

Chapter 7
TRANSPORTERS AND PANNIERS

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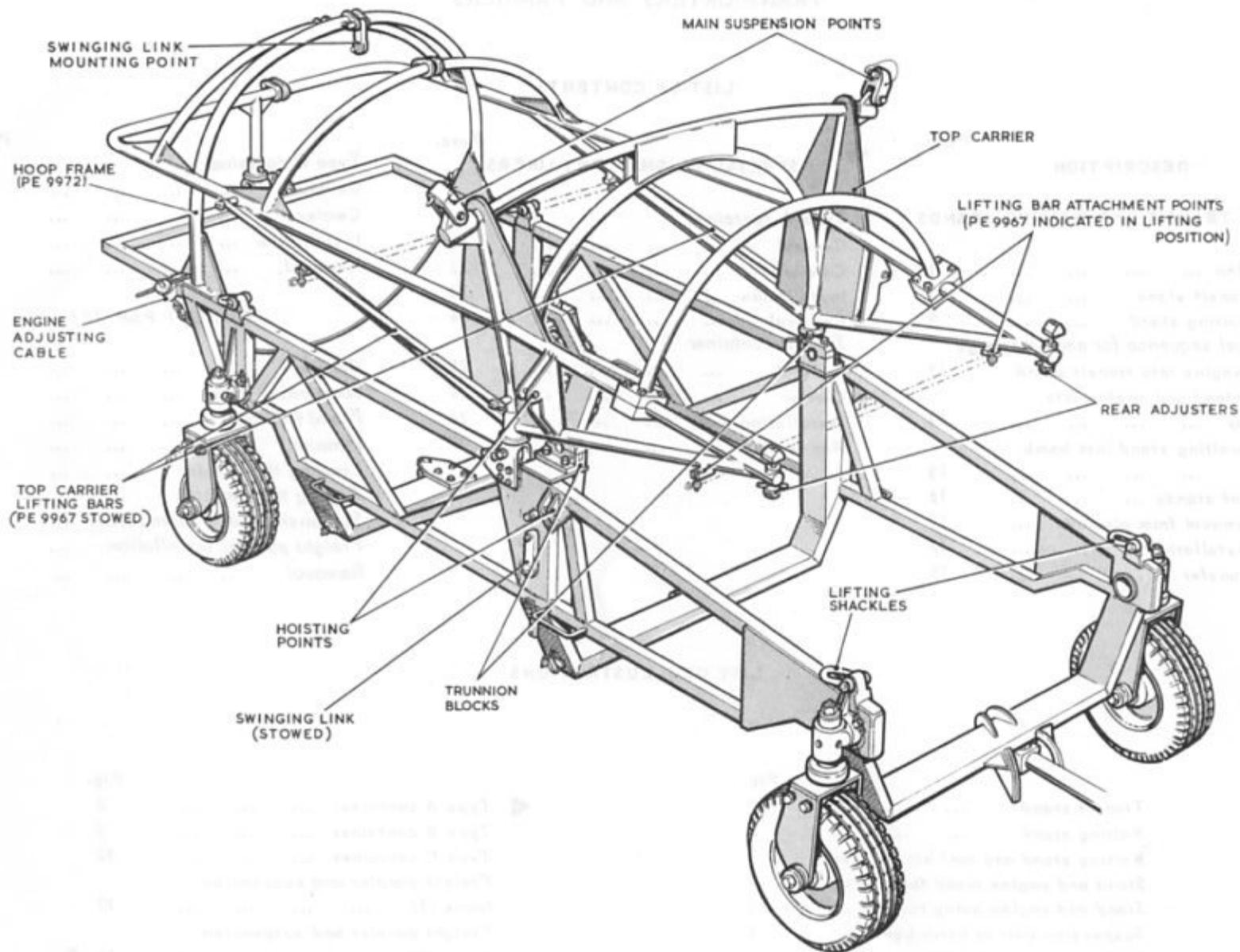


Fig.1 Transit stand

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DESCRIPTION

ENGINE TRANSIT AND WAITING STANDS

Introduction

1. The equipment consists of an engine transit stand, PE.8919, engine waiting stand, PE.9903, and three engine installation hoists, Ref. No. 26DC/95266. The three engine installation hoists are stowed beneath the waiting stand for ease of transportation.

2. The engine transit stand carries the Olympus E.C.U. 201 or 301 in the forward end of the bomb bay. The engine waiting stand, complete with engine tool kit and box, is carried immediately behind the engine transit stand. The purpose of this stand, with the tool box removed, is to receive the engine being changed while engine change-over is effected. Immediately the replacement engine has been installed, the unserviceable engine is to be transferred from the waiting stand to the transit stand and returned for overhaul.

ENGINE TRANSIT STAND, PE.8919

3. The unit consists of a wheeled trolley, for use on the ground, and a hoisting and suspension unit on which the trolley is suspended when being transported in the aircraft. The trolley, PE.8921, is provided with two fixed wheels at the front and two steerable wheels at the rear. The front wheels, normally locked in a fixed fore - and - aft position, are fitted with hand-operated friction pads which act as parking brakes and can be unlocked for manoeuvring in confined spaces. The rear wheels are controlled by the detachable tow-bar and steering mechanism. The steering mechanism can be easily dismantled and assembled to form separate steering arms for individual wheel castoring, during awkward manoeuvres. Stowage positions

are provided within the framework of the trolley for tow-bar and steering mechanism.

4. The engine is supported in the trolley at the main trunnions and at a third point mounting. The latter is adjustable to suit whichever mark of engine is being transported. A swinging link, connecting the third point mounting to the hoop frame, is secured by a quick release pin. Alternative links are supplied to suit the mark of engine being transported; stowage is provided for the link not in use.

5. The engine support band, shown supporting the air intake casing, is for use before the third mounting is secured. This is a plastic covered wire cable with an adjuster at each end, providing the method of mating the third engine mounting point with the swinging link on the hoop frame.

6. Lifting shackles are provided at the four corners of the trolley so that the unit may be lifted with the sling PE.11242, and a mobile crane. Four lashing points are provided, so that, when used as floor cargo in other aircraft, the unit can be firmly secured. Any convenient point on the bottom tube of the trolley may also be used for lashing purposes. A winching point, at the front of the trolley, is for use when loading the trolley into the hold of freighter aircraft.

7. The top carrier, PE.8944, used only when the E.C.U. and trolley are to be carried in a Vulcan bomb bay, is basically a simple double cantilever. There are two main suspension points, port and starboard, which pick up at the main bomb hoisting and suspension

stations 123.015 and 151.919 and are secured with quick-release pins. The four crutch attachment points at stations 95.967 and 182.967 are used for attaching the carrier crutching brackets. These brackets steady the frame and prevent any rocking movement. They do not carry any part of the weight of the E.C.U. and trolley.

8. Three mini-lift brackets, incorporated in the top carrier, correspond with three more on the trolley. These are used when hoisting the trolley up into the top carrier. There are two more mini-lift brackets which are used when transferring the bare E.C.U. from one stand to the other. These two operations are described later. The trolley is secured to the top frame by three quick-release pins, port, starboard and forward.

ENGINE WAITING STAND, PE.9903

9. This simple, wheeled, trolley unit is designed to be carried in the bomb bay on two suspension frames (PE.9905, port, and PE.9906 starboard). The two suspension frames, located in the bomb bay between stations 259.092 and 279.092, are steadied by screwing adjusters against the crutching pads at these stations.

10. The trolley has four freely castoring wheels but, unlike the transit stand, is not towed and therefore has no steering mechanism. The stand incorporates two engine stays mounted on universal joints. With the engine clamped in the main trunnion blocks, these two stays are clipped on to the engine rear lifting eyes using the quick-release pins provided.

11. The lifting beam PE.9914, used for loading the waiting stand into the bomb

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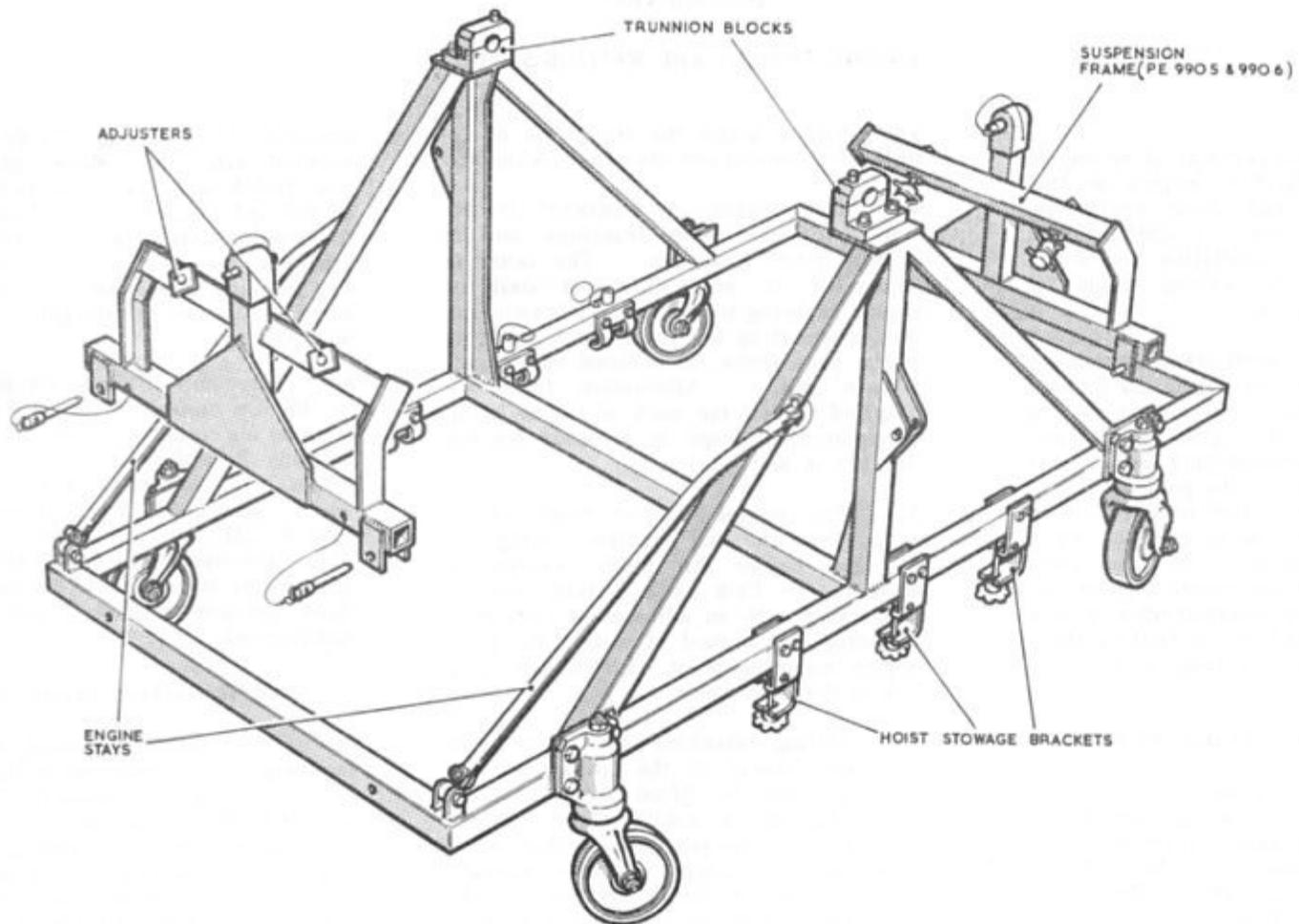


Fig.2. Waiting stand
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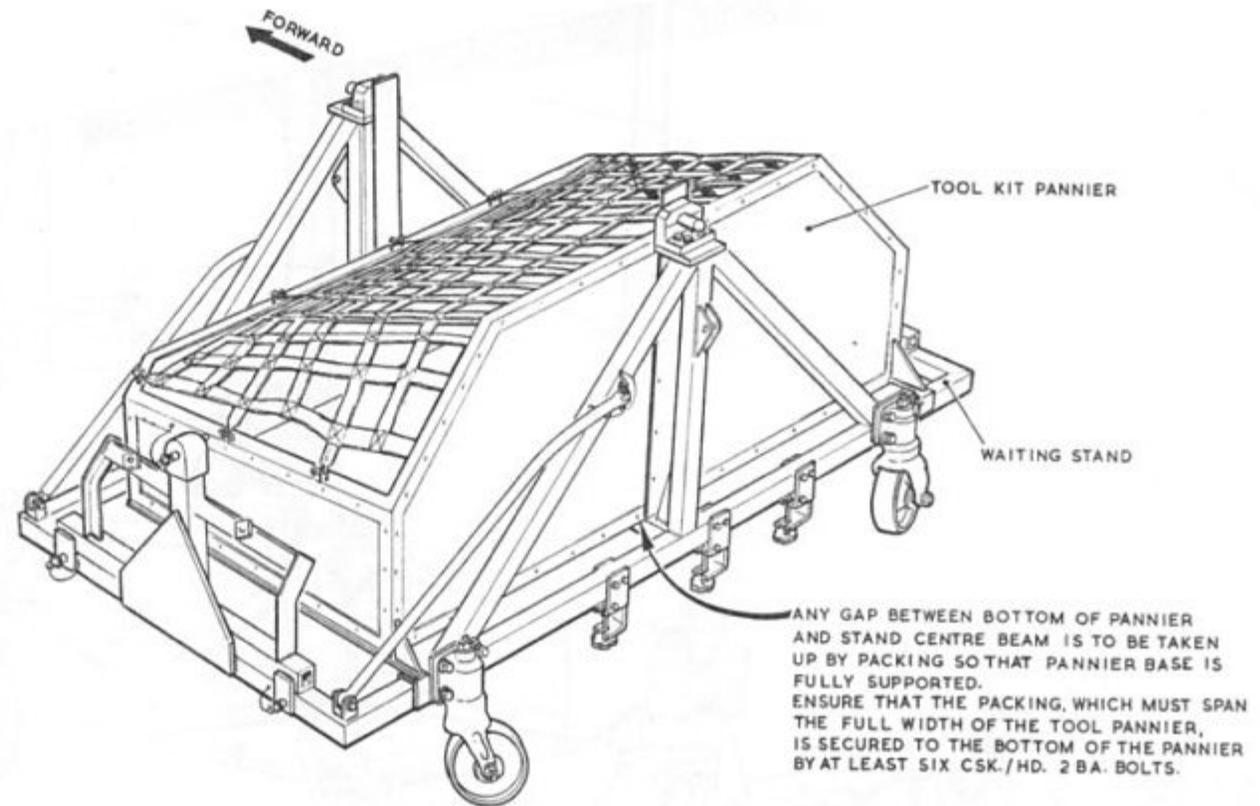


Fig.3. Waiting stand and tool kit pannier.

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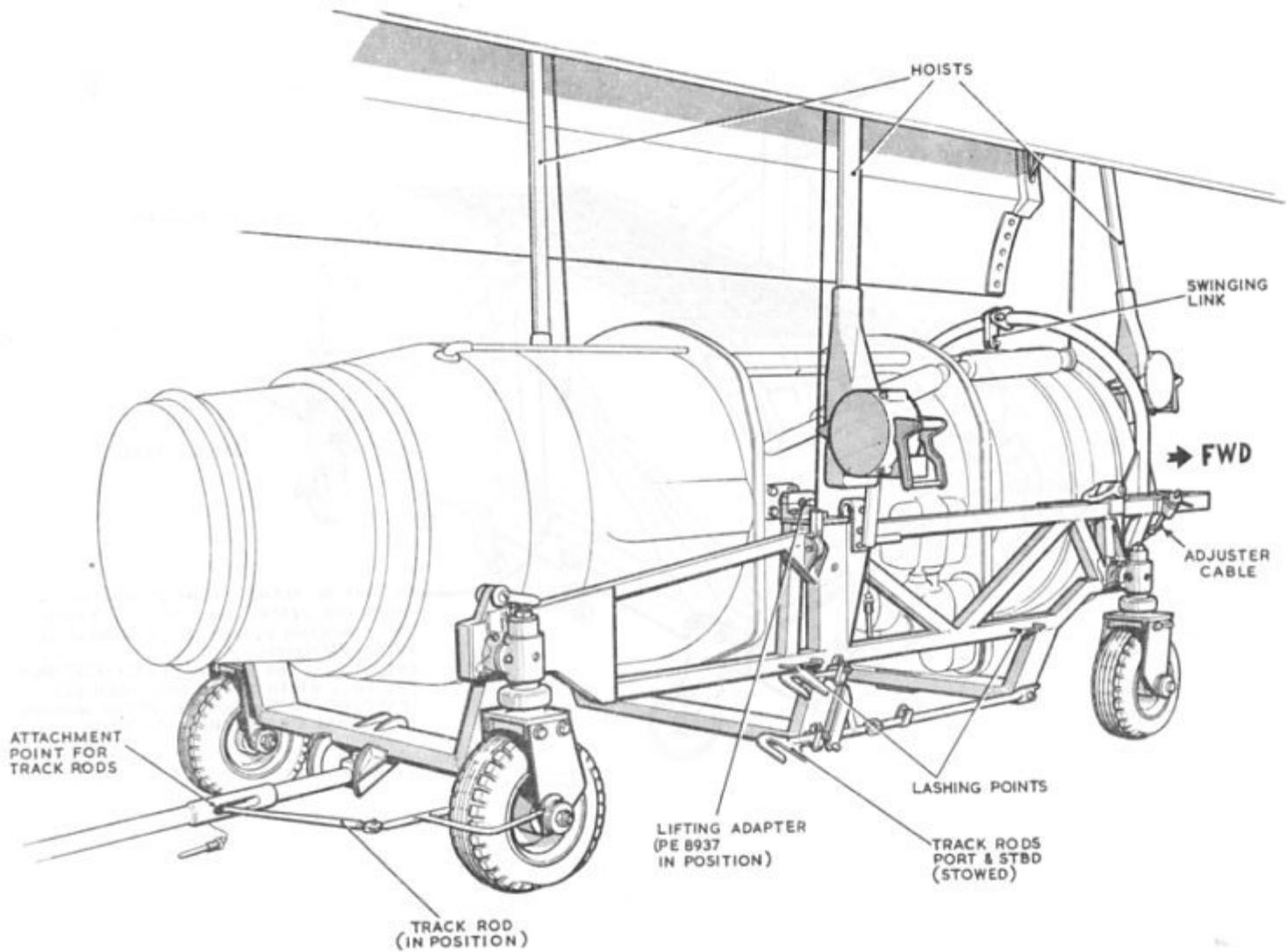


Fig. 4. Stand and engine ready for loading

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bay, is fitted to the bracket in the centre of the roof arch at station 279.092, using two 3/8 in. dia. quick-release pins, and to the bracket which is situated on the bulkhead at station 343.387, approximately 12 in. down from the centre of the roof arch, using two 1/4 in. U.N.F. bolts.

12. With the two suspension frames and lifting beam installed, the waiting stand can be raised into the bomb bay and secured with four quick-release pins. Six brackets (two per hoist), located on the underside of the stand base frame, provide stowage for the engine installation hoists when the stand is mounted in the bomb bay.

OPERATIONAL SEQUENCE FOR ENGINE CHANGE

Loading engine into transit stand

13. To load the Olympus 201 or 301 E.C.U. into the trolley PE.8921 proceed as follows:-

- (1) Remove top carrier PE.8944 by slackening the ring nuts and withdrawing the three 3/4 in. dia. quick-release pins and lifting clear.
- (2) Remove hoop frame PE.9972.
- (3) Open trunnion mounting blocks ready to receive the engine.
- (4) Lower engine into transit stand engaging main trunnion mountings. Ensure that wire cable at front of stand does not foul any equipment on the air intake casing of the engine.
- (5) Replace hoop frame to position appropriate to the mark of engine being transported and attach the correct swinging link.
- (6) Adjust the cable under the air intake casing until the swinging link con-

necting pin can be pushed home.

- (7) Slacken cable until all tension is removed.
- (8) Clamp and tighten trunnion blocks; wire lock the bolts.

In this condition the E.C.U. and trolley are ready to be towed away.

Loading stand and engine into bomb bay

14. To load the E.C.U. and trolley into the bomb bay proceed:-

- (1) Remove the fuzing mountings A.T.63211 and 63212 and the four standard crutch bracket assemblies and fit the four crutch brackets provided with the trolley i.e., PE.8942, two off, at Station 95.967, and PE.8943, two off, at station 182.967.

NOTE...

Due to the lugs being at different angles, assemble the brackets by sliding them sideways when they are aligned; the position is found by trial and error. This operation is made easier by using the bomb doors, in the closed position, as a platform. This is also applicable for operations (1) and (2) in para. 15.

- (2) Place the top carrier, PE.8944, on the floor directly beneath the attachment points, between stations 123 and 151 in the bomb bay.
- (3) Remove the lifting bars, PE.9967 (2 off), from their stowage and clamp in the lifting position on the carrier ready to lift.
- (4) Suspend two engine installation hoists from existing lugs in the roof of the bomb bay, between stations 95 and 108 (front) and 171 and 182 (rear), and lower the hooks to the fullest extent.

- (5) Engage hoist hooks with lifting adapters and raise carrier into position.
- (6) Ensuring that the rear crutching adjusters are fully slackened, guide the main suspension blocks into position as the frame is raised; grease and insert the two quick-release pins, using hand force only.
- (7) Torque load the adjusters to $15 \pm \frac{1}{2}$ lb. ft. and lock. Use torque wrench from the engine No.1 tool kit. Screw threads may be lubricated with grease ZX-28.
- (8) Ensure that the ring nuts, PE.13738, at the three suspension points, are screwed fully into their housings.
- (9) Remove the two engine hoists.
- (10) Remove and stow the lifting bars, one on each side of the carrier; lock the nuts with pins provided. The top carrier is now ready to receive the trolley.
- (11) Wheel the trolley and E.C.U. into position directly beneath the top carrier.
- (12) Remove and stow the track rods, one on each side of the trolley.
- (13) Suspend the three engine hoists from the suspension lugs at the positions marked on the top frame. Unwind the cable sufficiently to engage the hooks in the lifting points on the trolley.
- (14) With the quick-release pins removed wind evenly on all three hoists until the top carrier and trolley mate, i.e., location spigots, PE.13740, enter floating blocks, PE.13739. Secure with three quick-release pins.

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NOTE...

As the trolley is raised, the towing arm will trail on the ground. When there is sufficient ground clearance, stop the winding operations while the towing arm is swung upwards beneath the trolley and secured to the stowage bracket with the quick-release pin.

- (15) Release load on hoists so that the floating blocks are pressed hard against their cages.
- (16) Screw the ring nuts down tightly.
- (17) Retract the four wheels (front 75 deg. forward, rear 90 deg. aft).

Loading waiting stand into bomb bay

15. To load the waiting stand, complete with tool kit, and engine installation hoists into the bomb bay, proceed:-

- (1) Ensure that the four crutching adjusters are fully slackened, mount the two suspension frames in the bomb bay between stations 259.092 and 279.092. (PE.9905 port, PE.9906 starboard). Crutch down lightly.
- (2) Connect lifting beam, PE.9914, to brackets at stations 279.092 and 343.387 using quick-release pins and bolts provided.
- (3) Suspend two hoists in centre of bomb bay, one between stations 243.127 and 225.227, and the other on lifting beam PE.9914 and unwind cables.
- (4) Wheel stand into position directly beneath the suspension frames. Ensure that stand is facing the correct way, and that engine stays are secured to stand.
- (5) Engage hooks and hoist into

positions; secure using four quick-release pins provided.

- (6) Tighten the four crutching adjusters to 60 lb. in. and lock. Use torque wrench from engine No.1 tool kit. Threads may be lubricated with grease, ZX-28.
- (7) Remove both engine hoists and then stow the three hoists on the underside of the waiting stand.
- (8) Unwind cables so that hook can be secured at a convenient point at the winch end; tension cable to secure.
- (9) Index pulley block at the top of the hoist to the stowed position, and secure the hook with locking wire around block, using the vacant hole. Lash the hoist handles securely.

NOTE...

It is important that the hoists are stowed to give maximum possible clearance from the hydraulic piping at the rear of the bomb bay.

- (10) Close the bomb doors.

Removal of stands

16. To remove all the equipment stowed in the bomb bay, reverse the sequence of operations in para. 14 and 15, note that before the three quick-release suspension pins can be removed, the weight of the trolley and engine must be taken on the hoists to release the floating blocks.

Engine removal from aircraft

17. To remove an E.C.U. from the engine bay of a Vulcan and place it in the waiting stand, preparatory to installation of replacement E.C.U., proceed:-

- (1) Place waiting stand directly beneath engine to be removed, taking care to see that the stand is correct way round.
- (2) Remove the engine in the normal manner using the three engine hoists.
- (3) Lower the engine into the stand and clamp main trunnion mounts lightly.
- (4) Disengage the two hoist hooks at the rear of the engine.
- (5) Clip the engine stays on to the rear lifting eyes using the quick-release pins provided, and, using the front hoist, adjust the engine so that the stays engage easily.
- (6) Disengage the hoist hook at the front of the engine.

The waiting stand and E.C.U. can now be wheeled to one side while the replacement E.C.U. is installed in the engine bay direct from the trolley.

Engine installation

18. To install the replacement E.C.U. into the engine bay of the Vulcan from the trolley, proceed:-

- (1) Wheel trolley and E.C.U. into the approximate position fore - and - aft beneath the aircraft (bomb bay) or the engine bay.

NOTE...

Due to limited clearances it may be found more practical to approach the engine bay sideways from the bomb bay after aligning the trolley with the engine position.

- (2) Disconnect the steering arms and track rod halves from the tow bar

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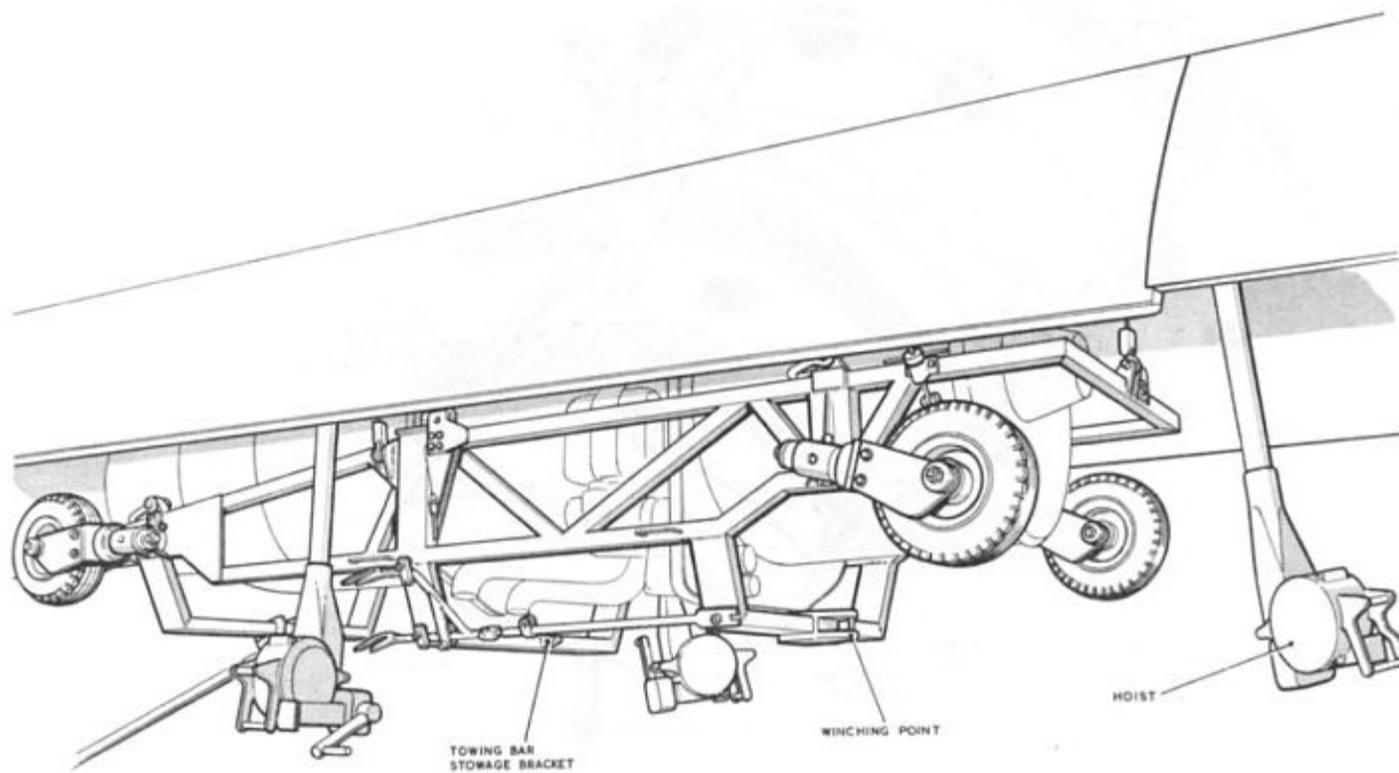


Fig. 5. Stand and engine being raised
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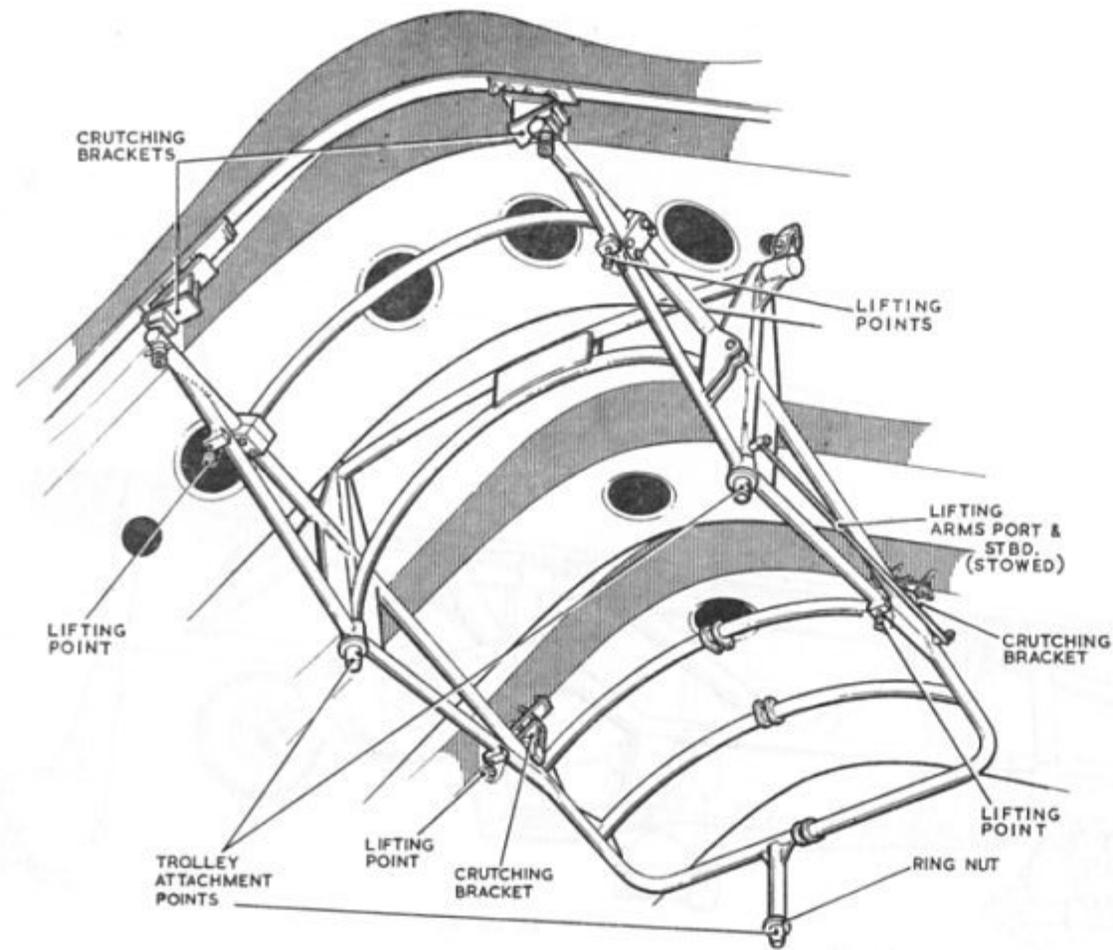


Fig.6. Suspension unit in bomb bay

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- and reconnect to form individual wheel manoeuvring arms.
- (3) Unlock the wheels from their straight ahead position by removing the quick-release pins and, using the manoeuvring arms, pivot the wheel through 90 deg. Lock in this position if desired.
 - (4) Transfer manoeuvring arms to rear wheels and pivot them through 90 deg. Lock in this position if desired.
 - (5) The trolley can now be pushed sideways so that the E.C.U. is located directly beneath the engine bay.
 - (6) Adjust tension in cable under air intake casing until there is no load taken by the quick-release pin at the third mounting point.
 - (7) Remove quick-release pin.
 - (8) Remove hoop frame, PE.9972.
 - (9) Proceed as normal and install the replacement E.C.U. into the engine bay.

Engine transfer

19. To transfer the unserviceable E.C.U. from the waiting stand to the trolley preparatory to loading into the bomb bay, proceed:-

- (1) Suspend three hoists from the top carrier, PE.8944, while still mounted in the bomb bay. The front hoist for this operation is slung from the appropriate hoop as marked on the top frame, not the same position as when hoisting stand and E.C.U.
- (2) Wheel waiting stand beneath the top carrier.

- (3) Remove lifting adapters, PE.8937, from stowage position on trolley and replace in mounting trunnion on E.C.U.
- (4) Engage hoist with lifting adapters and front lifting eye on E.C.U. and lift clear of waiting stand, disengaging rear engine stays as load is transferred.

- (5) Wheel waiting stand to one side and replace with empty trolley.
- (6) Lower E.C.U. into trolley and make secure, as detailed in para.13.
- (7) Remove and stow the two lifting adapters.

The trolley, complete with E.C.U., is now ready to load into the bomb bay.

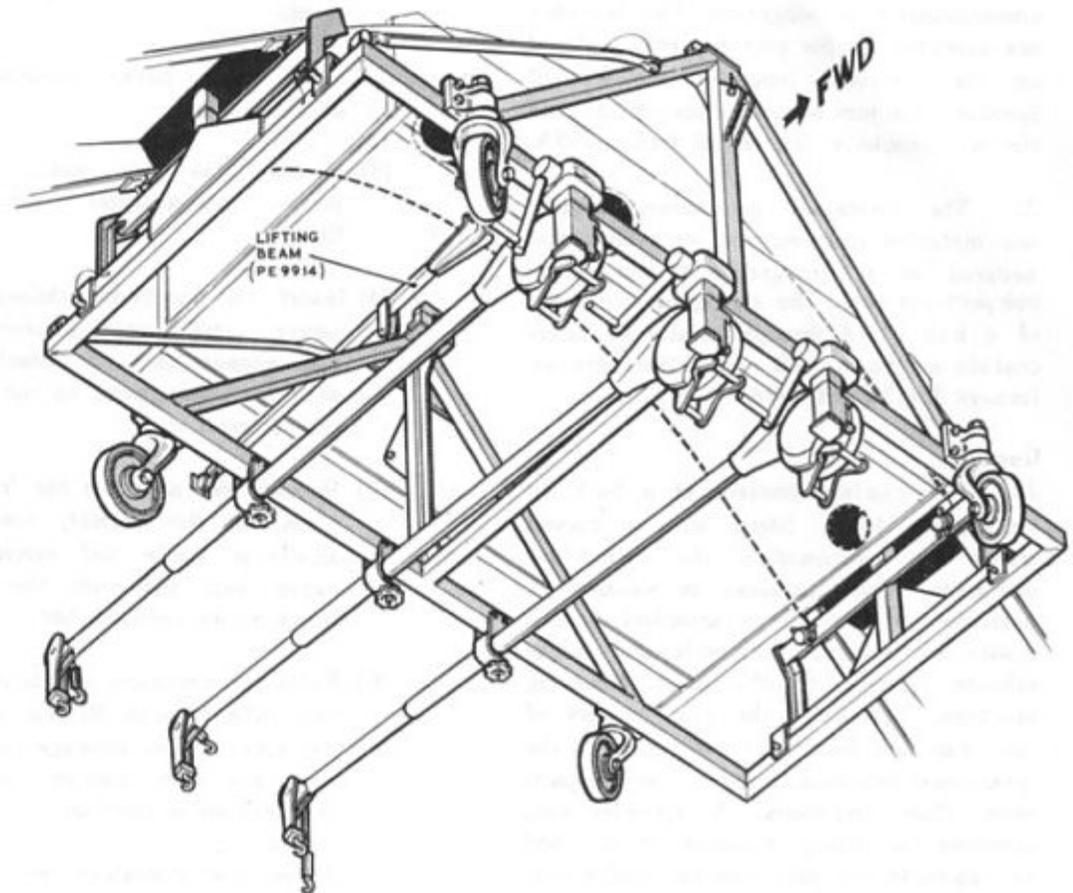


Fig.7. Waiting stand and hoists in bomb bay.

SPECIAL FLIGHT CONTAINERS

TYPE A CONTAINER

General

20. Provision for the carriage of special flight container Type A is made by Mod.630 (S.O.O.) which provides a carrier to which the container is secured. The carrier, fitted in the aircraft power compartment, is secured to attachment brackets on the compartment floor longerons. Two brackets are provided on the port longeron and two on the starboard longeron, the forward brackets are just aft of former 284.5A and the rear brackets just aft of former 399A.

21. The container and carrier complete are installed and removed by a minihoist secured to a strongpoint in the power compartment roof. The strongpoint consists of a bolt fitted through reinforced intercostals on the aircraft centre line between formers 384.5A and 399A.

Carrier

22. The carrier consists of a built up rectangular base, fitted with a curved cradle to accommodate the cylindrical container. The container is secured in position by two straps attached to the cradle by bolts on one side and quick-release catches on the other. Mounting brackets, bolted to the four corners of the base, are secured by Pip pins to the attachment brackets on the power compartment floor longerons. A spreader bar, provided for lifting purposes, is attached by cables to two points on the cradle midway between the container securing strap attachments. When not in use the spreader bar is stowed in clips on the carrier base.

Installation

23. To fit a Type A container and carrier in the power compartment, refer to fig.8 and proceed as follows:-

- (1) Remove the external access panel on the underside of the fuselage directly beneath the power compartment.
- (2) Open the power compartment access door.
- (3) Remove the rear portion of the power compartment honeycomb flooring.
- (4) Insert the minihoist through the power compartment access door and engage the top sheath hook with the strongpoint in the power compartment roof.
- (5) Remove the spreader bar from the clips on the carrier, lower the minihoist cable and engage the cable ball end with the lifting block on the spreader bar.
- (6) Raise the container and carrier and turn them through 90 deg. so that the spreader bar stowage is at the top and the carrier mounting brackets are at the rear.
- (7) Raise the container and carrier into the power compartment and replace the rear portion of the floor removed in operation (3).
- (8) Rotate the carrier and container so that the attachment brackets face downward and the spreader bar stowage clips are on the port side.
- (9) Lower the carrier and container engaging the carrier attachment brackets with the mounting brackets on the longerons and insert the Pip pins.
- (10) Disconnect the cable ball end from the spreader bar and remove the minihoist from the aircraft.
- (11) Stow the spreader bar in the clips on the carrier, fit the access panel removed in operation (1) and close the power compartment access door.

Removal

24. To remove the carrier and container reverse the procedure given in para.23.

TYPE B CONTAINER

General

25. Provision is made for the carriage of special flight container Type B in the port side of the bomb bay. Four attachment brackets on the container carrier are secured with bolts to anchor nuts fitted, two on the forward face of former 151.919A and two on the rear face of former 171.842A. ▶

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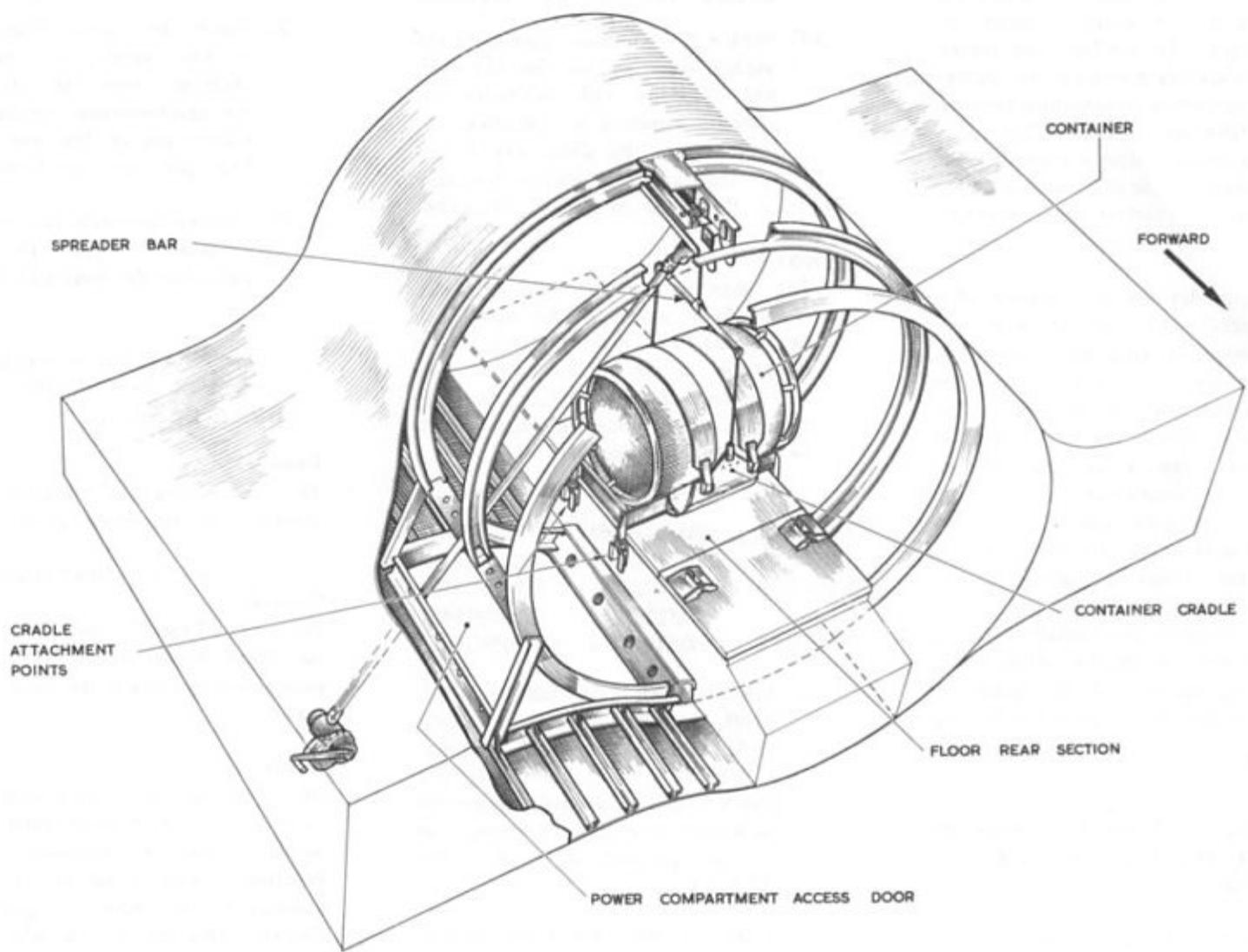


Fig.8. Type A container

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26. A strongpoint on the forward face of former 151.919A, provides for the attachment of a minihoist used for installing and removing the container. A pulley for guiding the minihoist cable, when installing and removing the container, is secured with a Pip pin to two intercostals between formers 151.919A and 171.842A. This pulley remains in position whilst a container and carrier are fitted, and is fitted on a stowage on the container carrier after removal.

Carrier

27. The container carrier consists of a straight central box member with two curved box members attached transversely at each end and a curved box member attached longitudinally at each end. The curved box members act as the cradle for the cylindrical Type B container. Straps, attached to the transverse box members by bolts on one side and quick-release catches on the other, secure the container to the carrier. Brackets riveted to the transverse members provide for the attachment of the carrier to the aircraft mounting points. The stowage for the pulley, used when installing and removing the container, is fitted on the rear inboard mounting bracket.

Installation

28. To install a Type B container and carrier in the bomb bay refer to fig.9 and proceed as follows:-

- (1) Open the bomb bay doors.
- (2) Remove the pulley from the carrier stowage and secure it with the Pip pin to the intercostals between formers 151.919A and 171.842A.

(3) Remove the four bolts and washers from the anchor nuts on the formers 151.919A and 171.842A.

(4) Secure the container carrier to the anchor nuts on formers 151.919A and 171.842A with the bolts and washers removed in operation (3). Ensure that the shear peg on top of the carrier locates correctly in the hole in former 171.842A.

NOTE:

The length of the bolts and thickness of washers securing the carrier to former 151.919A may vary due to the thickness of shims secured to the forward face of the anchor nut mounting brackets. The bolts and washers to be used are as follows:-

Shim	Bolt	Washer
0 -0.02	28D/1213763	28W/9419487
0.03-0.05	28D/1213763	28W/9419405
0.06-0.08	28D/1213763	28W/9418920
0.09-0.11	28D/1213762	28W/9419487
0.12-0.13	28D/1213762	28W/9419405

(5) Assemble minihoist (Ref.No.4GC/5699), extension tube (Ref.No.4GC/5444), top sheath, hook (Ref.No.4GC/5700), and cable ball end (Ref.No.4GC/5433) and engage the top sheath hook with the strongpoint on the forward face of former 151.919A.

(6) Pass the minihoist cable through the hole in former 151.919A immediately below the minihoist strongpoint attachment, over the pulley fitted in operation (2) and down vertically, to engage the

cable ball end, with the hoisting point on the Type B container.

(7) Raise the container into position in the carrier and secure it in position with the straps. Lock the quick-release catches with the safety pin on the rear catch and Pip pin on the forward catch.

(8) Remove the cable ball end from the container, remove the minihoist and close the bomb bay doors.

NOTE

The pulley remains in position between the intercostals whilst the container is fitted to the aircraft.

Removal

29. To remove the container and carrier reverse the procedure given in para.28.

TYPE C CONTAINER

General

30. The Type C container and carrier are fitted in the bomb bay, utilising the points used to attach the Type B container carrier.

Carrier

31. The special flight container Type C carrier consists of three parts, a hoisting channel, and a structure cradle. The hoisting cradle consists of three box-section beams secured together with U-section members and gusset plates. Provision is made on the ends of the box section beams for fastening quick-release catches. The hoisting channel fits centrally over the top of the rectangular container when it is placed in the hoisting cradle. ▶

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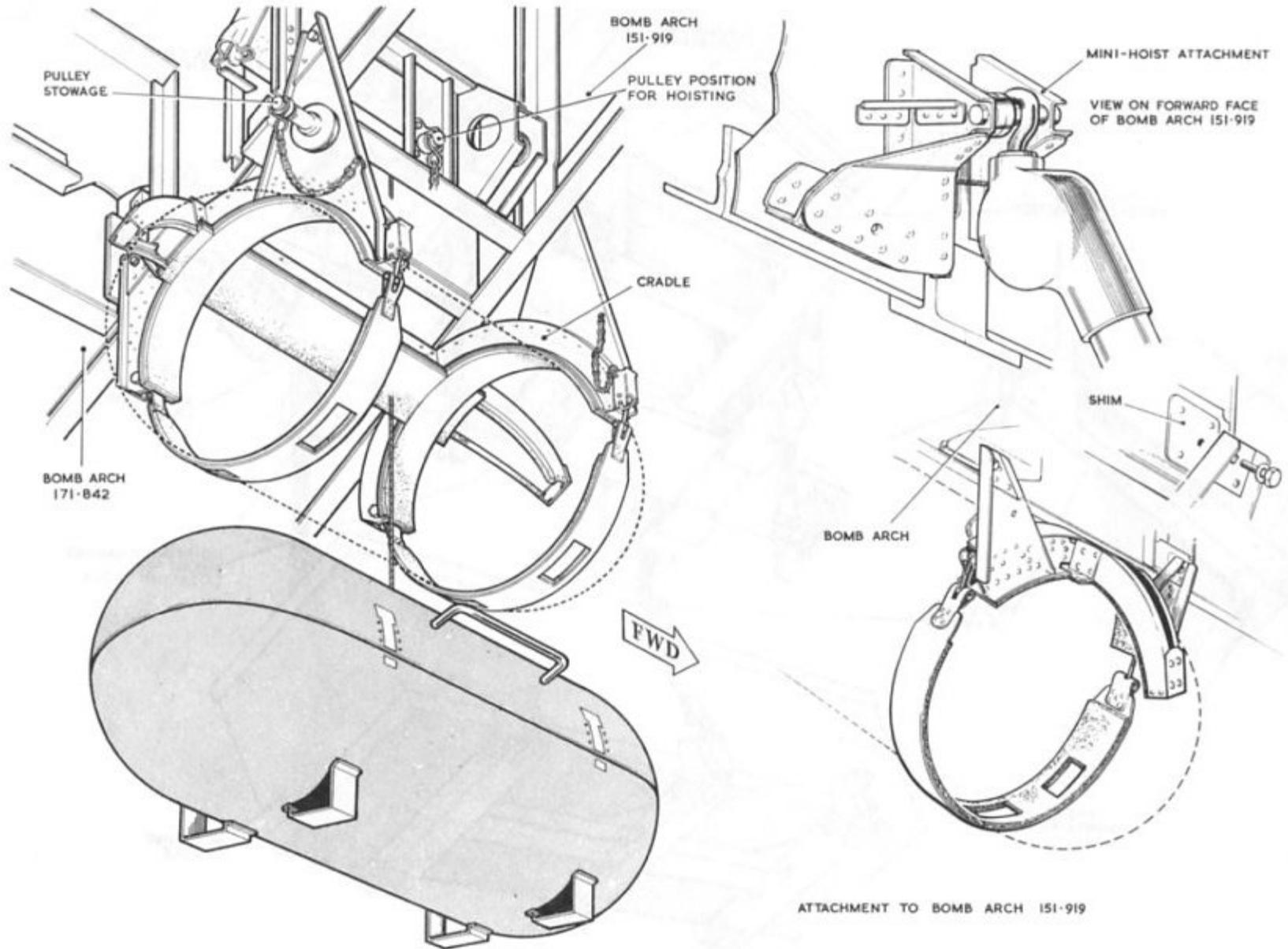
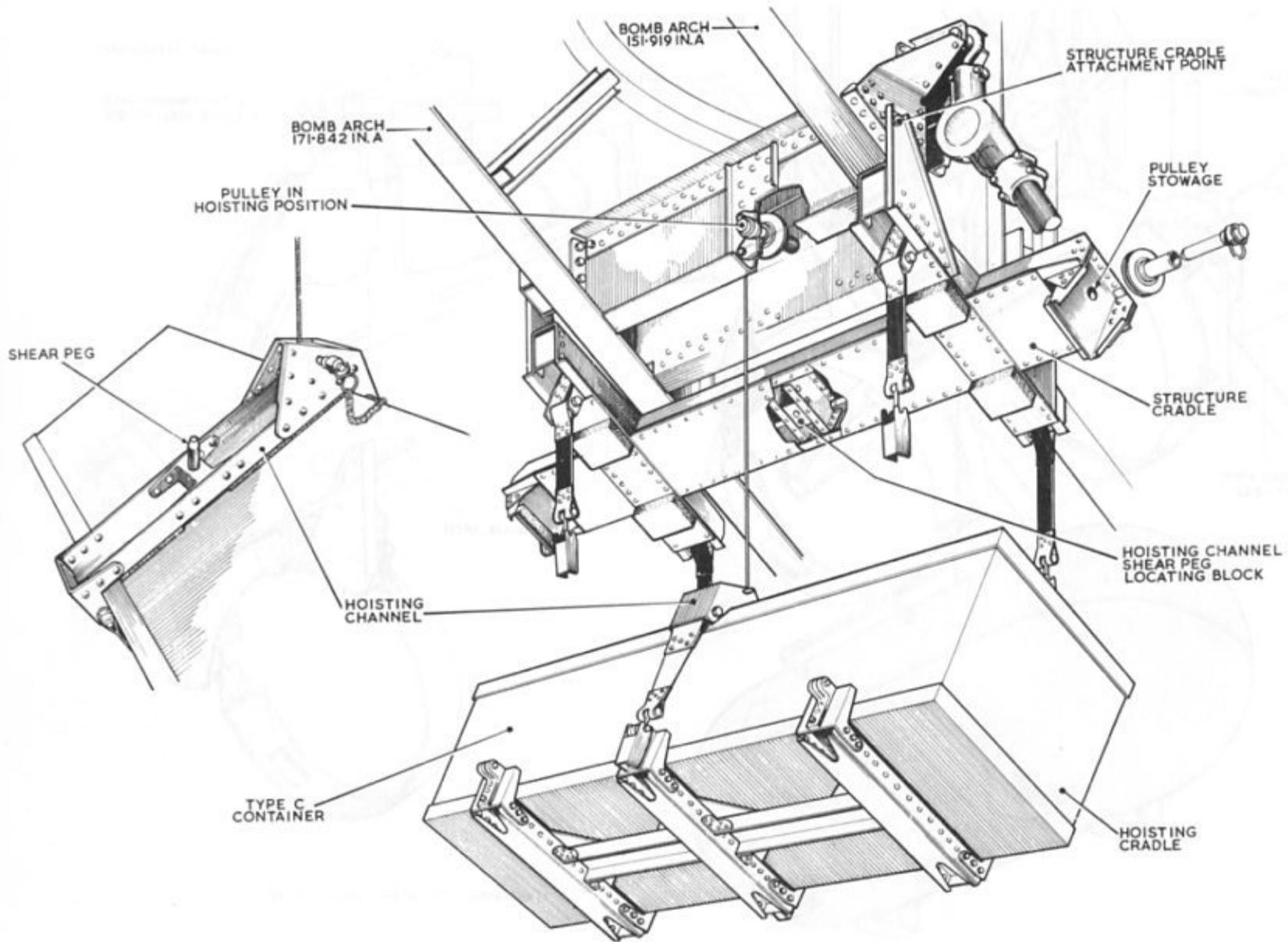


Fig.9. Type B container

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Fig.10. Type C container

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Two straps on the hoisting channel are fastened by quick-release catches to the central beams of the hoisting cradle. A hoisting bracket and a shear peg are fitted on the hoisting channel, the shear peg locates in a block on the structure cradle.

32. The structure cradle forms the attachment for the container, complete with hoisting cradle and hoisting channel, to the aircraft. Consisting of a box-section beam to which two transverse beams are secured on each side, the cradle is secured to the aircraft by four attachment brackets being bolted to anchor nuts on formers 151.919A and 171.842A. Straps, attached to the four side beams, are fitted with quick-release catches which engage with the fittings on the four end beams of the hoisting cradle to secure the container in position. A shear peg, which engages in a hole in former 171.842A, and a locating block for the shear peg on the hoisting channel, are located on the structure cradle centre beam. A stowage, for the pulley used when installing and removing the container is located on the front end of the structure cradle centre beam.

Installation

33. To install a Type C container in the bomb bay refer to fig.10 and proceed as follows:-

- (1) Open the bomb bay doors.
- (2) Remove the pulley from the structure cradle stowage and secure it with the Pip pin to the intercostals between formers 151.919A and 171.842A.
- (3) Remove the four bolts and washers

from the anchor nuts on formers 151.919A and 171.842A.

- (4) Secure the structure cradle to the anchor nuts with the bolts and washers removed in operation (3). Ensure that the shear peg locates correctly in the hole at former 171.842A.

NOTE:

The length of the bolts and thickness of the washers securing the cradle to former 151.919A may vary due to the thickness of shims secured to the forward face of the anchor nut mounting brackets. Refer to para.28, operation (4) for information on bolt lengths and washer thickness.

- (5) Ensure that the container is positioned correctly in the hoisting cradle and the hoisting channel is positioned in accordance with the instructions stencilled on it. Lock the quick-release catches with the safety pins.
- (6) Assemble minihoist (Ref.No.4GC/5699), extension tube (Ref.No.4GC/5444), top sheath, hook (Ref.No.4GC/5700) and cable ball end (Ref.No.4GC/5433) and engage the top sheath hook with the strong-point on the forward face of former 151.919A.
- (7) Pass the minihoist cable through the hole in former 151.919A immediately below the minihoist attachment point, over the pulley fitted in operation (2) and down vertically to engage the cable ball end with the block on the hoisting

channel. Ensure that the Pip pin is replaced in the block to prevent the cable ball end slipping out of engagement.

- (8) Lift the hoisting cradle, complete with container, into position, securing it to the structure cradle with the securing straps. Ensure that the shear peg on the hoisting channel engages correctly in the structure cradle locating block. Lock the securing strap quick-release catches with the safety pins.
- (9) Disconnect the cable ball end from the hoisting channel and remove the minihoist. Close the bomb bay door.

NOTE:

The pulley remains in position between the intercostals when the container is fitted in the aircraft.

WARNING:

When the container and hoisting cradle are secured in the aircraft, under no circumstances must the two centre securing straps be undone, i.e., those securing the hoisting channel to the hoisting cradle.

Removal

34. To remove the container and carrier components reverse the procedure given in para.33.

FREIGHT PANNIER

General

35. A suspension frame, when fitted in the

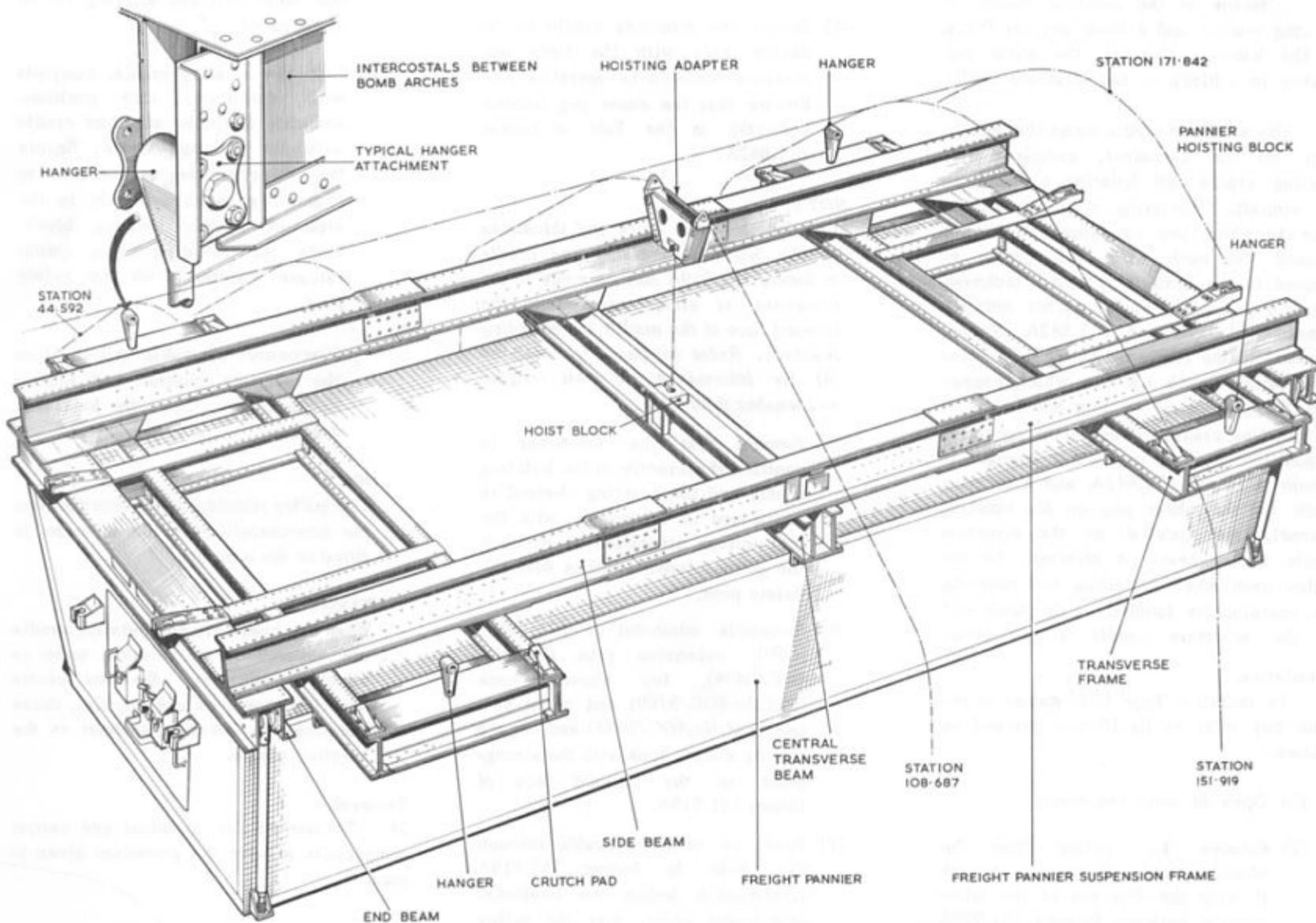


Fig.11. Freight pannier and suspension frame (1)

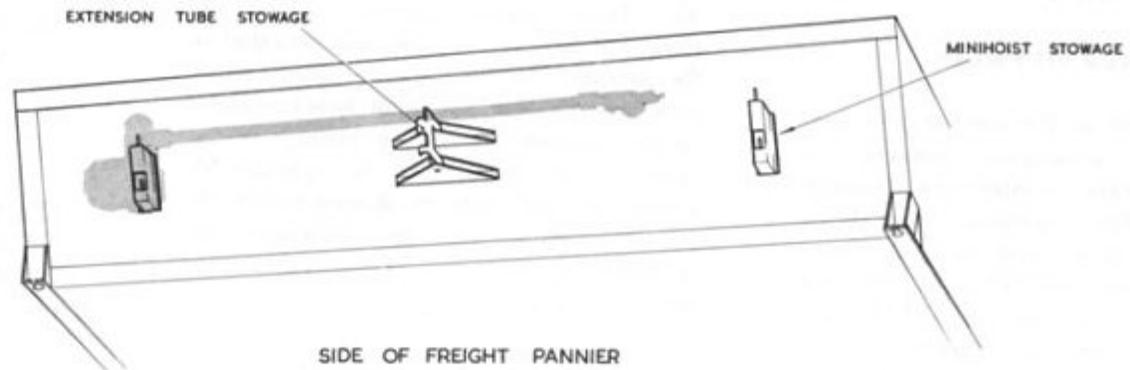
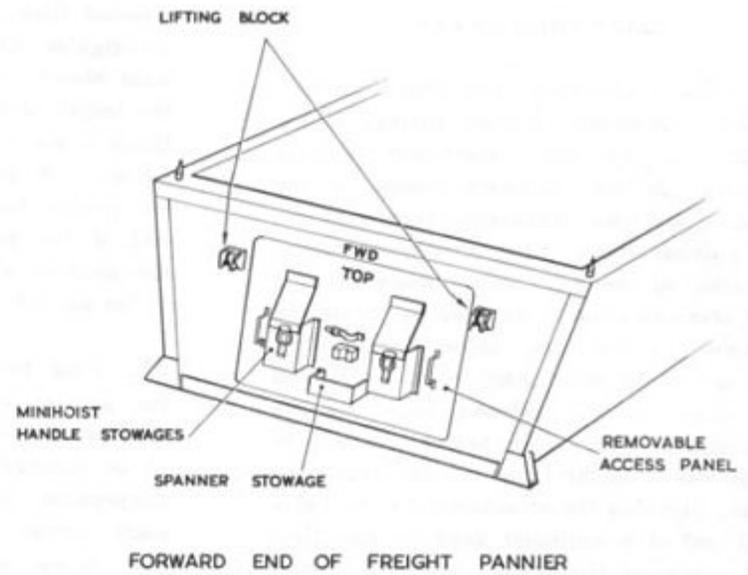
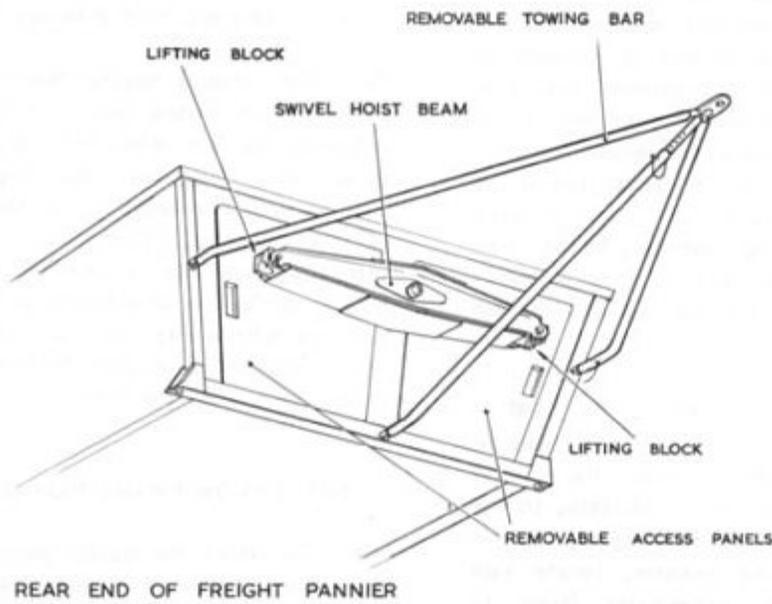


Fig. 12. Freight pannier and suspension frame (2)

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aircraft bomb bay provides the means of securing a 4,000 lb. freight pannier to the aircraft.

SUSPENSION FRAME

36. The suspension frame (Ref.No.26DC/6177) is attached to fixed fittings in the bomb bay by four attachment hangers secured to the outboard beams of the forward and rear transverse frames of the suspension frame. Four attachment tubes, secured to the suspension frame forward and rear end beams, are used to secure the pannier to the suspension frame. When not in use the attachment tubes are stowed in clips on the inboard faces of the suspension frame side beams. An attachment block, on the frame central transverse beam, provides the attachment for the cable ball end of a minihoist used for installing and removing the frame. A stowage for a hoisting adapter (Ref.No.26DC/7063), used during installation and removal is provided at the front of the frame.

FIXED FITTINGS

37. When fitted in the aircraft, the suspension frame attachment hangers are secured with bolts to intercostal mounted assemblies. The mounting assemblies are located one to port and one to starboard between formers 44.592A and 64.592A and between formers 151.919A and 171.842A. The hoisting adapter (Ref.No.26DC/7063) used when installing and removing the suspension frame, is secured with Pip pins to two brackets in the bomb bay roof, one on each side of the aircraft centre line on former 108.687A.

PANNIER

38. The freight pannier (Ref.No.27H/3346) of light-alloy construction with a steel and plywood floor, is in the form of an open-top rectangular box. It is equipped with four main wheels, fitted in pairs, mid-way along the length of the pannier. A small wheel is fitted at each end on the centre line of the pannier. A removable tow bar, provided for ground handling, attaches to the rear end of the pannier and is stowed inside the pannier when the pannier is installed in the aircraft.

39. Four trunnions, two on the front of the pannier and two on a swivel beam at the rear of the pannier, enable the pannier to be hoisted, by four minihoists, to the suspension frame. Four spigots, one at each corner of the pannier, locate with four holes in the suspension frame, to ensure correct positioning and also take forward and transverse shear loads.

40. Three access panels, one at the front and two at the rear, are provided in the pannier. The front access panel carries stowages for four minihoist handles and a torque spanner. A canvas cover, for the open top of the pannier, is supplied for ground use and must be stowed inside the pannier before hoisting. Stowages are provided on the sides of the pannier for the minihoists.

LOADING THE PANNIER

41. The maximum floor loading of the pannier is 100 lb. per sq. ft. and the maximum all-up weight including minihoists,

tow bar, cover and spanners must not exceed two tons.

TOWING THE PANNIER

42. The pannier towing arm consists of three tubular struts bolted at one end to a towing lug, the other ends of the struts, fitted with fork-ends, are secured with Pip pins to eye-brackets on the rear end of the pannier. The lower strut is telescopic and can be adjusted to suit the height of the tug attachment and locked in position with a Pip pin. The towing speed of the pannier on a good surface must not exceed five miles per hour.

SUSPENSION FRAME INSTALLATION

43. To install the freight pannier suspension frame to the attachment points in the bomb bay proceed as follows:-

- (1) Open the bomb bay doors.
- (2) Remove the hoisting adapter (Ref. No.26DC/7063), from the stowage on the suspension frame and attach it, with Pip pins, to the brackets on former 108.687A.
- (3) Assemble a minihoist (Ref.No.4GC/5752), extension tube (Ref.No.4GC/5444), top sheath, ball (Ref.No.4GC/5754), and ball cable end (Ref.No.4GC/5772) and secure to the adapter fitted in operation (2).
- (4) Position the suspension frame under the bomb bay ensuring that it faces the correct way.

- ◀ (5) Remove the nuts, washers and special bolts (Ref.No.26DC/6421), from the top of the suspension frame attachment hangers.
- (6) Lower the minihoist cable and engage the cable ball end with the lifting block on the suspension frame central transverse beam.
- (7) Raise the suspension frame and guide the attachment hangers into the aircraft pick-up points.
- (8) If required, fit thin washers (Ref.No.28W/9419461) between the attachment hangers and the aircraft pick-up points. Fit the special attachment bolts removed in operation (5).
- (9) Fit the nuts (Ref.No.28M/13145), to the attachment bolts and tighten. Lock the nuts with split pins.
- (10) Remove the locking plates (Ref. No.26DC/9489) from the nuts securing the attachment hangers to the suspension frame. Tighten the nuts to a torque loading of 52 lb.ft. and replace the locking plates.

- (11) Remove the minihoist and hoisting adapter. Fit the hoisting adaptor to the stowage on the suspension frame.

FREIGHT PANNIER INSTALLATION

44. To fit the freight pannier to the suspension frame proceed as follows:-

- (1) Remove the pannier attachment tubes from the stowage clips on the suspension frame and secure them with Pip pins to the attachment points on the frame forward and rear end beams.
- (2) Assemble four minihoists (Ref. No.4GC/5752), extension tubes (Ref.No.4GC/5444), top sheaths, ball (Ref.No.4GC/5754) and ball cable end (Ref.No.4GC/5772), and engage one to each hoisting point on the suspension frame forward and rear end beams.
- (3) Position the freight pannier under the suspension frame.
- (4) Lower the minihoist cables and engage the cable ball ends with the hoisting trunnions on the pannier.

- (5) Raise the pannier evenly and engage the attachment tubes with the brackets on the pannier.

- (6) Tighten the pannier securing nuts on the attachment tube ends and torque load them to 17.5 lb.ft.

- (7) Remove the minihoists and secure them in the stowages on the pannier.

- (8) Remove the main wheels from the pannier and stow them in the pannier.

NOTE:

It is important that the wheels are removed otherwise they foul on the bomb doors when the doors are closed.

REMOVAL

45. Removal of the pannier and suspension frame is the reverse of the procedure given in paras.43 and 44. ▶



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