



Pre-Paint>Fuselage>Firewall forward>Assemble and fit nose gear

Issue Revision Table

Issue	Date:	Change(s):	Issued by:
1			
2			
3	18/11/2021	Adopt "Section Only" Manual System, Add Issue Revision Table and model applicability. Change yoke bolt to AN4-43A (was AN4-72A) Add further reference to 'soft-link' steering linkage	AS

Model Applicability

Aircraft Model	J-160	J-170	J-230	J-430
Document Applicability			Yes	Yes

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Pre-Paint>Fuselage>Firewall forward>AssembleAndFitNoseGear

Objectives of this task:

To assemble and fit the nose gear including the front wheel to the stage where the aircraft is standing on its own 3 wheels, the main gear having been fitted previously.

Materials required:

Card # 7J 'Undercarriage'

Card # 19J 'Nose leg'

Card # 20JT 'Nose wheel'

Epoxy resin and flock

Steps

1. Assemble the nose leg
2. Assemble the nose leg housing
3. Fit the nose leg housing
4. Assemble the nose wheel
5. Fit the nose leg and nose wheel



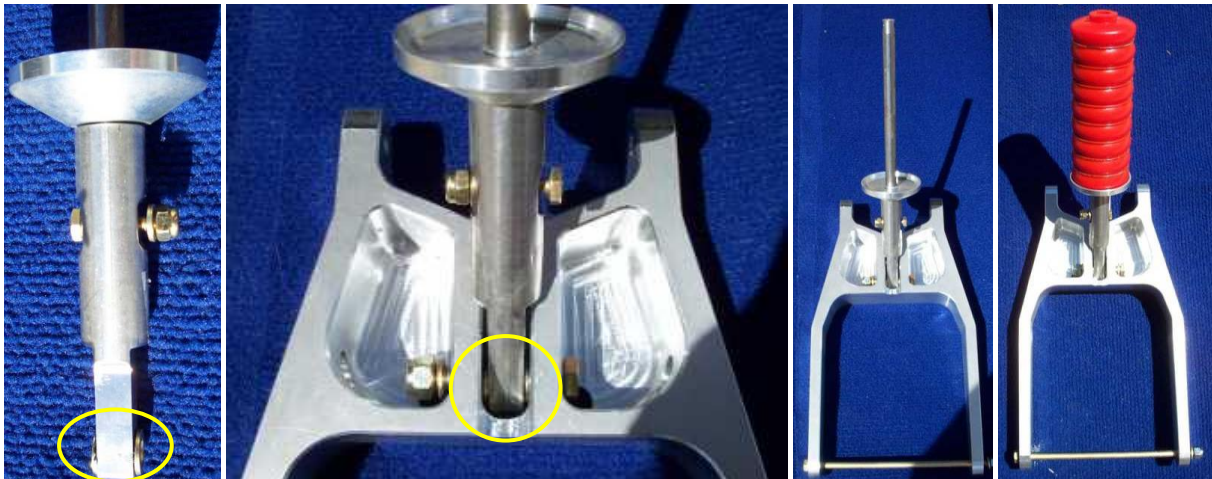
Assemble the nose leg

Assemble the nose leg by reference to the drawing **several** pages over.

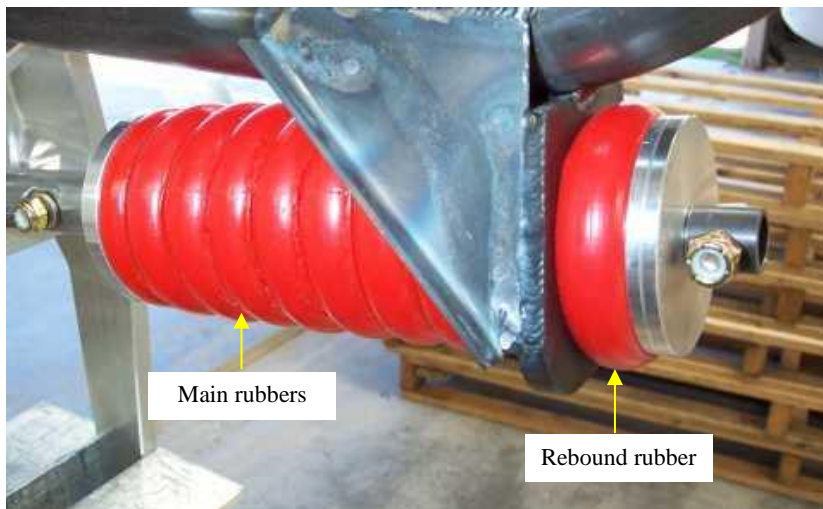
Press the nylon bush through the tube at the bottom of the leg (photo at right, flock in place if needed) and then fit the machined yoke with an **AN4-43A** bolt, washer and castellated nut. Use a split pin to retain the castellated nut. Fit the lower retaining collar to the machined section of the nose leg (arrowed above) with an AN3-22A bolt.

Fit the lower part of the suspension shaft to the yoke, placing the nylon bush through the bottom hole, superglue a washer on each side and secure in the yoke with an AN5-15A bolt, washer and Nyloc nut as shown circled in yellow in the photos below.



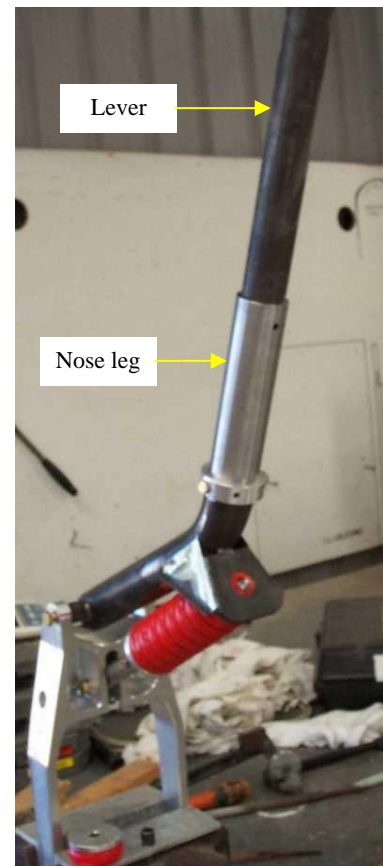


Slip the upper shaft into the lower section and secure with an AN3-7A bolt, washer and Nyloc nut. Slip the red suspension rubbers over the upper shaft. Note that in the photos above the nose leg has been left out for clarity.



Clamp the yoke in a vise and use a long bar inserted into the top of the nose leg as a lever to compress the rubbers so that the rebound rubber and the machined washer can be fitted to the top of the suspension shaft and secured with an AN3-6A bolt and Nyloc nut.

Compressing the rubbers will require substantial pressure: the lower part of the leg will need to be horizontal in order to fit the retaining bolt. Take care that the yoke is firmly held by the vise and apply downward pressure on the lever smoothly.



Tighten the Nyloc nut firmly and then slowly release the pressure on the lever.

Assemble the nose leg housing

Note that the photos immediately below show the older solid steering link, the more recent design features a 'soft-link' steering link assembly which is detailed later in this section. Regardless of which steering link is used the same procedure here applies for assembling the nose leg housing.

Assemble the top and bottom plates to the spacer with the supplied cap screws – clean the threads, use a drop of Loctite 620 on each cap screw and tighten firmly. Clean the nylon bushes and the matching holes in the top and bottom plates with Acetone and sand all surfaces to be bonded and then fit the bushes into the plates, pushing both bushes from the outside in towards the middle. Align the flats on the bush collars to clear the cap screws.



Fit the assembly onto the nose leg with the steering link on top and check for freedom of movement. When you are satisfied that there is no binding, mix a small batch of flock and flock the bushes into the plates, taking care not to get any flock onto the nose leg.

Use a mixing stick to smooth the flock as shown at above right and leave overnight to cure, **after which the nose-leg is removed.**

Drawings of the nose leg and nose leg housing follow on the next 2 pages.



PART NUMBER		DESCRIPTION	QTY
1	6A004A0D	H.D. NOSE LEG ASSY - MACHINED YOKE, BIG FOOT.	1
2	6A002C0D	RUBBER ASSY NOSE LEG - MACHINED YOKE, BIG FOOT.	1
3	6A002B0D	NOSE LEG RUBBER SHAFT BASE (MACHINED YOKE)	1
4	6A002D0D	NOSE LEG RUBBER LOWER END WASHER (MACHINED YOKE)	1
5	6065044	FRONT AXLE BIG FOOT	1
6	6064044	SPACER BUSH - FRONT AXLE BIG FOOT	2
7	PB6A000N	5/16 ID, 3/8 OD, 3/8 LONG SKF GLYCODUR F BUSH	1
8	AN960-516	WASHER	6
9	6061044	RETAINING COLLAR - NOSE LEG RUBBER	1
10	AN3-06A	3/16" BOLT	1
11	AN4-64A	BOLT - USED BOTH WITH AND WITHOUT SPAT	1
12	AN960-416	1/4" FLAT WASHER	1
13	MS20365-428	1/4" NYLOC NUT	1
14	AN5-42	5/16 BOLT	1
15	AN310-5	5/16" CASTLE NUT	1
16	MS24665-132	COTTER PIN	1
17	6A002E0D	NOSE LEG RUBBER SHAFT TOP (MACHINED YOKE)	1
18	AN3-07A	3/16" BOLT	1
19	AN960-10	3/16" FLAT WASHER	1
20	6A002F0D	NOSE LEG RUBBER TOP WASHER (MACHINED YOKE)	1
21	604709N	BUSH SUSPENSION - BIG FOOT PIVOT.	1
22	6A002C3D	REBOUND RUBBER - MACHINED YOKE NOSE LEG.	1
23	6191004	RETAINING COLLAR FRONT SUSPENSION	1
24	AN3-22A	3/16" BOLT	2
25	AN960-10L	3/16" FLAT WASHER (1/2 THICKNESS)	2
26	MS20365-1032	NUT	4
27	6A051A0D-5	FORGED NOSE WHEEL YOKE- BIG FOOT (500X6) (MACHINED FORGING)	1
28	459884N	5/16" REDUCED HEX LOCK NUT	1
29	AN5-15A	5/16 BOLT	1
30	6A056A0D-1	DIE CAST 6" NOSE WHEEL ASSY	1
31	6A045A0D-2	NOSE LEG STEERING RUBBER CONNECTION ASSY J160 SERIES	1

 PROJECTION LIMITS UNLESS SPECIFIED OTHERWISE ± 0.1 MATERIAL REFER TO PART DRAWINGS	 DIMENSIONS IN MILLIMETRES	DO NOT SCALE	AVTECH P/L	ISS 2 - SOFT LEG STEERING RUBBER ADDED AS 2 17/11/14 SCALE VAR ISS. DATE THIS DRAWING IS COPYRIGHT AND MUST NOT BE COPIED WITHOUT THE CONSENT OF AVTECH PTY LTD DWG. No. 6A0065A0D-2 TITLE NOSE LEG & WHEEL ASSY - MACHINED YOKE, BIG FOOT, CAST 6" WHEEL
		DRAWN AS	A.C.N. 010 786 973 HINKLER AIRPORT BUNDBERG 4670	

Fit the nose leg housing

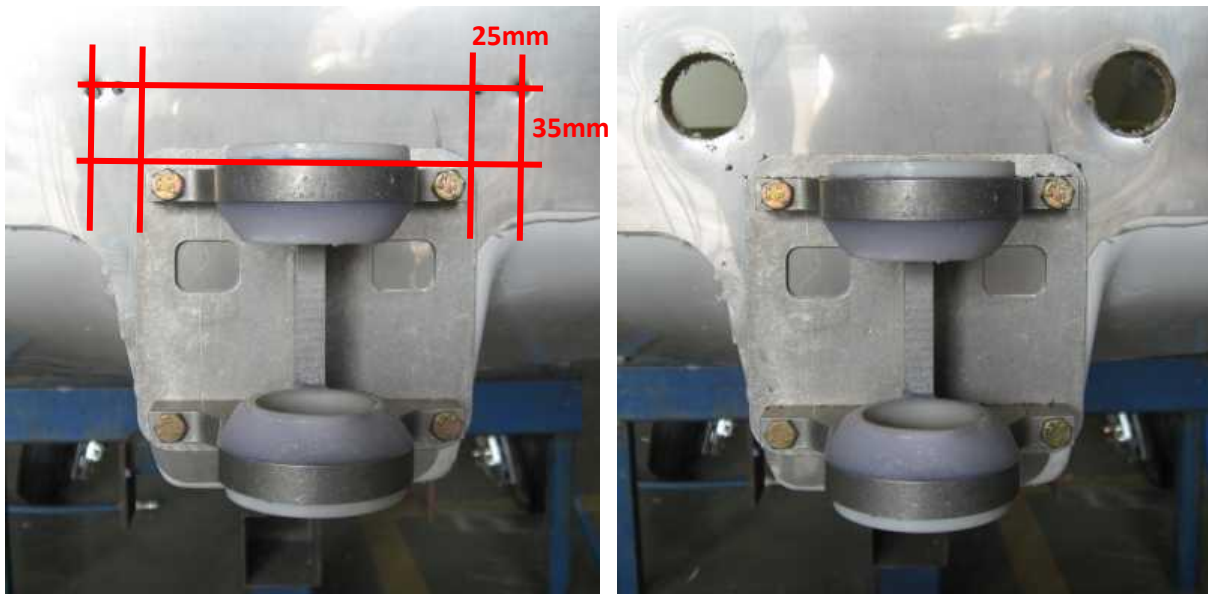
Level the aircraft laterally: a straightedge across the bottom of the front doorframes or across the front wing attachment lugs will provide a good reference, then pack under the main wheels as required in order to level the aircraft in the lateral or rolling plane.



Place a straightedge or ruler under the centre of the fuselage and measure up 20mm. This is the position for the bottom of the square outer backing plate for the nose gear housing.

Centre the outer backing plate on the lower firewall and drill one top 1/4" hole only and push a bolt through, then fit up the nose gear housing and place a digital protractor or a spirit level across the top of the white bush as shown above and carefully level the nose gear housing.

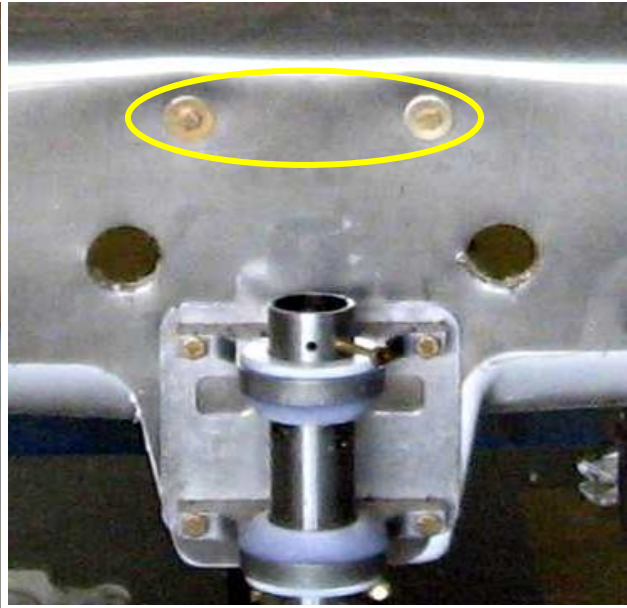
Once it is level, drill the other top hole and recheck for level then drill the bottom holes and bolt the nose gear housing in place. You will need to flock the 2 internal braces in place at this time – sand and clean the surfaces to be bonded then mix a small batch of flock and coat the back of each brace then press into place and secure with 2 x AN4-16A bolts at the top and 2 x AN4-22A bolts at the bottom and tighten the Nyloc nuts firmly.





Drill the holes for the steering links: measure out 25mm and up 35mm from the top plate and drill a pilot hole, then use a 1¼" (32mm) hole saw to drill through the firewall. Note that the predrilled holes in the firewall may not be in the correct positions, so measure carefully as above.

Drill the top holes of the internal braces (circled at right and at above right) from the back of the firewall and then fit the bolts from the firewall side with 1 penny washer under the head of each bolt and a normal washer and Nyloc nut on the inside of the firewall.



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Assemble the nose wheel

Press a bearing into each side of the hub until the bearing reaches the bottom of the machined hole – use a large socket or piece of heavy tube that is slightly smaller in diameter than the outside of the bearing to press against the outer rim of the bearing. A small hand press or a bench vise would be ideal for the purpose. **Do not** press against the inner rim of the bearing – this can damage the bearing.



Fit the bearing spacers into the bearings with a drop of Loctite 480 and slide the axle through the spacers.

Check each end of the axle and spacer: both ends should be exactly level. If this is not the case then grind either the axle or the spacer until they are level. If the width of the wheel and spacers are wider than the length of the axle this will put a side load of the wheel bearings.

Partially inflate the inner tube with the valve out, then liberally coat the tube with talcum powder, fit it into the tyre and place the tyre on the hub with the valve stem facing up and then fit the rim to the hub, making sure that the valve stem is through the hole in the rim, bolt the rim to the hub, taking care not to pinch the inner tube, and inflate the tyre to 35 PSI.

A drawing of the nose wheel can be found on the next page.

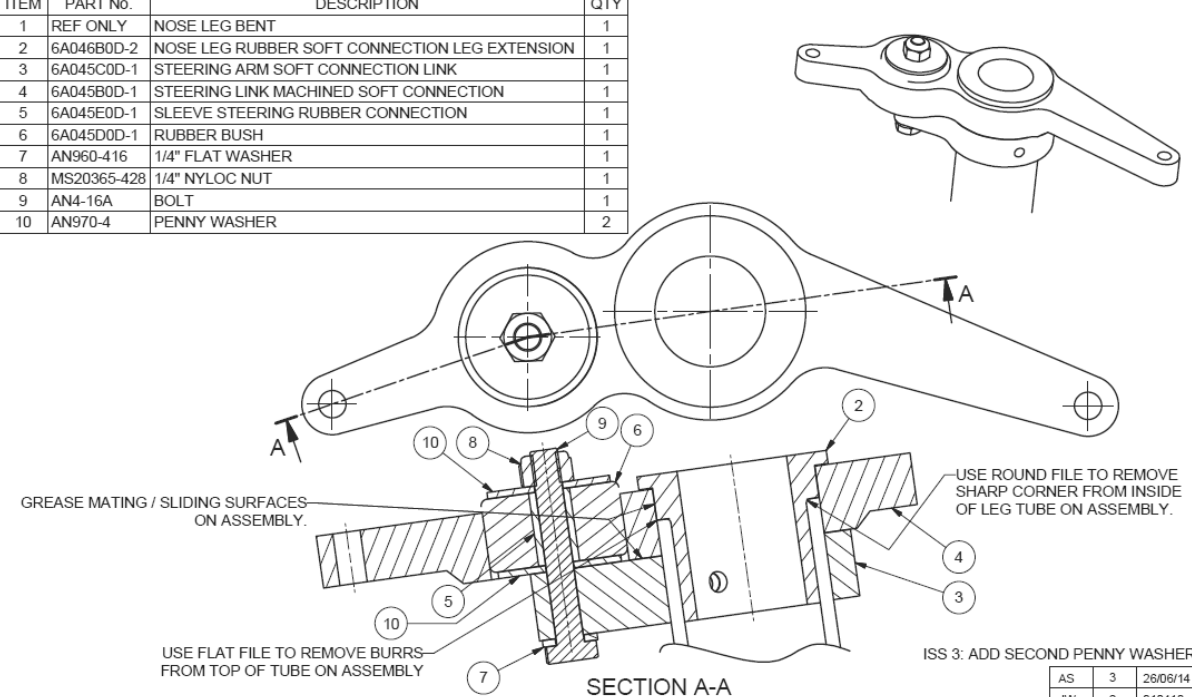
Assemble Rubber soft-link steering yoke



The most current nose legs feature a rubber soft-link nose leg steering yoke subassembly which is mounted above the top plate of the nose-leg housing, instead of the older solid nose leg steering yoke. A photograph and drawing are provided to reference during the assembly of the rubber soft-link steering yoke. (the photo on the left shows the nose-leg installed and finished with the soft-link steering arm)

Use the nose-leg as guide to align each part. Slide the steering link (small teardrop shaped aluminium part) first and the steering arm (larger aluminium part) on-top as pictured. Insert the cylindrical rubber damper with 1/4 inch penny washers top and bottom and bolt in place with AN4-16A bolt, nyloc nut and washer under the head of the nut. Remove the soft-link steering yoke assembly from the nose-leg.

ITEM	PART No.	DESCRIPTION	QTY
1	REF ONLY	NOSE LEG BENT	1
2	6A046B0D-2	NOSE LEG RUBBER SOFT CONNECTION LEG EXTENSION	1
3	6A045C0D-1	STEERING ARM SOFT CONNECTION LINK	1
4	6A045B0D-1	STEERING LINK MACHINED SOFT CONNECTION	1
5	6A045E0D-1	SLEEVE STEERING RUBBER CONNECTION	1
6	6A045D0D-1	RUBBER BUSH	1
7	AN960-416	1/4" FLAT WASHER	1
8	MS20365-428	1/4" NYLOC NUT	1
9	AN4-16A	BOLT	1
10	AN970-4	PENNY WASHER	2



AS	3	26/06/14
JW	2	010410
ISS.	1	31/03/2010
DATE		

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GENERAL TOLERANCES WHOLE NO.'S ± 0.5 ONE DEC. ± 0.25 TWO DEC. ± 0.05 ANGLES ± 0.5	DRAWN JW		A.C.N. 010 786 973 HINKLER AIRPORT BUNDBERG 4670		1:1	6A046A0D-3
MATERIAL AS DETAILED	APPR.			TITLE		SHEET 1 OF 1 A4
				NOSE LEG STEERING RUBBER CONNECTION ASSY J230 SERIES		

Fit the nose leg and nose wheel

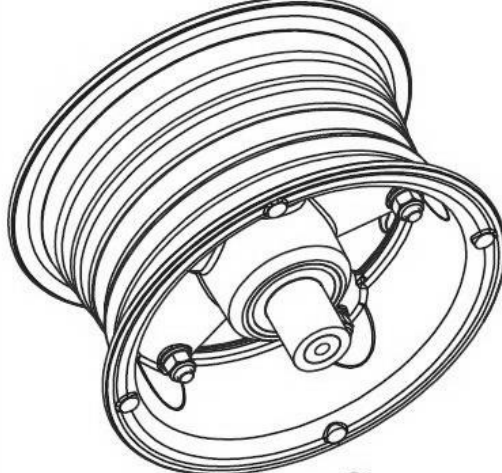
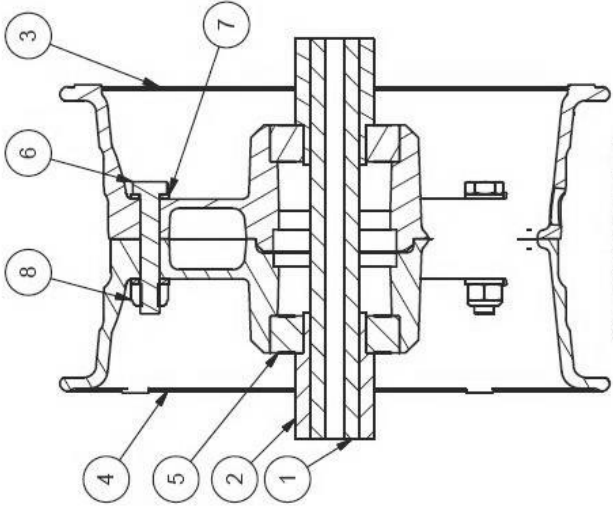
Slide the nose leg up into the nose leg housing and fit the rubber soft-link steering yoke (arrowed but not shown in photo) above the top bush with the arms of the yoke swept back towards the firewall. Secure the yoke to the nose leg with an AN3-22A bolt and Nyloc nut.

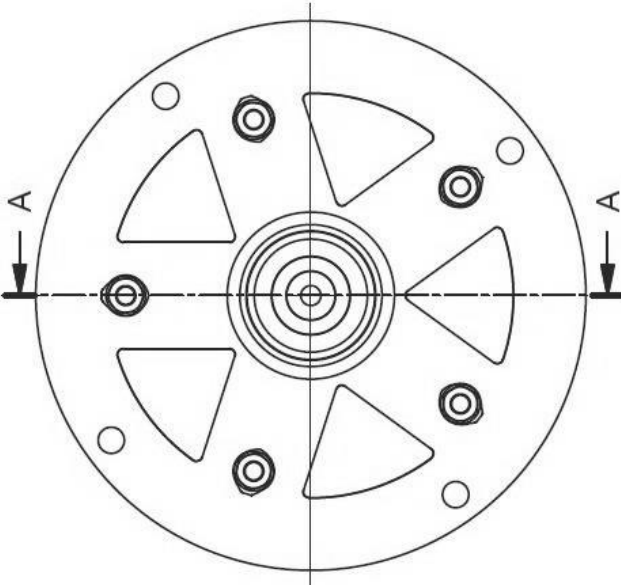
Roll the front wheel into the machined yoke and fit with the AN4-72 bolt. Use a washer and castellated nut, tighten the castellated nut and secure it with a split pin.

The aircraft is now sitting on its own wheels, however it will still need a trestle under the empennage until the engine has been fitted in the next task.




ITEM	PART No.	DESCRIPTION	QTY
1	6065044-5	FRONT AXLE BIG FOOT	1
2	6064044-4	SPACER BUSH - FRONT AXLE BIG FOOT	2
3	6A056B0D-2	DIE CAST 6" NOSE WHEEL MACHINED HALF WITH VALVE HOLE	1
4	6A056C0D-2	DIE CAST 6" NOSE WHEEL MACHINED HALF WITHOUT VALVE HOLE	1
5	PB0029N-1	BEARING	2
6	AN4-14A	BOLT	5
7	AN960-416	1/4" FLAT WASHER	10
8	MS20365-428	1/4" NYLOC NUT	5



SECTION A-A

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	1:2				
TITLE DIE CAST 6" NOSE WHEEL ASSY			DWG. No. 6A056A0D-2		
SHEET 1 OF 1 A4					

AVTECH P/L A.C.N. 010 786 973 HINKLER AIRPORT BUNDEBERG 4670	DO NOT SCALE DRAWN: JW APPR.	DIMENSIONS IN MILLIMETRES GENERAL TOLERANCES WHOLE NO.'S ± 0.5 ONE DEC. ± 0.25 TWO DEC. ± 0.05 ANGLES ± 0.5°	PROJECTION 
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This completes the *Pre-Paint>Fuselage>Firewall forward>Assemble and fit nose gear* task

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