

**DOLLY CONVERTER, HEAVY, TANK/PLANT TRANSPORTER, MC4
LIGHT GRADE REPAIR**

This instruction is authorised for use by command of the Chief of Army. It provides direction, mandatory controls and procedures for the operation, maintenance and support of equipment. Personnel are to carry out any action required by this instruction in accordance with EMEI General A 001.

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GENERAL

Introduction

1. This EMEI details all Light Grade Repair procedures for the Dolly Converter, Heavy, Tank/Plant Transporter, MC4.

Associated Publications

2. Reference may be necessary to the latest issue of the following documents:
 - a. [Defence Road Transport Instructions \(DRTI\)](#);
 - b. [Technical Regulation Of ADF Materiel Manual - Land](#) (TRAMM-L);
 - c. TGM 120 – Record Book for Service Equipment – Army;
 - d. [EMEI Vehicle H 980](#) – Dolly Converter, Heavy, Tank/Plant Transporter, MC4. – Data Summary;
 - e. [EMEI Vehicle H 982](#) – Dolly Converter, Heavy, Tank/Plant Transporter, MC4 – Technical Description;
 - f. [EMEI Vehicle H 989](#) – Dolly Converter, Heavy, Tank/Plant Transporter, MC4 – Servicing Instruction;
 - g. [RPS 02217 - Dolly Converter, Heavy, Tank/Plant transporter, MC4](#)

Authorised Personnel

3. Repairs are to be conducted by technical tradespersons: Army Vehicle Mechanic, RAAF GSE Fitters, or Civil equivalents authorised in accordance with the requirements of the Para 2.b.

Safety Precautions

WARNING

Personnel working on this equipment are to adhere to all industrial safety standards, work practices and equipment operating and maintenance instructions relating to the equipment.

Some assemblies contain powerful springs and injury can result if they are not properly disassembled. Use only proper tools and observe all precautions relevant to the use of the tools.

General Instructions

4. It is vitally important that dirt and other foreign matter are not allowed to enter the hydraulic system during repairs. Dirt or fluid other than clean hydraulic fluid in the system will cause almost immediate failure. Plug or protect openings to prevent dirt entering the system. Use plastic plugs or covers only for this purpose. Do not use cloth or paper as plugs or covers.
5. Disconnect the dolly converter electrical connector from the towing vehicle before removing any electrical system components.
6. When disconnecting electrical connectors, hoses and fittings, remove sufficient clamps in order to gain the necessary slack to avoid damage to connectors and fittings. Re-install all clamps and supporting devices as installed by manufacturer.
7. Use only genuine replacement parts and components.
8. Replacement hardware, tubing, hose fittings, etc., should be of equivalent size, type, length and strength as the original equipment.
9. Use only those lubricants specified in the Servicing Instruction EMEI Vehicle H 989 and the User Handbook.
10. Any fastenings of fittings being tightened to prescribed torques are to have dry, clean threads unless otherwise specified. When specified, thread sealants are to be applied to dry, clean, oil free threads.

- 11. Replace all devices with stripped threads or damaged parts.
- 12. Table 1 lists the location of the identification information on the Maintenance Supply Items.

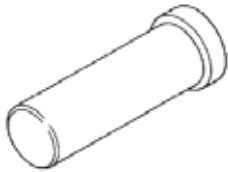
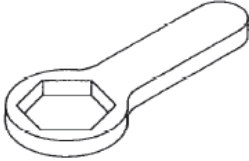


Table 1 Maintenance Supply Item (MSI) Identification

Serial	Item	Location
1	Axle assemblies	Centre of axle beam, opposite brake chamber mountings
2	Fifth wheel	Leading edge of fifth wheel

Special Tools and Gauges

- 13. The following special tools, as listed and illustrated in Table 2, are required as indicated, to perform the tasks detailed below:

Table 2 Special Tools

Serial	Item Name	Part No.	Para No.	
1	Hub seal installing tool	550-5039	50	
2	Hub lock nut wrench	CS 39/2	45, 52	
3	Hub nut tube wrench	CS 213	45, 52	
4	Spring brake release tool	M9007003	45, 67	

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Adjustment and Calibrations

14. Light Grade Repairs include the following procedures:
- a. Axle alignment, and
 - b. Brake adjustment

Functional Tests

15. Light Grade Repair includes the following procedures:
- a. Brake System Operating and Leakage Tests

Replacement

16. Light Grade Repair includes replacement and/or repair of the following components:
- a. Axles:
 - (1) hubs,
 - (2) hub seals,
 - (3) hub bearing cups, and
 - (4) hubodometer.
 - b. Wheels.
 - c. Brakes:
 - (1) brake relay valves,
 - (2) boost relay valve,
 - (3) spring brake control valve,
 - (4) yard release valve,
 - (5) spring brake assembly, and
 - (6) brake shoes.
 - d. Electrics.

ADJUSTMENT PROCEDURES

AXLE ALIGNMENT

17. The dolly converter axles are to be aligned so that the centre lines of the two axles are at right angles to the centre line of the dolly converter frame (Figure 1). The allowable tolerance for each dimension is ± 1 mm.

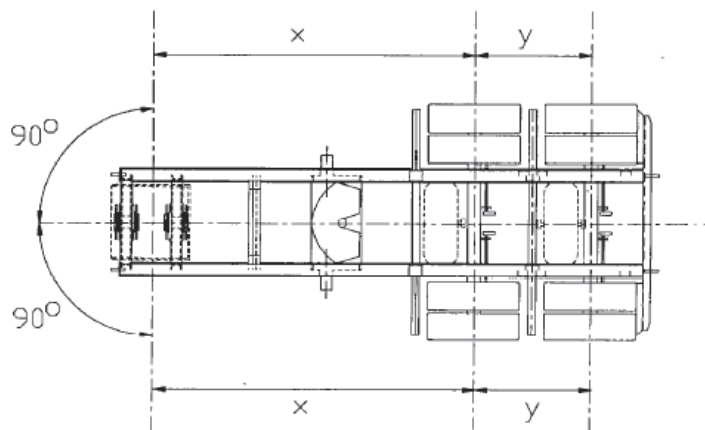


Figure 1 Dolly Converter Axle Alignment Diagram

- 18. Preliminary Checks.** Prior to carrying out any axle alignment adjustment:
- Unload the trailer if fitted.
 - Ensure that all suspension components are in good condition.
 - Ensure that all tyre pressures are correct.
 - Ensure the dolly is on flat, level ground.
 - Ensure that the dolly has travelled in a straight line for a minimum of 20 metres before checking any adjustment (this removes any stresses from the suspension components).
- 19. Adjustment.** To alter the axle alignment:
- Loosen the four clamp bolts on the right-hand radius rods.
 - Rotate the centre section of the applicable radius rod to alter the axle alignment.

NOTE

Dimensions X and Y are to be equal along each side of the trailer.

BRAKE ADJUSTMENT

- 20.** The correct brake adjustment is obtained when:
- The distance from the base of the brake chamber to the centre line of the clevis pin is 185 mm with the brake released (Figure 2).
 - The angle formed by the centre lines of the slack adjuster and the brake chamber push rod is approximately 90° when the brakes are applied.

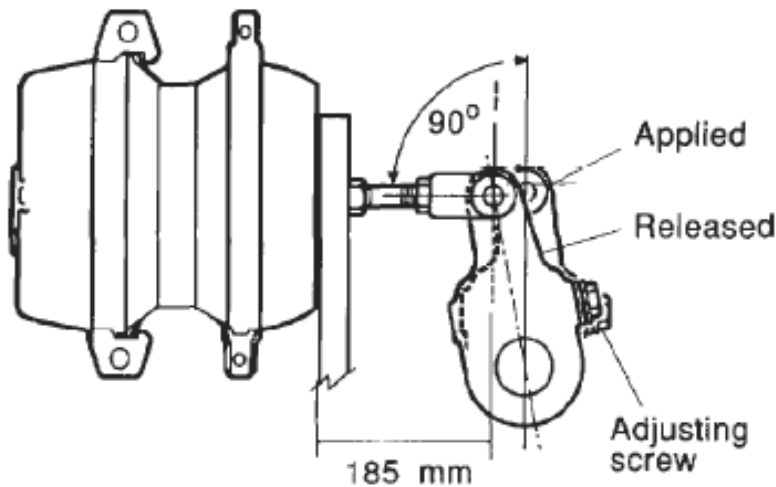


Figure 2 Slack Adjuster Alignment

- The maximum travel of the brake chamber pushrod to apply the brake is less than 40 mm.
- 21.** To adjust the brakes, depress the locking ring and turn the adjusting screw clockwise until the brake is applied. Back-off the adjusting screw to achieve the correct adjustment as shown in Figure 2. If necessary, adjust the length of the brake chamber pushrod to achieve the correct settings.

BRAKE SYSTEM OPERATING AND LEAKAGE TESTS

22. The following tests are to be performed to determine the presence of operating faults in the dolly converter air brake system. Check the prime mover air pressure gauge against a calibrated test gauge before carrying out these tests.

Functional Tests

WARNING

Before carrying out these tests ensure that the dolly converter wheels are securely chocked.

23. Connect a 0-1 000 kPa air pressure gauge to the spare air reservoir port to the SR-3 spring brake control valve.
24. Disconnect the air lines from the prime mover and exhaust all air from the dolly converter system.
25. Inspect all brake chambers to ensure that they are all in the applied position.
26. Inspect the condition of all air hoses and nylon lines for serviceability. Particular attention is to be given to all hose clamps and fittings.
27. Connect the air lines to the prime mover and start the prime mover engine to recharge the air brake system.
28. As the air pressure reaches 415-445 kPa, the spring brake chambers should release.

NOTE

Failure of all brake chambers connected to a common SR-3 spring brake control valve indicates a faulty valve. Failure of individual brake chambers to release indicates a faulty brake chamber or air line.

29. Allow the prime mover to build up full air pressure and then shut down the engine. Inspect all components for air leaks.

NOTE

Substantial leaks will be audible; however, minor leaks may be detected by coating suspected areas with soapy water.

30. Disconnect the supply (emergency) line from the prime mover. This causes the spring brakes to apply.

NOTE

Failure of all brake chambers connected to a common SR-3 spring brake control valve indicates a faulty valve. Failure of individual brake chambers to apply indicates a faulty brake chamber or air line.

31. Connect the supply line to the prime mover. The spring brakes should again release as pressure increases.
32. Open the air tank drain valves on each air tank which has an SR-3 spring brake control valve fitted individually. The air pressure should not fall below 354 kPa in the prime mover air brake system. Note the pressure attained.

NOTE

A pressure below this value indicates a faulty SR-3 spring brake control valve fitted to the respective air tank. The spring brakes should remain released.

Application of any spring brake indicates a faulty spring brake control valve.

Allow the air pressure in the prime mover to build up to normal between tests.

33. Open the drain valve on the front air tank of the dolly converter.

- 34.** When the air pressure has dropped to the minimum pressure attained in Para 32, apply the service brakes and release.

NOTE

Two applications of the service brakes should be possible.

- 35.** Close the air tank drain valves and allow the air pressure to return to normal.
- 36.** Open the drain valve on the front air tank of the dolly converter. When the air pressure has dropped to the minimum pressure attained in Para 32, apply the park (spring) brakes and release.

NOTE

It should be possible to release the spring brakes twice before insufficient air is available in the air tank to release the brakes. Failure of this or the previous test may indicate a faulty reservoir check valve in the SR-3 spring brake control valves.

- 37.** Allow the air pressure to return to normal and apply the service brakes.

NOTE

The failure of all brake chambers connected to a single R-12 relay valve indicates a faulty R-12 relay valve.

Failure of individual brakes to apply indicates a faulty brake chamber or brake hose.

- 38.** Push in the dolly converter yard release valve to release the spring brakes. Ensure that all spring brakes are released.

NOTE

Failure to do so indicates a faulty yard release valve.

- 39.** Drain the air from the dolly converter air tanks and note the pressure at which the yard release valve dumps the air pressure from the spring brakes. This should be approximately 340 kPa.

NOTE

Failure of the air pressure to be dumped indicates a weak or broken spring in the PP-1 yard release valve.

- 40.** Connect all air lines between the dolly converter and prime mover and allow the system to be fully pressurised. Release the spring brakes and apply the service brakes.
- 41.** Disconnect the emergency (supply) line/s between the dolly converter and prime mover.
- 42.** Liberally coat all joints and connections with soapy water and inspect for leaks.

NOTE

Valve body leaks are not acceptable. Bubbles in excess of 25 mm in three seconds are not acceptable.

- 43.** Apply soapy water to the emergency line glad hand and inspect for leaks from the emergency line.

NOTE

A bubble in excess of 25 mm in five seconds indicates a faulty yard release valve.

- 44.** Push the yard release valve in to release the spring brakes. Apply soapy water to the emergency line glad hand and inspect for leaks from the emergency line.

NOTE

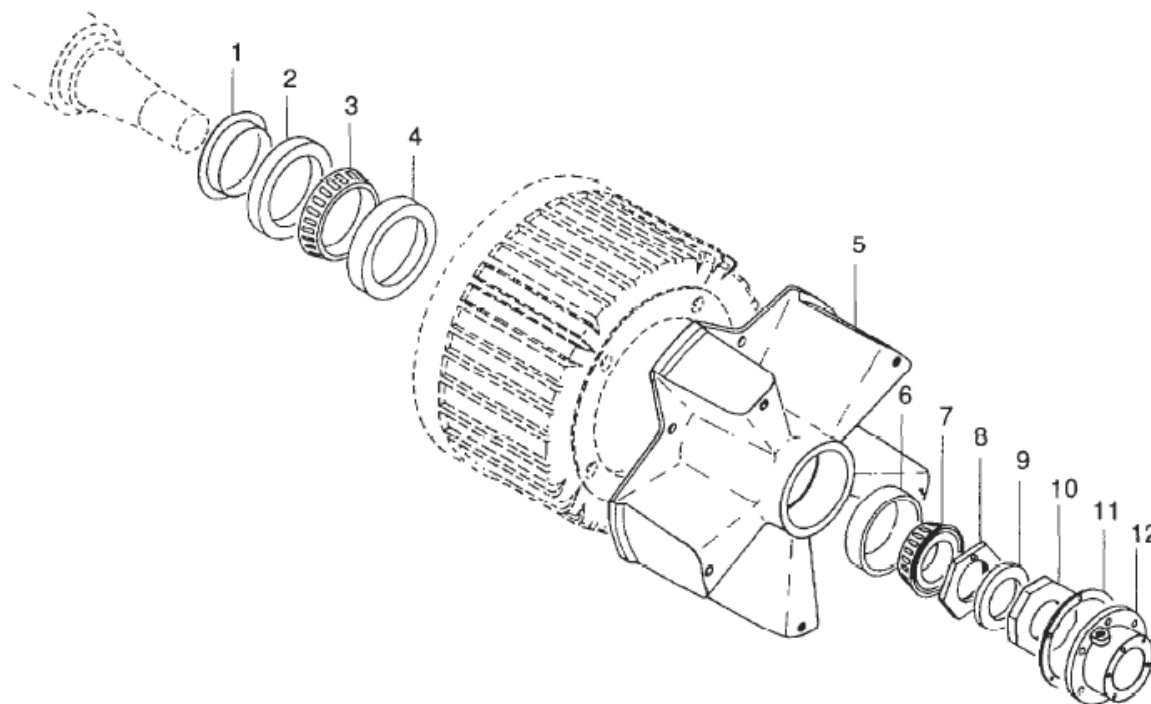
A bubble in excess of 25 mm in three seconds indicates a faulty yard release valve.

REPLACEMENT PROCEDURES

AXLES

Wheel Hubs

45. **Removal.** To remove the wheel hubs (Figure 3):



1	Hub seal sleeve	5	Wheel hub	9	Wheel hub nut lock plate
2	Hub seal	6	Outer wheel bearing cup	10	Wheel hub lock nut
3	Inner wheel bearing cone	7	Outer wheel bearing cone	11	Wheel hub cap gasket
4	Inner wheel bearing cup	8	Wheel bearing adjusting nut	12	Wheel hub cap

Figure 3 Wheel Hub Assembly - Exploded View

- a. Chock the vehicle wheels.
- b. Loosen the wheel nuts.
- c. Place a suitable jack beneath the applicable axle and raise the wheel clear of the ground.
- d. Place a safety stand beneath the axle.
- e. Lower the axle to the stand ensuring that the wheels remain clear of the ground.
- f. Remove the nuts securing the wheels to the hub (5).
- g. Remove the wheels.
- h. Mechanically release the spring brakes (refer to Para 67.a-d).
- i. Remove the oil filling plug located on the side of the hub cap.
- j. Place a suitable container under the hub and rotate the wheel to allow the lubricating oil to drain.
- k. Remove the six hexagon-headed screws securing the hub cap (12).
- l. Remove the hub cap and gasket (11) from the hub.
- m. Remove the hub lock nut (10) using the hub lock nut wrench (Table 2, Serial 2).
- n. Remove the nut lock plate (9).

- o. Remove the bearing adjusting nut (8) using the hub nut tube wrench (Table 2, Serial 3).
- p. Support the wheel hub and brake drum assembly with a suitable trolley jack.
- q. Remove the outer bearing cone (7) from the hub and stub axle.



Support the hub assembly during removal to ensure the thread on the end of the stub axle does not damage the hub oil seal.

- r. Slide the hub assembly off the stub axle.

46. Hub Seal Removal. Remove the inner hub seal as follows:

- a. Remove the wheel hub assembly, as detailed in Para 45.
- b. Position the hub and brake drum assembly on a solid surface with the wheel studs facing upwards.
- c. Using a long brass drift, inserted through the centre of the hub and placed against the inner race of the inner wheel bearing (Figure 3, 3), drive out the bearing and hub seal (Figure 3, 1 and 2) from the hub.

47. Bearing Cup Removal. Remove the wheel bearing cups as follows:

- a. Remove the hub and hub seals, as detailed in Para 45 and 46.
- b. Place a long brass drift, through the hub centre, against the inner face of the respective bearing cup (Figure 3, 4 or 6).



Place the drift in alternate positions around the bearing cup, to ensure that it is driven evenly from the hub

- c. Drive out the bearing cups.

NOTE

If the bearing cups removed are to be refitted, ensure that they are matched, and remain with their respective bearing cones.

48. Bearing Cleaning and Inspection. Clean and inspect the bearings as follows:



Do not use a steel brush. Avoid spinning the cones when cleaning.

- a. Wash the bearing cups and cones in a suitable clean solvent, using a stiff brush.
- b. Wipe the cleaned parts dry with clean absorbent cloth or paper. Clean and dry hands and all tools used in the service operation.

NOTE

Lubricant will not adhere to a surface that is wet with solvent. Solvent will also dilute the lubricant. **CLEANLINESS IS MOST IMPORTANT.**

- c. Inspect the bearing cup for:
 - (1) discolouration, straw or blue colouring;
 - (2) chips or scoring on the bearing surface; and
 - (3) flaking of the case hardening.

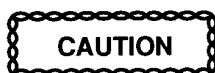
- d. Inspect the bearing cone for:
 - (1) discolouration of the tapered rollers;
 - (2) chipping or scoring of the case hardening;
 - (3) flaking of the case hardening;
 - (4) acceptable wear limits on the wear back surface (the large end of the tapered roller); and
 - (5) the condition of the tapered roller cage.

NOTE

Discard the bearing cup and cone if any defects are found. These must be replaced as a matched set.

49. Bearing Cup Installation. To install bearing cups proceed as follows:

- a. Check that the wheel hub is free from any damage.
- b. Pack the bearing cones with grease.
- c. Place a faint smear of grease around the inner surface of the hub through which the cup is to pass.



Drifts used for fitting bearing cups must be free of all burrs and jagged edges, to prevent brass chips being dislodging into the wheel hub and bearings.

- d. Place the bearing cup (Figure 3, 4 or 6), smaller internal diameter innermost, in position on the hub and drive it into position using a suitable hammer and brass drift.

NOTE

Make sure that the drift is placed in alternate positions around the cup, to ensure that the cup is driven evenly into the hub. The cup is fully in position when a solid metallic knock is heard in all positions around the cup.

- e. Inspect the bearings for brass chips (remove if found).

50. Hub Seal Installation. Install the hub seal as follows:

- a. Check that the stub axle land is clean and free from dirt and other foreign material.
- b. Coat the axle land with a thin coat of Loctite 515 Forma gasket compound, Hylamar or other brand name non-hardening gasket material
- c. Drive the inner hub seal (Figure 3, 1 and 2) into position on the stub axle using the hub seal installing tool (Table 2, Serial 1).

NOTE

The hub seal is pushed into the wheel hub during installation of the wheel hub.

51. **Hub Installation.** Prior to installation of the hub and brake drum assembly, ensure that:
- The brake drum mounting bolts are serviceable and correctly tensioned in the sequence shown at Figure 4.

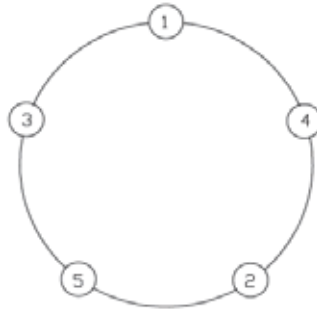


Figure 4 Brake Drum and Wheel Nuts - Tightening Sequence

- The inner wheel bearing cone is properly lubricated and fitted.
 - The inner bearing cup is serviceable and correctly fitted.
 - The hub seal is fit for use and correctly fitted to the stub axle.
52. Install the hub as follows (Figure 3):
- Using a suitable trolley jack or similar device, slide the hub and brake drum assembly onto the stub axle, ensuring that it is pushed on as far as possible.
 - Pack the outer bearing cone with grease.
 - Fit the outer wheel bearing cone (7).
 - Fit the wheel bearing adjusting nut (8) to the stub axle with the locating pin facing out.
 - Adjust the bearing preload by screwing the nut on until tight and backing off one quarter of a turn using the hub nut tube wrench (Table 2, Serial 3).

NOTE

Spin the hub while tightening the bearing adjusting nut.

Ensure that the air tank is fully charged and that the brakes are released to prevent brake shoe drag during adjustment.

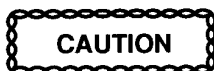
- Fit the wheel hub nut lock plate (9) and insert the lock pin on the wheel bearing adjusting nut into one of the holes around the lock plate.

NOTE

It may be necessary to turn the nut slightly or to reverse the lock plate to obtain proper alignment.

- Fit and tighten the hub lock nut (10) onto the stub axle using the hub nut lock wrench (Table 2, Serial 2). Use a 1.5 to 2 lb hammer to tighten the nut.
- Fit the hub cap gasket (11) to the wheel hub and install the hub cap (12).
- Secure the hub cap using the six hexagon headed screws and lock washers.
- Rotate the hub until the oil filling plug is in the 12 o'clock position. Fill the hub with the recommended oil until the sight glass is full.
- Fit the oil plug, rotate the hub for several revolutions and allow the oil level to settle.
- Add oil gradually until the oil is up to the oil level mark on the sight glass
- Remove the spring brake release tool (replace and secure it in its stowage position).

- n. Fit the wheel to the hub and secure with the five clamps and hexagon nuts. Tighten the wheel nuts evenly in the sequence shown in Figure 4.
- o. Raise the axle clear of the safety stand, remove the stand and lower the wheel to the ground.



Wheel nuts shall be checked and retensioned after travelling approximately 50 km.

- p. Tighten the wheel nuts to the torque specified in Para 54.

Hubodometer

53. Hubodometers are fitted to the left-hand side of the dolly converter. The fitting of the hubodometers requires a raised, hubodometer window to be fitted to the standard hub cap. The hubodometer is a non-repairable item and should be discarded when defective.

Specifications

54. The axle group specifications are as follows:

- a. Axle alignment tolerance ±1 mm
- b. Maximum wheel runout 2 mm
- c. U-bolt torque 415 N.m (310 lb.ft)
- d. Radius rod mounting bolt torque 100 N.m (80 lb.ft)
- e. Radius rod clamp bolt torque 100 N.m (80 lb.ft)
- f. Hubodometer nut torque 15 N.m (11 lb.ft)
- g. Wheel clamp nut torque 245 N.m (180 lb.ft)

WHEELS

Maintenance



Before lifting any wheels off the ground, ensure that the trailer is on level ground and adequately chocked.

When working on a raised trailer, do not allow any part of the body to protrude under the trailer unless the trailer is correctly supported on safety stands

55. Removal. Remove the wheels as follows:

- a. Chock the wheels not being removed.
- b. Loosen the five clamp nuts evenly.
- c. Jack up the respective axle and support it on a safety stand.
- d. Remove the five nuts and clamps.

56. Installation. Install the wheels as follows:

- a. Fit the wheel to the hub.
- b. Align the wheel rims.
- c. Fit the five wheel clamps and nuts.

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- d. Tighten the clamp nuts evenly to the torque specified in Para 57.

Specifications

- 57. The wheel specifications are as follows:
 - a. Maximum wheel run out2 mm
 - b. Tyre pressures (cold) laden 800 kPa
 - c. Tyre pressures (cold) unladen..... 700 kPa
 - d. Wheel nut torque245 N.m. (185 lb.ft)

BRAKE SYSTEM

Brake System Maintenance

- 58. Precautions.

WARNING

Some assemblies contain powerful springs and injury can result if they are not properly disassembled. Use only proper tools and observe all precautions relevant to the use of the tools.

WARNING

Always chock vehicle wheels. Stop the engine when working under a vehicle liable to roll. Keep hands away from chamber push rods and slack adjusters; they may apply as system pressure drops.

WARNING

Never connect or disconnect a hose or line containing air pressure. It may whip as air escapes. Never remove a component or pipe plug unless you are certain all system pressure has been depleted.

WARNING

Never exceed recommended air pressure and always wear safety glasses when working with air pressure. Never look into air jets or direct them at anyone.

WARNING

Never attempt to disassemble an assembly until you have read and understand the recommended procedures.

Brake Relay Valves

- 59. **Removal.** Remove the relay valves as follows:

NOTE

This procedure applies to both the R-12 brake relay valve and the R-12H pilot relay valve.

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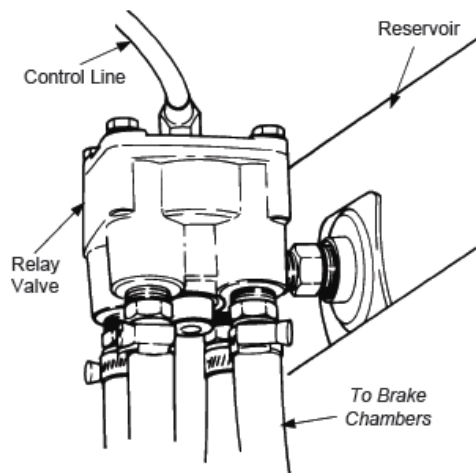
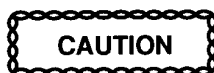


Figure 5 Brake Relay Valve Mounting

- a. Chock and hold the trailer or dolly.
- b. Drain the brake system reservoir.
- c. Tag all air lines connected to the valve to facilitate installation (Figure 5).
- d. Disconnect the air lines from the valve.
- e. Apply a spanner to the hexagon area of the reservoir mounting nipple and remove the valve from the reservoir.

60. Installation. To install the relay valves:

- a. Clean all air lines to be connected to the valve.
- b. Inspect all lines and/or hoses for damage and replace as necessary.



Do not tighten via the valve body.

- c. Install the valve to the air reservoir and secure it by applying a spanner to the hexagon area of the mounting nipple.
- d. Connect the air lines to the valve according to the labelling attached during removal.
- e. Test the valve as detailed in Para 22.

Boost Relay Valve

61. Removal. Remove the boost valve as follows:

- a. Block or hold the dolly by means other than the brakes.
- b. Drain all air brake system reservoirs.
- c. Identify, mark and disconnect all air lines from the valve.
- d. Apply a spanner to the hexagon area of the reservoir mounting nipple and remove the valve from the reservoir.

62. Installation. Install the boost valve as follows:

- a. Inspect all connecting air lines for kinks, cuts, chafing and deterioration. Repair or replace as necessary.
- b. Install the valve to the air reservoir and secure it by applying a spanner to the hexagon area of the mounting nipple.

- c. Connect all air lines to the correct ports, using the identification markings of the lines made before the valve was removed.
- d. Test all reconnected air line fittings for leakage.
- e. Test the valve as detailed in Para 22.

Spring Brake Control Valve

63. **Removal.** Remove the spring brake control valve as follows:

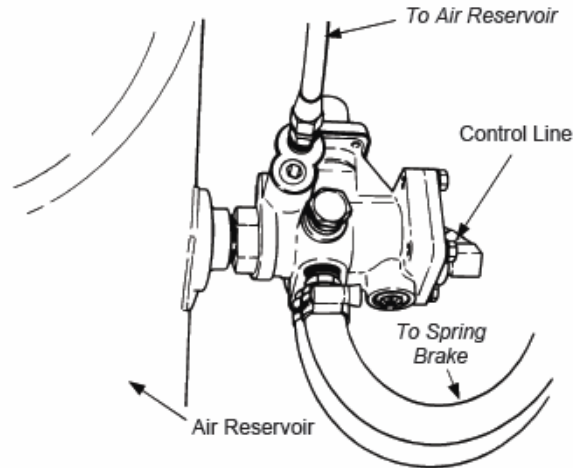


Figure 6 Spring Brake Control Valve Mounting

- a. Chock the trailer or dolly wheels.
- b. Completely drain the air system reservoir.
- c. Tag and disconnect all supply, delivery and exhaust lines at the spring brake valve (Figure 6).
- d. Apply a spanner to the hexagon area of the reservoir mounting nipple and remove the valve from the reservoir.

64. **Installation.** Install the spring brake control valve as follows:

- a. Clean the air lines to be connected to the valve.
- b. Inspect all lines and/or hoses for damage and replace as necessary.
- c. Install the valve to the air reservoir and secure it by applying a spanner to the hexagon area of the mounting nipple.
- d. Connect the air lines to the valve.
- e. Test the valve as detailed in Para 22.

Yard Release Valve

65. **Removal.** Remove the yard release valve as follows:

- a. Chock the trailer or dolly.
- b. Drain all reservoirs.
- c. Drive the button roll pin out with a punch and remove the button.
- d. Disconnect the air lines.
- e. Remove the panel mounting nut.
- f. Remove the valve.

66. **Installation.** Install the yard release valve as follows:
- a. Install the valve in the mounting bracket, securing it with the panel mounting nut.
 - b. Connect the air lines.
 - c. Install the button.
 - d. Install the roll pin to secure the button to the plunger.

Spring Brake Chamber

67. **Removal.** Remove the spring brake chamber as follows:

WARNING

Never attempt to 'cage' any spring brake which shows signs of structural damage or significant corrosion. Handle damaged spring brakes with extreme caution.

- a. Remove the plastic plug from the spring brake chamber housing.

NOTE

Prior to inserting the release tool into the chamber, fit the flat washer and nut to the end of the tool.

- b. Remove the release tool (Table 2, Serial 4) from the chamber body and insert it into the spring brake chamber, passing it through to the centre of the spring brake pressure plate.
- c. Rotate the release tool 90° to engage the lugs into the pressure plate.

NOTE

Pull the tool to ensure that the lugs are properly engaged in the pressure plate.

- d. Tighten the nut onto the release tool and continue turning, withdrawing the release tool from the housing.

NOTE

This compresses the spring brake compression spring and releases the brake.

- e. Tag and remove the two air hoses from the brake chamber to ensure correct installation.
- f. Remove the cotter pin connecting the clevis assembly to the slack adjuster.
- g. Remove the two nuts and bolts from the mounting bracket and remove the spring brake chamber.

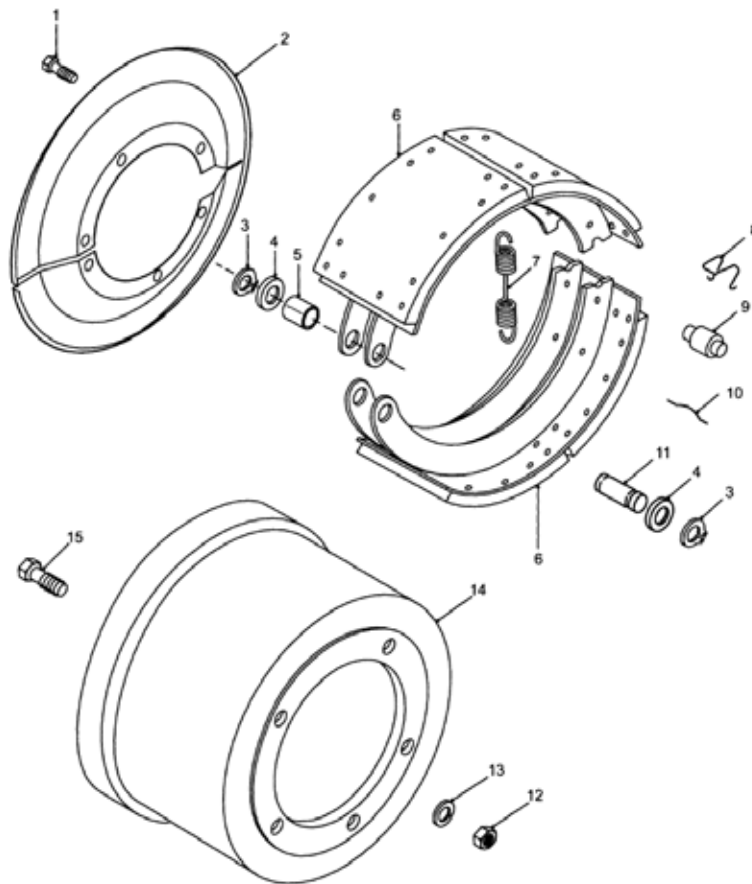
68. **Installation.** Install the spring brake chamber as follows:

- a. Ensure that the spring brake compression spring is fully caged by the release tool.
- b. Attach the two hose stems to the chamber adapter housing.
- c. Fit the brake chamber to the axle mounting bracket and secure with the respective hexagon bolts, nuts and washers.
- d. Connect the clevis to the slack adjuster.
- e. Connect the two air hoses, ensuring that they are connected to the correct ports.
- f. Remove the release tool from the spring brake chamber housing and return it to its stowage boss.
- g. Fit the plastic plug into the spring brake housing.
- h. Check the brake adjustment and adjust as required. Refer to Para 20 and 21.

Brake Shoes.

- 69. Removal.** Remove the brake shoes as follows:
- a. Remove the spring brake chamber as detailed in Para 67.
 - b. Remove the wheel hub and brake drum assembly as detailed in Para 45.
 - c. Move the slack adjuster and camshaft into the fully released position.
 - d. Remove the two circlips (Figure 7, 3) securing the brake shoe anchor pins (Figure 7, 11).
 - e. Slide the two anchor pins from the brake shoe mountings.
 - f. Remove the brake shoes (Figure 7, 6) and separate them from the return spring (Figure 7, 7).
- 70. Installation.** Install the brake shoes as follows:
- a. Fit the return spring (Figure 7, 7) to the two brake shoes (Figure 7, 6).
 - b. Slide the brake shoes onto the mounting plates.
 - c. Fit the brake shoe anchor pins (Figure 7, 11) and circlips (Figure 7, 3).
 - d. Fit the brake drum and hub assembly as detailed in Para 51.
 - e. Fit the spring brake chamber as detailed in Para 68.

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1	Screw	5	Anchor bushing	9	Camshaft roller	13	Lock washer
2	Backing plate	6	Brake shoe	10	Retaining pin	14	Brake drum
3	Circlip	7	Return spring	11	Anchor pin	15	Hex bolt
4	Flat washer	8	Retaining clip	12	Hex nut		

Figure 7 Wheel Brake Assembly

Fault Finding

Table 3 Brake System Fault Finding

Serial	Symptom	Probable Cause	Action
1	Insufficient braking	Mechanical components damaged	Check for damaged parts, replace as required
		Worn brake linings	Replace brake linings
		Low pressure in the brake system	Check supply pressure from the towing vehicle
		Reservoir drain cock open	Close drain cock
2	Brakes apply too slowly	Brakes require adjusting or lubrication	Adjust brakes; lubricate brake components
		Relay valve faulty	Replace valve
		Blocked or restricted air lines/hoses	Clear blockage. Replace air line or hose
		Leaking brake chamber diaphragm	Replace brake chamber
3	Brakes release too slowly	Brakes require adjusting or lubrication	Adjust brakes; lubricate brake components
		Relay valve faulty	Replace valve
		Blocked or restricted air lines/hoses	Clear blockage. Replace air line or hose
4	Brakes do not release	Brake shoe return spring weak or broken	Replace spring
		Spring brake chamber diaphragm faulty	Replace brake chamber
		Faulty spring brake control valve or relay valve	Replace faulty valve
5	Brakes grab or are erratic	Oil on brake linings	Replace brake linings
		Faulty brake chambers	Replace faulty brake chambers
		Eccentric brake drum(s)	Replace brake drum(s)
		Loose brake lining	Reline brake shoes
		Brake shoe return spring broken or weak	Replace spring
6	Uneven braking	Oil on brake linings	Replace brake linings and oil seal
		Eccentric brake drum(s)	Replace brake drum(s)
		Brake chamber diaphragm leaking	Replace brake chamber
7	Spring brake does not hold	Power spring broken	Replace brake chamber
		Brakes require adjusting	Adjust brakes
		Faulty SR-3 valve	Replace valve
8	Brakes drag after spring brakes have been used	Low spring brake hold-off air pressure	Check air pressure in system
		Leaking air lines	Repair leaks
9	Spring brakes will not release	Insufficient air pressure	Check air pressure in system
		Faulty SR-3 valve	Replace valve
		Spring brake chamber diaphragm faulty	Replace brake chamber

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Specifications

71. The specifications for the brakes are as follows:
- a. Brake chamber clamp torque..... 35 N.m (25 lb. ft)
 - b. Maximum brake chamber pushrod travel.....51 mm
 - c. Brake chamber to clevis centre line..... 150 mm

ELECTRICAL

Repairs

72. When carrying out repairs to the electrical system ensure that the following points are observed:
- a. A 6 mm white loop wire is to be fitted to plug pins 'D' & 'L'.
 - b. All wiring is to be installed in soft conduit.
73. An electrical circuit diagram for the dolly converter is shown in Figure 8. Pin and colour codes for the 12 pin NATO connector are listed in Table 4.

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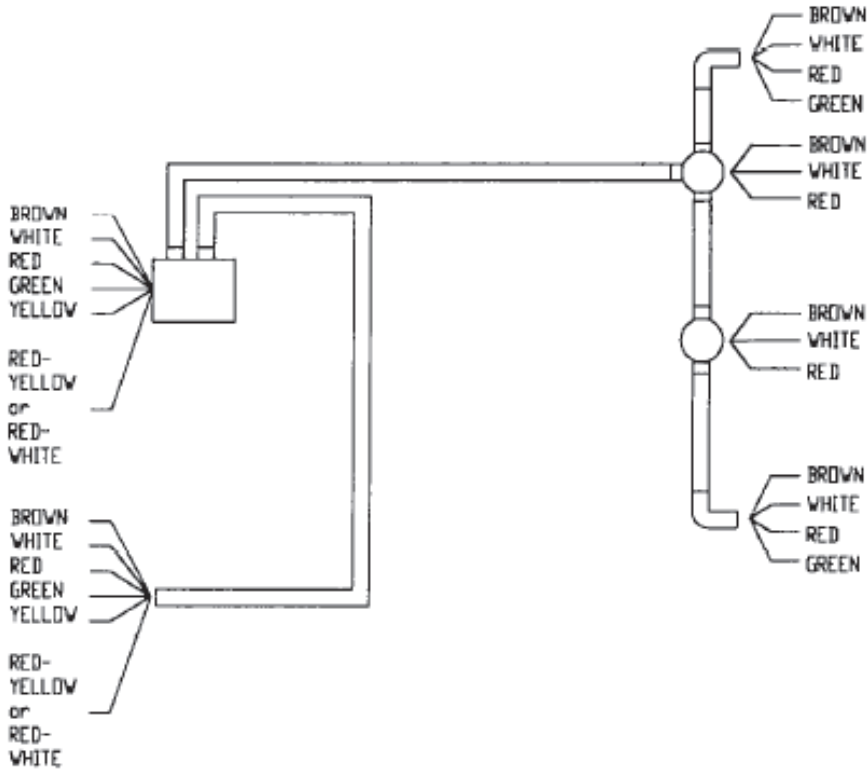


Figure 8 Dolly Converter Electrical Circuit Diagram

Table 4 12 Pin NATO Cable - Pins and Colour Codes

Key to Pin Connections		Colour Code	Key to Pin Connections		Colour Code
A	Not used	Not used	H	Not used	Not used
B	Trailer stop light	Red	J	Not used	Not used
C	Not used	Not used	K	Auxiliary power winch	Red/yellow or Red/white
D	Earth	White	L	Earth	White
E	Marker and clearance lighting	Brown	M	Left-turn indicator	Yellow
F	Not used	Not used	N	Right-turn indicator	Green

Specifications

74. The electrical system specifications are as follows:

- a.** System voltage 12 V DC
- b.** Remote control current (winch) 1 A
- c.** Solenoid valve current (winch) 2.5 A
- d.** Connector plug 12 pin NATO

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END

Distribution List: **VEH H 08.0 – Code 2** (Maint Code)
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