



Congratulations! You have purchased the finest clutch kit available. This "Center Roller Arm (or) CRA" technology is revolutionary to the industry! This **Patent Pending** technology is **ONLY AVAILABLE** from Super Torquer Systems, Inc.!

CRA 044070 REV/XP Chassis

How to Install and Use the CRA™ Steam Roller Clutch Weight System and Most Frequently Asked Questions

(Ski-Doo TRA3, TRA5 and TRA7 Clutch design)



WARNING! READ BEFORE INSTALLATION!

Personal injury and damage to property can result from the improper installation and use of any product, including the Heel Clicker Clutch Kit. Installation of this kit should not be attempted unless you are a trained service technician or have a thorough and complete knowledge of CVT systems and their repair and tuning. Novice tuners should not attempt installation. It is recommended that a qualified dealership or repair facility install this kit.

DEFINED WARNING: This is a high performance product for use in sanctioned racing events only and is not for installation or operation by "consumers" as defined by the Magnuson-Moss Warranty Act. **DO NOT** install any performance parts unless you have the technical ability to properly set up the entire machine to compensate for the installation of these parts.

The expertise and necessary work needed to install products varies from one product to another. Instructions (where provided) are given to assist in installation only and are not a substitute for mechanical expertise. References to performance gains, reliability, ease of installation and tuning are based on our experiences. This is **NOT** a guarantee of similar performance in every installation. While we sell tested and proven products, individual results may vary.

Before you begin to install your Heel Clicker™ clutch kit, please note the following:

- DO ACCEPT only genuine CRA™ parts. This kit is assembled with made-to-specification parts. Accept no substitutes.
- DO ALWAYS use the same combination of fasteners on each weight arm and shoulder. NO EXCEPTIONS.
- DO make sure the bolt/washers don't overhang on the ramp area of the weight arm where they could come into contact with the roller.
- DO ensure the bolt/washers are fully seated in place.
- DO make sure the weight arms are balanced (weigh the same) before installation. Ideally, use a gram scale to check this. In a pinch, remember a magnet will not stick to aluminum.
- DO make certain you have any excess side play shimmed out of the pivot area of your weight arm.
- DO make sure your pivot bolt and nut are new or in like-new condition and securely fastened.
- DO make sure your drive belt is in good condition. Also, verify that your center-to-center and offset adjustments are correct.
- DO use LOCTITE™ (not included in kit) or similar product on each fastener after you determine the proper combination for your setup.
- DO NOT grind or alter any portion of the weight arm or shoulder.
- DO NOT adjust the shoulder mass while the weight is mounted on the stationary pin in the clutch.
- DO NOT operate your machine without checking the full range of motion of each weight to make sure you clear the spider assembly and related areas.
- DO NOT exceed 9,000 RPM's.
- DO NOT allow an unqualified person to make any adjustments to your clutch kit.
- DO NOT install a Heel Clicker™ clutch kit in any clutch assembly that has excess wear, damage, or is in otherwise questionable condition.

Provided in this kit are the following items:

- | | |
|---|-----------------------|
| - Three (3) bushed CRA™ clutch weights | 33.5- 34.0 grams each |
| - Three Ramps | |
| - Three Adjustable Pins (Aluminum) | 4.0 grams each |
| - Six (6) 1/4x28 set screws | 2.0 grams each |
| - Six (6) 1/4x28x1/2 S.S. Button head bolt | 4.0 grams each |
| - Six (6) 1/4x28x1/4 Button head bolt | 2.5 grams each |
| - Six (6) 1/4x28x1/4 Set Screw | 1.0 grams each |
| - Three (3) cotter pins | |
| - Six steel thrust washers | |
| - Primary clutch spring (Blue 185-360) | |
| - One Heel Clicker™ Super Torquer Systems sticker | |

NOW YOU ARE READY TO INSTALL YOUR NEW CRA Steam Roller™ CLUTCH KIT.

- 1) Remove the drive clutch from the machine. Disassemble the cover and remove the drive spring.
- 2) Remove the roll pin, roller and two plastic washers from the old arms. The rollers are used with the CRA arms. Make sure to install the cotter pin as shown below. The picture below also shows the two machined thrust washers that are added to each side of the weight when installing.



Figure #1

- 3) **Now you are now ready to tune the CRA™ weights** for your particular application. The CRA™ weights are adjustable in both the pin and arm locations. Both the pin and arm holes are drilled and tapped 1/4x28. Shown in Fig.1 is a CRA arm with the roller and side washers properly installed. Bend over only one arm of the cotter pin as shown . This will make it easier to change pin weight later if needed.
Always make sure the same amount of weight is added to each arm! The set screws are 2 grams each and the 1/2" bolts are 4 grams each and the 1/4" bolts are 2.5 grams.

Ski-Doo Models

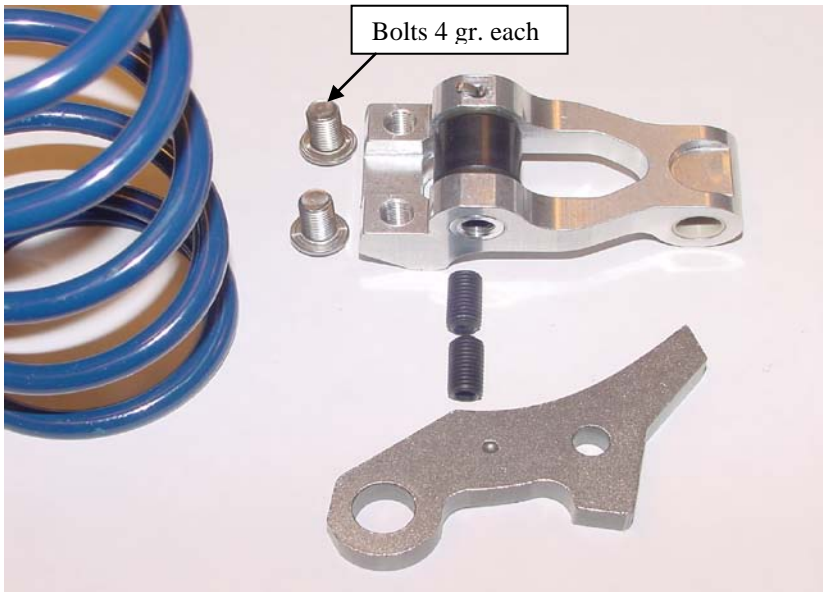


Figure #2

If you have purchased our 044070 Ramp and are using it at low altitude for snow cross or aggressive trail, use the following set up (shown in figure# 2).

Set up #1 Low altitude 0-6000 ft

Set CRA arm at 61.5 total grams

To achieve the 61.5 grams, use the set up shown in figure #3. Add two 1/4x28x1/2 bolts to the end of the arm as shown along with two set screws to the pin.

Use the ramp provided

Blue primary clutch spring (185-360)

Clicker position #3

Engagement RPM 4000-4100

Maximum track HP@ 7800-7850 on digital tach

Use stock helix and secondary spring

Use drive belt "383"



Figure #3

**08 REV-XP Summit 800R (High Altitude 8000-10,000 ft.)
Use the set up shown in figure #3**

Set up #2 High Altitude Usage (8000 – 10,000 ft)

“08”Set up CRA at 53.5 grams total weight (two set screws added to pin)

“09”Set up CRA at 52.0 grams total weight (one 1/4x28/14 bolt added to end)

Use ramp provided

Blue primary clutch spring (185-360)

Clicker position #3

Engagement RPM 4200-4300

Maximum track HP@ 7800-7850

Use stock secondary helix and spring

Use with drive belt “377” or “288”

- 5) Install all three clutch weights using the stock pivot pin bolts placing one steel thrust washer on each side of the arm. Install arm roller side up as shown. Check for clearance of the weight to the movable sheave. Torque all bolts to the manufacturer's specifications. Place all three ramps in the governor cup and set all clicker bolts on #3 position.



Figure #5

- 6) Installing the **Blue spring will give you approximately 3200-3400 rpm at engagement. It is a 185-360** spring and used for aggressive trail, snowcross and mountain applications. OEM and other manufacturer's springs can be used with these weights. When installing spring cup, make sure the arrow on the top of the spring cup lines up with the raised divot on the edge of the movable sheave on TRA 3 clutches. This will ensure proper balance.

- 7) Install the governor cup into the movable sheave making sure to use all the rubber O-rings. If you do not install the rubber O-rings, a clutch rattling noise will occur at idle. When installing the governor cup make sure to align the arrow on the governor cup with divot on the outer edge of the movable sheave. This will ensure proper balance.

- 8) Install clutch on engine and torque clutch bolt to the manufacturer's specifications.

Frequently Asked Questions

I seem to have lost top speed? Make sure the machine is shifting at the proper RPM. This is critical for top speed. Use only three of the six position clicker to adjust RPM. Positions 1-3 are the most effective. If you have to use 4-6 then remove weight from the CRA to get down to clicker 2-3.

Can I put in more weight? Yes, the set up given in these instructions is to simply establish a baseline. In all two cylinder applications (MXZ, Summit, and REV 600,700&800) the proper RPM is 8000 on the Ski-Doo Analog Tach. We find in almost all cases the Tach is off 200 RPM. *8000 RPM on the analog tach is actually 7800 at the motor. Ski-doo now uses a digital tack on its newer models. The digital tachs are correct and all stock twins need to run between 7800-7850. The clickers bolt should be adjusted accordingly, but always start in position #3 or less. In many cases varying engine horsepower, rolling resistance, even engine oil and belts manufacture can make a big difference in shift RPM. With all these variables it is difficult to be right on RPM all the time.

What helix or secondary spring should I run with the Heel Clicker weights? We have found 47/44 stock helixes work excellent for MXZ 800 twins, REV 600HO&800 machines equipped with RER are calibrated to work with the stock 47/44 helix and spring; no adjustments are needed. **We have found no other aftermarket helix better than the 47/44 when used with the CRA primary clutching. The CRA already duplicates an aggressive helix and no additional track horsepower or performance can be gained in the helix area.** Mach Z 1000 work best with 44 straight helix and stock secondary spring. . The 800R use the stock helix (09) 44/47 and spring makes maximum track HP.

Limited Warranty

Super Torquer Systems, Inc., (“Manufacturer”) warrants that the clutch arms sold here under will be free from defects in material and workmanship when subject to normal and proper use for the original purchaser’s ownership. If the clutch arms do not conform to this limited warranty during the warranty period of one (1) year from the date of purchase, the Buyer shall notify Super Torquer Systems, Inc., in writing of the claimed defect and demonstrate to Manufacturer’s satisfaction that said defects are covered by this limited warranty. If the defects are properly reported to Manufacturer within the warranty period, and the defects are of such type as to be covered by this warranty, the sole and exclusive obligation of the Manufacturer shall be, at its own expense, to furnish replacement product, or at Manufacturer’s option, replacement parts for the defective product. Removal, shipping and installation of the replacement product or parts shall be at the Buyer’s expense.

Manufacturer does not warrant against damages or defects arising out of improper or abnormal use or handling of the clutch arms; against defects or damage occurring from improper installation, against sudden impact arising from abnormal occurrences (ex., belt breaking or clutch slams shut unexpectedly); nor damages incurred to the machine from the use of this product.

Purchaser is responsible to do maintenance checks on the complete CVT system on a regular basis to ensure proper operation. Normal wear components including, but not limited to, springs and bushings are not covered by warranty.

Products seen in this document are Patent Pending.

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