

GROUP 4.A

GYRO GUN SIGHT AND CAMERA RECORDER

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Equipment employed

1. The equipment employed in the gyro gun sight and camera recorder installation is listed below, together with the relevant

Gun sight retractable mounting, Type 7, Mk. 2	...	...	...
Gyro gun sight, Mk. 5...	...	...	...	...
Camera recorder, Mk. 3	...	...	...	...
G.G.S. Control unit, Type BL, Mk. 1	...	...	...	...
" " " " RM, Mk. 3	...	...	...	...
" " " " TI, Mk. 2	...	...	...	...
" " " " AL, Mk. 1	...	...	...	...
" " " " RA, Mk. 1	...	...	...	...
" " " " B, Mk. 11	...	...	...	...
" " " " TB, Mk. 1	...	...	...	...
Voltage regulator, Type 22	...	...	...	...
" " " " 22A	...	...	...	...
Suppressor, Type B, No. 4	...	...	...	...
" " " " F, No. 5	...	...	...	...
Lamp filament, 22V, 12W, Type G-F	...	...	...	...
Selector dimmer, Type S, Mk. 7	...	...	...	...
Circuit breaker (10A), Type A.2	...	...	...	...	A.P.4343B, Vol. 1, Book 2, Sect. 10
Hood jettison switch, Type LS561, Mk. 6	...	...	...	...	... A.P.4343C, Vol. 1, Sect. 2
Relay, Type S, No. 3	...	...	...	...	A.P.4343C, Vol. 1, Book 2, Sect. 3

Air Publications to which reference should be made for a detailed description and the necessary servicing required to maintain them in an efficient condition.

A.P.1275E, Vol. 1, Sect. —

Introduction

2. This Group contains a description of the gyro gun sight and camera recorder installation installed in this aircraft, together with details of the gun sight mounting structure. Routing and theoretical diagrams are provided, and where necessary the principle of operation of the electrically-operated installations is included. For a general description of the aircraft instruments, reference should be made to Group 1.A. Detailed information on the standard components used will be found in the relevant Air Publications (listed in para. 1).

DESCRIPTION

Gyro gun sight (Code G.S.)

General

3. The gyro gun sight is carried above the centre instrument panel on a retractable mounting (para. 10), and provision is made for the fitment of a camera recorder, which, when not in use, may be placed in a stowage on the starboard side of the cabin. The sight is switched on and raised into the

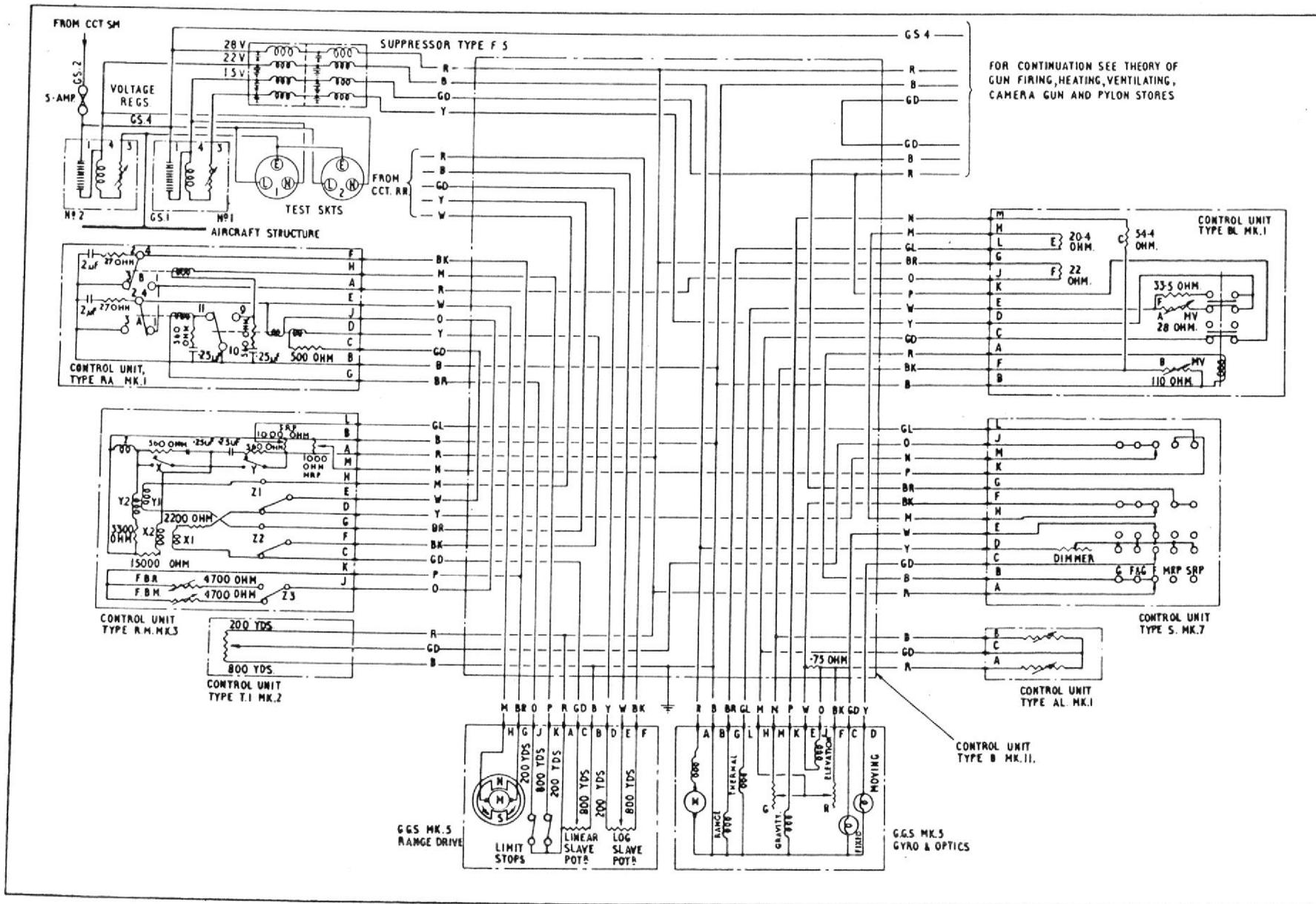


Fig. 1. Gyro gun sight and camera recorder (theoretical)

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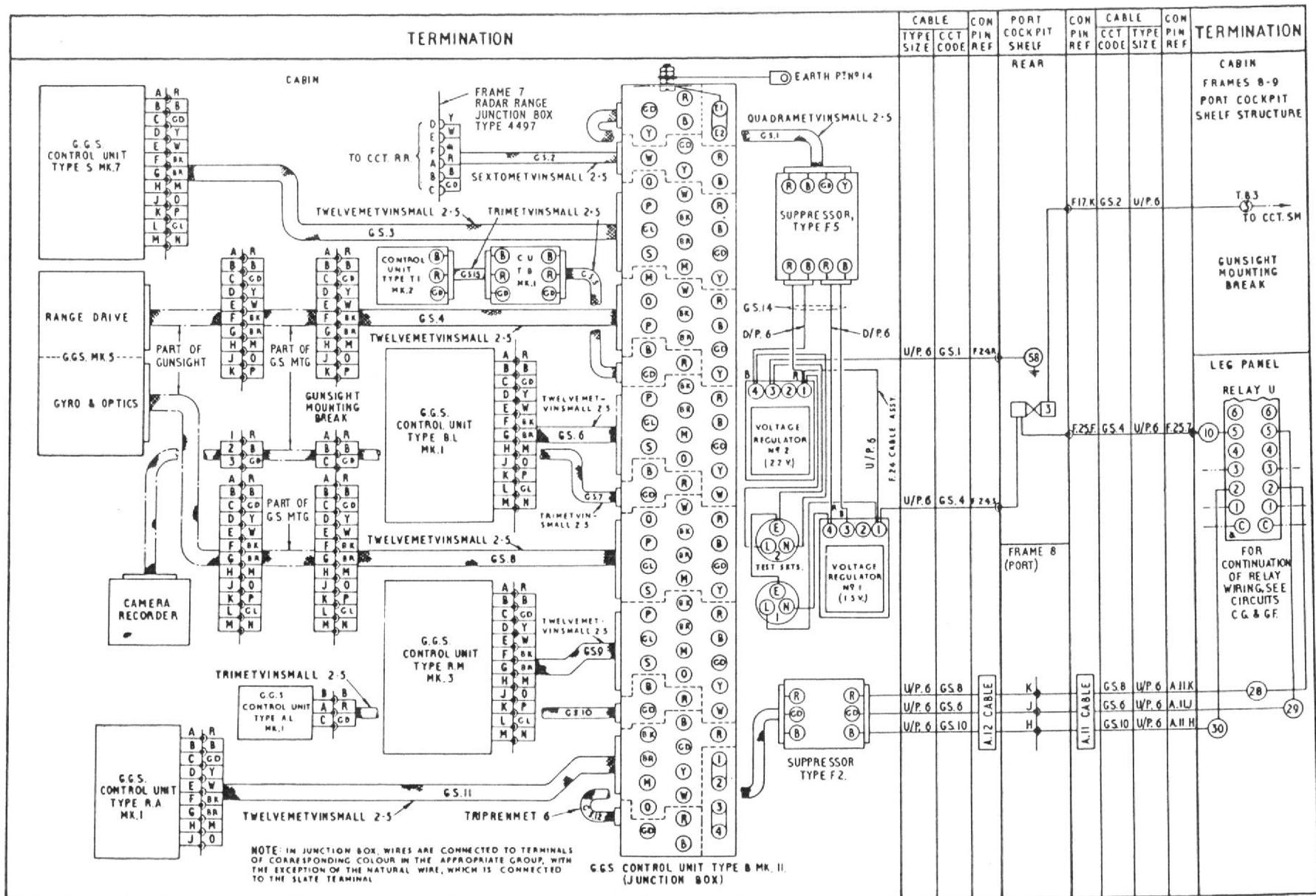


Fig. 2. Gyro gun sight and camera recorder (routing)

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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.

4. The installation is provided with manual and radar ranging controls. It 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. The gun sight, camera recorder and control units are all interconnected by suitable cables to a junction box mounted on the port side of the flying control casing.

Combat controls

5. The selector dimmer, used by the pilot to control the degree of illumination and the type of graticule display of the sight, is mounted on the forward end of the cabin port shelf. When the selector dimmer unit is set, manual ranging is effected by a control unit forming a twist grip at the top of the throttle lever. A radar/manual control unit is provided for the gun sight, which in conjunction with the throttle twist grip automatically controls the changeover from manual to radar ranging of the gun sight. This control unit is mounted on a platform attached to the tie bar between the flying control casing and the top longeron at frame 13, on the port side of the aircraft.

Pre-set controls

6. To compensate for the effect of changes in altitude at which the installation is operated and to cover the aiming allowances required due to the different ammunition used, the gun sight is provided with an altitude unit and a ballistics unit. The altitude unit is attached to the port side of frame 14 and is connected to the pressure head installation, and the ballistics unit is located on the port skin

between frames 12 and 13. The altitude and ballistics units are both pre-set before flight according to the type of ammunition carried.

7. The installation incorporates a relay amplifier which controls the range drive motor according to the ranging system selected by the control unit. This amplifier is located on a mounting platform attached to the port side of the cabin floor behind the pilot's seat.

Power supplies

8. To ensure that a constant voltage, on which the performance of the whole computing system depends, is supplied to the sight and control units, the main supply is fed through two voltage regulators. These regulators are mounted one above the other on a mounting structure attached to the port side of the cabin floor behind the pilot's seat. One of the regulators is provided with a preset voltage control, but the output of the other regulator is set by a control within the ballistics unit.

9. To eliminate radio interference, this regulated supply is taken through a suppressor unit which is mounted on a bracket attached to the port side of the flying control casing. Theoretical and routing diagrams are given in fig. 1 and 2. Reference should be made to the relevant Air Publications (*listed in para. 1*) for the description and operation of the gun sight and control units.

Gun sight retractable mounting (Code SM)

10. The retractable mounting for the gyro gun sight (*para. 3*) 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 cabin 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.

11. 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.

12. 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. 3, and reference should be made to the relevant Air Publications (*listed in para. 1*) for the description and operation of the retractable mounting.

Camera recorder

13. The camera recorder is controlled by the gyro caging and camera relay, in the camera gun circuit (*Sect. 5, Chap. 1, Group G.1*), and when energized this relay will, if the gun sight is in the combat position, complete the supply from the voltage regulators to the solenoids of the camera recorder claw mechanism, via the 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 the relevant Air Publication (*listed in para. 1*).

SERVICING

General

14. The servicing required to maintain the gun sight, control units and camera recorder 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 relevant Air Publications (*listed in para. 1*). Before servicing or removing any of these components, the aircraft must be rendered electrically safe (*Sect. 5, Chap. 1, Group A1*).

REMOVAL AND ASSEMBLY

General

15. The recommended method of removing the gun sight from its 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 remaining components should present no difficulties.

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