

## Chapter 12

### PHOTOGRAPHIC INSTALLATION

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### DESCRIPTION AND OPERATION

#### Introduction

1. The aircraft can only be used in the photo-reconnaissance role when mod. 1270 is embodied, and when adapted by mod. 5006 to 5136 standard, 5126 and 5127.

2. Mod. 5006 entails fitting a light store pylon to either or both outer positions.

Mod. 5136 (earth contact in pylon) must be embodied for the P.R. role.

3. Mod. 5126 entails fitting a P.R. pod to either outer light store pylon.

4. Mod. 5127 entails fitting a camera control panel to the observer's left-hand shoulder guard, and an intervalometer crate to the equipment deck. The control panel, introduced by mod. 5155, can also be used.

### PHOTOGRAPHIC POD (fig. 1)

5. The photographic pod is similar in basic construction to the Bull Pup control pod described in Book 2, Cover 2, Sect. 7, Chap. 7A, comprising a centre section with a hinged nose and tail section, both secured by King fasteners.

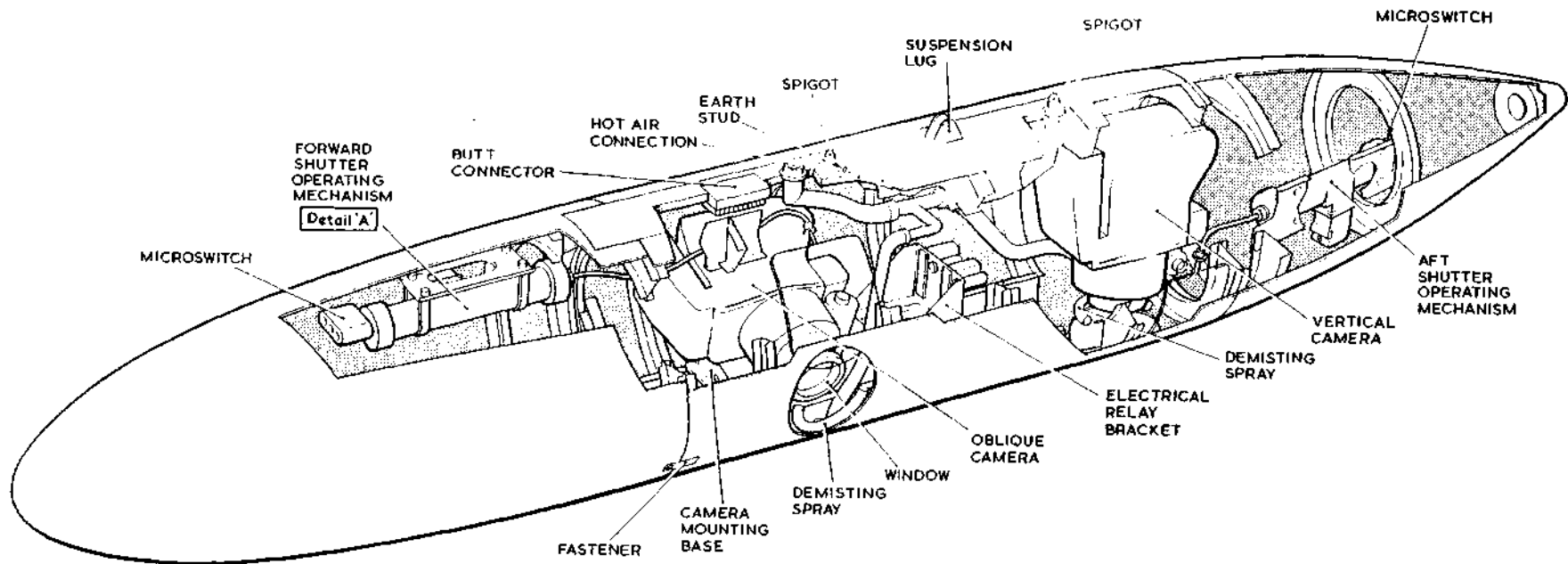
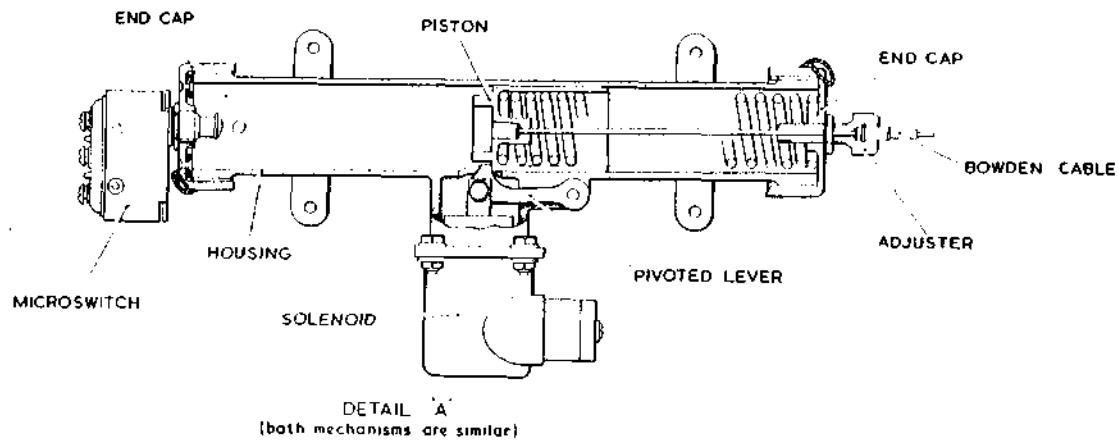


Fig. 1. Photo-reconnaissance pod

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6. The pod is modified to carry a port oblique and a vertically-mounted Type F95, Mk. 4 camera in the centre section. The cameras are arranged in tandem; the forward camera takes oblique shots, and the aft camera vertical shots. The modifications to the pod include the camera mountings, a demisting system, windows and shutter mechanisms, and the electrical installation to operate the shutters and cameras.

#### Camera mountings

7. A camera mounting base and handle assembly is bolted to each camera to mate with the corresponding mounting in the pod, and to permit rapid removal and installation.

8. The forward camera mounting base includes a twin roller assembly, two spigots, two Dzus fasteners and a handle.

9. The aft camera mounting base includes a locating spigot and a handle assembly with two Dzus fasteners.

#### Windows and shutters

10. A window and shutter guide casting is fitted in the skin of the pod centre section at each camera position. A window of flat optical glass and a shutter shaped to the profile of the pod are fitted in the casting. The shutter protects the window in the closed position, and is opened by a shutter operating mechanism when the camera is operated.

11. The shutter is coated with P.T.F.E. to provide a low friction surface to facilitate the movement of the shutter in the casting.

12. The shutter operating mechanisms for the forward and aft cameras are mounted in the nose and tail section respectively. Each mechanism comprises a cylindrical housing, with a piston in the cylinder and a coiled spring on one side of the piston. Attached to the piston is a Bowden cable, which passes

through the coiled spring and end-cap of the cylinder, and is attached to the shutter.

13. A microswitch, fitted to the end cap remote from the cable, projects into the cylinder to be operated by the piston when the spring is fully extended.

14. An actuating solenoid is fitted on the outside of the housing at the mid-position. The solenoid operates a pivoted lever which projects into the cylinder.

#### Shutter operation

15. The shutter is closed by pulling a small bollard on the shutter using a lanyard. This action pulls the piston to the mid-position in the housing, where the pivoted lever retains it against the compression of the spring.

16. When the camera button is pressed, an electrical supply operates the solenoid, which withdraws the pivoted lever and allows the spring to extend. The piston is forced to the end of the cylinder, pulling the Bowden cable to open the shutter. At the end of its travel the piston operates the microswitch which completes a supply to the camera operating relay.

#### Window demisting

17. Each window is demisted by hot air supplied by the Firestreak heating pipeline in the pylon. A dowel assembly in the pod mates with the hot air connection in the pylon, and hot air is conveyed by anti-kink hoses to a demisting spray at each window.

#### Electrical installation

18. The electrical connections between pylon and pod are made by a 24-pole butt connector and an earth butt connector, which contacts the earth stud in the pylon sole plate.

19. The butt connectors are connected by cable assemblies to a relay bracket located in the centre section. Four relays and two

20-way terminal blocks are mounted on the relay bracket. Further cable assemblies connect the relay bracket with the cameras, shutter operating solenoids and microswitches.

#### Cameras

20. The Type F95 Mk. 4 cameras are described in A.P.1355C, Vol. 1.

#### CAMERA CONTROL PANEL (fig. 2)

21. A camera control panel, introduced by mod. 5127 or 5155, is fitted to the observer's port shoulder guard in place of the blanking plate or tanker control panel.

22. The following controls are mounted on the panel for the remote operation of the cameras:—

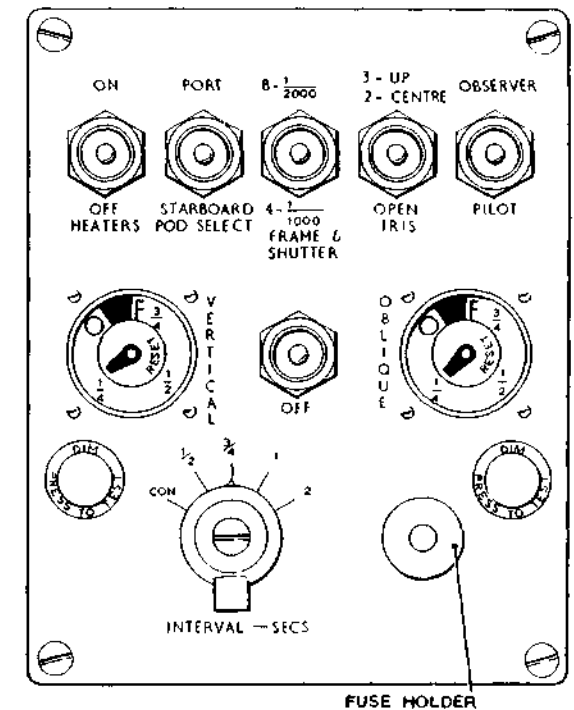


Fig. 2. Camera control panel

- (1) Master/heater switch. ON/OFF.
- (2) Pod selector switch. PORT/STARBOARD.
- (3) Frame/shutter switch.

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- (4) Iris selector switch. 3/2/OPEN.
- (5) Observer/pilot switch. OBSERVER/PILOT.
- (6) Camera selector switch. VERTICAL/OFF/OBLIQUE.
- (7) Remote film indicator for each camera.
- (8) Press-to-test indicator lamp for each camera.
- (9) Interval selector switch. CON/1/3/1/2 secs.

23. The control panel contains a 5 amp. fuseholder, two relays, a 24-pole connector plug, and, in the mod. 5155 panel, a silicon diode.

#### INTERVALOMETER CRATE

24. The intervalometer crate, introduced by mod. 5127, is fitted in place of the armament crate on the equipment deck aft of the pilot's seat.

25. The electrical circuits and components are described in Book 2, Sect. 5.

### SERVICING

#### General

26. Servicing of the pod, excluding electrical components, is confined to examination for damage and security, lubrication of moving parts (except shutters), and cleaning of windows.

27. Lubricate the pod hinges and shutter operating mechanism with grease, XG-295, the Bowden cables with grease, XG-273, and the fasteners with oil, OX-14. Do not lubricate the shutters.

#### Shutter operating mechanism microswitch adjustment

28. With the piston hard against the end cap, i.e. with the spring fully extended, screw in the microswitch until it operates. Screw in one further turn and tighten lock-nut.

#### Bowden cable adjustment

29. With the shutter operating mechanism cocked, i.e. the piston held in the mid-position, turn the cable adjuster in the end cap until the ball catches in the shutter casting engage in the holes in the shutter. Trip the actuating solenoid and ensure that the piston travels to the end of the cylinder.

### REMOVAL AND INSTALLATION

#### General

30. When the pod is not fitted, a capping plate (Pt. No. 10.20Y.9595A) must be fitted to protect the butt connectors, and to blank off the demisting connection.

#### FORWARD CAMERA

##### Removal

31. Remove the forward camera as follows:
  - (1) Open the nose section of pod, and secure with strut.
  - (2) Unlock the two Dzus fasteners, withdraw the camera and disconnect the cable assemblies from camera.
  - (3) Remove camera from pod (close and secure nose section if necessary).

##### Installation

32. Install camera as follows:—

- (1) Open nose section of pod (if necessary), and secure with strut.
- (2) Offer up camera and connect cable assemblies as coded.
- (3) Engage rollers in mounting bracket channel, push camera in to engage the spigots, and lock Dzus fasteners.
- (4) Stow strut, close nose section, and secure fasteners.

#### AFT CAMERA

##### Removal

33. Remove the aft camera as follows:—

- (1) Open tail section of pod, and secure with strut.
- (2) Disconnect cable assemblies from camera, unlock the two Dzus fasteners, and withdraw camera from pod.
- (3) Close and secure tail section if necessary.

##### Installation

34. Install the aft camera as follows:—

- (1) Open tail section of pod, and secure with strut.
- (2) Insert camera into mounting, ensuring that spigot is engaged. Lock Dzus fasteners.
- (3) Connect cable assemblies as coded.
- (4) Stow strut, close tail section, and secure fasteners.



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