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

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 # J7 *'Undercarriage'*

Card # J19 *'Nose leg'*

Card # J20 *'Nose wheel'*

Epoxy resin and flock

Steps

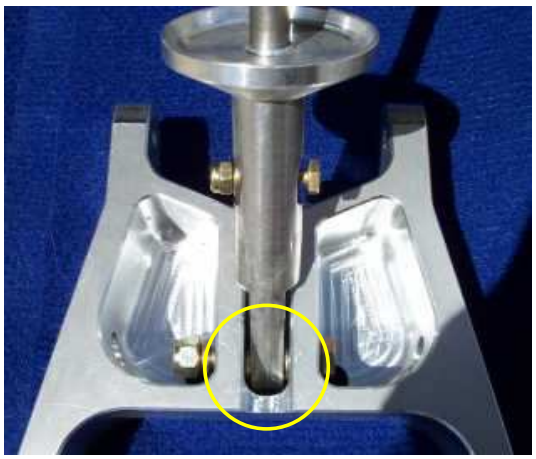
1. Assemble the nose leg
2. Assemble the nose leg housing
3. Fit the nose leg housing
4. Assemble the nose wheel
5. Fit the nose leg and nose wheel

Assemble the nose leg

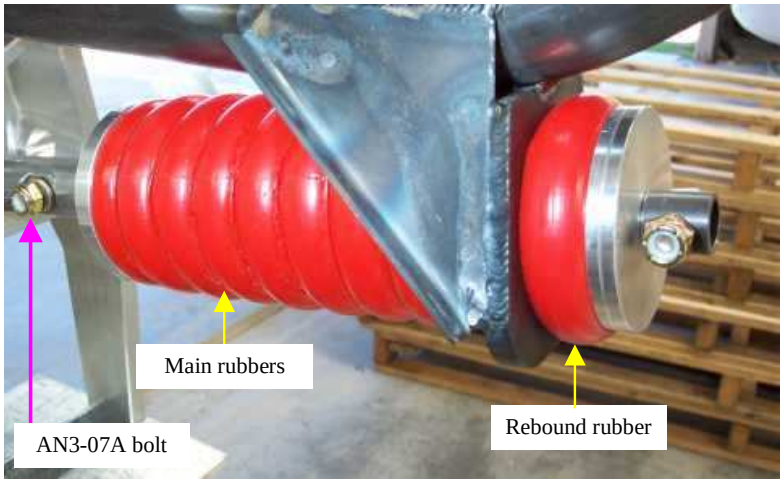
Assemble the nose leg by reference to the drawing 2 pages over.

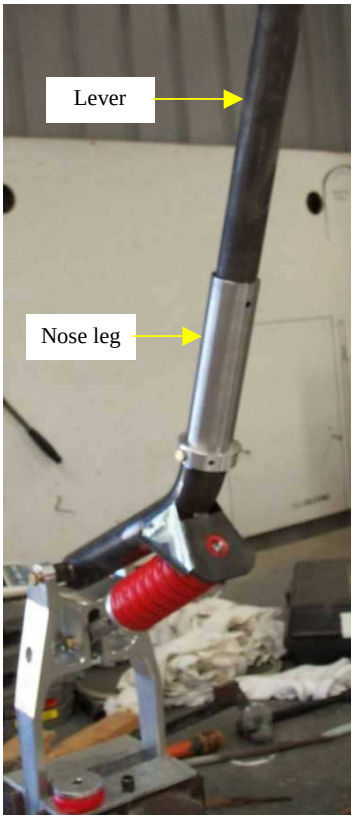
Press the nylon bush through the tube at the bottom of the leg (photo at right) and flock in place if needed, then fit the machined yoke with an AN4-72A bolt, washer and castellated nut. Use a split pin to retain the castellated nut. Fit the lower retaining collar to the machined section of the nose 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 tapered lower washer onto the lower suspension shaft and place the red suspension rubbers over the upper shaft as shown above right. Note that in the photos above the nose leg has been left out for clarity.





Fit the machined washer and rebound rubber to the top of the inner suspension shaft and secure to the shaft with the retaining collar and an AN3-06A bolt and Nyloc nut. 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 until the inner shaft can be secured with an AN3-07A retaining bolt (**arrowed** above left).

Compressing the rubbers will require substantial pressure: the lower part of the leg will need to be almost 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

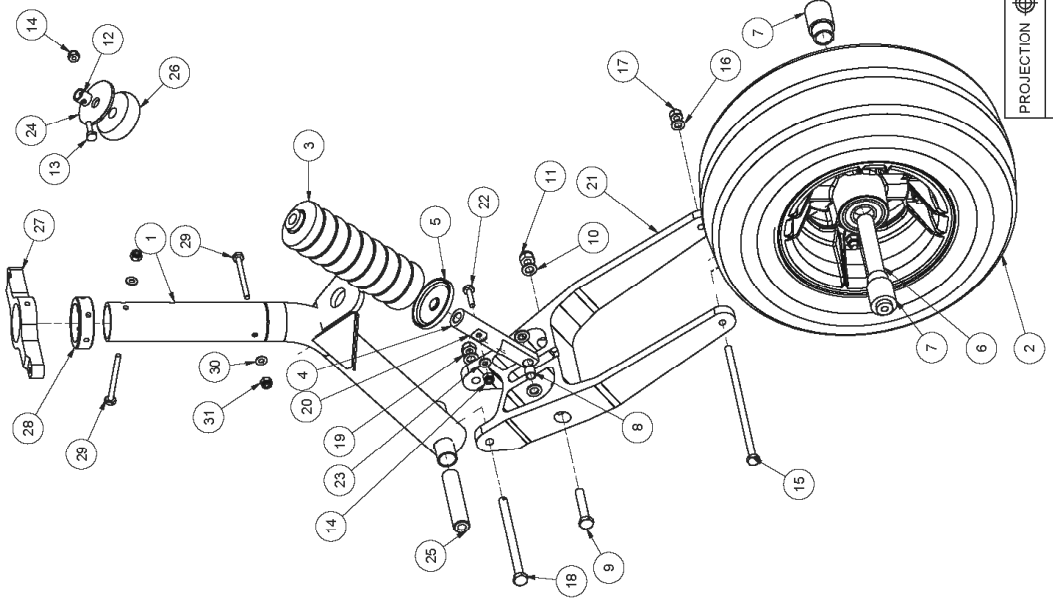
Assemble the top and bottom plates to the spacer with the supplied cap screws – clean the threads, use a drop of Loctite 620 on each cap screw and tighten firmly. Clean the nylon bushes and the matching holes in the top and bottom plates with Acetone and sand all surfaces to be bonded and then fit the 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 a retaining collar or yoke bolted to the 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. Drawings of the nose leg and nose leg housing follow on the next 2 pages.

Parts List

ITEM	PART NUMBER	DESCRIPTION	QTY
1	6A004A0D	H.D. NOSE LEG ASSY - MACHINED YOKE, BIG FOOT.	1
2	6213023	NOSE WHEEL ASSY - CAST RIM, BIG FOOT.	1
3	6A002C0D	RUBBER ASSY NOSE LEG - MACHINED YOKE, BIG FOOT.	1
4	6A002B0D	NOSE LEG RUBBER SHAFT BASE (MACHINED YOKE)	1
5	6A002D0D	NOSE LEG RUBBER LOWER END WASHER (MACHINED YOKE)	1
6	6065044	FRONT AXLE BIG FOOT	1
7	6064044	SPACER BUSH - FRONT AXLE BIG FOOT	2
8	PB6A000N	5/16 ID, 3/8 OD, 3/8 LONG SKF GLYCODUR F BUSH	1
9	AN5-15A	5/16 BOLT	1
10	AN96C-516	WASHER	4
11	MS20365-524	5/16" NYLOC NUT	1
12	6061044	RETAINING COLLAR - NOSE LEG RUBBER	1
13	AN3-06A	3/16" BOLT	1
14	MS20365-1032	NUT	4
15	AN4-63A	BOLT - WHEN USED WITHOUT SPATS. USE BOLT P/No. AN4-72 WHEN SPATS ARE INSTALLLED	1
16	AN96C-416	1/4" FLAT WASHER	1
17	MS20365-428	1/4" NYLOC NUT	1
18	AN5-43	5/16 BOLT	1
19	AN310-5	5/16" CASTLE NUT	1
20	MS24665-132	COTTER PIN	1
21	6A001A0D-8	MACHINED NOSE WHEEL YOKE - BIG FOOT	1
22	AN3-07A	3/16" BOLT	1
23	AN96C-10	3/16" FLAT WASHER	1
24	6A002F0D	NOSE LEG RUBBER SHAFT TOP (MACHINED YOKE)	2
25	6047109N	BUSH SUSPENSION - BIG FOOT PIVOT.	1
26	6A002C3D	REBOUND RUBBER - MACHINED YOKE NOSE LEG.	1
27	6200014	STEERING LINK MACHINED LEG 4 SEATER	1
28	6191004	RETAINING COLLAR FRONT SUSPENSION	1
29	AN3-22A	3/16" BOLT	2
30	AN96C-10L	3/16" FLAT WASHER (1/2 THICKNESS)	2



PROJECTION | DIMENSIONS IN MILLIMETRES | DO NOT SCALE | AVTECH P/L A.C.N. 010 786 973 HINKLER AIRPORT BUNDABERG 4670

LIMITS UNLESS SPECIFIED OTHERWISE ± +/-1 | DRAWN DS

MATERIAL REFER TO PART DRAWINGS | APPR.

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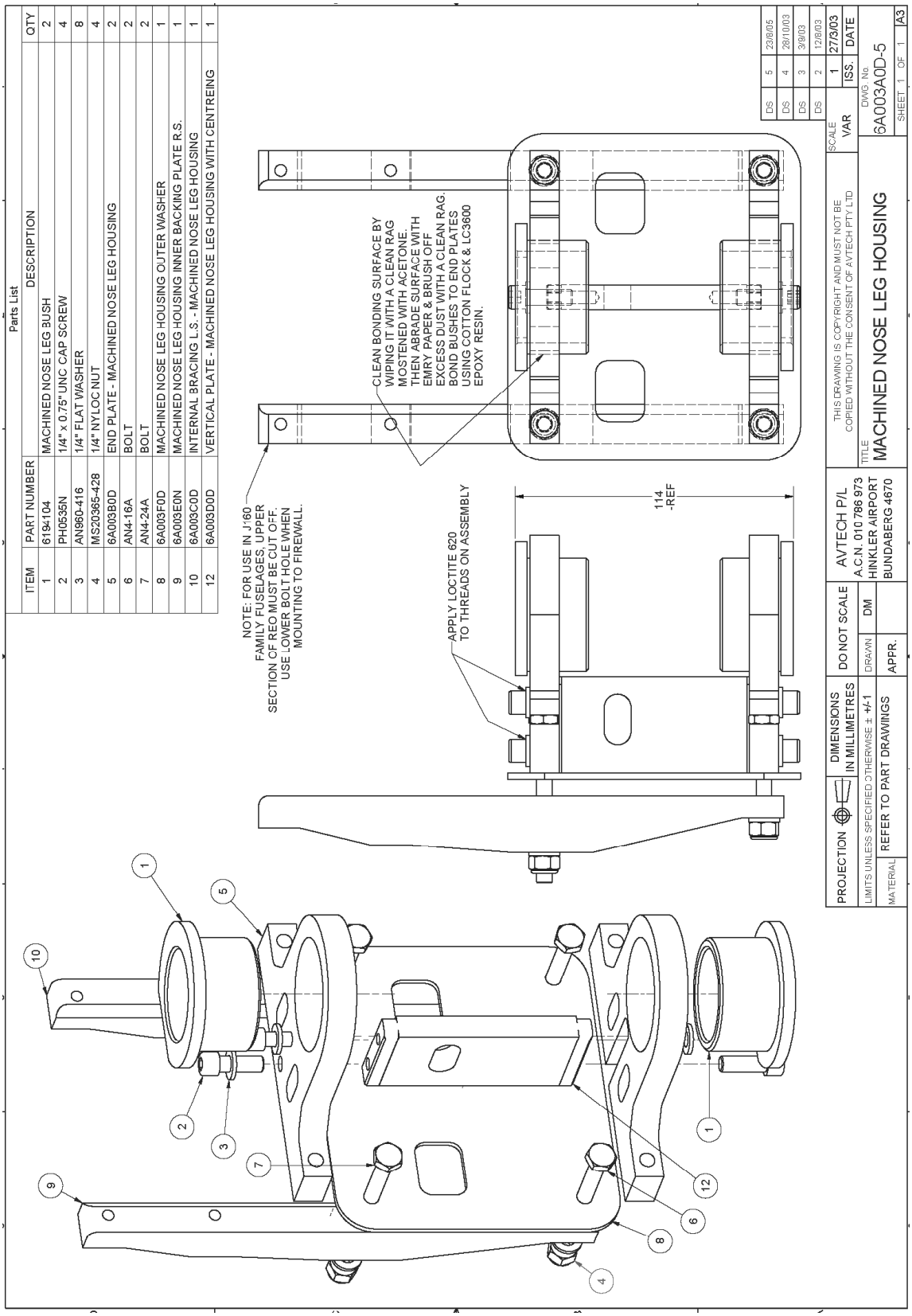
TITLE NOSE LEG & WHEEL ASSY - MACHINED YOKE, BIG FOOT

SCALE VAR | DWG. No. 6A002A0D-5

ISS.	DATE
1	8/5/03
2	16/6/03
3	3/10/03
4	02/03/04
5	181104

JW | DM | DS | DS

SHEET 1 OF 2 | A3


Parts List
ITEM | PART NUMBER | DESCRIPTION | QTY
1 | 6194104 | MACHINED NOSE LEG BUSH | 2
2 | PH0535N | 1/4" x 0.75" UNC CAP SCREW | 4
3 | AN960-416 | 1/4" FLAT WASHER | 8
4 | MS20365-428 | 1/4" NYLOC NUT | 4
5 | 6A003B0D | END PLATE - MACHINED NOSE LEG HOUSING | 2
6 | AN4-16A | BOLT | 2
7 | AN4-24A | BOLT | 2
8 | 6A003F0D | MACHINED NOSE LEG HOUSING OUTER WASHER | 1
9 | 6A003E0N | MACHINED NOSE LEG HOUSING INNER BACKING PLATE R.S. | 1
10 | 6A003C0D | INTERNAL BRACING L.S. - MACHINED NOSE LEG HOUSING | 1
12 | 6A003D0D | VERTICAL PLATE - MACHINED NOSE LEG HOUSING WITH CENTREING | 1
NOTE: FOR USE IN J160 FAMILY FUSELAGES. UPPER SECTION OF REO MUST BE CUT OFF. USE LOWER BOLT HOLE WHEN MOUNTING TO FIREWALL.
CLEAN BONDING SURFACE BY WIPING IT WITH A CLEAN RAG MOISTENED WITH ACETONE. THEN ABRADE SURFACE WITH EMRY PAPER & BRUSH OFF EXCESS DUST WITH A CLEAN RAG. BOND BUSHES TO END PLATES USING COTTON FLOCK & LC3600 EPOXY RESIN.
APPLY LOCTITE 620 TO THREADS ON ASSEMBLY
114 -REF
DS 5 23/8/05
DS 4 28/10/03
DS 3 3/8/03
DS 2 12/8/03
ISS. 1 27/3/03
DATE
SCALE VAR
DWG. No. 6A003A0D-5
SHEET 1 OF 1 A3
TITLE: MACHINED NOSE LEG HOUSING
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HINKLER AIRPORT
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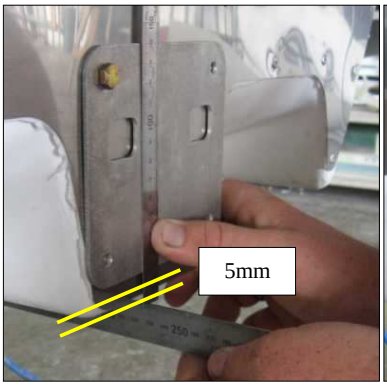
DIMENSIONS IN MILLIMETRES
LIMITS UNLESS SPECIFIED OTHERWISE ± +/-1
MATERIAL REFER TO PART DRAWINGS
PROJECTION

Fit the nose leg housing

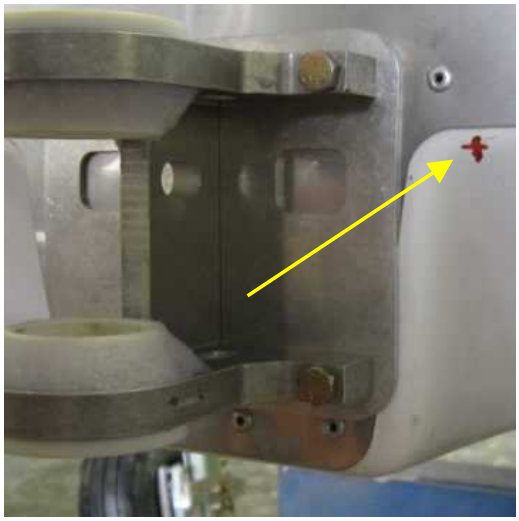
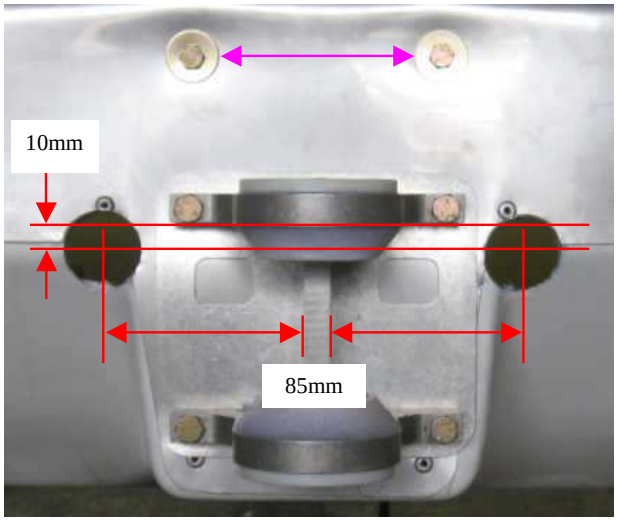
Level the aircraft laterally: a straightedge across the bottom of the front doorframes or across the front wing attachment lugs will provide a good reference, then pack under the main wheels as required in order to level the aircraft in the lateral or rolling plane.




Place a straightedge or ruler under the centre of the fuselage and measure up 5mm. 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 ¼" 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 – trim to length then sand and clean the surfaces to be bonded. 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 85mm from each side of the centre plate and down 10mm from the bottom side of the top plate and mark and drill a pilot hole, then use a 1¼" hole saw to drill through the firewall.

Drill the top holes of the internal braces (arrowed in purple 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.

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.

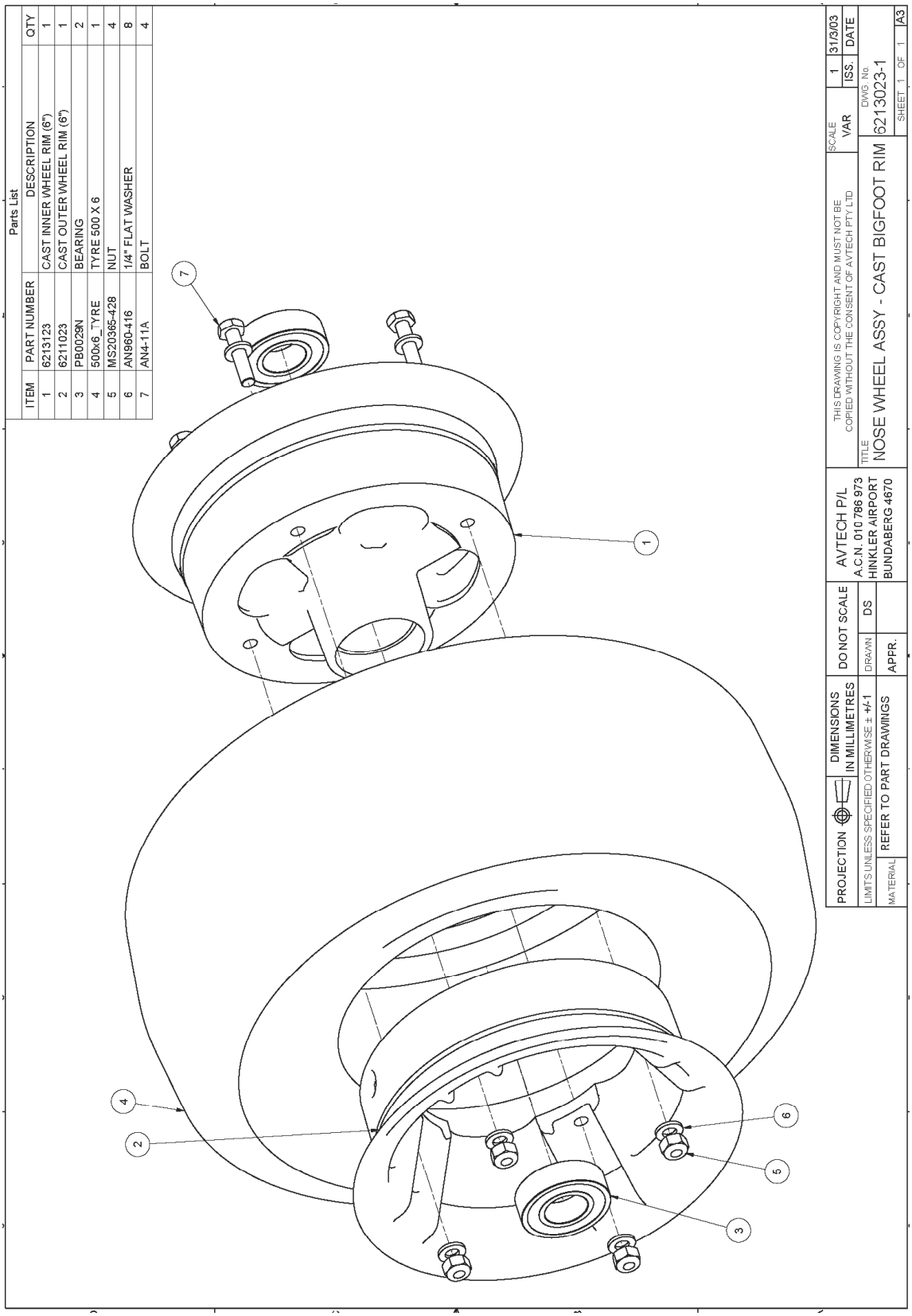
A drawing of the nose wheel can be found on the next page.

Fit the nose leg and nose wheel

Slide the nose leg up into the nose leg housing with the steering yoke (arrowed but not shown in photo) fitted over the nose leg between the top and bottom bushes and with the arms of the yoke swept back towards the firewall and fit the nose leg in place with the retaining collar above the top bush. Secure the collar 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.



This completes the *Pre-Paint>Fuselage>Firewall forward>Assemble and fit nose gear* task.