

Chap.11

▶ F95 Mk 9 CAMERA INSTALLATION ◀

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Introduction

1. The camera installation, introduced by Mod.2072 (Part A and B), is used for low level bomb scoring. Part A, provides the fixed fittings namely the control unit mounting bracket, associated blanking plate and aircraft wiring. Part B provides the F95 Mk 9 camera, camera frame assembly and control unit, Type 551.

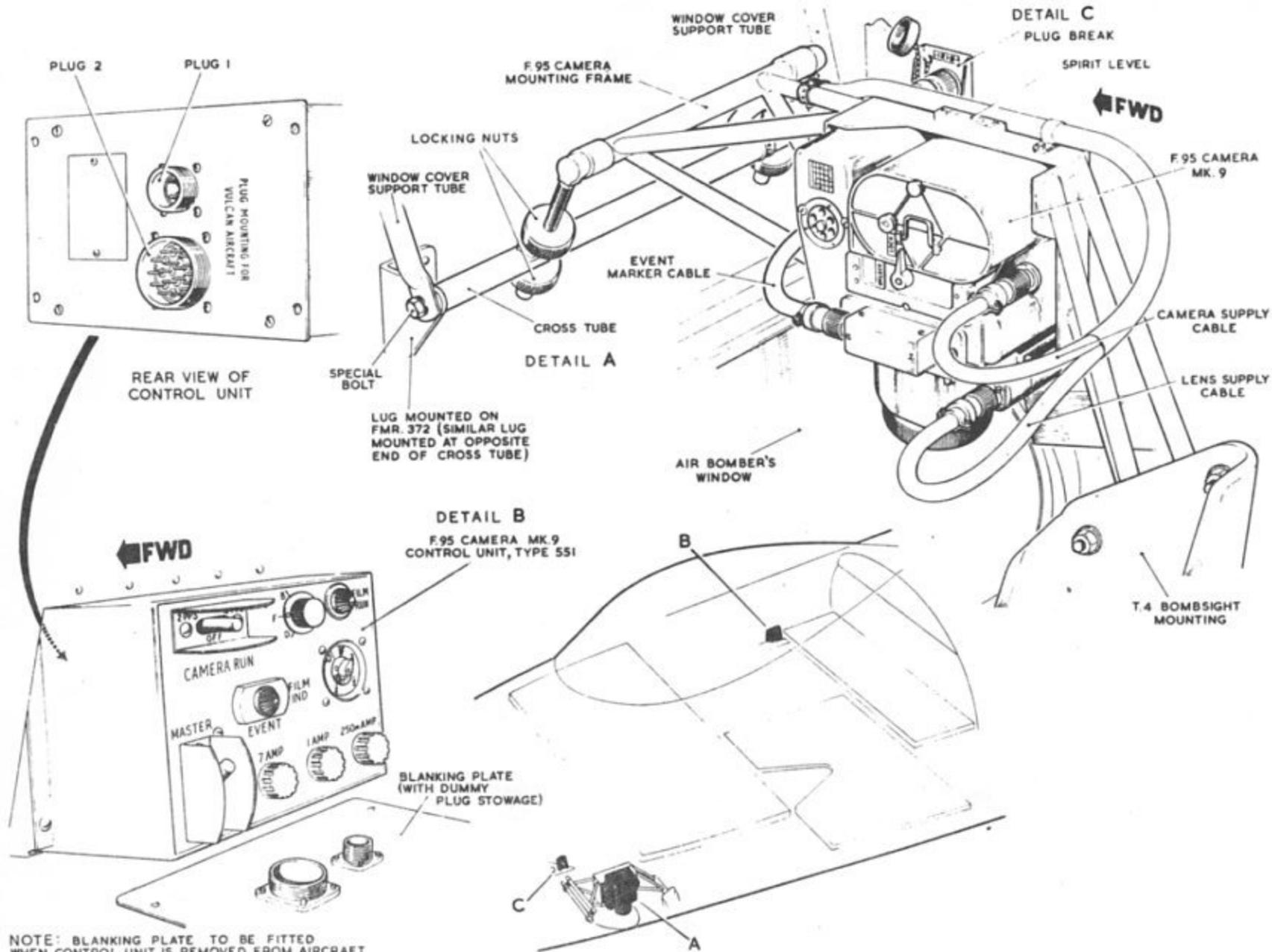
2. The camera is fitted to the camera frame and the whole assembly is mounted over the prone bomb aimer's window. The camera is remotely controlled by the navigator/bomber via the control unit.

3. When Mod.2072 Part B is not embodied a blanking plate with dummy sockets is used to

facilitate the stowage of the two connectors normally associated with the control unit.

4. A location diagram of the major units is contained in fig.1. A routing chart will be found at the end of the text. Descriptive, servicing and operating details of the F95 Mk 9 camera and associated control unit, Type 551 will be found in AP 112P-0202-1A.

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NOTE: BLANKING PLATE TO BE FITTED WHEN CONTROL UNIT IS REMOVED FROM AIRCRAFT

Fig.1 F.95 Mk 9 camera installation

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DESCRIPTION AND OPERATION

General

5. The following paragraphs contain a brief description of the various functions of the camera installation. The installation comprises the following:-

Item
F95 Mk 9 Camera
Camera mounting frame
Part No.Z/11673
Control Unit, Type 551

Camera installation

6. The camera mounting frame, complete with camera, is fitted over the prone bomb aimer's window by utilizing the existing T4 bombsight mounting spigot (aft. fixture) and two existing lug fittings, mounted on former 372, which are also used to secure the existing window cover support tubes (fwd. fixture) as shown in fig.1.

7. The camera, lens and event marker supplies are all fed to the camera from the control unit via plug break 1219 and three connectors. The plug break 1219, positioned at the prone bomb aimer's station has a protective cap attached to the body of the plug by a small chain. The protective cap is screwed on to the plug face when the camera is not fitted to the aircraft. Pole to pole wiring of the three camera cable connectors, plug break 1219 and control unit connectors PL1 and PL2 is shown in fig.2.

Control unit, Type 551

8. The control unit, mounted at the navigator/bomber station, provides full remote control and indication for the camera. The following controls and indicators are fitted to the front panel:-

- | | | |
|-----|---------------|--|
| (1) | Master Switch | Used for switching the aircraft 28-volt d.c. supply to the camera installation. |
| (2) | Camera Run | This is a 3-position toggle switch, anoted 2PPS - OFF - 4PPS used to select a film speed of 2 pictures per second (PPS) or 4 PPS. |
| (3) | Iris | This is a 3-position rotary switch, anoted B, F and D, used for selecting the position of the iris (aperture setting) relative to the local lighting conditions. |
| (4) | Film Ind. | This indicator is an electro-mechanical device which provides indication of the amount of film remaining unexposed in the camera magazine. |

(5) Film Run This lamp indicator lights intermittently when the film winding mechanism is being wound over.

(6) Event This lamp indicator lights to indicate that the event marker on the camera has operated when initiated by the aircraft bomb release switch.

9. When Mod.2072 Part B is not embodied, a blanking plate Part No. 5/Z11672, is fitted in place of the control unit, using the existing fixing holes. The two cable connectors PL1 and PL2, normally connected to the control unit, are stowed by connecting them to the two sockets fitted to the blanking plate as shown in fig.1.

Power supplies (Mod.2505)

10. The camera installation is connected to aircraft 28 volt dc supply from fuse 1315 in panel 4P via PL2 pole N on the control unit. The bomb release switch on 9P is used to initiate the event marker on the camera. A pulse is fed from fuse 569 4P via relay 548 contacts 3-4 and a diode to PL1 pole A on the control unit (fig.2). Further information concerning the bomb release switch will be found in Sect.6, Chap.21.

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SERVICING

General

11. All items of equipment should be checked for security of mounting and tightness of plug and socket connections. Before removing any items of equipment suspected of being defective, checks should be made for

continuity and insulation resistance on the associated cable assemblies. Complete instructions for servicing the items of equipment comprising the F95 Mk.9 camera installation will be found in A.P.112P-0202-1A.

Supplies

12. With connector PL2 disconnected from the camera control unit, check that there is a 28-volt d.c. supply between poles N and R of connector PL2.

REMOVAL AND INSTALLATION

Camera assembly

13. The F95 Mk.9 camera, associated cableform and camera frame is assembled to form the camera mounting structure assembly, as shown in fig.1 prior to fitment to the aircraft. When fitting the camera mounting structure to the aircraft the following procedure should be adopted:-

- (1) At the prone bomb aimer's station, check to see if the T4 bombsight is fitted. With Mod.2256 embodied the bombsight will not be fitted.
 - (a) If the T4 bombsight is fitted, remove from the aircraft and return to stores.
 - (b) Fold up the window cover and stow in the vertical position.
- (2) Remove and return to stores the existing split pins, washers and solid pins from the two lug fittings,

on former 372, used to secure the window cover struts.

- (3) Position the camera mounting structure with the short stub on the bombsight spigot and the cross member located between the two lug fittings on former 372 as shown in fig.1.
- (4) Secure the cross member and window cover struts to the two lugs on former 372 using two special bolts and associated washers as shown in fig.1.
- (5) Connect the camera cable connector to plug break 1219 positioned as shown in fig.1.
- (6) Level up the camera structure, with the aid of the spirit level fitted to the top face of the frame, using the four knurled locking nuts

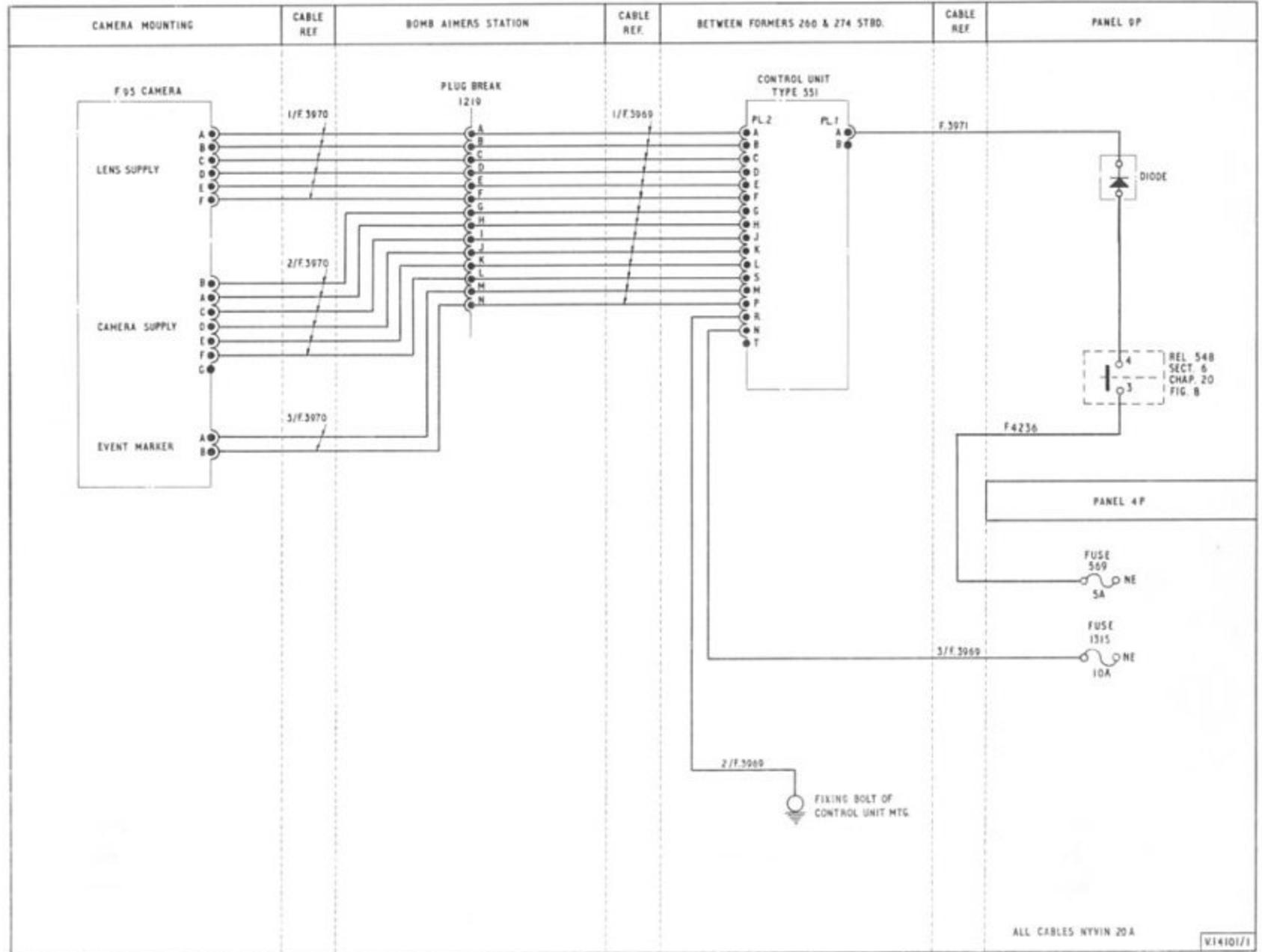
to alter the height through the crosstube as shown in fig.1.

Control unit, Type 551

14. The control unit replaces the blanking plate, fitted when Mod.2072 Part A is embodied. The following procedure should be adopted:-

- (1) Remove the four 2BA screws used to fix the blanking plate to the mounting bracket and retain the screws for further use.
- (2) Disconnect the aircraft cable connectors from the dummy sockets fitted to the back of the blanking plate. Return the blanking plate to stores.
- (3) Connect the appropriate aircraft connectors to PL1 and PL2 at the rear of the control unit and secure the control unit to the mounting bracket using the four 2BA screws retained in (1).

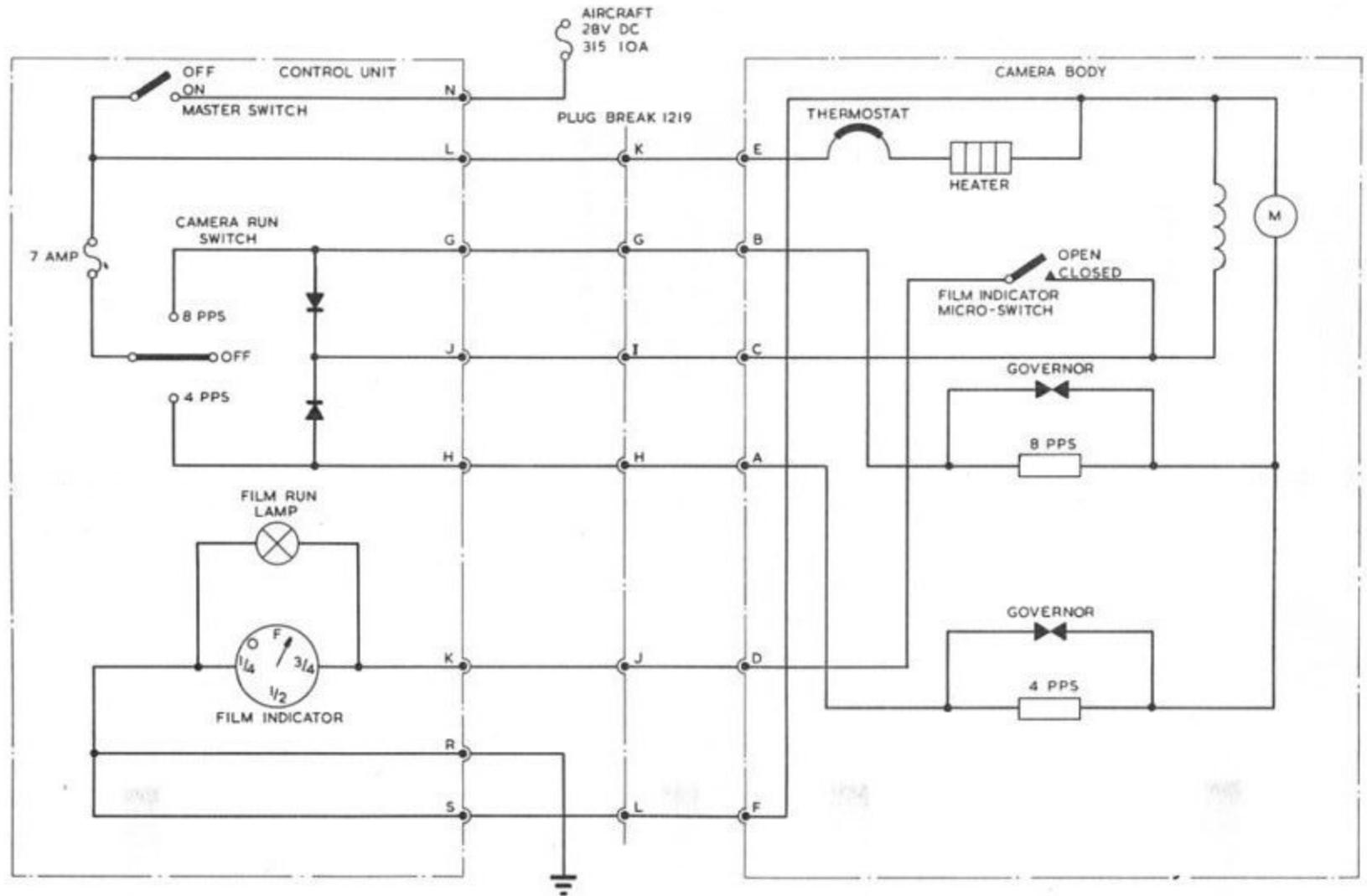
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Fig 2 F95 Mk 9 camera
Mod 2505



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Fig.2 F95 MK4 Camera theoretical

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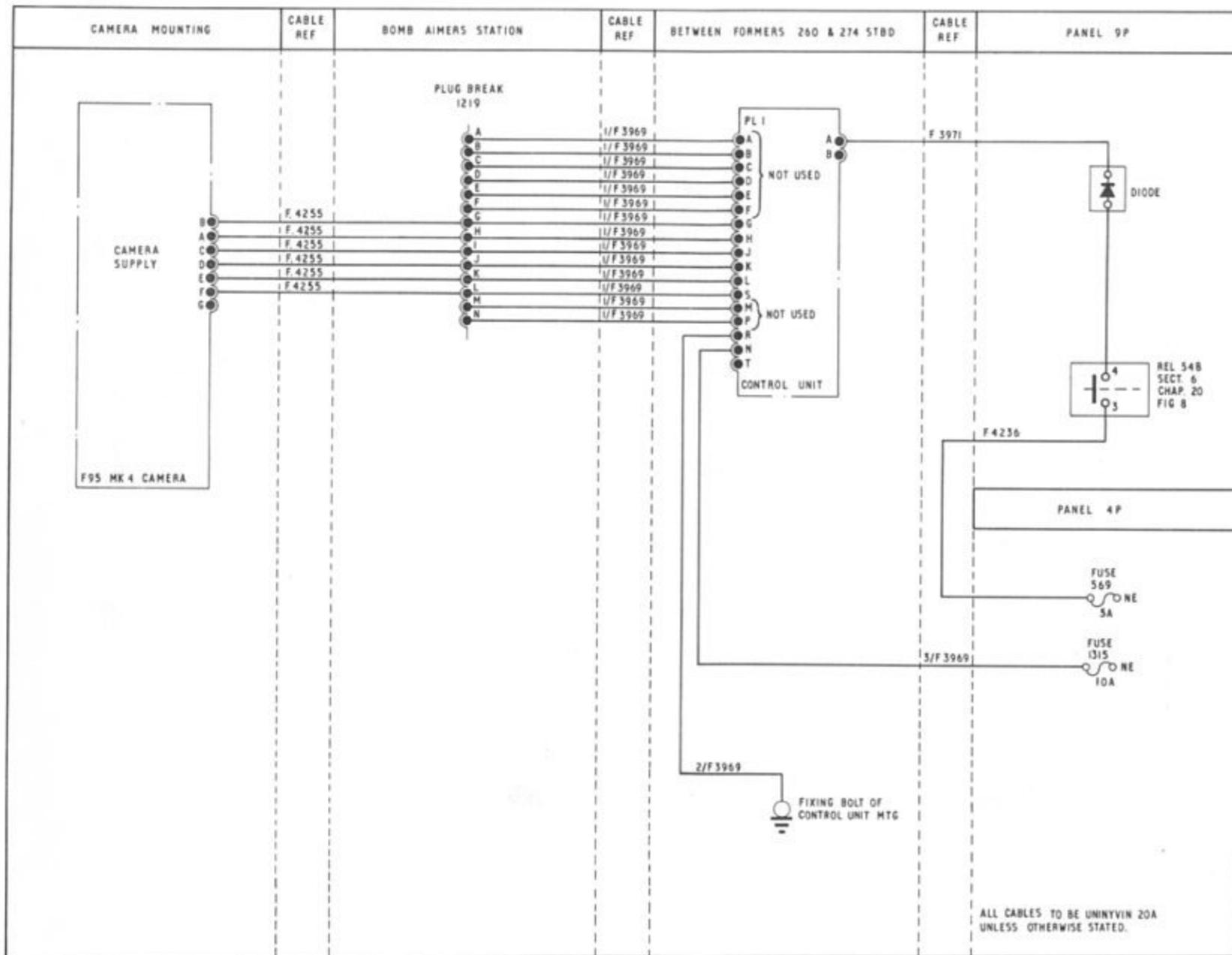


Fig 3 F95 MK 4 camera
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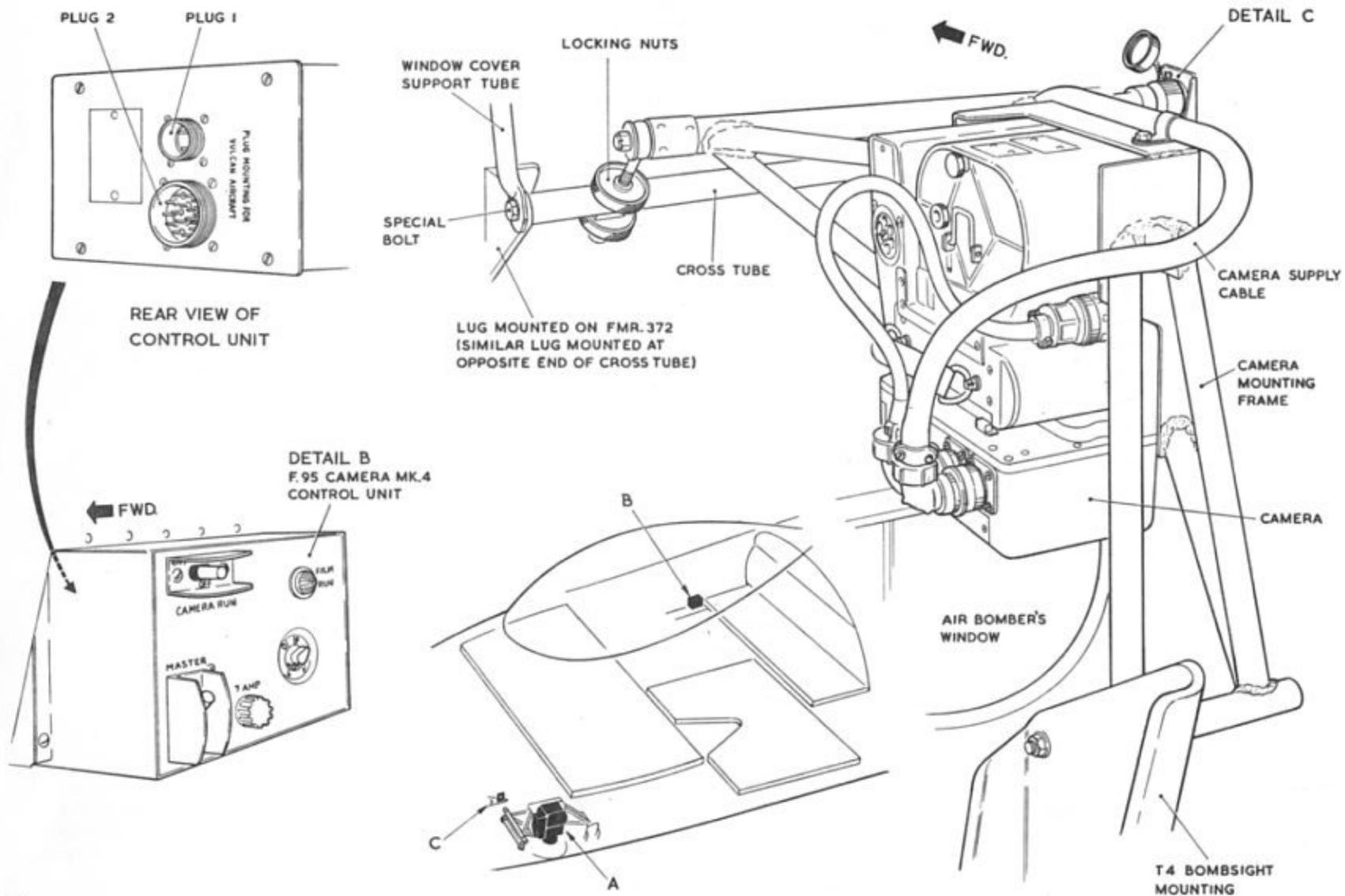


Fig. 1 F 95 Mk 4 camera installation

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DESCRIPTION

General

4. The following paragraphs contain a brief description of the various functions of the camera. The F95 Mk 4 camera installation consists of:-

Item

Camera
Camera mounting
frame
Control unit

Camera and mounting

5. The camera mounting frame, complete with camera, is mounted over the prone bomb aimer's window by utilizing the existing T4 bombsight mounting spigot (aft fixture) and two existing lug fittings mounted on former 372. The lug fittings are also used to secure the existing window cover support tubes (fwd fixture) as shown in Fig.1.

6. The camera supplies are fed from the control unit via plug break 1219 to a single connector on the camera. Pole to pole wiring of the camera cable connector, plug break 1219, and control unit connectors PL1 and PL2 are shown in Fig.2.

Control Unit

7. The control unit mounted at the navigator/radars' station, provides full control

General

12. The units of the camera installation should be regularly examined for signs of damage

and indication for the camera. The following controls and indicators are fitted to the control panel:-

- | | | |
|-----|-------------------|--|
| (1) | Master switch | The MASTER switch marked ONOFF is used to switch the aircraft 28 volt dc supply to the camera. |
| (2) | Camera run switch | The CAMERA RUN switch is a 3-position toggle switch marked 4PPS-OFF-8PPS and is used to select the film speed. |
| (3) | Film ind. | Marked FILM IND the indicator is an electro-mechanical device which provides an indicator of how much film remains in the camera magazine. |
| (4) | Film run ind. | The FILM RUN indicator illuminates intermittently when the film winding mechanism operates. |

Power supplies

8. The camera installation is connected to the aircraft 28 volt dc supply through fuse 1315 (10 amp) in panel 4P and via PL2 pole N on the control unit.

SERVICING

and insecurity. Ensure that each unit is secure in its mounting and that the plugs and sockets are correctly mated and securely tightened.

OPERATION

Camera installation

9. When the electrical circuit (Fig. 2) to the camera driving motor is completed via the master switch and the camera run switch, the mechanism operates continuously.

10. The speed of the motor and hence the number of exposures per second is determined by the position of the camera run switch. When this switch is set to 4PPS (picture per second) or 8PPS position, an appropriate centrifugal switch with a resistor in parallel is connected to the motor circuit. Both the resistor associated with the 4PPS switch position and that associated with the 8PPS position are normally short circuited by the closed contacts of the centrifugal switches on the governor disc.

11. As the film is pulled off the feed core, the film indicator microswitch contacts make, completing the circuit to the film run lamp which illuminates and to the film indicator. The film indicator is a solenoid operated ratchet mechanism which moves a disc graduated to show the amount of unused film remaining in the magazine. The pointer is mechanically reset when a new film magazine is fitted to the camera.

Complete information for servicing the items of equipment comprising the F95 Mk 4 camera installation can be found in AP 112P-0202-1A.

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REMOVAL AND INSTALLATION

General

13. Before removing or installing any components of the camera installation the aircraft must be rendered electrically safe. Caps and covers must be fitted to plugs and sockets when cable assemblies are disconnected. Prior to installation examine plugs and sockets for any damage. Upon installation functional tests should be carried out to ensure correct operation of the equipment.

Camera assembly

Removal

14. Removal of the camera assembly is as follows:-

- (1) Fold up the window cover and stow in the vertical position.

- (2) Electrically disconnect the camera at plug break 1219.
- (3) Remove the bolts securing the camera frame cross tube to the window cover struts, which are secured to lugs on FMR 372.
- (4) Raise the camera assembly vertical, slide sideways to allow the rear camera mounting to slide off the T4 bombsight spigot.

Installation

15. The installation of the camera assembly is carried out in the reverse order of removal.

Control Unit

Removal

16. Removal of the control unit is as follows:-

- (1) Remove the four 2BA screws securing the control unit.
- (2) Disconnect plugs PL1 and PL2 at the rear of the control unit.
- (3) The control unit can now be removed.

Installation

17. The installation of the control unit is carried out in the reverse order of removal.

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