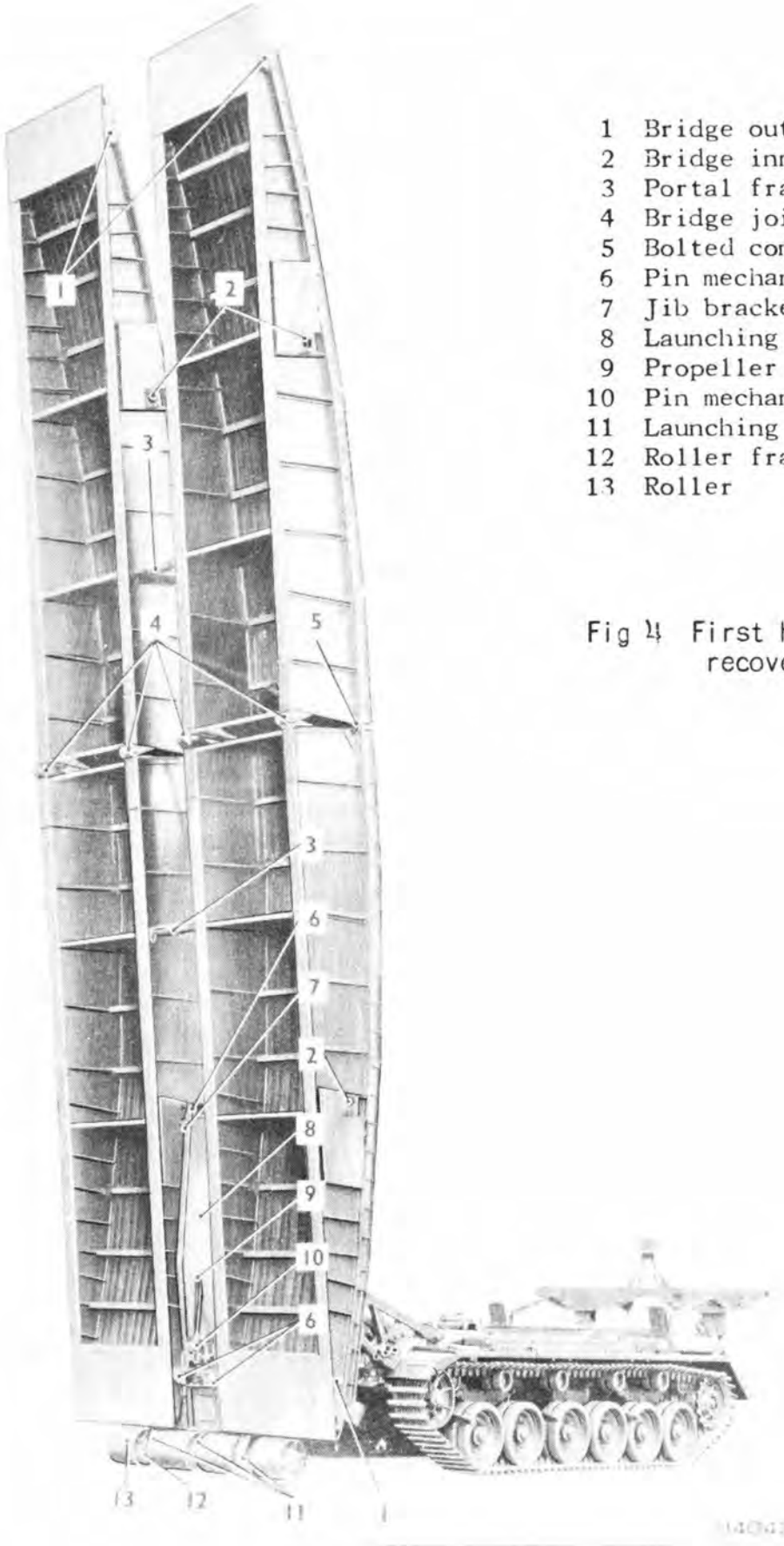
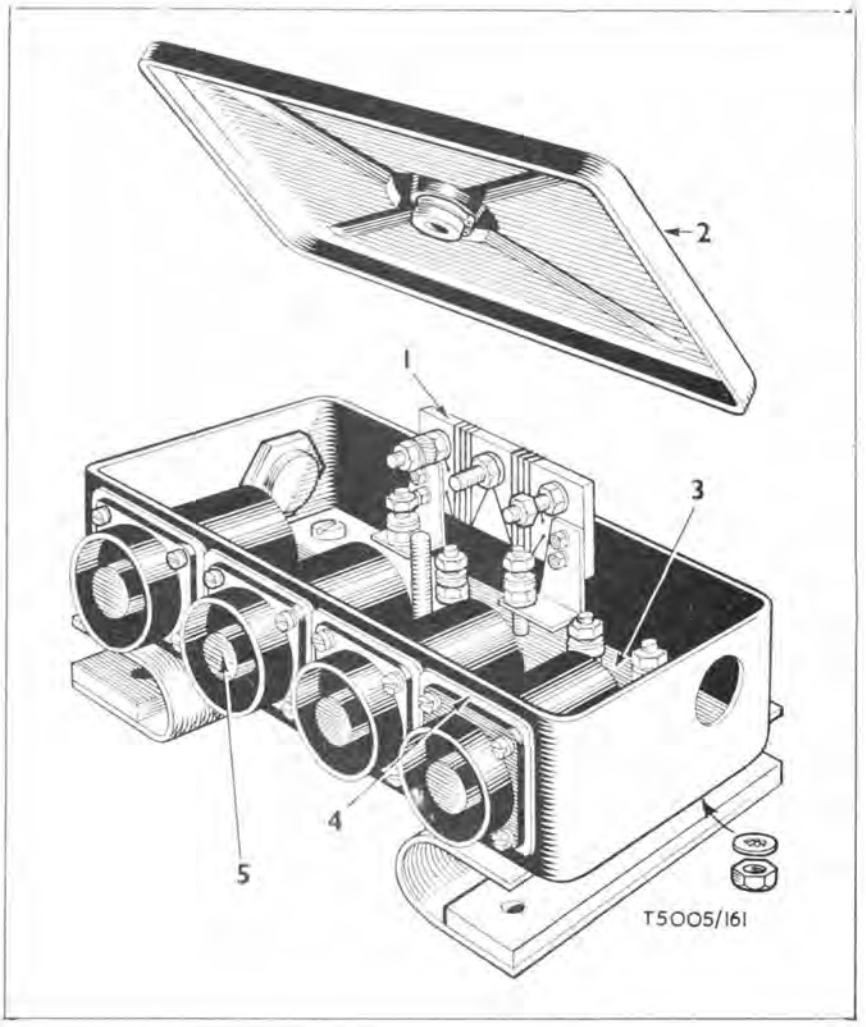



1 Bridge outer lifting brackets
2 Bridge inner lifting brackets
3 Portal frames
4 Bridge joint pins
5 Bolted connection
6 Pin mechanism pins engaged
7 Jib bracket and pin
8 Launching arm
9 Propeller shaft
10 Pin mechanism gearbox
11 Launching arm pivot bearings
12 Roller frame
13 Roller

Fig 4 First half of launching or recovery cycle completed




1 Resistance unit
2 Lid
3 Terminal block
4 Gasket
5 Push button

Fig 28 Firing button box

94. Located behind the barrels are terminal blocks (2) for the connection of the fuse No. F103.

95. The firing button box (Fig 28) is located in the commander's compartment and has four push buttons (5) one button for each bank of three barrels.

## TO LOAD

96. Turn OFF the master switch in the vehicle.

97. Prime the grenades.

98. Remove the terminal cover.

99. Insert fuse, electric No. F103 into each barrel.

100. Connect the fuse leads to the appropriate terminal by pushing the shouldered contacts into the terminals. Check the security of the leads, and replace the cover.

101. Turn on the master switch.

## BRIDGE OPERATING AND CONTROL EQUIPMENT

### DESCRIPTION

138. The operating cycle for laying the bridge is electrically controlled and utilises the vehicle 24V supply.

139. The control equipment comprises a bridge control unit to initiate the launch and recovery cycle, five solenoids which operate the hydraulic valves, and eleven micro-switches arranged to be operated in sequence by the position of the bridge and launching equipment during the cycle.

140. A bridge junction box, hull junction box and a twelve-way nipple connector provide connection points for the micro-switch circuits. The nipple connector, together with a nine-pin plug and cable gland, are located in the base of the launching arm and are protected by a cover plate.

141. Four electrically operated blow-out release pins are provided for the quick-release of the bridge from the bridge clamps. The pins are controlled by a blow-out release control box. Two 2-pin sockets provided with protection caps are located adjacent to each of the bridge clamps for connection to the blow-out pins.

142. An instrument panel (para 448) and switchboard (para 457) located in the commander's compartment, control the operation of the hydraulic pump unit engine.

143. The electrical circuits associated with the bridge control, are protected by a fuse identified 'G' located in the distribution panel (see para 327); the circuits for the blow-out release pins are protected by fuse 'D' also located in the distribution panel.

### BRIDGE CONTROL UNIT No.1, MK 1 - FV260893

144. The bridge control unit (Fig 49(9)) is located on the right-hand side of the commander's compartment above the hydraulic power unit engine throttle and ignition controls. It houses a cam operated double pole change-over switch (Fig 50(2)) with three positions, the outer positions are identified LAUNCH and RECOVER, the central OFF position is not identified.

145. In addition, the control unit houses a slow down switch (1) of the toggle type with three positions, the outer positions are identified ON and OFF, the central position is not identified and is not connected. The switch permits the commander to reduce the speed of operation to one tenth during any position of the cycle and is normally used prior to completion of launch.

### HULL JUNCTION BOX

146. The hull junction box is welded to the top of the roof plate at the left side adjacent to the commander's cupola. It houses a 13 pin plug, terminal block and two cable glands. The plug is connected to the terminal block and locates in a hole in the roof plate, to receive a mating socket connected to the internal vehicle connections.

## OPERATING THE BRIDGE

477. This section is included to crystalize briefly the important points concerning bridge launching and recovery and to bring out any peculiarities of the vehicle experienced under operating conditions.

478. Start the main engine (para 341 User Handbook for basic vehicle).

479. Start the hydraulic unit engine to warm it up in readiness for a bridging operation (para 403).

### TO LAUNCH

480. Proceed to site to be bridged.

481. Consider site limitations (para 107).

482. Position bridgelayer.

483. Fire the blow-out pins if under fire (para 149) or disconnect the bridge clamps if not under fire (para 20).

484. Launch the bridge (para 118 physical, 158 electrical and 196 emergency manual).

485. Withdraw the bridgelayer (para 173).

486. Place the centre decking in position on the bridge (para 15).

487. Recover the blow-out pins if they have been used and conditions permit (para 36).

### TO RECOVER

488. Proceed to site.

489. Remove centre decking (para 15).

490. Position the bridgelayer approximately.

491. Launch the launching arm (para 118) (Fig 31 and 32).

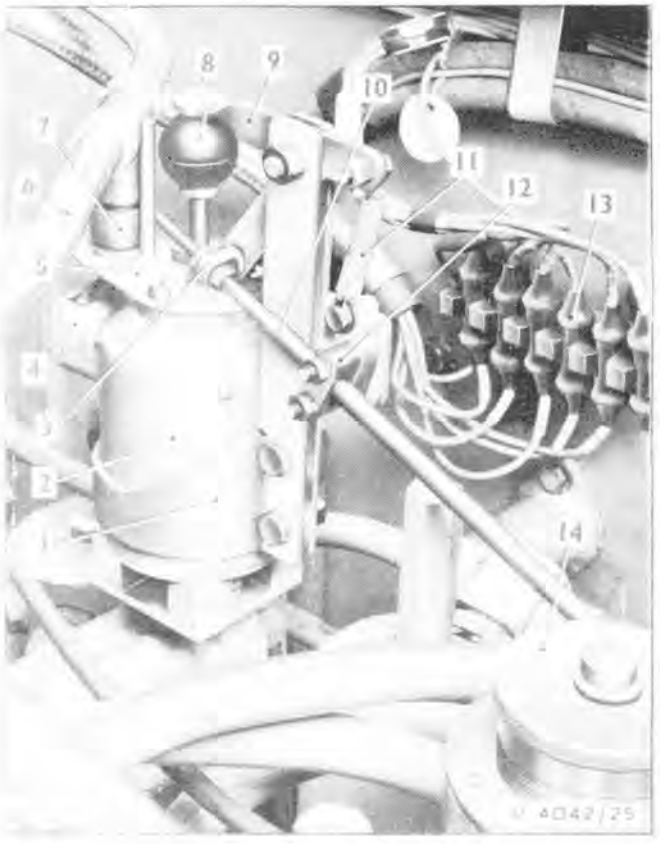
492. Pick up the bridge (para 117).

493. Should the electrical system fail, recover the bridge manually (para 199).

494. Secure the bridge with the bridge clamps (para 20).

### TO SERVICE THE HYDRAULIC UNIT

495. Raising the bridge to engage the rear struts for maintenance of or servicing the hydraulic unit (para 39 electrical and para 96(c) emergency manual).




1 Lever pillar clamp
2 Solenoid body
3 Swivel
4 Terminal block
5 Shroud plate
6 Conduit
7 Coupling nut
8 Knob
9 Bell-crank lever
10 Teleflex tube
11 Spring
12 Teleflex tube anchor bracket
13 Nipple type connectors
14 Hydraulic oil filler cap

Fig 52 Hydraulic control valve operating solenoid, electrical connection and manual control

## SOLENOIDS

155. The five solenoids (Fig 46) designated S1 to S5 are located on top of the appropriate hydraulic valves, the connection to each solenoid being made to a terminal block (Fig 52(4)) fitted with a cover, mounted on the side of the solenoid. A shroud plate (5) fitted to the top of each solenoid houses a threaded bush to which the cable harness coupling nut (7) is secured.

156. The solenoids S1 to S4 are provided with individual manual controls arranged to operate each solenoid via a flexible cable and handle (see para 200). The controls are provided for use in the event of a solenoid failure or other emergency.

## MICRO-SWITCHES

157. The eleven micro-switches are operated in sequence during the launch/recover cycle and control the sequence of operation of the solenoids associated with the valves of the hydraulic pump unit. The switches are designated L1 to L7, and their location and function is as follows:-

(a) LAUNCHING CHANGE-OVER SWITCH L1 (Fig 6(13))

Located on front face of a stop and guide bracket bolted underneath the inner members of the support structure. The switch operates $\frac{1}{4}$ in. before the roller frame butts against the stop and guide bracket i.e. just before bridge reaches vertical position.