

Pre-Paint>Fuselage>Undercarriage>Assemble main wheels

Objectives of this task:

In this task you will assemble the main wheels and tyres and fit the brake discs.

Materials required:

Cards # 21JT 'Main wheels'

Talcum powder for fitting the inner tube

Assemble the main wheels

Use a press or a vise to press a bearing (#PB0029N-1) into each half of the wheel rim – use a socket with a slightly smaller diameter than the outer race of the bearing to press them in.

Both the inner and outer bearings should lie flush with the inner and outer wheel rims respectively as shown in the picture to the right.

Do **not** press on the inner race – the bearing is not designed to take pressure in that direction.

Sprinkle some talcum powder inside the tyre and insert the inner tube. Slightly inflate the inner tube to prevent it becoming pinched then fit tyre and tube over the inner wheel rim and fit the outer wheel rim to the inner wheel rim with the inner tube inflation valve facing the outer wheel rim. Make sure the bolt holes between each wheel rim half are aligned and place the brake disc mount on the inner wheel rim such that the bolt holes are also aligned with those of both wheel rim halves.

Bolt the brake disc mount, inner wheel rim and outer wheel rim with five AN4-17A bolts; placing 1/4" flat washers (AN960-416) under both the bolt and nyloc nut. The bolts are inserted through the brake disc mount. Before tightening the nuts, make sure that the inner tube is not being pinched, this is done by rotating the tyre and tube holding the wheel still. Fit the inner tube inflation valve through the hole in the outer wheel rim and then tighten the five bolts to secure the wheel assembly. Inflate the inner tube to a pressure of 45psi – the tyre will pop out to the final seated position on the rims so keep fingers away while inflating.



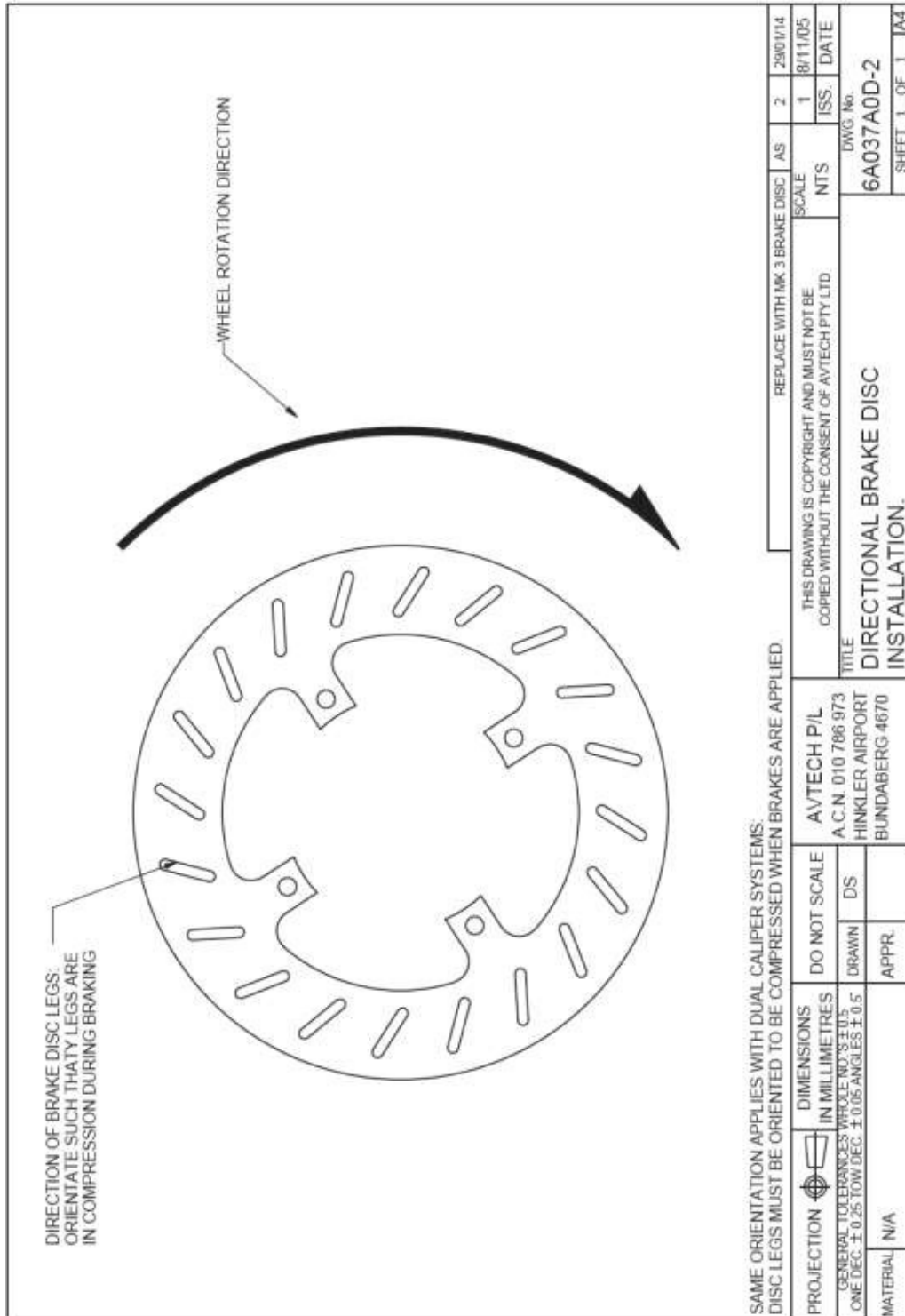
Left wheel

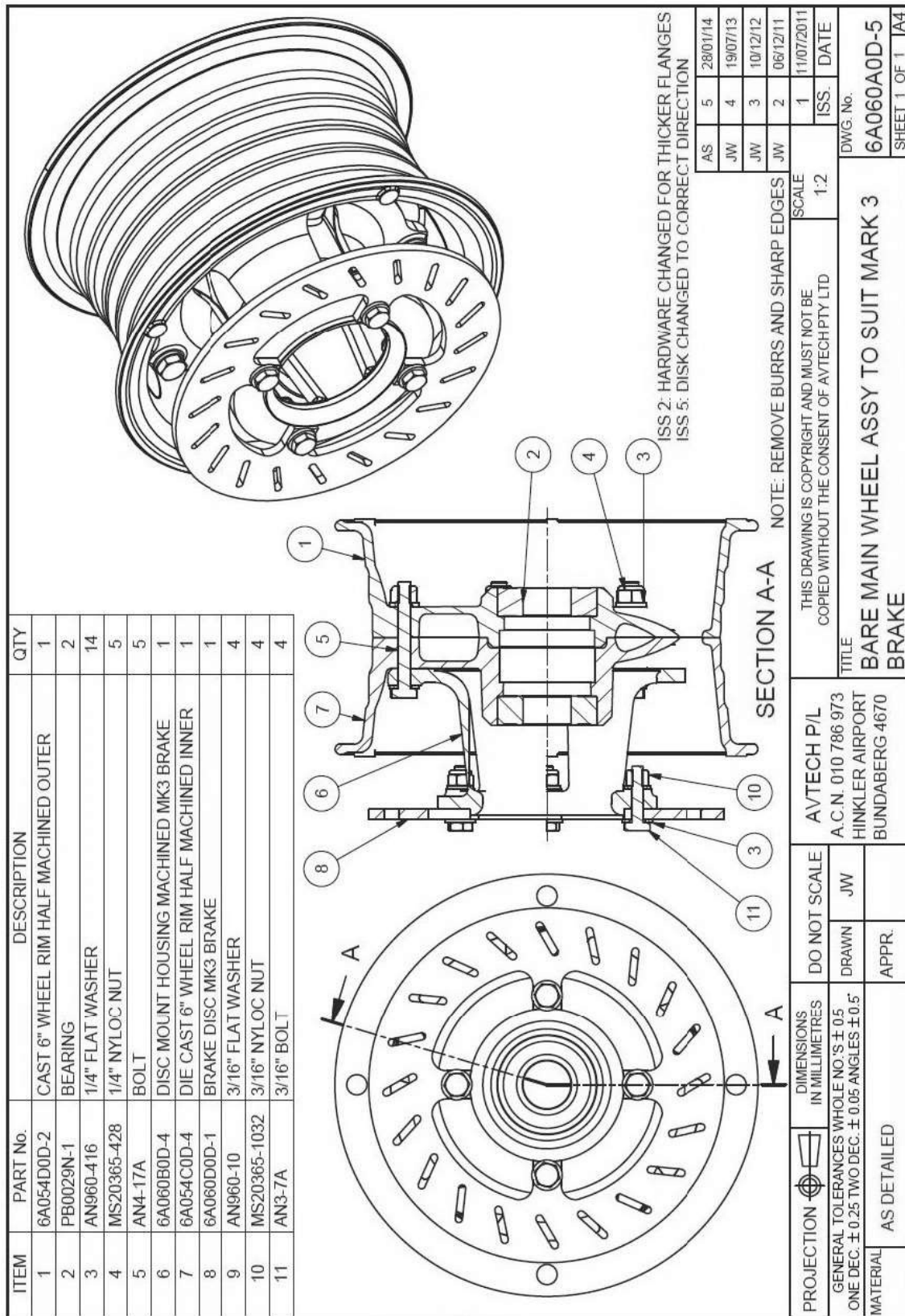


Right wheel

Fit the brake disc to each wheel. It is important that each disc is fitted in the correct direction of rotation as shown in the photos on the preceding page and in the drawing below. Fit each of the four AN3-7A bolts though from the disc towards the wheel and secure with AN960-10 (3/16") flat washers under each bolt head and Nyloc nut. Tighten firmly. Use chalk to mark each wheel as being either a left or a right wheel.

It is useful to refer to the drawing on the following page during the main wheel assembly.





This completes the *Pre-Paint>Fuselage>Undercarriage>Assemble main wheels* task.

Pre-Paint>Fuselage>Undercarriage>Assemble main gear

Objectives of this task:

In this task you will assemble the main undercarriage legs, which includes fitting the axles, disc brakes and wheels.

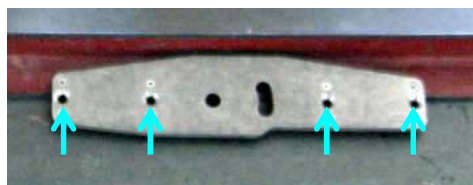
Materials required:

Cards # 8J 'Brakes' and 21J 'Main wheels'

Rubber grease for assembly of disc brake pistons

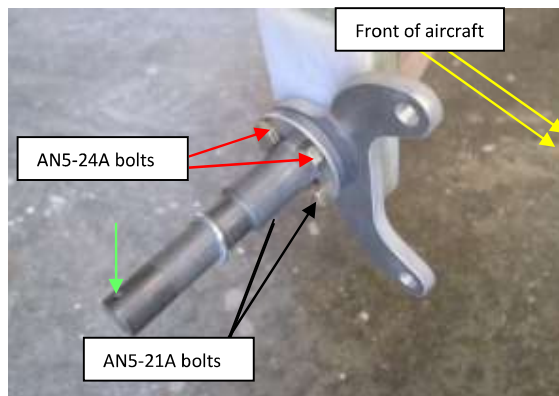
Assemble spat brackets

Fit the retained nuts to the spat mounting brackets using countersunk 3/32" rivets. There are 4 retained nuts (arrowed) on each bracket. Countersink the actual screw holes where the spat will be fitted: the countersinks will help to guide the screws into the holes when fitting the spats.

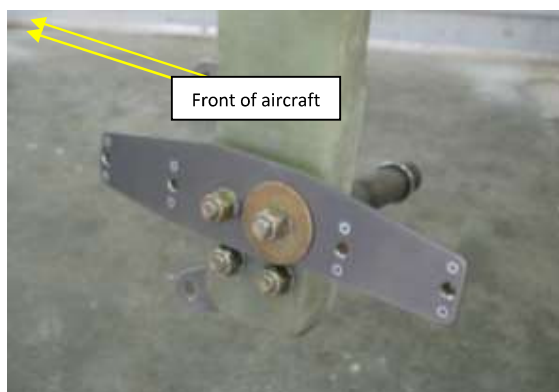


Fit the stub axles, backing plates and Spat brackets

Slide the stub axle washer over the stub axle, then place four bolts with thin washers (AN960-516L) through the corresponding holes on the stub axle, the mounting plate and finally the undercarriage gear leg. The two longer bolts (AN5-24A) must be positioned through the top two holes, whilst the shorter bolts (AN5-21A) reside in the bottom two holes. Ensure that the hole on the outboard end of the stub axle (indicated by a green arrow) is aligned vertically.



Place the spacer plate on the back over the two longer bolts followed by the newly assembled spat bracket. The capture nuts on the spat bracket must face outboard (towards the stub axle). The hole in the spat bracket is placed over the front bolt, while the curved slot resides over the rear bolt.



Fix the assembly in place with washers and nyloc nuts. A penny washer is used to cover the slot on the spat bracket. The purpose of the slot is to allow adjustment when it comes time to fit the wheel spat.

At this stage it is of benefit to mark the legs as left or right with a permanent marker pen. This may save confusion during the fitting of the main undercarriage gear. One should also note that at this stage the axles will likely not be correctly aligned on the undercarriage legs. This issue is dealt with in a later section ([Pre-Paint>Fuselage>Wheel alignment](#)).

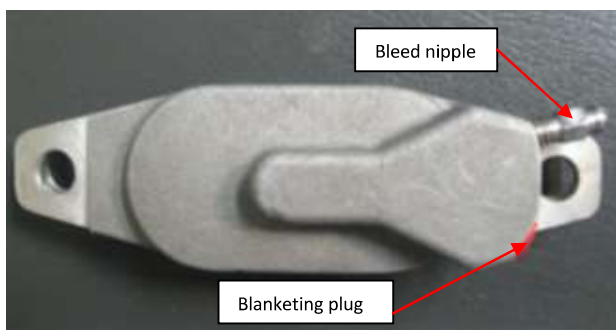
Assemble the brake calipers

In this step you will assemble the hydraulic disc brake calipers.

Cleanliness is essential when working with hydraulic brake parts, so clean your working area and your hands thoroughly before starting this step.



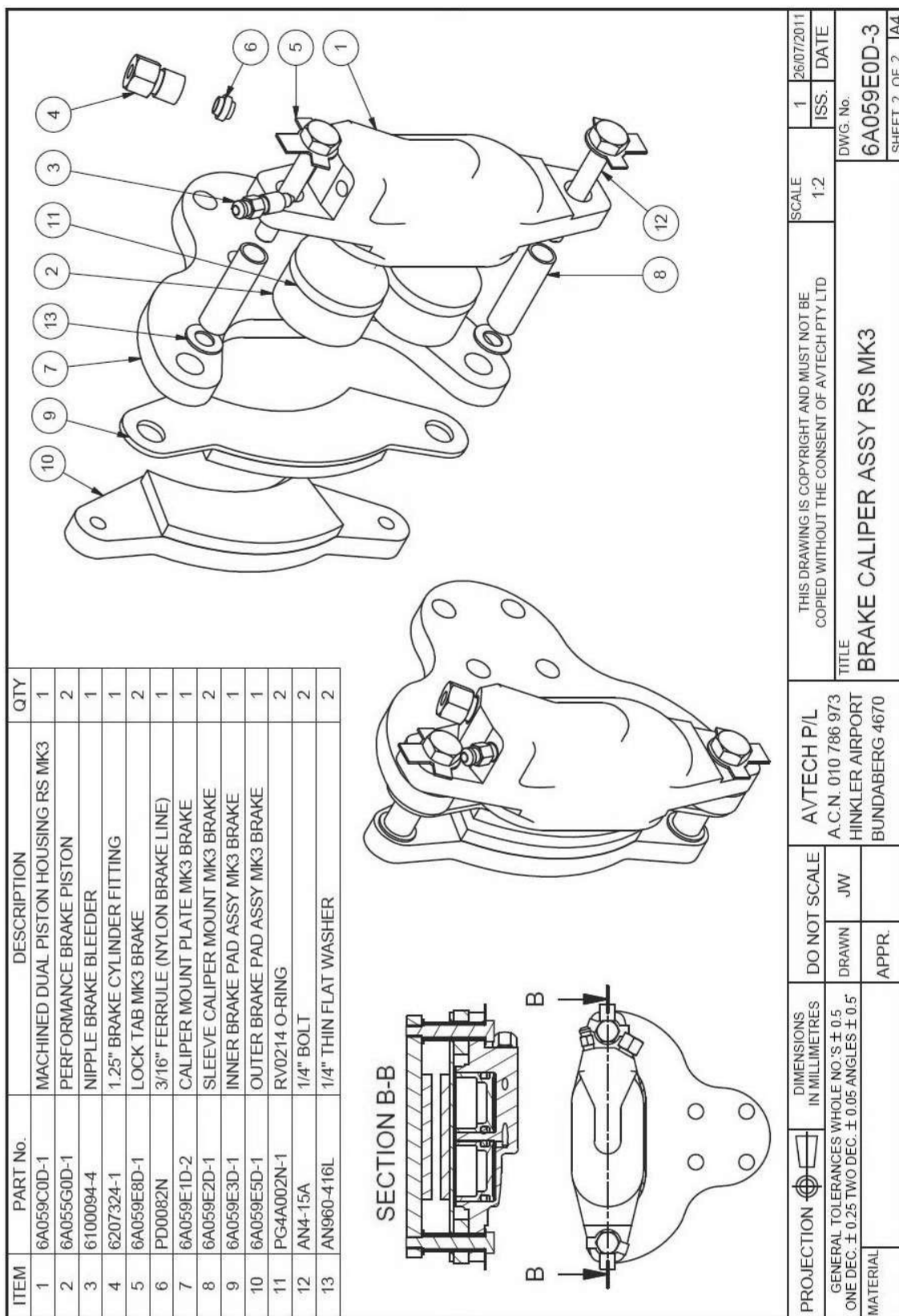
Use compressed air to clean any dust and dirt from the inside of the brake calipers and pistons. Apply rubber grease to the O-rings and fit one to each piston, then apply a smear of rubber grease to the inside of the caliper and fit both pistons into each caliper: press the pistons gently into the caliper with the cupped side of the pistons facing outwards.



Thread and tighten a bleed nipple into the appropriate fitting on the caliper and push a blanking plug the other fitting as shown at left – the brake lines will be fitted later in *Post-Paint* and the blanking plug will keep the caliper sealed until then.

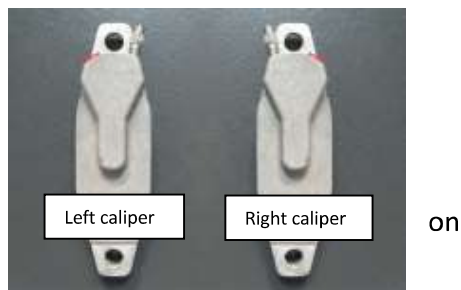
Wash any brake fluid off your hands with soap and water – it can irritate sensitive skin.

Refer to the drawing on the next page for an overview of the brake system.

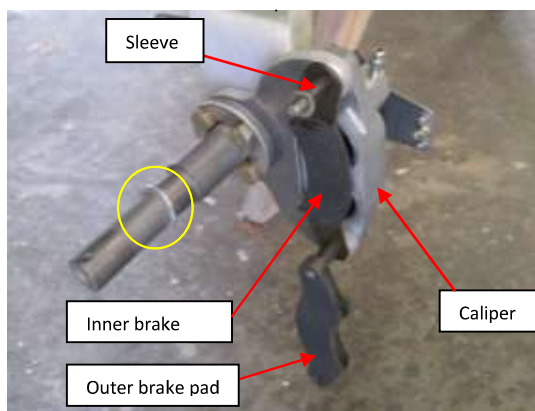
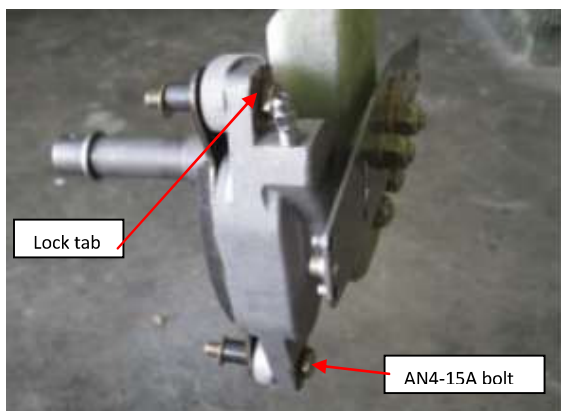


Assemble the brake and wheel

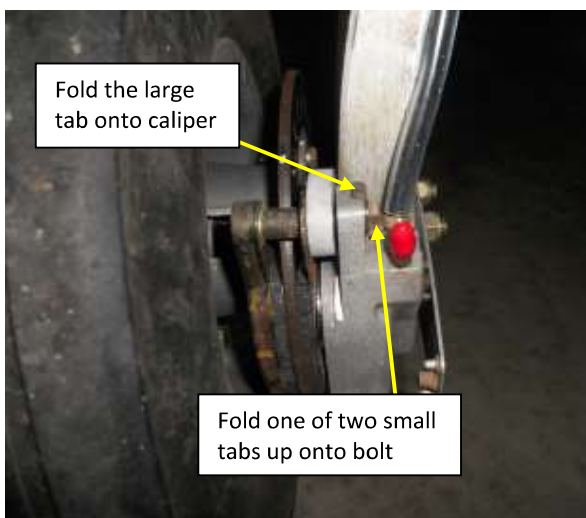
First place the brake caliper on the inboard side of the mount plate and slide both caliper sleeves through the holes in the mount plate and caliper. The bleed and brake-line fittings on the caliper should face upwards. Ensure that you fit the correct caliper, since the left and right parts are different. The picture to the right identifies them.



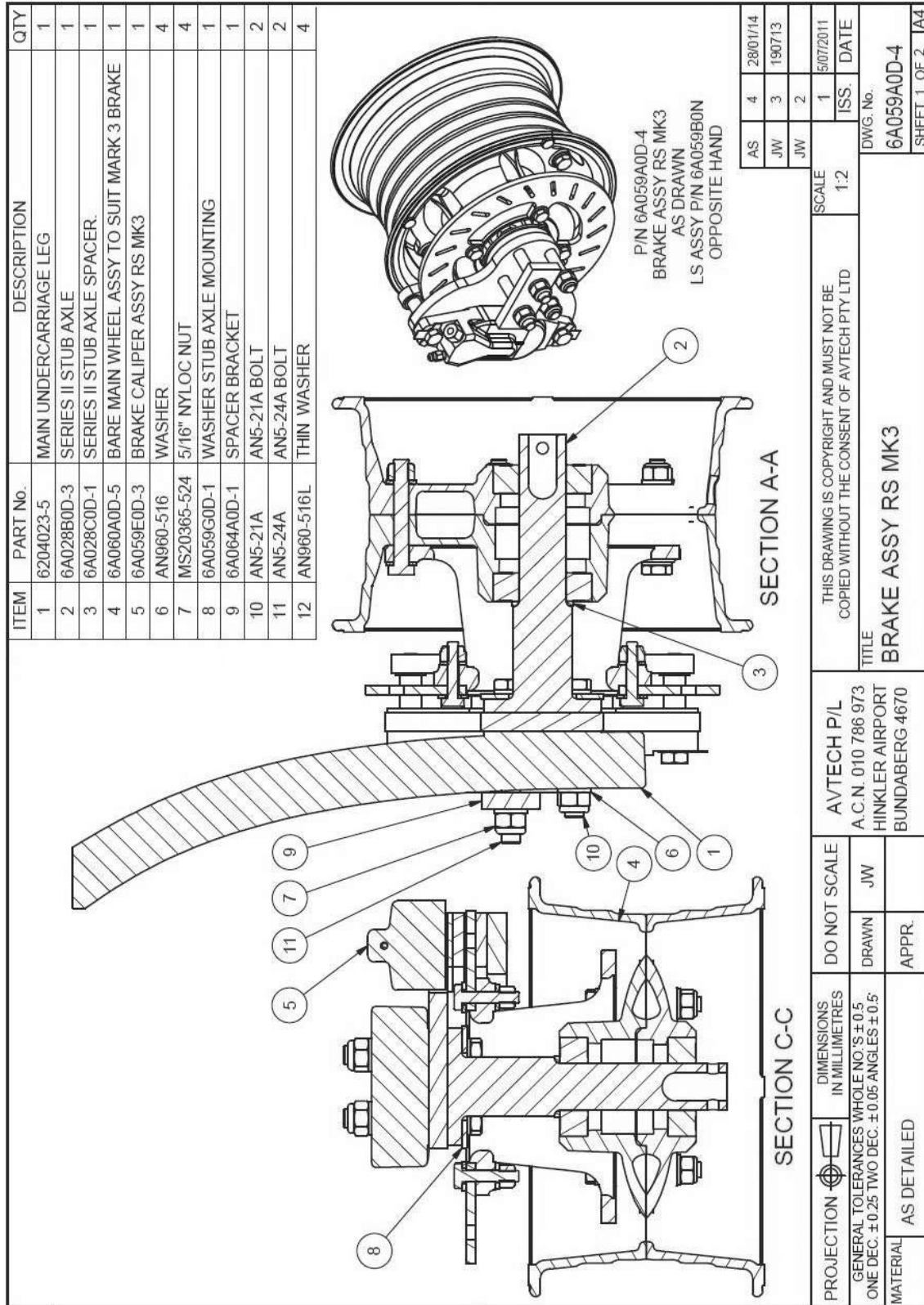
Now you can place the inboard brake pad over the caliper sleeves. Slide AN4-15A bolts into each sleeve with lock tabs under each bolt head, place thin 1/4" plain washers (AN960-416L) on the end of each bolt. Thread the outer brake pad onto the bottom bolt and leave it hanging down as pictured below on the right.

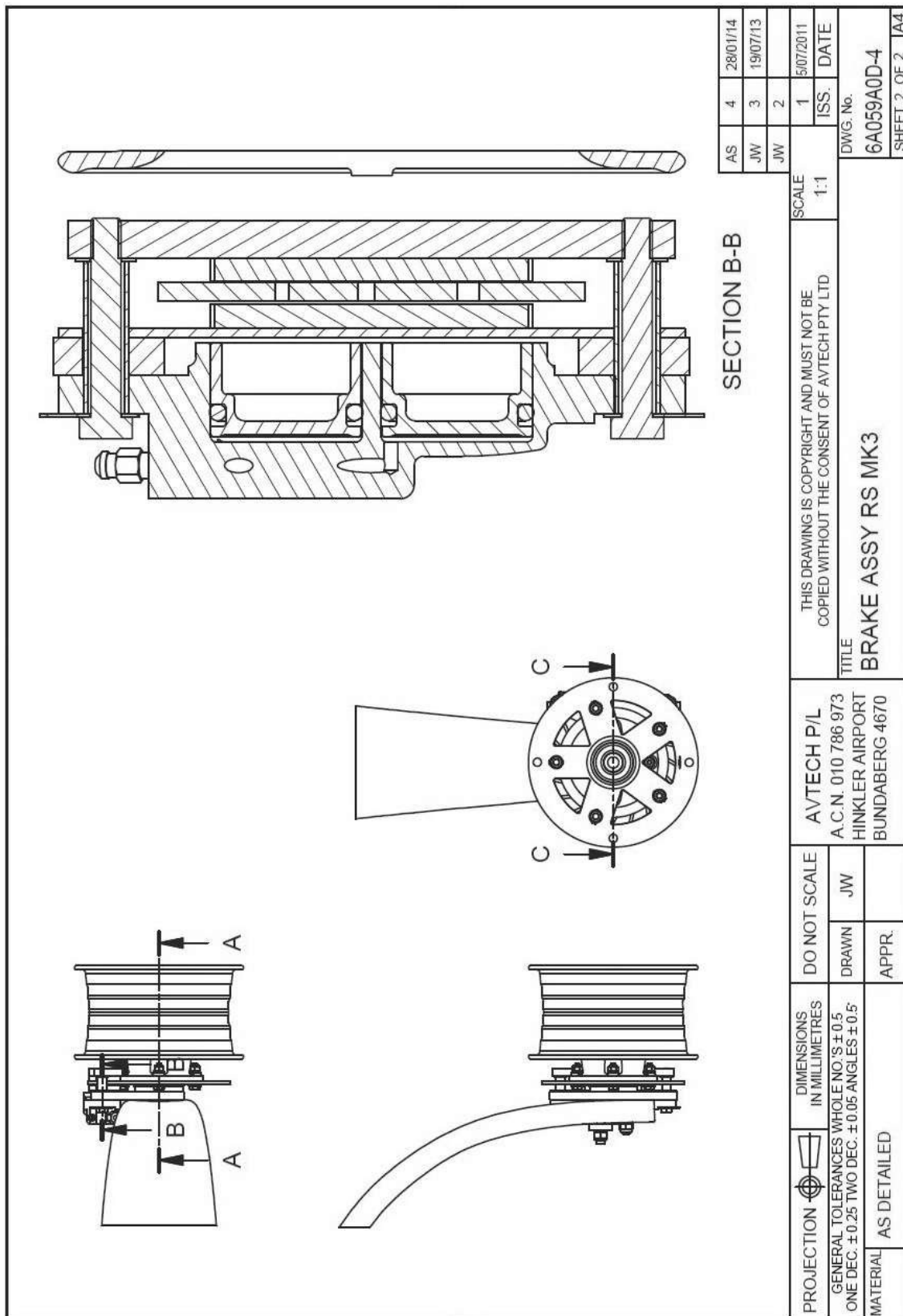


Before installing the wheels, slide the stub axle spacer (circled in yellow above) onto the shaft, the flat face should be facing outboard to provide the wheel bearings with a nice square face to sit against. Now you can slide the wheel onto the stub axle. Slide it on all the way until the brake disc rests against the inner brake pad. Secure the wheel with the axle extension, fitting the AN3-12A bolt from the top with a washer and nyloc nut at the bottom.



Now swing the outer brake pad around and thread the top bolt into it. Tighten both bolts. Check that the wheel and disk runs smoothly and is not impeded by the brake pads. The distance between the disk and outer pad should be about 1 millimetre. The picture to the left shows the completed brake assembly of the right hand undercarriage gear. The last step is to fold one of the small lock tab leaves up against the bolt head and the large tab onto the machined caliper housing. It is useful to refer to the drawings on the following pages during main undercarriage gear assembly.





This completes the *Pre-Paint>Fuselage>Undercarriage>Assemble main gear* task.