Chapter 7 GUIDED WEAPON INSTALLATION

(completely revised)

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LIST OF ILLUSTRATIONS

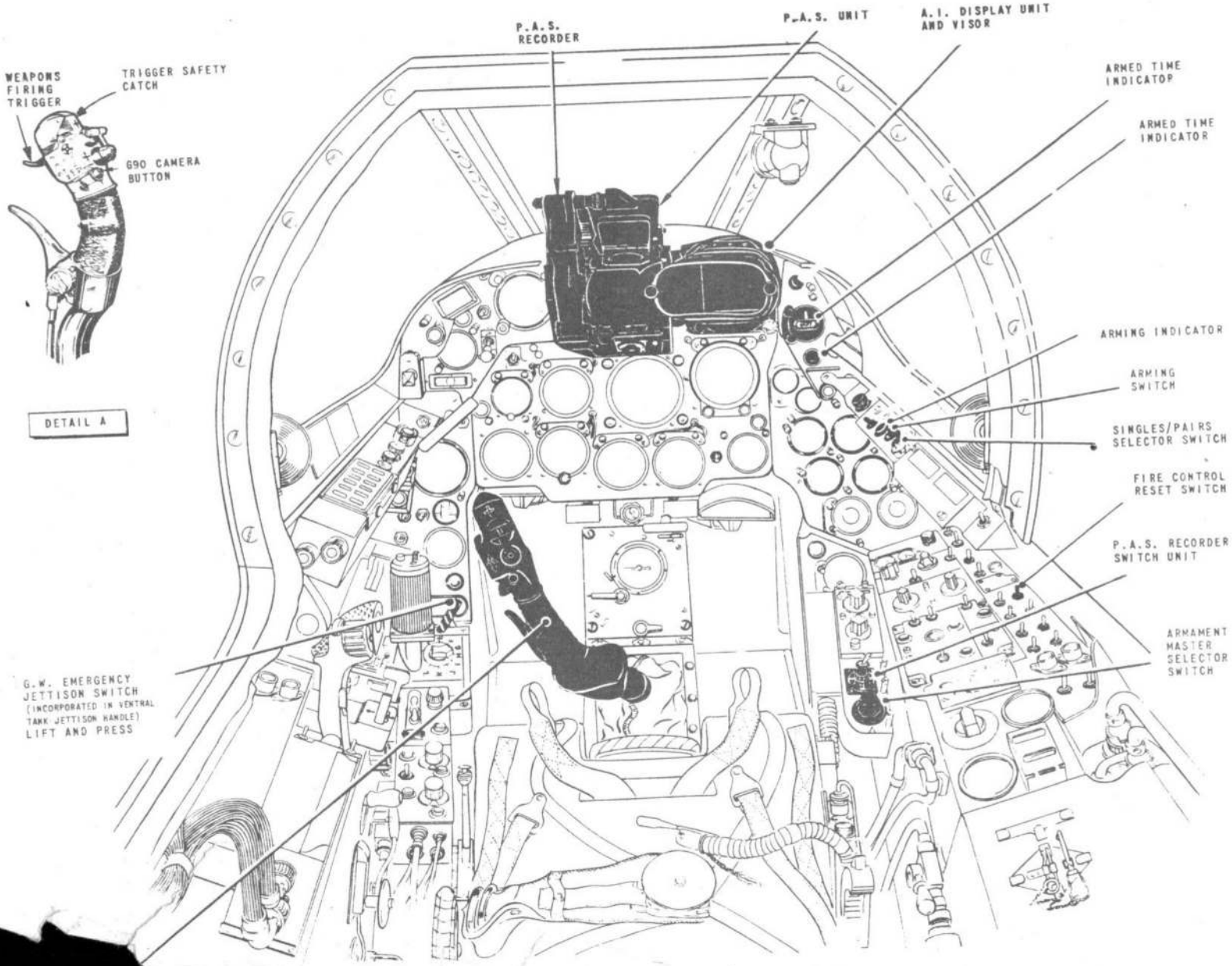

FIG. 1 CONTROLS AND INDICATORS

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DESCRIPTION

General information

1. The guided weapon installation comprises a removable pack, the two pylons of which each carry one Firestreak missile, and the associated cockpit controls and indicators *(fig.1)*. The weapon fire control equipment operates in conjunction with AI 23 and P.A.S. Mk.1. Air, hydraulic power and electrical supplies are obtained from the aircraft systems. Refer to A.P.2852B, Vol.1 and to A.P.4742, Vol.1, respectively, for information regarding the missile pack and the Firestreak missile.

Controls and indicators

2.

(1) *Armament master selector switch*
This is a four-position switch marked GUNS-GW-RB-OFF. With the alighting gear retracted and the AI 23 control switches set appropriately, selection of GW connects a supply to the AI system and to the pilot's attack sight *(P.A.S.)*.

(2) *SINGLES-PAIRS selector switch*
The position of the switch determines whether a single missile be fired or both simultaneously assuming that radar conditions are satisfied.

(3) *Arming switch*
This is a two-position switch marked ARMED which when switched on directs a supply to the selector valve controlling the hydraulically-driven alternator. This supplies power for the control components in the missile pack and for the electronic equipment in the missiles. A twin electro-pneumatic tap in the cold-air system is also actuated to supply cooling air to the missiles during the arming period and until they are released or the switch returned to the off position.

(4) *Arming indicator*
This is a blue lamp which is illuminated when the arming switch is moved to ARMED and remains on for a period of two minutes. This is required to enable the electronic equipment in the missiles to reach their operating temperature and to stabilize; until this time has elapsed the missiles cannot be fired. This indicator serves a secondary purpose in that, when the arming switch is set to ARMED, intermittent operation gives warning of an alternator failure or that the second missile has been fired.

(5) *Armed time indicator, Mk.2*
This instrument registers the elapsed arming and armed time from the moment that the arming switch is moved to ARMED. up to a maximum of fifteen minutes. After this period the missiles cold air and ammonia supplies will be exhausted. A lamp, illuminated when the indicator is operating, shows blue for the periods of arming and armed time, intermittent operation indicating that the armed period has expired; the arming switch should then be returned to off. A detailed description of the indicator is given in A.P.1275A, Sect. 27, Chap.16.

(6) *Fire control re-set switch*
When a period of arming time has been expended during ground servicing or flying operations, the control system must be zeroed by pressing the push-switch marked G.W.F.C.R. after the cold-air and ammonia supplies have been replenished.

(7) *Missile jettison switch*
The electrically-fired cartridge in each ejector release unit is in circuit with a guarded push-switch incorporated in the ventral tank jettison handle. Pressing the switch fires the cartridge to unlock the release unit jaws and eject the missile and shoe outwards and clear of the aircraft.

(8) *Weapons trigger*
With GW selected and the missile arming period completed, pressure on the weapons trigger will complete the firing circuit to the missile(s). The trigger is mounted on the control column handle and, when not in use, is hinged upward and secured by a safety catch.

Armament safety break

3. The armament safety break panel is located on the port side of the fuselage and is accessible on removal of panel 25P. The break consists of an electrical plug and socket which, when disconnected, renders all the aircraft weapon electrical firing circuits inoperative, and a warning pennant, in which is provided a pocket for the plug. To avoid the necessity of personnel leaning over the missile to insert the plug before flight, Mod.1927 and 1928 were introduced to transfer the break, by an extension cable and plug, to the rear compartment of the missile pack,

the break-operating lever being accessible through an aperture in the underside of the pack. The break takes the form of an inner and outer tube assembly, the outer tube housing the break socket and the inner tube mounting the plug. Movement of the inner tube up or down will insert or withdraw the plug to make or break the firing circuits, respectively. Alignment of the plug and limitation of the vertical movement of the inner tube are achieved by a transverse bolt passing through the assembly and through slots in the inner tube. From the break, an extension cable and plug assembly is led upwards through a split rubber seal covering an access hole in the lower shear web between frames 21 and 22. The plug replaces the normal plug and is inserted in the break socket on the panel, stowage being provided for the normal plug and pennant which are stowed whilst the missile pack is fitted. Indication that the pack safety break is disconnected is given by the projection of the inner tube from the bottom of the pack, the tube being painted red; there is no warning pennant.

SERVICING

WARNING

The relevant safety precautions detailed on the LETHAL WARNING marker card must always be observed before entering the cockpit or performing any operations upon the aircraft.

General information

4. Instructions for servicing the missile pack electrical circuits are given in Book 2, Sect.6, Chap.2.

Missile pylon aligning procedure

Introduction

5. It is essential that GW missiles be fitted to the aircraft within certain limits of accuracy in relation to the aircraft line of sight. To facilitate this, the rear dowel socket on the **pylon, which locates a corresponding** dowel on the missile shoe, is adjustable vertically, the structural tolerances of the missile pack ensuring that, with a serviceable pack, the pylons will be within the limits of accuracy in azimuth. A pylon-aligning attachment is fitted and is used, in conjunction with a 20 mm gun-aligning instrument, as described in para.8.

Equipment

6. To perform the pylon-alignment check, the following equipment is required:-

Description	Ref.No.
Stands, harmonizing, universal, Mk.2	4G/7224
Attachments, pylon-aligning, No.1	4G/7173
Instruments, aircraft weapon-aligning, basic instrument set	4G/7175
Comprising:-	
Instruments, aircraft weapon-aligning	4G/6778
Setting block	4G/7149
Wall bracket	4G/7172
Carrying case	4G/7148
Lightning adapter set	4G/7176
Comprising:-	
Foresight assembly	4G/7178
Instrument spigot assembly	4G/7179
Leveling peg	4G/7180
Carrying case	4G/7177
Adjustable spirit level	1B/4235
Instrument, gun-aligning, 20 mm	7G/1445
Spanner brace pack bolts (2)	26DK/95084
Key, pack bolts (2)	26DK/95364
Gauge, leveling, aircraft, longitudinal	26DK/95099
Gauge, leveling, aircraft, lateral	26DK/95100
Tool, crutching assembly	11A/5023
Allen Key 5/16 in.	1C/6250
Spanner, torque 10-50 lb ft	1L/156

Preparation of the aircraft

7. To prepare the aircraft for pylon alignment check:-

(1) Ensure that all armament switches are at OFF or SAFE.

(2) Site the aircraft with a clear space of at least 30 yards in front.

(3) Ensure that the pack-securing bolts are fully tightened. This should be done by two operators tightening the bolts from rear to front in pairs, and repeating the operation.

(4) Steady the aircraft by jacking the nose wheel *(Sect.2, Chap.4)* just clear of the ground.

(5) Refer to A.P.4483A, Vol.1, Part 1, Chap.17 and fit the weapons-aligning instruments to the aircraft.

(6) Set up the universal harmonization stand 1000 inches in front of the main

wheel axles and adjust the attitude of the diagram until, as viewed through the eye-piece of the weapons aligning instrument, the horizontal and vertical sighting lines of the diagram are aligned with those of the instrument graticule.

Pylon alignment check

8. To check the alignment of the missile pylons:-

(1) Remove the three socket screws securing each pylon base fairing and remove the fairing.

(2) Refer to A.P.4483A, Vol.1, Part 1, Sect.4, Chap.16, fit the pylon aligning attachment to either pylon and apply a crutching torque load of 10 lb/ft.

(3) Insert the rod of the 20 mm gun aligning instrument into the bosses of the aligning attachment, and secure it with the grubscrews in the bosses.

(4) Check the pylon alignment and adjust the rear locating socket, if necessary, as instructed in A.P.4483A, Vol.1.

(5) Repeat the alignment check of the other pylon, remove the instruments and refit the pylon fairings.

Re-arming the aircraft

Note...

With access panel 25P closed, there ... connecte... ensured, befo... loaded to the pylon...

that the safety break plug is in position and the normal plug and pennant stowed.

9. For details of the re-arming procedure refer to A.P.2852B, Vol.1, Sect.5, Chap.9, Appendix 1.

REMOVAL AND ASSEMBLY

Missile pack

General information

10. For manoeuvring prior to installation or for transporting from the aircraft to the servicing bay, the pack is mounted on a pallet supported by a mobile trolley base. For greater distances or for transporting over rough ground the trolley base is mounted on a transporting trolley which supports the trolley base with its wheels clear of the ground. The pack is hoisted into position in the aircraft by three built-in brace-operated winches, and secured to the longerons by six captive bolts. Special-to-type tools and ground equipment required for removal and installation are listed in para.11.

Equipment

11. For the installation and removal of the pack the following equipment is required:-

Description	Ref.No.
Trolley, transporting	4G/5561
Trolley, base	26DK/95185
Pallet, universal	26DK/95615
Brace, hoisting (3)	26DK/95719
Brace, pack bolts (2)	26DK/95084
Key, pack bolts (2)	26DK/95364

Prepara...

12. Before ... missile pack:

(1) Support the ... at frame 44 (*Sect.2...*

(2) Ensure that all arma... are at OFF or SAFE.

(3) Lower the cable adapters in readiness for attachment to the pack-hoisting points.

(4) Ensure that the services connections are prepared for mating with the corresponding connections in the pack.

(5) Withdraw the quick-release pins securing the nose-wheel rear door struts and allow the door to rest on the nose wheel.

Installation

13. To install the missile pack in the aircraft:-

(1) Ensure that the safety plugs are fitted to the ejector release units and that the armament safety break in the pack is in the 'engaged' position, i.e. the red inner tube is not protruding.

(2) If the trolley base, pallet and pack are mounted on a transporting trolley, operate the hydraulic jacks to lower the trolley base on to its wheels.

(3) Manoeuvre the trolley base to position the pack beneath the armament bay, with the pack hoisting brackets beneath the cable adapters.

(4) Insert the adapters of the two

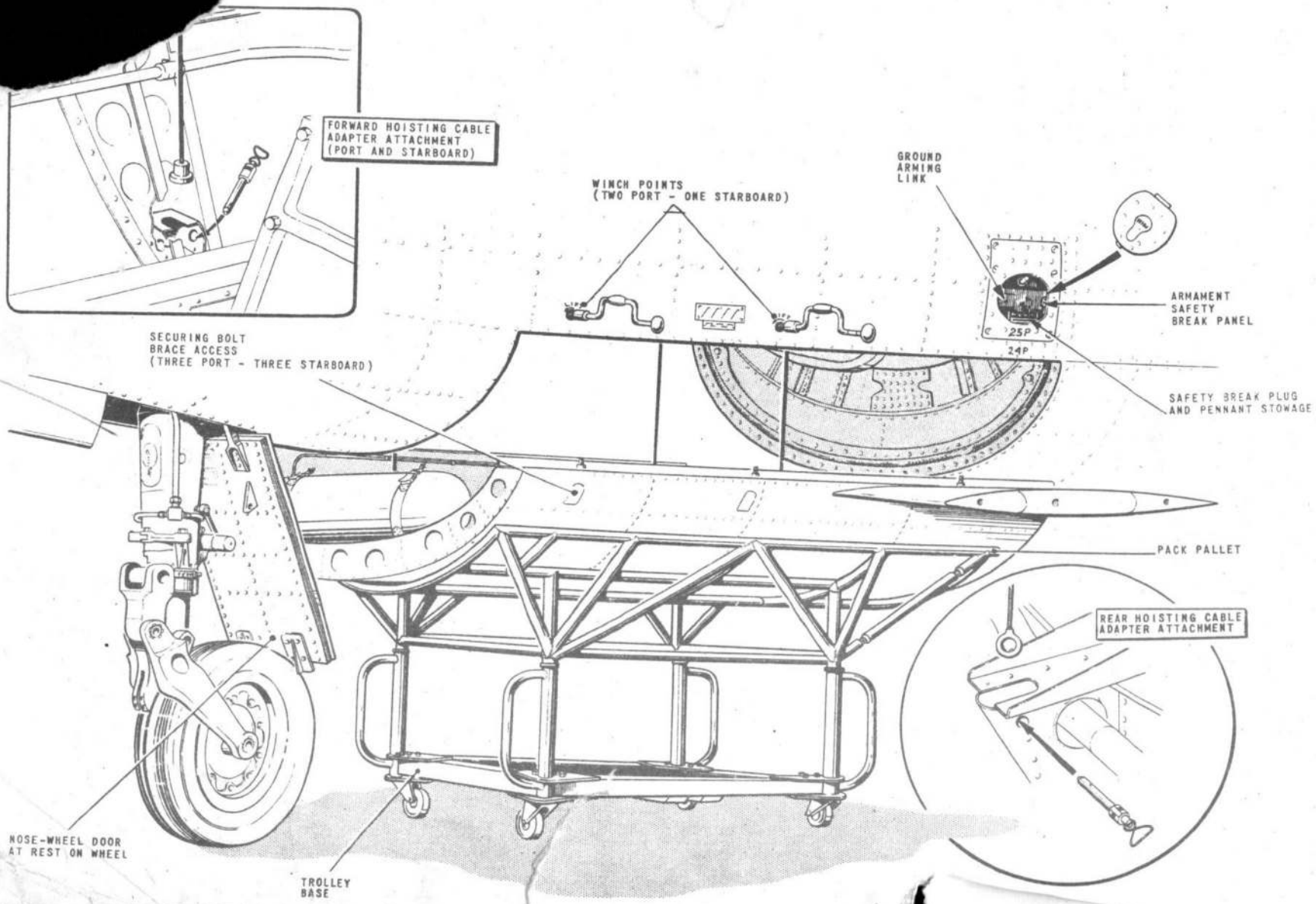

FIG. 2. MISSILE PACK INSTALLATION AND REMOVAL