

Chapter Six

INSTALLATION

Unpacking - Blanks and transport spares - Installing.

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This chapter describes the installation of an engine as received by a unit. As personnel will normally be concerned with carrying out a replacement installation, this chapter and Chapter 7 have been written to facilitate easy cross reference between the procedure for either installing or removing an engine. Reference must be made to the relevant aircraft handbook for instructions with regard to the fitting of engine-driven aircraft accessories and such aircraft fittings and components as may be applicable. Where reference is specifically made to Venom aircraft the instructions concerned are not necessarily applicable to other installations.

The sequence given in the following paragraphs may require adjustment to suit differences in the design and/or the equipment installed in different types or marks of aircraft. Therefore all the connections and operations described will not necessarily be applicable to every installation. The exigencies of local conditions and the equipment and facilities available may also influence the method of carrying out a particular operation.

Primarily, this chapter deals with the installation of a Ghost 48 Mk. 1 but the majority of the information is equally applicable to the Ghost 48 Mk. 2 and a diagram showing the 48 Mk. 2 installation connections has been added at the end of this chapter.

SLINGING

A portable crane suitable for hoisting a weight of at least 35 cwt., being the combined weight of the engine and the cylindrical metal type container, is necessary. When installing in Venom type aircraft the crane boom must be capable of lifting the engine above the aircraft and of being extended over the engine bay at the rear of the fuselage. The approved lifting sling must always be used for hoisting the engine and it must be ensured that the shackles are attached securely to the front and rear lifting eyes and that the sling eye is adjusted so that the engine balances correctly.

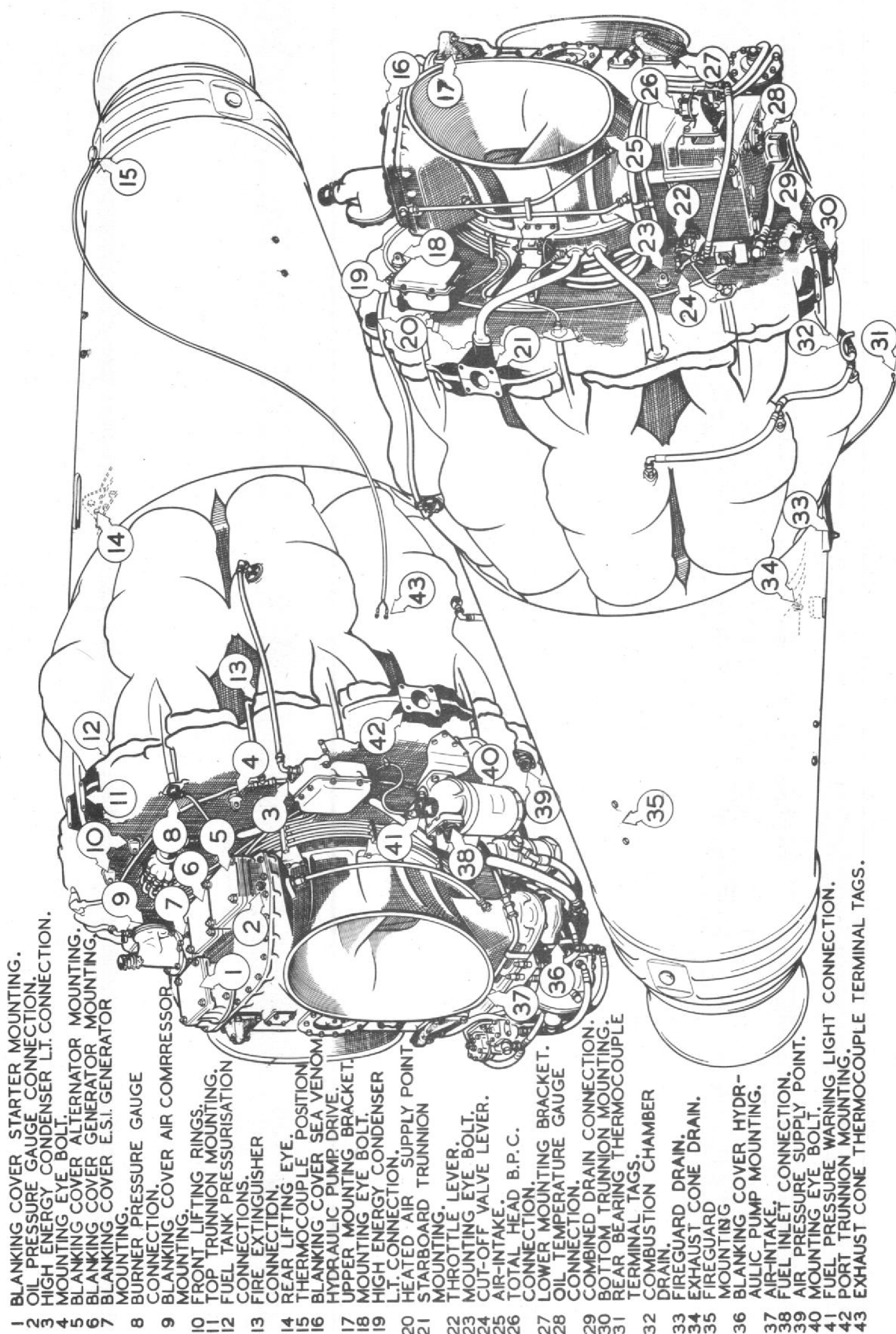


Fig. 1. Principal installation connections, Ghost 48 Mk. 1.

UNPACKING

The engine will be received in a wooden packing case, whilst the exhaust cone and fireguard will be received separately in a wooden transit case. The cases are fitted with four slinging rings for lifting. Remove the bolts from the base of the wooden engine case. Attach the four-piece chain sling to the top of the container and lift off the shell of the wooden case. The engine will remain attached to the stand mounted on the base of the wooden case. The operation of removing the shell of the wooden case should be carried out carefully to avoid damaging the engine.

Attach lifting sling T78478 to the eyes on the front of the diffuser casing and to the eye on the turbine shroud. Adjust the eye on the beam so that the load will be evenly distributed and take up the slack in the sling. Remove the trunnion-bush caps from each side and the rear of the engine. Lift the engine clear of the container. Remove the two transverse rubber bushes and assemble the transport stand brass bushes. Gently lower the engine into the transport stand and secure the trunnion caps.

When the engine workshop sling Part No. T72797 is going to be used for unpacking the engine, reference must be made to chapter 23 page 2 and to chapter 37 page 7.

Examine the engine externally for any damage that may have occurred in transit or while it was being unpacked. Such damage is likely to be confined to the projecting parts. Check also that the engine is to the correct modification standard. Any damage, evidence of corrosion or modification discrepancies should be reported. Carefully check the engine and all loose components which will be tied to the engine or to the container.

BLANKS AND TRANSPORT SPARES

It is advisable to leave blanks and aperture covers in position until immediately before the relevant component is to be mounted on the engine, or the relevant connection is to be made. This will reduce the likelihood of dust or other foreign matter entering the engine particularly when operating in dry sandy localities. The following is a list of the blanks, etc. that will require removal at the appropriate stage.

Description	Ghost 48 Mk. 1		Ghost 48 Mk. 2	
	Part No.	Qty.	Part No.	Qty.
Blanking cover, starter face	48863	1	48863	1
Blanking cover, air compressor face	49237	1	49237	1
Blanking cover, tachometer generator face	19138	1	19138	1
Collar-spacing, tachometer generator face	49081	3	49081	3
Blanking cover, port air-intake	92600	1	92600	1
Blanking cover, starboard air-intake	92599	1	92599	1
Blanking cover, hydraulic pump faces	49237	1	49237	2
Blanking cover, turbine disc	46758 or 602364 (Mod. 877)	1	46758 or 602364 (Mod. 877)	1
Bolt, blanking cover, turbine disc	6A1/7J	6	6A1/7J	6
Nut, blanking cover, turbine disc	A16Y/JP	6	A16Y/JP	6
*Trunnions, engine mounting	29658	2	29658	2
Trunnion, engine mounting	29659	1	29659	1
*Bolts, trunnion, engine mounting	6A1/3L	12	6A1/3L	12
*Spring washers, trunnion, engine mounting	AGS.162/G	12	S.P.47L	12
Blanking cap, air connection, diffuser casing	AGS.597-H	2	AGS.597-H	2
Blanking cap, fire extinguishing connection	AGS.597-D	1	AGS.597-D	1
Blanking cap, drain box outlet	1920-6	1	1920-6	1
Blanking cap, combustion chamber drain	1920-6	1	1920-6	1
Blanking cap, fuel tank pressurisation air supply adapter (Pre-mod. 811)	AGS.597/B	2	AGS.597/B	2
Blanking cap, fuel tank pressurisation air supply adapter (Mod. 811)	AGS.597/D	2	AGS.597/D	2
Blanking cap, thermometer	—	—	1920-6	1
Blanking cap, thermometer pocket	1920-6	1	—	—
Blanking cap, hydraulic pump connection drain box	AGS.596A	1	AGS.597B	2
Blanking plug, hydraulic pump drain pipe	AGS.595-A	2	AGS.595B	4
Blanking cover, generator faces	17087	2	98170	2
Blanking cap, low pressure filter inlet	AGS.597/J	1	48779	1
Blanking cap, B.P.C. air connection	AGS.597B	1	—	—

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Description	Ghost 48 Mk. 1		Ghost 48 Mk. 2	
	Part No.	Qty.	Part No.	Qty.
Blanking cap, flow control air connection	—	—	AGS.596B	1
Blanking plate, exhaust cone heater muff (Pre-mod. 362 only)	48246	2	—	—
Washer, blanking plate, exhaust cone heater muff (Pre-mod 362 only)	25874	2	—	—
Bolt, blanking plate, exhaust cone heater muff (Pre-mod 362 only)	N.148	8	—	—
Spring washer, blanking plate, exhaust cone heater muff (Pre-mod 362 only)	AGS.162/D (Pre-mod. 183) S.P.47L (Mod. 183)	8	—	—
Spacer L.P. filter pressure connection	46919	1	—	—
Blanking cover, exhaust cone support tubes (secure with bolt for cooling air pipe elbows A15Z-7E 8 off)	604240	4	604240	4
Blanking cap, turbine disc air cooling pipes	1920-6	8	1920-6	8
Blanking cover, turbine disc air cooling pipes	604241	4	604241	4
Bolt, for blanking cover 604241	6AI/6E	8	6AI/6E	8
Nut, for blanking cover 604241 bolt	A16Y-EP	8	A16Y-EP	8
Blanking nut, exhaust cone thermocouple connection	16001A	1	16001A	1

PREPARATION OF ENGINE

It is advisable to carry out as much work as possible whilst the engine is on the transport stand, as the connections, particularly those on the underside of the engine, will be more accessible. The location of the connections and the accessory mounting faces are shown on fig. 1. Work must not be carried out with the engine suspended from the crane. If the transport stand is unsuitable for certain operations the engine must be transferred to a dismantling and assembly stand.

Remove the blanking plates and fit the appropriate engine-driven accessories in accordance with the instructions given in Chapter 19, with the exception of the turbo-starter which precludes access to the top central engine mounting pick-up bracket after the engine is installed. If the accessories are already fitted the turbo-starter must be removed in accordance with the instructions contained in Chapter 19; check that the accessories are the correct type and Mk. No. Ensure that any masking is removed from the fire extinguisher pipes, and that the spray holes are clear.

The two front central pick-up brackets secured to the air-intake are jig-fitted during manufacture of the engine to ensure correct positioning in relation to the four principal mounting eyes on the front of the diffuser casing. On no account should these two brackets be removed.

Assemble the thermometer bulb into the aperture beneath the sump as described on page 8.

Assemble the fuel pressure warning switch on the low pressure fuel filter as described on page 8.

Assemble the fuel inlet adapter to the inlet side of the low pressure filter as described on page 8.

Fit any aircraft components it is practicable to do at this stage. For example the cooling pipes for the aircraft accessories may be fitted and the upper cowl rail attached to the outside of the diffuser casing.

A check must be made of the turbine tip clearance to ensure that no distortion has occurred as the result of rough handling during transit. This check, which is described in Chapter 17 may be made whilst the engine is on the transport stand or after it has been installed. If the former course is decided upon the check must be repeated if rough handling occurs during installation, particularly if the turbine shroud receives heavy shock loads.

The exhaust cone/turbine disc clearance check, which is described in Chapter 18, should be combined with the turbine tip clearance check. Assuming the result of the turbine tip clearance

and the exhaust cone clearance checks to be satisfactory, apply Whitmore's compound No.5 or anti-seize grease D.T.D.392 to the threads of the thirty-four nuts and bolts and assemble the exhaust cone to the engine with the drain at the lowest point.

If it is decided to leave the checks until after the engine is installed proceed as follows:- Remove the turbine cover and apply four pieces of plasticene to the turbine disc in order to commence the exhaust cone clearance check. Assemble the exhaust cone, with its drain at the lowest point, and secure with four nuts and bolts evenly spaced near to the pieces of plasticene. This check will be concluded when the exhaust cone is removed to conduct the turbine tip clearance check.

PREPARATION OF AIRCRAFT

The following instructions apply specifically when the engine is being installed in Venom aircraft.

Ensure that all work in the engine bay has been completed as most components, particularly the flying control cables will be less accessible after the engine has been installed.

Check that the "floating" air-intake duct on each side is aligned and securely attached to the wing intake. If a rubber sealing ring and two Jubilee clips are used it is advisable for the Jubilee clip screws to be at the bottom where they will be more accessible if future adjustment is necessary.

Fit the rubber sealing rings around the rear ends of the "floating" ducts and secure each with one Jubilee clip. Roll back the rear edge of each sealing ring over the Jubilee clip so that it will not foul the engine intake during installation.

If the engine is being installed in a new or extensively repaired aircraft or in one in which the bearer arms are suspected of faulty alignment, the alignment of the bearer arm bolt holes and their relationship to the axis of the engine and the relationship between the ends of the "floating" ducts and the bearer arm pick-up points must be checked. If engines are being continually installed it will be advantageous to use a dummy front casing for the latter check; this should consist of an unserviceable front casing fitted with four diffuser eye-bolts so adjusted that the perpendicular distance between the air-intake and the eye-bolts is on the lower limit. With this front casing a check of the alignment of the complete air-intake system can be made as described on page 7.

Ensure that the cowling hooks are fitted with springs and tie back the hooks together with their springs to avoid damage to these parts when the engine is installed. On early aircraft it will be necessary to remove the four top attachment brackets on each side, to which are attached the rear cowling hooks.

Remove the two thermocouple terminal blocks, complete with bracket, from the starboard side of the engine bay.

Remove from the bottom of No.1 rib on each main plane the pipe which connects the front and rear of the wing tanks.

Ensure that the pipe which supplies cooling air to the generator and air compressor is fitted at the front starboard corner of the engine bay.

Check that all connections on the firewall are blanked off and remove all loose nuts, bolts, washers, pieces of locking wire etc., from the "ledge" formed each side of the engine bay by the lower flange of No.1 rib. Clean out the engine bay and "ledges" with a compressed air jet.

REMOVING ENGINE FROM TRANSPORT STAND

Wheel the transport stand to a convenient position near the aircraft. Attach the lifting

sling and adjust the eye on top of the sling to a suitable position for lifting the engine with the exhaust cone approximately level. Take the weight of the engine, remove the two trunnion bearer-caps, raise the engine and wheel away the transport stand, care being taken that the engine does not swing and sustain damage through contact with the stand. Remove the two brass trunnion bearings and the three trunnions, one beneath and one each side of the engine.

INSTALLING ENGINE IN AIRFRAME

The following instructions are applicable to Venom aircraft but may also be adapted to other installations. It is advisable to have five men (apart from the crane driver) available for the operation of lowering the engine into the airframe. These men should be stationed as follows:- one each side of the engine beneath the fuselage, one each side of the engine on the main planes, and one man at the rear of the engine to guide the exhaust cone into the engine bay. Each of the men surrounding the engine should be armed with an engine bearer bolt, which has a bullet-shaped cap of the same diameter as the plain portion of the bolt, screwed on the thread. These caps, which must be locally made, will enable the mounting eyes on the front of the engine to be aligned with the bearer arm pick-up points as the bolts are tapped home.

Immediately before the engine is installed, remove the air-intake blanking covers. To mount the engine, raise it above the fuselage and lower it gently, so that the diffuser casing passes through the cut-away portion of the flange of No.1 rib, on each side of the engine bay. The clearance is very small and this operation must be conducted slowly, whilst maintaining constant observation to ensure that the engine does not foul any components or fittings in the engine bay. Care must be taken to ensure that the engine is not lowered below the level of the bearer pick-up points, which may result in the engine air-intakes damaging the lower bearer struts sufficient to necessitate removing the engine. This damage can occur even after the top bolts are in position if the engine is allowed to "hinge" too low. The two lower men are in the position to watch these points and there must be a rapid system of communication between them and the crane driver, for damage can be done even if the engine is allowed to drop as little as half an inch.

As the engine is being lowered into position, guide the fire extinguisher flexible pipe between the combustion chambers. If the throttle and the H.P. cut-off control rods are connected to the aircraft they should be raised horizontally into position between the various pipes on the engine.

Engage the top pick-up points first and insert the bolts. Lower the engine slightly so that it hinges about the top pick-up points, when the bottom eye-bolts should slide easily between the lugs of the bottom pick-up points; insert the two lower bolts. When the four main mounting bolts are in position, insert the special bolts in the two front pick-up brackets. Bullet-shaped caps of additional length to those used for the main mounting bolts will be necessary, to assist insertion of the bolts, due to the inaccessible position of the pick-up brackets. Thoroughly inspect the engine and engine bay to ensure that nothing has been trapped or damaged during the foregoing operations.

Unscrew the "bullets" from the ends of the bolts. Assemble the special washers and the nuts to the bolts. Split-pin the nuts and wire the heads of the bolts to the four main pick-up lugs with 18 S.W.G. locking wire; wire-lock the nut and bolt of the two front pick-up brackets.

After the engine is secured to its mounting the exhaust cone/turbine disc clearance check must be completed and the turbine tip clearance checked, if these operations have not previously been carried out. The latter check must be repeated if the engine has received any rough treatment during installing, particularly if the turbine shroud has been heavily shock-loaded.

Remove the four nuts and bolts and take off the exhaust cone. To check the exhaust cone/turbine disc clearance measure the thickness of the four pieces of plasticene as described in Chapter 18. Instructions for checking the turbine tip clearance are described in Chapter 17. If the result of the checks is satisfactory, apply a thin film of Whitmores compound No.5 or anti-seize grease (D.T.D.392) to the thirty-four nuts and bolts and assemble the exhaust cone to the engine with the drain at the lowest point. Fit a tail pipe blanking cover.

Remove the blanking caps from the rear end of the front half of the four turbine disc cooling pipes (supplied with the engine), and the blanks from each end of the loose rear halves. Also take off the blanking plates from the ends of the exhaust cone support tubes, leaving the copper joint washer in place. The short air cooling pipes connect up with the forward of the two front support tubes and the long pipes with the rearward of the front support tubes. Ensure that a copper washer is in position around the end of the support tube, and carefully enter the air-cooling pipe in the sleeve in the bracket attached to the turbine shroud, at the same time positioning the elbow over the end of the support tube. Secure the pipe by fitting the two $\frac{1}{4}$ in. B.S.F. set-bolts. Fit the other three air-cooling pipes in a similar manner. The turbo starter, which has not yet been fitted, so that the top central engine mounting pick up bracket was accessible, must now be fitted in accordance with the instructions given in chapter 19.

AIR-INTAKES

Remove the air-intake blanking covers and using a torch or inspection lamp, ensure that a forward-facing step has not been formed at any point on the periphery of the joint at each end of the floating duct. Rearward facing steps are permissible as the tolerances are so arranged that the maximum specified cannot be exceeded; they are also difficult to see from the front of the aircraft. Using an inspection lamp placed below the aircraft, examine from above the engine, the gap between the floating duct and the engine air-intake. If the gap appears to be outside the limits 0.032 in., and 0.100 in., check with feeler gauges around the outside of the air-intake. Alternatively the gap may be inspected by using a mirror attached to the end of a long rod and checked with a feeler gauge consisting of a piece of metal of suitable thickness. Do not place in the air-intake any material from which splinters can fall and ensure that the feeler gauge is securely attached to the rod.

If the above requirements are not met, rectification may be possible by slackening the Jubilee clips or clamp ring securing the floating duct and adjusting the position of the duct.

Roll back the rubber sealing rings over the engine air-intakes and feed the long Jubilee clips around the intakes. Join up the two ends of each clip and adjust the clip so that it is situated between the beading on the edge of the rubber and that on the edge of the air-intake. Tighten the clip.

After all work has been completed ensure that nothing has been left in the air-intakes and replace the blanking covers.

EXHAUST CONE FIREGUARD

Instructions for assembling the fireguard are contained in Chapter 18. It should be noted that the turbine disc cooling pipes (page 6) must be assembled before the fireguard.

EXHAUST CONE THERMOCOUPLE

The thermocouple is fitted to the top of the three alternative positions provided in the exhaust cone. To gain access to the screwed adapter, pull off the pressed-steel cap on the fireguard. Remove the blanking plug from the adapter; apply a thin film of Whitmores compound, screw in and wire-lock the thermocouple. Replace the cap, arranging that the thermocouple lead passes through the slot in the cap.

COWL RAILS

The upper and lower rails for the engine cowl, in Venom aircraft, are supported on eye-bolts attached to the diffuser casing. If not already fitted the cowl rails should be attached at this stage, care being taken not to alter the setting of the eye-bolts from that previously established. Should fouling occur between the diffuser casing and the cowl rail stirrups, it is permissible to remove metal from the diffuser casing, at the point of contact, to a maximum depth of 0.125 inch. The indentation thus formed must be adequately radiused, and should be protected by a coating of black cellulose enamel; this, in effect, embodies mod.704.

OIL CONNECTIONS

The oil system is self-contained with the oil contained in the engine sump. With the exception of the drains, which are described below it is only necessary to make the following connections.

Remove the $\frac{1}{4}$ in. B.S.P. blanking nipple from the union situated at the bottom of the port side of the top wheelcase, and using the correct flexible pipe connect it to the oil pressure transmitter; wire-lock the union nut.

Remove the $\frac{3}{8}$ in. B.S.P. blanking nut from the oil thermometer pocket beneath the sump. If not previously fitted, insert the thermometer bulb and tighten and wire-lock the union nut.

FUEL SYSTEM CONNECTIONS

If the inlet union adapter has not been fitted to the L.P. filter, remove the blanking plate and assemble a jointing washer and the adapter to the flange face and secure with four nuts and spring washers. Connect up the flexible inlet fuel pipe and wire-lock the union nut.

Remove the blanking cap and connect the total head pressure pipe to the $\frac{1}{4}$ in. B.S.P. connection on top of the B.P.C. Connect the other end of the pipe to the forward portion of the total-head pipe on the starboard side of the firewall.

Remove the blanking cap from the $\frac{1}{8}$ in. B.S.P. union connection on No.2 burner, and connect up the fuel pressure gauge pipe. If a fuel pressure gauge is not fitted ensure that the union is securely sealed with a blanking nipple. Wire-lock the union nut.

If not previously fitted the fuel pressure warning switch must be attached to the top of the L.P. fuel filter. Disconnect the distributor spill pipe from the coupling above the filter outlet; remove the coupling, one sealing washer and blanking sleeve and assemble the switch to the banjo pillar. Re-assemble the sealing washer and secure the switch with the coupling. Re-connect the distributor spill pipe to the union connection on top of the coupling, and wire-lock the coupling and union nut.

DRAINS

Most of the drains will already be connected to the common drain box fitted beneath the front of the engine. The outlet from three drains are the only connections which have to be made.

The $\frac{3}{4}$ in. outlet from the drain box aligns with a cupped drain hole in the bottom of the engine cowling. The blanking cap must be removed from the drain pipe prior to fitting the cowling.

Remove the blanking caps and connect the $\frac{1}{8}$ in. B.S.P. hydraulic pump drain to the common drain box with the pipe provided with the engine. Wire-lock the union nuts.

Remove the blanking cap and attach the stub pipe to the $\frac{1}{2}$ in. B.S.P. drain connection beneath the front end of the exhaust cone. Wire-lock the pipe.

Remove the blanking cap and attach the drain pipe to the $\frac{1}{2}$ in. B.S.P. drain connection beneath the front end of the fireguard. The other end of the pipe pushes on to the exhaust cone drain stub pipe, and is supported by a clip. The drain outlet is in the middle of the pipe and aligns with a hole in the engine cowling.

No connections are made to the combustion chamber drain which aligns with a cupped hole in the bottom of the engine cowling; remove the blanking cap prior to fitting the cowling.

CONTROLS

The controls should be adjusted so that their travel is limited by the stops on the engine and not by the aircraft stops. Adjustment must be made only to the aircraft portion of the

control system and the engine stops must not be altered. When the adjustment is correct there should be a small amount of spring at each end of the cockpit lever travel.

Both the throttle and high pressure cut-off controls are fork end levers, each being fitted with a self-aligning eye-end having an internal thread to receive the threaded control rod. The other end of the control rod is provided with a left-hand thread to enable adjustment of the control linkage. If the eye-end on the aircraft control rod has not been disturbed it will be expedient for the purpose of adjustment to remove the eye-end from the replacement engine and use the existing eye-end already fitted to the aircraft control rod. If the control adjustment has not previously been set or has been altered, it will be necessary to unscrew the control rod from the aircraft end of the linkage and simultaneously screw the rod into both eye-ends until the correct adjustment is obtained.

AIR CONNECTIONS

Cabin air supply and gun heating are obtained from two 1.0 in. B.S.P. connections located on the front of the diffuser casing between numbers 4 and 5 and between 9 and 10 combustion chamber cascade covers, the former for cabin air supply and the latter for gun heating. Remove the blanking covers and, using the appropriate pipe assembly, connect the cabin air supply union to the hot-and-cold air valve mounted on the port bearer arm. The canopy seal air supply is tapped from the same pipe assembly. Connect the gun-heating supply union to the tapping on the firewall.

The fuel tanks are pressurised from two tappings in the rear of the diffuser casing, situated between No. 1 & 10, and 1 & 2 combustion chambers. Remove the two blanking caps from the air supply banjo adapters, and connect each banjo to one of the two reducing valves which are mounted on the bearer arms, using the appropriate flexible pipes; the reducing valves and the pipes are aircraft components. Mod.332 transfers the drop tank pressurisation banjos and banjo bolts from the aircraft D.I.S. to the engine D.I.S., and, therefore, where mod.332 has not been embodied, before the flexible pipes can be connected up, it will be necessary to prepare the engine thus. Remove the union adapter, complete with blanking nipple and union nut, from each of the two small, four-sided, cast adapter plates which are situated between No.1 & 10, and 1 & 2 combustion chambers, and secure two banjo adapters (Part No.95336) and washers (AGS.568B - 4 off) with banjo bolts (AGS.1213B - 2 off) to the adapter plates.

ELECTRICAL CONNECTIONS

The exhaust cone thermocouple leads emerge from a hole in the rear of the fireguard on the top of the engine. In Venom aircraft they should be connected to the rear terminal block which is mounted on the port side of the engine bay on the same bracket as the terminal block for the rear bearing thermocouple.

The thermocouple leads from the rear bearing are led between No. 5 and 6 nozzle junction pipes and the leads should be connected to the terminal block mounted on the fireguard even though the related instrument may not be fitted in the cockpit.

To complete the ignition system the appropriate Breeze plug must be inserted into each high energy condenser unit situated on the front of the diffuser casing at each side of the air-intakes. The high tension connection to the igniter plug is already made.

The leads must be connected to the terminals on the fuel pressure warning switch which is located on the L.P. filter.

To connect the tachometer generator terminals, remove the terminal cover and the blanking cap from the union. Insert the cable, tighten the union nut and attach the numbered leads to the appropriate terminal screws; replace the cover.

To connect the oil temperature gauge, insert the plug into the end of the bulb socket; tighten and wire-lock the bakelite union nut.

To connect the isolating solenoid on the Lucas pump, remove the circular end-cover, connect the leads and replace the cover.

The turbo-starter electrical connections are effected through a Breeze plug situated between the two cartridge breeches. This is a four-pin plug (Breeze type CZ.28091) of which only three pins are used. Connect up the appropriate mating socket (Breeze type CZ.27901) and

tighten the union nut.

The electrical bonding of all hose-pipes, etc. must be carried out.

FIRE EXTINGUISHER CONNECTIONS

This is a $\frac{1}{2}$ in. B.S.P. union on the rear extinguisher ring and is situated between No.2 and 3 combustion chambers. Connect up and wire-lock the union nut.

AIRCRAFT ACCESSORIES

The engine-driven aircraft accessories must be connected to their services as described in the relevant aircraft handbook.

CHECKING THE INSTALLATION

Check all connections for tightness and ensure that all lockings are securely made. Ensure that the transport blanks have been removed from all drains and the connections made. Examine all unused connections to ensure that they are correctly blanked. To prevent chafing all flexible or rigid pipes with a long run between supports, should be bound with waxed twine, over empire tape, at the points where they cross other rigid pipes or structural members etc.

PREVENTION OF CORROSION

When the complete installation has been passed as satisfactory, a close examination of the engine must be made for damage to the anti-corrosive protective coating. Any such damage must be rectified by applying Lanolin Resin protective to specification D.T.D. 663 with a suitable brush. At the same time all nuts, bolts, or other parts fitted during installation must be coated with Lanolin Resin protective whenever the surface is exposed.

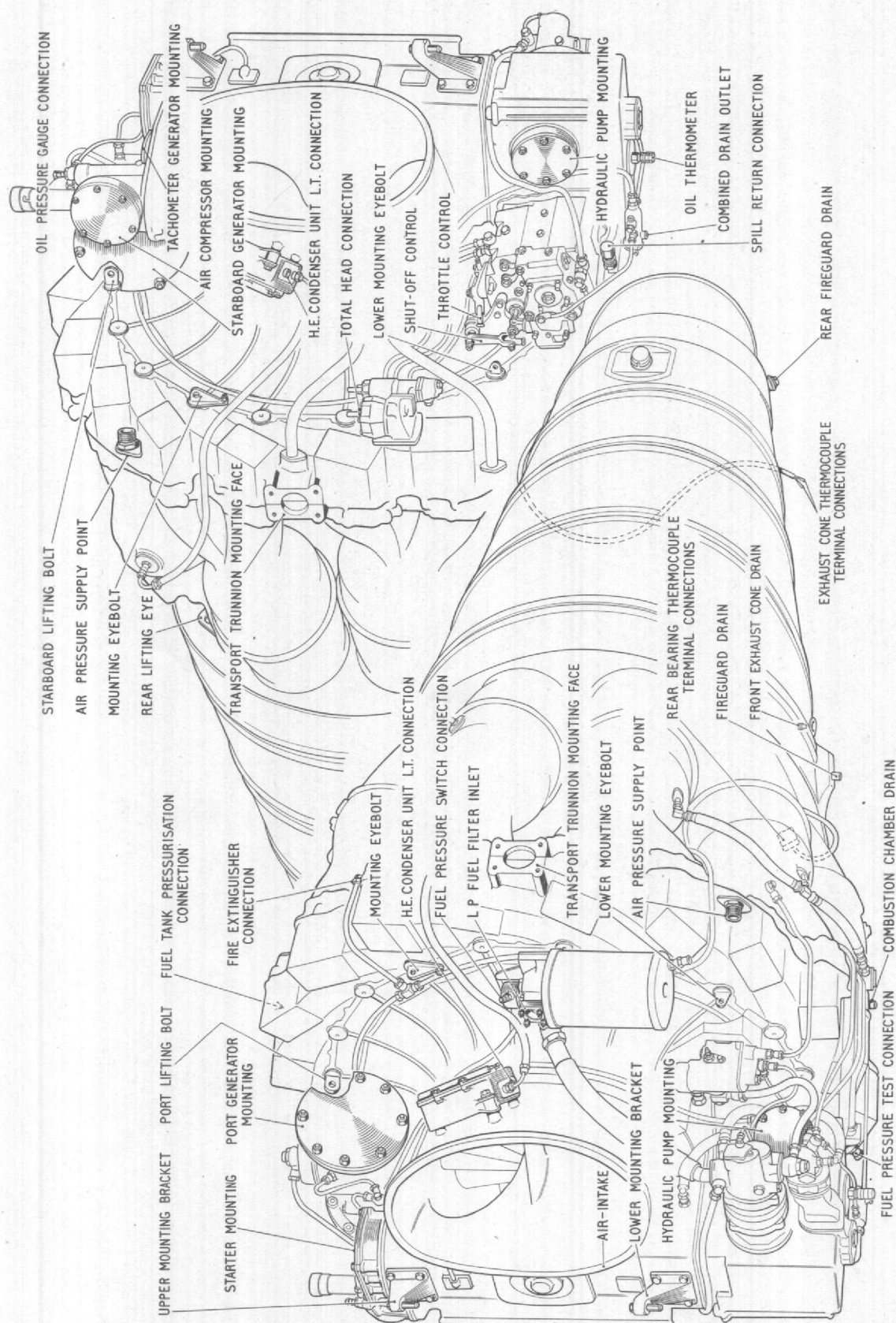


Fig. 2 Principal installation connections, Ghost 48 Mk. 2.

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