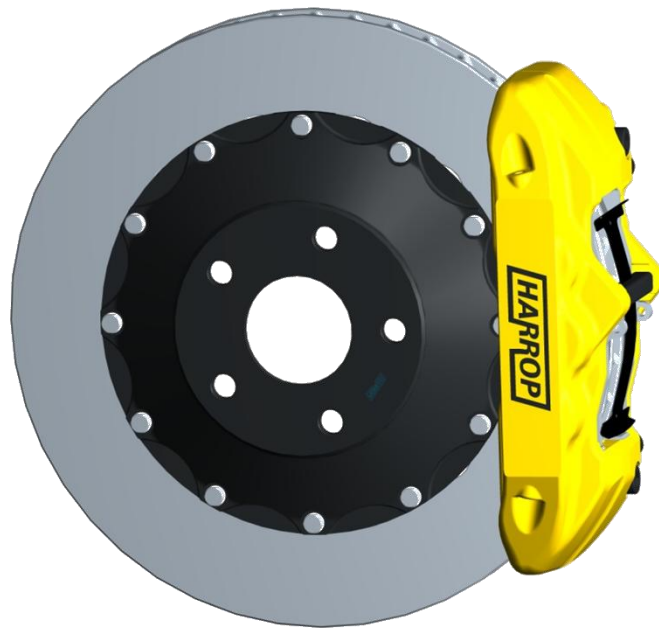


Technical Guide
for
Ultimate Brake Upgrade
into
Holden VE Commodores
(Including – Pontiac G8 /Vauxhall VXR8)



Installing this product indicates your acceptance of the responsibility and liability associated with the fitment and use of this product. Please ensure the owner and all drivers of the vehicle are aware of their responsibilities and liabilities as indicated below.

Thank you for purchasing this Harrop brake hardware upgrade kit which has been designed and made with pride in Australia.

It is the owner's/driver's responsibility to accept any consequences and liabilities of using the enhanced vehicle and any subsequent effect it may have. Harrop Engineering is to be held harmless and shall not be liable for any direct and/or indirect/consequential losses, costs, damages, expenses, injuries or liabilities whatsoever incurred by the owner/driver of the vehicle or other parties arising from this product, its installation and/or its operation.

Warranty

This Harrop brake hardware upgrade kit is covered by a limited warranty on components and workmanship for a period of 12 months from the date of purchase, subject to the following:

- Installation must be completed by a technician who has undertaken appropriate training.
- The enhanced vehicle has been driven in accordance with the conditions specified by the vehicle manufacturer's normal use of operation, driving care and vehicle service program.
- The enhanced vehicle has not been used for competitive racing.

No warranty shall apply where Harrop have determined improper fitment or handling, misuse in operation, neglect, or accident damage. Modifications made prior to or in conjunction with the Harrop brake hardware upgrade kit fitment may invalidate the Harrop limited warranty. Any warranty claims must be made immediately & directly to Harrop Engineering so that a determination can be made promptly. Involvement of a third party or an attempt to repair a perceived/actual fault may invalidate the warranty. To the extent of the law, the determination on any warranty claim & associated costs will be at the sole discretion of Harrop Engineering.

By installing the Harrop brake hardware upgrade kit you acknowledge that all conditions pertaining to this product and its operation have been read, understood and accepted.

Brake hardware upgrade installation guide.

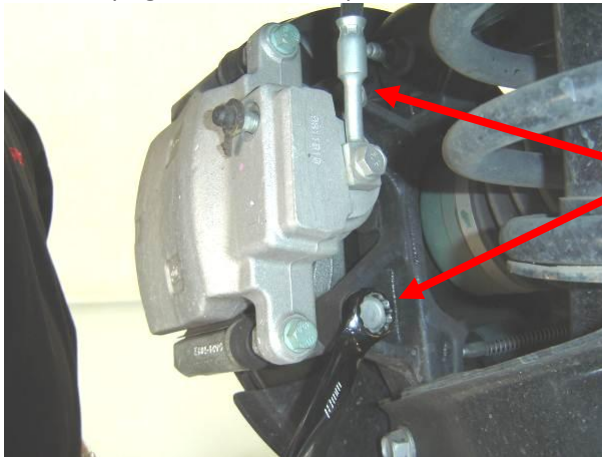
- Park the vehicle on level ground and place the transmission in neutral.
- Ensure that the brake fluid reservoir is full and free from dirt etc.
- Raise the vehicle off the ground using appropriate equipment and remove the wheels.

Brake disassembly and Assembly.

- It is recommended to work on one wheel at a time.
- Rear Left → Rear Right → Front Left → Front Right.

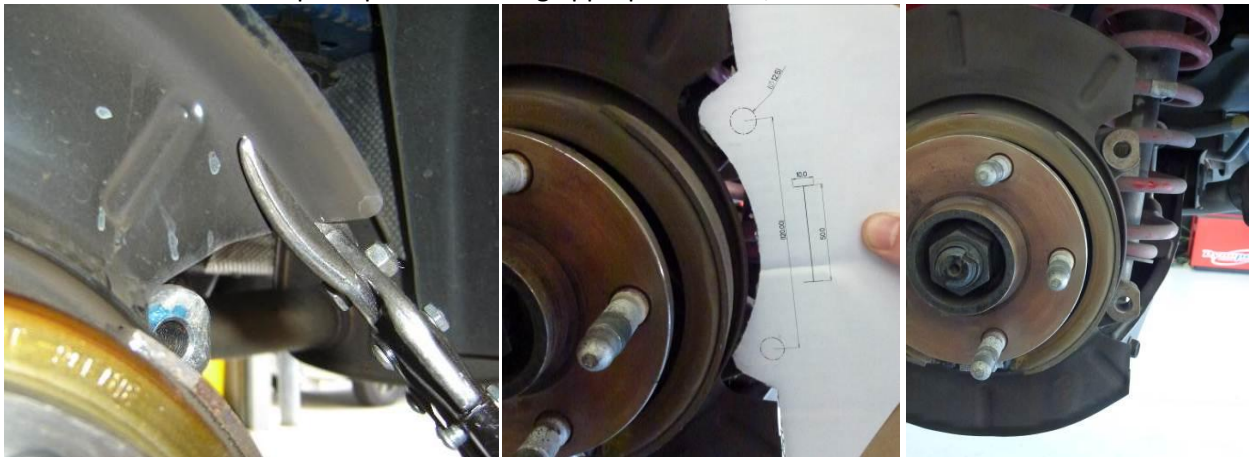
Rear Brakes

1. Clamp the flexible brake hose with appropriate tools to prevent brake fluid draining from the system.
2. Remove the banjo bolt from the inlet port of the standard caliper; retain the bolt for re-assembly.
3. Remove the two M12 caliper mounting bolts that secure the standard caliper to the rear upright, slide the caliper off the rotor and set aside.

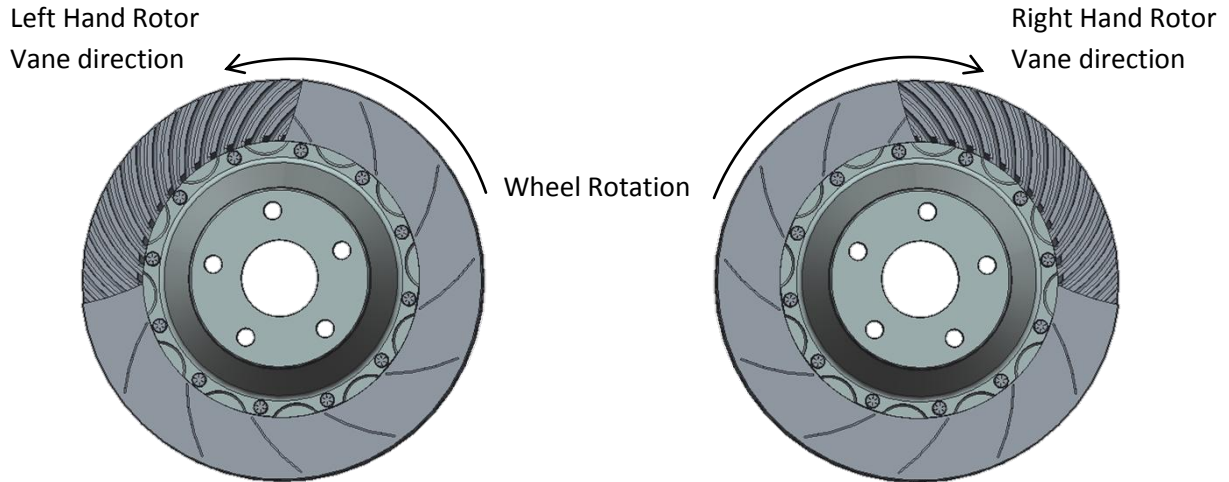


M12 Caliper mounting bolts

4. The standard rotor will be free to slide off of the upright spigot; set aside.
5. To enable fitment of larger diameter rotors to the rear, the standard dust shield needs to be trimmed.
 - Start by trimming off the dust shield lip shroud.
 - The template provided suits Holden lug mounted calipers. Mark the dust shield using the template provided. Using appropriate tools, trim the dust shield as shown.



6. Remove all sharp edges using a file.
7. On a bench slide the caliper on to the rear left rotor.



8. Mount the left caliper and rotor onto the hub. Use new M12 caliper mounting bolts supplied to secure the Harrop caliper, tighten by hand. **(Use blue loctite 243 or equivalent on bolts.)**
9. Temporarily fit a wheel nut to secure the rotor flat onto the upright hub face.
10. Ensure that the caliper lugs are seated squarely onto the standard upright. Tighten the caliper mounting bolts to **110Nm**.
11. Re-fit the flexible brake hose to the caliper inlet port using the banjo bolt (removed at step 2) and two new copper sealing washers supplied. Tighten to **35 Nm**. Leave brake hose clamps in place until all brakes have been installed.

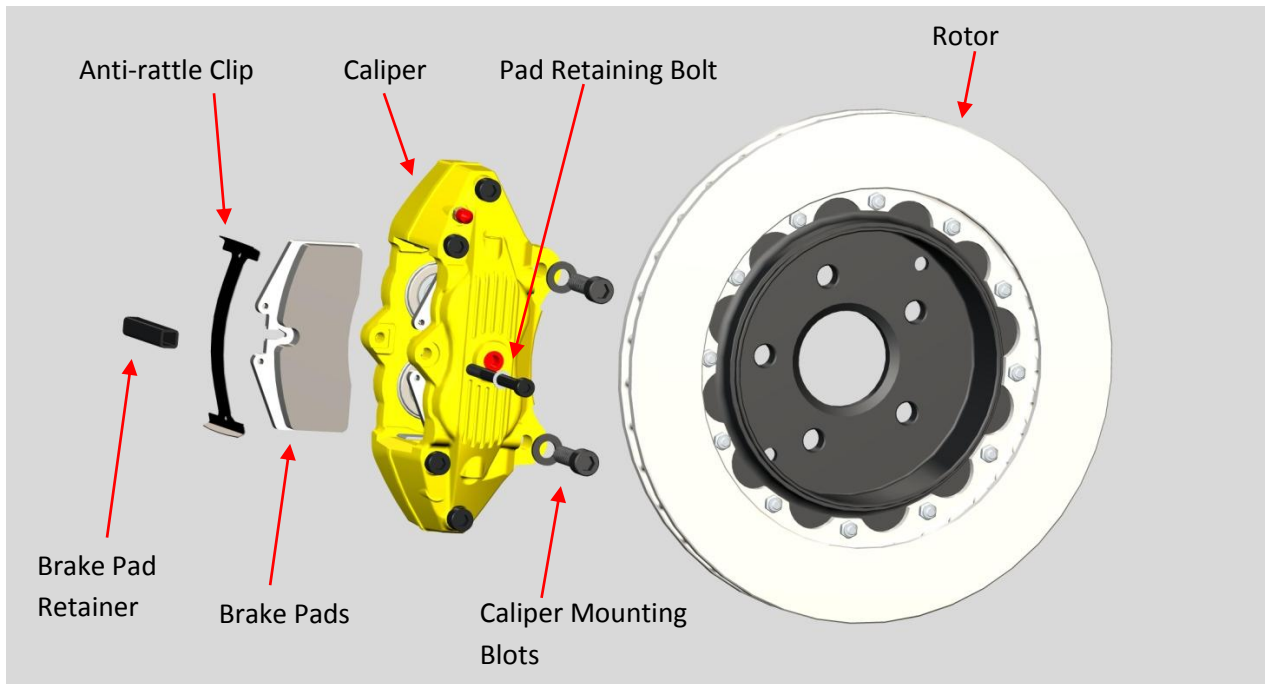
Where brake hoses are supplied;

- *When changing brake hoses it is recommended to drain all brake fluid and bleed all the brakes once installation is complete.*
- *Remove the old brake hose at the hard end of the hard brake line. Fit the new brake hose supplied to the end of the hard brake line.*
- *Connect the new brake hose to the caliper inlet port using the banjo bolt and two new copper sealing washers supplied. Tighten to **35 Nm**.*

Do not apply loctite to the Banjo Bolt.

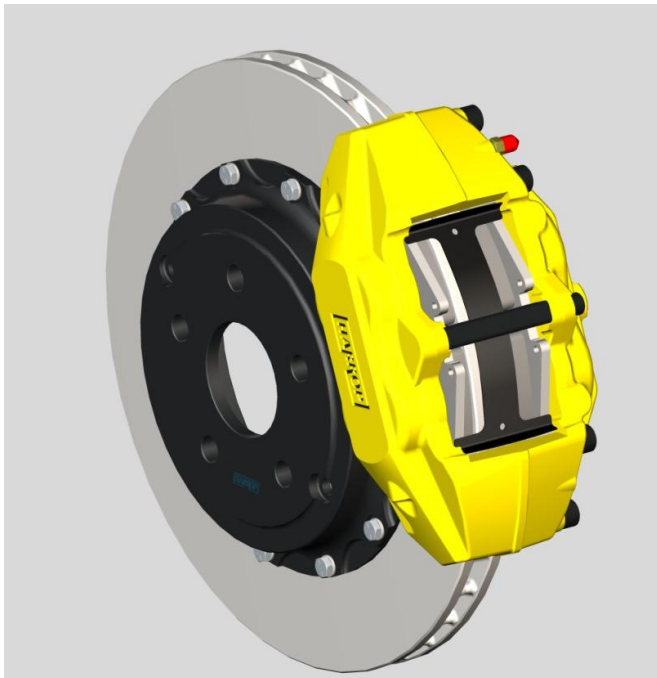
12. Ensure that the pads, anti-rattle clip and pad retainer are all in place and seated correctly. **Apply blue loctite 243 or equivalent** to the M8 pad retaining bolt and tightened to **15 Nm**.
13. Rear Left brake assembly complete.

Repeat Process for the rear right brake assembly.



Assembled caliper with pads, anti-rattle clip and pad retaining bolt correctly seated.

Note: Brake pad retainer and anti-rattle clip as shown below.



Front Brakes

1. Clamp the flexible brake hose with appropriate tools to prevent brake fluid draining from the system.
2. Remove the banjo bolt from the inlet port of the standard caliper; retain the bolt for re-assembly.
3. Remove the two caliper mounting bolts that secure the standard caliper to the upright, slide the caliper off the rotor and set aside.
4. The standard rotor will be free to slide off of the upright spigot; set aside.
5. To enable fitment of larger diameter rotors to the front, the standard dust shield needs to be removed. Using appropriate tools, remove the dust shield and set aside.
6. On a workbench, remove the brake pads from the caliper and slide the Harrop caliper over the front left rotor. Mount the rotor/caliper assembly onto the upright. Use new M12 caliper mounting bolts supplied to secure the Harrop caliper, tighten by hand. **(Use blue loctite 243 or equivalent on bolts.)**
7. Temporarily fit a wheel nut to secure the rotor flat onto the upright hub face.
8. Ensure that the caliper lugs are seated squarely onto the standard upright and tighten the caliper mounting bolts to **110Nm**.
9. Re-fit the flexible brake hose to the caliper inlet port using the banjo bolt (removed at step 2) and two new copper sealing washers supplied. Tighten to **35 Nm**. Leave brake hose clamps in place until all brakes have been installed.

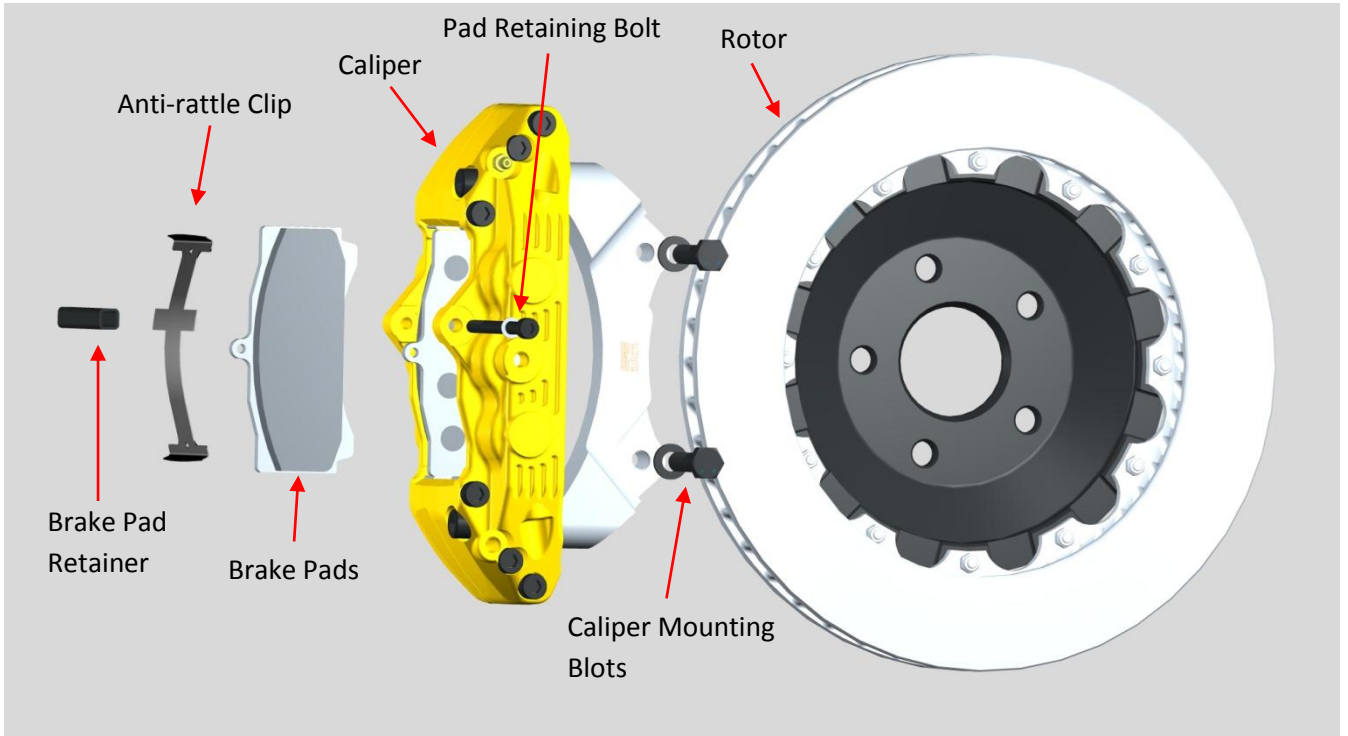
Where brake hoses are supplied;

- *When changing brake hoses it is recommended to drain all brake fluid and bleed all the brakes once installation is complete.*
- *Remove the old brake hose at the hard end of the hard brake line. Fit the new brake hose supplied to the end of the hard brake line.*
- *Connect the new brake hose to the caliper inlet port using the banjo bolt and two new copper sealing washers supplied. Tighten to **35 Nm**.*

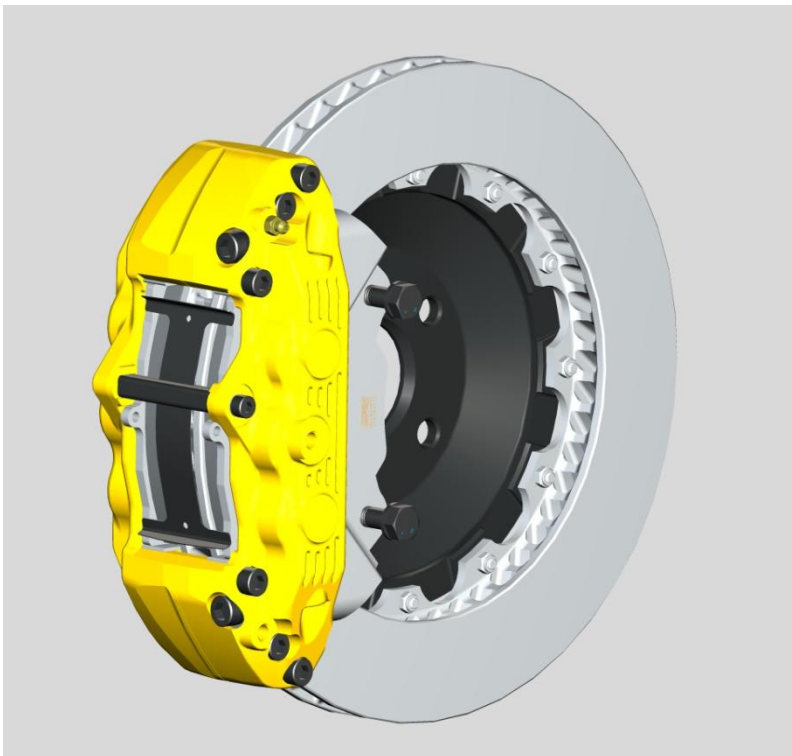
Do not apply loctite to the Banjo Bolt.

10. Ensure that the pads, anti-rattle clip and pad retaining bolt are all in place and seated correctly. **Apply blue loctite 243 or equivalent** to the M8 pad retaining bolt and tightened to **15 Nm**.
11. Front left brake assembly complete.

Repeat Process for the front right brake assembly.



Assembled caliper with pads, anti-rattle clip and pad retaining bolt correctly seated.
Note: Brake pad retainer and anti-rattle clip as shown below.



Hydraulic bleeding of brake system

It is critical to remove all air and old fluid from the brake hydraulic system for effective operation.

Bleeding should be carried out as per standard practices noting the following:

- Have an assistant apply the brake pedal as the brake hose clamps are removed one at a time, to avoid air travelling upstream within the brake line.
- Avoid excessive pedal pressure when bleeding the hydraulic system. Stomping on the pedal can cause the brake system to isolate the open caliper, making further bleeding impossible until the isolating valve is reset.
- Ensure that the fluid reservoir never empties and is re-filled once bleeding is complete.
- The new brake system should be bed-in per standard practices.
- The friction material supplied with Harrop brake hardware is a 'best fit' in terms of brake performance, pad and rotor life with noise, vibration and harshness minimisation.

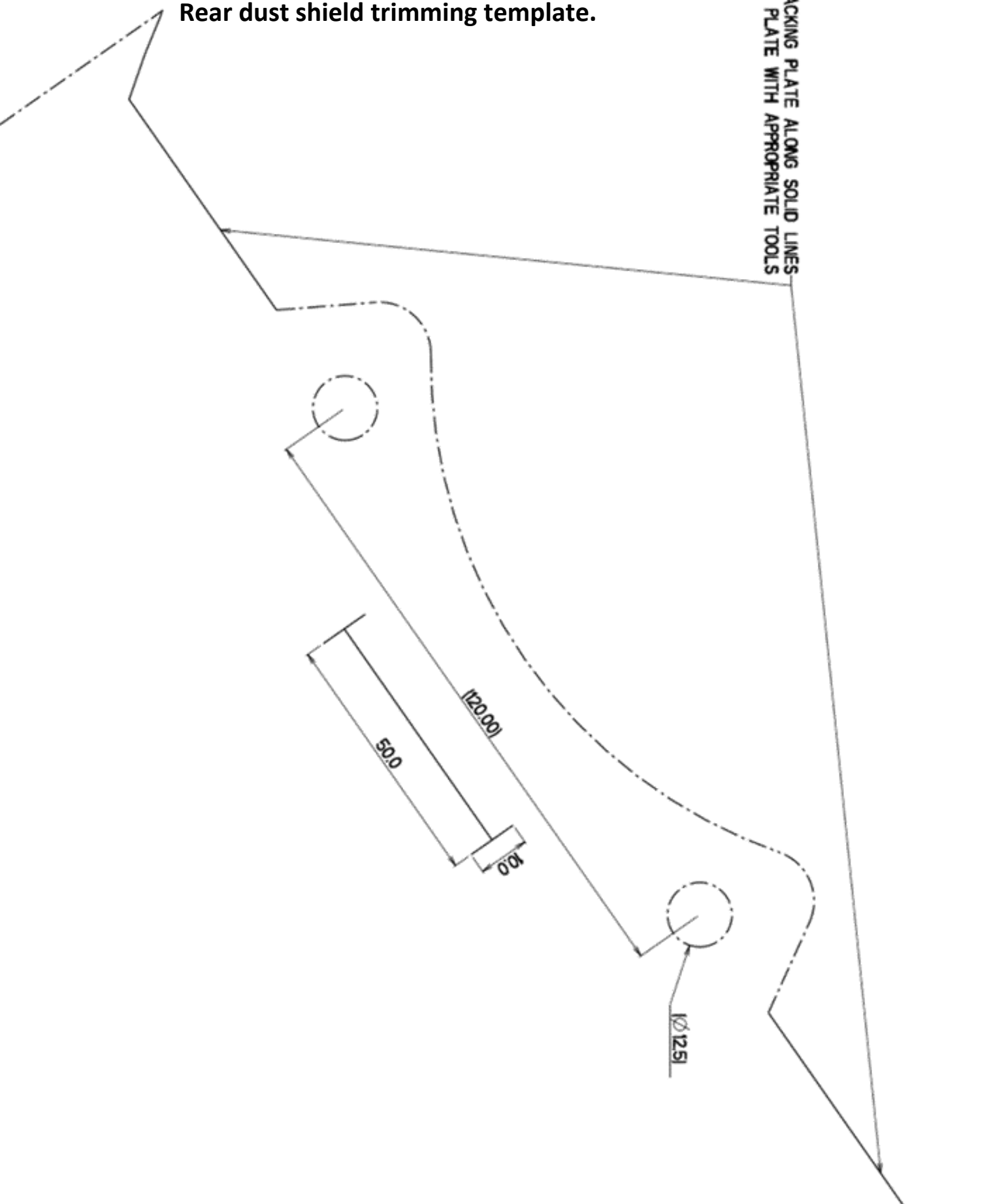
Bedding New Pads and Discs

- While the vehicle is stationary pump the brakes to ensure a firm pedal.
- Drive the vehicle cautiously to check the function of the brakes.
- Brakes should be smooth with no harsh shudder.
- The car should pull up evenly, not pull to either side.
- In a safe location perform at least 30 applications of the brakes, starting slow and gradually building up speed.
- The Brake pads should now be bed to the disc and the system is ready for normal use.

Important note:

Larger rotors, rotor slots, pad material, wheel and tyre combination and suspension modifications can all contribute to increased apparent brake noise. Harrop brakes are tested and developed to maximise performance while minimising brake noise on otherwise standard vehicles. As it is impossible to account for the countless combinations of aftermarket components and modifications available for the commodore platform, some installs may exhibit more brake noise than others.

Rear dust shield trimming template.



Brake Pads

Replacement brake pads can be ordered through Harrop on: 03 9474 0900

If you wish to source pads independently the details are listed below.

Front:

Bendix Brakes DB1933

Or

Ferodo DS3000

Machined as per drawing 4864-05

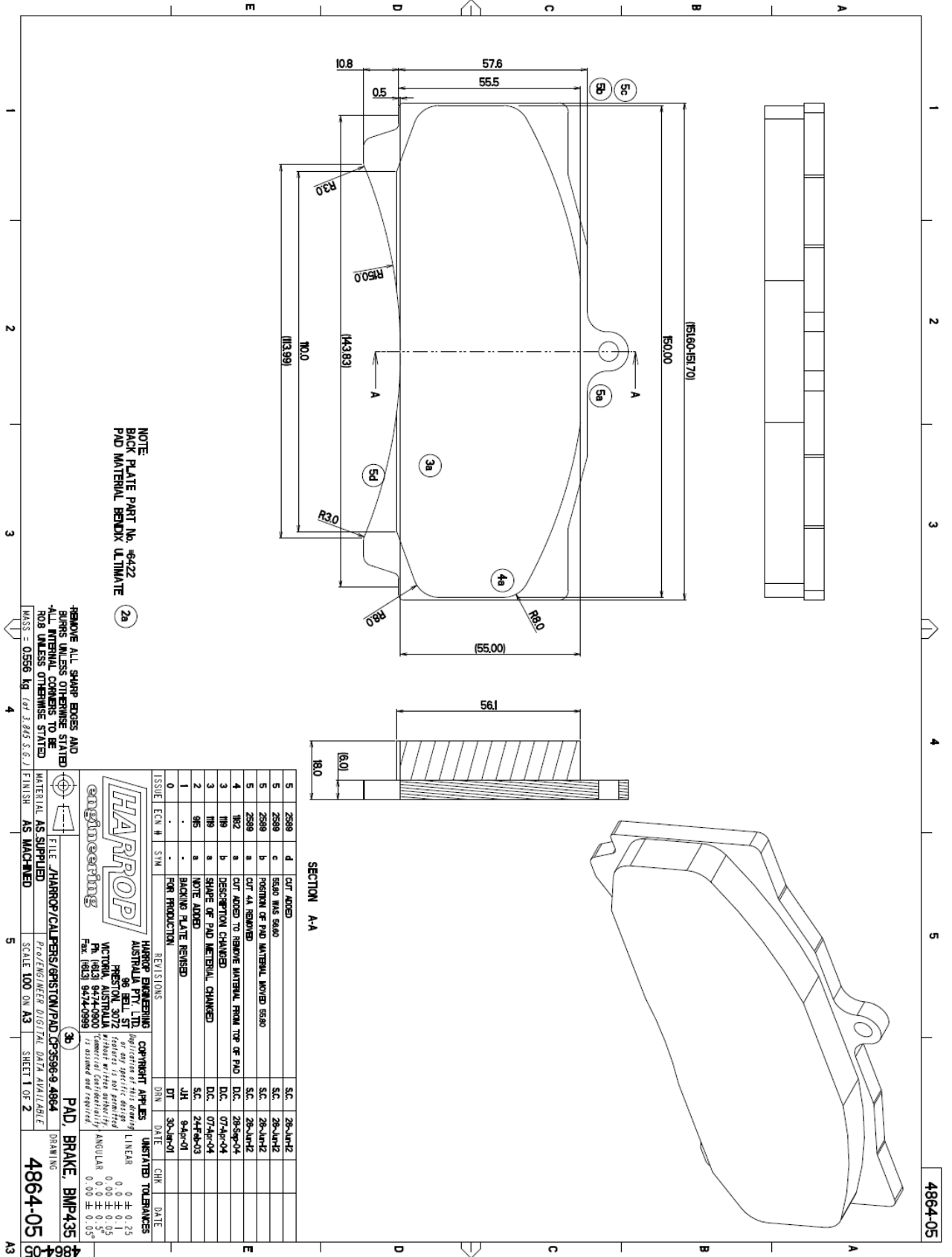
Rear:

Bendix Brakes DB439

Or

Ferodo DS2500

No machining required.



NOTE:
BACK PLATE PART No. 46422
PAD MATERIAL BENDIX ULTIMATE

REMOVE ALL SHARP EDGES AND
BURRS UNLESS OTHERWISE STATED
-ALL INTERNAL CORNERS TO BE
R08 UNLESS OTHERWISE STATED
MASS = 0556 kg (cf 3.845 S.G./FINISH)

ISSUE	ECON #	SYM	REVISIONS	DATE	BY	CHK	DATE
0	..	..	BACKING PLATE REVISED	DT	30-SEP-01		
1	..	..	FOR PRODUCTION	DT	30-SEP-01		
2	..	..	NOTE ADDED	JH	04-APR-03		
3	..	..	SHAPE OF PAD MATERIAL CHANGED	DC	07-APR-04		
4	..	..	CUT ADDED TO REMOVE MATERIAL FROM TOP OF PAD	DC	28-SEP-04		
5	2599	b	CUT 4A REMOVED	SC	28-APR-02		
5	2599	c	POSITION OF PAD MATERIAL MOVED 55.80	SC	28-APR-02		
5	2599	d	CUT ADDED	SC	28-APR-02		

FILE	MATERIAL	SCALE	SHEET
JHARROP/CALPERS/BRISTON/PAD CP3596-9-4864	AS SUPPLIED	1:00 ON A3	1 OF 2

HARROP ENGINEERING
AUSTRALIA PTY LTD
100/102 WILSON ST
PRESTON VIC 3072
Ph: (613) 9474-0900
Fax: (613) 9474-0999

engineering
COPYRIGHT APPLIES
Implication of this drawing
is hereby accepted by the
customer without liability
ANZULAN 0.00 ± 0.05
0.30 ± 0.05

PAD, BRAKE, BMP435
DRAWING
4864-05

4864-05

