Congratulations! You have purchased the finest clutch kit available. This **patent-pending** "dual quadrant" technology is revolutionary to the industry! This technology is ONLY AVAILABLE from Super Torquer Systems!

STS2HC 45-7 Yamaha

How to Install and Use the Heel Clicker™ Clutch Weight System and Most Frequently asked Questions

(Yamaha YXR clutch design only)

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 HEEL CLICKER ™ 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 rivet/washers don't overhang on the ramp area of the weight arm where they could come into contact with the roller.
- **DO** ensure the rivet/washers are fully seated in place.
- **DO** make sure the weight arms are balanced (weigh the same) before installation. The steel and aluminum rivets are similar in size, but are different in color. 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 Stationary pin 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** use any combination of rivet/washers that exceeds 13.4mm wide.
- **DO NOT** grind or alter any portion of the weight arm or shoulder.
- **DO NOT** adjust the mass while the weight is mounted on the stationary pin in the clutch.
- **DO NOT** reuse a rivet. Extras are included in your kit or available from Super Torquer Systems.
- **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 Heel Clicker™ clutch weights (Yamaha OEM bushing)
- Six (6) 1/4 dia.x1/2 long round headed Steel rivet weighing 5.2 grams each
- Six (6) 1/4 dia.x1/2 long round headed Aluminum rivet weight 2.0gr each
- Nine (9 approx.) 6.0mm Steel washers weighing 1gr each
- Fifteen (15 approx.) 5.0mm steel washers weighing 0.5gr each
- Three (5.0x0.8x12.0)mm long set screws weighing 1.1gr each
- Three (5.0x0.8x10.0)mm Hex head bolts (Black) weighing 2.5gr each
- Three (5.0x0.8x14.0)mm Hex head bolts (Chrome) weighing 3.0gr each
- One Red spring (230-350)lbs.
- Two Heel Clicker™ Super Torquer Systems stickers
- One paper centering template
- 6 Nylon centering washers

NOW YOU ARE READY TO INSTALL YOUR NEW HEEL CLICKER™ CLUTCH KIT.

1) Remove the drive clutch from the machine. Disassemble the cover and remove the drive spring. Leave the old clutch weights in the clutch for now.

2) The web of aluminum behind the clutch weight needs to be removed in all clutches. This is a simple process that will be done by simply drilling and/or filing the material away using basic tools (a hand drill with 1/4" drill bit, center punch, hammer, and metal file). A template is included for easy location placement. This one-time process will take approximately 30 min. Clutch balance and durability will not be affected (all test sleds have had this done to them and have shown no change in balance or durability even with thousands of miles of use). **Repeat steps 2A through 2F for each of the clutch webs.**

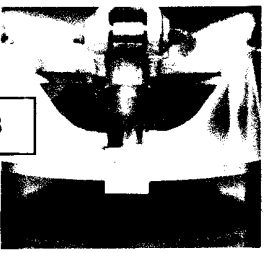


Fig. 2B

2A) Fold template at the fold lines.

2B) Hang the folded template over the web behind the clutch weight as seen in Fig. 2B. Make sure the template is flush with the top edge of the web.

2C) Using a center punch and hammer, mark the web with two centering points using the template. Then remove template for use on other webs. See Fig. 2C.

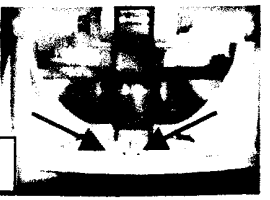
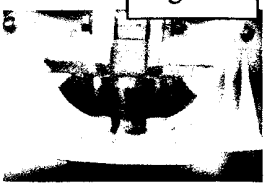


Fig. 2C

2D) Carefully and slowly, drill a 1/4" diameter hole through both centering marks of each web.

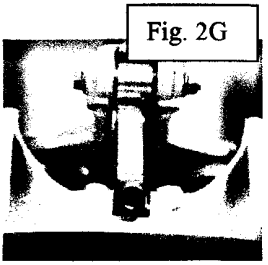
Fig. 2E



2E) File off the top edge to form a U-shaped pocket from the two holes as seen in Figure 2E.

2F) Compare the three web pockets to **ensure that equal material has been removed from each** (so as not to affect clutch balance).

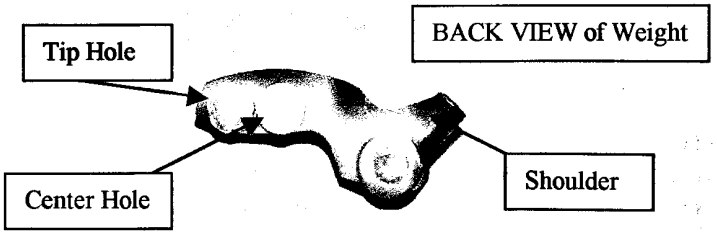
Fig. 2G



2G) Using the OEM stationary pin place a Heel Clicker™ weight with one nylon washer on each side of the weight in the clutch. Manually rotate the weight into the full shift out position. Check for proper clearance around the shoulder of the weight where the web material was removed (refer to Fig. 2G). Remove weight(s) from clutch.

2H) If you choose to simply file this material instead of drilling. The minimum pocket width is 10mm and pocket depth is a minimum of 9.5mm. Make sure the pocket is properly centered so clearance is achieved equally on all sides of the shoulder (again see Fig. 2G).

2) **You are now ready to tune the Heel Clicker™ weights** for your particular application. The Heel Clicker™ weights are adjustable in both the traditional arm and the new shoulder. At this time, it is important to understand the nomenclature of the Heel Clicker™ weights. The first number identifies how many grams just the arm weighs without any adjustment hardware (i.e., 45, 50, or 55) and the "7" is the weight of the shoulder (in grams) without any tuning hardware attached. The arm will be



adjusted first based on information from your old clutch weight that is assumed to have been appropriate for your sled.

3A) Weigh your current clutch weight. This is the amount of weight you want just the arm ("traditional" weight) " of your Heel Clicker™ weight to be.

3B) Figure out how much mass you need to add to the Heel Clicker™ clutch weight arm so that it matches your current weight arm. For example if you have a 52 gram weights in your 2001 SRX 700, it will be replaced with a STS1HC 45-7 Heel Clicker™ weight. Place the 5 gram steel rivet to the center hole and 2 gram aluminum rivet tip location (45gr + 5gr + 2gr = 52gr). Put the rivet through the back side and add the washer(s) on the front side. See photo above for placement. .

3C) Application Chart for Heel Clicker™ Clutch Weights

Model	Heel Clicker Weight	Shoulder	Center	Tip
600 SX	45-7	3.0	0	0
700 SX	45-7	3.0	2.0	0
700 SXR	45-7	3.0	2.0	0
600 SRX	45-7	3.0	2.0	0
700 SRX (98&99)	45-7	5.2	5.0	0
700 SRX (00&01)	45-7	5.2	5.0	2.0
700 Mountain Max	45-7	2.0	0	0
700 SX/SXR (piped) (9000 RPM)	45/7	2.0	0	3.0
700 SX/SRX (piped) (8300 RPM)	45-7	5.2	5.0	2.0

3D) Carefully peen the rivet over with a hammer (or place in a vise) until the maximum length of the rivet is 13.7mm. See Figs. 3D1 & 3D2. **Be extremely careful when peening. These weights are very**

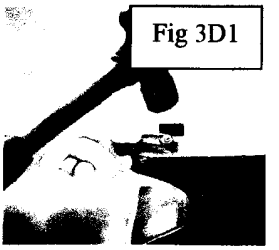


Fig 3D1

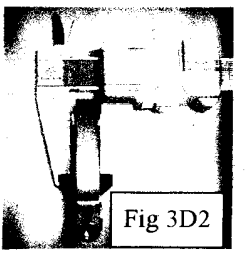


Fig 3D2

hard and brittle. Applying too much force can fracture the weight!

3E) A maximum of two washers should be used with the rivets supplied with this kit on any single weight.

3F) Install all three clutch weights using the OEM stationary pins and the six nylon washers. Check again for clearance of the weight to the spider and movable sheave. Torque all bolts to the manufacturer's specifications.

4) Install the clutch spring supplied with this kit. The Red spring is a 230-350 spring and is intended to be used for trail riding or racing applications. Other manufacturer's springs can be used with these weights, so don't be afraid to try other springs.

5) Install (tall) spring cap and torque all bolts to the manufacturer's specifications. **You need Yamaha tall cover, P/N 8DF-17630-00, if your machine didn't come with it! SX 600 & 700 prior to 2000 need the tall cover. Check to make sure your have this cover.**

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

The final adjustment involves tuning the shoulder for maximum performance. As explained earlier, the shoulder of the weight already weighs 7 grams. This means the Heel Clicker™ weight will already weigh 7 grams more than the weight you are replacing. This extra weight will prevent the belt from slipping and act as a progressive angled helix. Add as much weight as the engine can handle without loosing responsiveness. Based on the power your particular engine, more weight can be added to the shoulder. Extra weight is provided in this kit in the form of a 1.1 gram set screw and a 3.0 gram bolt. Additional fasteners are available through Super Torquer Systems, if desired.

When using these fasteners always use the lock washer with the bolts and blue Loctite with the set screw. The addition of these fasteners will increase the load on the belt and make the clutches upshift faster. This additional weight will also drop the engine engagement RPM's. Listed below is the engine engagement RPM you can expect with these weight combinations

Set up	*Blue spring*	*Red spring*
No weight added	5000	5400
1.1 grams added	4850	5250
3.2 grams added	4500	4900
4.0 grams added	4200	4600
5.4 grams added	3900	4300

Most Frequently Asked Questions

I seem to have lost top speed? Check the notch you drilled in your clutch. Make sure you have clearance between the shoulder of the weight and the movable sheave when the clutch weight is fully shifted out. Sometimes the drill will wonder off location and the pocket will not be deep enough (see Figure #2G). This clearance is critical for top speed.

How many and what length of studs should I use? This depends on many things, but testing shows that 144 studs 1.080 inches long with traction rods work great for aggressive trail riding.

How can I get more engagement RPM? See the engagement chart above. By removing weight from the shoulder location engagement RPM will rise. Also, using larger diameter rollers will tuck the weight and engagement RPM will also rise. Placing weight in the hole on the tip will also work, but your peak RPM will fall.

Can I use Yamaha spring shims to get a higher engagement RPM? No. Both Blue and Red springs are designed to work between 2.9-1.6 inches. Using shims will diminish the spring quickly.

How can I get less engagement RPM? We also offer a Blue spring that is 40lbs. less stiff than the Red spring. Also any OEM Yamaha clutch spring will work with our weights. You may find them way too soft.

What primary clutch rollers work the best with the Heel Clicker weights? We have found the larger diameter rollers (15.6mm and above) work the best. You can simply not hook up the small diameter rollers unless you have massive traction.

What Helix should I run with the Heel Clicker weights? We have found the stock helixes work great. The right helix angles are usually found between 45-50 degrees for almost all snowmobiles. Yamaha uses 45-49 degree helixes in all their current machines.

Can I run a Roller Secondary with the Heel Clicker Weights? Yes. Depending on the roller secondary you buy the recommended helix will change. Many customers drop down in helix when using our weights. Angles such as 44/36 helixes are common.