Chapter 1 WIRELESS INSTALLATION

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LIST OF ILLUSTRATIONS

INTRODUCTION

1. The information in this chapter describes the V.H.F. wireless and telebriefing installation. Also included are *in-situ* servicing notes, together with removal instructions where the method is not apparent.

DESCRIPTION

A.R.I.5488 (T.R.1934) INSTALLATION

2. The installation consists essentially of a transmitter-receiver, Type 1934 and a control unit, Type 382, which enables the pilot to select any one of ten crystal-controlled frequency channels within a specified band. A complete and detailed description of the equipment is contained in A.P.2538HA, Vol. 1.

3. The location of the equipment in the aircraft shown in fig. 1, is as follows :— The transmitter-receiver is mounted in a rack contained in the ammunition compartment behind bulkhead 2, the control unit is mounted on the port instrument panel, and the mic.-tel. socket and associated terminal blocks are fitted to the forward face of bulkhead 2. The press-to-transmit push-switch is incorporated in the gyro gun sight twist grip control above the engine throttle box on the port side of the cockpit.

4. A whip aerial, Type 228, is fitted in the port boom with the whip section passing through the upper skin of the boom.

A.R.I.18012 (TELEBRIEFING) INSTALLATION

5. The telebriefing installation provides confidential briefing facilities over a closed landline between the pilot, in his aircraft

at readiness, and the operations controller in the telebriefing building. The connection between the aircraft and the aerodrome telebriefing system is made at a seven-pole plug located under a spring-loaded flap at the aft end of the port boom. A warning lamp on the port side of the instrument panel indicates to the pilot that telebriefing is connected to the aircraft, and a push-switch next to the warning lamp, is used when the pilot wishes to speak over the telebriefing system.

6. When the aircraft moves away from the operations readiness platform, the connector automatically disengages from the plug in the boom and the flap closes under the tension of the springs (*fig.* 1). Further information concerning telebriefing will be found in A.P.2876G, Vol. 1.

OPERATION

GENERAL

7. The following information concerning the V.H.F. press-to-transmit and telebriefing circuits should be read in conjunction with the wiring diagram (*fig.* 2). The function of the main units and components comprising these circuits is contained in the relevant Air Publications mentioned in the foregoing text.

PRESS-TO-TRANSMIT CIRCUIT

8. When the pilot presses the press-to-transmit push-switch, the contacts of the switch complete a fused 24-volts supply from J.B.1 to the operating coil of the Type Q, No. 1, relay and its contacts close. The relay has two pairs of contacts ; 3 and 4, 5 and 6. Contacts 3 and 4 connect the Mic+ line to the transmitter-receiver, while contacts 5 and 6 connect the press-to-transmit (P-to-T1) line to earth. Normal transmission can now take place. The mic.-tel. circuit to the transmitter-receiver is routed via the contacts of the telebriefing relay, when it is de-energized.

A.R.I.18012 (TELEBRIEFING) INSTALLATION

9. When the aircraft is connected to the telebriefing landline, the telebriefing relay is immediately energized and the pilot's mic.-tel. circuit is isolated from the V.H.F. transmitter-receiver and connected to the landline. This prevents confidential briefing information being transmitted should the set be switched on. The warning lamp on the port instrument panel lights when the telebriefing landline is connected to the aircraft. If the pilot wishes to speak to the telebriefing controller, he must press the push-switch adjacent to the warning lamp and keep it pressed while speaking.

SERVICING

GENERAL

10. The servicing of the wireless and telebriefing equipment in this aircraft is confined to *in-situ* checks of units and components. The full testing and servicing procedures are beyond the scope of this publication and reference should be made to A.P.2876G, Vol. 1 or A.P.2538HA, Vol. 1, as applicable. Before servicing or removing any equipment, the aircraft must be rendered electrically safe, as follows.

RENDERING THE AIRCRAFT ELECTRICALLY SAFE

11. The aircraft may be rendered electrically safe by opening the battery isolation switch on the main junction box 1.

A.R.I.5488 (T.R.1934) INSTALLATION

12. The V.H.F. transmitter - receiver is located in the ammunition compartment behind bulkhead 2 and is mounted in a rack secured to the aircraft structure by four anti-vibration mountings.

13. The set and its mounting should be inspected periodically for signs of damage or corrosion. All plugs and sockets should be disconnected and checked for signs of dampness, dirt or corrosion. All plug pins should be clean and intact and the locking rings on plugs and sockets must be clean and tight.

14. The control unit must be securely fixed to the instrument panel and the frequency selector switch on the unit must operate correctly and efficiently. Instructions concerning the servicing of plugs and sockets given previously apply also to the plug and socket on the controller.

15. The press-to-transmit switch in the gyro gun sight twist grip control and the telebriefing push-switch on the instrument panel should both be inspected for signs of damage. All connections must be clean and tight.

MIC.-TEL. SOCKET

16. The mic.-tel. socket on the seat, or on the front face of bulkhead 2 after the incorporation of Mod. 80, should be tested in all attitudes to ensure that the strain is taken by the check cord and not by the cables. The socket should be cleaned regularly internally and externally, so that it is maintained free from dirt or corrosion. Occasionally, a small quantity of oil should be smeared around the connecting screws inside and at the bottom of the connector.

AERIAL

17. The V.H.F. whip aerial on the port boom should be inspected for signs of deterioration. The rubber insulating grommet on the upper surface of the boom through which the aerial passes should not be perished. Access to the aerial mounting is through detachable panels on both sides of the boom. The mounting should be inspected to ensure that it is securely fixed

to the boom structure and the aeral connection must be clean and tight with no signs of corrosion.

FUNCTIONAL TEST OF A.R.I.5488 (T.R.1934) INSTALLATION

18. After the V.H.F. installation has been set up in accordance with the instructions laid down in A.P.2538HA, Vol. 1, the functional test consists of checking that the transmitter-receiver and its associated control unit are operating efficiently. The procedure for testing the installation is as follows :—

(1) Switch on the aircraft supply.

(2) Connect a standard mic.-tel. headset into the mic.-tel. socket. Switch on the V.H.F. set by selecting a suitable test frequency on the controller.

(3) If the set is operating correctly, background noise will be audible in the phones.

(4) Press the transmit push-switch in the throttle twist grip control and check that the background noise cuts out. With the switch still pressed, call the control tower for a report on transmission.

(5) Release the press-to-transmit push-switch in order to receive.

If the results are satisfactory, this completes the V.H.F. functional test. Switch off the set and the aircraft supply. Remove the mic.-tel. headset.

CONNECTORS, CABLES AND FIXED WIRING

19. Cables for the V.H.F. and telebriefing equipment should be checked for continuity and insulation resistance to earth. To prevent damage to condensers and other components by high voltage, connectors should be removed from the set before insulation resistance tests on cables are carried out. The insulation resistance between the following circuits must not be less than 30 megohms when tested with a 250-volt insulation resistance tester :—T+ and M+, T+ and M−, T+ and T−, T− and M+, T− and M−, M+ and M−.

BONDING AND SCREENING

20. To prevent interference with the V.H.F. wireless equipment, the aircraft bonding connections should be maintained in a clean condition with all connections tight. The resistance between the earth terminal and any part of the bonding system should not exceed 0·025 ohm.

21. Check that all connectors and metal braided cables throughout the aircraft are adequately clipped to prevent intermittent contact between the braiding and the aircraft structure. Check that clips intended to earth the casing of the V.H.F. transmitter-receiver make good contact with the casing and the bonding system.

TELEBRIEFING PLUG

22. Access to the telebriefing plug is through a spring-loaded flap on the underside of the aft end of the port boom. The plug must be clean and free from corrosion with all poles intact. Connections at the terminal blocks behind the plug are accessible after removing the panels on the inboard and outboard sides of the boom. These connections must be clean and tight.

REMOVAL AND REFITTING

GENERAL

23. There is no set procedure for removing equipment from the aircraft. Providing due care is taken during each operation little difficulty should be experienced. It is, however, important that the aircraft is rendered electrically safe beforehand.

A.R.I.5488 (T.R.1934) INSTALLATION

24. The V.H.F. transmitter-receiver unit is mounted in the radio compartment behind bulkhead 2, access to the set is gained through doors on both sides of the fuselage, between bulkheads 2 and 3. To remove the set, disconnect all plugs and sockets, unscrew the two knurled catches securing the set to its mounting and then slide the unit from its mounting. Refitting is the reverse of removal.

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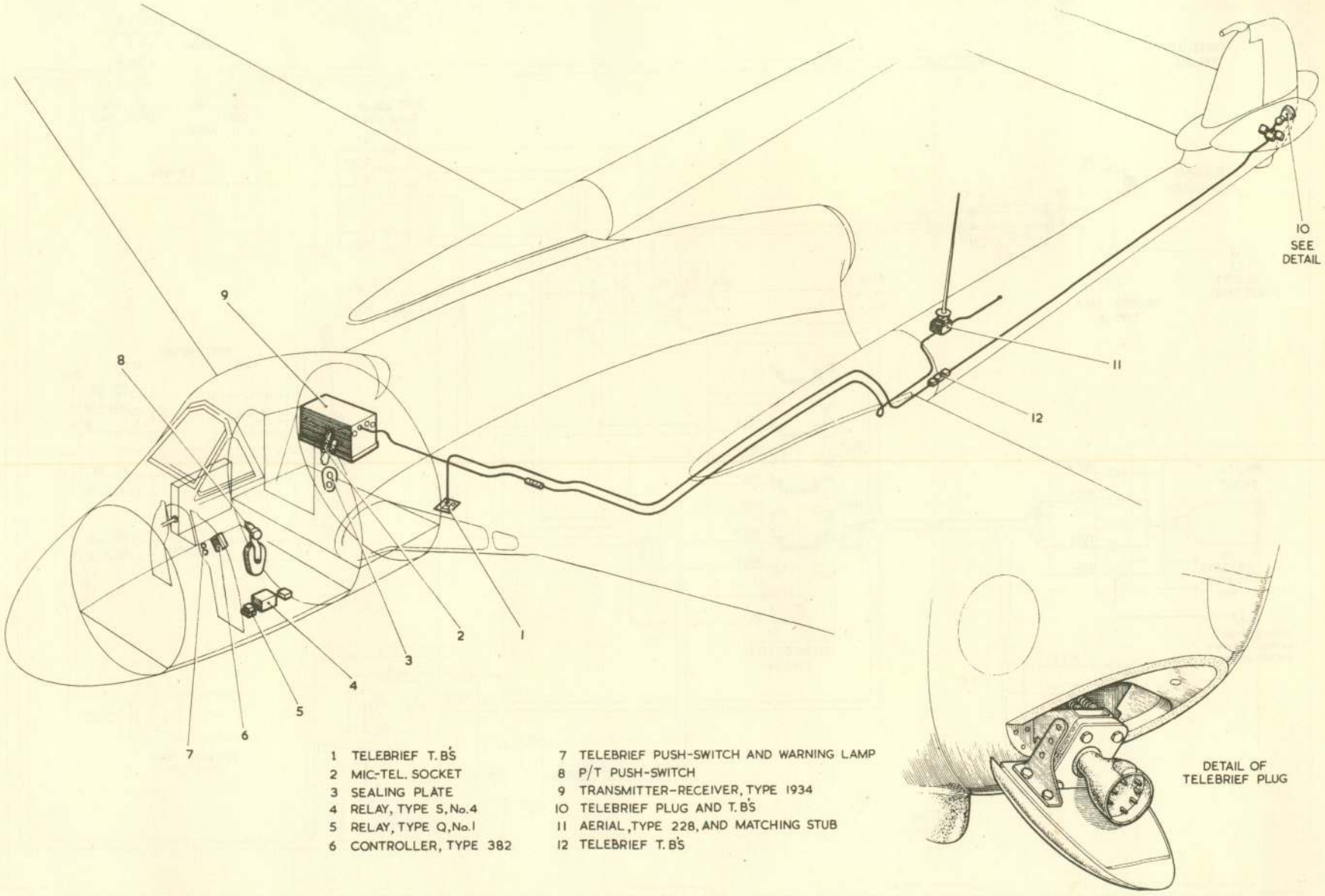

1 TELEBRIEF T.B'S
2 MIC-TEL. SOCKET
3 SEALING PLATE
4 RELAY, TYPE S, No.4
5 RELAY, TYPE Q, No.1
6 CONTROLLER, TYPE 382
7 TELEBRIEF PUSH-SWITCH AND WARNING LAMP
8 P/T PUSH-SWITCH
9 TRANSMITTER-RECEIVER, TYPE 1934
10 TELEBRIEF PLUG AND T.B'S
11 AERIAL, TYPE 228, AND MATCHING STUB
12 TELEBRIEF T.B'S

Fig. 1. A.R.I. 5488 and 18012 – location of equipment

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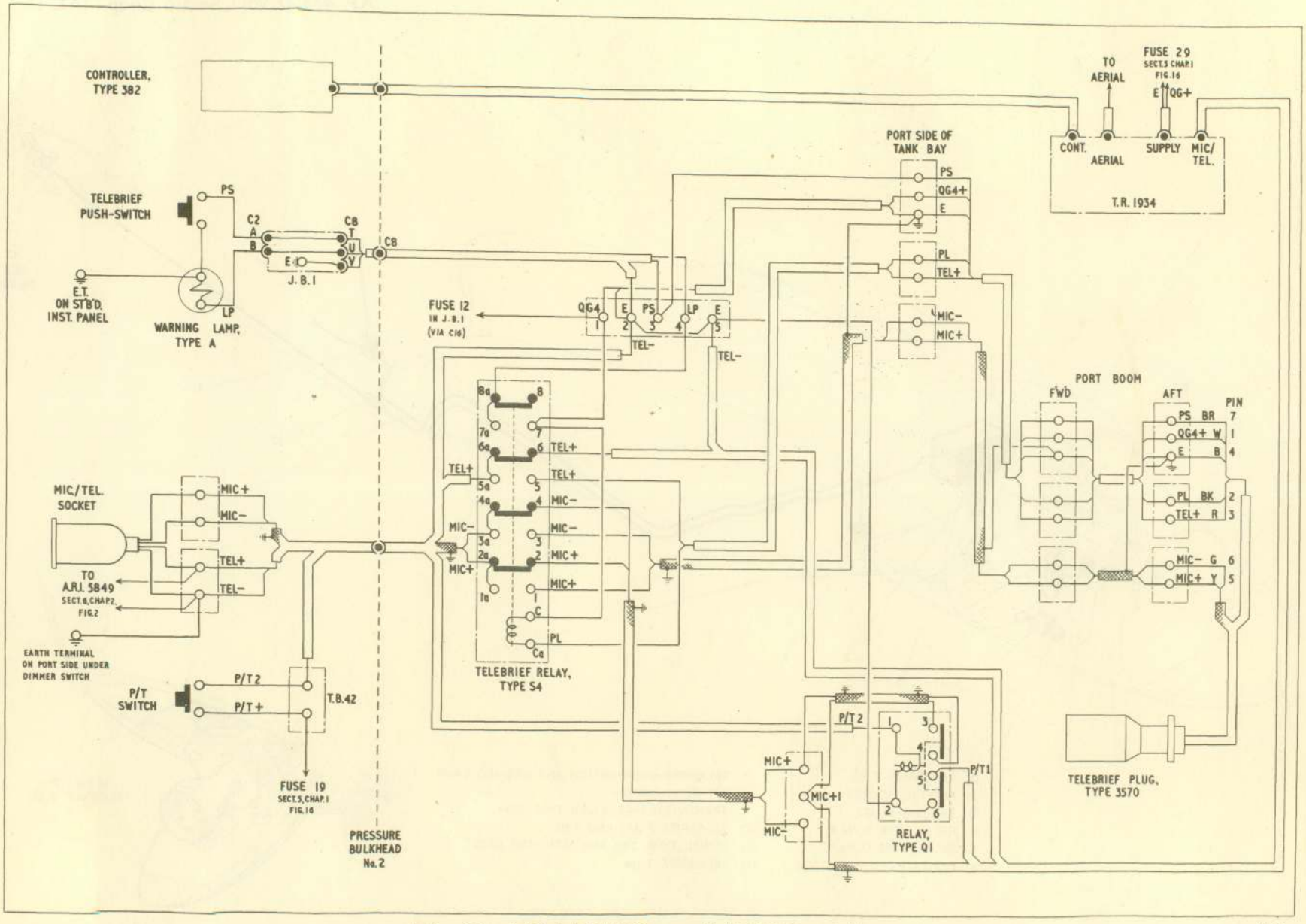

Fig. 2. A.R.I. 5488 and 18012 wiring

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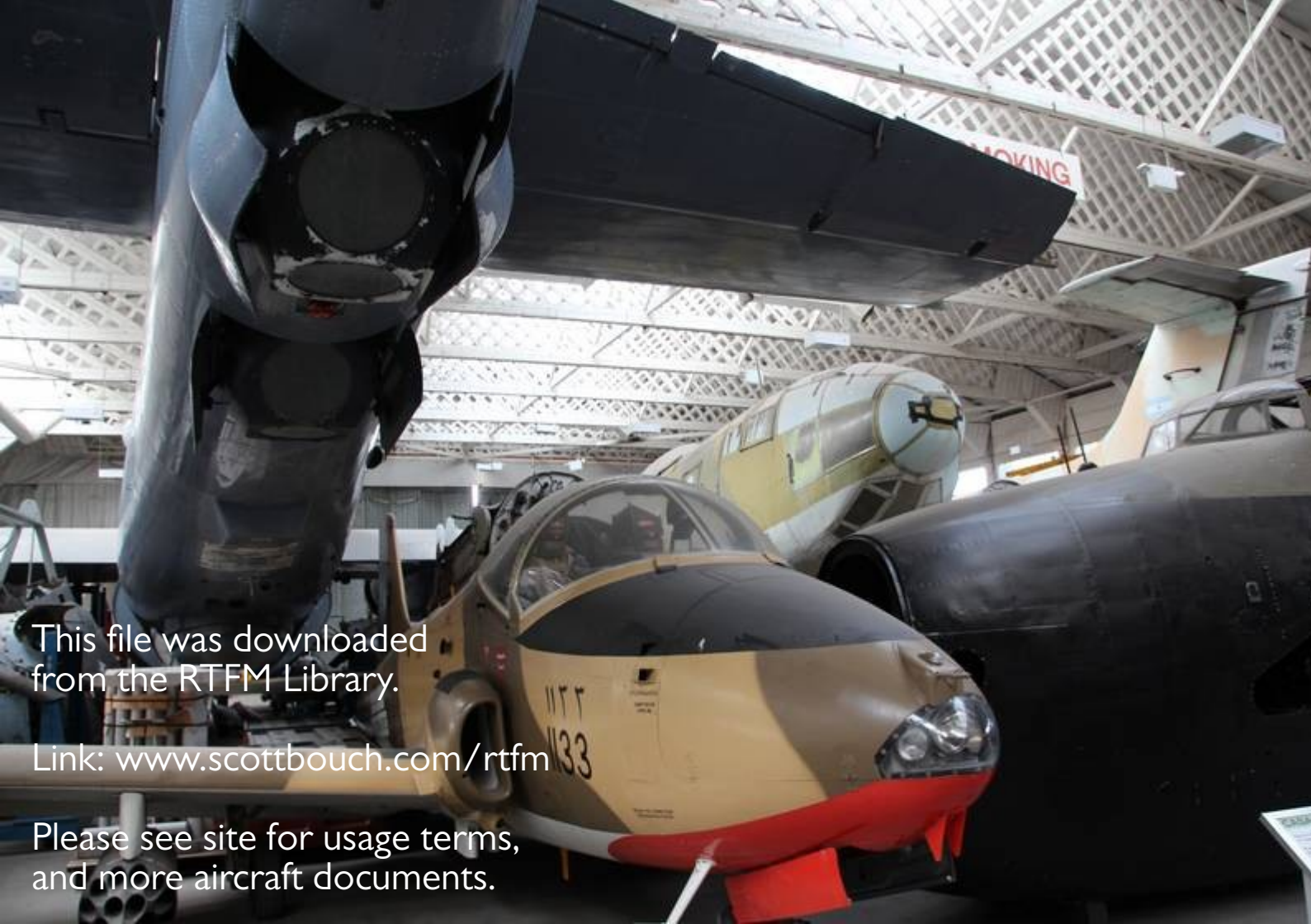

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