ARMY CODE No

60929

TRUCK, ARMOURED PATROL, 1 TON, 4x4 SHORLAND Mk3

USER HANDBOOK 1973

PRODUCED TO THE REQUIREMENT OF
THE MINISTRY OF DEFENCE

BY DIRECTOR QUALITY ASSURANCE
(FIGHTING VEHICLES AND ENGINEER EQUIPMENT)

U4310/20

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GENERAL DESCRIPTION

1. The armoured patrol car Fig 1 and 2 is designed for reconnaissance, border patrol, convoy escort, mobile police and internal security duties. It carries a crew of three; commander, driver and gunner.

2. The manually operated turret rotates through 360 degrees and mounted in the turret is a 7.62 mm GPMG. An optical periscope assists the sighting of the armament.

3. Smoke discharger sets are mounted on each side of the turret and on the right hand side is a floodlight to assist night operations.

4. The hull is thermally insulated and is equiped with air extraction equipment.

5. There are two doors in the hull and escape hatches in the turret top and at the rear.

6. The spare wheel is housed in the boot at the rear.



Fig 1 Three-quarter front view



Fig 2 Three-quarter rear view

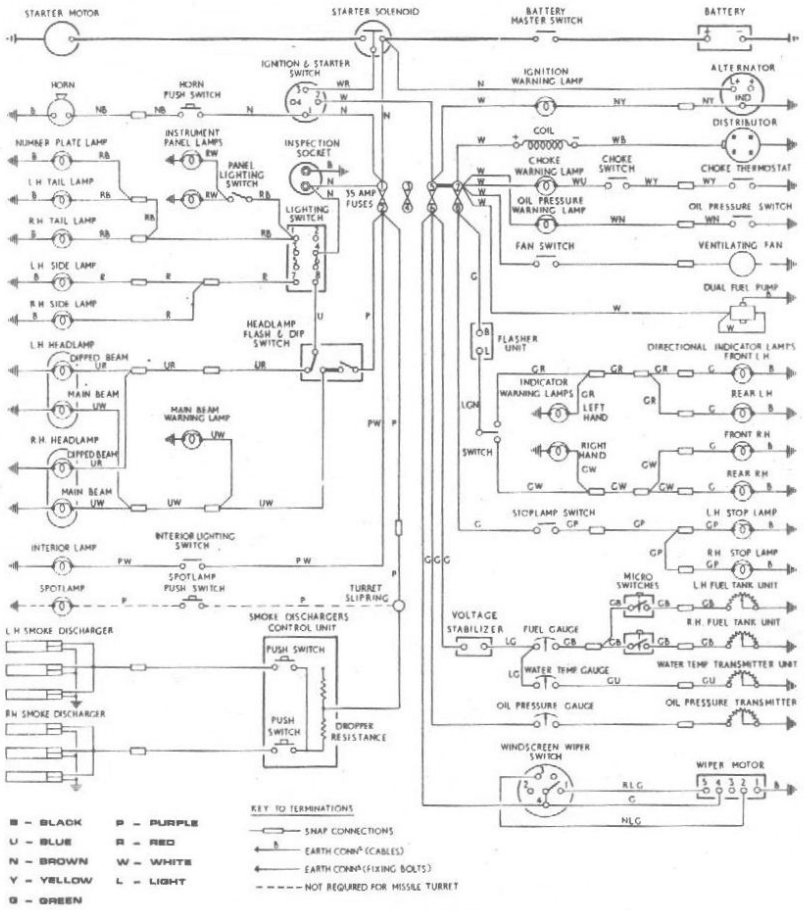
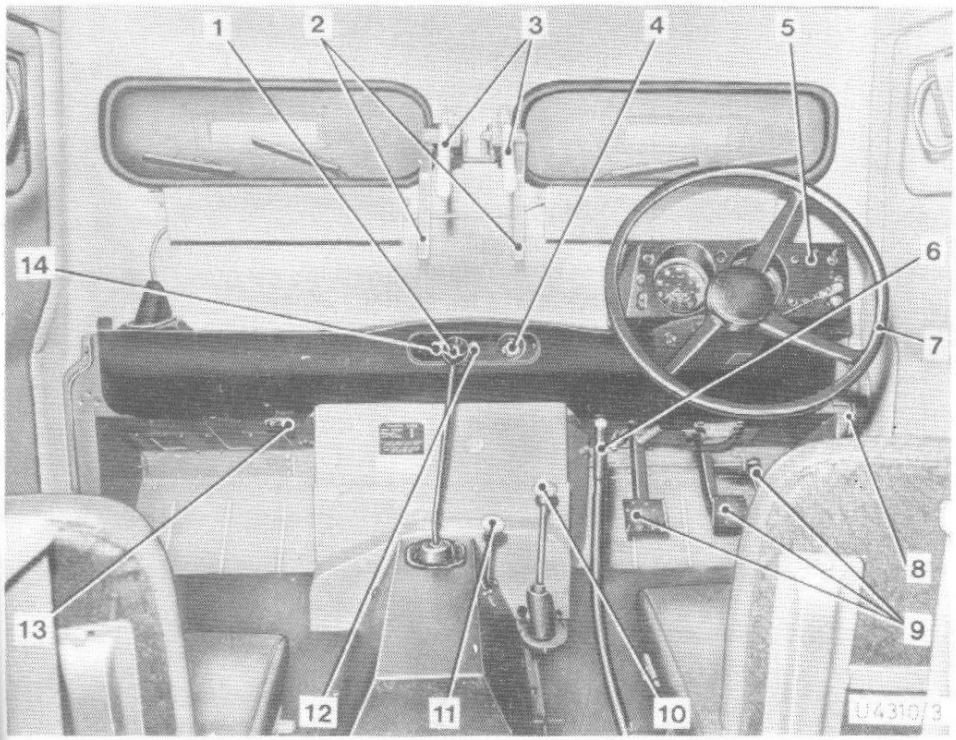


Fig 3 Wiring diagram

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1 *Main gear lever*
2 *Visor locks*
3 *Visor control levers*
4 *Oil pressure gauge*
5 *Panel light switch*
6 *Handbrake lever*
7 *Steering wheel*
8 *Hexagonal wrench for boot lid and visor securing bolts*
9 *Accelerator, brake and clutch pedals*
10 *Transfer gear lever - red knob*
11 *Four-wheel drive control - yellow knob*
12 *Extraction fan switch*
13 *Bonnet release*
14 *Interior light switch*

Fig 4 Controls and instruments

DATA

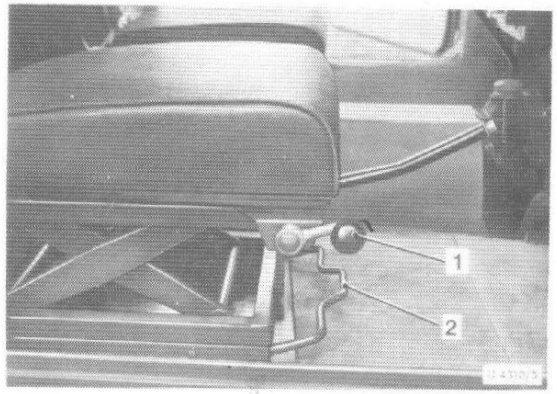
HEIGHT	2.29 m (90 inches)
LENGTH	4.6 m (181 inches)
WIDTH	1.78 m (70 inches)
WHEEL BASE	2.77 m (109 inches)
TRACK (Front)	1.36 m (53½ inches)
TRACK (Rear)	1.36 m (53½ inches)
WEIGHT, laden	3.35 tonne (3.3 ton)
MAXIMUM ROAD SPEED	See Road Transport Regulations Army Code No.14072
SHIPPING TONNAGE	18.7 m^3 (16 ton 20 ft^3)
RANGE OF ACTION AT AVERAGE MAX SPEED	257.2 km (160 miles)
WITH LONG RANGE TANKS	514.4 km (320 miles)
GROSS POWER WEIGHT RATIO	21.1 kW/tonne (28.75 bhp/ton)
MAXIMUM TRACTIVE EFFORT, LOW GEAR	515 kg/tonne (1172 lb/ton)
MAXIMUM CLIMBING ABILITY	1 in 1.7
MAXIMUM GRADIENT FOR STOP AND RESTART	1 in 1.7
FUEL CAPACITY	
Standard	64 litres (14 gallon)
Long range tank	128 litres (28 gallon)
WHEELS	
Rims	6.50 x 16
Tyres	9.00 x 16
TURNING CIRCLE	17.75 m (58 ft 3 inches)

OPERATION

DRIVER'S SEAT ADJUSTMENT

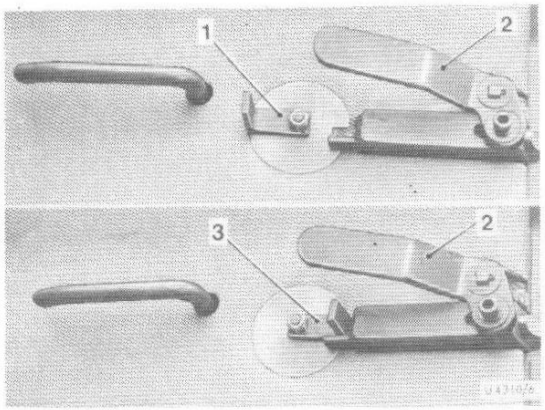
7. The seat (Fig 5) can be adjusted for the correct height by turning the handle (1) which is positioned at the right hand side of the seat.

8. Fore and aft positioning is obtained by pressing down the bar (2) with one foot and sliding the seat either forward or backward as required.



1 Height adjustment Handle
2 Fore and aft locking bar

Fig 5 Seat adjustment



1 Catch in unlocked position
2 Door handle
3 Catch in locked position

Fig 6 Door locks

DOOR HANDLE AND LOCK

9. To open the door, lift the handle (Fig 6(2)). This works in reverse to the majority of vehicle door handles to prevent unauthorized persons gaining quick access if the locking mechanism has not been engaged.

10. To lock the door, turn the locking mechanism through 90 degrees behind the plunger. This prevents the doors being opened from the outside.

DOOR HATCH

11. In the top of the door is a hatch (Fig 7), provided for side vision when open while driving under normal conditions. To close, pull down on the extended lever and the latch will snap closed. To open, grip plunger handle, pull down and push outward at the same time. A rubber buffer being provided to cushion the hatch when open.

COMMANDER'S SEAT AND DOOR

12. The same procedure applies to the commander as the driver.

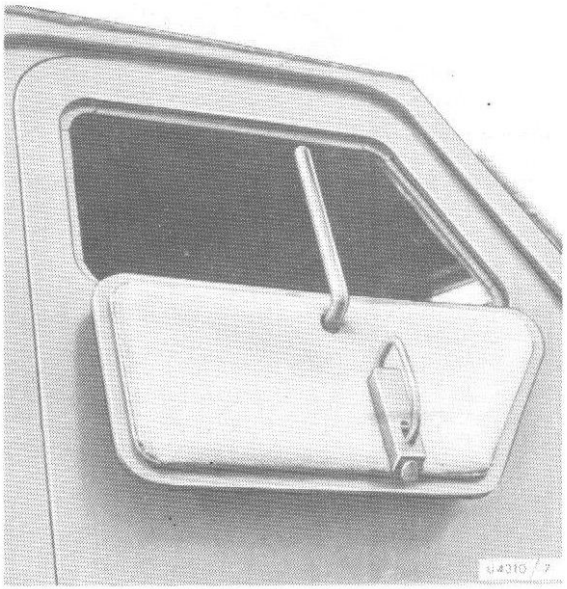


Fig 7 Door hatch

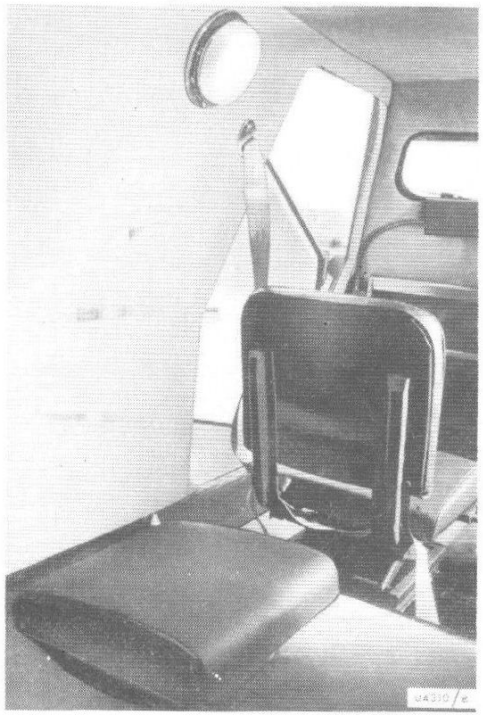


Fig 8 Interior light and occasional seat

OCCASIONAL SEAT

13. There is an occasional seat (Fig 8) fixed to the left hand side of the cab for use by the gunner when not in operation.

INTERIOR LIGHT

14. The interior light (Fig 8) is situated behind the left hand seat, fixed to the side of the cab and is operated by a push pull switch situated on the dash panel.

GUNNER'S SEAT ADJUSTMENT

15. The gunner's seat (Fig 9) is attached to the turret so that both are co-ordinated for operational use. The seat pan is of the "flip-up" type to allow more space when not in use.

16. To adjust the height of the gunner's seat, traverse turret to face to the rear. Pull the plunger wire to release the locking pins and then raise or lower seat to the required height. Release the wire and the plungers will then engage the appropriate holes. Do not adjust seat while sitting on it.

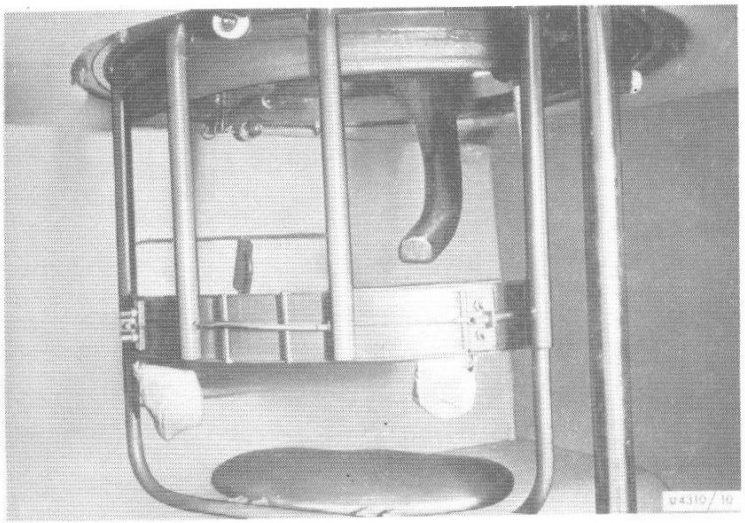


Fig 9 Turret seat

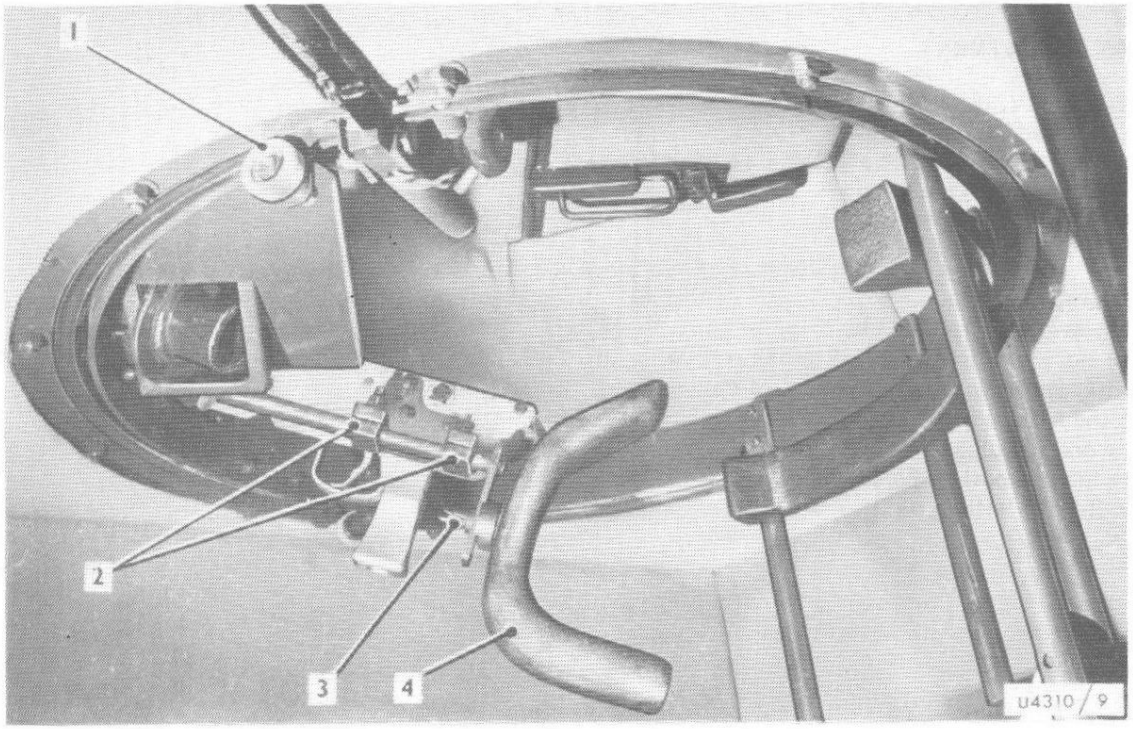


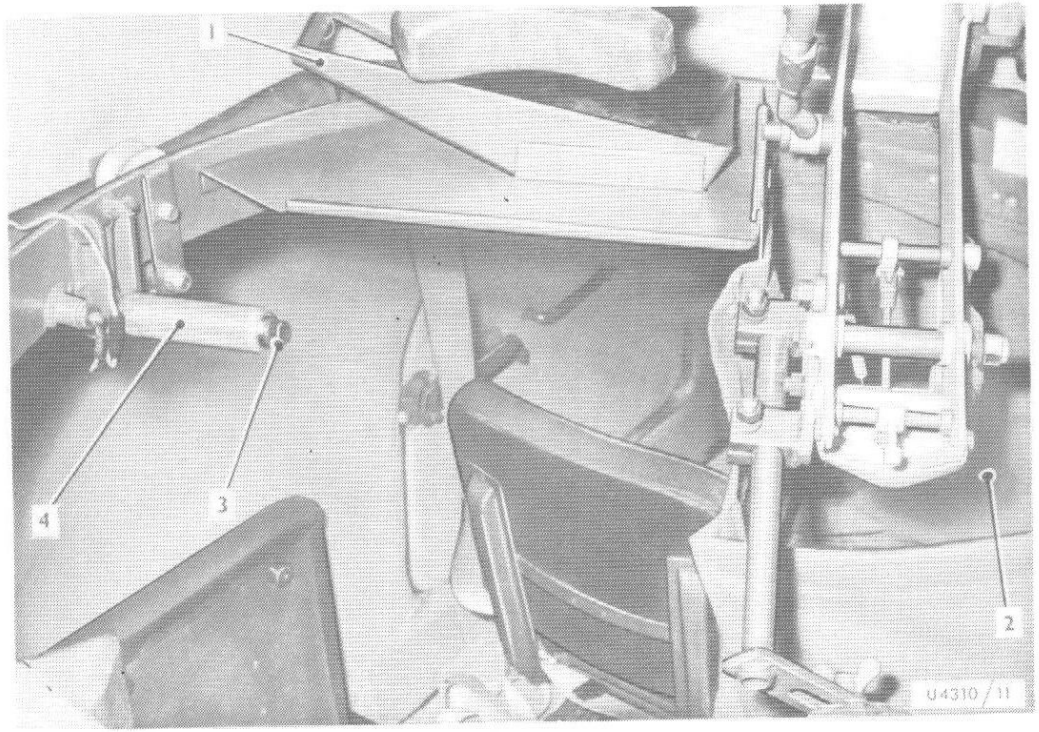
Fig 10 Gun shoulder rest

Key to Fig 10

1 Turret roller
2 Nut
3 Wing nut
4 Shoulder rest

SHOULDER REST

17. The gun shoulder rest is a standard attachment and can be adjusted to any desired position. To move fore and aft, slacken the two nuts (2) retaining the bar and slide backward or forward. To move sideways, slacken the wing nut (3) and slide rest along the slot. To raise or lower, slacken the two nuts and the wing nut and the bar may be rotated and the shoulder rest rotated to the vertical position.



1 Ammunition tray

2 Empties bag

3 Turret spotlight switch

4 Turret control lever

Fig 11 Turret interior

TURRET

18. The turret (Fig 11) is rotated by the gunner pushing against the floor with his feet, in the opposite direction of required travel. To lock the turret for non-operational use, there is a locking bolt placed forward of the right hand, this is pulled out to allow the turret to rotate. Placed to the left hand and attached to the turret is the turret brake handle (4) combining the gun spot light switch. To stop the turret in any desired position, pull downwards on the brake handle, this is spring-loaded and when the pressure is released, the turret is free to rotate. The turret spot light is operated by depressing the button (3) in the end of the brake handle, this has to be held depressed to maintain illumination.

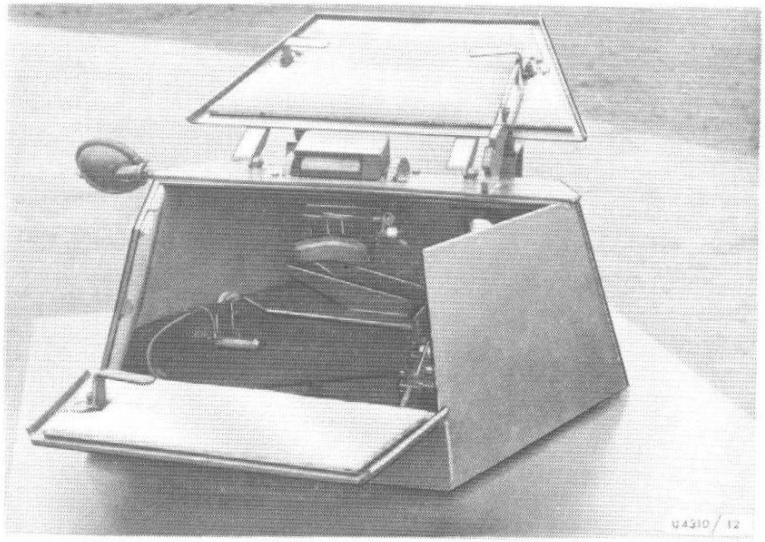


Fig 12 Turret top and rear hatch

TURRET TOP AND REAR HATCHES

19. The turret top and rear hatches (Fig 12) provide direct vision for the gunner under normal conditions. The rear hatch is opened to the horizontal position and can be used as a seat while carrying out maintenance to the turret. The top hatch has three fixing positions depending on the amount of visibility required, which are 35 degrees, 75 degrees and 115 degrees to the closed position. The 35 degrees position (Fig 13) will afford best possible protection while giving direct vision.

AMMUNITION TRAY

20. The ammunition tray (Fig 11(1)) is mounted to the left hand side of the gun. This accepts a standard box of 250 rounds with the lid removed.

EMPTIES BAG

21. The empties bag (2) is placed to the right hand side of the gun and clips between the ammunition tray and the inner ring of the turret. It is essential that this bag is fitted as it is dangerous to have empty cases rolling around the floor of the vehicle.

GENERAL OPERATION

SAFETY BELTS

22. There are safety belts fitted to the driver's, commander's and gunner's seats. The driver and commander have the diagonal and lap type belt with quick release buckles, while the gunner has the lap type with quick release buckle.

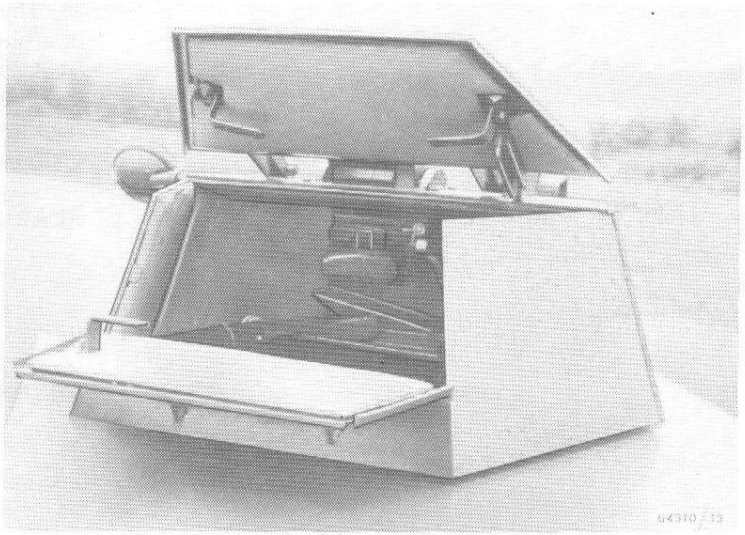
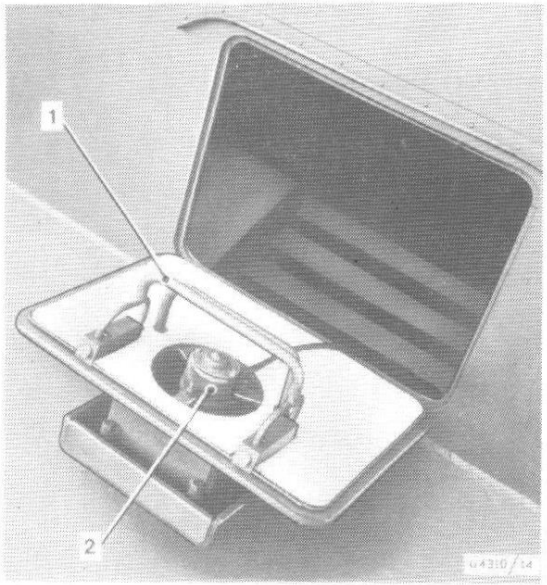


Fig 13 Turret hatch 35 degrees open



1 Release handle 2 Extractor fan

Fig 14 Rear escape hatch

BATTERY

23. The battery is totally encased in a box which is situated adjacent to the door directly behind the right hand seat and is provided with its own ventilation and drainage. Access to the battery is obtained by releasing two over-centre type clamps and removing the top cover.

REAR ESCAPE HATCH

24. The rear escape hatch (Fig 14) is positioned at the rear of the cabin and has a similar type lock to the door hatch.

ENGINE PROTECTION

25. The engine is protected by armoured plating and care should be taken when raising the bonnet as this is heavier than the conventional bonnet.

BOOT

26. At the rear of the vehicle is situated the boot (Fig 15), which is secured by two cap head screws. The boot key is retained under the dash panel on the right hand side by two spring clips. The boot contains the spare wheel (held by a quick release bolt which can be lifted out after a few turns of the wing nut), the jack, jack handle and tool kit.

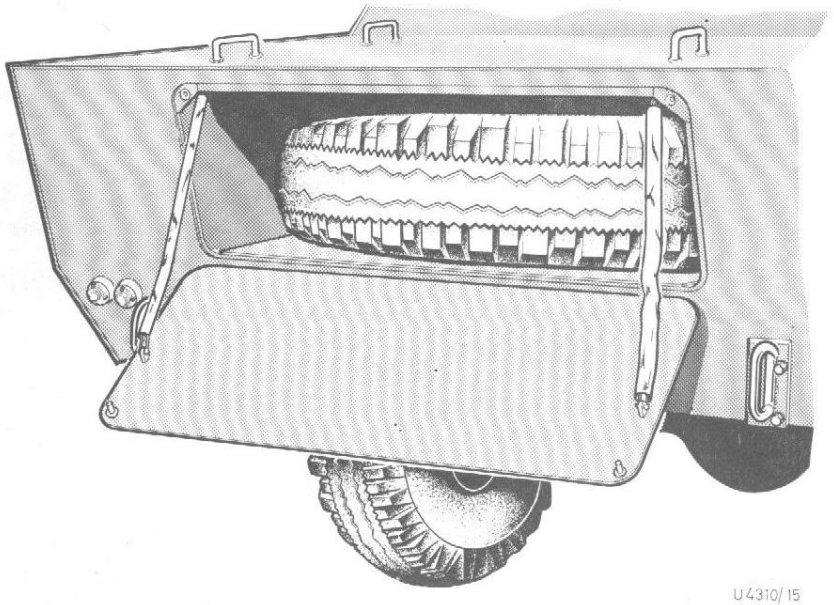


Fig 15 Boot and spare wheel

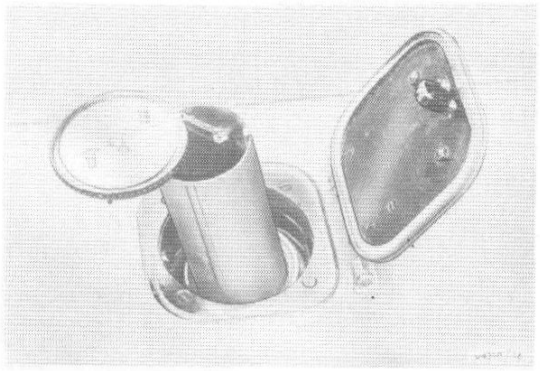
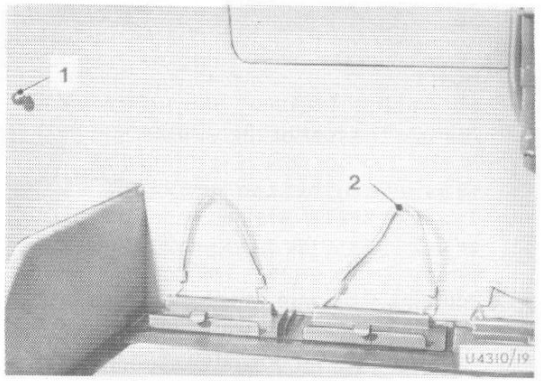


Fig 16 Fuel filler and cover



1 Fuel filler cover release knob
2 Securing strap

Fig 17 Ammunition stowage

FUEL FILLER

27. To release the filler cover (Fig 16), pull the knob (Fig 17(1)) situated over the right hand wheel arch inside the cab. This releases the spring catch and the cover can be lifted open. For ease of filling, there is an extension filler pipe incorporated which can be extended when the cap is removed. To remove cap, turn in an anti-clockwise direction. The extensions can be removed by rotating and pulling from its bayonet socket. The filler is also protected by a gauze filter to prevent ingress of water and foreign matter.

STARTING HANDLE

28. A starting handle is provided with each vehicle and is retained by clips behind the driver's seat.

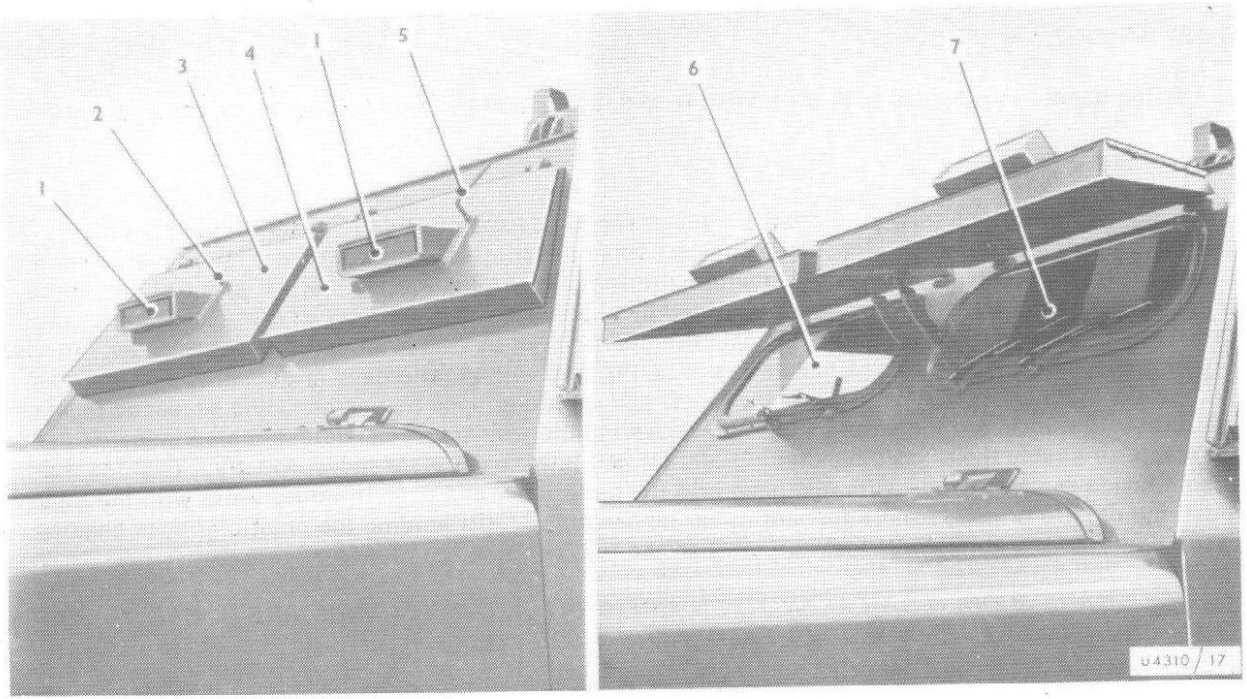
VISORS

29. Under normal conditions forward vision is through two windscreen panels (Fig 18(6) and (7)) which are wiped by electrically powered windscreen wipers. When under attack, the windscreens are protected by visors (3) and (4) constructed of armour plate with bullet-proof glass inserts (1). In the event of damage to the surface of the glass, the units are easily removed by unscrewing four cap screws (2). Operation of the windscreen visors is a very simple and quick operation carried out by either the driver or commander. Placed centrally between the windscreens are four levers (Fig 19), two with plastic hand grips and two plain. To close the visors in an emergency both plain levers (1) and (4) are gripped by one hand and squeezed together, this will release the lock and the visors snap down covering the windscreens. Unless forced by quick action it is preferable to steady the plastic handles (2) and (3) and lower each visor independently. To raise the visors, both hands must be used. With one hand grip the plain lever and push inwards, while with the other hand, push the plastic gripped handle forward as far as possible. Still holding the plastic gripped handle, release the plain lever and this will lock the visor in the 'up' position.

Warning: *CARE SHOULD BE TAKEN TO ENSURE THAT ALL PERSONNEL ARE CLEAR OF THE ELEVATING LEVER WHEN RELEASING THE VISOR LOCKS.*

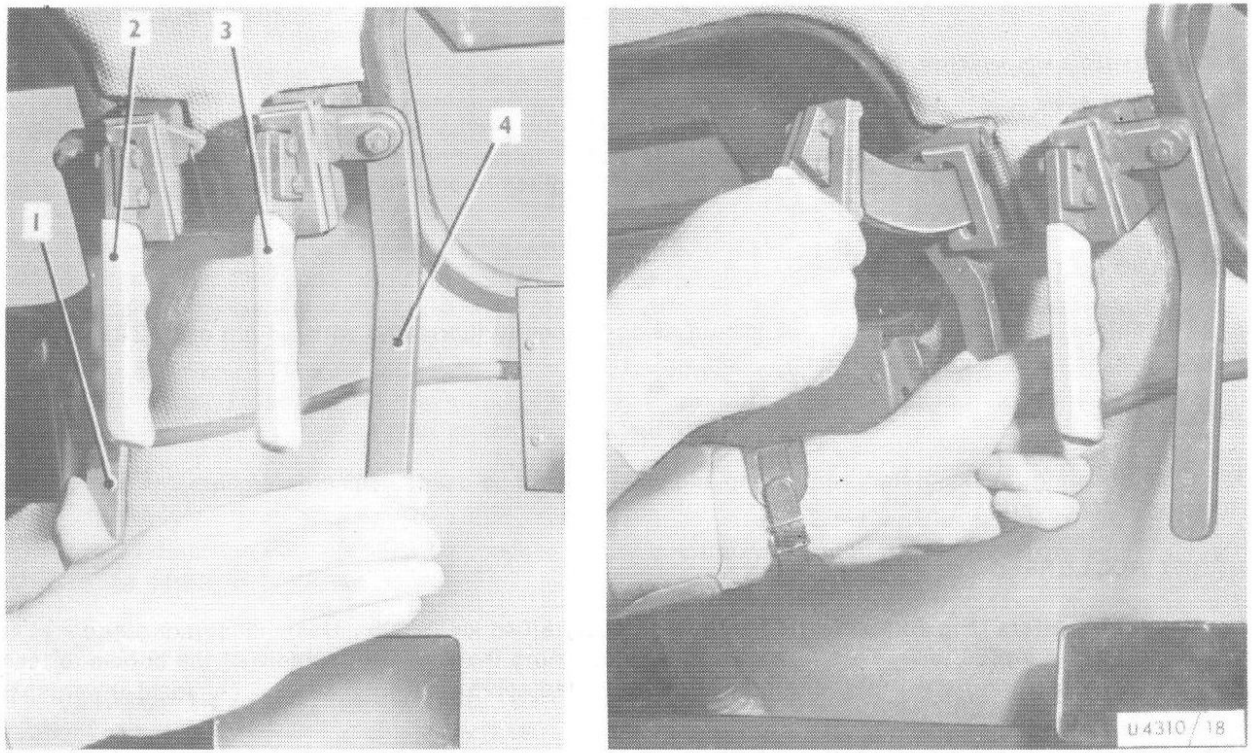
MAINTENANCE

30. The maintenance listed below is only suggested for vehicle operating in temperate climate. Under other conditions, the vehicle should be maintained in accordance with local vehicle maintenance practice.



1 Glass insert *2 Cap screws* *3 Visor - right hand* *4 Visor - left hand*
5 Hexagonal wrench *6 Windscreen panel - RH* *7 Windscreen panel - LH*

Fig 18 Visors in closed and open position



1 Visor lock - LH *2 Visor control lever - LH* *3 Visor control lever - RH*
4 Visor lock - RH

Fig 19 Closing and opening of visors

WINDSCREENS AND VISORS

31. The windscreens and visors should only be cleaned with a wet chamois leather. Avoid using dirty cloth as this will be very detrimental to the surface of the glass. In case of damage to the visor glass, the visor can be removed by unscrewing the four cap screws holding the glass in position. The boot key is used for slackening the cap screws.

DOORS AND HATCHES

32. The hinges of all doors and hatches should be occasionally lubricated with a light oil. (This should be omitted under dusty or sandy conditions).

UPHOLSTERY

33. When cleaning the upholstery, only soap and water should be used. Some detergents can be detrimental if used on PVC covering.

TURRET ROLLERS

34. The turret rollers (Fig 10(1)) should be checked every 8,046 km (5,000 miles), these are pre-loaded to approximately 22.6 kg (50 lb). This is achieved by slackening the eccentric spindle of the bottom roller and adjusting until the spring steel retaining bracket is deflected approximately 0.397 mm ($^{1}/_{64}$ inch) inwards, then retighten the spindle.

TURRET SPOT LIGHT

35. The turret spot light (Fig 12) should be aligned with the gun at the required range. Adjustment is achieved by slackening of the locknut retaining the spotlight, pivoting the light until the beam is directed onto the chosen spot at the correct range and retightening the locknut.

TURRET PERISCOPE

36. The periscope is aligned with the gun by similar practice to the spot light. The breech block should be removed from the gun. The gun should be sighted on a predetermined position by looking down the barrel. Fix the turret in position by means of the brake. To obtain preliminary adjustment, vertically slacken off the two locknuts either side of the turnbuckle. Then to elevate periscope, turn clockwise and to lower, turn in an anti-clockwise direction. Then retighten the locknuts. For fine adjustment, rotate knurled knob on rear end of the turnbuckle rod. To adjust for yaw, turn the knurled screw below the periscope until the white circle in the periscope is aligned on the same spot as the gun and spotlight.

TURRET AND ESCAPE HATCHES

37. All turret and escape hatches must be checked before operational duty to ensure free movement. This is essential for the safety of the crew.

LIGHTING EQUIPMENT

38. The headlamps fitted are pre-focus type. To replace the lamp it is only necessary to grip the outer rim of the headlight, press inwards and at the same time rotate in an anti-clockwise direction, the complete unit will then lift forward. The contact base may be detached in a similar manner and the lamp can then be removed. The remainder of the external lights have screw-in type lens.

TRANSFER BOX

39. Access to the transfer box when checking the oil level is gained by removing the two bolts and cover plate at the right hand side of the gearbox cover.

BONNET ADJUSTMENT

40. Adjustment of the bonnet is provided for protection of the radiator header tank. There is a bolt provided at the front underside of the bonnet, screwed into the plate and secured by a locking nut. The bolt head locates on a pad fixed to the armoured radiator mounting. For correct adjustment a 6.35 mm (¼ inch) gap must be maintained between the armour bonnet plate and the top of the radiator armour.

LONG RANGE FUEL TANKS

41. For long range duty a further fuel tank can be incorporated. The filler cap for this operates identically to the standard and is situated on the left hand side of the vehicle. Also incorporated is a two-way fuel cock situated between the driver's and commander's seats. This also gives exact reading on the gauge on the instrument panel of whichever tank is selected at the time.

SMOKE DISCHARGERS

42. Smoke dischargers are fitted on either side of the turret and each side can be fired independently of the other. The operating buttons are situated in the top of the turret.