

# INFERNO

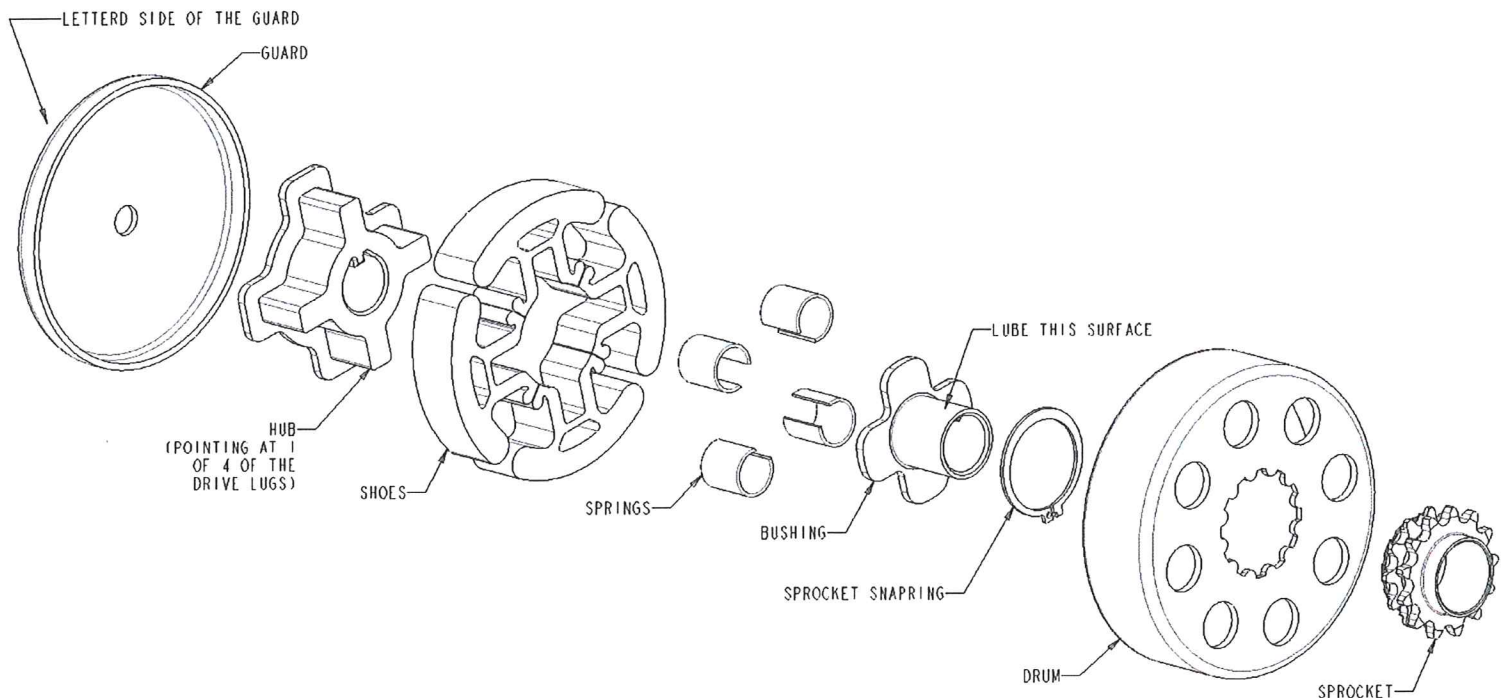
## FURY

### INSTALLATION and MAINTENANCE Instructions

The Inferno racing clutch is a highly tunable centrifugal drum clutch. The clutch can be built in several different configurations giving the racer the ultimate control possible over their unique racing situation. Adjustability comes from the ability to change the engagement speed by changing the springs. With 4 shoes, racers are able to mix and match spring configurations, keeping in mind that clutch balance is important. For example you can't set a heavy spring opposite from a light spring. **BALANCE IS KEY!**

This clutch is a two (2) piece mechanism. There is a potential that if the clutch is not assembled or installed properly that serious injury can occur. It is **VERY** important that you follow all the directions for proper clutch installation. Visit <http://www.hilliardextremeduty.com/install.htm> if you are unfamiliar with the clutch and how it should be assembled together.

See the tuning guide prior to assembly. Different configurations are available, and will drastically change clutch characteristics. Get an idea from the tuning guide on what configuration you might want to start with.



#### **Shoe Installation:**

- Shoes are to be placed on the driving lugs of the hub. See Illustration for clarification. Also see the tuning guide to determine the best configuration.
- Shoes should fit loosely on these lugs, and be able to slide freely on them.

#### **Spring Installation:**

- Use External Snap Ring Pliers to spread the springs apart for easy installation. See the tuning guide to determine the best set of springs.
- DO NOT stretch the springs any further than necessary for installation.
- If mismatching springs make sure similar springs are opposite one another in the assembly. Keeping balance in mind.

#### **Bushing:**

- For best performance oil the bushing before every run.
- Wipe off excess oil before installing into the sprocket.

#### **Clutch Installation: (Sprocket closest to the engine or inboard mounted. Reverse the order of the part installation for sprocket out, or outboard mounted.)**

- Some engines have a small shoulder or large radius on the shoulder that is not large enough to retain the sprocket. If the sprocket is not retained by the shoulder you need to add a thin washer (min. .030) with a 3/4" I.D. and a 1-1/16" O.D. It needs to be thin so the clutch is not longer than the crankshaft.
- Slide sprocket and drum onto the engine shaft, so that the sprocket faces the engine. Note: (The drum and sprocket will be loose on the shaft.)
- Slide the bushing that was properly lubricated on the engine shaft. You will have to line up the key in the bushing with the keyway on the engine. The bushing should slide through the sprocket.
- Slide on the hub/shoe/spring assembly from the previous steps. Make sure that the letters on the hub are out away from the engine. The part of the hub that protrudes from the back should be outside of the drum. (Reference picture). The key in the hub will need to be lined up with the keyway on the crankshaft to get the clutch to slide on completely. The shoes should be fully enclosed under the drum.
- Measure the distance from the end of the clutch to the end of the crankshaft. The clutch should be shorter than the crankshaft (If it is not special instructions need to be followed). The distance from the end of the crankshaft, to the end of the hub should be between .020, and .030. If it is not, then remove the clutch, and place appropriate spacers (washers) on the engine shaft, and re-install the clutch following the same instructions.
- Recheck your measurement for end play. You do not want to have the clutch longer than the shaft, nor do you want too much room for it to move. This step is critical, and needs to be confirmed.
- Install the guard so that the letters on the guard remain out toward the user, and must be readable after installation.
- The guard is to tighten against the end of the crankshaft, not clamping on the clutch hub. There should be .020-.030 clearance from the inside of the guard to the hub of the clutch. DO NOT CLAMP THE GUARD TIGHT TO THE HUB.
- If the clutch is to be installed with the sprocket away from the motor, or outboard mounted, then the guard is not needed.
- DO NOT OPERATE WITH THE SPROCKET INBOARD WITHOUT THIS GUARD.
- Retain the clutch using a bolt and washer. The washer should tighten to the guard, and the guard to the shaft, NOT THE CLUTCH! DO NOT USE setscrews to retain this clutch onto the shaft.
- Verify there is a .020-.030" movement by sliding the clutch drum tight to the guard, and measuring the gap from the front edge of the bushing to the shoulder on the crankshaft.

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**\*\*IMPROPER INSTALLATION/ASSEMBLY CAN RESULT IN SERIOUS INJURY\*\***  
For any additional support visit [www.hilliardextremeduty.com](http://www.hilliardextremeduty.com)  
**INFERNO TUNING GUIDE**

**\*\* The most important tuning tip is to keep the clutch BALANCED\*\***

Outside of keeping the clutch balanced, the choices are endless, and all up to the racer. Below are listed some baselines, and some concepts to help you fine tune the clutch to your specific application.

**Heavier springs = higher engagement speed - Weaker Springs = lower engagement.**

**\*\*Springs Available from Heaviest to Lightest\*\***

- **Black – 8443-35-006-A – 3000 RPM**
- **White – 8443-35-005-A – 2300 RPM**
- **Yellow – 8443-35-004-A – 2000 RPM \*Sold Separately**
- **Orange – 8443-35-003-A – 1800 RPM \*Sold Separately**
- **Red – 8443-35-002-A – 1200 RPM \*Sold Separately**
- **Green – 8443-35-009-A – 830 RPM \*Sold Separately**

**\*\*Engagement speeds vary with configuration\*\***

**\*\*Speeds are listed as the point at which the shoes touch the drum, NOT LOCK UP RPM\*\***

- **Springs can be alternated. For example, reading around the clutch, white black white black, or any combination of colors. Keeping balance in mind, as long as the springs that are opposite one another are of the same color, balance is retained. .**

**Combinations of tuning characteristics allow for a wide range of tunability.**

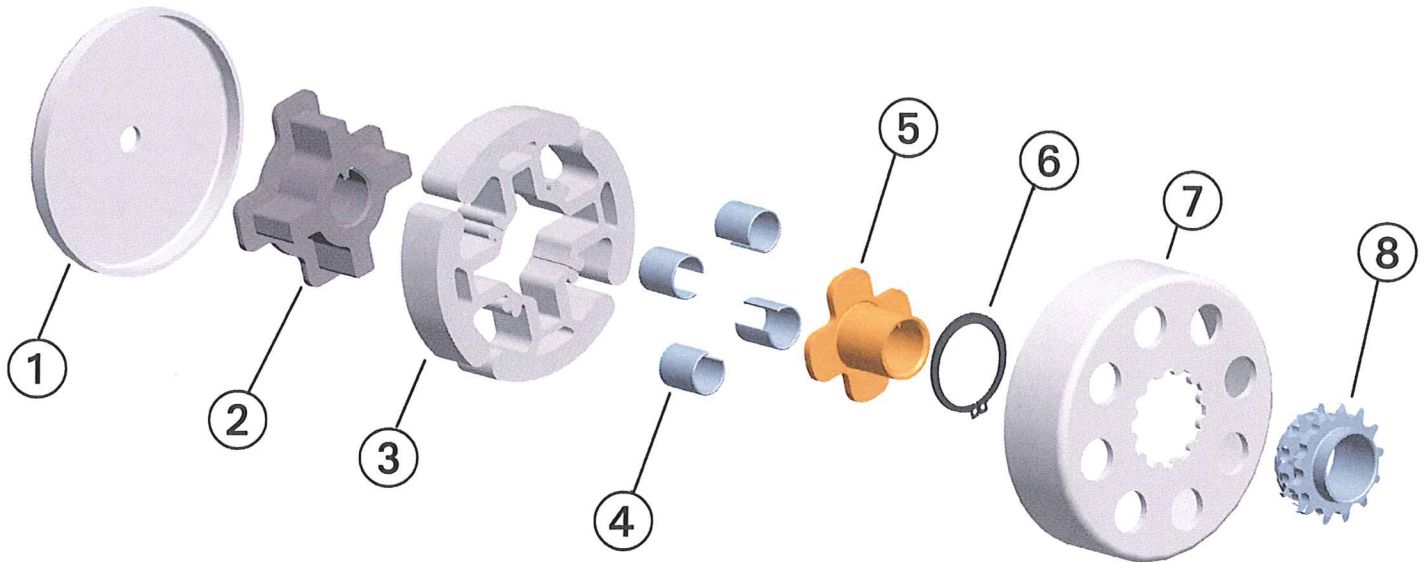
- **Combining alternating spring configurations, can offer a large range of clutch characteristics.**
- **Tuning is vital to get the clutch dialed into your application. The clutch can slip, or almost stall out your motor depending on the configuration.**

#### **Key Features:**

- **Integral Key**
- **Heat Treated Hub**
- **Stamped Racing Drum**
- **Machined Steel Sprocket**
- **Easy Change without Chain Removal – With the 2 piece design you can remove the shoes and hub without removing the drum and sprocket.**
- **Track Tunable**
- **Quick Change Spring Design**
- **Oil Impregnated Bushing**
- **Interchangeable Sprockets**
- **Thermo-Dynamically Designed**
- **Tunability at a Competitive Price**
- **Longer Life – Better Performance**



# EXTREME DUTY INFERNO RACING CLUTCHES



<b>FURY</b>		
Ref #	PART No.	DESCRIPTION
1	8444-12-003	GUARD
2	8444-23-089	3/4" HEAT TREATED HUB
3	8444-31-007-C	STEAM TREATED SHOE
4	8443-35-002-A	RED SPRING (1200 RPM)
	8443-35-003-A	ORANGE SPRING (1800 RPM)
	8443-35-004-A	YELLOW SPRING (2000 RPM)
	8443-35-005-A	WHITE SPRING (2300 RPM)
	8443-35-006-A	BLACK SPRING (3000 RPM)
	8443-35-009-A	GREEN SPRING (830 RPM)
5	8444-15-002-B	BUSHING 3/4 (SHORT)
6	1279-01-136-T	BOWED SNAP RING
7	8444-13-099	STAMPED RACING DRUM
8	8444-47-038	13 TOOTH #35 CHAIN SPROCKET
	8444-47-039	14 TOOTH #35 CHAIN SPROCKET
	8444-47-040	15 TOOTH #35 CHAIN SPROCKET
	8444-47-041	16 TOOTH #35 CHAIN SPROCKET
	8444-47-042	17 TOOTH #35 CHAIN SPROCKET
	8444-47-043	18 TOOTH #35 CHAIN SPROCKET
	8444-47-044	19 TOOTH #35 CHAIN SPROCKET
	8444-47-045	12 TOOTH #35 CHAIN SPROCKET