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CONFIDENTIAL

ARROW 2

MAINTENANCE INSTRUCTIONS

Jacking the Arrow 2

Report No. 72/MAINT 00/4

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1. INTRODUCTION

1.1 Purpose

This instruction outlines the procedures to be followed when jacking the complete aircraft, or when jacking at the base of a landing gear leg in order to carry out a wheel change etc.

1.2 Location of the Jacking Points (Figure 1)

1.2.1 A nose jacking point is located on the lower stress panel under the front fuselage at Sta. 254.25.

1.2.2 A main jacking point is located on the underside of the inner wing at the rear of each main landing gear leg. A helicoil insert, threaded 5/8" UNF is inserted in each Rib 9 to accommodate the jacking pad or blanking plug.

A 3/16" diameter nylon rod is installed diametrically across the threaded portion of the blanking plug to lock the plug in the installed position.

1.2.3 A fork at the bottom of the sliding portion of each main landing gear leg forms the attachment for the bogie beam. A ball-type jacking point, located on the outboard section of the fork, permits jacking at the base of the main leg.

1.2.4 Two arms, projecting forward from the lower fitting on the nose gear leg, form the jacking points for nose leg jacking.

2. GROUND EQUIPMENT

2.1 Equipment for Aircraft Jacking

2.1.1 The following items are required:

2.1.1.1 Jack, Hand Hydraulic Tripod type 20 ton (4G/1334, Avro Ref. No. 128).

2.1.1.2 Adaptor, Aircraft Jacking, Wing (4G/2989, Avro Ref. No. 131C).

2.1.1.3 Adaptor, Aircraft Jacking, Nose (4G/2988, Avro Ref. No. 131A).

2.1.2 The closed height of the jack should be fixed at 72" for a nose gear jack and at 90" for main gear jacks.

2.1.3 The main gear jack adaptor pads are threaded 5/8" UNF for fitment to Arrow 2 aircraft.

2.2 Equipment for Wheel Jacking

2.2.1 The following items are required:

2.2.1.1 Jack, Hand Hydraulic Flat-base, Main Wheels (4G/3392, Avro Ref. No. 129A).

2.2.1.2 Jack, Hand Hydraulic Flat-base, Nose Wheels (4G/3393, Avro Ref. No. 129B).

2.2.1.3 Adaptor, Aircraft Jacking, Nose L/G (4G/2987, Avro Ref. No. 132).

2.2.1.4 Strap, Retaining, Main L/G Bogie (4G/3112, Avro Ref. No. 130).

2.2.2 The main gear bogie retaining strap is provided for attachment to lugs at each end of the main gear telescopic tie-rod. If it is required to jack a forward main wheel clear of the ground, the strap will prevent extension of the tie-rod and thus minimize the extension on the jack.

NOTE:

The bogie retaining strap is not designed to take the load of the liquid spring and, therefore, must not be in position when jacking the aircraft using the main 20 ton jacks.

3. JACKING PROCEDURES

3.1 Jacking the Aircraft

3.1.1 Jacking requirements are outlined in Maintenance Report No. 70/MAINT 00/1, Arrow Jacking Requirements.

3.1.2 Normally, it will not be necessary to level the aircraft longitudinally. The aircraft should be jacked relative to its ground attitude i.e. approx. 4° nose up.

3.1.3 Ensure that the aircraft is standing on a hard, level surface and proceed as follows:

3.1.3.1 Fit the nose jacking pad spigot into the .625" dia. hole at Sta. 254.25 and tighten the three holding bolts which are permanently retained with the pad.

3.1.3.2 Unscrew the plug from the main jacking point under each wing and fit the jacking pad. Screw the pad home fully so that the pad fits snugly against the wing skin.

3.1.3.3 Position the jacks and extend them to contact the jacking pads, using the threaded adjustment on the jacks to extend the ram.

NOTE

If access to the electronics bay is required during the period when the aircraft is on jacks, open the electronics bay door prior to positioning the nose jack.

3.1.4 When jacking the aircraft, all three jacks should be raised simultaneously, in order to prevent undesirable side loads from being applied to the jacks. The same precautions should also be applied when lowering the aircraft. In addition to the three men operating the handles, a fourth man should supervise the operation to ensure that the above precautions are observed.

3.2 Levelling the Aircraft (Figure 2)

3.2.1 To level the aircraft laterally, or laterally and 4° nose up for harmonization purposes, proceed as follows:

3.2.1.1 Hook the alignment fixture rear pick-up brackets over the entensions on the nose leg pivot bolts.

3.2.1.2 Unclip the front bracket support shaft from its stowed position on the alignment fixture and insert the shaft into the drag strut pivot fitting. Lower the alignment fixture to contact the support shaft.

3.2.1.3 Tighten the trunnion screws to secure the rear pick-up brackets to the nose leg pivot bolts.

3.2.1.4 Jack the aircraft as outlined in Para. 3.1., using an inclinometer on the alignment fixture pads to check the level as required.

3.2.1.5 At Avro Aircraft, Malton, the levelling procedure has normally been carried out using Pt No. 7-4200-8300-RB1 levelling boards, in place of the alignment fixture. These items are hung from the missile pack hoist pick-up points and an inclinometer is placed on their levelling plates.

3.3 Jacking at the Base of the Main Leg

3.3.1 To jack a main wheel clear of the ground, ensure that the aircraft is standing on a hard, level surface and proceed as follows:

3.3.1.1 Chock the main wheels on the opposite side and also the nose wheels.

3.3.1.2 Position a main wheel flat-base jack under the jacking point at the base of the leg.

3.3.1.3 If it is required to jack a forward main wheel clear of the ground, insert the pip-pins to connect the bogie retaining strap to the lug at each end of the telescopic tie-rod. Adjust the strap until it is taut.

3.3.1.4 Jack as required.

3.4 Jacking at the Base of the Nose Leg.

3.4.1 To jack the nose wheels clear of the ground, ensure that the aircraft is standing on a hard, level surface and proceed as follows:

3.4.1.1 Chock the main wheels.

3.4.1.2 Position a nosewheel flat-base jack just forward of the nose wheels and insert the nose wheel jack adaptor between the jack and the arms on the nose leg lower fitting.

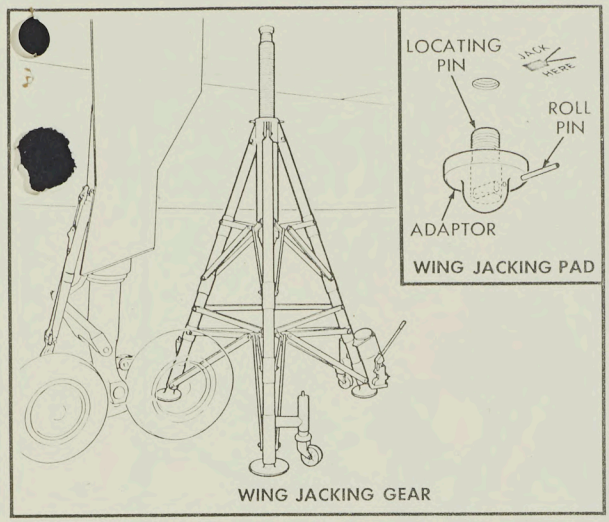
3.4.1.3 Adjust the jack and the adaptor until both are firmly and squarely located.

3.4.1.4 Jack the nose wheels just clear of the ground.

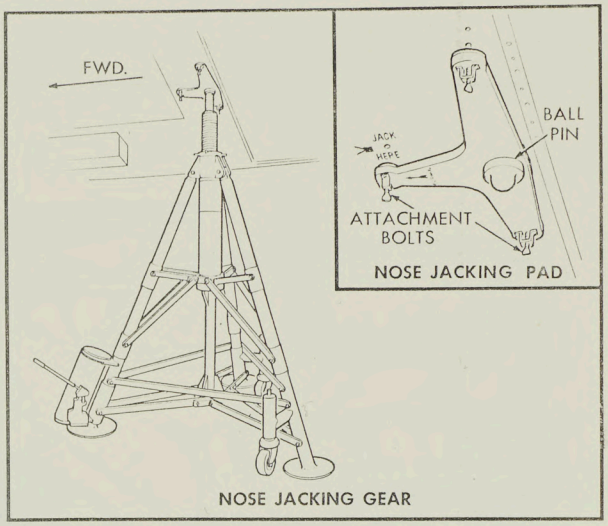
NOTE

The jacking joint at the base of the nose leg is provided mainly to cater for fast wheel changes on the airfield and to eliminate the necessity for transporting heavy and bulky jacks to the aircraft. With these points in mind, it is anticipated that the aircraft will normally be in a complete state, or complete except for the instrument/armament pack, and that the fuel load will be distributed in a configuration suitable for flight. Under these

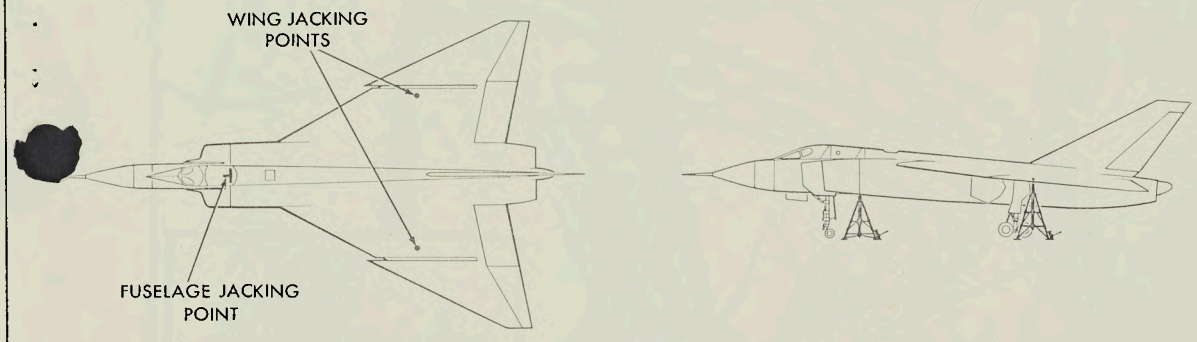
conditions, there is no danger of the C of G moving aft sufficiently to unbalance the aircraft about the main wheels. However, under any other conditions the restrictions outlined in Maintenance Report No. 70/MAINT 00/1, Arrow Jacking Requirements are particularly applicable when jacking at the base of the nose leg.



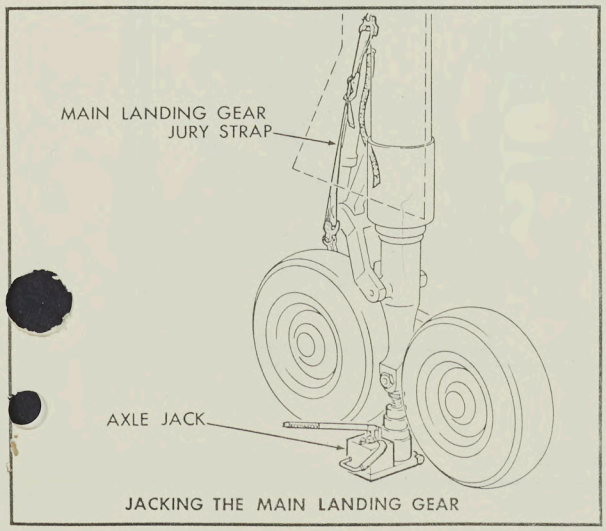
WING JACKING GEAR



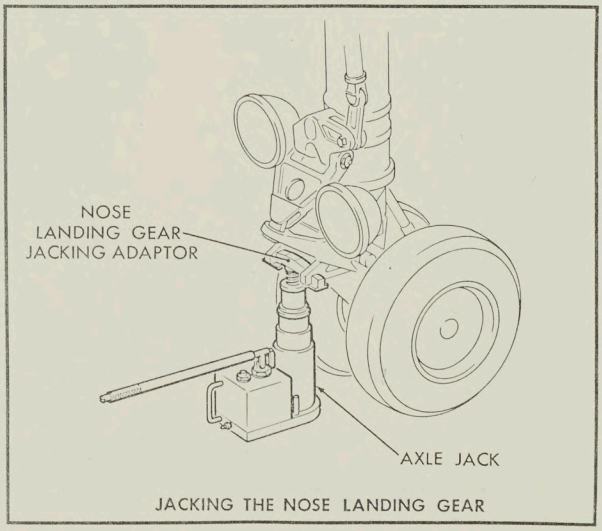
NOSE JACKING GEAR



JACK LOCATION DIAGRAMS



JACKING THE MAIN LANDING GEAR



JACKING THE NOSE LANDING GEAR

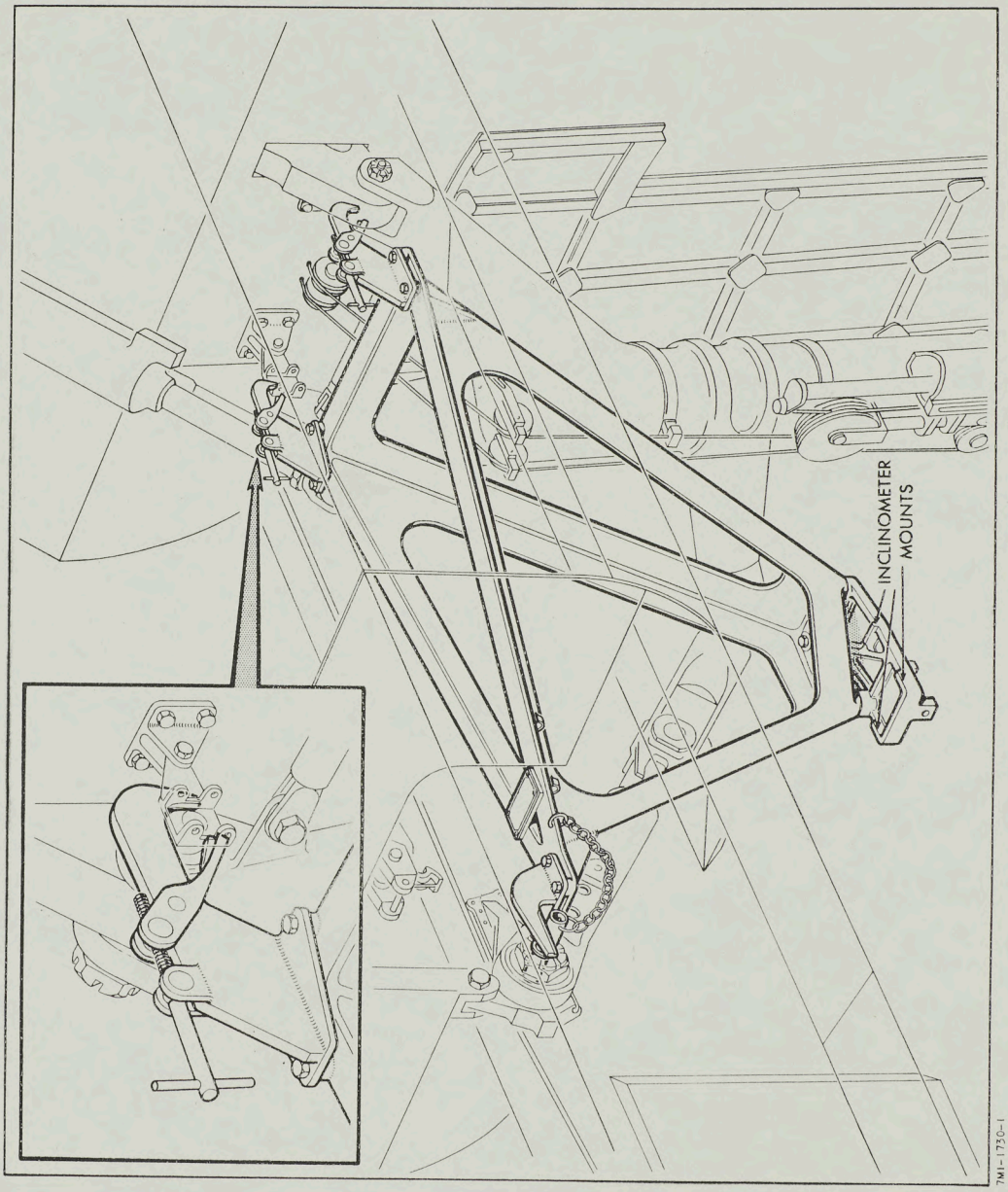


FIGURE 2

AIRCRAFT ALIGNMENT FIXTURE