

Shockwave

CLUTCHES BY JR RACE CAR

Vocabulary Guide

Drive Clutch (545-5100):

aka *Primary Clutch, Front Clutch, Driver Clutch*. Named the Drive Clutch because it *drives* the Driven Clutch. The Front Clutch is responsible for: Stall RPM and overall run RPM. The Drive Clutch builds the energy required for clamping force and the energy needed for the shift. JR Race Car believes in "Leading the shift" with the Drive Clutch. This means the bulk of your clutch adjustments will be done by altering the Drive Clutch.

Driven Clutch (545-2750L):

aka *Reverse Driven, Secondary, Rear Clutch, Back Clutch*. The Driven Clutch is responsible for providing a resistance to the shift (without this piece, your Drive Clutch would just slam right into high gear). It also establishes clamping force throughout the shift by forcing the drive clutch to push harder on the belt before starting the shift cycle. Adjusting this unit will primarily change the first 60 foot of your run. This is usually the best place to start if you're encountering consistency issues with the clutch.

Drive Clutch Top Plate (547-5112):

aka *Clutch Cover, Face Plate*. This piece operates as the outer spring seat to the primary clutch as well as stabilizing the moveable sheave with a oil impregnated bronze bushing. **WARNING!: This component is loaded with up to 250 lbs of spring pressure. Special tools are recommended for removal.**

Moveable Sheave (545-5113):

aka *Clutch Can, Outer Sheave, Outer Pulley*. Named "Moveable Sheave" because it is the only sheave that moves in and out in the shift process. This is the piece (tied directly to the Top Plate) that moves in on the belt in the run as well as tranfering torque from the engine to the belt. One of the main dynamic pieces of the clutch. It is acted on by the flyweights and is the guide surface for the Roller Bearings (545-9004). It uses a bronze bushing to guide on the main hub and is stabilized by the top plate bushing.



Spider Assembly (547-5111):

aka *Roller Housing*. This piece, along with the Stationary Sheave, is the “Anchor” to the clutch. It takes all the force from the flyweights as well as transfers all the torque from the engine to the moveable sheave. It is screwed directly to the Stationary Sheave assembly (main hub). It carries both the Roller Bearings (545-9004) and the Roller Bushings (545-9005). This piece takes a lot of abuse. Literally all forces, engine torque, clamping force and spring pressure, are being applied to this component throughout the duration of the shift. Because of this its recommended to occasionally change this component (every two to four years depending on how much you race). This piece does require our Spider Tool (545-5001) and the Holding Tool (555-5695) to remove. Shimming this component in and out on the Main Hub will adjust your belt to sheave clearances, which affects clutch application forces. Shimming the spider can change reaction times, yet the affect is so minimal its not usually recommended.



Stationary Sheave Assembly (547-5110):

aka *Fixed Sheave, Rear Pulley, Main Shaft, Main Hub*. This Component works with the Spider to be the “Anchor” of the clutch. This piece works as the Fixed Sheave to the clutch as well as taking much of the forces (torque and clamping force) in the clutch system. It's absolutely imperative that this component has a snug fit to the crankshaft. If this component gets loose on the crank it can start to roll keys as well as shed the Roller Bearings off the unit. This problem can be avoided by simply using a good quality spacer (555-150 or 555-155) between it and the crankshaft.



Roller Bearings (545-9004):

aka *Big Black Rollers, Outer Rollers, Plastic Rollers*. These rollers are the torque transferring component in the Shockwave Clutch System. They are one of the only common components between the Standard and the Overdrive Shockwaves. To check these for wear just rock them back and forth to check the side clearance on the bearing race.



Roller Bushings (545-9005):

aka *Steel Rollers, Flyweight Roller*. These take all the force from the flyweights. One of the most durable components in the system, these are the most commonly neglected components in the clutch. To check these rock them side to side to see if they're getting loose and inspect them for flat spots.



Spring (Red 545-9513, Purple 545-9519):

The Drive Clutch Spring is mostly responsible for stall RPM. This component is not a tuning device, it is not recommended to interchange springs from red to purple without completely re-evaluating the setup. Stall RPM can be raised by installing shims under the Spring. This is typically the most effective way to slow reaction times in the clutch.



Flyweights:

aka *Ramps, Arms, Weights*. The flyweights are the biggest tuning tool for the Shockwave clutch. They control all aspects of the shift. The flyweights come in a variety of weights and ramp angles to control stall, early load and downtrack flatline rpm. For more info on flyweights please reference our technical pages on the History and Characteristics of both the C-4 and H-1 style flyweights.



Driven Helix:

aka *Ramp Plate*. The Helix is the main control of the driven assembly. The Helix controls the speed of the shift with both variable angles and driven spring tension. A higher numerical helix angle will speed up the shift, increasing the load on the engine and providing for more opportunity for low E.T.s. Lower numerical helixes will slow the shift, making tuning easier with a slight potential for slower E.T.s. Increasing spring installed pressure has the potential to slow shift speeds as well, but is mostly used for better belt control at the hit. A loose helix spring can cause serious inconsistency and tuning issues by not returning the belt to the outermost part of the driven before the run.



Driven Poles (546-5513):

aka *Posts*. The Driven Poles are one of the more neglected parts on the Reverse Driven clutch. The poles main job is to attach the helix and transfer motion from the helix to the moveable sheave. These are often times damaged when bolts are left loose or when they've worked themselves loose. When the bolts come loose the poles will end up mushroomed at the sheave surface, causing what appears to be a bent sheave.



Reverse Driven Main Hub (546-5502):

aka *Center Post, Post*. The Main Hub is screwed directly into the Fixed Sheave. The main posts primary job is to transfer torque from the belt to the jackshaft and guide the helix and moveable sheave through the shift. This piece is typically not a wear item. It's most often replaced because of external damage by from a hammer or punch or if it's installed backwards it can unspin itself and potentially damage the threads.

Reverse Driven Fixed Sheave (546-5504):

aka *Outer Sheave, Sheave with rollers*. The Fixed Sheave gets it's name from the fact that it is *fixed* in position during the shift cycle. The Fixed Sheave is the "anchor" of the driven assembly. It transfers torque to the Main Hub as well as holds the Cam Followers. This piece, like the Main Hub is not typically prone to damage unless it's installed backwards or encounters a hammer.

Reverse Driven Moveable Sheave (546-5505):

aka *Inner Sheave, Back Sheave, Sheave with Bushing*. The Reverse Driven Moveable Sheave gets its name similarly to the Drive Moveable Sheave. Its the only sheave that *moves* in or out in the process of the shift. The Driven Moveable sheave is attached by three bolts into the Reverse Driven Poles and guides itself with a Nylon bushing on the Main Hub. Like many other driven components, this piece isn't likely to see damage unless it's installed improperly or hammered on.

Cam Followers (545-4501):

aka *Driven Rollers*. Debuted in 1997 on JR RaceCars 7" Driven unit for the Salsbury Clutch. It was the first ever roller driven produced for the jr dragster market. The Cam Followers main job is to guide the Helix on the Fixed Sheave smoothly with as little wear as possible. They have provided a huge step in consistency and life ever since.

Reverse Driven Spring (545-4560):

The Reverse Driven Spring provides an installed torsional resistance to delay the movement of the Belt in the driven at the launch as well as provide demand clamping force from the Drive Clutch. The Orange spring is the only one recommended to be used in the reverse driven. People commonly use the Blue Spring, which is designed for the Standard (Salsbury style) Driven, but its not recommended for optimal performance.

