

# ***dodson***<sup>®</sup>

## **INSTALLATION INSTRUCTIONS**

**DL800 SPORTSMAN'S**

**DMS-00-0035 REV 008**

**15 MARCH 2024**

**PREPARED BY: JAN PISL  
DATE: 04MAR2024**

**RELEASED BY:   
DATE: 15MAR2024**

## 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](mailto:technical@dodsonmotorsport.com)

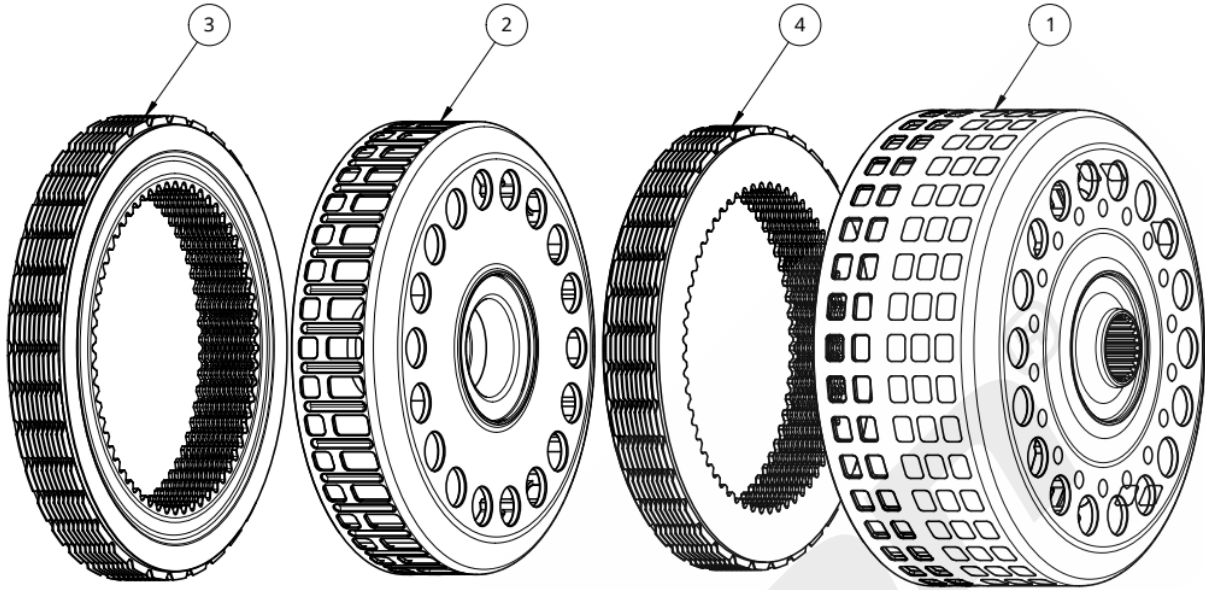
Revision	Date	Description
REV.008	15MAR2024	<ul style="list-style-type: none"><li>- Page 2: Added a Note.</li><li>- Page 3: Updated Contents list and image.</li><li>- Page 10-17: Updated assembly instructions with respect to the clutch separator springs.</li><li>- Page 24: Added Clearance Measurement section.</li><li>- Revised formatting.</li></ul>
REV.007	21JUN2022	<ul style="list-style-type: none"><li>- Revised formatting.</li><li>- Rewrote some steps for improved clarity.</li><li>- Added machined bottom plate info.</li><li>- Added note to last page.</li></ul>
REV.006	01JUL2021	<ul style="list-style-type: none"><li>- The OEM large basket circlip is now being used.</li><li>- Stacks will come pre assembled in the correct build order.</li><li>- A 1.6mm Steel without scallops will be used against the clutch core.</li></ul>

## NOTE

The following Dodson toolkits are recommended however not absolutely necessary.

- **DMS-2462** - DL800 Spring Clutch Assembly Toolkit

## DL800 SPORTSMAN'S CLUTCH KIT CONTENTS



Item Number	Part Name	DMS Code	Qty
1	Large Inner Basket	DMS-3219	1
2	Small Inner Basket	DMS-3220	1
<b>Sportsman's 9 (DMS-8050)</b>			
3	Large Clutch Stack	DMS-8111	1
4	Small Clutch Stack	DMS-8112	1
<b>Sportsman's 10 (DMS-8078)</b>			
3	Large Clutch Stack	DMS-8142	1
4	Small Clutch Stack	DMS-8143	1

## DL800 SPORTSMAN'S INSTALLATION INSTRUCTIONS DISASSEMBLY

### STEP 1

Remove the bolts from the aluminum clutch cover and pull the clutch unit out of the transmission.



### STEP 2

Place a pen mark on the large outer basket and clutch lid to indicate the relative rotational position of both components. This is necessary to ensure the correct reassembly of the clutch.



**MARK  
LOCATION OF  
LID RELATIVE  
TO BASKET**



## STEP 3

Remove the circlip holding the large outer basket and lid. We will be using this when re-assembling the clutch.



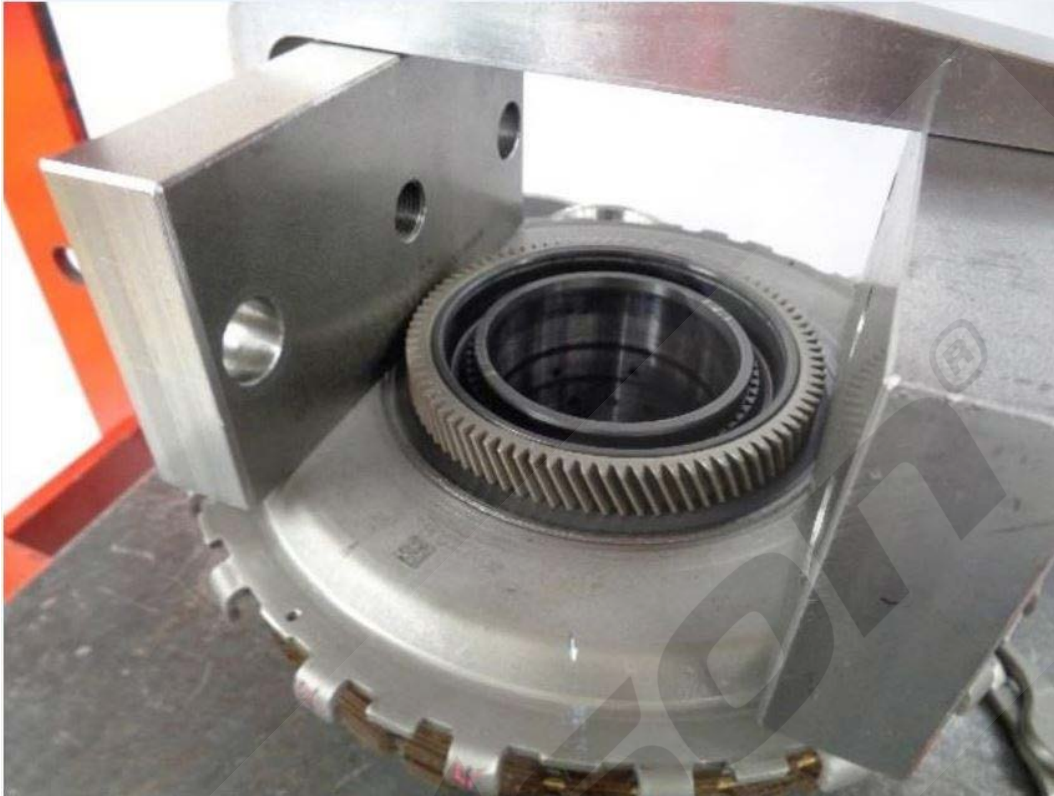
## STEP 4

Remove the circlip retainer carefully making sure not damaging it. We will be using this when re-assembling the clutch.



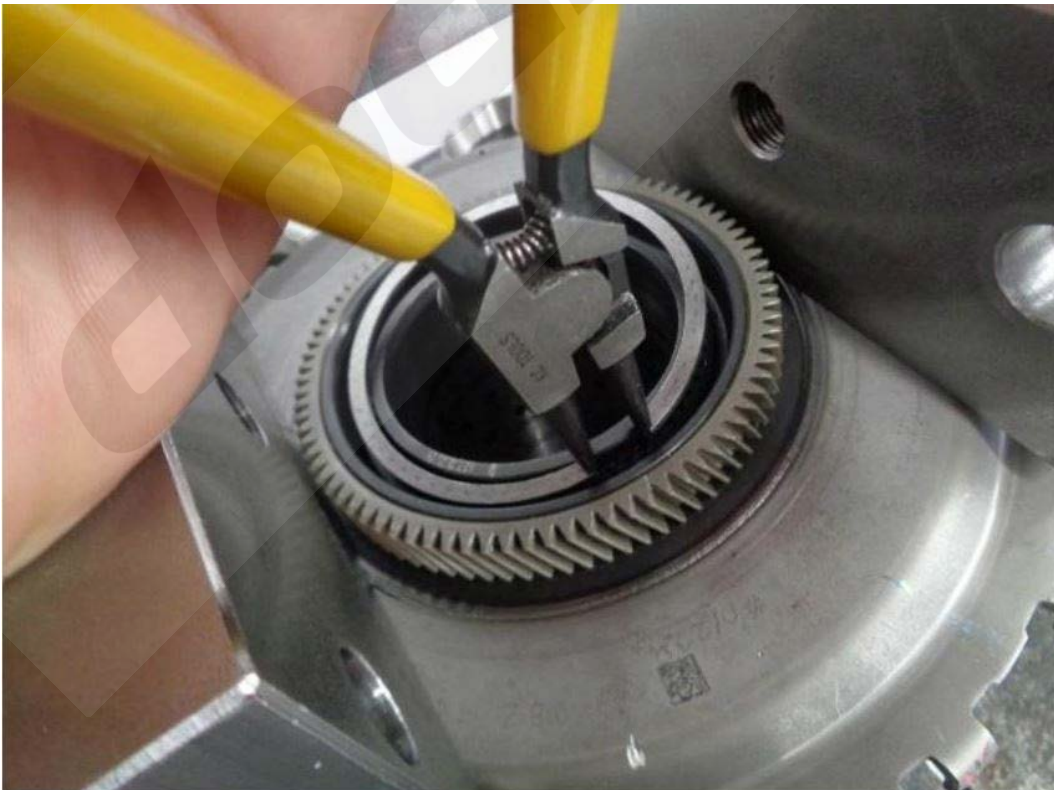
## **STEP 5**

Press the lid to remove circlip



## **STEP 6**

Remove the retainer circlip.





## **STEP 7**

Take the clutch core with lid out, remove the lid, keep the pistons and spring together.



## **STEP 8**

Keep the bearings from the clutch baskets.



## **STEP 9**

Press the piston from the basket side.



## **STEP 10**

Remove the circlip and take the basket-side piston out. Keep the piston and springs for further assembly.





**STEP 11**

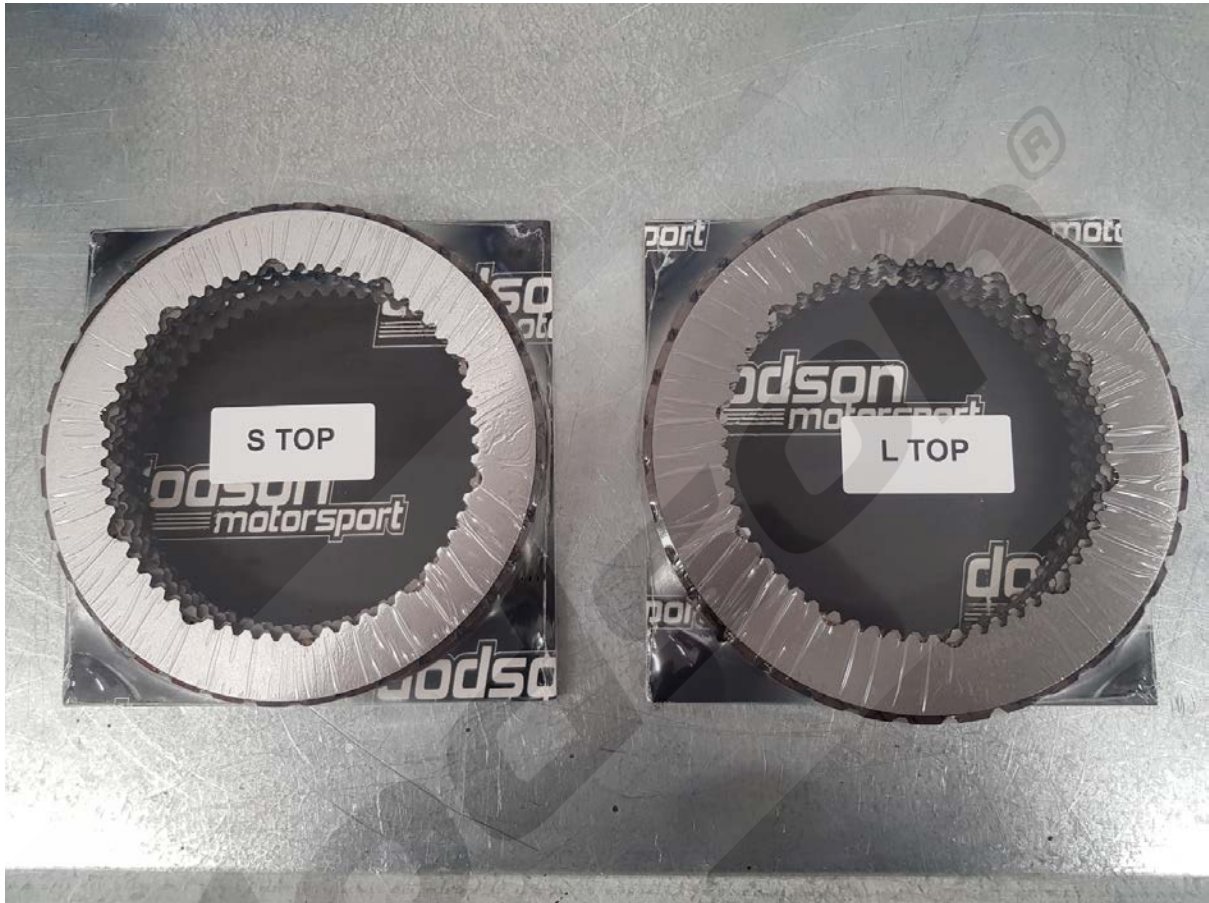
Remove the OE clutch stacks from the clutch core. Clean and keep OE clutch core ready for further assembly.



## ASSEMBLY INSTRUCTIONS

**NOTE: HANDLE THE STACK WITH CARE. SOAK THE FRICTIONS IN OIL BEFORE FINAL ASSEMBLY**

Upon receiving your clutch stacks, they will be labeled “S TOP” and “L TOP”. This indicates the pre-assembled orientation that the large stack and small stack should be installed. The thinnest plates will be located in the middle of the stack with the thickest plates on the outside (top and bottom of the stack). The steel mating plate thickness may vary between stacks to produce the correct total stack thickness and result in the desired clutch clearance.

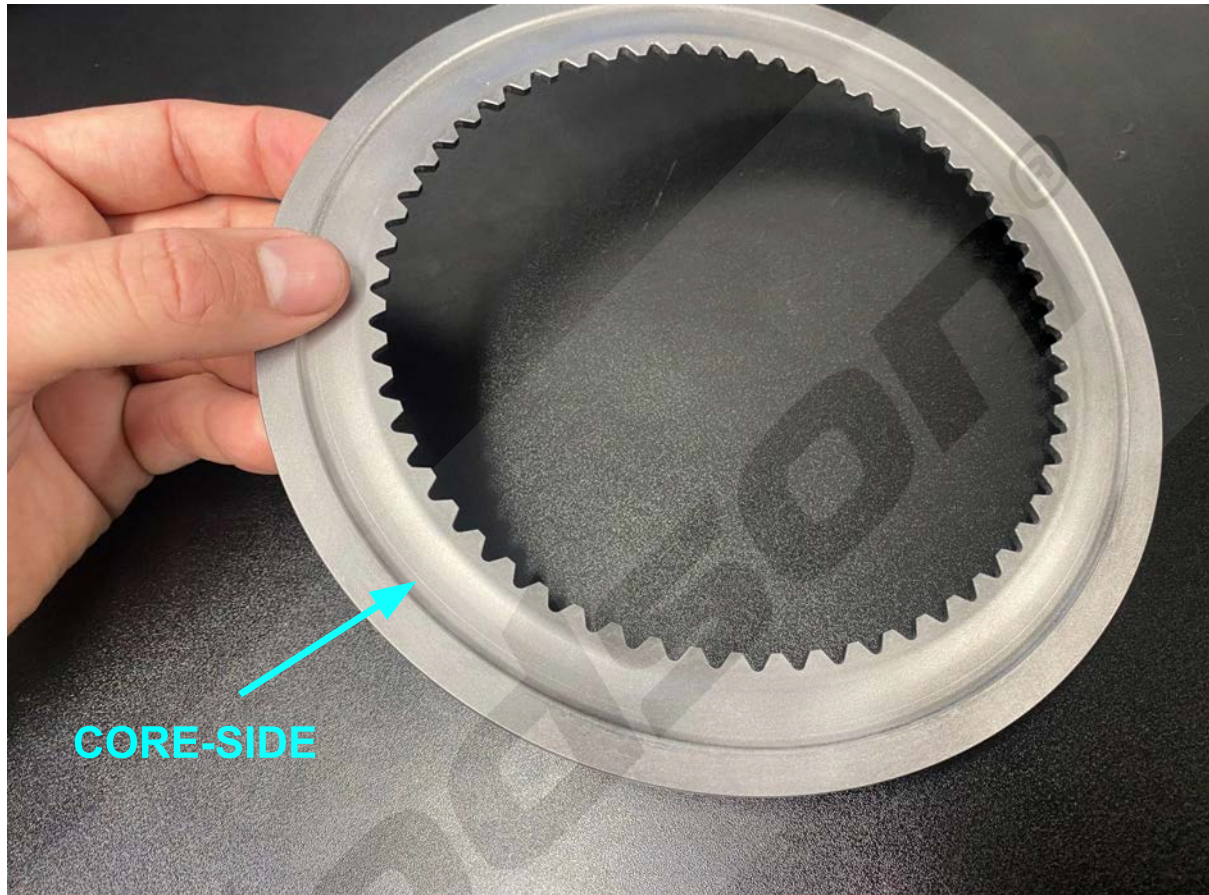




## ASSEMBLY INSTRUCTIONS - SMALL STACK

### STEP 1

Start by assembling the small stack first, bottom to top. The machined bottom plate runs against the core (this is the bottom of the stack). Ensure the flat face is facing upwards, with the contoured face being placed directly against the core. (this is the bottom of the stack). A friction will then follow the mating plate.

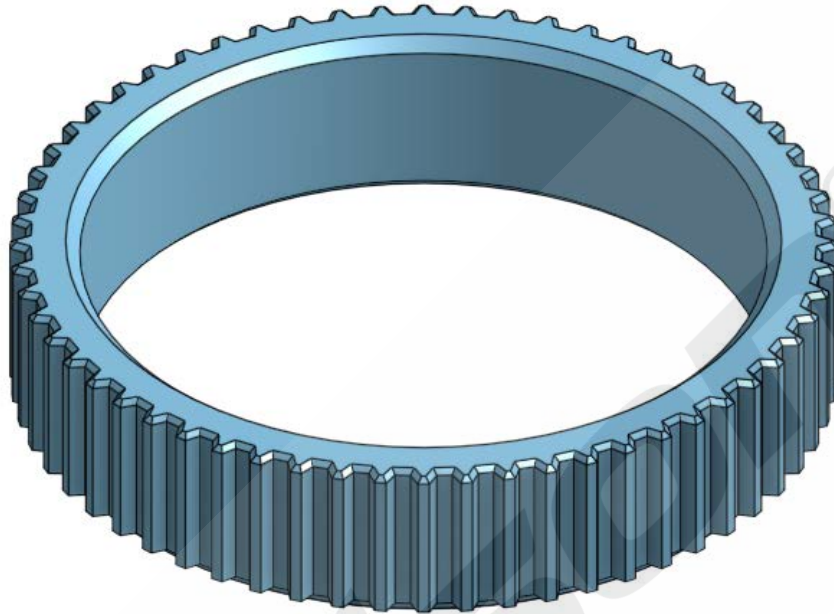




## STEP 2

The spline extender tool which forms part of the spring clutch assembly tool kit (DMS-2462) can be placed onto the core now, ensuring the teeth on the tool align with the teeth on the core.

**This is important, as the free height of the stack due to the springs is taller than the core.**



Continue assembling the stack onto the core - **placing a spring, followed by a friction, followed by a steel.** Take care to ensure that with each set of plates assembled onto the core, the spring sits within the inner diameter of the friction and they are not sitting atop one another. Continue assembling the clutch plates onto the core until the entire stack is assembled. Install the piston return spring into the core as shown.



*NOTE: Please disregard the colour change of the spline extender tool in the images above.*

## STEP 3

Lube the small retainer and fit it in the piston - lubing the components allows for easy assembly and prevents damage to the seals.



## IMPORTANT

**THE FOLLOWING STEPS CAN BE COMPLETED WITH A SINGLE PERSON BUT WE HIGHLY RECOMMEND HAVING A SECOND PAIR OF HANDS TO MAKE THE PROCESS EASIER.**

**READ THROUGH THE INSTRUCTIONS CAREFULLY AND BECOME FAMILIAR WITH THE PROCESS BEFORE PROCEEDING.**

## STEP 4

Using the clutch stack spring compression tool (included as part of the spring clutch assembly tool kit), apply even pressure to the stack until the top plate in the stack is below the top of the splines on the core. **There is a small ridge on the underside of the tool to ensure it is centred on the clutch plate - it is important that the tool is centred to allow for installation of the piston and clamp plate in the following step.** You may see a small amount of flex on the top plate at this stage - this is normal. Do not force the stack down - **if it feels like the steels or springs are not compressing smoothly onto the core and are catching on the edge of the leading edge of the core spline, STOP, and check the alignment of the spline extender tool.**

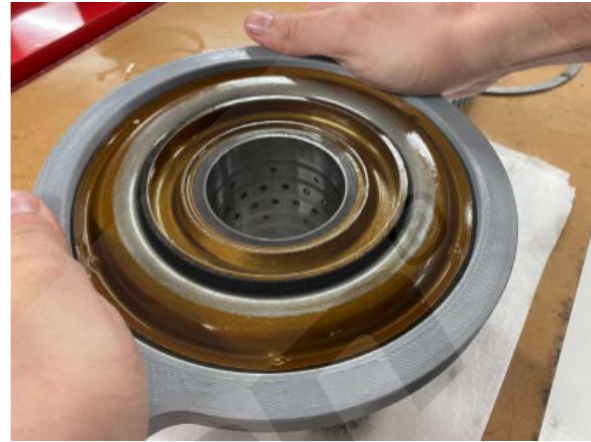


**TOP PLATE BELOW TOP  
EDGE OF CORE SPLINE**



## STEP 5

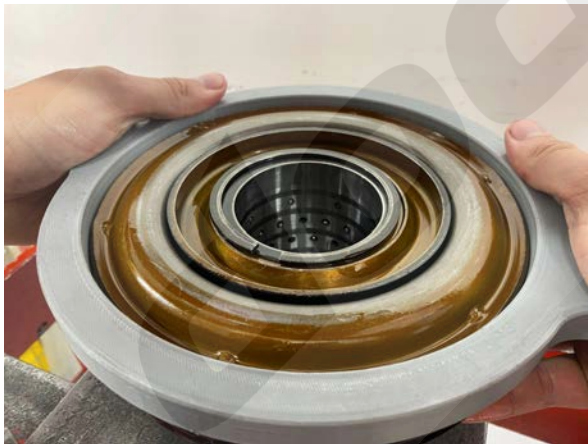
**Whilst maintaining compression on the stack,** remove the spline extender tool, and fit the piston and retainer to the core as shown below. Press firmly down on the piston so it goes on as far as possible. The piston and the retainer should fit perfectly within the centre of the spring compression tool.



## STEP 6

**Whilst maintaining compression on the stack,** move the clutch assembly to the hydraulic press to prepare for installation of the piston retention circlip. Gently release the compression tool, allowing the stack to spring back to full height. This will push the piston and clamp ring up, and the steels will travel off the end of the core spline.

**It is very important that no part of the stack is disturbed at this point, as any movement will cause the clutch plates to not move smoothly back into position during the next step.**



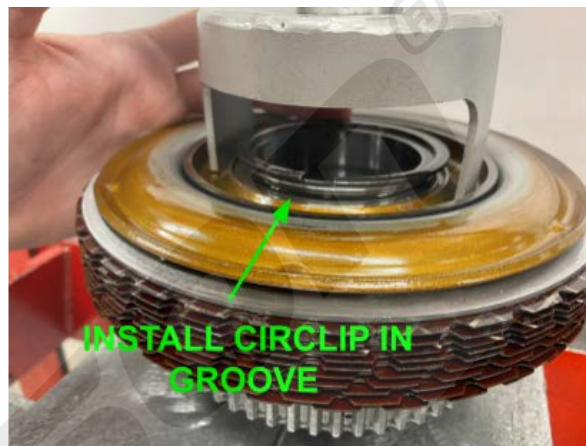


## STEP 7

Compress the piston and spring assembly using a hydraulic press to allow for the installation of the circlip as shown in the images below. This will compress both the separator springs AND the piston return spring. Use the OEM circlip that came with the clutch core.

**It is important to STOP IMMEDIATELY if any resistance is felt during this process, as this is a likely indicator that one of the top clutch plates in the stack has moved out of alignment and is catching on the core.**

If this is the case, remove the piston and part of the clutch stack, replace the spline extender tool, reassemble the top part of the stack and repeat the previous steps.



## STEP 8

Once the assembly is complete and the circlip is installed, release the hydraulic press and check for free movement of all the plates in the stack. If any of the piston-side plates do not move freely, or there is noticeable flex on the top plate on the stack this is an indicator that a component has caught on the edge of the core, and the clutch must be disassembled, checked, and reassembled.

If all the plates spin freely, the small clutch assembly is complete and you can proceed to the large clutch assembly.

### NOTE:

**Clutch clearance does not need to be measured for clutches which utilise separator springs.**

If it is absolutely necessary to measure the clearance it can only be done by assembling the clutch stacks onto the core without the separator springs following the same steps as above.

See further information on the clutch clearance specifications and measurements on the last page, section entitled “**CLEARANCE MEASUREMENT**”.

## ASSEMBLY INSTRUCTIONS - LARGE STACK

*NOTE: Steps 1 through 6 follow the same process as for the small stack.*

### STEP 1

Assemble the large stack onto the core, bottom to top. The spline extender tool which forms part of the spring clutch assembly tool kit can be placed onto the core now, ensuring the teeth on the tool align with the teeth on the core. **This is important, as the free height of the stack due to the springs is taller than the core.** The machined bottom plate runs against the core (this is the bottom of the stack) Ensure the flat face is facing upwards, with the contoured face being placed directly against the core.



*NOTE - The final production billet bottom plate has NO SCALLOPS.*

### STEP 2

Continue assembling the stack onto the core - **placing a spring, followed by a friction, followed by a steel.** Take care to ensure that with each set of plates assembled onto the core, the spring sits within the inner diameter of the friction and they are not sitting atop one another. Continue assembling the clutch plates onto the core until the entire stack is assembled. Install the piston return spring into the core as shown.



## STEP 3

Lube the small retainer and fit it in the piston - lubing the components allows for easy assembly and prevents damage to the seals.

### IMPORTANT

The following steps can be completed with a single person but we highly recommend having a second pair of hands to make the process easier. **Read through the instructions carefully and become familiar with the process before proceeding.**

## STEP 4

Using the clutch stack spring compression tool (included as part of the spring clutch assembly tool kit), apply even pressure to the stack until the top plate in the stack is below the top of the splines on the core. **There is a small ridge on the underside of the tool to ensure it is centred on the clutch plate - it is important that the tool is centred to allow for installation of the piston and clamp plate in the following step.** You may see a small amount of flex on the top plate at this stage - this is normal. Do not force the stack down - **if it feels like the steels or springs are not compressing smoothly onto the core and are catching on the edge of the leading edge of the core spline, STOP, and check the alignment of the spline extender tool.**

## STEP 5

**Whilst maintaining compression on the stack,** remove the spline extender tool, and fit the piston and retainer to the core as shown below. Press firmly down on the piston so it goes on as far as possible. The piston and the retainer should fit perfectly within the centre of the spring compression tool.



## STEP 6

**Whilst maintaining compression on the stack,** move the clutch assembly to the hydraulic press to prepare for installation of the piston retention circlip. Gently release the compression tool, allowing the stack to spring back to full height. This will push the piston and clamp ring up, and the steels will travel off the end of the core spline. **It is very important that no part of the stack is disturbed at this point, as any movement will cause the clutch plates to not move smoothly back into position during the next step.**



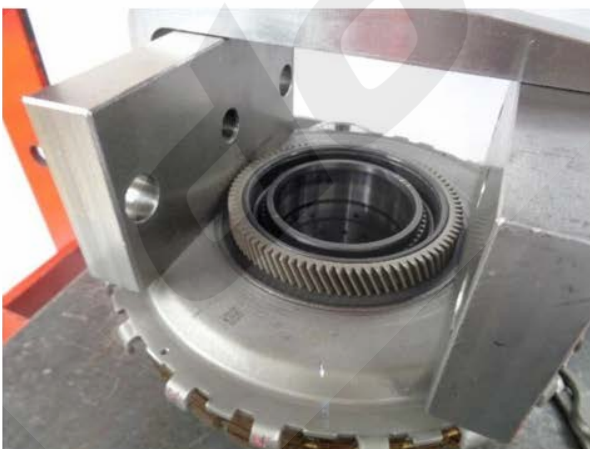
## STEP 9

Install the OEM clutch lid on top.



## STEP 10

Place the external circlip as shown below then press the lid and piston assembly and install the circlip.



## STEP 11

Install the circlip retainer, ensuring the tabs lock into the circular groove.



## STEP 12

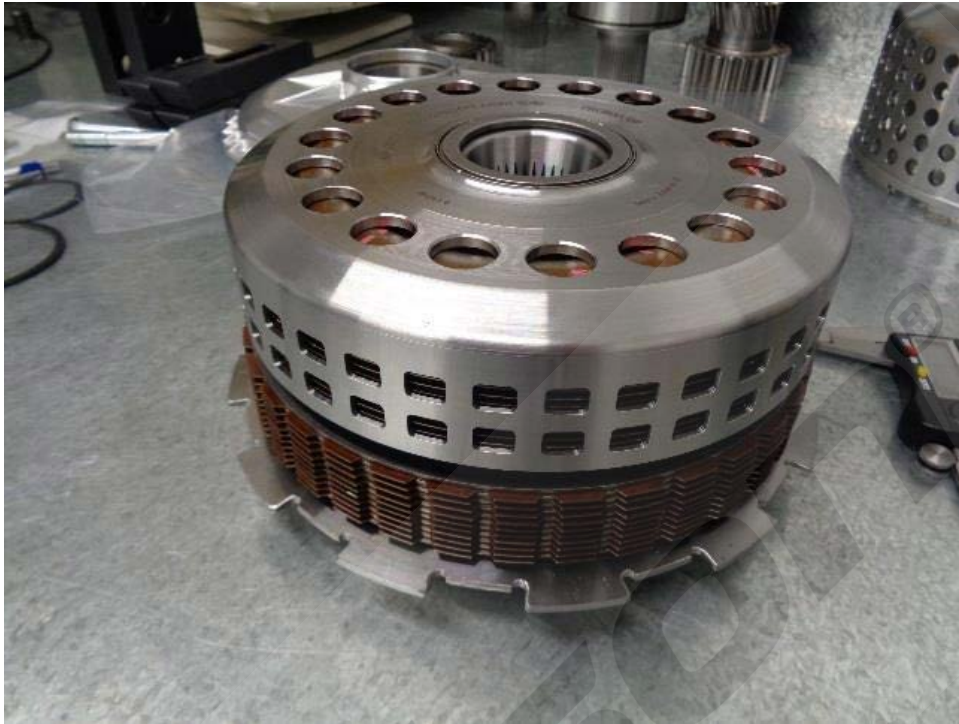
Assemble the OE large bearing on the clutch core. Make sure you assemble the bearing as shown in the image below. If assembled upside down, it will result in damage to the clutch.





## STEP 13

Assemble the billet small basket on the clutch. Aligning the friction teeth using a small screwdriver or pick helps with the assembly.



## STEP 14

Assemble the OE small bearing on the small basket. If it is placed upside down it will result in damage to the clutch.



**NOTE: DO NOT PLACE THE OEM SHIM/WASHER UNDER THE BEARING.**



## STEP 15

Assemble the billet Large basket on the clutch.



## STEP 16

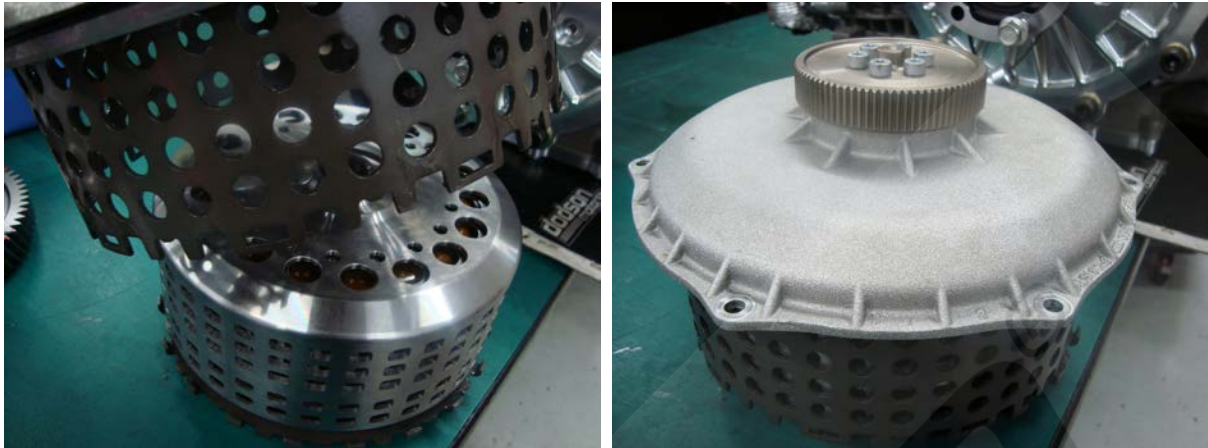
Make sure the OE small bearing is assembled on the clutch as shown. If it is placed upside down it will result in damage to the clutch.



**NOTE: DO NOT PLACE THE OEM SHIM/WASHER UNDER THE BEARING.**

## STEP 17

Install the large outer basket as shown in image below, taking care to align the basket and clutch lid using the locating mark created earlier.



## STEP 18

Install the OEM Circlip into the large outer basket to retain the clutch lid in place.

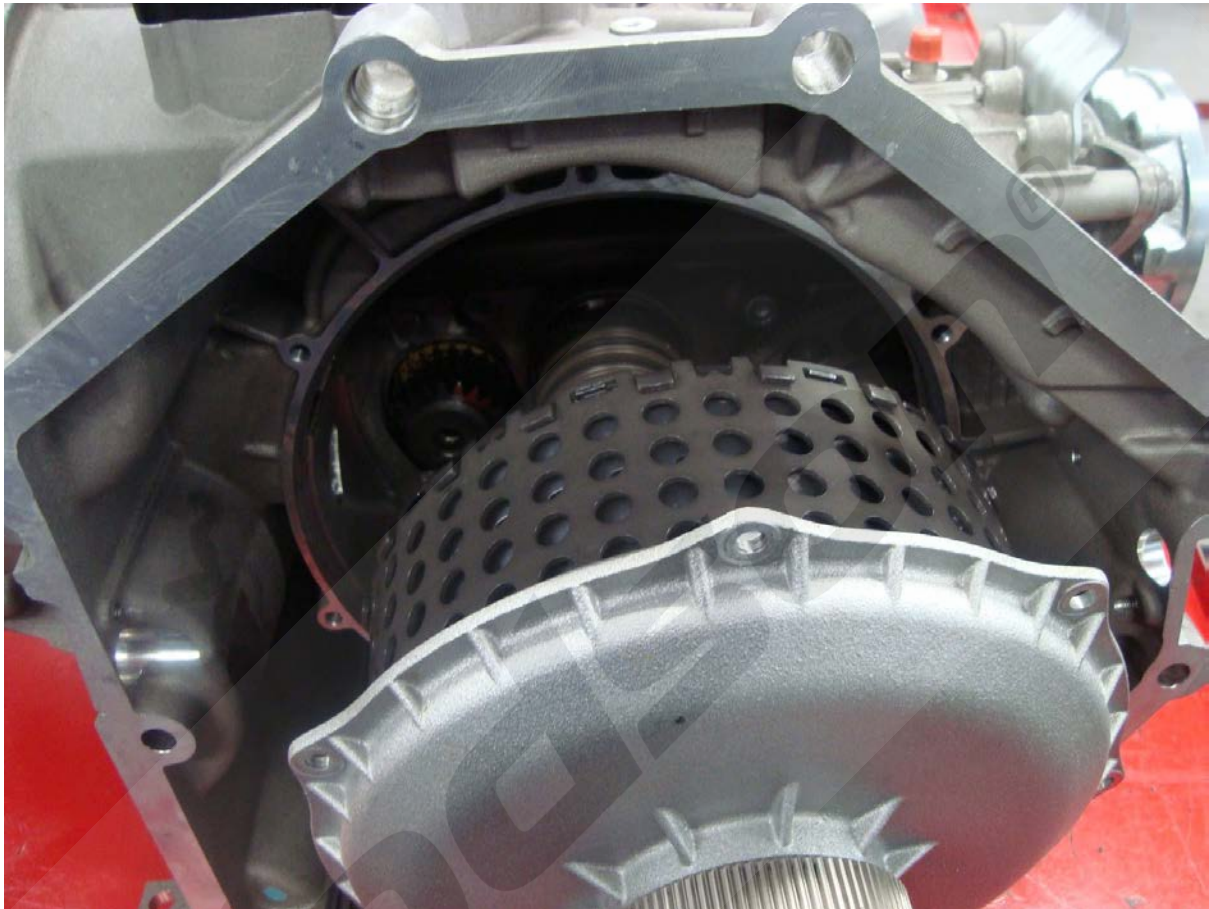




## **STEP 19**

Fit the clutch in the transmission housing while carefully turning it to line up the clutch basket splines with the input shafts. Bolt the clutch cover to the transmission.

**Please make sure to check the O-ring on the aluminium clutch cover is correctly seated and not damaged during the final assembly of the clutch.**



## **IMPORTANT NOTE**

**PLEASE MAKE SURE THAT THE BASIC SETTING AND ADAPTION DRIVE PROCEDURES ARE SUCCESSFULLY COMPLETED BEFORE USING THE FULL POWER OF THE VEHICLE.**

**DODSON INSTRUCTIONS FOR THE PROCEDURE USING VCDS SOFTWARE ARE AVAILABLE IF NEEDED (DMS-00-0033).**

If you have any questions email us at [technical@dodsonmotorsport.com](mailto:technical@dodsonmotorsport.com)

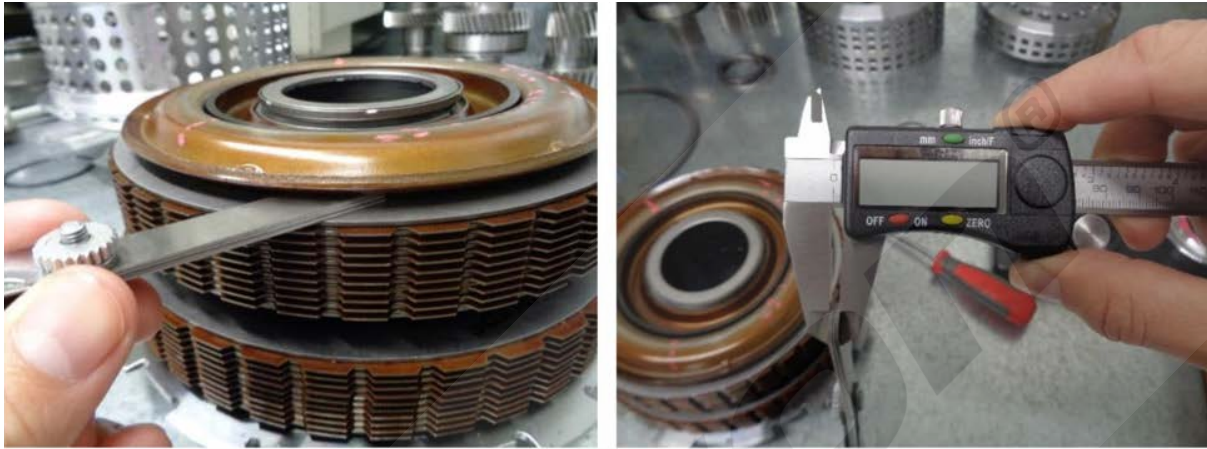


## CLEARANCE MEASUREMENT

If clutch clearance needs to be measured for any reason (such as troubleshooting), the clutch stacks would have to be assembled onto the core without the separator springs.

Using feeler gauges as shown in figure, measure the clearance **between the piston and the top plate** of the stack for both the lid-side and non lid-side clutch stacks.

(Clearance cannot be measured on the core center side due to the bottom plate design)



**CLEARANCE FOR BOTH CLUTCHES SHOULD BE:**

**3.4mm +/- 0.2mm**

If reaching this clearance is not possible, please contact us at [technical@dodsonmotorsport.com](mailto:technical@dodsonmotorsport.com)