

RB26/30 BILLET BLOCK BRACE INSTRUCTIONS



Features:

- ***7075 T651 Aerospace grade alloy material***
- ***Critical threads are roll formed (not cut), for greater strength***
- ***Added windage tray integrated in brace design***
- ***Greatly reduced block twist***
- ***Structured integrity***
- ***Bullet proof bottom end***
- ***Rigid windage tray***
- ***Oil temperature greatly reduced***
- ***Horsepower gains***
- ***RB 4WD adaptor plate***
- ***Drag, street, circuit use***
- ***Fully proof tested product***

The Block Brace will assist in preventing block twist, cracking and reducing windage. It can also potentially increase horsepower, torque and increase your AWD sump capability.

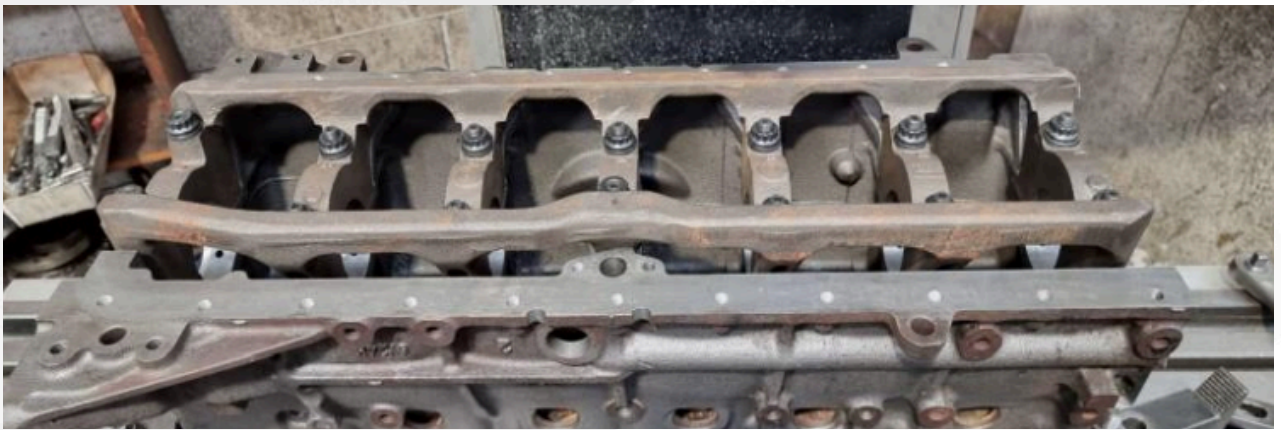
This guide will show you the steps necessary to do the machining to the block and main girdle to fit your new Block Brace.

- All machine work should be completed by a qualified machinist/machine shop. Installing this Block Brace will require you to align bore/align hone the main tunnel after it is fitted, as it increases the clamping force on the main tunnel.***
- We strongly recommend using an ARP Main Stud kit when installing the Block Brace.***
- When align honing the main tunnel, make sure you torque everything up as the Block Brace will distort the main tunnel.***

BLOCK BRACE INSTALLATION PROCESS

Step 1:

With all mating surfaces clean, bolt down the main girdle with the bolts or studs you will be using and torque it down to the fastener manufacturer's recommended specifications.



Step 2:

Sit the block's head surface, face down in the mill.

Some machine shops may choose to surface grind the blocks sump rails as they are not always perfectly flat and can move over time. The oil pump and rear main seal housing will

need to be installed prior to surface grinding, if deciding to do so. Machine the main girdle down so that the Block Brace sits on the main girdle and has a .001" to .002" gap to the sump rail.



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Step 3:

Once you have achieved the desired clearance, you will need to remove the sharp edges on the main girdle. Using an angle grinder at approximately a 45° angle, run it down the sides of the main girdle so you have a 3mm to 5mm chamfer. This is to ensure the Block Brace doesn't get caught up on the main girdle. Inspect around the original oil pick up hole to make sure you have enough clearance. If you don't, address this issue now.

Step 4:

We recommend doing the next 3 steps in the mill to ensure that everything is square. Drill out all the original M6 sump bolt threads on the sump rail to 6.85mm or 17/64. Use an M8 x 1.25 tap and re-thread these holes.

Step 5:

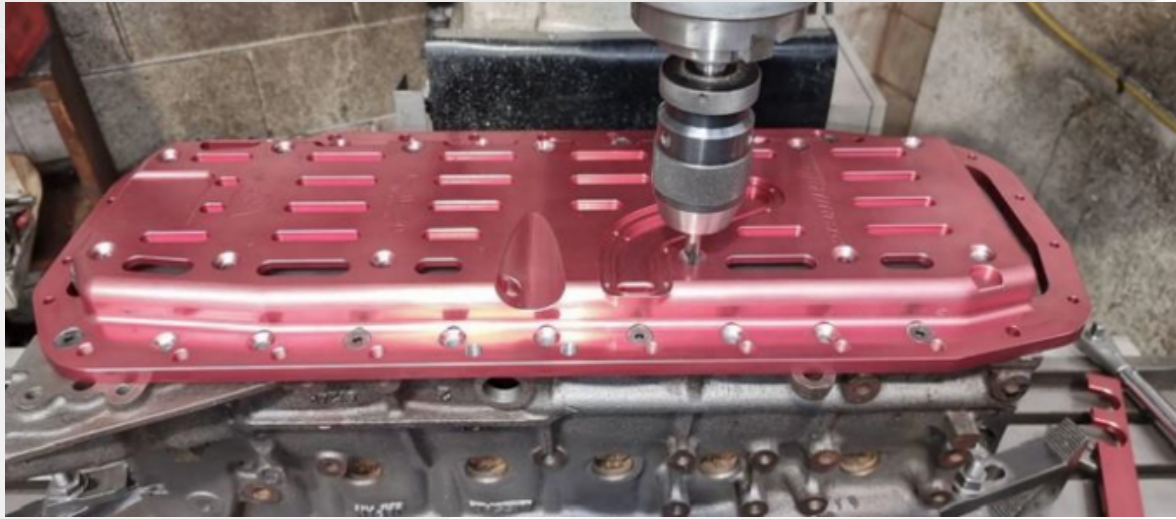
Sit the Block Brace onto the engine and install the countersunk cap screws into the Brace to locate it.

Now is the time to check the alignment of your Brace, making sure it sits flat and is not held up by anything.

Using a centre punch or drill, mark out the 13 holes to attach the Block Brace to the main caps girdle. You can now remove the Block Brace (we recommend leaving it on, to be certain the hole positioning is correct) and drill the 13 holes out to 6.85mm or 17/64. The holes will need to be a minimum of 10mm deep.

Use an M8 x 1.25 tap and re-thread these holes.

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Note: Not all RB blocks are the same, some holes may need to be elongated slightly. We have purposely not increased the size of these holes to maintain as much strength as possible.

Step 6:

The following steps apply to installing a Block Brace for an RB30 AWD Conversion.

There are a number of holes that will need to be drilled all the way through.

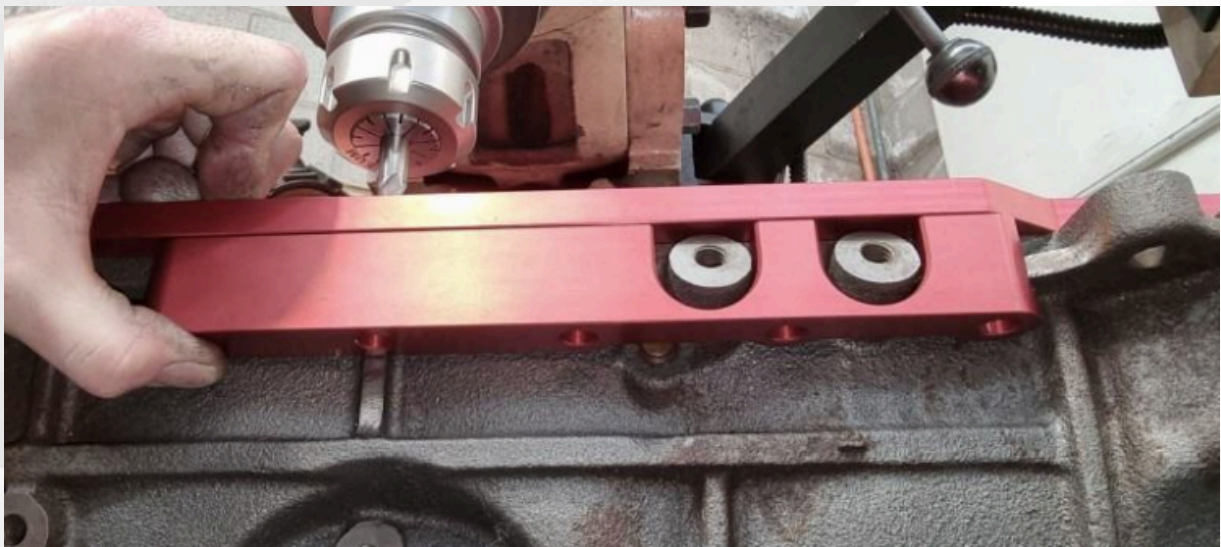
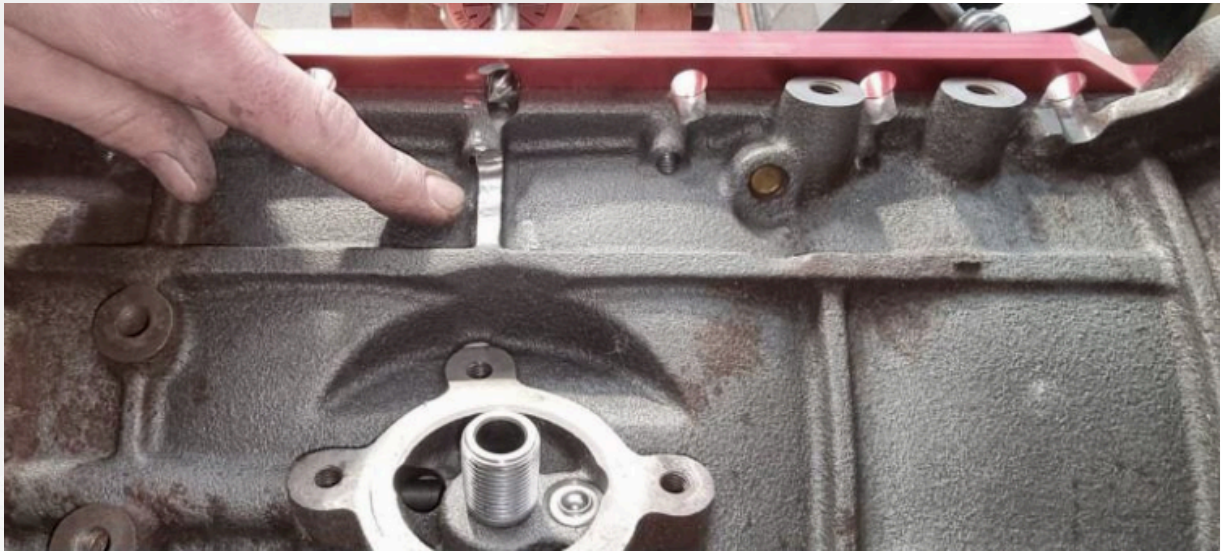
There are 5 on the intake side and 2 on the exhaust side of the block.

The 2 on the exhaust side are by the turbo oil drain, you will need to give them extra clearance so the head of a cap screw can fit. You can use a die grinder/porting tool or an end mill cutter (recommended) in the mill to achieve this.

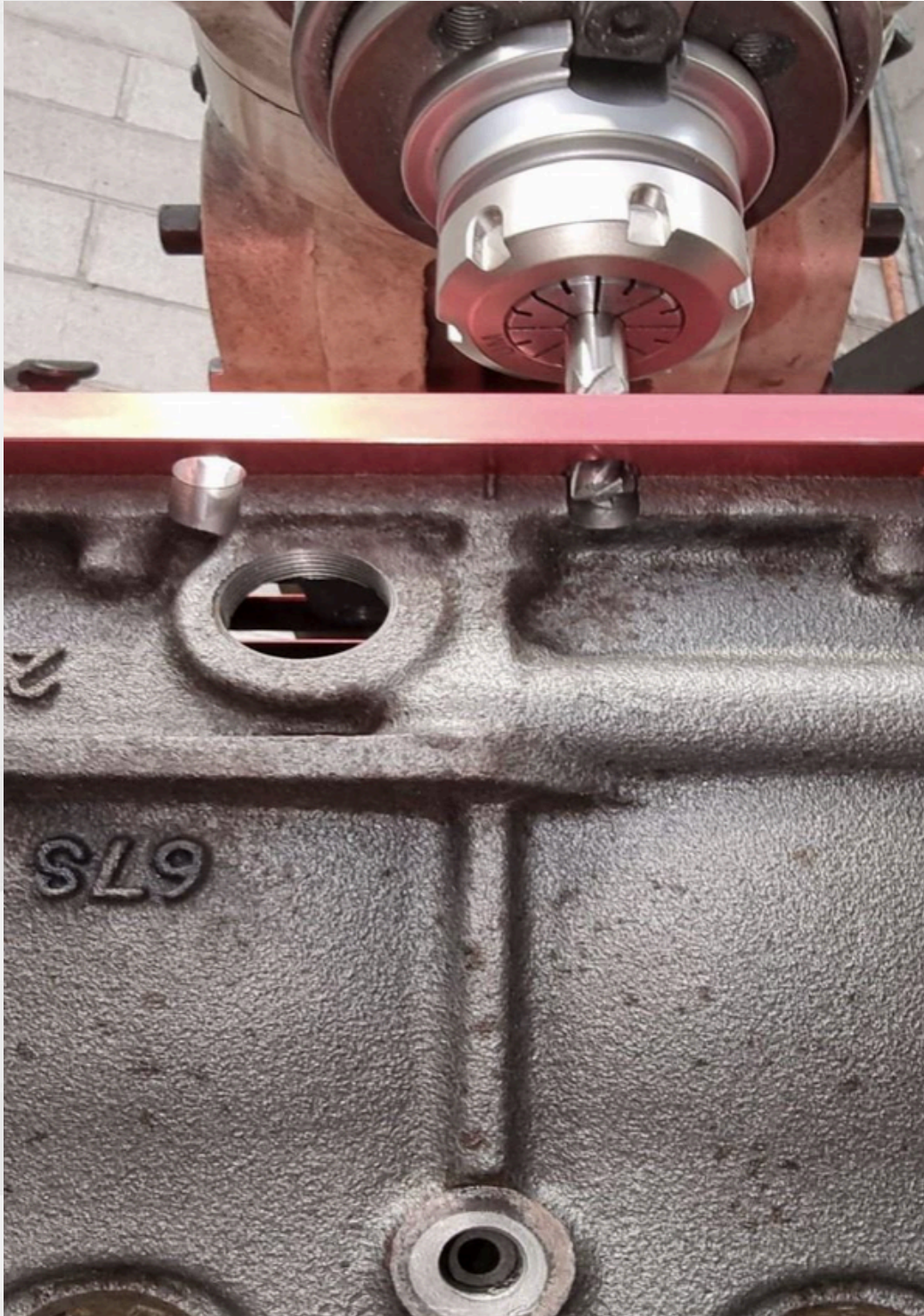
The 5 holes on the inlet side are to accommodate the CNC Bracket provided with your Block Brace.

The engine block webbing will also need to be clearanced.

BLOCK BRACE INSTALLATION PROCESS



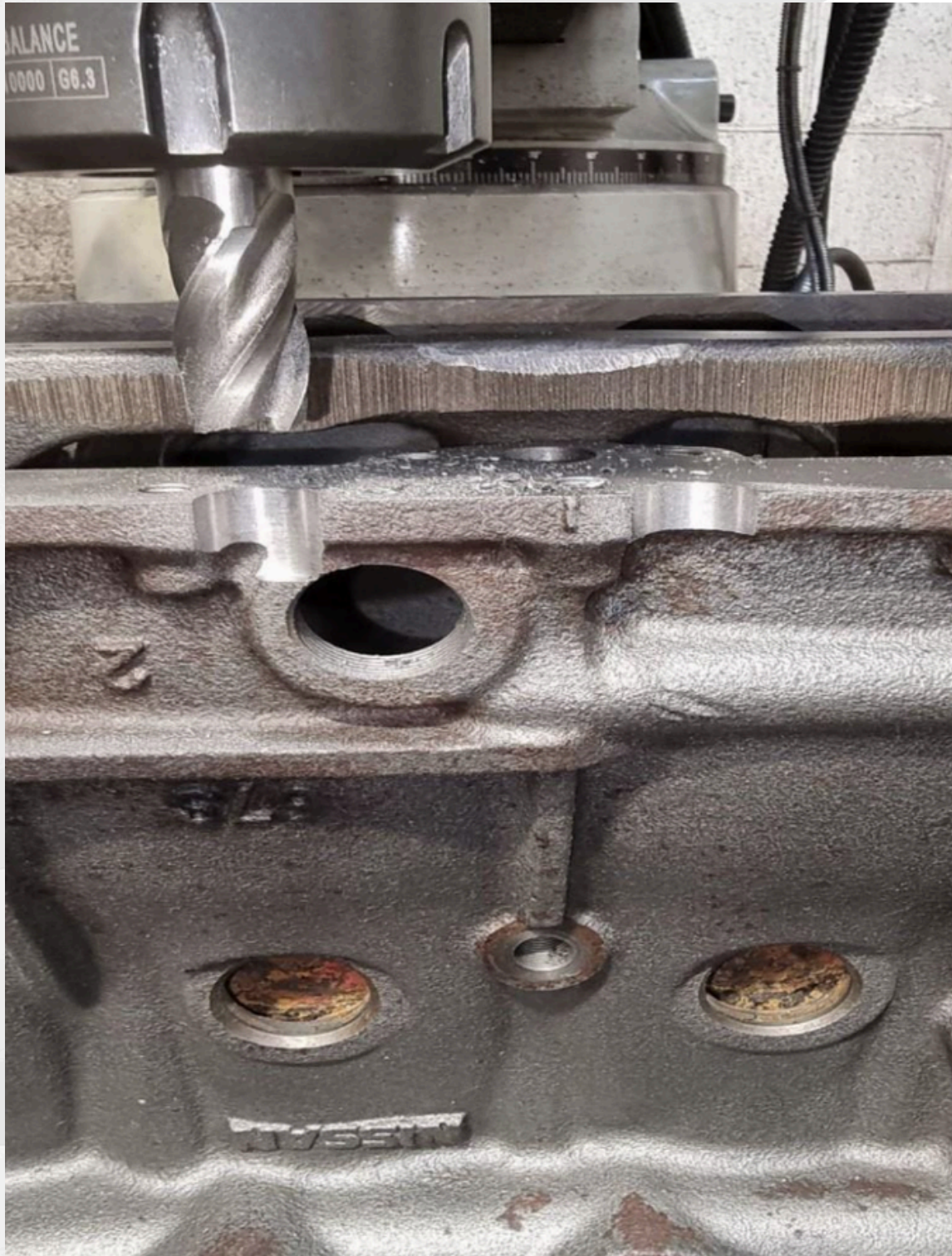
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Step 7:

Trial fit your Block Brace making sure that all of the counter sunk screw holes are aligned and all the remaining holes have sufficient clearance.

Once the rotating assembly, oil pump and rear main seal housing have been final fitted, install the Block Brace and recheck for correct alignment and sufficient clearance. Remove Brace for the final assembly.

Final assembly to block.

On the underside of the Block Brace, where the oil pickup hole from the block meets the Brace, you will need to fit the supplied oil transfer cover plate with the viton seal provided. Use the short length viton seal, trim to length and glue together where the ends meet.

Fit the long length viton seal in the machined groove on the outer edge of the brace along the sump rail area. Use a modest amount of sealer, trim to the correct length and glue together where the ends meet.

Place the small O-ring into the groove on the oil transfer cover plate.

Final fit the Block Brace to the block.

Note: The M8 countersunk screws should have a generous amount of anti-seize applied to the threads and tapered seats, then finally torqued to 20 ft/lbs.

BLOCK BRACE INSTALLATION PROCESS



Step 8:

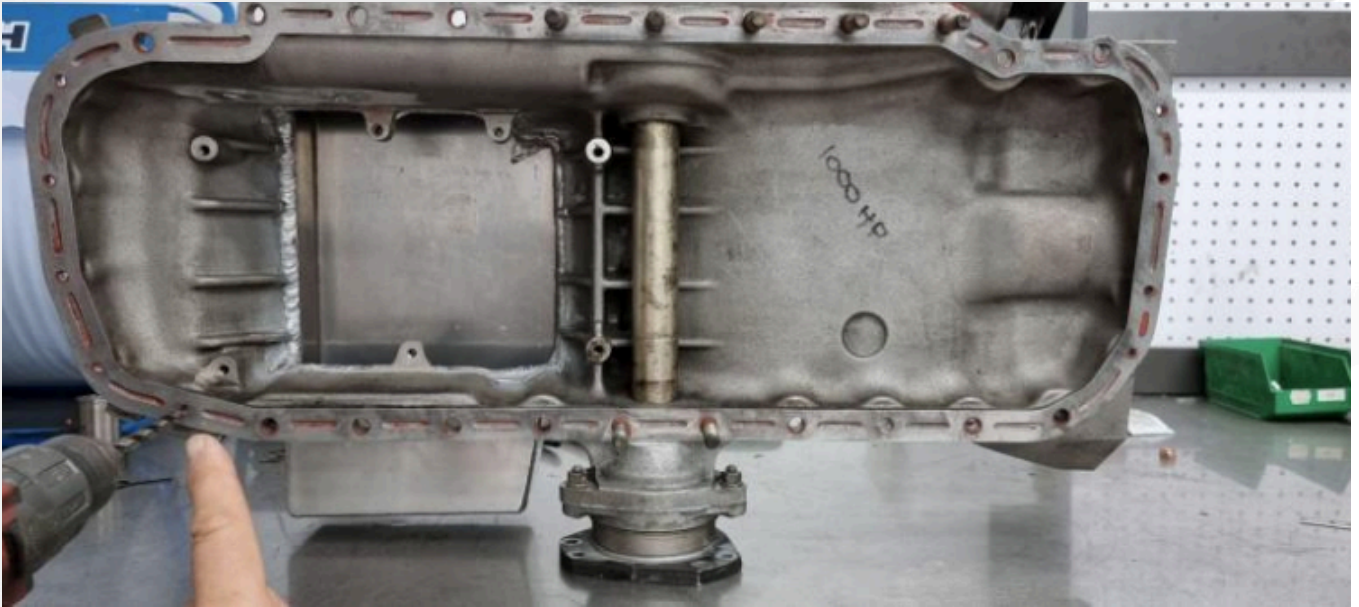
Sump fitting.

Remove all studs from the sump

As not all cast alloy sumps are exactly the same, some clearancing may be required. This can be achieved by using a power file or similar. Clearance any areas on the sump that prevent it from easily resting flat onto the Block Brace.

One hole will need to be drilled out on the sump rail to clearance an M8 bolt, (see pics below) Do not drill out the bolt holes for the oil pump and rear main seal housing.

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Step 9:

Fit the oil pickup adaptor plate using the medium length viton seal, trim seal to length and glue together where the ends meet.

Screw in the stainless pickup tube adaptor

***Note: You will need a short length of $\frac{3}{4}$ (19mm) stainless tube and a factory RB26 oil pickup.**

Take note of the strainer orientation then cut the strainer of the original pickup.

Plate/plug the hole and drill a new hole in the centre of the strainer.

Measure from the sump rails to the pan base = X mm

Measure from the sump rail (of the brace) to the bottom of the strainer and adjust the tube length to get the required height.

You want the strainer to be 8mm to 10mm off the bottom of the pan

Note: Take note of the angle of the pan base as it is not parallel with the pan rails



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Note: Before you tack weld, ensure the tube adaptor is tight in the Brace to guarantee the correct indexing of the strainer once finish welded.

Place plasticine on the bottom of the strainer, then sit the sump on.

This will compress the plasticine which can be measured to verify the strainer height off the bottom of the pan

Once you are happy with the length, the pickup can be finish welded



Step 10:

You are now ready to fit your sump

Note:

- **The threads of the fasteners that go into the diff housing must have thread sealer applied to prevent diff oil escaping.**
- **The heads of the cap screws on the hot side next to the turbo drain may need to be turned down for clearance (depending on how much clearance you gave the block).**

BLOCK BRACE INSTALLATION PROCESS

