INSTALLATION INSTRUCTIONS

GR6 SPORTSMAN'S CLUTCH

DMS-00-0002 REV 005

24 MAY 2023

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DATE: 24MAY2023

RELEASED BY: J. PISL
DATE: 24MAY2023

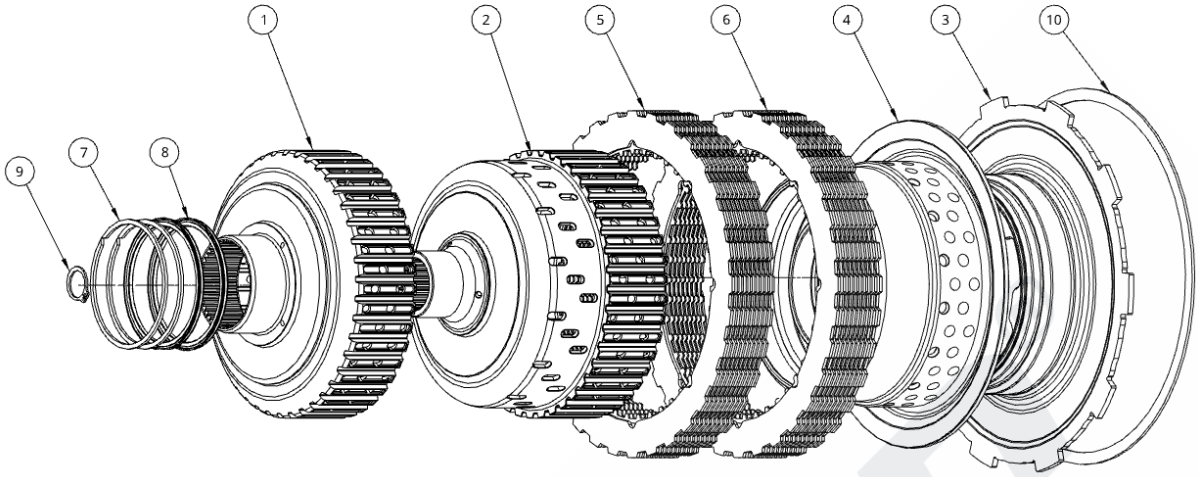
REVISION UPDATE NOTES:

The following table indicates the changes we have made in either the disassembly or assembly of the product you have received. All changes are indicated by a revision bar in the margin.

If you have any questions email us at **technical@dodsonmotorsport.com**

Revision	Date	Description
REV.005	24MAY2023	- Revised formatting - Page 9: Updated Clutch centre machining instructions
REV.004	20SEP2021	- New format - Added BOM

GR6 SPORTSMAN'S CLUTCH KIT CONTENTS



Item Number	Part Name	DMS Code	Qty
1	Clutch A Forged Basket	DMS-3212	1
2	Clutch B Forged Basket w/ Bearing	DMS-8092	1
3	Clutch A Alloy Piston	DMS-8063	1
4	Clutch B Alloy Piston Assembly	DMS-8047	1
5	Clutch A Stack	DMS-*	1
6	Clutch B Stack	DMS-*	1
7	Spring Retainer Circlip	DMS-0966	2
8	Clutch Center Piston Shaft Seal	DMS-6157	2
9	Clutch Center Circlip	DMS-0948	1
10	A Piston Snap Ring	DMS-0938	1

* Clutch stack DMS codes depend on the version of the clutch.
Please contact **sales@dodsonmotorsport** if you require a replacement or upgraded clutch stack.

READ FIRST

These instructions must be followed exactly. New fluid and filters must be used when installing a Dodson Motorsport clutch. Once the clutch is installed and the calibration is successful, take the car for a quick test drive and ensure the correct operation of the transmission. After 5 kms, perform the calibration again. It is strongly recommended to drive the next 50-100 km on several trips.

Do not constantly use light throttle.

Do not use full power during this drive.

A moderate amount of throttle is recommended. After these kilometres have been logged, it is recommended to perform the calibration procedure again.

Any use of a traction control system or launch system will accelerate wear or even damage the clutch and transmission.

IMPORTANT NOTES

- **THOROUGHLY CLEAN ALL PARTS**
- **MAKE SURE THAT THE CENTER HOUSING IS TIGHT**
- **CHECKING 'A' PACK CLEARANCE, SUBTRACT 'A' FRICTION THICKNESS FROM MEASUREMENT**
- **CHECKING 'B' PACK CLEARANCE, SUBTRACT 'B' FRICTION THICKNESS FROM MEASUREMENT**

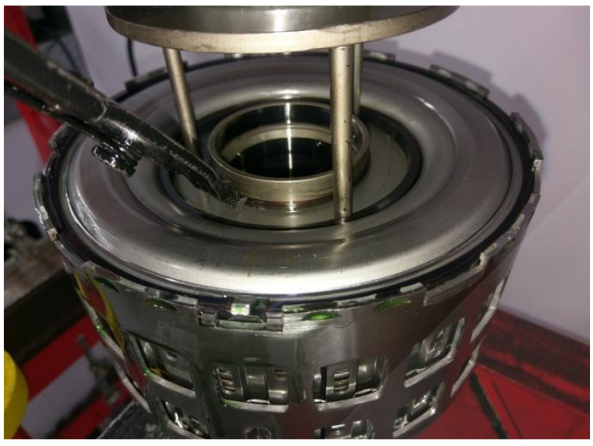
SPORTSMAN'S CLUTCH KIT INSTALLATION INSTRUCTIONS

DISASSEMBLY

Make sure you have all the necessary tools to carry out this task and that you have read the instructions fully. If you require any assistance or information, please contact us before performing a procedure not set out in this manual.

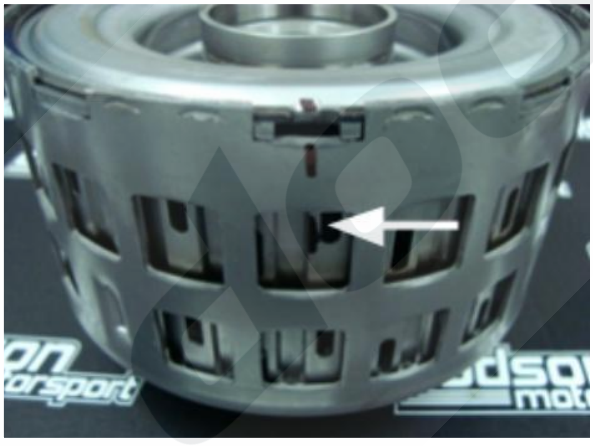
STEP 1

Using the appropriate tool, press the return springs down and remove the circlip from the clutch centre. Release the press and remove the seal plate and the return spring plate.



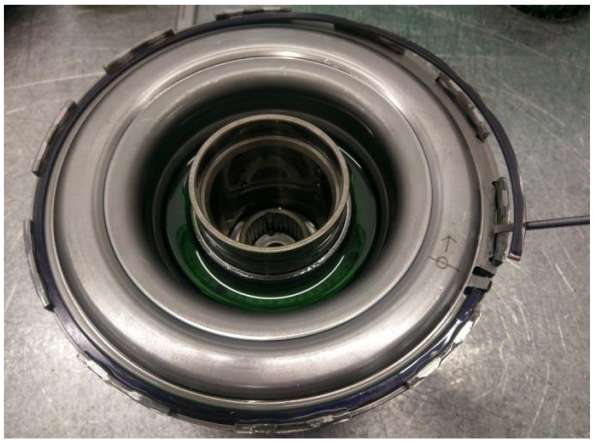
STEP 2

Mark A piston and gear plate in respect to the outer cage and inner basket.



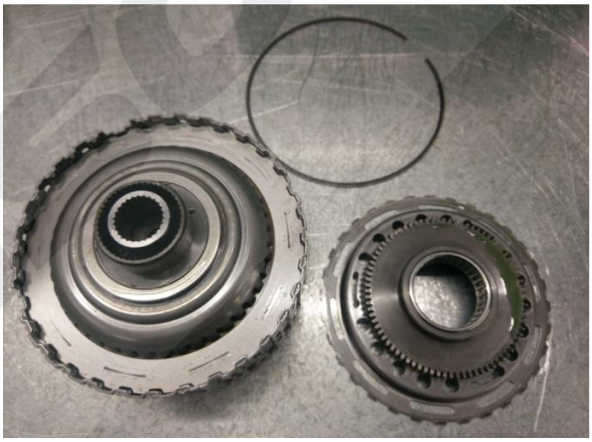
STEP 3

Remove the factory circlip. You can now remove the factory **A-piston** from the clutch centre.



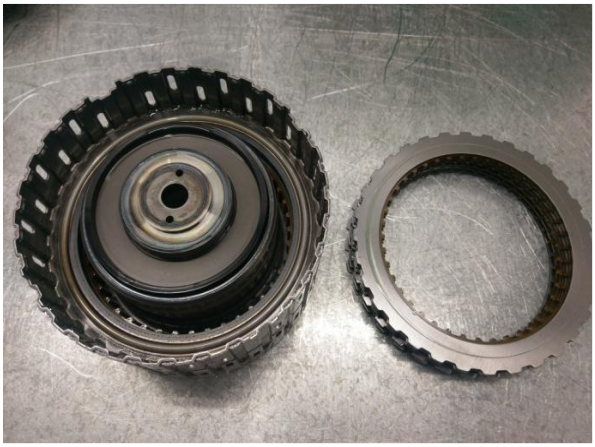
STEP 4

Remove the outer basket from the clutch unit. Once this is removed you may remove the circlip on top of the gear plate and remove the gear plate from the clutch.



STEP 5

Remove both clutch baskets from the clutch housing. Remove all Torrington bearings from the baskets and clutch centres and put them aside. You are now free to remove the **Clutch A clutch pack**.

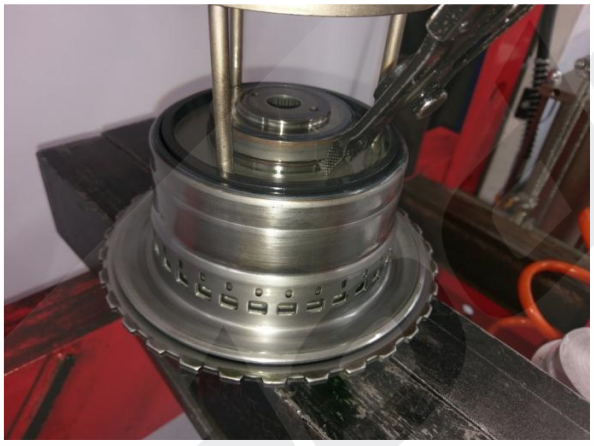


STEP 6

Flip the unit over. Remove the **OEM 1.15mm circlip** from the top of the clutch centre and then remove the clutch centre assembly from the basket. You can now remove the **OEM 2.45mm** circlip and remove the **Clutch B clutch pack**.

STEP 7

Using the appropriate tool remove the spring return circlip, spring plate and seal plate from the B piston. You can now remove the **B-piston** from the clutch centre.



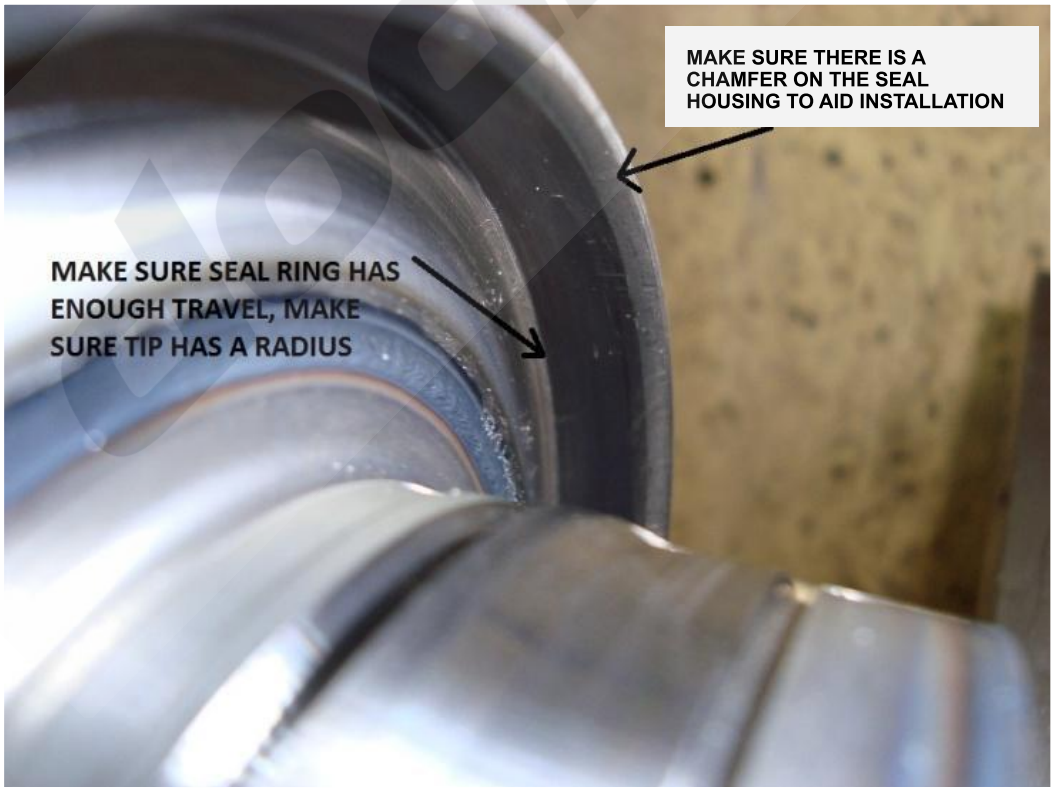
CLUTCH CENTER MACHINING

STEP 1

Check runout and concentricity of the part. Use a dial gauge to align the part correctly. Machine both surfaces until perfectly round. OEM inner diameter is roughly 110.15mm. You must machine this bore diameter to **110.50mm** It should be a polished finish as it is a seal face.

STEP 2

Machine a small chamfer on the seal housing edge to assist with piston installation. Polish the seal surface to speed up bed in.



STEP 3

Machine the outside diameter to **114.50mm**. Make sure this part is thoroughly cleaned before use. Wire brush the teeth on the clutch centre to remove any burrs.

STEP 4

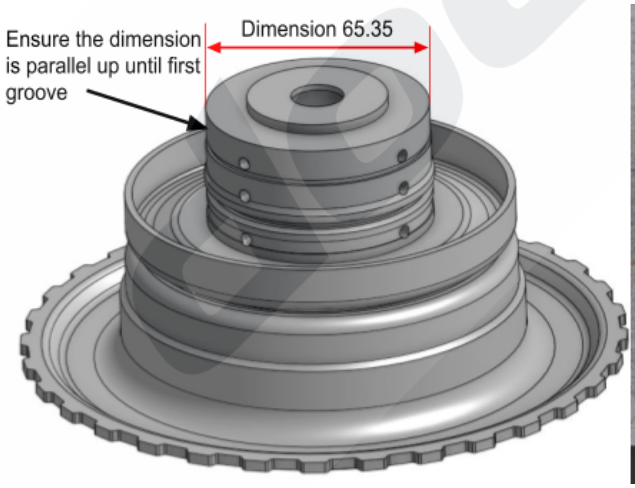
Prepare clutch center for the B-basket inner bearing fitment.

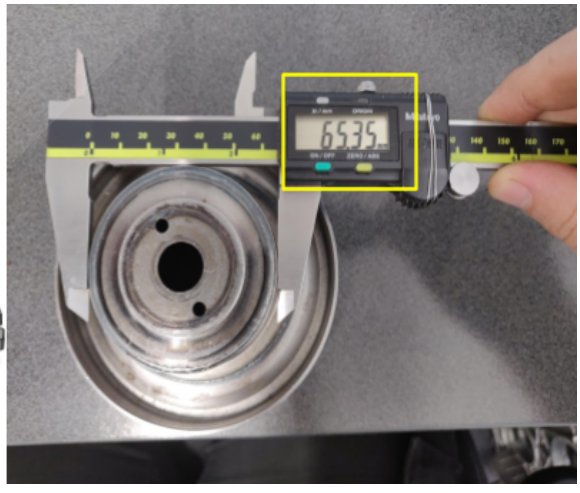
Measure the diameter of the top of the center. This dimension on the OE core should be between 65.42mm to 65.44mm.

Please note that there is a chance of this face being tapered.

Ensure the faces are parallel (up until the first groove) before installing the B-basket bearing.

The clutch center needs to be machined to **65.35mm (+0.00, -0.03)**.

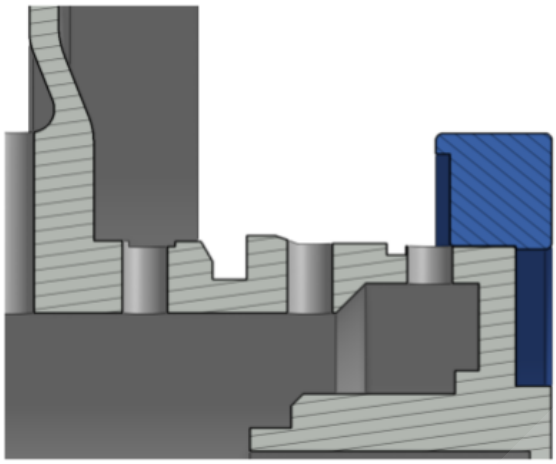




STEP 5

Test the fitment of the bearing on the clutch centre. It should be a sliding fit and require no significant force.

NOTE: Ensure the bearing step is facing the clutch center.



Once the bearing fits the clutch center, machining is finished.

ASSEMBLY

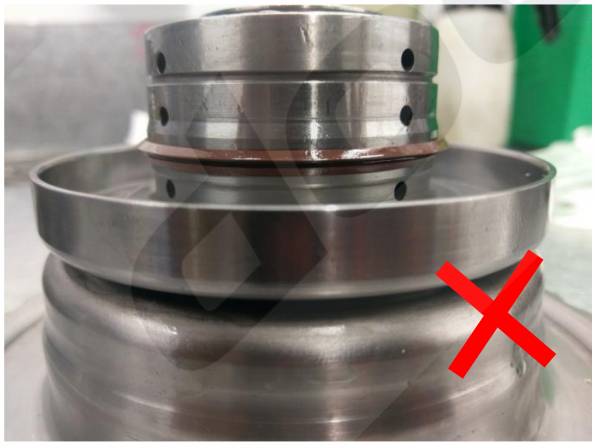
STEP 1

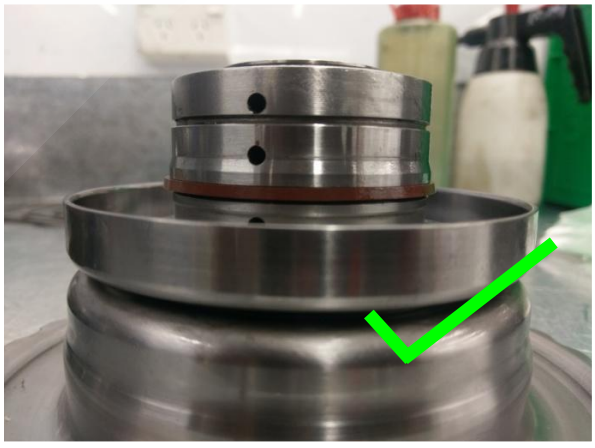
Inspect and clean the seals on ‘A’ and ‘B’ pistons.

Assembly of the pistons is no longer required. If you have received a piston with the seal, of the B-piston insert, not fitted to the outer housing please contact **technical@dodsonmotorsport.com**

STEP 2

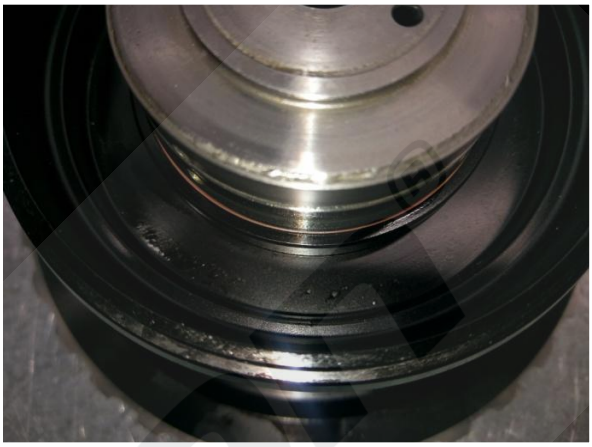
Place the Viton piston shaft seals on the clutch centre. The lip faces towards the middle on both sides (so they end up facing each other). Notice in the first picture the way the seal sits in the groove, this is **incorrect**. They should sit as seen in the second picture and be easy to turn in the groove.





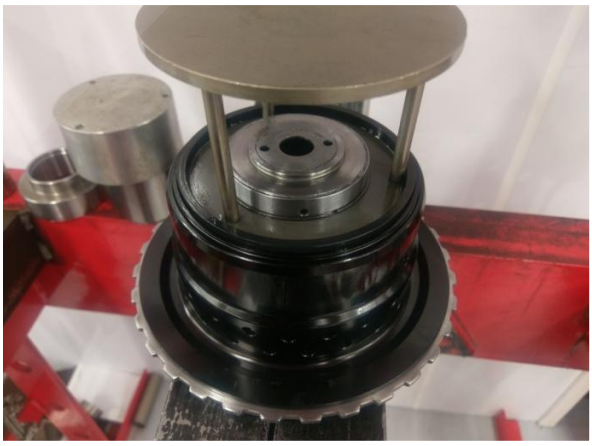
STEP 3

Place the B piston on the clutch centre. You must be careful that the inner shaft seal does not roll out of the groove. One tip is to fit an OEM piston on first and leave it for 5 minutes to help seat the seal. When putting the piston on, lubricate both seals and twist it as you press down. Once it is on, you can see the seal in between the piston and centre. Look the entire way around and make sure that it is not twisted. You may have to use compressed air to move oil out of the way.



STEP 4

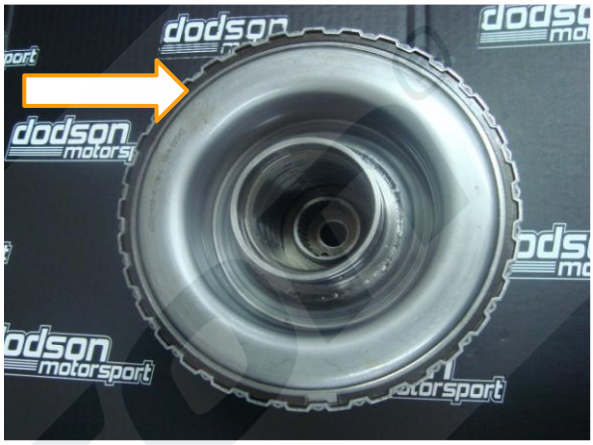
Fit the spring plate in the piston and then place the seal plate on top and press into the piston. The lip-side of the seal plate goes first. You will see the circlip groove for the spring return circlip facing upwards. Press the seal plate and spring plate down until the circlip groove on the clutch centre is visible. Fit the spring return circlip to the centre. Release the press slowly and let the seal plate seat against the circlip. Make sure the circlip is fully seated in the groove on the spring retainer plate.



STEP 5

IMPORTANT - SOAK FRICTIONS IN OIL BEFORE FINAL INSTALLATION

Fit your B clutch pack to the basket. This will be inserted on the side of the basket that has two circlip grooves. Insert the thicker of the two circlips (**2.45mm**). Line up the teeth of the friction to help you when you install the clutch basket later. Now insert the clutch centre assembly. Fit the second of your two circlips on top (**1.15mm**). If you have a range of circlips on hand, you can fit a thicker clip to reduce the free play of the clutch centre (usually maximum is 1.4mm).



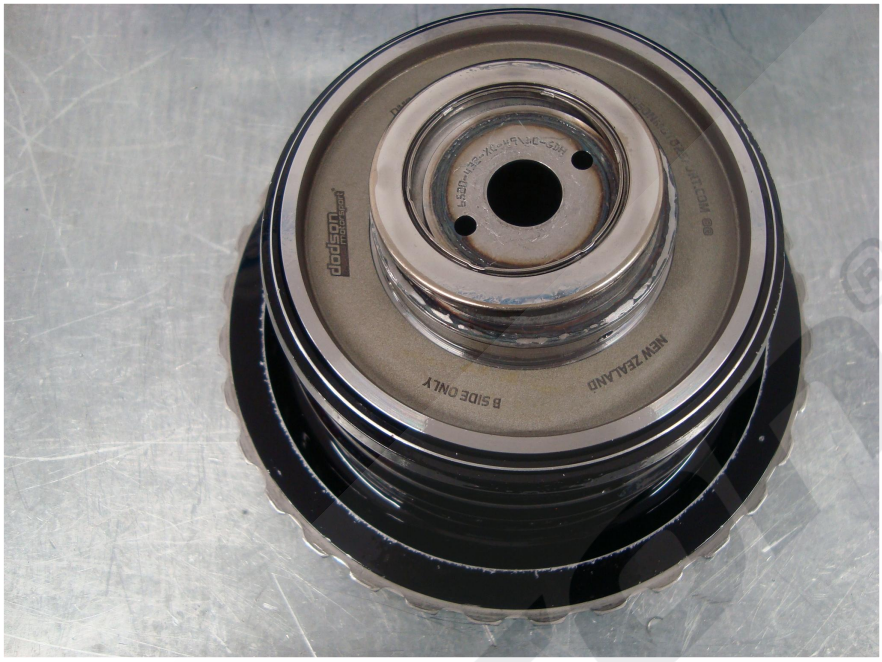
STEP 6

Now is a good time to measure your clutch B clearance. Turn the assembly on its side and measure the distance between two steel plates of the clutch (you can measure through the holes on the steel outer basket). Take multiple measurements around the assembly as it can differ slightly and take an average. With this measurement, subtract the thickness of the friction in the clutch pack, and you are left with the clearance. For example, if we have measured 4.25mm free play in between two steel plates, and our frictions are 1.55mm thick. 4.25 – 1.55 = 2.6mm clearance.

The target clearance reading for the B clutch is between 2.6mm +/- 0.2mm.

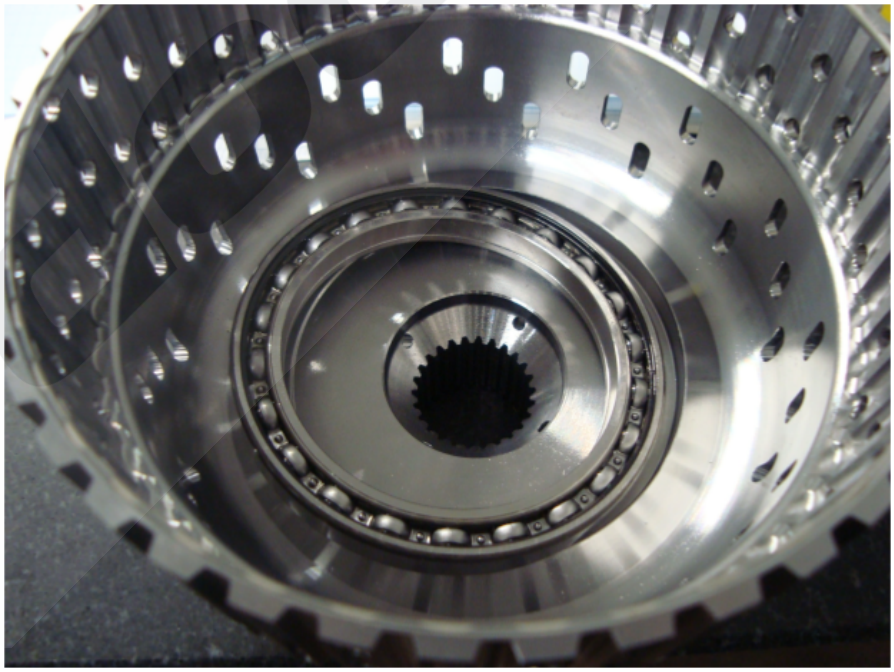
STEP 7

Install the thrust bearing on top of the centre.



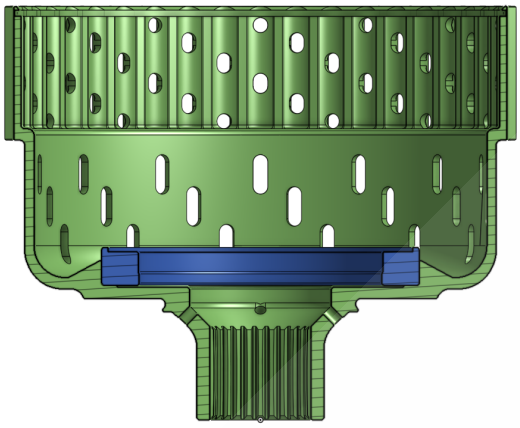
STEP 8

Make sure the basket and bearing you received are assembled in the correct orientation.



STEP 9

Install the bearing inside the B-Basket. **NOTE: Ensure the bearing step, with the larger internal diameter facing up.**



STEP 10

Align the teeth on the frictions again and then fit the **clutch B basket**. Make sure it slides over all the frictions and is not sitting on the teeth of the last friction. You will hear the metal on metal noise as the basket touches the bearing. Make sure you have the medium-sized Torrington bearing on the B basket and it is fully clipped into place. This bearing requires some pressure to push fully home.

STEP 11

Fit the clutch **A basket** on top of the B basket. You can now fit the clutch A clutch pack. Fit the large Torrington bearing to the clutch A basket. IMPORTANT: SOAK FRICTIONS BEFORE FINAL INSTALLATION

STEP 12

Fit the gear plate to the basket, making sure to line up your marks from earlier. Fit the same circlip removed from earlier. You can now check the end float of your baskets. It should be between **.005" and .015"**. If it is excessive, you can purchase shims from us to fit underneath the bearing on the clutch centre. You can also fit thicker circlips to hold the gear plate in tighter. If you do not have enough then you can purchase different circlips from us to either move the clutch centre away from the gear plate or move the gear plate away from the centre.

STEP 13

Insert the **clutch A piston** into the clutch centre using the same technique as you did for the B piston. Make sure to check you haven't twisted or rolled the shaft seal.

STEP 14

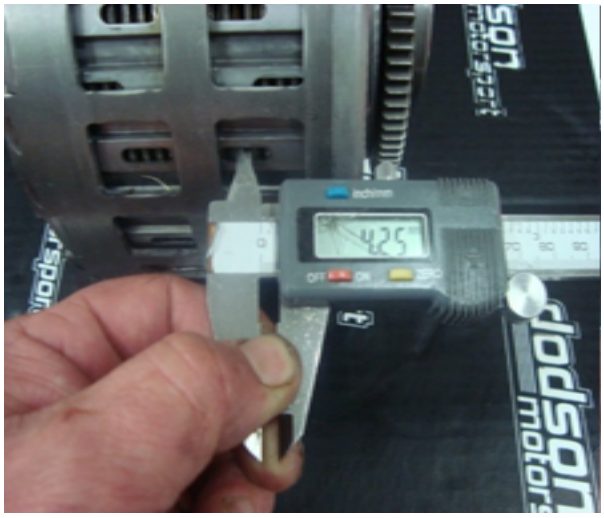
Fit the outer steel cage to the assembly, making sure the fingers of the steel pass through the holes on the gear plate. If you follow your marks made earlier, you should find that the fingers pass through the centre of the hole, and not to one side. You will have to twist the A piston to have its fingers spline with the steel cage. Fit the snap ring provided.

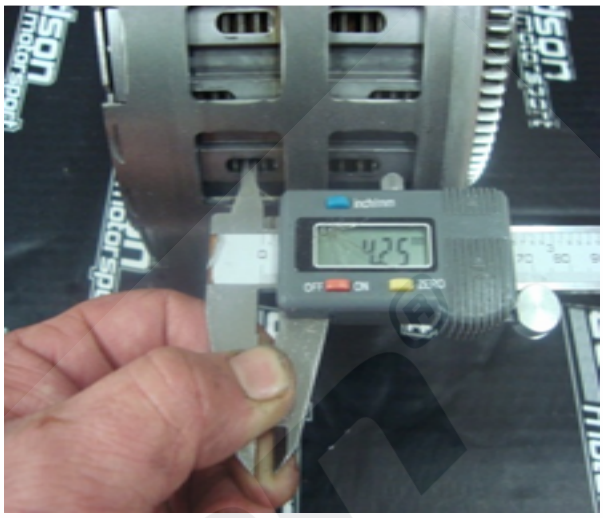
STEP 15

Fit the spring plate and seal plate to the assembly and press down. Fit the spring return circlip and release the press. This is the same procedure you have carried out in **Step 4**.

STEP 16

Measure the clutch A clearance. Use the same procedure as **Step 2** (Clutch B can be rechecked as well).

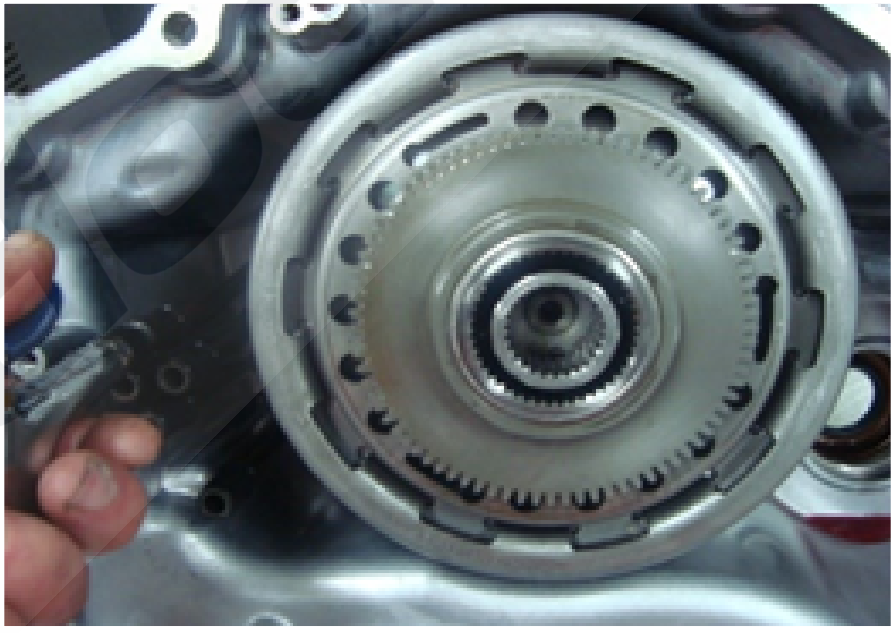




The target clearance reading for the 'A' Clutch is between 2.6+/-0.2mm

STEP 17

Fit clutch to housing and test how the clutch seals. Blow compressed air through the top and bottom holes of the 4 pipes. You must use an air nozzle with a rubber tip so that it cannot leak. After you have checked the sealing a few times, remove the clutch and re-check your clearance on both A & B clutch ***(2.6mm +/- 0.2mm)***.



When the clutch is fitted for the final time, do not forget to fit the clutch center circlip.

If you have any questions email us at **technical@dodsonmotorsport.com**