

# ***dodson***<sup>®</sup>

## **INSTALLATION INSTRUCTIONS**

**GR6 OIL PUMP BLUEPRINTING**

**DMS-00-0065 REV 001**

**03 MAY 2023**

**PREPARED BY: GREG BUCHANAN  
DATE: 02MAY2023**

**RELEASED BY: J.PISL  
DATE: 03MAY2023**

*J.P.*

**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)

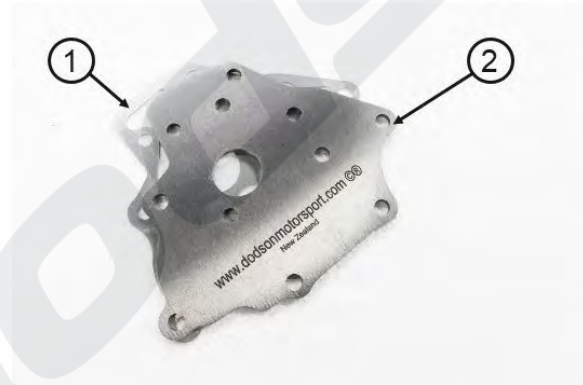
<b>Revision</b>	<b>Date</b>	<b>Description</b>
REV.001	03MAY2023	<ul style="list-style-type: none"><li>- Updated to new format.</li><li>- Rewrote some steps for clarity.</li><li>- Added DMS part numbers and Instruction numbers where relevant.</li></ul>

**IMPORTANT NOTE:  
DODSON GR6 TOOLKIT (DMS-2332) IS REQUIRED FOR THE OIL PUMP  
BLUEPRINTING PROCEDURE**

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**GR6 OIL PUMP UPGRADE KIT CONTENTS (DMS-7160)**

<b>Item Number</b>	<b>Part Name</b>	<b>DMS Code</b>	<b>Qty</b>
1	Oil Pump Shaft	DMS-6120	1
2	Shim	DMS-6121	1

**GR6 OIL PUMP UPGRADE KIT CONTENTS (DMS-7161)**

<b>Item Number</b>	<b>Part Name</b>	<b>DMS Code</b>	<b>Qty</b>
1	Alloy Gasket	DMS-1949	1
2	Oil Pump Plate	DMS-*	1

\* Replacement plate is not available separately.

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## GR6 OIL PUMP BLUEPRINTING INSTRUCTIONS DISASSEMBLY

### STEP 1

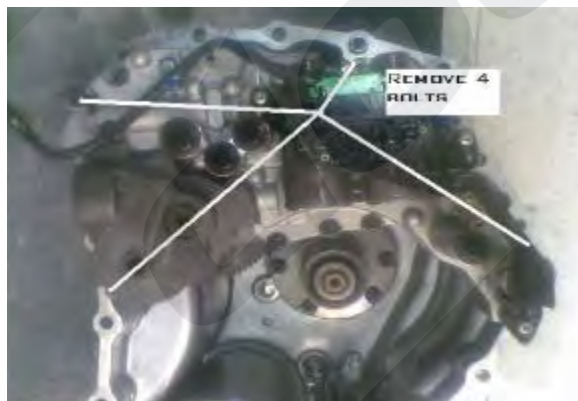
Remove front clutch housing from transmission.



### STEP 2

Remove the oil pump valve body from clutch housing by removing the 4 T30 bolts shown below.

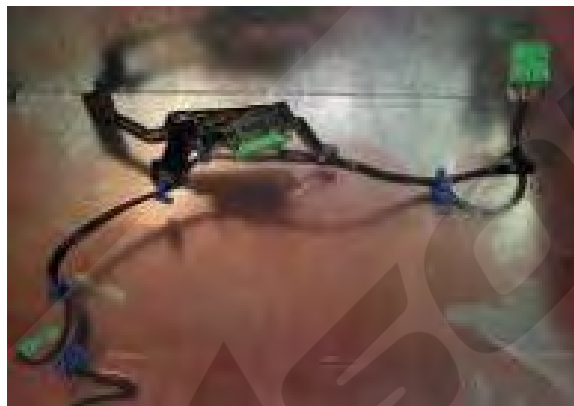
It is recommended to pressure test the pump before stripping further, see the “Oil Pump Pressure Testing Procedure” on the last page.



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## STEP 3

Carefully remove the wiring loom and bracket.



### NOTE:

**BE AWARE OF THE CONTACTS ON THE SOLENOIDS, MAKE SURE THEY DON'T GET DAMAGED OR BENT WHEN THE LOOM IS REMOVED.**

## STEP 4

Remove oil pump drive gear.

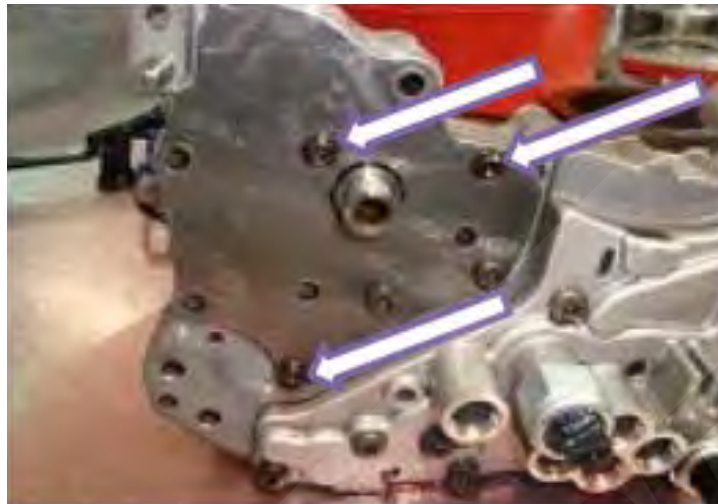
This is a **left handed thread** bolt so make sure to undo the bolt in a clockwise rotation.



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**STEP 5**

Remove oil pump plate bolts and remove the oil pump housing from the other side, the two T30 bolts holding the solenoid housing are to be removed later (different bolt head).

**NOTE:**

**The three marked bolts on the photo above do not have to be removed, unless the oil pump plate is leaking or the Dodson Oil Pump Plate with alloy gasket (DMS-7161) is being fitted.**

**STEP 6**

Remove pressure sensor housing

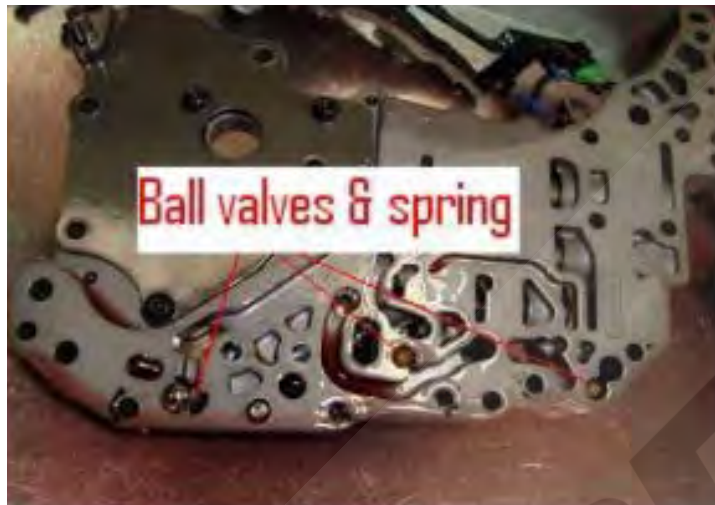


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**STEP 7**

Take note of the position of the ball valves and spring. If removed, keep them in a safe place for reassembly.

**STEP 8**

Remove solenoid housing.

This is also a good time to remove the clutch solenoids and inspect the filter gaskets for damage or debris.

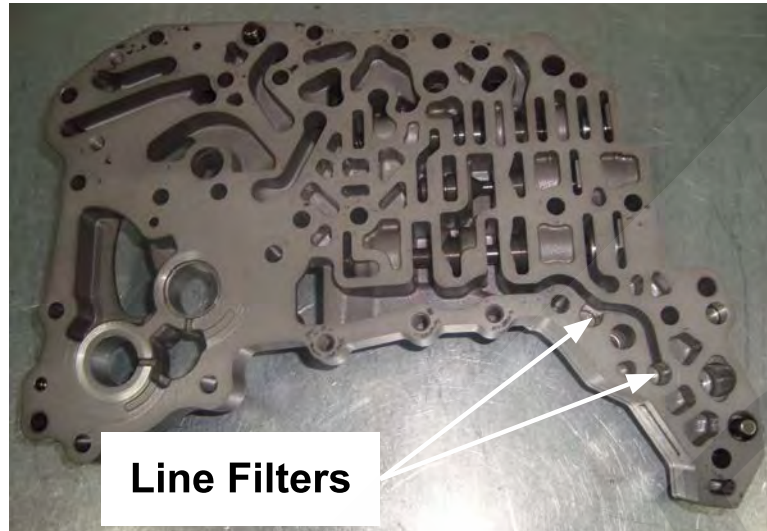
**NOTE:**

If the filters are damaged replacement filters are available as part of the **Dodson Valve Body Rebuild Kit (DMS-7178)**.

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## STEP 9

Check and clean the line filters.



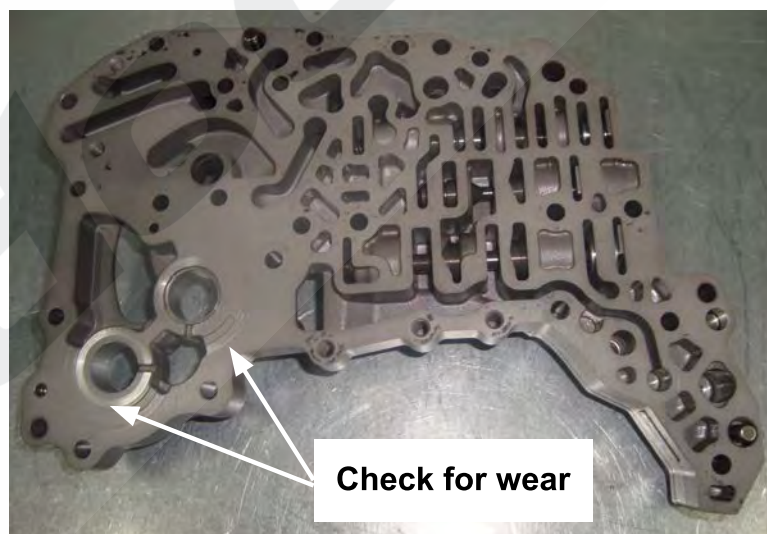
### NOTE:

If the filters are damaged replacement filters are available as part of the **Dodson Valve Body Rebuild Kit (DMS-7178)**.

## STEP 10

Inspect the alloy housing (where the oil pump mounts) for wear and machine marks under the anodizing.

Use **1200 grit** wet and dry paper on a granite block to level the surface if needed.



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## STEP 11

Check and clean shuttle valves and springs.



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## STEP 12

Measure the Gear/Housing clearance. It should be close to **0.10mm**, this includes the bearing clearances.



## STEP 13

Check the condition and size of the gears.



## STEP 14

Check the housing depth, it should be close to **22.95mm** and the side clearance should be **0.04mm** (**22.95 - 22.91mm**). Refer to **Step 11** on **Page 19** for a different method.



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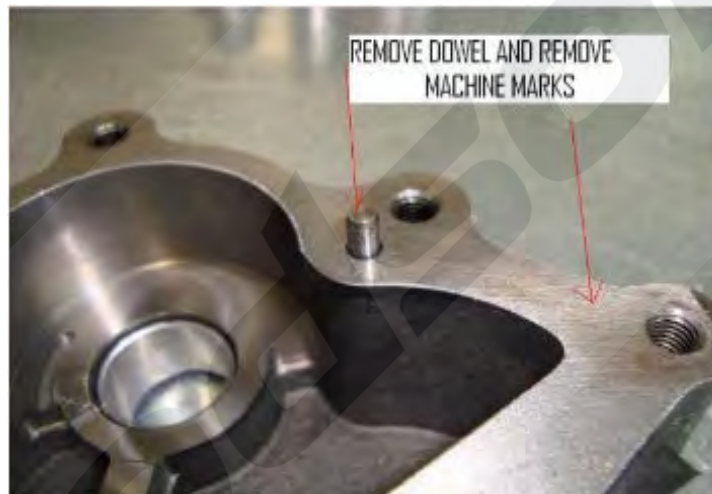
## STEP 15

Check bearing size and condition. Clearance should be **0.05mm (19.03 - 19.98mm)** Shaft size is **19.98mm**.



## STEP 16

Remove the dowel from the housing. This can be gripped in a bench vise and gently twisted until the dowel is removed from the housing.



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**STEP 17**

Use Dodson special tools to remove the old idler shaft and install the new shaft.

**STEP 18**

Use the appropriate removal tool to press out the old idler shaft.



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**STEP 19**

Inspect the base of the shaft housing for machine marks. Remove any machine marks using a granite block/Perfectly flat surface. Use **800 grit** wet and dry paper with **WD40 or similar**. Rotate in a circular motion until most of the marks are gone and the housing is flat.



**Caution - Do not overdo this process.**

**Check end clearance and clean thoroughly once complete.**



**ASSEMBLY (DMS-7160 UPGRADE)****STEP 1**

Install the dowel, making sure the tapered side goes towards the housing.

**STEP 2**

Check the condition of the housing surface areas.



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**STEP 3**

Lubricate the new idler shaft and place it into the Dodson INSTALL tool.

**STEP 4**

Place the housing on top and align it with the shaft.



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## STEP 5

Place the pressing tool into the hole.



## STEP 6

Confirm the pressing tool **DOES NOT** sit on an un-machined surface. Continue pressing until it stops (no more than 500 psi should show on the press gauge).



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**STEP 7**

Check the shaft end clearance by installing into the alloy valve body. There should be **zero** clearance.

**STEP 8**

Remove from the valve body. Centre punch the housing as pictured to lock the shaft in place.

(It does not require much to swell the hole).



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## **STEP 9**

Lubricate the idler, pump gear and the bearings.



## **STEP 10**

Install the idler, and pump gear into the housing, making note of the marks on the gears and surface finish on the housing.

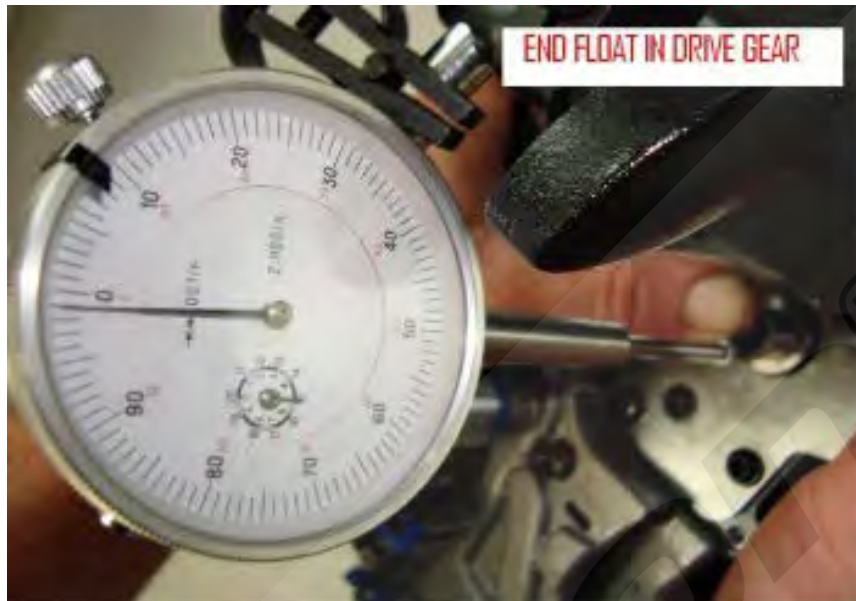


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## STEP 11

Assemble the housing onto the alloy valve body and measure the end float. Check the end float with a dial indicator and magnet base. Endfloat should be **0.025mm/0.001"**.



## STEP 12

Inspect the gaskets for any damage.



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**STEP 13**

If the gasket is damaged it can be trimmed in the non oil passage areas, be careful not to trim any of the undamaged gasket. New gaskets are available (**DMS-7136 & DMS-7138**).



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## SHIMMING PRESSURE RELIEF VALVE

### NOTE:

The pressure relief valve is located on the solenoid housing, if you are not fitting the relief valve shim skip to the reassembly section.



### STEP 1

Remove the spring holder out of its slot. Once removed, use compressed air to remove the piston



### STEP 2

Place the shim on top of the spring and push it down to insert the spring holder, make sure the open end is inserted first.



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## REASSEMBLY

Reassembly is reverse of disassembly with following notes:

- ENSURE ALL PARTS ARE THOROUGHLY CLEANED
- TIGHTEN THE OIL PUMP DRIVE GEAR BOLT TO 20 FT/LBS (L/H THREAD)
  - IF FITTING A DODSON PROMAX CLUTCH, THE BOLT NEEDS TO BE MODIFIED AS PER THE DODSON GR6 OIL PUMP BOLT INSTRUCTIONS (DMS-00-0061) PRIOR TO FITMENT.
- TIGHTEN THE 6mm BOLTS TO 9 FT/LBS
- APPLY THREAD LOCKING COMPOUND TO THE BOLTS HOLDING THE PLASTIC LOOM CLIPS
- ENSURE ALL CONNECTORS AND SOLENOID CONTACTS ARE CLEAN AND SEATED PROPERLY
- **CONFIRM THE PAN FILTER IS CLEAN**
- **CONFIRM THE TRANSMISSION FILTER IS CLEAN**

### NOTE:

**THE DODSON GR6 MAIN AND OIL PUMP VALVE BODY TECH SUPPORT INSTRUCTIONS (DMS-00-0062) CAN BE HELPFULL WITH SOLENOID AND PRESSURE SENSOR IDENTIFICATION, THEIR DODSON PART NUMBERS AND TESTING PROCEDURE/DATA.**



## OIL PUMP PRESSURE TESTING PROCEDURE

Pour clean oil into the pump inlet, place a finger over the main outlet and rotate the pump gear anti-clockwise, this is to bleed any air out of the pump. Once bled, hold your finger tight over the outlet and turn the pump clockwise. You should feel a build up of pressure behind your finger and it should nearly hydro-lock the pump.

Inspect the pump and valve body for any leaks around the solenoids or the housings.



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

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