



# INSTALLATION GUIDE

## CAN AM X3 AO-P1 PDRIVE R4 or R5 CLUTCH KIT

**PART NUMBER(s): AO-P1**

**WE ARE NOT RESPONSIBLE FOR ANY DAMAGES.  
BE VERY CAREFUL TO NOT DAMAGE YOUR CLUTCH  
DURING THIS PROCESS.**

### TOOLS NEEDED

- Clutch Belt removal tool
- T25 Torx
- T30 Torx
- KWI "The Hammer"  
Part #: **HAMMER**
- M5 Pin Removal adapter  
Part #: **THE TIP**

### ESTIMATED INSTALL TIME

30 MINUTES



**REVISION 4 WEIGHT**  
PRE JUNE 2023

**REVISION 5 WEIGHT**  
POST JUNE 2023

### INSTALLING THE KWI AO-P1 WEIGHTS

- 1) Remove belt box cover. (T30 Torx)
- 2) Remove CVT belt. (Clutch Belt removal tool)
- 3) Remove 3 cam arm pin retaining screws. (T25 Torx)
- 4) Remove cam arm pins. (KWI "The Hammer" Pin Removal Tool and "THE TIP" 5mm extractor)
- 5) Remove the cam arms. You may need to push in on the outer sheave a bit to allow the arms to be slid out.
- 6) Properly configure the magnet and pivot bolt setup on the AO-P1 cam arms for your vehicle using the setup chart.
- 7) Install the AO-P1 cam arms in your clutch and secure with the pin and pin retaining screw (use BLUE locktite on pin retaining screw). You may need to push in on the outer sheave a bit to allow the arms to be slid in.
- 8) Reinstall CVT belt and belt box cover.
- 9) Test for proper RPM as listed in the setup chart and adjust RPM's per one or more of the methods below if necessary.

### MAGNET RPM ADJUSTMENT

**ADJUST THE MAGNETS to get your RPM set properly BEFORE ADJUSTING THE PIVOT BOLTS OR CLICKERS! This requires the cam arms be removed from the clutch.**

The weight of the added magnets affects RPM. The more magnets that are installed the lower the RPMS will be. If you remove magnets the RPM will increase.



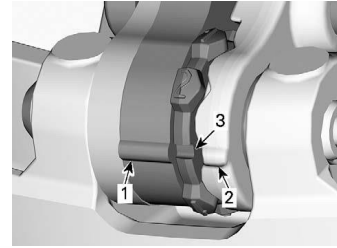
- 1) Remove the cam arms from the clutch. (KWI Weight Changing Tool or equivalent)
- 2) Remove or add magnets as required. If there are 2 holes in the AO cam arms to place magnets- you can place magnets in either hole but magnets **MUST** be distributed so that the clutch is balanced so make sure arms with identical magnets are either placed across from each other or in every other position to maintain clutch balance. Do not overfill magnet slots (FLUSH IS FULL)!
- 3) Reinstall the KWI AO-P1 weights per "Removing and Installing the KWI AO-P1 weights" above.

## CLICKER CAM RPM ADJUSTMENT

**This can be done easily from outside the clutch.**

- To adjust, modify ramp end position by turning ramp cams (3x).
- The ramp and the right lever have a notch while ramp cam has 5 positions numbered 1 to 5. Each number modifies maximum engine RPM by about 150 RPM.
- Lower numbers decrease engine RPM in steps of 150 RPM and higher numbers increase it in steps of 150 RPM.
- For example: Ramp cam is set at position 3 and is changed to position 5. So maximum engine RPM is increased by about 300 RPM

1. Loosen the pivot bolt.
2. Move right lever aside to be able to turn the cam.
3. Turn cam to the desired position. You may need to push in on the outer sheave a bit to allow the cam to turn easily. **(Always adjust all 3 cams and make sure they are all set at the same number)**
4. Put BLUE Locktite on pivot bolt then Tighten.

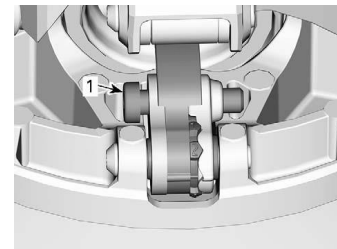


1. Ramp notch
2. Right lever
3. Cam position (here #3 - factory setting, no number)

## PIVOT BOLT RPM ADJUSTMENT

**This can be done easily from outside the clutch.** The weight of the pivot bolt affects RPM. The heavier (longer) the pivot bolt the lower the RPMS will be.

1. Remove the pivot bolt.
2. Install the desired pivot bolt with BLUE Locktite and tighten.



1. Pivot Bolt

**\*\*\*\*\* (THE DR3 GROOVIX IS A MODIFIED VERSION OF THE ORIGINAL DR HELIX- THE DR3 HAS LOWER INITIAL RPM AND WILL HAVE MORE CONTROL OVER BELT SLIP AT SUSTAINED HIGH SPEEDS) \*\*\*\*\***

## TUNING CHART FOR REVISION 4 AND 6 WEIGHTS

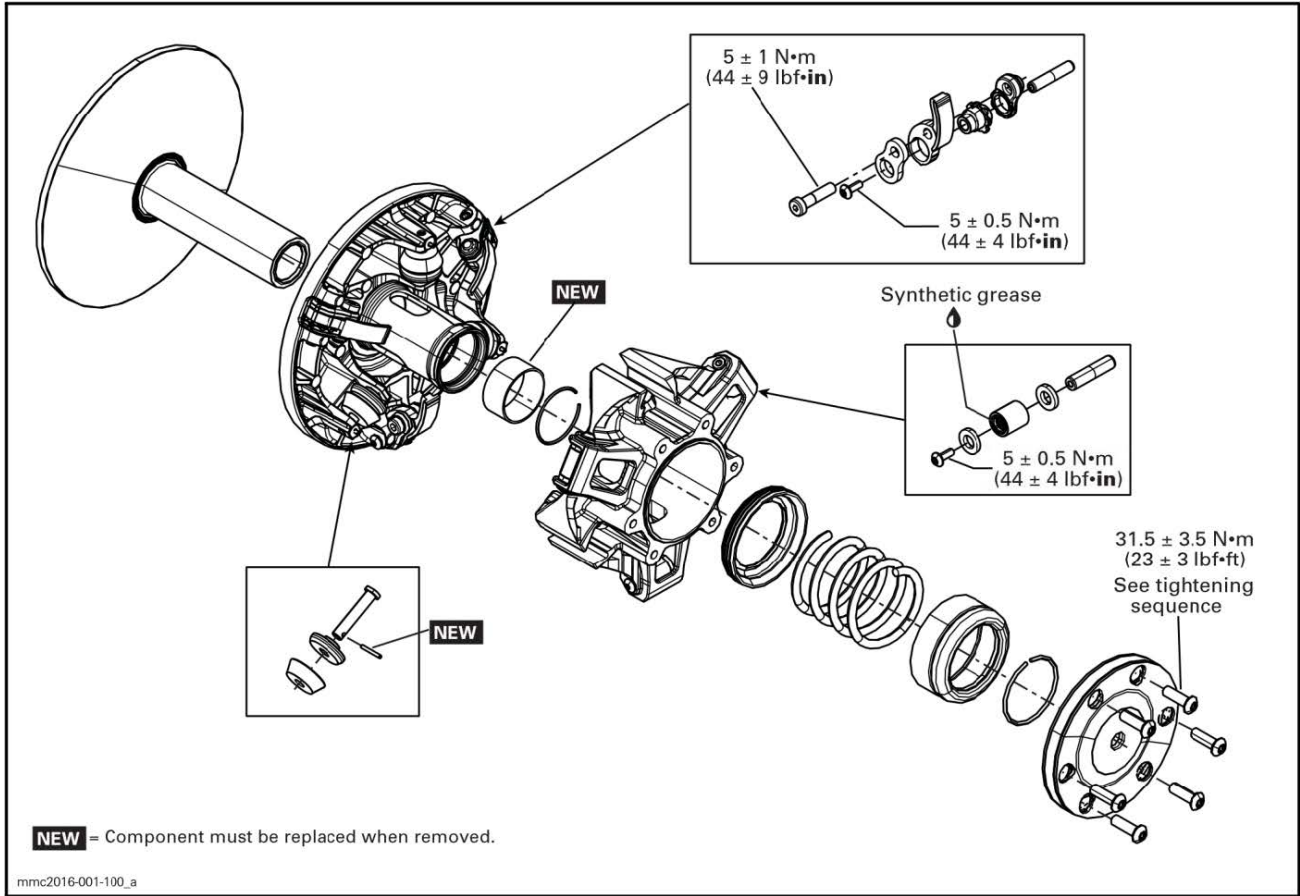
AOP-1 R4 and R6 SETUP CHART							
The chart below is a guideline with very close start points with 30-33" tires riding at Sea Level elevation. (choose the Crankshaft horsepower/Wheel horsepower that best matches your X3) (Identical cars may have HP differences of up to 10 HP due to engine manufacturing tolerances so clutch kit calibration adjustments are necessary in most cases)							
For High Altitudes- subtract 15% from the Published HP range of your tune to get actual effective HP. Example - 200 CHP (at sea level) x .85 = 170CHP (use the 175CHP line in the chart below as your baseline setting)							
For sand dunes or large tires (35"+)- subtract 8% from the Published HP range of your tune to get actual effective HP. Example - 200 CHP x .92 = 184CHP (use the 175CHP line in the chart below as your baseline setting)							
For tires 28" and smaller- Add 8% from the Published HP range of your tune to get actual effective HP. Example - 200 CHP x 1.08 = 216CHP (use the 215CHP line in the chart below as your baseline setting)							
For Launch Control - Install the HIGH ENGAGEMENT primary spring (Sold Separately) as it is a high engagement spring and will raise engagement RPMS. Add 2 thick magnets or install a longer pivot bolt (if the magnet slots are full) to the suggested settings in the chart below compensate shift RPM for additional HIGH ENGAGEMENT spring pressure.							
Crankshaft horsepower (CHP) /Wheel horsepower (WHP)	# of Magnets per cam arm	Pivot bolt	Clicker setting	Primary spring	Secondary spring / Helix / hole	Belt Recommendation	Full throttle RPM at 55mph
120CHP/100WHP	Empty, no magnets	25mm	Position #3 (Factory Setting)	OEM	OEM TURBO RR HELIX- OEM TURBO RR Black/Green secondary spring in hole #3 (60 degrees wrap) KWI DR3 GROOVIX - OEM TURBO RR Black/Green secondary spring in hole #3 (80 degrees wrap)	Gates 48R4289 Gboost WBB652RS OR WBB383	7950 RPM +/- 100 RPM (ALL OEM TURBOS)
152CHP/130WHP	0 in mid 2 in tip	25mm					
175CHP/165WHP	0 in mid 4 in tip	30mm			OEM TURBO RR HELIX- OEM TURBO RR Black/Green secondary spring in hole #4 (30 degrees wrap) KWI DR3 GROOVIX- OEM TURBO RR Black/Green secondary spring in hole #2 (35 degrees wrap) KWI DSS (Dual Spring Secondary) WITH DR3 GROOVIX- OEM TURBO RR Black/Green secondary spring in hole #2 (35 degrees wrap) and dual spring installed.		
195CHP/175WHP	2 in mid 4 in tip	25mm					
215CHP/185WHP	2 in mid 4 in tip	30mm			KWI GROOVIX DR3 HELIX- KWI DARK BLUE/PINK SPRING IN HOLE #4 (15 degrees wrap) KWI DSS (Dual Spring Secondary) WITH DR3 GROOVIX- OEM TURBO RR Black/Green secondary spring in hole #2 (35 degrees wrap) and dual spring installed.		
225CHP/195WHP	2 in mid 4 in tip	35mm					
255CHP/225WHP	4 in mid 4 in tip	35mm			KWI DSS (Dual Spring Secondary) WITH DR3 GROOVIX- OEM TURBO RR Black/Green secondary spring in hole #2 (35 degrees wrap) and dual spring installed.		
265CHP/230WHP	2 in mid 4 in tip	35mm					
290CHP/250WHP	4 in mid 4 in tip	35mm			KWI DSS (Dual Spring Secondary) WITH DR3 GROOVIX- OEM TURBO RR Black/Green secondary spring in hole #2 (35 degrees wrap) and dual spring installed.		
330CHP/275WHP	2 in mid 4 in tip	35mm					
360CHP/310WHP	2 in mid 4 in tip	35mm				8150 RPM +/- 100 RPM (AFTERMARKET TURBO)	

PDRIVE PRIMARY NOT RECOMMENDED ABOVE 370CHP/320WP.

## TUNING CHART FOR REVISION 5 WEIGHTS

AOP-1 REVISION 5 SETUP CHART							
The chart below is a guideline with very close start points with 30-33" tires riding at Sea Level elevation. (choose the Crankshaft horsepower/Wheel horsepower that best matches your X3) (Identical cars may have HP differences of up to 10 HP due to engine manufacturing tolerances so clutch kit calibration adjustments are necessary in most cases)							
For High Altitudes- subtract 15% from the Published HP range of your tune to get actual effective HP. Example - 200 CHP (at sea level) x .85 = 170CHP (use the 175CHP line in the chart below as your baseline setting)							
For sand dunes or large tires (35"+)- subtract 8% from the Published HP range of your tune to get actual effective HP. Example - 200 CHP x .92 = 184CHP (use the 175CHP line in the chart below as your baseline setting)							
For tires 28" and smaller- Add 8% from the Published HP range of your tune to get actual effective HP. Example - 200 CHP x 1.08 = 216CHP (use the 215CHP line in the chart below as your baseline setting)							
For Launch Control - Install the HIGH ENGAGEMENT primary spring (Sold Separately) as it is a high engagement spring and will raise engagement RPMS. Add 2 thick magnets or install a longer pivot bolt (if the magnet slots are full) to the suggested settings in the chart below compensate shift RPM for additional HIGH ENGAGEMENT spring pressure.							
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120CHP/100WHP	Empty, no magnets	25mm	Position #3 (Factory Setting)	OEM	OEM TURBO RR HELIX- OEM TURBO RR Black/Green secondary spring in hole #3 (60 degrees wrap) KWI DR3 GROOVIX - OEM TURBO RR Black/Green secondary spring in hole #3 (80 degrees wrap)	Gates 48R4289 Gboost WBB652RS OR WBB383	7950 RPM +/- 100 RPM (ALL OEM TURBOS)
152CHP/130WHP	Empty, no magnets	35mm					
175CHP/165WHP	2 in mid 0 in tip	35mm			OEM TURBO RR HELIX- OEM TURBO RR Black/Green secondary spring in hole #3 (60 degrees wrap) FOR KWI DR3 GROOVIX- OEM TURBO RR Black/Green secondary spring in hole #3 (80 degrees wrap) KWI DSS (Dual Spring Secondary) WITH DR3 GROOVIX- OEM TURBO RR Black/Green secondary spring in hole #2 (35 degrees wrap) and dual spring installed.		
195CHP/175WHP	4 in mid 0 in tip	35mm					
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225CHP/195WHP	4 in mid 0 in tip	35mm					
255CHP/225WHP	4 in mid 0 in tip	35mm			KWI DSS (Dual Spring Secondary) WITH DR3 GROOVIX- OEM TURBO RR Black/Green secondary spring in hole #3 (60 degrees wrap) and dual spring installed.		
265CHP/230WHP	4 in mid 0 in tip	35mm					
290CHP/250WHP	4 in mid 2 in tip	35mm			KWI DSS (Dual Spring Secondary) WITH DR3 GROOVIX- OEM TURBO RR Black/Green secondary spring in hole #3 (60 degrees wrap) and dual spring installed.		
330CHP/275WHP	4 in mid 0 in tip	35mm					
360CHP/310WHP	4 in mid 0 in tip	35mm				8150 RPM +/- 100 RPM (AFTERMARKET TURBO)	

PDRIVE PRIMARY NOT RECOMMENDED ABOVE 370CHP/320WP.



### PARTS INCLUDED

PART DESCRIPTION	QTY	OEM PART #	OUR PART #
AAO-P1 PDRIVE ADJUSTABLE CAM ARM	3	—	AOP-1
25MM PIVOT BOLT	3	—	—
30MM PIVOT BOLT	3	—	—
35MM PIVOT BOLT	3	—	—
MAGNET PACK	1	—	—
		—	—
		—	—

#### LIABILITY STATEMENT

As defined by the Magnuson-Moss warranty Act. Do not install any performance parts or services unless you have the technical ability to properly set-up the entire machine to compensate for the installation of those parts. The necessary work and expertise needed to install different product varies. Instructions, where provided, are given to assist in installation only; they are not a substitute for mechanical experience in setting up racing vehicles. References to performance gains, reliability, ease of installation, etc. are based on our and outside customer's experiences. This is not a guarantee of similar performance in every installation. While we sell proven products, in the end it's up to the individual to make the most of the product. Kris Werth Inc. d.b.a. KWI Clutching or its associated corporations are not responsible for any personal or property damages caused by this product. Kris Werth Inc. d.b.a. KWI Clutching or its associated corporations assumes no responsibility for damage or injury of any kind because of misuse, improper installation or improper application of any parts in anyway, by any person. Contact your local dealer to schedule installation of this kit if you are not a qualified ATV or UTV mechanic. USE OF PRODUCTS. BUYER SHALL USE, AND REQUIRE ITS EMPLOYEES, CONTRACTORS, AND AGENTS TO USE, ALL AVAILABLE SAFETY PRECAUTIONS, IN ADDITION TO ANY SPECIFICALLY SET FORTH IN ANY MANUALS, MATERIAL SAFETY DATA SHEETS, TECHNICAL DATA SHEETS, INSTRUCTION SHEETS, IF ANY, FURNISHED BY SELLER (OR AVAILABLE FROM RAW MATERIAL SUPPLIERS) RELATING TO SELLER'S PRODUCTS. IF BUYER DOES NOT RECEIVE ANY REQUIRED MATERIAL SAFETY DATA SHEETS FOR ANY PRODUCT FROM SELLER, BUYER WILL REQUEST THEM FROM SELLER. IF BUYER FAILS TO STRICTLY OBSERVE EACH AND EVERY ONE OF THE OBLIGATIONS SET FORTH IN THIS SECTION 22 OR IF BUYER'S USE OF ANY OF SELLER'S PRODUCTS IS IN VIOLATION OF ANY STANDARD OR RULE OF THE AMERICAN NATIONAL STANDARDS INSTITUTE OR OCCUPATIONAL HEALTH AND SAFETY ACT, OR OTHER APPLICABLE WORKPLACE LAW, REGULATION, OR STANDARD, BUYER WILL INDEMNIFY, DEFEND, AND HOLD HARMLESS SELLER AND SELLER AND ITS EMPLOYEES, OFFICERS, DIRECTORS, AGENTS, AFFILIATES, SUCCESSORS AND ASSIGNS FROM AND AGAINST ANY AND ALL CLAIMS, DEMANDS, DAMAGES, ACTIONS, AND CAUSES OF ACTION, AS WELL AS ANY AND ALL LIABILITY, LOSS, OR EXPENSE OF ANY KIND, INCLUDING REASONABLE ATTORNEYS' FEES ARISING FROM, CONNECTED WITH OR IN ANY WAY PERTAINING TO ANY SUCH FAILURE BY BUYER. NOTIFICATION. BUYER SHALL NOTIFY SELLER PROMPTLY, AND IN ANY EVENT WITHIN 30 DAYS, AFTER ANY ACCIDENT OR FAILURE INVOLVING SELLER'S PRODUCTS THAT RESULTS IN PERSONAL INJURY OR DAMAGE TO PROPERTY AND SHALL COOPERATE FULLY WITH SELLER IN INVESTIGATING AND DETERMINING CAUSES OF SUCH ACCIDENT OR FAILURE. ATTORNEYS' FEES AND COSTS. BUYER WILL PAY SELLER'S REASONABLE ATTORNEYS' FEES AND OTHER COSTS AND EXPENSES FOR ANY LEGAL OR EQUITABLE ACTION UNDERTAKEN BY SELLER TO ENFORCE THESE TERMS OR THE PROVISIONS OF ANY SUPPLY AGREEMENT.