11. Completing the Fuselage

*Engine Installation*
Fit Engine Mount

Reference: Photo 11.16(a)

Parts Required:
- 4025094  Backing Plate – Engine Mount (4)
- AN4-20A  Bolt (4)
- AN3-11A  Bolt (2)
- AN960-10  Washer (2)
- MS20365-428 Nyloc Nut (4)
- MS20365-1032 Nyloc Nut (2)

Material Required:

Procedure:

1. The top engine mount bolt holes have been pilot drilled so enlarge the holes to ¼”. However the ¼” or 3/16” holes on the bottom cross tube have not been drilled so you have to do this latter.
2. Lift the engine mount into position and insert the top two AN4-20A bolts then the bottom two. Refer to photo 11.16(a).

3. On the inside, place the backing plate – engine mount on the bolt and then the nut. Repeat for all remaining bolts. Tighten all nuts.
4. Drill the 3/16” holes through the cross tube and firewall.
5. Insert the AN3-11A bolts, washer and nut then tighten.

Photo 11.16(a) – Installing the Engine Mount.
Engine Installation

Reference: Photo 11.17(a)
Figures 11.17(a)

Parts Required:
- 4094224  Washer – Engine Mount (4)
- 42114931 Washer Engine Mount Spacer (4)
- AN4-31A  Bolt (4)
- AN960-416 Washer (4)
- MS21042-4 Nut (4)
- PG10712N Cushion – Mount Female (4)
- PG10722N Cushion – Mount Male (4)

Materials Required:

Procedure:

1. Place the spacers on the bottom engine mounts
2. Position the male engine mount cushions on all the engine mount points.
3. Lift the engine on the bottom mounts first then the tops.
4. Push all the female engine mount cushions into place on the top mounts.
5. Insert the bolt from the rear and then add spacer, washer and nut.
6. Tighten until one and half threads protrude through the nut. Refer to Photo 11.17(a).
7. Repeat step 5 and 6 for the other three mount points.
Figure 11.17 – Illustration of engine mount assembly details
Top Engine mount Rubber

Bottom Engine mount Rubber

PROCEDURE NAME  PROC NO.  ISSUE  DATE  PAGE
Engine Installation  11.17  1  230399  3
Fit Choke Cable Assembly

1. Trim outer cable to correct length. This is determined by fitting the cable to the instrument panel or the firewall (depending on the panel type), routing the cable in the straightest line possible to the carby & cutting to length.

2. Crimp the 5/16” threaded end to the outer cable using the crimp tool & a vice. Note: You may need to run a drill through the threaded end after crimping to enlarge the hole. See Photo.
3. Attach to Outer cable to Carby using the threaded end with a lock nut either side of the mounting plate.
4. Insert the inner cable into outer cable while cable is attached to aircraft.
5. Attached brass pin to inner cable & insert pin into Carby. Push inner cable through & bend the inner cable around the pin & cut the inner cable excess. See Photo.

6. Solder the 3/16” brass tube to the end of the inner cable. This is best done while attached to Carby so that you will get the correct length.

7. Cycle the cable from fully open to fully closed & make sure the leaver is hitting both stops on the Carby.
Carby Heat Cable Assembly

Reference: Drawing
            Photos

Parts Required: Carby Heat Cable (1)
                Cable End fitting (1)
                Split Pin (1)

Material Required: Solder

1. Insert cable into aircraft instrument panel & route in the most direct route to the hot air mixer box.
2. Drill a ½” hole through the firewall level with the cable mounting position.
3. Insert cable through grommet
4. Remove the inner cable from the outer & Trim outer cable to correct length while in aircraft. Leave about 10mm past the mounting block on the heat box.
5. Insert the inner cable and cut the inner cable to 96mm from the end of the thread.
6. Solder the 3/16” steel tube to the end of the inner cable making sure to bend the end of the cable around the pin before soldering.
SHORTEN OUTER CABLE TO CORRECT LENGTH

CABLE LENGTH DEPENDS ON INSTRUMENT PANEL

PROCEDURE NAME  PROC NO. ISSUE  DATE PAGE
Engine Installation 11.17 1  230399

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART No.</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PC0105N</td>
<td>CABLE ASSY. FOR REWORK</td>
<td>1</td>
</tr>
</tbody>
</table>

UOM: +/- 0.5 UNLESS SPECIFIED

MATERIAL: PURCHASED PARTS TO PS22N-10

AVTECH P/L
A.C.N. 010 786 973
THINKER AIRPORT
BUNDABERG

TITLE
CABLE ASSEMBLY - CARBY HEAT

SCALE 1:1
ISS. 271295
DATE 24/11/97
DRAWN 3074054

Sheet 2 of 1
Connect Engine

Reference: Photos
Parts Required: Various – Refer to Packing List for this Section

Materials Required:

Procedure:

1. Connect the fuel line to fuel pump. Refer to photo. Make sure the fireproof sleeve is in place.
2. Connect the fuel pump to the carburettor.
3. Ensure that the fuel overflow line is in place, refer to photo and secured to vent overboard. Refer to photo.
4. Connect the throttle and choke, refer to photo.
5. Fit the oil over flow bottle to the firewall by drilling and bolt the oil bottle holder in place. Refer to photo.
6. Connect the oil breather line.
7. Ensure that the oil overflow line is in place and vents overboard (refer to photo).
8. Fit Scat hoses-Air scoop to Air Inlet Housing Assembly-Hot Air Muff to Carby Heat Inlet Air Inlet Housing Assembly to the Carburettor. (refer to photo)
Photo – Fuel Line, Fuel Pump, Fuel Overflow

Photo – Connecting the Fuel Line to the Fuel Pump
Photo– Connecting Throttle and Choke
Photo – Positioning the Oil Overflow Bottle
Photo – Connecting the SCAT Hose
**Fit Engine Sensors**

**Reference:** Photo

**Parts Required:**
as detailed

**Materials Required:**

**Procedure:**

**Cylinder Head Temperature Sensor**
The cylinder head temperature sensor used in Jabiru aircraft is a J-type thermocouple located under the rear spark plug of No: 4 cylinder. The VDO 310 980 Cylinder Head Temperature Gauge Kit is installed as standard equipment in the Jabiru Aircraft.

Photo– Position of oil temperature sensor, oil pressure sensor and oil pressure switch
Oil Temperature Sensor
The Oil Temperature Sensor used is a VDO 320 028 which is located in the bottom of the sump as shown in photo 11.19(a).

Oil Pressure Sensor
The oil pressure sensor is located at the base of the oil filter and this can be seen in photo 11.19(a). The sensor used is VDO 360 001

Exhaust Gas Temperature Probe
The exhaust gas probe used on Jabiru’s is a VDO 310 306 Pyrometer which is supplied as a complete kit.

The probe is mounted in an exhaust pipe and as such the mount must be welded on (this fitting is not standard) and this is best done at the time of order although the exhaust pipe may be returned and the fitting added it may take a couple of weeks before the pipe is returned to you.

Magnetic Pick-up Sensor (Tachometer)
The sensor used is a 6.35 x 22 mm analogue magnetic pick-up and is fitted to a bracket on the alternator housing as shown in photo 11.19(c) in the engine electrical section.

Photo 11.19 (c ) – Tacho sender location
**Overview:**
The oil cooler positioning can be a little different depending on the cowl type & the clearance that you might have. The mounting brackets will attach to the sump in the same position, but it may be necessary to move the oil cooler up or down on the bracket to ensure you have good clearance between to Oil cooler & the lower cowl.

**Procedure:-**
1. By using the second fin in from the side of the sump, rivet the brackets onto the fin.
2. Place the Oil Cooler onto the bracket to it is evenly spaced. Keep in mind that you may need to move the cooler up or down so that you get enough cowl clearance.
3. When happy with the position of the cooler, screw the cooler onto the bracket with self tapping screws to make sure you have the cooler in the correct place.
4. Screw MS35206-245 screw into a lug anchor nut from top to make a drilling jig. Refer to Photos.

5. When happy with the fit, drill 3/32 holes to 5/32” & insert drilling jig into hole. Drill the two 3/32” rivet holes on the retained nut into the joggle. Repeat procedure for remaining 3 holes.

6. Screw MS35206-245 screw into a lug anchor nut from top to make a drilling jig. Refer to Photo.

7. Insert drilling jig in pre-drilled 5/32” holes, then drill 3/32” mount holes for rivets. Refer to Photo

8. After rivet holes drill 5/32” screw holes to 11/64” (this will allow clearance for screws)

9. Counter sink 3/32” rivet holes being careful not to get too deep.

10. Rivet lug anchor nuts in place as per photo

11. Screw Cooler into place & fit oil hoses, making sure that the fire-sleeve is put over the oil hose.
Fitting Ram Air Ducts

Reference: Photos
Drawing: 9111094

As the Jabiru Ram air cooling ducts that are used on the Jabiru engines are fitted to a large number of different aircraft, the nose of the duct is left longer for different applications. It may be necessary to cut the front of the Duct down to fit your cowl. When satisfied with the length, cut 1mm insertion rubber to length, sand rubber & cooling duct to ensure a good bond. Bond with 5-min Araldite making sure you have about ½” overlap.

Fitting Ram air cooling duct with Tension spring
Wire is wound around the cylinder to hold the spring for attachment to the aluminium angle which is riveted to the Ram air Cooling Duct. Only attach too the front two cylinders i.e. #1 & 2 Cyl.
**Gull Wing Baffle for 6 Cylinder engines only**

These are fitted between the cylinders in order to enable air to go through the head fins. The Ram air cooling ducts fit over the Gull Wings after the gull wings are fitted.

See Photo below to indicate where lock wire wraps around cylinders on L&R hand side.

**Fitting procedure:**

1. Wrap wire around the front cylinder making sure you are against the cylinder & not around any pushrod tubes.
2. Feed the wire up through the Gull wing, pulling the wire until it is tight.
3. Push lock wire back down through the second hole & wrap around the next cylinder.
4. Repeat step 2 & 3.
5. To finish the lock wire off, make a loop through the spring & tension it enough to pull the Gull wings into the cylinder Valleys.

---

*Australia’s Own – Light Sport Aircraft*
Gull Wings pre-fitted between cylinders

Gull Wing Fitted with Lock wire & spring