contacts the underside of the frame wheelpiece by jacking under the coach body. If the bogie has a locking centre pin, the bogie bolster can be raised, the bolster being locked to the coach body by the centre pin. The bogie brake work must be released sufficiently to ensure that the brake blocks do not prevent the wheels from remaining on the rails.
4. Take the load off the swing hanger pins by jacking under the spring plank, locating jack adjacent to the equaliser. Wood blocks should be placed between spring plank and jack.
5. Remove swing hanger pins and swing hanger assembly.
6. Loosen lower connection of bolster spring shock absorber. (If equaliser spring shock absorbers are applied their lower end should now be disconnected).
7. Disconnect spring plank safety straps.
8. Lower jack under spring plank until spring plank contacts equaliser. The jack can then be removed.
9. Continue to raise the coach body until the equaliser contacts the cut-out in the pedestal and filler block. Raising the coach body will raise the frame through the locking centre pin and the bogie bolster.
10. Remove or replace bolster springs and/or packings between the lips of the spring pockets of the bolster and the spring plank. With the anchor connection between the springs it is necessary to first remove the spring adjacent to the snubber, then to move the other spring to the space adjacent to the snubber.
11. Reverse the above procedures to reassemble the bogie.

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PROCESS SPECIFICATION  
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OVERHAUL OF BOGIES  
 B.R. TYPES B4 AND B5

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