



## Slider Clutch Installation

M.T.C. Engineering's slider is designed to provide you with excellent reaction times and better E.T.'s. Once you become used to racing with our slider clutch, you will never return to the conventional hand clutch method. Slider clutches eliminate the need for the clutch lever, cable, slave cylinder, etc. The unit operates wet and is totally enclosed in the stock clutch cavity with the addition of a specially designed cover plate. This unit operates similar to the one used on top fuel motorcycles and allows you to set the stall speed and the weight required to lock up the clutch plates in accordance with the horsepower your engine produces. It does not come with oil fill caps. All MTC Sliders and components are covered under U.S. Patents.

### WARNING                      WARNING

There are several things that need mentioning before you use this slider clutch so you will not make any mistakes.

1. The clutch releases when the engine R.P.M. drops below stall speed. If your throttle sticks open, you can not disengage the clutch.  
Turning off the ignition switch is the only way you can disengage clutch if the throttle sticks open.
2. The bike will free wheel when the R.P.M. drops below stall speed, so you can not use the engine to assist the brakes in slowing the bike.
3. Any mechanical frictional hang-up would prevent the clutch plates from disengaging.
4. Make sure the transmission is in neutral before starting the engine.
5. Make sure that you can reach ignition kill switch without removing hands from controls.
6. Make sure air gap is correct, if not install a shim kit.

### 1. **INSTALLATION OF BASKET IN A KZ900/1000**

- A. When installing a Kawasaki KZ900/1000 slider basket, it will require slight clearance of the cases to prevent the O.D. of the basket from touching the inside of the clutch cavity stud boss just behind the crankshaft, a minimum of 1/32" required.
- B. Installing the clutch basket to the transmission shaft and installing clutch cover is the same as with the stock motor. With the Kawasaki engine, you won't need the clutch pusher, pusher rod, clutch cable, lever and outside cover.
- C. Replace the hardened steel spacer that goes between the face of the clutch basket and the inner hub with the three (3) piece needle bearing spacer supplied with your unit. **Make sure the needle bearing faces the clutch basket.** After tightening inner hub nut make sure inner hub rotates free. The outer race (#3) for the Kawasaki engines should be surfaced if clearance is less than .003-.006 clutch basket end play.



- D. Install friction and metal plates same as with stock procedure except start with a fiber then hard chrome plated steel then fiber then hard chrome plate continue till you end with fiber. Kawasaki has (7) steels and (8) fiber plates. We recommend all hard chrome plates for the serious racer. If you want the bike to cut good lights make sure the air gap is .050". If not, use a shim kit to get the correct air gap.
- E. E Install the small alloy plug with flange on the inside of the left transmission cover where the clutch push rod went through the seal to prevent oil leakage. Install restrictor in the end of the input shaft. This should be a press fit.
- F. Place the hat assembly on the basket and tighten the twelve (12) allen head cap screws to secure it.
- G. Before starting engine turn engine over by hand, and make sure that basket or inner hub is not binding.

### **1-B. INSTALLATION OF BASKET IN A GS1100/1150**

- A. When installing a GS1100/1150 slider basket, it will require you to check clearance of the cases to prevent the O.D. of the basket from touching the inside of the clutch cavity, a minimum of 1/32" is required.
- B. Installing the clutch basket to the transmission shaft and installing clutch cover is the same as with the stock engine. With the Suzuki engine, you won't need the clutch cable, lever, and outside cover. The GS1100/1150 engines require shimming of the clutch basket end play to provide .003 to .006 clearances. Follow GS 1150 shimming procedures. The GS1150 has a shorter primary drive gear spacer with the 2-6mm tapped holes.
- C. Replace the hardened steel spacer that goes between the face of the clutch basket and the inner hub with the three (3) piece needle bearing spacer supplied with your unit. **Make sure the needle bearing faces the clutch basket.** The shim is provided for the Suzuki, this shim might need to be surfaced in order to get .003-.006 clutch basket end play. If you don't have .003 to .006" clearance the inner hub will not rotate when the nut on the input shaft is tight. If the basket is to loose the basket will have excessive end play which could cause damage to clutch or engine.
- D. Install friction and metal plates same as with stock procedure except start with a fiber then hard chrome plated steel then fiber then hard chrome plate continue till you end with fiber. Suzuki has (8) steels and (9) fiber plates. We recommend all hard chrome plates for the serious racer. If you want the bike to cut good lights make sure the air gap is .050". If not, use a shim kit to get the correct air gap.
- E. Place the hat assembly on the basket and tighten the twelve (12) allen head cap screws to secure it.
- F. Before starting engine turn engine over by hand, and make sure that basket or inner hub is not binding.

### **1-C. INSTALLATION OF BASKET IN A SUZUKI GSXR 1100 Revised 09/12/2007**

- A. When installing a Suzuki GSXR slider basket, it will require you to check the clearance of the cases to prevent the O.D. of the basket from touching the inside of the clutch cavity. A minimum of 1/32" is required.



- B. When installing on a GSXR, check rod to basket clearance on # 4 rod. If you are running a stroker crank, the basket may need to be machined. A stock stroke GSXR 1100 with Carrillo Rods may also need to have the basket clearanced. **Note:** As of **09/12/07** all **new** GSXR 1100 slider baskets will already be clearanced for use with a stroker crank **and** will require the use of GSXR 1000 (2001-'04) fiber plates. You will continue to use GSXR 1100 steels.
- C. Replace the hardened steel spacer that goes between the face of the clutch basket and the inner hub with the three (3) piece needle bearing spacer supplied with your unit. **Make sure the needle bearing faces the clutch basket.** If you don't have .003 to .006" clearance, the inner hub will not rotate when the nut on the input shaft is tight. If the basket is too loose, the basket will have excessive end play which could cause damage to the clutch or engine.
- D. Install the oil restrictor plug in the end of the input shaft. You can leave the rod inside to limit the amount of oil entering the input shaft.
- E. Install friction and metal plates same as with stock procedure **except** start with a fiber; then steel, fiber, steel ... continue till you end with fiber. Suzuki has (8) steels and (9) fiber plates. If you want the bike to cut good lights, make sure the air gap is .050". If not, use a shim kit to get the correct air gap.
- F. Place the hat assembly on the basket and tighten the sixteen (16) allen head cap screws to secure it.
- G. Before starting engine turn engine over by hand, and make sure that basket or inner hub is not binding.

#### **1-D. INSTALLATION OF BASKET IN A SUZUKI GSXR 1000**

- A. When installing a Suzuki GSXR 1000 slider basket, it will require you to check the clearance of the cases to prevent the O.D. of the basket from touching the inside of the clutch cavity, a minimum of 1/32" required.
- B. When installing on a GSXR check crank to basket clearance on crankshaft counterweight. If you are running aftermarket rods, the basket may need to be clearanced.
- C. Replace the hardened steel spacer that goes between the face of the clutch basket and the inner hub with the three (3) piece needle bearing spacer supplied with your unit. **Make sure the needle bearing faces the clutch basket.** If you don't have .003 to .006" clearance the inner hub will not rotate when the nut on the input shaft is tight. If the basket is too loose the basket will have excessive end play which could cause damage to clutch or engine. **This measurement is extremely critical on the GSXR 1000, due to the very close proximity of the counterweight on the crankshaft.**
- D. Install the oil restrictor plug in the end of the input shaft. It is slightly tapered so install the smaller end first. You can leave the rod inside to limit the amount of oil entering the input shaft.
- E. Install friction and metal plates same as with stock procedure, except eliminate the stock ring and spring washer, start with a fiber then steel then fiber then steel continue till you end with fiber. Suzuki has (8) steels and (9) fiber plates. If you want the bike to cut good lights make sure the air gap is .050". If not, use a shim kit to get the correct air gap.
- F. Place the hat assembly on the basket and tighten the twelve (12) allen head cap screws to secure it.
- G. Before starting engine turn engine over by hand, and make sure that basket or inner hub is not binding.



## 1-E. INSTALLATION OF BASKET IN A SUZUKI HAYABUSA

- A. When installing a Suzuki Hayabusa slider basket, it will require you to check the clearance of the cases to prevent the O.D. of the basket from touching the inside of the clutch cavity, a minimum of 1/32" required.
- B. Installing the clutch basket to the transmission shaft and installing clutch cover is the same as with the stock engine. Install the modified billet inner hub in place the stock hub.
- C. Replace the hardened steel spacer that goes between the face of the clutch basket and the inner hub with the three (3) piece needle bearing spacer supplied with your unit. **Make sure the needle bearing faces the clutch basket.** If you don't have .003 to .006" clearance the inner hub will not rotate when the nut on the input shaft is tight. If the basket is too loose the basket will have excessive end play which could cause damage to clutch or engine.
- D. Install the oil restrictor plug in the end of the input shaft. You can leave the rod inside to limit the amount of oil entering the input shaft.
- E. Install friction and metal plates same as with stock procedure, except eliminate the stock ring and spring washer, start with a fiber then steel then fiber then steel continue till you end with fiber. Suzuki has (8) steels and (9) fiber plates. If you want the bike to cut good lights make sure the air gap is .050". If not, use a shim kit to get the correct air gap.
- F. Place the hat assembly on the basket and tighten the twelve (12) allen head cap screws to secure it.
- G. Before starting engine turn engine over by hand, and make sure that basket or inner hub is not binding.

## 1-F. INSTALLATION OF BASKET IN KAWASAKI ZX-12R

- A. When installing a Kawasaki ZX-12 slider basket, it will require you to check the clearance of the cases to prevent the O.D. of the basket from touching the inside of the clutch cavity, a minimum of 1/32" required.
- B. Installing the clutch basket to the transmission shaft and installing clutch cover is the same as with the stock engine.
- C. Replace the hardened steel spacer that goes between the face of the clutch basket and the inner hub with the three (3) piece needle bearing spacer supplied with your unit. **Make sure the needle bearing faces the clutch basket.** If you don't have .003 to .006" clearance the inner hub will not rotate when the nut on the input shaft is tight. If the basket is too loose the basket will have excessive end play which could cause damage to clutch or engine.
- D. Install the oil restrictor plug in the end of the input shaft. This should be a press fit. You can leave the rod inside the input shaft to cut down the amount of oil entering the input shaft.
- E. Install friction and metal plates same as with stock procedure, except eliminate the stock ring and spring washer, start with a fiber then steel then fiber then steel continue till you end with fiber. Kawasaki has (10) steels and (11) fiber plates. If you want the bike to cut good lights make sure the air gap is .050". If not, use a shim kit to get the correct air gap.
- F. Place the hat assembly on the basket and tighten the twelve (12) allen head cap screws to secure it.
- G. Slide the shift shaft stop on the small rod protruding from the lower left corner of the clutch cavity. Failure to install this item will result in the bike entering a non shift condition.
- H. Before starting engine turn engine over by hand, and make sure that basket or inner hub is not binding.



## 1-G. INSTALLATION OF BASKET IN KAWASAKI ZX-14

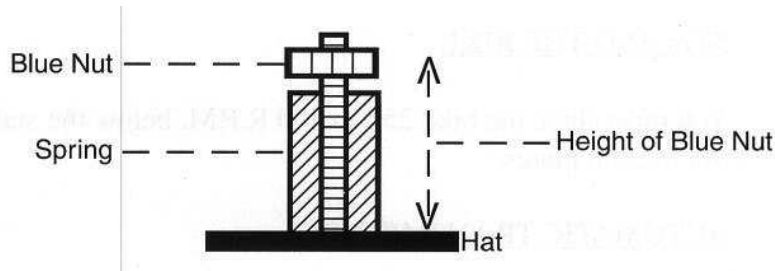
- A. When installing a Kawasaki ZX-14 slider basket, it will require you to check the clearance of the cases to prevent the O.D. of the basket from touching the inside of the clutch cavity, a minimum of 1/32" required.
- B. Installing the clutch basket to the transmission shaft is the same as for a stock basket.
- C. Replace the hardened steel spacer that goes between the face of the clutch basket and the inner hub with the three (3) piece needle bearing spacer supplied with your unit. **Make sure the needle bearing faces the clutch basket.** If you don't have .003 to .006" clearance the inner hub will not rotate when the nut on the input shaft is tight. If the basket is too loose the basket will have excessive end play which could cause damage to clutch or engine.
- D. Install the oil restrictor plug in the end of the input shaft. This should be a press fit. The stock pusher will not be used. You can leave the rod inside the input shaft to cut down the amount of oil entering the input shaft.
- E. If you are using an OEM pack (8) thin OEM fibers and (8) .102 OEM steel drive plates, install the (1) thick OEM fiber at the bottom of the pack for a total of (9) fiber plates. Eliminate the two washers from the bottom of the inner hub.
- F. Using the MTC clutch pack will increase surface area of the clutch. The stack up would be to use (8) .091" MTC hard chrome steels, (4) Thick MTC fibers, (5) Thin MTC fibers. Place (1) thick fiber at the start, (2) in the middle, and (1) at the end of the pack. Using the MTC ZX-14 clutch kit with a slider will leave (1) thin fiber and (1) steel plate unused.
- G. If you want the bike to cut good lights make sure the air gap is .050". If it is not correct, use a shim kit to get the proper air gap.
- H. Place the hat assembly on the basket and tighten the twelve (12) allen head cap screws to secure it.
- I. Before starting engine, turn engine over by hand and make sure that basket or inner hub is not binding.
- J. Install the clutch cover with the included spacer plate and gaskets. If you have a cover modified for a lockup with the extension welded in, you will still need the spacer plate. It is recommended that you replace the modified cover with a stock one otherwise the cover will stick out too far and interfere with the bodywork.



## 2. ADJUSTING THE SLIDER CLUTCH

**NOTE:** This procedure can most easily and safely be done with the rear wheel suspended in the air. Sliders that are set up at MTC should work for a bike that runs 9.20s. Try it before you adjust it.

- A. Start by setting the height of the springs at .800 thousandths. Put outside cover on engine and start engine. Put gear box in low gear and check the R.P.M. at which the rear wheel starts to turn. If the R.P.M. is too low, increase the spring pressure. Loctite blue nuts after adjusting, or use self locking nuts. They will loosen up.



- B. We recommend .050" air gap for all sliders. To determine air gap subtract the step on slider hat pressure plate from stack height. Example GS1100 Stack Height .100 Subtract Step on pressure plate .050" Equals Air Gap .050" KZ/Hayabusa/ZX-14 Step .032"/ GS1100 .050"/ ZX-12 .055"/ GSXR 1000 & 1100 .065". For accuracy reasons we suggest you measure your hat step.
- C. To determine stack height measure from last fiber plate to top of the basket.(not clutch tab).
- D. If you have excessive air gap your slider will not react. You will not be able to cut good lights. Take the time to get it right, we have shim kits available to help you with the adjustment. Think about it, your competitor is not going to tell you why they are cutting good lights.

## 3. SETTING THE LEVER ARM WEIGHTS

- A. For the average bike the weight supplied with the unit is more than enough to lock up the clutch and provide the stall speed you need to do the job. Remember the name of the game is to lock up the clutch as soon as possible without blowing away your rear tire. Also, if you change the lever arm weights, you will have to re-adjust the stall speed.

## 4. PROCEDURES FOR MAKING A PASS

### 1. BURNOUTS

- A. You can use your 2 step button like you're leaving the starting line, or start the rear wheel spinning rapidly by quickly opening the throttle and hold the R.P.M. at least 2000 R.P.M. above the stall speed you have selected to prevent burning up the friction plates. If possible pick your body of the seat to start the burnout then sit back down. Do not allow bike to burn out of the water onto dry asphalt as this will shock the clutch plates and may break the tabs off of the friction plates.



## **2. STAGING THE BIKE**

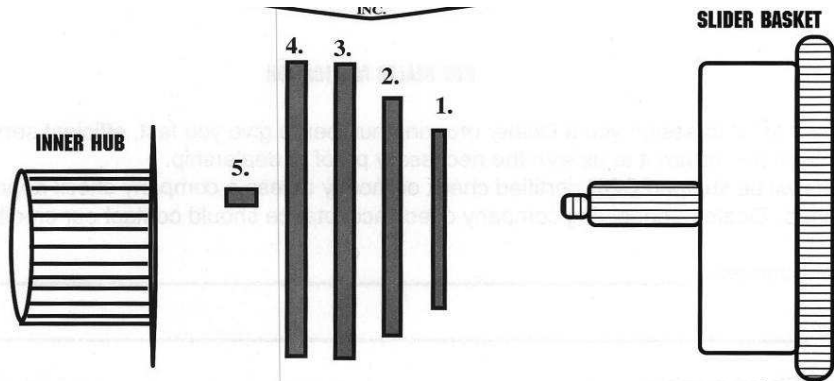
- A. You must stage the bike 250 to 400 R.P.M. below the stall speed to prevent burning the friction plates.

## **3. AUTOMATIC TRANSMISSION**

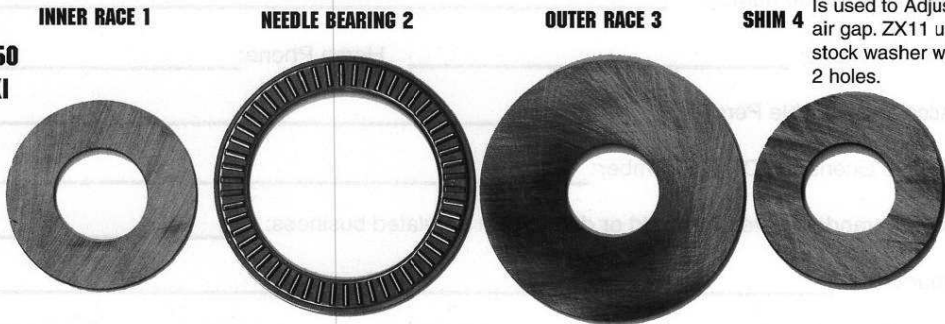
- A. If you run a 123 auto do your burnout in 3rd, if you run a 5 speed auto do you burnout in 5th.
- B. If you roll out of the throttle in any gear except high gear you could bend the shift shafts.

## **3. OILS**

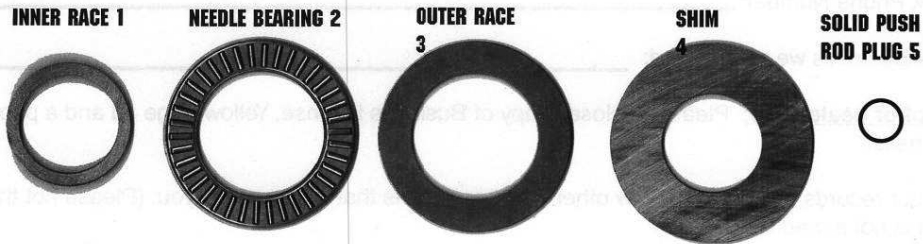
- A. We do not recommend any oil thicker than 10w30.
- B. We have not seen any problems with the clutch using synthetic such as Mobil 1 or Torco Oil.



**SUZUKI  
GS1100-1150  
& KAWASAKI  
ZX1100**



**SUZUKI  
GSXR1100**



**KAWASAKI  
KZ900/1000**

