

## Group 4                      ARMAMENT INSTRUMENTS

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#### Introduction

1. Contained in this group is a description of the armament instruments installed in this aircraft, together with servicing details necessary to maintain the equipment in an efficient condition. Routing and theoretical diagrams and, where necessary, the principle of operation of the electrically-operated installations are also included. For a general description of the aircraft's instrument installation as a whole, reference should be made to Group 1 of this chapter. Detailed information on the standard components used will be found in the relevant Air Publications, which are quoted in the appropriate paragraphs of this group.

### DESCRIPTION

#### GUN SIGHT RETRACTABLE MOUNTING (CODE SM)

2. The Type 7, Mk. 2 retractable mounting for the gyro gun sight (*para.* 5) is anchored at its forward end to a block and bearing at frame 7 and projects aft above the centre instrument panel to engage with a fixed mounting structure extending across the cockpit decking just aft of frame 8. The fixed mounting structure consists of a centre and two outer tubes, the centre tube being bolted at each end to machined castings, which form socket assemblies, to which trunnions at the rear of the retractable mounting are secured by caps bolted to the socket assemblies. These socket assemblies are bolted to the inboard ends of the outer tubes, the outer ends of which are themselves bolted to cast mounting brackets attached to each top longeron. An adjustable tension rod, attached to an eye-bolt on each socket assembly and extending forward and outboard to a further eye-bolt at frame 7, completes the fixed mounting structure.

3. The retractable mounting is raised into the combat position and lowered into the retracted position by a reversible electric motor attached to the lower fixed portion of the retractable mounting. This motor, which is provided with limit switches to stop it at the limits of its travel, is controlled by a selector switch located at the top of the mounting on the starboard side. Apart from raising and lowering the mounting this switch also switches on the gun sight when in the combat position and off when retracted. To give less obstruction, in an emergency when the hood is jettisoned with the sight in the

combat position, a micro switch, operated by the hood jettison toggle, overrides the selector switch and retracts the sight automatically.

4. If mechanical or electrical failure occurs when the sight is in the combat position it can be retracted manually by a knob on the port side of the mounting. Operation of this knob allows the sight to retract and lock down under gravity. A switch, linked with the manual control knob, is also opened and isolates the supply to the selector switch, electric motor and gyro gun sight. A routing and theoretical diagram of the circuit is given in fig. 1 of this group, and reference should be made to A.P.1275E, Vol. 1, for a detailed description of the retractable mounting.

#### GYRO GUN SIGHT AND CAMERA RECORDER (CODE GS)

5. The Mk. 5 gyro gun sight is carried above the centre instrument panel on a retractable mounting (*para.* 2), and provision is made for the fitment of a Mk. 3 camera recorder, which, when not in use, may be placed in a stowage on the starboard side of the cockpit. The sight is switched on and raised into the combat position by a selector switch, located at the top of the retractable mounting; this switch also retracts and switches off the sight after use. The installation is provided with manual or radar ranging control, and contains several control units, some of which are pre-set prior to combat, while others are adjusted by the pilot during combat. The radar ranging installation is described in Sect. 6, Chap. 2 of this volume.

6. The sight, camera recorder and control units are all interconnected by suitable cables to a Type B, Mk. 11 control unit, which is in the form of a junction box and is mounted on the port side of the flying control casing in the cockpit. The Type S, Mk. 7 selector-dimmer, which is pre-set by the pilot according to requirements, is mounted on the forward detachable portion of the cockpit port shelf. The Type RM, Mk. 3 control unit to give either manual or radar ranging control is mounted to a platform extending from the cockpit port side member to the flying control casing. Manual ranging control is effected by a Type T1, Mk. 2 control unit, which forms the throttle twist grip, and is connected into the circuit by a Type TB, Mk. 1 control unit located below the cockpit port shelf.

7. The Type BL, Mk. 1 ballistics unit and the Type AL, Mk. 1 altitude unit, which are both pre-set according to the type of ammunition used, are mounted to brackets attached to the port skin between frames 12 and 13 and to the port side of the forward face of frame 14 respectively. The altitude unit is connected to the pressure head installation, which is described in Group 3 of this chapter. The Type RA, Mk. 1 relay amplifier is mounted on a platform attached to the cockpit floor behind the seat on the port side, and the installation also incorporates a Type 22 and

a Type 22A voltage regulator, together with a Type B, No. 4 and a Type F, No. 5 suppressor. The two voltage regulators are carried one above the other in a mounting attached to the cockpit floor adjacent to the relay amplifier, and the two suppressors are attached to the flying control casing below the junction box. Test sockets, for checking the voltage obtained from the voltage regulators during the adjustment of these units, are mounted adjacent to the regulators.

8. The camera recorder is controlled by the gyro caging and camera relay in the camera gun circuit (*Group G1 of Sect. 5, Chap. 1 of this volume*), and when energized this relay will, if the gun sight is in the combat position, complete the supply from the voltage regulators to the solenoid of the camera recorder claw mechanism via the Type B, No. 4 suppressor. The claw mechanism will then draw the film across the lens, thus recording the target and graticule display on the gun sight reflector. The camera recorder is described in detail in A.P.1355D, Vol. 1.

9. Routing and theoretical diagrams of the installation are given in fig. 2 and 3 respectively, and reference should be made to A.P.1275E, Vol. 1 for a full description of the gun sight and its control equipment, together with the method of operation.

## SERVICING

10. The necessary servicing required to maintain the gun sight and its retractable mounting in an efficient condition and the standard serviceability tests which should be applied, together with the equipment to be used and the method of conducting the tests, is contained in the appropriate sections of A.P.1275E, Vol. 1. Similar servicing information for the camera recorder will be found in A.P.1355D, Vol. 1. Before servicing or removing any of these components, the aircraft must be rendered electrically safe, as described in Group A1 of Sect. 5, Chap. 1 of this volume.

## REMOVAL AND ASSEMBLY

11. The recommended method of removing the gun sight from the retractable mounting is contained in A.P.1275E, Vol. 1, and as the camera recorder is secured to the gun sight by spring-loaded lugs, no difficulty should be experienced in removing this component. Once access has been obtained the removal of the retractable mounting and remaining components should present no unusual difficulties.

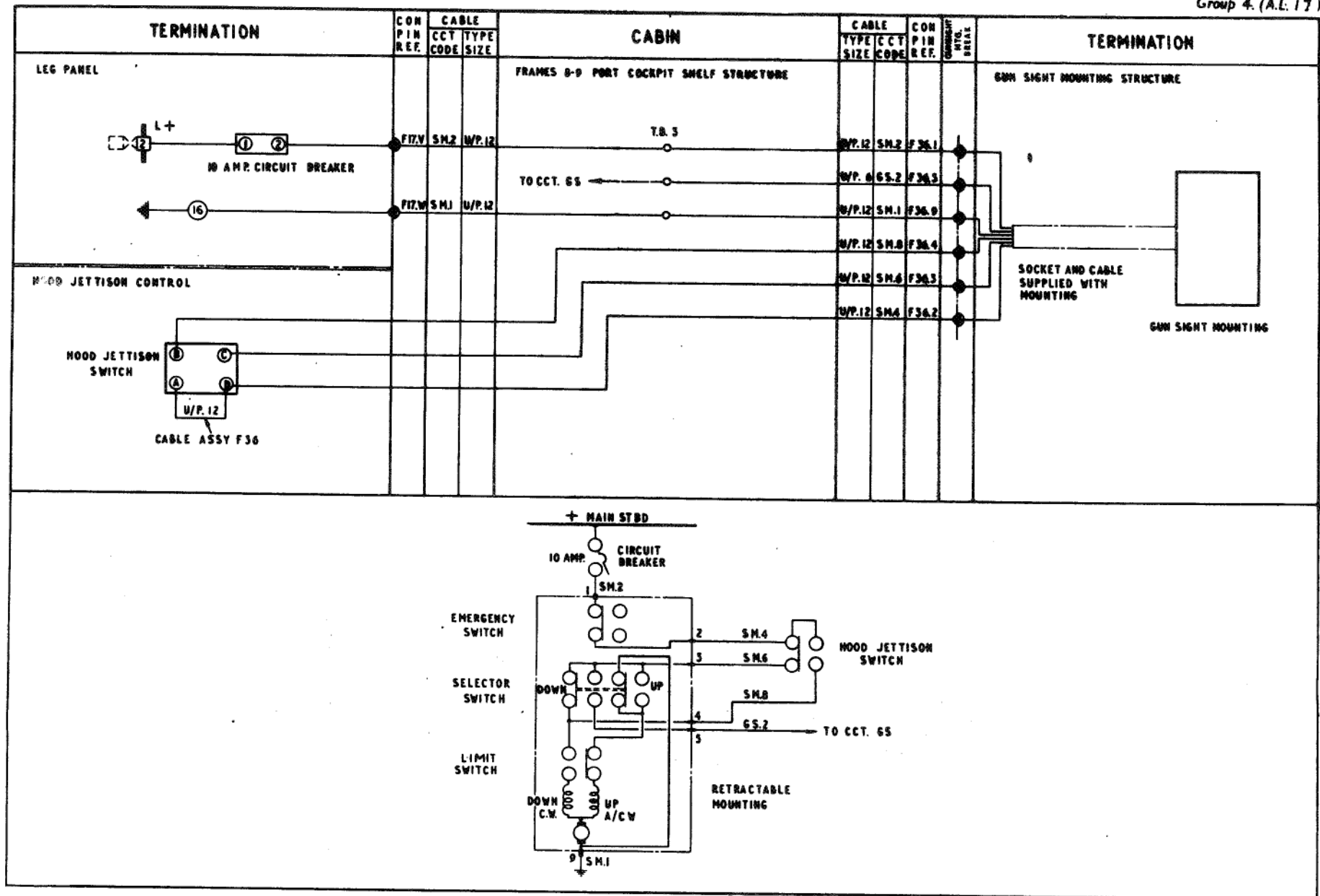


FIG. 1. GUN SIGHT RETRACTABLE MOUNTING (ROUTING AND THEORETICAL)

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