



INSTALLATION AND TUNING GUIDE

KWI FUSION PRO R CLUTCH SYSTEM FOR POLARIS RZR PRO R

SKU NUMBER(s): 60738532177697

FUSION PRO R PRIMARY

TOOLS NEEDED

- 1/2" Drive Impact Gun
- T60 TORX - 1/2" Drive Socket
- 11/16 12 point - 1/2" Drive Impact Socket
- 1/2" Torque Wrench (140Ft/Lbs)
- 5mm Allen Wrench
- 6mm Allen Wrench
- 10mm wrench and socket
- Pro primary clutch puller
- 15mm 1/2" Drive Socket
- ARP Fastener lube
- VORHEES VISE primary holding tool (or equivalent)
- Long 3/8" or 1/4" drive extension



ESTIMATED INSTALL TIME

60 MINUTES

We are not responsible for any damage caused during installation. Follow these steps carefully to prevent damaging your clutch.

IMPORTANT NOTES- PLEASE READ

- 1. Your FUSION PRIMARY is a balanced assembly when you receive it. All parts are individually balanced. The inner sheave assy balancing is done with the balance screws on the back of sheave. DO NOT REMOVE THE BALANCE SCREWS FOR ANY REASON.**
- 2. Your FUSION PRIMARY comes with a pre-Installed baseline calibration determined by your car info that you provided in your order. You are responsible for verifying that the cam arms and spring is configured properly for your application determined by your final testing and adjustment for proper RPM.**

Installation Steps:

1. Remove Belt Cover:

- Use a 10mm wrench and socket to remove the screws securing the top of the belt box cover. Undo the quick turn fasteners on the bottom side of the cover. Lift the cover off and set it aside.

2. Remove Secondary Clutch and CVT Belt:

- Use a 15mm socket to safely remove the Secondary clutch bolt, washer, shim washers (your clutch may or may not have one or more shim washers installed, please retain these for installation) secondary clutch outer half, CVT belt and secondary inner half from the gearbox shaft. Set these aside as they will be used later on.

3. Unbolt the Primary Clutch:

- Use a T60 TORX - 1/2" Drive Socket to remove the primary clutch bolt. This bolt won't be reused.

4. Detach Primary Clutch From The Crankshaft:

- Remove the six 3/8" head bolts holding the primary clutch outer cover in place. This has only a small amount of spring tension and can be removed easily by hand, this allows access the 2 piece center shaft (black) that you will twist and pull out.
- Apply anti seize to the primary clutch puller end and thread then thread into the clutch bolt hole and tighten using an impact driver (or breaker bar with a bar through the clutch to hold it) until clutch is removed from the crankshaft taper. If it won't come off easily then remove the puller and insert 1/2 slice of rolled up bread (yes bread) into the hole, reinstall the puller and try again- this works 100% of the time for stuck clutches.
- Take the primary clutch out of its position and put it aside. We will not re-use the OEM primary clutch or any of its components.

Critical Steps: Failure to follow these carefully may result in damage.

5. Clean Crankshaft Bolt Hole:

- Use the supplied wire brush and brake cleaner to remove any debris, oil, or rust from the hole. You can use the OEM clutch bolt to chase the threads if needed. Make sure the threads are clean and the ARP stud can thread in by hand easily.

6. Clean Crankshaft and Clutch Taper:

- Wipe down the crankshaft and the taper on your new FUSION PRO R clutch with brake cleaner or acetone to remove all residues.

7. Prepare ARP Stud:

- Clean all threads with brake cleaner. Lightly apply the supplied ARP lubricant ONLY to the stud threads labeled GREASE at the Allen key end, as well as to the nut and washer. DO NOT apply any grease to the crankshaft threads! Screw the washer and nut onto the greased end of the stud for just two turns.

8. Install the UltraShift Primary Clutch:

- Place the FUSION PRO R clutch onto the crankshaft taper. Using a 3/16 Allen Wrench, screw in the ARP stud until it lightly bottoms out, then back it out by 5 turns.

9. Torque Down the UltraShift Primary Clutch:

- Hold the FUSION PRO R from turning with the VORHEES VISE clutch holding tool, strap wrench or equivalent. Use a 1/2" Torque Wrench set to 140 ft/lbs (190Nm) to tighten the nut. Re-check torque on the nut after the first 5 minutes of riding.

10. Install the KWI Secondary spring

- Use a compression tool such as the KWI Threaded Rod thru the secondary clutch Inner sheave and helix assy to hold the spring pressure. Remove the 3 helix bolts. Unscrew the compression tool to slowly relax the spring pressure. Remove the OEM spring. Install the Supplied KWI secondary spring and reassemble the secondary clutch inner sheave and helix assy using the compression tool. Install the Helix bolts with blue Loc-Tite and torque to 32 ft-lbs (44 Nm).

Final Steps:

11. Re-Install Secondary clutch, CVT Belt and adjust Belt Shimming:

- Install the secondary clutch inner sheave and helix assy on the gearbox shaft. Install a NEW drive belt. Install the Secondary clutch outer sheave and secure with bolt/washer/shims as required. (spin the secondary clutch as you tighten the bolt to seat the belt) Torque the secondary clutch bolt to 55 ft-lbs (75 Nm). Verify belt is centered in primary clutch and add or remove the Polaris shims under secondary clutch bolt washer as necessary for proper belt centering.

12. Re-Install cover:

- Put the belt box cover back on with oem screws and cam locks.

13. Test Drive:

- Drive the vehicle and check and adjust for proper full-throttle RPM according to your tuning chart below.

Cam Arm removal steps:

1. Remove CVT Belt:

- Use a Clutch Belt Removal Tool to safely remove the CVT belt from the clutches.

2. Remove the primary clutch cover:

- Remove cover using a 5mm Allen key to remove all the cover bolts BY HAND. Do not use power tools or you may strip the screws. The standard primary spring that comes with the FUSION PRO R clutch has a mild amount of spring tension and can be removed by hand.

3. Remove the cam arms **No need to remove the primary clutch from the crankshaft****:**

- Slide the sheave all the way in toward the motor which will allow the cam arms to swing free.
- Using a Allen wrench and a long socket, remove the pins holding the primary weights in place. The pins fit may tightly in the outer half and may need to be tapped lightly to remove them - being careful to not damage the threads) Remove the weight pins and nuts to remove the cam arms. **NOTE THERE IS A THRUST WASHER THAT MUST BE INSTALLED ON THE SAME SIDE AS IT WAS REMOVED!**

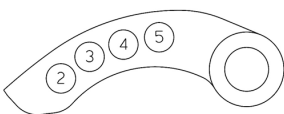
RPM ADJUSTMENT- Refer to tuning chart on page 4

- The weight of the added screws affects RPM. The more screws that are installed the lower the RPMS will be. 1 screw in each cam arm will change Full Throttle RPM approx 150 RPM
- Depending on your HP level your clutch is set up for you may have 2, 3, 4 or 6 cam arms installed. BALANCE IS CRITICAL!
 - 2 cam arms installed-- ALL cam arms MUST have identical screw configurations
 - 3 cam arms installed-- ALL cam arms MUST have identical screw configurations
 - 4 cam arms installed-- ANY 2 OPPOSING cam arms MUST have identical screw configurations
 - 6 cam arms installed-- ANY 2 OPPOSING cam arms MUST have identical screw configurations

1. Reinstall cam arms and cover:

- Install the cam arm in the appropriate slot
- Slide the weight pin thru the clutch, thrust washer and cam arms. Make sure all pins are installed the same direction for balance purposes and torque weight pin nuts to 20 in-lb (2 Nm).
- Install spring with both steel shims on bottom.
- Install cover with screws.
- Torque screws to 10 ft/lbs.

FUSION PRO R PRIMARY ADJUSTMENT:

					SIDWEINDER SP/HP			
								
FUSION V4 PRO R SETUP CHART								
The chart below is a guideline with very close start points with 32" tires riding at Sea Level elevation. (choose the Crankshaft horsepower/Wheel horsepower that best matches your vehicle) (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)								
Crankshaft horsepower (CHP) /Wheel horsepower (WHP)	# of Cam Arms	Screw Configuration	Primary spring	Secondary spring / Helix	Belt Recommendation	Full throttle RPM at 55mph		
225CHP/184WHP	3	SP arms 0 screws	KWI MAROON IS STANDARD RPM LOW ENGAGEMENT SPRING KWI WHITE IS 2600 RPM HIGH ENGAGEMENT SPRING (HIGH ENGAGEMENT SPRINGS RAISE SHIFT RPM AND NEED ADDITIONAL MAGNETS INSTALLED IN THE CAM ARMS TO COMPENSATE FOR THE INCREASE IN SPRING PRESSURE)	KWI BLACK/ORANGE SECONDARY SPRING- OEM HELIX OR- FUSION XR SECONDARY WITH DR3 HELIX- DK BLU/PK spring HOLE #3	OEM POLARIS BELT	8200 RPM +/- 100 RPM)		
240CHP/205WHP	3	SP arms 2,5						
310CHP/270WHP	3	SP arms 2,3,4,5						
360CHP/310WHP	4	SP arms 0 screws						
450CHP/410WHP	4	SP arms 2,5 screws				8400 RPM +/- 100 RPM)		
650CHP/550WHP	6	SP arms 2,3,4,5						
825CHP/750WHP	6 HP	HP arms 2,5				8900 RPM +/- 100 RPM)		

PRIMARY SPRING ENGAGEMENT RPMs

(ENGAGEMENT RPM MAY VARY DUE TO SPRING MANUFACTURE TOLRANCES, SPRING AGE OR VEHICLE SPECIFIC CAM ARM CONFIGURATION)

ENGAGEMENT WITH 3 ARMS INSTALLED

ENGAGEMENT WITH 4 ARMS INSTALLED

MAROON STANDARD

1950

1750

WHITE

3000

2700

PARTS INCLUDED

	PART DESCRIPTION	QTY	OEM PART #	OUR PART #
	PRIMARY CLUTCH	1	—	595023
	PRIMARY CLUTCH ARP BOLT	1	—	-
	SCREW PACK	1	—	-
			—	-
			—	-
			—	-
			—	-
			—	-

FUSION XR SECONDARY

SKU NUMBER(s): 60738532177697

TOOLS NEEDED

- 1/2" Drive Impact Gun
- 15mm - 1/2" Drive Impact Socket
- Torque Wrench (60Ft/Lbs)
- 8mm Allen socket
- 10mm wrench and socket
- Anti seize or moly grease
- long 3/8 extension or round bar to hold clutch while torquing
- BLUE LOCKTITE

The following is required for secondary disassembly only

- KWI Helix twist tool
- KWI Threaded rod



ESTIMATED INSTALL TIME

20 MINUTES

We are not responsible for any damage caused during installation. Follow these steps carefully to prevent damaging your clutch.

IMPORTANT NOTES- PLEASE READ

- 1. Your clutch is a balanced assembly when you receive it. All parts are individually balanced. The balancing is done with the balance screws on the back of the sheave. There MAY or MAY NOT be screws installed. DO NOT REMOVE THE BALANCE SCREWS FOR ANY REASON.**
- 2. DO NOT install the factory windage plate on the back of the secondary.**

Installation Steps:

1. Remove Belt Cover:

- Use a 10mm wrench and socket to remove the screws securing the top of the belt box cover. Undo the quick turn fasteners on the bottom side of the cover. Lift the cover off and set it aside.

2. Remove Secondary Clutch and CVT Belt:

- Use a 15mm socket to safely remove the Secondary clutch bolt, washer, shim washers (your clutch may or may not have one or more shim washers installed, please retain these for installation) secondary clutch outer half, CVT belt and secondary inner half from the gearbox shaft.

3. Prepare gearbox shaft:

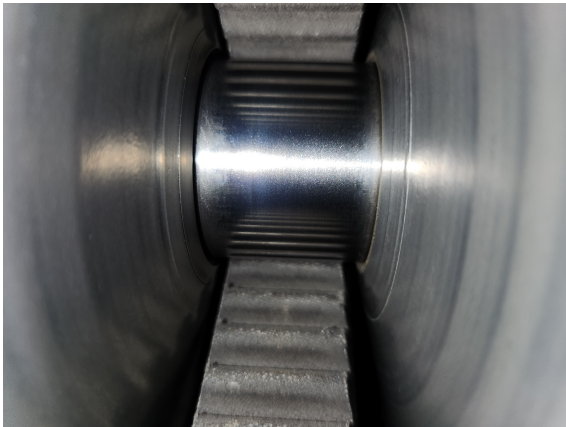
- Lubricate gearbox shaft and splines with a light coat of moly grease or anti seize. This is to ensure the clutch floats smoothly.

4. Install Secondary clutch, CVT Belt:

- Slide your new FUSION XR secondary clutch on the shaft making sure splines engage and its fully seated.
- Install your KWI KWIK LOC billet spacer and secure with BLUE LOCKTITE on the supplied 10mm socket head cap screw retaining bolt. Torque Clutch Retaining Bolt to: 55 ft-lbs (75 Nm). Make sure the clutch slides freely in and out on the shaft.
- Slide your KWI KWIK LOC belt tool into the slot with the rollers facing the Groovix and lift the handle to open the secondary clutch.
- Install a NEW drive belt and remove the KWIK LOC belt tool.
- Rotate the secondary several times by hand to tension belt.

5. Check and adjust Belt Shimming:

- **This procedure verifies belt shimming if necessary so the car shifts smoothly forward, neutral and reverse. The goal is to make sure the secondary clutch does not spin at idle.
- Start car and rev it just until the belt starts to rotate a bit. Shut the car off. Using a camera phone look at the primary bearing between the belt and see if it is centered. See photos below.



Belt is only riding on the bearing and not touching either sheave. Its not necessary to be perfectly centered- just cant touch either sheave or the secondary may spin quickly causing hard shifting F-N-R

6. Secondary disassembly and assembly:

- Use a compression tool such as the KWI Threaded Rod thru the secondary clutch Inner sheave and helix assy to hold the spring pressure.
- Remove the 3 helix bolts.
- Use the KWI Helix Twist Tool to hold the twisted helix of the rollers and then carefully unscrew the compression tool to slowly relax the spring pressure.
- Reassemble the secondary clutch by twisting helix past the rollers and compress using the compression tool. Install the Helix bolts with blue Loc-Tite and torque to 40 ft-lbs.

The spring twist chart is to the right- if you need to adjust the secondary heres the deal

- The goal is to run with between 35 and 60 degrees of twist.
- The more the degrees of twist the higher the RPM will go and the quicker the clutch will backshift BUT the belt temp will go up and the belt stress will be MUCH higher.

KWI CLUTCHING FUSION SECONDARY HELIX TWIST		
KWI CLUTCHING GROOVIX		
BLACK/GREEN AND DK BLUE/PK SEC SPRG		
Hole (CCW)	Degrees	
1	60	
2	5	
3	35	

Final Steps:

12. Modify and Re-Install clutch cover:

- Using snips cut the 3 arms holding the secondary clutch air inlet spider web, remove the web and discard. If this is not removed it will hit the KWI KWIK LOC billet spacer.
- Put the clutch cover back on with oem screws and cam locks.
- Reinstal air ducting, firewall and seats.

13. Test Drive:

- Drive the vehicle and check for proper operation and full throttle RPM

PRO R FUSION XR SECONDARY SETUP CHART

Crankshaft horsepower (CHP) /Wheel horsepower (WHP)	Secondary spring / Helix	Belt Recommendation	Full throttle RPM at 55mph
180CHP-440CHP	DR3 GROOVIX- KWI DARK BLUE/PINK secondary spring Hole #3	FUSION 53R4829 BELT OR 3211226 POLARIS BELT = USE FOR High speed gearing GATES 48R4867 BELT = USE FOR 5% Gear Reduction GATESI 50G4966 CRAWLER BELT = USE FOR 15% Gear Reduction (Belt is designed for low speed rock crawling only! DO NOT RUN AT FULL THROTTLE!)	8350 RPM +/- 100 RPM or as specified by tuner
450CHP - 900CHP			8600 RPM +/- 100 RPM or as specified by tuner

PARTS INCLUDED

	PART DESCRIPTION	QTY	OEM PART #	OUR PART #
	FUSION XR SECONDARY CLUTCH	1	—	58064123539105
	KWIK LOC BELT CHANGE TOOL	1	—	91582341042273
	KWIK LOC BILLET SPACER	1	—	-
	M10 CLUTCH RETAINING BOLT	1	—	-
	SHIM (MAY OR MAY NOT BE USED)	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.