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Ministry
of Defence



DE&S Secretariat Land Equipment & ISTAR

DESSEC-PolSec LE-JSC-WPNS@mod.uk

Defence Equipment & Support
Maple 0a '2043
MOD Abbey Wood
Bristol BS34 8JH

29-Nov-16 Our Reference:FOI2016/09103

Thank you for your e-mail dated 26th September 2016, requesting the following information:

I have just purchased the above detailed Leyland DAF T244 4-tonne 4x4 lorry from the Ministry of Defence disposal sales. Could you please supply any details you may hold regarding this particular vehicle on the Merlin or any other database you may hold. Of particular interest would be any history of units it served with.

I would like to locate manuals regarding the safe operation of this vehicle and any modifications that the MoD have made to them whilst in service. The particular documents I am looking for are to the best of my knowledge those detailed below:

1. AESP 2320-H-104-201 User Manual,
2. AESP 2320-H-104-811 Modification Instructions, and
3. AESP 2320-H-104-821 General Instructions.

Any information would gratefully received and would be for personal use as described. Electronic copies of any available information would be preferable but paper copies would be equally acceptable.

I am treating your correspondence as a request for information under the Freedom of Information Act 2000(FOIA).

A search for the information has now been completed within the Ministry of Defence, and I can confirm that some information, in scope of your request is held.

The information you have requested can be found attached, but some of the information falls entirely within the scope of the absolute exemption provided for at section 40 (Personal Data) of the FOIA and qualified exemption section 26(1)b (Defence) and has been redacted.

Section 40(2) has been applied to some of the information in order to protect personal information, as governed by the Data Protection Act 1998. Section 40 is an absolute exemption and there is therefore no requirement to consider the public interest in making a decision to withhold the information.

Section 26(1)b, is a qualified exemption and is subject to public interest testing which means that the information requested can only be withheld if the public interest in doing so outweighs the public interest in disclosure.

Section 26(1)(b) has been applied to some of the information because it contains details which are operationally sensitive which contribute to the C-IED tactics and would prejudice the capability and effectiveness of our armed forces. The balance of public interest was found to be in favour of withholding the information given that, overall, the public interest is best served in not releasing any details on the assistance we provide to other states. This would prejudice the security of UK personnel serving abroad and would provide tactical advantage to our enemies. It is for these reasons I have set the level of prejudice against release of the exempted information at the higher level of "would" rather than "would be likely to".

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If you remain dissatisfied following an internal review, you may take your complaint to the information commissioner under the provisions of section 50 of the freedom of information act. Please note that the information commissioner will not investigate your case until the mod internal review process has been completed. Further details of the role and powers of the information commissioner can be found on the commissioner's website, <http://www.ico.org.uk>.

Your Sincerley



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TRUCK, 4 TONNE, 4 X 4 GS LEYLAND DAF (ALL VARIANTS)

GENERAL INSTRUCTIONS AND INDEX

**Sponsored for use in the
UNITED KINGDOM MINISTRY OF DEFENCE
AND ARMED FORCES
by**

**DEFENCE EQUIPMENT & SUPPORT
GENERAL SUPPORT VEHICLE PROJECT TEAM**

**MOD Abbey Wood
Bristol
BS34 8JH**

Publication Authority:

GENERAL SUPPORT VEHICLE PROJECT TEAM

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AMENDMENT RECORD

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PREFACE

Sponsor: GSV IPT
Project No.:
File Ref:

Publication Authority: DGS&E-TIG

INTRODUCTION

- 1 The Publication Sponsor is responsible for the allocation of instruction numbers.
- 2 All modification instructions as issued are to be recorded in manuscript by the recipient on the Numerical Modification Instruction Index provided. Amendments to individual instructions are to be recorded on the instruction amendment record. All extant instructions and amendments can be found listed in the main AESP index.

NOTE

The Publication Sponsor is responsible for the preparation and maintenance of the Instruction Index and will advise the Distribution Authority on the issue of completed and subsequent blank index pages necessary.

- 3 Service users should forward any comments on this publication through the channels prescribed in AESP 0100-P-011-013. An AESP Form 10 is provided after the preliminary pages of this publication; it should be photocopied and used for forwarding comments on this AESP.
- 4 AESPs are issued under Defence Council authority and where AESPs specify action to be taken, the AESP will of itself be sufficient authority for such action and also for the demanding of the necessary stores.

GENERAL INSTRUCTION INDEX

SI: Servicing Instructions STI: Special Technical Instructions

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(continued)

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TRUCK, 4 TONNE, 4X4, GS
LEYLAND DAF (ALL VARIANTS)
GENERAL INSTRUCTION No. 1

Sponsor:
DGES(A)

Publication Agency:
Vehs & Wpns Br REME
Project No: 71812(23)
File ref: 3416/36

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
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SUBJECT: Headlamp dim dip

Approval No 12-4836

INTRODUCTION

1 On later build equipments to comply with changes in legislation, an increase in brilliance to the head lamp dim dip mode has been introduced. When resistor component failure occurs, vehicles fitted with original resistors can continue to use this item until stocks have exhausted. At that point the revised item will be supplied as a supersession. This instruction provides all the necessary details.

APPLICABILITY

2 Truck, 4 Tonne, 4x4, GS Leyland DAF (All variants).
Up to chassis number L113787.

IMPLEMENTATION

3

3.1 The following details are provided for information.

3.1.1 Vehicles prior to chassis number L113787 are equipped with resistor NSN 7FW 5905-99-742-4435.

3.1.2 Vehicles subsequent to chassis number L113787 are equipped with resistor NSN 7FW 5905-99-056-3319.

3.1.3 When resistor component failure occurs "like" should be replaced with "like". However, when resistor type NSN 7FW 5905-99-742-4435 becomes unavailable the resistor NSN 7FW 5905-99-056-3319 should be fitted.

TRUCK, 4 TONNE, 4 X 4, GS LEYLAND DAF

(ALL VARIANTS)

GENERAL INSTRUCTION No. 2

Sponsor:
DGES(A)

Publication Agency:
Vehs & Wpns Br REME
Project No: 71812(87)
File ref: 3416/34

AMENDMENT RECORD

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1		21/9/95
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SUBJECT: Repositioning of front airline couplings.

INTRODUCTION

1 To permit in-service supported recovery of the subject vehicle, the service and emergency airline couplings and associated brackets have to be repositioned. This instruction provides all the necessary details.

APPLICABILITY

2 Truck, 4 Tonne, 4x4, GS, Leyland DAF - (All variants).

SEQUENCE OF OPERATIONS

3

3.1 To avoid the airline couplings fouling the spreader bar during recovery, the following procedure is to be adopted:

3.1.1 Slacken the service line palm coupling union and turn it through 90°, so that the mating face is positioned "upwards". Retighten the union.

3.1.2 Using suitable hand tools, incline the coupling mounting upward by approximately 30° from the horizontal. This should give clearance of the spreader bar, but increase the angle if this is not the case.

3.1.3 Slacken the emergency line palm coupling union and turn it through 90°, so that the mating face is positioned "downwards". Retighten the union.

3.1.4 Using suitable hand tools, incline the coupling mounting upward by approximately 30° from the horizontal. This should give clearance of the spreader bar, but increase the angle if this is not the case.

4 Associated modification instructions:

4.1 AESP 2320-N-502-811 Mod Instr No 10, Recovery Vehicle Wheeled GS, 6 x 6, Foden.

4.2 EMER Wheeled Vehicles R 197/1 Mod Instr No 20, Recovery Vehicle, Wheeled, CL, 6 x 4, Scammell Crusader.

TRUCK, 4 TONNE, 4 x 4 GS
LEYLAND DAF (ALL VARIANTS)
GENERAL INSTRUCTION No. 3

Sponsor:
DGES(A)

Publication Agency:
Vehs & Wpns Br REME
Project No: 71812(138)
File ref: 3416/32

AMENDMENT RECORD

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SUBJECT: Winch Fairlead Roller Mounting Bracket

(Approval No 12-4304)

INTRODUCTION

1 It has been found that the Bolts which secure the winch fairlead bracket to the chassis frame are too long. Subsequently the protrusion of the bolt thread could foul the winch rope. To overcome this problem, washers are to be fitted under the bolt heads to reduce the protrusion.

APPLICABILITY

2 Truck 4 tonne 4x4 GS Leyland Daf with winch EAC 2050-3101, 2050-8102, 2096-8101 and 2096-3100 up to Chassis No L060692.

IMPLEMENTATION

3 Units holding subject vehicles are to remove the front fairlead bracket to chassis frame securing Bolts, situated above the rearmost roller and fit two plain washers NSN G1 5310-99-122-6478 under each bolt head. This will reduce the bolt thread protrusion and increase the clearance for the winch rope route.

**TRUCK, 4 TONNE, 4 x 4, GS,
LEYLAND DAF (ALL VARIANTS)
GENERAL INSTRUCTION No. 4**

File Ref: 3416/40

Vehs and Wpns Br REME
Project No: 71912(114)

- A STI/MT/Leyland AFG 027
- B 1 Truck, 4 Tonne, 4x4, GS, Leyland DAF - all variants with VRNs listed at Annex A.
2 Truck, 4 Tonne, 4x4, GS, Leyland DAF - all variants with VRNs listed at Annex A, held in BVD.
- C Cases have been reported where a capacitor within the alternator has burnt out, resulting in the plastic rear cover and associated wiring suffering heat damage.
- D 1a At the earliest opportunity but no later than 28 days following receipt of this instruction.
1b (1) Demand NSN 6MT4 5910-99-611-3641, Capacitor (1 off).

Removal

- (2) Refer to AESP 2323-H-104-522, Chapter 13, Page 4 to remove the drive belt.
- (3) Identify the position of all the electrical leads on the back of the alternator and disconnect.
- (4) Identify the electrical lead to the oil filter sender unit and disconnect.
- (5) Remove the alternator upper mounting fixings. Slacken the lower mounting. Swing the alternator away from the engine.
- (6) Remove the alternator rear plastic cover (two screws).

Refer to Fig 1

NOTE

The orientation of the spade terminal (item 2) located behind the capacitor mounting.

- (7) Remove the capacitor FBU4806 (item 1) from the -ve terminal and the capacitor lead from the +ve terminal and discard.

Refitting

- (8) Fit the replacement capacitor 6MT4 5910-99-611-3641 and secure, ensuring the spade terminal behind the capacitor is correctly located.
- (9) Reassemble alternator.
- (10) Reconnect the batteries.

(11) Start engine and check for correct alternator operation.

1c 1 man hour - Veh Mech.

2a BVD's before issue of vehicle.

2b As per Para D1b.

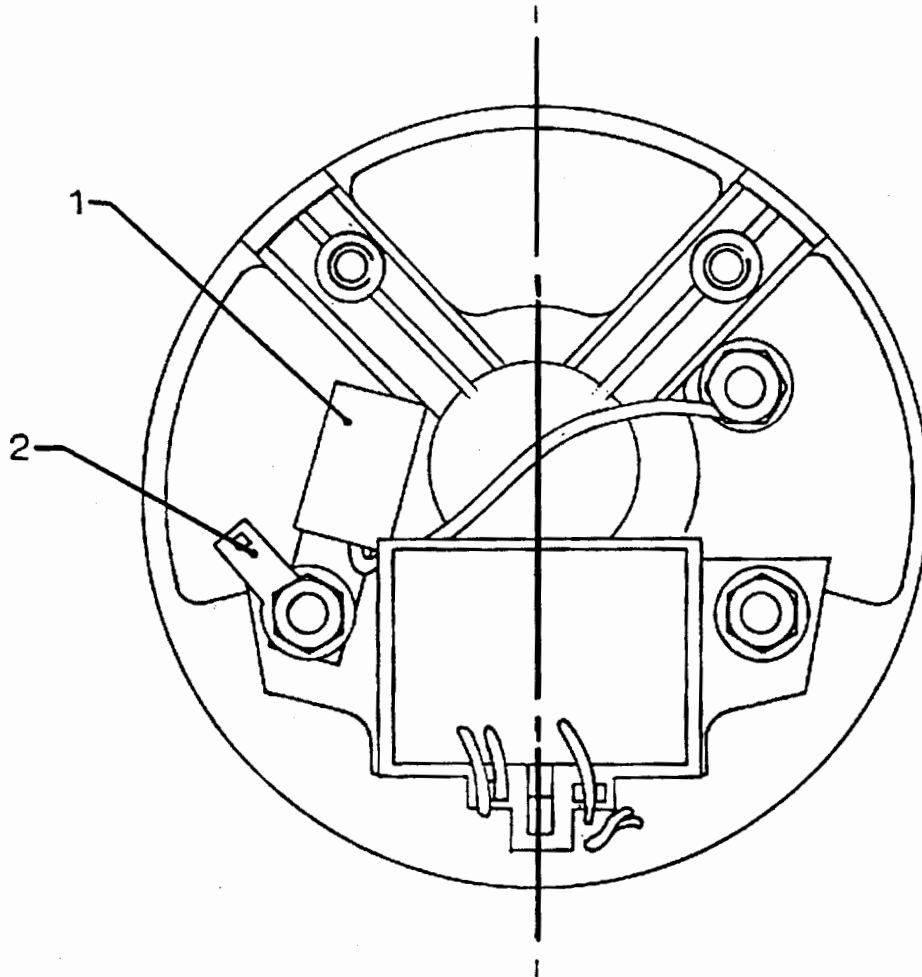
E 1 Enter details on instruction index. Record Gen Instr No and action taken in vehicle documents.

F Equipment Failure Report are not required.

G 1 N/A

2 N/A

H N/A



V11862/1

Fig 1 Rear view of alternator (with cover removed)

ANNEX A

REGISTRATION NUMBERS REQUIRING ALTERNATOR CAPACITOR REWORK

			24KJ17		
19KJ30	TO	19KJ32	24KJ28		
19KJ34	TO	19KJ36	24KJ35		
19KJ46			24KJ54		
19KJ49			24KJ63		
19KJ59			24KJ66	TO	24KJ70
19KJ62			24KJ72	TO	24KJ99
19KJ65			25KJ00	TO	25KJ36
19KJ68			25KJ41	TO	25KJ95
19KJ70	TO	19KJ99	26KJ05	TO	26KJ99
20KJ00	TO	20KJ24	27KJ00	TO	27KJ99
21KJ60			28KJ00	TO	28KJ99
21KJ66	TO	21KJ69	29KJ00	TO	29KJ99
21KJ84			30KJ00	TO	30KJ99
21KJ95			31KJ00	TO	31KJ99
22KJ07			32KJ00	TO	33KJ99
22KJ09	TO	22KJ10	33KJ00	TO	33KJ60
22KJ12			33KJ62	TO	33KJ63
22KJ15	TO	22KJ16	33KJ65	TO	33KJ70
22KJ20			56KJ76		
22KJ24			73KJ78	TO	73KJ95
22KJ26	TO	22KJ32	74KJ01	TO	74KJ14
22KJ34	TO	22KJ99	83KJ67	TO	83KJ74
23KJ00	TO	23KJ28	03KK34	TO	03KK48

**TRUCK, 4 TONNE, 4 x 4, GS
LEYLAND DAF (ALL VARIANTS)**

GENERAL INSTRUCTION No. 5

Sponsor:
DGES(A)

Publication Agency:
Vehs & Wpns Br REME
Project No: 71912 (201)
File ref: 3416/50

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
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SUBJECT: Revised Rear Cab Mounting
(Approval No 12-4881)

INTRODUCTION

1 This instruction introduces a revised rear cab mounting designed to overcome in service problems of rubber separation from the central metal bush.

1.1 Limitations on use of equipment. Nil

APPLICABILITY

2 Truck, 4 tonne, 4 x 4, Leyland DAF (all variants).

IMPLEMENTATION

3

3.1 A revised rear cab mounting, NSN: 6MT1/5340-99-457-4169, has been introduced and will be supplied when demands for the original, (6MT1/5340-99-300-0497), which was prone to rubber separation from the central metal bush, are received. Although totally interchangeable, there are some visual differences associated with the rubber element of the revised unit.

3.2 Units are advised that if a replacement mounting is deemed necessary, and the separation of the original is only partial, provided a weekly check is kept to ensure the separation is not increasing, the vehicles can be used without restriction pending the receipt of the revised unit.

TRUCK, 4 TONNE, 4 x 4, GS, LEYLAND DAF

(ALL VARIANTS)

GENERAL INSTRUCTION NO 6

File Ref: 3416/52

Vehs & Wpns Br REME
Project No: 71912(235)

- A STI/MT/Leyland AHG 028
- B1 Truck, 4 Tonne, 4 x 4, GS, Leyland DAF - all variants up to Chassis No L121127 and L121197, L121346 and L121515.
- B2 Truck, 4 Tonne, 4 x 4, GS, Leyland DAF - all variants up to Chassis No L121127 and L121193, L121197, L121346 and L121515 held in BVD.
- C A number of vehicles entered service with the seat belt buckle stalk, for the centre and outside passenger seats, incorrectly positioned. This contravenes DoT regulations.
- D 1a At the earliest opportunity but no later than 28 days following receipt of this instruction.
- 1b (1) Inspect the centre and outside passenger seat belt stalks. Without the stalks being crossed, the buckle with the plain red release button should serve the centre seat and the buckle with the red release button marked 'PRESS' should serve the outside passenger seat. If the orientation is as above take no further action. If this is not the case, proceed as follows:
- (1.1) Release the centre/outer passenger seat belt stalks mounting bracket, attached to the cab floor, sufficiently to allow the bracket to be turned. (Note position of mounting bracket for re-assembly).
- (1.2) Turn the mounting bracket to allow access to the seat belt stalks securing bolt, and remove the bolt and stalks.
- (1.3) Position the stalks as described in Para D1b(1) and refit securing bolt (Torque loading 28-35 Nm).
- (1.4) Re-secure the seat belt stalks mounting bracket (Torque loading 28-35 Nm).
- 1c 0.5 man hour - Veh Mech.
- 2a BVDs before issue of vehicle.
- 2b As per Para D1b.
- E1 Enter details on instruction index. Record Gen Instr No and action taken in vehicle documents.
- F Equipment Failure Reports are not required.
- G1 N/A
- 2 N/A
- H N/A

TRUCK, 4 TONNE, 4 x 4, GS, LEYLAND DAF

GENERAL INSTRUCTION No. 7

Sponsor:
DGES(A)

Publication Agency:
Vehs & Wpns Br REME
Project No: 72012(22)
File ref: 3416/53

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SUBJECT: Fuel tank filler extension

(MAE 12-4880)

INTRODUCTION

1 This instruction details the fitment of a fuel tank filler extension to permit jerry can fuel filling.

1.1 Limitations on use of equipment. Nil.

APPLICABILITY

2 Truck, 4 Tonne, 4 x 4, GS, Leyland DAF (All variants).

Stores required

3 Stores to be demanded.

Item No	DMC	NSN/Part No.	Designation	Qty per eqpt
1	7FW	2910-99-301-1406	Extension piece	1

Detail

4 Remove fuel tank cap. Twist and remove fuel tank strainer and discard. Fit fuel tank filler extension piece, (item 1).

NOTE

New extension can be used when filling with a fuel can.

TRUCK, 4 TONNE, 4 x 4, GS, LEYLAND DAF

(ALL VARIANTS)

GENERAL INSTRUCTION No. 8

Sponsor:
DGES(A)

Publication Agency:
Vehs & Wpns Br REME
Project No: 72012(49)
File ref: 3416/55

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SUBJECT: New air expansion tank (ping tank) mounting clamp
(MAE 12-4878)

INTRODUCTION

1 A new stronger air expansion tank (ping tank) mounting clamp has been introduced on production from chassis No L123528 to overcome in-service problems of associated component (pipes, connectors, tanks, etc) fracture caused by excessive vibration. Original type clamps are to be replaced with revised type when failure occurs.

1.1 Limitations on use of equipment. Nil.

APPLICABILITY

2 Truck, 4 Tonne, 4 x 4, GS, Leyland DAF, (All Variants) with chassis numbers up to and including L123527.

Stores required

3

3.1 Stores to be demanded.

Item No	DMC	NSN/Part No.	Designation	Qty per eqpt
1	7FW	5340-99-437-6989	Clamp	2

Implementation

4 On discovering defective components remove old clamps and replace with new.

TRUCK, 4 TONNE, 4 x 4, GS LEYLAND DAF

(ALL VARIANTS)

GENERAL INSTRUCTION No. 9

(Completely revised)

Sponsor:
DGES(A)

Publication Agency:
ATSA Chertsey
Project No: ES52c/5148(66)
File ref: 98/52c/5148/LVG

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SUBJECT: Revised exhaust bellows and silencer mountings

(Approval No. MAE 12-4898/1)

INTRODUCTION

1 Following numerous failures with various components in the exhaust system, the manufacturers have introduced improvements to the exhaust turbo bellows and silencer installation. This instruction provides all necessary details.

APPLICABILITY

2 Truck, 4 Tonne, 4 x 4, GS, Leyland Daf, (All Variants).

STORES REQUIRED

3

3.1 Stores to be demanded:

Item No	DMC	NSN/Part No.	Designation	Qty per eqpt
1	7FW	2815-99-051-9598	Silencer installation kit.	1

IMPLEMENTATION

4 When any of the following exhaust system components fail: turbo bellows, silencer clamping bands or mounting bracket fixing studs, the kit (item 1, Para 3) is to be fitted in its entirety.

INSTALLATION**5**

5.1 Assemble mounting straps Fig 1 (8), heat shield (7) and mounting brackets (5 and 6) to exhaust silencer, **do not** fully tighten fixings at this stage.

5.2 Slacken the clamps (A and B) securing the exhaust pipe (C) and elbow (D). Suitably support the silencer assembly and lift into position. Using appropriate screws locate silencer mounting brackets (5 and 6) to clutch housing and gearbox, and secure. Tighten to a torque of between 49 to 60 Nm (36 to 44 lbf/ft).

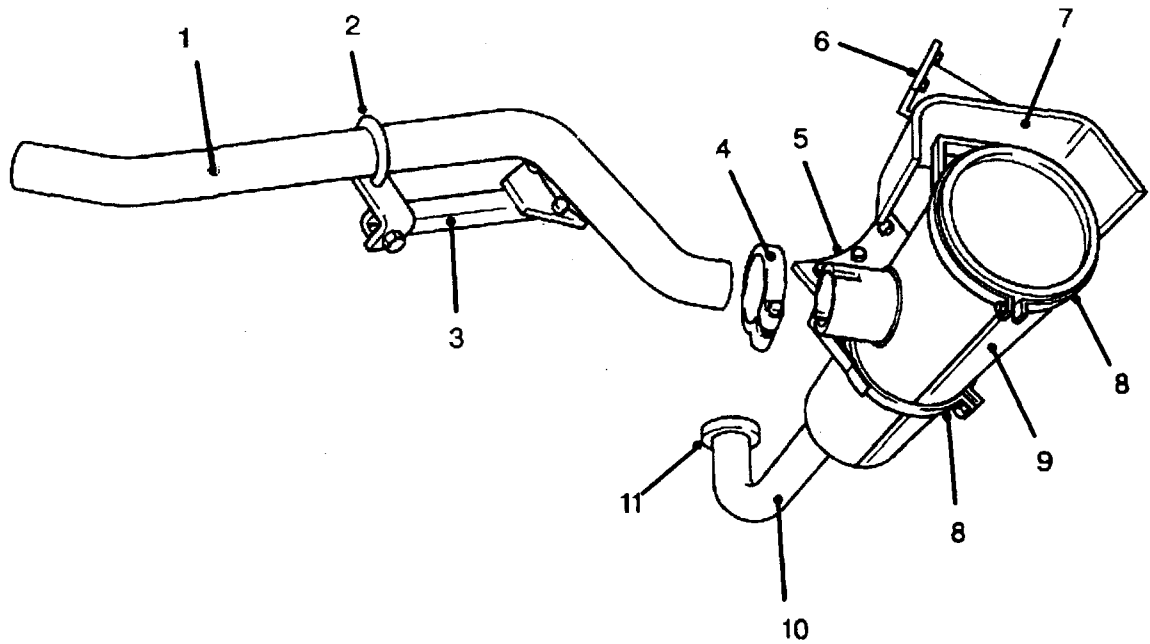
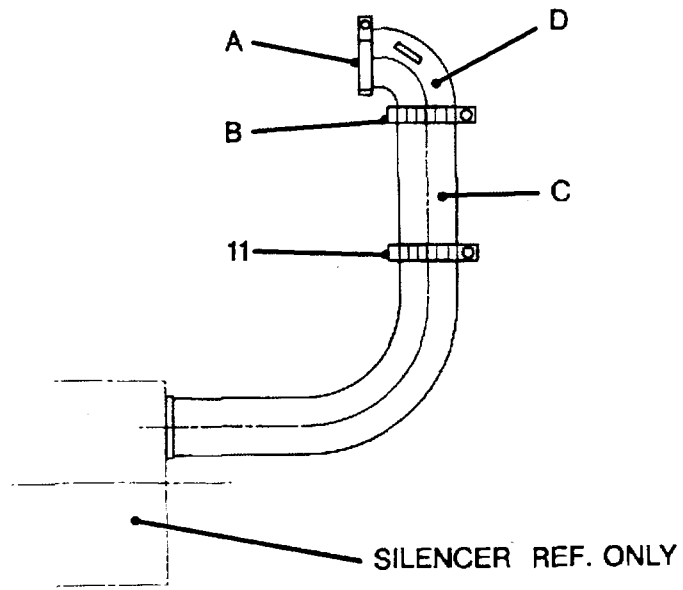
5.3 Align silencer down pipe (10) with exhaust pipe (C) and fit clamp (11). **Do not** fully tighten at this stage. Align all parts ensuring that no part of the exhaust system is prestressed.

6 Secure all parts in the following order:

6.1 Pinch bolts of silencer mounting straps (8). Do not overtighten, ears of strap should just come together.

6.2 Silencer mounting straps (8) to mounting brackets (5 and 6). Torque tighten to 87-103 Nm (64-76 lbf ft).

6.3 Clamps (A, B and 11) for exhaust pipe (C) and elbow (D). **On LHD variants only**, fit the tail pipe and secure.



V14412/1

- 1 Tail pipe
- 2 Clamp
- 3 Support bracket
- 4 Clamp

- 5 Mounting bracket
- 6 Mounting bracket
- 7 Heat shield
- 8 Mounting strap

- 9 Silencer
- 10 Down pipe
- 11 Clamp

Fig 1 Exhaust system

**TRUCK, 4 TONNE, 4 X 4, GS, LEYLAND DAF
(ALL VARIANTS)**

GENERAL INSTRUCTION No. 10

Publication Agency:
ATSA Chertsey
Project No: 52c/4439/012/|LVG(128)
File ref: DE/CH/LVG/4439/4

Enter the following details on the index:

- A. Title. STI/MT/Leyland AHG 029 Replacement of rear axle lock washer.
- B. Application.
- B1. Truck, 4 Tonne, 4 x 4, GS Leyland DAF - all variants up to and including chassis No L147049.
- C. Reason for instruction. Cases have been reported of the existing lock washer riding out of the key way caused by the tang being too short. The new lock washers are 2 mm thicker with a 1.25 mm longer tang.
- D. Inspection and remedial action.
- D1. At the next strip down of the rear axle hubs following receipt of this instruction.
- D1a. Replace lock washer MPN-MZK 9111 with new lock washers MPN-NJJ 2930, NSN 7FW/5310-99-570-6330.
- D1b. Strip, fit new lock washer and adjust in accordance with AESP 2320-H-104-522 Chapter 5.
- CAUTION**
- EQUIPMENT DAMAGE. Do not use the new washer on the 4 tonne 4 x 4 front axle assemblies as the existing washer is not interchangeable. The front axle retains the existing lock washer (MPN-MZK 9111).**
- D2. 1.5 man-hours Veh Mech (Army).
- E. Recording.
- E1a. Army - Enter details on instruction index. Record the STI No and action taken in vehicle documents.
- E1b. RAF - Enter details on instruction index. Record modification details on RAF Form 4870 and AF G1084A. Units operating STAMA are also to record modification details on ADP MTMS Job Certification Sheet and to follow procedures laid down in AP 100-08A.
- F. Reporting.
- F1a. Equipment failure reports are not required.
- G. Action affecting compliance with the instruction.
- G1. Nil.
- H. Effect on operating or handling.
- H1. Nil.

TRUCK, 4 TONNE, 4 X 4, GS, LEYLAND DAF

(ALL VARIANTS)

GENERAL INSTRUCTION NO. 11

Sponsor:
DGES(A)

Publication Agency:
ATSA Chertsey
Project No: 72212(134)
File ref: 97/52c/4440/001/19/LVG

- A. STI/MT/Leyland AHG 031 Replacement of PTO Pump Elbow Union.
- B1. Truck, 4 Tonne, 4 x 4, GS, Leyland DAF, CALM Variants.
- C. The PTO hydraulic oil input union can, on severe off road articulation, foul the prop-shaft.
- D1a. At the earliest opportunity but no later than 28 days following the receipt of this instruction.
- D1b. (1) Demand NSN 7FW 2590-99-362-7253, Parts Kit (1 off).

Removal

- (2) Isolate batteries.
- (3) Before working on the hydraulic system release the air pressure from the hydraulic reservoir.
- (4) Check the front prop-shaft in the area of the foul. If the shaft shows any sign of damage, other than paint loss, i.e. grooving/metal loss, the shaft must be replaced.
- (5) Remove hydraulic input pipe to PTO pump at elbow to union. A suitable container will be required to collect the hydraulic fluid.
- (6) Remove union and washer from PTO pump and discard.

Refitting

- (7) Refer to Fig 1. Fit new Dowty seal (Item 2) and new union (Item 1) to PTO pump and secure.
 - (8) Refit hydraulic input pipe elbow (Item 3) to PTO pump union and secure.
 - (9) Refill PTO system with fluid (OM 33), reconnect batteries, operate crane and check PTO system for fluid leaks. Top up PTO reservoir as required.
- D1c. 1.0 man-hours Veh Mech (Army).
 - E1a. Army - Enter details on instruction index. Record the STI number and action taken in vehicle documents.
 - E1b. RAF - Enter details on instruction index. Record modification details on RAF Form 4870 and AF G1084A. Units operating STAMA are also to record modification details on ADP MTMS job Certification Sheet and to follow procedures laid down in AP 100-08A.

F. Equipment Failure Reports are not required.

G. Nil.

H1. Nil.

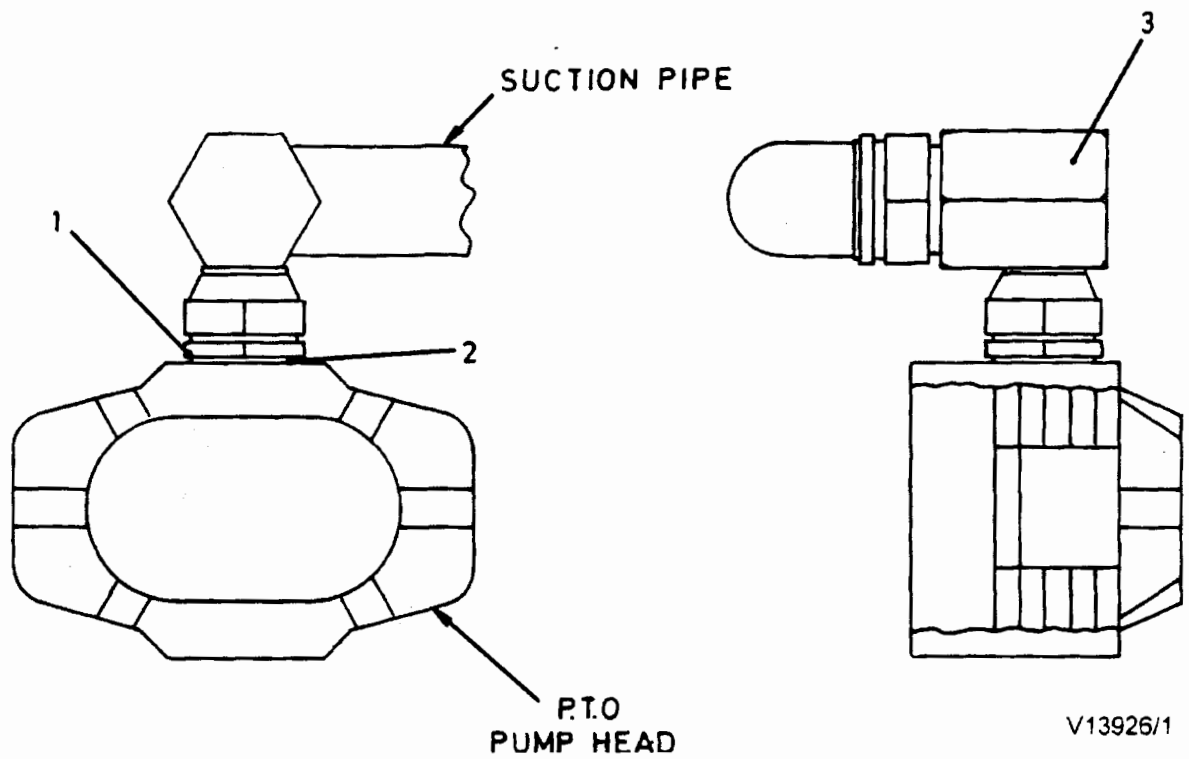


Fig 1 PTO Pump Elbow and Union

**TRUCK, 4 TONNE, 4 X 4, GS, LEYLAND DAF
(ALL VARIANTS)**

GENERAL INSTRUCTION NO. 12

Sponsor:
DGES(A)

Publication Agency:
ATSA Chertsey
Project No: 72212(135)
File ref: 97/52c/4440/001/19/LVG

- A. STI/MT/Leyland AHG 030 Replacement of Telescopic Section Mounting Plate - Atlas AK63M7 Crane.
- B1. Truck, 4 Tonne, 4 x 4, GS, Leyland DAF, CALM Variants.
- C. To improve crane telescopic section retention.
- D1a. At the earliest opportunity but no later than 28 days following the receipt of this instruction.
- D1b (1) Demand NSN 7FW 2590-99-203-9635, Parts Kit (1 off).

Removal

- (2) With the crane folded away correctly, stand in line with the passenger side crane leg, look directly in the back of the telescopic section and locate the two mounting plate retaining screws.
- (3) Remove the two mounting plate retaining bolts and then remove the mounting plate

NOTE

If more room is required, remove the circlip on the ram retaining pin and knock out the pin for increased movement.

Refitting

- (4) Place the new plate in position, fit the replacement bolts and tighten to 19 Nm.
- (5) Refit ram pin and circlip if removed.

- D1c. 0.5 Man-hours Veh Mech (Army).
- E1a. Army - Enter details on instruction index. Record the STI No. and action taken in vehicle documents.
- E1b. RAF - Enter details on instruction index. Record modification details on FWDCODE AHG 030 RAF Form 4870 and AF G1084A. Units operating STAMA are also to record FWD CODE AHG 030 modification details on ADP MTMS job Certification Sheet and to follow procedures laid down in AP 100-08A.
- F. Equipment Failure Reports are not required.
- G. Nil.

TRUCK, 4 TONNE, 4 X 4, GS, LEYLAND DAF (ALL VARIANTS)

GENERAL INSTRUCTION NO. 13

Sponsor:
DGES(A)

Publication Agency:
ATSA Chertsey
Project No: 72212(136)
File ref: 97/52c/4624/19/LVG

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
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Amdt No.	Incorporated by (Signature)	Date
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SUBJECT: Checking telescopic section wear pad adjustment - Atlas AK63M7 crane.

INTRODUCTION

1 This instruction provides the correct checking and adjustment details of the telescopic section wear pads on the Atlas AK6347 crane.

APPLICABILITY

2 Truck, 4 Tonne, 4 x 4, GS, Leyland DAF, CALM Variants.

IMPLEMENTATION

3

3.1 The following check should be carried out every 12 months. All figure references refer to AESP 2320-H-104-711, Chap 2-18-1, Page 80 Fig 15.

3.2 Unfold the crane to a horizontal position over the rear body.

3.3 Extend the telescopic section of the crane by approximately 0.5 metres.

3.4 Using a feeler gauge, capable of measuring up to 5 mm, measure the clearance between the telescopic slide (Fig 15 (28)) and the wear pads (Fig 15 (19)) in the end of the jib. **This measurement must be taken between the top of the telescopic section and the inside of the top of the jib, where the top guide pads are located by Allen screws.**

3.5 The maximum permitted clearance between the telescopic section and the wear pad is 3 mm.

3.6 If the clearance exceeds 3 mm, the clearance is to be adjusted using 1 mm shims (Fig 15 (18)) MPN-FBU6582.

3.7 To obtain the correct clearance, add or remove shims by removing the Allen screws (Fig 15 (20)) and, with the jib horizontal over the rear body, remove the two wear pads and any existing shims. (The shims can be levered out of the end of the jib using a suitable tool). Inspect the pads to ensure that there is enough plastic wear surface left before the encapsulated nuts for the Allen screws start to rub against the telescopic slide. Worn pads are to be replaced as a set of two.

3.8 Refit pads to the end of the jib using the required amount of shims to obtain a clearance of between 2 mm and 3 mm.

NOTE

Minimum permitted clearance is 2 mm.

TRUCK, 4 TONNE, 4 X 4, GS, LEYLAND DAF

(ALL VARIANTS)

GENERAL INSTRUCTION NO. 14

(Completely revised)

Sponsor:
DGES(A)

Publication Agency:
ATSA Chertsey
Project No: 98/52c/4945(816)
File ref: 98/52c/4945/LVG

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
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SUBJECT: New speedometer.

(Approval No. 12-4936)

INTRODUCTION

1 This instruction provides details of a new speedometer for the subject vehicles, to be fitted on failure of existing speedometer.

APPLICABILITY

2 Truck, 4 Tonne, 4 x 4, GS, Leyland DAF, All Variants.

IMPLEMENTATION

3

3.1 The original speedometer (7FW 6680-99-943-8916) is no longer available from the supplier. A replacement has been identified and codified (7FW 6680-99-724-2132).

3.2 The new speedometer is supplied complete with a link harness and instruction drawing. The harness allows the connecting of the new speedometer to the existing loom.

INSTALLATION

4 Using the link harness to connect the new speedometer to the original harness (already disconnected from the rear of the old speedometer) and the single way connectors to fit into the bulb holders. There is a positive and negative connector on each bulb holder, these can be connected either way round, and then connect the new speedometer.

CALIBRATION

5

5.1 Push the button on the lens and hold while the ignition is switched ON.

5.2 The display will alternate AUTOCL PULSE and ADJUST. Release the button when PULSE is displayed.

5.3 Once PULSE is selected the display shows (P—0) the zero will always be showing and the remaining blanks may show figures. The second digit from the right will be flashing (P—*0). The flashing digit may be altered, by pressing the button until the required figure is displayed. Release the button and the next digit will commence flashing. Repeat the process until the correct number is displayed.

5.4 The required pulse distance ratio is **7940**. As described in Sub-Para 5.2, and **0** in the seventh position will always be present, therefore the required numbers to be entered are **794**. Any remaining blanks should be set at zero, giving a final display of **P007940**.

TRUCK, 4 TONNE, 4 X 4, GS LEYLAND DAF

(ALL VARIANTS)

GENERAL INSTRUCTION NO. 15

Sponsor:
DGES(A)

Publication Agency:
ATSA Chertsey
Project No: 98/52c/4934(792)
File ref: 98/52c/4934/LVG

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
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Amdt No.	Incorporated by (Signature)	Date
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SUBJECT: Drop glass rubber joint change
(Approval No. 12-4954)

INTRODUCTION

1 The original two part 'rubberflock' door glass seal is susceptible to premature failure due to water ingress; to overcome the problem the manufacturer has introduced a revised pattern one piece seal. All necessary part numbers are provided.

APPLICABILITY

2 Truck, 4 Tonne, 4 x 4, GS, Leyland DAF, All Variants.

IMPLEMENTATION PLAN

3 When failure of the original two part door glass seal occurs, Manufacturers No. NAH4052 (NSN 7FW/2540-99-620-8415) a revised pattern one piece seal Manufacturers No. ACAR480 (NSN 7FW/2540-99-573-6083) should be demanded and fitted.

TRUCK, 4 TONNE, 4 X 4, GS, LEYLAND DAF

(ALL VARIANTS)

GENERAL INSTRUCTION NO. 16

Sponsor:
DGES(A)

Publication Agency:
ATSA Chertsey
Project No: 98/52c/4933(331)
File ref: DE/CH/3417/LVG

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
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Amdt No.	Incorporated by (Signature)	Date
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SUBJECT: Clutch operating lever pivot mounting bush
(Approval No. 12-4952)

INTRODUCTION

1 This instruction, when implemented, will prevent the clutch operating lever pivot mounting bush from working loose in service.

APPLICABILITY

2 Truck, 4 Tonne, 4 x 4, GS, Leyland DAF, All Variants.

Stores, tools and equipment

3

3.1 Stores to be demanded:

3.1.1 The following items are to be demanded quoting this instruction as the authority.

Item No	DMC	NSN/Part No.	Designation	Qty per eqpt
	7FW	3120-99-485-2865	Mod set: comprising:	1
1		ACHG 787	Adaptor.	(1)
2		NH112041	Nut.	(1)
3		NH112041/1	Lock-nut.	(1)
4		WT 112001	Washer.	(1)
5	F1	5120-99-434-7202	Stud remover special type No. 6.	1

IMPLEMENTATION PLAN

4 This instruction is to be carried out only when the main gearbox has been removed for repair or for clutch assembly maintenance.

Sequence of operations

5 With the main gearbox removed, carry out this instruction as follows:

NOTE

The item numbers of Para 3 are used as reference throughout this instruction.

- 5.1 Remove clutch operating lever and clutch release bearing.
- 5.2 Remove the old clutch operating lever pivot mounting bush using the stud remover (item 5) to break the bonding, then drive out the bush and stud remover from the rear of the clutch housing with a parallel punch.
- 5.3 Push adaptor (item 1) into the pivot recess until thread protrudes through the rear face of the housing.
- 5.4 Using washer (item 4) and nut (item 2) pull adaptor into the counterbore of the recess, when the adaptor bottoms torque tighten nut (item 2) to 57-79 Nm (42-58 lbf ft).
- 5.5 Fit lock-nut (item 3) and torque tighten to 57-79 Nm (42-58 lbf ft).
- 5.6 Using Loctite 242 NSN H1 8030-99-225-0248 fit ball joint into adaptor and allow 15 min curing time.
- 5.7 Ensure clutch release bearing sleeve and abutment pad (interface with release lever) are clean and lightly smeared with grease XG 279.
- 5.8 Refit clutch operating lever and clutch release bearing.

TRUCK, 4 TONNE, 4 X 4, GS, LEYLAND DAF

(ALL VARIANTS)

GENERAL INSTRUCTION NO. 17

Sponsor:
DGES(A)

Publication Agency:
ATSA Chertsey
Project No: 98/52c/4949(330)
File ref: DE/CH/LVG/3416

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
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Amdt No.	Incorporated by (Signature)	Date
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SUBJECT: Gearbox selector fork to selector shaft securing screws
(Approval No. 12-4952)

INTRODUCTION

1 This instruction, when implemented, will prevent the selector fork to selector shaft securing screws from working loose during in service use.

APPLICABILITY

2 Truck, 4 Tonne, 4 x 4, GS Leyland DAF, (all variants).

IMPLEMENTATION PLAN

3 This instruction is to be carried out at levels 3 or 4 during rebuild of the main gearbox following overhaul or repair to internal components.

Sequence of operations

4

4.1 Ensure all screw threads are thoroughly cleaned using Loctite 7061 NSN H1 6850-99-701-4574.

4.2 Apply Loctite 242 NSN H1 8030-99-225-0248 to the thread of the selector shaft securing screws.

4.3 Fit and tighten screws to a torque of 18 to 24 Nm (13 to 18 lbf ft) in accordance with AESP 2320-H-104-523 Chapter 3 Page 14 to 16.

TRUCK, 4 TONNE, 4 X 4, GS LEYLAND DAF

(ALL VARIANTS)

GENERAL INSTRUCTION No. 18

Sponsor:
GSV IPT

Publication Agency:
TES TI DLO Andover
Project No: PDS 1A/285 Task 015
File ref: GSV/9/9/3/7

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
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Amdt No.	Incorporated by (Signature)	Date
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SUBJECT: Independent trailer brake valve (Hill hold)

(Approval No. 12-4968)

INTRODUCTION

1 This instruction introduces a new trailer brake valve which should only be fitted on vehicles where the existing valve (which is no longer available) has ceased to function or it has become inoperable due to accidental breakage of the operating lever.

APPLICABILITY

2 Truck, 4 Tonne, 4 x 4, GS, Leyland DAF, all variants.

STORES REQUIRED

3

3.1 Stores to be demanded:

Item No	DMC	NSN/Part No.	Designation	Qty per eqpt
		2530-99-990-8335	Valve Kit	1
1		4820-99-727-7861	Valve, hill hold	(1)
2		4730-99-860-4625	Adaptor	(1)
3		4730-99-367-1596	Elbow	(1)
4		10299980	Plug	(1)

3.2 Stores or suitable equivalent to be obtained locally:

5	HI	8030-99-225-0249	Loctite 572	As req'd
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IMPLEMENTATION

NOTE: Deplete any air from the system.

4 Removal of existing valve.

4.1 Remove the four screws securing the upper centre control panel (Fig 1 (6)) and pull away from bulkhead centre trim panel to gain access to valve piping.

4.2 Depress the quick release sleeves on both the supply adaptor and delivery elbow and withdraw the pipes (7) and (8).

4.3 Remove the exhaust air pipe (9) from the valve stub pipe and tuck it away behind the lower centre panel. This pipe is no longer required.

4.4 Remove the two screws and washers securing the ON/OFF dial (10) and the valve to control panel. Retain the screws and washers. Discard the valve.

5 Fitment of new valve.

5.1 Apply Loctite 572 (5) to the threads of the adaptor (2), elbow (3) and plug (4). Screw them into the valve (1) as shown in Fig 1.

5.2 Allow the Loctite to cure then, fit the valve and the ON/OFF dial to the control panel ensuring that the delivery elbow on the valve body is at the bottom. Secure with the two screws and washers.

5.3 Refit the supply and delivery pipes (7 and 8) to their respective push in adaptors on the valve body.

5.4 Position the upper control panel on the bulkhead centre trim panel and secure with the four screws.

TESTING AFTER IMPLEMENTATION

6 Charge the air system, couple to an appropriate trailer and carry out a full Roller Brake test as stated in AESP 2300-A-050-013 B Vehicle Test, Inspection and certification, in conjunction with AESP 2530-D-051-512 B Vehicles Air Braking System Inspection procedure.

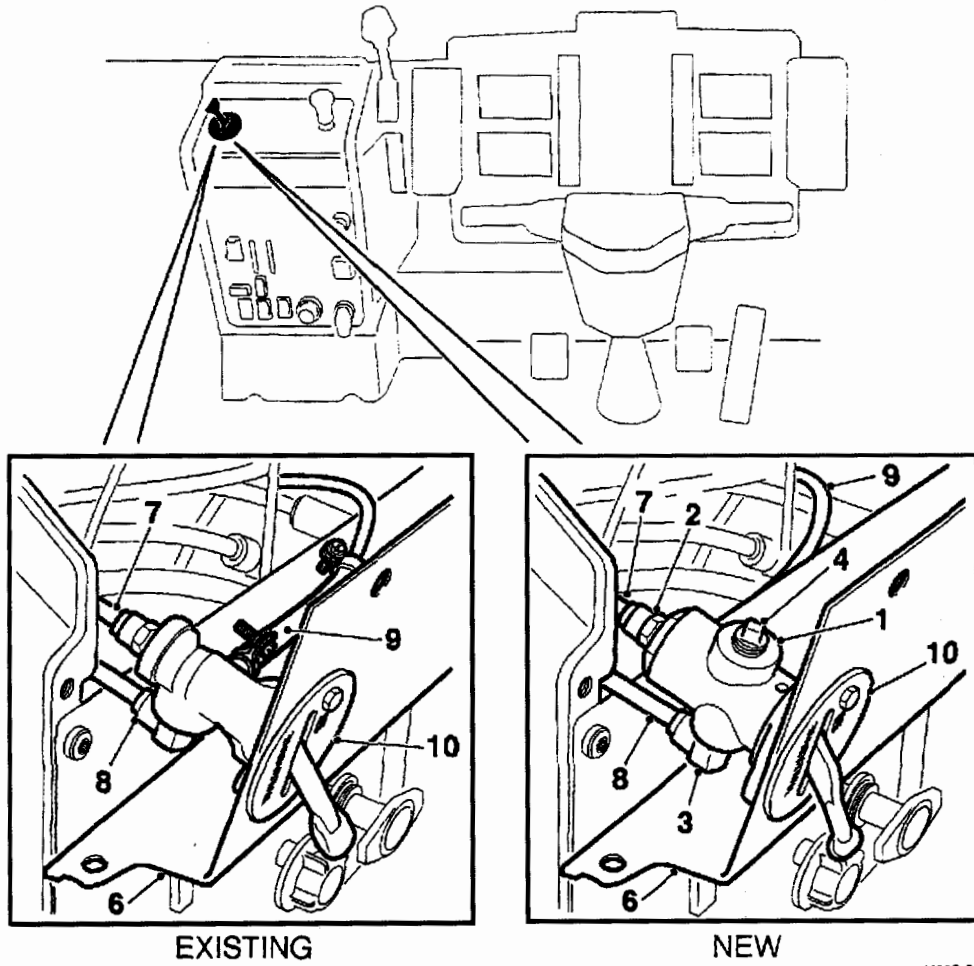


Fig 1 Independent trailer brake valve (Hill hold) installation

TRUCK, 4 TONNE, 4 X 4, GS, LEYLAND DAF

GENERAL INSTRUCTION No. 19

Sponsor: GSV IPT (DLO Andover)

Publication Agency: TES TIG DLO Andover
Project No: GSV2/008 Task 812

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
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Amdt No.	Incorporated by (Signature)	Date
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SUBJECT: Replacement differential lock engaged switch

(Approval No. GSV/04/056)

INTRODUCTION

1 This instruction is introduced to enable the differential lock engaged switch to be replaced in service, when it becomes inoperable. The existing switch has become obsolete. The new switch is a normally closed switch, instead of a normally open one. The kit reverses this logic to enable correct functionality of the new switch.

APPLICABILITY

2 Truck, 4 Tonne, 4 x 4, GS, Leyland DAF (all variants).

Stores, tools and equipment

3

3.1 Stores to be demanded

3.1.1 The following modification item is to be demanded quoting this instruction as authority for demand, and

3.1.2 Registration number of vehicle for equipment held by user units.

The item numbers in the following table are also used to reference the parts in the modification instructions and Figure 1.

Item No	DMC	NSN/Part No.	Designation	Qty per eqpt
	7FW	2530-99-133-7051 (MXK3599)	Cable mod kit comprising:	1
1	Z1	5340-99-970-2330 (ACHA896)	Ty-wrap	(A/R)
2		6150-99-313-4523 (MXK3600)	Cable assembly (instrument panel)	(1)
3	7FN	5930-99-476-5862 (AMFA060)	Switch	(1)
4		5945-99-227-8209 (MAH1262)	Relay	(1)
5		(AELB224)	Heatshrink sleeve	(2)
6		7510-99-251-5045 (ACU3665)	Adhesive tape	(2)
7		(MZK4541)	Kit contents list	(1)

Implementation**WARNING**

PERSONAL INJURY. BEFORE ANY MAINTENANCE WORK IS CARRIED OUT ON THE ELECTRICAL SYSTEM THE MASTER SWITCH MUST BE TURNED TO 'OFF' OR THE BATTERIES DISCONNECTED.

4

NOTE

The item numbers of Para 3 are used as references throughout this instruction.

Refer to Figure 1.

4.1 Remove the two screws securing the trim pad to the steering wheel bar, on earlier vehicles, or remove the central LEYLAND motif plug on later vehicles.

4.2 Remove the nut and washer securing the steering wheel to the inner steering column shaft.

4.3 After marking the steering wheel boss and inner column shaft for subsequent re-assembly, withdraw the steering wheel from the shaft.

- 4.4 Remove the four rubber blanking grommets from the instrument panel and release the four fasteners by lightly pressing and turning 90 degrees clockwise. It may assist to remove the instrument panel completely. AESP 2320-H-104-522 Chapter 13 details how to remove it.
- 4.5 Feed the longest end of the new cable assembly, terminated by 2 pins/sockets, over to the right hand side of the binnacle base.
- 4.6 Fit adhesive tape (item 6) to the back of the relay base and then mount the relay housing to the right hand side of the binnacle mounting bracket.
- 4.7 Connect the black negative (-) wire to the left hand 0 volt terminal on the instrument panel PCB.
- 4.8 Remove the brown plug (identified as 1) from the right hand side of the panel PCB.
- 4.9 Remove the green/yellow wire from cavity 9 of the plug, using a thin screwdriver.
- 4.10 Slide a length of heatshrink tubing (item 5) over the terminated socket end of the green/yellow wire of the new cable.
- 4.11 Connect the two, green/yellow, cables together and shrink the tubing over the plug/socket connection, using a heat gun, to prevent shorting.
- 4.12 Insert the plug end of the green/yellow wire from the new cable into the vacant cavity 9 of the brown plug and refit the plug to the PCB right hand side connector.
- 4.13 Connect the green/yellow wire fitted with a 1/4" Lucar terminal to the IGN terminal on the left hand side of the PCB.
- 4.14 Refit the instrument panel, steering wheel and trim panel, or motif plug.
- 4.15 Remove the connector from the differential lock engaged switch from the transfer box.
- 4.16 Remove the switch from the transfer gearbox.
- 4.17 Fit the new switch (item 3) to the transfer box and refit connector.

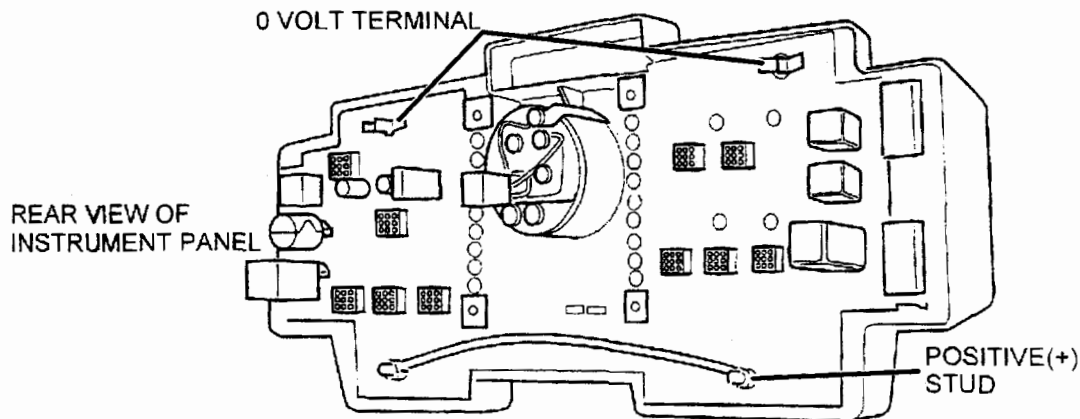


Fig 1 Instrument panel electrical connections

Testing after embodiment

- 5 Effect this step with the vehicle electrical isolator on, the engine running and the vehicle stationary.
 - 5.1 Select differential lock on the control panel.
 - 5.2 Drive the vehicle forwards, until the orange diff lock lamp on the instrument panel illuminates.
 - 5.3 Switch off differential lock and ensure the lamp goes out.

Effect on weight

- 6 Negligible.

PUBLICATION AMENDMENTS

- 7 Nil.

NOTE

Necessary amendments will be issued separately.

TRUCK 4 TONNE, 4 X 4 GS LEYLAND DAF

GENERAL INSTRUCTION No. 20

Sponsor: GSV IPT (DLO ANDOVER)
Project No.: PDS1A/285/Task 831
File Ref:

Publication Authority: TES TIG Andover

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
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SUBJECT: Fitting of new front indicator lamp

(Approval No.: GSV/04/061)

INTRODUCTION

1 This General Instruction details the operations necessary to replace the existing front indicator lamp should failure occur. The existing lamp has become obsolete.

1.1 Limitations on use of equipment. Nil.

APPLICABILITY

2 Truck, 4 tonne, 4 x 4 GS Leyland Daf (all variants) held by user units.

Stores, tools and equipment

3

3.1 Stores to be demanded

3.1.1 The following modification items are to be demanded quoting this instruction as authority for demand.

3.1.2 Registration number of vehicle for equipment held by user units.

The item numbers in the following table are also used to reference the parts in the modification instructions.

Item No	DMC	NSN/Part No.	Designation	Qty per eqpt
		6220-99-724-5432 (PK09274)	Complete kit	1
1		6220-99-496-6350 (MXK3602)	Front direction indicator assembly	(1)
2		5365-99-212-9517 (MZK4548)	Spacer ring	(1)
3		5340-99-147-9413 (MZK4549)	Clamping ring	(1)
4		SE104181	Securing screw, M4 x 18	(3)
5		MZK4550	Kit contents list	(1)

3.2 Stores to be removed and reduced to salvage

6	6MT3	6220-99-700-6847	Existing front indicator lamp assembly	1
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Implementation**WARNING**

BEFORE ANY MAINTENANCE WORK IS CARRIED OUT ON THE ELECTRICAL SYSTEM THE MASTER SWITCH MUST BE TURNED TO 'OFF' OR THE BATTERIES DISCONNECTED.

4

NOTE

The item numbers of Para 3 are used as references throughout this instruction.

4.1 Remove and retain the two outer screws from the stone guard and swing the stone guard clear of the indicator lamp and headlamp.

4.2 From beneath the vehicle, disconnect the existing front indicator lamp assembly at the rear of the lamp unit.

4.3 Remove the lens from the existing front indicator assembly and pull the rubber housing forward, out of its locating hole. Retain the white, flexiform, connecting plug cable grommet. Remove headlamp and protective shield.

NOTE

The rubber housing is a tight fit and removal may require some force.

4.4 Offer the spacer ring (item 2) into the front indicator panel moulded hole, positioning it so that the three mounting holes are equidistant between the three slots in the panel, Refer to Figure 1.

4.5 Using the spacer ring as a template, mark and drill three 5 mm diameter holes in line with the holes in the spacer.

NOTE

If panel is pre-drilled use existing holes.

4.6 Dismantle the new indicator assembly by unscrewing the lens from the body. Pull the rubber insert, complete with bulb holder and cable assembly, through the threaded mounting cup. Remove bulb.

4.7 Fix the mounting cup, using the spacer ring (item 2) and clamping ring (item 3), as shown in Figure 2. Secure using three screws (item 4).

4.8 Refit the rubber insert; bulb holder and cable assembly back through the threaded cup, spacer ring, panel and clamping ring.

4.9 Route cable assembly connector plug, with white flexiform grommet, through the hole to the vehicle harness connector and connect the two together. Ensure the black, rubber sealing ring is fitted correctly. Refit headlamp and shield.

4.10 Refit bulb to lamp assembly and screw on the lens cap.

4.11 Re-position the stone guard and secure with two screws.

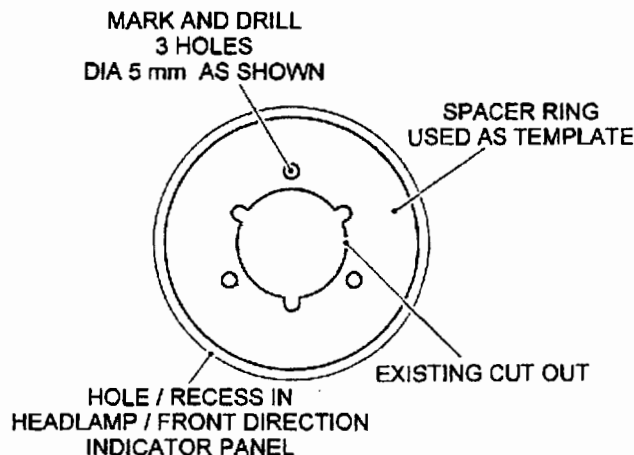


Fig 1 Mounting holes

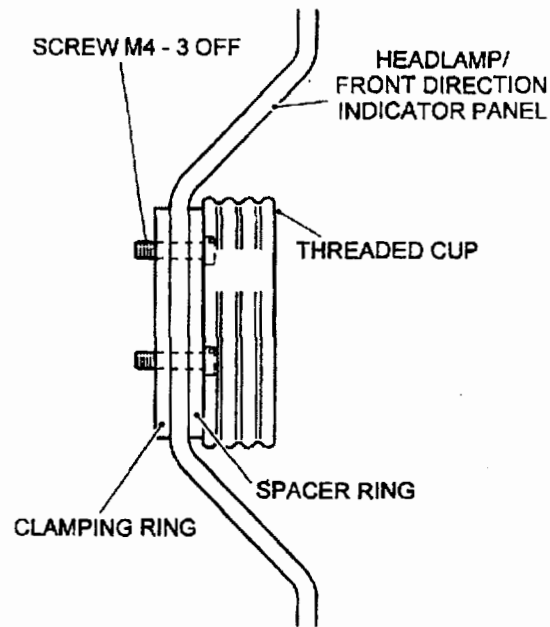


Fig 2 Mounting cup installation

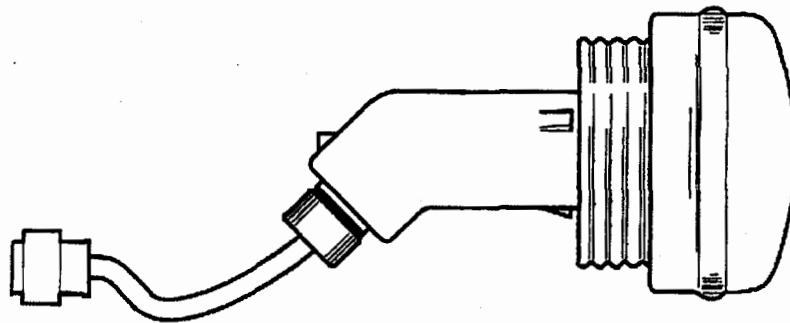


Fig 3 Direction indicator lamp assembly

Testing after embodiment

5

5.1 Test the indicator lamp installation by operating the hazard light switch or direction indicator switch.

Effect on weight

6 Negligible.

PUBLICATION AMENDMENTS

7 Nil.

**TRUCK, 4 TONNE, 4 X 4, GS,
LEYLAND DAF (ALL VARIANTS)
GENERAL INSTRUCTION No. 21**

CANCELLATION

INTRODUCTION

1 For administrative reasons, General (Gen) Instruction No. 21 will not be issued. Carry out the action detailed below.

ACTION

2 Record the incorporation of this instruction on the General Instruction Index by writing NOT ISSUED against Gen Instr No. 21.

**TRUCK, 4 TONNE, 4 X 4, GS,
LEYLAND DAF (ALL VARIANTS)
GENERAL INSTRUCTION No. 22**

Sponsor: GSV IPT DLO Andover

Project No.: GSV/2/0008/Task 856

File Ref: GSV/8/6/3

Publication Authority: TES TIG Andover

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
1	Incorporated	May 10
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Amdt No.	Incorporated by (Signature)	Date
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SUBJECT: Rear lamp assembly

(Approval No. GSV/04/070)

INTRODUCTION

1 This instruction describes the installation of a new type of rear lamp assembly, bracket and guard, which should only be fitted when the existing rear lamp unit is damaged.

1.1 Limitations on use of equipment. Nil.

APPLICABILITY

2 Truck, 4 Tonne, 4 x 4, GS, Leyland DAF (all variants).

Stores, tools and equipment

3

3.1 Stores to be demanded:

3.1.1 The following items are to be demanded quoting this instruction as authority.

Item No.	DMC	NSN/Part No	Designation	Qty per eqpt
	7FW	2590-99-253-7962 (PK09287)	Modification kit comprising:	1
1	7FW	2590-99-789-6317 (AMVA086)	Mounting bracket assembly	(2)
2	7FW	6220-99-613-2721 (AMVA081)	Lamp guard assembly	(2)
3	7FW	5340-99-564-8821 (MZK3223)	Hinge block	(4)
4	7FW	6220-99-357-8578 (1625985)	Rear lamp assembly LH	(1)

continued

continued

Item No.	DMC	NSN/Part No	Designation	Qty per eqpt
5	7FW	6220-99-751-0187 (1625986)	Rear lamp assembly RH	(1)
6	7FW	6220-99-154-3003 (AMVA009)	Cable assembly	(2)
7	7FW	(1313115)	Flange Bolt M8 x 30 Long	(4)
8	7FW	(0894852)	Flange Bolt M6 x 16 Long	(4)
9	7FW	(0272563)	Flange Nut M6	(8)
10	7FW	(1313142)	Flange Nut M8	(4)
11	7FW	(MZK4477)	Kit contents list	(1)
12	7FW	(1304837)	Bulb 24V 5W	(10)
13	7FW	(1304835)	Bulb 24V 21W	(10)

Sequence of operations

NOTES

(1) If Modification Instruction No. 4 has been embodied to the subject vehicle, demand the following: Item 14 MXK3664 - Cable Harness.

(2) The item numbers of Para 3 are used as reference throughout this instruction.

4 Carry out this instruction as follows (refer to Fig 1).

WARNING**PERSONAL INJURY. SWITCH OFF ELECTRICAL SYSTEM AT VEHICLE MASTER SWITCH BEFORE WORKING ON ANY CIRCUIT.**

4.1 Remove existing rear lamp assembly.

4.1.1 Disconnect existing cable harness from the existing rear lamp assembly.

4.1.2 Remove the six fixings securing rear lamp assembly to bracket and remove light fitting, and discard. Remove the two fixings securing red marker light and discard the light/bracket. If Mod Instruction No.4 has been embodied to the subject vehicle, remove the complete harness that feeds both the left hand and right hand red marker lamps and disconnect the 3 way plug to the junction box. Cut the wiring at the rear of the right hand side old rear lamp cluster. Discard the harness.

4.1.3 Repeat steps 4.1.1 and 4.1.2 for opposite side fitting.

4.2 Fit new rear lamp assembly.

4.2.1 Fit left hand rear lamp assembly (item 4) into bracket (item 1) and secure using two M8 flange nuts (item 10) ensuring number plate lens is facing downwards.

4.2.2 Secure lamp bracket (item 1), complete with fitting (item 4) to the rear chassis member, in the previous fitting's position. Secure with four M6 flange nuts (item 9).

NOTE

Only the outer four holes are used.

4.2.3 Fit bulbs (items 12 and 13) in the lamp units as per the wattage embossed in the housings, within the lamp.

NOTES

- (1) Only eight x 21W 24V bulbs (item 13) will be required.
- (2) Only seven x 5W 24V bulbs (item 12) will be required.
- (3) The spare bulbs should be retained in stores.

4.2.4 Connect new cable assembly (item 6) to light assembly connector ensuring correct and secure connection.

4.2.5 Route new cable assembly to the original socket and connect together.

4.2.6 Repeat steps 4.2.1 to 4.2.5 for right hand side rear lamp assembly using correct cable assembly (Mod Instruction 4 has been embodied, use item 14 NOT item 6). Connect the 3 way plug to the junction box connector where the old cable assembly was removed at serial 4.1.2.

TESTING AFTER EMBODIMENT

5 Switch on isolator and ignition.

6 Test function of each light unit.

6.1 Fit guard (item 2) to lamp bracket and secure hinge block (item 3) to bracket upper edge with two flange bolts, M8 x 30 (item 7).

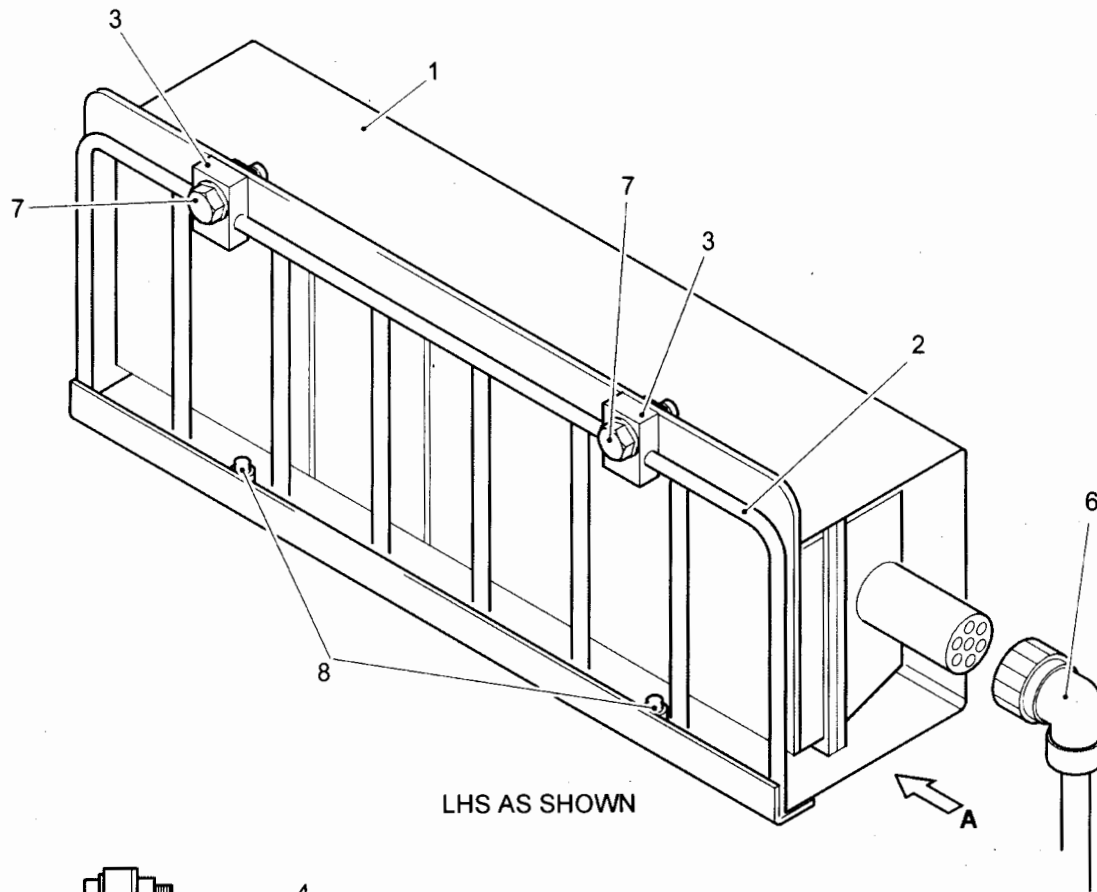
6.2 Secure lower edge of guard (item 2) to lamp bracket with two flange bolts, M6 x 16 (item 8).

EFFECT ON WEIGHT

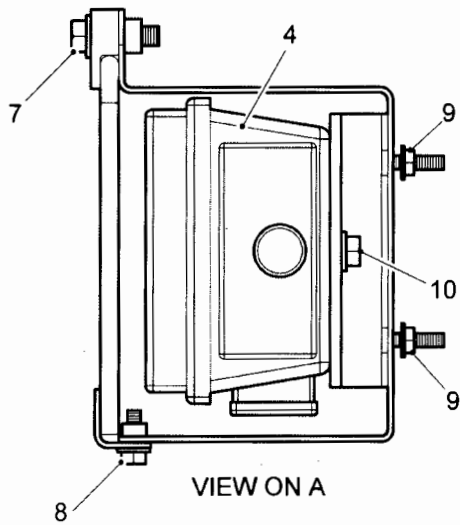
7 Negligible.

PUBLICATION AMENDMENTS

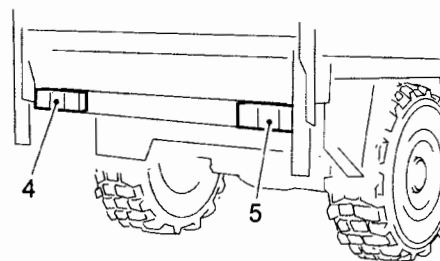
8 Nil.



LHS AS SHOWN



VIEW ON A



- | | |
|-----------------------------|----------------------------|
| 1 Mounting bracket assembly | 6 Cable assembly |
| 2 Lamp guard assembly | 7 Flange bolt M8 x 30 long |
| 3 Hinge block | 8 Flange bolt M6 x 16 long |
| 4 Rear lamp assembly LH | 9 Flange nut M6 |
| 5 Rear lamp assembly RH | 10 Flange nut M8 |

Fig 1 Rear light fittings

**TRUCK, 4 TONNE, 4 X 4, GS,
LEYLAND DAF (ALL VARIANTS)
GENERAL INSTRUCTION No. 23**

Sponsor GSV IPT DLO Andover

Project No.: PDS1A/285/Task 863
File ref: GSV/8/6/3
Publications Authority: TES TIG Andover

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
1		
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3		

Amdt No.	Incorporated by (Signature)	Date
4		
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6		

SUBJECT: Front shock absorber modification kit

(Approval No. GSV/04/072)

INTRODUCTION

1 This general instruction introduces a front shock absorber kit in place of the originals that are no longer available. Parts identification and fitting instructions are provided to embody, when the original shock absorbers have become unserviceable.

1.1 Limitations on use of equipment. Nil.

APPLICABILITY

2 Truck, 4 Tonne, 4 x 4, GS, Leyland DAF (all variants).

Stores, tools and equipment

3

3.1 Stores to be demanded:

3.1.1 The following items are to be demanded quoting this instruction as authority.

Item No.	DMC	NSN / (Part No)	Designation	Qty per eqpt
	7FW	2590-99-583-0888 (PK09293)	Front shock absorber modification kit comprising:	1
1	7FW	2510-99-186-9334 (AMPC170)	Damper	(2)
2	7FW	5307-99-551-4373 (MZK4594)	Stud	(2)
3	7FW	5310-99-807-8018 (NV122041)	Nut	(2)
4		(RAK6667)	Washer	(4)
5		(MZK4595)	Kit contents list	(1)

IMPLEMENTATION**WARNING**

PERSONAL INJURY. BEFORE ATTEMPTING TO TILT THE CAB IT IS ESSENTIAL THAT THE FOLLOWING INSTRUCTIONS ARE STRICTLY ADHERED TO:

(A) THE ENGINE MUST BE SWITCHED OFF, THE HANDBRAKE CONTROL IN THE 'ON' POSITION AND THE GEAR LEVER IN THE NEUTRAL POSITION WHILST THE CAB IS BEING TILTED OR LOWERED.

(B) ENSURE THAT ALL WORKSHOP PERSONNEL ARE STANDING CLEAR OF THE AREA IMMEDIATELY IN FRONT OF THE VEHICLE AND, THAT THERE IS ADEQUATE CLEARANCE IN FRONT AND ABOVE THE CAB.

(C) DO NOT ATTEMPT TO WORK ON THE VEHICLE WITH THE CAB PARTIALLY TILTED.

(D) ENGAGE CAB SAFETY STAY BEFORE WORKING UNDER THE CAB.

NOTE

The item numbers of Para 3 are used as reference throughout this instruction.

- 4 Carry out this instruction as follows: Refer to Fig 1.
- 4.1 Park the vehicle with the handbrake fully applied.
- 4.2 With the cab fully tilted and the cab stay in the correct position after tilting, undo the nuts on the shock absorber top and bottom and discard the assembly.
- 4.3 Remove the stud that is screwed into the saddle on the top of the road spring and discard.

- 4.4 Fit the new stud (item 2) into the saddle with the longest section of thread protrusion facing outward (see Fig 1).
- 4.5 Place one of the washers (item 4) onto the stud.
- 4.6 Obtain one of the new damper assemblies (item 1) and fit the eye end over the stud.
- 4.7 Obtain another of the washers (item 4), place onto the stud and screw on a new nut (item 3).
- 4.8 Extend the damper and fit the top washer and rubber assembly as shown in Fig 1.
- 4.9 Tighten the nuts until resistance is felt. Do not over tighten.
- 4.10 Repeat the procedure for the damper on the other side.

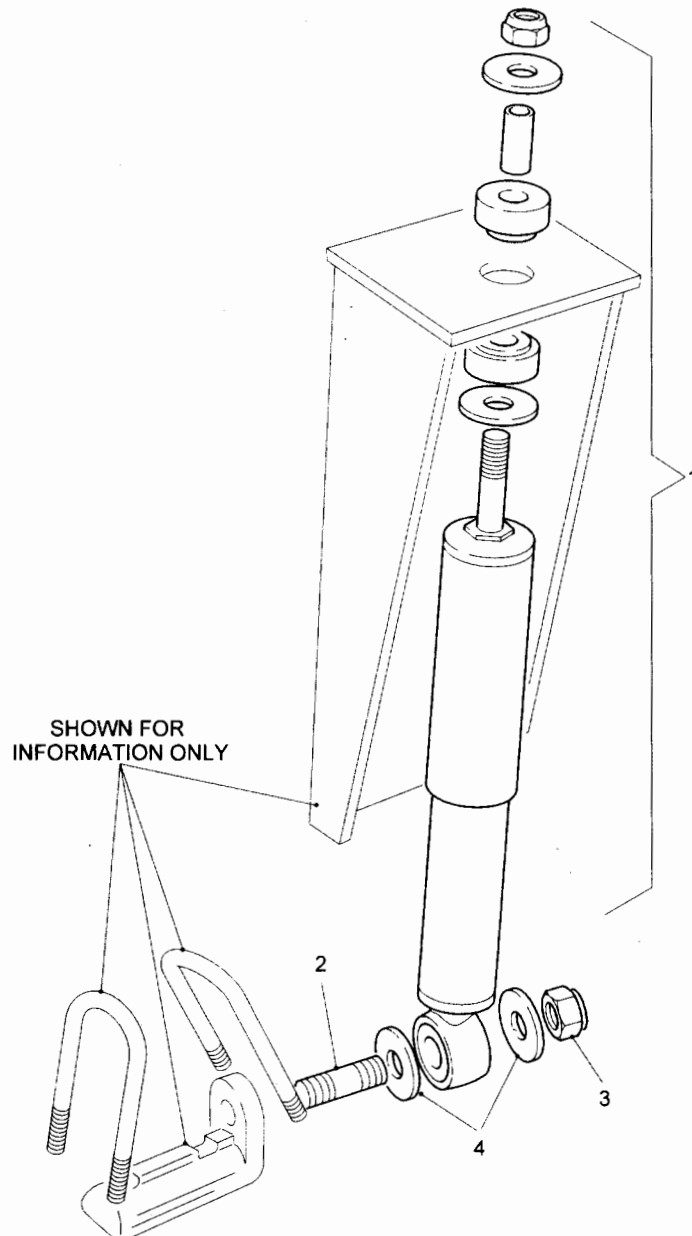


Fig 1 Front shock absorber

TRUCK, 4 TONNE, 4 X 4, LEYLAND DAF (ALL VARIANTS)

GENERAL INSTRUCTION No. 24

Sponsor: GSV IPT
Project No: Task 888
File ref: GSV/20/30

Publication Authority: DGS & E TIG Andover

AMENDMENT RECORD

Amdt No.	Incorporated By (Signature)	Date
1		
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Amdt No.	Incorporated By (Signature)	Date
4		
5		
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SUBJECT: Parking brake relay valve

(Approval No. GSV/04/0125)

INTRODUCTION

1 This instruction introduces a new parking brake relay valve which should only be fitted on vehicles where the existing valve (which is no longer available) has ceased to function correctly. The replacement relay valve is fitted to the vehicle using a new bracket. The bracket is fitted to the existing mounting holes in the vehicle chassis rail. The existing differential protection valves and air hoses are reconnected to the replacement relay valve.

APPLICABILITY

2 Truck, 4 Tonne, 4 x 4, Leyland DAF (All variants).

REASON FOR INSTRUCTION

3 The parking brake relay valve originally fitted to the Leyland DAF, 4 x 4, 4 Tonne Truck is now obsolete.

3.1 Code 5 - To conform to changes in pattern of commercial stores.

ACTION

4 This instruction is to be carried out to all Truck, 4 Tonne, 4 x 4, Leyland DAF (all variants) held by units.

ESTIMATED TIME REQUIRED

5 Embodiment 2 man hours.

RECORDING

6

6.1 Army

6.1.1 Enter details in instruction index. Record Modification Instruction No. in equipment documents.

STORES REQUIRED

TABLE 1

7

7.1 Stores to be demanded:

Item No.	DMC	NSN	(Part No.)	Designation	Qty per eqpt
1		2530-99-613-4359	PK09313	Parking/Spring brake relay valve modification kit: Comprising:	1
2		2530-99-227-5774	1444054	Relay valve	1
3			MZK4860	Bracket	1
4			1313141	Screw, M8 x 25, Flanged	2
5			1725774	Nut, M8, Flanged	4
6			1604459	Connector	1
7			MZK4511	Adaptor	2
8			MZK4509	Adaptor	1
9			1203006	Tee piece	1
10			ACHA897	Cable tie	20
11			MZK4856	Kit content list	1
12			MZK4858	AESP 2320-H-104-821, General Instruction No. 24	1

7.2 Stores to be obtained locally:

13	H1	8030-99-225-0249		Loctite 572	A/R
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IMPLEMENTATION

8 Carry out this instruction as follows:

WARNING

PROTECTION. KEEP FACE AND HANDS CLEAR OF DRAIN VALVES WHEN RELEASING AIR PRESSURE FROM RESERVOIRS. SUITABLE GLOVES AND SAFETY GOGGLES MUST BE WORN

8.1 Apply parking brake.

8.2 Switch off the electrics at the battery master isolation switch.

8.3 Deplete all air from the system.

Remove existing parking brake relay valve

9 To replace the parking brake relay valve, refer to Fig. 1 and proceed as follows:

NOTE

It may be necessary to remove the propshaft from the transfer box to the rear axle.

9.1 Using a pair of small side cutters, carefully remove the cable ties that secure cables or other pipework to the air hoses associated with parking brake relay valve.

9.2 With marker pen and masking tape or similar, mark the seven air pipes connected to the parking brake relay valve push-in fittings to ensure the connections to the new relay valve are made correctly.

9.3 Remove the seven air hoses from the relay valve and differential protection valves.

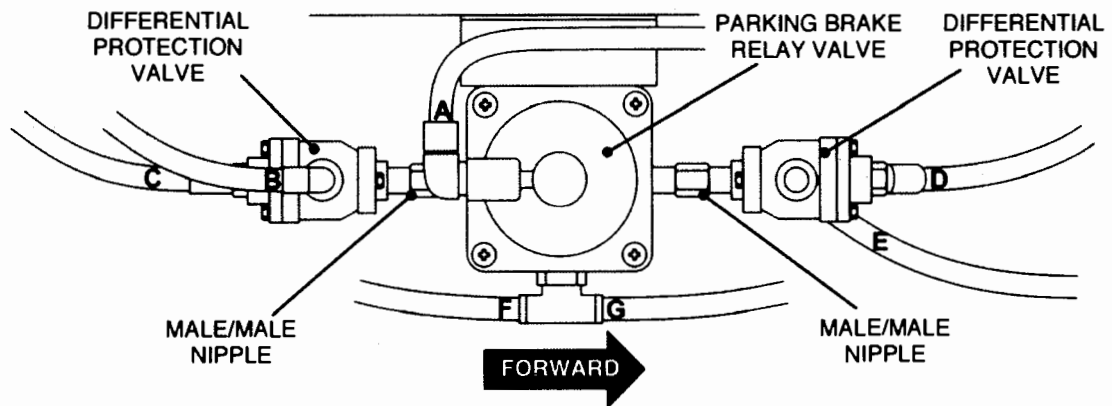


Fig 1 Parking brake relay valve existing air pipe arrangement

9.4 Tape up the pipe ends to prevent the ingress of dirt.

9.5 Remove the two screws and nuts securing the valve bracket to the inside of the left hand chassis rail.

NOTE

The differential protection valves and male/male nipples are retained for reuse with the replacement relay valve.

9.6 Hold the relay valve and differential protection valve assembly in a vice. Unscrew the male/male nipples complete with the differential protection valves. Retain the differential protection valves and male/male nipples.

9.7 Discard the bracket and relay valve.

9.8 Unscrew the male/male nipples from the differential protection valves.

9.9 Clean the threads of the male/male nipples.

Preparation of new parking brake relay valve

10 With the replacement parking brake relay valve held in a vice prepare it for this application as follows:

10.1 Remove the four hex head screws and carefully rotate the bottom section of the valve through 90 degrees as shown in Fig 2.

CAUTION

SEAL. Ensure the seal is properly seated between the 2 halves of the valve.

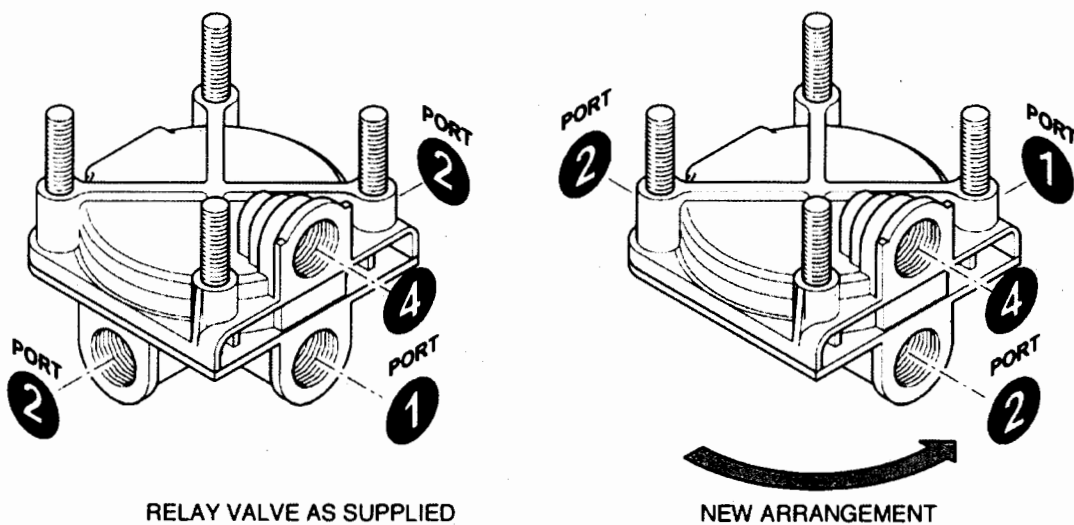
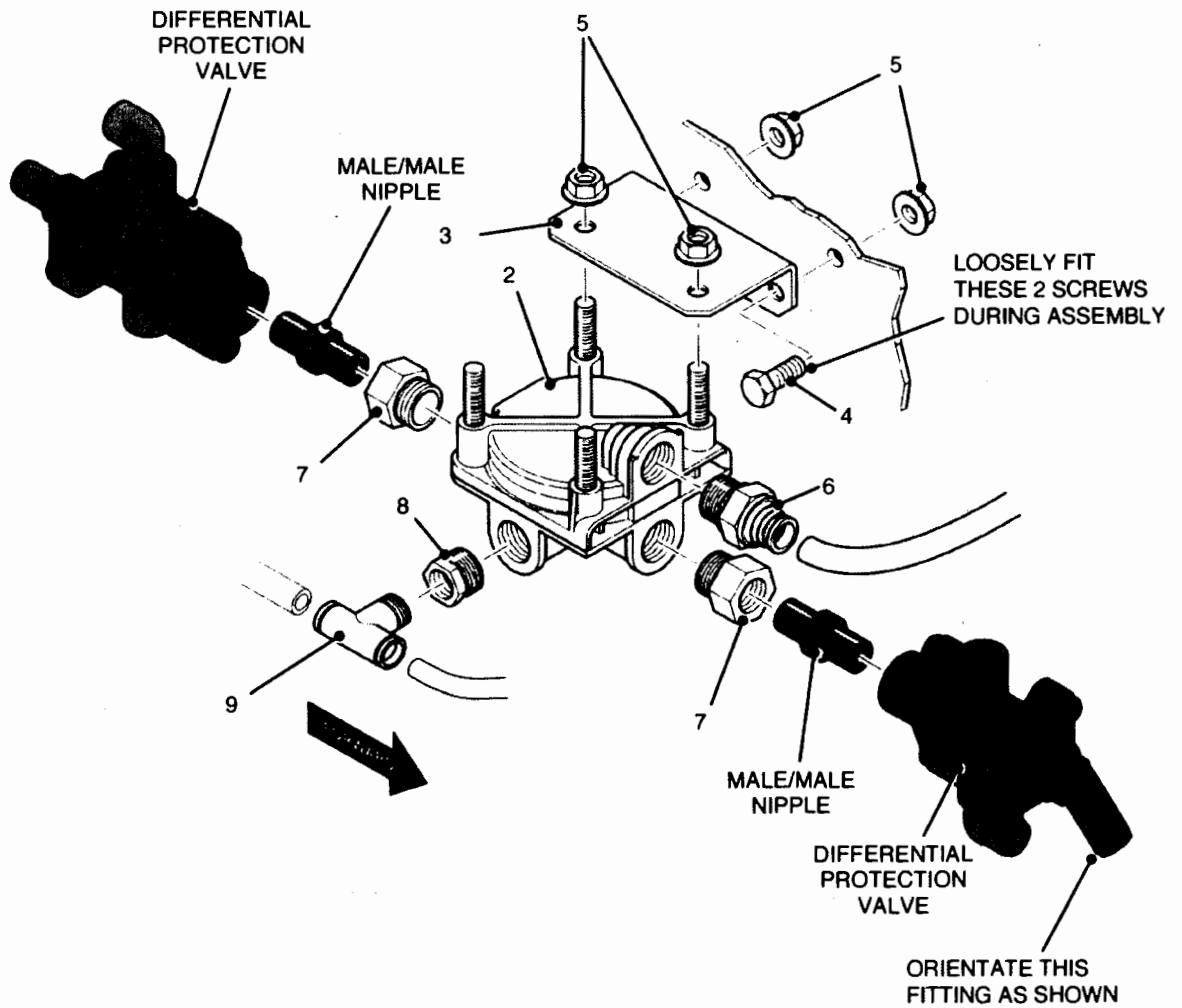
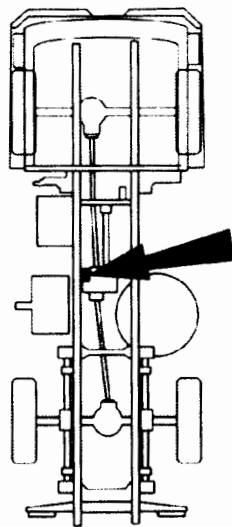


Fig 2 Parking brake relay valve port orientation

10.2 With reference to Fig 3, fit the adaptors and tee piece as follows:




 = Items reused from original installation

Fig 3 Assembly of parking brake relay valve

10.3 Following the manufacturer's instructions, apply Loctite (item 13) to the threads of the following items and fit them into the relay valve (item 2).

10.3.1 Connector (item 6).

10.3.2 Adaptor (item 8).

10.3.3 Adaptor (item 7 x 2).

10.4 Apply Loctite (item 13) to the threads of the Tee piece (item 9) and fit it into the adaptor (item 8) fitted in port 1. Orientate as shown in Fig 3.

10.5 Apply Loctite (item 13) to the threads of the two nipples and screw them into the adaptors fitted to ports 2 of the relay valve.

10.6 Apply Loctite (item 13) to the threads of the two differential protection valves. Orientate the differential protection valves as shown in Fig 3.

10.7 Locate and secure the bracket (item 3) onto the relay valve (item 2) with two flanged nuts (item 5) as shown.

10.8 Use tape to cover all open connectors and adaptors.

10.9 Allow the Loctite to cure and all joints to set.

10.10 Fit the bracket and relay valve to the chassis side rail using the same fixing holes which were used to secure the original relay valve. Secure the bracket to the chassis side rail using two screws and flanged nuts (items 4 and 5). Remove and discard the bracket which secures the cable assembly and pipes, forward of the valve to prevent any fouling.

10.11 Remove the tape from the air pipe ends and valve fittings. Reconnect the air pipes to the push-in fittings on the new relay valve and differential protection valves as shown in Fig 4. Trimming of the pipes may be necessary to achieve a smooth, kink free routing.

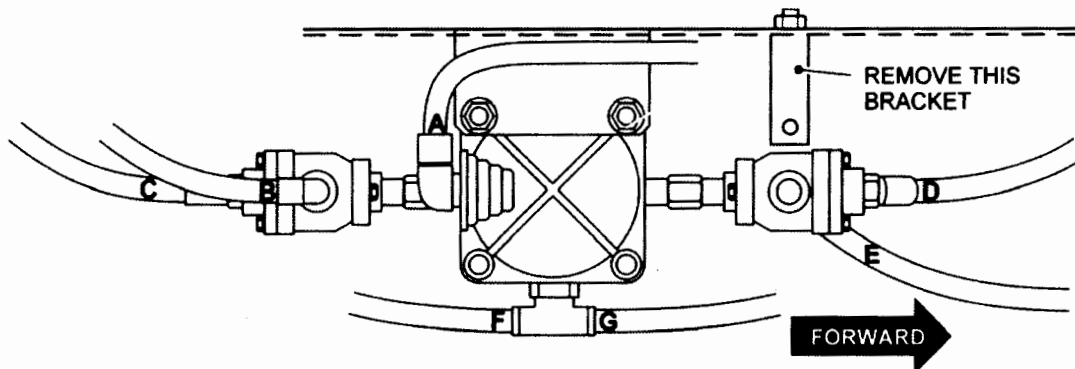


Fig 4 Parking brake relay valve new air pipe arrangement

10.12 Use cable ties (item 10) to secure the cables and other pipework that were released from the parking brake relay valve associated air hoses at the start of this procedure.

10.13 Re-fit propshaft.

TESTING AFTER IMPLEMENTATION

- 11 Switch on the battery isolation switch. Start the engine and charge the air system.
- 12 With the air system fully charged, carry out applicable checks as defined in AESP 2530-D-051-512, B Vehicle Air Braking System Inspection Procedure.

TRUCK, 4 TONNE, 4 X 4, GS, LEYLAND DAF (ALL VARIANTS)

GENERAL INSTRUCTION No. 25

Sponsor: GSV IPT
Project No: Task 888
File ref: GSV/20/30

Publication Authority: DGS & E TIG Andover

AMENDMENT RECORD

Amdt No.	Incorporated By (Signature)	Date
1		
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Amdt No.	Incorporated By (Signature)	Date
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SUBJECT: Service brake relay valves

(Approval No. GSV/04/0126)

INTRODUCTION

1 This instruction introduces new service brake relay valves which should only be fitted on vehicles where the existing valves (which are no longer available) have ceased to function correctly. The replacement relay valves are fitted to the vehicle using new brackets. The brackets are fitted to the existing mounting holes in the vehicle chassis rails. The existing air hoses are reconnected to the replacement relay valves.

NOTE

If a malfunction occurs in either of the two subject service brake relay valves, both relay valves must be replaced at the same time.

APPLICABILITY

2 Truck, 4 Tonne, 4 x 4, Leyland DAF (All variants).

REASON FOR INSTRUCTION

3 The service brake relay valves originally fitted to the Leyland DAF, 4 x 4, 4 Tonne Truck are now obsolete.

3.1 Code 5 - To conform to changes in pattern of commercial stores.

ACTION

4 This instruction is to be carried out to all Truck, 4 Tonne, 4 x 4, Leyland DAF (all variants) held by units.

ESTIMATED TIME REQUIRED

5 Embodiment 4 man hours.

RECORDING

6

6.1 Army

6.1.1 Enter details in instruction index. Record Modification Instruction No. in equipment documents.

STORES REQUIRED

TABLE 1

7

7.1 Stores to be demanded:

Item No.	DMC	NSN	(Part No.)	Designation	Qty per eqpt
1		2530-99-339-5053	PK09316	Front/Rear service brake relay valve kit: Comprising:	1
2		2530-99-227-5774	1444054	Relay valve	2
3			MZK4860	Bracket	2
4			1313141	Screw, M8 x 25, Flanged	4
5			1725774	Nut, M8, Flanged	8
6			1402207	Blanking plug	2
7			1604459	Connector	2
8			1601689	Adaptor	5
9			ABRB153	Side Tee piece	2
10			1601681	Elbow, swivel	1
11			RAK2114	Tee piece, equal 3/8"	1
12		4710-99-832-9474	CAL9974	Nylon pipe 3/8"	0.1m
13		5340-99-970-2330	ACHA897	Cable tie	20
14			MZK4857	Kit content list	1
15			MZK4859	AESP 2320-H-104-821, General Instruction No. 25	1

7.2 Stores to be obtained locally:

16	H1	8030-99-225-0249		Loctite 572	A/R
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IMPLEMENTATION

8 Carry out this instruction as follows:

WARNING

PROTECTION. KEEP FACE AND HANDS CLEAR OF DRAIN VALVES WHEN RELEASING AIR PRESSURE FROM RESERVOIRS. SUITABLE GLOVES AND SAFETY GOGGLES MUST BE WORN

- 8.1 Apply parking brake.
- 8.2 Switch off the electrics at the battery master isolation switch.
- 8.3 Deplete all air from the system.

Remove existing service brake relay valve (front)

- 9 To replace the front service brake relay valve, refer to Fig. 1 and proceed as follows:

NOTE

It may be necessary to remove the propshaft from the transfer box to the rear axle.

- 9.1 Using a pair of small side cutters, carefully remove the cable ties that secure cables or other pipework to the air hoses associated with service brake relay valve.
- 9.2 With masking tape and marker pen or similar, mark the five air pipes connected to the front service brake relay valve push-in fittings to ensure the connections to the new relay valve are made correctly.

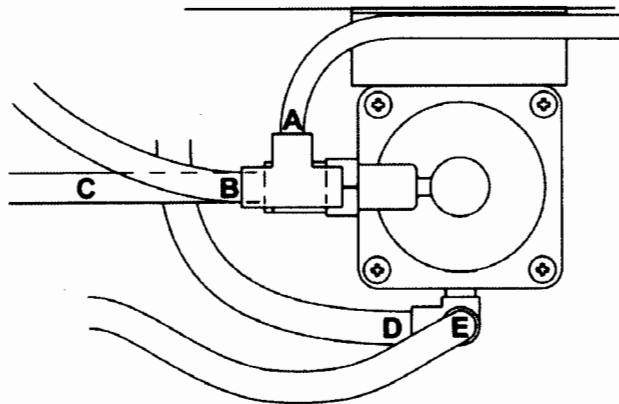


Fig 1 Service brake relay valve (front) existing pipe arrangement

- 9.3 Tape up the pipe ends to prevent the ingress of dirt.
- 9.4 Remove the two screws and nuts securing the valve bracket to the inside of the right hand chassis rail. Discard the bracket and relay valve.

Preparation of new service brake relay valve

- 10 With the replacement valve held in a vice prepare it for this application as follows:
 - 10.1 Remove the four hex head screws and carefully rotate the bottom section of the valve through 90 degrees as shown in Fig 2.

CAUTION

SEAL. Ensure the seal is properly seated between the 2 halves of the valve.

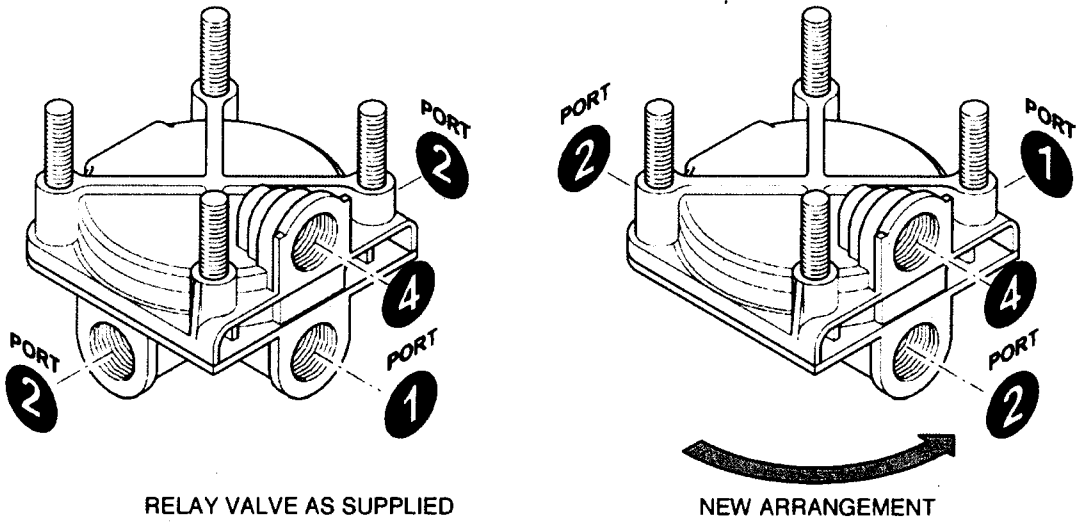


Fig 2 Service brake relay valve (front) port orientation

10.2 With reference to Fig 3, fit the adaptors, tee piece and blanking plug as follows:

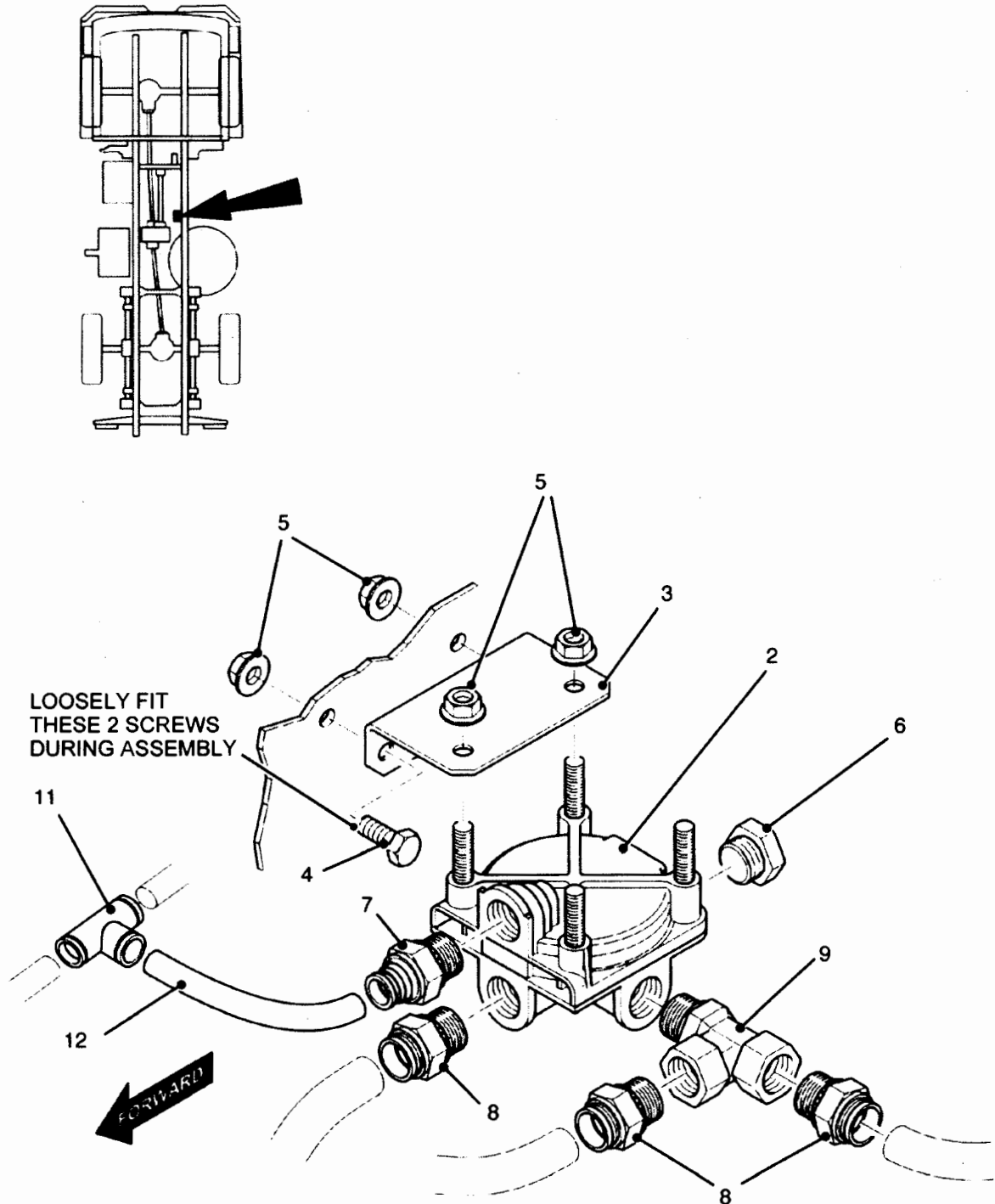


Fig 3 Assembly of service brake relay valve (front)

10.3 Following the manufacturer's instructions, apply Loctite (item 16) to the threads of the following items and fit them into the relay valve (item 2).

- 10.3.1 Connector (item 7).
- 10.3.2 Adaptor (item 8).
- 10.3.3 Side Tee piece (item 9). Orientate as shown in Fig 3.
- 10.3.4 Blanking plug (item 6).

10.4 Following the manufacturer's instructions, apply Loctite (item 16) to the threads of the two adaptors (item 8) and fit them into the side Tee piece (item 9).

10.5 Locate and secure the bracket (item 3) onto the relay valve (item 2) with two flanged nuts (item 5) as shown.

10.6 Allow the Loctite to cure and all joints to set.

10.7 Push the 100 mm length of 3/8" nylon tubing (item 12) into the connector (item 7). Push the 3/8" equal tee piece (item 11) onto the other end of the nylon tubing (item 12).

10.8 Use tape to cover all open connectors and adaptors.

10.9 Fit the bracket and relay valve to the chassis side rail using the same fixing holes which were used to secure the original relay valve. Secure the bracket to the chassis side rail using two screws and flanged nuts (items 4 and 5).

10.10 Remove the tape from the air pipe ends and fittings. Reconnect the air pipes to the push-in fittings on the new relay valve as shown in Fig 4.

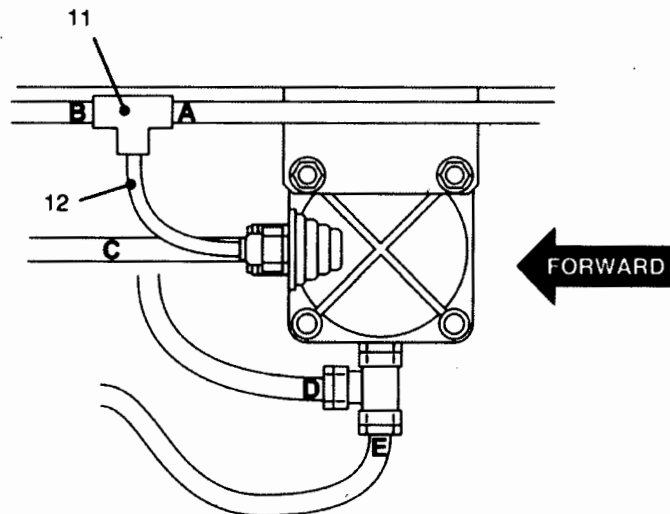


Fig 4 Service brake relay valve (front) new air pipe arrangement

10.11 Use cable ties (item 13) to secure the cables and other pipework that were released from the front service brake relay valve associated air hoses at the start of this procedure.

Remove existing service brake relay valve (rear)

11 To replace the rear service brake relay valve, refer to Fig 5 and proceed as follows:

- 11.1 Using a pair of small side cutters, carefully remove the cable ties that secure cables or other pipework to the air hoses associated with service brake relay valve.
- 11.2 With masking tape and marker pen or similar, mark the four air pipes connected to the rear service brake relay valve push-in fittings to ensure the connections to the new relay valve are made correctly.

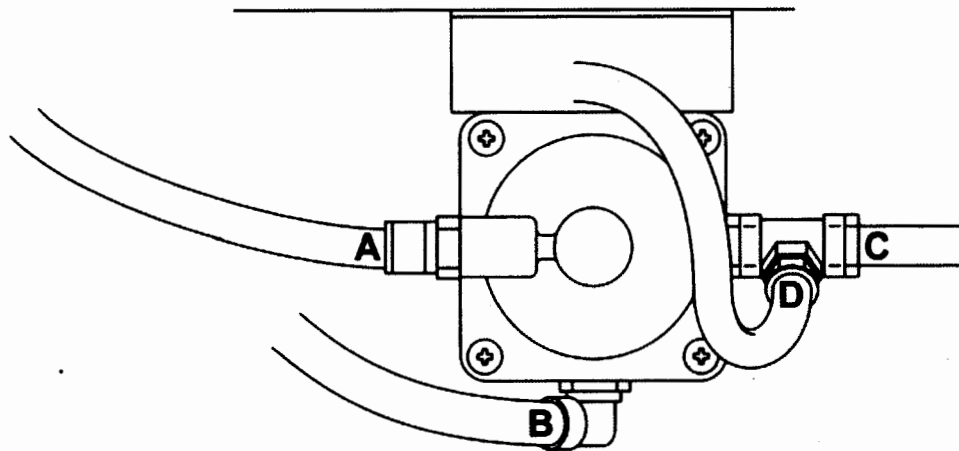


Fig 5 Service brake relay valve (rear) existing air pipe arrangement

- 11.3 Tape up the pipe ends to prevent the ingress of dirt.
- 11.4 Remove the two screws and nuts securing the valve bracket to the inside of the left hand chassis rail. Discard the bracket and relay valve.

Preparation of new service brake relay valve

12 With the replacement valve held in a vice prepare it for this application as follows:

12.1 Remove the four hex head screws and carefully rotate the bottom section of the valve through 90 degrees as shown in Fig 6.

CAUTION

SEAL. Ensure the seal is properly seated between the 2 halves of the valve.

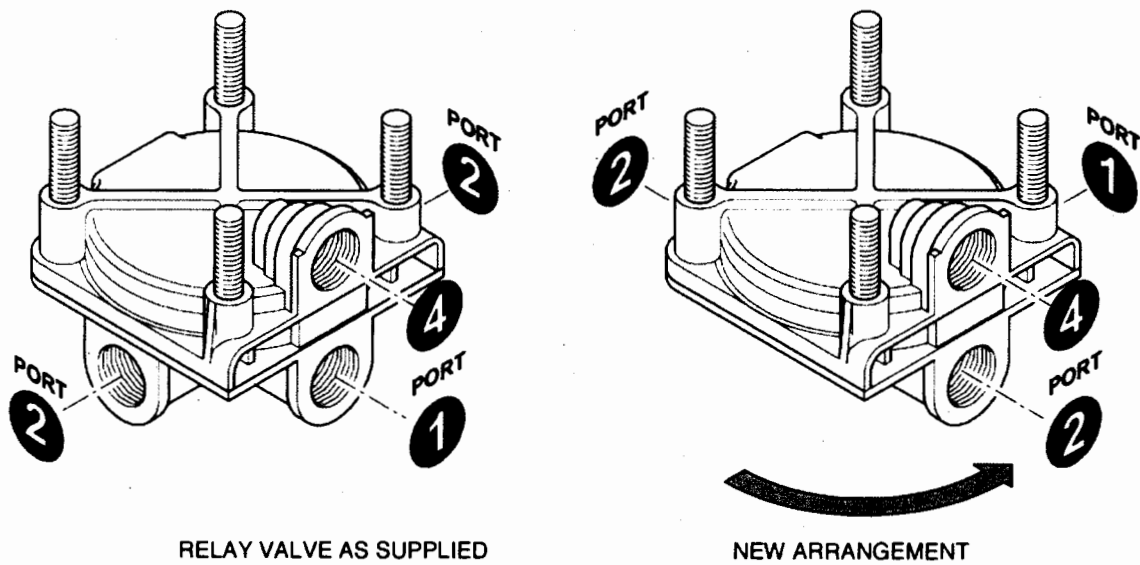


Fig 6 Service brake relay valve (rear) port orientation

12.2 With reference to Fig 7 , fit the adaptor, tee piece, elbow and blanking plug as follows:

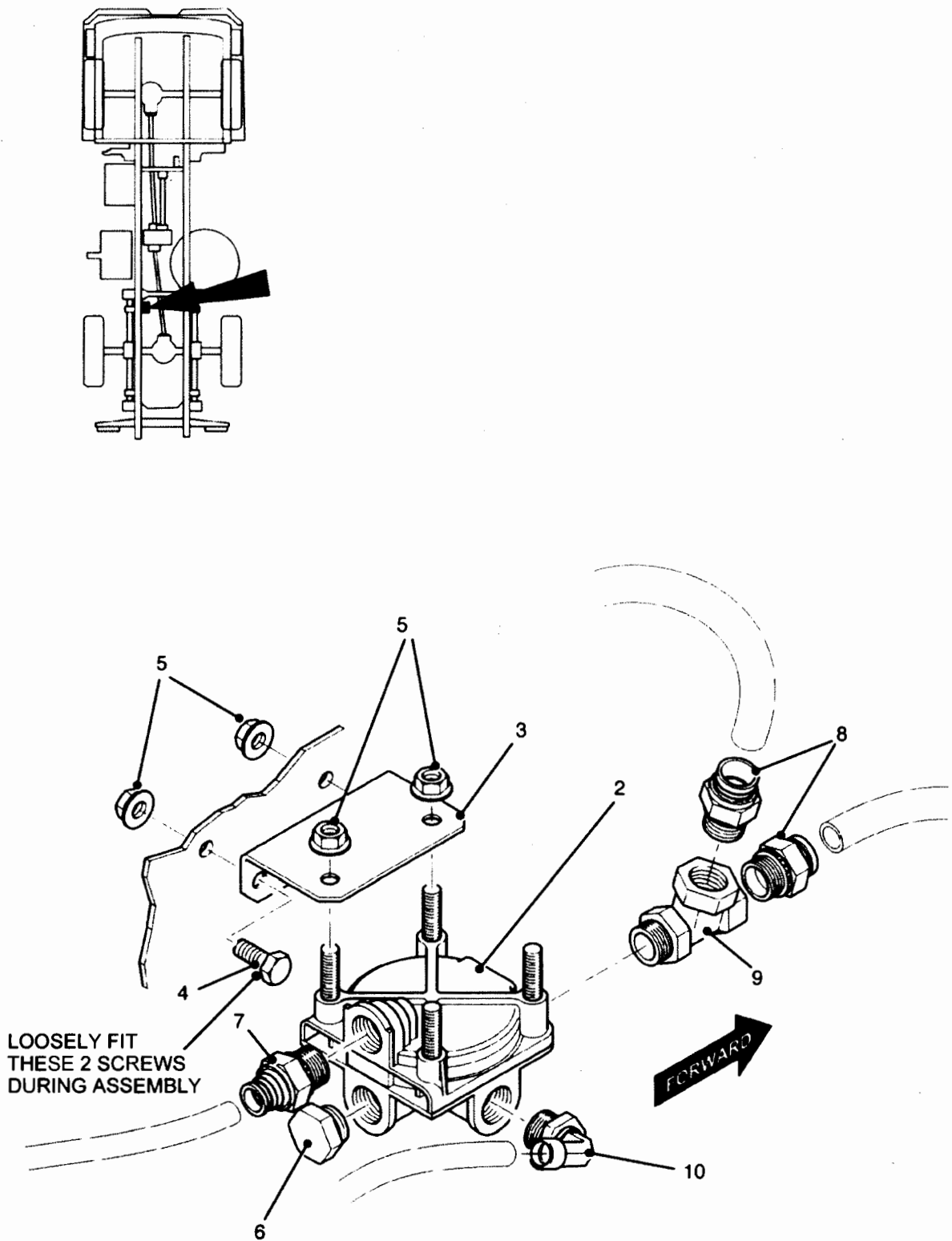


Fig 7 Assembly of service brake relay valve (rear)

12.3 Following the manufacturer's instructions, apply Loctite (item 16) to the threads of the following items and fit them into the relay valve (item 1).

- 12.3.1 Connector. (item 7).
- 12.3.2 Elbow (item 10). Orientate as shown in Fig 7).
- 12.3.3 Side Tee piece (item 9). Orientate as shown in Fig 7).
- 12.3.4 Blanking plug (item 6).

12.4 Following the manufacturer's instructions, apply Loctite (item 16) to the threads of the two adaptors (item 8) and fit them into the side Tee piece (item 9).

12.5 Locate and secure the bracket (item 3) onto the relay valve (item 1) with two flanged nuts (item 5) as shown.

12.6 Use tape to cover all open connectors and adaptors.

12.7 Allow the Loctite to cure and all joints to set.

12.8 Fit the bracket and relay valve to the chassis side rail using the same fixing holes which were used to secure the original relay valve. Secure the bracket to the chassis side rail using two screws and flanged nuts (items 4 and 5).

12.9 Remove the tape from the air pipe ends and fittings. Reconnect the air pipes to the push-in fittings on the new relay valve as shown in Fig 8.

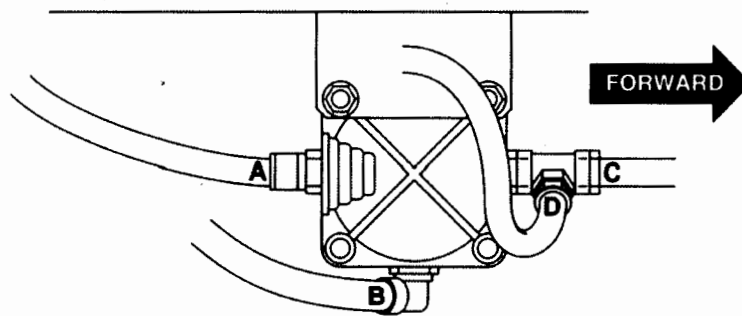


Fig 8 Service brake relay valve (rear) new air pipe arrangement

12.10 Use cable ties (item 13) to secure the cables and other pipework that were released from the rear service brake relay valve associated air hoses at the start of this procedure.

12.11 Re-fit propshaft.

TESTING AFTER IMPLEMENTATION

13 Switch on the battery isolation switch. Start the engine and charge the air system.

14 With the air system fully charged, carry out applicable checks as defined in AESP 2530-D-051-512, B Vehicle Air Braking System Inspection.

TRUCK, 4 TONNE, 4 X 4, GS, LEYLAND DAF (ALL VARIANTS)

GENERAL INSTRUCTION No. 26

Sponsor: DE&S GSVPT
Project No: GSV/5002 Task 904
File ref: GSV/20/30

Publication Authority: DES-JSC-TJS-POL-TD

AMENDMENT RECORD

Amdt No.	Incorporated By (Signature)	Date
1		
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Amdt No.	Incorporated By (Signature)	Date
4		
5		
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SUBJECT: Replacement earth test warning lamp

(Approval No. GSV/04/0142)

INTRODUCTION

1 This general instruction details the operations necessary to replace the existing earth test warning lamp when it has become unserviceable. The existing lamp is no longer available.

APPLICABILITY

2 Truck, 4 Tonne, 4 x 4, GS Leyland DAF (all variants).

REASON FOR INSTRUCTION

3 The earth test warning lamp fitted to the Leyland DAF, 4 x 4, GS 4 Tonne is now obsolete.

3.1 The replacement assembly is of a different design and cannot be directly replaced with the original item.

ESTIMATED TIME REQUIRED

4 Embodiment 1.0 man hours.

STORES REQUIRED

TABLE 1

5

5.1 Stores to be demanded:

5.1.1 The following items are to be demanded quoting this instruction as authority.

Item No.	DMC	NSN	(Part No.)	Designation	Qty per eqpt
1		2590-99-281-4235	PK09329	Earth test warning lamp modification kit: Comprising:	1
2		6210-99-595-6390	(ACU9459)	Earth test warning lamp	(1)
3			(MZK4911)	Adaptor plate	(1)
4			(842031)	Terminal, electrical	(2)
5			(AELB219)	Cover, electrical	(2)
6			(MZK4912)	CAT 821 General Instruction	(1)
7			(MZK4913)	Kit content list	(1)

5.2 Stores to be removed and reduced to salvage:

8		5930-99-841-9231	(MZH9026)	Earth test warning lamp	1
---	--	------------------	-----------	-------------------------	---

IMPLEMENTATION

6 Carry out this instruction as follows (refer to Figs 1 & 2):

WARNING

ELECTRICAL ISOLATION. BEFORE ATTEMPTING ANY WORK ON THE VEHICLE'S ELECTRICAL SYSTEM, THE ELECTRICAL MASTER SWITCH MUST BE TURNED TO 'OFF' OR THE BATTERIES DISCONNECTED.

NOTE

The item numbers from above are used as reference throughout this instruction.

6.1 Remove the four screws that secure the centre panel control unit and retain. Ease the panel forward to allow for removal and fitting.

6.2 Cut both electrical wires that go to the unserviceable earth warning lamp as near to the bulb holder as possible.

6.3 Connect terminals and covers (items 4 & 5) to both the wires that have been cut and make secure electrical joints.

6.4 Remove the earth warning lamp from the panel and discard.

6.5 Obtain the adaptor plate (item 3). Do not remove the backing paper (at this stage) and place over the rectangular aperture in the panel, making sure the centre of the hole is in the centre of the aperture. Mark the panel to indicate material to be removed.

6.6 File the panel and make sure the earth warning lamp (item 2) fits into the new position, ensuring no sharp edges are left on the panel.

6.7 Remove the backing paper from the adaptor plate and fix to the panel in the correct position ensuring the positive symbol on the plate is at the top.

- 6.8 Fit the warning lamp into the panel and secure with the locking nut to the rear of the panel.
- 6.9 Connect the terminals made in operation 6.3 to the warning lamp. Lamp is not polarity conscious.
- 6.10 Refit the centre panel control unit with the original four screws and secure. Ensure that wires and cables are not trapped.
- 6.11 Turn the electrical master switch to ON or reconnect the batteries.

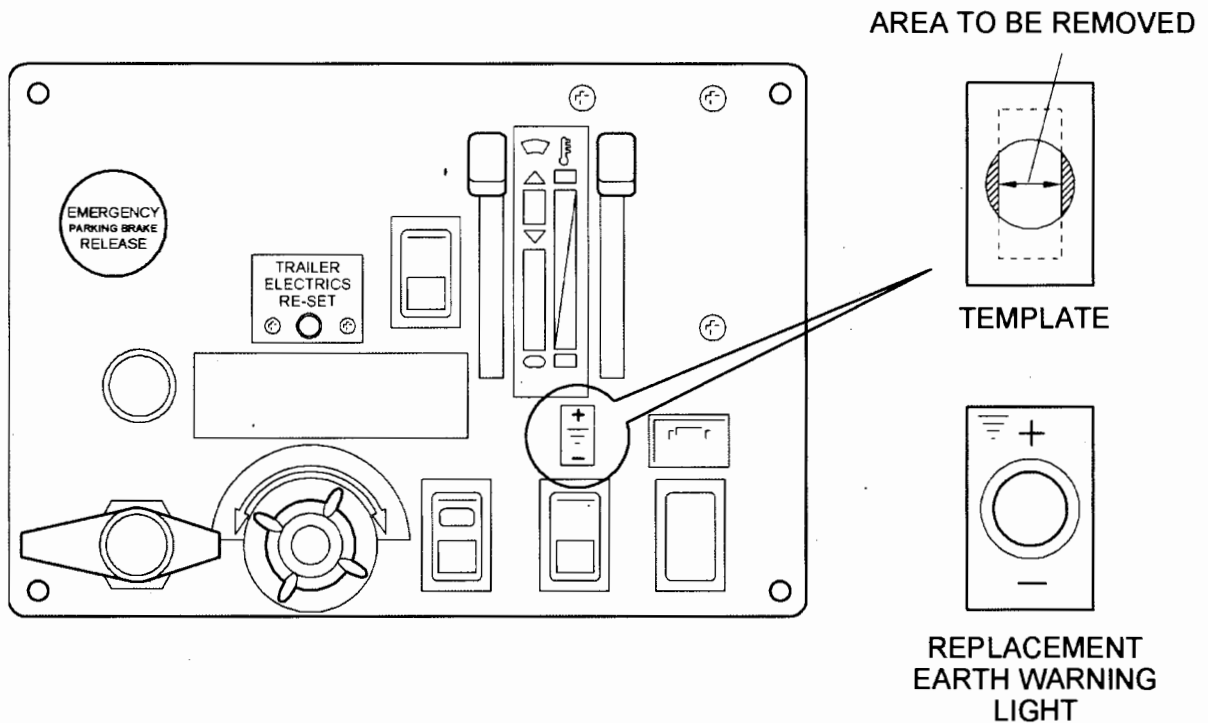


Fig 1 Centre panel – control unit

TESTING AFTER EMBODIMENT

7 Before attempting to test the system, firstly check that the new bulb in the warning lamp is functional and not blown during transit. This can be carried out either by applying 24V+ and 24V- to the two terminals or carrying out a continuity check using a multimeter.

7.1 Once this has been confirmed, carry out a POS/NEG check by first depressing the switch upwards and then down. If no fault is present, proceed as follows:

7.1.1 Temporarily connect a length of wire to a suitable area on the chassis, ensuring that metal work is exposed for continuity.

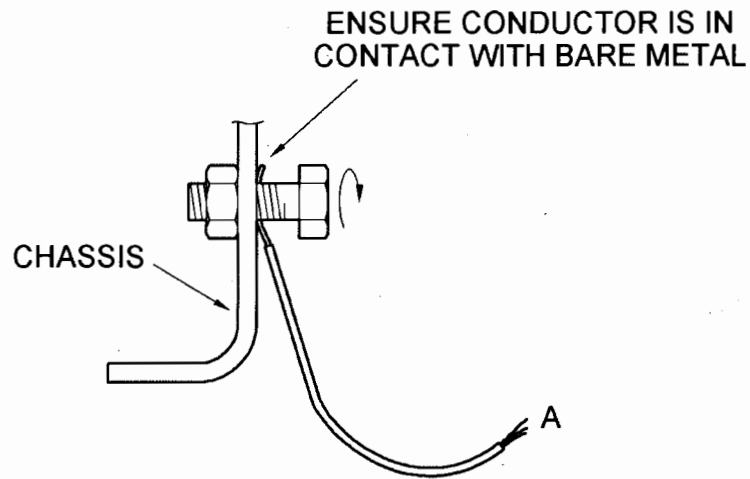


Fig 2 Testing

7.1.2 Connect wire, Fig 2 (A) temporarily to battery +VE. Carry out earth warning check. Bulb should illuminate when switch is pressed upwards.

7.1.3 Repeat test by temporarily connecting the wire, Fig 2 (A) to the battery -VE. Carry out earth warning check. Bulb should illuminate when switch is pressed downwards.

7.1.4 Remove temporary link wire and make good the area of bare metal prior to re-fitting the fixing.

EFFECT ON WEIGHT

8 Negligible

TRUCK, 4 TONNE, 4X4, GS, LEYLAND DAF

(ALL VARIANTS)

GENERAL INSTRUCTION No 27

Sponsor: GSV IPT (DLO Andover)

Publication Agency: TES TIG DLO Andover
Project No: GSV2/008

AMENDMENT RECORD

Amdt	Incorporated by (Signature)	Date	Amdt	Incorporated by (Signature)	Date
1			4		
2			5		
3			6		

SUBJECT: Differential lock selection switch

Approval No.

INTRODUCTION

1 This instruction introduces a new differential lock switch kit which should only be fitted on vehicles where the existing switch (which is no longer available) has ceased to function.

APPLICABILITY

2 Truck, 4 Tonne, 4 x 4, GS, Leyland DAF. All variants as applicable.

Stores Required

3

3.1 Stores to be demanded

Item No	DMC	NSN/Part No	Designation	Qty per eqpt
	6MT4	5930-99-879-5225 (MXK3569)	Switch, diff. Lock kit comprising:	1
1		(MZK4465)	Switch, with adaptors	(1)
2	6MT1	4730-99-325-1931 (RAK1836)	'T' piece	(1)
3	6MT9	4710-99-736-1404 (MZK4466)	Pipe, nylon	(1)
		(MZK4467)	Kit contents list	(1)

3.2 Stores to be removed and reduced to scrap:

4A	6MT4	5930-99-300-9228 (MZK1375)	Switch, diff. lock (with exhaust port)	1
4B	6MT4	5930-99-300-9228 (1203366)	Switch, diff. lock (with exhaust port)	1
5	7FW	4730-99-887-6629 (RAK1694)	'T' piece	1
6	7FW	4730-99-860-4625 (RAK1657)	Adaptor	1
7	6MT1	4730-99-277-5267 (RAK1658)	Elbow, exhaust (used with item No. 4A)	1

Implementation

Note: Deplete all air from the system and switch off the battery isolation switch.

4 Removal of existing components.

4.1 Slacken the four screws securing the upper centre control panel, enough to allow the lower centre control panel to be removed .

4.2 Remove the four screws securing the lower centre control panel and pull it away from the bulkhead centre trim panel, to gain access to the differential lock switch (item 4A or 4B) and its piping.

4.3 Disconnect the nylon pipes from the push-in connections on the 'T' piece (item 5), the adaptor (item 6) and the exhaust elbow (item 7) (if fitted). The exhaust elbow pipe (if fitted) should be tucked away behind the panel, as it is no longer required.

4.4 Slacken the two angled dog point screws which clamp the switch body and the push cap housing to the panel.

4.5 Having unclamped the switch from the panel, hold the switch body in one hand and with the other hand, slightly push down on the push cap housing, while turning it anti-clockwise until it can be released from the switch body. Remove the switch from the back of the panel.

4.6 Discard the switch, 'T' piece, adaptor and elbow (if fitted) (items 4A or 4B, 5, 6 & 7).

5 Installation of new components (See Fig 1)

5.1 Taking the new differential lock switch (item 1), remove the push cap housing from the switch body as described in Sub Para 4.5. It may be necessary to slacken the two dog point locking screws to allow the cap housing to be released from the body.

5.2 The switch body has two swivel ports at its base (one red and one green). Fit one end of the nylon pipe (item 3) to the push in adaptor in the green swivel port and fit the centre push in connection of the 'T' piece (item 2) to the other end of the nylon pipe.

5.3 Fit the switch body to the back of the panel through the hole vacated by the original switch. Fit the push cap housing to the switch and rotate it clockwise until its locking tags locate in the switch body.

5.4 Tighten the two dog point locking screws, enough to clamp the body and cap housing to the panel but still allowing the body to rotate.

5.5 Rotating the switch body as necessary for ease of fitment, connect the existing air input pipe (Blue 4, White 6) and the existing air outtake pipe (Pink 1, Green 2, Pink 1) to the other two 'T' piece push in connections. Fit the existing actuator pipe (Green 2) to the push in adaptor in the red swivel port.

5.6 Ensuring that none of the nylon pipes are kinked or obstructing other components, tighten the two dog point locking screws to securely clamp the switch body and push cap housing to the panel.

5.7 Refit the lower and upper centre control panels to the bulkhead centre trim panel.

TESTING AFTER IMPLEMENTATION

6 Switch on the battery isolation switch and start the engine to charge the air system. When fully charged, depress the switch to activate the differential lock. Engage first gear and move forward until the differential lock warning light in the instrument panel is illuminated. Stop the vehicle, press the switch to de-activate the differential lock and ensure that the warning light is extinguished.

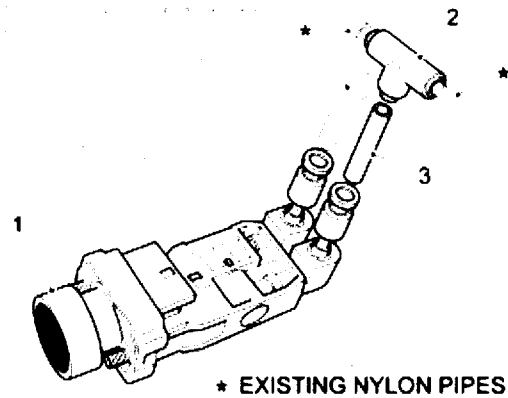


Fig 1 Differential lock switch installation

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AESP Form 10 (Issue 6.0 dated January 13 (JAMES))

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TRUCK, 4 TONNE, 4 X 4 GS LEYLAND (ALL VARIANTS)

MODIFICATION INSTRUCTIONS AND INDEX

**Sponsored for use in the
UNITED KINGDOM MINISTRY OF DEFENCE
AND ARMED FORCES
by**

**GSV IPT
DI832**

**Publication Authority:
DIRECTOR GENERAL SAFETY AND ENGINEERING-
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PREFACE

Sponsor: GSV IPT
Project No.:
File Ref:

Publication Authority: DGS&E-TIG

INTRODUCTION

- 1 The Publication Sponsor is responsible for the allocation of instruction numbers.
- 2 All modification instructions as issued are to be recorded in manuscript by the recipient on the Numerical Modification Instruction Index provided. Amendments to individual instructions are to be recorded on the instruction amendment record. All extant instructions and amendments can be found listed in the main AESP index.

NOTE

- The Publication Sponsor is responsible for the preparation and maintenance of the Instruction Index and will advise the Distribution Authority on the issue of completed and subsequent blank index pages necessary.
- 3 Service users should forward any comments on this publication through the channels prescribed in AESP 0100-P-011-013. An AESP Form 10 is provided after the preliminary pages of this publication; it should be photocopied and used for forwarding comments on this AESP.
 - 4 AESPs are issued under Defence Council authority and where AESPs specify action to be taken, the AESP will of itself be sufficient authority for such action and also for the demanding of the necessary stores.

MODIFICATION INSTRUCTION INDEX

Priority (Pty) is shown as: Immediate: I Routine: R

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1				CANCELLED	
2	R	1-6		Flat platform sealing plates	RC/VB/6
3	Army - I RAF C1	1-3		Heat shield, chassis mounted. Revised turbo charger exhaust	12-4846
4	I	1-12		Side marker lights	12-4859
5	R	1-4		Forward earth bonding. Chassis frame September	12-4844
6				CANCELLED	
7				CANCELLED	
8	I	1-4 + Annex		Fitting of uprated rear axle to increase GVW from 10.8 to 11.6 tonnes	12-4896

9				CANCELLED	
10				CANCELLED	12-4920 12-4864
11	R	1-4		Fire extinguisher brackets	12-4865/1
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13	R	1-5/6		Fitting of second control box for tail lift	12-4899
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15	I	1-7/8		Fire extinguisher fitting	97/52c/4903/LVG
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17	I	1-6		Fire extinguisher fit	99/RAF/0002/ CSVG
18	R			ABS TRC MOD	
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21	I	1-4		Pack brake mouldings	GSV/4/018
22	R	1-8		Wheel chock installation	GSV/04/076
23				Not taken up	
24				Not taken up	
25	R	1-7/8		Wheel chocks installation	GSV/04/0112
26	I	1-4		Height indicators	
27	R	1-7/8		Wheel chock installation	GSV/04/073
28	R	1-6		Fire extinguisher box	GSV/04/095
29	R	1-8		Wheel chock (winterised)	GSV/04/0115
30	R	1-6		Rear view camera-gun towing vehicle	

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* AESP or EMER

**TRUCK, 4 TONNE, 4 X 4, GS,
LEYLAND DAF (ALL VARIANTS)
MODIFICATION INSTRUCTION No. 1**

SUBJECT: Tailboard buffers

INTRODUCTION

1 For administration reasons Modification Instruction No.1 dated Sep 93 is hereby cancelled.

ACTION

2 File this Page 1/2 in place of Mod Instr No.1 dated Sept 93, all pages of which are to be destroyed.

TRUCK, 4 TONNE, 4 X 4, GS
LEYLAND DAF (ALL VARIANTS)
MODIFICATION INSTRUCTION No. 2

Sponsor:
DGES(A)

Publication Agency:
Vehs & Wpns Br REME
Project No: 71912(43)
File ref: 3416/38

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
1		
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Amdt No.	Incorporated by (Signature)	Date
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SUBJECT: Flat platform sealing plates
(Approval No. RC/VB/6)

INTRODUCTION

1 This instruction introduces the manufacture and fitment of sealing plates, to cover the front two lashing holes in the vehicle body flat platform, to comply with regulations concerning the carriage of fuel. All the necessary details are provided.

1.1 Limitations on use of equipment. Nil.

APPLICABILITY

2 Truck, Cargo, Bulk fuel, EAC 2204-3101, 2204-3102, 2204-8101, 2204-8102, 2205-3102.

REASON FOR MODIFICATION

3 Code 6 - to comply with carriage of fuel regulations.

PRIORITY

4 Army: Routine - Before any fuel carrying duties are detailed.

ESTIMATED TIME REQUIRED

5 Manufacturing: 2.5 man hours.
Assembling: 1.0 man hour.

MODIFICATION IMPLEMENTATION PLAN

6

6.1 This modification is to be implemented by units authorised to carry out levels 2, 3 and 4 maintenance.

6.2 Associated modification instructions. Nil.

6.3 Modification plate strike action: N/A.

Action required by:

7

7.1 Units and establishments holding equipment.

7.1.1 Examine vehicle documents to see if modification is applicable.

7.1.2 Examine vehicle to see if modification is embodied and where necessary units with 1st Line REME Support demand the stores required.

7.1.3 On receipt of stores, request REME to modify equipment.

7.1.4 Record the modification and AESP Number in vehicle document.

7.2 Units authorised to carry out levels 2, 3 and 4 maintenance.

7.2.1 When requested by users or during overhaul of vehicle on charge without REME 1st Line Support, obtain the items listed in Para 8 and carry out this modification.

7.2.2 Record completion details of modification against appropriate entry in vehicle documents.

7.3 All recipients of this instruction. Add particulars to AESP 2350-H-104-811 Mod Instr Index.

Stores, tools and equipment

8

8.1 Stores to be demanded.

The following modification items are to be demanded quoting this instruction as authority for demand.

8.2 Stores or suitable equivalent to be obtained locally.

Item No.	DMC	NSN/Part No.	Designation	Qty per eqpt
1	G2	9515-99-964-7902	Steel plate, carbon BS 1449: Pt1: HR15P; sheared edge.	As reqd
2	G2	9150-99-131-9875	Steel strip, carbon, hot rolled, flat BS 4630: Grade 43a. 1.57 kg/m	As reqd
3	H1	8030-99-882-1059	Bostic 771 Sealing compound	As reqd
4	G1/1	5305-99-122-8758	Screw, machine ISO, metric coarse steel, hex hd, cadmium plated M8 x 25 mm.	4
5	G1/1	5310-99-138-6908	Nut, plain, hexagon, ISO, metric coarse steel, chamfered bearing surface, cadmium plated M8 x 5.00 mm thick.	4

Item No.	DMC	NSN/Part No.	Designation	Qty per eqpt
6	G1/1	5310-99-624-5250	Washer flat corrosion resistance steel. M8 x 17 x 1.60 mm thick.	8
7	G1/1	5310-99-135-9293	Washer, lock steel, split helical ring M8 x 12.75x2.00 mm thick.	4
8	G1/2	5310-99-135-7200	Washer, flat steel, round, zinc plated 5/16 in. id x 1.1/4 in. od x 0.080 in. thick.	8

Sequence of operations

NOTE

The 'item numbers' of Para 8 are used as reference throughout this instruction.

9 Carry out this instruction as follows:

9.1 Manufacture or arrange for the manufacture of sealing plates, qty 2, Fig 2 from steel plate (item 1).

9.2 Manufacture or arrange for the manufacture of retaining plates, qty 4, Fig 3 from steel strip (item 2).

Refer to Fig 1

9.3 Arrange the sealing plate, retaining plates and flat washers (item 8) centrally over each of the front lashing holes as illustrated. Secure with fixings (items 4, 5, 6 and 7). Seal plate to the platform, and bolt heads and washers (items 5 and 8) to the seal plate, with one unbroken bead of Bostic 771 sealing compound (item 3).

9.4 Using the same paste and method, seal around the steel plate as illustrated.

9.5 Paint all affected areas.

Testing after embodiment

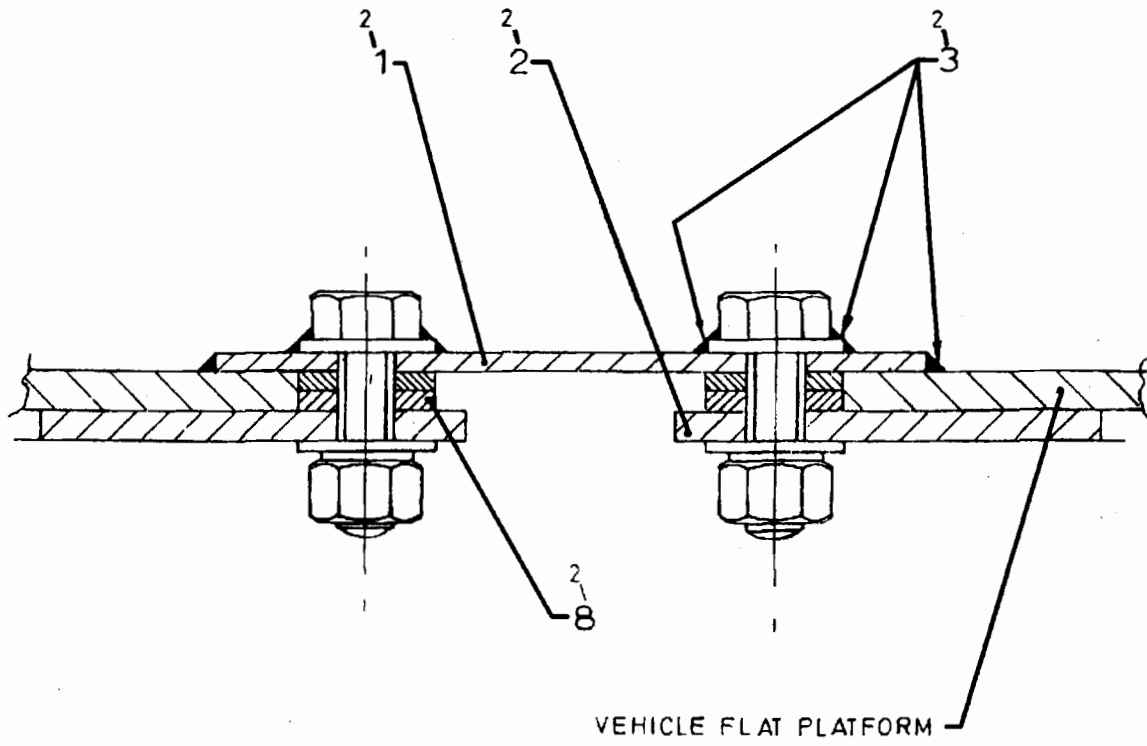
10 Nil.

EFFECT ON WEIGHT

11 Nil.

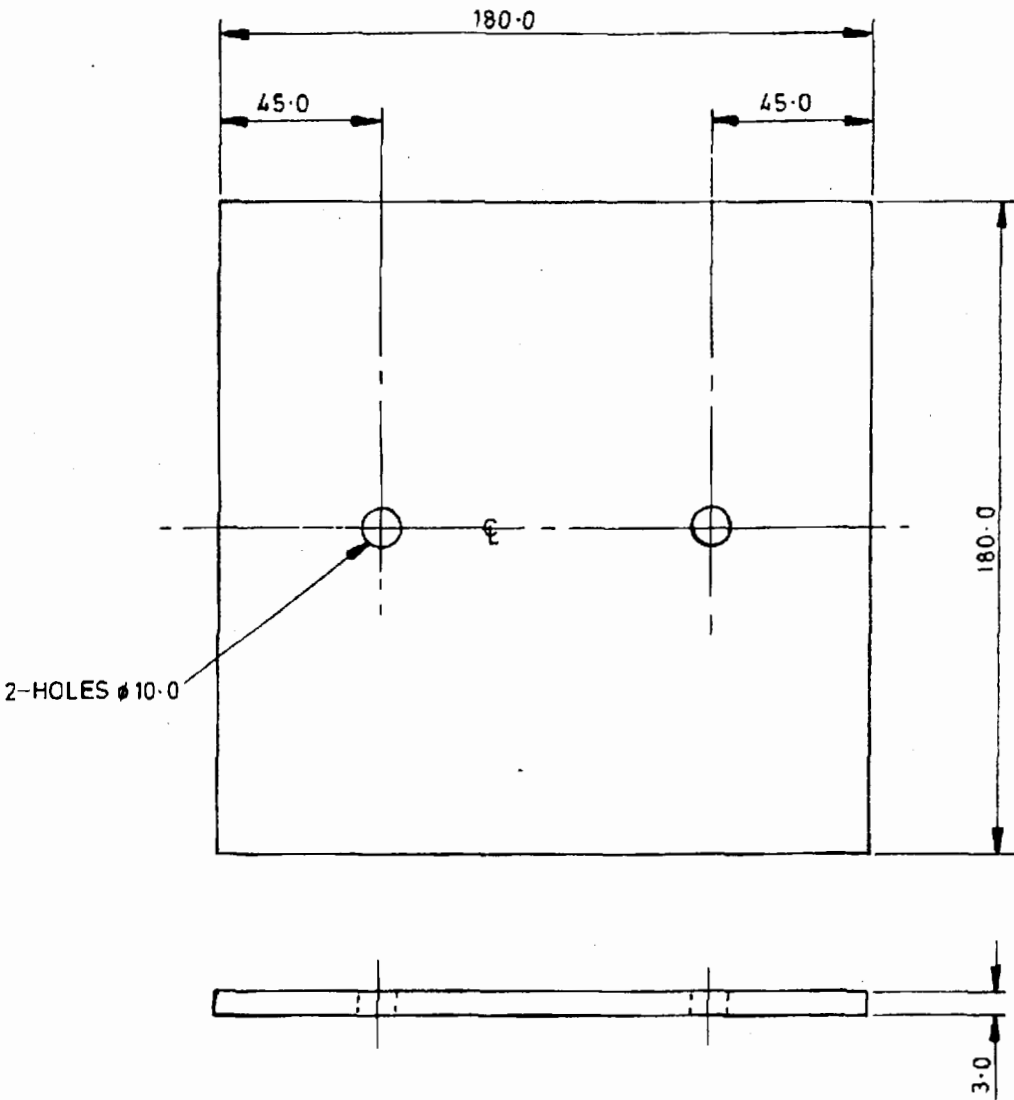
PUBLICATION AMENDMENTS

12 Nil.



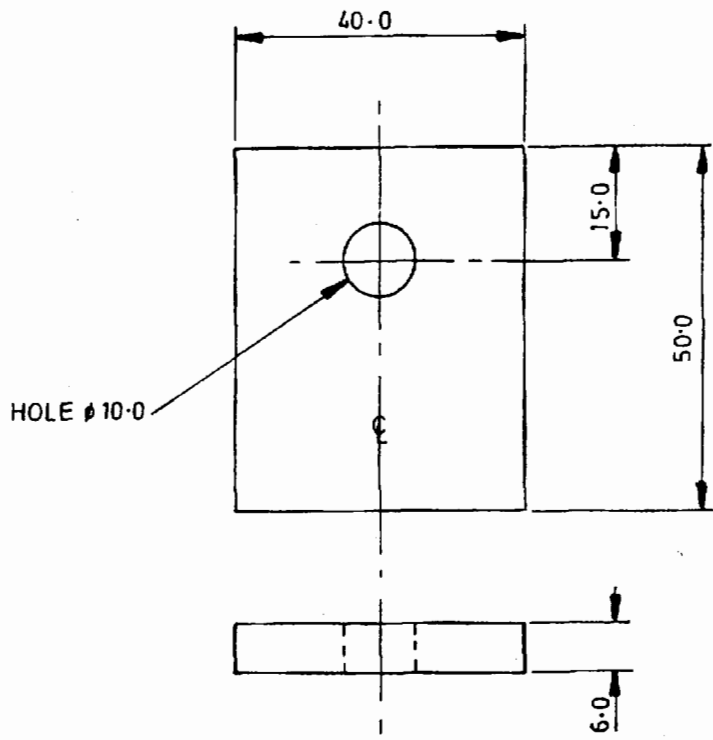
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Fig 1 Sealing plate assembly



V11846/2

Fig 2 Sealing plate



V11846/3

Fig 3 Retaining plate

**TRUCK, 4 TONNE, 4 X 4, GS,
LEYLAND DAF (ALL VARIANTS)
MODIFICATION INSTRUCTION No. 3**

Sponsor:
DGES(A)

Publication Agency:
Vehs & Wpns Br REME
Project No: 71812(135)
File ref: 3416/35

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
1		
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Amdt No.	Incorporated by (Signature)	Date
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SUBJECT: Revised turbo charger exhaust heat shield, chassis mounted.

(Approval No. 12/4846)

INTRODUCTION

1 This instruction introduces a revised turbo charger exhaust heat shield with increased dimensions, to extend the protection area to the air brake lines and electrical harness, housed in the right hand front chassis section. This instruction provides all the necessary details.

1.1 Limitations on use of equipment. Nil.

APPLICABILITY

2 Truck, 4 Tonne, 4 x 4, GS, Leyland DAF (All variants), up to chassis number L114810.

REASON FOR MODIFICATION

3 Code 1 - to improve safety.

PRIORITY

4 Army: Immediate.
RAF: Class 1.

ESTIMATED TIME REQUIRED

5 Embodiment: 1 man-hour.

6

- 6.1 This modification is to be implemented by:
- ARMY - Units authorized to carry out levels 2, 3 and 4 maintenance.
- RAF - Units not later than the next maintenance and Vehicle Depots before issue of vehicle.
- 6.2 Associated modification instructions. Nil
- 6.3 Modification plate strike action: N/A

Action required by

7

- 7.1 Units and establishments holding equipment.
- 7.1.1 Examine vehicle documents to see if modification is applicable.
- 7.1.2 ARMY - Examine vehicle to see if modification is embodied and where necessary Units with 1st Line REME Support demand the stores required.
- RAF - Examine vehicles to see if modification is embodied and where necessary demand the stores required.
- 7.1.3 ARMY - On receipt of stores, request REME to modify equipment.
- 7.1.4 ARMY - Record the modification subject and AESP Number in vehicle documents.
- RAF - Record modification details on AF G1084A Form 4870. Units operating STAMA are to record modification details on ADP MTMS Job Certification Sheet and to follow the procedure laid down in AP 100C-08A.
- 7.2 Army units authorised to carry out levels 2, 3 and 4 maintenance, and RAF units.
- 7.2.1 ARMY - When requested by users or during overhaul of vehicle on charge without REME 1st Line Support, obtain the items listed in Para 8 and carry out this modification.
- 7.2.2 Record completion details of modification against appropriate entry in vehicle documents.
- 7.2.3 Complete AF G1084a when reporting completion of the modification to FORWARD (RAF) Data Centre using the following Forward code:
- RAF: MODIFICATION CODE: AFG 079
- NOTE
- RAF units operating STAMA are also to complete ADPMTMS Job Certificate sheet and to follow the procedures laid down in AP 108C-08A.
- 7.3 All recipients of this instruction. Add particulars to AESP 2320-H-104-811 Mod Instr index.

Stores, tools and equipment

8

8.1 Stores to be demanded.

8.1.1 The following items are to be demanded quoting this instruction as authority for demand.

Item No.	DMC	NSN/Part No.	Designation	Qty per eqpt
1	7DL	2990-99-973-5969	Heat shield	1

8.2 Stores to be removed and reduced to scrap.

2	NIV	MZH9118	Heat shield	1
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Sequence of operations

NOTE

The item numbers of Para 8 are used as references throughout this instruction.

9 Carry out this modification as follows:

9.1 Remove the exhaust heat shield (item 2) and discard. Retain fixings.

9.2 Fit revised exhaust heat shield (item 1) using original fixings.

9.3 Paint all affected areas.

Testing after embodiment

10 Nil.

EFFECT ON WEIGHT

11 Nil.

PUBLICATION AMENDMENTS

NOTE

Necessary amendments will be issued separately.

12 AESP 2320-H-104-Octad.

**TRUCK, 4 TONNE, 4 X 4, GS,
LEYLAND DAF (ALL VARIANTS)
MODIFICATION INSTRUCTION No. 4
(Completely revised)**

Sponsor:
DGES(A)

Publication Agency:
ATSA Chertsey
Project No: ES52c4319(95)
File ref: DECH/LVG/3416/39

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
1		
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Amdt No.	Incorporated by (Signature)	Date
4		
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SUBJECT: Side marker lights.
(Approval No. 12-4859)

INTRODUCTION

1 This instruction introduces the fitment of front, side and rear marker lights to in-service vehicles. When embodied, the legal requirement of recently introduced legislation concerning marker lights, will be met. All the necessary details are provided.

1.1 Limitations on use of equipment. Nil.

APPLICABILITY

2 Truck, 4 tonne, 4 x 4, GS, Leyland DAF (All Variants), not fitted with marker lights on production.

REASON FOR MODIFICATION

3 Code 6 - to conform to legislation change.

PRIORITY

4

4.1 ARMY: Immediate - within 3 months following receipt.

4.2 RAF: Class 2 - At the next scheduled maintenance.

ESTIMATED TIME REQUIRED

5 Embodiment: 12 man-hours.

MODIFICATION IMPLEMENTATION PLAN

6

- 6.1 This modification is to be implemented by:
 - 6.1.1 ARMY - Units authorized to carry out levels 3 and 4 maintenance.
 - 6.1.2 RAF - Units not later than the next routine maintenance and vehicle depots before issue of vehicle.
- 6.2 Associated modification instructions. Nil.
- 6.3 Modification strike plate action: N/A.

Action required by

7

- 7.1 Units and establishments holding equipment:
 - 7.1.1 Examine vehicle documents to see if modification is applicable.
 - 7.1.2 ARMY - Examine vehicle to see if modification is embodied and where necessary, Units with 1st Line REME Support, demand the stores required.
 - 7.1.3 ARMY - On receipt of stores, request REME to modify equipment.
 - 7.1.4 ARMY - Record the modification subject and AESP number in vehicle documents.
 - 7.1.5 RAF - Record modification details on RAF Form 4870 and AF G1084A. Units operating STAMA are also to record modification details on ADP MTMS Job Certification Sheet and to follow procedures laid down in AP 100C - 08A.
- 7.2 Army Units authorised to carry out levels 2, 3 and 4 maintenance and RAF units:
 - 7.2.1 ARMY - When requested by users or during overhaul of vehicles on charge without REME 1st Line Support, obtain the items listed in Para 8 and carry out this modification.
 - 7.2.2 Record completion details of modification against appropriate entry in vehicle documents.
 - 7.2.3 Complete AF G1084A when reporting completion of the modification to FORWARD(RAF) using the following code:

RAF: MODIFICATION CODE AFG077

NOTE

RAF units operating STAMA are also to complete ADP MTMS Job Certification Sheet and follow the procedure laid down in AP 100C-08A.

- 7.3 All recipients of this instruction. Add particulars to AESP 2320-H-104-811 Mod Instr Index.

Stores, tools and equipment

8

8.1 Stores to be demanded:

8.1.1 The following modification items are to be demanded quoting this instruction as authority for demand.

8.1.2 Registration number of vehicle for equipment held by user units.

8.1.3 Registration number of vehicle for unmodified stock held at all levels of technical storage.

Item No.	DMC	NSN/Part No.	Designation	Qty per eqpt
	6MT3	6220-99-839-9997	Lighting kit vehicular comprising:	1
1		MXH 9271	Front marker light harness	(1)
2		FBU 8180	Marker light, (white) front	(2)
3		NN 104021	Nutsert, 4 mm dia	(4)
4		MZH 1998	Side marker lights and main harness assembly comprising:	(1)
4.1		FBU 8110	Screw, to attach junction box	(2)
4.2		FBU 8112	Washer, plain	(14)
4.3		FBU 8111	Nut	(2)
4.4		FBU 8116	Cowl	(2)
4.5		FBU 8114	Screw	(2)
4.6		FBU 8113	Washer, spring	(2)
4.7		FBU 8115	Nut	(12)
4.8		FBU 8102	Clip	(41)
4.9		FBU 8103	Tie	(4)
4.10		FBU 8104	Junction box	(1)
4.11		FBU 8100	Marker light (amber), side	(4)
5		MXH 9272	Rear marker light harness	(1)
6		MZH 9272	Marker light (red), rear	(2)
7		FS 108201	Screw, M8 x 20	(4)

Item No.	DMC	NSN/Part No.	Designation	Qty per eqpt
8		FN 108041	Prev torque nut, M8	(4)
9		MZH 9198	Clip, open lock	(2)
10		SF 105251	Screw, M5 x 25	(1)
11		NH 105041	Nut, M5 x 0.8	(1)
12		FBU 9092	Manufacturers' fitting instructions	(1)
13		MZH 9276	Drilling template, roof	(1)
14		MZH 9275	Drilling template, cantrail	(1)
15		MZH 9277	Drilling template, rear marker light and mounting bracket	(1)

Sequence of operations

NOTE

The item numbers of Para 8 are used as reference throughout this instruction.

9 Carry out the modification as follows:

9.1 Turn the battery isolation switch to the 'Off' position.

9.2 Disconnect the electrical cable from the r.h. rear light assembly.

9.3 Remove the r.h. rear light assembly. It may be necessary to remove paint/corrosion from the fixings threads, which will help prevent damage to the light assembly.

9.4 Place the rear marker light and mounting bracket drilling template (item 15) on the light mounting bracket, aligning the existing holes. Centre mark the position of the 35 mm hole, remove the template and cut a 35 mm clearance hole in the mounting bracket.

9.5 Carefully release the fog lamp lens from the lower edge of its rubber surround, extract the bulb and remove the reflector.

9.6 Invert drilling template (item 15) on the rear of the light cluster, mark the centre of the corresponding hole to that in Sub-Para 9.4 and cut 18 mm hole.

Refer to Fig 2

9.7 Remove the nut/seal (5.1) from the rear marker light harness (item 5), push the shorter threaded portion through the rear light assembly and attach the lock nut. Refit the light cluster to the mounting bracket.

9.8 Carefully release the tail light/reverse light lens. Insert the rear marker light harness (item 5) into the fog light section, passing the red/black wire through the separating wall and connecting it to the tail light terminal (green). Connect the white wire to the return terminal (white) in the fog light section. Refit reflector, bulb and lenses.

Refer to Fig 2

9.9 Fit the rear marker lights (item 6) to the rear light mounting brackets and connect to rear marker light cable assembly (item 5). Screw the open lock clips (item 9) onto the lower outer rear light mounting studs and secure the l.h. and r.h. rear marker light harness (item 5).

Refer to Fig 3

9.10 Remove the junction box (item 4.10) cover and unscrew the two sealing plugs.

9.11 Position the junction box on the body crossmember, forward of the rear mudguard, (approximately 110 mm from the outside face of the r.h. chassis frame member). Centre mark the position of the two fixing holes and drill two 6 mm clearance holes. Secure the junction box using the fixings supplied (Items 4.1, 4.2, 4.3 and 4.6). Ensure that the screws are not overtightened. Refit the screw sealing plugs and refit the junction box cover.

Refer to Fig 3

9.12 Position the side marker light main harness assembly (item 4) as shown and connect to the rear marker light harness (item 5). Secure harnesses to chassis frame using spring clips (item 4.8).

9.13 Fit the side marker light (item 4.11) and cowl (item 4.4) to rear of body side rail as follows:

9.13.1 Position the marker light cowl (item 4.4) against the inside face of the rear mudguard and body side rail as indicated (B).

9.13.2 Centre mark the position of the marker light (item 4.11) and cowl (item 4.4) fixing holes. Drill four 6 mm holes into the body side rail. Secure using the fixings supplied (items 4.2, 4.5 and 4.7).

9.13.3 Repeat Sub-Para 9.13.1 and 9.13.2 for fitment of the opposite side.

9.14 Fit the side marker light (item 4.11) to front of body side rail as follows:

9.14.1 Position the side marker light (item 4.11) on the body side rail approximately 2806 mm from the rear side marker light (item 4.11) as indicated (A).

9.14.2 Centre mark the position of the fixing holes and drill two 6 mm holes. Secure the marker light using fixings supplied (items 4.2, 4.5 and 4.7).

9.14.3 Repeat Sub-Para 9.13.1 and 9.13.2 for fitment of the opposite side.

9.15 Using spring clips (item 4.8), secure the marker light cables to suitable body members.

9.16 Fit the cab roof marker lights front (item 2) as follows:

9.16.1 Remove the following components:

9.16.1.1 Sun visors, left hand and right hand.

9.16.1.2 Roof trim panel.

9.16.1.3 Steering wheel.

9.16.1.4 Front corner trim.

and the following components from the right hand side only:

9.16.1.5 Tread plate.

9.16.1.6 Rear cab grab handle.

9.16.1.7 Upper seat belt mounting.

9.16.1.8 Cab tool box.

9.16.1.9 Courtesy light lens and cable connections.

9.16.1.10 Fire extinguisher and bracket.

9.16.1.11 Side rear corner trim.

Refer to Fig 4

9.17 From inside the cab, if necessary, position drilling template (item 14) on the cab roof as indicated and cut a 50 mm hole. Invert the template and repeat the operation on the opposite side.

9.18 Fold outside cab roof drilling template (item 13) as indicated and position it on the outside of the cab roof as indicated in Fig 6. Centre mark and drill two 6 mm holes and one 13 mm hole. Invert the template and repeat the operation on the opposite corner.

9.19 Insert the Prev torque nuts (item 8) in the 6 mm holes, fit the bulb to the light assembly and then fit to the cab roof, with the cable passing down through the 13 mm hole.

Refer to Fig 8

9.20 From inside the cab connect the cab marker lights (item 2) to the front marker internal light cab harness (item 1) and route it from one side of the vehicle to the other, down the rear side panel and along the cab floor, following the existing harness to the bulkhead as indicated.

WARNING

THE VEHICLE IS INSULATED NEGATIVE EARTH RETURN. DO NOT USE UNAUTHORIZED EARTH FIXING POINTS.

9.21 Slacken the four instrument panel retaining screws and raise the panel to gain access to the printed circuit board. Connect the wire with the spade connector to the 'O' volts terminal on the instrument panel printed circuit board. Scotch lock the other wire to the tail light red/black wire.

9.22 Refit all the components removed in Sub-Para 9.16.1. Tighten the seat belt upper anchor fixing bolt to 28 to 35 Nm (21 to 26 lbf ft).

9.23 Paint all affected areas.

Testing after embodiment

10

10.1 Switch the battery isolation switch to the 'ON' position.

10.2 Rotate the master lighting switch to the 'O' position to energize the side and rear lights; check all marker lights are functioning.

EFFECT ON WEIGHT

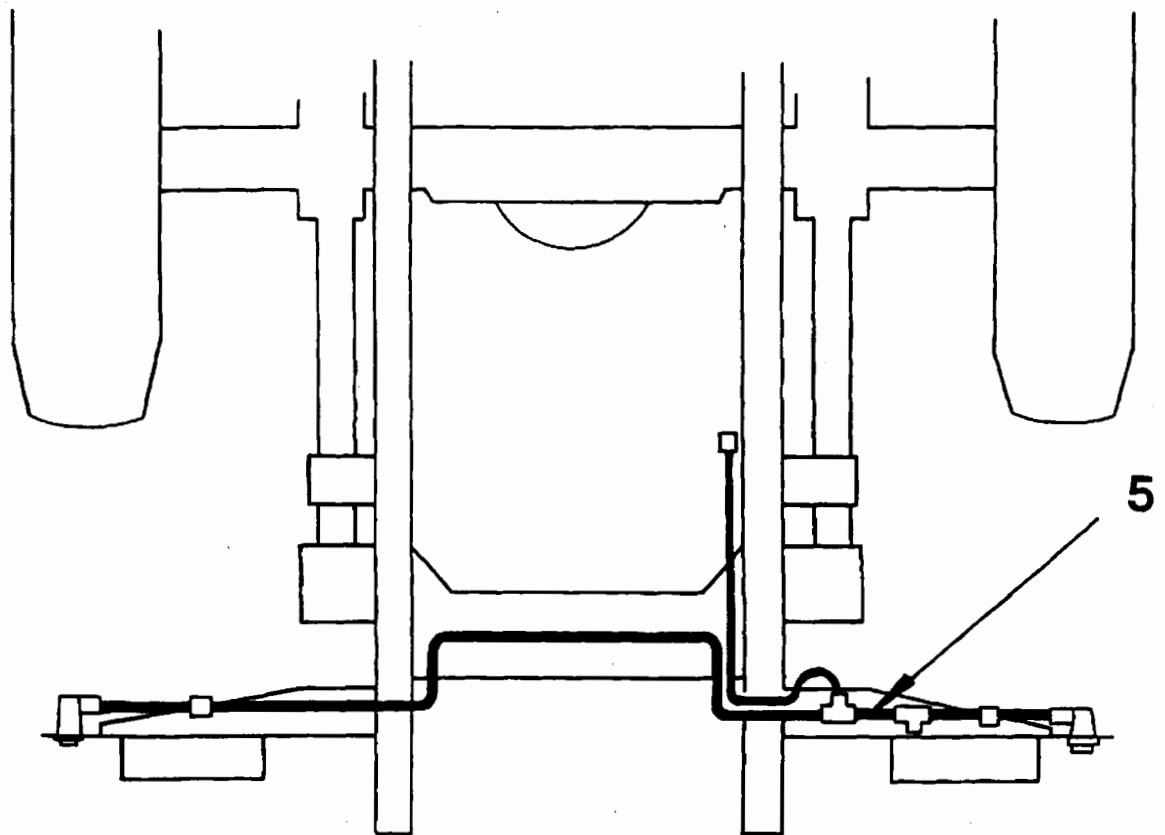
11 Negligible.

PUBLICATION AMENDMENTS

NOTE

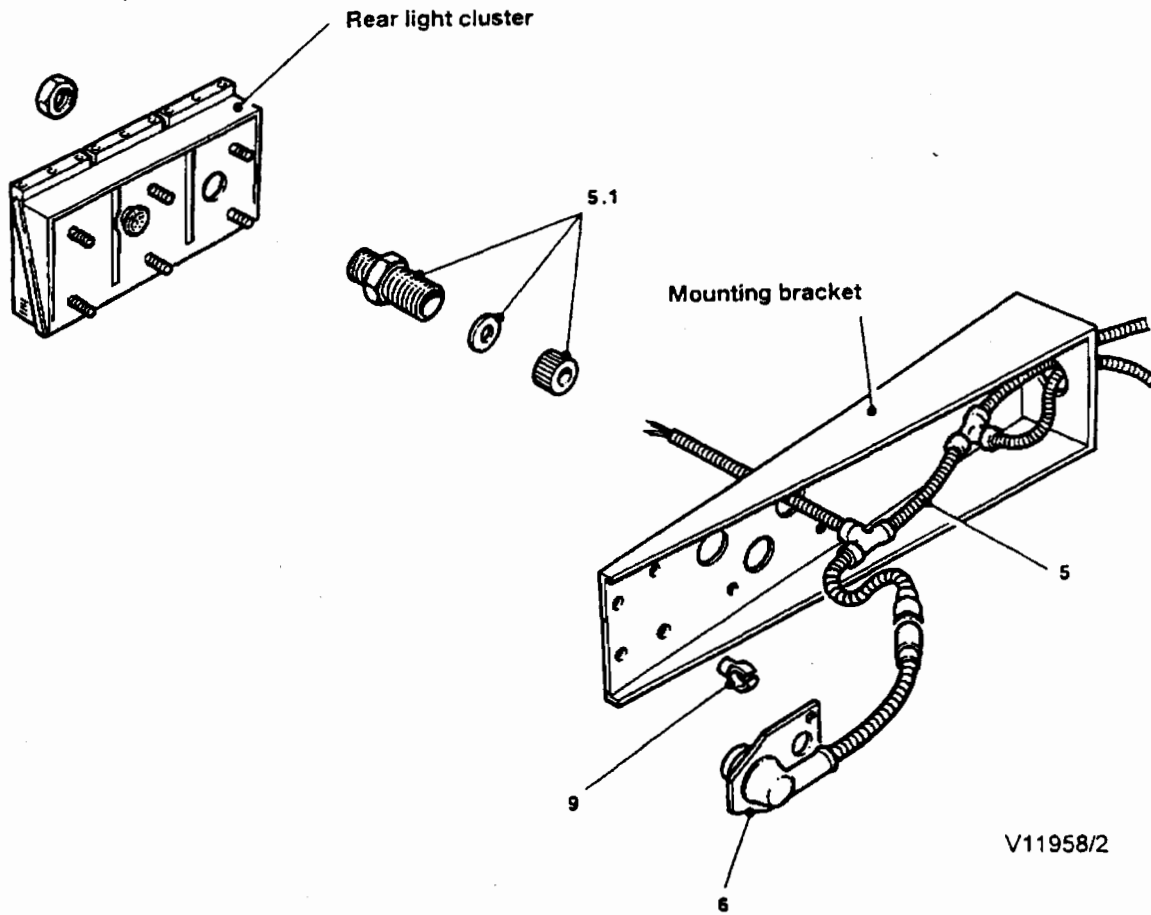
Necessary amendment will be issued separately.

12 AESP 2320-H-104 Octad.



V11958/9

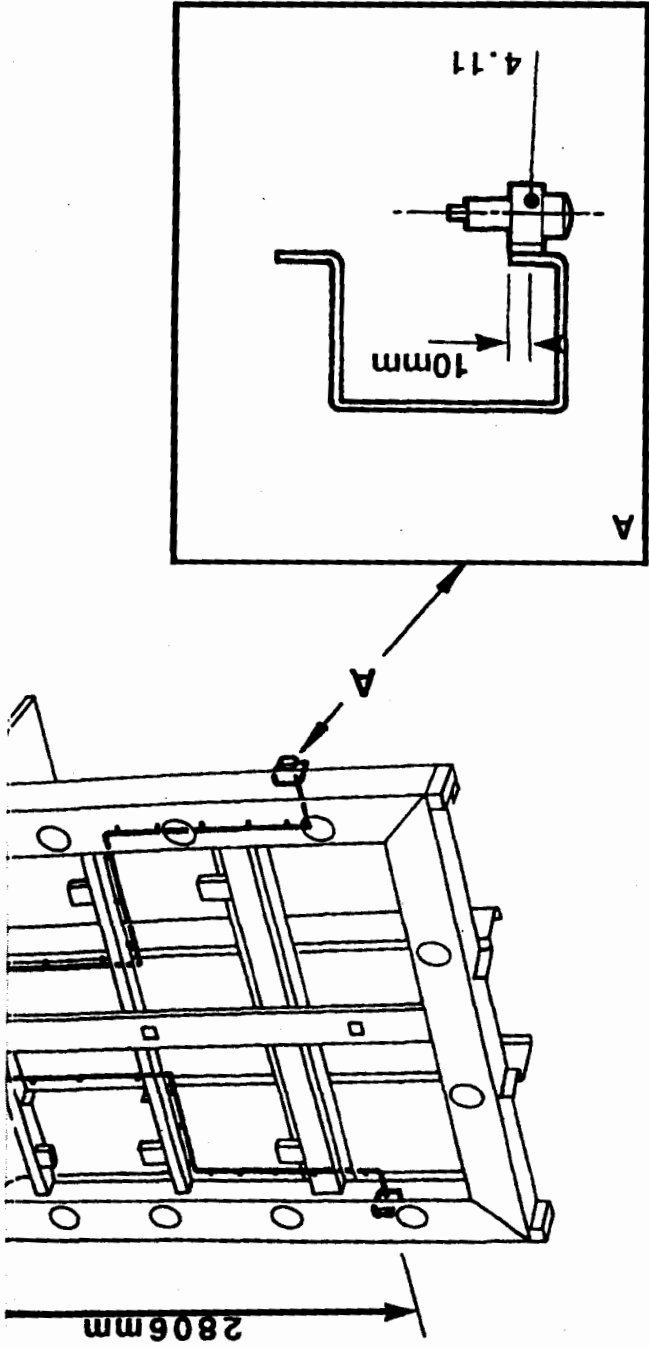
Fig 1 Rear marker light harness layout

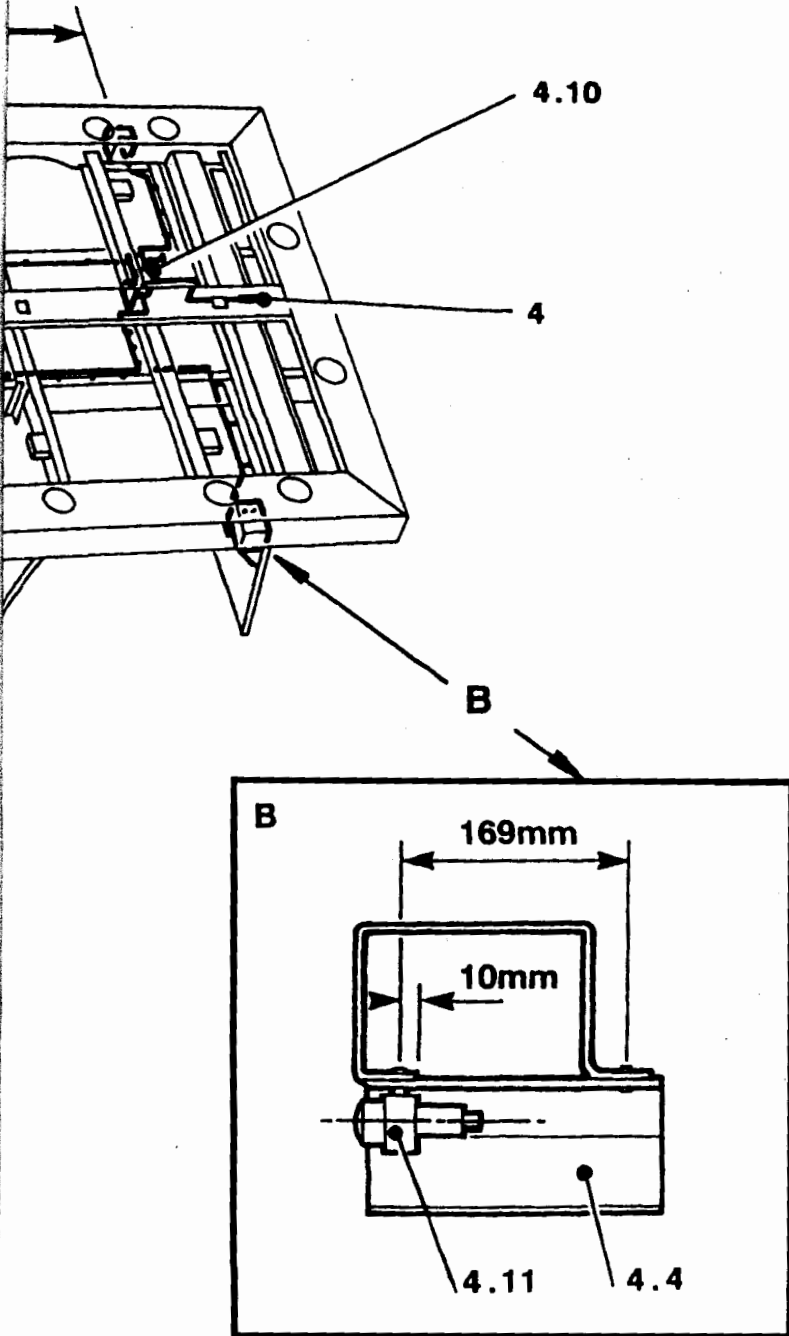


V11958/2

Fig 2 R.H. rear light cluster/mounting bracket assembly

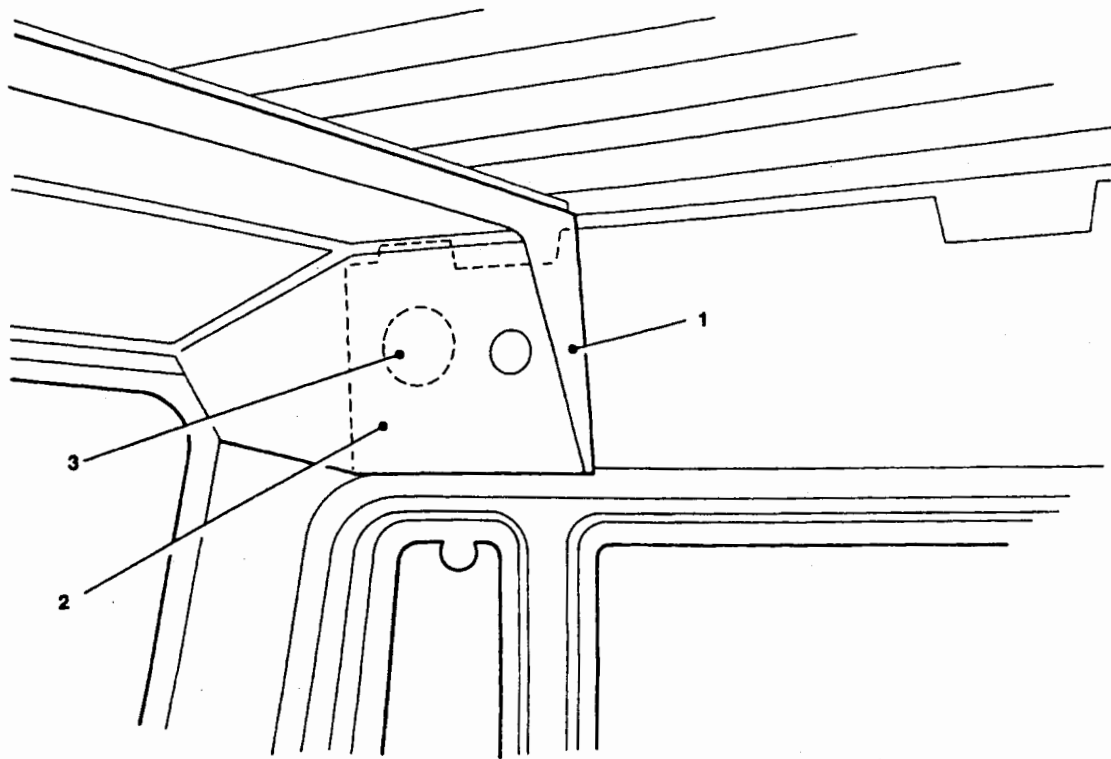
Fig 3 Body side





V11958/3

rail marker light fitting details



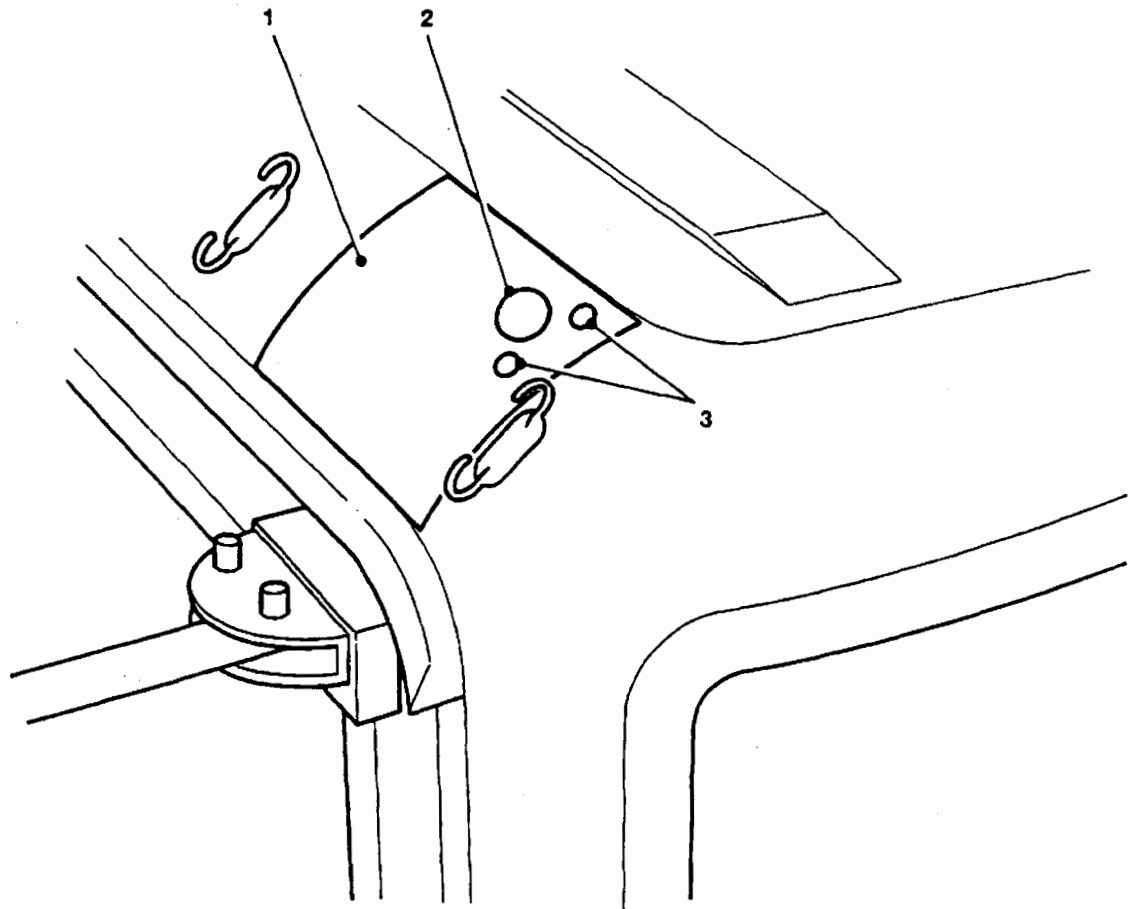
1. ROOF TRIM PANEL

2. DRILLING TEMPLATE POSITION

3. 50mm HOLE

V11958/4

Fig 4 Position of cab interior drilling template



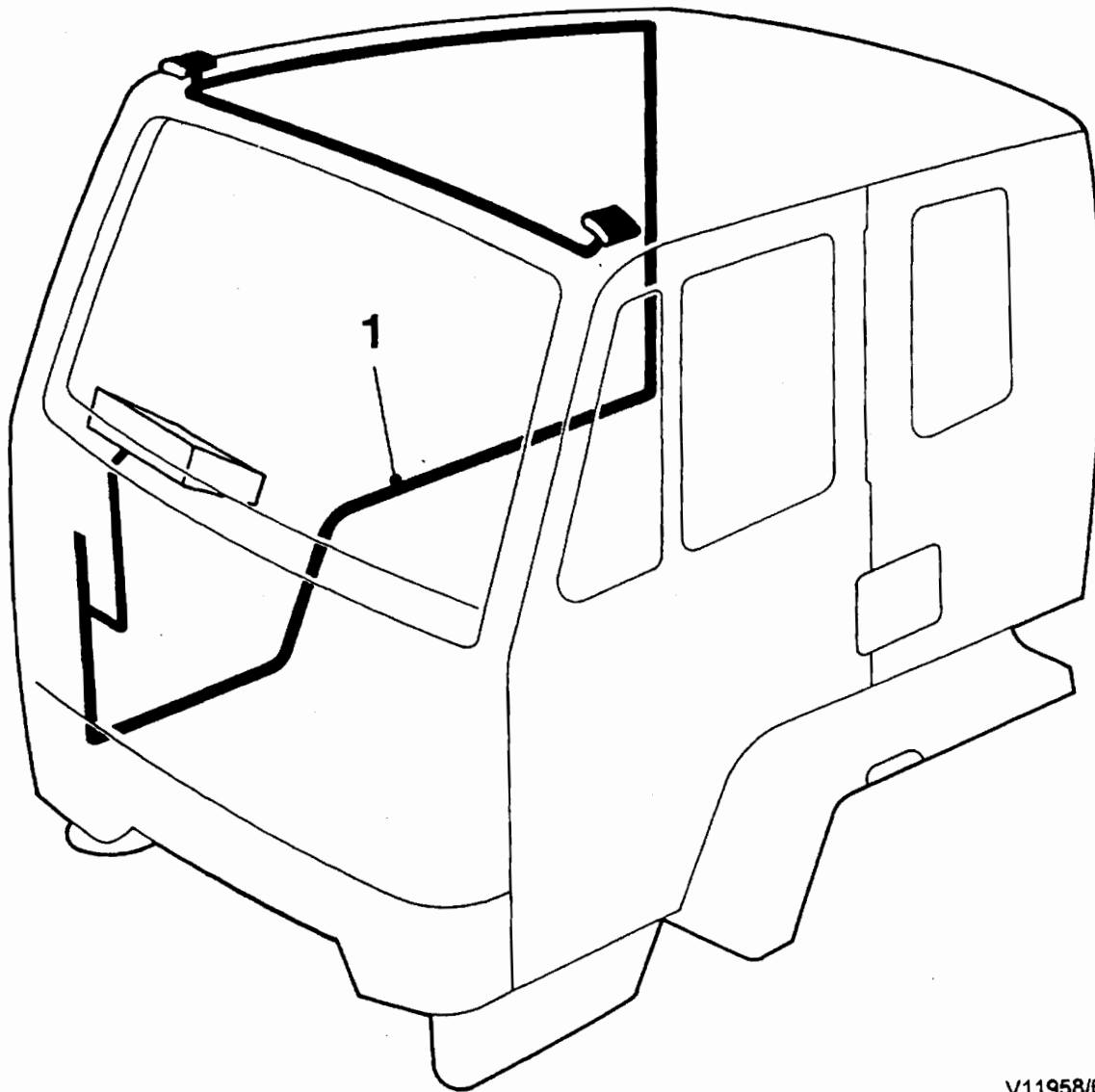
1. DRILLING TEMPLATE

2. 13mm HOLE

3. 6mm HOLE

V11958/5

Fig 5 Position of folded template (item 13) on outside of cab roof



V11958/6

Fig 6 Front marker light cable assembly

**TRUCK, 4 TONNE, 4 X 4, GS,
LEYLAND DAF (ALL VARIANTS)
MODIFICATION INSTRUCTION No. 5**

Sponsor:
DGES(A)

Publication Agency:
Vehs & Wpns Br REME
Project No: 71912(138)
File ref: 3416/37

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
1		
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Amdt No.	Incorporated by (Signature)	Date
4		
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**SUBJECT: Chassis frame sidemember - forward earth bonding
(Approval No. 12-4844)**

INTRODUCTION

1 This instruction introduces forward earth bonding points, located midway along the left and right hand frame side members, utilising existing holes. These are supplementary to the existing points, which are situated at the rear of both frame members. This instruction provides all the necessary details to carry out this modification.

1.1 Limitations on use of equipment. Nil.

APPLICABILITY

2 Truck, 4 Tonne, 4 x 4, GS, Leyland DAF (all variants), EAC: 2025-3102, 2025-8104, 2038-3102, 2041-3102, 2050-3101, 2050-8102, 2091-3101, 2091-8103, 2094-3101, 2094-8101, 2096-8101, 2022-3102.

REASON FOR MODIFICATION

3 Code 4 - to improve maintainability.

PRIORITY

4 ARMY:
RAF: Class 3.

Routine.

ESTIMATED TIME REQUIRED

5 Embodiment: 1 man-hour.

MODIFICATION IMPLEMENTATION PLAN

6

- 6.1 This modification is to be implemented by.
- ARMY - Units authorised to carry out levels 2, 3 and 4 maintenance.
- RAF - Units not later than the next maintenance.
- 6.2 Associated modification instructions. Nil
- 6.3 Modification plate strike action: Nil

Action required by

7

- 7.1 Units and establishments holding equipment.
- 7.1.1 Examine vehicle documents to see if modification is applicable.
- 7.1.2 ARMY - Examine vehicle to see if modification is embodied and where necessary units with 1st Line REME Support demand the stores required.
- RAF - Examine vehicles to see if modification is embodied and where necessary demand the stores required.
- 7.1.3 ARMY - On receipt of stores, request REME to modify equipment.
- 7.1.4 ARMY - Record the modification and AESP Number in vehicle documents.
- RAF - Record modification details on RAF Form 4870 and G1084A. Units operating STAMA are to record modification details on ADP MTMS Job Certification Sheet and to follow procedure laid down in AP 100C-08A.
- 7.2 Units authorised to carry out levels 2, 3 and 4 maintenance, and RAF units.
- 7.2.1 ARMY - When requested by users or during overhaul of vehicle on charge without REME 1st Line Support, obtain the items listed in Para 8 and carry out this modification.
- RAF - On receipt of stores, embody the modification.
- 7.2.2 Record completion details of modification against appropriate entry in vehicle documents.
- 7.2.3 RAF - Complete AF G1084A when reporting completion of the modification to RAF Data Centre using the following FORWARD code:
- MODIFICATION CODE: AFG 080
- 7.3 All recipients of this instruction. Add particulars to AESP 2320-H-104-811 Mod Instr Index.

Stores, tools and equipment

8

8.1 Stores to be demanded.

The following items are to be demanded quoting this instruction as authority for demand.

Item No.	DMC	NSN/Part No.	Designation	Qty per eqpt
1	G1/1	5305-99-727-6702	Screw Machine ISO, Metric Steel, hex hd, zinc plated, M8 x 1.25 x 35 mm	2
2	G1/1	5310-99-135-0758	Nut, Plain, Hexagon, ISO Metric Steel, zinc plated, M8 x 1.25 x 13 x 6.5 mm	2
3	G1/1	5310-99-136-6572	Nut, Plain, Wing, ISO, Metric Steel, M8 x 16 mm thk	2
4	G1/1	5310-99-137-2349	Washer, Flat, Steel, rd hole M8 x 21 x 1.50 mm thk	4
5	G1/1	5310-99-122-2312	Washer, Flat, Steel, rd hole M8 x 17 x 1.60 mm thk	2
6	7FW	7690-99-311-3222		2

Sequence of operations

NOTE

The 'item numbers' of Para 8 are used as reference throughout this instruction.

9 Carry out this modification as follows:
Refer to Fig 1

9.1 Identify existing holes in LH and RH frame sidemembers.

9.2 Remove paint, for an effective earth bond.

NOTE

The bare metal must be protected with a suitable corrosion inhibitor.

9.3 Using (items 1-5) assemble bolts, washer and nuts.

Testing after embodiment

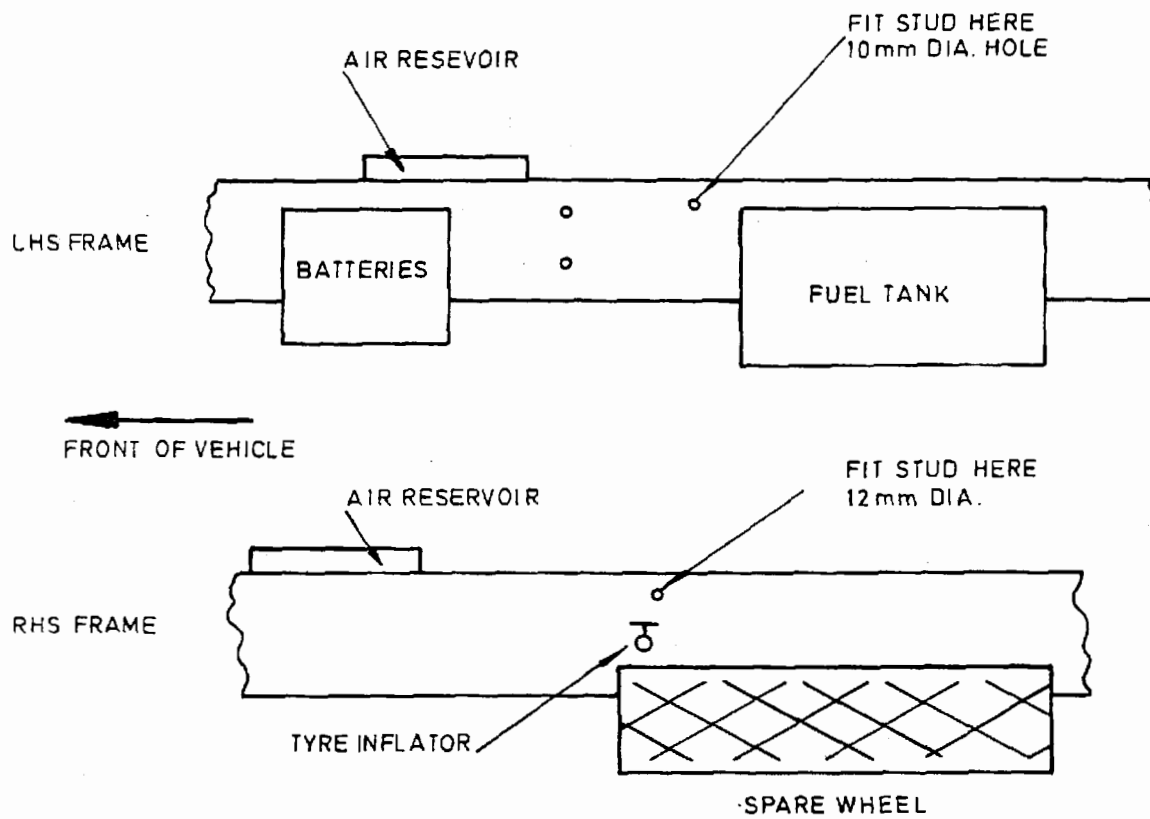
10 Carry out earth continuity check of the studs as detailed in Table 7, Cat 6 Maintenance Schedule.

EFFECT ON WEIGHT

11 Nil.

PUBLICATION AMENDMENTS

12 Nil.



V12193/1

Fig 1 Forward earth bonding points

**TRUCK, 4 TONNE, 4 X 4, GS,
LEYLAND DAF (ALL VARIANTS)
MODIFICATION INSTRUCTION No. 6**

SUBJECT: Rear lamp guard

INTRODUCTION

- 1 For administration reasons Modification Instruction No. 6 dated May 95 is hereby cancelled.

ACTION

- 2 File this Page 1/2 in place of Mod Instr No. 6 dated May 95, all pages of which are to be destroyed.

**TRUCK, 4 TONNE, 4 X 4, GS,
LEYLAND DAF (ALL VARIANTS)
MODIFICATION INSTRUCTION No. 7**

SUBJECT: Winch recovery (rear towing strap)

CANCELLATION

INTRODUCTION

1 Modification Instruction No. 7 is hereby cancelled.

ACTION

2 File this Page 1/2 in place of Mod Instr No. 7, all pages of which are to be destroyed.

**TRUCK, 4 TONNE, 4X4, GS,
LEYLAND DAF (ALL VARIANTS)
MODIFICATION INSTRUCTION No. 8**

Sponsor:
DGES(A)

Publication Agency:
Vehs & Wpns Br REME
Project No: 71912(101)
File ref: VB/6/3416/04

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
1		
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Amdt No.	Incorporated by (Signature)	Date
4		
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**SUBJECT: Fitting of uprated rear axle to increase GWV from 10.8 to 11.6 tonnes.
(12-4896)**

INTRODUCTION

1 This instruction details the procedure for replacing the rear axle casing on UBRE variants to increase the GWV to 11.6 tonnes thus allowing the vehicle to carry a full payload of fuel.

1.1 Limitations on use of equipment. Nil.

APPLICABILITY

2 Truck, 4 tonne, 4x4, Bulk Fuel, Leyland DAF, EAC: 2204-3101 and 2204-8101 with ERN listed at Annex A.

REASON FOR MODIFICATION

3 Code 1 - to improve safety.

PRIORITY

4 Army: Immediate.

ESTIMATED TIME REQUIRED

5 Embodiment: 10 man-hours.

MODIFICATION IMPLEMENTATION PLAN

6

- 6.1 This modification is to be implemented by:
Army - Units authorized to carry out level 2, 3 and 4 repairs.
- 6.2 Associated modification instructions. Nil
- 6.3 Modification plate strike action: Nil

Action required by

7

- 7.1 Units and establishments holding equipment.
- 7.1.1 Examine vehicle documents to see if modification is applicable.
- 7.1.2 ARMY - Examine equipment to see if modification is embodied and where necessary units with 1st Line REME Support demand the stores required,
- 7.1.3 ARMY - On receipt of stores, request REME to modify equipment.
- 7.1.4 ARMY - Record the modification and AESP Number in equipment document.
- 7.2 Units authorised to carry out levels 2, 3 and 4 maintenance.
- 7.2.1 ARMY - When requested by users or during overhaul of vehicles on charge without 1st Line REME Support, obtain the items listed in Para 8 and carry out this modification.
- 7.2.2 Record completion details of modification against appropriate entry in vehicle documents.
- 7.3 All recipients of this instruction. Add particulars to AESP 2320-H-104-811 Mod Instr Index.

Stores, tools and equipment

8

- 8.1 Stores to be demanded.
- 8.1.1 The following modification set is to be demanded quoting this instruction as authority for demand, and
- 8.1.2 Registration number of vehicle for equipment held by user units.

Item No.	DMC	NSN/Part No.	Designation	Qty per eqpt
	7FW	2520-99-020-7321	Axle conversion kit Comprising:	1
1		ACHA888	Axle Casing	(1)
2		MZK3232	Load Sensing Valve (LSV) Plate	(1)

Item No.	DMC	NSN/Part No.	Designation	Qty per eqpt
3		MZK9038	Tab Washer	(2)
4		PAK5310	Vehicle Identification Number (VIN) Plate	(1)
5		RA608127	Blind Rivet	(8)
6		1203258	Oil Seal	(2)

8.2 Stores to be removed and reduced to scrap.

7		N/K	Axle Casing	1
8		N/K	LSV Plate	1
9		N/K	VIN Plate	1

Sequence of operations

NOTES

- (1) The 'item numbers' of Para 8 are used as reference throughout this instruction.
 - (2) References are made to: AESP 2320-H-104-522 and AESP 2320-H-104-523.
- 9 Carry out this instruction as follows:
- 9.1 Remove rear axle as detailed in AESP 2320-H-104-523 chapter 5.
 - 9.2 Remove axle shafts as detailed in AESP 2320-H-104-522 chapter 5.
 - 9.3 Remove driving head as detailed in AESP 2320-H-104-522 chapter 5.
 - 9.4 Dismantle hubs as detailed in AESP 2320-H-104-522 chapter 5.
 - 9.5 Remove brake assemblies.
 - 9.6 Fit brake assemblies on to new axle casing (item 1). Torque retaining bolts to 115-129 Nm (85-95 lbf/ft).
 - 9.7 Re-assemble hubs using new tab washers (item 3) and oil seals (item 7) as detailed in AESP 2320-H-104-522 chapter 5. Ensure that the abutment rings are free from burrs and damage
 - 9.8 Fit driving head into new axle casing as detailed in AESP 2320-H-104-522.
 - 9.9 Fit axle shafts into new axle casing as detailed in AESP 2320-H-104-522.
 - 9.10 Fit new axle to vehicle as detailed in AESP 2320-H-104-523 chapter 5.
 - 9.11 Set load sensing valve as detailed in AESP 2320-H-104-522 chapter 10.
 - 9.12 Stamp data on to new VIN plate (item 4). GVM should now read 11600Kg. All other data remains unchanged.

- 9.13 Replace VIN plate using blind rivets (item 6).
- 9.14 Replace LSV plate using blind rivets (item 6).
- 9.15 Paint all affected areas.

Testing after embodiment

10 Nil.

EFFECT ON WEIGHT

11 Negligible.

PUBLICATION AMENDMENTS

NOTE

Necessary amendments will be issued separately.

**TRUCK, 4 TONNE, 4 X 4, GS,
LEYLAND DAF (ALL VARIANTS)
MODIFICATION INSTRUCTION No. 9**

SUBJECT: Revised cupola catch

INTRODUCTION

- 1 For administration reasons Modification Instruction No. 9 dated July 95 is hereby cancelled.

ACTION

- 2 File this Page 1/2 in place of Mod Instr No. 9 dated July 95, all pages of which are to be destroyed.

TRUCK, 4 TONNE, 4 X 4 GS
LEYLAND DAF (ALL VARIANTS)
MODIFICATION INSTRUCTION No. 10

SUBJECT: Fuel lift pump - Avtur use

CANCELLATION

INTRODUCTION

1 Modification Instruction No. 10 dated Jul 97 is hereby cancelled due to a change in winching policy.

ACTION

2 File this Page 1/2 in place of Mod Instr No. 10 dated Jul 97, all pages of which are to be destroyed.

TRUCK, 4 TONNE, 4 X 4, GS
LEYLAND DAF (ALL VARIANTS)
MODIFICATION INSTRUCTION No. 11

Sponsor:
DGES(A)

Publication Agency:
ATSA Chertsey
Project No: ES52c/4439/LVG(130)
File ref: DE/CH/LVG/4439/9

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
1	INCORPORATED	27/7/98
2		
3		

Amdt No.	Incorporated by (Signature)	Date
4		
5		
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SUBJECT: Fire extinguisher brackets
(Approval No. 12-4865/1)

INTRODUCTION

1 This instruction introduces interface brackets to existing fire extinguisher mountings eliminating foul conditions when carrying an SA80 (interior) and the air intake (external), when the 2 kg dry powder fire extinguisher is fitted.

1.1 Limitations on use of equipment. Nil.

APPLICABILITY

2

2.1 Truck, 4 Tonne, 4 x 4, GS, Leyland DAF (All Variants) held by user units.

2.2 Unmodified stock, held at all levels of technical storage.

REASON FOR MODIFICATION

3 Code 2 - to improve operational performance.

PRIORITY

4

4.1 ARMY: Routine.

4.2 RAF: Class 3.

ESTIMATED TIME REQUIRED

5 Embodiment: 1 man-hour.

IMPLEMENTATION PLAN

6

- 6.1 This instruction is to be implemented by units authorised to carry out levels 2, 3 and 4 maintenance.
- 6.2 Associated instructions. Nil
- 6.3 Strike plate action: N/A

Action required by

7

- 7.1 Units and establishments holding equipment:
 - 7.1.1 Examine equipment documents to see if instruction is applicable.
 - 7.1.2 Examine equipment or record strike plate to see if instruction is embodied.
 - 7.1.3 Army - On receipt of stores, request REME to modify equipment.
 - 7.1.4 Army - Record the AESP and instruction number in equipment documents.
 - 7.1.5 RAF - Record modification details on RAF Form 4870 and AF G1084A. Units operating STAMA are also to record modification details on ADP MTMS Job Certification Sheet and to follow procedures laid down in AP 100C - 08A.
- 7.2 Units authorised to carry out levels 2, 3 and 4 maintenance:
 - 7.2.1 When requested by units carry out this instruction.
 - 7.2.2 Record completion details of modification against appropriate entry in vehicle documents.
 - 7.2.3 Complete AF G1084A when reporting completion of the modification to FORWARD (RAF) using the following code:

RAF: MODIFICATION CODE AFG 086

- 7.3 All recipients of this instruction. Add particulars to AESP 2320-H-104-811 Instr Index.

Stores, tools and equipment

8

- 8.1 Stores to be demanded:
 - 8.1.1 Vehicles with chassis numbers up to and including L122562. Demand mod set A.
 - 8.1.2 Vehicles with chassis numbers after L122562. Demand mod set B.
 - 8.1.3 The following item(s) are to be demanded quoting this instruction as authority giving.
 - 8.1.4 Registration number of vehicles held.

Item No.	DMC	NSN/Part No.	Designation	Qty per eqpt
	7FW	2540-99-244-8364	Mod set A: comprising:	1
1		MXH 1996	'Z' Bracket	(4)
2		SE 105204	M5 Fixing screw	(16)
3		WA 105005	M5 Washer	(16)
	7FW	2540-99-663-6462	Mod set B: comprising:	1
4		MXH 1996	'Z' Bracket	(2)
5		SE 105204	M5 Fixing screw	(8)
6		WA 105005	M5 Washer	(8)

Sequence of operations

9 Carry out this instruction as follows:

NOTES

- (1) The item numbers of Para 8 are used as reference throughout this instruction.
- (2) Mod sets A and B do not include fire extinguisher brackets Fig 1 and 2 (item 3). Any additional brackets are to be demanded using NSN 6MT1/4210-99-839-9904.
- 9.1 Interior fire extinguisher bracket. Refer to Fig 1. Attach 'Z' brackets MXH 1996 (Items 1 and 4) using 4 x M5 screws and washers (Items 2, 3, 5 and 6)
- 9.2 Using 4 x M5 screws and washers (Items 2, 3, 5 and 6) secure the fire extinguisher bracket using the captivated nuts provided at the rear side panel of the cab behind the drivers seat. Fit fire extinguisher.
- 9.3 Exterior fire extinguisher bracket. Refer to Fig 2. Attach 'Z' brackets MXH 1996 (Items 1 and 4) using 4 x M5 screws and washers (Items 2, 3, 5 and 6)
- 9.4 Using 4 x M5 screws and washers (Items 2, 3, 5 and 6) secure the bracket at the right hand rear of the cab using the captivated nuts provided. Fit fire extinguisher.

TESTING AFTER EMBODIMENT

10 Nil.

Inspection

11 Nil.

EFFECT ON WEIGHT

12 Negligible.

PUBLICATION AMENDMENTS

13 Nil.

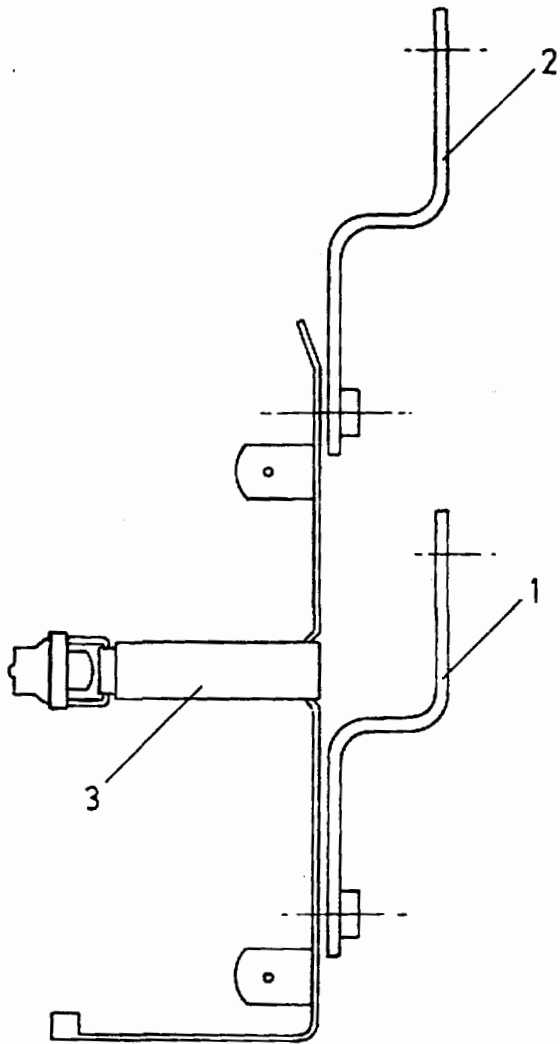


Fig 1
Interior fire extinguisher
Bracket

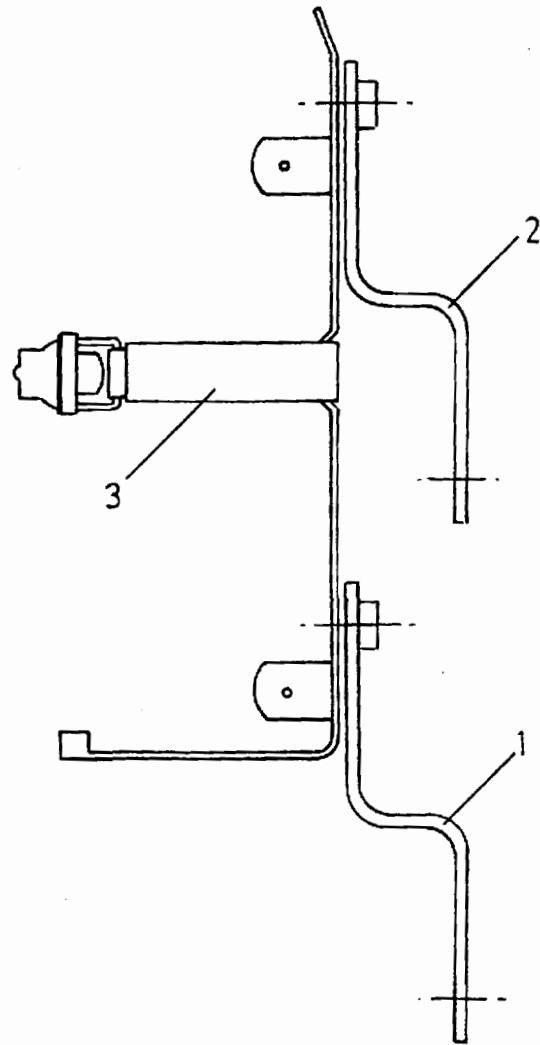


Fig 2
Exterior fire extinguisher
Bracket

- 1 'Z' Bracket
- 2 'Z' Bracket
- 3 Bracket

V13917/1

TRUCK, 4 TONNE, 4 X 4 GS
LEYLAND DAF (ALL VARIANTS)
MODIFICATION INSTRUCTION No. 12

SUBJECT: Front recovery brackets

CANCELLATION

INTRODUCTION

1 Modification Instruction No. 12 dated Jul 99 is hereby cancelled due to a change in winching policy.

ACTION

2 File this Page 1/2 in place of Mod Instr No. 12 dated Jul 99, all pages of which are to be destroyed.

TRUCK, 4 TONNE, 4 X 4, GS, LEYLAND DAF (ALL VARIANTS)

MODIFICATION INSTRUCTION No. 13

Sponsor:
DGES(A)

Publication Agency:
ATSA Chertsey
Project No: 72212(155)
File ref: 97/52c/4543/LVG

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
1		
2		
3		

Amdt No.	Incorporated by (Signature)	Date
4		
5		
6		

SUBJECT: Fitting of second control box for tail lift
(Approval No. 12-4899)

INTRODUCTION

1 This instruction provides the correct fitting and testing details for a second control box for Tail Lift variants.

1.1 Limitations on use of equipment. Nil.

APPLICABILITY

2 Truck, 4 Tonne, 4 x 4, GS, Leyland DAF with Tail Lift, EAC B36-2022-3102.

2.1 Fitted to subject vehicles held by user units.

2.2 Unmodified stock, held at all levels of technical storage.

REASON FOR MODIFICATION

3 Code 1. - to improve safety.

PRIORITY

4 RAF: Class 1.

ESTIMATED TIME REQUIRED

5 Embodiment 4 man-hours MT Tech.

MODIFICATION IMPLEMENTATION PLAN

6

6.1 This instruction is to be implemented by:

RAF - Units not later than the next maintenance and Vehicle Depots before issue of vehicle.

6.2 Associated modification instructions. Nil

6.3 Modification plate strike action: N/A

Action required by

7

7.1 Units and establishments holding equipment:

7.1.1 Examine vehicle documents to see if modification is applicable.

7.1.2 RAF - Examine vehicle to see if modification is embodied and where necessary demand the stores required.

7.1.3 RAF - Record the AESP and instruction number in equipment documents and record the details on RAF Form 4870 and AF G1084A/STAMA Work Sheet.

7.1.4 Obtain the items listed in Para 8 and submit equipment to unit in Sub-Para 7.2.

7.2 Units authorized to carry out levels 2, 3 and 4 maintenance:

7.2.1 When requested by units carry out this instruction.

7.2.2 Record completion details of instruction against appropriate entry in vehicle documents.

7.2.3 Complete AF G1084A/STAMA Work Sheet when reporting completion of the modification of RAF Data Centre using the following FORWARD Code:

MODIFICATION CODE: AFB 077

7.3 All recipients of this instruction. Add particulars to AESP 2320-H-104-811 Mod Instr Index.

Stores, tools and equipment

8

8.1 Stores to be demanded:

8.1.1 The following items are to be demanded quoting this instruction as authority, together with the registration number of vehicle for equipment held by user units, and the registration number of vehicle for unmodified stock held at all levels of technical storage.

Item No.	DMC	NSN/Part No.	Designation	Qty per eqpt
	7FW	2590-99-371-0202 (SC 4855)	Mod set: Control Kit comprising of:	1
1		PM280	Box control l.h.	(1)
2		PM281	Lock and key	(1)
3		PM 282	Switch, 2 button	(1)
4		EL815	Gland and nut	(5)
5		EL816/5800	Cable assembly	(5)

Item No.	DMC	NSN/Part No.	Designation	Qty per eqpt
6		EL795	Clip, cable 12 mm	(4)
7		APC5	Tie, cable 172 mm	(8)
8		BCP411	Plate, angle steel	(1)
9		B18081	Plate, reinforcing	(1)
10		MCS10/25/ZP	Screw, machine, metric, steel, hex hd ZN coated M10 x 25 mm	(4)
11		KN138/M10/150/ZP	Locknut, metric, steel, Hex hd, ZN coated M10	(4)
12		WS551/M10/ZP	Washer, flat, steel, ZN coated, M10	(4)
13		EL818	Clip, pipe half	(2)
14		MCS5/16/ZP	Screw, machine, metric, steel, Hex hd ZN coated, M5 x 16 mm	(1)
15		KN135/M5/080/ZP	Locknut, metric, steel, Hex hd, ZN coated M5	(1)
16		WS551/M5/ZP	Washer, flat steel, ZN coated, M5	(1)
17		EL801	Lead, wander	(1)

8.2 Stores to be removed: Nil

Sequence of operations

9 Carry out this instruction as follows:

NOTES

(1) The item numbers of Para 8 are used throughout this instruction. Where items are common, the alternative item number is shown in brackets.

(2) The terms l.h. and r.h. as applied to this vehicle, are understood to be that side when viewed from the rear with the vehicle pointing in the direction of forward travel.

9.1 Switch tail lift isolator off.

9.2 Remove the front of tail lift electrical control switch in r.h. control box and disconnect wires (refer to diagram for cable identification). Mark the terminals on the rear of the switch with cable colouring to assist in reassembly.

9.3 Remove rear of switch panel from control box and drill a 21 mm hole in the base as shown in Fig 1 and fit stuffing gland.

9.4 Drill a 21 mm hole in the bottom of the r.h. control box as shown in Fig 1 (view on arrow A).

9.5 Remove the campole bracket from the l.h. tool box and drill two 11 mm diameter holes in the l.h. rear wing as shown in the diagram and refit the campole bracket.

9.6 Remove the l.h. toolbox and drill two 11 mm diameter holes at the top of the box as shown in Fig 1 (view looking on rear of toolbox). Secure the reinforcing plate (item 9) using two bolts and nuts supplied (items 10 and 11) to the toolbox and use this as a template to drill the bottom two holes to 11 mm diameter. Remove the reinforcing plate.

9.7 Refit the l.h. toolbox to the vehicle. Fit the l.h. control assembly (item 1) to the l.h. toolbox using four 10 mm diameter screws, washers and locknuts supplied (items 10,11 and 12).

9.8 'Metaflex' cable from the l.h. control box is routed across the chassis and fastened to the body and pipes on the r.h. control box using cable ties (item 7), cable clips (item 6) and clips pipe half (item 13) as required.

9.9 Pass the end of the 'Metaflex' cable through the stuffing gland in the base of the r.h. control box and then through the stuffing gland in the base of the switch panel. Cut the cable to length and connect both cables to corresponding terminals on the rear of the electrical control switch.

9.10 Refit the front of the control switch, and secure all cable glands.

TESTING AFTER EMBODIMENT

10 Switch on tail lift isolator and carry out functional test of tail lift operation from all three control positions.

Inspection

11 Nil.

EFFECT ON WEIGHT

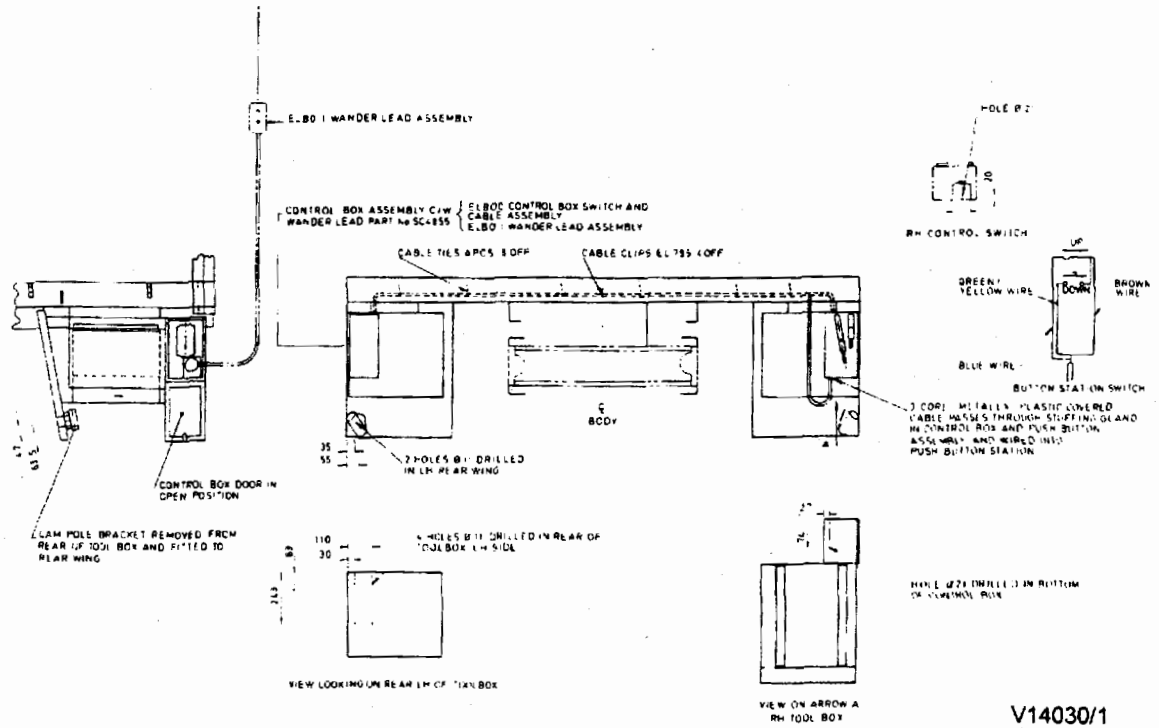
12 Negligible.

PUBLICATION AMENDMENTS

NOTE

Necessary amendments will be issued separately.

13 Nil.



V14030/1

Fig 1 Fitting dimensions l.h. control box assembly

**TRUCK, 4 TONNE, 4 X 4, GS,
LEYLAND DAF (ALL VARIANTS)
MODIFICATION INSTRUCTION No. 14**

SUBJECT: Front recovery brackets.

CANCELLATION

INTRODUCTION

1 Modification Instruction No. 14 is hereby cancelled.

ACTION

2 File this Page 1/2 in place of Mod Instr No. 14, all pages of which are to be destroyed.

TRUCK, 4 TONNE, 4 X 4, GS, LEYLAND DAF (ALL VARIANTS)

MODIFICATION INSTRUCTION No. 15

Sponsor:
DGES(A)

Publication Agency:
ATSA Chertsey
Project No: 97/52c/4903(579)
File ref: 3416/31

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
1		
2		
3		

Amdt No.	Incorporated by (Signature)	Date
4		
5		
6		

SUBJECT: Fire extinguisher fitting.
(Approval No. 97/52c/4903/LVG)

INTRODUCTION

1 This instruction introduces a 6 Kg dry powder fire extinguisher for fitment to vehicles over 3.5 tonnes gross vehicle weight (GVW) carrying hazardous goods.

1.1 Limitations on use of equipment. Nil.

WARNING

PERSONAL INJURY. THE SAFETY PRECAUTIONS AND WORK PRACTICES PUBLISHED IN AESP 2320-A-100-522 AND JSP 317 ARE TO BE FOLLOWED WHEN INCORPORATING THIS MODIFICATION.

APPLICABILITY

2 Truck, 4 Tonne, 4x4 GS Leyland Daf (All Variants less winch).

REASON FOR MODIFICATION

3 Code 6 - To conform to changes in legislation.

PRIORITY

4

4.1 ARMY: Immediate.

4.2 RAF: Class 1

ESTIMATED TIME REQUIRED

5 Embodiment: 2 man-hours.

MODIFICATION IMPLEMENTATION PLAN

6

- 6.1 This instruction is to be implemented by:
 - 6.1.1 ARMY - Units authorized to carry out levels 2, 3 or 4 maintenance.
 - 6.1.2 RAF - Units not later than the next maintenance.
 - 6.1.3 Vehicle Depots before issue of vehicle.
- 6.2 Associated instructions. Nil.
- 6.3 Strike plate action: N/A.

Action required by

7

- 7.1 Units and establishments holding equipment:
 - 7.1.1 Examine equipment documents to see if instruction is applicable.
 - 7.1.2 Examine equipment or modification record plate to see if modification is embodied and where necessary Units with level 2 REME Support demand the stores required.
 - 7.1.3 ARMY - On receipt of stores, request REME to modify equipment.
 - 7.1.4 ARMY - Record the AESP and instruction number in equipment documents.
- 7.2 Army units authorized to carry out levels 2, 3 and 4 maintenance and RAF units:
 - 7.2.1 ARMY - When requested by units or during overhaul of equipment on charge without level 2 REME Support, obtain the items listed in Para 8 and carry out this modification.
 - 7.2.2 RAF - On receipt of stores, embody modification.
 - 7.2.3 Record completion details of modification against appropriate entry in vehicle documents.
 - 7.2.4 Complete AF G1084A/STAMA worksheet when reporting completion of the modification to FORWARD (RAF) using the following code:

RAF: MODIFICATION CODE: AFG 089

NOTE

RAF units operating STAMA are also to complete ADP MTMS Job Certification Sheet and to follow the procedures laid down in AP 100C-08A.

- 7.3 All recipients of this instruction. Add particulars to AESP 2320-H-104-811 Instr Index.

Stores, tools and equipment

8

8.1 Stores to be demanded:

8.1.1 The following items are to be demanded quoting this instruction as the authority.

Item No.	DMC	NSN/Part No.	Designation	Qty per eqpt
1		N/P	Mod set: comprising:	1
2		4210-99-591-4194	Extinguisher, fire, dry powder 6 Kg.	(1)
3		2540-99-075-9118	Firebox - 6 Kg top loading.	(1)
4		5340-99-052-5495	Adapter plate.	(1)
5	G1	5305-99-138-9166	Bolt M8 x 25 mm.	(8)
6	G1	5306-99-122-5326	Bolt M8 x 30 mm.	(6)
7	G1	5310-99-122-5496	Nut M8 Nyloc.	(14)
8	G1	5310-99-122-8085	Washer Flat 8 mm.	(28)
9		5340-99-219-5636	Reinforcing strips.	(2)
10		5340-99-083-4493	Strengthening plate.	(1)

8.2 Stores to be returned through supply system:

8.2.1 Existing fire extinguishers and brackets.

Sequence of operations

9 Carry out this instruction as follows:

NOTE

The item numbers of Para 8 are used as reference throughout this instruction.

9.1 Remove the jerry can holder from the right hand side of the vehicle, fully seam weld the sides to frame.

9.2 Refit the jerry can holder to the vehicle.

9.3 Mark a point on the left hand outer face of the jerry can holder (when viewed from the right hand side of the vehicle), 140 mm down from the top edge of the frame and 110 mm in from the front edge. Drill a 8.5 mm hole.

9.4 Using adapter plate (item 4) as a template, with the adapter plate held with the longest side horizontally, align top right hand hole of the adapter plate with the hole in jerry can holder. Drop the rear of the jerry can holder adapter plate to 5 degrees below the horizontal and mark the drilling position for the remaining holes. Using an 8.5 mm drill, drill holes.

9.5 Remove the metal brackets from the firebox (item 3), then refit the two brackets which attach directly to the container using reinforcing strips (item 9) inside the box. Secure using (items 6, 7 and 8).

9.6 Using (item 4) as a template, with the four holed face uppermost, align lower end holes in the adaptor plate (item 4), with the holes in the container bracket closest to the lid. With a 8.5 mm drill, drill lower holes. Attach firebox (item 3) to adaptor plate (item 4) using redundant bolts from Sub-Para 9.5.

9.7 Fit firebox (item 3) to jerry can holder with strengthening plate (item 10) inside jerry can holder. Secure using (items 5, 7 and 8).

9.8 Drill an 8.5 mm hole in the edge of the container that will be lowest when fitted to facilitate drainage.

9.9 Insert the fully charged extinguisher (item 2) into the container and secure lid.

NOTE

Figs 1 to 3 are attached for reference, they are to be used when the adaptor plates/packing pieces are not available from the manufacturer.

TESTING AFTER EMBODIMENT

10 Nil.

EFFECT ON WEIGHT

11 Negligible.

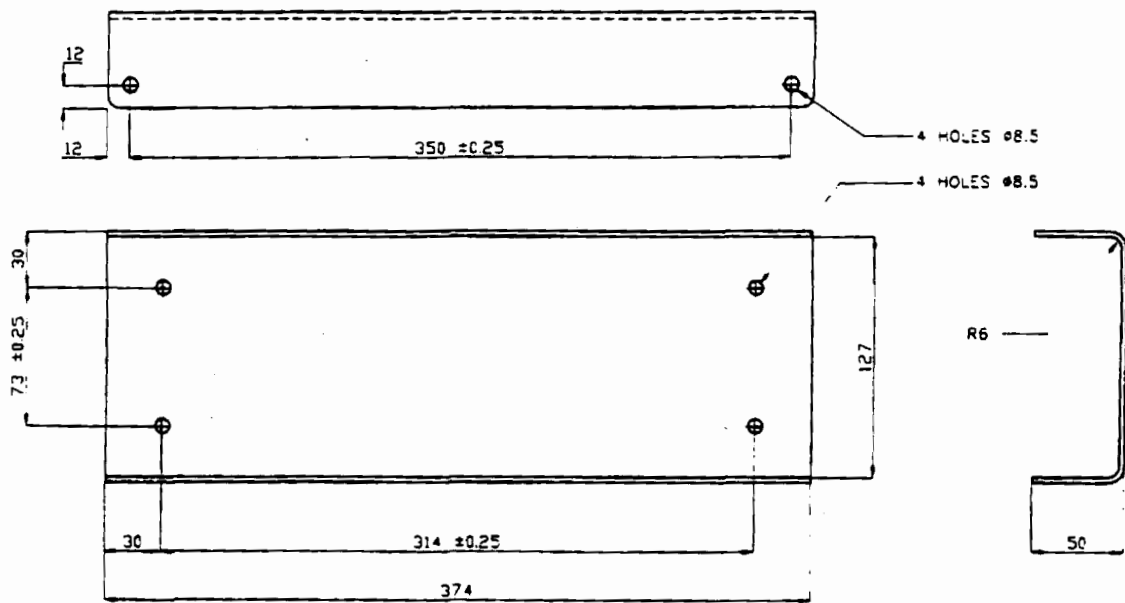
PUBLICATION AMENDMENTS

NOTE

Necessary amendments will be issued separately.

12 Nil.

NOTE
ALL FILLET RADII TO BE 6



V14153/01

Fig 1 Adaptor plate

NOTE

ALL FILLET RADI TO BE 6
PLATE 5 THK

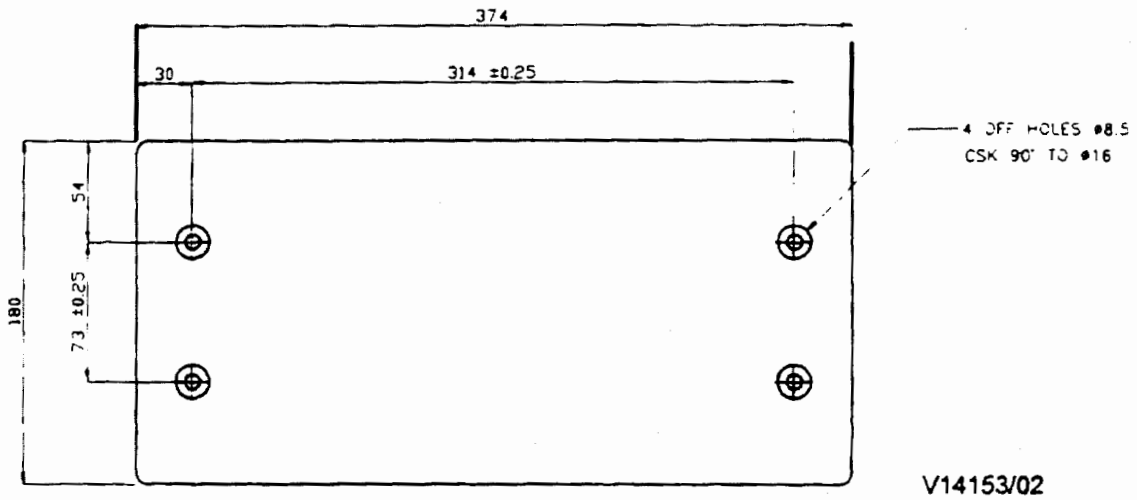
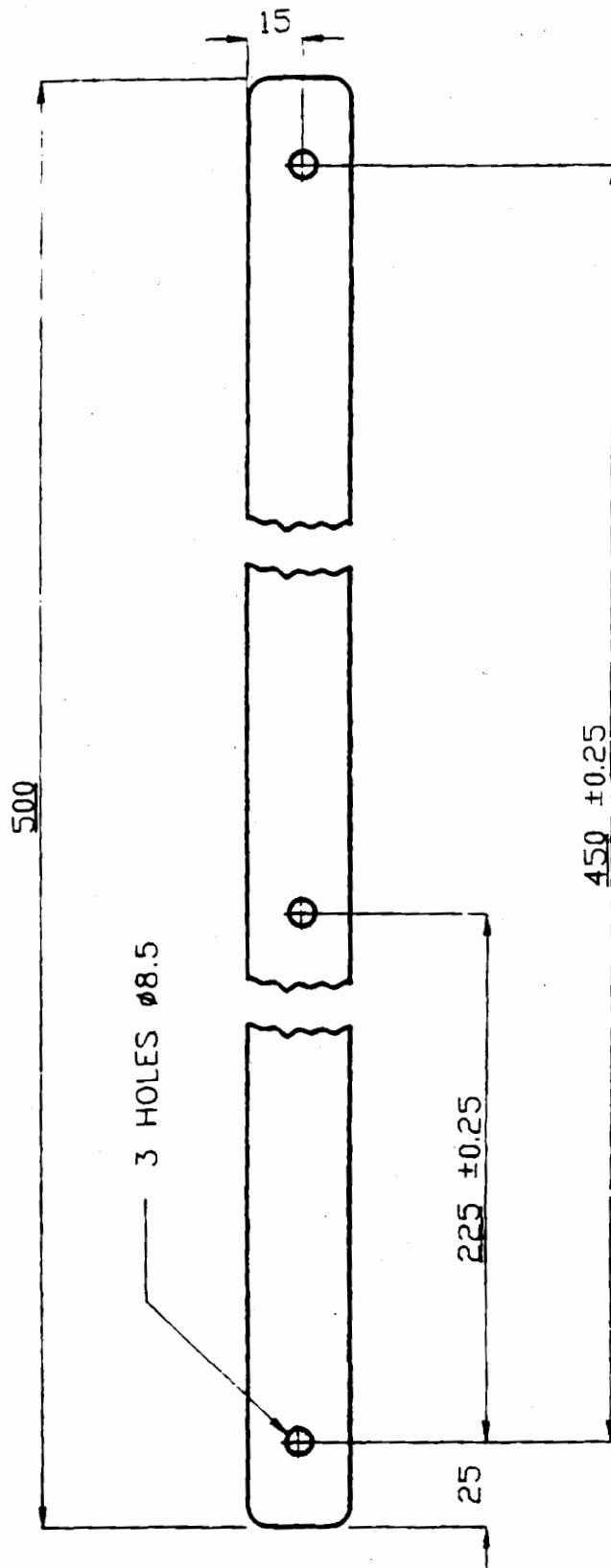


Fig 2 Strengthening plate



NOTE
ALL FILLET RADII TO BE 6

V14153/05

Fig 3 Reinforcing strips

TRUCK, 4 TONNE, 4 X 4, GS
LEYLAND DAF (ALL VARIANTS)
MODIFICATION INSTRUCTION No. 16

Sponsor:
DGES(A)

Publication Agency:
ATSA Chertsey
Project No: 99/RAF/0002/CSVG(424)
File ref:

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
1		
2		
3		

Amdt No.	Incorporated by (Signature)	Date
4		
5		
6		

SUBJECT: Fire extinguisher fit
(Approval No. 99/RAF/0002/CSVG)

INTRODUCTION

WARNING

PERSONAL INJURY. THE SAFETY PRECAUTIONS AND WORK PRACTICES PUBLISHED IN AESP 2320-A-100-522 AND JSP 317 ARE TO BE FOLLOWED WHEN INCORPORATING THIS MODIFICATION.

1 This instruction introduces a 6 kg dry powder fire extinguisher for fitment to vehicles over 3.5 tonnes Gross Vehicle Weight (GVW) employed carrying hazardous goods.

1.1 Limitations on use of equipment. Nil.

APPLICABILITY

2 Truck, Cargo 4 Tonne, 4 x 4 W/Calm Arm/Sup Leyland Daf (2038-3102).

REASON FOR MODIFICATION

3 Code 6 - to conform to changes in legislation.

PRIORITY

4

4.1 ARMY: Immediate.

4.2 RAF: Class 1.

ESTIMATED TIME REQUIRED

5 Embodiment 2 man-hours.

MODIFICATION IMPLEMENTATION PLAN

6

- 6.1 This instruction is to be implemented by:
 - 6.1.1 ARMY - Units authorized to carry out levels 2, 3 or 4 maintenance.
 - 6.1.2 RAF - Units not later than the next maintenance.
 - 6.1.3 Vehicle Depots before issue of vehicle.
- 6.2 Associated instructions. Nil.
- 6.3 Strike plate action: N/A.

Action required by

7

- 7.1 Units and establishments holding equipment:
 - 7.1.1 Examine equipment documents to see if instruction is applicable.
 - 7.1.2 Examine equipment or modification record plate to see if modification is embodied and where necessary Units with level 2 REME Support demand the stores required.
 - 7.1.3 ARMY - On receipt of stores, request REME to modify equipment.
 - 7.1.4 ARMY - Record the AESP and instruction number in equipment documents.
- 7.2 Army units authorized to carry out levels 2, 3 and 4 maintenance and RAF units:
 - 7.2.1 ARMY - When requested by units or during overhaul of equipment on charge without level 2 REME Support, obtain the items listed in Para 8 and carry out this modification.
 - 7.2.2 RAF - On receipt of stores, embody modification.
 - 7.2.3 Record completion details of modification against appropriate entry in vehicle documents.
 - 7.2.4 Complete AF G1084A/STAMA worksheet when reporting completion of the modification to FORWARD (RAF) using the following code:

RAF: MODIFICATION CODE: AFG 089

NOTE

RAF units operating STAMA are also to complete ADP MTMS Job Certification Sheet and to follow the procedures laid down in AP 100C-08A.

- 7.3 All recipients of this instruction. Add particulars to AESP 2320-H-104-811 Instr Index.

Stores, tools and equipment

8

8.1 Stores to be demanded:

8.1.1 The following items are to be demanded quoting this instruction as the authority.

Item No.	DMC	NSN/Part No.	Designation	Qty per eqpt
1		4210-99-591-4194	Extinguisher, fire, dry powder 6 kg.	1
2		2540-99-075-9118	Firebox - 6 kg top loading.	1
3		5340-99-052-5495	Adapter plate.	1
4	G1	5305-99-138-9166	Bolt M8 x 25 mm.	8
5	G1	5306-99-122-5326	Bolt M8 x 30 mm.	6
6	G1	5310-99-122-5496	Nut M8 nyloc.	14
7	G1	5310-99-122-8085	Washer flat 8 mm.	28
8		5340-99-219-5636	Reinforcing strips.	2
9		5340-99-083-4493	Strengthening plate.	1

8.2 Stores to be returned through supply system: Existing external fire extinguishers.

(Sequence of operations.)

NOTES

(1) The item numbers of Para 8 are used as reference throughout this instruction.

(2) Figures 1 to 3 are attached for reference, they are to be used when the adapter plates/packing pieces are not available from the manufacturer.

9 Carry out this instruction as follows:

9.1 Remove the jerrycan holder from the right hand side of the vehicle, fully seam weld the metal sides of the jerrycan holder, to the jerrycan holder frame.

9.2 Refit the jerrycan holder to the vehicle.

9.3 From the top left hand corner, on the right hand outer face of the jerrycan holder, (when viewed from the right hand side of the vehicle), measure 140 mm down from the top edge of the frame and 110 mm in from the front edge. Using an 8.5 mm drill bit, drill a hole in the side of the jerrycan holder.

9.4 Using adapter plate (item 3) as a template. Hold the adapter plate with the longest side horizontal, align top right hand hole of the adapter plate with the hole in jerrycan holder. Drop the rear of the adapter plate 40 mm below the horizontal, and mark the drilling position for the required holes. Using an 8.5 mm drill bit, drill hole in the side of the jerrycan holder.

9.5 Remove the metal brackets from the firebox (item 2), then refit the two brackets which attach directly to the container using reinforcing strips (item 8) on the inside of the box. Secure using (items 5, 6 and 7).

9.6 Using (item 3) as a template. With the four holes in the top of the adapter plate uppermost, align the two end holes in the adapter plate, with the holes in the firebox bracket closest to the lid. With an 8.5 mm drill bit, drill the two lower holes. Attach firebox (item 2) to adapter plate using redundant bolts from Sub-Para 9.5.

9.7 Fit the firebox (item 2) to jerrycan holder with strengthening plate (item 9) inside the jerrycan holder. Secure using (items 4, 6 and 7).

9.8 Drill an 8.5 mm hole in the base of the firebox that will be lowest point when fitted, to facilitate drainage.

9.9 Insert the fully charged extinguisher (item 1) into the firebox, secure lid and fit decal.

TESTING AFTER EMBODIMENT

10 Nil.

EFFECT ON WEIGHT

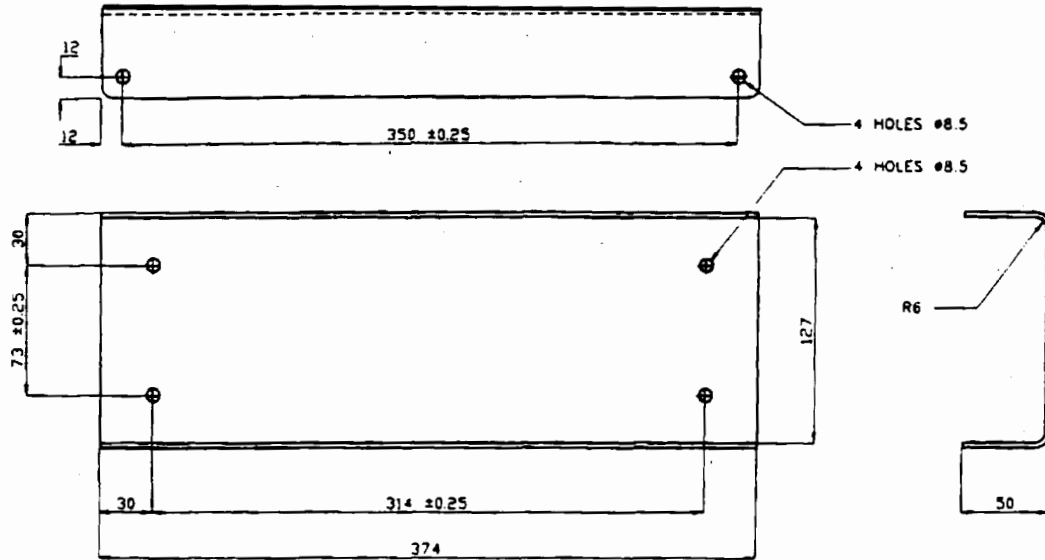
11 Negligible.

PUBLICATION AMENDMENTS

NOTE

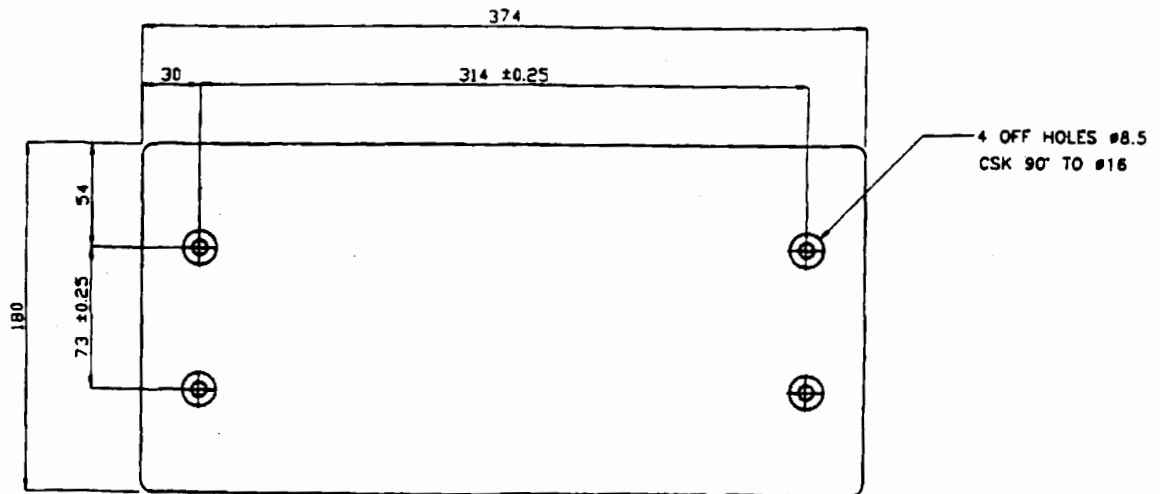
Necessary amendments will be issued separately.

12 Nil.



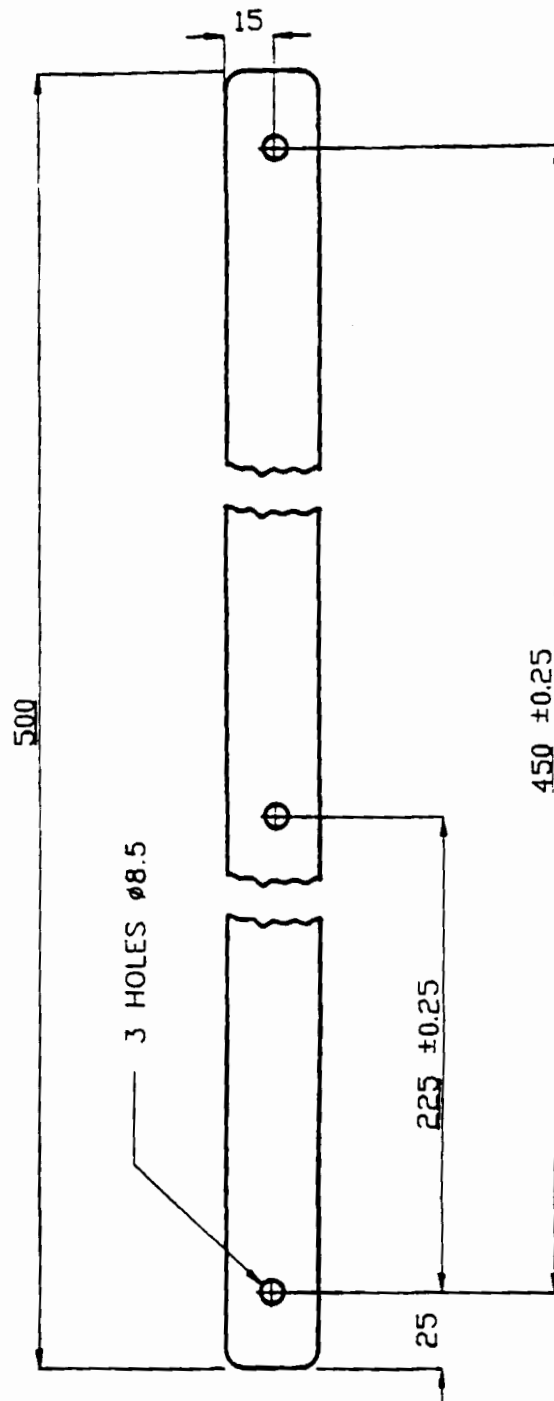
V14153/01

Fig 1 Adapter plate



V14153/02

Fig 2 Strengthening plate



NOTE
ALL FILLET RADII TO BE 6

V14153/05

Fig 3 Reinforcing strips

TRUCK, 4 TONNE, 4 X 4, GS
LEYLAND DAF (ALL VARIANTS)
MODIFICATION INSTRUCTION No. 17

Sponsor:
DGES(A)

Publication Agency:
ATSA Chertsey
Project No: 99/RAF/0002/CSVG(425)
File ref: 3416/31

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
1		
2		
3		

Amdt No.	Incorporated by (Signature)	Date
4		
5		
6		

SUBJECT: Fire extinguisher fit
(Approval No. 99/RAF/0002/CSVG)

INTRODUCTION

WARNING

PERSONAL INJURY. THE SAFETY PRECAUTIONS AND WORK PRACTICES PUBLISHED IN AESP 2320-A-100-522 AND JSP 317 ARE TO BE FOLLOWED WHEN INCORPORATING THIS MODIFICATION.

1 This instruction introduces a 6 kg dry powder fire extinguisher for fitment to vehicles over 3.5 tonnes Gross Vehicle Weight (GVW) employed carrying hazardous goods.

1.1 Limitations on use of equipment. Nil.

APPLICABILITY

2 Truck, Cargo 4 Tonne, 4 x 4 W/Hyd T/Lift Leyland Daf (2022-3102).

REASON FOR MODIFICATION

3 Code 6 - to conform to changes in legislation.

PRIORITY

4

4.1 ARMY: Immediate.

4.2 RAF: Class 1.

ESTIMATED TIME REQUIRED

5 Embodiment: 2 man-hours.

MODIFICATION IMPLEMENTATION PLAN

6

- 6.1 This instruction is to be implemented by:
 - 6.1.1 ARMY - Units authorized to carry out levels 2, 3 or 4 maintenance.
 - 6.1.2 RAF - Units not later than the next maintenance.
 - 6.1.3 Vehicle Depots before issue of vehicle.
- 6.2 Associated instructions. Nil.
- 6.3 Strike plate action: N/A.

Action required by

7

- 7.1 Units and establishments holding equipment:
 - 7.1.1 Examine equipment documents to see if instruction is applicable.
 - 7.1.2 Examine equipment or modification record plate to see if modification is embodied and where necessary Units with level 2 REME Support demand the stores required.
 - 7.1.3 ARMY - On receipt of stores, request REME to modify equipment.
 - 7.1.4 ARMY - Record the AESP and instruction number in equipment documents.
- 7.2 Army units authorized to carry out levels 2, 3 and 4 maintenance and RAF units:
 - 7.2.1 ARMY - When requested by units or during overhaul of equipment on charge without level 2 REME Support, obtain the items listed in Para 8 and carry out this modification.
 - 7.2.2 RAF - On receipt of stores, embody modification.
 - 7.2.3 Record completion details of modification against appropriate entry in vehicle documents.
 - 7.2.4 Complete AF G1084A/STAMA worksheet when reporting completion of the modification to FORWARD (RAF) using the following code:

RAF: MODIFICATION CODE: AFG 089

NOTE

RAF units operating STAMA are also to complete ADP MTMS Job Certification Sheet and to follow the procedures laid down in AP 100C-08A.

- 7.3 All recipients of this instruction. Add particulars to AESP 2320-H-104-811 Instr Index.

Stores, tools and equipment

8

8.1 Stores to be demanded:

8.1.1 The following items are to be demanded quoting this instruction as the authority.

Item No.	DMC	NSN/Part No.	Designation	Qty per eqpt
1		4210-99-591-4194	Extinguisher, fire, dry powder 6 kg.	1
2		2540-99-075-9118	Firebox - 6 kg top loading.	1
3		5340-99-573-2132	Adapter plate.	1
4	G1	5305-99-138-9166	Bolt M8 x 25 mm.	8
5	G1	5306-99-122-5326	Bolt M8 x 30 mm.	6
6	G1	5310-99-122-5496	Nut M8 nyloc.	14
7	G1	5310-99-122-8085	Washer flat 8 mm.	28
8		5340-99-219-5636	Reinforcing strips.	2
9		5340-99-083-4493	Strengthening plate.	1

8.2 Stores to be returned through supply system: Existing external fire extinguishers.

Sequence of operations

NOTES

(1) The item numbers of Para 8 are used as reference throughout this instruction.

(2) Figures 1 to 3 are attached for reference, they are to be used when the adapter plates/packing pieces are not available from the manufacturer.

9 Carry out this instruction as follows:

9.1 Remove the jerrycan holder from the left hand side of the vehicle, and discard.

9.2 Using an 8.5 mm drill bit, drill two holes in the adapter plate (item 3), 275 mm from the holes in the top, of the 90 mm deep end, in line with the original holes in the top of the adapter plate. The two original holes in the top rear (112 mm end) of the plate are now redundant (Ref Fig 1).

9.3 Remove the metal brackets from the firebox (item 2), then refit the two brackets which attach directly to the container using reinforcing strips (item 8) inside the box. Secure using (items 5, 6 and 7).

9.4 Using an 8.5 mm drill bit, drill a hole 200 mm from the front left hand edge of the outer vehicle channel section. Then using adapter plate (item 3) as a template, drill the remaining three holes.

9.5 Using adapter plate (item 3) as a template. With the six holed side uppermost, align the 90 mm end holes in the side of the adapter plate, with the holes in the firebox bracket closest to the lid. Using an 8.5 mm drill bit, drill two holes to line-up with the rear two holes in the adapter plate.

- 9.6 Attach adapter plate (item 3) to vehicle using (items 4, 6 and 7).
- 9.7 Attach firebox to adapter plate using (items 4, 6 and 7).
- 9.8 Drill an 8.5 mm hole in the base of the firebox that will be lowest point when fitted to facilitate drainage.
- 9.9 Insert the fully charged extinguisher (item 1) into the container and secure lid, and fit decals.

TESTING AFTER EMBODIMENT

10 Nil.

EFFECT ON WEIGHT

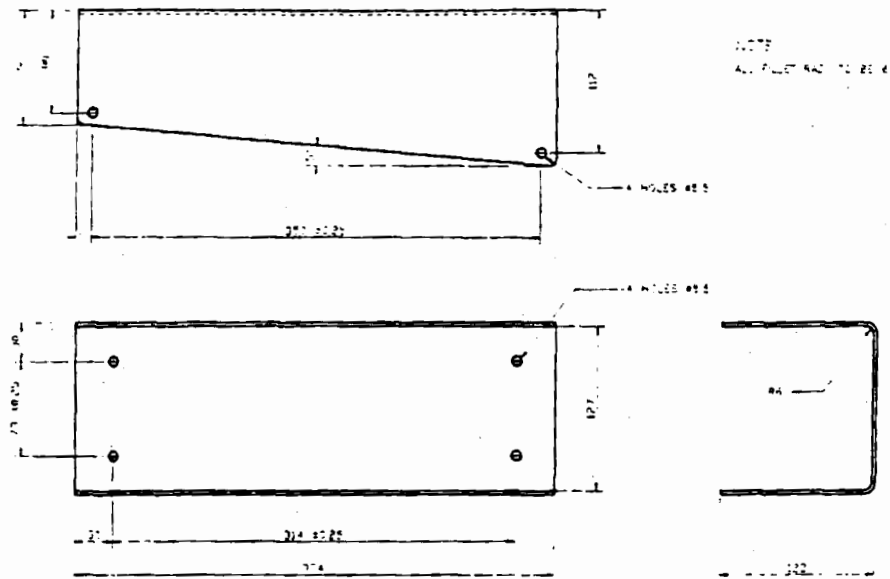
11 Negligible.

PUBLICATION AMENDMENTS

NOTE

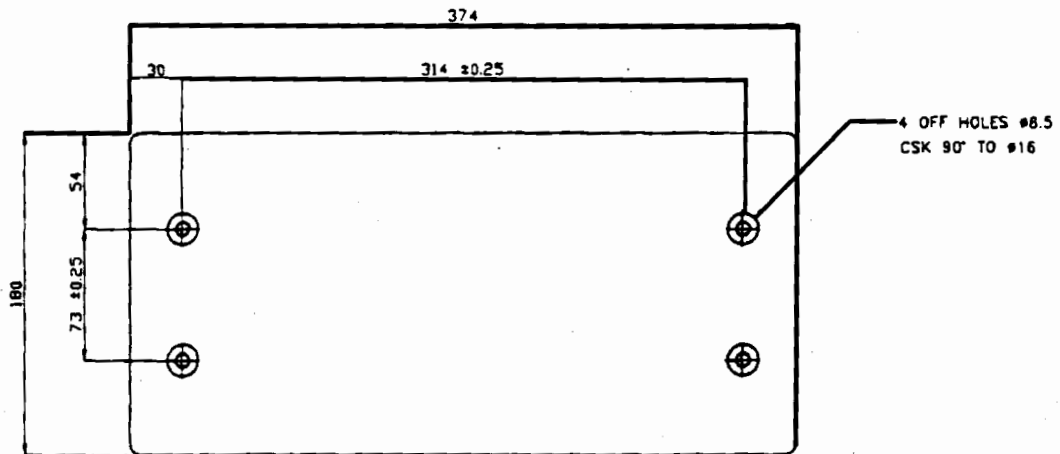
Necessary amendments will be issued separately.

12 Nil.



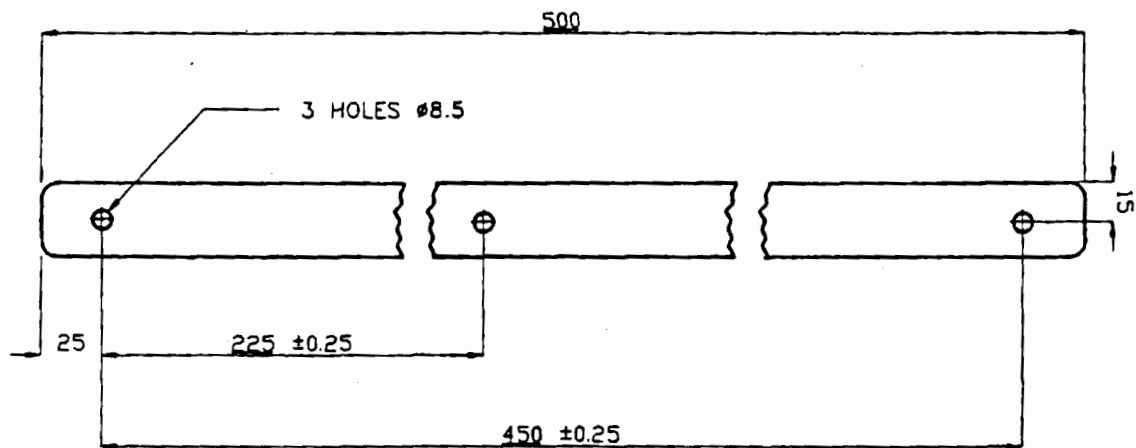
V14255/01

Fig 1 Adapter plate



V14153/02

Fig 2 Strengthening plate



V14153/05

Fig 3 Reinforcing strips

TRUCK, 4 TONNE, 4 X 4, GS, LEYLAND DAF (ALL VARIANTS)

MODIFICATION INSTRUCTION No. 18

Sponsor:
GSP IPT (DLO Andover)

Publication Agency:
TES TIG DLO Andover
Project No: GSV2/0008/Task 801
File ref: GSV/9/9/3/7

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
1	[REDACTED]	Feb 11
2		
3		

Amdt No.	Incorporated by (Signature)	Date
4		
5		
6		

SUBJECT: Trailer ABS electrical supply to cab warning light
(Approval No. GSV/04/0/028)

INTRODUCTION

1 This instruction introduces an ABS cable mod kit between the frame rear crossmember and the cab instrument panel. The fitting of the kit will permit vehicles without ABS brakes to tow a trailer with ABS brakes and satisfy current legislation.

1.1 Limitations on use of equipment. Nil

APPLICABILITY

2 Truck, 4 tonne, 4 x 4, GS, Leyland DAF only variants with a direct requirement to tow ABS trailers. (MFACE)

REASON FOR MODIFICATION

3 Code 6 - to conform to current legislation.

PRIORITY

4 ARMY: Routine
RAF: Class 3

ESTIMATED TIME REQUIRED

5 Embodiment: 2 1/2 man-hours.

MODIFICATION IMPLEMENTATION PLAN

6

- 6.1 This modification is to be implemented by:
 - 6.1.1 ARMY - Units authorized to carry out levels 2, 3 and 4 maintenance.
 - 6.1.2 RAF - Units not later than the next maintenance. - Dependant on priority
- 6.2 Associated instructions. Nil.
- 6.3 Striker plate action: N/A.

Action required by

7

- 7.1 Units and establishments holding equipment:
 - 7.1.1 Examine equipment documents to see if instruction is applicable.
 - 7.1.2 Examine equipment to see if instruction is embodied and where necessary units with 1st Line REME Support demand the stores required.
 - 7.1.3 ARMY - On receipt of stores, request REME to modify equipment.
 - 7.1.4 ARMY - Record the modification subject and AESP number in equipment documents.
 - 7.1.5 RAF - Record modifications details on AF G1084A and Form 4870. Units operating STAMA are also to record modification details on ADP MTMS Job Certification Sheet and to follow the procedures laid down in AP 100C-08A.
 - 7.2 Units authorized to carry out levels 2, 3 and 4 maintenance, and RAF units.
 - 7.2.1 ARMY - When requested by users or during overhaul of equipment on charge without REME 1st Line Support, obtain the items listed in Para 8 and carry out this modification.
 - 7.2.2 Record completion details of modification against appropriate entry in vehicle documents.
 - 7.2.3 Complete AF G1084A when reporting completion of the modification to FORWARD (RAF) using the following code:

RAF: MODIFICATION CODE: AFG 091
- NOTE
- RAF units operating STAMA are also to complete ADP MTMS Job Certification sheet and to follow the procedures laid down in AP 100C - 08A
- 7.3 All recipients of this instruction. Add particulars to AESP 2320-H-104-811 Mod Instr Index.

Stores, tools and equipment

8

8.1 Stores to be demanded:

8.1.1 The following modification kit is to be demanded quoting this instruction as authority.

Item No.	DMC	NSN/Part No.	Designation	Qty per eqpt
	7LD	2510-99-995-4278 (MXK3518)	ABS cable mod kit	1
			comprising:	
1	7LD	2590-99-599-0865 (MXK3519)	Cable assembly (chassis)	(1)
2	G1B	5305-99-122-5367 (SH108251)	Screw M8	(4)
3	G1C	5310-99-139-5314 (NV108041)	Nut M8	(4)
4	Z1	5340-99-970-2330 (ACHA896)	'Ty' wrap	(as reqd)
5	Z32	5935-99-788-5790 (AAU1253)	Connector half	(1)
6	7LD	2590-99-749-8831 (MXK3520)	Cable assembly (instrument panel)	(1)
7	7LD	2540-99-425-6407 (MZK4410)	Warning light/bulb/blank	(1)
8	7LD	2590-99-616-8017 (MXK3521)	Convoy control unit	(1)
9	7LD	5940-99-799-1249 (ACU7485)	Terminal-pin	(1)
10	7LD	2590-99-748-3619 (MZK4398)	Label	(1)
11	7LD	2590-99-870-1427 (MZK4518)	Tile, orange	(1)
12	7LD	2590-99-479-6061 (MZK4520)	Bracket	(1)
		(Not codified) (MZK4517)	Kit contents list	(1)

Sequence of operations

NOTE

The item numbers of Para 8 are used as reference throughout this instruction.

9 Carry out the modification as follows:

Refer to Figs 1 and 2

9.1 Tilt and lock the cab. Switch off the battery isolation switch.

9.2 On the bottom face of the frame rear crossmember to the left of the drawbar attachment, drill two 10mm dia. holes as indicated (see Fig 1).

9.3 Secure the socket mounting bracket (item 12) to the crossmember with two screws and nuts (items 2 and 3). Feed the cable (item 1) up the cut out in the bracket and secure the socket to the bracket with the other two screws and nuts (items 2 and 3).

9.4 Temporarily tape up the 4 loose wires and terminals and then pass the free end of the cable (item 1) up and across to the right hand frame sidemember, loosely securing it to any convenient existing cables or pipework with 'ty' wrap (item 4).

- 9.5 Run the cable forward on the inside of sidemember again loosely 'ty' wrapping it to existing cables or pipework.
- 9.6 When the cable is in the vicinity of the air reservoir forward of the spare wheel carrier, run the cable over the top of the reservoir.
- 9.7 Continue to run the cable forward past the engine avoiding any components which are moving or heat generating during normal operating conditions.
- 9.8 As the cable passes the radiator, loosely 'ty' wrap it to the accelerator cable and follow its route over the front pintle crossmember, until it just passes across the front of the steering column.
- 9.9 At this point the cable should be diverted away from the accelerator cable and directed towards the large grommet in the cab floor which the front lighting cable passes through.
- 9.10 Lower and lock down the cab.
- 9.11 Open the drivers door and remove the five screws securing the short tread plate and the floor mat to the cab floor.
- 9.12 Lift the floor mat starting in the tread plate area and forward up the bulkhead as far as the right hand facia panel.
- 9.13 Tilt and lock the cab.
- 9.14 Insert the end of the cable through the lighting cable grommet and push it through into the cab until the convoluted outer cover contacts the face of the grommet.
- 9.15 'Ty' wrap the cable to the lighting cable as necessary below the cab floor.
- 9.16 All other loosely fastened 'ty' wraps between the trailer socket and the cab should now be fully tightened.
- 9.17 Lower and lock down the cab.
- 9.18 Enter the cab. Feed the cable under the mat, up behind the right hand facia panel and across towards the right hand steering column shroud, where it should be allowed to hang visible and free for subsequent fitment of connector half (item 5).
- 9.19 Remove the two screws securing the trim pad to steering wheel bar on earlier vehicles or remove the central LEYLAND motif plug on later vehicles.
- 9.20 Remove the nut and washer securing the steering wheel to the inner steering column shaft.
- 9.21 After marking the steering wheel boss and inner column shaft for subsequent reassembly, withdraw the steering wheel from the shaft.
- 9.22 On the instrument panel, remove the four rubber blanking grommets (see Fig 2) and release the four fasteners by lightly depressing and turning one quarter turn clockwise. It may assist to remove the instrument panel completely. AESP 2320-H-104-522 Chapter 13 details how to remove it.
- 9.23 Raise and tilt the panel towards the rear of the cab. Squeeze in the tags and push out the blank between the infra red lighting switch and rear fog light switch.
- 9.24 Fit warning light/bulb/blank (item 7) into the vacated aperture and press the orange tile (item 11) into the bulb recess of the warning light.

- 9.25 Run the cable forward on the inside of sidemember again loosely 'ty' wrapping it to existing cables or pipework.
- 9.26 When the cable is in the vicinity of the air reservoir forward of the spare wheel carrier, run the cable over the top of the reservoir.
- 9.27 Continue to run the cable forward past the engine avoiding any components which are moving or heat generating during normal operating conditions.
- 9.28 As the cable passes the radiator, loosely 'ty' wrap it to the accelerator cable and follow its route over the front pintle crossmember, until it just passes across the front of the steering column.
- 9.29 At this point the cable should be diverted away from the accelerator cable and directed towards the large grommet in the cab floor which the front lighting cable passes through.
- 9.30 Lower and lock down the cab.
- 9.31 Open the drivers door and remove the five screws securing the short tread plate and the floor mat to the cab floor.
- 9.32 Lift the floor mat starting in the tread plate area and forward up the bulkhead as far as the right hand facia panel.
- 9.33 Tilt and lock the cab.
- 9.34 Insert the end of the cable through the lighting cable grommet and push it through into the cab until the convoluted outer cover contacts the face of the grommet.
- 9.35 'Ty' wrap the cable to the lighting cable as necessary below the cab floor.
- 9.36 All other loosely fastened 'ty' wraps between the trailer socket and the cab should now be fully tightened.
- 9.37 Lower and lock down the cab
- 9.38 Enter the cab. Feed the cable under the mat, up behind the right hand facia panel and across towards the right hand steering column shroud, where it should be allowed to hang visible and free for subsequent fitment of connector half (item 5).
- 9.39 Remove the two screws securing the trim pad to steering wheel bar on earlier vehicles or remove the central LEYLAND motif plug on later vehicles.
- 9.40 Remove the nut and washer securing the steering wheel to the inner steering column shaft
- 9.41 After marking the steering wheel boss and inner column shaft for subsequent reassembly, withdraw the steering wheel from the shaft.
- 9.42 On the instrument panel, remove the four rubber blanking grommets (see Fig 2) and release the four fasteners by lightly depressing and turning one quarter turn clockwise. It may assist to remove the instrument panel completely. AESP 2320-H-104-522 Chapter 13 details how to remove it.
- 9.43 Raise and tilt the panel towards the rear of the cab. Squeeze in the tags and push out the blank between the infra red lighting switch and rear fog light switch.
- 9.44 Fit warning light/bulb/blank (item 7) into the vacated aperture and press the orange tile (item 11) into the bulb recess of the warning light.

9.45 Taking the new instalment panel cable (item 6), feed the longest end terminating in a four way connector half across to the right and down behind the steering column then out through the 30mm lipped hole in the right hand steering column shroud, where it should be allowed to hang visible and free alongside the chassis cable (item 1).

9.46 The instrument panel fasteners locate in the binnacle bracket. The bracket has a single 5.5 mm dia hole in the left hand side plate. Remove the relay from its housing on the cable (item 6) and using screw, washer and nut (supplied with relay base), mount the convoy control unit (item 8) and the relay housing back to back, with the control unit on the outside of the side plate and relay housing on the inside. The screw head must be on the relay housing side and the control unit with mounting bracket at the top must be mounted using the right hand fixing hole. Fit the relay back in its housing.

9.47 On the instrument panel PC board, connect the thick red positive (+) wire of new cable (item 6) to the LHS positive (+) stud and connect the two black negative (-) wires to the LHS and RHS '0 VOLTS' terminals.

9.48 Pull the lilac coloured plug identified 'CAB' off the LHS of instrument panel PC board. Using a thin screwdriver, remove the green wire from cavity 7 of the plug, cut off the terminal and strip back approx 6 mm of the green wire covering. Take the un-terminated end of the green wire in new cable (6) together with the green wire removed from cavity 7 and crimp on the new terminal (item 9) supplied loose with the mod kit. Insert the two green wires back into cavity 7 of the lilac plug and refit the plug to the PC board.

9.49 Connect the 1/4" female lucar terminal with the 2 green wires to the 1/4" male lucar terminal soldered to the main instrument panel PC board identified 'IGN'.

9.50 Connect the green and yellow wires of cable (6) to the ABS warning light terminals (item 7). The warning light is not polarity conscious therefore either wire can connect to either terminal.

9.51 Connect the four way connector from the convoy control unit (item 8) to the four way connector on cable (6).

9.52 Using the new connector half (item 5) connect the chassis cable (item 1) to the connector half on the instrument panel cable (item 6) as follows (see Fig 2):

9.52.1 Locate the ends of the two cables hanging free between the right hand facia panel and the right hand steering column shroud. Insert the male terminals of cable (1) into the connector half (item 5) - red wire into cavity 1, green into cavity 2, yellow into cavity 3 and black into cavity 4. Connect the two connector halves together.

9.53 Refit instrument panel, steering wheel, steering wheel trim pad or motif plug, floor mat and door tread plate.

9.54 Any surplus cable should be tucked behind the right hand facia panel.

9.55 Fit label (item 10) to the centre console between the trailer hill hold control valve and the engine pull to stop.

Testing after embodiment

10 Switch on the battery isolation switch. Couple up to an appropriate trailer and switch on the ignition. The trailer warning light will illuminate for approx 3 seconds, then extinguish. The modulator valves on the trailer will be heard 'firing' during the ABS check cycle.

EFFECT ON WEIGHT

11 . Negligible

PUBLICATION AMENDMENTS

12 Nil.

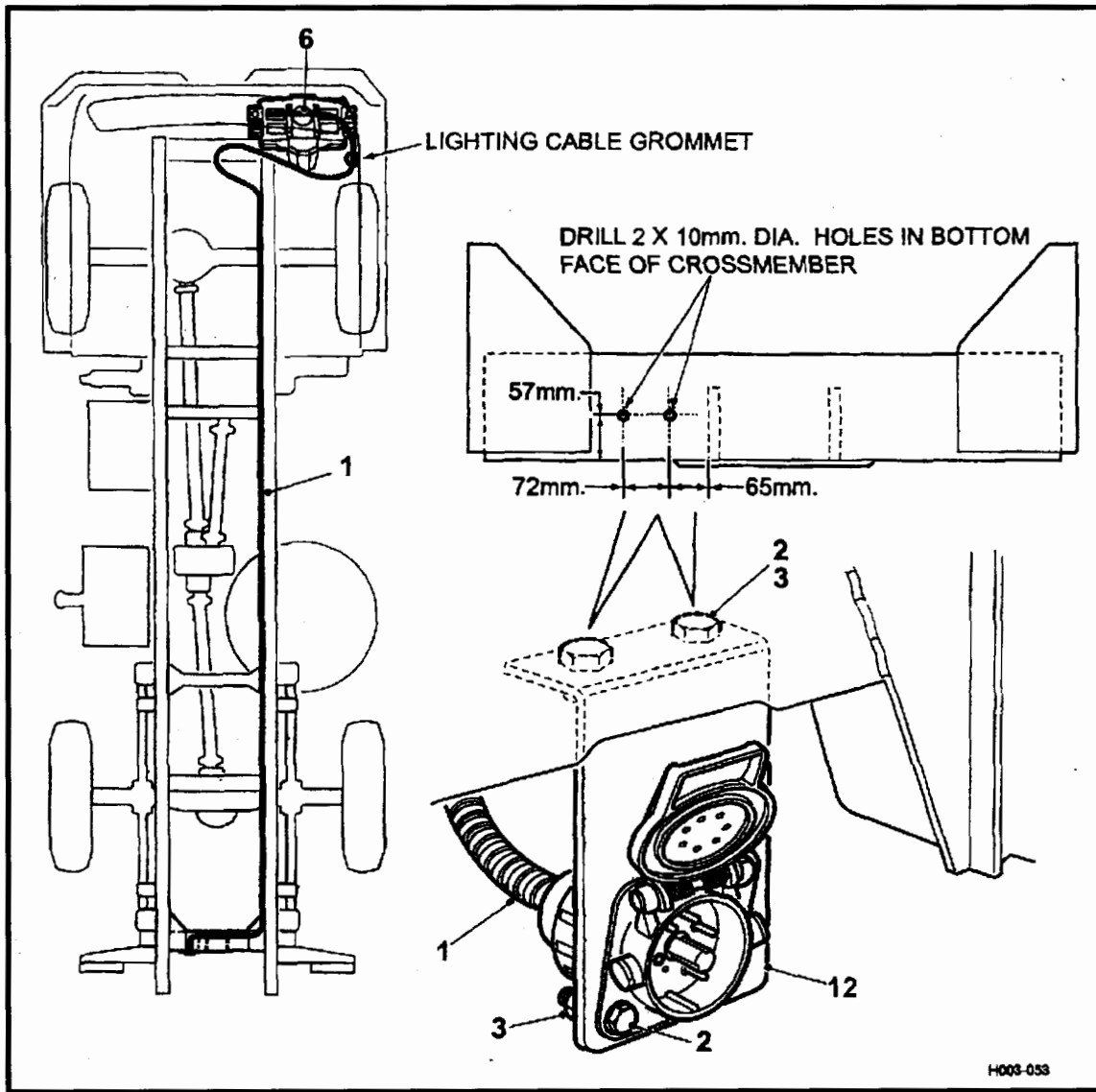


Fig 1 Trailer ABS mod kit installation

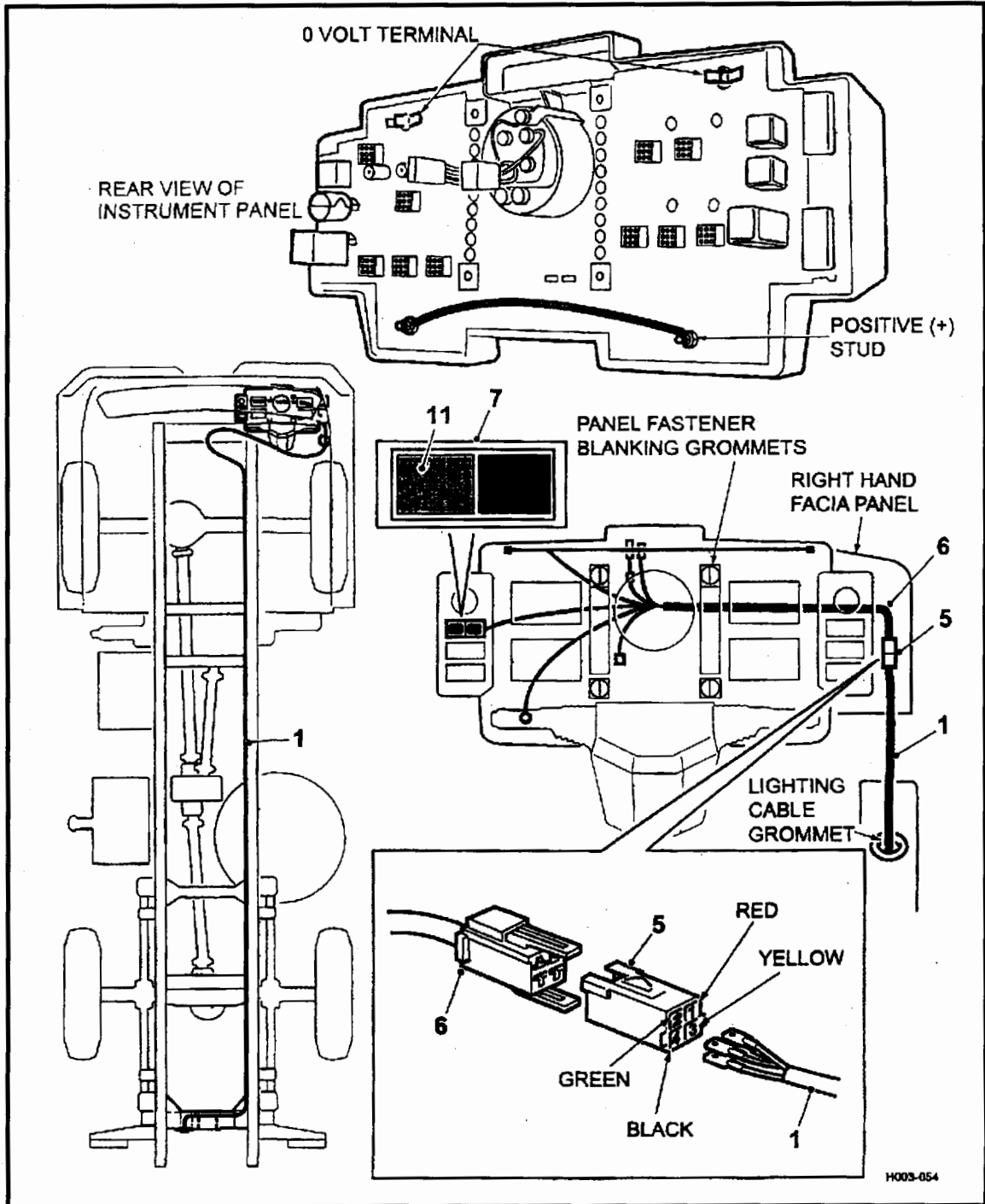


Fig 2 Trailer ABS mod kit installation

TRUCK, 4 TONNE, 4 X 4, GS, LEYLAND DAF (ALL VARIANTS)

MODIFICATION INSTRUCTION No. 19

Sponsor:
GSV IPT

Publication Agency:
CTS TD DLO Andover
Project No: PDS1A/285/Task 021
File ref: GSV/9/9/3/7

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
1		
2		
3		

Amdt No.	Incorporated by (Signature)	Date
4		
5		
6		

SUBJECT: Injector leak-off pipe - nylon to metal (Approval No. 12-4976)

INTRODUCTION

1 This instruction introduces a steel injector leak-off pipe mod kit to replace the existing nylon leak-off pipe which is prone to melting under hot climate conditions.

1.1 Limitations on use of equipment. Nil.

APPLICABILITY

2 Truck, 4 Tonne, 4 x 4, GS, Leyland DAF. All vehicles fitted with nylon injector leak-off pipes, held by units.

REASON FOR MODIFICATION

3 Code 3 - to improve reliability.

PRIORITY

4

4.1 ARMY: Routine.

4.2 RAF: Class 3.

ESTIMATED TIME REQUIRED

5 Embodiment: 3.0 man hours.

MODIFICATION IMPLEMENTATION PLAN

6

- 6.1 This instruction is to be implemented by:
 - 6.1.1 ARMY - Units authorised to carry out levels 2, 3 and 4 maintenance.
 - 6.1.2 RAF - Units when requested.
- 6.2 Associated instructions. Nil.
- 6.3 Strike plate action: N/A.

Action required by

7

- 7.1 Units and establishments holding equipment:
 - 7.1.1 Examine equipment documents to see if instruction is applicable.
 - 7.1.2 Examine equipment to see if instruction is embodied and where necessary units with 1st Line REME Support demand the stores required.
 - 7.1.3 ARMY - On receipt of stores, request REME to modify equipment.
 - 7.1.4 ARMY - Record the modification subject and AESP number in equipment documents.
 - 7.1.5 RAF - Record modifications details on AF G1084A and Form 4870. Units operating STAMA are also to record modification details on ADP MTMS Job Certification Sheet and to follow the procedures laid down in AP 100C-0BA.
- 7.2 Units authorised to carry out levels 2, 3 and 4 maintenance and RAF units:
 - 7.2.1 ARMY - When requested by users or during overhaul of equipment on charge without REME 1st Line support, obtain the items listed in Para 8 and carry out this modification.
 - 7.2.2 Record completion details of modification against appropriate entry in vehicle documents.
 - 7.2.3 Complete AF G1084A when reporting completion of the modification to FOWARD (RAF) using the following code:

RAF: MODIFICATION CODE: AFG 090

NOTE

RAF units operating STAMA are also to complete ADP MTMS Job Certification Sheet and to follow the procedures laid down in AP 100C-08A.

- 7.3 All recipients of this instruction. Add particulars to AESP 2320-H-104-811 Instr Index.

Stores, tools and equipment

8

8.1 Stores to be demanded:

8.1.1 The following modification kit is to be demanded quoting this instruction as authority.

Item No.	DMC	NSN (Part No.)	Designation	Qty per eqpt
	7LD	4720-99-608-9421 (MXK3584)	Mod kit comprising of:	1
1	7CE	4710-99-796-7344(CBU1164)	Leak-off pipe - steel	(1)
2	8RECE	4730-01-195-0825(CBU1162)	Bolt, banjo	(6)
3	7CE	5330-01-195-5268(CBU1149)	Seal, banjo	(6)
4	7CE	4710-99-096-3076(CBU1912)	Leak-off pipe - composite	(1)
5	7FW	4730-99-831-0657(ACU9426)	Reducer, 3/8in. - 1/4in.	(1)
6	7LD	4720-99-756-6289(MZK4492) (MZK4493)	Pipe, nylon, 3/8in. o/d Kit contents list	(1) (1)

8.2 Stores to be removed and reduced to scrap:

7	7CE	4710-99-192-1900(CBU1605)	Leak-off pipe - nylon	1
8		4730-99-870-0310(1203038)	Reducer, 3/8in. - 3/16in.	1
9		(CAL9974)	Pipe, nylon 3/8in. o/d.	1

Sequence of operations

9 Carry out this instruction as follows:

NOTE

The item numbers of Para 8 are used as reference throughout this instruction.

WARNINGS

(1) DANGER TO LIFE AND LIMB. DO NOT WORK ON THE VEHICLE WITH THE CAB PARTIALLY TILTED. ENSURE THE CAB SAFETY SUPPORT IS ENGAGED.

(2) PERSONAL INJURY. THE SAFETY PRECAUTIONS AND WORK PRACTICES PUBLISHED IN AESP 2320-A-100-522 AND JSP 317 ARE TO BE FOLLOWED WHEN INCORPORATING THIS MODIFICATION.

(3) FUEL SPILLAGES ARE HIGHLY INFLAMMABLE AND MUST NOT BE EXPOSED TO A NAKED FLAME, SPARK OR INTENSE HEAT SOURCE.

9.1 Check modification kit is complete.

9.2 Ensure parking brake is applied, turn battery isolation switch to 'OFF' position.

9.3 Tilt cab and ensure it is locked.

Refer to Fig 1.

NOTE

A suitable spill tray should be positioned under the engine to catch any spilled fuel before proceeding.

9.4 On the right hand side of the engine, unscrew the six banjo bolts securing the leak-off pipe (item 7) to the injectors.

9.5 On the left hand side of the engine, remove both the banjo bolt connecting the leak-off pipe to the fuel filter head and the adaptor connecting it to the injector pump.

9.6 Remove the six screws and separate the three injector pipe clamps. Retain all items for subsequent refitment.

9.7 Slacken the nuts of the six injector pipes at the injectors and disconnect the pipes at the fuel injection pump noting which pipe was removed from which port, then swing them rearwards away from the pump.

9.8 Remove and retain the six injector pipe adaptor nuts and the round spacer ring secured to the back of the pump by the nuts.

9.9 Blank off the injector pump pipe adaptors to prevent the ingress of dirt.

9.10 Unscrew the fuel filter from the filter head and retain.

9.11 Remove and retain the two clip screws and washers securing the leak-off pipe to the side of the engine.

9.12 Release the 3/8 in. o/d nylon pipe (item 9) from the reducer (item 8), bend it over double and clamp securely to prevent fuel leakage from the tank

9.13 Discard the leak-off pipe and reducer (items 7 and 8).

9.14 Carefully feed the injector pump adaptor end of the composite leak-off pipe (item 4) along the side of the engine from the rear and behind other pipes and components.

9.15 Connect the adaptor to the injector pump and the banjo bolt to the fuel filter head. Secure the pipe to the engine through the integral pipe clips using the existing screws and washers removed at Sub Para 9.11.

9.16 Fit the reducer (item 5) to either end of the 3/8in o/d nylon pipe (item 6).

9.17 Connect the reducer (item 5) and pipe (item 6) to the nylon pipe on the composite leak-off pipe (item 4).

9.18 Feed the end of the 3/8in. o/d nylon pipe (item 6) down towards the existing nylon to metal pipe adaptor below the left hand gearbox mounting.

9.19 Cut the other end of pipe (item 6) to a length suitable to achieve a gentle curve of the pipe and a comfortable connection into the nylon to metal adaptor.

9.20 Quickly remove the existing doubled over 3/8 in. o/d nylon pipe (item 9) from the nylon to metal adaptor and insert the new 3/8 in. o/d nylon pipe (item 6) into the adaptor. Discard pipe (item 9).

9.21 Fit the metal leak-off pipe (item 1) to the injectors using the six banjo bolts and seals (item 2 and 3) and connect the end pipe nut to the T-piece on the composite leak-off pipe (item 4).

9.22 Refit the fuel filter to the filter head and refit the spacer ring to the injection pump using the existing six nuts retained at Sub Para 9.8.

9.23 Swing the fuel injector pipes towards the injector pump and re-connect them to their respective adaptors. Tighten the injector pipe nuts at the injectors and refit the three pipe clamps.

9.24 Bleed the fuel system.

9.24.1 Ensure that there is an adequate supply of fuel in the fuel tank.

9.24.2 Slacken the banjo screw on the fuel filter output pipe and operate the lift pump lever or rubber covered plunger until air-free fuel flows from the banjo connection. Tighten the banjo screw whilst operating the lift pump lever or plunger.

TESTING AFTER EMBODIMENT

10 Run the engine and check for leaks.

EFFECT ON WEIGHT

11 Negligible.

EFFECT ON MAINTENANCE

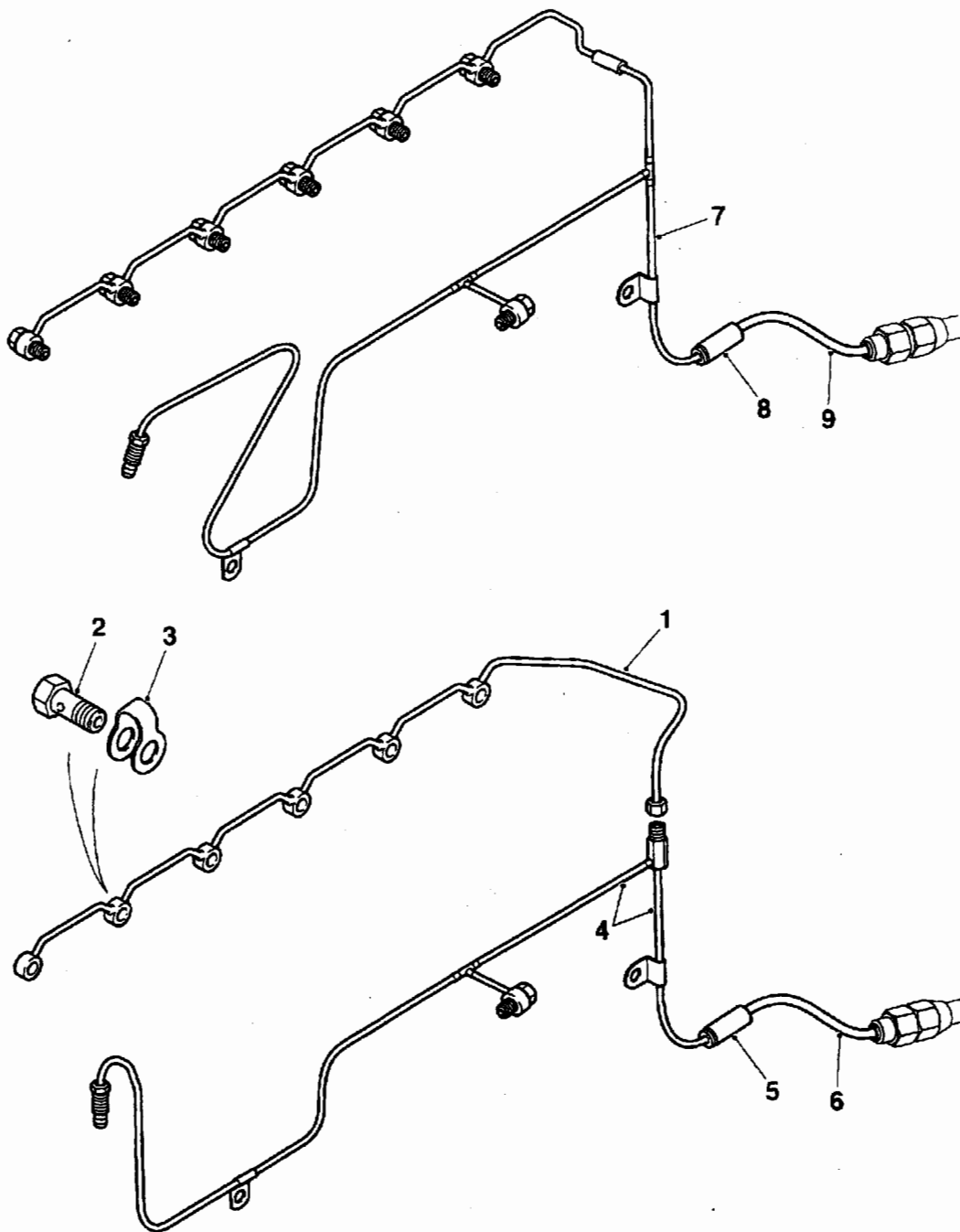
12 Nil.

PUBLICATION AMENDMENTS

NOTE

Necessary amendments will be issued separately.

13 Nil



H003-091

Fig 1 Injector leak-off pipe installation

**TRUCK, 4 TONNE, 4 X 4, GS,
LEYLAND DAF (ALL VARIANTS)
MODIFICATION INSTRUCTION No. 20**

SUBJECT: Fuel lift pump - Avtur use

CANCELLATION

INTRODUCTION

1 Modification Instruction No. 20 dated June 04 is hereby cancelled. It was found to be ineffective in high temperature environments.

ACTION

2 File this Page 1/2 in place of Mod Instr No. 20 dated Jun 04, all pages of which are to be destroyed.

TRUCK, 4 TONNE, 4 X 4, GS, LEYLAND DAF (ALL VARIANTS)

MODIFICATION INSTRUCTION No. 21

Sponsor:
GSV IPT

Publication Agency:
TES TI DLO Andover
Project No: PDS1A/285/Task 318
File ref: GSV/9/9/3/7

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
1		
2		
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Amdt No.	Incorporated by (Signature)	Date
4		
5		
6		

SUBJECT: Parking brake

(Approval No. GSV/04/018)

INTRODUCTION

1 This instruction introduces a modification to the parking brake lever to prevent accidental release of the brakes.

1.1 Limitations on use of equipment. Nil.

APPLICABILITY

2 Truck, 4 Tonne, 4 x 4, GS, Leyland DAF. All variants held by units and stock.

REASON FOR MODIFICATION

3 Code 1 - to improve safety.

PRIORITY

4

4.1 ARMY: Immediate.

4.2 RAF: Class 1.

ESTIMATED TIME REQUIRED

5 Embodiment: 15 min.

MODIFICATION IMPLEMENTATION PLAN

6

- 6.1 This instruction is to be implemented by:
 - 6.1.1 ARMY - Units authorised to carry out levels 2, 3 and 4 maintenance.
 - 6.1.2 RAF - Immediately on receipt of Mod kit.
 - 6.1.3 Vehicle depots - Before issue of vehicle
- 6.2 Associated instructions. Nil.
- 6.3 Strike plate action: N/A.

Action required by

7

- 7.1 Units and establishments holding equipment:
 - 7.1.1 Examine equipment documents to see if instruction is applicable.
 - 7.1.2 Examine equipment to see if instruction is embodied and where necessary units with 1st Line REME Support demand the stores required.
 - 7.1.3 ARMY - On receipt of stores, request REME to modify equipment.
 - 7.1.4 ARMY - Record the modification subject and AESP number in equipment documents.
 - 7.1.5 RAF - On receipt of stores, modify equipment.
 - 7.1.6 RAF - Record modifications details on AF G1084A and Form 4870. Units operating STAMA are also to record modification details on ADP MTMS Job Certification Sheet and to follow the procedures laid down in AP 100C-08A.
- 7.2 Units authorised to carry out levels 2, 3 and 4 maintenance and RAF units:
 - 7.2.1 ARMY - When requested by users or during overhaul of equipment on charge without REME 1st Line support, obtain the items listed in Para 8 and carry out this modification.
 - 7.2.2 Record completion details of modification against appropriate entry in vehicle documents.
 - 7.2.3 Complete AF G1084A when reporting completion of the modification to FOWARD (RAF) using the following code:

RAF: MODIFICATION CODE: AFG 094

NOTE

RAF units operating STAMA are also to complete ADP MTMS Job Certification Sheet and to follow the procedures laid down in AP 100C-08A.

- 7.3 All recipients of this instruction. Add particulars to AESP 2320-H-104-811 Mod Instr Index.

Stores, tools and equipment

8

8.1 Stores to be demanded:

8.1.1 The following modification kit is to be demanded quoting this instruction as authority.

Item No.	DMC	NSN (Part No.)	Designation	Qty per eqpt
	7FW	2530-99-871-6220(MXK3586)	Mod kit comprising of:	1
1			Moulding LH	(1)
2			Moulding RH	(1)
3			Screw, M5 X 25 with patch lock	(2)
4			Hexagonal key, 4mm A/F	(1)
5			Kit contents list	(1)

Sequence of operations

9 Carry out this instruction as follows:

9.1 The item numbers of Para 8 are used as reference throughout this instruction.

9.2 Check modification kit is complete.

9.3 Ensure parking brake is applied and chock the front wheels.
(Refer to Fig 1. (for RH drive vehicles))

9.4 Fit the LH moulding (item 1) to the parking brake lever on the side near the drivers seat and fit the RH moulding (item 2) on the other side near the drivers door. Squeeze the two mouldings together by hand.

9.5 Insert the two screws (item 3) into the recessed holes in the RH moulding (item 2).

9.6 Using the hexagonal key (item 4), tighten the two screws and lock the two mouldings together around the lever.

NOTES

(1) The two screws (items 3) have an adhesive patch lock on the threads which engage with the threaded inserts in the LH moulding. Over tightening of the screws will result in crushing of the moulding structure.

(2) On LH drive vehicles, fit the LH moulding (item 1) on the drivers door side of the parking brake lever and fit the RH moulding (item 2) on the other side near the drivers seat.

TESTING AFTER EMBODIMENT

10 Nil.

EFFECT ON WEIGHT

11 Nil.

EFFECT ON MAINTENANCE

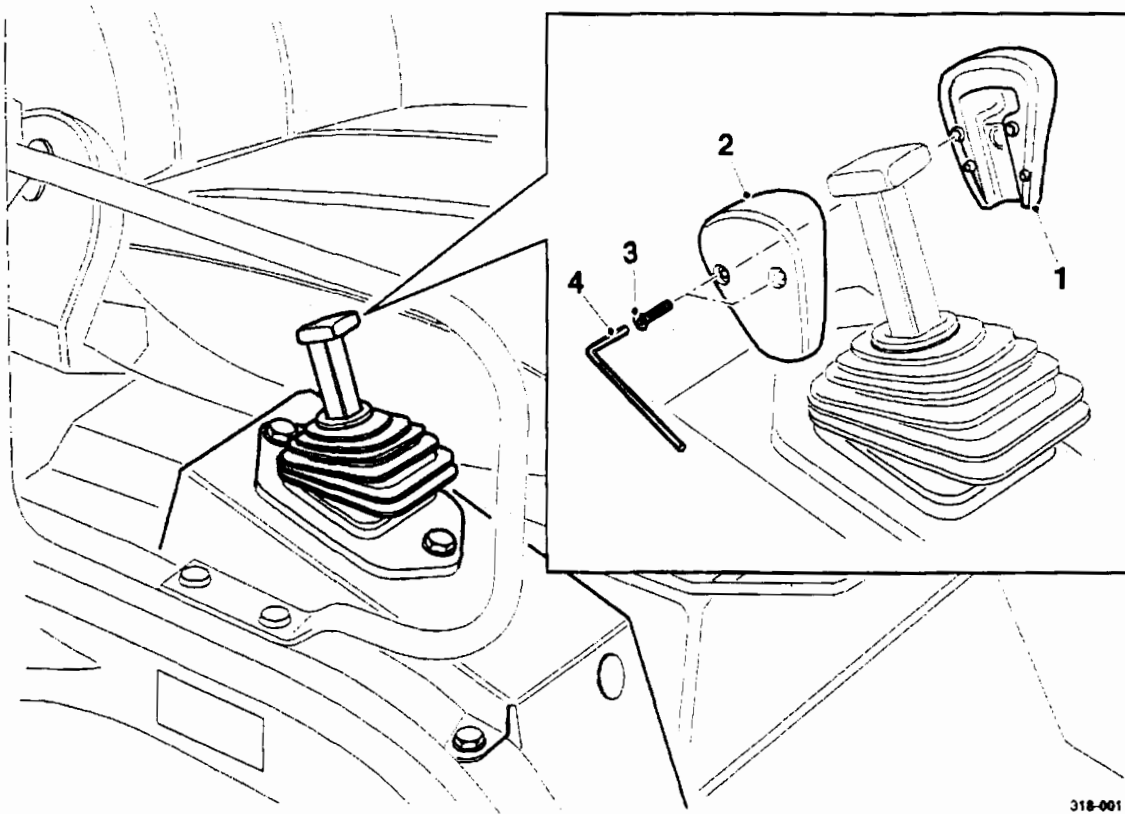
12 Nil.

PUBLICATION AMENDMENTS

NOTE

Necessary amendments will be issued separately.

13 Nil.



318-001

Fig 1 Parking brake lever mouldings
installation

**TRUCK, 4 TONNE, 4 X 4, GS, LEYLAND DAF
(CARGO VEHICLES)**

MODIFICATION INSTRUCTION NO. 22

Sponsor: GSV IPT (DE&S Andover)

Publication Agency: DGS&E TIG Andover
Project No.: PDS 1A/285
File ref: GSV 9/9/3/7

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
1		
2		
3		

Amdt No.	Incorporated by (Signature)	Date
4		
5		
6		

SUBJECT: Wheel chocks installation

(Approval No. GSV/04/076)

INTRODUCTION

1 This modification instruction details the changes necessary to stow wheel chocks on the vehicle.

1.1 Limitation on use of equipment: Nil.

APPLICABILITY

2 Truck, 4 tonne, 4 x 4, GS, LEYLAND DAF (Cargo, Flatbed and UBRE variants).

NOTE

This fitting instruction is part of a requirement to satisfy ADR regulations governing the carriage of dangerous goods. It is part of a suite of modifications that embody a total of 2 x 6 kg fire extinguishers and wheel chocks fitted externally to the vehicle. It is not a fleet wide modification fit and is required only for vehicles with a specific ADR role.

REASON FOR MODIFICATION

3 Code 6 - to conform to legislation change.

PRIORITY

4 Routine.

ESTIMATED TIME REQUIRED

5 Embodiment: 3 man-hours.

MODIFICATION IMPLEMENTATION PLAN

6

- 6.1 This modification is to be implemented by:
 - 6.1.1 Units authorised to carry out levels 2, 3 and 4 maintenance.
- 6.2 Associated modification instructions. Nil.
- 6.3 Modification plate strike action: N/A.

Action required by

7

- 7.1 Units and establishments holding equipment.
 - 7.1.1 Examine vehicle documents to see if modification is applicable.
 - 7.1.2 Examine vehicle to see if modification is embodied and, for Units with 1st Line REME Support, demand the stores required where necessary.
 - 7.1.3 On receipt of drawing, request REME to modify equipment.
 - 7.1.4 Record the modification subject, AESP number and Army Modification code in vehicle documents.
- 7.2 Units authorised to carry out levels 3 and 4 maintenance.
 - 7.2.1 For Units without REME 1st Line Support, obtain the items listed in Para 8 and carry out this modification when requested by users or during overhaul of equipments on charge.
 - 7.2.2 Record completion details of modification against appropriate entry in vehicle documents.
- 7.3 All recipients of this instruction. Add particulars to AESP 2320-H-104-811 Mod Instr Index.

Stores, tools and equipment

8

8.1 Stores to be demanded.

8.1.1 The following modification item is to be demanded quoting this instruction as authority for demand.

Item No.	DMC	NSN/Part No.	Designation	Qty per eqpt
	7FW	2590-99-880-3663/PK09278	Wheel chock mounting kit comprising:	1
1	7FW	2590-99-133-7006/MXK3595	Wheel chock mounting bracket LHS	(1)
2	7FW	5365-99-884-6655/MZK4530	Spacer	(1)
3	7FW	2590-99-425-5664/MXK3601	Wheel chock mounting bracket RHS	(1)
4		1243060	Bolt M14 x 40 long	(2)
5		1321532	Torque nut M14	(2)
6		1231063	Bolt M16 x 40 long	(2)
7		1321533	Torque nut M16	(2)
8		1231055	Bolt M12 x 35 long	(4)
9		1321531	Torque nut M12	(4)
10		1313141	Bolt M8 x 25 long	(8)
11		1725774	Torque nut M8	(8)
		MZK4564	Kit contents list	(1)

8.2 Stores to be demanded from stock.

10	6MT1	2590-99-562-5942	Bracket, chock, wheel-track	2
11	6MT1	2540-99-212-7006	Chock, wheel-track	2

Sequence of operations

9 Carry out the modification as follows:

NOTE

The item numbers of Para 8 are used as references throughout this instruction.

9.1 Park the vehicle on firm, level ground and apply the parking brake. Lower spare wheel and position out of way of working area.

9.2 Remove and discard the top two nuts and bolts from the left hand side of the spare wheel carrier, located on the right hand side of the vehicle.

9.3 Position spacer and bracket, Fig 1 (items 1 & 2) to the vehicle frame side and secure to the 17 mm holes to the left of the spare wheel carrier with two new nuts and bolts, Fig 1 (items 6 and 7).

9.4 Fit bolts, Fig 1 (item 4) through remaining holes in bracket and through the holes made vacant in Para 9.2, secure using nuts, Fig 1 (item 5).

9.5 Torque tighten items 4 and 5, to 170 Nm and items 6 and 7 to 260 Nm. Refer to Fig 1.

9.6 Support weight of transfer gearbox and remove and discard the four nuts and bolts from the rearmost, right hand mounting bracket.

9.7 Release, but do not remove, the tyre inflator tap and rotate 45 degrees, clockwise.

9.8 Position bracket, Fig 2 (item 3) to the vehicle frame side and secure to four holes made vacant in Para 9.6 using four new nuts and bolts, Fig 2 (items 8 and 9).

- 9.9 Torque tighten items 8 and 9 to 110 Nm.
- 9.10 Remove support from transfer gearbox.
- 9.11 Fit chock carriers, Fig 3 (item 12) to new brackets and secure with four nuts and bolts each, Fig 3 (items 10 and 11).
- 9.12 Torque tighten Fig 3, (items 10 and 11) to 70 Nm. Raise spare wheel and stow correctly.
- 9.13 Fit chocks, Fig 4 (item 13) to carriers and secure with latching spring clips.

Testing after embodiment

10 Nil.

Effect on weight

11 Negligible.

PUBLICATION AMENDMENTS

12

NOTE

Necessary amendments will be issued separately.

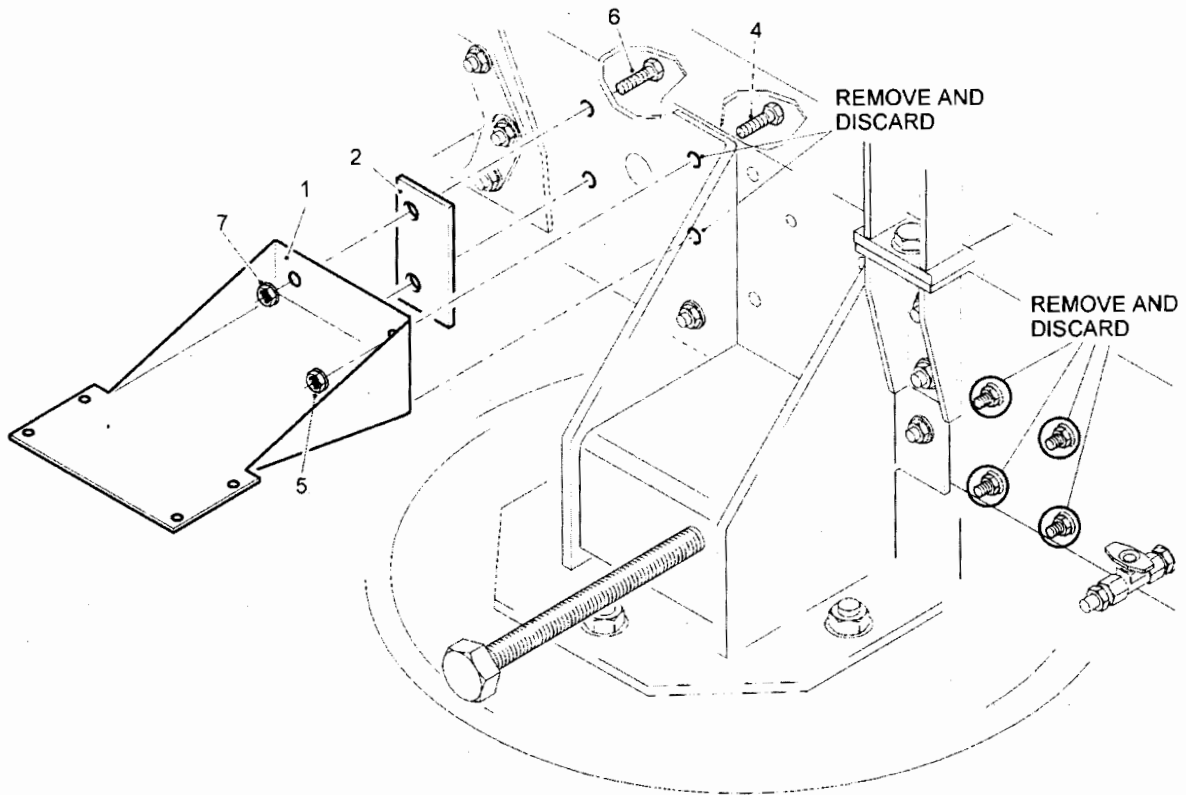


Fig 1 Left hand wheel chock mounting bracket install

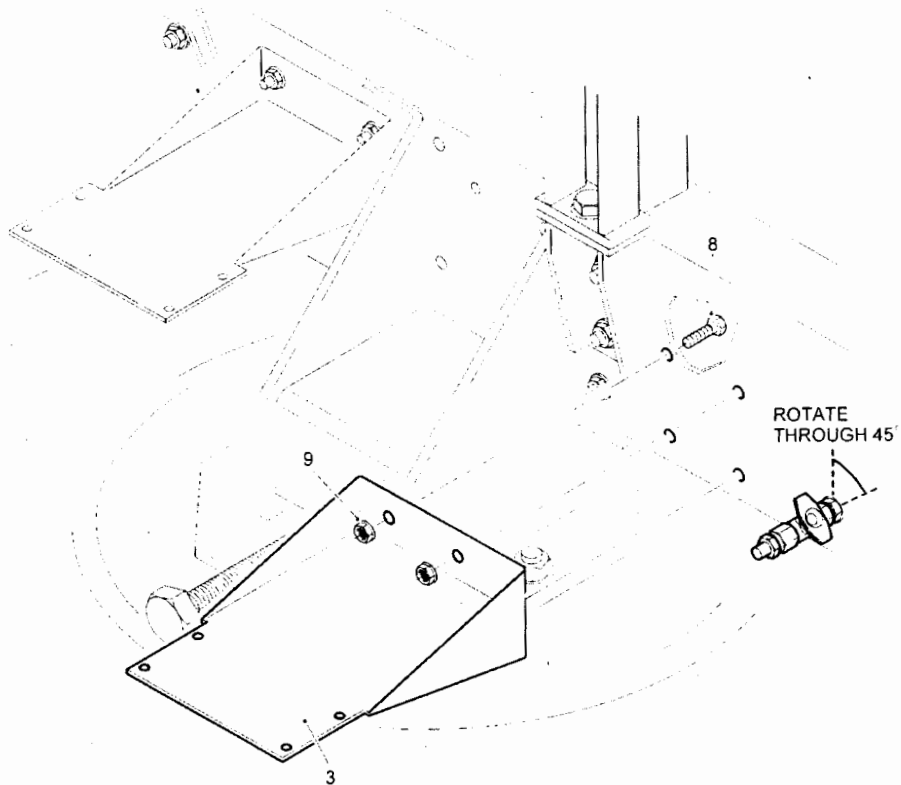


Fig 2 Right hand wheel chock mounting bracket install

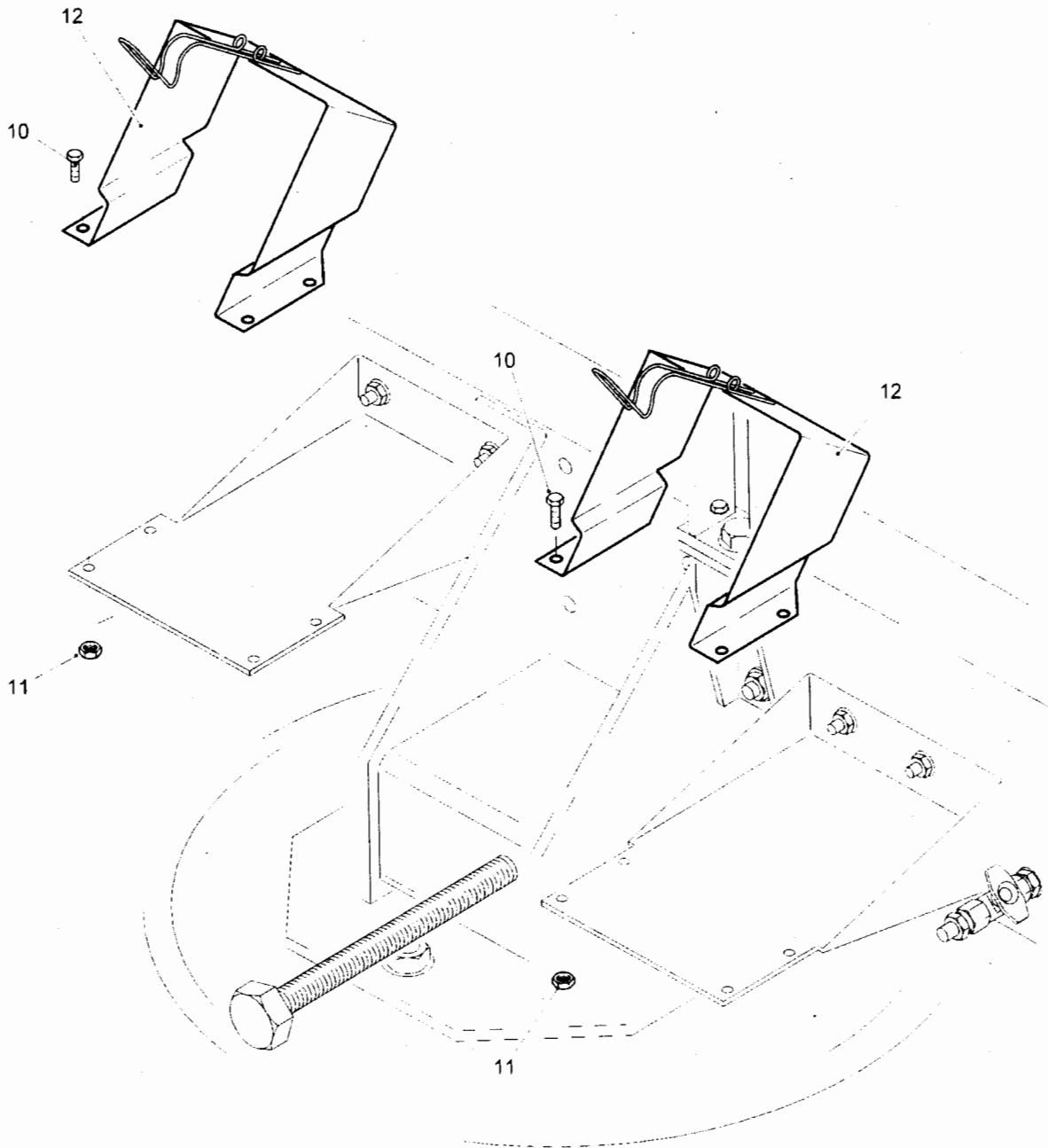


Fig 3 Chock brackets install

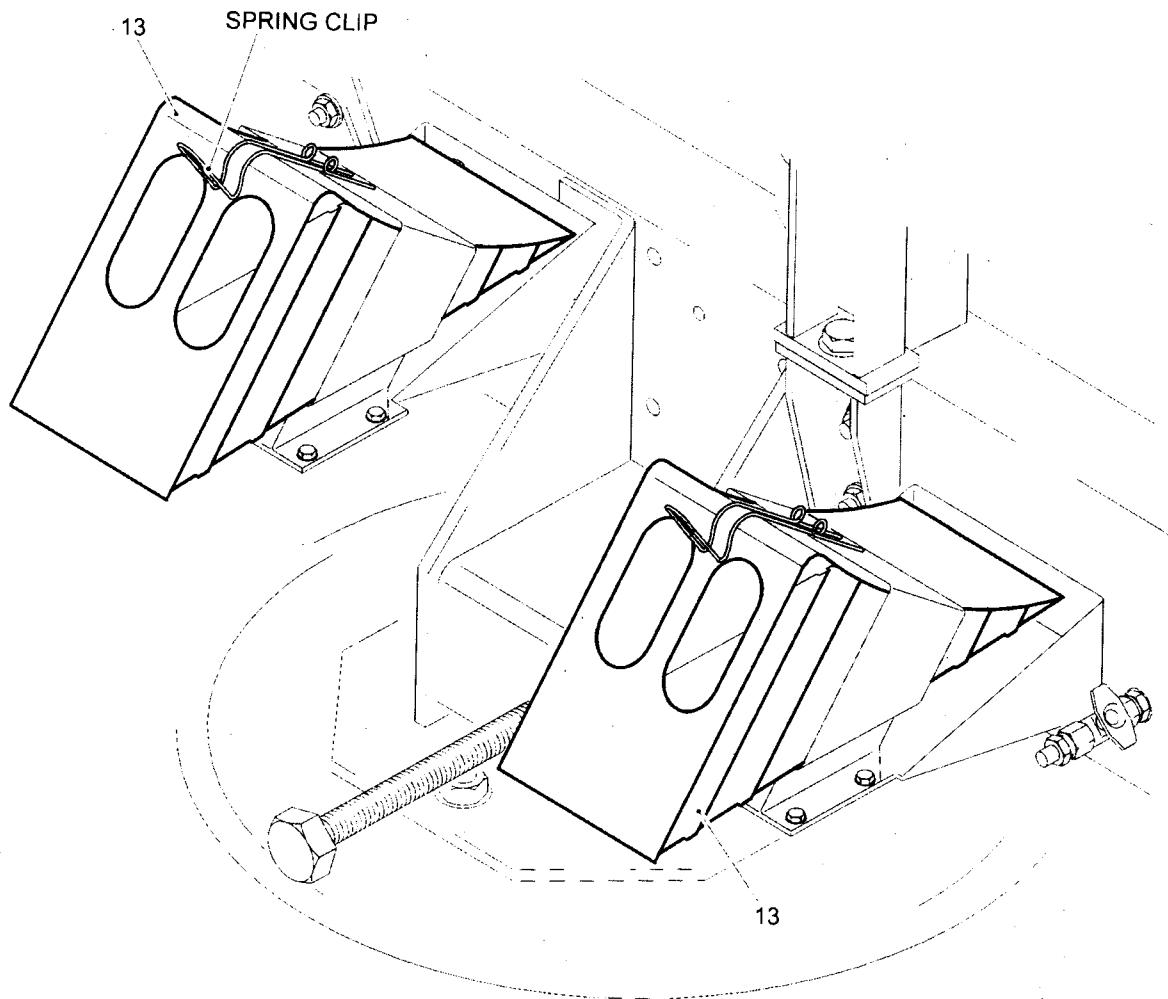


Fig 4 Chocks install

**TRUCK, 4 TONNE, 4 X 4, GS,
LEYLAND DAF (ALL VARIANTS)
MODIFICATION INSTRUCTION No. 23**

CANCELLATION

INTRODUCTION

1 For administrative reasons, Modification (Mod) Instruction No. 23 will not be issued. Carry out the action detailed below.

ACTION

2 Record the incorporation of this instruction on the Modification Instruction Index by writing NOT ISSUED against Mod Instr No. 23.

TRUCK, 4 TONNE, 4 X 4, GS
LEYLAND DAF (ALL VARIANTS)
MODIFICATION INSTRUCTION No. 24

CANCELLATION

INTRODUCTION

- 1 For administrative reasons Modification Instruction No. 24 will not be issued.

ACTION

- 2 File this page 1/2 in place of Mod Instr No. 24.

**TRUCK, 4 TONNE, 4 X 4, GS, LEYLAND DAF
(WITH CALM)**

MODIFICATION INSTRUCTION NO. 25

Sponsor: DE&S GSV IPT (ABW)

Publication Agency: DE&S GSV IPT (ABW)
Project No.: GSV2/0008
File ref: PDS GSV 9/9/3/7

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
1		
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Amdt No.	Incorporated by (Signature)	Date
4		
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6		

SUBJECT: Wheel chocks installation

(Approval No. GSV/04/0112)

INTRODUCTION

- 1 This modification instruction details the changes necessary to stow wheel chocks on the vehicle.
 - 1.1 Limitation on use of equipment: Nil.

APPLICABILITY

- 2 Truck, 4 tonne, 4 x 4, GS, LEYLAND DAF (with CALM).

REASON FOR MODIFICATION

- 3 Code 6 - to conform to legislation change.

PRIORITY

- 4 Routine.

ESTIMATED TIME REQUIRED

- 5 Embodiment: 3 man-hours.

MODIFICATION IMPLEMENTATION PLAN

6

- 6.1 This modification is to be implemented by:
 - 6.1.1 Units authorised to carry out levels 2, 3 and 4 maintenance.
- 6.2 Associated modification instructions. Nil.
- 6.3 Modification plate strike action: N/A.

Action required by

7

- 7.1 Units and establishments holding equipment.
 - 7.1.1 Examine vehicle documents to see if modification is applicable.
 - 7.1.2 Examine vehicle to see if modification is embodied and, for Units with 1st Line REME Support, demand the stores required where necessary.
 - 7.1.3 On receipt of drawing, request REME to modify equipment.
 - 7.1.4 Record the modification subject, AESP number and Army Modification code in vehicle documents.
 - 7.2 Units authorised to carry out levels 3 and 4 maintenance.
 - 7.2.1 For Units without REME 1st Line Support, obtain the items listed in Para 8 and carry out this modification when requested by users or during overhaul of equipments on charge.
 - 7.2.2 Record completion details of modification against appropriate entry in vehicle documents.
 - 7.2.3 Complete AF G1084A when reporting completion of the modification to FORWARD (RAF) using the following code:

RAF: MODIFICATION CODE: AFB 086
- NOTE
- RAF units operating STAMA are also to complete ADP MTMS job certification sheet and to follow the procedures laid down in AP-100C-08A.
- 7.3 All recipients of this instruction. Add particulars to AESP 2320-H-104-811 Mod Instr Index.

Stores, tools and equipment

8

8.1 Stores to be demanded.

8.1.1 The following modification item is to be demanded quoting this instruction as authority for demand.

Item No.	DMC	NSN/Part No.	Designation	Qty per eqpt
		2590-99-667-0326/PK09292	Wheel chock mounting kit comprising:	1
1		2590-99-729-5138/MZK4808	Adaptor bracket	(1)
2		2590-99-425-5664/MXK3601	Wheel chock mounting bracket RHS	(1)
3		1231055	Bolt M12 x 35 long	(8)
4		1321531	Torque nut M12	(10)
5		1313141	Bolt M8 x 25 long	(8)
6		1725774	Torque nut M8	(8)
7		1231056	Bolt M12 x 40 long	(2)
8		1231063	Bolt M16 x 40 long	(2)
9		1321533	Torque nut M16	(2)
		MZK4593	Kit contents list	(1)

8.2 Stores to be demanded from stock.

10	6MT1	2590-99-562-5942	Bracket, chock, wheel-track	2
11	6MT1	2540-99-212-7006	Chock, wheel-track	2

Sequence of operations

9 Carry out the modification as follows:

NOTE

The item numbers of Para 8 are used as references throughout this instruction.

9.1 Park the vehicle on firm, level ground and apply the parking brake. Lower spare wheel and position out of way of working area.

Refer to Figure 1.

9.2 Remove and discard the four nuts and bolts identified on figure 1 from the right hand side crane supports.

9.3 Position adaptor bracket (item 1) to the vehicle frame side and secure to the four holes with the four new nuts and bolts (items 4, 7, 8 and 9).

9.4 Position bracket (item 2) to the adaptor bracket and secure using four bolts and nuts (items 3 and 4). Torque tighten to 110 Nm.

Refer to Figure 2.

9.5 Release, but do not remove, the tyre inflator tap and rotate 45 degrees, clockwise.

9.6 Support weight of transfer gearbox and remove and discard the four nuts and bolts from the rearmost, right hand mounting bracket.

9.7 Position bracket (item 2) to the vehicle frame side and secure to four holes made vacant in step 9.6 using four nuts and bolts (items 3 and 4).

9.8 Torque tighten items 3 and 4 to 110 Nm.

Refer to Figure 3.

9.9 Remove support from transfer gearbox.

9.10 Fit chock carriers (item 10) to new brackets and secure with four nuts and bolts each (items 5 and 6).

9.11 Torque tighten items 5 and 6 to 70 Nm. Raise spare wheel and stow correctly.

Refer to Figure 4.

9.12 Fit chocks (item 11) to carriers and secure with latching spring clips.

Testing after embodiment

10 Nil.

Effect on weight

11 Negligible.

PUBLICATION AMENDMENTS

12

NOTE

Necessary amendments will be issued separately.

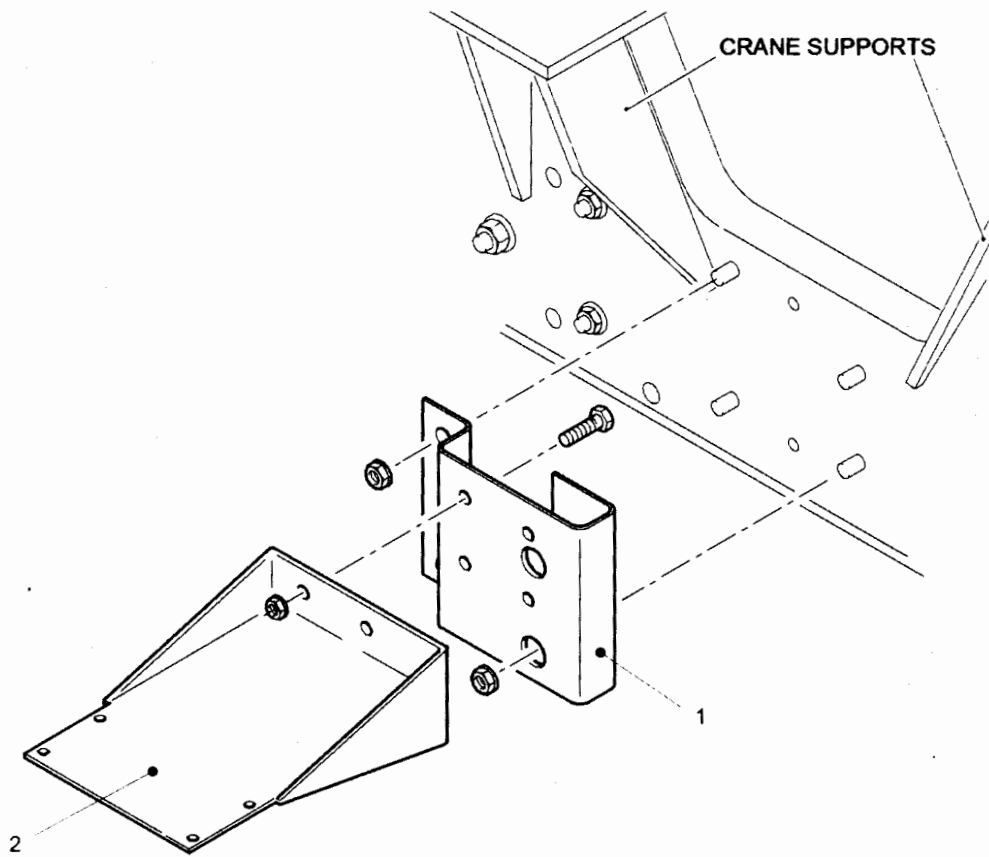


Fig 1 CALM wheel chock mounting bracket install

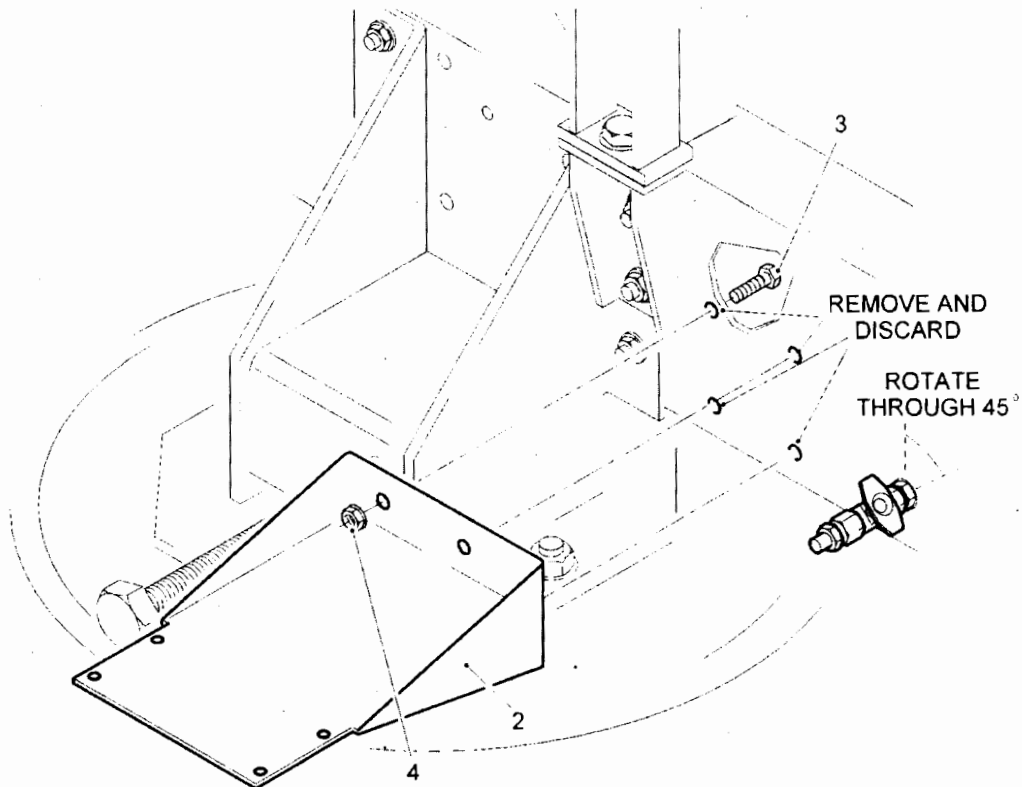


Fig 2 Right hand wheel chock mounting bracket install

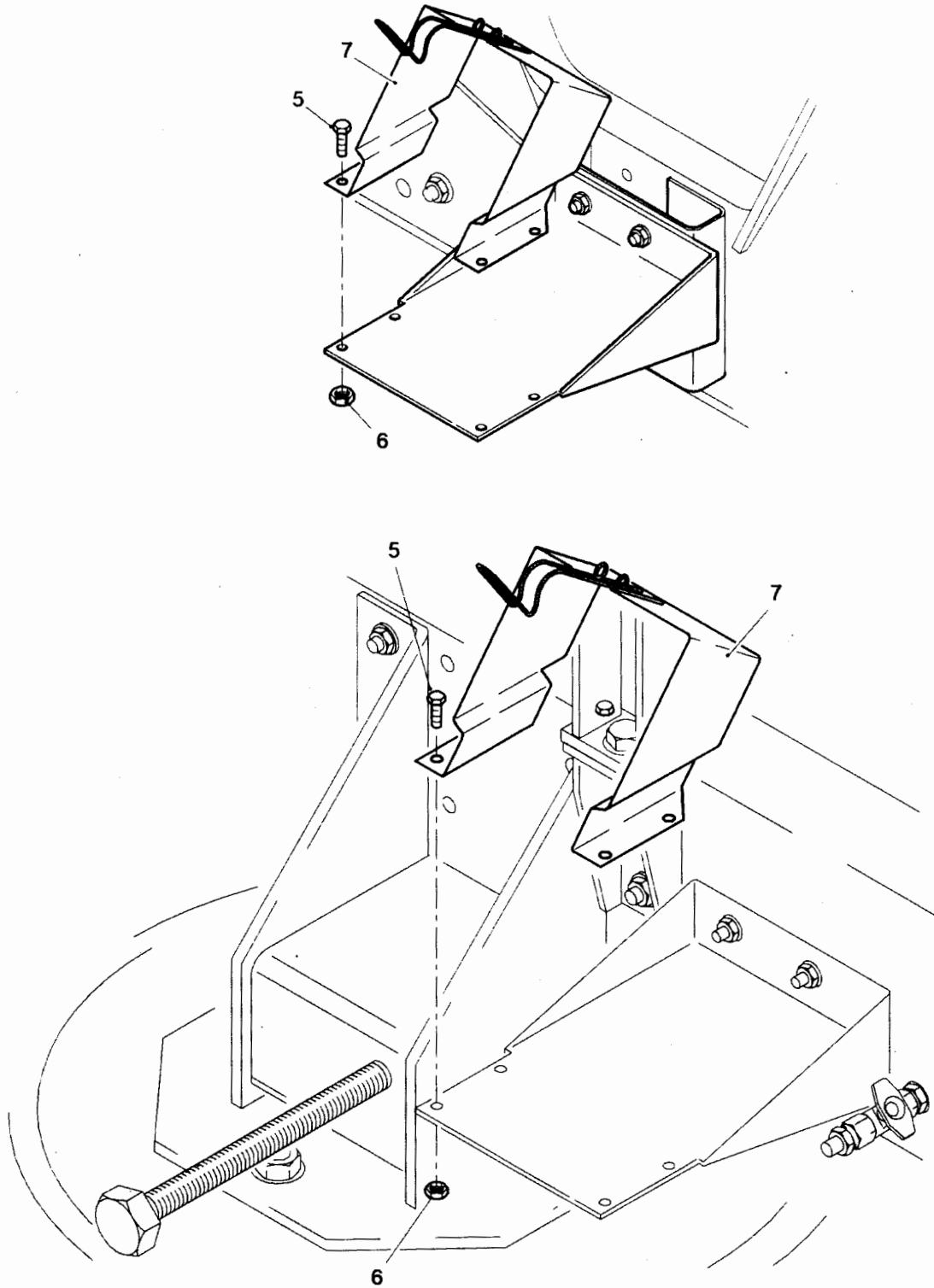


Fig 3 Chock brackets install

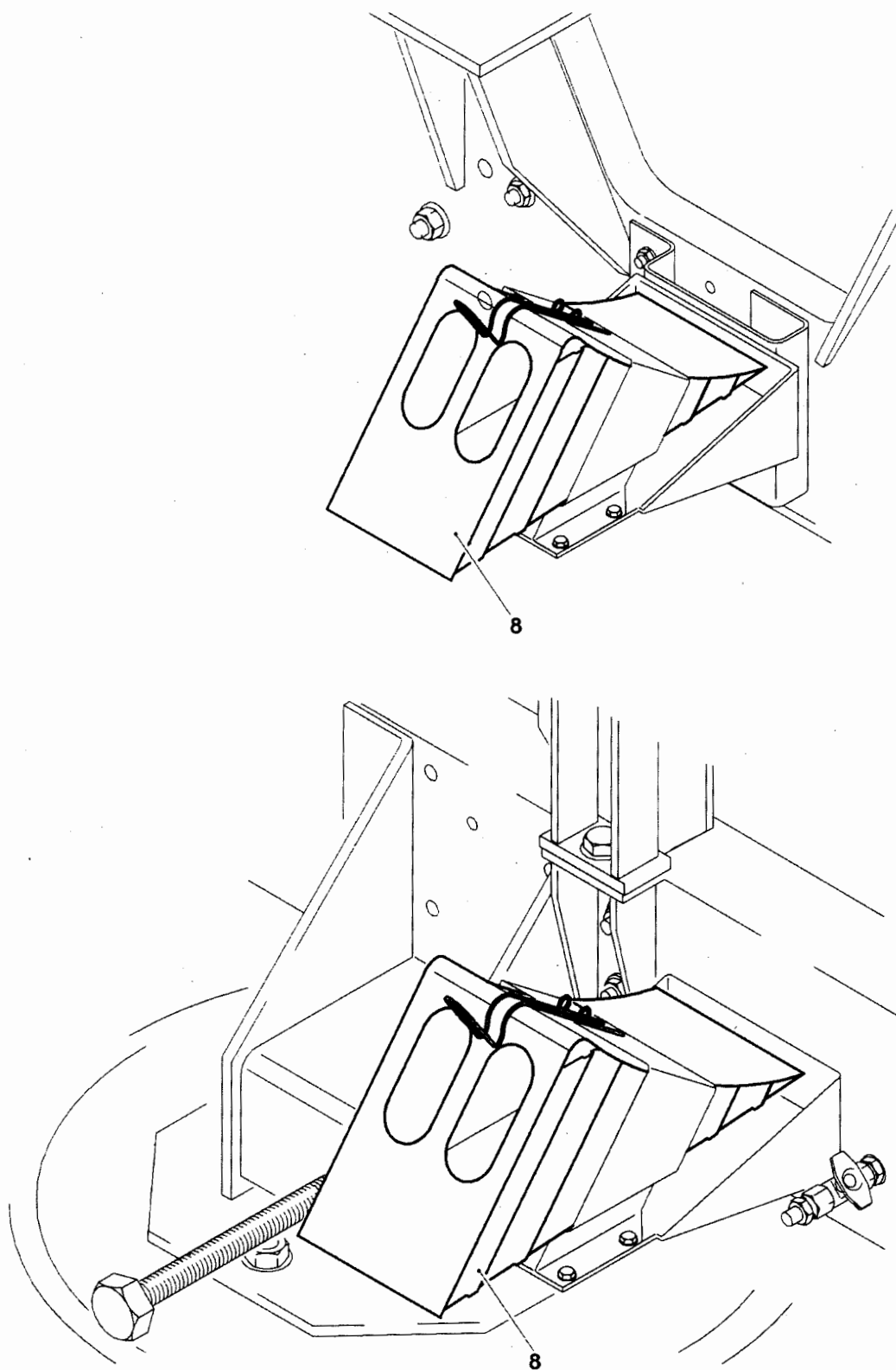


Fig 4 Chocks install

TRUCK, 4 TONNE, 4 X 4, GS, LEYLAND DAF (ALL VARIANTS)

MODIFICATION INSTRUCTION No. 26

Sponsor:
GSV IPT DE & S Andover

Publication Agency:
DGS & E TIG Andover
Project No: GSV2/0008
File ref: PDS GSV/9/9/3/7

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
1		
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Amdt No.	Incorporated by (Signature)	Date
4		
5		
6		

SUBJECT: Height indicators

(Approval No. GSV/04/076)

INTRODUCTION

1 In order to comply with Construction and Use Regulations, all vehicles and loads with a height greater than 3 metres are to have in-cab height indicators fitted.

1.1 Limitations on use of equipment. Nil.

APPLICABILITY

2

2.1 Applicable to all Leyland 4 tonne 4 x 4 series vehicles held by user units.

2.2 Unmodified stock, held at all levels of technical storage.

REASON FOR MODIFICATION

3

3.1 To comply with Legislation and improve safety.

PRIORITY

4

4.1 ARMY: Immediate.

4.2 RAF: Immediate.

ESTIMATED TIME REQUIRED

5

- 5.1 Embodiment: 0.4 man hours.
- 5.2 Testing: Nil.

MODIFICATION IMPLEMENTATION PLAN

6

- 6.1 This instruction is to be implemented by:
 - 6.1.1 ARMY - Units authorised to carry out levels 2, 3 and 4 maintenance.
 - 6.1.2 RAF - Units when found necessary.

Action required by

7

- 7.1 Units and establishments holding equipment:
 - 7.1.1 Examine equipment documents to see if instruction is applicable.
 - 7.1.2 Examine equipment or modification record plate to see if instruction is embodied and where necessary units with 1st Line REME Support demand the stores required.
 - 7.1.3 ARMY - On receipt of stores, request REME to modify equipment.
 - 7.1.4 ARMY - Record the AESP and instruction in equipment documents.
 - 7.1.5 RAF - Record modification details on AF G1084A and Form 4870. Units operating STAMA are also to record modification details on ADP MTMS Job Certification Sheet to follow the procedures laid down in AP 100C-08A.
- 7.2 Units authorised to carry out levels 2, 3 and 4 maintenance and RAF units:
 - 7.2.1 ARMY - When requested by users or during overhaul of equipment on charge without REME 1st Line Support, obtain the items listed in Para 8 and carry out this modification.
 - 7.2.2 Record completion details of modification against appropriate entry in vehicle documents.
 - 7.2.3 Complete AF G1084A when reporting completion of the modification to FORWARD (RAF) using the following code:

RAF: MODIFICATION CODE: AFG 098.

NOTE

RAF units operating STAMA are also to complete ADP MTMS Job Certification Sheet and to follow the procedures laid down in AP 100C-08A.

- 7.3 All recipients of this instruction. Add particulars to AESP 2320-H-104-811 Mod Instr Index.

Stores, tools and equipment

8

8.1 Stores to be demanded:

8.1.1 The following items and modification set is to be demanded quoting this instruction as the authority for demand.

8.1.2 Registration number of vehicle for equipment held by user units.

Item No.	DMC	NSN/Part No.	Designation	Qty per eqpt
	7WTK	9905 01 507 4721	Indicator Ht, Veh	1

Sequence of operations

9 Carry out this instruction as follows:

9.1 Ensure the area the indicator is to be applied to is clean, dry and free from grease.

9.2 Peel protective tape off self-adhesive strips and apply Ht indicator to recommended area or thereabouts as per the illustration. Press firmly to ensure self-adhesive strips apply. Adjust the numbers to reflect the height of the vehicle and load.

TESTING AFTER EMBODIMENT

10 Nil.

EFFECT ON WEIGHT

11 Negligible.

PUBLICATION AMENDMENTS

NOTE

Necessary amendments will be issued separately.

12 Nil.

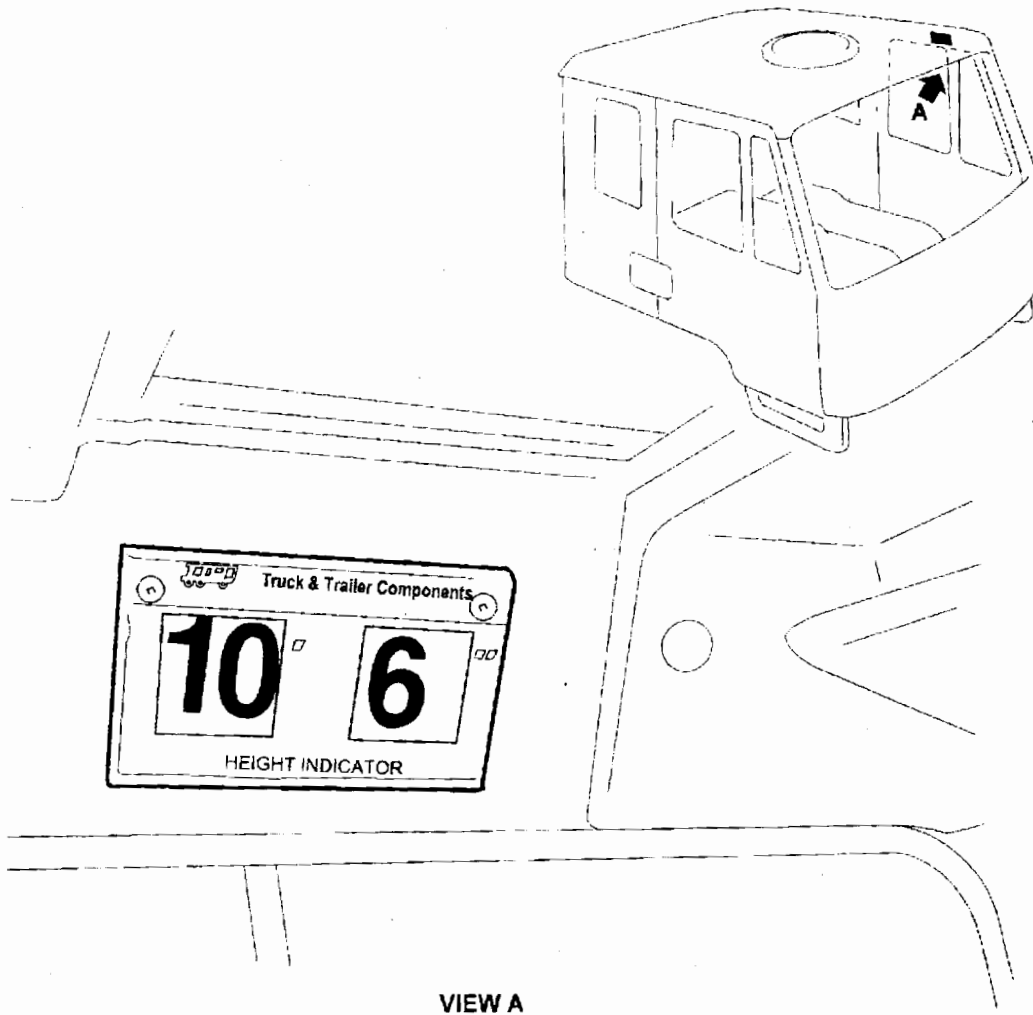


Fig 1 Position over L/H door on inside of cab for Ht Indicator

**TRUCK, 4 TONNE, 4 X 4, GS, LEYLAND DAF
(WINCH VARIANT)**

MODIFICATION INSTRUCTION NO. 27

Sponsor: GSV IPT (DE&S Andover)

Publication Agency: DGS&E TIG Andover
Project No.: PDS 1A/285
File ref: GSV 9/9/3/7

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
1		
2		
3		

Amdt No.	Incorporated by (Signature)	Date
4		
5		
6		

SUBJECT: Wheel chocks installation

(Approval No. GSV/04/073)

INTRODUCTION

1 This modification instruction details the changes necessary to stow wheel chocks on the vehicle.

1.1 Limitation on use of equipment: Nil.

APPLICABILITY

2 Truck, 4 tonne, 4 x 4, GS, LEYLAND DAF (Winch variants).

NOTE

This fitting instruction is part of a requirement to satisfy ADR regulations governing the carriage of dangerous goods. It is part of a suite of modifications that embody a total of 2 x 6 kg fire extinguishers and wheel chocks fitted externally to the vehicle. It is not a fleet wide modification fit and is required only for vehicles with a specific ADR role.

REASON FOR MODIFICATION

3 Code 6 - to conform to legislation change.

PRIORITY

4 Routine.

ESTIMATED TIME REQUIRED

5 Embodiment: 3 man-hours.

MODIFICATION IMPLEMENTATION PLAN

6

- 6.1 This modification is to be implemented by:
 - 6.1.1 Units authorised to carry out levels 2, 3 and 4 maintenance.
- 6.2 Associated modification instructions. Nil.
- 6.3 Modification plate strike action: N/A.

Action required by

7

- 7.1 Units and establishments holding equipment.
 - 7.1.1 Examine vehicle documents to see if modification is applicable.
 - 7.1.2 Examine vehicle to see if modification is embodied and, for Units with 1st Line REME Support, demand the stores required where necessary.
 - 7.1.3 On receipt of drawing, request REME to modify equipment.
 - 7.1.4 Record the modification subject, AESP number and Army Modification code in vehicle documents.
- 7.2 Units authorised to carry out levels 3 and 4 maintenance.
 - 7.2.1 For Units without REME 1st Line Support, obtain the items listed in Para 8 and carry out this modification when requested by users or during overhaul of equipments on charge.
 - 7.2.2 Record completion details of modification against appropriate entry in vehicle documents.
- 7.3 All recipients of this instruction. Add particulars to AESP 2320-H-104-811 Mod Instr Index.

Stores, tools and equipment

8

8.1 Stores to be demanded.

8.1.1 The following modification item is to be demanded quoting this instruction as authority for demand.

Item No.	DMC	NSN/Part No.	Designation	Qty per eqpt
	7FW	2590-99-880-3663/PK09278	Wheel chock mounting kit comprising:	1
1	7FW	2590-99-133-7006/MXK3595	Wheel chock mounting bracket LHS	(1)
2	7FW	5365-99-884-6655/MZK4530	Spacer	(1)
3	7FW	2590-99-425-5664/MXK3601	Wheel chock mounting bracket RHS	(1)
4		1243060	Bolt M14 x 40 long	(2)
5		1321532	Torque nut M14	(2)
6		1231063	Bolt M16 x 40 long	(2)
7		1321533	Torque nut M16	(2)
8		1231055	Bolt M12 x 35 long	(4)
9		1321531	Torque nut M12	(4)
10		1313141	Bolt M8 x 25 long	(8)
11		1725774	Torque nut M8	(8)
		MZK4564	Kit contents list	(1)
	7FW	2590-99-666-7343/PK09284	Wheel chock mounting kit comprising:	1
12	7FW	2590-99-551-4173/MZK4577	Spacer bracket	(2)
13	7FW	2590-99-802-3661/MZK4574	Adaptor	(1)
14	7FW	2590-99-756-2709/MZK4578	Adaptor bracket	(1)
15		MZK4580	Kit contents list	(1)
16		1313141	Bolt M8 x 25 long	(8)
17		1725774	Torque nut M8	(8)

8.2 Stores to be demanded from stock.

10	6MT1	2590-99-562-5942	Bracket, chock, wheel-track	2
11	6MT1	2540-99-212-7006	Chock, wheel-track	2

Sequence of operations

9 Carry out the modification as follows:

NOTE

The item numbers of Para 8 are used as references throughout this instruction.

9.1 Park the vehicle on firm, level ground and apply the parking brake. Lower spare wheel and position out of way of working area.

9.2 Remove and discard the top two nuts and bolts from the left hand side of the spare wheel carrier, located on the right hand side of the vehicle. Refer to Fig 1.

9.3 Remove and save the winch handle.

- 9.4 Position spacer (item 2) and bracket (item 1) to the vehicle frame side and secure to the 17mm holes to the left of the spare wheel carrier with two new nuts and bolts (items 6 and 7). Refer to Figure 1.
- 9.5 Fit bolts (item 4) through remaining holes in bracket and through the holes made vacant in Para 9.2, secure using nuts (item 5). Refer to Figure 1.
- 9.6 Torque tighten items 4 and 5, Fig 1 to 170 Nm and items 6 and 7 to 260 Nm.
- 9.7 Fit the adaptor, Fig 1 (item 13) to the winch handle and refit.
- 9.8 Fit two spacer brackets (item 12) to LH wheel chock mounting brackets and secure with two nuts and bolts each (items 10 and 11). Refer to Figure 1.
- 9.9 Torque tighten items 10 and 11 to 70 Nm. Refer to Figure 1.
- 9.10 Support weight of transfer gearbox and remove and discard the four nuts and bolts from the rearmost, right hand mounting bracket.
- 9.11 Release, but do not remove, the tyre inflator tap and rotate 45 degrees, clockwise.
- 9.12 Position bracket (item 3) to the vehicle frame side and secure to four holes made vacant in para 9.10 using four new nuts and bolts (items 8 and 9). Refer to Figure 2.
- 9.13 Torque tighten items 8 and 9 to 110 Nm. Refer to Figure 2.
- 9.14 Fit the adaptor bracket (item 14) to the RH wheel chock mounting bracket and secure with four nuts and bolts (items 10 and 11). Refer to Figure 2.
- 9.15 Torque tighten items 10 and 11 to 70 Nm. Refer to Figure 2.
- 9.16 Remove support from transfer gearbox.
- 9.17 Fit chock carriers (item 18) to new brackets and secure with four nuts and bolts each (items 16 and 17). Refer to Figure 3.
- 9.18 Torque tighten items 16 and 17 to 70 Nm. Raise spare wheel and stow correctly. Refer to Figure 3.
- 9.19 Fit chocks, Fig 4 (item 19) to carriers and secure with latching spring clips.

Testing after embodiment

10 Nil.

Effect on weight

11 Negligible.

PUBLICATION AMENDMENTS

12

NOTE

Necessary amendments will be issued separately.

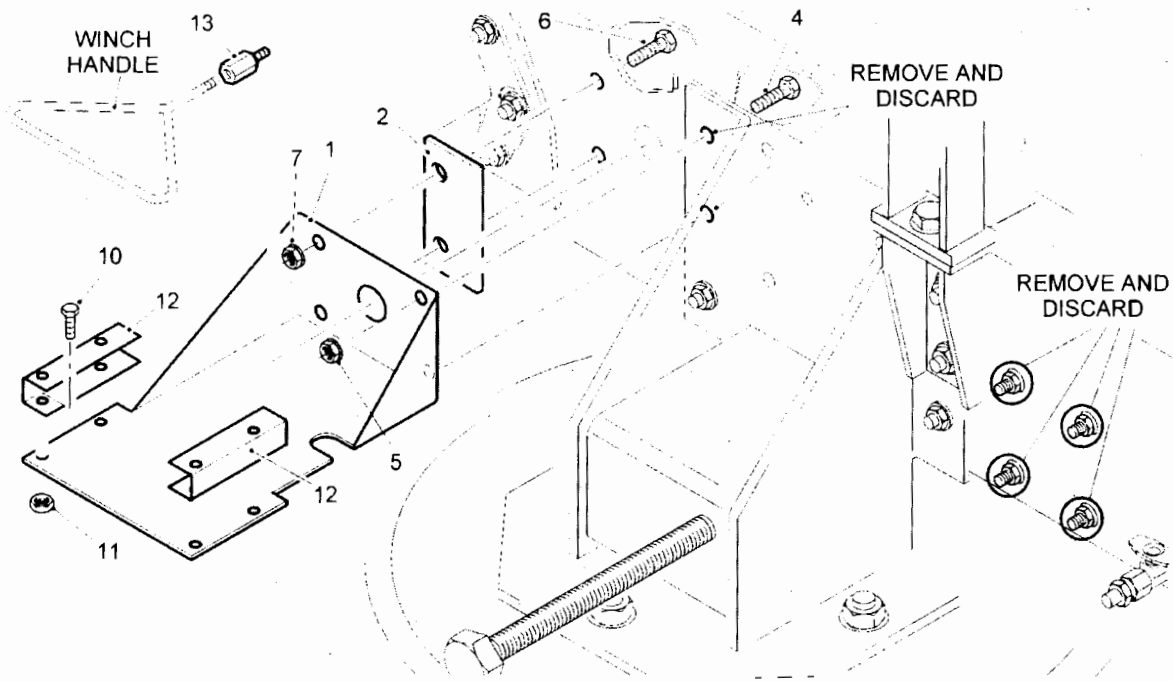


Fig 1 Left hand wheel chock mounting bracket install

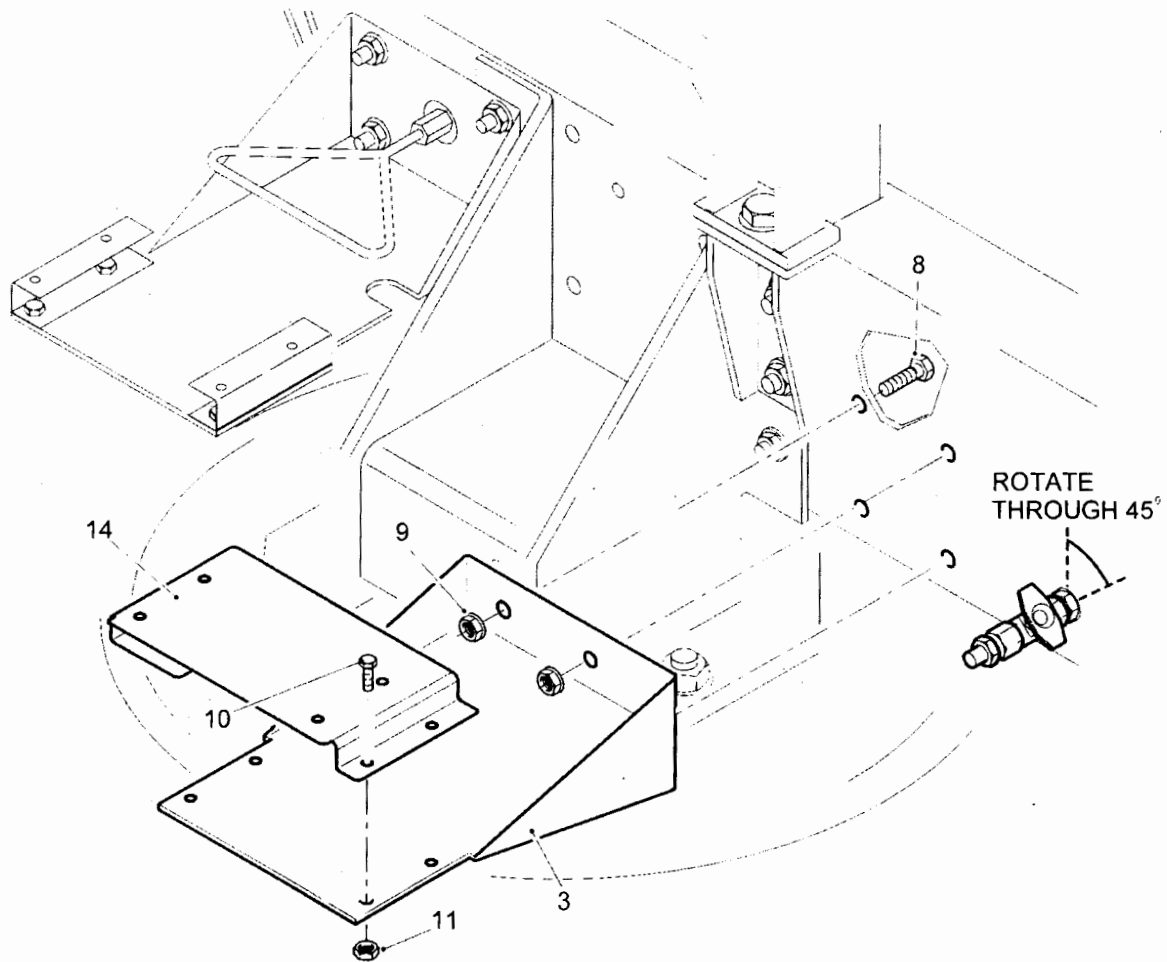


Fig 2 Right hand wheel chock mounting bracket install

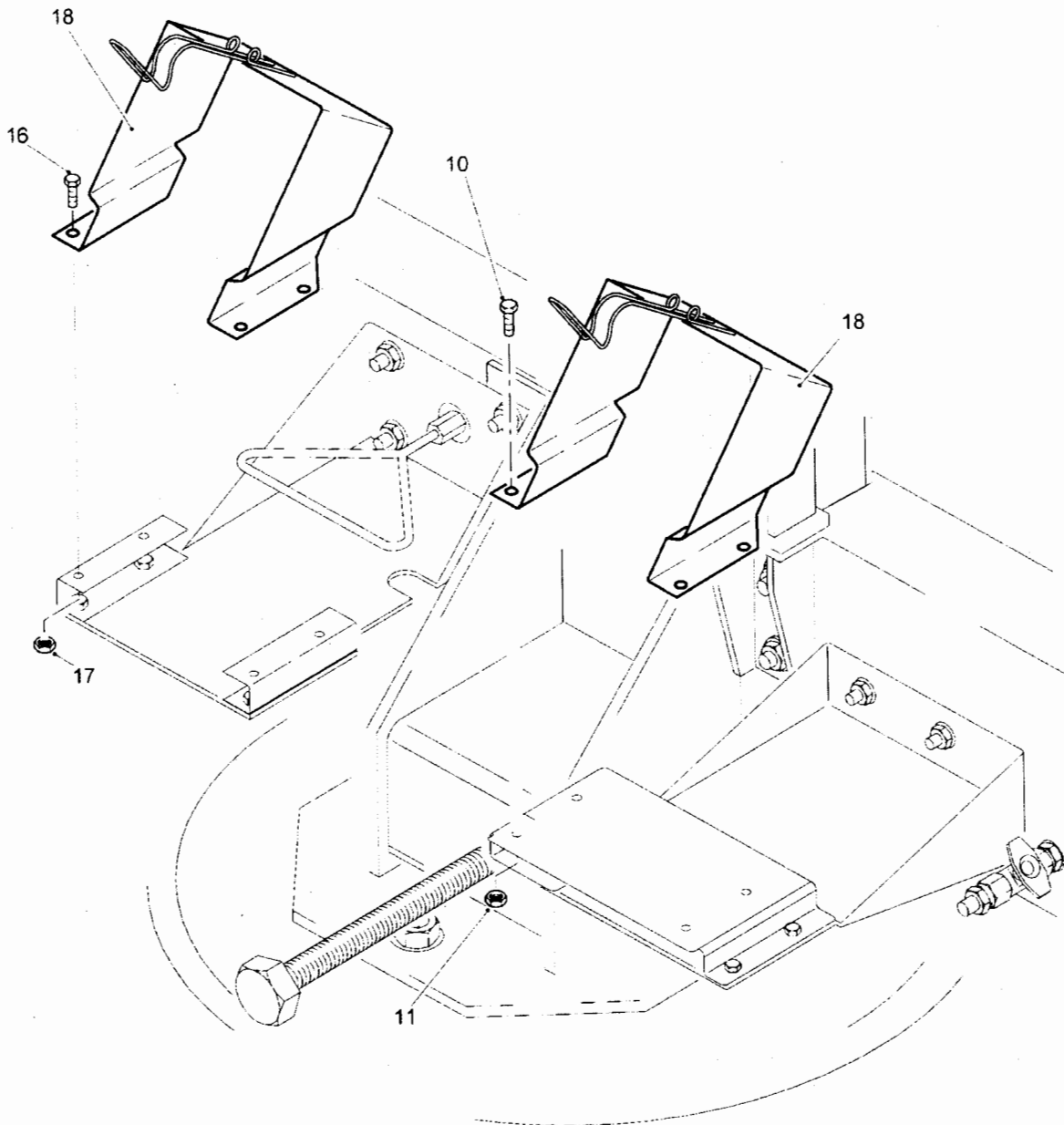


Fig 3 Chock brackets install

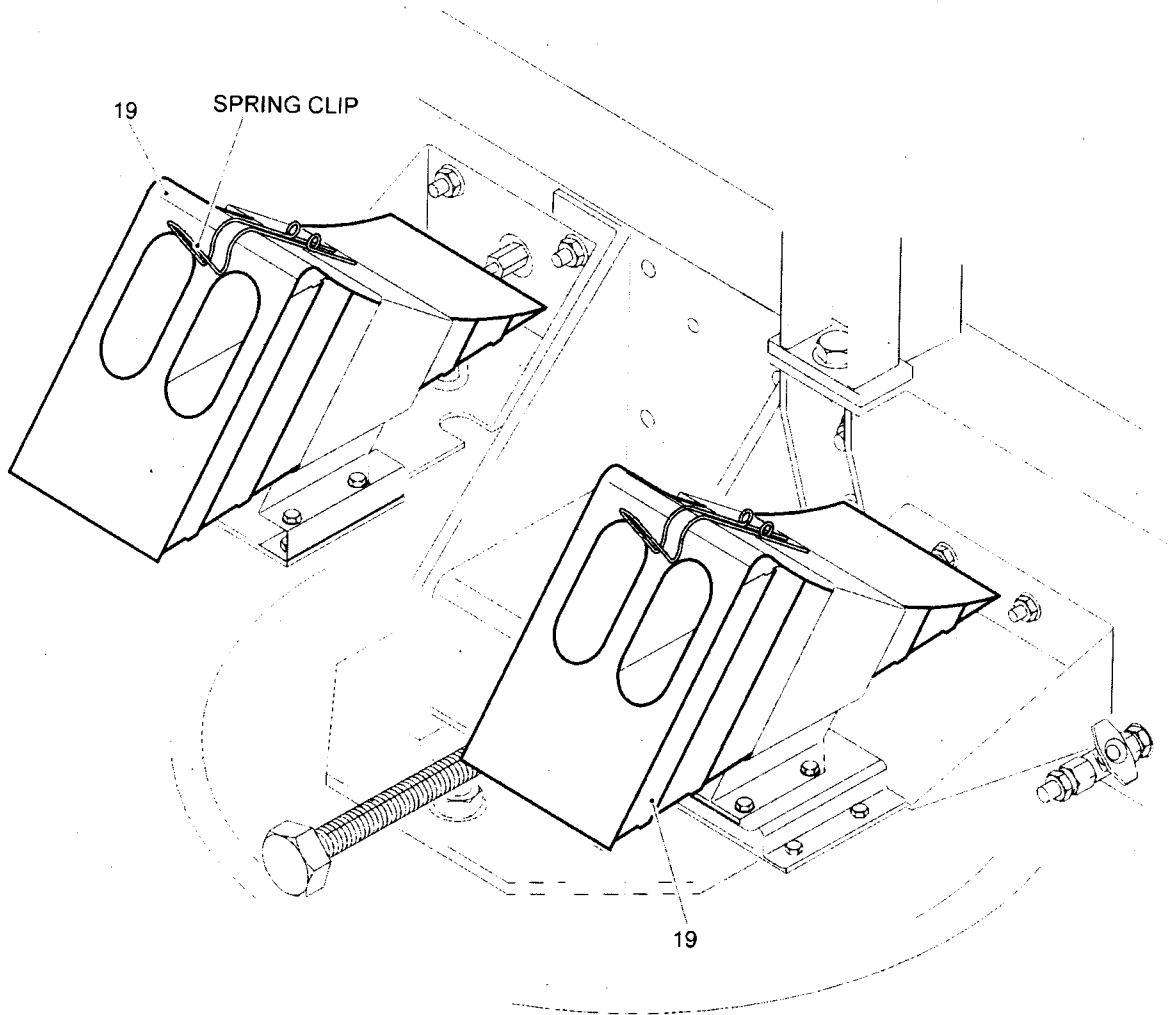


Fig 4 Chocks install

TRUCK, 4 TONNE, 4 X 4, GS, LEYLAND DAF (ALL VARIANTS)

MODIFICATION INSTRUCTION No. 28

Sponsor:
GSV IPT (DE & S Andover)

Publication Agency:
DGS & E TIG Andover
Project No: GSV2/0008/Task 839
File ref: PDS GSV/9/9/3/7

AMENDMENT RECORD

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SUBJECT: Fire extinguisher (6 kg) mounting box assembly
(Approval No. GSV/04/095)

INTRODUCTION

1 This modification instruction details installation of a new mounting box to hold a 6 kg fire extinguisher.

1.1 Limitations on use of equipment. Nil.

APPLICABILITY

2 Truck, 4 tonne, 4 x 4, GS, Leyland DAF (all variants).

2.1 This fitting instruction is part of a requirement to satisfy ADR regulation governing the carriage of dangerous goods. It is part of a suite of modifications that embody a total of 2 x 6 kg fire extinguishers and wheel chocks fitted externally to the vehicle. It is not a fleet wide modification fit and is required only for vehicles with a specific ADR role.

REASON FOR MODIFICATION

3 Code 6 - to conform to Legislation change.

PRIORITY

4 Routine.

ESTIMATED TIME REQUIRED

5 Embodiment: 2 man hours.

MODIFICATION IMPLEMENTATION PLAN

6

- 6.1 This instruction is to be implemented by:
- 6.1.1 Units authorised to carry out levels 2, 3 and 4 maintenance.
 - 6.1.2 Associated modification instructions. Nil.
 - 6.1.3 Modification plate strike action : N/A.

Action required by

7

- 7.1 Units and establishments holding equipment:
- 7.1.1 Examine equipment documents to see if instruction is applicable.
 - 7.1.2 Examine equipment or modification record plate to see if instruction is embodied and where necessary units with 1st Line REME Support demand the stores required.
 - 7.1.3 ARMY - On receipt of stores, request REME to modify equipment.
 - 7.1.4 ARMY - Record the AESP and instruction in equipment documents.
 - 7.1.5 RAF - Record modification details on AF G1084A and Form 4870. Units operating STAMA are also to record modification details on ADP MTMS Job Certification Sheet to follow the procedures laid down in AP 100C-08A.
- 7.2 Units authorised to carry out levels 2, 3 and 4 maintenance and RAF units:
- 7.2.1 ARMY - When requested by users or during overhaul of equipment on charge without REME 1st Line Support, obtain the items listed in Para 8 and carry out this modification.
 - 7.2.2 Record completion details of modification against appropriate entry in vehicle documents.
 - 7.2.3 Complete AF G1084A when reporting completion of the modification to FORWARD (RAF) using the following code:

RAF: MODIFICATION CODE: AFG 097.

NOTE

RAF units operating STAMA are also to complete ADP MTMS Job Certification Sheet and to follow the procedures laid down in AP 100C-08A.

- 7.3 All recipients of this instruction. Add particulars to AESP 2320-H-104-811 Mod Instr Index.

Stores, tools and equipment

8

8.1 Stores to be demanded:

8.1.1 The following items and modification set is to be demanded quoting this instruction as the authority for demand.

8.1.2 Registration number of vehicle for equipment held by user units.

Item No.	DMC	NSN/Part No.	Designation	Qty per eqpt
		A7FW4210-99-168-2128/PK09303	Fire extinguisher (6 kg) mounting box kit comprising:	1
1		2540-99-551-5313/MXK3613	Mounting box assembly	(1)
2		1231054	Flange bolt, M12 x 30	(4)
3		1231051	Flange nut, M12	(4)
4		MZK4792	AESP Cat 811 modification instruction	(1)
5		MZK4791	Kit contents list	(1)

8.2 Additional parts to be demanded from stock:

Item No.	DMC	NSN/Part No.	Designation	Qty per eqpt
6		4210-99-898-0314	Fire extinguisher 6 kg	(1)
7	6MT1	7690-99-615-6046	Label	(1)

Sequence of operations

9 Carry out this instruction as follows:

NOTE

The item numbers of para 8 are used as references throughout this instruction.

9.1 Examine the toolbox base for signs of corrosion and determine if fitting the fire extinguisher and mounting box assembly, additional weight approximately 22 kg, will compromise its integrity. Make good as necessary.

9.2 Position the fire extinguisher box Fig 1 (item 1) to the rear of the left hand rear mud-wing, directly below the toolbox and support in position.

NOTE

Ensure a gap of approximately 10 mm exists between the mud-wing and the fire extinguisher box (see Fig 1) and the fire extinguisher box lid can be opened fully.

9.3 Open the lid of the fire extinguisher box and identify the four mounting holes on the top face of the fire extinguisher mounting box and mark positions on the base of the toolbox.

9.4 Remove the fire extinguisher box and centre tap and drill four holes, 14 mm diameter, through the toolbox in the marked positions.

- 9.5 Clean and de-burr the holes and apply anti-corrosive paint to exposed metalwork.
- 9.6 Fit fire extinguisher box Fig 1 (item 1) to the underside of the toolbox using bolts and nuts Fig 1 (items 2 & 3). Torque-tighten to 120 to 180 Nm.
- 9.7 Fit label Fig 1 (item 7) in the centre of the fire extinguisher box lid.
- 9.8 Insert fire extinguisher Fig 1 (item 6) close lid, secure clasp and fit R clip.

TESTING AFTER EMBODIMENT

- 10 Nil.

EFFECT ON WEIGHT

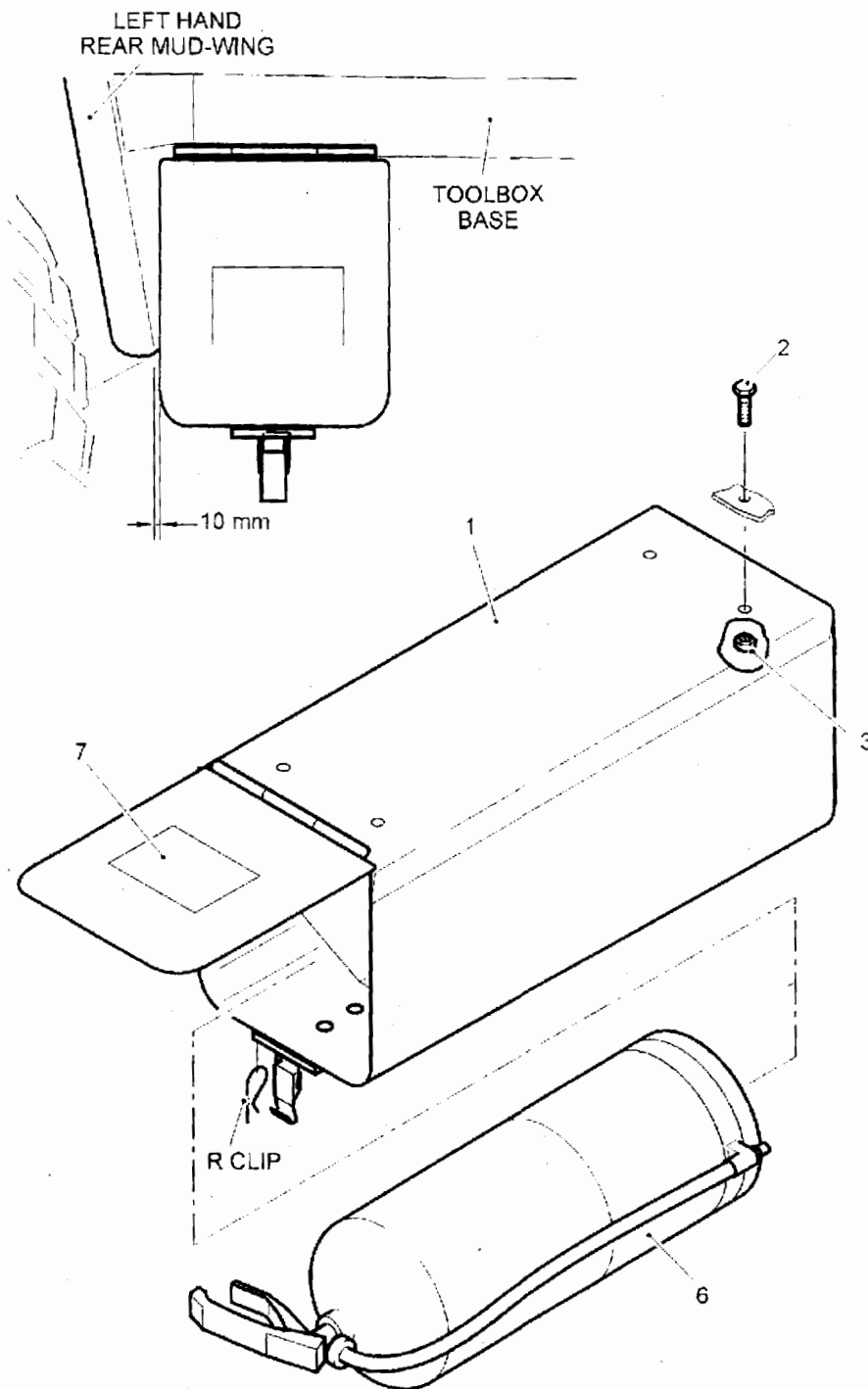
- 11 Negligible.

PUBLICATION AMENDMENTS

NOTE

Necessary amendments will be issued separately.

- 12 Nil.



- | | | | |
|---|-----------------------|---|------------------------|
| 1 | Mounting box assembly | 6 | Fire extinguisher 6 kg |
| 2 | Flange bolt, M12 x 30 | 7 | Label |
| 3 | Flange nut, M12 | | |

Fig 1 Fire extinguisher mounting box installation

**TRUCK, 4 TONNE, 4 X 4, GS, LEYLAND DAF
(WINTERISED VEHICLES)**

MODIFICATION INSTRUCTION NO. 29

Sponsor: DE&S GSV IPT (ABW)

Publication Agency: DE&S GSV IPT (ABW)
Project No.: GSV2/0008
File ref: PDS GSV 9/9/3/7

AMENDMENT RECORD

Amdt No.	Incorporated by (Signature)	Date
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Amdt No.	Incorporated by (Signature)	Date
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SUBJECT: Wheel chocks installation

(Approval No. GSV/04/0115)

INTRODUCTION

1 This modification instruction details the changes necessary to stow wheel chocks on the vehicle.

1.1 Limitation on use of equipment: Nil.

APPLICABILITY

2 Truck, 4 tonne, 4 x 4, GS, LEYLAND DAF (Winterised Flatbed and Cargo variants).

NOTE

This fitting instruction is part of a requirement to satisfy ADR regulations governing the carriage of dangerous goods. It is part of a suite of modifications that embody a total of 2 x 6 kg fire extinguishers and wheel chocks fitted externally to the vehicle. It is not a fleet wide modification fit and is required only for vehicles with a specific ADR role.

REASON FOR MODIFICATION

3 Code 6 - to conform to legislation change.

PRIORITY

4 Routine.

ESTIMATED TIME REQUIRED

5 Embodiment: 3 man-hours.

MODIFICATION IMPLEMENTATION PLAN

6

- 6.1 This modification is to be implemented by:
 - 6.1.1 Units authorised to carry out levels 2, 3 and 4 maintenance.
- 6.2 Associated modification instructions. Nil.
- 6.3 Modification plate strike action: N/A.

Action required by

7

- 7.1 Units and establishments holding equipment.
 - 7.1.1 Examine vehicle documents to see if modification is applicable.
 - 7.1.2 Examine vehicle to see if modification is embodied and, for Units with 1st Line REME Support, demand the stores required where necessary.
 - 7.1.3 On receipt of drawing, request REME to modify equipment.
 - 7.1.4 Record the modification subject, AESP number and Army Modification code in vehicle documents.
 - 7.2 Units authorised to carry out levels 3 and 4 maintenance.
 - 7.2.1 For Units without REME 1st Line Support, obtain the items listed in Para 8 and carry out this modification when requested by users or during overhaul of equipments on charge.
 - 7.2.2 Record completion details of modification against appropriate entry in vehicle documents.
 - 7.2.3 Complete AF G1084A when reporting completion of the modification to FORWARD (RAF) using the following code:

RAF: MODIFICATION CODE: AFB 086
- NOTE
- RAF units operating STAMA are also to complete ADP MTMS job certification sheet and to follow the procedures laid down in AESP-100C-08A.
- 7.3 All recipients of this instruction. Add particulars to AESP 2320-H-104-811 Mod Instr Index.

Stores, tools and equipment

8

8.1 Stores to be demanded.

8.1.1 The following modification item is to be demanded quoting this instruction as authority for demand.

Item No.	DMC	NSN/Part No.	Designation	Qty per eqpt
		2590-99-372-3052/PK09309	Wheel chock mounting kit comprising:	1
1		2590-99-133-7006/MXK3595	Wheel chock mounting bracket LHS	(1)
2		2590-99-425-5664/MXK3601	Wheel chock mounting bracket RHS	(1)
3		1231055	Bolt M12 x 35 long	(4)
4		1321531	Torque nut M12	(4)
5		1313141	Bolt M8 x 25 long	(12)
6		1725774	Torque nut M8	(12)
7		1243060	Bolt M14 x 40 long	(2)
8		1321532	Torque nut M14	(2)
9		1231063	Bolt M16 x 40 long	(2)
10		1321533	Torque nut M16	(2)
11		2590-99-756-2709/MZK4578	Adaptor bracket	(1)
12		5365-99-884-6655/MZK5430	Spacer	(1)
13		MZK4810	Kit contents list	(1)
14		MZK4811	AESP Mod Inst No. 29	(1)

8.2 Stores to be demanded from stock.

15	6MT1	2590-99-562-5942	Bracket, chock, wheel-track	2
16	6MT1	2540-99-212-7006	Chock, wheel-track	2

Sequence of operations

9 Carry out the modification as follows:

NOTE

The item numbers of Para 8 are used as references throughout this instruction.

9.1 Park the vehicle on firm, level ground and apply the parking brake. Lower spare wheel and position out of way of working area.

9.2 Remove and discard the top two nuts and bolts from the left hand side of the spare wheel carrier, located on the right hand side of the vehicle.

9.3 Position bracket and spacer, Fig 1 (items 1 & 12) to the vehicle frame side and secure to the 17 mm holes to the left of the spare wheel carrier with two new nuts and bolts, Fig 1 (items 9 and 10).

9.4 Fit bolts, Fig 1 (item 7) through remaining holes in bracket and through the holes made vacant in Para 9.2, secure using nuts, Fig 1 (item 8).

9.5 Torque tighten items 7 and 8, to 170 Nm and items 9 and 10 to 260 Nm. Refer to Fig 1.

9.6 Support weight of transfer gearbox and remove and discard the four nuts and bolts from the foremost, right hand mounting bracket.

9.7 Release, but do not remove, the tyre inflator tap and rotate 45 degrees, anti-clockwise.

- 9.8 Position bracket, Fig 2 (item 2) to the vehicle frame side and secure to four holes made vacant in Para 9.6 using four new nuts and bolts, Fig 2 (items 3 and 4).
- 9.9 Torque tighten items 3 and 4 to 110 Nm.
- 9.10 Fit the adaptor bracket Fig 2 (item 11) to the RH wheel chock mounting bracket (item 2) and secure with four nuts and bolts (items 5 and 6).
- 9.11 Torque tighten Fig 2, items 5 and 6 to 110 Nm.
- 9.12 Remove support from transfer gearbox.
- 9.13 Fit chock carriers, Fig 3 (item 15) to new brackets and secure with four nuts and bolts each, Fig 3 (items 5 and 6).
- 9.14 Torque tighten Fig 3, (items 5 and 6) to 70 Nm. Raise spare wheel and stow correctly.
- 9.15 Fit chocks, Fig 4 (item 16) to carriers and secure with latching spring clips.

Testing after embodiment

10 Nil.

Effect on weight

11 Negligible.

PUBLICATION AMENDMENTS

12

NOTE

Necessary amendments will be issued separately.

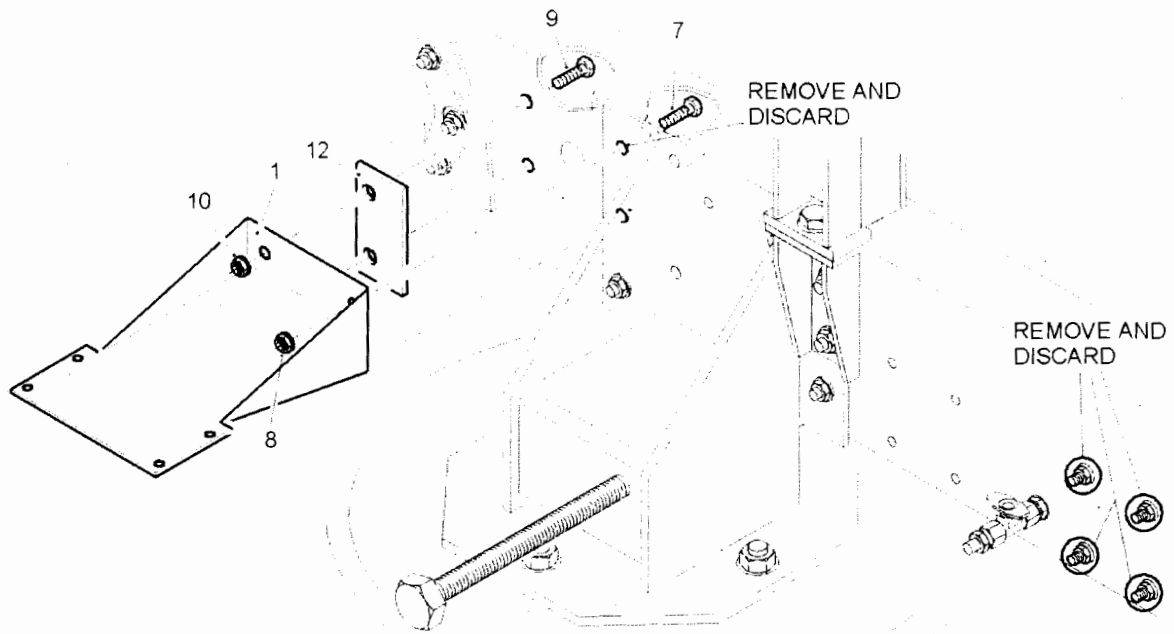


Fig 1 Left hand wheel chock mounting bracket install

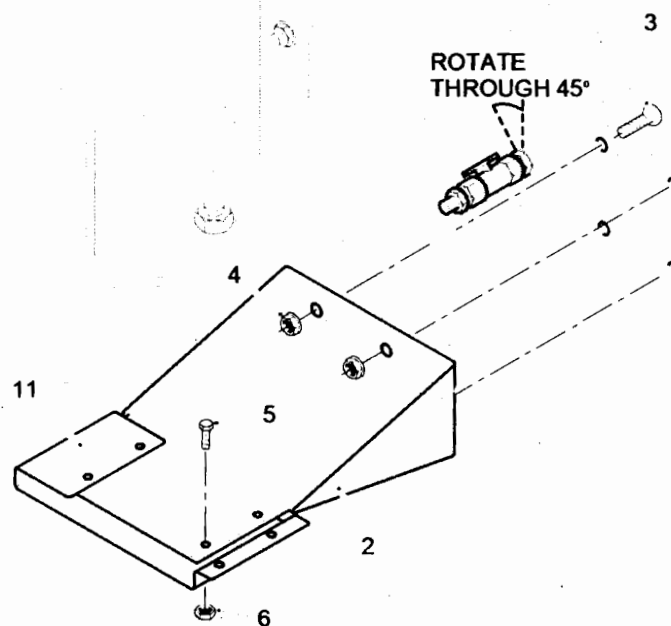


Fig 2 Right hand wheel chock mounting bracket install

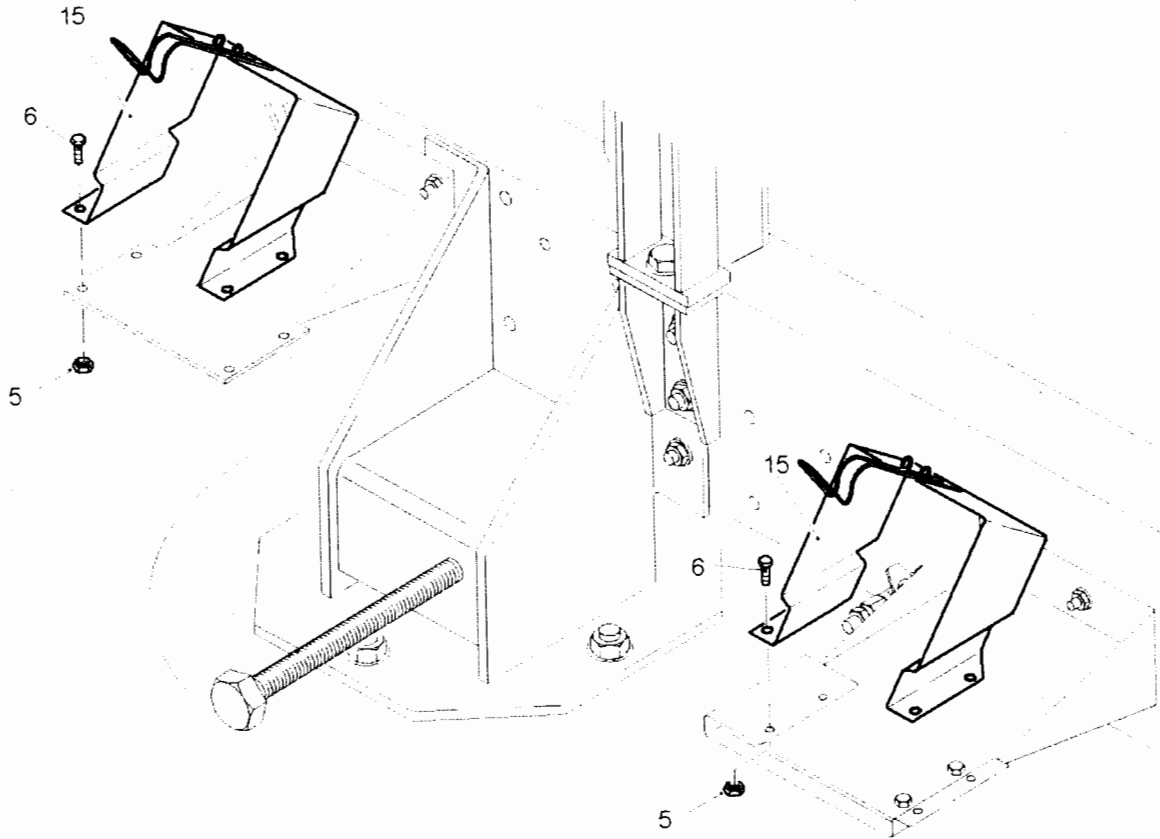


Fig 3 Chock brackets install

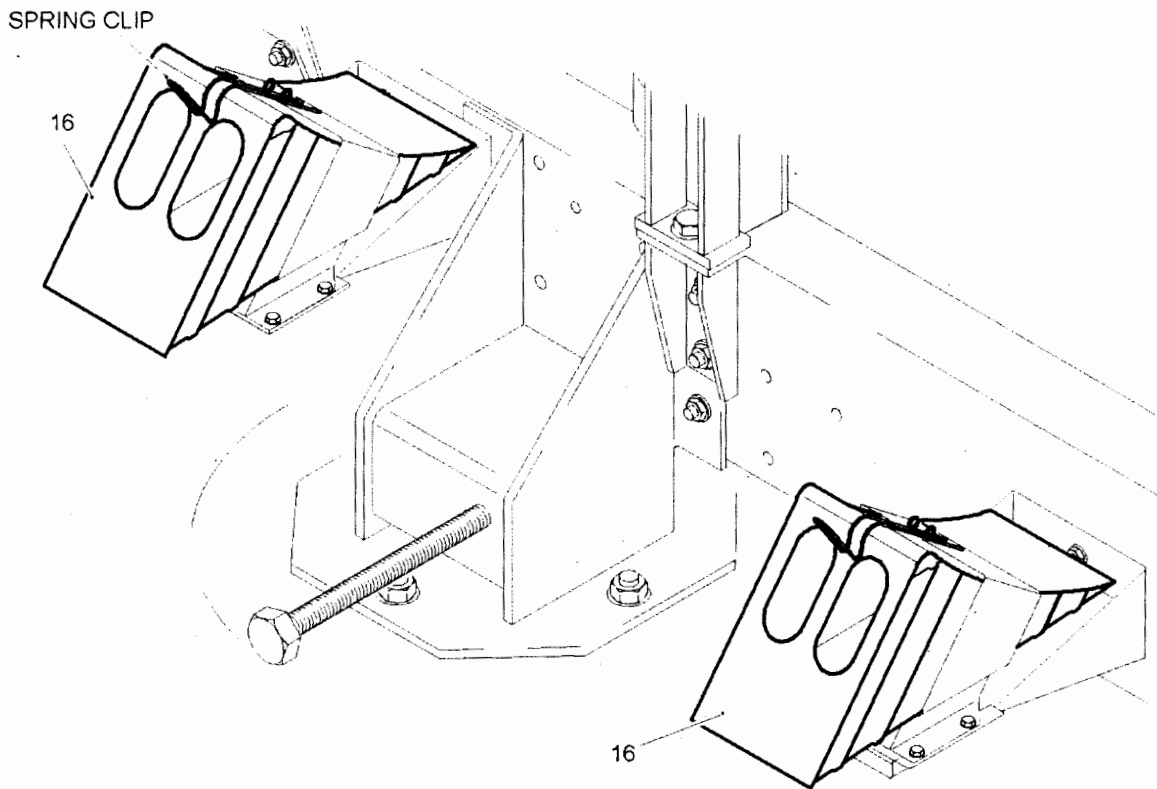


Fig 4 Chocks install

TRUCK, 4 TONNE, 4 X 4, GS, LEYLAND DAF

(ALL VARIANTS)

MODIFICATION INSTRUCTION No. 30

Sponsor: DE&S SLV PT

Publication Authority: SLV PT

Project No: (GSV/20/30) Task 963

File ref: DES LE GSG SLV-OutSp-TechDocs

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SUBJECT: Rear view camera – gun towing vehicle

(Approval No.)

INTRODUCTION

1 This modification instruction details installation of a new rear view camera. It provides increased safety, by providing the driver/commander full observation of the towed gun, whilst manoeuvring, carrying out coupling/de-coupling procedures, and whilst under tow.

1.1 Limitations on use of equipment. The viewing Monitor in the cab is to be directed towards the Commander when the Towing train is travelling on the highway.

APPLICABILITY

2 Truck, 4 tonne, 4 x 4, GS, Leyland DAF (all variants). Only to be fitted to vehicles declared on James with a role as 'Truck Cargo 4T Leyland DAF Lt Gun IK'. More information on applicability can be found in GSV/20/51 dated Jun 2010.

REASON FOR MODIFICATION

3 Code 1 – to improve safety.

PRIORITY

4 Army: Immediate.

ESTIMATED TIME REQUIRED

5 Embodiment: 3 man hours.

MODIFICATION IMPLEMENTATION PLAN

6

6.1 This instruction is to be implemented by:

6.1.1 Army - units authorised to carry out levels 2 or 3 maintenance.

6.1.2 Associated instructions.

2320-H-104-411 Instr No 3

2320-G-300-411 Instr no 8

GSV/20/51 dated Jun 2010

Action required by

7

7.1 Suspended

Stores, tools and equipment

8

8.1 Stores to be demanded

8.1.1 The following items to be demanded quoting this instruction as the authority for demand.

Item No.	DMC	NSN/Part No	Designation	Qty per eqpt
		PK09333	Reversing Camera Kit complete	1
1		MXK3667	Monitor / camera kit	1
2		MZK4916	Mounting bracket	1
3		SE106121	Screw M6 x 12 Long	5
4		NV106041	Torque Nut M6	5
5		842031	Lucar Connector	2
6		ACHA897	Ty-raps	20
7		MZK4917	AESP Cat 811 modification instruction No. 30	1
8		MZK4921	Kit contents list	1

Sequence of operations

9 Carry out this instruction as follows:

WARNING

ELECTRICAL ISOLATION. BEFORE ATEMPTING ANY WORK ON THE VEHICLE'S ELECTRICAL SYSTEM, THE ELECTRICAL MASTER SWITCH MUST BE TURNED 'OFF' OR THE BATTERIES DISCONNECTED.

NOTE

The item numbers of para 8 are used as references throughout this instruction

9.1 Remove the top two M12 fixings that secure the rear tow hook mounting bracket. Fit the camera-mounting plate supplied with kit, see Fig 4, over the two holes and refit the M12 screws.

9.2 Secure the camera to the mounting bracket using 2 off M6 x 12 screws and nuts (items 3 and 4). Locate and fit a suitable cable grommet to the mounting plate via the notch in top of the plate. Connect the "CAMERA 1" connector to the flying lead from the camera.

9.3 Secure the camera cable to the main piping and electrical looms using ty-raps (item 6) towards the front of the vehicle.

9.4 Remove the mates baulk-head trim and feed the camera cable up from its' chassis position through the un-used cable entry grommet. Root the cable to the existing loom towards the centre console.

9.5 Remove the top section of the centre console. Using the monitor mounting plate supplied with the kit as a template, mark and drill 3 x Ø 6.5mm holes as shown in Fig 3. Secure the mounting plate to the centre console using M6 x12 screws and nuts (items 3 and 4). Before replacing the console, file a Ø 6.5mm notch in the fibreglass trim just above the top of the centre console plate to prevent the cable from trapping.

9.6 Remove the main instrument panel to gain access to PCB. Route the five wires from the camera harness towards the area below PCB location.

9.7 Tie back the brown, blue and white wires (un-used) Fig 5. Crimp a ¼" lucar type terminal connector (item 5) onto the red and black wires. Connect the red wire to PCB terminal marked IGN and the black wire to one of the terminals marked -VE.

9.8 Refit the instrument panel and connect the main camera harness to the monitor connector, refit the centre console and drivers mate bulkhead trim.

TESTING AFTER EMBODIMENT

10

10.1 Switch on ignition – camera will automatically power up. Use the instructions supplied with the camera to adjust settings.

EFFECT ON WEIGHT

11 None.

PUBLICATION AMENDMENTS

NOTE

Necessary amendments will be issued separately.

12 Nil.

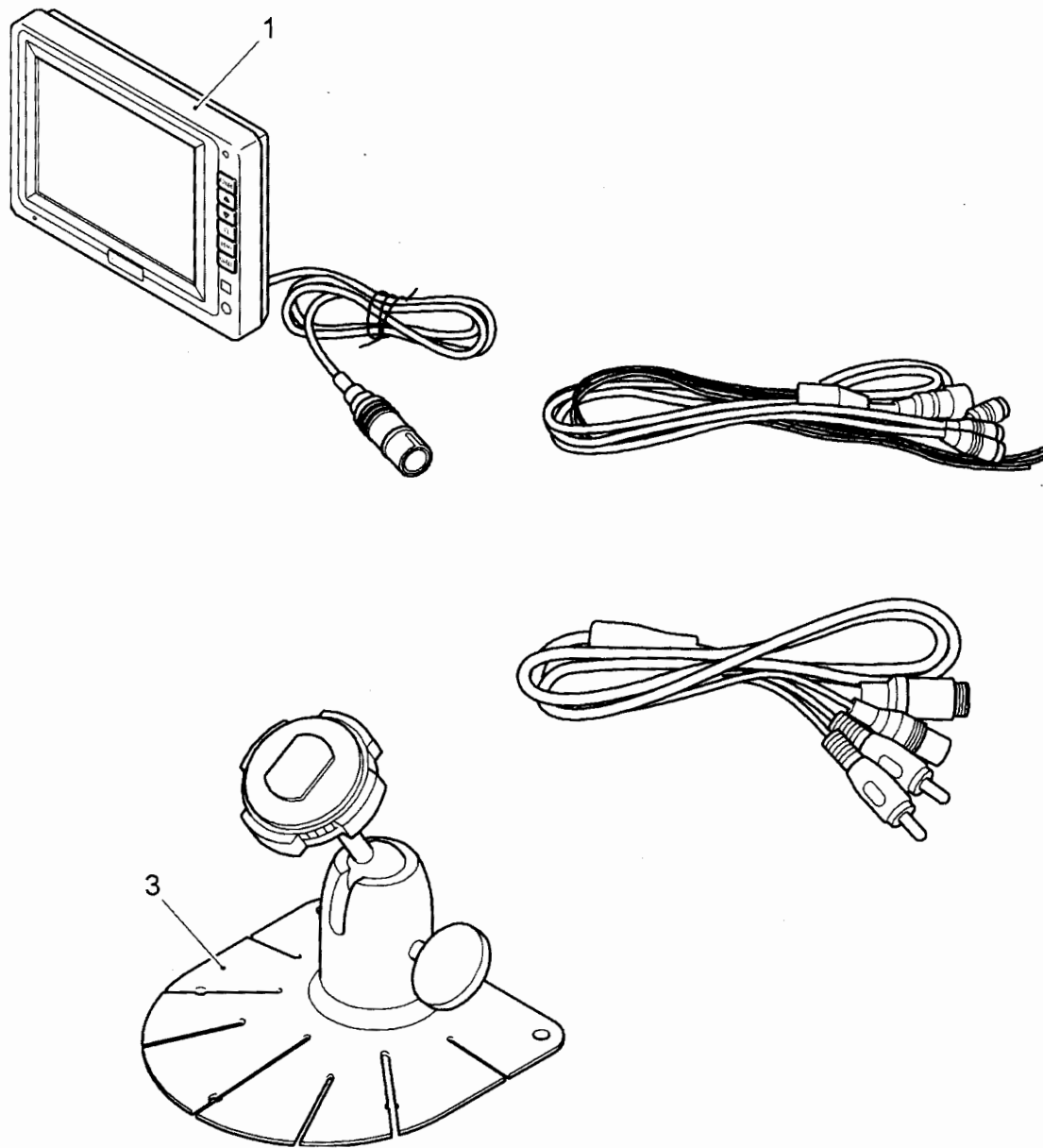


Fig 1 Monitor / Camera kit

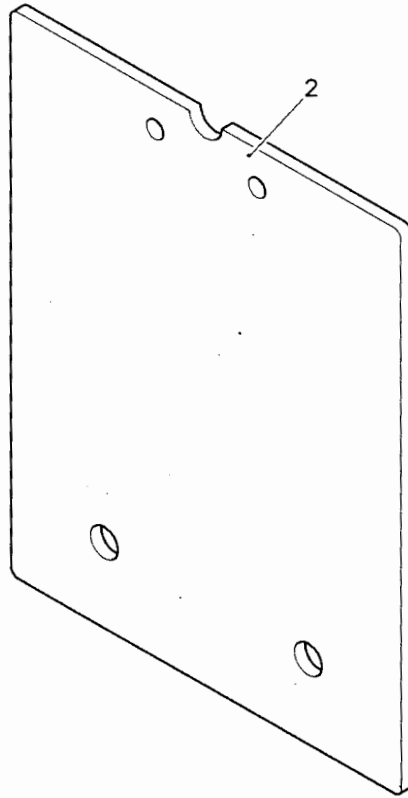


Fig 2 Camera mounting bracket

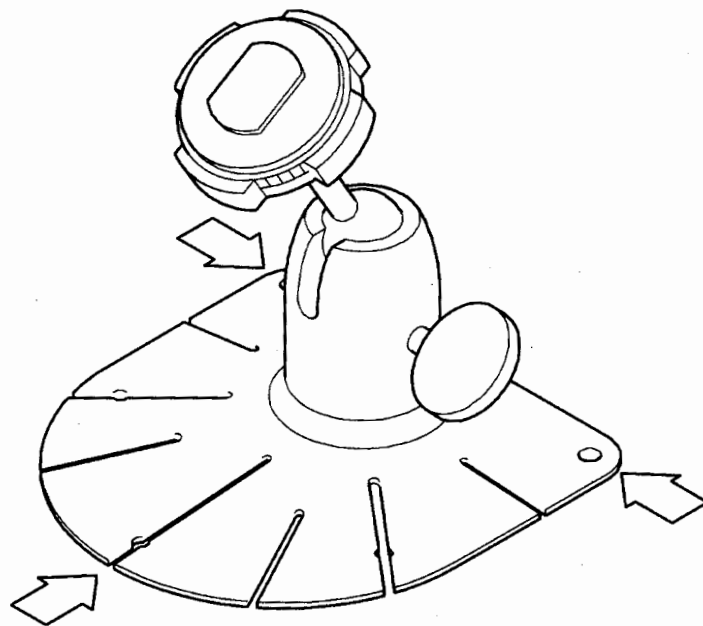


Fig 3 Monitor mounting bracket

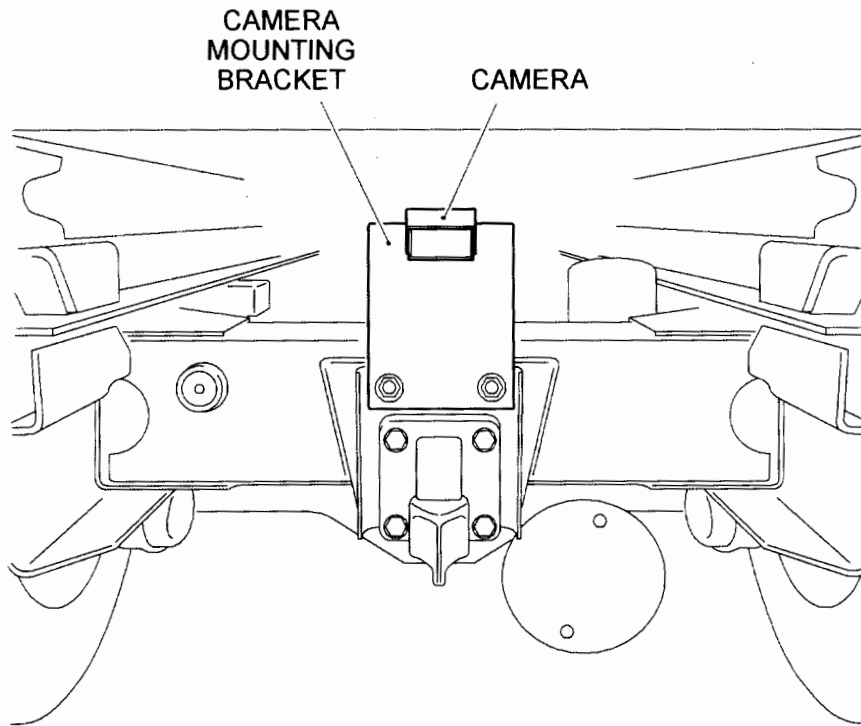


Fig 4 Camera

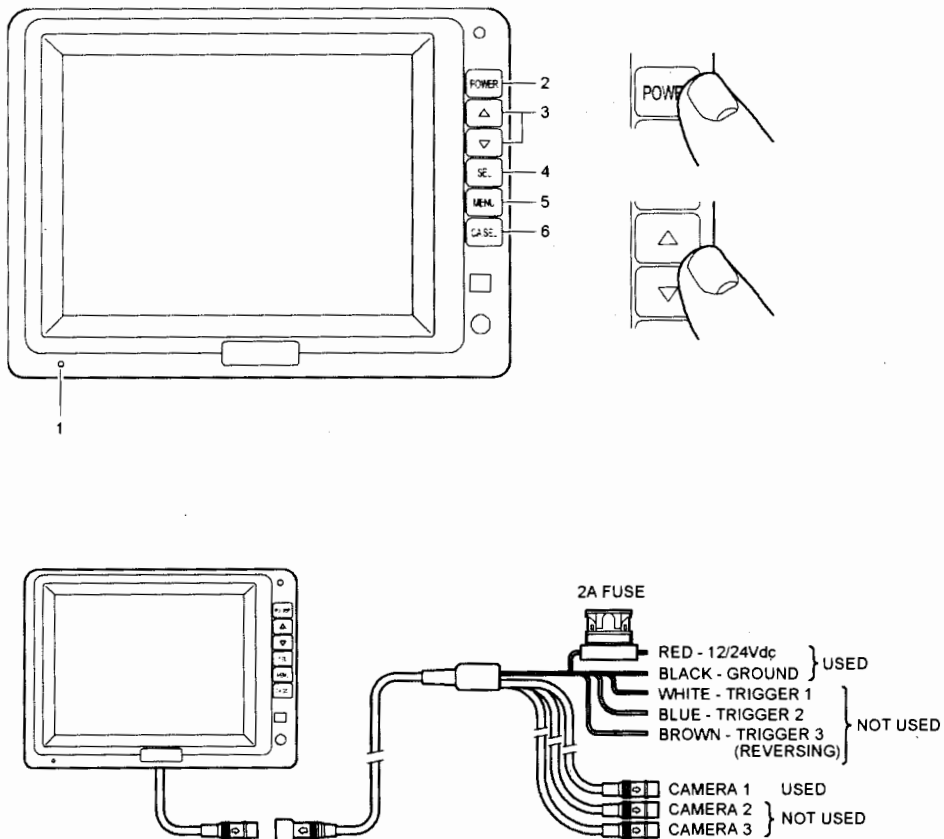


Fig 5 Monitor & wiring harness



TRUCK, 4 TONNE, 4X4 GS LEYLAND DAF (ALL VARIANTS)

OPERATING INFORMATION

**Sponsored for use in the
UNITED KINGDOM MINISTRY OF DEFENCE
AND ARMED FORCES
by**

**DEFENCE EQUIPMENT & SUPPORT
GENERAL SUPPORT VEHICLE PROJECT TEAM**

**MOD Abbey Wood
Bristol
BS34 8JH**

Publication Authority:

GENERAL SUPPORT VEHICLE PROJECT TEAM

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OPERATING INFORMATION

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- 2-1 Controls and switches - GS Cargo Winch Variant
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- 2-5 Controls and switches - Crane Variant with Tyre Handler
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- 7 AFDV Variant (Euro 2)
- 8 Destruction of equipment

PREFACE

Sponsor: GSV IPT
Project No.:
File Ref:

Publication Authority: DGS&E-TIG

INTRODUCTION

1 Service users should forward any comments on this publication through the channels prescribed in Army Equipment Support Publication (AESP) 0100-P-011-013. An AESP Form 10 is provided at the end of this publication; it should be photocopied and used for forwarding comments on this AESP.

2 AESPs are issued under UK MoD authority and where AESPs specify action is to be taken, the AESP will of itself be sufficient authority for such action and also for the demanding of the necessary stores, subject to the provisions of Para 3 below.

3 The subject matter of this publication may be affected by Defence Instructions and Notices (DIN), Standard Operating Procedures (SOP) or by local regulations. When any such instruction, Order or Regulation contradicts any portion of this publication it is to be taken as the overriding authority.

RELATED AND ASSOCIATED PUBLICATIONS**Related publications**

4 The Octad for the subject equipment consists of the publications shown opposite. All references are prefixed with the first eight digits of this publication. The availability of the publications can be checked by reference to the relevant Group Index (see AESP 0100-A-001-013).

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		1 User/ Operator	2 Unit Maintenance	3 Field Maintenance	4 Base Maintenance	
1	0	Purpose and Planning Information	101	101	101	101
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	2	Preparation for Special Environments	421	421	423	*
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	2	Maintenance Instructions	*	522	523	*
	3	Inspection Standards	*	532	533	*
	4	Calibration Procedures	*	*	*	*
6		Maintenance Schedule	601	601	601	601
7	1	Illustrated Parts Catalogue	711	711	711	711
	2	Commercial Parts List	*	*	*	*
	3	Complete Equipment Schedule, Production	*	*	*	*
	4	Complete Equipment Schedule, Service Edition (Simple Equipment)	741	741	741	741
	5	Complete Equipment Schedule, Service Edition (Complex Equipment)	*	*	*	*
8	1	Modification Instructions	811	811	811	811
	2	General Instructions, Special Technical Instructions and Servicing Instructions	821	821	821	821
	3	Service Engineered Modification Instructions (RAF only)	831	831	831	831

* Category/sub-category not published

Associated publications

- 5 The following associated publications should be read in conjunction with this category:

<u>Reference</u>	<u>Title</u>
2320-H-250	Airportable Fuel Dispensing Vehicle (AFDV)
2320-N-250-201	Truck, Fuel Servicing, 15,300 Ltr, 6 x 4, Low Mobility, Out of Areas, Air Portable (Chap 2-1 covers heater, water and ratio (HWR) Unit)
2590-N-105	Wheel and Tyre Changer for DROPS, IMMLC (fitted to Truck, 4 Tonne, 4 x 4, Leyland)
2910-F-101-302	CAV Fuel injection pump DPS

WARNINGS AND CAUTIONS**WARNINGS**

- 6 The following WARNINGS are applicable to this category.

- (1) **DO NOT CARRY START PILOT CANISTERS IN THE CAB.**
- (2) **DO NOT EXPOSE START PILOT CANISTERS TO A NAKED FLAME, SPARK OR ANY INTENSE HEAT SOURCE.**
- (3) **ENSURE THAT ALL PERSONNEL ARE KEPT CLEAR OF THE AREA IMMEDIATELY IN FRONT OF THE VEHICLE WHEN TILTING THE CAB AND THAT THERE IS ADEQUATE CLEARANCE IN FRONT AND ABOVE THE CAB.**
- (4) **DO NOT REMOVE THE PRESSURE OR FILLER CAPS FROM THE COOLING SYSTEM HEADER TANK WHILST THE ENGINE IS RUNNING OR WHEN THE SYSTEM IS HOT.**

CAUTIONS

- 7 There are no CAUTIONS applicable to this category.

ABBREVIATIONS AND SYMBOLS**ABBREVIATIONS**

- 8 The following abbreviations are used in this category:

AESP	Army Equipment Support Publication
BFPO	British Forces Post Office
DGS&E-TIG	Director General Safety and Engineering-Technical Information Group
DIN	Defence Instructions and Notices
FRACAS	Failure Reporting Analysis and Corrective Action System
GSV IPT	General Support Vehicle Integrated Project Team
MoD	Ministry of Defence
SOP	Standard Operating Procedures
UK	United Kingdom

SYMBOLS

- 9 There are no symbols applicable to this category.

CHAPTER 1
GENERAL DESCRIPTION
CONTENTS

Para

- 1 Introduction
- 2 Engine
- 3 Clutch
- 4 Main gearbox
- 5 Front axle
- 6 Rear axle
- 7 Transfer gearbox
- 8 Steering
- 9 Suspension - front
- 10 Suspension - rear
- 11 Brakes
- 12 Electrical system
- 13 Winch
- 14 Crane

INTRODUCTION

1 The Leyland DAF 4 tonne vehicle is a permanent four wheel drive logistic vehicle with a payload of 4.2 tonnes. It is designed to carry either three NATO pallets, three unit load containers, one ten foot ISO container or a CB 300 series container. It can be supplied with a 55 kN capacity winch or a 6.3 tonne/metre crane. The vehicle is available in either left-hand or right-hand drive.

ENGINE

2 The Leyland 300 series diesel engine is a six cylinder turbocharged four stroke, direct injection type. Lubrication of the engine is by an internal rotary type oil pump. Oil filtration is by a single flow filter element which is fitted to the oil cooler.

CLUTCH

3 The clutch unit is a self adjusting, single plate, diaphragm spring type and is operated hydraulically with air assistance.

MAIN GEARBOX

4 The five-speed main gearbox has synchromesh engagement on all forward gears, with a constant mesh reverse gear.

FRONT AXLE

5 The drive to the front wheels is transmitted through a spiral bevel pinion/crown wheel differential unit. Drive is then transmitted from the differential unit to each hub by a drive shaft incorporating a Tracta joint.

REAR AXLE

6 The drive to the rear wheels is transmitted through a spiral bevel pinion/crown wheel differential unit to the hubs.

TRANSFER GEARBOX

7 The transfer gearbox has neutral and two selective ratios suitable for all operating conditions that may be encountered. The transfer drive box differential can be locked to give positive drive to the road wheels when adverse conditions may cause wheel spin.

STEERING

8 Steering of the vehicle is by means of an integral re-circulating ball power assisted steering box.

SUSPENSION

9 The front suspension consists of two parabolic taper leaf springs and twin tubed telescopic shock absorbers.

10 Rear suspension consists of two parabolic taper leaf springs incorporating a helper spring and twin tubed telescopic shock absorbers.

BRAKES

11 The service (foot) brake comprises two separate circuits, one operating the front service brakes and the other the rear service brakes. In the event of one circuit failing, the other circuit will remain operative, thus preventing total brake failure. A handbrake control operates the front and rear spring brake actuators. The air system incorporates two air line couplings for trailer brake operation.

ELECTRICAL SYSTEM

12 The vehicle has a 24 volt wired insulated return electrical circuit with all circuits, with the exception of the charging system and starter motor circuits, fuse protected.

WINCH

13 The winch is hydraulically operated and is powered by a Power Take-Off (PTO) and a hydraulic pump mounted to the rear of the main gearbox.

CRANE

14 The crane is hydraulically operated and is powered by a PTO and a hydraulic pump mounted to the rear of the main gearbox.

CHAPTER 2
CONTROLS AND SWITCHES - GS CARGO

CONTENTS

Para

- 1 Introduction
- 2 Handbrake control (WARNING)
- 3 Independent trailer brake control valve (WARNING)
- 4 Supplementary spring brake release control (WARNING)
- 5 Main gearbox change-speed lever
- 6 Transfer gearbox
- 7 Inter-axle differential lock control (CAUTION)
- 8 Heating and ventilation controls (CAUTION)
- 9 Cab door locks and controls
- 14 Driver's seat (WARNING)
- 15 Seat belts (WARNINGS)
- 18 Observation hatch (WARNINGS)
- 19 Front access panel
- 20 Steering column controls
- 23 Exterior battery isolation switch
- 24 Instrument panel switches
Centre console switches
- 31 Earth leakage test switch (WARNING)
- 32 Remote battery isolation switch (CAUTION)
- 33 Fan blower switch (CAUTION)
- 34 Trailer electrics re-set switch (WARNING)
- 35 Instruments
- 41 Warning lights

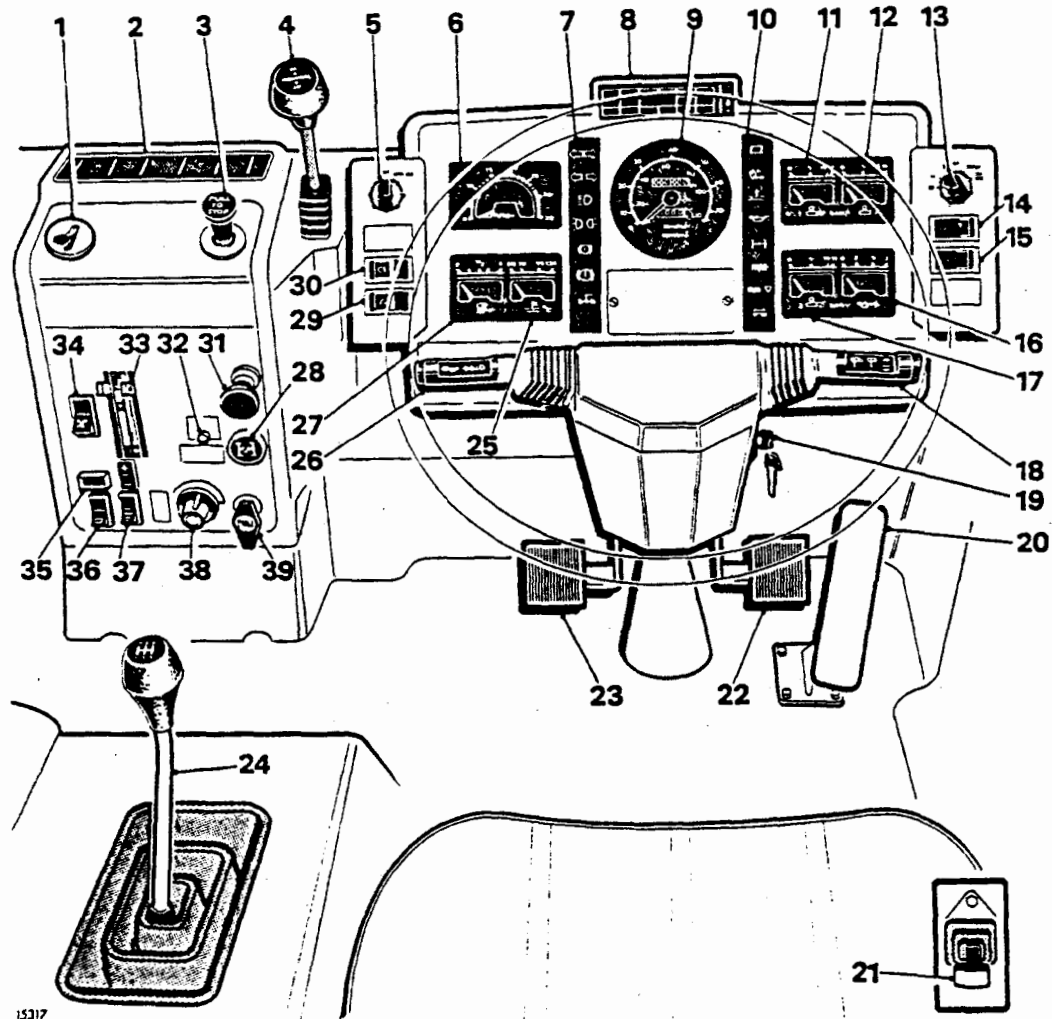
Fig

Page

1	Cab layout	2
2	Handbrake control	3
3	Independent trailer brake control valve	3
4	Supplementary spring brake release control	4
5	Main gearbox change-speed pattern	4
6	Transfer gearbox lever	5
7	Inter-axle differential lock control	5
8	Heating and ventilation controls	6
9	Cab door locks and controls	7
10	Driver's seat controls	8
11	Seat belts	9
12	Observation hatch	10
13	Front access panel	10
14	Steering column controls	11
15	Exterior battery isolation switch	12
16	Instrument panel switches	13
17	Rear mounted floodlights	14
18	Centre console switches	15
19	Instruments	17
20	Instrument panel warning lights	19/20

INTRODUCTION

- 1 The driving controls, switches and instruments for the GS cargo vehicle are shown in Fig 1.



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- | | | | |
|----|-----------------------------------|----|--|
| 1 | Independent trailer brake control | 21 | Handbrake control |
| 2 | Windscreen demist vent | 22 | Brake pedal |
| 3 | Engine stop control | 23 | Clutch pedal |
| 4 | Transfer gearbox gear lever | 24 | Gear lever |
| 5 | Infra-red light switch | 25 | Temperature gauge |
| 6 | Tachometer | 26 | Direction indicators, headlights and horn switch |
| 7 | Warning lights | 27 | Fuel gauge |
| 8 | Air ventilator | 28 | Inter-axle differential lock |
| 9 | Speedometer | 29 | Hazard warning light switch |
| 10 | Warning lights | 30 | Rear fog light switch |
| 11 | Air gauge '1' | 31 | Supplementary spring brake release |
| 12 | Air gauge '2' | 32 | Trailer electrics re-set switch |
| 13 | Lighting switch | 33 | Heater controls |
| 14 | Warning light test switch | 34 | Fan blower switch |
| 15 | Panel light switch | 35 | 2-pin inspection socket |
| 16 | Oil pressure gauge | 36 | Remote battery isolation switch |
| 17 | Air gauge '3' | 37 | Earth leakage test switch |
| 18 | Windscreen wiper/washer switch | 38 | Heater flap control |
| 19 | Master/start key switch | 39 | Cold start plunger |
| 20 | Accelerator pedal | | |

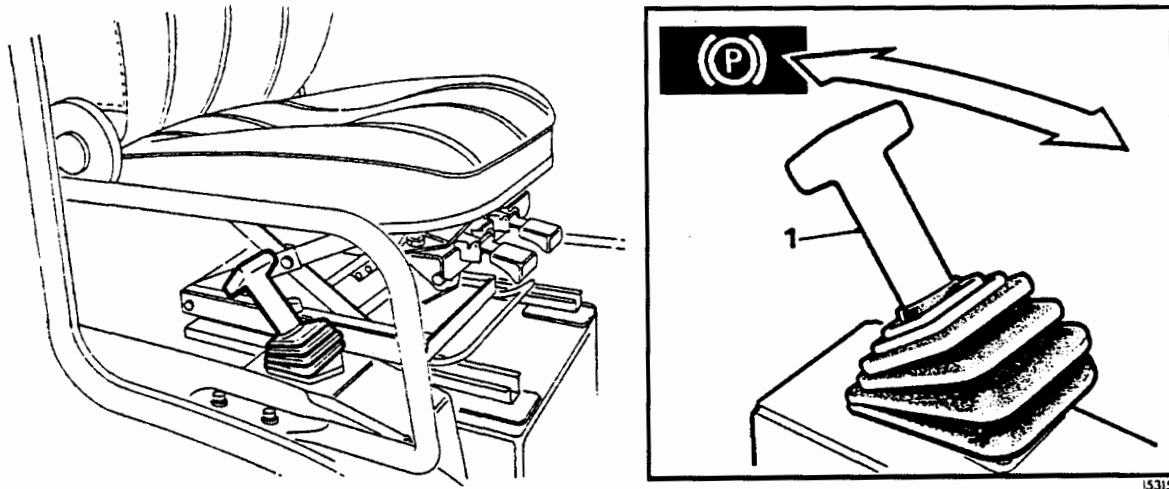
Fig 1 Cab layout

HANDBRAKE CONTROL

WARNING

IN THE EVENT OF THE SERVICE (FOOT) BRAKE BECOMING INOPERATIVE THE HANDBRAKE CONTROL CAN BE USED FOR EMERGENCY BRAKING BY GRADUALLY MOVING THE CONTROL LEVER REARWARD UNTIL IT ABUTS THE STOP; BRAKING EFFORT WILL BE PROPORTIONAL TO CONTROL LEVER MOVEMENT.

2 The handbrake control (Fig 2) is used to apply the spring brake actuators on the front and rear axles for parking and to provide an emergency method of applying the brakes in the event of the service (foot) brake becoming inoperative.



1 Control lever

Fig 2 Handbrake control

INDEPENDENT TRAILER BRAKE CONTROL VALVE

WARNING

THE TRAILER BRAKE MUST NOT BE LEFT PARKED ON AIR PRESSURE BRAKING ONLY; THE MECHANICAL TRAILER BRAKE MUST ALWAYS BE APPLIED.

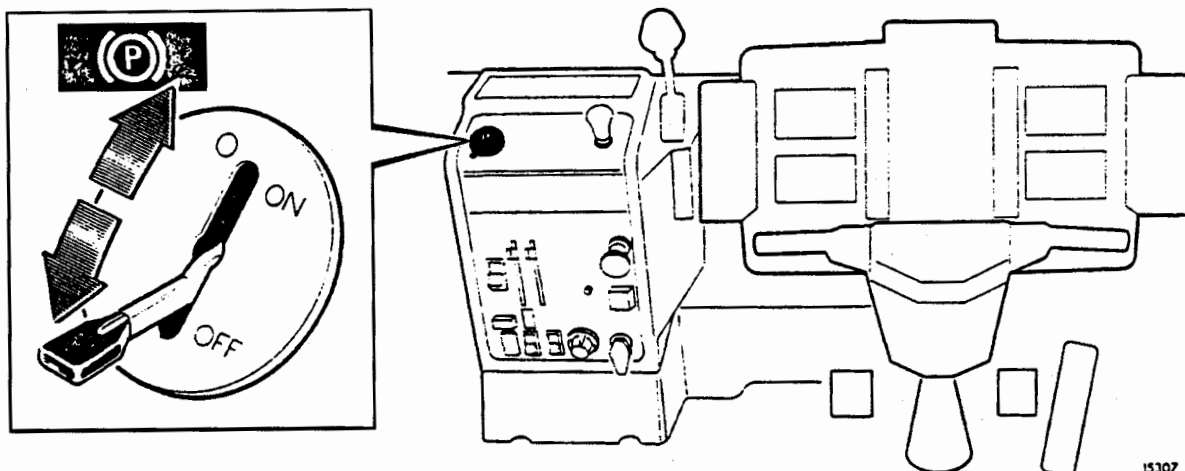


Fig 3 Independent trailer brake control valve

3 The independent trailer brake control valve (Fig 3) is used to apply the trailer service brakes, allowing the driver to leave the cab and apply the trailer mechanical brake. This braking control can also be used in conjunction with the vehicle handbrake control to increase the parking capability of the vehicle/trailer combination on soft ground /inclines.

SUPPLEMENTARY SPRING BRAKE RELEASE CONTROL

WARNING

PERSONAL INJURY. TO AVOID INAPPROPRIATE USE OF THIS CONTROL, PASSENGERS MUST BE SUPERVISED AT ALL TIMES BY THE DRIVER.

4 The supplementary spring brake release control (Fig 4) is used to release the spring brake actuators in the event of an air supply failure in the parking brake system.

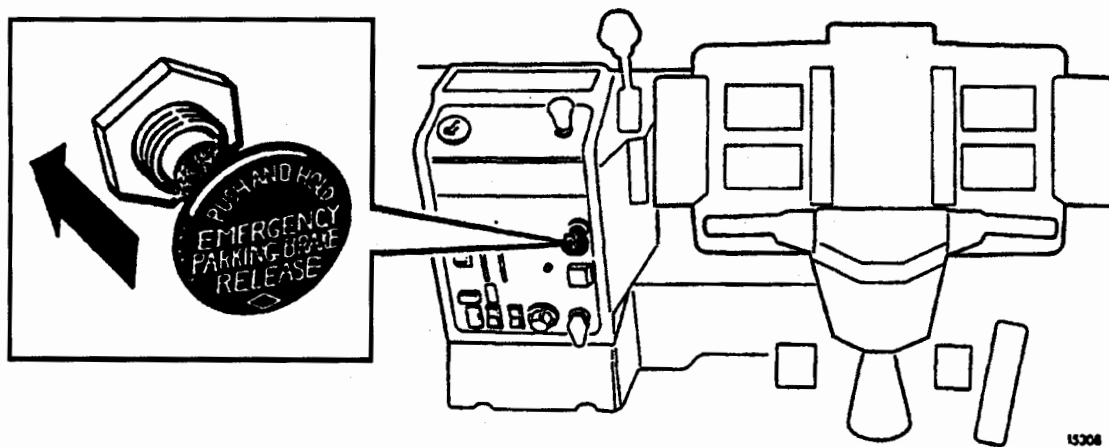


Fig 4 Supplementary spring brake release control

MAIN GEARBOX CHANGE-SPEED LEVER

5 The five-speed main gearbox has synchromesh engagement on all forward gears. Move the gear lever to the left, against spring pressure, to engage 1st and reverse gears; reverse gear must only be engaged when the vehicle is stationary

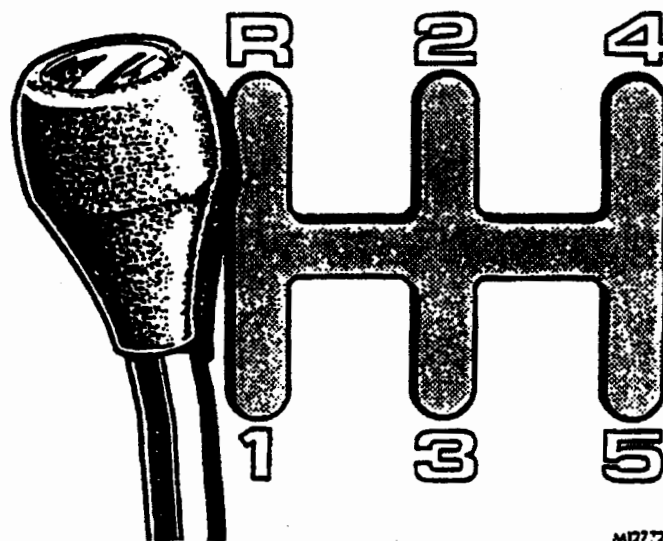


Fig 5 Main gearbox change-speed pattern

TRANSFER GEARBOX

6 The transfer gearbox has two selective ratios and is therefore suitable for all operating conditions that may be encountered.

- 6.1 High ratio: Normal highway and suitable off-highway motoring.
- 6.2 Low ratio: Off-highway motoring and severe gradients.

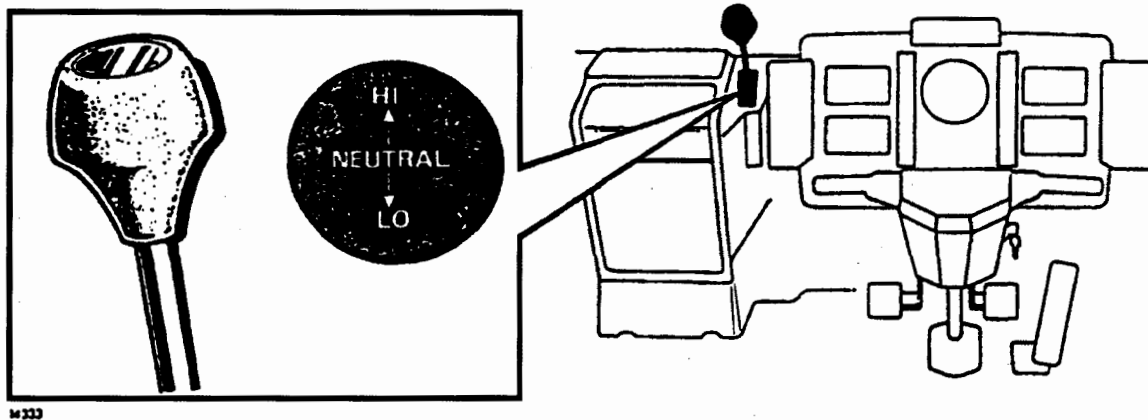


Fig 6 Transfer gearbox lever

INTER-AXLE DIFFERENTIAL LOCK CONTROL

CAUTION

The differential lock should not be engaged for long periods where normal tyre adhesion exists; failure to observe this precaution will result in premature tyre wear and damage to the transmission system.

7 Depress the control to engage the differential lock if traction is lost, if necessary, depress the clutch pedal to aid engagement of the differential lock. An amber warning light on the instrument panel will illuminate and the warning buzzer will sound intermittently whilst the differential lock is engaged.

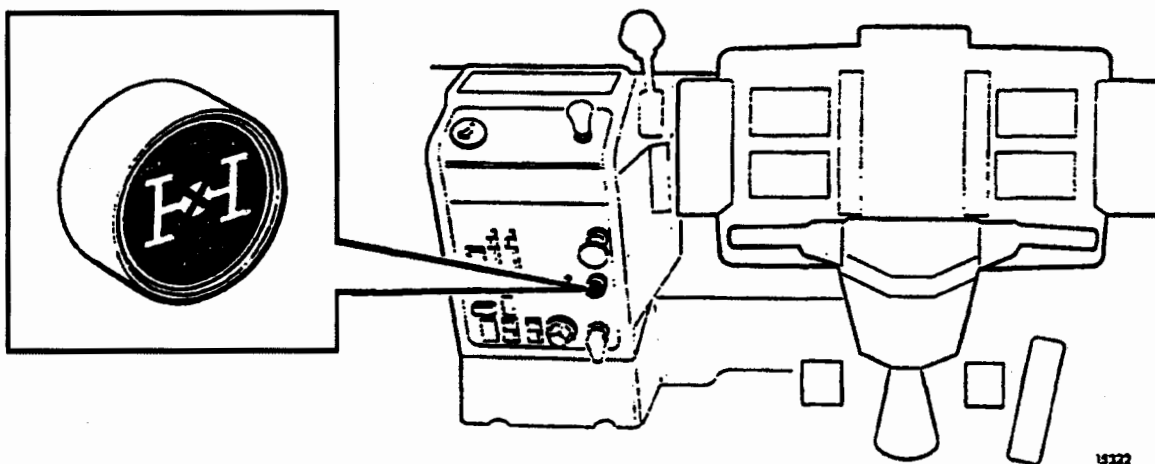


Fig 7 Inter-axle differential lock control

HEATING AND VENTILATION CONTROLS

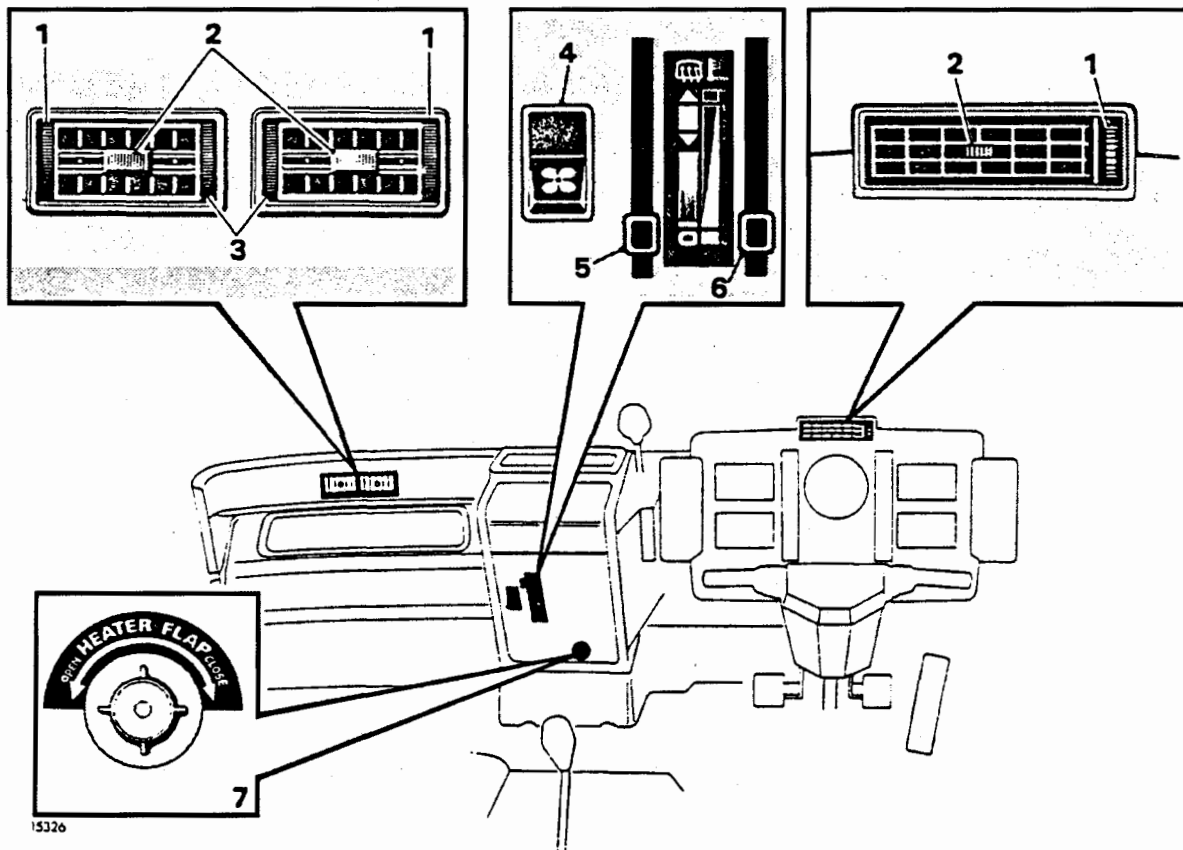
8 The heating and ventilation controls (Fig 8) will enable the driver to select the desired heat and ventilation mode to suit prevailing weather conditions. The operation of the controls is as follows:

CAUTION

Do not operate the fan blower with the heater flap in the 'CLOSE' position.

8.1 Air Distribution Control (5). This sliding control distributes the air flow onto the windscreen or within the cab interior. Slide the control up to direct the air flow onto the windscreen and to close the outlet to the cab interior. Slide the control down to the central position to direct the air flow to the cab interior; push the control fully downwards to switch the air distribution off.

8.2 Temperature Control (6). Slide the temperature control up to obtain a hot air supply and, conversely, slide the control down to obtain a cool air supply.



- | | | | |
|---|----------------------------|---|--------------------------|
| 1 | Control knob - on/off | 5 | Air distribution control |
| 2 | Louvre control - direction | 6 | Temperature control |
| 3 | Control knob - direction | 7 | Heater flap control |
| 4 | Fan blower switch | | |

Fig 8 Heating and ventilation controls

8.3 Air Ventilator. Open or close the air ventilator by rotating the control knob (1). Adjust the direction of the air flow by sliding the louvre control (2) and, on the passenger air vent, rotating the control knob (3) to the desired position.

8.4 Heater Flap Control (7). The heater flap control operates the heater flap on the fan blower moulding. During normal driving conditions set the control knob to the 'OPEN' position. For wading conditions, rotate the control knob fully clockwise to the 'CLOSE' position; rotate the control knob to the 'OPEN' position when the wading operation is completed.

CAB DOOR LOCKS AND CONTROLS

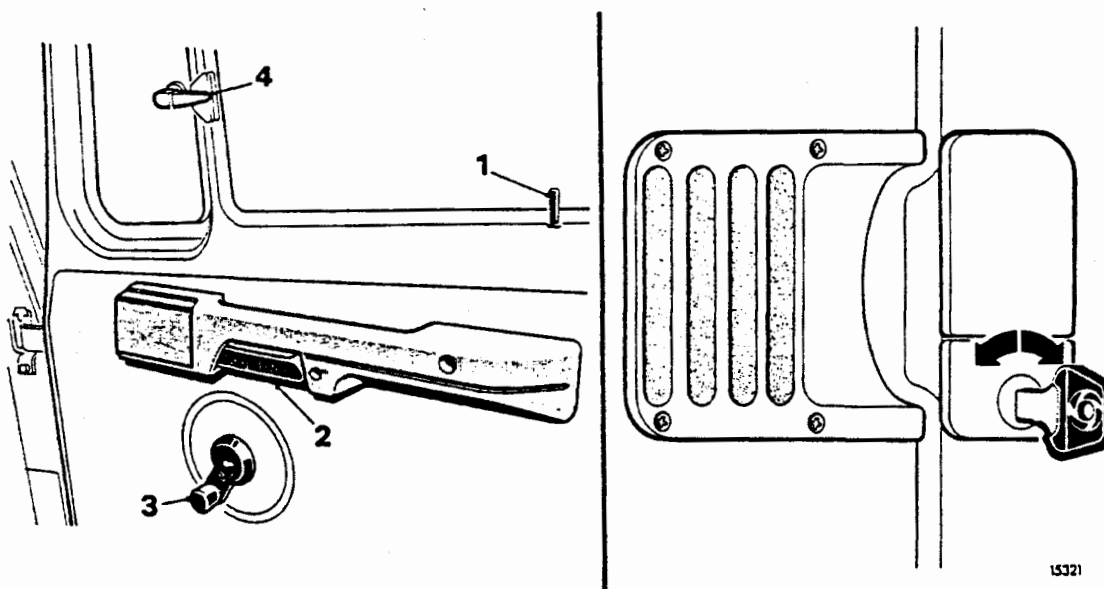
9 External Door Lock. To unlock, insert the key into the lock and turn it clockwise (Right Hand (RH) door) or anti-clockwise (Left Hand (LH) door), return it to the central position and withdraw the key. Pull the handle to open the door.

10 Interior Door Lock (Fig 9 (1)). Press the control downwards to lock the door.

11 Door Handle (2). Lift the door handle upwards to release the door catch.

12 Window Regulator (3). Rotate the window regulator in the appropriate direction to open or close the window.

13 Quarter Ventilator Release Handle (4). Depress the button to unlock the release handle.



- | | |
|----------------------|-------------------------------------|
| 1 Interior door lock | 3 Window regulator |
| 2 Door handle | 4 Quarter ventilator release handle |

Fig 9 Cab door locks and controls

DRIVER'S SEAT

WARNING

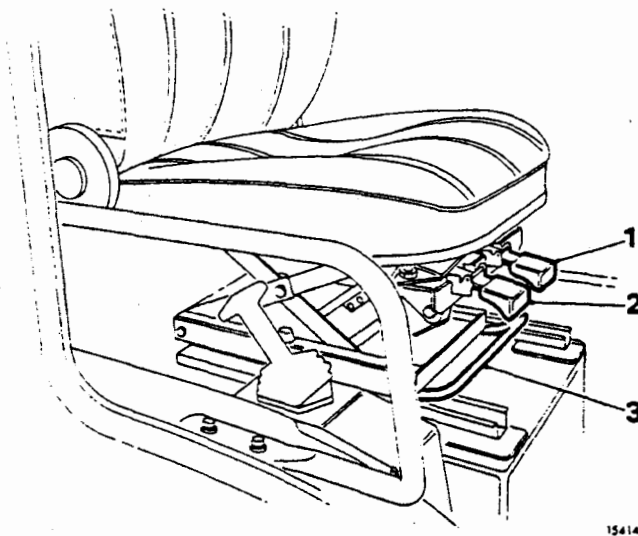
THE DRIVER'S SEAT MUST ONLY BE ADJUSTED WHILST THE VEHICLE IS STATIONARY; DO NOT ATTEMPT TO ADJUST THE SEAT WHILST THE VEHICLE IS IN MOTION.

14 The driver's seat is fully adjustable and, by using the following controls, will enable the driver to select the desired driving position.

14.1 Squab Adjustment. Lift the control handle (Fig 10 (1)) upwards to select the required seat squab recline position.

14.2 Height Adjustment. Lift the control handle upwards to select the required seat height.

14.3 Fore/Aft Adjustment. Lift the control bar (3) upwards and slide the seat forwards or rearwards to the required position; release the control bar and check that the seat is secured in position.



- | | | | |
|---|----------------------------------|---|---------------------------------|
| 1 | Squab adjustment control handle | 3 | Fore/aft adjustment control bar |
| 2 | Height adjustment control handle | | |

Fig 10 Driver's seat controls

SEAT BELTS

15 The seat belts (Fig 11) are of the diagonal/lap self-adjusting type with an adjustable centre lap belt.

WARNINGS

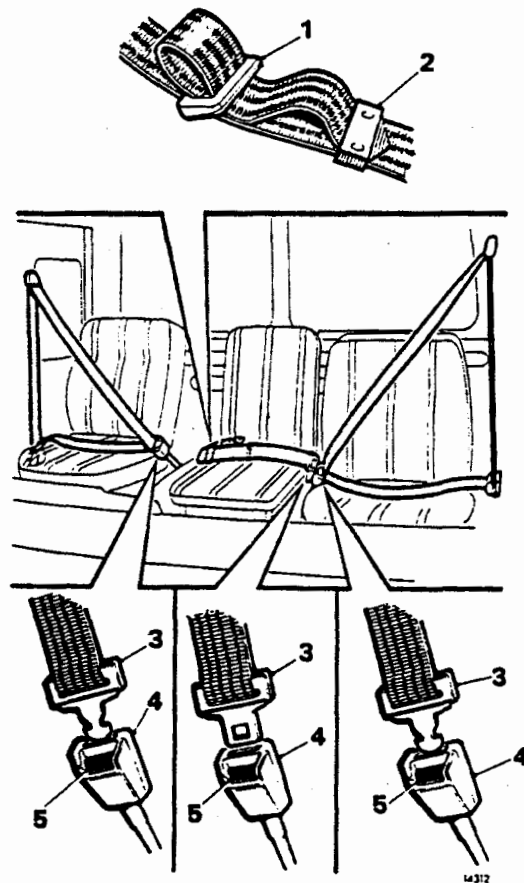
- (1) **DO NOT USE A SEAT BELT FOR MORE THAN ONE PERSON.**
- (2) **BEFORE FITTING A SEAT BELT, ENSURE THAT THE WEBBING IS NOT TWISTED, LOOPED OR OBSTRUCTED IN ANY WAY THAT COULD IMPAIR THE FUNCTION OF THE OPERATING MECHANISM.**
- (3) **IN THE INTERESTS OF SAFETY, ENSURE THAT THE SEAT BELTS ARE REGULARLY INSPECTED FOR WEAR OR DAMAGE AND THAT THE OPERATING MECHANISMS ARE FUNCTIONING CORRECTLY.**

16 Driver's and Outer Passenger Seat Belts. To fasten, pull the tongue (3) of the belt over the shoulder and insert it into the lock (4); an audible 'click' will signify that the belt tongue is correctly locked. To release, press the lock button (5) and allow the belt to retract to its stowed position.

17 Centre Seat Belt. To fasten, pull the tongue of the belt across the lap and insert it into the lock; an audible 'click' will signify that the belt tongue is correctly locked.

17.1 To adjust the belt, slide the adjuster (2) along the belt, feeding the webbing through the buckle (1) until the belt is taut and comfortable across the lap.

17.2 Press the lock button to release the belt tongue from the lock. Insert the tongue into the lock to stow the belt when not in use.



- | | | | |
|---|----------------------|---|-------------|
| 1 | Buckle (centre belt) | 4 | Lock |
| 2 | Adjuster | 5 | Lock button |
| 3 | Tongue | | |

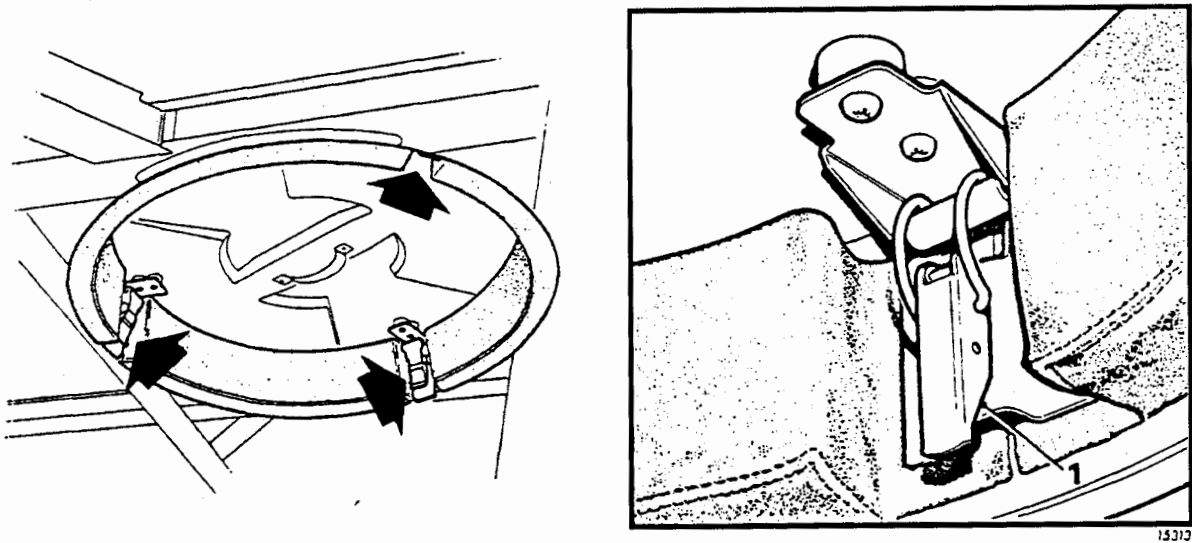
Fig 11 Seat belts

OBSERVATION HATCH

WARNINGS

- (1) DO NOT ATTEMPT TO REMOVE THE OBSERVATION HATCH WHILST THE VEHICLE IS IN MOTION.
- (2) WHEN FITTING THE OBSERVATION HATCH ENSURE THAT THE TOGGLE CLIPS ARE CORRECTLY LOCATED.

18 The observation hatch (Fig 12) is situated in the centre of the roof panel. To remove, release the three toggle clips (1) and push the hatch upwards. A bracket is provided at the rear of the cab exterior to stow the hatch when removed.

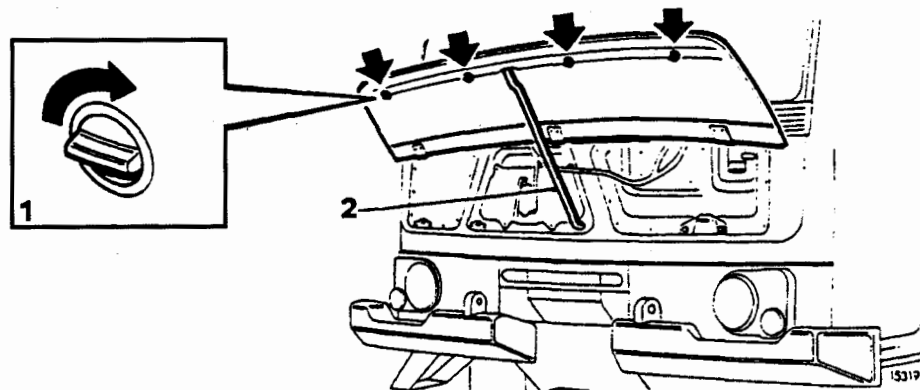


1 Toggle clip

Fig 12 Observation hatch

FRONT ACCESS PANEL

19 Unlock the four quick release fasteners (Fig 13 (1)) and raise the front access panel; the access panel is held in the upright position by the support stay (2). To close, release and stow the support stay. Lower the access panel into position and then gently push the access panel until the quick release fasteners are heard to engage.



1 Quick release fastener

2 Support stay

Fig 13 Front access panel

STEERING COLUMN CONTROLS

20 Master/start Key Switch. The master/start key switch (Fig 14 (3)) operates the auxiliary, ignition and starter motor circuits.

Off position - Ignition and auxiliary circuits switched off.

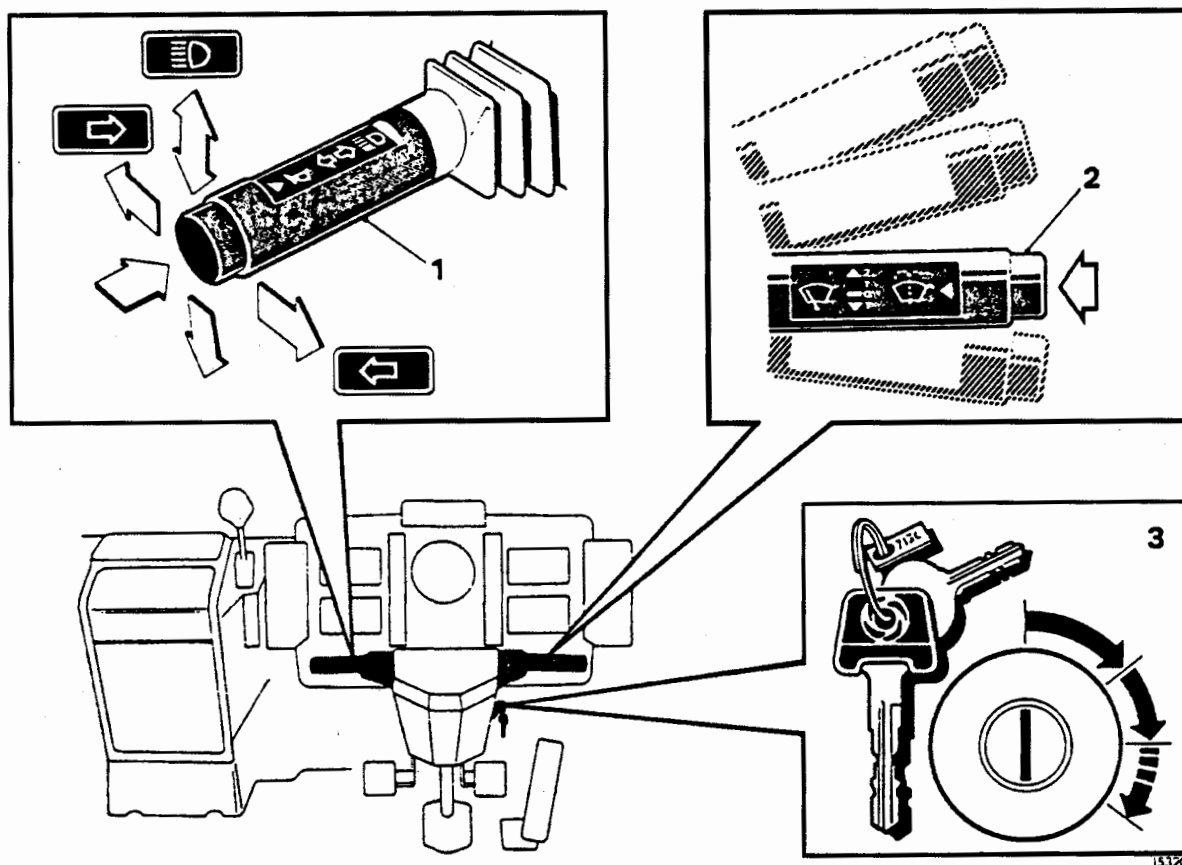
1st position - Auxiliary circuit energised; heater blower, windscreen wiper and washer pump can be operated.

2nd position - Ignition circuit energised; appropriate warning lights, gauges and instruments will register and the warning buzzer will sound. All electrical circuits can be operated.

3rd position - Operates the starter motor; the master/start key will automatically return to the 2nd position when released.

21 Direction Indicators/Headlights/Horn Switch. Move the lever (1) anti-clockwise to actuate the LH indicators and clockwise to activate the right-hand indicators; a green warning light on the instrument panel will illuminate intermittently until the lever automatically returns to the central position. From the central position (headlight dipped beam) move the lever away from the steering wheel to energise the headlight main beam; a blue warning light on the instrument panel will illuminate when the headlight main beam is energised. Pull the lever towards the steering wheel to 'flash' the headlights. Depress the end of the lever to operate the horn.

22 Windscreen Wipers and Washers Switch. Move the lever (2) clockwise and then release to obtain a single wipe. Move the lever anti-clockwise to the first position for normal wipe operation and further movement to the second position for fast wipe operation. Depress the end of the lever to activate the windscreen washers.

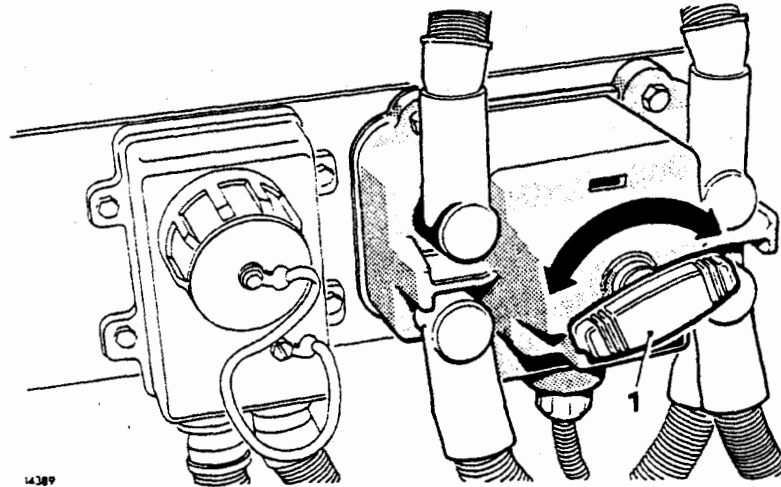


- 1 Direction indicators/headlights/horn switch
- 2 Windscreen wipers and washers switch
- 3 Master/start key switch

Fig 14 Steering column controls

EXTERIOR BATTERY ISOLATION SWITCH

23 The exterior battery isolation switch (Fig 15) is mounted on the LH side of the chassis frame adjacent to the battery carrier. When the battery isolation handle (1) is rotated anti-clockwise to the 'OFF' position, the complete vehicle electrical system will be rendered inoperative. The vehicle electrical system can only be re-energised by rotating the battery isolation handle clockwise to the 'ON' position.



1 Battery isolation handle

Fig 15 Exterior battery isolation switch

INSTRUMENT PANEL SWITCHES

24 Master Lighting Switch (Fig 16 (1)). The six position rotary switch has a normal lighting and blackout mode function. The switch is operated as follows:

NOTE

To change from one mode to another (e.g. 'Blackout' to 'Normal' mode), pull and then rotate the master lighting switch in the appropriate direction to the required mode.

24.1 Normal mode. Rotate the switch anti-clockwise from the 'O' position to energise the side and rear lights; the headlights will also illuminate in the 'dim' mode when the ignition circuits are energised and the engine is running. Continue rotating the switch to energise the headlights.

24.2 The dim-dip headlight system will automatically illuminate the headlights (dipped beam) at a reduced intensity (approximately 10% intensity) whenever the sidelights are switched on, ignition circuits energised and the engine running. The dim-dip lighting system is NOT a substitute for normal headlight applications; the dim-dip facility must be regarded and operated as conventional sidelights.

24.3 Blackout mode. Pull and rotate the switch knob clockwise from the 'O' position to the blackout 'OFF' position; this will extinguish all exterior lights, warning lights and panel lights. With the warning lights disabled in the 'Blackout' mode the warning buzzer will sound when there is a malfunction in the engine coolant temperature, oil pressure, air pressure and cab lock-down systems or whenever the differential lock is engaged.

24.4 Rotate the switch to the 2nd position to energise the convoy light. Continue rotating the switch to the 3rd position to energise the convoy light and sidelights.

25 Warning Light Test Switch (2). When pressed, the cab lock down, high temperature low oil pressure, independent trailer brake and low air pressure warning lights will illuminate and the warning buzzer will sound. The lights will extinguish and the buzzer will cease to sound when the switch is released.

26 Panel Light Switch (3). Press the switch from the off to the mid-position to illuminate the panel lights in the 'dim' mode; fully depress the switch to illuminate the panel lights at full intensity.

27 Hazard Warning Light Switch (4). Depress the switch to make all the direction indicators flash together as hazard warning lights, the red light in the switch will illuminate in conjunction with the green trailer direction indicator light in the instrument panel.

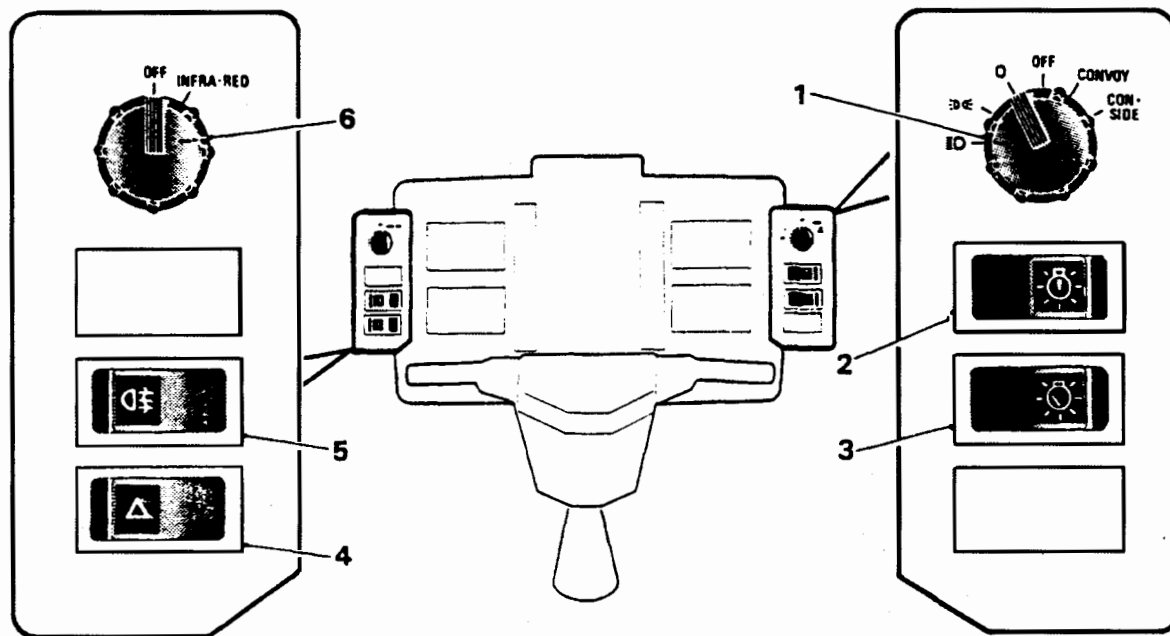
28 Rear Fog Light Switch (5). The rear fog lights can only be energised when either the front fog lights (if fitted) or headlights are operative. The fog light switch will illuminate when it is depressed and will remain illuminated whilst the rear fog lights are operative.

29 Infra-red Light Switch (6). Pull and then rotate the switch clockwise to the 'INFRA-RED' position; this will extinguish the warning lights, panel lights and exterior lights and will illuminate the headlights. With the warning lights disabled in the 'Infra-red' mode the warning buzzer will sound when there is a malfunction in the engine coolant temperature, oil pressure, air pressure and cab lock-down systems or whenever the differential lock is engaged.

30 Rear Floodlights (Fig 17). Two rear mounted floodlights (1) when fitted, are located on the back of the cab. Power is supplied via a switch (2) which is illuminated when depressed, and independent switches (3) on each lamp housing. The lamps can be detached if required.

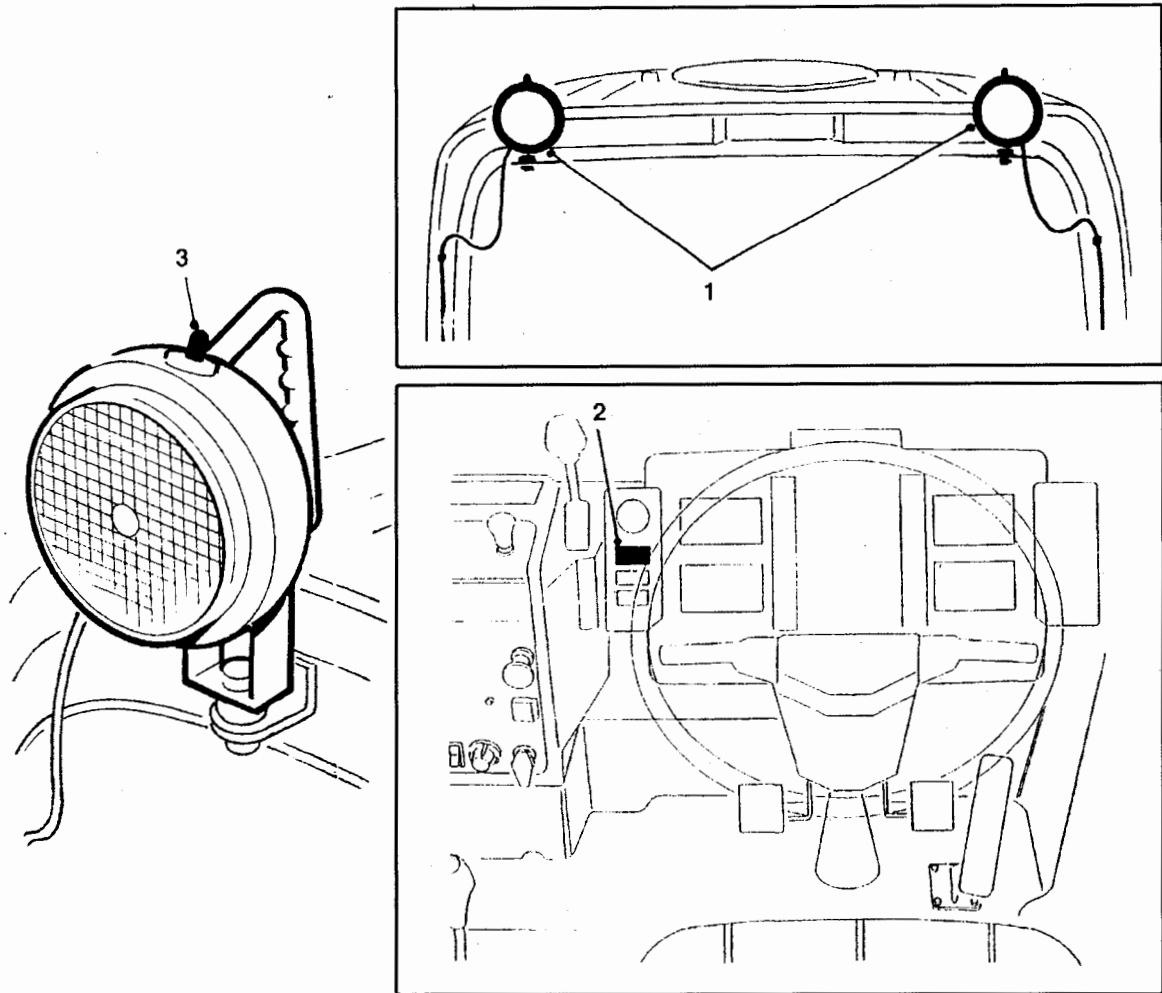
NOTE

The lamps will not operate when the vehicle is in 'blackout' mode.



- | | | | |
|---|---------------------------|---|-----------------------------|
| 1 | Master lighting switch | 4 | Hazard warning light switch |
| 2 | Warning light test switch | 5 | Rear fog light switch |
| 3 | Panel light switch | 6 | Infra-red light switch |

Fig 16 Instrument panel switches



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- 1 Floodlights
- 2 Interior light switch
- 3 Exterior light switch

Fig 17 Rear mounted floodlights

CENTRE CONSOLE SWITCHES

Earth leakage test switch

WARNING

IF AN EARTH LEAKAGE FAULT IS DETECTED, THEN THE VEHICLE MUST NOT BE PUT INTO SERVICE UNTIL THE FAULT IS IDENTIFIED AND RECTIFIED.

31 The earth leakage test switch (Fig 18 (1)) will detect negative (-) and positive (+) earth leakage faults. If the warning light, situated above the test switch, illuminates when the test switch is pressed in the positive (+) or negative (-) position, this indicates an electrical earth leakage fault.

Remote battery isolation switch (2)

CAUTION

The vehicle electrical system can only be re-energised by operating the exterior battery isolation switch.

32 Press the combined latch/rocker switch (2) to isolate the complete vehicle electrical system. To re-energise the vehicle electrical system operate the exterior battery isolation switch.

Fan blower switch

CAUTION

Do not attempt to operate the fan blower with the heater flap in the 'CLOSE' position.

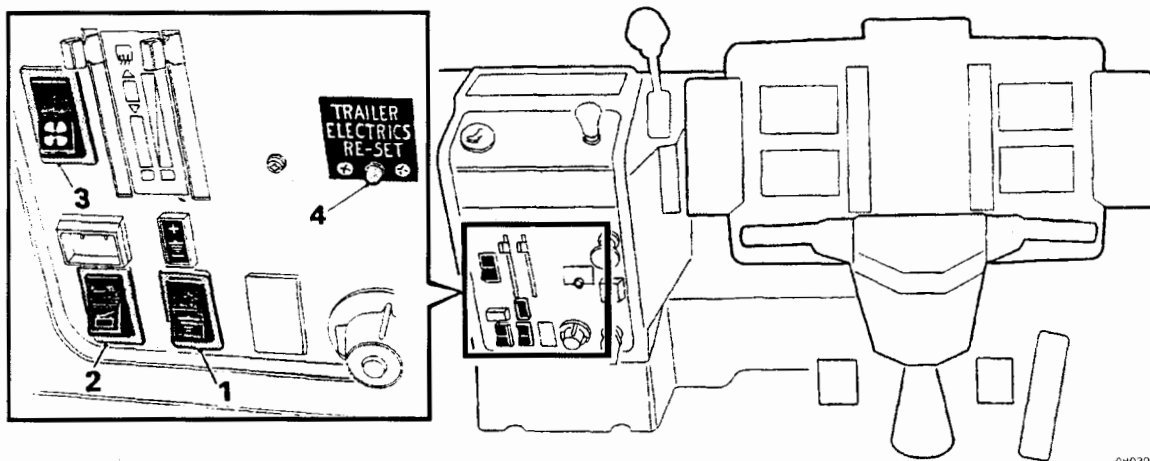
33 This switch (3) has two positions; first position will operate the fan blower at slow speed and the second position fast speed.

Trailer electrics re-set switch

WARNING

IF THE RE-SET SWITCH BUTTON 'TRIPS' A SHORT CIRCUIT OR OVERLOAD FAULT HAS OCCURRED THIS MUST BE INVESTIGATED AND RECTIFIED BEFORE RE-SETTING THE SWITCH. DO NOT ATTEMPT TO OVERRIDE THE CIRCUIT BREAKER BY CONTINUALLY DEPRESSING THE RE-SET BUTTON; FAILURE TO OBSERVE THIS PRECAUTION WILL RESULT IN SERIOUS DAMAGE OR FIRE.

34 The trailer electrics re-set switch (4) is a thermal circuit breaker which, unlike a fuse, can be re-set by depressing the switch button.



- | | | | |
|---|---------------------------------|---|---------------------------------|
| 1 | Earth leakage test switch | 3 | Fan blower switch |
| 2 | Remote battery isolation switch | 4 | Trailer electrics re-set switch |

Fig 18 Centre console switches

INSTRUMENTS

35 Tachometer (Fig 19 (8)). The tachometer indicates engine speed and is calibrated in Revolutions Per Minute (RPM) x 100. A green band is printed on the gauge face identifying the ideal engine speed range for maximum fuel economy.

35.1 Vehicles from chassis number L119988: The tachometer gauge scale is colour coded to identify the engine start up speeds (white-up to 1000 rev/min), economical engine speeds (green-1500 to 2200 rev/min), maximum engine performance (green-2200 to 2600 rev/min) and engine over speeding (red-over 2600 rev/min).

36 Speedometer (1). The speedometer is graduated in kilometres per hour (km/h) and miles per hour (mile/h), it also incorporates an odometer which records the total number of kilometres travelled. Also incorporated is a trip meter to record, if necessary, the kilometres travelled on a specific journey. Press the reset button to return the trip meter to zero.

37 Fuel gauge (7). The fuel gauge registers the amount of fuel in the tank when the ignition is switched on.

38 Coolant Temperature Gauge (6). The temperature gauge indicates the temperature of the coolant in the engine and is calibrated in degrees Celsius (°C). When the engine has attained its normal running temperature the gauge pointer should register within the white sector during normal vehicle operation.

39 Oil Pressure Gauge (4). The pressure gauge indicates the oil pressure in the engine and is calibrated in bar. When the engine has attained its normal working temperature the oil pressure gauge should register approximately 0.7 bar at engine speed and approximately 2.1 bar at normal running speed.

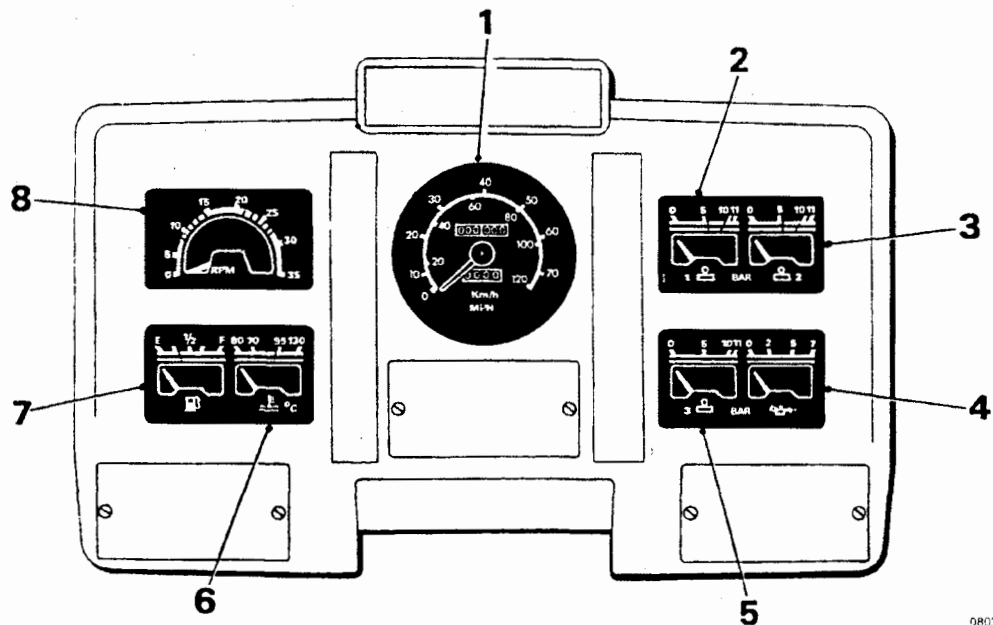
40 Air Pressure Gauges. The following air pressure gauges are calibrated in bar:

40.1 Air gauge '1' (2). This air pressure gauge monitors the air pressure available in the rear brake service reservoir.

40.2 Air gauge '2' (3). This air pressure gauge monitors the air pressure available in the front brake service reservoir.

40.3 Air gauge '3' (5). This air pressure gauge monitors the air pressure available in the trailer/park reservoir.

40.4 During normal vehicle operation the gauge pointer(s) must at all times register within the white sector, ensuring a safe and efficient vehicle braking capability.



- | | | | |
|---|------------------------|---|---------------------------|
| 1 | Speedometer | 5 | Air pressure gauge '3' |
| 2 | Air pressure gauge '1' | 6 | Coolant temperature gauge |
| 3 | Air pressure gauge '2' | 7 | Fuel gauge |
| 4 | Oil pressure gauge | 8 | Tachometer |

Fig 19 Instruments

WARNING LIGHTS

41 The warning lights (Fig 20) are colour coded and, when illuminated, indicate the level of their importance:

RED - Warning

AMBER - Caution

BLUE or GREEN - Unit operating

41.1 Charging System Warning Light (1). This red warning light will illuminate when the ignition circuits are energised and will extinguish when the engine is started and its speed increases. During normal driving conditions this warning light will illuminate when there is a malfunction in the charging system.

41.2 If the charging system warning light fails to extinguish as the engine speed increases, stop the engine and check the security/condition of the alternator drive belt and all the electrical connections in the charging circuit. If after these checks the fault persists, the reason for failure should be investigated; use of the starter and/or lights in these circumstances will rapidly discharge the batteries.

41.3 Cab Lock-down Warning Light (2). This red warning light will illuminate and a continuous warning buzzer will sound when the cab lock-down mechanism has not been correctly engaged.

41.4 High Engine Coolant Temperature Warning Light (3). This red warning light will illuminate and a continuous warning buzzer will sound when the engine coolant temperature exceeds the maximum working temperature.

41.5 Engine Oil Pressure Warning Light (4). This red warning light will illuminate and a continuous warning buzzer will sound when the engine oil pressure falls below the minimum working pressure. If this warning light illuminates whilst the engine is running, stop the engine immediately and check the engine oil level and top-up if necessary. If the oil level is not excessively low the cause of low pressure must be investigated and rectified before re-starting the engine.

41.6 Inter-Axle Differential Warning Light (5). This amber warning light will illuminate and the warning buzzer will sound intermittently when the differential lock is engaged.

41.7 Winch Warning Light (6). The amber warning light will illuminate when the winch clutch is disengaged.

41.8 Winch Overload Warning Light (7). This red warning light will illuminate and the warning buzzer will sound when approaching a winch overload condition.

41.9 Trailer Air Pressure Warning Light (8). This red warning light will illuminate when the trailer air system pressure falls below the working pressure.

41.10 Power Take-off (PTO) Warning Light (9). This amber warning light will illuminate when the PTO switch is pulled upwards and will remain illuminated whilst the PTO unit is operational.

41.11 Air Pressure Warning Light (10). This red warning light will illuminate and a continuous warning buzzer will sound when the air system pressure falls below the minimum working pressure. Before attempting to move the vehicle, ensure that the air pressure warning light has extinguished and the warning buzzer ceases to sound.

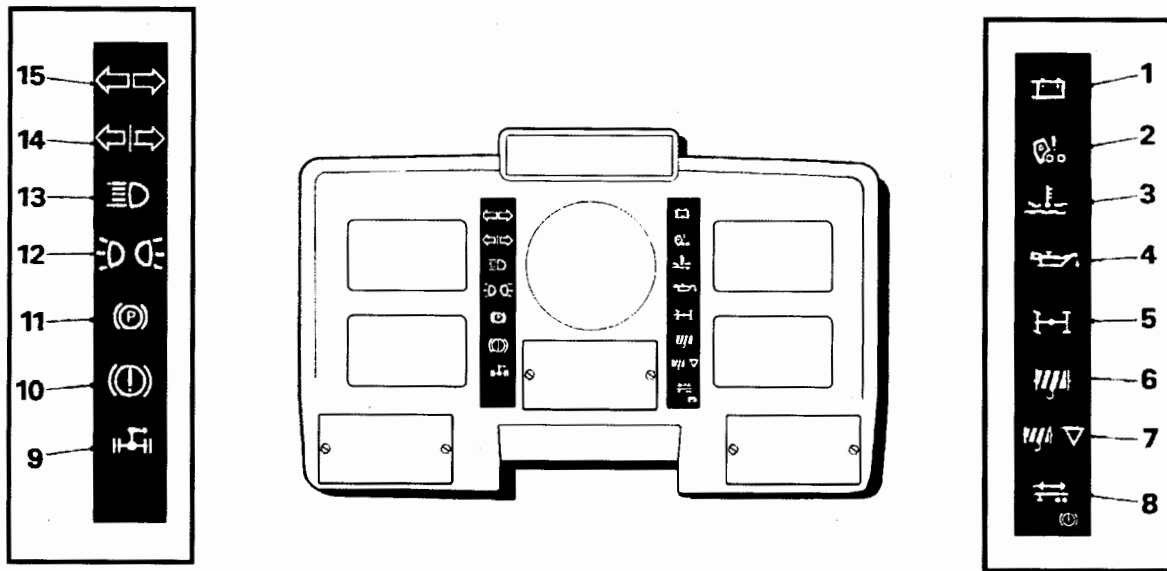
41.12 Handbrake/Independent Trailer Brake Warning Light (11). This red warning light will illuminate when either the handbrake or independent trailer brake control valves are applied to the on position or there is insufficient air pressure available to release the spring brake actuators.

41.13 Sidelights Warning Light (12). This green light will illuminate when the side lights are switched on.

41.14 Main Beam Warning Light (13). This blue warning light will illuminate whilst the headlights are in the high (main) beam position.

41.15 Trailer Direction Indicator Monitor (14). This green warning light will illuminate in unison with the trailer direction indicators.

41.16 Direction Indicator Monitor (15). This green warning light will illuminate in unison with the left-hand or right-hand direction indicators when the direction indicator control lever is actuated.



08033-4

- | | | | |
|---|--|----|---|
| 1 | Charging system warning light | 9 | PTO warning light |
| 2 | Cab lock-down warning light | 10 | Air pressure warning light |
| 3 | Engine coolant temperature warning light | 11 | Handbrake/independent trailer brake warning light |
| 4 | Engine oil pressure warning light | 12 | Sidelight warning light |
| 5 | Inter-axle differential warning light | 13 | Main beam warning light |
| 6 | Winch warning light | 14 | Trailer direction indicator monitor |
| 7 | Winch overload warning light | 15 | Direction indicator monitor |
| 8 | Trailer air pressure warning light | | |

Fig 20 Instrument panel warning lights

CHAPTER 2-1
CONTROLS AND SWITCHES - WINCH VARIANT
CONTENTS

This Chapter must be read in conjunction with Chapter 2-0

Para

- 1 Introduction
- 2 Power take-off control
- 3 Winch controls - internal
- 4 Winch controls - external (WARNING)

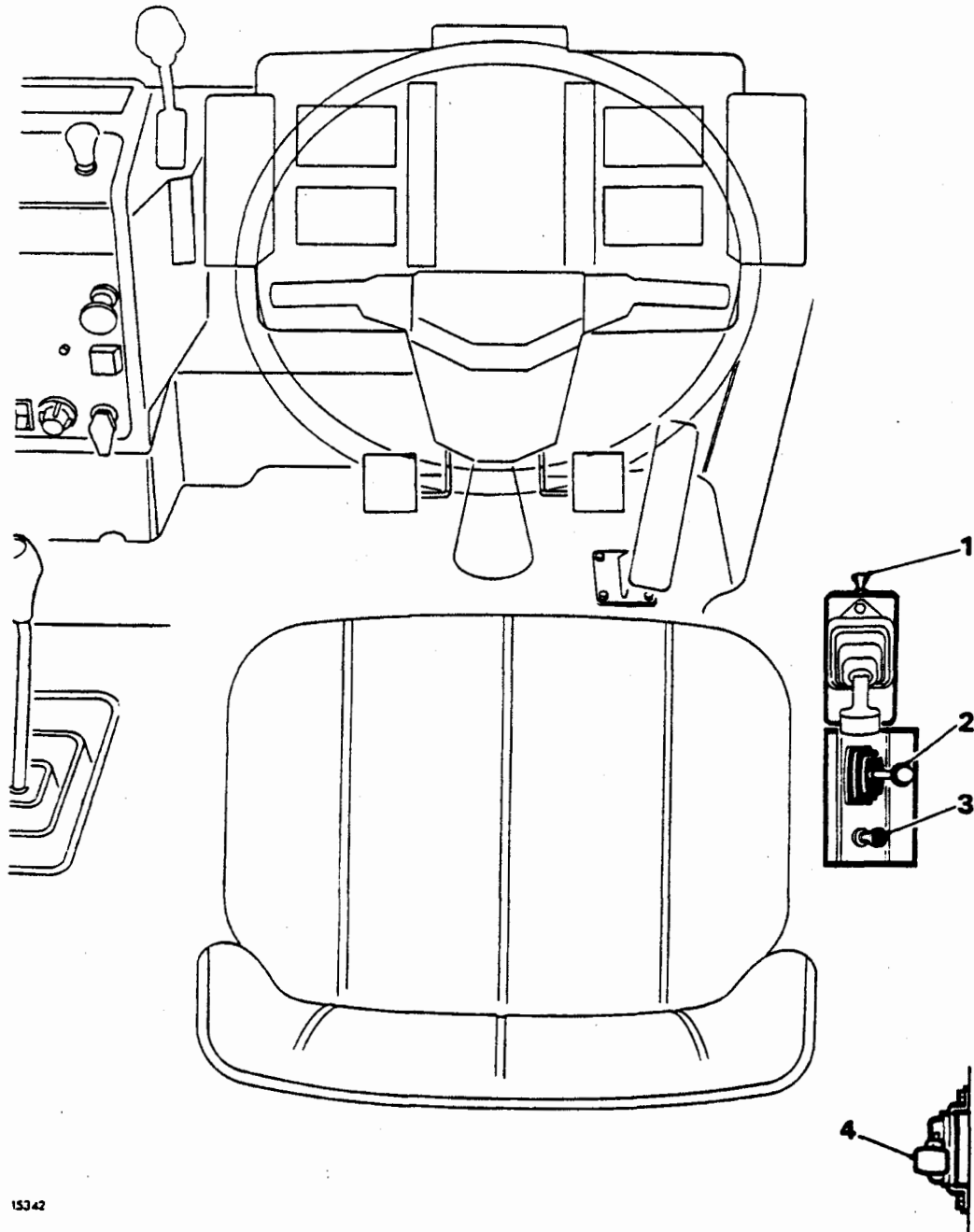
Fig

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1	Cab layout - winch variant.....	2
2	Power take-off control	3
3	Winch controls - internal.....	4
4	Winch controls - external.....	5/6

INTRODUCTION

- 1 The operating controls and switches for the winch variant are as shown in Fig 1.



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- | | | | |
|---|-----------------------|---|----------------------------|
| 1 | Rope tensioner switch | 3 | Power take-off control |
| 2 | Winch control lever | 4 | Engine hand throttle lever |

Fig 1 Cab layout - winch variant

POWER TAKE-OFF CONTROL

2 The Power Take-Off (PTO) control (Fig.2) is situated by the side of the driver's seat adjacent to the winch control lever. Pull the control upwards to engage the PTO. Depress the control to disengage.

2.1 To operate, ensure the handbrake control is in the on position and the gear lever is in neutral. Start the engine, fully depress the clutch pedal and operate the PTO control; release the clutch pedal when the PTO has engaged. An amber warning light will illuminate when the unit is engaged and will remain illuminated whilst the PTO unit is operational.

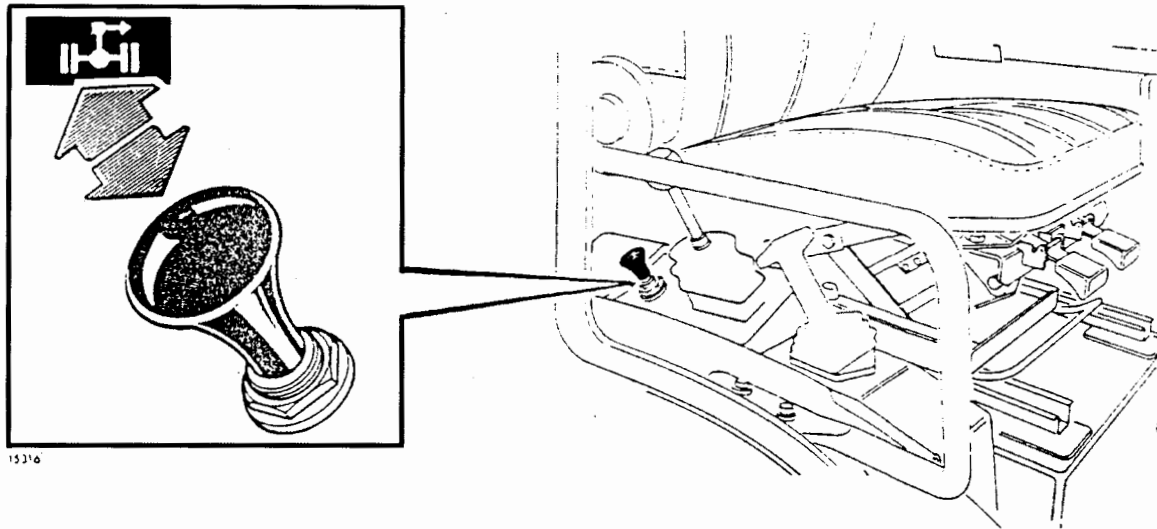


Fig 2 Power take-off control

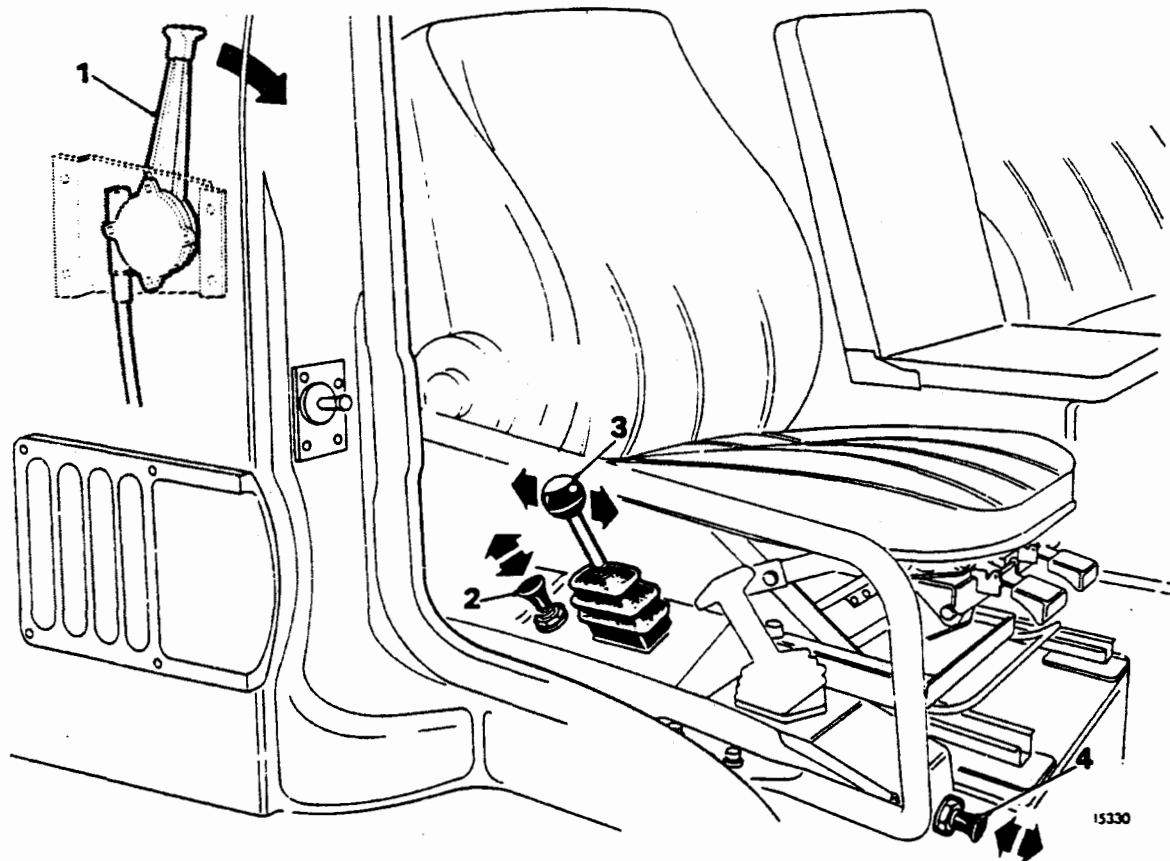
WINCH CONTROLS - INTERNAL

3 The internal winch controls (Fig 3) are situated at the Right Hand (RH) side of the driver's seat (Right Hand Drive (RHD) vehicles) or the Left Hand (LH) side (Left Hand Drive (LHD) vehicles).

3.1 Engine hand throttle lever (1). The engine hand throttle lever enables the operator to set/govern the speed of the engine; winch speed will be proportional to engine speed. Push the lever downwards to increase the drum speed, return the lever to the up (idling speed) position when the winching operation is completed.

3.2 Winch control lever (3). The control lever is used to select the direction of winch drum rotation for paying out/hauling in the winch rope. Push the lever forward to haul in the rope and rearwards to pay out. When the lever is released it will return to the neutral (centre) position, automatically applying the winch motor brake.

3.3 Rope tensioner switch (4). The switch should be operated at all times when using winch equipment to maintain a load on the rope when hauling in.



- | | | | |
|---|----------------------------|---|-----------------------|
| 1 | Engine hand throttle lever | 3 | Winch control lever |
| 2 | Power take-off control | 4 | Rope tensioner switch |

Fig 3 Winch controls - internal

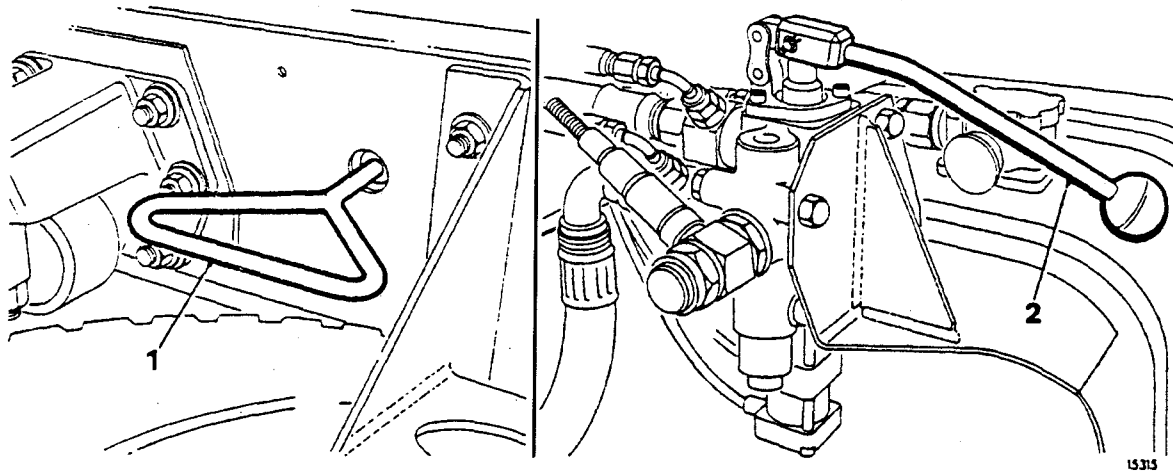
WINCH CONTROLS - EXTERNAL

4 Winch Clutch Lever. The winch clutch lever (Fig 4 (1)) is centrally located on the RH side of the winch drum. Push the lever fully inward to engage the clutch. Pull the lever outwards to its full extent to disengage the clutch; an amber warning light on the instrument panel will illuminate. Engage the winch clutch to prevent the winch drum from rotating when not in use.

WARNING

THE WINCH CONTROL LEVER MUST NOT BE USED FOR HAULING IN OR PAYING OUT OF THE WINCH ROPE.

5 Winch Control Lever. The control lever (2) mounted to the winch hydraulic fluid reservoir is used to rotate the winch motor when engaging the clutch.



- 1 Winch control lever
- 2 Winch control lever

Fig 4 Winch controls - external

CHAPTER 2-2
CONTROLS AND SWITCHES - CRANE VARIANT

CONTENTS

This Chapter must be read in conjunction with Chapter 2

Para

- 1 Introduction
- 2 Power take-off control (WARNING)
- 3 Engine hand throttle lever (WARNING)
- 4 Crane hydraulic operating controls
- 5 Hydraulic stabiliser (outrigger) controls (WARNING)

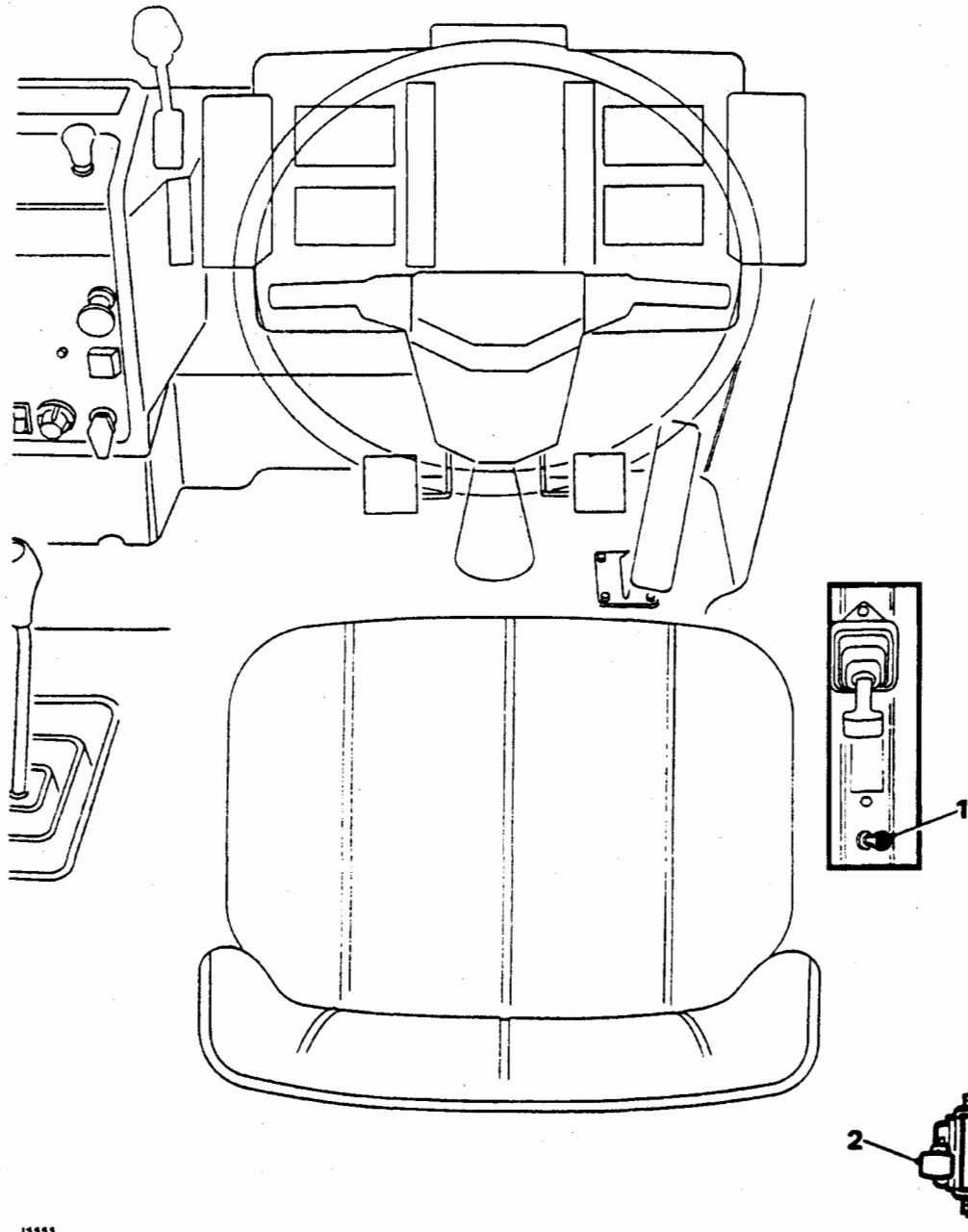
Fig

Page

1	Cab layout - crane variant	2
2	Crane interior controls	3
3	Crane hydraulic operating controls	4
4	Hydraulic stabiliser (outrigger) controls	5/6

INTRODUCTION

- 1 The operating controls and switches for the crane variant are as shown in Fig 1.



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- 1 Power take-off control
- 2 Engine hand throttle lever

Fig 1 Cab layout - crane variant

POWER TAKE-OFF CONTROL

WARNING

ENSURE THAT THE POWER TAKE-OFF UNIT IS DISENGAGED BEFORE ATTEMPTING TO DRIVE THE VEHICLE.

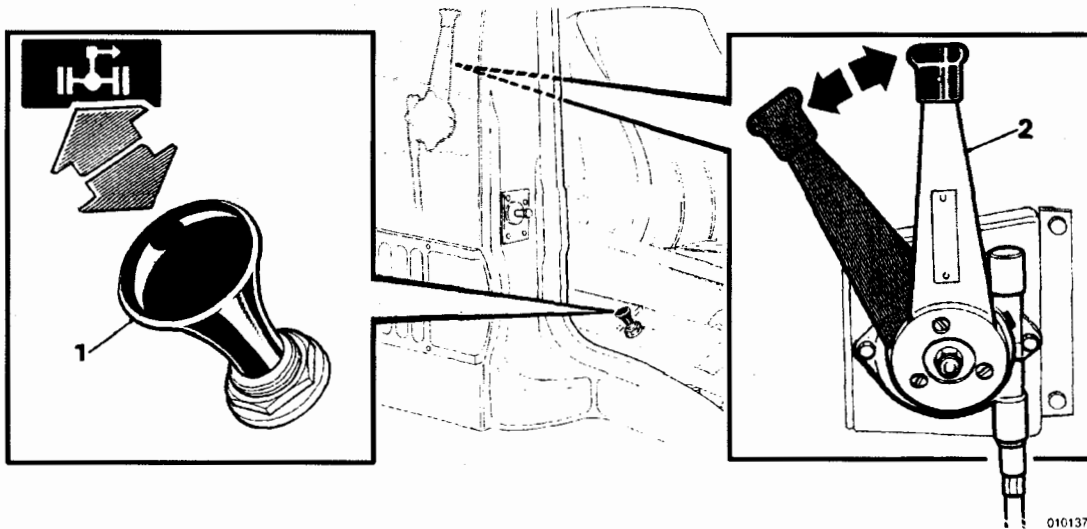
2 The Power Take-Off (PTO) control (Fig 2 (1)) is situated by the side of the driver's seat adjacent to the handbrake lever. The PTO control is used to engage the gearbox mounted PTO unit which operates the crane hydraulic pump. An amber warning light in the instrument panel will illuminate when the unit is engaged and will remain illuminated whilst the PTO unit is operational.

ENGINE HAND THROTTLE LEVER

WARNING

ENSURE THAT THE HAND THROTTLE LEVER IS IN THE UPRIGHT (ENGINE IDLING) POSITION BEFORE ATTEMPTING TO DRIVE THE VEHICLE.

3 The engine hand throttle lever (Fig 2 (2)) is attached to cab interior adjacent to the driver's seat. This control enables the operator to set/govern the speed of the engine for crane operation.



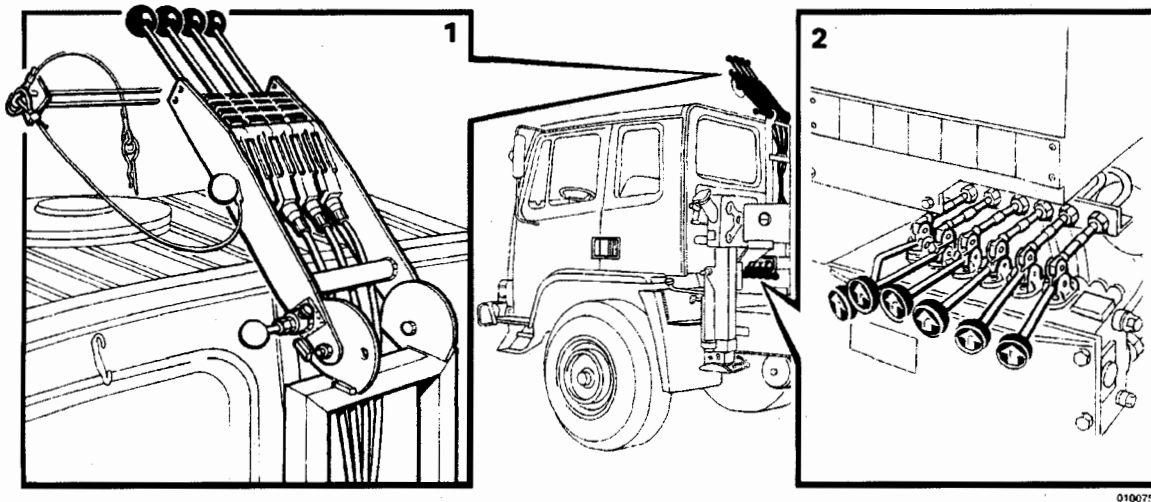
1. Power take-off control

2 Engine hand throttle lever

Fig 2 Crane interior controls

CRANE HYDRAULIC OPERATING CONTROLS

4 The hydraulic operating functions of the crane are controlled by two duplicate sets of hydraulic operating controls. The primary operating controls (Fig 3 (2)) are located below the hydraulic fluid reservoir and enable the crane to be controlled at ground level. The servo operating controls (1) are located behind the cab at roof top level and allow the operator to operate the crane from the cab observation hatch.



1 Servo operating controls 2 Primary operating controls

Fig 3 Crane hydraulic operating controls

HYDRAULIC STABILISER (OUTRIGGER) CONTROLS

WARNING

THE HYDRAULIC STABILISERS (OUTRIGGERS) MUST BE FULLY DEPLOYED AND LOCKED IN POSITION BEFORE ATTEMPTING TO OPERATE THE CRANE.

5 The crane is fitted with two hydraulically retractable stabilisers (outriggers) (Fig 4) which form an integral part of the crane structure. The hydraulic stabilisers (outriggers) provide vehicle stability and also partially relieve the vehicle chassis of any excessive loading whilst the crane is in use.

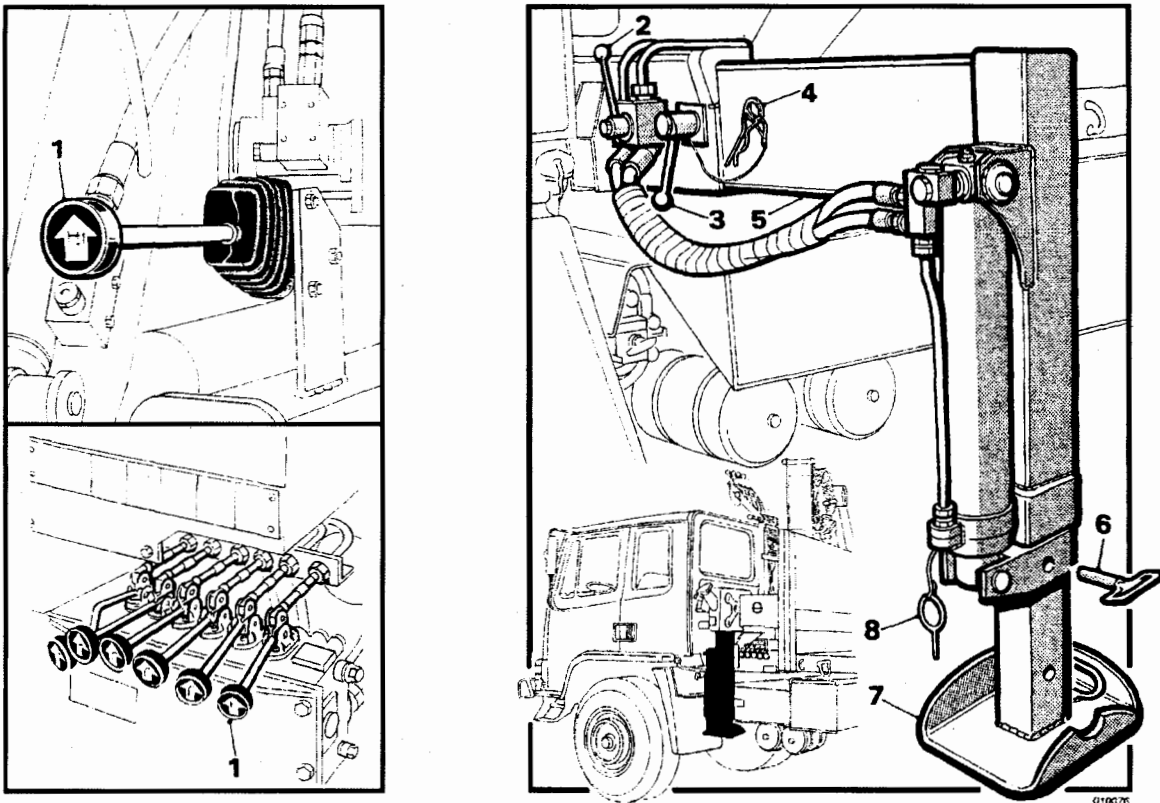
6 Each hydraulic stabiliser (outrigger) is equipped with the following controls:

6.1 Locking Pin Handle (3). Each hydraulic stabiliser beam (5) is equipped with a locking pin handle. The locking pin handle secures the hydraulic stabiliser in the fully retracted (transit) and in the fully extended (deployed) positions. To prevent the accidental release of the locking pin handle it is secured in position with a spring retaining clip (4).

6.2 Locking Pin (6). The locking pin secures the stabiliser foot (7) in the fully retracted (transport) or fully extended (deployed) positions. The locking pin is secured in position with a spring retaining clip (8).

6.3 Hydraulic Isolator Valve (2). Each hydraulic stabiliser is equipped with a hydraulic isolator valve which enables the hydraulic pressure to this unit to be disabled and hydraulically locked in position. With both hydraulic isolator valves in the open position, both hydraulic stabilisers can be operated simultaneously; by selectively closing the hydraulic isolator valves, the hydraulic stabilisers can be operated independently of each other.

6.4 Hydraulic Stabiliser Operating Control (1). The crane is equipped with two duplicate hydraulic operating controls which are located on either side of the crane adjacent to the hydraulic stabilisers. The hydraulic operating controls regulate the extension and retraction of the hydraulic stabilisers.



- | | | | |
|---|------------------------------|---|-----------------------|
| 1 | Stabiliser operating control | 5 | Stabiliser beam |
| 2 | Hydraulic isolator valve | 6 | Locking pin |
| 3 | Locking pin handle | 7 | Stabiliser foot |
| 4 | Spring retaining clip | 8 | Spring retaining clip |

Fig 4 Hydraulic stabiliser (outrigger) controls

CHAPTER 2-3

CONTROLS AND SWITCHES - TAIL LIFT VARIANT

CONTENTS

This Chapter must be read in conjunction with Chapter 2

Para

- 1 Introduction
- 2 Remote isolator switch
- 3 Tail lift battery isolator switch
- 4 RH control box
- 5 LH control box
- 6 Wander lead control (CAUTION)
- 7 Platform catch
- 8 Platform stop pins
- 9 Column stop
- 10 Anti-tilt latch
- 11 Slam lock
- 12 Release handle

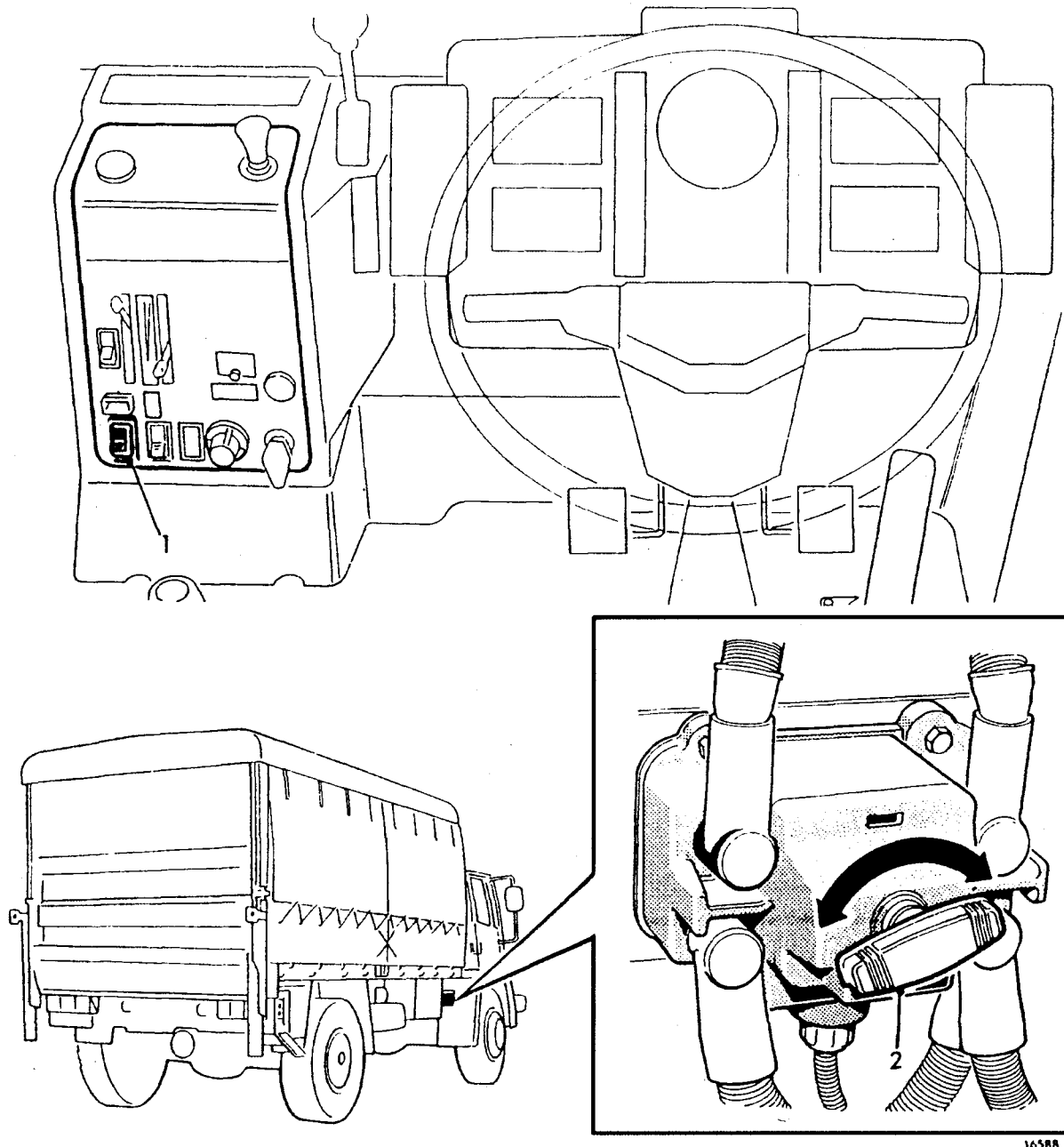
Fig

Page

1	Control layout - tail lift variant	2
2	Tail lift control boxes	4
3	Operating controls	6

INTRODUCTION

- 1 The location of the remote isolator switch and tail lift battery isolator switch is shown in Fig 1.



- 1 Remote isolator switch 2 Tail lift battery isolator switch

Fig 1 Control layout - tail lift variant

REMOTE ISOLATOR SWITCH

2 The cab isolator switch (Fig 1 (1)) is situated inside the cab. Press the combined latch/rocker switch to isolate the complete vehicle electrical system. To re-energise the system, operate the tail lift and vehicle exterior battery isolation switches.

TAIL LIFT BATTERY ISOLATION SWITCH

3 This switch (Fig 1 (2)) is situated on the RH side of the chassis frame behind the cab. Its function is to isolate the tail lift mechanism when the handle is rotated to the OFF position.

RH CONTROL BOX

4 The RH control box (Fig 2 (6)) is situated at the rear of the vehicle adjacent to the RH tool box. The control box incorporates two push button switches (7) marked with an arrow to indicate the direction of operation. A hand operated pump (5) enables the operator to raise or lower the platform, in the event of electrical failure.

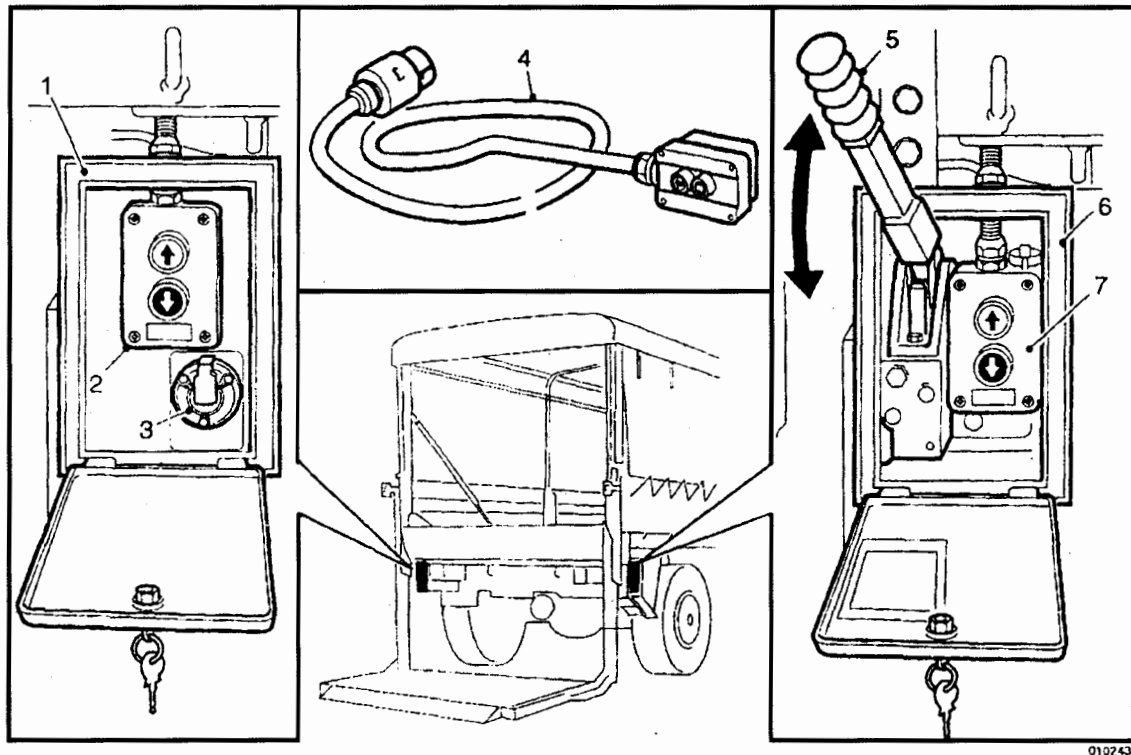
LH CONTROL BOX

5 The LH control box (Fig 2 (1)) is mounted to the LH tool box at the rear of the vehicle. The control box incorporates a two push button control (2) and a multi-pin socket (3) for the wander lead control.

WANDER LEAD CONTROL**CAUTION**

To ensure that the control is held the correct way up, the **WHITE BUTTON WITH THE BLACK ARROW** identifies the **UP** button.

6 The wander control lead (Fig 2 (4)) is a wired remote control unit which can be used in place of the normal push button controls and consists of a two button control and flexible electrical lead with a multi-pin plug. To operate the control, connect the multi-pin plug into the socket in the LH control box.



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- | | | | |
|---|--------------------|---|--------------------|
| 1 | LH control box | 5 | Hand operated pump |
| 2 | Control switches | 6 | RH control box |
| 3 | Wander lead socket | 7 | Control switches |
| 4 | Wander lead | | |

Fig 2 Tail lift control boxes

PLATFORM CATCH

7 A spring loaded catch (Fig 3 (1)) is attached to the LH tail lift runner. The catch engages a latch plate fixed to the lift platform to enable the closed platform to be raised or lowered. To release the catch, push it firmly with the thumb or palm of the hand. When closing the platform, the catch will engage automatically.

PLATFORM STOP PINS

8 Platform stop pins (Fig 3 (3)) allow the operator to lower the platform to a pre-determined height.

COLUMN STOP

9 The column stop (Fig 3 (2)) is used in conjunction with the platform stop pins to secure the platform at a pre-determined height.

ANTI-TILT LATCH

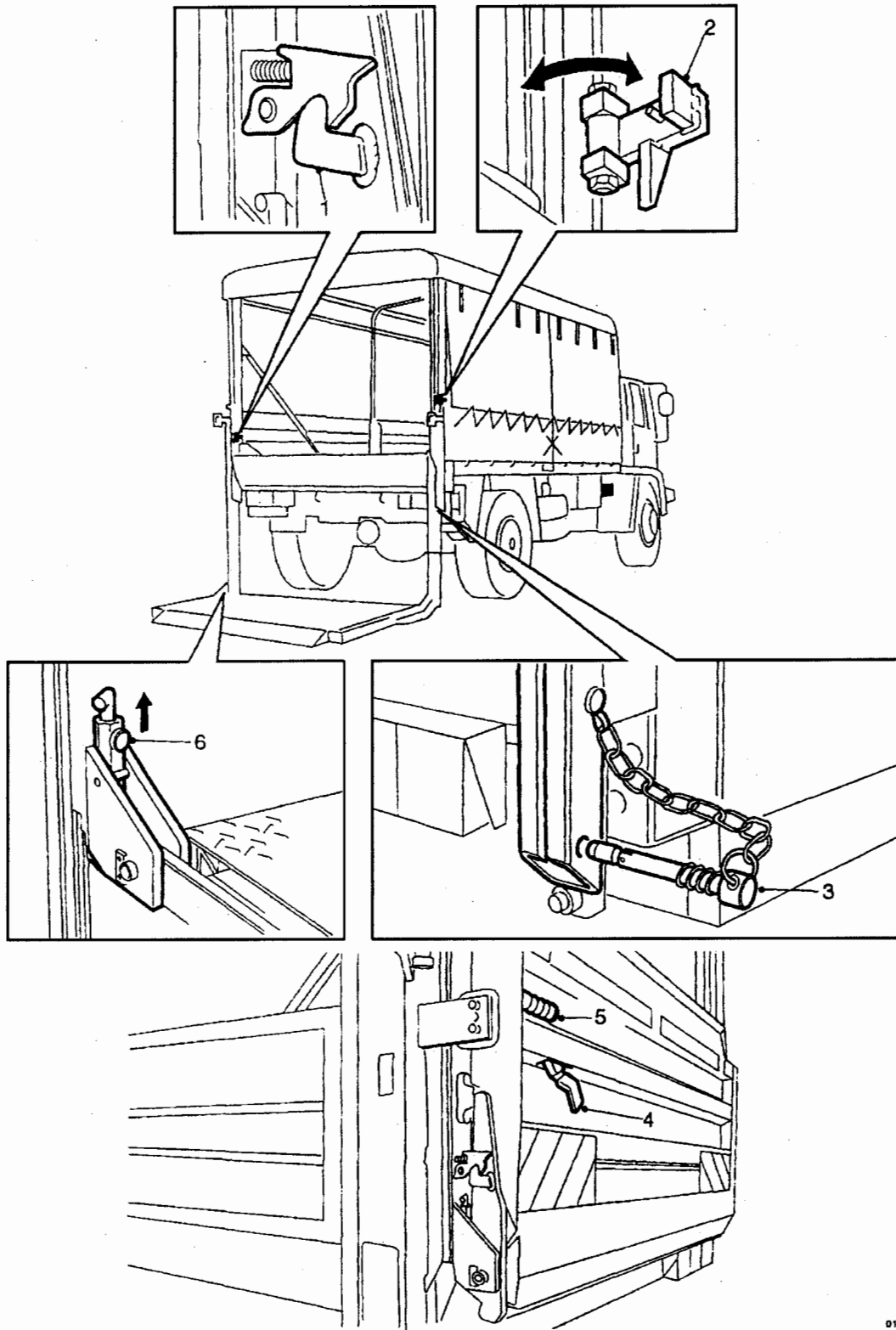
10 An anti-tilt latch (Fig 3 (6)) positioned on the LH side of the platform, prevents the platform tilting from the horizontal position. To release the latch, press down on the outer end of the platform and lift it upwards. The engagement of the latch is automatic in operation.

SLAM LOCK

11 A spring loaded handle (Fig 3 (4)) releases two pins securing the platform to the tail lift runners. To release the platform, push the handle and at the same time press the relevant push button switch. The pins will engage automatically when the platform is returned to the normal driving position.

RELEASE HANDLE

12 The release handle (Fig 3 (5)) enables the operator to pull the platform to the horizontal position when the platform catch is released.



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- | | | | |
|---|--------------------|---|-----------------|
| 1 | Platform catch | 4 | Slam lock |
| 2 | Column stop | 5 | Release handle |
| 3 | Platform stop pins | 6 | Anti-tilt latch |

Fig 3 Operating controls

CHAPTER 2-4

CONTROLS AND SWITCHES - FITTED FOR RADIO VARIANT

CONTENTS

This Chapter must be read in conjunction with Chapter 2

Para

- 1 Introduction
- 2 Exterior battery isolation switch

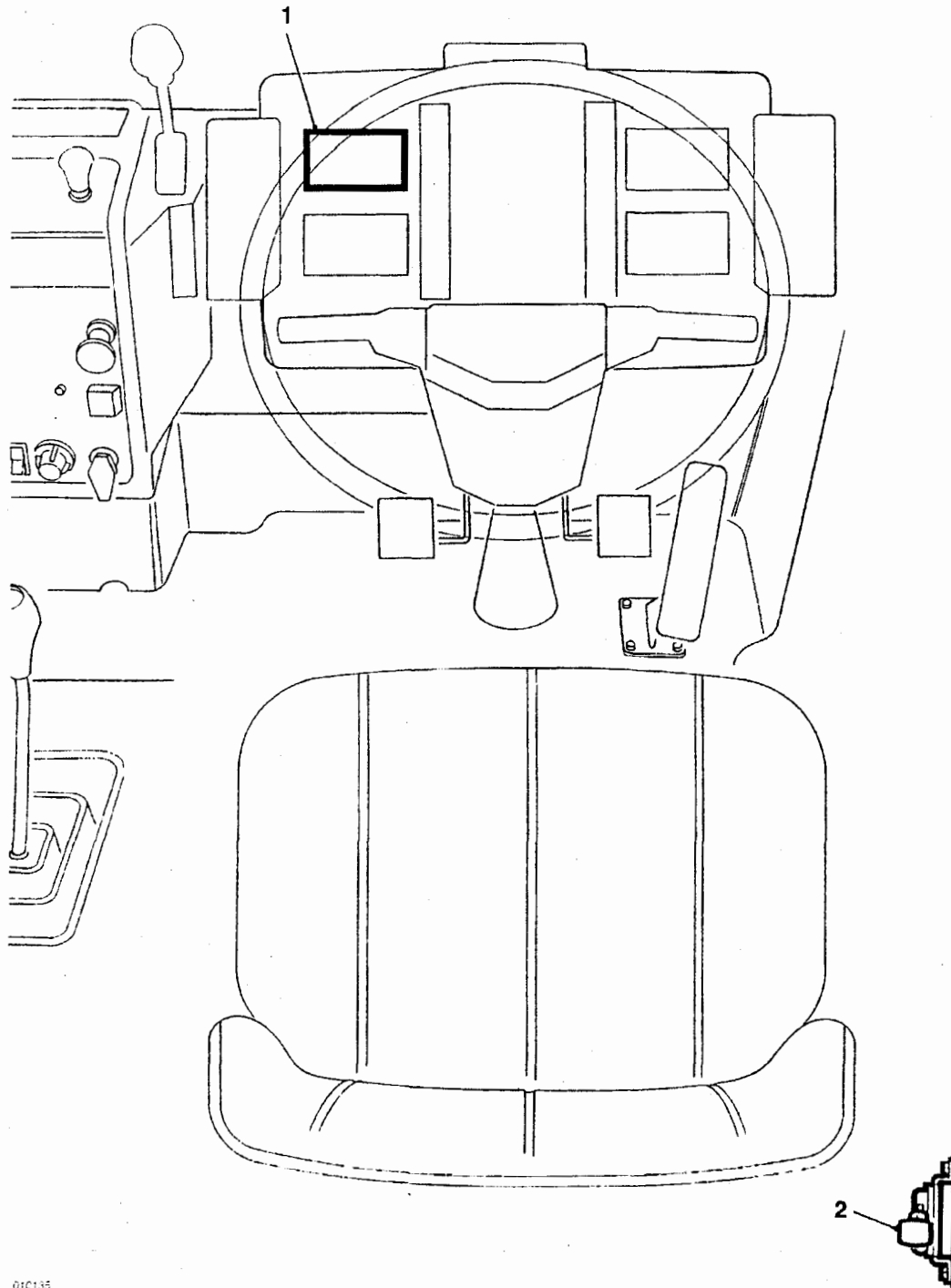
Fig

Page

1	Cab layout - FFR variant	2
2	Exterior battery isolator switches	3/4

INTRODUCTION

1 The operating controls and switches for the Fitted For Radio (FFR) variant are as for the winch variant except for the tachometer which has been deleted and replaced with a moulded tray. The engine hand throttle lever (Fig 1 (2)) is governed to the optimum operating speed of 1000 rpm when fully engaged.



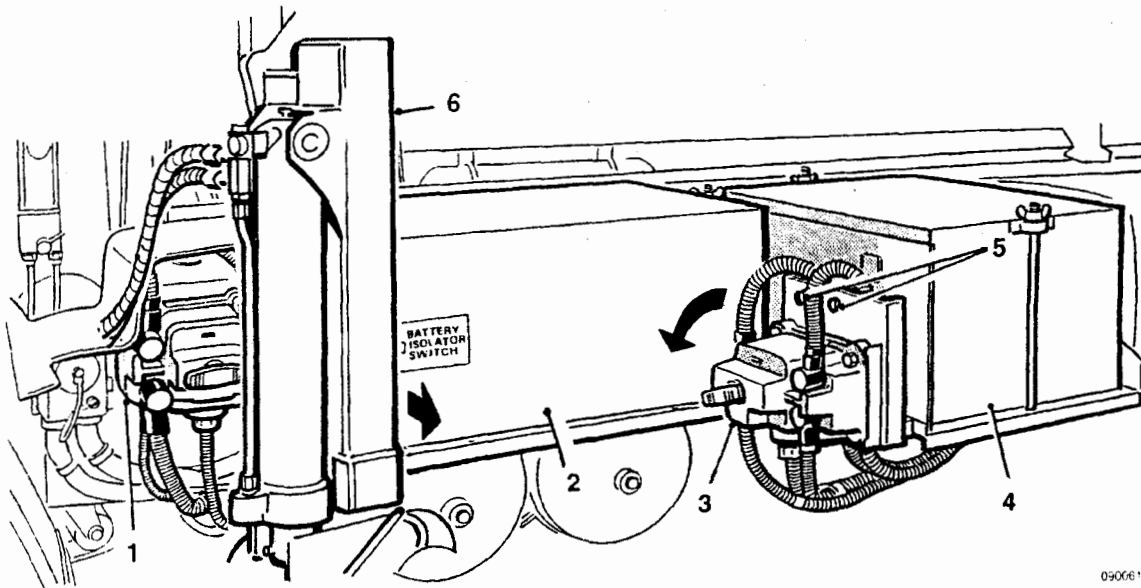
- 1 Moulded tray replacing tachometer
- 2 Engine hand throttle

Fig 1 Cab layout - FFR variant

EXTERIOR BATTERY ISOLATION SWITCH

2 The exterior battery isolation switches (Fig 2) are mounted on the left hand side of the chassis adjacent to the battery carriers. Isolation switch (1) fitted with a red handle when operated by turning the handle anti-clockwise to the 'OFF' position will render the complete vehicle electrical system inoperative. Isolation switch (3) will also be triggered to the 'OFF' position isolating the radio batteries. The isolation switch (3) fitted with a yellow handle when operated by turning the handle anti-clockwise will isolate the radio batteries only, rendering the radio circuits inoperative. The electrical systems can only be re-energised by rotating the isolation switch handles clockwise to the 'ON' position on the respective switch units.

3 To access the vehicle batteries, deploy the stabiliser (6) remove the setscrews (5) and swing the FFR isolator (3) down.



- | | | | |
|---|------------------------------------|---|-------------------|
| 1 | Isolator switch - vehicle circuits | 4 | Batteries - radio |
| 2 | Batteries - vehicle circuits | 5 | Setscrews |
| 3 | Isolator switch - radio | 6 | Stabiliser |

Fig 2 Exterior battery isolator switches

CHAPTER 2-5

CONTROLS AND SWITCHES - CRANE VARIANT WITH TYRE HANDLER

CONTENTS

This Chapter must be read in conjunction with Chapter 2-0
and associated publication OCTAD 2590-N-105

Para

- 1 Introduction
- 2 Power take-off control (WARNING)
- 3 Engine hand throttle lever (WARNING)
- 4 Hydraulic operating controls
- 5 Tyre handler control box
- 6 Tyre handler pendant control
- 7 Hydraulic stabiliser (outrigger) controls (WARNING)

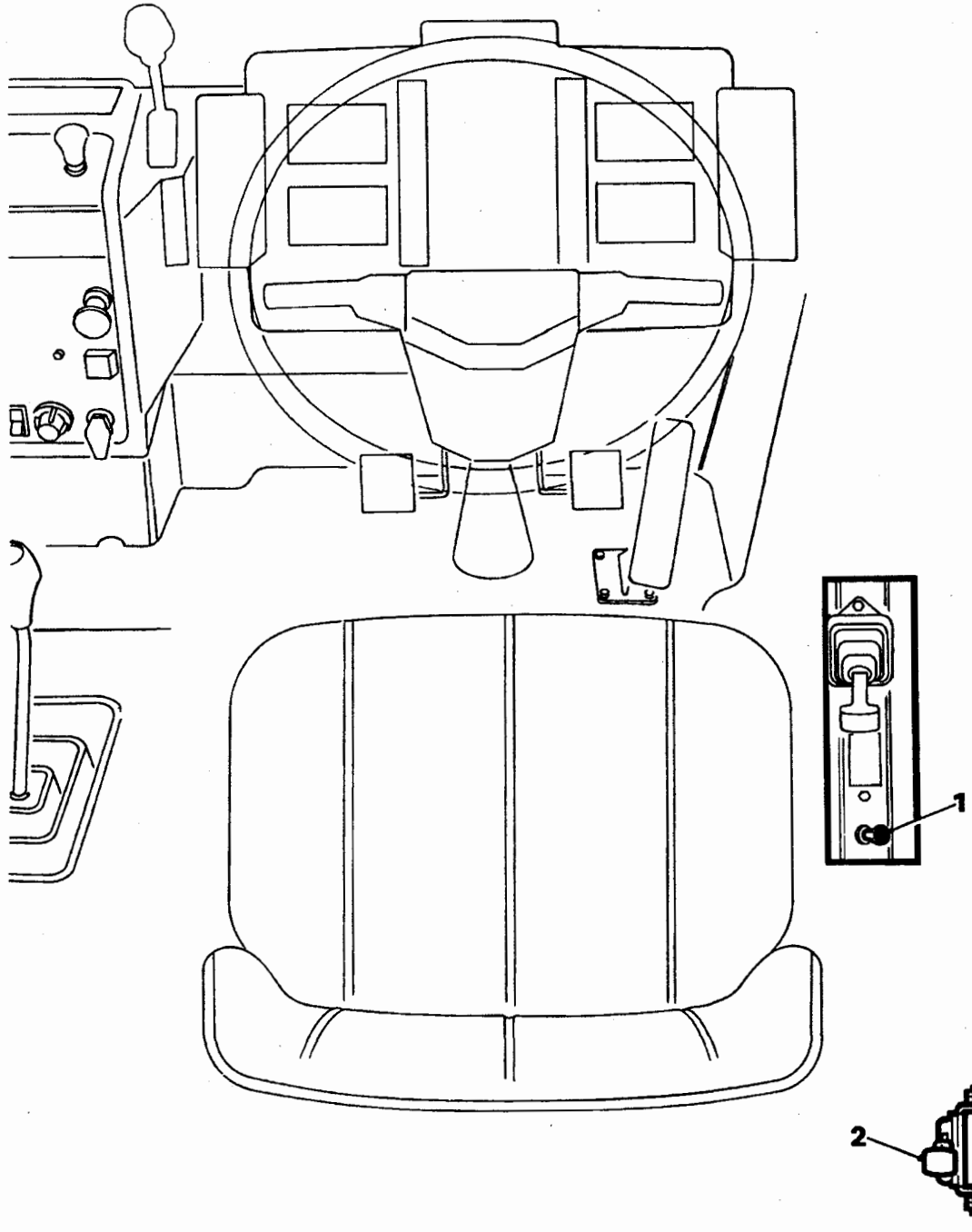
Fig

Page

1	Cab layout - crane variant with tyre handler	2
2	Crane interior controls.....	3
3	Crane hydraulic operating controls	4
4	Tyre handler operating controls	5
5	Hydraulic stabiliser (outrigger) controls.....	6

INTRODUCTION

1 The operating controls and switches are as shown in Fig1.



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- 1 Power take-off control
- 2 Engine hand throttle lever

Fig 1 Cab layout - crane variant with tyre handler

POWER TAKE-OFF CONTROL

WARNING

ENSURE THAT THE POWER TAKE-OFF UNIT IS DISENGAGED BEFORE ATTEMPTING TO DRIVE THE VEHICLE.

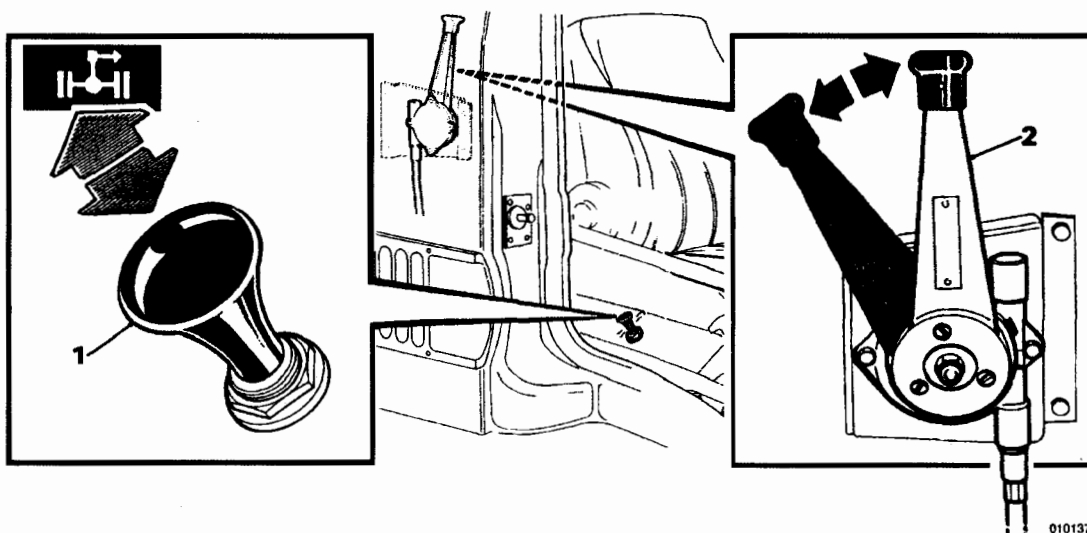
2 The Power Take-Off (PTO) control (Fig 2 (1)) is situated by the side of the driver's seat adjacent to the handbrake lever. The PTO control is used to engage the gearbox mounted PTO unit which operates the crane hydraulic pump. An amber warning light in the instrument panel will illuminate when the unit is engaged and will remain illuminated whilst the PTO unit is operational.

ENGINE HAND THROTTLE LEVER

WARNING

ENSURE THAT THE HAND THROTTLE LEVER IS IN THE UPRIGHT (ENGINE IDLING) POSITION BEFORE ATTEMPTING TO DRIVE THE VEHICLE.

3 The engine hand throttle lever (Fig 2 (2)) is attached to the cab interior adjacent to the driver's seat. This control enables the operator to set/govern the speed of the engine for tyre handler operation.

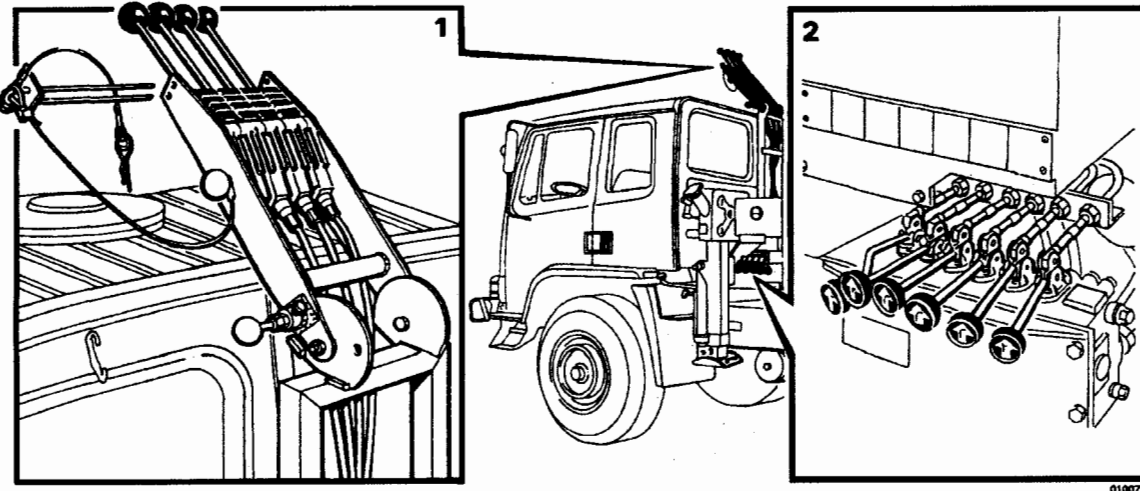


1 Power take-off (PTO) control 2 Engine hand throttle lever

Fig 2 Crane interior controls

HYDRAULIC OPERATING CONTROLS

4 The hydraulic operating functions are controlled by two duplicate sets of hydraulic operating controls. The primary operating controls (Fig 3 (2)) are located below the hydraulic fluid reservoir and enable the unit to be controlled at ground level. The servo operating controls (1) are located behind the cab at rooftop level with the cab observation hatch.



1 Servo operating controls 2 Primary operating controls

Fig 3 Crane hydraulic operating controls

TYRE HANDLER CONTROL BOX

5 The control box is mounted adjacent to the crane operating controls below the hydraulic reservoir. The unit (Fig 4 (1)) has a three position switch supplying power to the pendant control when the switch is moved to the HANDLER position.

5.1 Clamp tilt and rotate functions are obtainable when the HANDLER position is selected.

NOTE

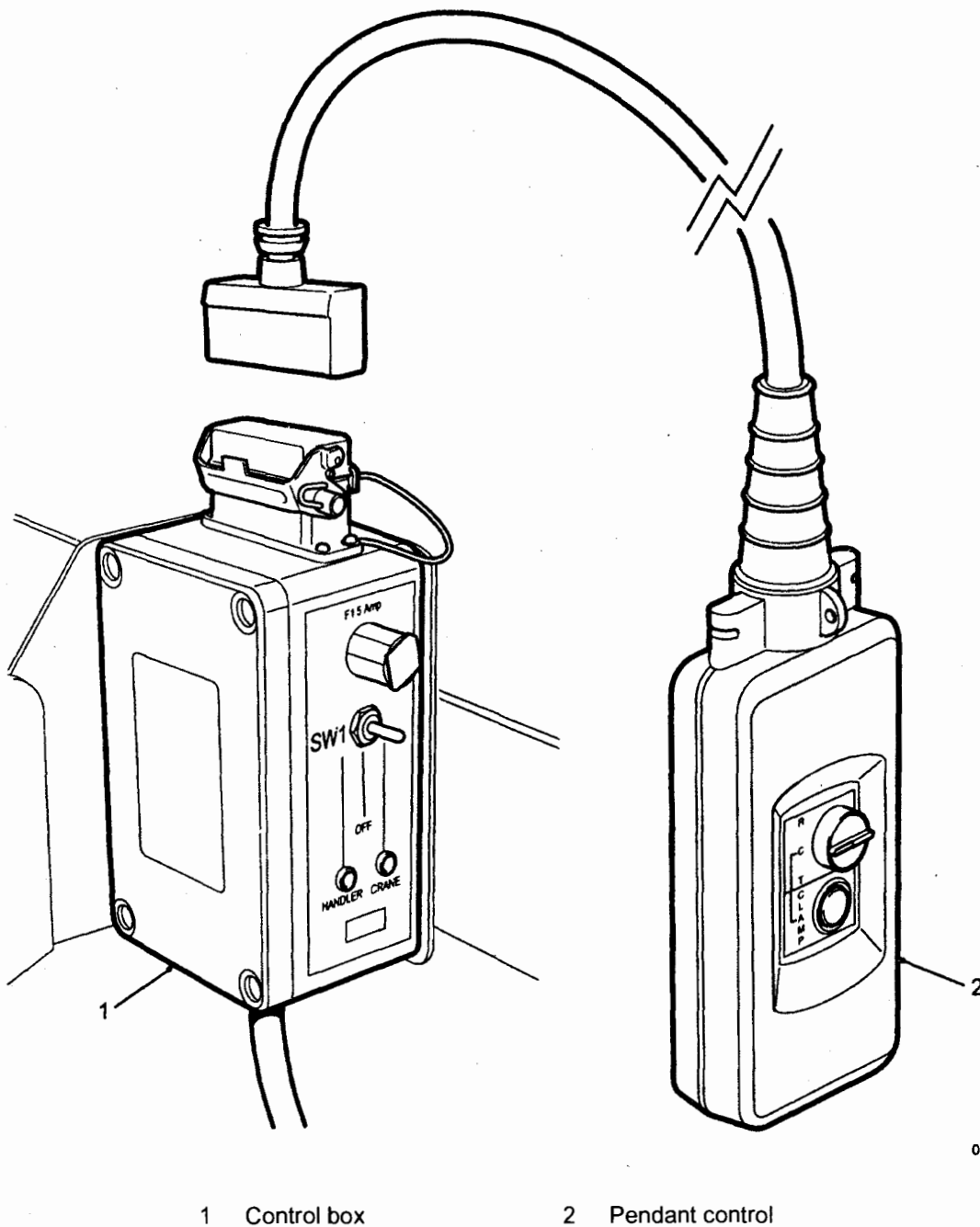
The switch must be set in the 'OFF' position when not in use, to prevent premature solenoid coil failure.

TYRE HANDLER PENDANT CONTROL

6 The detachable control unit (Fig 4 (2)) fitted to the control box by a multi pin plug enables the operator to move to an advantageous position when operating the tyre handler. The rotary switch has three positions:

R	Rotate
C	Clamp
T	Tilt

6.1 The red button activates the clamp functions when depressed in conjunction with the raising or lowering of the telescope lever.



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Fig 4 Tyre handler operating controls

HYDRAULIC STABILISER (OUTRIGGER) CONTROLS

WARNING

THE HYDRAULIC STABILISERS (OUTRIGGERS) MUST BE FULLY DEPLOYED AND LOCKED IN POSITION BEFORE ATTEMPTING TO OPERATE THE CRANE.

7 The unit is fitted with two hydraulically retractable stabilisers (outriggers) which form an integral part of the structure. The hydraulic stabilisers (outriggers) provide vehicle stability and also partially relieve the vehicle chassis of any excessive loading whilst the crane and tyre handler is in use.

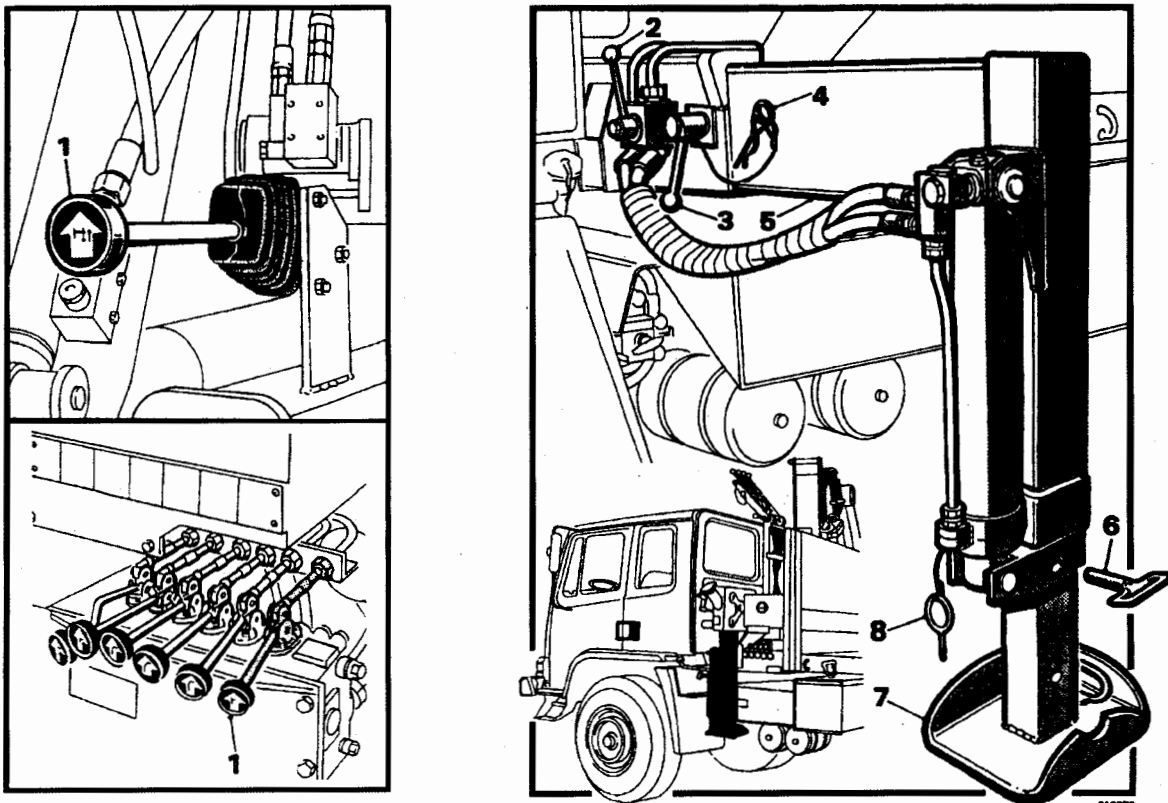
8 Each hydraulic stabiliser (outrigger) is equipped with the following controls (Fig 5):

8.1 Locking Pin Handle (3). Each hydraulic stabiliser beam (5) is equipped with a locking pin handle. The locking pin handle secures the hydraulic stabiliser in the fully retracted (transit) and in the fully extended (deployed) positions. To prevent the accidental release of the locking pin handle it is secured in position with a spring retaining clip (4).

8.2 Locking Pin (6). The locking pin secures the stabiliser foot (7) in the fully retracted (transport) or fully extended (deployed) positions. The locking pin is secured in position with a spring retaining clip (8).

8.3 Hydraulic Isolator Valve (2). Each hydraulic stabiliser is equipped with a hydraulic isolator valve which enables the hydraulic pressure to this unit to be disabled and hydraulically locked in position. With both hydraulic isolator valves in the open position, both hydraulic stabilisers can be operated simultaneously; by selectively closing the hydraulic isolator valves, the hydraulic stabilisers can be operated independently of each other.

8.4 Hydraulic Stabiliser Operating Control (1). The crane is equipped with two duplicate hydraulic operating controls which are located on either side of the crane adjacent to the hydraulic stabilisers. The hydraulic operating controls regulate the extension and retraction of the hydraulic stabilisers.



- | | | | |
|---|------------------------------|---|-----------------------|
| 1 | Stabiliser operating control | 5 | Stabiliser beam |
| 2 | Hydraulic isolator valve | 6 | Locking pin |
| 3 | Locking pin handle | 7 | Stabiliser foot |
| 4 | Spring retaining clip | 8 | Spring retaining clip |

Fig 5 Hydraulic stabiliser (outrigger) controls

CHAPTER 3
OPERATING INSTRUCTIONS - GS CARGO

CONTENTS

Para

- 1 Starting the engine (WARNING) (CAUTION)
- 5 Stopping the engine (CAUTION)
- 6 Cold start control (WARNING) (CAUTION)
- 7 Engine 'running in' instructions
- 8 Transfer gearbox
- Use of brakes
- 10 Service (foot) brake
- 11 Handbrake control (WARNING)
- 13 Independent trailer brake control (WARNING)
- Tilting the cab (WARNING)
- 15 To raise the cab (CAUTION)
- 19 To lower the cab
- 24 Spare wheel carrier (WARNING)
- 26 Shut-off tap

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2	Cold start control	3
3	Transfer gearbox lever	4
4	Handbrake control	5
5	Independent trailer brake control valve	5
6	Supplementary spring brake release control	6
7	Tilting the cab	7
8	Spare wheel carrier	8
9	Shut-off tap.....	9/10

STARTING THE ENGINE

WARNING

DO NOT RUN THE ENGINE IN A CONFINED SPACE OR UNVENTILATED AREA. EXHAUST FUMES CONTAIN TOXIC GASES WHICH, IF INHALED, MAY PROVE FATAL.

CAUTION

When starting a turbocharged engine do NOT allow the engine to exceed its idling speed for a minimum of 10 seconds; this procedure will ensure that adequate oil pressure is available at the turbocharger bearings thus preventing initial oil starvation.

- 1 Ensure that the handbrake control is applied to the park position, the gear lever is in the neutral position and the engine stop control is pushed fully in.
- 2 Insert the master/start key and turn it to the 1st position to energise the auxiliary circuits. Continue turning the master/start key to the 2nd position to energise the ignition circuits. During cold weather conditions (below 5°C) operate the cold start device as instructed in Para 6.

3 Fully depress the accelerator and turn the master/start key to the 3rd position to operate the starter motor. If after 30 seconds the engine fails to start, allow two minutes for the batteries to recover before attempting to start the engine.

4 Immediately the engine starts, release the master/start key and allow the engine to idle for a minimum of 10 seconds before driving off.

STOPPING THE ENGINE

CAUTION

Before stopping a turbocharged engine allow it to idle for one to two minutes; this procedure will ensure an adequate oil supply to the turbocharger bearings whilst the rotor assembly is cooling, thus reducing the possibility of turbocharger bearing failure.

5 Pull the engine stop control (Fig 1) and hold until the engine stops; turn the master/start key to the off position and withdraw the key. Ensure that the engine stop control is pushed fully back into position.

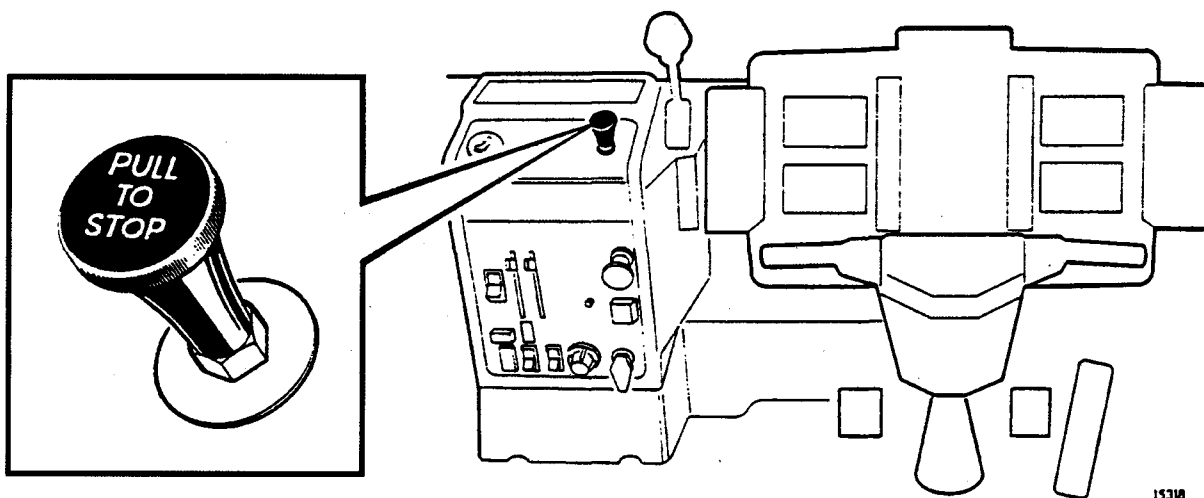


Fig 1 Engine stop control

COLD START CONTROL

WARNING

THE ETHER COLD START FLUID IS A HEAVY PETROLEUM MIXTURE GIVING OFF A HIGHLY INFLAMMABLE VAPOUR; DO NOT EXPOSE TO A NAKED FLAME, SPARK OR ANY INTENSE HEAT SOURCE.

CAUTION

Do not operate the cold start plunger before energising the starter motor; failure to observe this precaution may result in severe engine damage.

6 If difficult engine starting is encountered due to low atmospheric temperatures, operate the cold start device as follows:

6.1 Check the fluid level in the cold start reservoir (Fig 2 (4)) which is fitted to the header tank mounting bracket; if necessary, charge the reservoir by lifting the hinged cover (2) and locating and firmly depressing the refill canister (3) on the filler valve. Do not allow the fluid level to rise above the 'MAXI' level indicated on the transparent reservoir.

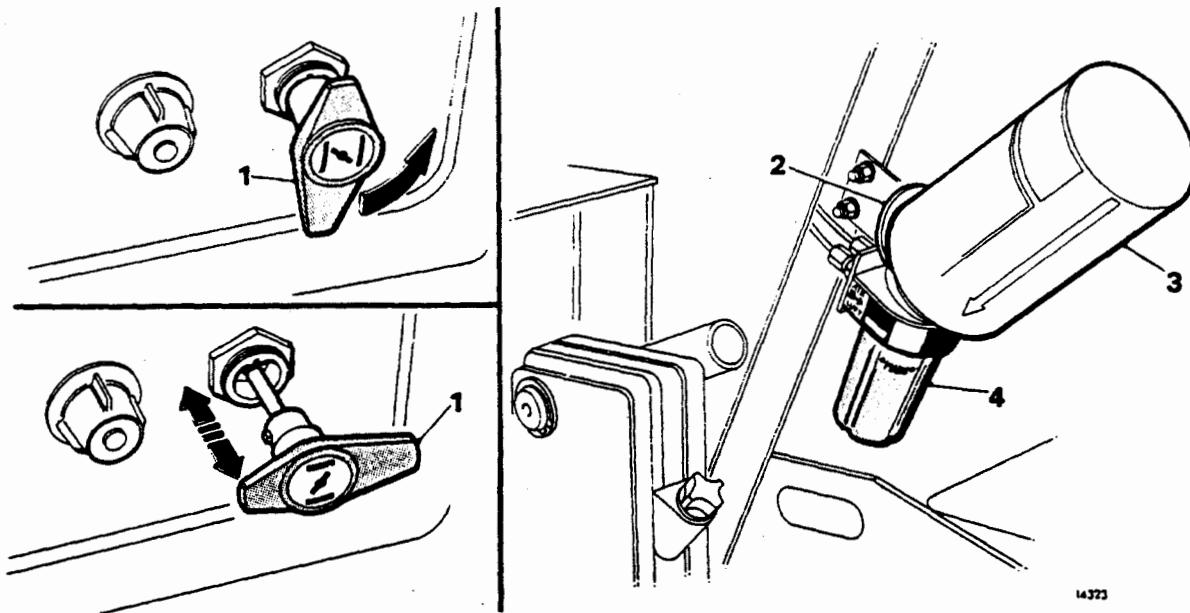
6.2 Unlock and release the cold start plunger (1) and fully depress the accelerator pedal. Operate the starter motor and, simultaneously, pump the cold start plunger to deliver two full strokes of fluid.

NOTE

If after 30 seconds the engine fails to start, allow two minutes for the batteries to recover before attempting to start the engine.

6.3 When the engine fires and runs, operate the cold start plunger as necessary to assist the engine until it is capable of running unaided up to a maximum engine speed of approximately 1000 rev/min.

6.4 When the engine is running satisfactorily, turn and lock the cold start plunger in position before driving off.



- | | |
|----------------------|-------------------|
| 1 Cold start plunger | 3 Refill canister |
| 2 Reservoir cover | 4 Reservoir |

Fig 2 Cold start control

ENGINE 'RUNNING IN' INSTRUCTIONS

7 Leyland produced Diesel engines are initially 'run-in' at the Factory, but these engines will respond to considerate handling over the first 800 km (500 miles) of vehicle life. The following recommendations should be applied during the first 800 km (500 miles) of a new vehicle:

- 7.1 Do not operate at full engine power in any gear.
- 7.2 Do not allow the engine to labour in any gear.
- 7.3 Do not allow the engine to run at idling speeds for excessive periods.

TRANSFER GEARBOX

8 The transfer gearbox provides a high ('Hi') or low ('Lo') ratio drive to the front and rear axles. The range change operation is controlled by the gear lever (Fig 3) fitted to the cab fascia panel.

9 By double de-clutching, a gear-change can be made whilst the vehicle is in motion. Low ratio enables vehicle speeds up to 55 km/h.

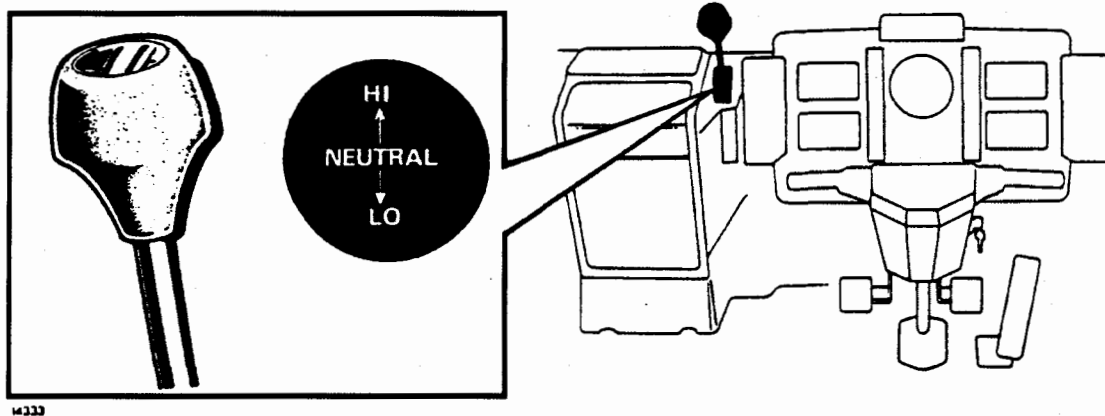


Fig 3 Transfer gearbox lever

USE OF BRAKES**Service (foot) brake**

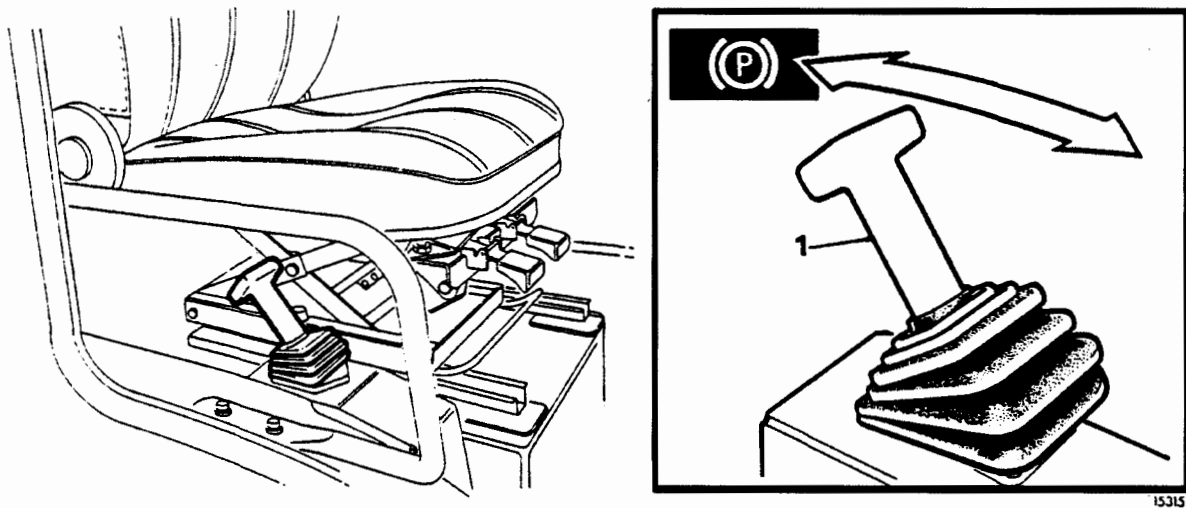
10 If the vehicle has been driven through water, full braking power may not be available. Dry the brakes by lightly applying the footbrake several times whilst the vehicle is in motion.

Handbrake control**WARNING**

IN THE EVENT OF THE SERVICE (FOOT) BRAKE BECOMING INOPERATIVE THE HANDBRAKE CONTROL CAN BE USED FOR EMERGENCY BRAKING BY GRADUALLY MOVING THE CONTROL LEVER REARWARDS UNTIL IT ABUTS THE STOP; BRAKING EFFORT WILL BE PROPORTIONAL TO CONTROL LEVER MOVEMENT.

11 Move the control lever (Fig 4 (1)) rearwards, against spring pressure, until it abuts the stop; a red warning light on the instrument panel will illuminate. With the control lever held in this position (intermediate/secondary) the spring brake actuators on the front and rear axles and the trailer service brakes will be applied; braking effort will be proportional to control lever movement. This facility can be utilised for hill start or emergency braking conditions. Lift and then move the control lever fully rearward to the on (park) position and release; the control lever will be automatically locked in this position and will apply the vehicle spring brake actuators on the front and rear axles.

12 To release the handbrake, lift and then move the control lever fully forwards to the off position.



1 Control lever

Fig 4 Handbrake control

Independent trailer brake control valve

WARNING

THE TRAILER MUST NOT BE LEFT PARKED ON AIR PRESSURE BRAKING ONLY. THE TRAILER MECHANICAL BRAKE MUST ALWAYS BE APPLIED.

13 Carry out the following procedure when parking the trailer:

13.1 Apply the vehicle handbrake control to the on position. Apply the independent trailer brake control (Fig 5) to the 'ON' position; this enables the driver to leave the cab and apply the trailer mechanical brake.

13.2 When the trailer mechanical brake has been applied, place the independent trailer brake control into the 'OFF' position.

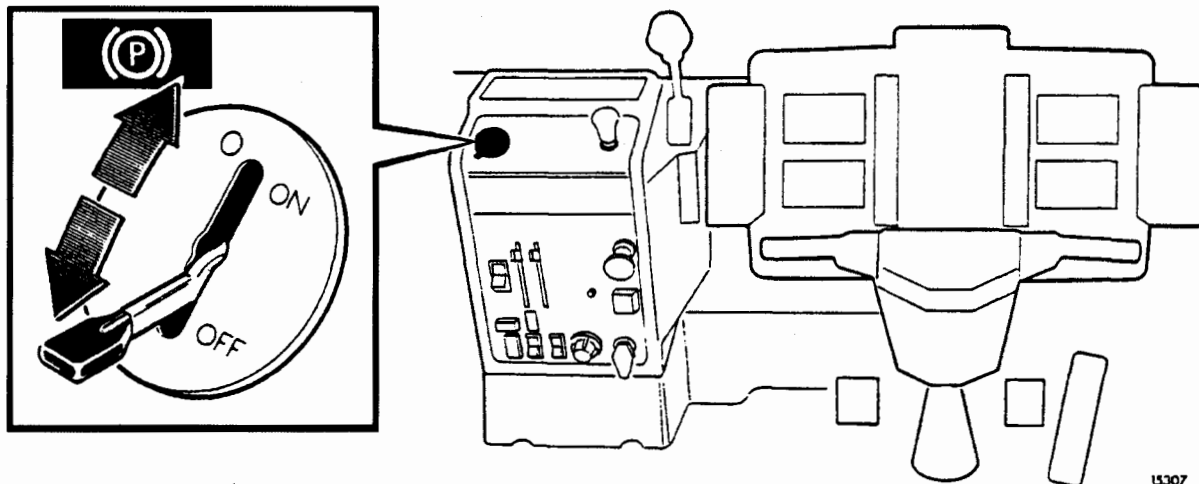


Fig 5 Independent trailer brake control valve

Supplementary spring brake release control

14 To operate, press and hold the supplementary spring brake control (Fig 6) until the spring brakes are released. The switch will automatically return when released, re-applying the spring brakes.

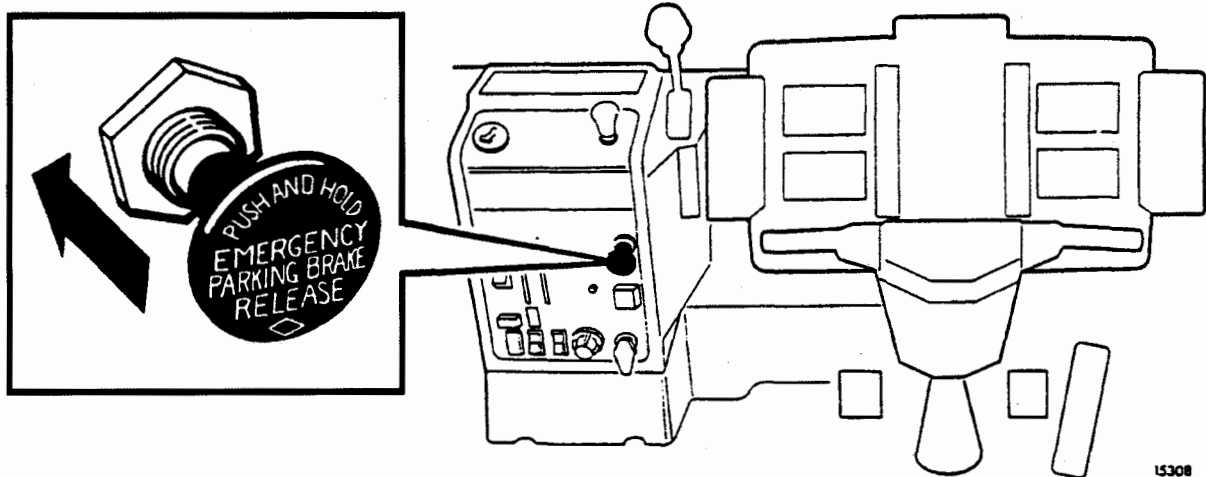


Fig 6 Supplementary spring brake release control

TILTING THE CAB**WARNING**

BEFORE ATTEMPTING TO TILT THE CAB IT IS ESSENTIAL THAT THE FOLLOWING INSTRUCTIONS ARE STRICTLY ADHERED TO:

- (1) THE ENGINE MUST BE SWITCHED OFF, THE HANDBRAKE CONTROL IS IN THE ON POSITION AND THE GEAR LEVER IN THE NEUTRAL POSITION WHILST THE CAB IS BEING TILTED OR LOWERED.
- (2) ENSURE THAT ALL WORKSHOP PERSONNEL ARE STANDING CLEAR OF THE AREA IMMEDIATELY IN FRONT OF THE VEHICLE AND, THAT THERE IS ADEQUATE CLEARANCE IN FRONT AND ABOVE THE CAB.
- (3) DO NOT ATTEMPT TO WORK ON THE VEHICLE WITH THE CAB PARTIALLY TILTED.
- (4) ENSURE THAT THE CAB SAFETY SUPPORT STAY HAS BEEN ENGAGED BEFORE CARRYING OUT REPAIR OPERATIONS.

To raise the cab

CAUTION

Ensure that the cab lock-down lever is in the down (released) position BEFORE operating the cab hydraulic pump.

15 Remove the two-piece pump handle (Fig 7 (1)) from the cab tool box and then secure the tool box lid. Ensure that all equipment within the cab is adequately stowed and secure.

16 Insert the pump handle into the lock-down lever (2) and pull the pump handle downwards to release the lock-down mechanism (3); do NOT use any other bar or handle for this purpose.

17 Turn the spool valve pin (4) to the lift position and insert the pump handle in the pump. Operate the pump handle to raise the cab to its full tilt position.

18 Engage the cab safety support stay (5).

To lower the cab

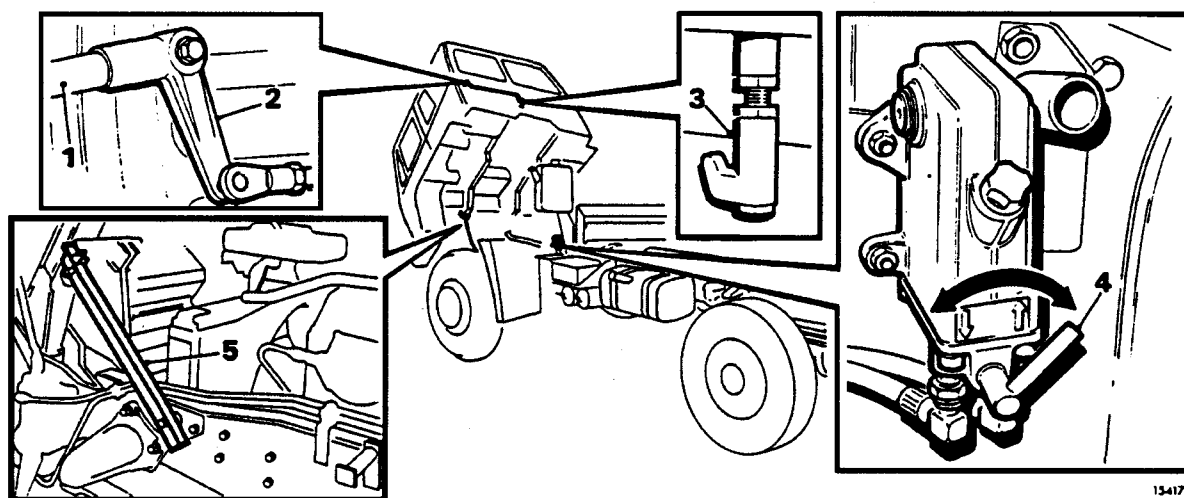
19 Ensure that all personnel are standing clear and that there are no obstructions that would impede the lowering of the cab.

20 Disengage the cab safety support stay and stow in position.

21 Turn the spool valve pin to the lower position. Operate the pump handle to lower the cab into position.

22 Insert the pump handle into the lock-down lever and push the pump handle upwards to secure the lock-down mechanism. Energise the vehicle ignition circuits and check that the cab lock-down warning light has extinguished.

23 Stow the pump handle in the cab tool box. Ensure that the spool valve pin remains in the lower position during normal driving conditions.



- | | | | |
|---|---------------------|---|-------------------------|
| 1 | Pump handle | 4 | Spool valve pin |
| 2 | Lock-down lever | 5 | Cab safety support stay |
| 3 | Lock-down mechanism | | |

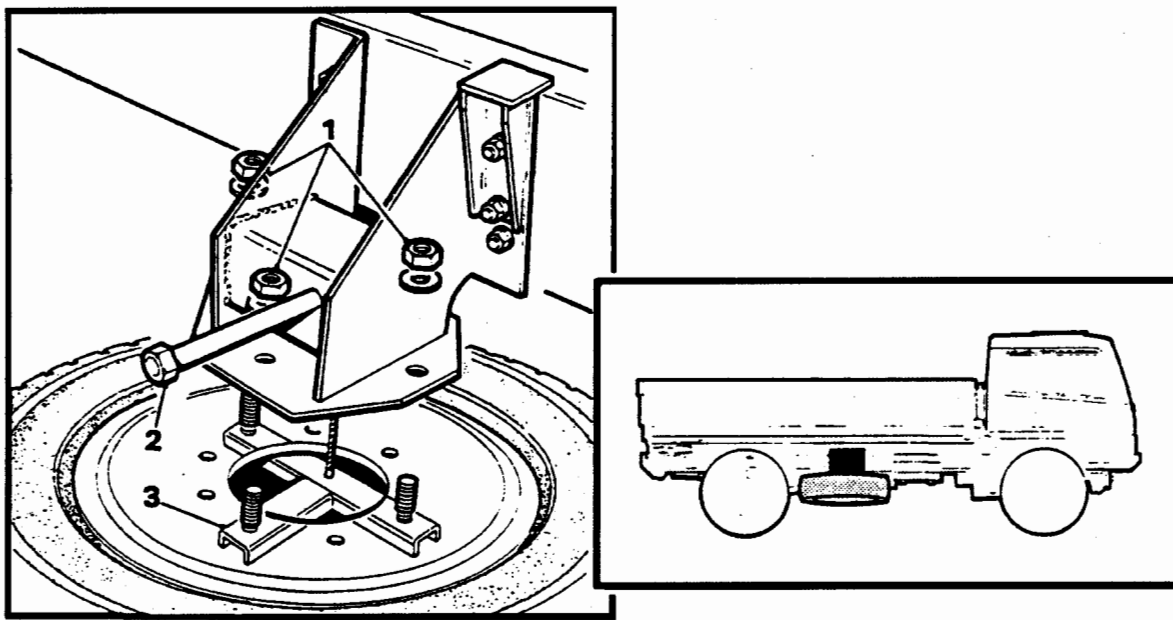
Fig 7 Tilting the cab

SPARE WHEEL CARRIER**WARNING**

ENSURE THAT THE SPARE WHEEL IS FULLY SUPPORTED BY THE WINCH SECURING PLATE BEFORE REMOVING THE RETAINING NUTS.

24 To lower the spare wheel, remove the three retaining nuts (Fig 8 (1)) and washers securing the spare wheel to the carrier. Rotate the shaft (2) in an anti-clockwise direction to lower the spare wheel. Detach securing plate (3).

25 To raise the spare wheel, pass the securing plate through the centre of the wheel and locate the studs in the wheel; before raising the wheel ensure that the tyre inflator is facing outwards to aid tyre inflation. Rotate the shaft in a clockwise direction to raise the spare wheel. When fully raised, secure the spare wheel with the three retaining nuts and washers.



- 1 Retaining nuts
- 2 Shaft
- 3 Securing plate

Fig 8 Spare wheel carrier

SHUT-OFF TAP

26 The shut-off tap (Fig 9) is mounted to the RH chassis frame adjacent to the spare wheel carrier. The shut-off tap is an ancillary air supply source. The vehicle CES includes a length of coupling hose and connection adaptors that, when used with the shut-off tap, can be used as a tyre inflator. To operate the shut-off tap as a tyre inflator, proceed as follows:

- 26.1 With the handbrake control in the on position, start the engine to fully charge the air pressure system.
- 26.2 Detach the dust cap from the shut-off tap outlet.
- 26.3 Connect the coupling hose, complete with connection adaptors, to the shut-off tap outlet and the tyre to be inflated.
- 26.4 Turn on the air supply at the shut-off tap and inflate the tyre to the correct inflation pressure for prevailing road conditions. Ensure that the tyre pressure is checked using an accurate air pressure gauge.
- 26.5 When the operations are completed, turn off the air supply from the shut-off tap and then disconnect the coupling hose and connection adaptors. Fit the dust cover onto the shut-off tap outlet.

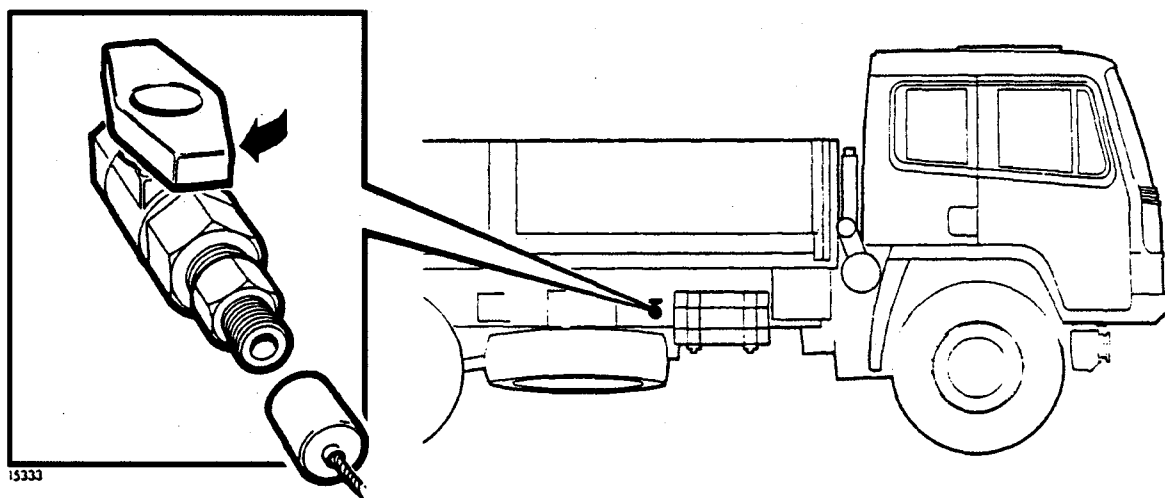


Fig 9 Shut-off tap

CHAPTER 3-1
OPERATING INSTRUCTIONS - WINCH VARIANT
CONTENTS

This Chapter must be read in conjunction with Chapter 3

Para

- 1 Winch operation (WARNINGS)

Fig

Page

- 1 Winch rope layout..... 3/4

WINCH OPERATION

WARNINGS

(1) PROTECTIVE GLOVES MUST BE WORN WHEN HANDLING THE WINCH ROPE. DO NOT ALLOW THE WINCH ROPE TO SLIDE THROUGH THE HAND EVEN WHEN GLOVES ARE WORN.

(2) THE WINCH OPERATOR MUST BE IN THE RECOVERY VEHICLE CAB, AND THE WINDOWS, DOORS AND ROOF-HATCH MUST BE CLOSED BEFORE ATTEMPTING TO OPERATE THE WINCH.

(3) ENSURE ALL OTHER PERSONNEL ARE STANDING CLEAR AT ANY GIVEN POINT FROM THE VEHICLE OR OBJECT TO BE RECOVERED A MINIMUM DISTANCE EQUAL TO THE LENGTH OF ROPE PAYED OUT.

(4) STOP PAYING OUT THE WINCH ROPE WHEN THE RED SECTION IS VISIBLE AT THE FRONT OR REAR OF VEHICLE.

(5) TO PREVENT THE WINCH ROPE FOULING ANY CHASSIS OR TRANSMISSION COMPONENTS WHILST DRIVING THE VEHICLE, ENSURE THAT THE WINCH ROPE IS STOWED WITH ITS ROPE EYE SECURED TO ITS BRACKET AT THE REAR OF THE CHASSIS FRAME. THE FRONT STOWAGE BRACKET, INTRODUCED IN MODIFICATION INSTRUCTION NUMBER 10, IS NOT TO BE USED FOR STOWAGE OF THE WINCH ROPE UNDER NORMAL DRIVING CONDITIONS.

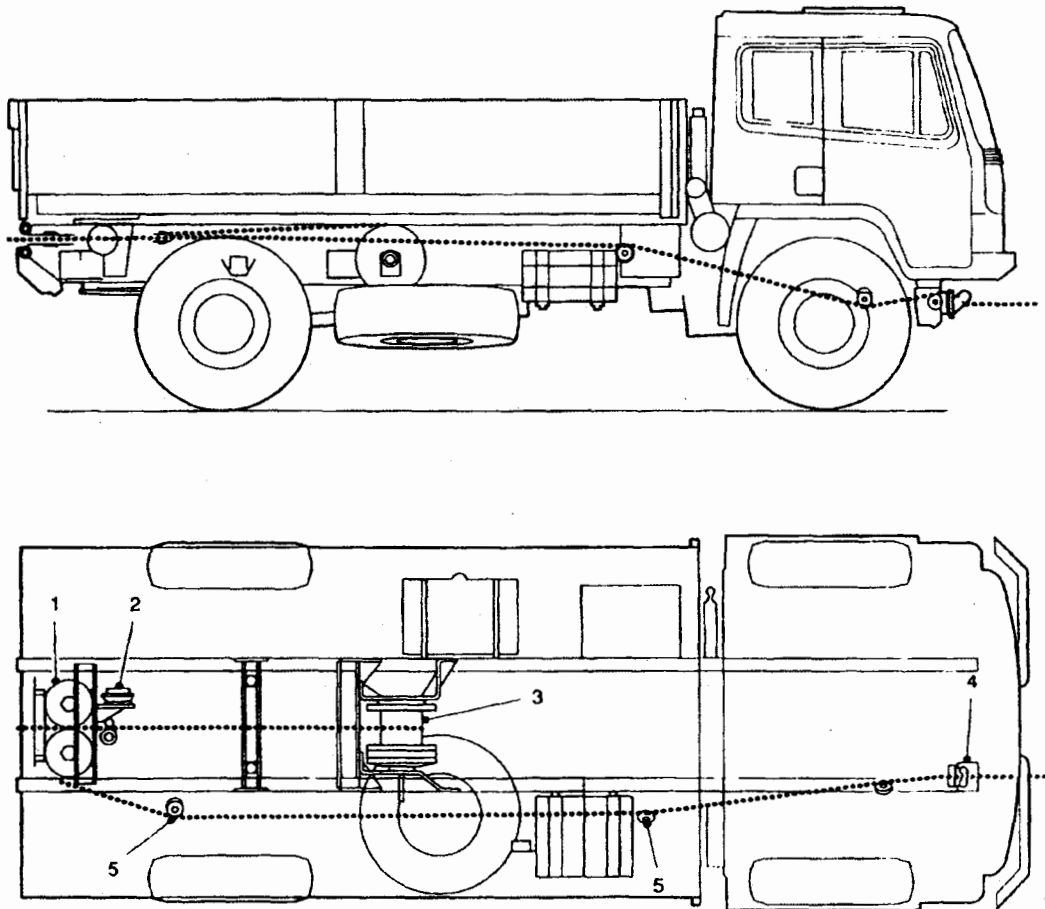
(6) TO PREVENT FOULING OF THE PROPELLER SHAFTS ENSURE THAT ALL EXCESSIVE SLACK IN THE WINCH ROPE IS ELIMINATED BEFORE ATTEMPTING TO DRIVE THE VEHICLE.

(7) ENGINE TO BE OFF AT ALL TIMES WHEN WORKING ON THE WINCH DRUM, I.E., WHEN ENSURING THAT ANY LOOSE COILS ARE MANUALLY LAYED ON CORRECTLY, PRIOR TO WINCHING.

1 Position the vehicle, if possible, in line with the object to be recovered. Apply the handbrake control to the on position and place the change-speed lever in neutral; W the winch is being used for self-recovery, ensure that the vehicle handbrake is in the off position.

2 Pull the winch clutch lever outwards to its full extent to disengage the winch dog clutch, and ensure that the rope tensioner switch is in the off position. Pay out the winch rope by hand; if it is intended to haul in from the front, thread the rope through the pulleys and front fairlead block (Fig 1). Ensure that the winch rope is correctly located on all the pulleys. It is recommended that the pulleys be painted a suitable colour for ease of identification of rope path.

- 3 Take up any slack in the rope between the rope tensioner and winch drum. Engage the winch clutch (the winch drum may require slight rotation to allow the clutch to be engaged) and with the slack taken out, engage the rope tensioner. Ensure that any loose coils are manually laid on the winch drum correctly (see warnings note 7). Attach the rope to the object to be recovered.
- 4 When manually pulling out or powering out the winch rope, the rope tensioner should be disengaged.
- 5 Wherever possible the rope should always be attached to another vehicle. In the event of the rope being paid on 'free end', it should be reset by pulling against a slight load (tensioner engaged) prior to re-use.
- 6 With the engine hand throttle lever in the up (engine idle) position and the rope tensioner engaged, push the cab winch control lever forward to take up the slack in the rope leaving the tensioner engaged at all times when winching in.
- 7 To commence recovery, proceed as follows:
 - 7.1 Using the engine hand throttle, govern the engine to a fast idle speed (1000 to 1500 rev/min). Push and hold the winch control lever forward and regulate the winch speed by operating the throttle lever as necessary.
 - 7.2 A warning buzzer will sound and a warning light on the instrument panel will illuminate if the load approaches the maximum hydraulic operating pressure for the particular drum layer in use. If the hydraulic pressure is exceeded the winch will automatically stop, re-applying the winch brake. To overcome this condition, secure the object being recovered, then pay out the winch rope to release the load, and repeat on a lower layer.
 - 7.3 Return the winch control lever to the neutral (centre) position to stop the winch when the object has been recovered, then place the throttle lever in the up (idling speed) position.
 - 7.4 Secure the recovered object and disconnect the winch rope.
- 8 In the event of the vehicle being partially submerged in water where the operator cannot go under the vehicle to rectify loose coils, the vehicle should be winched out of the water and at the earliest opportunity stop winching and relay the rope on correctly as detailed in Para 3, prior to further use of the winch.



- | | | | |
|---|------------------------|---|-------------------------|
| 1 | Rear fairlead assembly | 4 | Front fairlead assembly |
| 2 | Rope tensioner | 5 | Guide pulleys |
| 3 | Winch drum | | |

Fig 1 Winch rope layout

CHAPTER 3-2
OPERATING INSTRUCTIONS - CRANE VARIANT
CONTENTS

This Chapter must be read in conjunction with Chapter 3

Para

Warnings/cautions

- 1 Power take-off control (WARNING)
- 2 Engine hand throttle lever (WARNING)
- 3 Crane hydraulic operating controls (CAUTION)
- 5 Hydraulic stabiliser (outrigger) deployment (WARNINGS)
- 6 Crane deployment (WARNINGS) (CAUTIONS)

Fig

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1	Crane interior controls.....	3
2	Crane hydraulic operating controls.....	4
3	Hydraulic stabilisers (outriggers).....	6
4	Crane deployment.....	8
5	Crane deployment - later vehicles.....	10
6	Crane aircraft transit - early vehicles.....	12

WARNINGS

- (1) THE CRANE OPERATOR MUST BE CONVERSANT WITH ALL ACCIDENT PREVENTION REGULATIONS AND OPERATING INSTRUCTIONS.**
- (2) IT IS PROHIBITED TO OPERATE THE CRANE ON BOARD SHIPS.**
- (3) THE USE OF THE CALM FOR LIFTING TASKS ASSOCIATED WITH AIRCRAFT REQUIRES THE AIRFRAME TO BE EARTH BONDED IMMEDIATELY BEFORE AND DURING THE USE OF THE CALM.**
- (4) THE USE OF JIB EXTENSIONS IS PROHIBITED**
- (5) THE CRANE HYDRAULIC OPERATING PRESSURE MUST NOT BE INCREASED OR MODIFIED IN ANY WAY.**
- (6) ENSURE THAT THE HYDRAULIC STABILISERS (OUTRIGGERS) ARE CORRECTLY DEPLOYED AND LOCKED IN POSITION BEFORE ATTEMPTING TO OPERATE THE CRANE.**
- (7) ENSURE THAT THE HANDBRAKE IS APPLIED AND THAT CHOCKS ARE POSITIONED BENEATH THE ROAD WHEELS BEFORE ATTEMPTING TO DEPLOY/OPERATE THE CRANE.**
- (8) WHERE POSSIBLE, PARK THE VEHICLE ON FIRM LEVEL GROUND BEFORE DEPLOYING/OPERATING THE CRANE.**
- (9) WHEN THE GROUND SURFACE IS SOFT AND THERE IS A POSSIBILITY OF THE HYDRAULIC STABILISER FEET PENETRATING THE GROUND SURFACE, PLACE RIGID PANELS OF SUFFICIENT STRENGTH BENEATH EACH STABILISER FOOT.**
- (10) PERSONNEL ARE NOT PERMITTED TO BE WITHIN THE CRANE'S SLEWING RANGE OR UNDER SUSPENDED LOADS.**

- (11) DO NOT SHUT DOWN THE CRANE WITH A SUSPENDED LOAD.
- (12) DO NOT ATTEMPT TO MOVE THE VEHICLE WITH A SUSPENDED LOAD.
- (13) DO NOT COMMENCE SLEWING UNLESS THE CENTRAL COLUMN IS UPRIGHT.
- (14) DO NOT COMMENCE SLEWING UNTIL THE LOAD IS SUSPENDED AND IT IS SAFE TO DO SO.
- (15) DO NOT EXCEED THE LOAD CAPACITY STATED IN THE LOAD CAPACITY CHART. THE LOAD CAPACITY STATED REFERS TO THE CRANE IN A HORIZONTAL POSITION; THIS CAPACITY WILL BE REDUCED WHEN THE CRANE IS OPERATED AT AN ANGLE.
- (16) ENSURE THAT A MINIMUM SAFE WORKING DISTANCE OF 5 METRES IS OBSERVED WHEN WORKING IN THE VICINITY OF OVERHEAD CABLES.
- (17) WHILST OPERATING THE CRANE, OPERATORS NEED TO BE AWARE OF ANY OVERHEAD OBSTRUCTIONS, AND THAT A FULLY EXTENDED CRANE IN THE EXTENDED VERTICAL POSITION CAN REACH A HEIGHT OF 10.5 METRES FROM GROUND LEVEL.
- (18) ENSURE THAT THE POWER TAKE-OFF UNIT IS DISENGAGED BEFORE ATTEMPTING TO DRIVE THE VEHICLE.
- (19) ENSURE THAT THE HAND THROTTLE LEVER IS RETURNED TO THE ENGINE IDLING POSITION BEFORE ATTEMPTING THE DRIVE THE VEHICLE.
- (20) ENSURE THAT BOTH HYDRAULIC ISOLATION VALVES ARE IN THE FULLY CLOSED POSITION WHILST THE OUTRIGGERS ARE EITHER IN THE DEPLOYED OR FULLY RETRACTED POSITIONS.
- (21) PERSONAL INJURY. CRANE OPERATORS AND MAINTAINERS NEED TO TAKE CARE WHEN UNSTOWING AND STOWING, THE UPPER REMOTE CRANE CONTROLS IN ORDER TO PREVENT A FALL FROM HEIGHT ACCIDENT.

CAUTIONS

- (1) When the column folding ram attains it's fully stowed or erected position, ensure that the control lever is continued to be operated for an additional 5 seconds to ensure that the column folding hydraulic system is fully pressurised.
- (2) To prevent accidental damage to the vehicle or crane, ensure that particular care is taken whilst the crane boom is being manoeuvred into it's deployed or transit positions and whenever the crane is operated within close proximity of the vehicle headboard or body.
- (3) The design of this crane prohibits a straight vertical lift. Crane operators will need to operate the inner and outer booms alternatively to obtain a staged vertical lift.

POWER TAKE-OFF CONTROL

WARNING

ENSURE THAT THE POWER TAKE-OFF UNIT IS DISENGAGED BEFORE ATTEMPTING TO DRIVE THE VEHICLE.

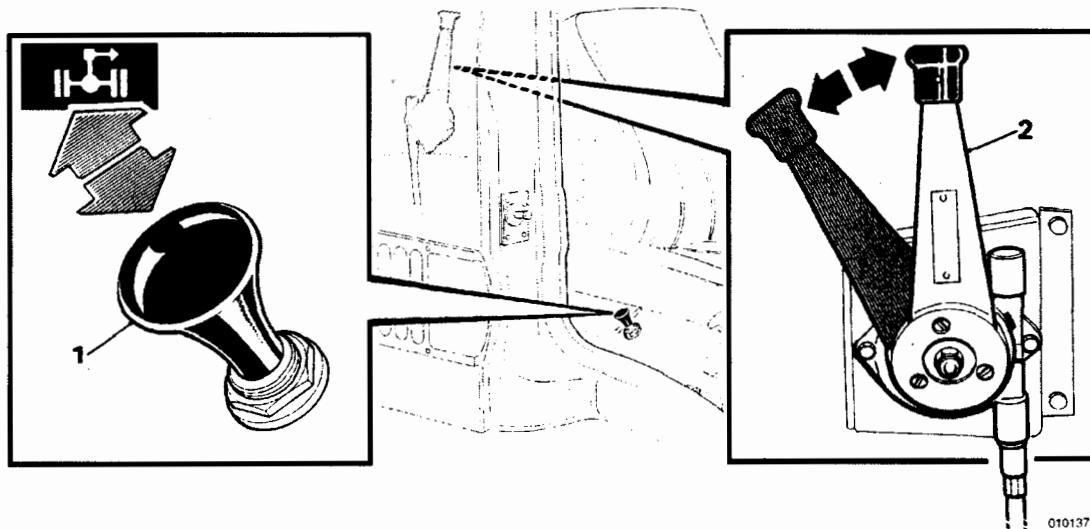
1 Before engaging the Power Take-Off (PTO), ensure that the handbrake is in the on position and the gear lever is in neutral. Start the engine, fully depress the clutch pedal and pull the PTO control (Fig 1 (1)) upwards; release the clutch pedal when the PTO has engaged. An amber warning light in the instrument panel will illuminate when the unit is engaged and will remain illuminated whilst the PTO unit is operational.

ENGINE HAND THROTTLE LEVER

WARNING

ENSURE THAT THE HAND THROTTLE LEVER IS IN THE UPRIGHT (ENGINE IDLING) POSITION BEFORE ATTEMPTING TO DRIVE THE VEHICLE.

2 The engine hand throttle lever (Fig 1 (2)) is attached to cab interior adjacent to the driver's seat. This control enables the operator to set/govern the speed of the engine for crane operation. From the upright (engine idling) position, push the throttle lever forwards to increase the engine speed. Ensure that the throttle lever is returned to the upright (engine idling) position when all hydraulic crane operations are completed.



1 Power take-off control

2 Engine hand throttle lever

Fig 1 Crane interior controls

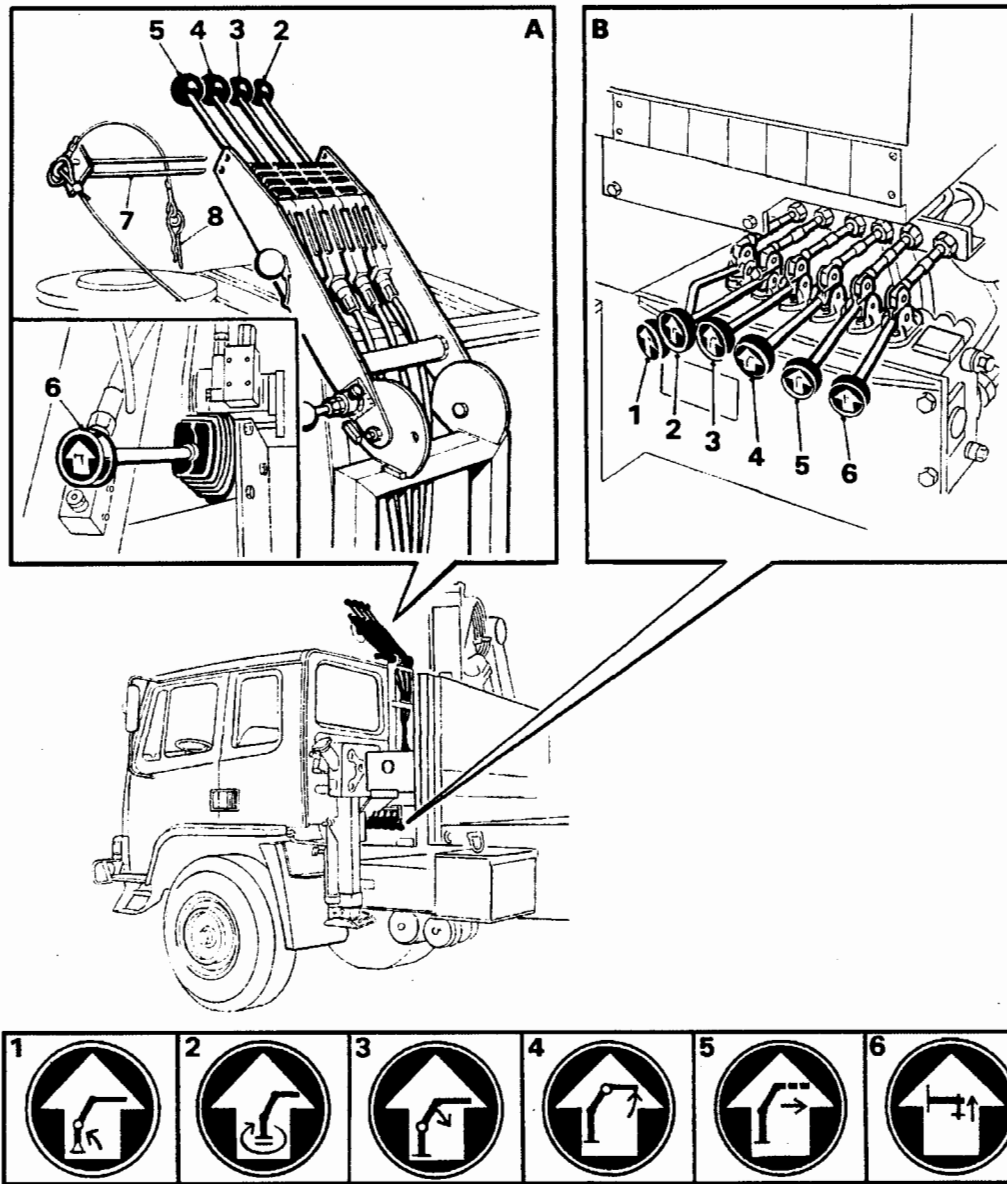
CRANE HYDRAULIC OPERATING CONTROLS

3 The hydraulic operating functions of the crane are controlled by the primary (Fig 2 (B)) and servo (A) operating controls. The function of each operating control lever is as follows:

CAUTION

When folding ram attains its fully stowed or erected position, it is essential that the control lever is continued to be operated for an additional 5 seconds to ensure that the column folding hydraulic system is fully pressurised.

3.1 Column Folding Control Lever (1 inset B). Push the control lever to unfold the column to the working position. Lift the control lever to fold the column into transportable position.



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- | | | | |
|---|------------------------------|---|------------------------------------|
| A | Servo operating controls | B | Primary operating controls |
| 1 | Column folding control lever | 5 | Extension control lever |
| 2 | Slew control lever | 6 | Hydraulic stabiliser control lever |
| 3 | Boom control lever | 7 | Safety bracket |
| 4 | Jib control lever | 8 | Spring retaining clip |

Fig 2 Crane hydraulic operating controls

3.2 Slew Control Lever (2). Lift the control lever upwards to slew the crane column to the right; push the control lever downwards to slew the crane column to the left.

3.3 Boom Control Lever (3). Lift the control lever upwards to lower the boom; push the control lever downwards to raise the boom.

- 3.4 Jib Control Lever (4). Lift the control lever upward to fold out the jib; push the control lever downwards to fold in the jib.
- 3.5 Extension Control Lever (5). Lift the control lever upwards to extend the extension; push the control lever downwards to retract the extension.
- 3.6 Hydraulic Stabiliser Control Lever (6). Lift the control lever upwards to retract the hydraulic stabilisers; push the control lever downwards to extend the hydraulic stabilisers.
- 4 The crane hydraulic control system incorporates the following safety features:
- 4.1 To prevent inadvertent use, the servo operating controls are locked in position with a safety bracket (7) and spring retaining clip (8). With the servo operating controls locked in position, all hydraulic operating controls, with the exception of the hydraulic stabiliser (outrigger) controls, will be inoperative.
- 4.2 Each operating control lever is spring loaded and when released from either the up or down operating positions, will automatically return to the central (off) position.
- 4.3 A crane overload protection system is incorporated in the crane hydraulic control circuits. In the event of a hydraulically sensed overload occurring during crane operation the affected control lever will automatically return to the central (off) position and will be disabled from further movement that would increase the overload. Reset the overload protection system as follows:
- 4.3.1 Operate the affected control lever to decrease the overload on the crane; the overload protection system will be automatically reset and return the operating lever to its normal functions.
- 4.3.2 In the event of the disabled control lever becoming completely inoperative, operate any other control lever that would decrease the overload on the crane.

HYDRAULIC STABILISERS (OUTRIGGERS) DEPLOYMENT

WARNINGS

- (1) ENSURE THAT THE HANDBRAKE IS APPLIED AND THAT CHOCKS ARE POSITIONED BENEATH THE ROAD WHEELS TO PREVENT VEHICLE MOVEMENT.**
- (2) ENSURE THAT THE HYDRAULIC STABILISERS (OUTRIGGERS) ARE FULLY DEPLOYED AND LOCKED IN POSITION BEFORE ATTEMPTING TO OPERATE THE CRANE.**
- (3) WHERE POSSIBLE, PARK THE VEHICLE ON FIRM LEVEL GROUND BEFORE OPERATING THE CRANE. WHEN THE GROUND SURFACE IS SOFT AND THERE IS A POSSIBILITY OF THE HYDRAULIC STABILISER FEET PENETRATING THE GROUND SURFACE, PLACE LARGE, RIGID PANELS OF SUFFICIENT STRENGTH BENEATH EACH STABILISER FOOT.**
- (4) ENSURE THAT BOTH HYDRAULIC ISOLATION VALVES ARE IN THE CLOSED POSITION WHILST THE OUTRIGGERS ARE EITHER IN THE FULLY DEPLOYED OR FULLY RETRACTED (TRANSPORT) POSITIONS.**
- 5 Deploy the hydraulic stabilisers as follows:
- 5.1 Remove the spring retaining clip (Fig 3 (3)) and release the locking pin handle (2) from each stabiliser beam (4).

5.2. Carefully pull out each stabiliser to its maximum extension; ensure that the hydraulic hoses to each stabiliser are not kinked or allowed to foul or chafe. Lock each stabiliser beam in position with its locking pin handle.

5.3 Fully support the stabiliser foot (6) and carefully remove the spring retaining clip (7) and locking pin (5). Lower the stabiliser foot to its maximum extension and then secure in position with its locking pin and spring retaining clip. Repeat this operation on the opposite stabiliser foot.

5.4 Engage the power take-off unit as instructed in Para 1. Using the engine hand throttle lever, govern the engine speed to 1000 rev/min.

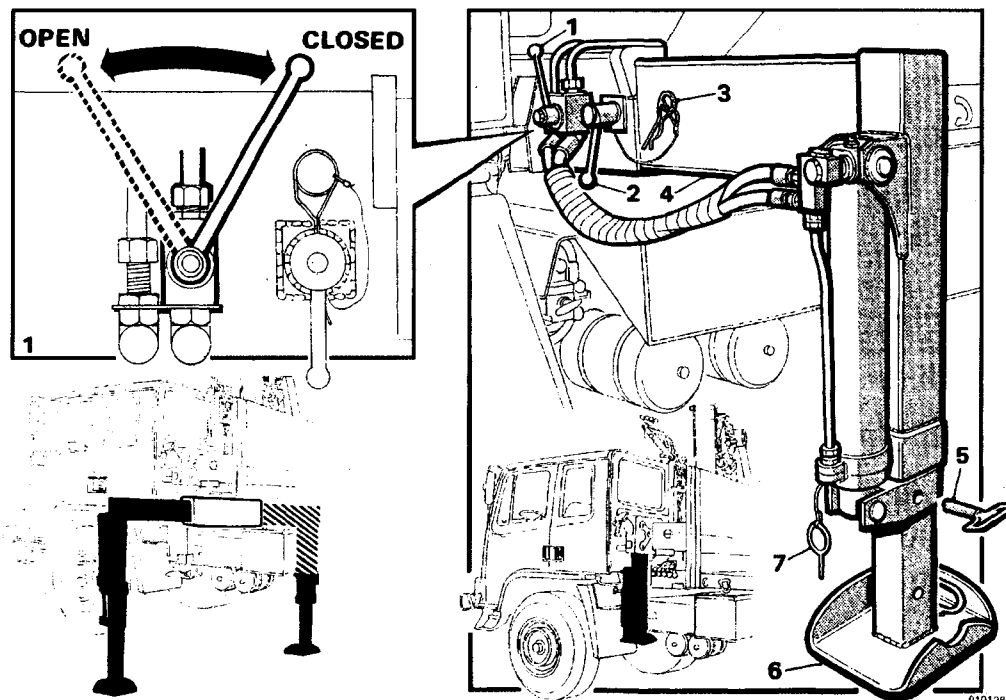
5.5 Each hydraulic stabiliser is equipped with a hydraulic isolator valve (1) which enables the hydraulic pressure to this unit to be disabled and hydraulically locked in position. These valves enable each stabiliser to be operated independently of each other to suit uneven ground conditions. With both isolation valves in the open position, both hydraulic stabilisers will operate simultaneously using either of the hydraulic operating controls. Lower the stabiliser feet as follows:

5.5.1 Open the hydraulic isolator valve on the stabiliser that is to be extended and ensure that the hydraulic isolator valve for the opposite stabiliser is in the closed position.

5.5.2 Using the appropriate hydraulic control, extend the stabiliser foot until it rests firmly on the ground; do not raise the vehicle frame excessively and ensure that the vehicle is as level as possible.

5.5.3 Close the hydraulic isolator valve.

5.5.4 Repeat the extension procedure on the opposite stabiliser.



- | | | | |
|---|--------------------------|---|-----------------------|
| 1 | Hydraulic isolator valve | 5 | Locking pin |
| 2 | Locking pin handle | 6 | Stabiliser foot |
| 3 | Spring retaining clip | 7 | Spring retaining clip |
| 4 | Stabiliser beam | | |

Fig 3 Hydraulic stabilisers (outriggers)

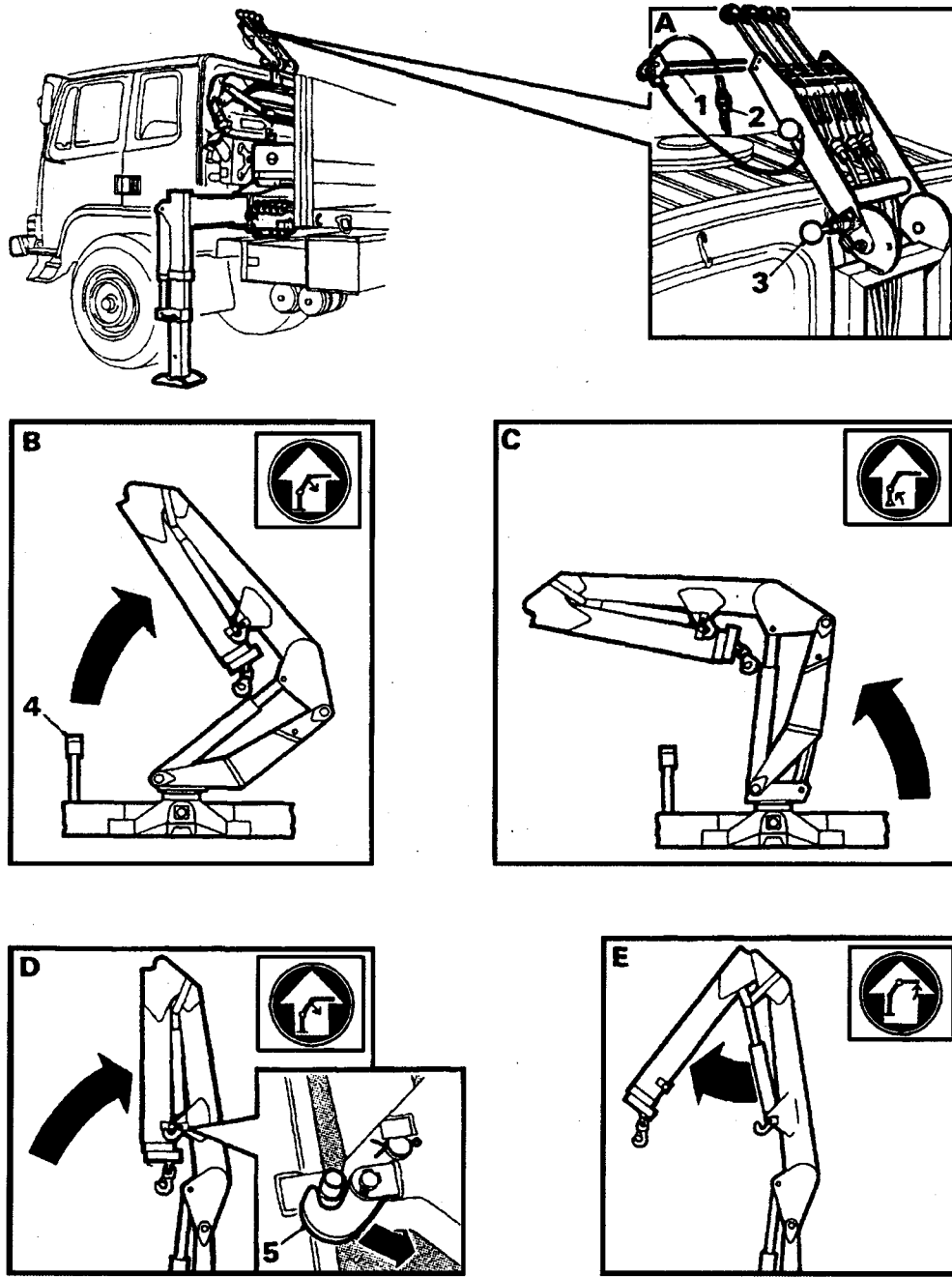
CRANE DEPLOYMENT

WARNINGS

- (1) ENSURE THAT THE HANDBRAKE IS APPLIED AND THAT CHOCKS ARE POSITIONED BENEATH THE ROAD WHEELS TO PREVENT VEHICLE MOVEMENT.**
- (2) ENSURE THAT THE HYDRAULIC STABILISERS (OUTRIGGER) ARE FULLY DEPLOYED AND LOCKED IN POSITION BEFORE ATTEMPTING TO OPERATE THE CRANE.**

CAUTIONS

- (1) To prevent accidental damage to the vehicle or crane, ensure that particular care is taken whilst the crane boom is being manoeuvred into its deployed or transit positions and whenever the crane is operated within close proximity of the vehicle headboard/body.**
 - (2) When the column folding ram attains its fully stowed or erected position, it is essential that the control lever is continued to be operated for an additional 5 seconds to ensure that the column folding hydraulic system is fully pressurised.**
- 6 Fully deploy the hydraulic stabilisers (outriggers) as instructed in Para 3.6.
- 6.1 Release the spring retaining clip (Fig 4 (2) and swivel the servo (remote) control assembly (A) fully forwards to its operating position; ensure that the spring loaded retaining pin (3) has been engaged and that the servo (remote) control assembly is locked in position.
 - 6.2 Remove the spring retaining clip (2) and release the safety bracket (1) from the servo (remote) control assembly.
 - 6.3 Using the boom control lever, carefully raise the crane boom assembly clear of its support cradle (4) and into an attitude of approximately 45° above the horizontal position (B).
 - 6.4 Using the column folding control lever, raise the crane column clear into its fully erected position (C); continue to operate the column folding control lever for a further 5 seconds after the crane column has attained its fully erected position to ensure that the column folding hydraulic system is fully pressurised.
 - 6.5 Using the crane boom control, raise the crane boom to its full vertical position (D); the jib safety hook (5) will be automatically released.
 - 6.6 Ensure that the jib safety hook is fully released and then, using the jib control lever, carefully unfold the crane jib to its required deployment position (E).
 - 6.7 Reverse the above procedure to stow the crane into its normal transit position, ensuring that the boom assembly is correctly located in its support cradle.



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- | | | | |
|---|-------------------------------------|---|-----------------------------|
| A | Servo (remote) control assembly | 1 | Safety bracket |
| B | Boom deployment - 45° position | 2 | Spring retaining clip |
| C | Crane column deployment | 3 | Spring loaded retaining pin |
| D | Boom deployment - vertical position | 4 | Support cradle |
| E | Jib deployment | 5 | Jib safety hook |

Fig 4 Crane deployment

CRANE DEPLOYMENT - LATER VEHICLES

NOTE

Later models are fitted with a crane column folding control lever (Fig 5 (1)).

WARNINGS

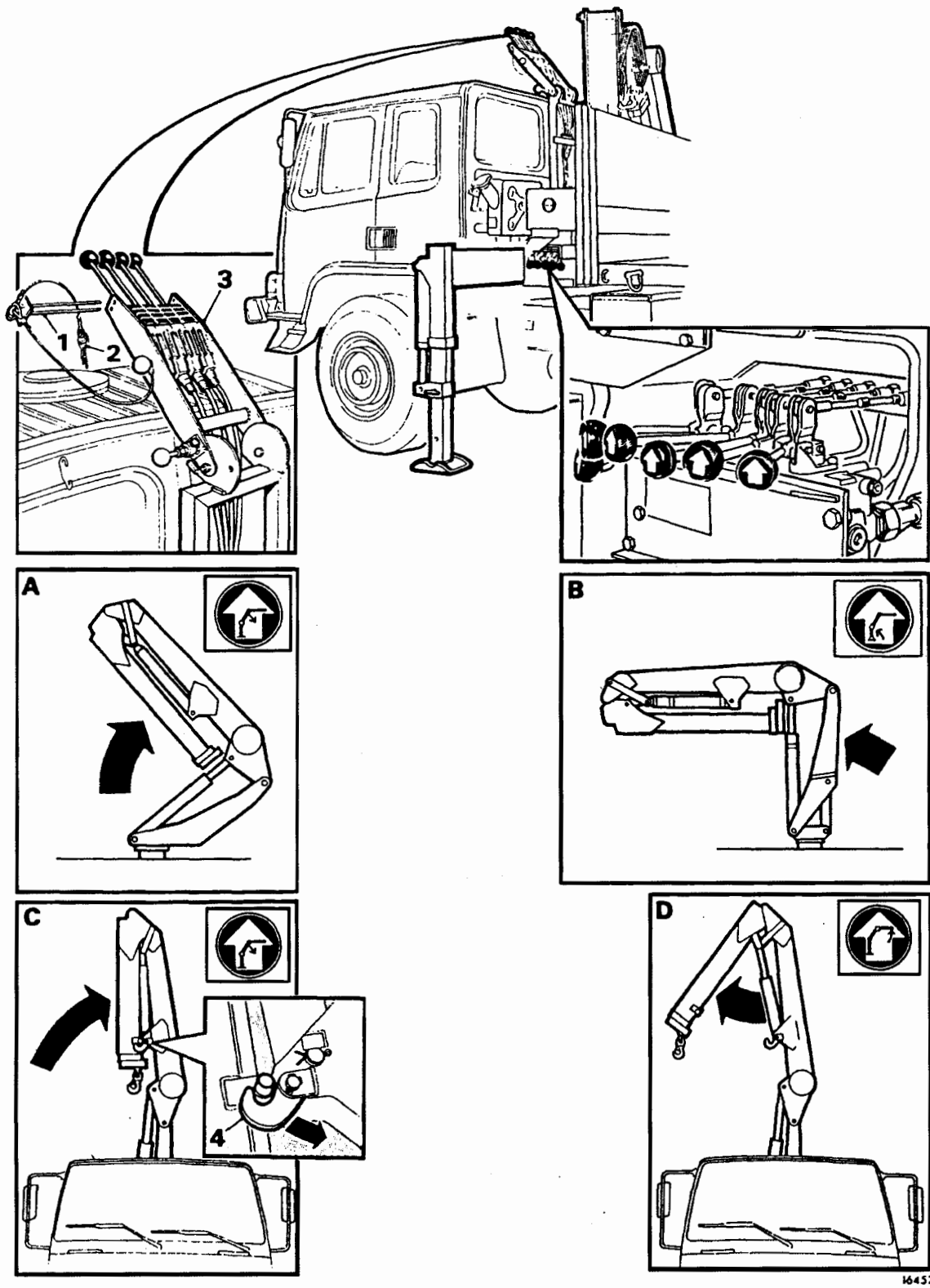
(1) ENSURE THAT THE HANDBRAKE IS APPLIED AND THAT CHOCKS ARE POSITIONED BENEATH THE ROAD WHEELS TO PREVENT VEHICLE MOVEMENT.

(2) ENSURE THAT THE HYDRAULIC STABILISERS (OUTRIGGERS) ARE FULLY DEPLOYED AND LOCKED IN POSITION BEFORE ATTEMPTING TO OPERATE THE CRANE.

CAUTION

To prevent accidental damage to the vehicle or crane, ensure that particular care is taken whilst the crane boom is being manoeuvred into its deployed or transit positions and whenever the crane is operated within close proximity of the vehicle headboard/body.

- 7 Deploy the crane from the transport to its normal working position as follows:
 - 7.1 Fully deploy the hydraulic stabilisers (outriggers) as instructed in Para 5.
 - 7.2 Remove the spring retaining clip (2) and release the safety bracket from the servo operating controls (3).
 - 7.3 Using the boom control lever, carefully raise the crane boom from its transit position to approximately 45° above the horizontal position.
 - 7.4 Using the column folding control lever (1), carefully unfold the column and hold it in the vertical position (B) for five seconds, to build up to full working pressure.
 - 7.5 Using the boom control lever (C), raise the crane boom further until the jib safety catch (4) is automatically released.
 - 7.6 Ensure that the jib safety catch is fully released, then using the jib control lever (D), carefully unfold the crane jib.
- 8 Reverse the procedure in Para 12 to stow the crane in the transport position.



- | | | | |
|---|------------------------------------|---|--------------------------|
| A | Crane boom deployment | C | Crane boom deployment |
| B | Crane column deployment | D | Crane jib deployment |
| 1 | Crane column folding control lever | 3 | Servo operating controls |
| 2 | Spring retaining clip | 4 | Jib safety hook |

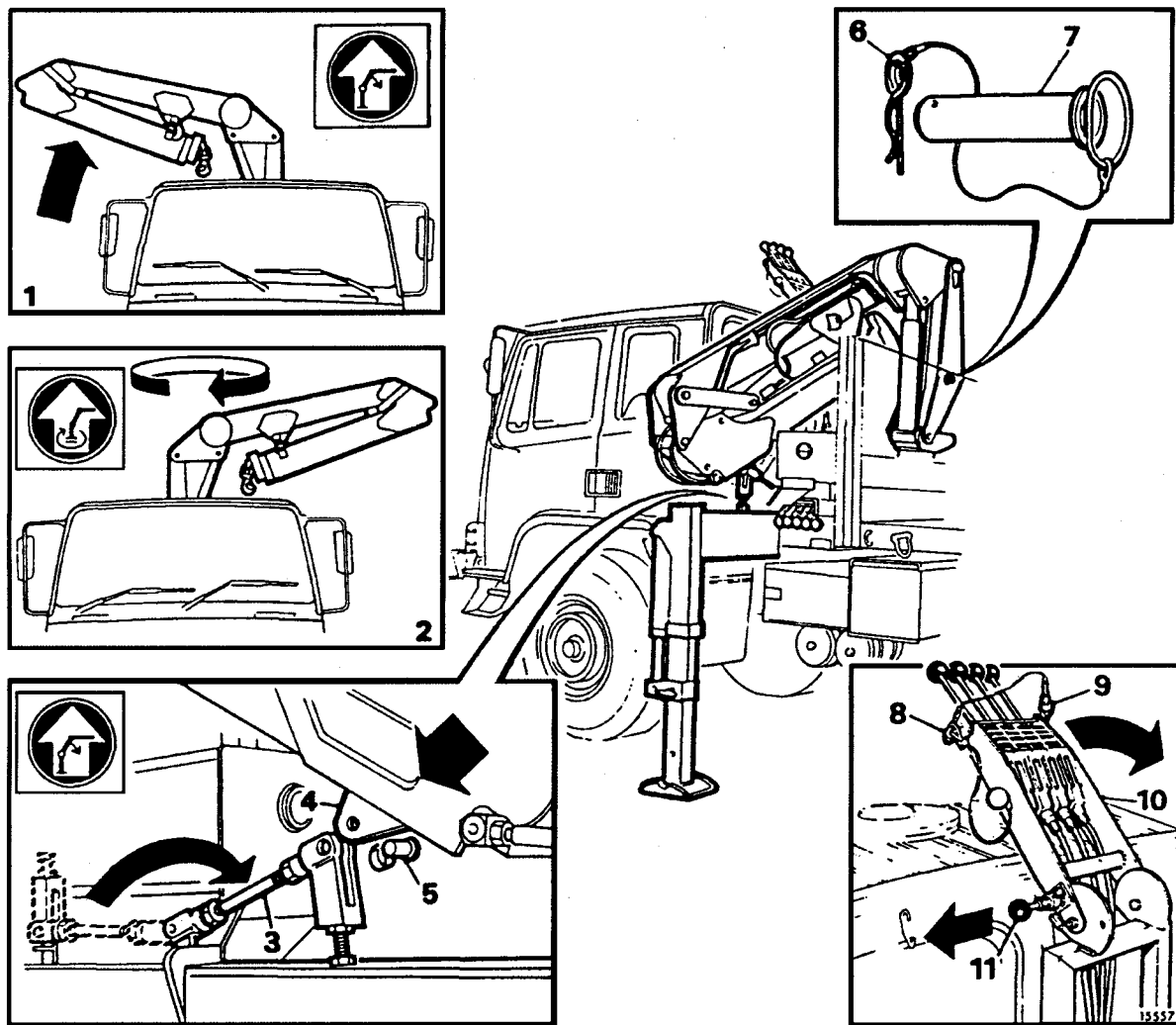
Fig 5 Crane deployment - later vehicles

AIRCRAFT TRANSIT OF CRANE

WARNING

THE CRANE BOOM MUST BE ATTACHED TO THE SUPPORT ROD BEFORE ATTEMPTING TO REMOVE THE LOCKING PIN FROM THE CRANE COLUMN.

- 9 With the crane stowed in its normal transport position, prepare the crane for aircraft transit as follows:
 - 9.1 Fully deploy the LH hydraulic stabiliser (outrigger) as instructed in Para 5.
 - 9.2 Remove the locking pin (Fig 6 (5)) and swivel the support rod (3) until it locates on the deployed LH outrigger; ensure that the support rod is centrally located on the outrigger beam.
 - 9.3 Remove the retaining clip (9) and release the safety bracket (8) from the servo operating controls (10).
 - 9.4 Using the boom control lever, carefully raise the crane boom until it is in a horizontal position (1) and clear of the vehicle headboard. Using the column control lever, slew the crane approximately 180° (2).
 - 9.5 Using the appropriate operating controls, carefully manoeuvre the crane boom until the boom attachment eye (4) is aligned with the support rod. Secure the boom attachment eye to the support rod with the locking pin; the weight of the crane will now be fully supported by the support rod and outrigger.
 - 9.6 Remove the spring retaining clip (6) and then extract the locking pin (7) from the crane column. Using the boom control lever, carefully manoeuvre the crane into its fully folded (transit) position and then refit the crane column locking pin complete with its spring retaining pin.
 - 9.7 Fully retract the LH hydraulic stabiliser (outrigger) and lock in position; ensure that the hydraulic isolator valve is in the closed position.
 - 9.8 Lock the servo operating control levers in position with the safety bracket and secure with the retaining clip.
 - 9.9 Extract the spring loaded retaining pin (11) and swivel the servo hydraulic control assembly fully rearward to the transit position; release the spring loaded retaining pin to secure the assembly in position.
 - 9.10 Disengage the power take-off control and move the engine hand throttle lever to the idling position.
- 10 Reverse the procedure in sub-Para 9.1 to 9.10 to return the crane to its normal transport position.



- | | |
|---------------------------|--------------------------------|
| 1 Crane boom deployment | 7 Locking pin |
| 2 Crane column deployment | 8 Safety bracket |
| 3 Support rod | 9 Spring retaining clip |
| 4 Boom attachment eye | 10 Servo operating controls |
| 5 Locking pin | 11 Spring loaded retaining pin |
| 6 Spring retaining clip | |

Fig 6 Crane aircraft transit - early vehicles

CHAPTER 3-3
OPERATING INSTRUCTIONS - TAIL LIFT VARIANT
CONTENTS

This Chapter must be read in conjunction with Chapter 3-0

Para

- Warnings/caution
- 1 Tail lift operation (CAUTIONS)

Fig

Page

1	Tail lift control boxes.....	2
2	Platform deployment	4

WARNINGS

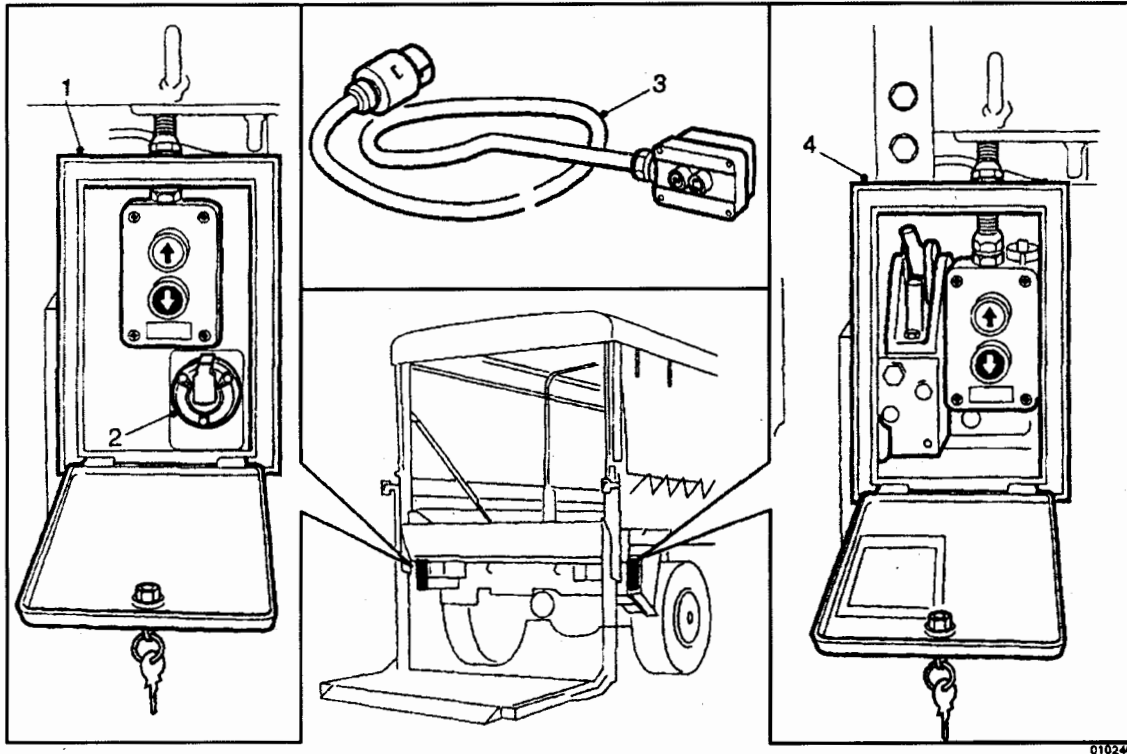
- (1) ENSURE THAT THE VEHICLE IS STANDING ON FIRM LEVEL GROUND AND THAT THE VEHICLE HAND BRAKE IS APPLIED.
- (2) DO NOT EXCEED THE MAXIMUM SAFE WORKING LOAD.
- (3) DO NOT DROP LOADS ONTO THE PLATFORM.
- (4) KEEP CLEAR OF UNGUARDED PLATFORM EDGES.
- (5) DO NOT ALLOW PERSONNEL TO STAND IN AREA OF MOVEMENT.
- (6) DO NOT ALLOW PERSONNEL TO STAND ON LIFT OR LOAD.
- (7) ENSURE AREA AROUND THE TAIL LIFT IS FREE OF OBSTRUCTION.
- (8) DO NOT USE THE PLATFORM AS A BRIDGE BETWEEN A LOADING DOCK AND THE VEHICLE.
- (9) PRESS THE REMOTE ISOLATOR SWITCH BEFORE LEAVING THE TAIL LIFT UNATTENDED.
- (10) PUSH LOADS FROM THE VEHICLE TO AN ELEVATED PLATFORM, DO NOT PULL.
- (11) ENSURE THAT THE PLATFORM IS CORRECTLY STOWED AFTER LOADING.
- (12) DO NOT MOVE THE VEHICLE WITH THE PLATFORM LOWERED.
- (13) DO NOT MOVE THE VEHICLE WITH A LOAD ON THE PLATFORM.

CAUTION

To ensure that the wander lead control is held the correct way up, the **WHITE BUTTON WITH THE BLACK ARROW** identifies the UP button.

TAIL LIFT OPERATION

- 1 Ensure that the tail lift battery isolator switch (Chap 2-3, Fig 1 (2)) is in the ON position.
- 2 Unlock and open the relevant control box; if necessary, connect the wander lead to the socket in the LH control box.



- | | | | |
|---|--------------------|---|----------------|
| 1 | LH control box | 3 | Wander lead |
| 2 | Wander lead socket | 4 | RH control box |

Fig 1 Tail lift control boxes

CAUTION

To ensure that the wander lead control is held the correct way up, the WHITE BUTTON WITH THE BLACK ARROW identifies the UP button.

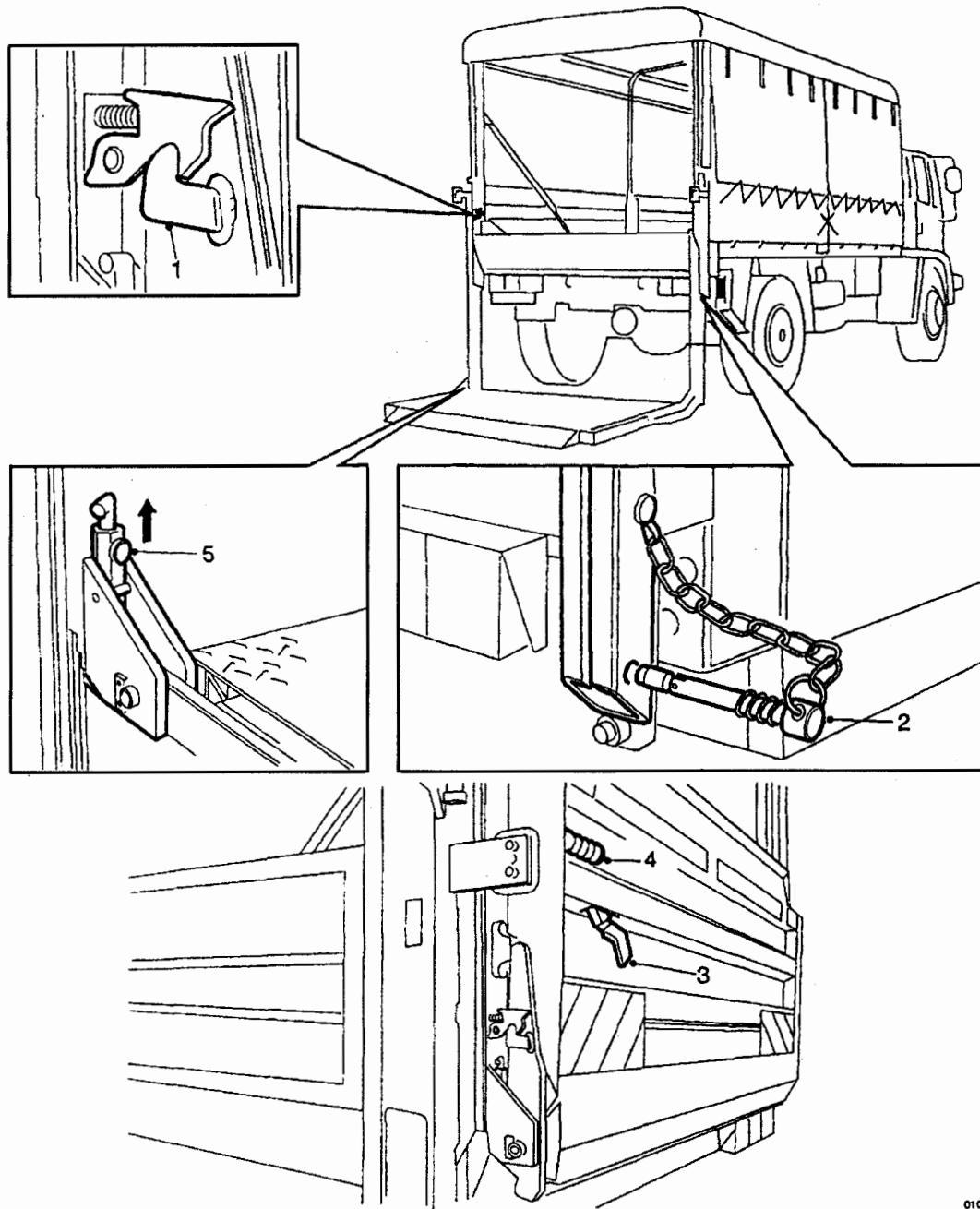
- 3 To operate the tail lift, refer to Fig 2 and proceed as follows:
 - 3.1 Remove both platform stop pins (2).
 - 3.2 Pull the slam lock handle (3) and at the same time, depress the down button on the relevant control (Fig 1). Lower the platform to a convenient height to reach the release handle (4).
 - 3.3 Release the platform catch (1) and swing the platform to the horizontal position. Press down firmly on the outer edge to engage the anti-tilt latch (5).

- 3.4 Press the control down or up button to operate the tail lift.

CAUTION

To ensure that the wander lead control is held the correct way up, the WHITE BUTTON WITH THE BLACK ARROW identifies the UP button.

- 4 Stow the platform as follows:
 - 4.1 Press the control up button and raise the tail lift approximately 100 mm (4 in.).
 - 4.2 Press down on the platform to release the anti-tilt latch.
 - 4.3 Hinge the platform up and ensure that the platform catch is engaged.
 - 4.4 Using the control up button, raise the closed platform until the upward movement is checked by the engagement of the slam lock pins.
 - 4.5 Refit both platform stop pins.
- 5 Close and lock the relevant control box. When applicable, disconnect the wander lead from the socket and stow in the LH control box.



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- | | | | |
|---|--------------------|---|-----------------|
| 1 | Platform catch | 4 | Release handle |
| 2 | Platform stop pins | 5 | Anti-tilt latch |
| 3 | Slam lock | | |

Fig 2 Platform deployment

CHAPTER 3-5
OPERATING INSTRUCTIONS - CRANE VARIANT WITH TYRE HANDLER

CONTENTS

This Chapter must be read in conjunction with Chapter 3-0
and associated publication 2590-N-105-201

Para

Warnings/cautions

- 1 Power take-off control (WARNING)
- 2 Engine hand throttle lever (WARNING)
- 3 Crane/tyre handler operating controls (CAUTION)
- 7 Hydraulic stabiliser (outrigger) deployment (WARNINGS)
- 8 Tyre handler deployment (WARNINGS) (CAUTIONS)

Fig

Page

1	Interior controls.....	3
2	Hydraulic operating controls.....	5
3	Tyre handler operating controls	6
4	Hydraulic stabilisers (outriggers).....	8

WARNINGS

- (1) THE CRANE/TYRE HANDLER OPERATOR MUST BE CONVERSANT WITH ALL ACCIDENT PREVENTION REGULATIONS AND OPERATING INSTRUCTIONS.**
- (2) IT IS PROHIBITED TO OPERATE THE CRANE/TYRE HANDLER ON BOARD SHIPS.**
- (3) THE USE OF THE CRANE/TYRE HANDLER FOR ANY TASKS ASSOCIATED WITH AIRCRAFT REQUIRES THE AIRFRAME TO BE EARTH BONDED IMMEDIATELY BEFORE AND DURING THE USE OF THE CALM.**
- (4) THE USE OF JIB EXTENSIONS IS PROHIBITED**
- (5) THE CRANE HYDRAULIC OPERATING PRESSURE MUST NOT BE INCREASED OR MODIFIED IN ANY WAY.**
- (6) ENSURE THAT THE HYDRAULIC STABILISERS (OUTRIGGERS) ARE CORRECTLY DEPLOYED AND LOCKED IN POSITION BEFORE ATTEMPTING TO OPERATE THE TYRE HANDLER.**
- (7) ENSURE THAT THE HANDBRAKE IS APPLIED AND THAT CHOCKS ARE POSITIONED BENEATH THE ROAD WHEELS BEFORE ATTEMPTING TO DEPLOY/OPERATE THE TYRE HANDLER.**
- (8) WHERE POSSIBLE, PARK THE VEHICLE ON FIRM LEVEL GROUND BEFORE DEPLOYING/OPERATING THE TYRE HANDLER.**
- (9) WHEN THE GROUND SURFACE IS SOFT AND THERE IS A POSSIBILITY OF THE HYDRAULIC STABILISER FEET PENETRATING THE GROUND SURFACE, PLACE RIGID PANELS OF SUFFICIENT STRENGTH BENEATH EACH STABILISER FOOT.**
- (10) PERSONNEL ARE NOT PERMITTED TO BE WITHIN THE TYRE HANDLER'S SLEWING RANGE OR UNDER SUSPENDED LOADS.**

- (11) DO NOT SHUT DOWN THE CRANE/TYRE HANDLER WITH A SUSPENDED LOAD.
- (12) DO NOT ATTEMPT TO MOVE THE VEHICLE WITH A SUSPENDED LOAD.
- (13) DO NOT COMMENCE SLEWING UNLESS THE CENTRAL COLUMN IS UPRIGHT.
- (14) DO NOT COMMENCE SLEWING UNTIL THE LOAD IS SUSPENDED AND IT IS SAFE TO DO SO.
- (15) DO NOT EXCEED THE LOAD CAPACITY STATED IN THE LOAD CAPACITY CHART. THE LOAD CAPACITY STATED REFERS TO THE CRANE IN A HORIZONTAL POSITION; THIS CAPACITY WILL BE REDUCED WHEN THE CRANE IS OPERATED AT AN ANGLE.
- (16) ENSURE THAT A MINIMUM SAFE WORKING DISTANCE OF 5 METRES IS OBSERVED WHEN WORKING IN THE VICINITY OF OVERHEAD CABLES.
- (17) WHILST OPERATING THE CRANE/TYRE HANDLER, OPERATORS NEED TO BE AWARE OF ANY OVERHEAD OBSTRUCTIONS, AND THAT A FULLY EXTENDED CRANE IN THE EXTENDED VERTICAL POSITION CAN REACH A HEIGHT OF 10.5 METRES FROM GROUND LEVEL.
- (18) ENSURE THAT THE POWER TAKE-OFF UNIT IS DISENGAGED BEFORE ATTEMPTING TO DRIVE THE VEHICLE.
- (19) ENSURE THAT THE HAND THROTTLE LEVER IS RETURNED TO THE ENGINE IDLING POSITION BEFORE ATTEMPTING THE DRIVE THE VEHICLE.
- (20) ENSURE THAT BOTH HYDRAULIC ISOLATION VALVES ARE IN THE FULLY CLOSED POSITION WHILST THE OUTRIGGERS ARE EITHER IN THE DEPLOYED OR FULLY RETRACTED POSITIONS.
- (21) PERSONAL INJURY. CRANE/TYRE HANDLER OPERATORS AND MAINTAINERS NEED TO TAKE CARE WHEN UNSTOWING AND STOWING, THE UPPER REMOTE CRANE CONTROLS IN ORDER TO PREVENT A FALL FROM HEIGHT ACCIDENT.

CAUTIONS

- (1) When the column folding ram attains it's fully stowed or erected position, ensure that the control lever is continued to be operated for an additional 5 seconds to ensure that the column folding hydraulic system is fully pressurised.
- (2) To prevent accidental damage to the vehicle or crane, ensure that particular care is taken whilst the crane boom is being manoeuvred into it's deployed or transit positions and whenever the crane is operated within close proximity of the vehicle headboard or body.
- (3) The design of this crane prohibits a straight vertical lift. Crane operators will need to operate the inner and outer booms alternatively to obtain a staged vertical lift.

POWER TAKE-OFF CONTROL

WARNING

ENSURE THAT THE POWER TAKE-OFF UNIT IS DISENGAGED BEFORE ATTEMPTING TO DRIVE THE VEHICLE.

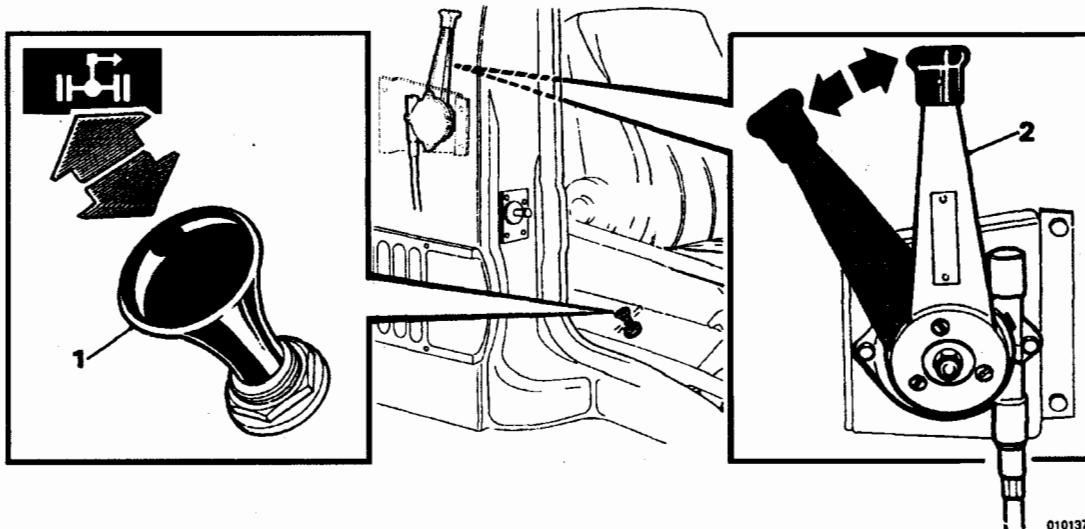
1 Before engaging the Power Take-off (PTO), ensure that the handbrake is in the on position and the gear lever is in neutral. Start the engine, fully depress the clutch pedal and pull the PTO control (Fig 1 (1)) upwards; release the clutch pedal when the PTO has engaged. An amber warning light in the instrument panel will illuminate when the unit is engaged and will remain illuminated whilst the PTO unit is operational.

ENGINE HAND THROTTLE LEVER

WARNING

ENSURE THAT THE HAND THROTTLE LEVER IS IN THE UPRIGHT (ENGINE IDLING) POSITION BEFORE ATTEMPTING TO DRIVE THE VEHICLE.

2 The engine hand throttle lever (Fig 1 (2)) is attached to the cab interior adjacent to the driver's seat. This control enables the operator to set/govern the speed of the engine for tyre handler operation. From the upright (engine idling) position, push the throttle lever forwards to increase the engine speed. Ensure that the throttle lever is returned to the upright (engine idling) position when all hydraulic crane operations are completed.



1 Power take-off control

2 Engine hand throttle lever

Fig 1 Interior controls

CRANE/TYRE HANDLER OPERATING CONTROLS

3 The hydraulic operating functions of the crane are controlled by the primary (B) and servo (A) operating controls. The function of each operating control lever is as follows:

CAUTION

When the folding ram attains its fully stowed or erected position, it is essential that the control lever is continued to be operated for an additional 5 seconds to ensure that the column folding hydraulic system is fully pressurised.

3.1 Column Folding Control Lever (Fig 2 (1) inset B). Push the control lever to unfold the column to the working position. Lift the control lever to fold the column into transportable position.

3.2 Slew Control Lever (Fig 2 (2) insets A and B). Lift the control lever upwards to slew the crane column to the right; push the control lever downwards to slew the crane column to the left.

3.3 Boom Control Lever (3). Lift the control lever upwards to lower the boom; push the control lever downwards to raise the boom.

3.4 Jib Control Lever (4). Lift the control lever upward to fold out the jib; push the control lever downwards to fold in the jib.

3.5 Telescopic Lever (5). Lift the control lever upwards to extend the extension; push the control lever downwards to retract the extension. See detachable Pendant Control (Para 6) for additional functions.

3.6 Hydraulic Stabiliser Control Lever (6). Lift the control lever upwards to retract the hydraulic stabilisers; push the control lever downwards to extend the hydraulic stabilisers.

4 The crane hydraulic control system incorporates the following safety features:

4.1 To prevent inadvertent use, the servo operating controls are locked in position with a safety bracket (7) and spring retaining clip (8). With the servo operating controls locked in position, all hydraulic operating controls, with the exception of the hydraulic stabiliser (outrigger) controls, will be inoperative.

4.2 Each operating control lever is spring loaded and when released from either the up or down operating positions, will automatically return to the central (off) position.

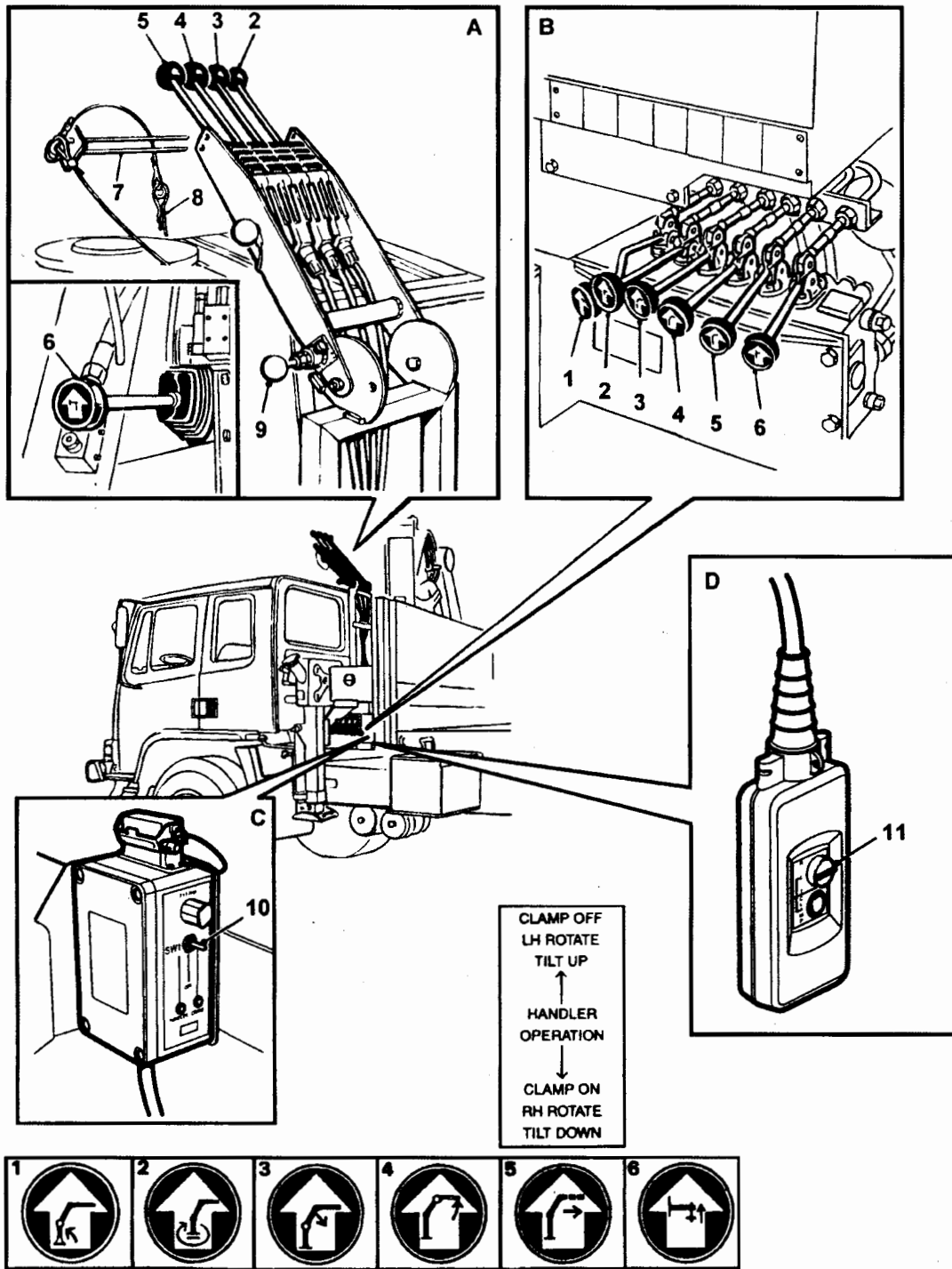
4.3 A crane overload protection system is incorporated in the crane hydraulic control circuits. In the event of a hydraulically sensed overload occurring during crane operation, the affected control lever will automatically return to the central (off) position and will be disabled from further movement that would increase the overload. Reset the overload protection system as follows:

4.3.1 Operate the affected control lever to decrease the overload on the crane; the overload protection system will be automatically reset and return the operating lever to its normal functions.

4.3.2 In the event of the disabled control lever becoming completely inoperative, operate any other control lever that would decrease the overload on the crane.

5 Control Box (Fig 2 inset C). Select 'HANDLER' position on the switch (10) to energise the Pendant control.

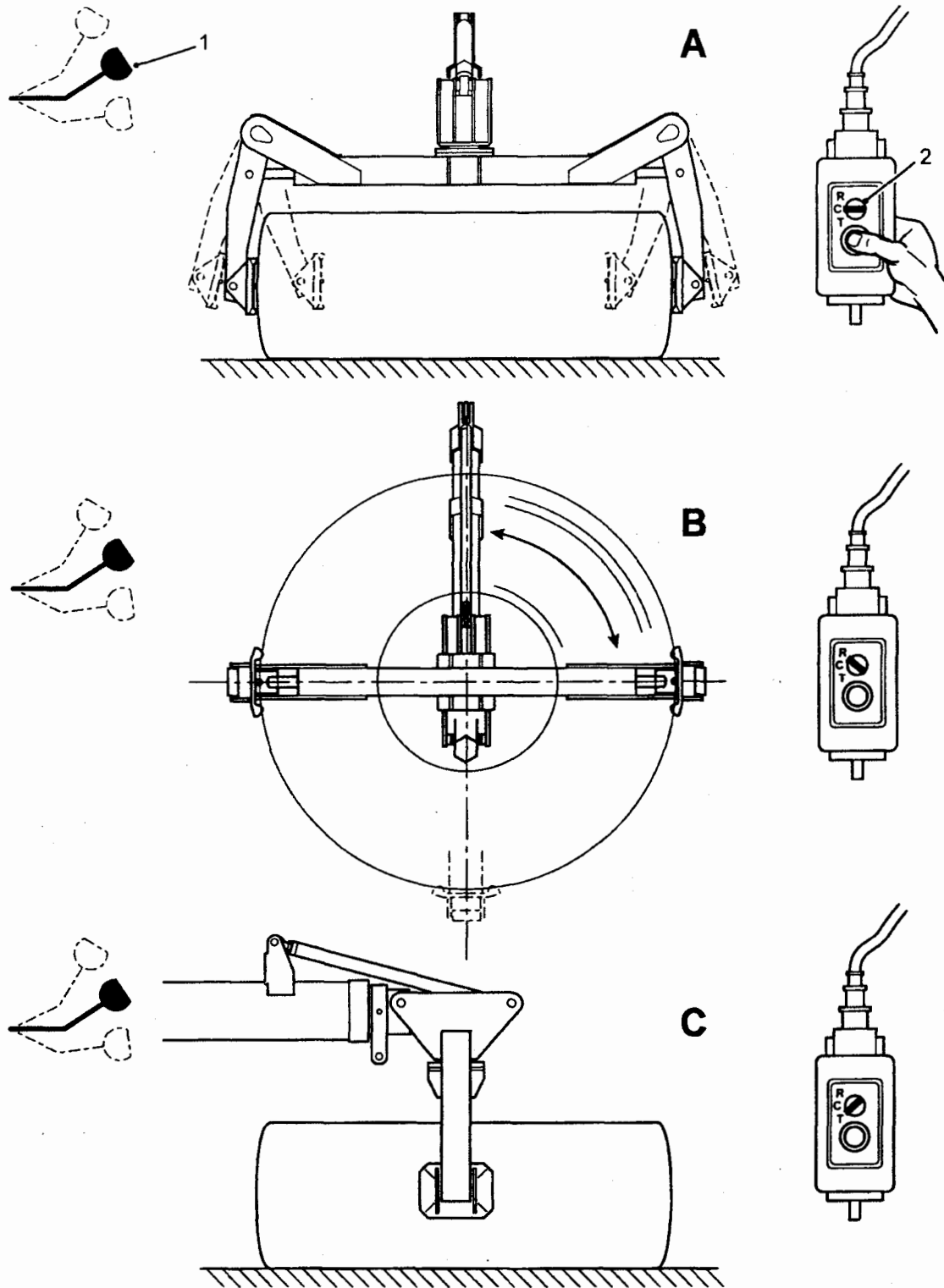
6 Detachable Pendant Control (Fig 2 inset D). Three position switch (11): select either R - Rotate; C - Clamp; T - Tilt and raise or lower the Telescopic Lever to obtain the functions shown in Fig 3.



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- | | | | |
|---|------------------------------------|----|-----------------------------|
| A | Servo operating controls | B | Primary operating controls |
| C | Control box | D | Detachable pendant control |
| 1 | Column folding control lever | 7 | Safety bracket |
| 2 | Slew control lever | 8 | Spring retaining clip |
| 3 | Boom control lever | 9 | Spring loaded retaining pin |
| 4 | Jib control lever | 10 | Control box switch |
| 5 | Telescopic lever | 11 | Pendant control switch |
| 6 | Hydraulic stabiliser control lever | | |

Fig 2 Hydraulic operating controls



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- | | | | |
|---|-----------------|---|-------------------------------|
| 1 | Telescope lever | 2 | Pendant control rotary switch |
| A | Clamp | C | Tilt |
| B | Rotate | | |

Fig 3 Tyre handler operating controls

HYDRAULIC STABILISER (OUTRIGGER) DEPLOYMENT

WARNINGS

- (1) ENSURE THAT THE HANDBRAKE IS APPLIED AND THAT CHOCKS ARE POSITIONED BENEATH THE ROAD WHEELS TO PREVENT VEHICLE MOVEMENT.**
- (2) ENSURE THAT THE HYDRAULIC STABILISERS (OUTRIGGERS) ARE FULLY DEPLOYED AND LOCKED IN POSITION BEFORE ATTEMPTING TO OPERATE THE TYRE HANDLER.**
- (3) WHERE POSSIBLE, PARK THE VEHICLE ON FIRM LEVEL GROUND BEFORE OPERATING THE TYRE HANDLER. WHEN THE GROUND SURFACE IS SOFT AND THERE IS A POSSIBILITY OF THE HYDRAULIC STABILISER FEET PENETRATING THE GROUND SURFACE, PLACE LARGE, RIGID PANELS OF SUFFICIENT STRENGTH BENEATH EACH STABILISER FOOT.**
- (4) ENSURE THAT BOTH HYDRAULIC ISOLATION VALVES ARE IN THE CLOSED POSITION WHILST THE OUTRIGGERS ARE EITHER IN THE FULLY DEPLOYED OR FULLY RETRACTED (TRANSPORT) POSITIONS.**

7 Deploy the hydraulic stabilisers as follows:

7.1 Remove the spring retaining clip (Fig 4 (3)) and release the locking pin handle (2) from each stabiliser beam (4).

7.2 Carefully pull out each stabiliser to its maximum extension; ensure that the hydraulic hoses to each stabiliser are not kinked or allowed to foul or chafe. Lock each stabiliser beam in position with its locking pin handle.

7.3 Fully support the stabiliser foot (6) and carefully remove the spring retaining clip (7) and locking pin (5). Lower the stabiliser foot to its maximum extension and then secure in position with its locking pin and spring retaining clip. Repeat this operation on the opposite stabiliser foot.

7.4 Engage the power take-off unit as instructed in Para 1. Using the engine hand throttle lever, govern the engine speed to 1000 rev/min.

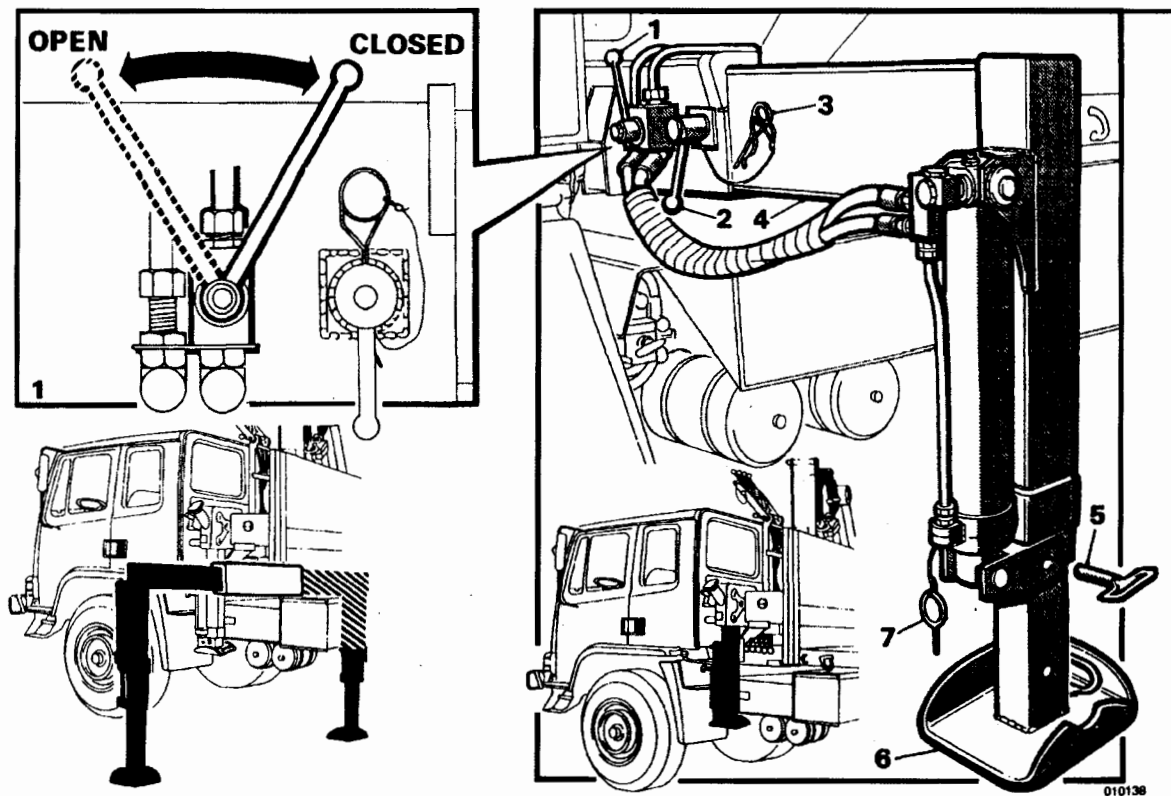
7.5 Each hydraulic stabiliser is equipped with a hydraulic isolator valve (1) which enables the hydraulic pressure to this unit to be disabled and hydraulically locked in position. These valves enable each stabiliser to be operated independently of each other to suit uneven ground conditions. With both isolation valves in the open position, both hydraulic stabilisers will operate simultaneously using either of the hydraulic operating controls. Lower the stabiliser feet as follows:

7.5.1 Open the hydraulic isolator valve on the stabiliser that is to be extended and ensure that the hydraulic isolator valve for the opposite stabiliser is in the closed position.

7.5.2 Using the appropriate hydraulic control, extend the stabiliser foot until it rests firmly on the ground; do not raise the vehicle frame excessively and ensure that the vehicle is as level as possible.

7.5.3 Close the hydraulic isolator valve.

7.5.4 Repeat the extension procedure on the opposite stabiliser.



- | | | | |
|---|--------------------------|---|-----------------------|
| 1 | Hydraulic isolator valve | 5 | Locking pin |
| 2 | Locking pin handle | 6 | Stabiliser foot |
| 3 | Spring retaining clip | 7 | Spring retaining clip |
| 4 | Stabiliser beam | | |

Fig 4 Hydraulic stabilisers (outriggers)

TYRE HANDLER DEPLOYMENT**WARNINGS**

- (1) ENSURE THAT THE HANDBRAKE IS APPLIED AND THAT CHOCKS ARE POSITIONED BENEATH THE ROAD WHEELS TO PREVENT VEHICLE MOVEMENT.
- (2) ENSURE THAT THE HYDRAULIC STABILISERS (OUTRIGGERS) ARE FULLY DEPLOYED AND LOCKED IN POSITION BEFORE ATTEMPTING TO OPERATE THE CRANE.

CAUTIONS

- (1) To prevent accidental damage to the vehicle or equipment, ensure that particular care is taken whilst the crane boom is being manoeuvred or operated within close proximity of the vehicle headboard/body.
- (2) When the base boom ram attains its fully stowed or erected position, it is essential that the control lever is continued to be operated for an additional 5 seconds to ensure that the column folding hydraulic system is fully pressurised.

- 8 Fully deploy the hydraulic stabilisers (outriggers) as instructed in Para 7.
 - 8.1 Pull the spring loaded retaining pin (Fig 2 (9)) and swivel the servo (remote) control assembly (A) fully forwards to its operating position; ensure that the spring loaded retaining pin (9) has been engaged and that the servo (remote) control assembly is locked in position.
 - 8.2 Remove the spring retaining clip (8) and release the safety bracket (7) from the servo (remote) control assembly.
 - 8.3 Position and secure pendant control (11) to control box (10).
 - 8.4 Release the harness straps securing the handler to its cradle.
 - 8.5 Select the 'HANDLER' position on the control box and 'C' position on the pendant control.
 - 8.6 Operate the clamp arms by raising the telescope lever whilst depressing the red button on the control box.
 - 8.7 Lift the handler from its cradle using jib control (4).
 - 8.8 Operate the controls as shown in Fig 3 to manoeuvre the handler as required.

NOTE

Operating the controls is a two handed procedure. Clamp arm movement will cease when the button on the pendant control is released.

- 8.9 Reverse the above procedure to stow the tyre handler on its support cradle.

CHAPTER 4
SPECIAL INSTRUCTIONS
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Para

- 1 Fire precautions
- 2 Towing (WARNING)
- 3 Towing pintle
- 6 Trailer connections
- 7 Lifting eyes
- 8 Inter-vehicle starting socket
- 9 Dropside/tailgate locking pins
- 10 Shallow fording (CAUTION)
- 11 Vehicle tool kit

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3	Inter-vehicle starting socket.....	4
4	Dropside/tailgate locking pin.....	5
5	Engine flywheel blanking plug.....	6/6

FIRE PRECAUTIONS

1 Two fire extinguishers are provided, one in the cab, the other mounted to the outside of the cab. Fire precautions should be strictly observed in accordance with current standing orders.

TOWING

WARNING

THE SPRING BRAKE ACTUATORS CONTAIN AN EXTREMELY POWERFUL COIL SPRING. THERE IS A RISK OF SERIOUS PERSONAL INJURY IF INEXPERIENCED PERSONNEL ATTEMPT TO RELEASE THE ACTUATORS PARTICULARLY WHEN THE ACTUATORS HAVE SUSTAINED ACCIDENT DAMAGE.

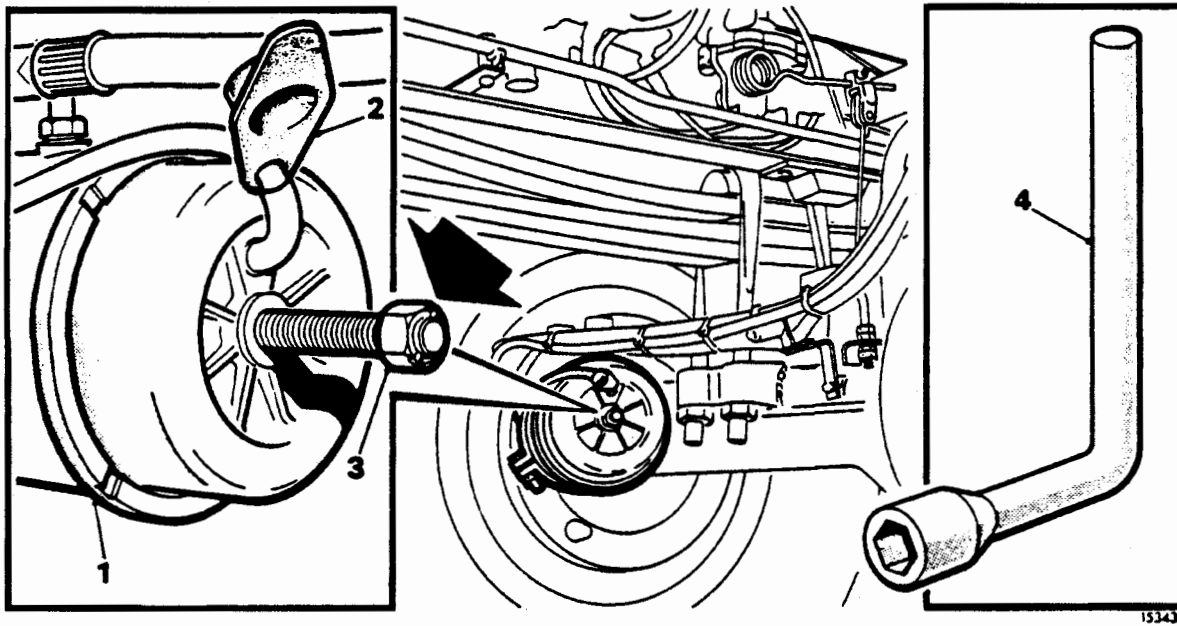
WHEN IN DOUBT - OBTAIN EXPERT ASSISTANCE.

2 Before attempting to tow a vehicle, the conditions must be carefully assessed to ensure the safest method is used and that no risk is taken by using unsuitable equipment. Particular points to note are as follows:

2.1 The braking system of the towed vehicle must, when possible, be made effective; the required air pressure of 6.9 to 8.2 bar (100 to 120 lbf/in.²) being supplied from its original source or by air lines from the towing vehicle to the air line couplings beneath the front bumpers.

2.2 Where no air supply is available the spring brake actuators (Fig 1 (1)) must be manually released by chocking the road wheels and then removing the protective cap (2) from the rear of each spring brake actuator and rotating the release nut (3) anti-clockwise using the box spanner (4) supplied in the vehicle tool box.

2.3 To prevent oil starvation to the main gearbox whilst towing the vehicle, it is essential that the main gearbox and transfer gearbox gear levers are placed in the neutral position; failure to observe this precaution may result in extensive damage to the main gearbox.



- | | | | |
|---|-----------------------|---|-------------|
| 1 | Spring brake actuator | 3 | Release nut |
| 2 | Protective cap | 4 | Box spanner |

Fig 1 Spring brake actuator

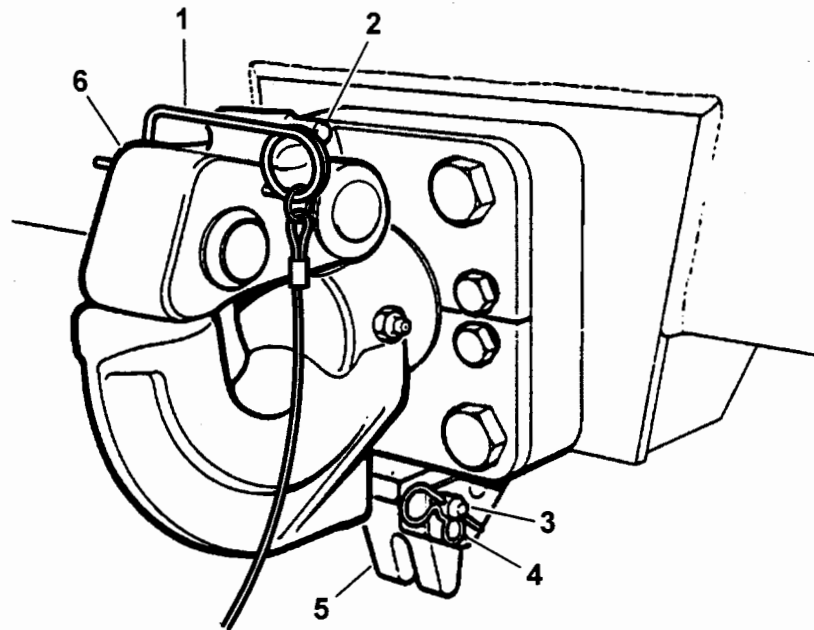
TOWING PINTLE

3 The vehicle is fitted with front and rear towing pintles (Fig 2), which can be used as a swivel or rigid coupling dependent upon the type of tow bar being used.

4 To prevent the towing hook from turning within its housing, remove the retaining clip (4) and withdraw the locking pin (3); raise the locking fork (5) to engage the bottom of the pintle then refit the locking pin and retaining clip.

5 To open the jaw of the towing pintle, withdraw the retaining clip (1), raise the catch (2) and lift the jaw (6). The catch will retain the jaw in the open position. When a trailer towing eye is connected to the towing hook **the top jaw must be locked in the closed position**. This is achieved by inserting a suitable positive locking pin (see 2320-H-104-711) of the correct dimensions through the drilled hole located through the latch and upper jaw.

5.1 If the vehicle has been modified to operate in the gun towing role, the attachment point for the breakaway cable is located on the R/H/S of the drop-down hitch bracket (Fig 2A).



- | | | | |
|---|----------------|---|----------------|
| 1 | Retaining clip | 4 | Retaining clip |
| 2 | Catch | 5 | Locking fork |
| 3 | Locking pin | 6 | Jaw |

Fig 2 Towing pintle

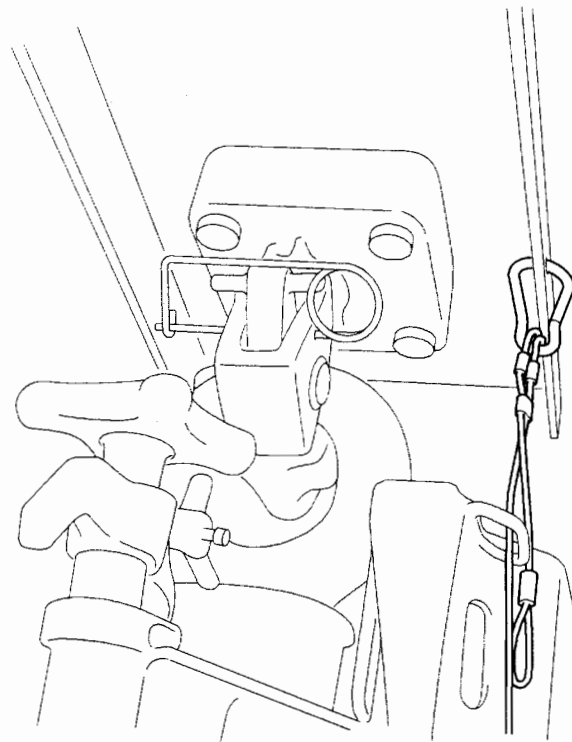


Fig 2A Breakaway cable

TRAILER CONNECTIONS

6 The trailer connections are fitted to the rear cross-member and comprise of:

- 6.1 Emergency (Supply) and Service (Control) air couplings. The air couplings are of the self-sealing 'palm' type and are colour coded yellow (Service) and red (Emergency).
- 6.2 12-pin electrical socket.
- 6.3 2-pin electrical socket (trailer low air pressure circuit).

LIFTING EYES

7 Lifting eyes are fitted at the front and rear of the vehicle and are for lifting or suspended towing only. On highway, both front and rear lifting eyes are capable of a fully laden suspended tow. For rough terrain fully suspended towing, the front or rear towing pintles must also be utilised.

INTER-VEHICLE STARTING SOCKET

8 An inter-vehicle start socket (Fig 3) is mounted to the LH chassis frame adjacent to the exterior battery isolation switch. This socket provides a starting facility for the vehicle or other vehicles if the batteries are in a discharged condition.

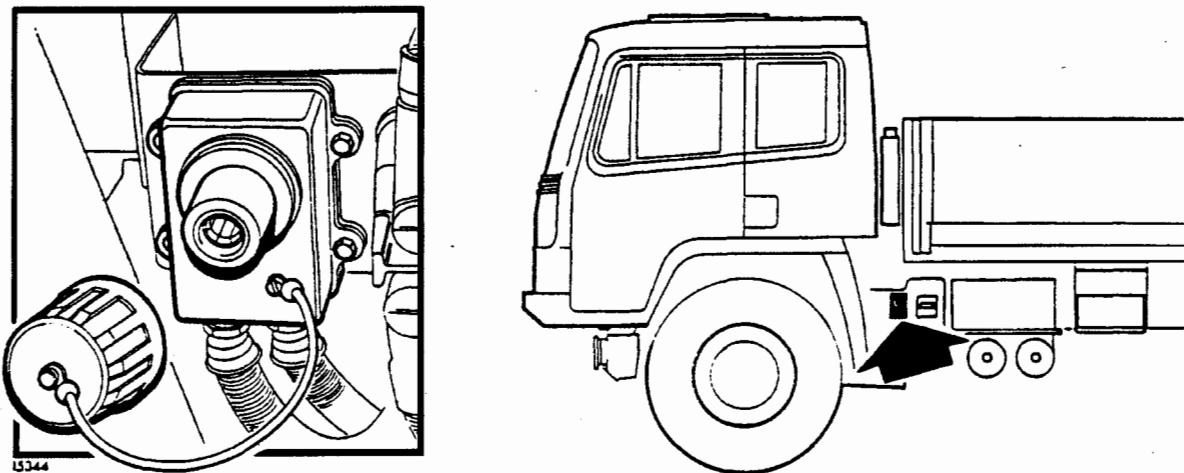
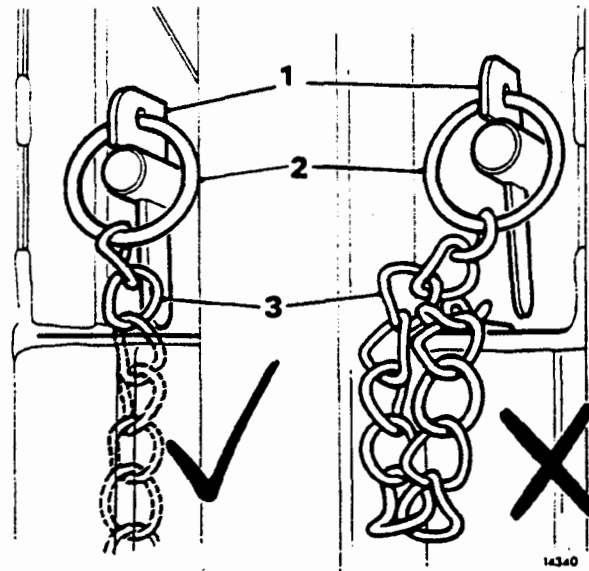


Fig 3 Inter-vehicle starting socket

DROPSIDE/TAILGATE LOCKING PINS

9 To prevent the dropside/tailgate locking pins (Fig 4 (1)) from becoming dislodged, it is essential that the safety chain (3) is fully inserted into the dropside channel and that the retaining ring (2) is pushed fully downwards into its locked position.



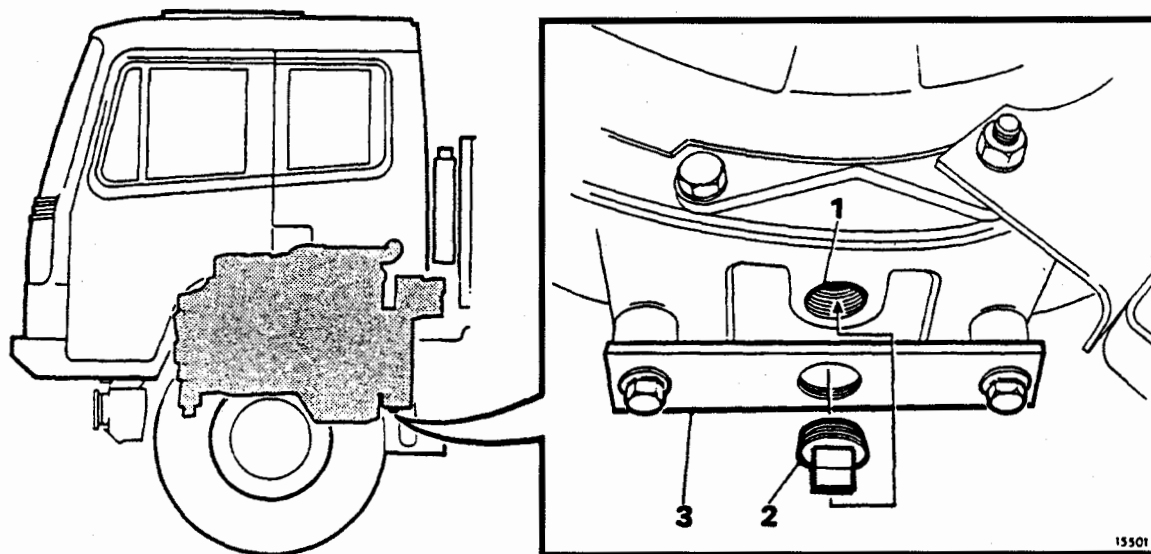
- 1 Locking pin
- 2 Retaining ring
- 3 Safety chain

Fig 4 Dropside/tailgate locking pin

SHALLOW FORDING**CAUTION**

The vehicle is capable of shallow fording to a depth of 0 - 75 m (2 - 46 ft).

- 10 Before attempting shallow fording with the vehicle, ensure that the following procedures are carried out:
- 10.1 Ensure that the fan blower switch is in the off position.
 - 10.2 Ensure that the heater flap control is in the 'CLOSE' position.
 - 10.3 An engine flywheel blanking plug (Fig 5 (2)) is supplied with the vehicle and is stowed in a retaining plate (3) attached below the engine flywheel housing. Using the spanner supplied in the vehicle tool kit, fit the blanking plug into the aperture (1) in the flywheel housing. After completion of wading ensure that the blanking plug is removed and then refitted into its retaining plate.



- | | | | |
|---|---------------------------|---|---------------|
| 1 | Flywheel housing aperture | 3 | Blanking plug |
| 2 | Retaining plate | | |

Fig 5 Engine flywheel blanking plug

VEHICLE TOOL KIT

- 11 The vehicle tool box, situated behind the driver's seat, comprises the following tools:
- 11.1 Two piece cab tilt hydraulic pump handle.
 - 11.2 Wheel nut box spanner.
 - 11.3 Spring brake actuator releasing spanner.
 - 11.4 Hydraulic jack.

CHAPTER 5-0
USER MAINTENANCE - GS CARGO

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2	Check engine oil level (CAUTIONS)
4	Renew engine oil and filter (WARNINGS) (CAUTIONS)
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7	Renew engine fuel filter (WARNING)
9	Drain fuel sedimenter (WARNING)
10	Clean fuel sedimenter bowl (WARNING)
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23	Renew transfer gearbox oil
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43	Front direction indicator lamps
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WARNINGS

- (1) **WEAR PROTECTIVE CLOTHING/APPARATUS AND APPLY BARRIER CREAMS WHERE NECESSARY.**
- (2) **ENSURE ALL WARNINGS LISTED IN THIS PUBLICATION ARE STRICTLY ADHERED TO.**
- (3) **DO NOT RUN THE ENGINE IN A CONFINED SPACE OR UNVENTILATED AREA. IF THE ENGINE MUST BE RUN IN A CONFINED SPACE ENSURE THAT AN EXHAUST EXTRACTOR IS USED.**
- (4) **ENSURE THAT ALL PERSONNEL ARE CLEAR OF ANY ROTATING PARTS OR MOVING COMPONENTS.**
- (5) **DO NOT USE THE VEHICLE JACK AS THE SOLE MEANS OF SUPPORT; POSITION SUITABLE SUPPORTS BENEATH THE CHASSIS FRAME.**
- (6) **IT IS ESSENTIAL THAT ALL MAINTENANCE WORK IS INSPECTED AND TESTED AFTER COMPLETION. WHEN APPROPRIATE, THE VEHICLE SHOULD BE ROAD TESTED, PARTICULARLY WHERE SAFETY RELATED ITEMS ARE CONCERNED.**
- (7) **TO PREVENT A POSSIBLE FIRE RISK, ENSURE THAT THE ENGINE AND ITS SURROUNDING AREAS ARE CLEAN AND FREE FROM LEAKAGES/SPILLAGES OF ANY INFLAMMABLE LIQUIDS (E.G. FUEL OIL, ENGINE OIL, COLD START ETHER FLUID, ETC.).**
- (8) **WHEN CHARGING THE BATTERIES FROM AN EXTERNAL SOURCE ENSURE THAT THE AREA AROUND THE BATTERY IS WELL VENTILATED AND PROTECTED AGAINST ANY NAKED FLAME, SPARK OR INTENSE HEAT SOURCE. THE USE OF 'BOOST' CHARGERS SHOULD BE AVOIDED AND SHOULD ONLY BE USED WITH THE BATTERY REMOVED.**

(9) WELDING OR DRILLING OF THE CHASSIS FRAME MUST NOT BE UNDERTAKEN WITHOUT PRIOR CONSULTATION WITH LEYLAND DAF LIMITED. UNAUTHORISED, INDISCRIMINATE WELDING OR DRILLING MAY AFFECT THE SAFE LOAD-CARRYING CHARACTERISTICS OF THE CHASSIS FRAME.

MAINTENANCE PROCEDURES

1 To enable a successful completion of all maintenance requirements, it is recommended that the following procedures are adopted:

1.1 Absolute cleanliness is essential when carrying out maintenance. All filler caps, plugs or lubricators should be cleaned before and after attention. If units require an excessive amount of oil or if leakage from seals is noted, this should be reported and action taken at the earliest opportunity.

1.2 When draining and filling unit assemblies, ensure that the vehicle is standing on level ground. To assist drainage of the unit assemblies, it is recommended that they are drained at their normal working temperature.

1.3 After filling or topping-up unit assemblies, it is recommended that they are re-checked immediately after the vehicle has been taken for a test drive.

CHECK ENGINE OIL LEVEL

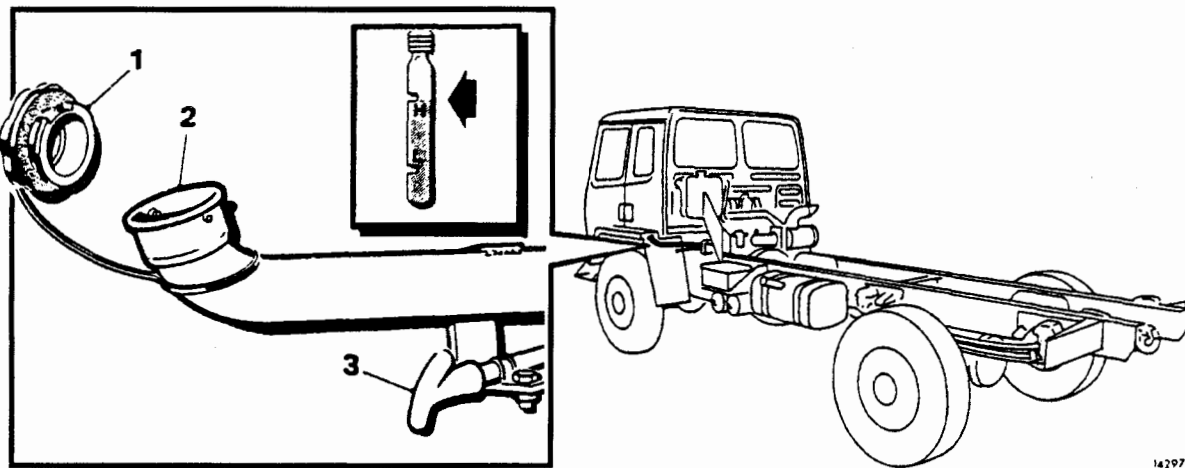
CAUTIONS

(1) Insufficient or excessive engine oil levels will have a severe detrimental effect upon the engine. The amount of oil required to increase the level on the dipstick from the 'L' to the 'H' level is approximately 1.9 litres (3.3 pints).

(2) When necessary, ensure that the engine is filled with clean engine oil of the approved specification.

2 Before checking the engine oil level, ensure that the vehicle is on level ground and the engine is stopped. Extract and clean the dipstick (Fig 1 (3)) with a clean, lint-free cloth and then check the oil level; the oil level should register on the 'H' mark on the dipstick.

3 If necessary, remove the oil filler cap (1) from the filler tube (2) and top-up with clean engine oil, ensuring sufficient time is allowed for the oil to flow into the sump before re-checking the oil level; failure to observe this precaution will result in overfilling the engine.



- 1 Oil filler cap 3 Dipstick
2 Oil filler tube

Fig 1 Checking engine oil level

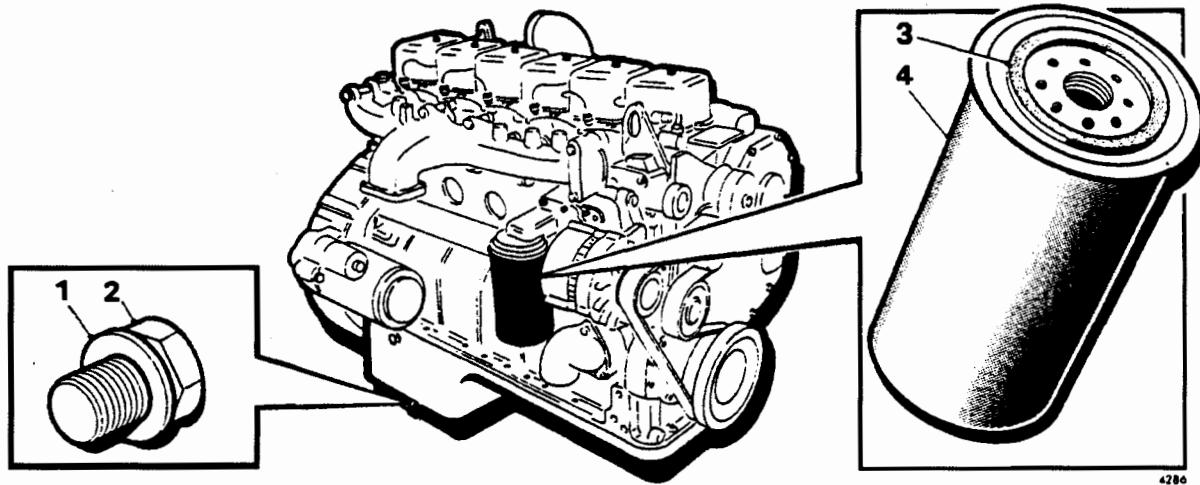
RENEW ENGINE OIL AND FILTER

WARNINGS

- (1) **AVOID UNNECESSARY CONTACT WITH USED ENGINE OIL. PROLONGED AND REPEATED CONTACT WITH USED ENGINE OIL MAY CAUSE SERIOUS SKIN DISORDERS.**
- (2) **EXTREME CARE MUST BE TAKEN WHEN DRAINING HOT ENGINE OIL; HOT ENGINE OIL CAN CAUSE SEVERE PERSONAL INJURY.**

CAUTIONS

- (1) **Insufficient or excessive engine oil levels will have a severe detrimental effect upon the engine. The total engine oil capacity (including filter) is approximately 14.2 litres (25 pints).**
 - (2) **Ensure the engine is filled with clean oil of the approved specification.**
- 4 Position a suitable container beneath the engine sump. Remove the sump drain plug (Fig 2 (2)) complete with washer (1) and allow the engine oil to drain into the container. Thoroughly clean the drain plug and washer. Whilst the engine oil is draining, renew the oil filter cartridge (4) as follows:
 - 4.1 Using a suitable filter wrench, unscrew and discard the oil filter cartridge. Thoroughly clean the oil filter head.
 - 4.2 Ensure that the sealing ring (3) in the new filter cartridge is correctly seated and clean.
 - 4.3 Fill the filter cartridge and smear its sealing ring with clean engine oil. Screw the filter cartridge on by hand until the sealing ring just contacts the filter head and then tighten a further 1/2 of a turn; do NOT over tighten.
 - 5 When oil drainage is complete, refit the sump drain plug complete with washer and torque tighten the sump drain plug to 75 Nm (55 lbf ft). Remove the oil filler cap and commence filling the engine with clean oil until the level registers on the 'H' mark on the dipstick; do NOT overfill. Start the engine, but do not exceed the engine idling speed and check that the oil pressure warning light extinguishes within 15 seconds. Check the oil filter cartridge and sump drain plug are free from leakages. Stop the engine and, after allowing sufficient time for the oil to flow into the sump, re-check the oil level; top up as necessary.



- 1 Washer
- 2 Sump drain plug
- 3 Sealing ring
- 4 Oil filter cartridge

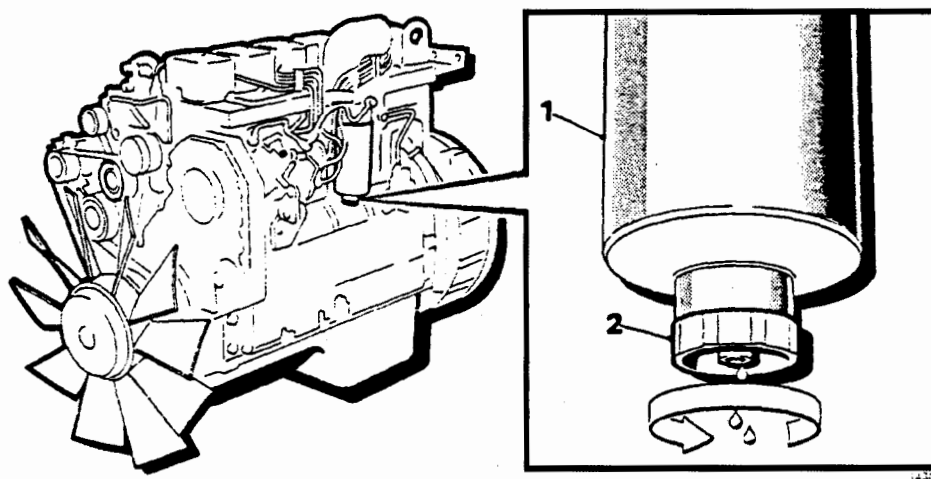
Fig 2 Engine oil and filter cartridge renewal

DRAIN FUEL FILTER WATER SEPARATOR

WARNING

FUEL SPILLAGES ARE HIGHLY INFLAMMABLE AND MUST NOT BE EXPOSED TO A NAKED FLAME, SPARK OR INTENSE HEAT SOURCE.

6 Position a suitable container beneath the fuel filter cartridge (Fig 3 (1)) to collect all fuel/water condensate. Open the water separator drain valve (2) and allow any condensate to drain into the container. Close the drain valve when drainage is complete.



- 1 Fuel filter cartridge
- 2 Water separator drain valve

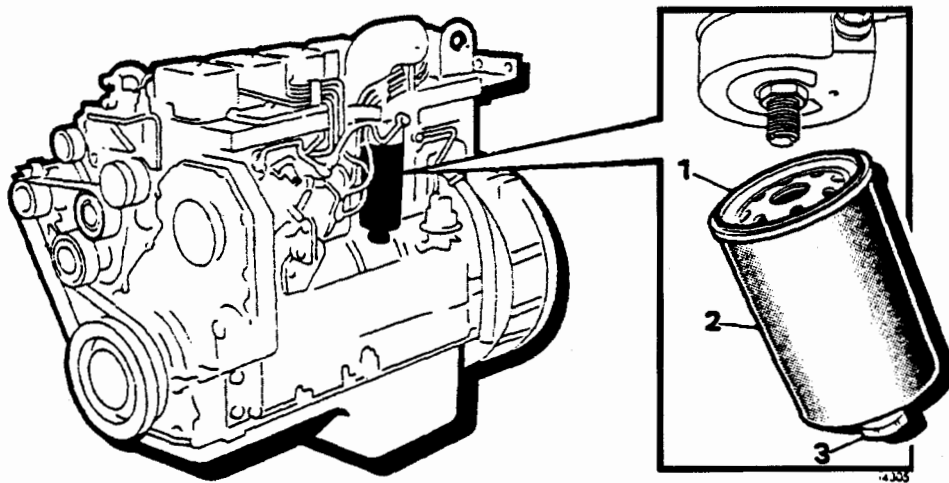
Fig 3 Fuel filter water separator

RENEW ENGINE FUEL FILTER**WARNING**

FUEL SPILLAGES ARE HIGHLY INFLAMMABLE AND MUST NOT BE EXPOSED TO A NAKED FLAME, SPARK OR INTENSE HEAT SOURCE.

7 Position a suitable container beneath the fuel filter cartridge (Fig 4 (2)) to collect any fuel spillages. Using a suitable filter wrench, remove and discard the fuel filter cartridge. Clean the fuel filter head with a suitable solvent and dry thoroughly. Ensure that the sealing ring (1) in the new fuel filter cartridge is correctly located and that its contact surface is clean. Check that the integral water separator drain valve (3) is in the closed position. Lightly smear the fuel filter sealing ring with clean engine oil and fill the filter cartridge with clean, filtered diesel fuel. Screw the fuel filter cartridge on by hand until the sealing ring just contacts the filter head and then tighten a further 1/2 to 3/4 of a turn; do NOT over tighten.

8 Small amounts of air introduced into the fuel system when renewing the fuel filter cartridge will be vented automatically, providing the filter cartridge has been filled with diesel fuel prior to refitment. However, in isolated instances the fuel system may require manually bleeding as instructed in Para 12.



- 1 Sealing ring
- 2 Filter cartridge

- 3 Water separator drain valve

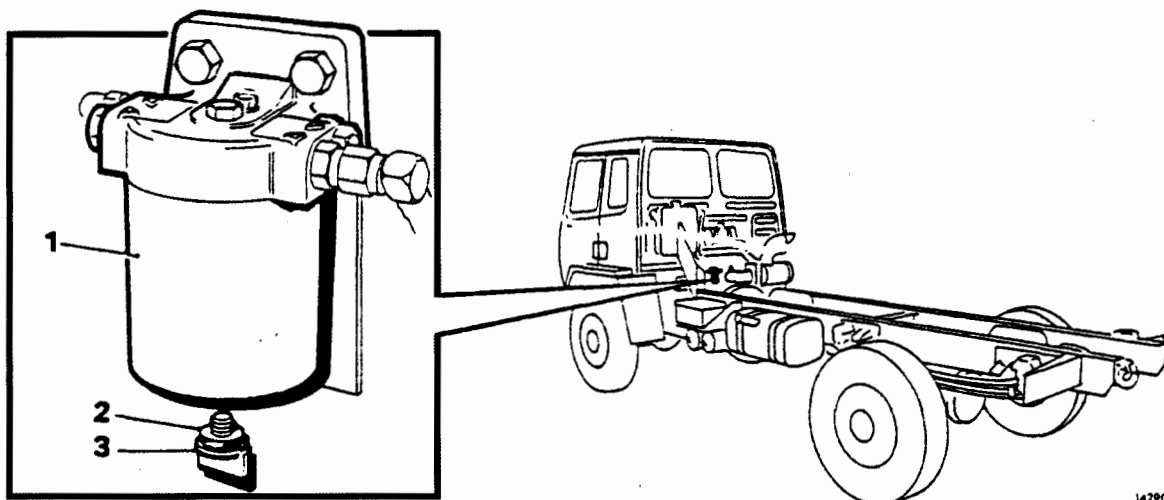
Fig 4 Renewing engine fuel filter

DRAIN FUEL SEDIMENTER

WARNING

FUEL SPILLAGES ARE HIGHLY INFLAMMABLE AND MUST NOT BE EXPOSED TO A NAKED FLAME, SPARK OR INTENSE HEAT SOURCE.

9 Position a suitable container beneath the fuel sedimenter bowl (Fig 5 (1)) to collect all spillages. Remove the drain plug (3) and allow all accumulated condensate to drain into the container. Examine the drain plug sealing ring (2) for damage or deterioration; renew as necessary. Refit the drain plug immediately clean fuel is observed flowing into the container.



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- | | | | |
|---|-----------------|---|------------|
| 1 | Sedimenter bowl | 3 | Drain plug |
| 2 | Sealing ring | | |

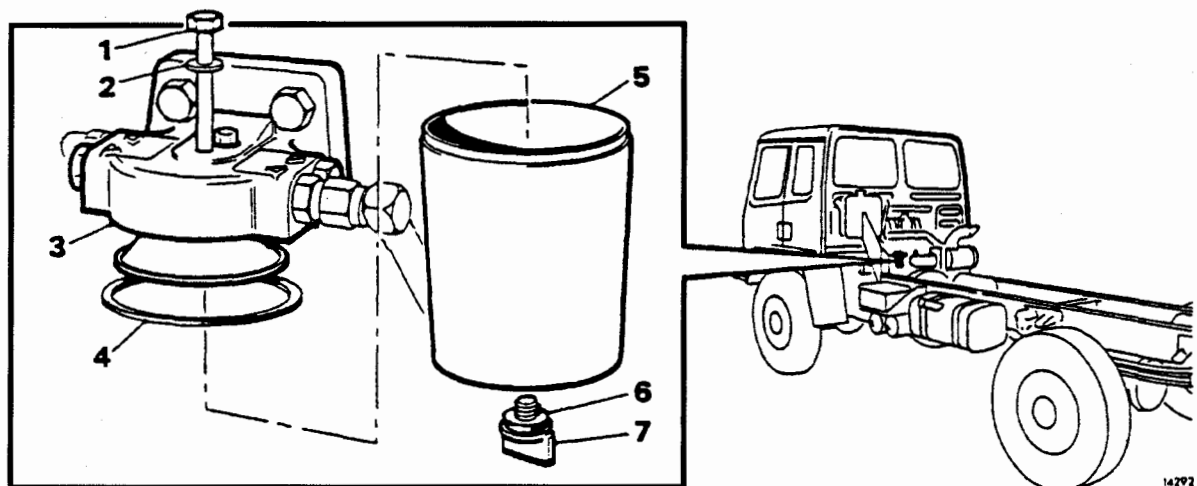
Fig 5 Draining the fuel sedimenter

CLEAN FUEL SEDIMENTER BOWL**WARNING**

FUEL SPILLAGES ARE HIGHLY INFLAMMABLE AND MUST NOT BE EXPOSED TO A NAKED FLAME, SPARK OR INTENSE HEAT SOURCE.

10 Position a suitable container beneath the fuel sedimenter bowl (Fig 6 (5)) to collect all fuel spillages. Remove the drain plug (7) and allow the fuel/condensate to drain into the container. When drainage is complete, remove the retaining bolt (1) and detach the sedimenter bowl and sealing ring (4). Clean all components in a suitable solvent and dry thoroughly. Examine the retaining bolt sealing ring (2), sedimenter bowl sealing ring and drain plug sealing ring (6) for damage or deterioration; renew as necessary. Check that the drain hole in the base of the sedimenter bowl is clean and unobstructed. Lightly smear the sedimenter bowl sealing ring with grease and then locate in position within the sedimenter filter head (3). Refit the drain plug and then fill the sedimenter bowl with clean, filtered diesel fuel. Locate the sedimenter bowl and secure in position with the retaining bolt.

11 Small amounts of air introduced into the fuel system when refitting the sedimenter bowl will be vented automatically providing the sedimenter bowl has been filled with diesel fuel prior to refitment. However, in isolated instances the fuel system may require manually bleeding as instructed in Para 12.



- | | | | |
|---|----------------|---|-----------------|
| 1 | Retaining bolt | 5 | Sedimenter bowl |
| 2 | Sealing ring | 6 | Sealing ring |
| 3 | Filter head | 7 | Drain plug |
| 4 | Sealing ring | | |

Fig 6 Exploded view of fuel sedimenter

BLEEDING THE FUEL SYSTEM

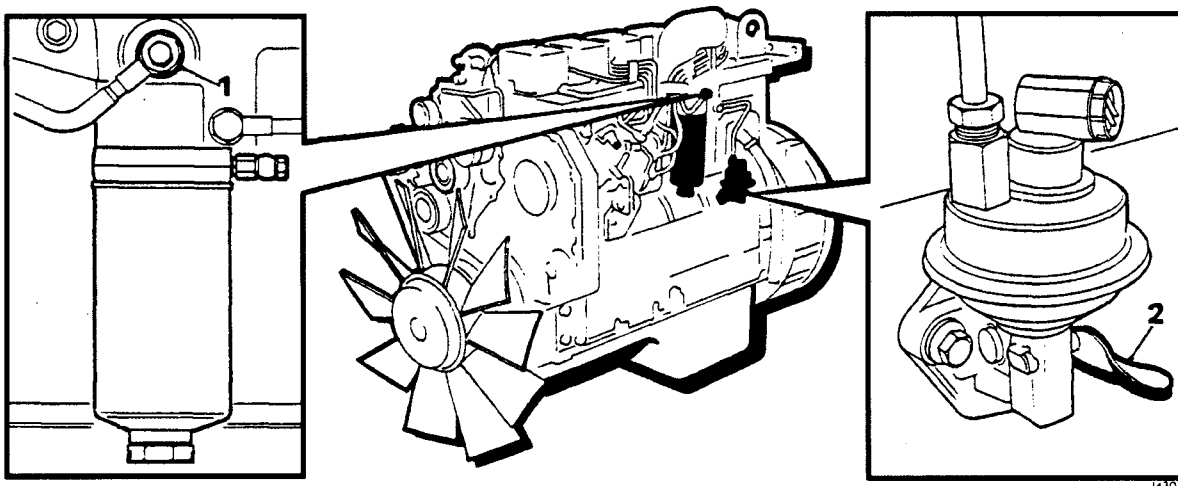
WARNING

FUEL SPILLAGES ARE HIGHLY INFLAMMABLE AND MUST NOT BE EXPOSED TO A NAKED FLAME, SPARK OR INTENSE HEAT SOURCE.

12 Small amounts of air introduced into the fuel system during routine maintenance will be vented automatically. However, in isolated instances the fuel system may require manually bleeding as follows:

12.1 Ensure that there is an adequate supply of fuel in the fuel tank. Position a suitable container beneath the fuel filter head to collect expelled diesel fuel.

12.2 Open the filter head bleed screw (Fig 7 (1)) and operate the fuel lift pump hand lever (2) until air-free fuel flows from the bleed screw. Tighten the bleed screw whilst operating the lift pump hand lever.



1 Bleed screw

2 Lift pump hand lever

Fig 7 Bleeding the fuel system

CHECK ENGINE COOLANT LEVEL AND SPECIFIC GRAVITY**WARNING**

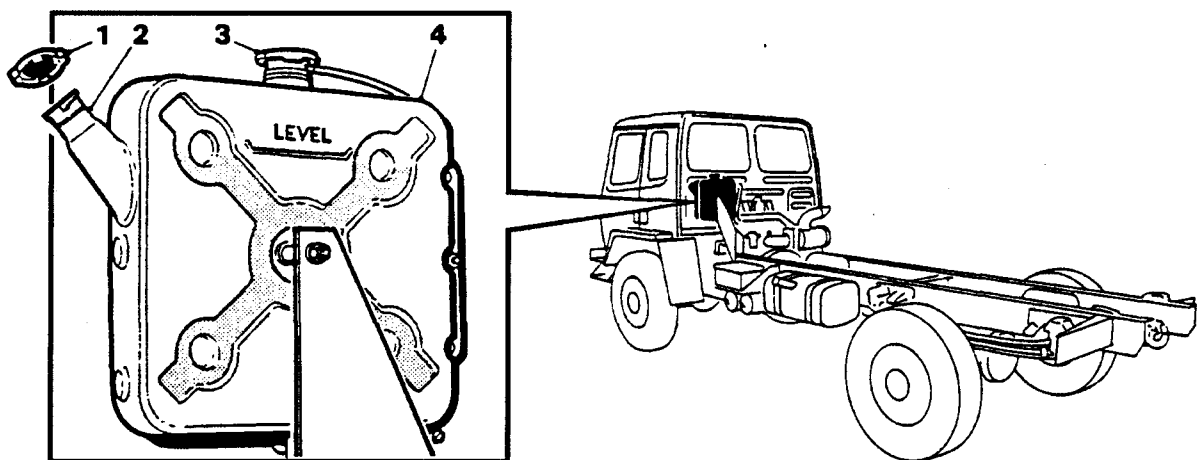
WHEN THE ENGINE IS AT ITS NORMAL OPERATING TEMPERATURE THE INTERNAL PRESSURE WITHIN THE COOLING SYSTEM WILL EXPEL SCALDING STEAM/COOLANT IF THE FILLER CAP OR PRESSURE CAP IS SUDDENLY REMOVED. THE COOLANT SHOULD ONLY BE CHECKED/FILLED WHILST THE ENGINE IS STOPPED AND IN A COLD CONDITION. UNDER EXCEPTIONAL CIRCUMSTANCES THE COOLANT CAN BE CHECKED/FILLED PROVIDING THE ENGINE IS STOPPED, A SUITABLE CLOTH PLACED OVER THE FILLER CAP TO PROTECT THE OPERATOR'S HANDS AND FACE AND THAT THE FILLER CAP IS SLOWLY OPENED TO ALLOW ANY INTERNAL PRESSURE TO BE RELEASED.

13 Remove the filler cap (Fig 8 (1)) from the header tank (4) and check that coolant is visible within the filler neck (2); if necessary, top-up with an approved clean water/anti-freeze solution. Should the cooling system require an excessive amount of coolant, the complete cooling system must be examined for leaks and rectified as necessary.

14 Excessive or insufficient amounts of anti-freeze in the engine coolant will have a detrimental effect upon the components, efficiency and frost protection capabilities of the cooling system. To determine the anti-freeze/water mixing ratio it is recommended that the following instructions are observed:

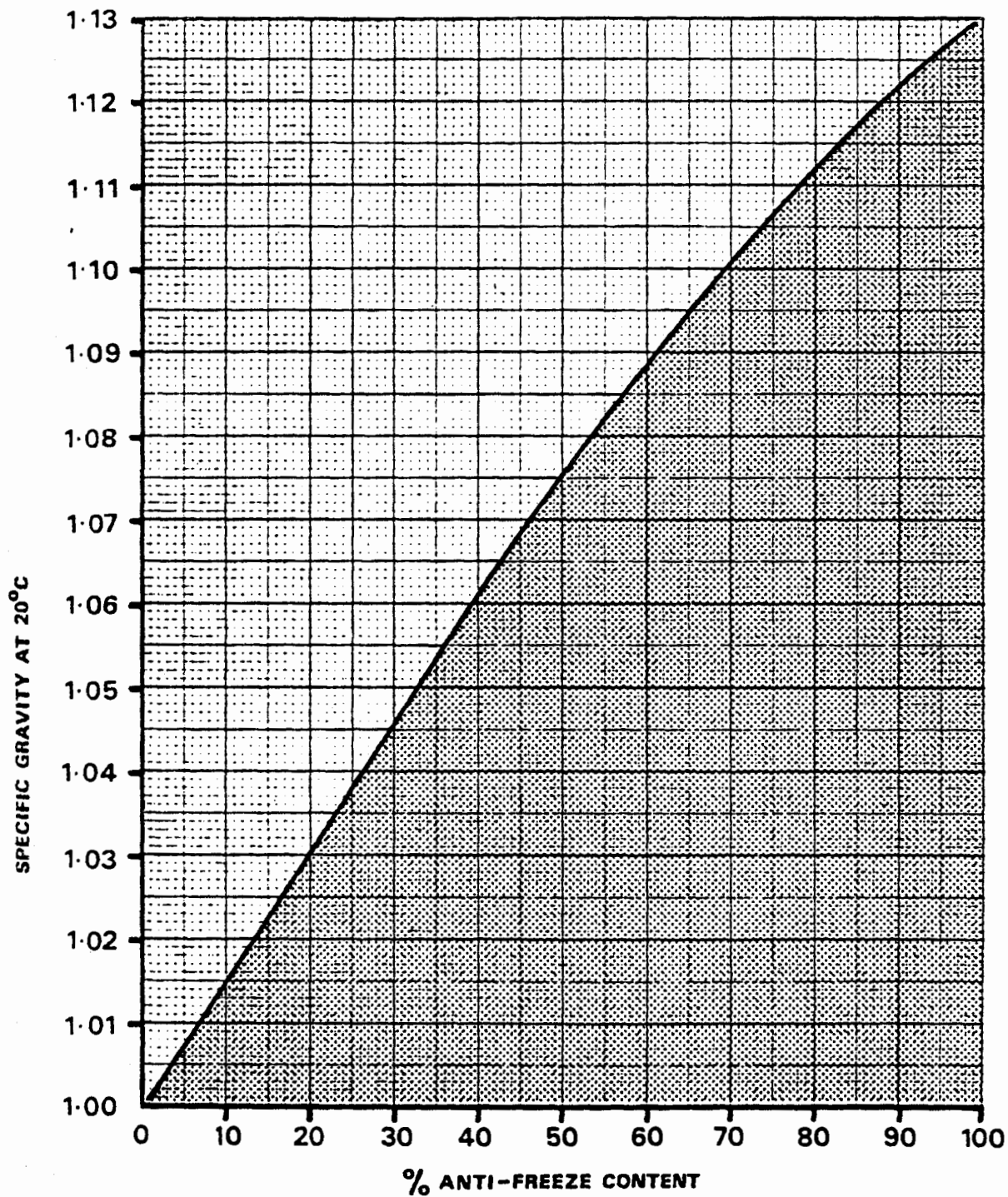
14.1 Using a thermometer and a hydrometer, record the temperature and relative density (specific gravity) of the engine coolant. A 50% anti-freeze/water mixing ratio at a temperature of 20°C will record a specific gravity of 1.073; for every 1°C drop in temperature the specific gravity reading will increase by 0.0005.

14.2 If the specific gravity reading of the coolant is incorrect, determine the anti-freeze content of the coolant using the graph illustrated in Fig 9. Drain the appropriate amount of coolant from the cooling system and then add either clean water or pure anti-freeze to achieve the approved mixing ratio of the coolant solution.



- | | | | |
|---|-------------|---|--------------|
| 1 | Filler cap | 3 | Pressure cap |
| 2 | Filler neck | 4 | Header tank |

Fig 8 Engine coolant header tank



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Fig 9 Engine coolant specific gravity graph

RENEW ENGINE COOLANT**WARNINGS**

(1) **WHEN THE ENGINE IS AT ITS NORMAL OPERATING TEMPERATURE THE INTERNAL PRESSURE WITHIN THE COOLING SYSTEM WILL EXPEL SCALDING COOLANT IF THE FILLER CAP OR ANY DRAIN PLUGS ARE REMOVED. THE COOLANT MUST ONLY BE RENEWED WHILST THE ENGINE IS STOPPED AND IN A COLD CONDITION.**

(2) **ANTI-FREEZE CONTAINS TOXIC CHEMICALS WHICH MUST NOT BE CONSUMED OR ALLOWED TO COME INTO SKIN/EYE CONTACT. USE IMPERVIOUS PROTECTIVE CLOTHING AND GLOVES WHEN HANDLING ANTI-FREEZE. IN THE EVENT OF SLIGHT SKIN/EYE CONTACT, THOROUGHLY RINSE THE AFFECTED AREA WITH CLEAN WATER. IF THERE IS EXCESSIVE SKIN/EYE CONTACT OR INGESTION/INHALATION SEEK MEDICAL ADVICE IMMEDIATELY.**

15 Remove the header tank filler cap (Fig 10 (2)) to release any internal pressure within the cooling system. Position a suitable container beneath the radiator drain plug (5). Remove the drain plug and allow the coolant to drain; clean the drain aperture of any accumulated sediment whilst the coolant is draining. Flush the cooling system with clean water and then refit the drain plug.

16 Examine all hoses for damage, deterioration and security; rectify as necessary. Ensure that the radiator matrix (4) is clean and free from any obstructions or accumulated debris; if necessary clean the radiator matrix as follows:

16.1 Mud deposits should be removed by carefully hosing or steam cleaning the radiator matrix. Stubborn deposits should be removed by brushing with a soft brush and water; care must be taken not to damage or deform the radiator matrix (fins) during the cleaning process.

17 Commence filling the header tank (1) with an approved clean water/anti-freeze solution until coolant is visible in the filler neck (3); the cooling system capacity is approximately 26 litres (45.76 pints). On completion of filling the cooling system ensure that the filler cap is correctly fitted and secure. Run the engine for approximately 3 minutes to de-aerate the cooling system and then re-check the coolant level; top-up as required.

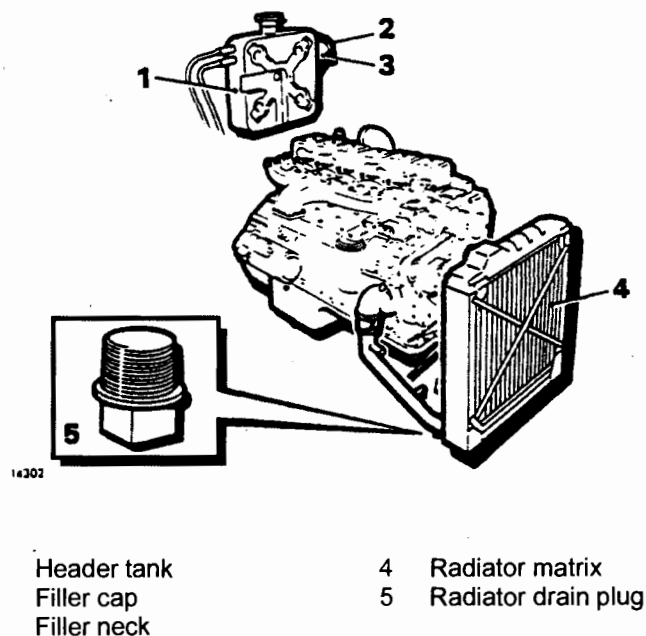


Fig 10 Renewing the engine coolant

CHECK FRONT AND REAR AXLE DIFFERENTIAL OIL LEVELS

18 Ensure -that the vehicle is standing on level ground and that the handbrake control is applied to park position before attempting to check the front and rear axle oil levels. Thoroughly clean the area surrounding the front axle differential filler/level plug (Fig 11 (4)), Tracta joint housing filler/level plugs (5) and rear axle differential filler/level plug (2) to prevent the ingress of dirt or foreign matter. Remove each filler/level plug and check that oil is visible in the filler/level aperture; if necessary, top-up with clean oil of the approved specification to the required level. Should any unit require an excessive amount of oil then the complete unit must be examined for leaks and rectified as necessary. Clean and refit the filler/level plugs.

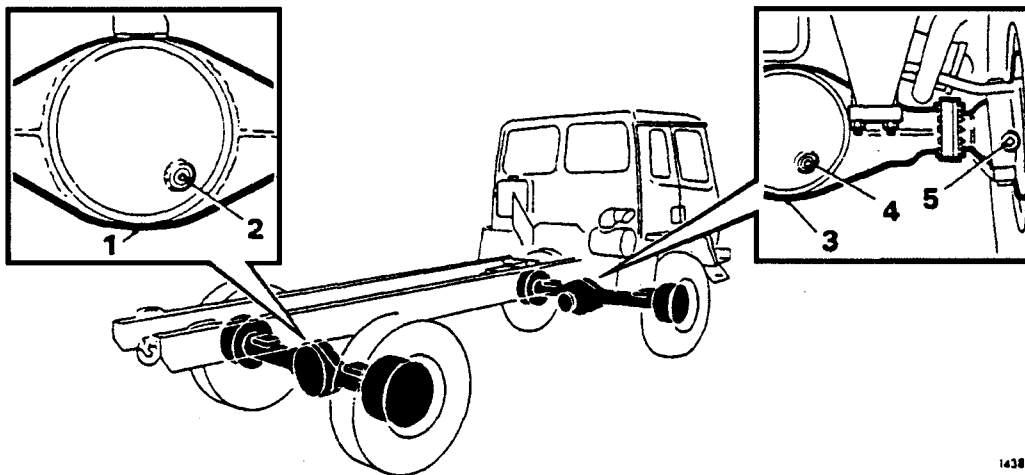
RENEW FRONT AND REAR AXLE DIFFERENTIAL OILS

NOTES

(1) The oil in each Tracta joint housing does not require renewing and, therefore, the units are not fitted with drain plugs.

(2) The total oil refill capacity of the front and rear axles differentials is approximately 5.7 litres (10 pints) for each unit.

19 Ensure that vehicle is standing on level ground and that the handbrake control is in the park position before attempting to drain the front and rear axle differential oils. Position suitable containers beneath the front and rear axle differentials. Remove the drain plug (Fig 11 (1) and (3)) from each differential and allow the oil to drain. Clean and refit the drain plugs when drainage is complete. Thoroughly clean the area surrounding the front and rear axle differential filler/level plug (2) and (4) to prevent the ingress of dirt or foreign matter. Remove each filler/level plug and fill with clean oil of the approved specification until oil just begins to emerge from the filler/level aperture. Clean and refit the filler/level plugs.



- | | | | |
|---|-----------------------------|---|--|
| 1 | Rear axle drain plug | 4 | Front axle filler/level plug |
| 2 | Rear axle filler/level plug | 5 | Tracta joint housing filler/level plug |
| 3 | Front axle drain plug | | |

Fig 11 Front and rear axle lubrication

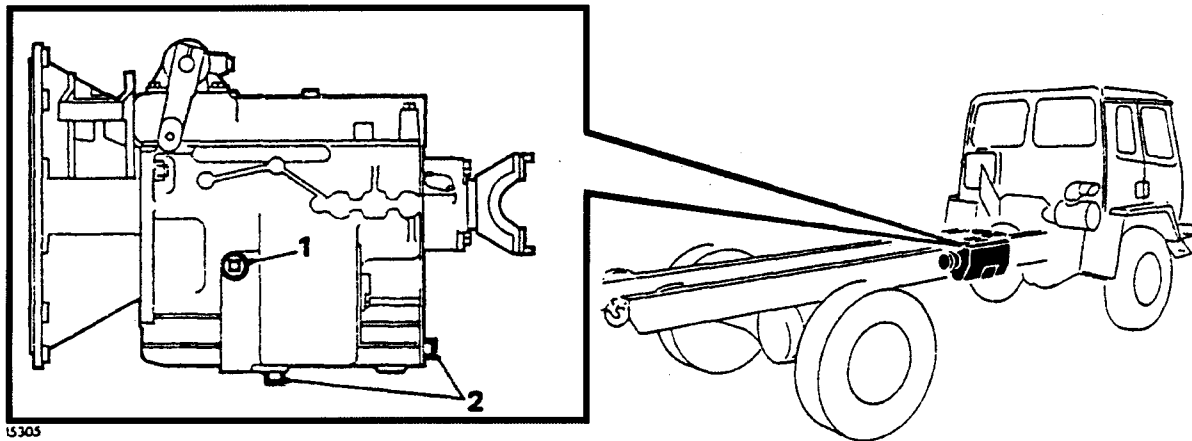
CHECK MAIN GEARBOX OIL LEVEL

20 Ensure that the vehicle is standing on level ground and that the handbrake control is applied to the park position before attempting to check the main gearbox oil level. Thoroughly clean the area surrounding the main gearbox filler/level plug (Fig 12 (1)) to prevent the ingress of dirt or foreign matter. Remove the filler/level plug and check that oil is visible in the filler/level aperture; if necessary, top-up with clean oil of the approved specification to the required level. Should the main gearbox require an excessive amount of oil the complete unit must be examined for leaks and rectified as necessary. Clean and then refit the filler/level plug.

RENEW MAIN GEARBOX OIL**NOTE**

The total oil refill capacity of the main gearbox is approximately 5.7 litres (10 pints).

21 Ensure that the vehicle is standing on level ground and that the handbrake control is applied to the park position before attempting to check the gearbox oil level. Position a suitable container beneath the main gearbox, remove the drain plugs (Fig 12 (2)) and allow the oil to drain into the container. Clean and then refit the drain plugs when drainage is complete. Thoroughly clean the area surrounding the filler/level plug (1) to prevent the ingress of dirt or foreign matter. Remove the filler/level plug and fill the main gearbox with clean oil of the approved specification until the oil just begins to emerge from the filler/level aperture. Clean and then refit the filler/level plug.



1 Main gearbox filler/level plug 2 Main gearbox drain plug

Fig 12 Main gearbox lubrication

CHECK TRANSFER GEARBOX OIL LEVEL

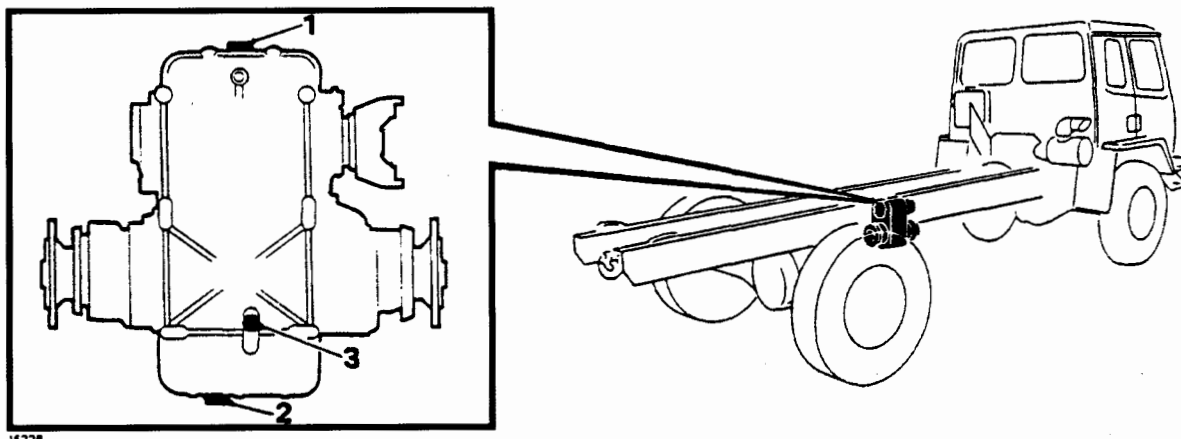
22 Ensure that the vehicle is standing on level ground and that the handbrake control is applied to the park position before attempting to check the transfer gearbox oil level. Thoroughly clean the area surrounding the transfer gearbox level plug (Fig 13 (3)) and filler plug (1) to prevent the ingress of dirt or foreign matter. Remove the level plug and check that oil is visible in the level aperture; if necessary remove the filler plug and top-up with clean oil of the approved specification to the required level. Should the transfer gearbox require an excessive amount of oil the complete unit must be examined for leaks and rectified as necessary. Clean and the refit the filler and level plugs.

RENEW TRANSFER GEARBOX OIL

NOTE

The total oil refill capacity of the transfer gearbox is approximately 2.0 litres (3.5 pints).

23 Ensure that the vehicle is standing on level ground and that the handbrake control is applied to the park position before attempting to check the transfer gearbox oil level. Position a suitable container beneath the transfer gearbox, remove the drain plug (Fig 13 (2)) and allow the oil to drain into the container. Clean and then refit the drain plug when drainage is complete. Thoroughly clean the area surrounding the filler plug (1) and level plug (3) to prevent the ingress of dirt or foreign matter. Remove the filler and level plugs and fill the transfer gearbox through the filler aperture with clean oil of the approved specification until the oil just begins to emerge from the level aperture. Clean and then refit the filler and level plugs.



- | | | | |
|---|-------------|---|------------|
| 1 | Filler plug | 3 | Level plug |
| 2 | Drain plug | | |

Fig 13 Transfer gearbox lubrication

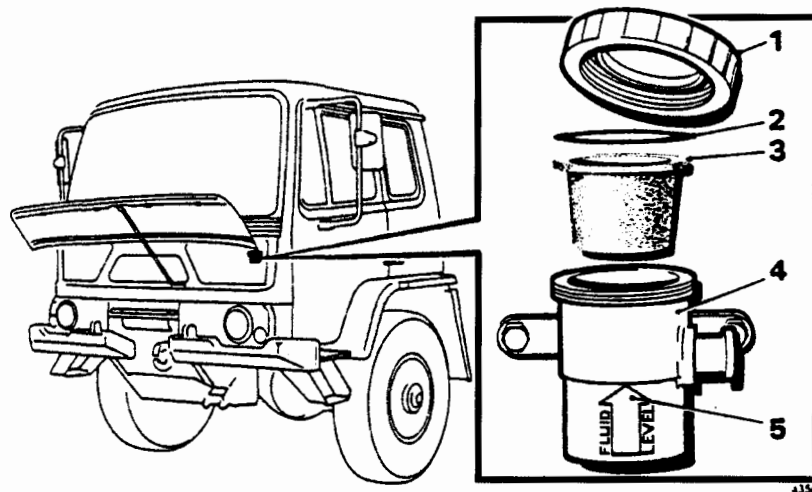
CHECK CLUTCH RESERVOIR FLUID LEVEL**WARNING**

HYDRAULIC FLUID IS A TOXIC SUBSTANCE WHICH MUST NOT BE CONSUMED OR ALLOWED TO COME INTO SKIN/EYE CONTACT. IN THE EVENT OF SLIGHT SKIN/EYE CONTACT, THOROUGHLY RINSE THE AFFECTED AREA WITH WATER. IF THERE IS EXCESSIVE SKIN/EYE CONTACT OR INGESTION/INHALATION SEEK MEDICAL ATTENTION IMMEDIATELY.

CAUTION

- (1) Use clean, new hydraulic fluid of the approved specification from a sealed container and ensure no dirt or foreign particles enter the clutch reservoir. Absorbed dirt or water in the hydraulic system can result in spongy pedal operation/clutch failure.
- (2) Do not shake the container or aerate the hydraulic fluid in any way.
- (3) Do not allow hydraulic fluid to contact any paint finished surfaces; hydraulic fluid has a detrimental effect upon paintwork.

24 The clutch reservoir (Fig 14 (4)) is located beneath the cab front access panel. Remove the reservoir cap (1) and extract the rubber diaphragm (3) from the reservoir. The clutch hydraulic fluid level should register on the fluid level mark (5) embossed on the reservoir; if necessary, top-up with clean, hydraulic fluid of the approved specification. Should the reservoir require an excessive amount of hydraulic fluid, the complete system must be examined for leaks and rectified as necessary. Insert the rubber diaphragm into the reservoir and, to prevent leakage from the reservoir, ensure that the seal (2) in the reservoir cap is in good condition and that the reservoir cap is correctly and securely fitted.



- | | | | |
|---|------------------|---|------------------|
| 1 | Cap | 4 | Reservoir |
| 2 | Seal | 5 | Fluid level mark |
| 3 | Rubber diaphragm | | |

Fig 14 Exploded view of clutch reservoir

CHECK POWER STEERING FLUID LEVEL

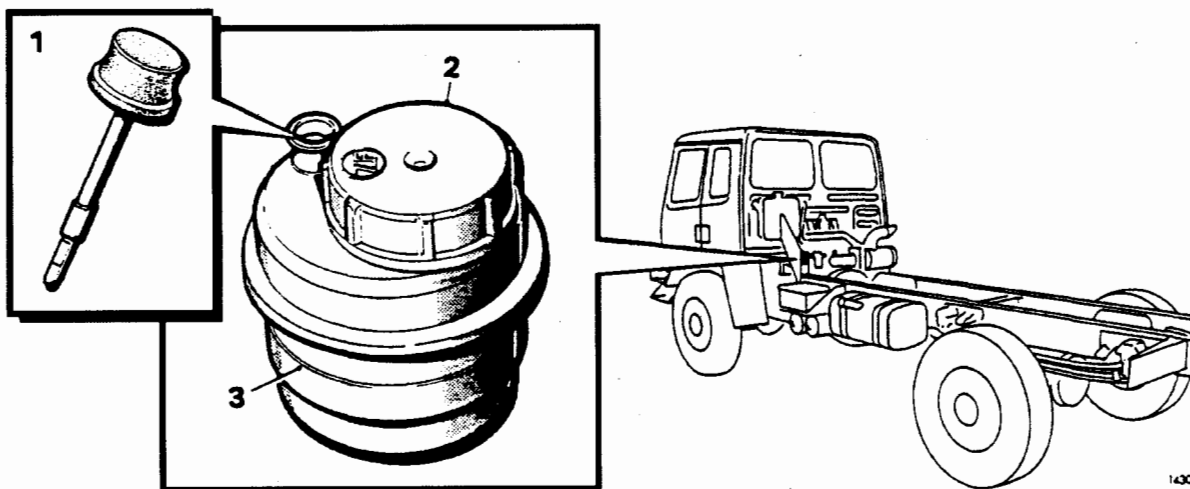
WARNING

HYDRAULIC FLUID IS A TOXIC SUBSTANCE WHICH MUST NOT BE CONSUMED OR ALLOWED TO COME INTO SKIN/EYE CONTACT. IN THE EVENT OF SLIGHT SKIN/EYE CONTACT, THOROUGHLY RINSE THE AFFECTED AREA WITH WATER. IF THERE IS EXCESSIVE SKIN/EYE CONTACT OR INGESTION/INHALATION SEEK MEDICAL ATTENTION IMMEDIATELY.

CAUTION

Absolute cleanliness must be maintained whilst examining the power steering fluid level. The ingress of dirt or foreign particles will have a severe detrimental effect upon the components of the power steering system.

25 Tilt the cab as instructed in Chap 3, Para 15. With the engine running, remove the dipstick (Fig 15 (1)) and check that the hydraulic fluid level registers on the maximum level on the dipstick. If necessary remove the reservoir cap (2) and top-up with approved hydraulic fluid until the correct level is attained; do NOT exceed the maximum fluid level. Should power steering reservoir (3) require an excessive amount of hydraulic fluid, the complete system must be inspected for leaks and rectified as necessary.



- 1 Dipstick
- 2 Reservoir cap
- 3 Reservoir

Fig 15 Power steering reservoir

RENEW POWER STEERING FILTER**WARNING**

HYDRAULIC FLUID IS A TOXIC SUBSTANCE WHICH MUST NOT BE CONSUMED OR ALLOWED TO COME INTO SKIN/EYE CONTACT. IN THE EVENT OF SLIGHT SKIN/EYE CONTACT, THOROUGHLY RINSE THE AFFECTED AREA WITH WATER. IF THERE IS EXCESSIVE SKIN/EYE CONTACT OR INGESTION/INHALATION SEEK MEDICAL ATTENTION IMMEDIATELY.

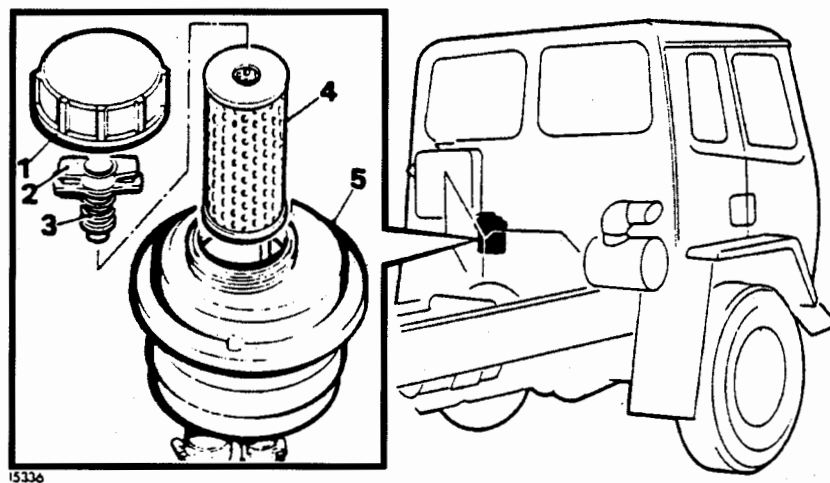
CAUTION

Absolute cleanliness must be maintained whilst renewing the power steering filter. The ingress of dirt or foreign particles will have a severe detrimental effect upon the components of the power steering system.

26 Tilt the cab as instructed in Chap 3, Para 15.

27 Remove the reservoir cap (1), rotate and then remove the retaining handle (2) complete with the filter element (4). Detach the retaining handle and spring (3) from the old filter element and then attach it to the new replacement element. Insert and lock the new filter element assembly into the reservoir (5).

28 Start the engine and, with the engine at idling speed, check/top-up the hydraulic fluid level in the reservoir as instructed in Para 24.



- | | | | |
|---|------------------|---|--------------------------|
| 1 | Reservoir cap | 4 | Filter element |
| 2 | Retaining handle | 5 | Power steering reservoir |
| 3 | Spring | | |

Fig 16 Renewing power steering filter

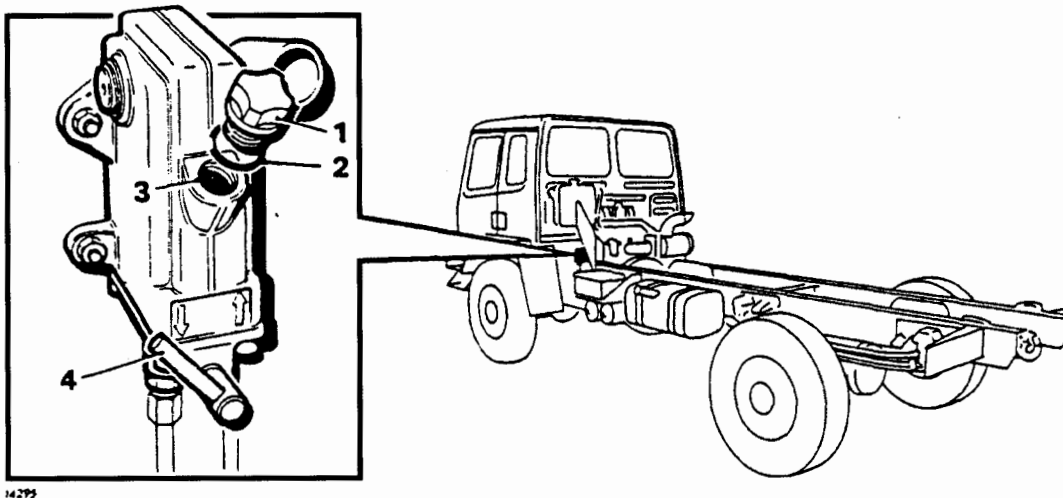
CHECK CAB TILT PUMP FLUID LEVEL

WARNING

HYDRAULIC FLUID IS A TOXIC SUBSTANCE WHICH MUST NOT BE CONSUMED OR ALLOWED TO COME INTO SKIN/EYE CONTACT. IN THE EVENT OF SLIGHT SKIN/EYE CONTACT, THOROUGHLY RINSE THE AFFECTED AREA WITH WATER. IF THERE IS EXCESSIVE SKIN/EYE CONTACT OR INGESTION/INHALATION SEEK MEDICAL ATTENTION IMMEDIATELY.

CAUTIONS

- (1) **Absolute cleanliness must be maintained whilst examining the cab tilt pump fluid level. The ingress of dirt or foreign matter will have a severe detrimental effect upon the cab tilt pump.**
 - (2) **Should the cab tilt pump require an excessive amount of hydraulic fluid, the complete system must be inspected for leaks and rectified as necessary.**
- 29 Ensure that the vehicle is on level ground, the cab in the down position and the spool valve pin (Fig 17 (4)) in the down/drive position before attempting to check the fluid level.
- 30 Thoroughly clean the filler/level plug (1) and its surrounding area to prevent the ingress of dirt or foreign matter. Slacken, but do not remove, the filler/level plug and wait 3 to 4 seconds to allow the hydraulic fluid to stabilise and then remove the filler/level plug. Check that the hydraulic fluid level is just visible below the filler/level aperture (3); if necessary, top-up with clean hydraulic fluid of the approved specification.
- 31 Examine the filler/level plug sealing ring (2) for damage or deterioration; renew as necessary. Refit the filler/level plug, complete with its sealing ring, into the cab tilt pump.



- | | | | |
|---|-------------------|---|-----------------------|
| 1 | Filler/level plug | 3 | Filler/level aperture |
| 2 | Sealing ring | 4 | Spool valve pin |

Fig 17 Cab tilt pump

AIR PRESSURE SYSTEM TEST**WARNINGS**

- (1) DO NOT ATTEMPT TO START OR RUN AN ENGINE IN A CONFINED SPACE OR UNVENTILATED AREA; EXHAUST FUMES CONTAIN TOXIC GASES WHICH, IF INHALED, MAY BE FATAL.**
- (2) ANY FAILURES IN THE VEHICLE AIR PRESSURE SYSTEM MUST BE REPORTED AND RECTIFIED BEFORE THE VEHICLE IS PUT INTO SERVICE.**

32 To prevent vehicle movement ensure that the road wheels are chocked whilst carrying out this test procedure. With the handbrake control in the park position and the complete vehicle air pressure fully depleted, start the engine to re-charge the air system and check the following functions:

NOTE

The master/start key must be in the ignition circuits position to activate the trailer/park air pressure gauge (air gauge '3').

32.1 The warning buzzer should cease to sound and the air pressure warning light should extinguish within a maximum period of 3 minutes; excessive air build-up times must be reported and rectified.

32.2 Continue to charge the air pressure system until the air system is fully charged; this should be achieved within a maximum total period of 6 minutes. Switch off the engine and observe the air pressure gauges for any pressure loss; pressure loss is NOT permissible.

32.3 With the air system fully charged and the engine stopped, fully depress the footbrake pedal and observe the air pressure gauge readings whilst the footbrake is applied. The air pressure readings should remain constant (after the slight initial loss when the footbrake is applied); if the air pressure continues to drop the footbrake system is defective.

32.4 With the air system fully charged, move the handbrake to the off position and observe the air pressure gauges. The air gauge readings will drop slightly and then remain constant; if the air pressure continues to drop the handbrake system is defective.

RENEW AIR FILTER ELEMENT

CAUTIONS

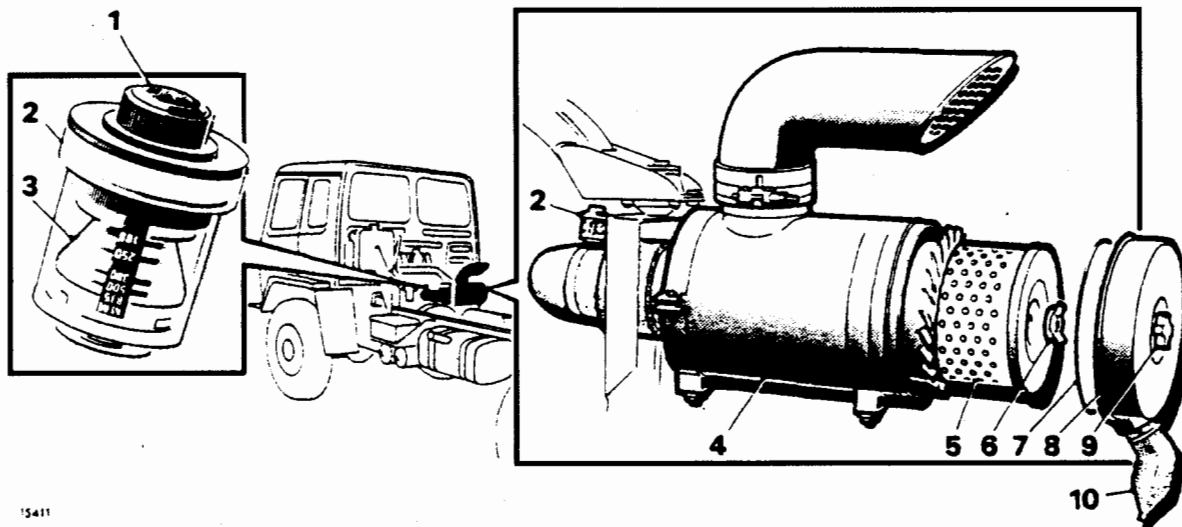
(1) The air induction system incorporates a vacuum operated restriction indicator (Fig 18 (2)) which is calibrated in in.H₂O and mmH₂O. The restriction indicator contains a yellow plunger (3) within the transparent body. The air filter element must be renewed when the plunger registers 25 in.H₂O (635 mmH₂O) vacuum.

(2) Do not attempt to clean the air filter element by washing or reverse blowing with compressed air.

(3) Do not run the engine with the air filter element removed nor refit a faulty element.

33 Release the securing knob (9) and detach the end cover (8). Remove the wing nut (6) and extract the air filter element (5) from the filter canister (4). Thoroughly clean the filter canister and end cover, ensuring that the rubber unloader valve (10) is unobstructed. The rubber unloader valve should be regularly inspected to ensure that it is functioning correctly and is in good condition; it must be renewed if it is split, excessively abraded or the lips adhere together.

34 Insert and locate the new air filter element in the filter canister and secure in position with the wing nut. Examine the end cover O-ring (7) for damage or deterioration; renew if necessary. Refit the end cover and tighten the securing knob securely. If necessary, depress the rubber button (1) on top of the restriction indicator to reset the yellow plunger. Ensure that all hoses, air ducting and connections are secure and in good condition:



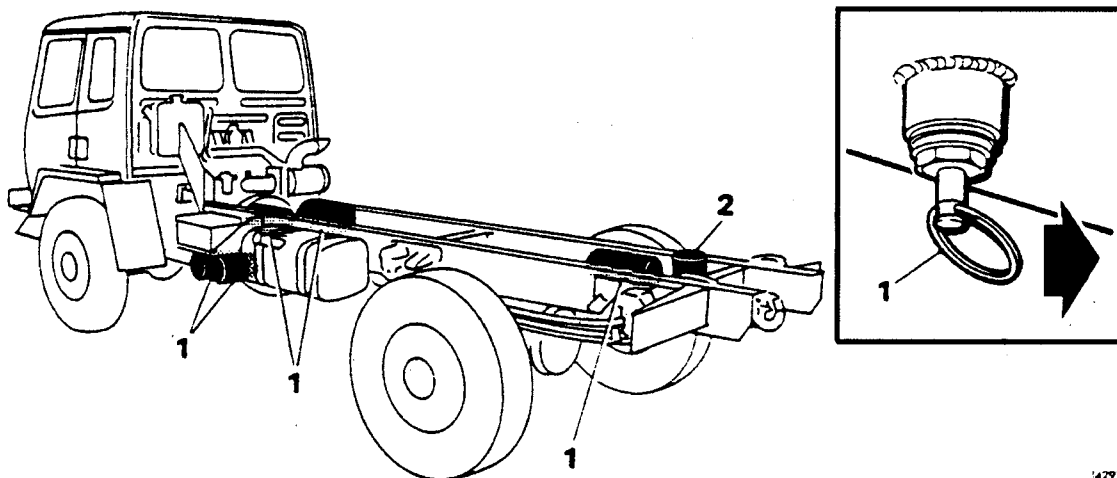
- | | | | |
|---|-----------------------|----|----------------|
| 1 | Reset button | 6 | Wing nut |
| 2 | Restriction indicator | 7 | O-ring |
| 3 | Yellow plunger | 8 | End cover |
| 4 | Filter canister | 9 | Securing knob |
| 5 | Filter element | 10 | Unloader valve |

Fig 18 Renewing air filter element

DRAIN AIR RESERVOIRS**WARNING**

FULLY CHARGED AIR RESERVOIRS CONTAIN AIR AT AN APPROXIMATE PRESSURE OF 8.3 BAR (120 lbf/in.²). IT IS ESSENTIAL THAT SUITABLE EYE PROTECTION AND PROTECTIVE GLOVES ARE WORN WHILST RELEASING THE AIR PRESSURE FROM THE AIR RESERVOIRS.

35 Chock the road wheels and fully charge the vehicle air system. Completely drain each air reservoir by pulling its drain valve ring pull (Fig 19 (1)) in a sideways direction. The expelled air must be free of any condensate (water/oil/dirt particles); should condensate be observed from any reservoir then the air dryer filter (2) must be renewed as instructed in AESP 2320-H-104-522, Chap 10, Para 26 onwards.



- 1 Drain valve pull ring
- 2 Air dryer filter

Fig 19 Draining air reservoirs

CHECK BRAKE SHOE LININGS**WARNINGS**

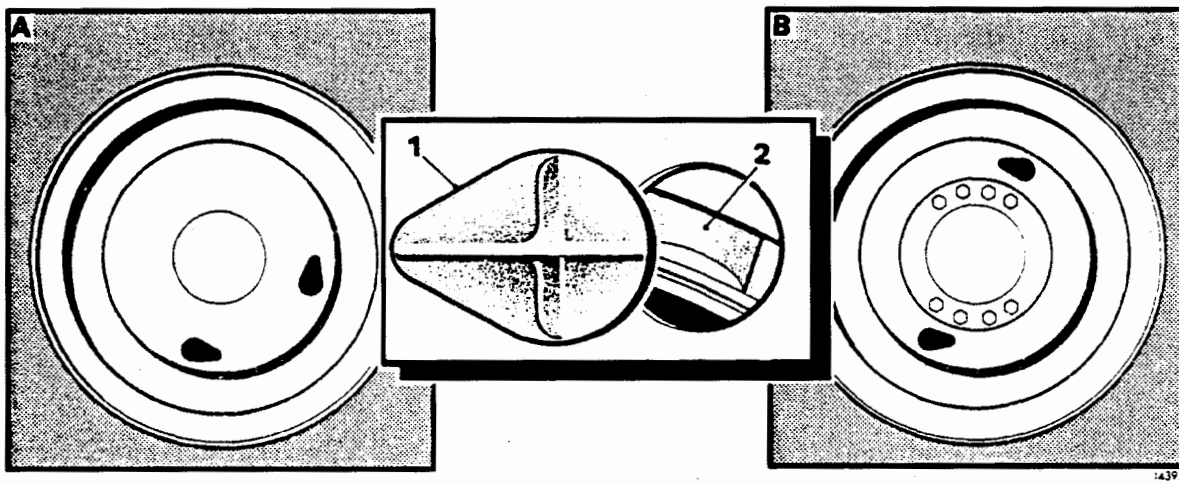
(1) **THE BRAKE SHOE LINING MATERIAL USED ON THE BRAKE SHOES IS ASBESTOS-FREE BUT IT IS RECOMMENDED THAT SUITABLE PROTECTIVE CLOTHING AND A FACE MASK ARE WORN TO PREVENT THE INHALATION/PENETRATION OF BRAKE LINING DUST.**

(2) **DO NOT BLOW DUST FROM THE BRAKE LININGS OR BRAKE ASSEMBLIES; REMOVE ANY DUST USING A DAMP CLOTH OR VACUUM CLEANER AND DISPOSE OF ALL WASTE, WHILST DAMP, INTO A PLASTIC WASTE DISPOSAL BAG. ENSURE THAT THE DISPOSAL BAG IS SEALED AND DISPOSED OF IN A SAFE MANNER.**

36 Chock the road wheels, fully charge the vehicle air system and then move the handbrake to the off position. Remove the two rubber grommets (Fig 20 (1)) from the inspection apertures in each hub backplate. Inspect all brake shoe linings as follows:

36.1 To accurately determine the brake shoe lining wear, each brake shoe has a wear indicator slot (2) machined in the brake lining. The base of each wear indicator slot is equivalent to a minimum brake shoe lining thickness of 5 mm (0.200 in.). Should any brake lining be worn down to the base of any wear indicator slot then all brake shoes on the affected axle must be renewed as a complete set.

36.2 Refit the rubber grommets into their inspection apertures after inspecting the brake linings.



- | | | | |
|---|----------------|---|---------------------|
| 1 | Rubber grommet | 2 | Wear indicator slot |
| A | Front hub | B | Rear hub |

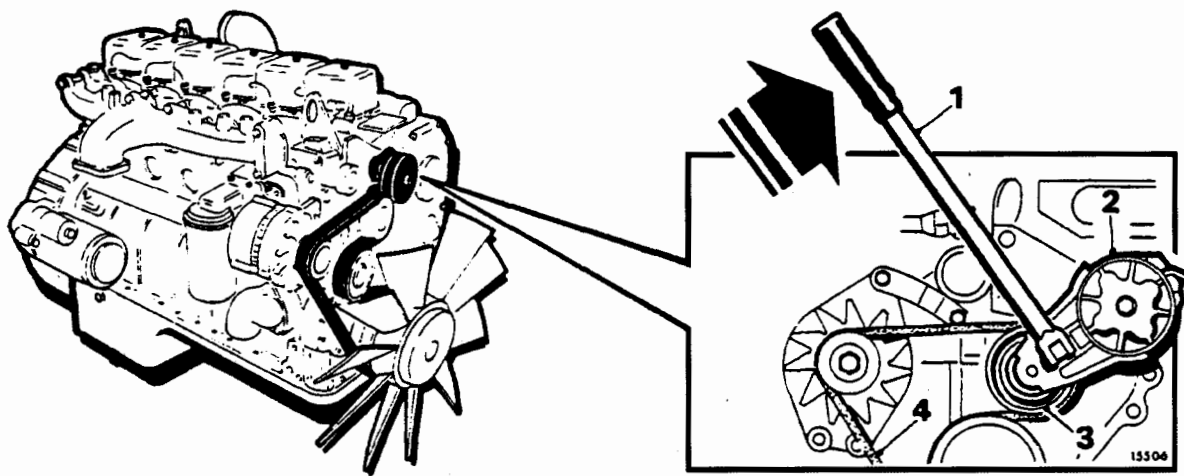
Fig 20 Checking brake shoe linings

CHECK ENGINE DRIVE BELT AND AUTOMATIC TENSIONER

NOTE

The Leyland 300 Series engine is fitted with an automatic drive belt tensioner and, therefore, the drive belt cannot be manually adjusted. Should the drive belt tension be found to be incorrect then the automatic tensioner must be tested and, if necessary, overhauled or renewed.

37 Isolate the vehicle electrical system. Insert a 3/8 in. square drive knuckle bar (Fig 21 (1)) into the automatic tensioner (2). Push the bar upwards to release the tension and then remove the engine drive belt (4). Examine the drive belt for cracks, damage, excessive wear or elongation; renew the drive belt as necessary.



- | | | | |
|---|---------------------|---|-------------------|
| 1 | Knuckle bar | 3 | Tensioner pulley |
| 2 | Automatic tensioner | 4 | Engine drive belt |

Fig 21 Engine drive belt and automatic tensioner

38 Check that the tensioner pulley (3) spins freely under normal hand pressure without any detectable binding or sticking; the tensioner pulley must be renewed or overhauled if it is found to be defective. Refit the engine drive belt.

CLEAN COLD START PLUNGER FILTER

39 Prise off the cap (Fig 22 (3)) from the plunger handle (1) and carefully extract the plunger filter (2). Clean the plunger filter in a suitable solvent and dry thoroughly. Examine the plunger filter for damage or blockages; renew the plunger filter as necessary. Re-assemble all the components ensuring the plunger filter and cap are correctly located and secure.

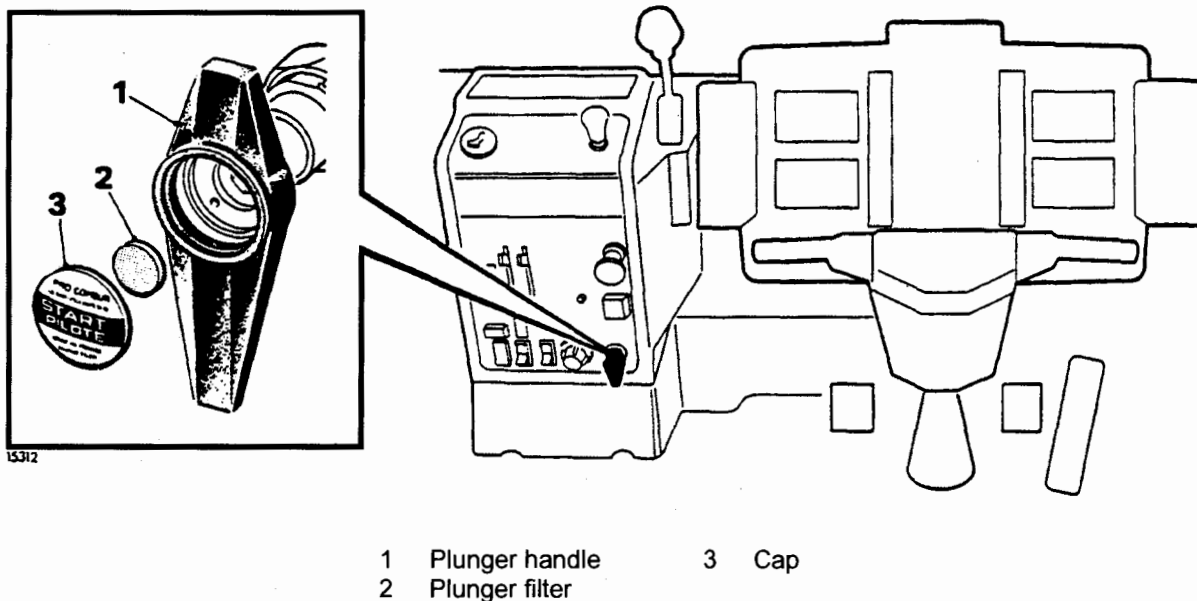


Fig 22 Exploded view of start pilot plunger handle

FUSES

WARNINGS

(1) TO AVOID OVERLOADING THE ELECTRICAL CIRCUITS AND THE SUBSEQUENT POSSIBILITY OF FIRE, DO NOT FIT A FUSE THAT EXCEEDS THE RECOMMENDED AMPERAGE.

(2) REPEATED FAILURE OF THE SAME FUSE INDICATES A CIRCUIT FAULT WHICH MUST BE INVESTIGATED AND RECTIFIED.

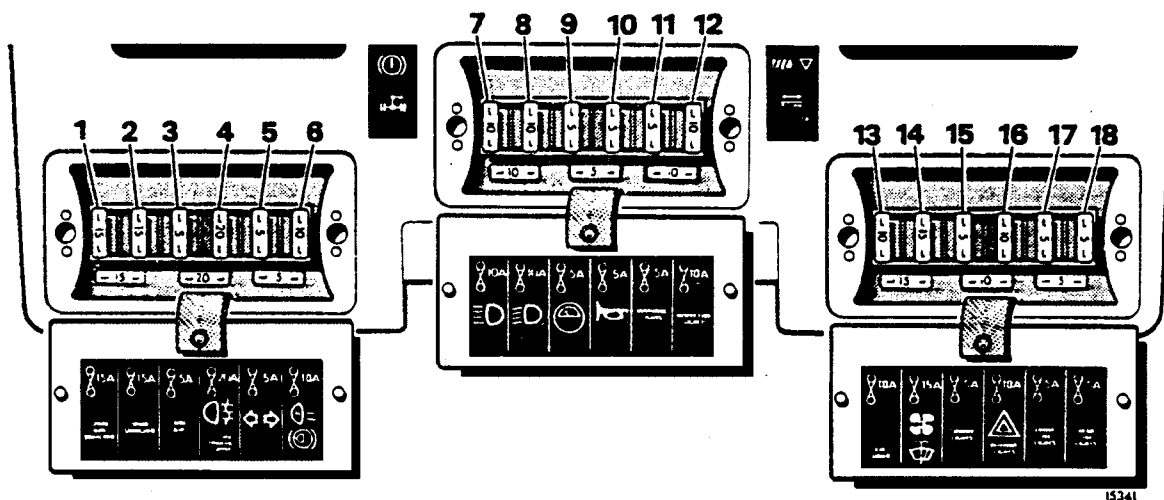
40 The vehicle is equipped with three fuse compartments (Fig 23) which are located on the lower edge of the instrument panel. Lightly depress and rotate the quick release fasteners to unlock the fuse covers; pull down the covers to gain access to the fuses. Refer to Chap 6, Table 2, for the correct fuse ratings.

NOTE

Each fuse compartment contains three spare fuses located below the fuse block.

41 The blade type fuses protect the electrical circuits in the event of a short circuit. If a failure of an electrical component occurs within the system, check the appropriate fuse and, if necessary, renew with a replacement fuse of the specified rating. Each fuse is colour coded to identify the rating:

- 41.1 Tan - 5 amp.
- 41.2 Red - 10 amp.
- 41.3 Blue - 15 amp.
- 41.4 Yellow - 20 amp.



- | | |
|--|--|
| 1 Spare (non-switched) | 10 Horn |
| 2 Spare (switched) | 11 Warning lights |
| 3 Dim-dip relay | 12 Inspection socket |
| 4 Rear fog lights and 24V trailer supply | 13 Air dryer |
| 5 Direction indicators | 14 Heater motor, windscreen wash and wiper motor |
| 6 Reverse lights and brake lights | 15 Convoy lights |
| 7 Headlights - main beam | 16 Hazard warning and interior lights |
| 8 Headlights - dipped beam | 17 Front sidelights |
| 9 Instruments | 18 Rear sidelights |

Fig 23 Fuse layout

HEADLIGHT AND SIDELIGHT LAMPS

42 Release the headlight protection grille. Release the retaining screws (Fig 24 (2)) and withdraw the headlight unit (1) from the headlight housing (9). Detach the water resistant seal (6) from the headlight unit.

42.1 Sidelight lamp. Extract the sidelight lamp holder (5) from the headlight unit; remove the sidelight lamp (4) from its holder.

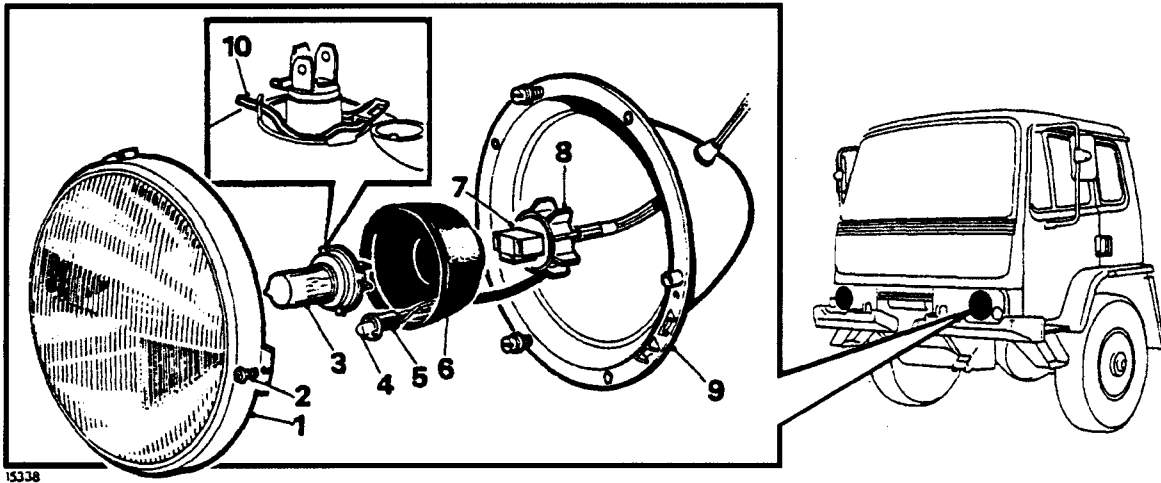
42.2 Headlight lamp. Disconnect the multi-pin connector (7), complete with grommet (8). Release the spring clip (10) and extract the headlight lamp (3). Refit the new lamp, noting:

42.2.1 Do not finger mark the headlight lamp glass. If the lamp glass has been contaminated, clean with a cloth moistened in industrial alcohol (methylated spirit).

42.2.2 Ensure that the headlight lamp spring clip is correctly located and secure.

42.2.3 Smear the internal contact surface of the water resistant seal with a suitable silicon grease and then refit the seal onto the headlight unit; ensure that the water resistant seal is firmly against the headlight reflector.

42.2.4 When refitting the headlight unit ensure that the retaining screws (2) are lightly tightened; do NOT overtighten.



- | | | | |
|---|-----------------|----|----------------------|
| 1 | Headlight unit | 6 | Water resistant seal |
| 2 | Retaining screw | 7 | Multi-pin connector |
| 3 | Headlight lamp | 8 | Grommet |
| 4 | Sidelight lamp | 9 | Headlight housing |
| 5 | Lamp holder | 10 | Spring clip |

Fig 24 Headlight and sidelight unit

FRONT DIRECTION INDICATOR LAMPS

43 Release the relevant headlight protection grille. Carefully prise the lens (Fig 25 (1)) from the rubber surround (2). Lightly depress and rotate the lamp (3) anti-clockwise to remove. When refitting the lens ensure that it is correctly located and that the word 'TOP' (embossed on the lens) is uppermost.

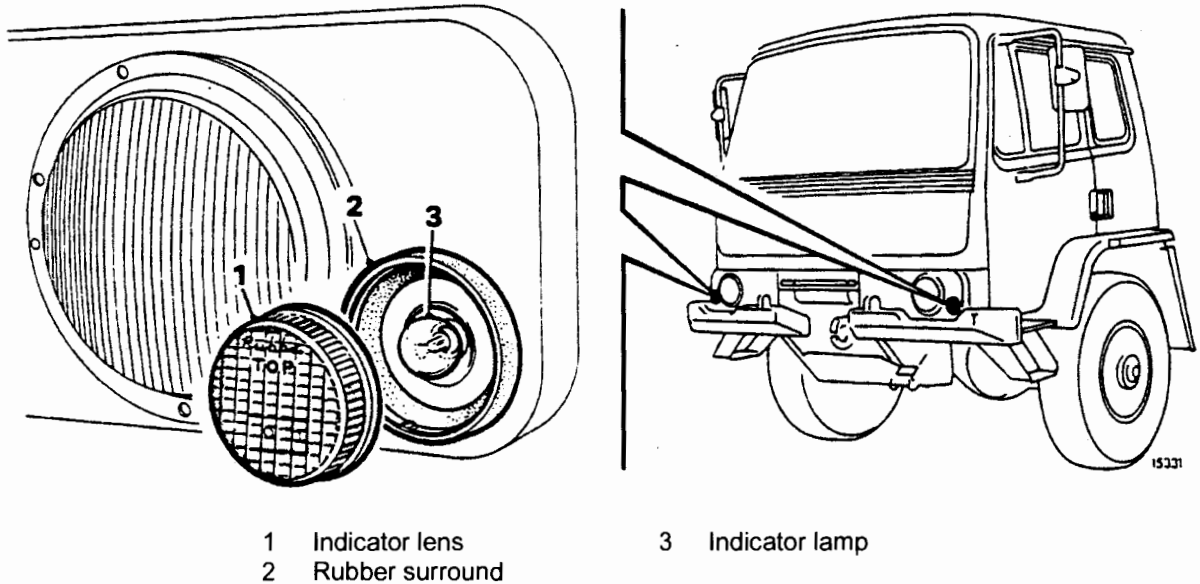


Fig 25 Front direction indicator lamp

SIDE REPEATER LAMP

44 The side repeater lights (Fig 26) are located on each cab wing above the wheel arch. Twist and detach the lamp assembly from the rear of its unit. Extract the lamp from its lamp holder.

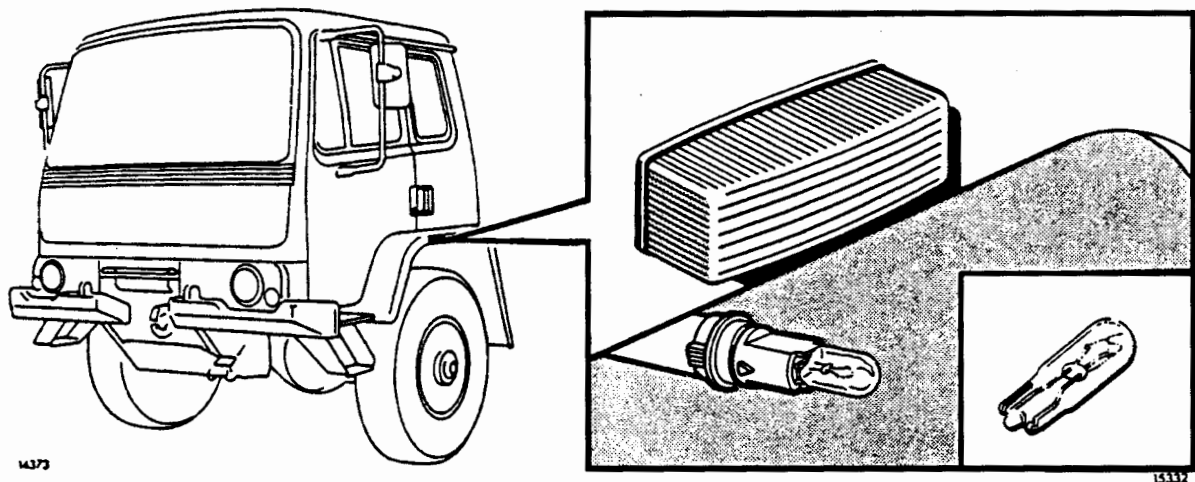


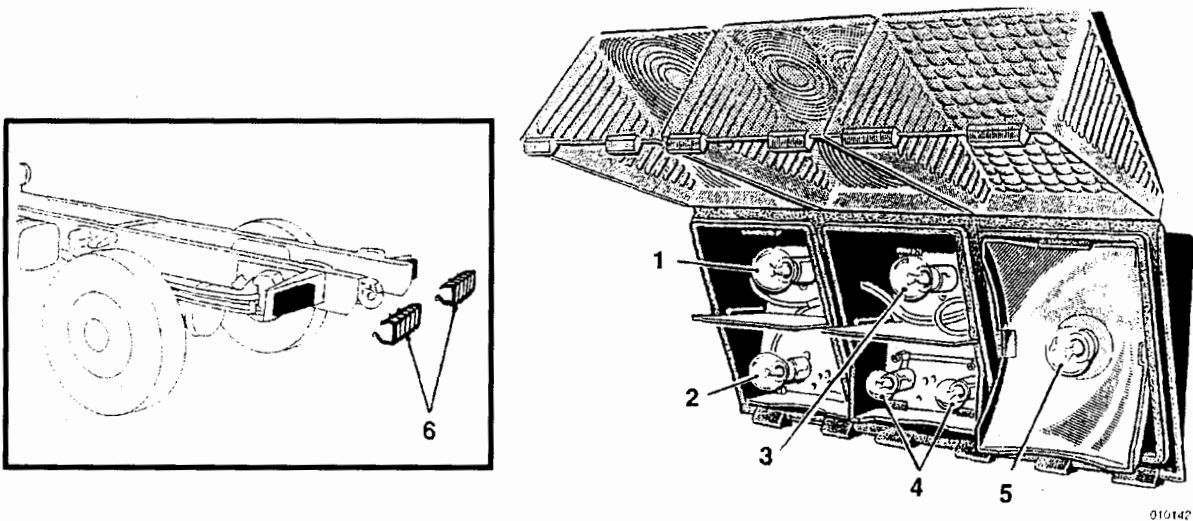
Fig 26 Side repeater lamp

REAR LIGHT UNIT

CAUTION

The rear light lenses are hinged at the top of the rear unit and are permanently attached; do NOT attempt to remove the lenses from the light unit.

45 Remove the lamp guard retaining bolts and swing the guard clear of the lenses. Carefully prise and release the base of the lenses and then lift them upwards to gain access to the direction indicator lamp (Fig 27 (1)), brake light lamp (2), reverse light lamp (3), number plate/rear light lamp (4) and rear fog light lamp (5).



- | | | | |
|---|--------------------------|---|------------------------------|
| 1 | Direction indicator lamp | 4 | Number plate/rear light lamp |
| 2 | Brake lamp | 5 | Rear fog lamp |
| 3 | Reverse light lamp | 6 | Lamp guards |

Fig 27 Rear light unit lamps

CONVOY LIGHT LAMP

46 The convoy light unit is located as shown in Fig 28. Remove the three retaining screws and withdraw the lens cover. Lightly depress and rotate the lamp anti-clockwise to remove.

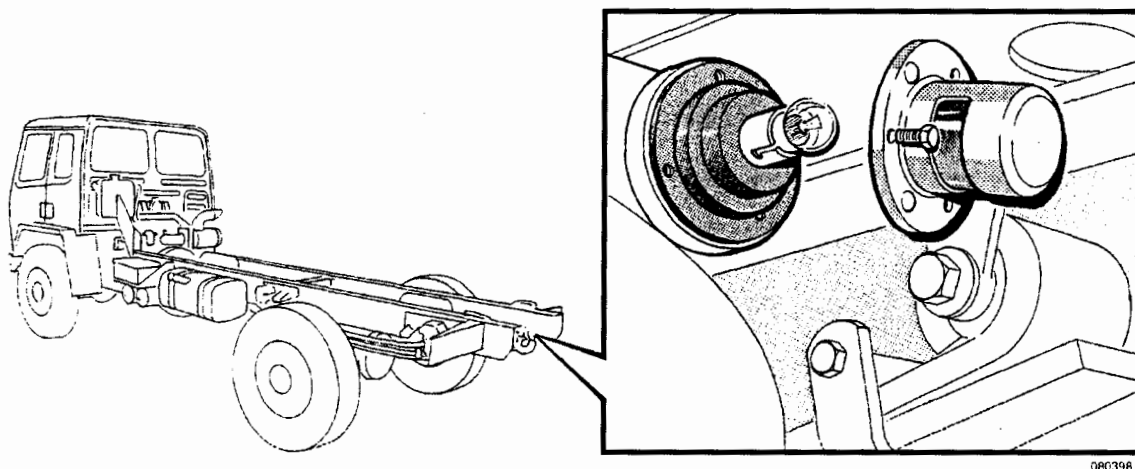
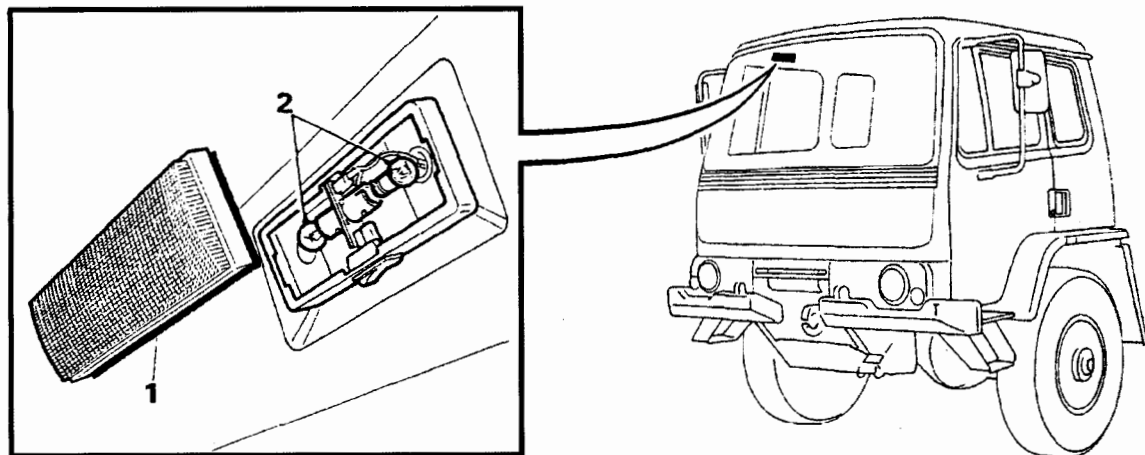


Fig 28 Convoy light

COURTESY LIGHT

47 Carefully detach the lens (Fig 29 (1)) from the unit and remove the lamps (2). When refitting the lens ensure that it is correctly located and secure.

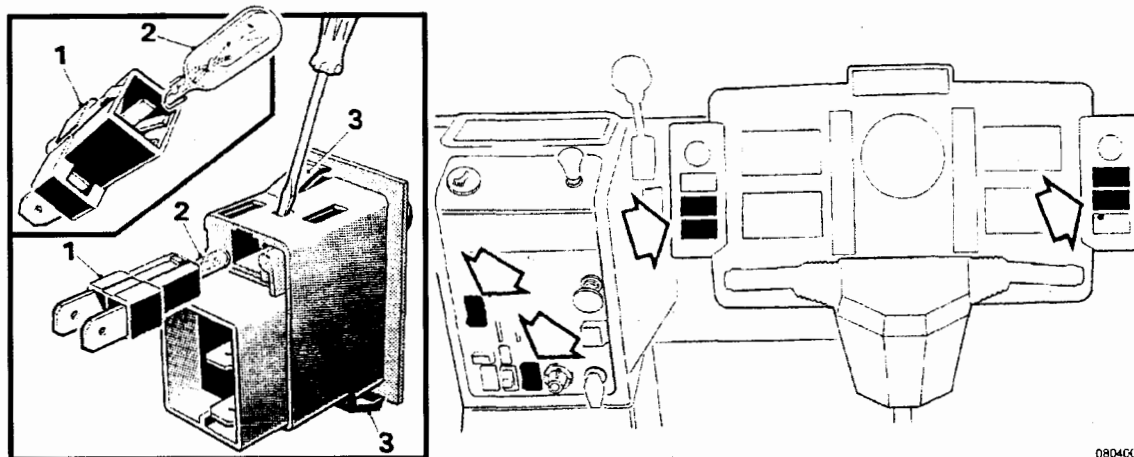


- 1 Courtesy light lens
- 2 Courtesy lamp

Fig 29 Courtesy light

SWITCH LAMPS - CENTRE CONSOLE

48 Remove the retaining screws and withdraw the centre console trim panel. Disconnect the electrical leads from the appropriate switch, squeeze the retaining lugs (Fig 30 (3)) and push the switch out of the console. Depress the detent lug on the side of the switch and withdraw the lamp holder (1) complete with lamp (2). Separate the lamp and lamp holder.



- 1 Lamp holder
- 2 Switch lamp
- 3 Retaining lug

Fig 30 Instrument panel/centre console switch lamps

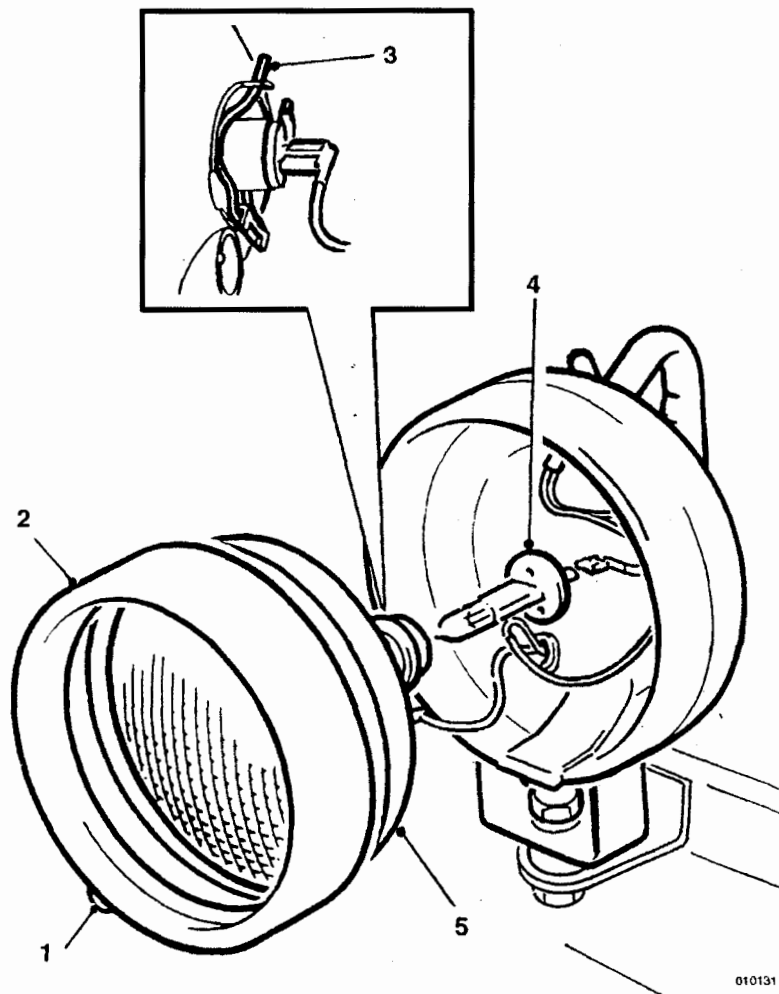
REAR MOUNTED FLOODLIGHTS

49 Release the bezel screw Fig 31 (1) and pull the bezel (2) from the housing. Squeeze the spring (3) and pull the bulb holder (4) from the reflector (5). Release the spent bulb. Refit a new bulb noting:

49.1 Do not finger mark the bulb. If the bulb has been contaminated, clean with a cloth moistened in industrial alcohol (methylated spirits).

49.2 Ensure that the lamp spring clip (3) is correctly located and secure.

49.3 Ensure that the bezel screw is lightly tightened; do NOT overtighten.



- | | | | |
|---|-------------|---|-------------|
| 1 | Bezel screw | 4 | Bulb holder |
| 2 | Bezel | 5 | Reflector |
| 3 | Spring | | |

Fig 31 Rear mounted floodlights

JACKING THE VEHICLE

WARNING

THE JACK SUPPLIED WITH THE VEHICLE IS DESIGNED SOLELY FOR USE WHEN CHANGING WHEELS. DO NOT WORK BENEATH THE VEHICLE WHILST IT IS SUPPORTED BY THE JACK. DO NOT START NOR RUN THE ENGINE WHILST THE VEHICLE IS ON THE JACK.

50 Ensure that the complete vehicle is on stable, level ground, the engine is stopped and that the handbrake is applied to the park position. Position chocks under the road wheels. Locate the vehicle jack beneath the appropriate axle adjacent to the wheel to be raised.

WHEEL REMOVAL AND REPLACEMENT

WARNING

THE WHEELS AND WHEEL NUTS USED ON THIS VEHICLE ARE BASED ON THE SPIGOT MOUNTING SYSTEM AS OPPOSED TO THE CONVENTIONAL BRITISH STANDARDS CONICAL FIXING SYSTEM. THE WHEELS AND WHEEL NUTS OF THESE FIXING SYSTEMS ARE NOT COMPATIBLE AND MUST NOT BE INTERCHANGED.

Remove

51 Chock the road wheels and position a suitable jack beneath the appropriate axle adjacent to the wheel to be removed. To prevent damage to the wheel nut threads, clean the exposed portion of each wheel stud.

52 Slacken, but do not remove, the wheel nuts; noting that Right Hand (RH) wheels have RH threaded wheel studs and, conversely, Left Hand (LH) wheels have LH threaded wheel studs.

53 Raise the axle until the road wheel is clear of the ground and, if possible, position suitable supports beneath the appropriate axle. Remove the wheel nuts and detach the road wheel.

Refit

WARNINGS

(1) AFTER THE FIRST 20 KM (12 MILES) AND THEN ON A DAILY BASIS FOR THE FIRST WEEK, THE WHEEL NUTS MUST BE CHECKED AND, IF NECESSARY, RE-TORQUED. THEREAFTER THE WHEEL NUTS MUST BE CHECKED/RE-TORQUED ON A ROUTINE DAILY BASIS.

(2) DO NOT USE AN EXTENSION BAR OR ANY OTHER FORMS OF LEVERAGE WHEN USING THE VEHICLE ISSUE WHEEL BRACE.

(3) DRIVE THE VEHICLE FOR 5 KM (3 MILES) AND THEN RE-CHECK THE SECURITY OF THE WHEEL NUTS. THE SECURITY OF THE WHEEL NUTS MUST BE CHECKED USING A TORQUE WRENCH AS SOON AS POSSIBLE.

54 Smear the wheel studs with clean engine oil, taking care not to contaminate the mating surfaces. Locate the road wheel on the hub. Fit, but do not tighten the road wheel nuts and then lower the vehicle to the ground. Tighten the road wheel nuts evenly and in the sequence shown in Fig 32 to a torque of 640 to 720 Nm (470 to 530 lbf ft). Smear the exposed portion of each wheel stud with clean engine oil to prevent corrosion and assist subsequent removal.

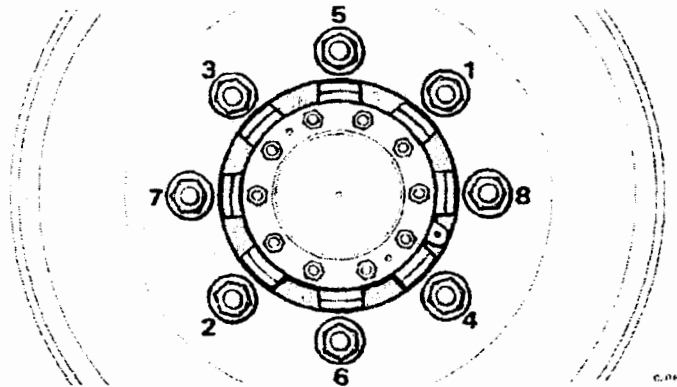


Fig 32 Wheel nut tightening sequence

55 Refer to 2320-G-300-411 for fitting instructions of Troop Carrying Vehicle Enhanced Seating.

CHAPTER 5-1

USER MAINTENANCE - WINCH VARIANT

CONTENTS

This Chapter must be read in conjunction with Chapter 5-0

Para

- 1 Renew power take-off oil (CAUTIONS)
- 2 Check winch hydraulic fluid level (WARNING)
- 3 Renew winch hydraulic fluid (WARNING) (CAUTION)
- 8 Renew winch hydraulic fluid filter (WARNING) (CAUTION)
- 9 Check winch gearbox oil level (CAUTION)
- 11 Renew winch gearbox oil (CAUTION)

Fig

Page

1	Power take-off lubrication.....	1
2	Winch hydraulic reservoir.....	2
3	Winch hydraulic filter.....	4
4	Winch gearbox lubrication.....	5

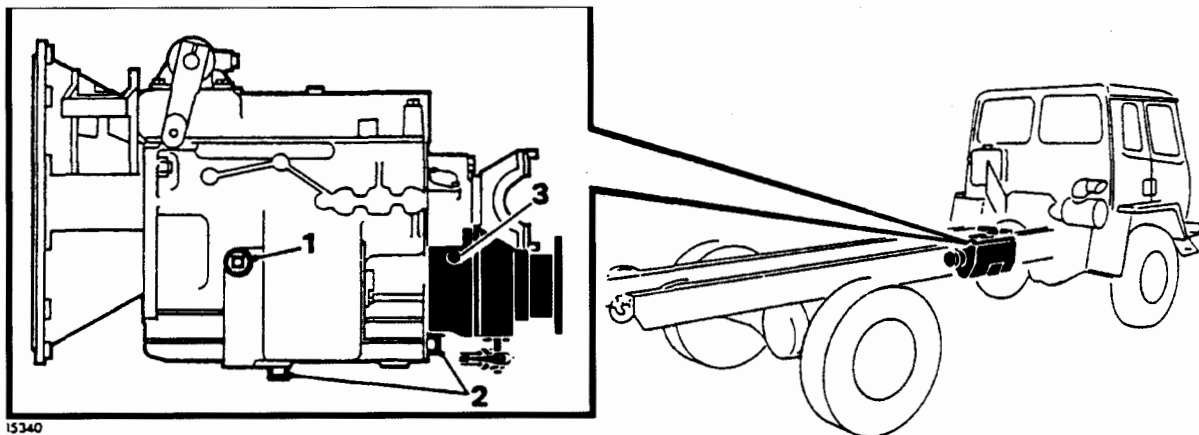
RENEW POWER TAKE-OFF OIL

CAUTION

(1) The Power Take-Off (PTO) unit is an integral part of the main gearbox and, during normal use, utilises the main gearbox lubricant. When renewing the main gearbox oil it is essential that the PTO is refilled with an additional 0.45 litre (0.75 pint) of oil.

(2) Absolute cleanliness must be maintained when renewing the PTO oil. The ingress of dirt or foreign matter will have a severe detrimental effect upon the components of the PTO unit.

1 Renew the main gearbox oil as instructed in Chap 5-0, Para 21. Thoroughly clean the area surrounding the PTO filler plug (Fig 1 (3)) to prevent the ingress of dirt or foreign matter. Remove the filler plug and pour 0.45 litre (0.75 pint) of clean oil of the approved specification. Clean and refit the filler plug.



- 1 Main gearbox filler/level plug
- 2 Main gearbox drain plug
- 3 PTO filler plug

Fig 1 Power take-off lubrication

CHECK WINCH HYDRAULIC FLUID LEVEL**WARNING**

HYDRAULIC FLUID IS A TOXIC SUBSTANCE WHICH MUST NOT BE CONSUMED OR ALLOWED TO COME INTO SKIN/EYE CONTACT. IN THE EVENT OF SLIGHT SKIN/EYE CONTACT, THOROUGHLY RINSE THE AFFECTED AREA WITH WATER. IF THERE IS EXCESSIVE SKIN/EYE CONTACT OR INGESTION/INHALATION SEEK MEDICAL ATTENTION IMMEDIATELY.

CAUTION

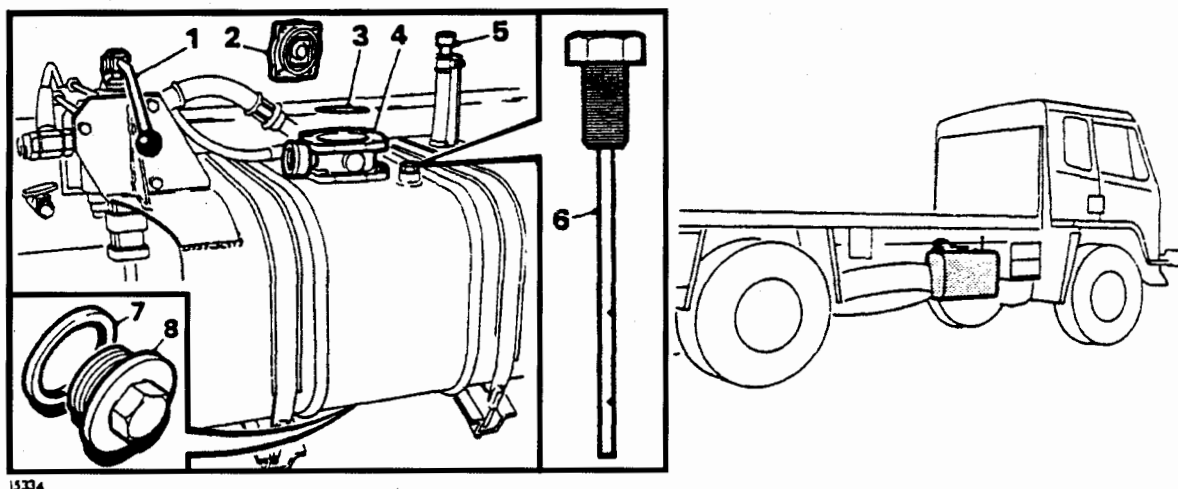
Absolute cleanliness must be maintained whilst topping-up or filling the winch hydraulic fluid reservoir. The ingress of dirt or foreign particles will have a severe detrimental effect upon the components of the winch hydraulic system.

2 Ensure that the vehicle is standing on level ground and that the handbrake control is applied to the park position before attempting to check the winch hydraulic fluid level. To check the winch hydraulic fluid level, unscrew the dipstick (Fig 2 (6)) from the winch hydraulic reservoir. Wipe the dipstick clean and re-insert into the hydraulic reservoir; do NOT screw the dipstick back into position. Extract the dipstick and check that the fluid level registers between the minimum and maximum marks. If necessary, top-up the winch hydraulic reservoir as follows:

2.1 Remove the retaining nuts and detach the top cover (2) and top cover sealing ring (3) from the filter housing (4). Pour clean hydraulic fluid of the approved specification into the filter housing until the required fluid level is achieved ore the dipstick.

2.2 Examine the top cover sealing ring for damage or deterioration; renew as necessary. Refit the sealing ring and top cover on the filter housing.

2.3 Ensure that the winch clutch lever is fully disengaged and then start the engine. Engage the PTO control and operate the external winch control lever (1) for 2 to 3 minutes to de-aerate and pressurise the winch hydraulic system. Examine the filter housing and top cover for leakages; rectify as necessary. Disengage the PTO and stop the engine. Re-check the winch hydraulic fluid level; if necessary, repeat the top-up procedure.



- | | | | |
|---|------------------------------|---|--------------------|
| 1 | External winch control lever | 5 | Reservoir breather |
| 2 | Top cover | 6 | Dipstick |
| 3 | Sealing ring | 7 | Washer |
| 4 | Filter housing | 8 | Drain plug |

Fig 2 Winch hydraulic reservoir

RENEW WINCH HYDRAULIC FLUID

WARNING

HYDRAULIC FLUID IS A TOXIC SUBSTANCE WHICH MUST NOT BE CONSUMED OR ALLOWED TO COME INTO SKIN/EYE CONTACT. IN THE EVENT OF SLIGHT SKIN/EYE CONTACT, THOROUGHLY RINSE THE AFFECTED AREA WITH WATER. IF THERE IS EXCESSIVE SKIN/EYE CONTACT OR INGESTION/INHALATION SEEK MEDICAL ATTENTION IMMEDIATELY.

CAUTION

Absolute cleanliness must be maintained whilst topping-up or filling the winch hydraulic fluid reservoir. The ingress of dirt or foreign particles will have a severe detrimental effect upon the components of the winch hydraulic system.

- 3 Ensure that the vehicle is standing on level ground and that the handbrake control is applied to the park position before attempting to renew the winch hydraulic fluid. Thoroughly clean the filter housing top cover (Fig 2 (2)) and the surrounding area to prevent the ingress of dirt or foreign matter. Position a suitable container beneath the hydraulic reservoir. Remove the reservoir drain plug (8) complete with the washer (7) and allow the hydraulic fluid to drain into the container. Thoroughly clean the drain plug and washer.
- 4 When fluid drainage is complete, refit the washer and drain plug into the reservoir. Remove the retaining nuts and detach the top cover and top cover sealing ring (3) from the filter housing (4). Unscrew and extract the dipstick (6) from the hydraulic reservoir.
- 5 Pour clean hydraulic fluid of the approved specification into the filter housing; the refill capacity of the hydraulic reservoir is approximately 100 litres (176 pints). Using the dipstick, check the hydraulic fluid level as instructed in Para 2.
- 6 Remove the breather (5) from the hydraulic reservoir and clean in a suitable solvent. Thoroughly dry the breather and refit to the hydraulic reservoir. Examine the top cover sealing ring for damage or deterioration; renew as necessary. Refit the sealing ring and top cover on the filter housing.
- 7 Ensure that the winch clutch lever is fully disengaged and then start the engine. Engage the PTO control and operate the external winch control lever (1) for 2 to 3 minutes to de-aerate and pressurise the winch hydraulic system. Examine the filter housing and top cover for leakages: rectify as necessary. Disengage the PTO and stop the engine. Using the dipstick, re-check the hydraulic fluid level; top-up as necessary.

RENEW WINCH HYDRAULIC FLUID FILTER

WARNING

HYDRAULIC FLUID IS A TOXIC SUBSTANCE WHICH MUST NOT BE CONSUMED OR ALLOWED TO COME INTO SKIN/EYE CONTACT. IN THE EVENT OF SLIGHT SKIN/EYE CONTACT, THOROUGHLY RINSE THE AFFECTED AREA WITH WATER. IF THERE IS EXCESSIVE SKIN/EYE CONTACT OR INGESTION/INHALATION SEEK MEDICAL ATTENTION IMMEDIATELY.

CAUTION

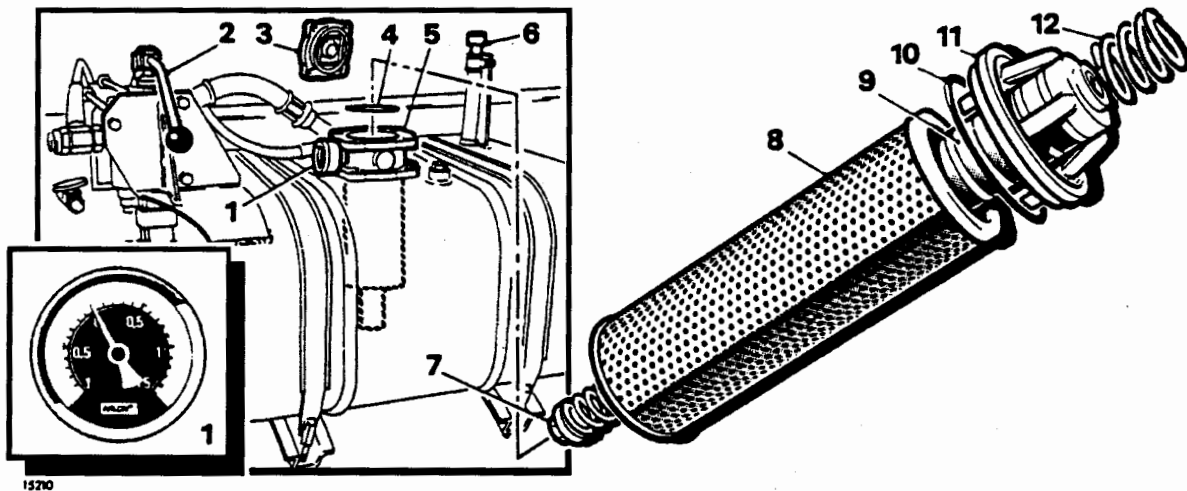
Absolute cleanliness must be maintained whilst renewing the winch hydraulic fluid filter. The ingress of dirt or foreign particles will have a severe detrimental effect upon the components of the winch hydraulic system.

8 The filter housing (Fig 3 (5)) is attached to the hydraulic reservoir and incorporates a filter restriction gauge (1). To check the serviceability of the filter element, disengage the winch clutch lever and start the engine. Engage the PTO control and operate the external winch control lever (2) for 2 to 3 minutes to fully pressurise the winch hydraulic system. The restriction gauge pointer should register within the green sector indicating a serviceable filter. Should the gauge pointer register on or within a red sector then the filter element must be renewed as follows:

8.1 Disengage the PTO control and stop the engine. Thoroughly clean the filter housing top cover (3) and the surrounding area to prevent the ingress of dirt or foreign matter. Remove the retaining nuts and detach the top cover and extract the top cover sealing ring (4) and filter element assembly from the filter housing (5). Remove the retaining nut and spring assembly (7) and detach the filter element (8) from the by-pass assembly (11). Detach the O-ring (10) from the by-pass assembly.

8.2 Clean the by-pass assembly and the magnetic core (9) in a suitable solvent and dry thoroughly. Examine the O-ring and sealing ring for damage or deterioration; renew as necessary. Reassemble the filter assembly using a new filter element. Insert the filter assembly into the filter housing ensuring that the top spring (12) on the by-pass assembly is securely in position. Insert the sealing ring into the filter housing. Fit the top cover and secure in position with washers and nuts.

8.3 Remove the reservoir breather (6) and clean in a suitable solvent. Thoroughly dry the breather and refit to the hydraulic reservoir. Start the engine and re-pressurise the winch hydraulic system. Examine the filter housing and top cover for leakages: rectify as necessary.



- | | | | |
|---|------------------------------|----|-------------------------|
| 1 | Restriction gauge | 7 | Nut and spring assembly |
| 2 | External winch control lever | 8 | Filter element |
| 3 | Top cover | 9 | Magnetic core |
| 4 | Sealing ring | 10 | O-ring |
| 5 | Filter housing | 11 | By-pass assembly |
| 6 | Reservoir breather | 12 | Spring |

Fig 3 Winch hydraulic filter

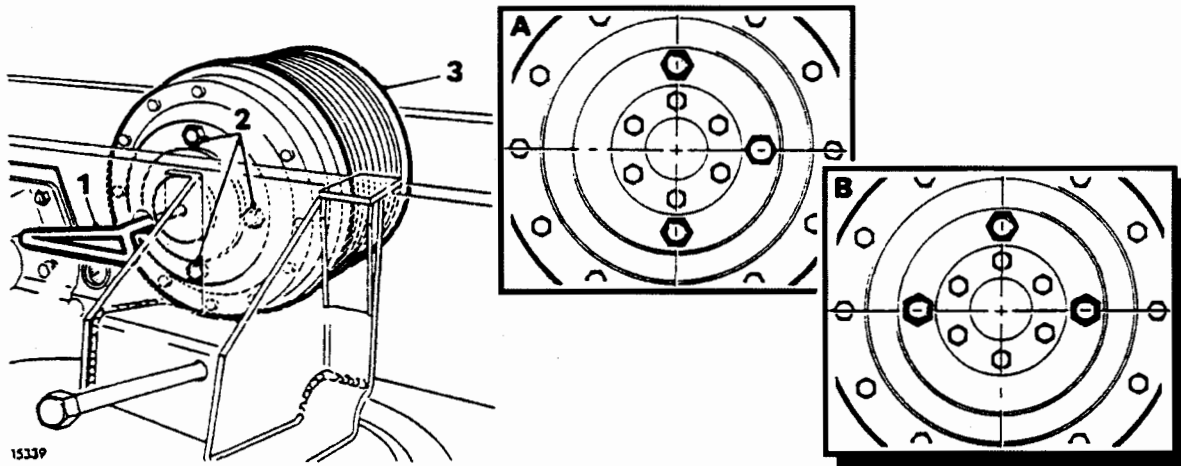
CHECK WINCH GEARBOX OIL LEVEL

CAUTION

Absolute cleanliness must be maintained whilst topping-up or filling the winch gearbox. The ingress of dirt or foreign particles will have a severe detrimental effect upon the components of the winch gearbox.

9 Ensure that the vehicle is standing on level ground, the engine is stopped and that the handbrake control is applied to the park position before attempting to check the winch gearbox oil level. Ensure that the winch clutch lever (Fig 4 (1)) has been disengaged to enable the winch drum (3) to be rotated by hand.

10 Rotate the winch drum until two of the lubrication plugs (2) are a horizontal position (Fig 4 (B)) and the third lubrication plug is uppermost. Remove both horizontally positioned lubrication plugs and check that is visible in, or just begins to emerge from, each plug aperture; if necessary, remove the uppermost lubrication plug and top-up with clean oil of the approved specification. Should the winch gearbox require an excessive amount of oil then the complete unit must be examined for leaks and rectified as necessary. Clean and refit all lubrication plugs.



- | | | | |
|---|--------------------|---|---------------------|
| 1 | Winch clutch lever | A | Drain position |
| 2 | Lubrication plug | B | Fill/level position |
| 3 | Winch drum. | | |

Fig 4 Winch gearbox lubrication

RENEW WINCH GEARBOX OIL**CAUTION**

Absolute cleanliness must be maintained whilst draining or filling the winch gearbox. The ingress of dirt or foreign particles will have a severe detrimental effect upon the components of the winch gearbox.

11 Ensure that the vehicle is standing on level ground, the engine is stopped and that the handbrake control is applied to the park position before attempting to drain the winch gearbox oil. Ensure that the winch clutch lever (Fig 4 (1)) has been disengaged to enable the winch drum (3) to be rotated-by hand.

12 Rotate the winch drum until two of the lubrication plugs (2) are in the vertical position (Fig 4 (A)). Position a suitable container beneath the winch drum, remove the two vertically positioned lubrication plugs and allow the oil to drain into the container. When drainage is complete, rotate the winch drum until the plug apertures are in the horizontal position (Fig 4 (B)) and the third lubrication plug is uppermost. Remove the uppermost lubrication plug and commence filling the winch gearbox with clean oil of the approved specification until oil just begins to emerge from the horizontally positioned plug apertures; the winch gearbox oil capacity is approximately 2.55 litres (4.5 pints). Clean and refit all lubrication plugs.

CHAPTER 5-2

USER MAINTENANCE - CRANE VARIANT

CONTENTS

This Chapter must be read in conjunction with Chapter 5-0

Para

- 1 Renew power take-off oil (CAUTIONS)
- 2 Check crane hydraulic fluid level (WARNING) (CAUTIONS)
- 4 Renew crane hydraulic fluid (WARNING) (CAUTIONS)
- 14 Renew crane hydraulic fluid filter (WARNING) (CAUTION)

Fig

Page

1	Power take-off lubrication.....	1
2	Crane hydraulic reservoir	3
3	Crane hydraulic fluid renewal.....	4
4	Exploded view of crane hydraulic filter.....	6

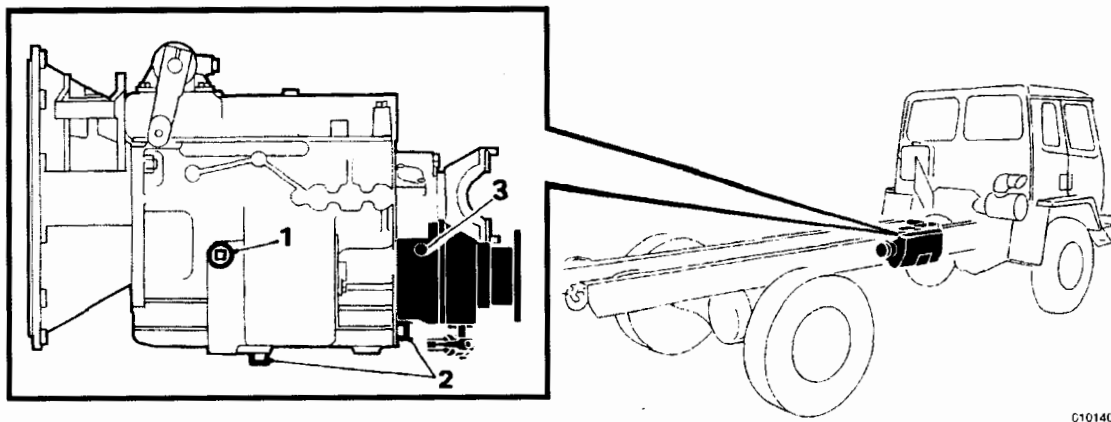
RENEW POWER TAKE-OFF OIL

CAUTION

(1) The Power Take-Off (PTO) unit is an integral part of the main gearbox and, during normal use, utilises the main gearbox lubricant. When renewing the main gearbox oil it is essential that the PTO is refilled with an additional 0.45 litre (0.75 pint) of oil.

(2) Absolute cleanliness must be maintained whilst renewing the PTO oil. The ingress of dirt or foreign particles will have a severe effect upon the components of the PTO unit.

1 Renew the main gearbox oil as instructed in Chap. 5-0 Para 21. Thoroughly clean the area surrounding the PTO filler plug (Fig 1 (3)) to prevent the ingress of dirt or foreign matter. Remove the filler plug and pour 0.45 litre (0.75 pint) of clean oil of the approved specification. Clean and refit the filler plug.



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- 1 Main gearbox filler/level plug
- 2 Main gearbox drain plug
- 3 PTO filler plug

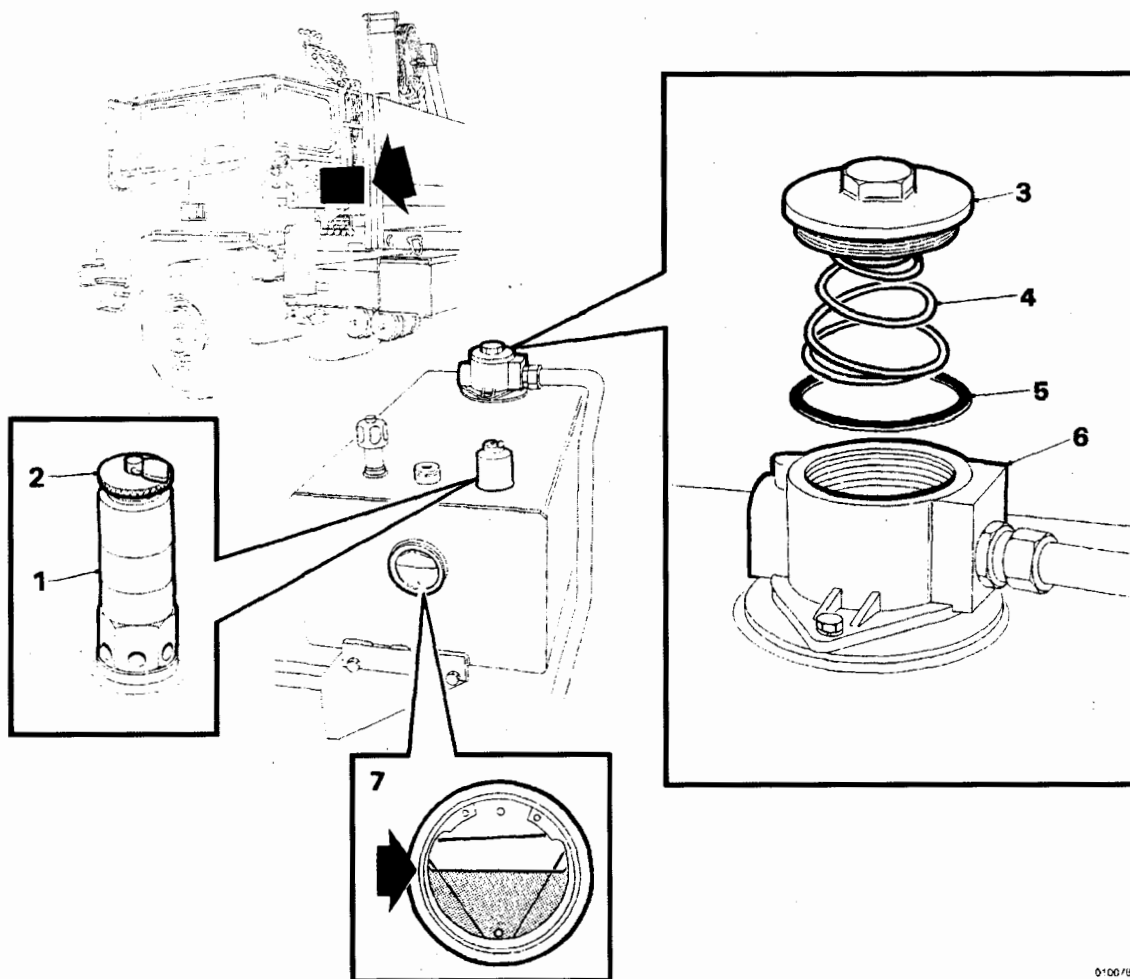
Fig 1 Power take-off lubrication

CHECK CRANE HYDRAULIC FLUID LEVEL**WARNING**

HYDRAULIC FLUID IS A TOXIC SUBSTANCE WHICH MUST NOT BE CONSUMED OR ALLOWED TO COME INTO SKIN/EYE CONTACT. IN THE EVENT OF SLIGHT SKIN/EYE CONTACT, THOROUGHLY RINSE THE AFFECTED AREA WITH WATER. IF THERE IS EXCESSIVE SKIN/EYE CONTACT OR INGESTION/INHALATION SEEK MEDICAL ATTENTION IMMEDIATELY.

CAUTIONS

- (1) Absolute cleanliness must be maintained whilst topping-up or filling the crane hydraulic fluid reservoir. The ingress of dirt or foreign particles will have a severe detrimental effect upon the components of the crane hydraulic system.**
 - (2) It is essential that the crane boom is in the fully stowed (transport) position before checking the hydraulic fluid level; failure to observe this precaution will result in an incorrect (excessively low) fluid level reading in the fluid sight glass.**
- 2 Ensure that the vehicle is standing on level ground, the engine is stopped, the handbrake control is applied to the park position and that the crane boom is in the fully stowed (transport) position before attempting to check the crane hydraulic fluid level.
 - 3 Check that the crane hydraulic fluid level registers half way up the fluid sight glass (Fig 2 (7)). If necessary, top-up the crane hydraulic reservoir as follows:
 - 3.1 Thoroughly clean the filter housing cover (3) and surrounding area to prevent the ingress of dirt or foreign particles.
 - 3.2 Unscrew the vent screw (2) on the pressure relief valve (1) to release any residual pressure within the hydraulic reservoir; ensure that the vent screw remains in the open position whilst filling the hydraulic reservoir.
 - 3.3 Remove the filter housing cover complete with captive conical spring (4) and detach the sealing ring (5). Pour clean hydraulic fluid of the approved specification into the filter housing (6) until the fluid level is half way up the fluid sight glass.
 - 3.4 Thoroughly clean the filter housing cover and captive conical spring. Locate the sealing ring in the filter housing cover. Refit the filter housing cover assembly.
 - 3.5 Close the pressure relief vent screw and ensure that it is secure.



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- | | | | |
|---|------------------------|---|-------------------|
| 1 | Pressure relief valve | 5 | Sealing ring |
| 2 | Vent screw | 6 | Filter housing |
| 3 | Filter housing cover | 7 | Fluid sight glass |
| 4 | Captive conical spring | | |

Fig 2 Crane hydraulic reservoir

RENEW CRANE HYDRAULIC FLUID

WARNING

HYDRAULIC FLUID IS A TOXIC SUBSTANCE WHICH MUST NOT BE CONSUMED OR ALLOWED TO COME INTO SKIN/EYE CONTACT. IN THE EVENT OF SLIGHT SKIN/EYE CONTACT, THOROUGHLY RINSE THE AFFECTED AREA WITH WATER. IF THERE IS EXCESSIVE SKIN/EYE CONTACT OR INGESTION/INHALATION SEEK MEDICAL ATTENTION IMMEDIATELY.

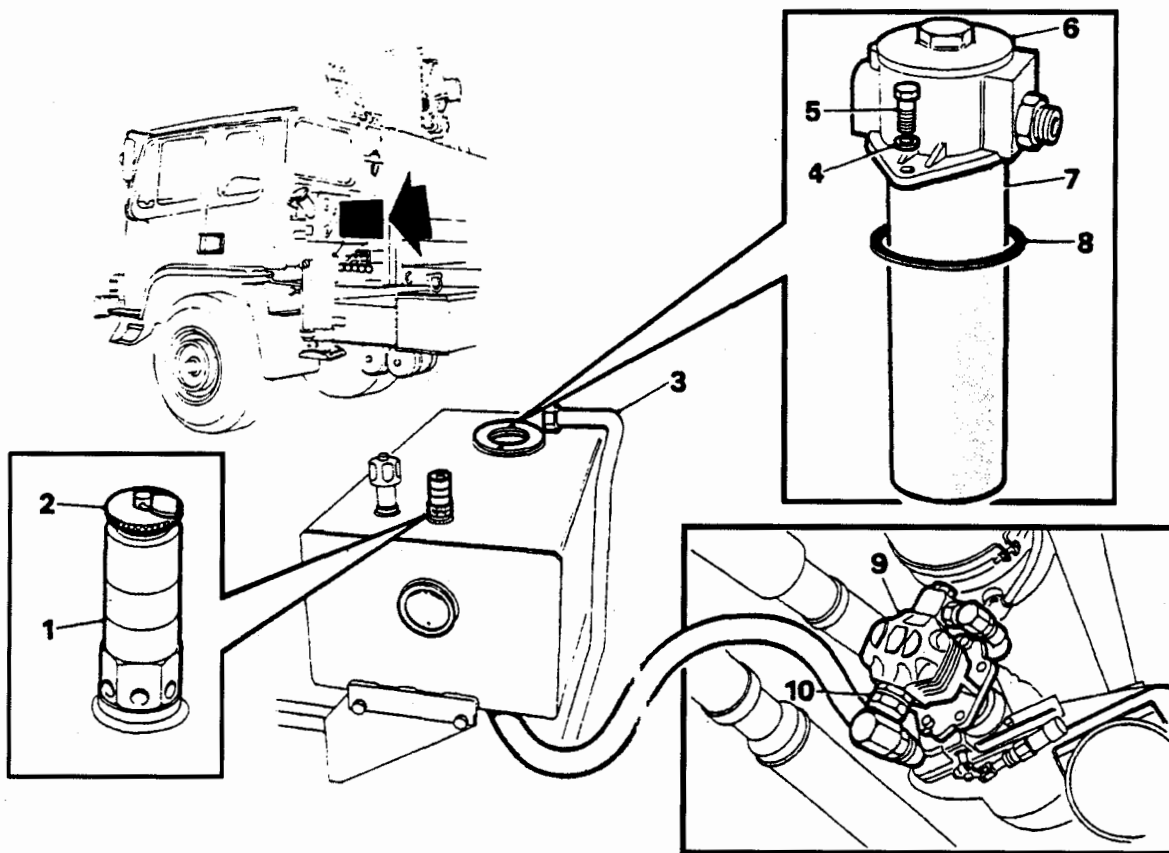
CAUTIONS

(1) **Absolute cleanliness must be maintained whilst renewing the crane hydraulic fluid. The ingress of dirt or foreign particles will have a severe detrimental effect upon the components of the crane hydraulic system.**

(2) **It is essential that the crane boom is in the fully stowed (transport) position whilst draining and refilling the hydraulic fluid system.**

NOTES

- (1) Before commencing draining operations it is recommended that all crane hydraulic functions are operated for approximately 15 minutes to attain the hydraulic system operating temperature. Ensure that the crane is returned to the fully stowed (transport) position after use.
- (2) The hydraulic system refill capacity is approximately 38 litres (66.8 pints).
- 4 Ensure that the vehicle is standing on level ground, the engine is stopped, the handbrake control is applied to the park position and that the crane boom is in the fully stowed (transport) position before attempting to renew the hydraulic fluid.
- 5 Unscrew the vent screw (Fig 3 (2)) on the pressure relief valve (1) to release any residual pressure within the hydraulic reservoir; ensure that the vent screw remains in the open position whilst draining and filling the hydraulic reservoir.
- 6 Disconnect the delivery pipe (3) from the filter housing (6). Remove the two setscrews (5) complete with spring washers (4) and extract the complete hydraulic fluid filter assembly (7). Detach the sealing ring (8) from the filter assembly.



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- | | | | |
|---|-----------------------|----|-----------------------|
| 1 | Pressure relief valve | 6 | Filter housing cover |
| 2 | Vent screw | 7 | Fluid filter assembly |
| 3 | Delivery pipe | 8 | Sealing ring |
| 4 | Spring washer | 9 | Hydraulic pump |
| 5 | Setscrew | 10 | Supply hose |

Fig 3 Crane hydraulic fluid renewal

- 7 Position a suitable container beneath the hydraulic pump (9). Disconnect the hydraulic supply hose (10) from the hydraulic pump and allow the hydraulic fluid to drain into the container.
- 8 Using the filter housing aperture as an access, thoroughly clean the interior of the hydraulic reservoir using a suitable cleaning solvent and lint-free cloths; ensure that no residual cleaning agent or cloth remains in the hydraulic reservoir after cleaning.
- 9 Connect the hydraulic supply hose to the hydraulic pump.
- 10 Refit the filter assembly into the hydraulic reservoir and connect the delivery pipe to the filter housing.
- 11 Renew the hydraulic filter element as instructed in Para 16 to 20. Pour clean hydraulic fluid of the approved specification into the oil filter element until the fluid level is half way up the fluid sight glass.
- 12 Close the pressure relief vent screw and ensure that it is secure.
- 13 Check all hydraulic operating functions of the crane, ensure that all hydraulic rams are operated to their minimum and maximum strokes. Examine all hoses, connections and filter housing cover for leakages; rectify as necessary. Check the hydraulic fluid level as instructed in Para 2.

RENEW CRANE HYDRAULIC FLUID FILTER

WARNING

HYDRAULIC FLUID IS A TOXIC SUBSTANCE WHICH MUST NOT BE CONSUMED OR ALLOWED TO COME INTO SKIN/EYE CONTACT. IN THE EVENT OF SLIGHT SKIN/EYE CONTACT, THOROUGHLY RINSE THE AFFECTED AREA WITH WATER. IF THERE IS EXCESSIVE SKIN/EYE CONTACT OR INGESTION/INHALATION SEEK MEDICAL ATTENTION IMMEDIATELY.

CAUTION

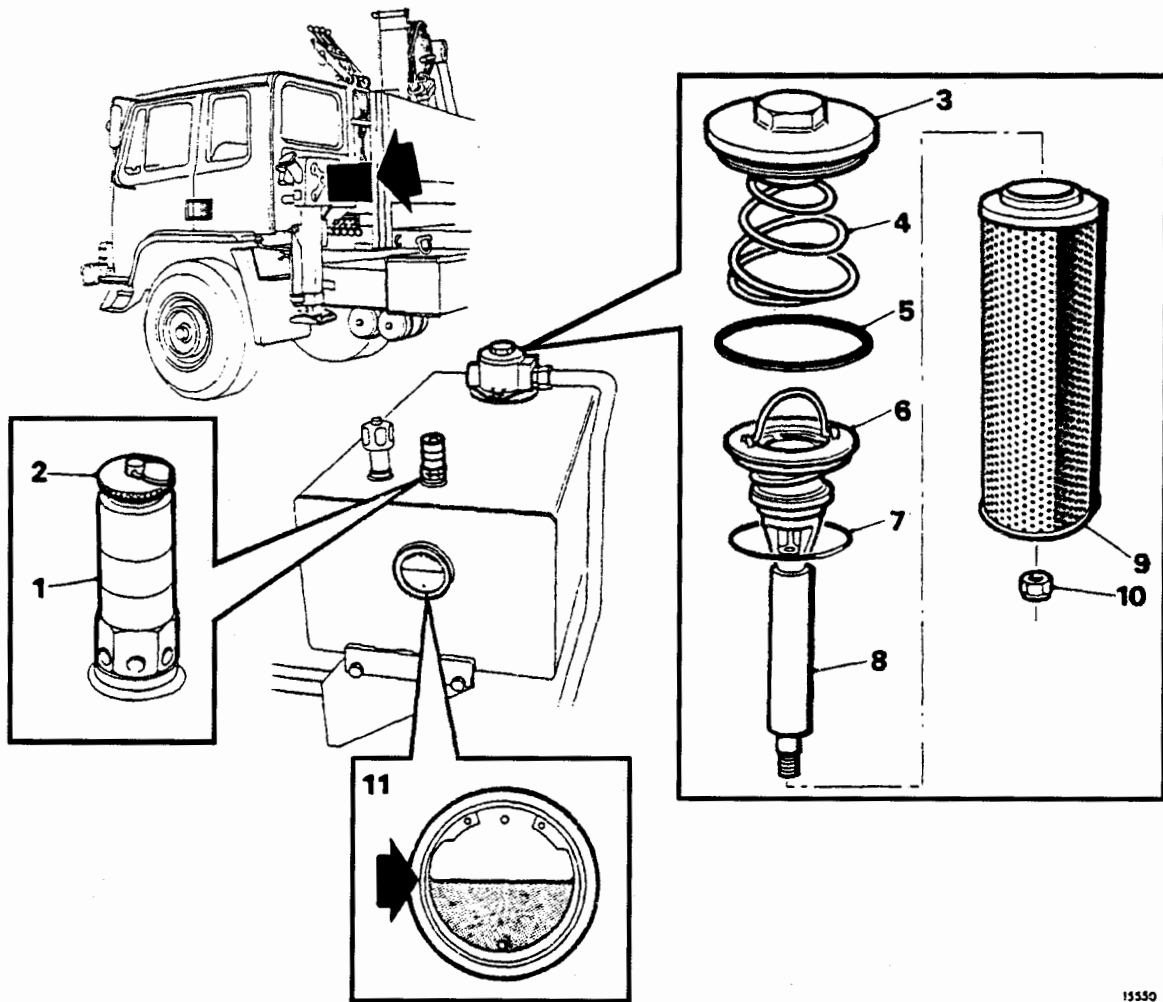
Absolute cleanliness must be maintained whilst renewing the crane hydraulic fluid filter. The ingress of dirt or foreign particles will have a severe detrimental effect upon the components of the crane hydraulic system.

- 14 Ensure that the vehicle is standing on level ground, the engine is stopped, the handbrake control is applied to the park position and that the crane boom is in the fully stowed (transport) position before attempting to renew the hydraulic filter element.
- 15 Unscrew the vent screw (2) on the pressure relief valve (1) to release any residual pressure within the hydraulic reservoir; ensure that the vent screw remains in the open position whilst renewing the filter element.
- 16 Thoroughly clean the filter housing cover (3) and surrounding area to prevent the ingress of dirt or foreign matter. Remove the filter housing cover complete with the captive conical spring (4) and detach the sealing ring (5). Extract the filter element assembly from the filter housing. Remove the retaining nut (10) and detach the filter element (9) from the filter mounting (6) and magnetic core (8). Detach the O-ring (7) from the filter mounting.
- 17 Clean all components of the filter assembly in a suitable solvent and dry thoroughly. Remove any metal particles from the magnetic core with a clean cloth; do NOT attempt to clean the magnetic core by tapping or knocking it.
- 18 Examine the O-ring and sealing ring for damage or deterioration; renew as necessary. Fit the O-ring on the filter mounting and locate a new filter element on the magnetic core. Secure the completed assembly with the retaining nut.

19 Insert the filter element assembly into the filter housing. Check that the hydraulic fluid level registers half way up the fluid sight glass; if necessary, pour clean hydraulic fluid of the approved specification into the filter element until the required level is achieved.

20 Refit the sealing ring and filter housing cover (complete with captive conical spring) into the filter housing.

21 Close the pressure relief vent screw and ensure that it is secure.



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- | | | | |
|---|------------------------|----|-------------------|
| 1 | Pressure relief valve | 7 | O-ring |
| 2 | Vent screw | 8 | Magnetic core |
| 3 | Filter housing cover | 9 | Filter element |
| 4 | Captive conical spring | 10 | Retaining nut |
| 5 | Sealing ring | 11 | Fluid sight glass |
| 6 | Filter mounting | | |

Fig 4 Exploded view of crane hydraulic filter

CHAPTER 5-4

USER MAINTENANCE - FITTED FOR RADIO VARIANT

CONTENTS

This Chapter must be read in conjunction with Chapter 5-0

Para

- 1 Check and adjust alternator drive belt

Fig

Page

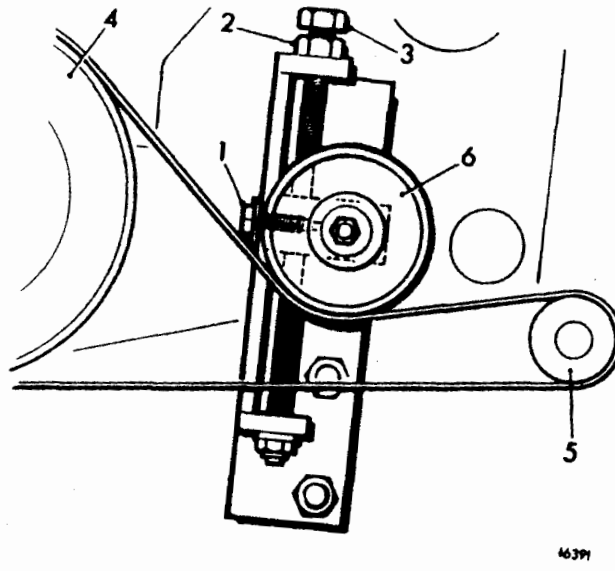
- 1 Alternator drive belt tensioner 2

CHECK AND ADJUST ALTERNATOR DRIVE BELT

- 1 Isolate the vehicle electrical system, tilt the cab and engage the safety catch.
- 2 Examine the condition of the drive belt for cracks and damage.
- 3 Adjust the drive belt tension.
 - 3.1 Slacken the bolt (1) and locknut (2). Turn the bolt (3) clockwise to release the drive belt tension.
 - 3.2 Turn the bolt (3) anticlockwise to tension the belt, a torque of 0.8 to 1.0 Nm (7.08 to 8.85 lbf in.) on the bolt head will give the correct tension providing that the thread is well lubricated and not damaged.
 - 3.3 Hold the bolt head (3) in position, lock the nut (2) and tighten the locking bolt (1) to lock the assembly in position.

NOTE

If the belt is to be renewed, the torque figure used to tension a new belt is 1.22 Nm (10.78 lbf in.). After running the engine for a half hour, stop the engine and re-torque the bolt to 1.22 Nm (10.78 lbf in.).



- | | | | |
|---|----------------|---|-------------------|
| 1 | Lock bolt | 4 | Crankshaft pulley |
| 2 | Lock nut | 5 | Alternator pulley |
| 3 | Adjusting bolt | 6 | Tensioner pulley |

Fig 1 Alternator drive belt tensioner

CHAPTER 5-5

USER MAINTENANCE - TYRE HANDLER VARIANT

CONTENTS

This Chapter must be read in conjunction with Chapter 5-2
and associated publication 2320-H-104-601

Para

- 1 Check tyre handler fluid level (WARNING) (CAUTION)
- 3 Renew hydraulic fluid, filter and power take-off oil

Fig

Page

- 1 Checking tyre handler hydraulic fluid level..... 2

CHECK TYRE HANDLER HYDRAULIC FLUID LEVEL

WARNING

HYDRAULIC FLUID IS A TOXIC SUBSTANCE WHICH MUST NOT BE CONSUMED OR ALLOWED TO COME INTO SKIN/EYE CONTACT. IN THE EVENT OF SLIGHT SKIN/EYE CONTACT, THOROUGHLY RINSE THE AFFECTED AREA WITH WATER. IF THERE IS EXCESSIVE SKIN/EYE CONTACT OR INGESTION/INHALATION SEEK MEDICAL ATTENTION IMMEDIATELY.

CAUTION

Absolute cleanliness must be maintained whilst topping-up or filling the crane hydraulic fluid reservoir. The ingress of dirt or foreign particles will have a severe detrimental effect upon the components of the crane hydraulic system.

1 It is essential that the tyre handler be removed and the crane fully stowed in the transport position before checking the hydraulic fluid level. Failure to observe this precaution will result in:

- 1.1 Incorrect fluid level reading in the sight glass.
- 1.2 Damage to the ram seals caused by insufficient lubrication of the ram surfaces.

2 Tyre Handler Removal.

2.1 Thoroughly clean the filter housing cover (Fig 1 (3)) and surrounding area to prevent ingress of dirt or foreign matter.

2.2 Unscrew the vent screw (2) on the pressure relief valve (1) to release any residual pressure within the reservoir. Important: ensure that the vent screw remains open during the following operations.

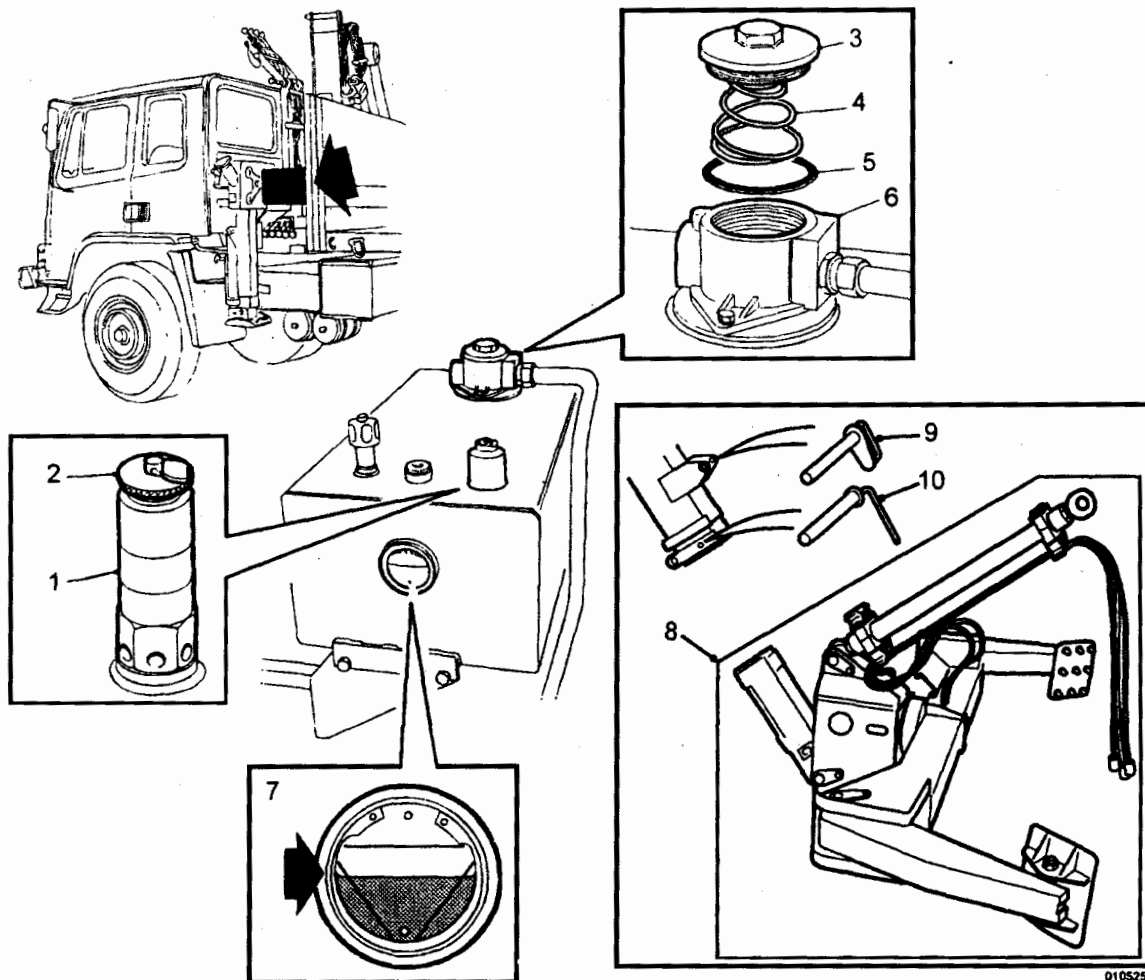
2.3 Remove the handler from its cradle as instructed in Chapter 3-5 and lower onto even ground with clamp arms horizontal.

2.4 Disconnect the hoses from the handler at the quick release couplings.

2.5 Remove the lynch pin from the tie bar and tap the link pin (9) out of the tie bar.

2.6 Remove the lynch pin from the tilt pin (10) and drive the pin from the bracket.

- 2.7 With the control box set to CRANE withdraw the jib from the stub boom adapter.
- 2.8 Manoeuvre the crane boom into the fully stowed position.
- 2.9 Check that the hydraulic fluid level registers half-way up the fluid sight glass. If necessary top-up the reservoir as follows:
- 2.9.1 Remove the filter housing cover complete with captive conical spring (4) and detach the sealing ring (5).
- 2.9.2 Pour clean hydraulic fluid of the approved specification into the filter housing (6) until the fluid level is halfway up the sight glass.
- 2.9.3 Thoroughly clean the filter housing cover and captive conical spring. Locate the sealing ring in the filter housing cover. Refit the filter housing cover assembly.



- | | | | |
|---|------------------------|----|-------------------|
| 1 | Pressure relief valve | 6 | Filter housing |
| 2 | Vent screw | 7 | Fluid sight glass |
| 3 | Filter housing cover | 8 | Tyre handler |
| 4 | Captive conical spring | 9 | Link pin |
| 5 | Sealing ring | 10 | Tilt pin |

Fig 1 Checking tyre handler hydraulic fluid level

2.10 Reverse the operations from Para 2.8 to stow the tyre handler. Lubricate the tie bar pin and jib pin prior to assembly.

2.11 Close the pressure relief vent screw and ensure that it is secure.

RENEW HYDRAULIC FLUID, FILTER AND POWER TAKE-OFF OIL

3 Remove the tyre handler as previously described and perform the operations for removing the crane hydraulic fluid as described in Chapter 5-2.

CHAPTER 6
USER SPARES DATA
CONTENTS

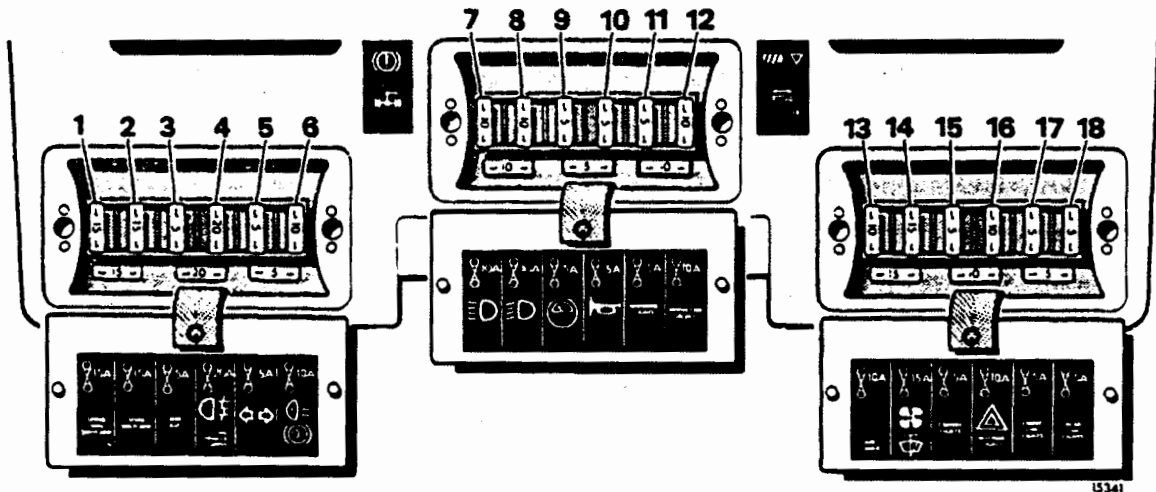
Table	Page
1 Lamp data	1
2 Fuse data	2

TABLE 1 LAMP DATA

Serial (1)	Lamp (2)	Volts (3)	Watts (4)	Type (5)
1	Headlight	24	75/70	Halogen
2	Sidelight	24	5	Capless (gas filled)
3	Instrument illumination	24	1.2	Capless
4	Speedometer	24	3	Capless
5	Warning lights	24	1.2	Capless
6	Front direction indicator light	24	21	SCC
7	Side repeater light	24	5	Capless
8	Courtesy light	24	10	SCC
9	Rear light	24	5	SCC
10	Reverse light	24	21	SCC
11	Rear fog light	24	21	SCC
12	Rear direction indicator light	24	21	SCC
13	Convoy light	24	5	SCC
14	Switch illumination	24	1.2	Capless
15	Brake light	24	21	SCC
16	Earth leakage warning light	24	3	BA7s

TABLE 2 FUSE DATA

Serial (1)	Fuse No. (2)	Rating (3)	Circuits Protected (4)
1	1	15A	Spare (non-switched)
2	2	15A	Spare (switched)
3	3	5A	Dim-dip relay
4	4	20A	Rear fog lights and 24V trailer supply
5	5	5A	Direction indicators
6	6	10A	Reverse lights and brake lights
7	7	10A	Headlights - main beam
8	8	10A	Headlights - dipped beam
9	9	5A	Instruments
10	10	5A	Horn
11	11	5A	Warning lights
12	12	10A	Inspection socket
13	13	10A	Air dryer
14	14	15A	Heater motor, windscreen wash and wiper motor
15	15	5A	Convoy lights
16	16	10A	Hazard warning and interior lights
17	17	5A	Front sidelights
18	18	5A	Rear sidelights



CHAPTER 7
AFDV VARIANT (EURO 2)
CONTENTS

Para

- 1 Vehicle tool kit
- 2 Fire extinguishers
- 3 Helicopter lifting rings
- 4 Heater, water and ration unit

Fig

Page

- 1 Heater, water and ration unit..... 2

VEHICLE TOOL KIT

- 1 The standard vehicle tool kit contains the following additional equipment:
 - 1.1 Two alloy wheel chocks that are stowed in position with the use of vehicle mounted retaining clips.
 - 1.2 An inter-vehicle start cable is supplied with each vehicle. The electrical operating characteristics and stowage requirements are defined in DEF STAN 25-8/2.

FIRE EXTINGUISHERS

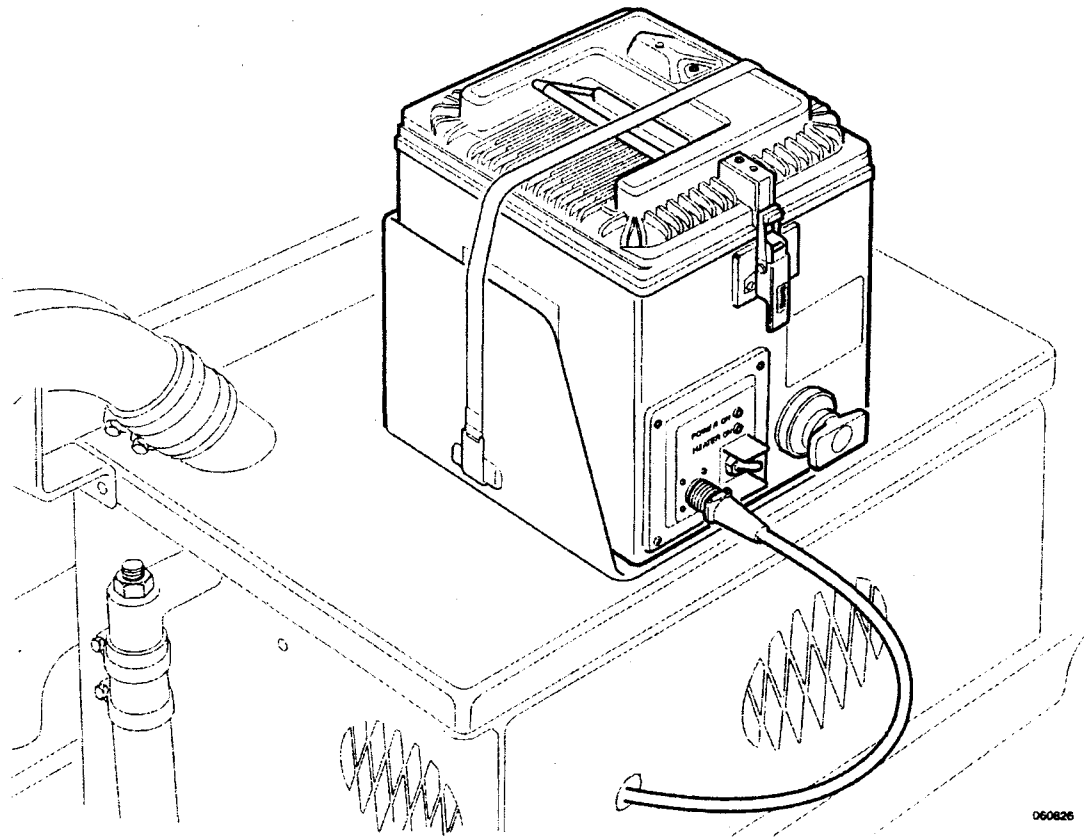
- 2 Fire extinguishers (x 2 powder type) are fitted to the vehicle.

HELICOPTER LIFTING RINGS

- 3 All vehicles are equipped with helicopter lifting rings which are fitted to the road wheels on the front and rear axles.

HEATER, WATER AND RATION UNIT

- 4 All vehicles (Fig 1) are equipped with a Heater, Water and Ration (HWR) unit which is mounted within the cab interior. The HWR unit is secured in a mounting cradle that is attached to the top of the winterisation heat exchanger and blower housing.
 - 4.1 The HWR provides a mounted portable water and pre-packaged heating facility. The HWR unit is capable of dispensing one gallon of heated water for beverages, hygiene or medical purposes via a spring-loaded tap. With the inner container in position, the HWR is capable of heating pre-packaged meals and 40 oz of water.
 - 4.2 For all safety, operation and maintenance procedures of the HWR unit refer to AESP 2320-N-250-201, Chap 2-1.



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Fig 1 Heater, water and ration unit

CHAPTER 8

DESTRUCTION OF EQUIPMENT TO PREVENT ENEMY USE

CONTENTS

Para

- 1 Mandatory directive
- 3 Degree of damage
- 4 Spare parts
- 5 Means and procedures
- 7 Observance of appropriate safety precautions
- 8 Mechanical
- 9 Burning (WARNING)
- 10 Gunfire (WARNING)
- 11 Priorities

Table

Page

- | | | |
|---|----------------------------------|-----|
| 1 | Priorities for DESTRUCTION | 3/4 |
|---|----------------------------------|-----|

MANDATORY DIRECTIVE

1 Destruction of the equipment, when subject to capture by the enemy will be undertaken by the user arm, **ONLY WHEN**, in the judgement of the unit commander concerned, such action is necessary with orders of, policy established by the Army or Divisional Commanders.

2 The reporting of the destruction of the equipment is to be done through command channels.

Degree of damage

3 The degree of damage inflicted, to prevent the equipment being used by an enemy shall be as follows:

3.1 Methods of destruction should achieve such damage to equipment and essential spare parts, that it will not be possible to restore the equipment to a usable condition in the combat zone either by repair or by cannibalization.

3.2 Classified equipment must be destroyed in such degree as to prevent, whenever possible, duplication, or determination of operation or function by the enemy.

3.3 Any classified documents, notes, instructions or other written material pertaining to function, operation, maintenance or employment, including drawings or parts lists, must be destroyed in a manner to render them useless to the enemy.

3.4 In general, destruction of essential parts, followed by burning, will usually be sufficient to render the equipment useless. However, selection of the particular method of destruction requires imagination and resourcefulness in the utilization of the facilities at hand under the existing conditions. Time is usually critical.

Spare parts

4 The same priority for the destruction of component parts of a major item necessary to render the item inoperable, must be given to the destruction of similar components in spare parts storage areas.

MEANS AND PROCEDURES

- 5 If destruction is ordered, due consideration should be given to:
- 6 Selection of a point of destruction that will cause greatest obstruction to enemy movement but not prove a hazard to friendly troops from fragments of ricocheting projectiles which may occur incidental to the destruction by gunfire.

OBSERVANCE OF APPROPRIATE SAFETY PRECAUTIONS

- 7 The following information is for guidance only. Of the several means of destruction, those most generally applicable are as follows:

Mechanical

- 8 This requires an axe, pick, crowbar or similar implement. The equipment should be destroyed in accordance with the priorities given in Table 1.

Burning**WARNING**

DUE CONSIDERATION SHOULD BE GIVEN TO THE HIGHLY FLAMMABLE NATURE OF GASOLINE AND ITS VAPOUR. CARELESSNESS IN ITS USE MAY RESULT IN PAINFUL BURNS.

- 9 This requires gasoline, oil or other flammable.
 - 9.1 Remove and empty the portable fire extinguishers.
 - 9.2 If quantities of combustibles are limited, smash all vital elements such as switches, instruments and control levers.
 - 9.3 Place ammunition and charges in and about the equipment so that the greatest damage will result from the explosion.
 - 9.4 Pour gasoline and oil over the equipment. Ignite by means of an incendiary grenade fired from a safe distance, by a burst from a flamethrower, or by a combustible train of suitable length or appropriate means. Take cover immediately.

Gunfire**WARNING**

FIRING ARTILLERY AT RANGES OF 457 METERS (500 YARDS) OR LESS, AND FIRING GRENADES OR ANTI-TANK ROCKETS SHOULD BE FROM COVER.

- 10 When destroying the equipment by gunfire, proceed as follows:
 - 10.1 Remove and empty the portable fire extinguishers.
 - 10.2 Smash all vital elements as outlined in sub Para 9.2.
 - 10.3 Destroy the equipment by gunfire, using tank guns, self-propelled guns, artillery rifles using rifle grenades or launchers using anti-tank rockets.

PRIORITIES

11. The priorities for destruction should be considered as follows:

11.1 Priority must be given to the destruction of classified equipment and associated documents.

11.2 When lack of time and/or means prevents complete destruction of equipment, priority is to be given to the destruction of essential parts, and the same parts are to be destroyed on all like equipment.

11.3 A guide to priorities for destruction of the equipment is shown in Table 1.

TABLE 1 PRIORITIES FOR DESTRUCTION

Serial (1)	Item (2)	Priority (3)
1	Engine	1
2	Tyres	2
3	Hydraulic brake system	3
4	Gearbox	4
5	Differentials	5
6	Frame	6

ARMY EQUIPMENT AND SUPPORT PUBLICATION (AESP) AND ELECTRICAL AND MECHANICAL ENGINEERING REGULATIONS (EMER) - FORM 10

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