Chapter 3 GUNS

◄ (T Mk.8 aircraft only) ►

LIST OF CONTENTS

LIST OF ILLUSTRATIONS

Introduction

1. This chapter contains a description of the gun installation on T Mk.8 aircraft, together with information on servicing, including re-arming, removal and installation of the gun. Information is also given on the gun sights and camera gun, but this is not dealt with in detail. The gun itself is described in A.P.1641S, the gyro gun sight in A.P.1275E, and the G.90 camera gun in A.P.1355D. The harmonization of the gun will be found in A.P.1641S.

DESCRIPTION AND OPERATION

General

2. The gun installation consists of an electrically-fired and controlled 30 mm. left hand feed Aden gun semi-buried in the starboard undersurface of the front fuselage and enclosed by a fairing constructed in three removable portions located between frames 10 and 17B, the rear portion being integral with the starboard armament and radio access door. The ammunition box is hoisted by a hand winch into position above the rear of the gun, and the removable diaphragm is fixed on the port side, level with the box floor. Ammunition is passed to the gun through the feed neck. Empty links return to the box via the link chute, and empty cartridge cases are ejected through the case chute into the collector tank.

Gun installation (fig.1)

3. The gun is installed with its feed mouth uppermost in two mountings, one located at frame 12, and the other at frame 15. The front mounting allows the gun to be pivoted into a vertical position for servicing and removal. Harmonization adjustments are made at the rear mounting. The gun barrel is supported at a position just aft of frame 10.

Gun fittings (fig.2)

4. A number of special fittings are assembled to the gun. These fittings consist of a rear mounting bracket, Dunlop A.C.O.26079 cocking adapter, feed chute attachment, link chute attachment and lifting lug. The rear mounting bracket is bolted to the rear of the gun cradle. The cocking adapter is assembled to the gun, being located on the front face of the cradle. The feed chute attachments consist of two brackets positioned one on each side of the feed mouth in the feed casing, the feed chute from the ammunition box being attached to one bracket by spring-loaded pins carried on the feed chute and located with the other bracket by a lug, also on the feed chute, which engages with a pip-pin on the bracket. The link chute attachment is in the form of locking bars, located on each side of the link chute aperture in the gun, to which the link chute is attached by means of a spring-loaded locking plate and lever assembly extending across the rear of the attachments.

Front mounting (fig.3)

5. The gun front mounting is located at frame 12. The mounting consists of a spherical bush, which is carried in a housing in the former and retained in position by a castellated ring screwed into the rear of the housing and locked by a special locking plate. The gun is supported in this mounting by a trunnion at the forward end of the gun cradle and the complete assembly is secured in position by the cradle nut, which is screwed on to the trunnion and locked by a lock washer. The front mounting is adjusted and locked on assembly, so that the spherical bush may just move in the housing and retaining ring to allow for gun harmonization.

Rear mounting (fig.2)

6. The gun rear mounting, which also forms the harmonization assembly, is illustrated in fig.2. The rear mounting engages with the mounting bracket bolted to the rear of the gun cradle *(para.4)*, and the upper link is attached by the gun rear mounting pin assembly to two fittings on frame 15. The assembly consists of a traverse screw and locking sleeve. This screw carries a threaded housing containing a worm-driven eccentric assembly, which supports, by an attachment bolt, a stirrup-shaped universal link for attachment to the gun. The traverse screw and locking sleeve assembly is, as its name implies, used to traverse the gun during harmonization When the locking sleeve is slackened, rotation of the traverse screw will move the eccentric and housing assembly along the thread of the screw, thus traversing the gun horizontally according to the rotation of the screw. After adjustment, the locking sleeve must be re-tightened to lock the assembly. The eccentric assembly is employed, during harmonization, to elevate the gun to the required angle. Thus, when the nut on the bolt passing through the

adjusting worm in the centre of the eccentric housing is slackened off, rotation of the worm by its hexagon head drives the eccentric round its housing, thereby elevating the gun according to the direction of rotation. After adjustment, the nut on the bolt through the worm must be retightened to lock the assembly.

Gun barrel support (fig.4)

7. A mounting plate bolted to a bracket on the structure between frames 10 and 11 carries the flanged gun barrel support on two studs. Within the barrel support is a spherical bearing integral with a short tube in which the gun barrel rests. This bearing assembly is secured to the barrel support by a knurled retaining ring, tightened so that the bearing is just capable of movement.

Ammunition box (fig.1)

8. The ammunition box is in the form of a removable box structure with a floor, detachable lid, an internal feed chute and the upper portion of the link chute. Two fittings are provided on the fore and aft sides of the box for the attachment of the hoisting cables. The box is secured in the aircraft by three pip pins at the base of the box, two short pins on the outboard side, and one long pin on the inboard side. The internal feed chute carries the ammunition to the gun, whilst the empty links are forced up to the top of the box via the link chute. The empty links are kept separate from the live ammunition by a canvas sling.

Feed chute (fig.1)

9. The removable feed chute extends from the built-in portion integral with the ammunition box *(para.8)* to the attachments on the gun *(para.4)*. It is of welded stainless steel construction, being curved and formed so as to convey the ammunition to the gun in such a manner as to prevent excessive belt drag as the gun is fired. The chute engages with its associated built-in portion, and is attached to the gun fittings by a locking latch assembly. The chute is also provided with a small door, which can be opened when it is necessary to break the ammunition belt.

Link chute (fig.1)

10. The upper portion of the link chute is attached to the starboard side wall of the ammunition box. The attachment at the upper end consists of a bar passing through two slotted brackets on the box, permitting the chute to be moved up or down to facilitate fitting adjustments, harmonization or removal. A pair of attachment brackets on the lower end receive the ends of two spring-loaded pinch bolts fitted on the chute centre portion. The centre portion is fitted with a small door for access when breaking the ammunition belt. The door is held in position by one of the pinch bolts. The centre and lower portions of the link chute are pivoted together, the lower portion being secured to the gun by the link chute attachment described in para.4.

Port diaphragm

11. The structure on the port side is completed by the fitting of a diaphragm after the installation of the ammunition box. This diaphragm has identical pick-up points as the floor of the ammunition box, and is secured by similar pins.

Note . . .

Both the ammunition box and diaphragm are stress-bearing components which MUST be fitted before flight.

Empty case chute and collector tank (fig.1)

12. The gun ejects empty cartridge cases through a chute into the collector tank. The case chute comprises a removable forward portion, an intermediate adapter assembly, and a rear portion attached to the collector tank. The forward portion is a push fit over the spherical end of the ejection tube of the gun. The rear end of the forward portion is fitted with a spring-loaded bayonet release, the bearing of which rests in the spherical bearing of the adapter assembly which is fixed in a transverse vertical diaphragm aft of frame 16. The empty case collector tank is fitted to the starboard armament and radio access door. The detachable lid is secured on the inboard side by a pair of hooks, and on the outboard edge by a spring bolt assembly. From the forward face, and integral with the tank, the case chute rear portion projects to align with the fixed adapter when the access door and tank are secured to the aircraft. A deflector is fitted at the rear of the chute inside the tank. A ventilating duct, the flange of which is bolted to the tank, protrudes through the skin of

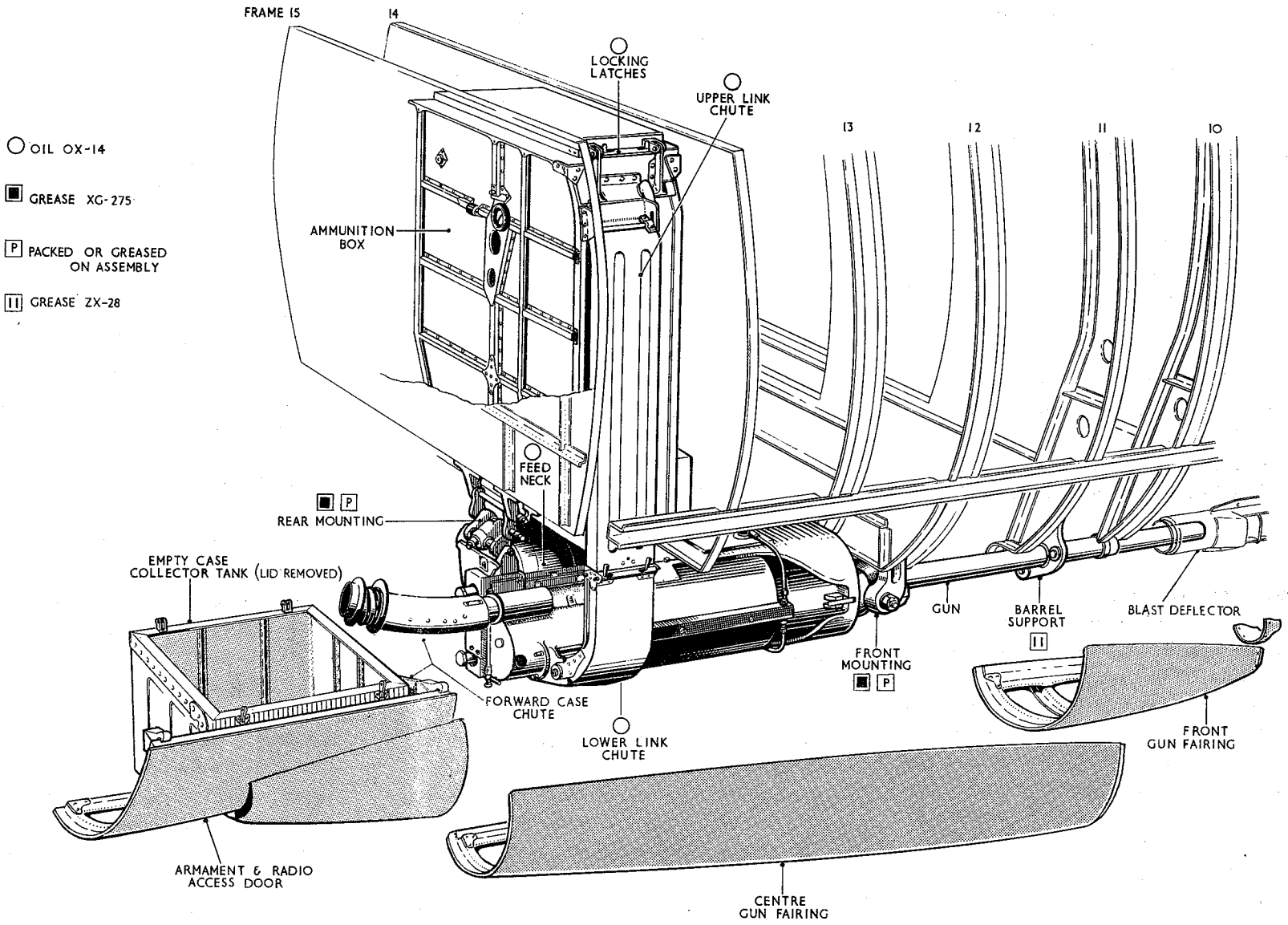


Fig.1 Gun installation and lubrication

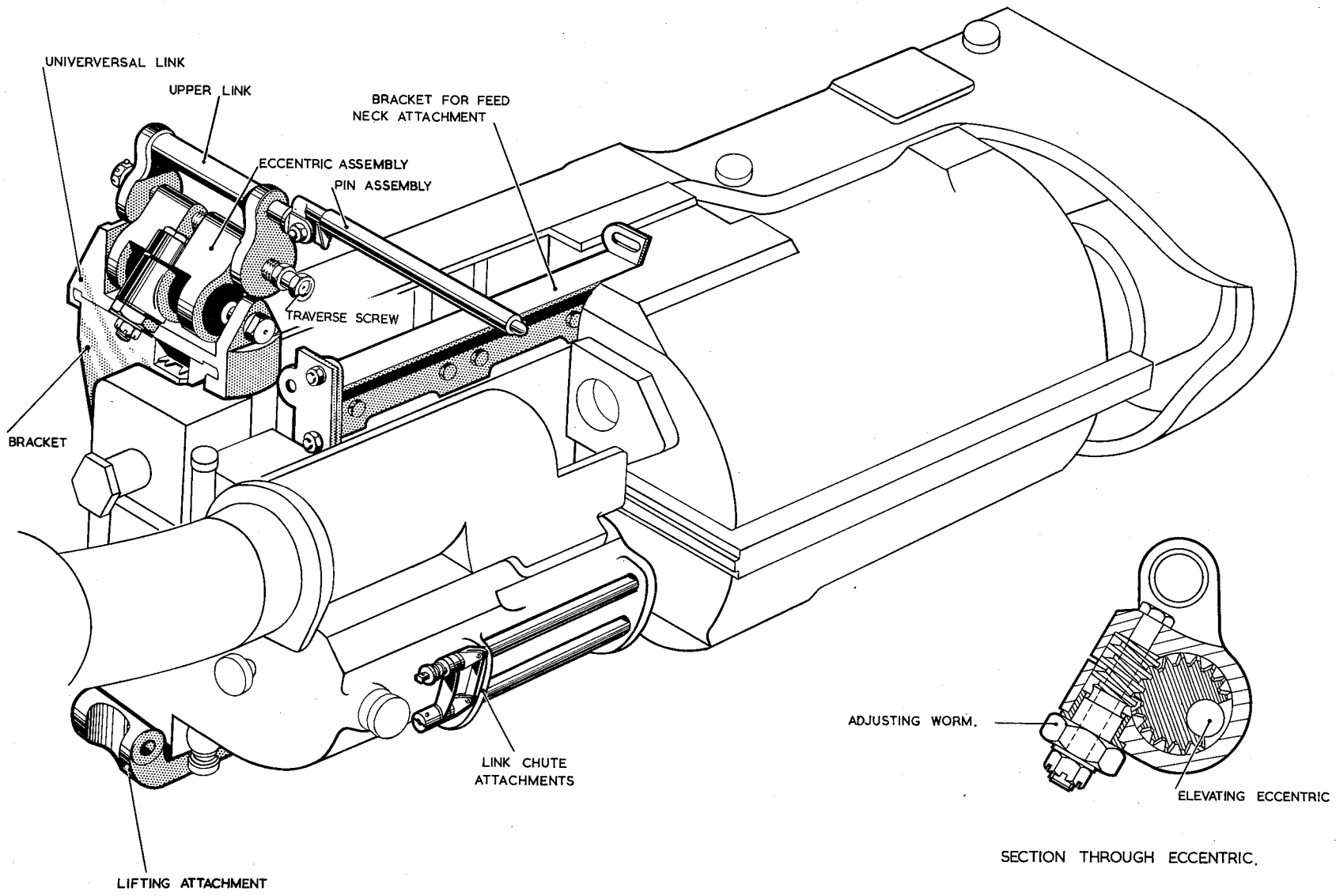


Fig.2 Gun rear mounting, attachment bracket and fittings

the access door into the attached gun fairing rear portion. The armament and radio access door incorporates a spring bolt assembly which engages a support bracket on the transverse vertical diaphragm aft of frame 16, and supports the tank and door after the toggle fasteners described in Sect.2, Chap.4 have been released.

NOTE . . .

When withdrawing the spring bolt it must be borne in mind that the collector tank attached to the door may contain up to 70 lb. of empty cartridge cases.

Cocking

13. The gun is cocked pneumatically, in-situ, by use of a cocking valve system supplied with compressed air at a pressure of 1,200 p.s.i. from a ground servicing trolley. The quick release coupling engages with the cocking unit adapter fitted to the gun. Instructions for cocking the gun, and a description of the gun cocking unit and cocking valve system, is to be found in A.P.1641S, Vol.1, Part.1.

Gun heating (fig.5)

14. The gun installation is heated by air taken from a restricted tapping on the engine compressor, the supply being regulated automatically by an electrically-operated hot air valve, which is controlled by a Type F.H.O./A/96 thermostat located on the forward face of the transverse diaphragm aft of frame 16. From the connection on the engine compressor casing, the hot air is conducted by a metallic flexible

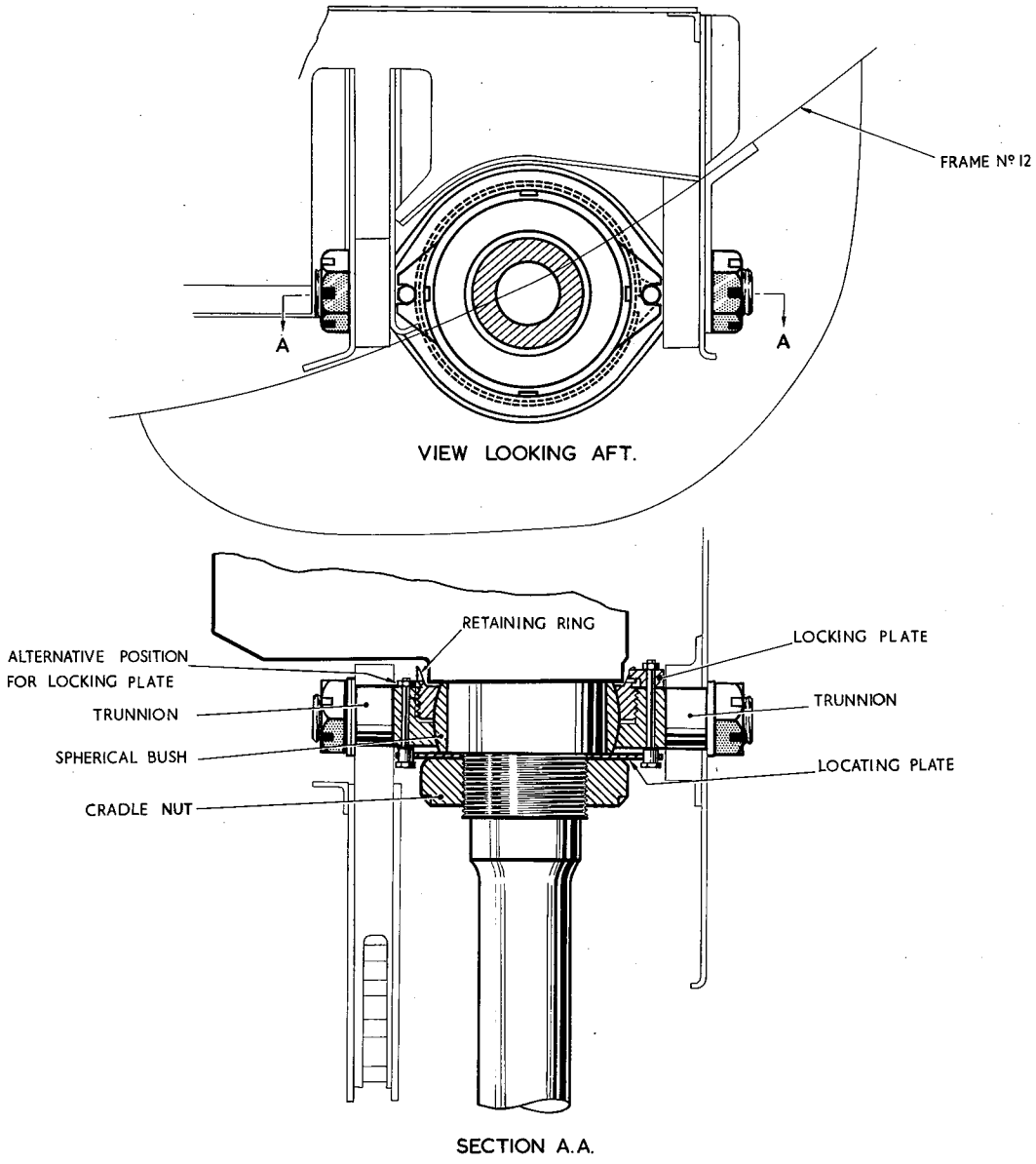


Fig.3 Gun front mounting

hose which passes around and down the starboard face of frame 33, diagonally across the bottom of the fuselage, and extends forward to the hot air valve mounted on the forward face of frame 19 *(fig.6)*. From the valve, a pipe line conducts the warm air to the rear of the gun. The operation of the electrical circuit controlling the installation is described in A.P.4347H, Vol.1, Book 2, Sect.5, Chap.1, Group G1.

Gun ventilation

15. The gun installation is automatically ventilated during firing by air which enters a hinged scoop lowered into the airstream, and exhausts from the open end of the rear portion of the gun fairing. An access door in the undersurface of the fuselage *(Sect.2, Chap.4)* between frames 12 and 14, carries the scoop, which is lowered and retracted by an electric actuator. A description of the electrical circuit controlling the scoop actuator is to be found in A.P.4347H, Vol.1, Book 2, Sect.5, Chap.1, Group G1.

Gun sights and camera recorder

16. The two Mk.8 gyro gun sights, either of which is used to sight the gun, are carried on fixed mountings bolted to a mounting tube on frame 8 and a cross beam on frame 7, one on each side of the centre instrument panel. The operation of the electrical circuits for the gun sights and camera recorder is described in A.P.4347H, Vol.1, Book 2, Sect.5, Chap.2, Group 4A. The gun sights are described in A.P.1275E, and the camera recorder in A.P.1355D, Vol.1, Sect.3.

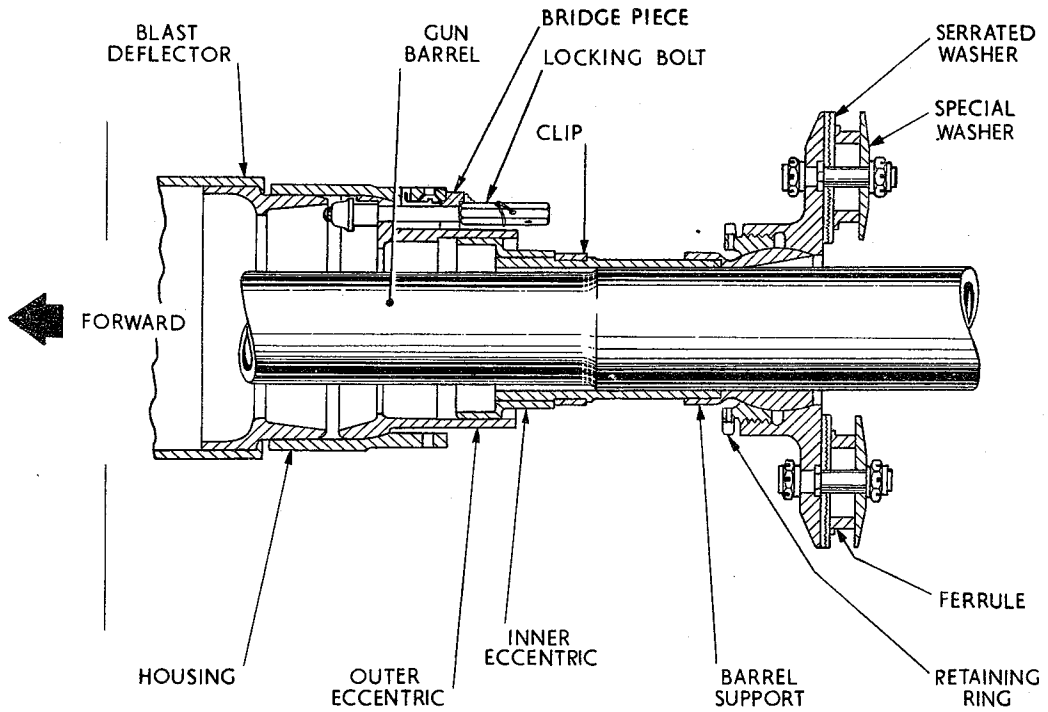
Camera gun

17. A G.90 camera gun is located on a mounting platform installed in the fuselage nose structure just forward of frame 1C and is focussed through a vision tube riveted to the skin. The camera is operated whenever the gun is fired, but can also be operated independently if desired by pressing the camera push switch at the top of either control column handgrip. The operation of the electrical circuit controlling the camera is described in A.P.4347H, Vol.1, Book 2, Sect.5, Chap.1, Group G.1, while a description of the camera itself will be found in A.P.1355D, Vol.1, Sect.1.

SERVICING

General

18. The following paragraphs contain information on how to service and handle the ammunition box, including the special



◀ Fig.4 Gun barrel support ▶

tools and equipment required. For information on the servicing of the gun itself, reference should be made to A.P.1641S. When servicing the installation all the standard safety precautions applicable to Aden 30 mm. guns must be observed and the main electrical supply lead to the gun must be disconnected before commencing operations. Particular care must also be taken not to damage access doors, empty case and link chutes by careless handling. ◀ If the blast tube seal *(introduced by Mod. 745)* is fitted at the rear end of the blast deflector, it should be dismantled periodically and cleaned by soaking in stripalene cleaner *(Ref.No.33C/1489)* to remove carbon. All sealing surfaces and eccentrics are to be lightly coated with grease ZX-28 on reassembly. After servicing, ▶ ensure that all access panels are replaced and are properly secured.

Special tools and equipment

19. The equipment listed in table 1 is required for the servicing and removal operations detailed in this chapter.

Trolley

20. To assist in the transportation of the gun and ammunition box, a trolley Ref.No. 4G/5455 is provided. To convert the trolley for transporting the ammunition box, an adapter *(item 3)* is provided. When using the trolley to transport the Aden gun an adapter *(item 4)* is required, and is used in conjunction with the gun cradle *(item 5)*.

Ammunition box adapter *(item 3)*

21. This adapter is fitted on the trolley, resting on the transverse member, and is secured in position by a pair of clips which are tightened by wing nuts. The box, when fitted, is secured by two pip pins, one of which is on the adapter and the other on the base of the box, these pass through the outboard corners of the box into the adapter.

Gun lifting cradle adapter *(item 4)*

22. The cradle adapter is fitted to the trolley by engaging the spigots of the trolley with the two holes provided in the channel of the adapter. The adapter is fitted to the trolley to enable the gun lifting cradle to be attached.

Gun lifting cradle *(item 5)*

23. The gun lifting cradle is provided to enable the gun to be transported on the trolley, and also to assist in raising and lowering the gun to and from the gun front bearing. On the cradle are two threaded spigots which engage with the threaded bosses provided on each side of the gun and enable the gun to be secured to the cradle when lifting or lowering from the aircraft.

TABLE 1

Item	Ref.No.	Part No.	Equipment
1	26FX/95234	B.199253	Strut, tail end (for use during gun removal)
2	4G/5455	-	Aden gun trolley
3	26FX/95674	D.226308	Trolley adapter for ammunition box
4	26FX/95675	C.226309	Trolley adapter for gun cradle
5	26FX/95678	D.224222	Gun cradle
6	26FX/95707	E.223262	Hoist support tube
7	26FX/95683	B.224119	Lifting hoist
8	26FX/95677	B.223910	Gun hoist brace
9	26FX/95680	A.223952	Extension for gun hoist brace
10	26FX/95676	C.223647	Gun lifting attachment
11	26FX/95706	A.222402	Spanner for gun installation
12	26FX/95516	C.215976	Tool for alignment of gun barrel support
13	27Y/2373	RS.181/32	Spanner for barrel support retaining ring
14	26FX/95729	E.230827	Gun alignment equipment (complete in box)

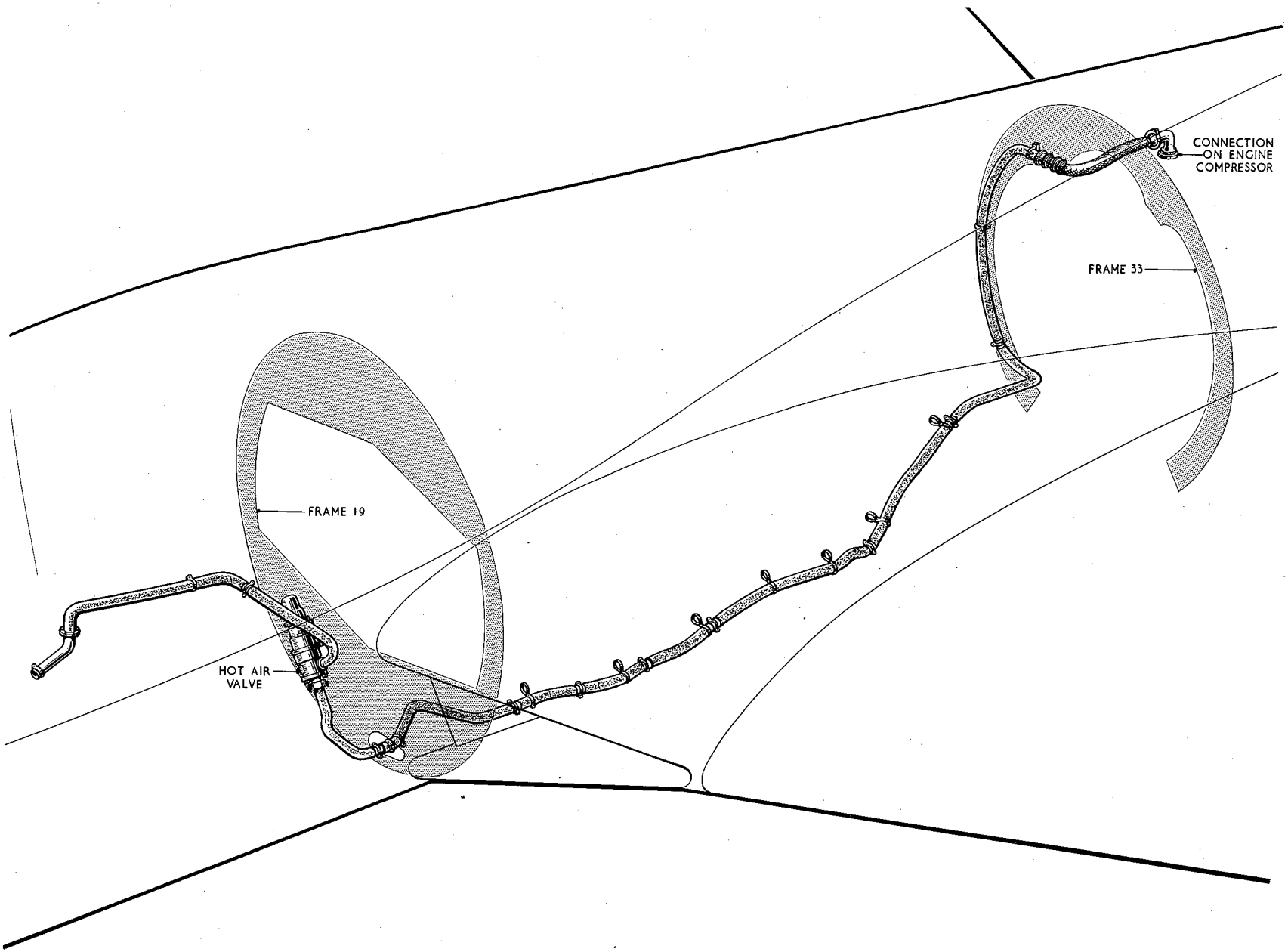


Fig.5 Gun heating installation

Hoist *(item 7)*

24. The hoist consists of a gear box and winding drum between two side plates. Attached to the drum is a length of cable, and tied to the side plates are two pip pins. An attachment is fitted to the drum to receive the hand brace to enable the cable to be wound onto the drum. There are two positions marked on the side plates which show the position for the brace when using the hoist for gun lifting or lifting the ammunition box.

Support tube for hoist *(item 6)*

25. This is used as shown in fig.9 in conjunction with the hoist which is pip-pinned in the side plates at the lower end by use of the two pip-pins provided on the hoist, and a further pip-pin which is attached to the side plate of the support tube. To fit the support tube into position, the 'U' bracket is engaged with the under-surface of the longeron. At the top, the support tube is secured by threading the attached spigot into the hole provided in the aircraft structure.

Gun hoisting

26. When hoisting the gun, the hoist is attached to the aircraft by two pip-pins into the tee-sectioned floor members forward of the diaphragm aft of frame 15. The hoist is operated by first attaching an extension for the hand brace *(item 9)* into the appropriate position on the winding drum, and then fitting the hand brace to the end of the extension. The gun lifting attachment *(item 10)* is fitted to the lifting attachment lug on the rear of the gun *(fig.7)*. The cable from the drum is then attached to the top of the lifting attachment.

Lubrication

27. The lubrication of the gun installation is indicated on fig.1.

Ammunition box, feed neck and link chute

28. These components should be kept clean and dry and be checked for security, damage and freedom of operation. The roller assemblies and lid locking mechanism should be lubricated. If a complete roller is replaced the shim under the assembly must be refitted. The link chute and the feed neck should be cleaned, any burrs removed and the locking bolts lubricated. When the box is removed from the aircraft, the rollers, pulleys, guide rails and mountings on frames 14 and 15 and the lower structure should like-wise be serviced and the hoisting cables inspected.

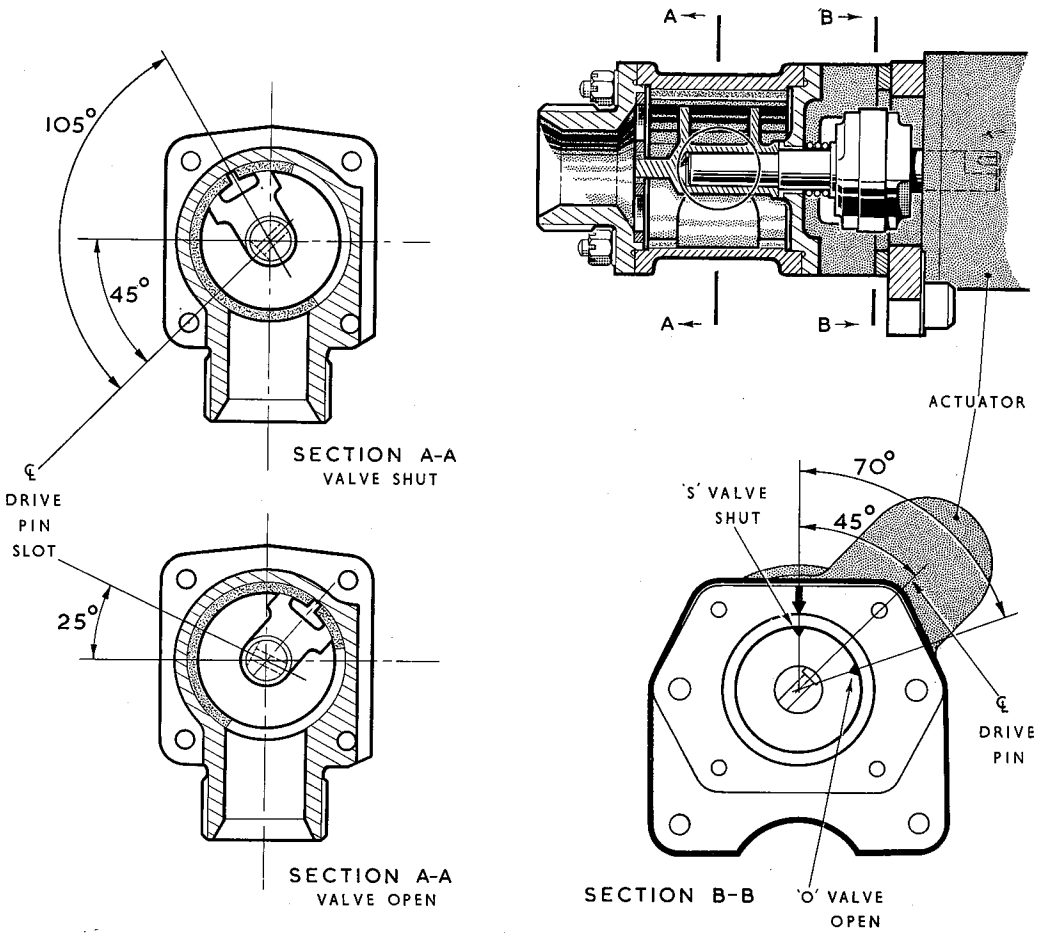


Fig.6 Hot air valve

Port diaphragm

29. The port diaphragm should be inspected for damage and the mountings cleaned and lubricated.

Empty case chute and collector tank

30. These components should be kept clean and dry. Check for security, damage and freedom of operation. The lid locking mechanisms should be lubricated and the fixing of the tank to the access door should be checked. Any burrs should be removed from the two portions of the chute and the adapter.

Hot air valve *(fig.6)*

31. Whenever it is necessary to change either the actuator or the valve of the hot air valve assembly in the gun heating system, the following tests should be made to ensure correct assembly of these components:-

(1) When fitting the actuator in the valve, care should be taken to ensure that the actuator driving pin engages correctly with the valve spindle. The two components should slide together freely. Force or malalignment may cause damage to the actuator and increase valve gland leakage.

(2) With the valve closed, apply an air pressure of about 75 p.s.i. to the end inlet connection. This should be carried out before and after assembly to the actuator to check that gland leakage has not increased.

(3) With a suitable breeze plug and switch, connect the actuator to a 24 volt supply. With pressure applied, open and close the valve over its full range by means of the actuator.

32. Unloading the gun

SAFETY PRECAUTIONS

(1) The aircraft is to be parked so that the nose is pointing in a safe direction.

(2) Disconnect the armament safety plug in the port wing stub, set the gun firing control on each control column handgrip to SAFE and the butt test switch to OFF.

(3) Post a safety-man to prevent personnel or vehicles passing in front of the aircraft during the unloading operations.

(4) The gun should always be unloaded before carrying out any other work on the gun installation.

To unload proceed as follows:-

(1) Refer to the location of access panels and doors as shown in Sect.2, Chap.4.

(2) Remove the port armament and radio access door. With the starboard door supported to a weight of 70 lb. *(see para.16)* withdraw the spring bolt in the forward edge and remove the door. Empty the cases from the collector tank.

(3) Remove the armament access door by unlocking the king fasteners and withdrawing and rotating the locking pins at the rear of the door. Detach the centre portion of the gun fairing. Remove the forward portion of the empty case chute.

(4) Disconnect the power supply socket above the gun.

(5) Insert the special pin through the feed neck to retain the rounds, open the feed neck door and break the ammunition belt.

(6) Open the door in the link chute and break the link belt.

(7) Unload the gun as detailed in A.P. 1641S, Vol.1, Part 1, Chap.8, withdrawing the unexpended portion of the belt from the gun through the feed neck door and ensuring that the rounds ejected by the gun do not strike the fuselage structure.

(8) Close the feed neck door and fit a blanking cap over the end of the gun ejection tube.

Re-arming the aircraft

See SAFETY PRECAUTIONS described in para.32 to which reference must be made.

33. Proceed as follows:-

(1) Ensure that the power supply socket above the gun has been disconnected

and that the installation of the gun and the barrel are secure.

(2) Check that the ammunition box, diaphragm, feed neck, link chute and case chute are serviceable, and secure.

(3) Withdraw and stow the rounds retaining pin on the feed neck.

(4) Gaining access through the slot in the feed neck, insert the leading end of the ammunition belt, i.e. the end link with the loop, into the mouth of the gun feed mechanism and position it against the sprockets.

(5) Load and cock the gun as detailed in A.P.1641S, Vol.1, Part 1, Chap.8.

(6) Connect the power supply socket above the gun.

▶ ◀

(7) Ensure that the collector tank has been cleared.

(8) Install the gun fairing centre portion and all access doors to the aircraft.

Harmonization

34. The harmonization of the gun is to be carried out in accordance with the instructions given in A.P.1641S, Vol.1.

Note . . .

Before commencing to carry out any traverse adjustments to the gun at the rear mounting, it is essential to withdraw the split pin and slacken off the 5/16 in. nut on the locking bolt through the eccentric adjusting worm (Pt.No.F.205197). This is necessary because tightening of the locking bolt causes slight distortion in the eccentric housing with resultant binding on the traverse screw.

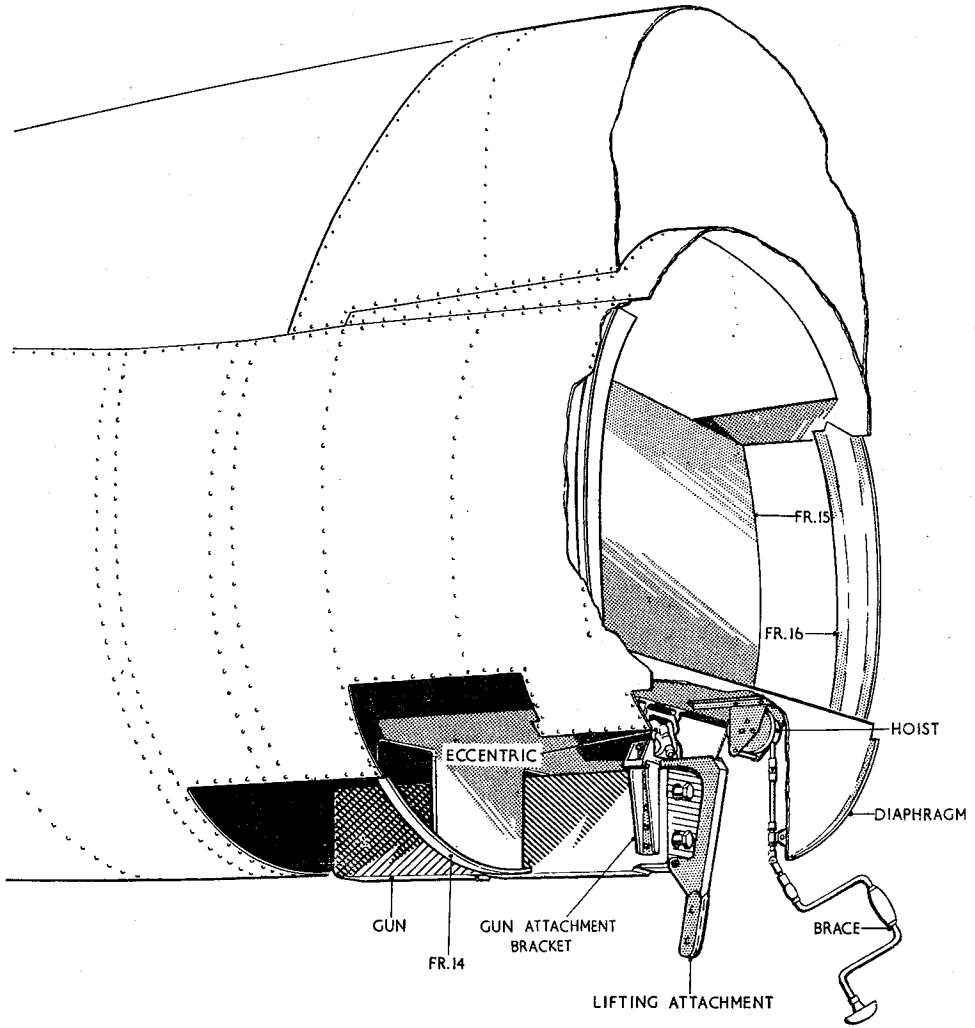


Fig.7 Gun removal (1)

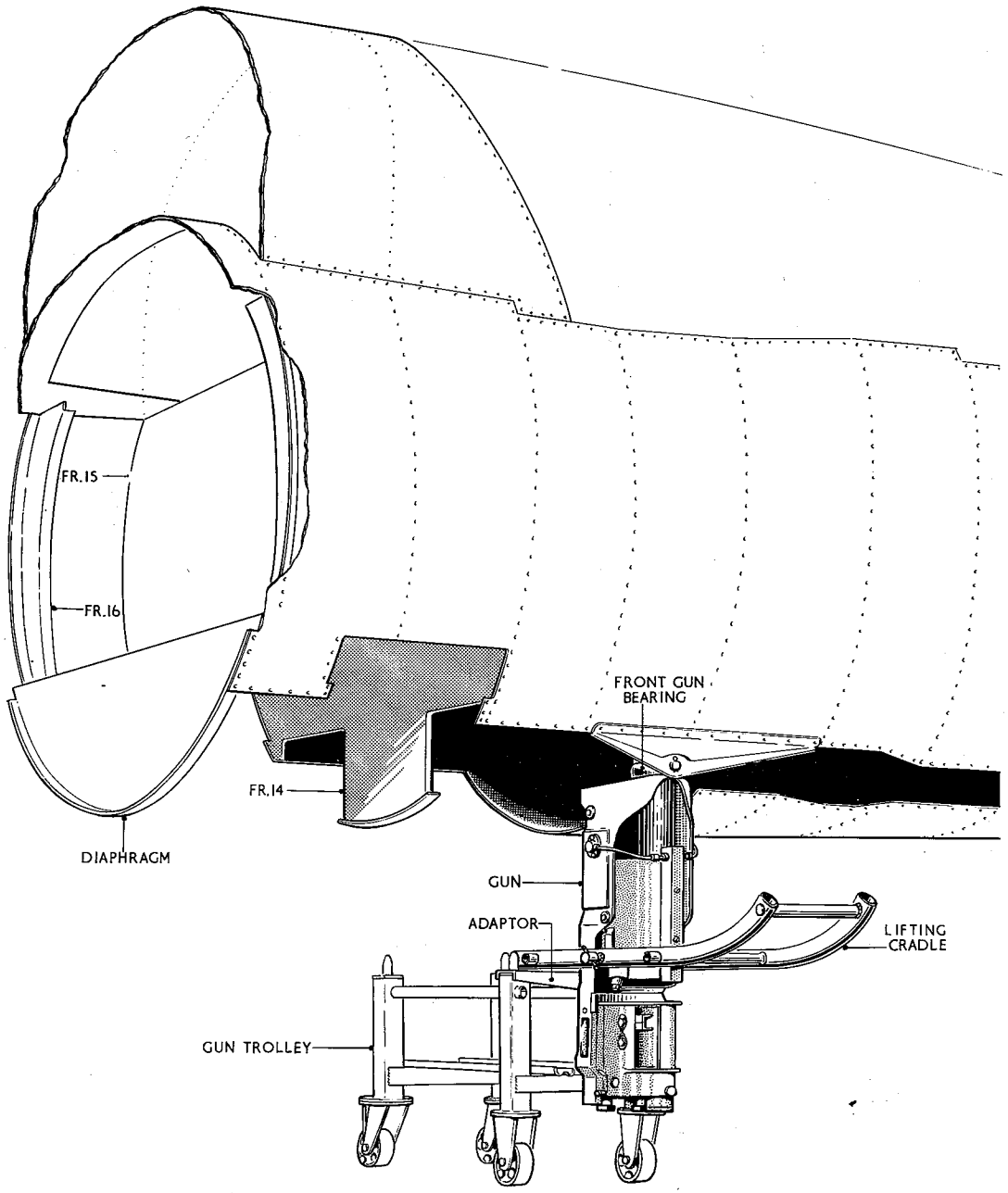


Fig.8 Gun removal (2)

Gun firing at the butts

35. Prior to the gun being fired at the butts, the local structure in the way of gun blast should be smeared with a suitable protective grease.

REMOVAL AND ASSEMBLY

General

36. The gun and the ammunition box may be removed or installed independently of each other.

Removing the ammunition box

37. Two men are needed to operate the hoist and handle the box, the person handling the latter should give the instructions, proceeding as follows :-

(1) Observe the safety precautions detailed in para.32 and unload the gun as described in the same paragraph.

(2) Remove access doors and detachable diaphragm.

(3) Detach the feed neck from the gun and suspend it under the box using the pip-pin provided. Detach the link chute.

(4) Fit the support tube and the hoist to the aircraft. Free the hoisting cables from the aircraft and connect the yoke to the cable on the hoist.

(5) Withdraw from the bracket on the ammunition box the pip pin which retains the gun rear mounting pin

assembly. Withdraw the box mounting pins.

(6) Draw the box across to the port side of the aircraft as far as possible, using the hoist, and manually move it further to the port side to disengage the box rollers from the guide rails.

(7) With the trolley in position, lower the box by means of the hoist, steadying it during travel, and secure it to the trolley with the attachment pins.

(8) Detach the hoisting cables from the box and move the trolley clear of the aircraft, ensuring that the box does not foul the fuselage structure or the support tube.

Loading the ammunition box

38. Full instructions for making up belts of ammunition are contained in A.P.1641S, Vol.1, Part 1, Chap.6. To load proceed as follows :-

(1) Extract any belt links from the canvas sling and the link chute and remove the sling.

(2) Ensure that no ammunition remains in the internal feed chute, below the roller, by removing the feed neck and clearing it. Replace the feed neck.

(3) With the trailing end of the belt laid down first, load the made up ammunition belt into the box, in accordance with the instruction plate on the lid.

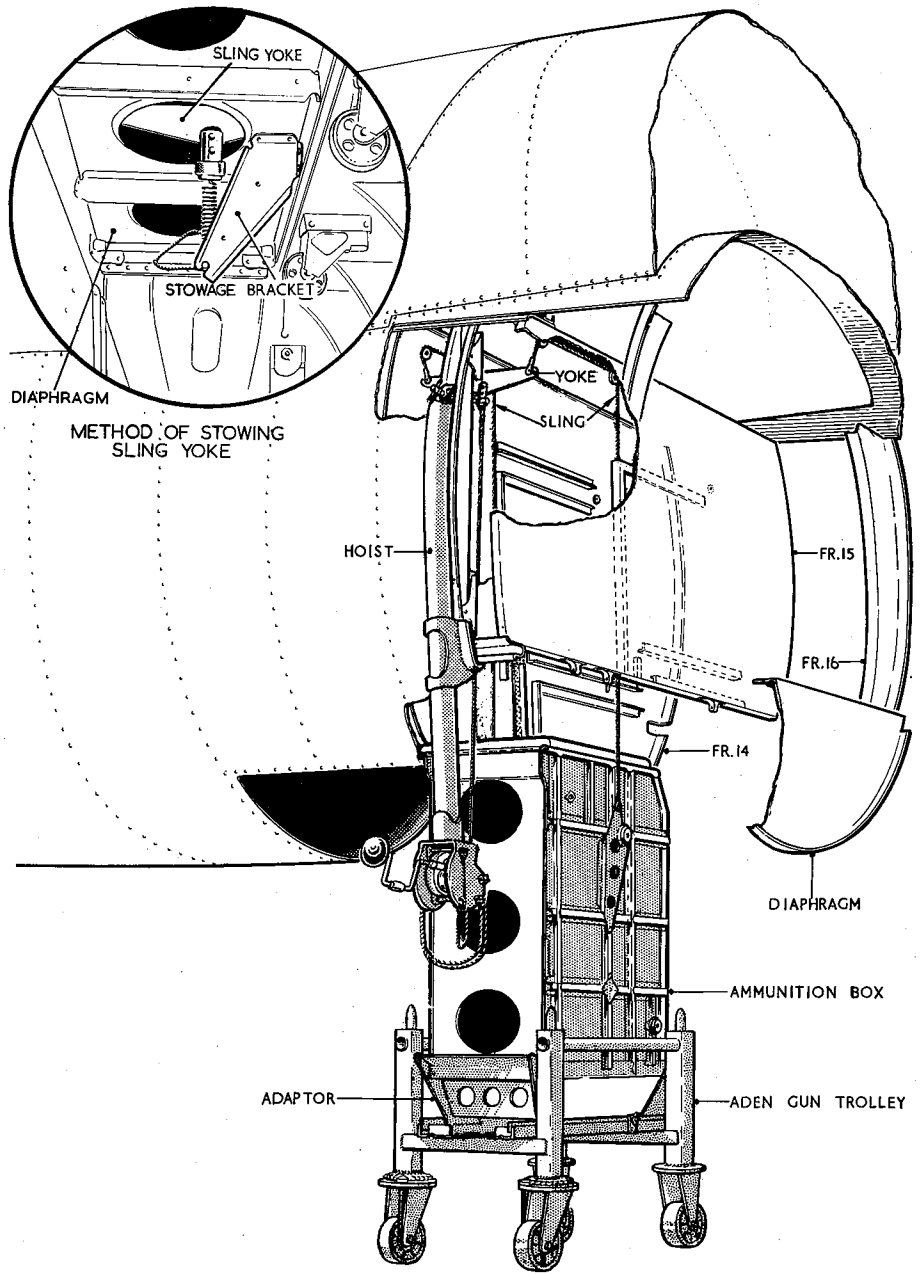


Fig.9 Ammunition box removal

(4) When the box has been filled, but before the top layer of ammunition is finally positioned, insert the leading end of the belt, that is the eye end with the loop, over the roller, with the link against the roller, and pass it down the internal feed chute until it reaches the retaining pin in the feed chute. The top layer of ammunition may now be settled.

(5) Replace the canvas sling, ensuring that it is not rucked, and attach it to the spigots.

(6) Ensuring that the top layer of ammunition does not foul, close and lock the box lid.

Topping up ammunition box

39. When a box is partially empty, the ammunition may be replenished, after extracting all belt links from the sling and the link chute. The remaining ammunition in the box and the internal feed chute should be removed, and a further belt added as required. Load the ammunition into the box as described in para.38 attach the sling and secure the lid.

Installing the ammunition box

40. To install an ammunition box, two men will be required to operate the hoist and handle the box. The instructions should be given by the man handling the box, proceeding as follows :-

(1) Observe the safety precautions detailed in para.32, and check that the gun has been unloaded, also described in para.32.

(2) Position the trolley, complete with ammunition box, under the aircraft.

(3) Check that the hoist and the support tube are securely installed, and attach the hoisting cables from the structure to the box.

(4) After withdrawing the attachment pins from the trolley, partially hoist the box and remove the trolley. Steadying the box and ensuring that the box rollers are running in the vertical guide rails, continue hoisting until the box rollers reach the horizontal guide rails on frames 14 and 15.

(5) With the box at the full height, manually move it to the starboard stops, unwinding the hoist as required.

(6) Insert the box mounting pins, lock the inboard pin. Insert the retaining pip pin which locks the gun rear mounting pin so that it engages in the bracket on frame 15.

(7) Disconnect the hoist cable from the yoke and remove the hoist and support tube from the aircraft.

(8) Secure the yoke of the box hoisting cables to the anchorage on the port side on the diaphragm between frames 14 and 15.

(9) Install the port diaphragm assembly, lock the inboard pin and fit the port detachable door to the fuselage skin.

(10) Assemble the link chute to the gun and the box, and connect the feed neck to the gun.

Removing the gun

41. Two men are needed to handle the gun, manoeuvre the trolley and carrier and operate the hoist. Observing the SAFETY PRECAUTIONS given in para.32 to which reference must be made, check that the tail strut, item 1, is properly positioned and unload the gun as described also in para.32 and proceed as follows :-

(1) Detach the link chute, case chute and feed neck, securing the latter to the base of the box.

(2) Depress the barrel catch, rotate the gun barrel and slide it forward, clear of the front gun mounting.

(3) Attach the hoist assembly to the fuselage at the rear of the gun, ensuring that the gearbox is in the correct location. Connect the lifting attachment, item 10, to the lug on the gun and connect the hoist cable to the top of the lifting attachment.

(4) Take the weight of the gun on the cable and withdraw the gun rear mounting pin assembly after removing its locking pip pin.

(5) Using the hoist and the handle of the lifting attachment, lower the rear end of the gun until it hangs vertically. Release the cable and remove the lifting attachment.

(6) Place the gun carrier adapter on the rear end spigots of the trolley and set the carrier on the adapter with the handgrip outboard.

(7) Wheel the trolley into position and engage the threaded spigots of the carrier with the two bosses provided on the gun.

(8) Taking the weight of the gun on the lifting cradle, unscrew the pinch bolts in the gun cradle nut, slacken off and ease the gun out of the spherical bush of the gun front mounting by progressively unscrewing the nut and lowering the cradle.

(9) Retain the gun cradle nut and locating plate for subsequent re-assembly.

(10) Remove the trolley complete with carrier and gun from the aircraft.

Removing the gun barrel

42. The gun barrel is removed by withdrawing it rearwards through the gun front mounting, ensuring that the bores of the barrel support and gun mounting bearings are not scored.

Installing the gun barrel

43. The installation of the gun barrel is the reverse of the removal. If the barrel has been changed or the barrel support disturbed, it will be necessary to check the alignment of the support with the gun.

Installing the gun

44. To install the gun two men are needed in the same manner as for the removal described in para.41. Observing the SAFETY PRECAUTIONS given in para.32, check that the gun is unloaded and proceed as follows:-

(1) Apply anti-scuffing paste, D.T.D.900/4284 Ref.No.34B/319 to the spherical bush and trunnion of the gun front mounting.

(2) Position the trolley, with the gun on the carrier under the aircraft immediately below the gun front mounting.

(3) Offer up the gun to the spherical bush of the front gun mounting by raising the handgrip end of the gun lifting cradle.

(4) Assemble the locating plate, the locking washer and the gun cradle nut, tightening the nut progressively as the gun cradle enters the bush.

(5) Ensuring that the gun is positioned more or less correctly in the mounting, and the slots of the locating plate are equidistant about the distance tubes, loosely assemble the gun cradle nut.

(6) Release the gun from the carrier and remove the trolley and carrier from the aircraft.

(7) Check that the hoist is secure, assemble the lifting attachment to the gun and connect the hoist cable.

(8) Hoist the gun to the horizontal attitude, ensuring that no fouling occurs, and locate the gun rear mounting between the fuselage attachment fittings.

(9) Insert the gun rear mounting pin, lock the hinged handle in position and insert the locking pip pin through its bracket, across the head of the gun rear mounting pin and, if the ammunition box is installed, into the bracket on the box. Finally tighten the gun cradle nut and lock by means of the two pinch bolts.

(10) Remove the lifting attachment and the hoist assembly.

NOTE . . .

If a gun or barrel other than the original is being installed, or if the gun mountings, barrel support or the rear mounting assembly have been disturbed, the barrel support mounting plate should be slackened off at its rear attachment nuts before inserting the barrel into the gun breech cylinder housing. The support should be realigned to the gun during the subsequent gun harmonization (para.34).

(11) Insert the gun barrel into the breech cylinder housing. A long thin slot is cut along the outside of the barrel to facilitate assembly of the barrel to the gun. When inserting the barrel, the slot should face outboard. Rotate the barrel and ensure that it is securely locked.

(12) Fit the link chute, case chute and feed neck.

(13) Carry out electrical continuity tests as detailed in A.P.1641S, Vol.1.

(14) Replace the access doors complete collector tank.