GROUP 4.A
ARMAMENT INSTRUMENTS

LIST OF CONTENTS

Introduction

1. This group contains the description and operation, of the aircraft armament instruments, together with information on the servicing required to maintain the installation in an efficient condition. Routeing and theoretical circuit diagrams are included. A general description of the aircraft instrument installation, including removal of panels and means of access, is given in Groups 1.A, 1.B and 1.C of this chapter. Detailed information on the standard items of equipment used will be found in the Air Publications listed in Table 1.

DESCRIPTION

Equipment details

Gyro gun sight retractable mounting

2. The gyro gun sight is carried on a retractable mounting above the centre instrument panel. This mounting 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 one central and two outer tubes. The central tube is bolted at both ends to machined castings which form socket assemblies. The inboard ends of the two outer tubes are also bolted to the socket assemblies and the outboard ends are bolted to mounting brackets on the port and starboard top longerons. An adjustable tension rod attached to an eyebolt on each socket assembly and extending forward and outboard to another eyebolt on frame 7 completes the fixed

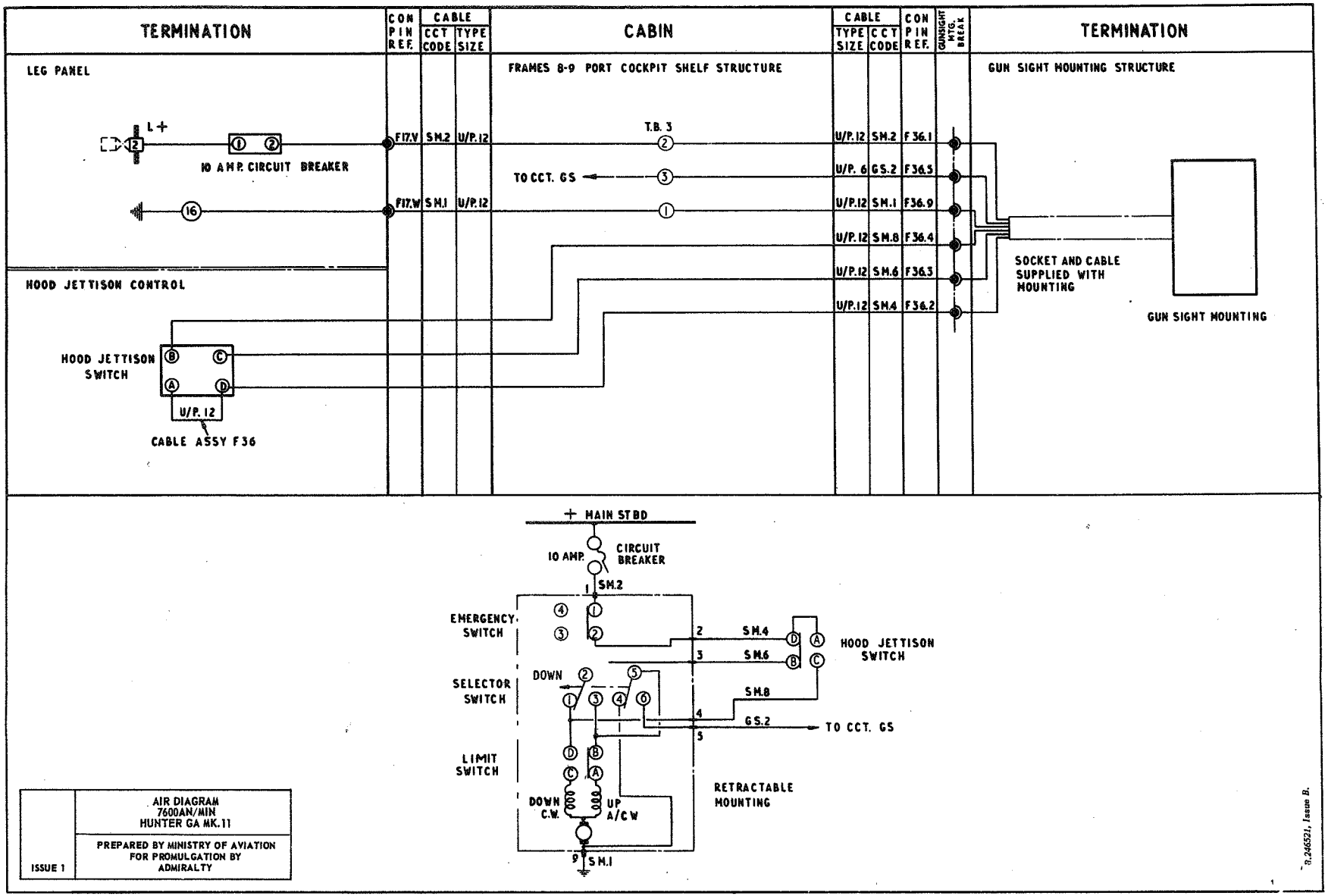

Fig. 1 Gyro gun sight retractable mounting (routeing and theoretical)

mounting structure.

3. The retractable mounting allows the sight to slide on a carriage between guides attached to the fixed structure. The movement of the carriage is given by lead-screws driven through gearing by a reversible electric motor attached to the lower fixed portion of the retractable mounting. The motor is controlled by a selector switch located at the top of the gun sight mounting on the starboard side. This switch also switches the gun sight on when the combat position (UP) is selected and off when the sight is retracted. Limit switches prevent over-run at both ends of the mounting travel. The retractable mounting is described in the Air Publication listed in Table 1.

4. In an emergency a microswitch operated by the cabin hood jettison toggle will also cause the motor to operate, to retract the gun sight, to prevent obstruction during ejection-seat operation. In the event of mechanical or electrical failure in an emergency, the sight can be retracted manually by striking a sight-release knob on the port side of the mounting. This operation disengages the gear-mechanism and allows the sight to be pushed down to engage with a latch to retain it in the retracted position. A switch, linked with the manual control knob, is also opened to isolate the supply from the selector switch, electric motor and gyro gun sight.

Gyro gun sight installation

5. The gyro gun sight installation is described in detail in A.P.1275E, Sect.5.

6. The gyro gun sight and control

TABLE 1

Equipment type and Air Publication reference

Equipment	Air Publication
Gunsight retractable mounting Type 7 Mk.2B Gyro gunsight, Mk.5A G.G.S. Control unit, Type BL Mk.1 G.G.S. Control unit, Type RM Mk.3 or Mk.3A *(Mod.1339)* G.G.S. Control unit, Type S Mk.7 G.G.S. Control unit, Type AL Mk.1 G.G.S. Control unit, Type RA Mk.1 G.G.S. Control unit, Type B Mk.11 G.G.S. Control unit, Type TB Mk.1 Voltage regulator, Type 22 Voltage regulator, Type 22A Suppressor, Type F.2 Suppressor, Type F No.5 Lamp filament, 22V, 12W, Type G-F	A.P.1275E, Vol.1
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, Book 1, Sect.2
Relay, Type S No.3	A.P.113D–1309–1

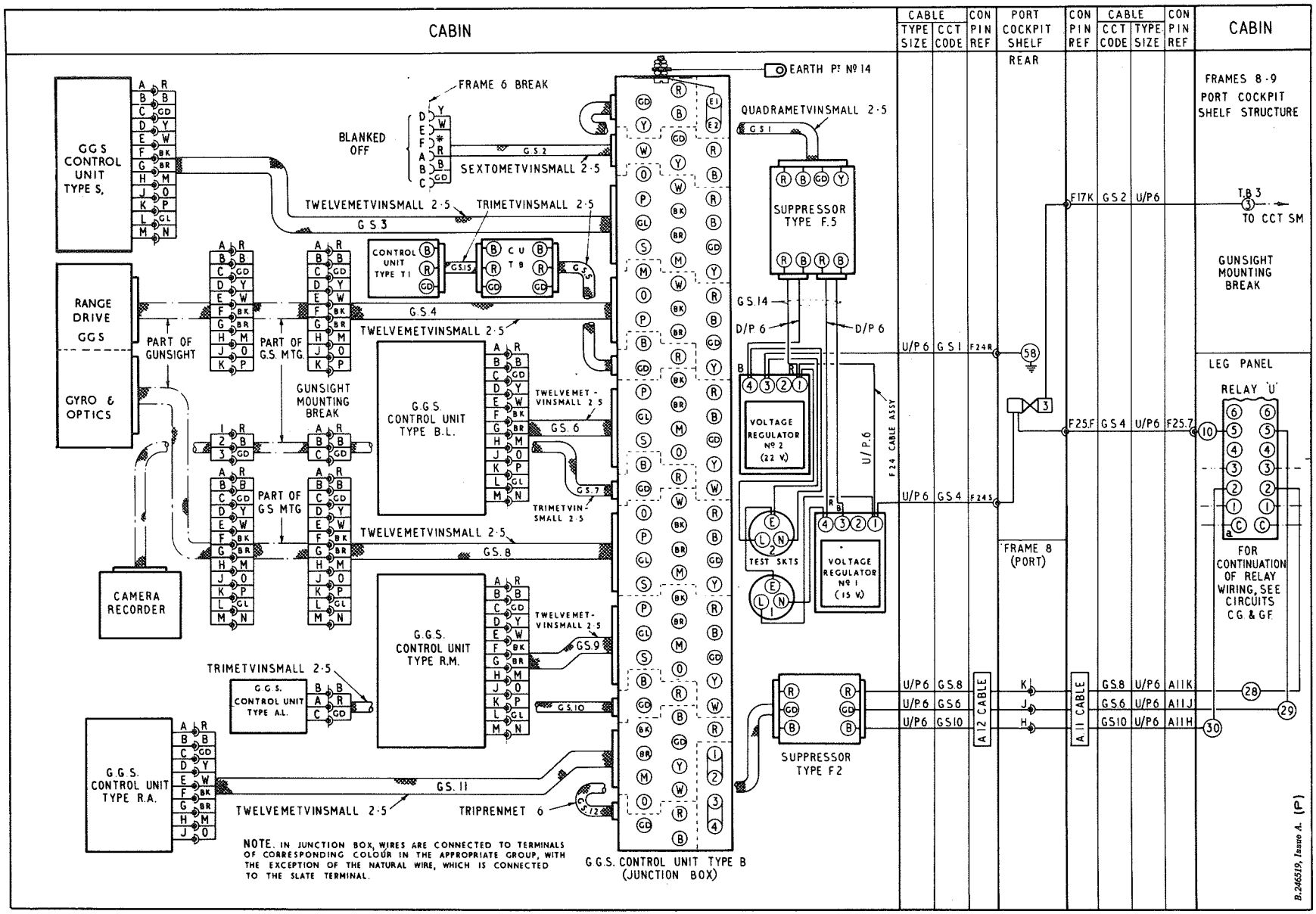

Fig. 2 Gyro gun sight and camera recorder (routeing)

T.P.(E) 11447

units are all interconnected by suitable cables to a 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 cabin. The selector-dimmer, which is pre-set by the pilot according to requirements, is mounted on the forward detachable portion of the cabin port shelf. The radar/manual control unit *(Para.13)* is mounted on a platform extending from the cabin port side member to the flying control casing. Manual ranging control is effected by a control unit which forms part of the throttle twist grip, and is connected into the circuit by a control unit which is in the form of a terminal block and is located below the cabin port shelf.

7. The ballistics unit and the altitude unit, which are both pre-set, are mounted on brackets attached to the port skin between frames 12 and 13 and to the port side of the forward face of frame 14 respectively.

8. The altitude unit is connected to the pressure head installation, which is described in Group 3.A of this chapter. The relay amplifier is mounted on a platform attached to the cabin floor behind the seat on the port side.

9. The installation incorporates two voltage regulators, and two suppressors. The two voltage regulators are carried one above the other in a mounting attached to the cabin 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.

Camera recorder

10. A recording camera is mounted between two brackets attached to the gun sight case. The camera is positioned above the pilot's line of vision and is controlled by the gyro caging and camera gun relay in the camera gun circuit *(Group G.1 of Sect.5, Chap.1)*.

Operation

Gyro gun sight retractable mounting

Normal

11. The gun sight may be brought into the combat position by selection of UP at the control switch on the retractable mounting. This setting of the switch also connects a supply to the gun sight lamp circuit. The gun sight is retracted and the gun sight lamps are switched off when DOWN is selected.

Emergency

12. In an emergency, when the hood is jettisoned preparatory to use of the ejection seat, the gun sight retraction circuit is switched into operation by a microswitch operated by the hood jettison toggle. The gun sight may also be released by striking the sight release knob and then pushed down to lock in the retracted position.

Gyro gun sight installation

13. The gyro gun sight installation in its general application is described in detail in A.P.1275E, Vol.1, Sect.5. The installation in this aircraft differs in some respects. The gun sight is used only for rocket projectiles. This application does not employ radar ranging. The control unit R.M. is not controlled by the pilot's throttle twist grip when M.R.P. or S.R.P. is selected at the selector-dimmer. The consequence of these circuit arrangements is that the relay Z of the control unit R.M. cannot be energized and the range is set by the M.R.P. or S.R.P. pre-set potentiometers of the R.M. control unit.

◀ **Note . . .**

Mod.1339 alters the feed back resistor in the radar/manual control unit from 4·7 kilohms to 10 kilohms. This makes the radar/manual control unit Type R.M. a Mk. 3A. ▶

Camera recorder

14. When the gyro caging and camera gun relay *(relay U)* is energized, with the gun sight in the combat position, the supply is connected 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 Air Publication listed in Table 1.

SERVICING

General

15. 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 appropriate

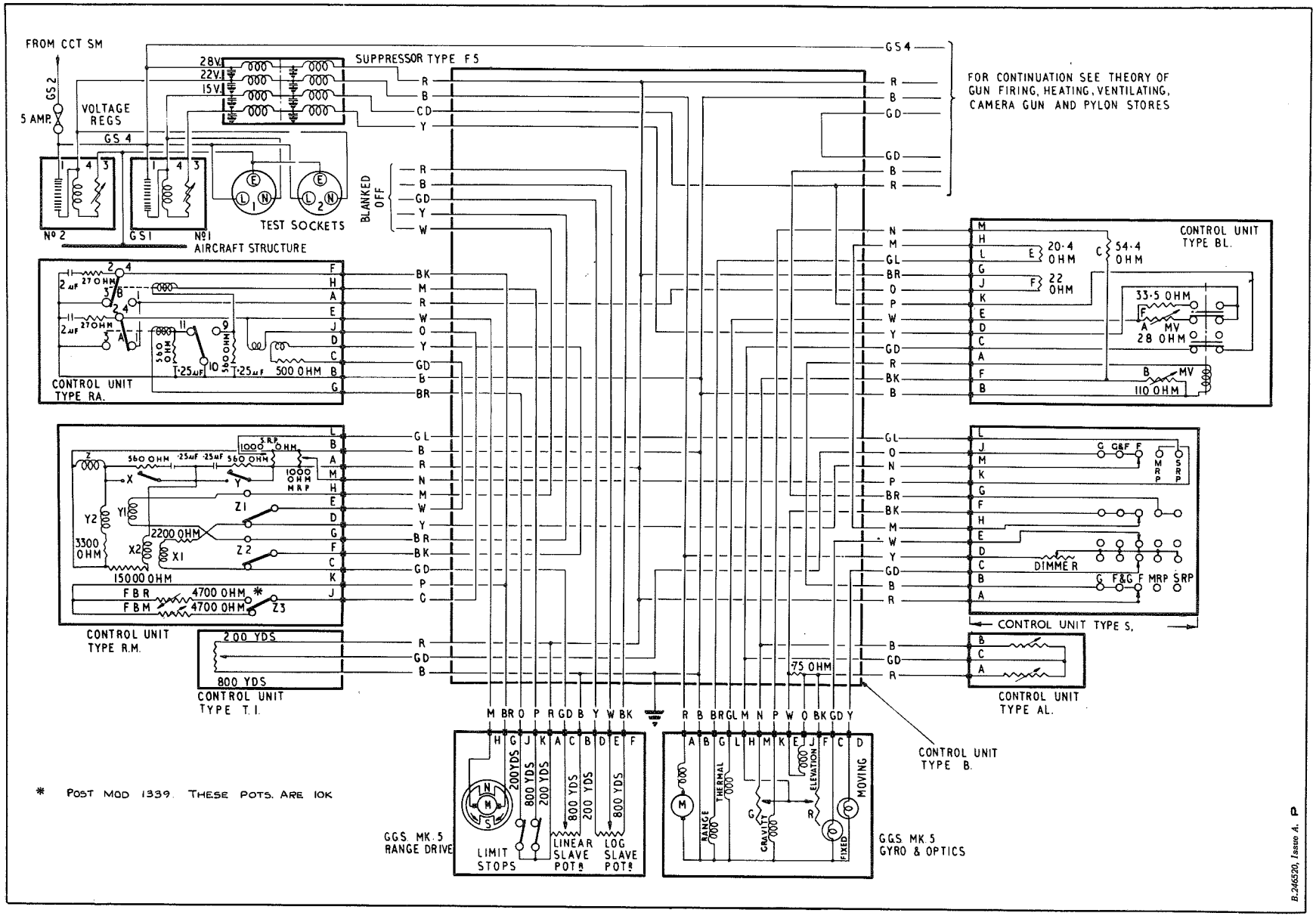

Fig.3 Gyro gun sight and camera recorder (theoretical)

Air Publications quoted in Table 1. Before servicing or removing any of these components, the aircraft must be rendered electrically safe, as described in Section 5. Chapter 1, Group A.1 of this volume.

REMOVAL AND ASSEMBLY

General

16. 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 difficulty.