Chapter 3 GUNNERY EQUIPMENT

LIST OF CONTENTS

LIST OF ILLUSTRATIONS

DESCRIPTION

General information

1. A combined engine hatch tank/gun pack is provided as an alternative to the No.1 engine hatch tank in the forward section of the ventral fuel pack. The pack accommodates two Mk.4 Aden 30 mm guns, an ammunition box, two empty-link compartments, two empty-case compartments and two fuel compartments. The starboard gun is mounted 8.4 in forward of the port gun.

Hatch tank/gun pack *(fig.1)*

2. The pack is of all-metal construction with a stressed skin exterior which forms a streamlined front section to the ventral fuel pack. The guns are mounted one in each side, with the ammunition box compartment between them. The spent cartridge cases are ejected into compartments behind the guns whilst the empty links are contained in a compartment below each gun; each empty- link compartment being formed by a detachable panel below the gun, the ammunition bay side-wall and the gun-bay access door. The upward hingeing access door may be completely detached during servicing by removing the hinge pip-pins; when closed the doors are secured by quick-release fasteners.

3. The compartments forward and aft of the ammunition bay are constructed to form two fuel tanks connected by two fuel balance pipes and one vent balance pipe. The fuel pipes pass along the outside, bottom of the ammunition com-

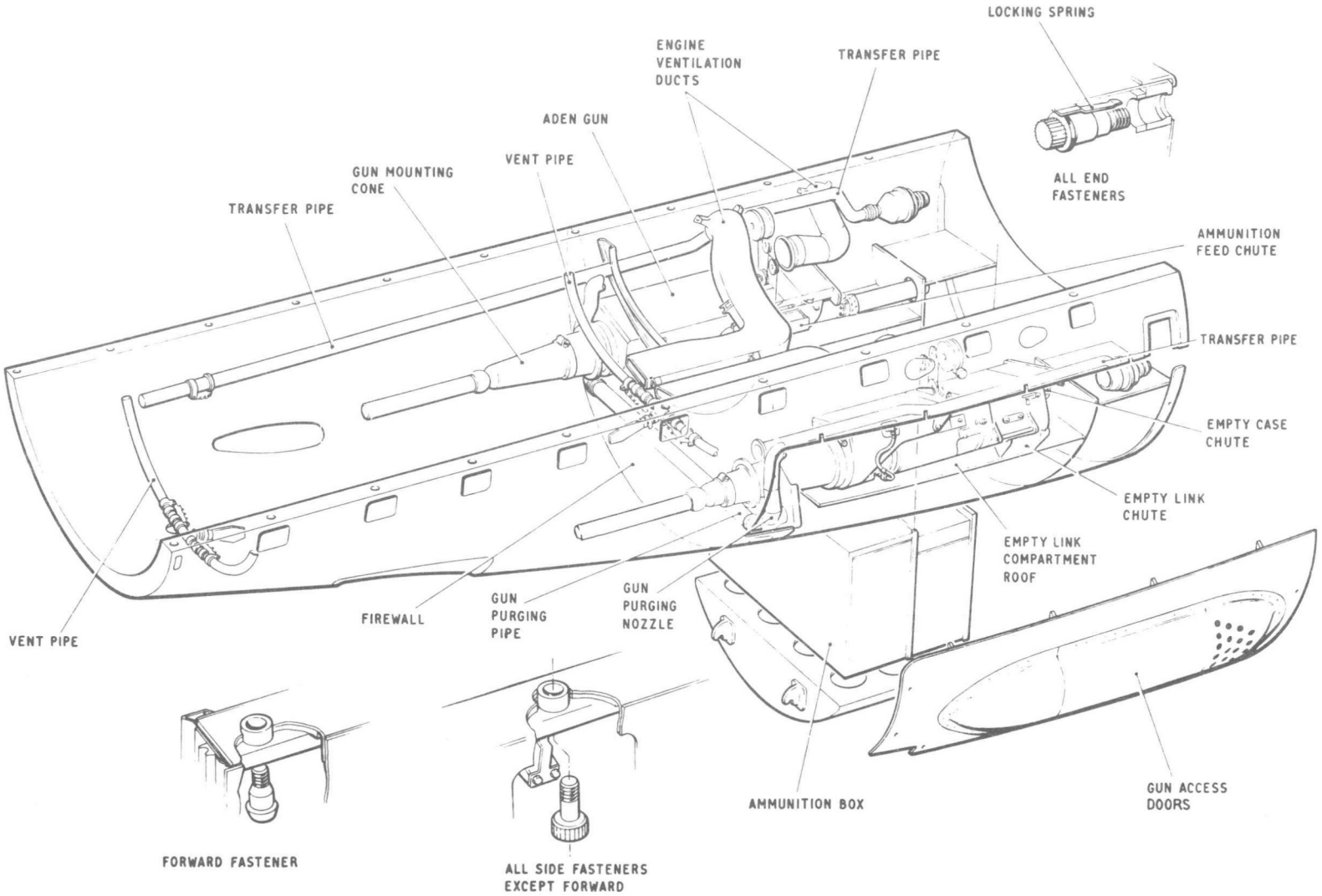

FIG. 1. ENGINE HATCH TANK/GUN PACK

6-8937-1

partment walls whilst the vent pipe passes across the top of the ammunition compartment.

4. Two manually-operated winch, pulley and cable systems are permanently built into the pack for hoisting the ammunition box into position, the winches being operated by detachable hand braces.

Forward gun mountings

5. The forward mountings, supporting the gun mounting cones, are bolted to the hatch tank structure, each mounting having six equally-spaced internal grooves through which are inserted corresponding lugs on the forward ends of the mounting cones, the latter being turned through 30 degrees to complete engagement. The spherical forward ends of the mounting cones, in contact with the bearing surfaces in the gun mountings, permit limited rotational movement of the guns when adjustment is necessary during harmonization.

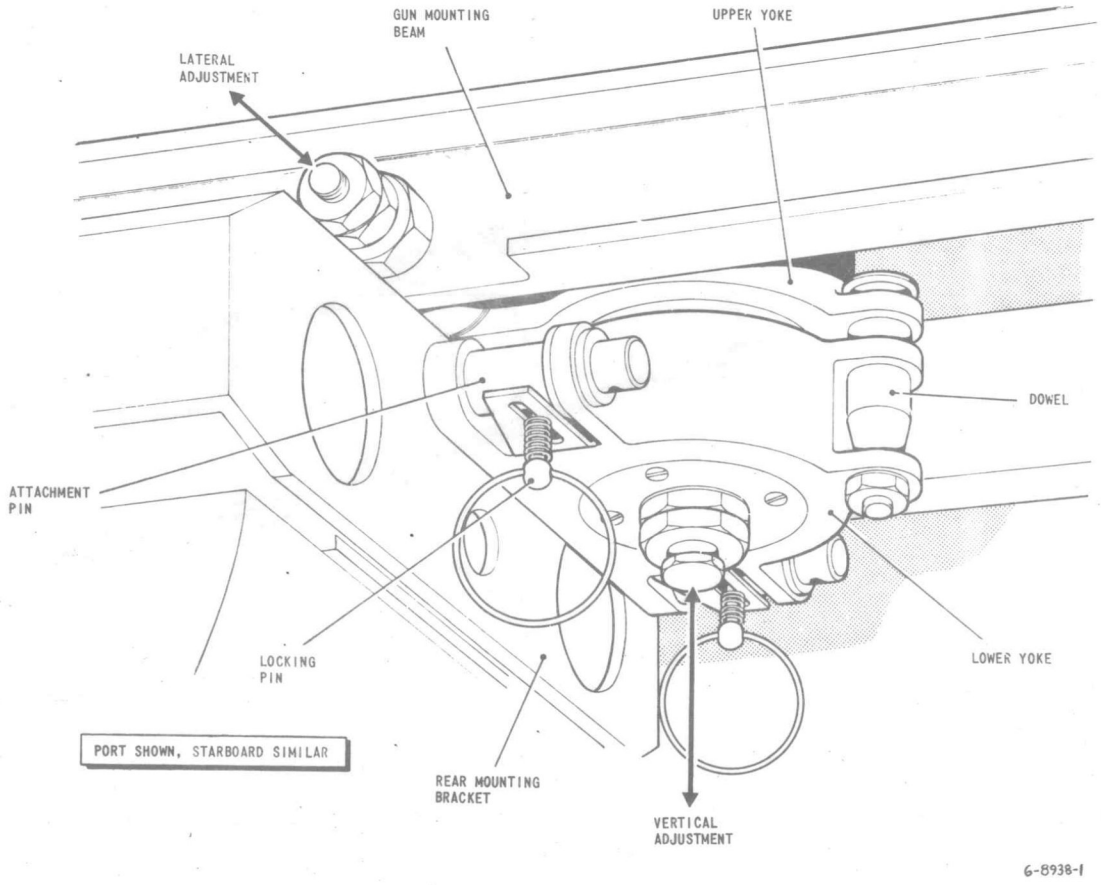

Fig. 2. Harmonization unit

Harmonization units *(fig. 2)*

6. The units, one to each gun, form an adjustable link between the gun rear mounting-brackets and the gun mounting beams in the pack. The units are identical except for handing and are attached to the gun mounting beams by the upper yokes and secured by the adjusting nuts and locknuts on the lateral adjustment spindles; the lower yokes are attached to the gun rear mounting-brackets by special pins secured by quick-release pins. The upper and lower yokes are linked internally by a large diameter spindle assembly which, when rotated, provides vertical adjustment by means of the fine-pitch threads around its circumference. The head of the spindle protrudes from the undersurface of the lower yoke and is locked with a locknut. A dowel located in lugs at the rear of the unit prevents rotation of the upper and lower yokes.

Blast tubes *(fig. 3)*

7. The tubes, which incorporate aperture plates and restrictor rings, extend from the forward gun mountings to the blast plates. The tubes are secured at the rear ends by clamping rings and at

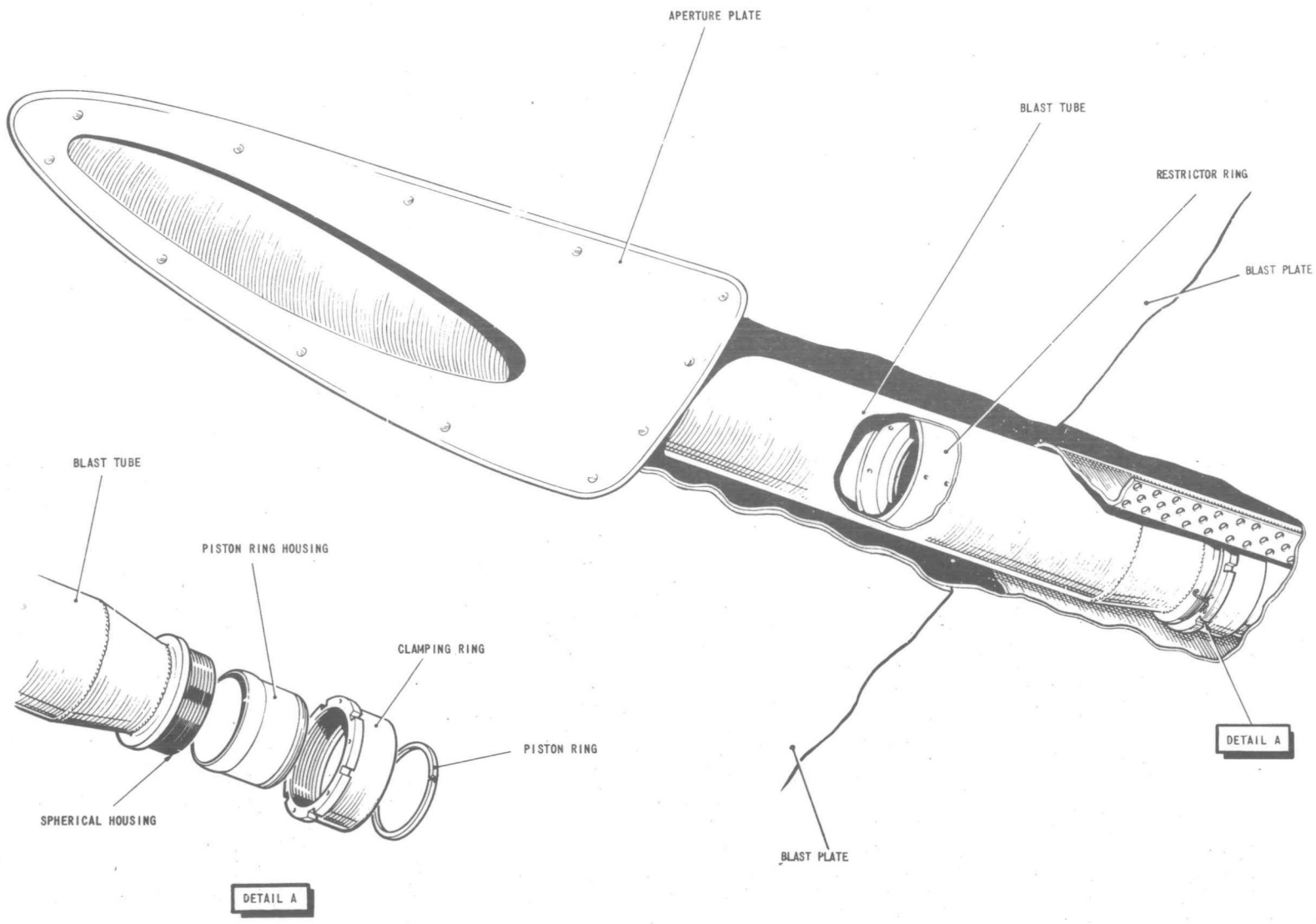

FIG. 3. BLAST TUBE

6-8939-1

the front end by the aperture plate flanges which are bolted through the blast plates and skin.

Gun-firing controls

8. With GUNS selected on the ARMAMENT MASTER SELECTOR and the weapons trigger on the control column handle depressed an electric current is passed to the guns, and then through the contact pin to an initiator in the base of the cartridge, causing the guns to fire. The weapons trigger, when not in use, is made safe by a catch on the control column handle and in addition the gun firing circuit cannot normally be activated until the alighting gear is selected up. The cockpit controls are illustrated in Chap.7 and the armament electrical systems and associated instruments described in A.P.101B-1006-1B.

Gun-purging system

9. A gun-purging system prevents the accumulation of explosive and corrosive gases in the gun bays when the guns are firing. Purging air is directed into the gun bays from a forward-facing retractable ram-air scoop on the port side of the gun pack, the scoop being operated by an electric actuator. The purging air is discharged overboard through extractors which form the rear portion of a blister located on the access doors.

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

◀ **10.** Instructions for the removal, fitting and servicing of the fuel tank and its fuel system components are contained in Sect.4, Chap.2. Those for the gun installation are contained in A.P.110J-0301-15F. The guns are serviced in accordance with A.P.110J-0104-15F.

Harmonization

11. The procedure for harmonizing the guns is detailed in Chap.8.

REMOVAL AND ASSEMBLY

Tools and equipment

12. For tools and equipment used in the following operations are listed in A.P.110J-0301-1. Gun loading and unloading operations are detailed in A.P.110J-0104-1.

Ammunition box – loaded

Removal

13. To remove the ammunition box:-

(1) Remove gun bay access doors.

(2) Ensure that the gun firing circuits are disconnected, the guns unloaded, and that the ammunition belts are clear of the feed chutes.

(3) Remove the ammunition box as detailed in A.P.110J-0301-1.

Assembly

14. To fit a loaded ammunition box:-

(1) Obtain an ammunition box loaded in accordance with A.P.110J-0301-1.

(2) Connect a loading strap to the leading link of each belt.

(3) Position the ammunition box beneath the box compartment of the aircraft and connect the winch cables to the ammunition box.

(4) Pass the loading straps through the appropriate feed chutes and gun mechanism, to an assistant stationed adjacent the port and starboard side of the aircraft.

(5) Ensure the winch turnbuckle is central and winch the ammunition box fully up into the compartment whilst maintaining a steady tension on the loading straps. Retain the tension on the loading straps until the guns are loaded.

(6) Refit the ammunition box compartment access door. ▶

◀ (7) Winch the ammunition box down to seat into the access door.

(8) When the guns are loaded and gun firing circuits are reconnected, refit the gun bay access doors.

Aircraft gun circuits

Testing

WARNING

Before commencing any circuit testing ensure that all guns are unloaded.

15. To test the gun circuits prior to gun loading:-

(1) Connect an external power supply to the aircraft and switch to ON.

(2) Remove the armament safety break key and check that the gun purging pressure warning lamp in the cockpit is illuminated.

(3) Set the armament selector switch to GUNS and set the trigger safety catch to FIRE.

(4) Using an adapter lead connect an ADEN GUN AIRCRAFT TEST SET unit to the supply socket for the PORT gun.

(5) Depress the firing trigger and ensure the PORT OUTER lamp on the test set illuminates.

(6) Connect the test set to the supply socket for the STARBOARD gun.

(7) Depress the firing trigger and ensure the STARBOARD OUTER lamp on the test set illuminates.

(8) Disconnect and remove the test set and adapter lead.

(9) Set the armament selector switch to OFF.

(10) Set the trigger safety catch to SAFE.

(11) Refit the armament safety break key.

(12) Switch OFF external power supply and disconnect from aircraft. ▶

TABLE 1

Tools and equipment

Ref. No.	Part No.	Description	Application/remarks
26DK/95084	EB2.88.2719	Spanner, brace	Pack front end bolts
26DK/95425	A1677	Spanner, ratchet	
1L/156		Spanner, torque	Pack side and rear bolts
1C/7151		Spanner, torque	
1L/9106392		Socket, 1/2 in. B.S.F., 7/16 in. W.	
26DK/1485435	EF5.88.53	Adapter, torque loading	
26DK/95884	EF3.88.2181	Guide spigot	Pack alignment (set of 4)
26DK/95866	EF3.88.2307	Trolley, handling	Used together
26DK/1485431	EF5.88.39	Former, front	
26DK/1485432	EF5.88.101	Former, rear	
26DK/1485434	EF5.88.281	Platform, gun lifting	
26DK/1485539	EF5.88.55	Trolley, ammunition tank	
26DK/1485540	EF5.88.343	Trolley, gun handling	
26DK/1485433	EF5.88.239	Strap, ammunition loading	
4GC/5703		Hoist, Minilift	
7R/753		Gun barrel removing tool