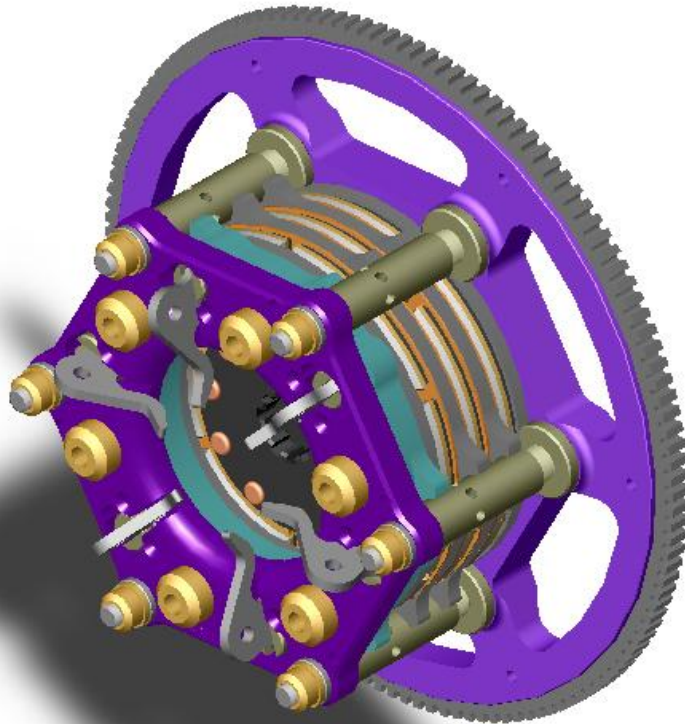


# ACE RACING

## Sintered Metallic Drag Racing Clutches



Congratulations on the purchase of your *Ace Racing Clutch*. You have acquired the absolute best clutch available. Your *Ace Racing Clutch* will prove a valuable asset to your racing program. Please take the time to read this manual before installing your new clutch. If you have any question at all, please feel free to contact one of our technicians, they will gladly help you in any way they can. Call (573)-468-4181 between 8 and 12 AM and, 1 and 5 PM Central Standard Time.

- *Ace* premium drag race clutches are designed utilizing a one-piece billet cover with a unique profile; this design provides superior structural integrity (i.e. stiffness), and a lower polar moment of inertia.
- *Ace* friction plates are manufactured to our exacting standards, “*in-house*” using a proprietary metallic alloy.
- *Ace* flywheels are billet aluminum units, engineered to provide many cycles of trouble free service. It is one of the strongest and lightest flywheels available today.

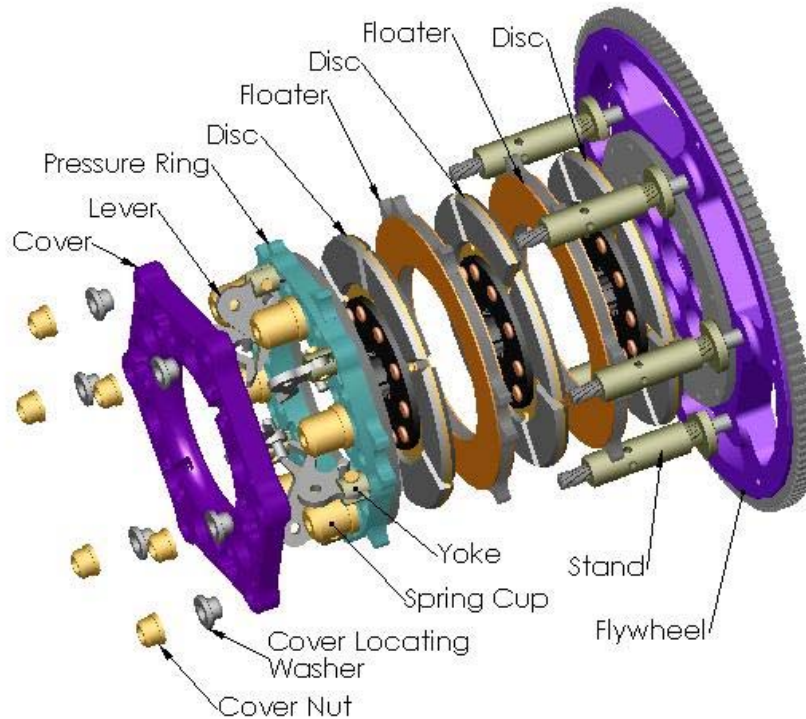
## INSTRUCTIONS

### STEP 1: Inspection

*Ace* recommends the following inspections be performed before installing your *Ace Racing Clutch*:

1. Inspect the crankshaft flange for burrs and dings; remove them with a file or emery cloth if necessary.
2. Inspect the input shaft of your transmission for signs of bending or twisting. Make sure that the clutch discs slide the entire way onto the input shaft without binding. Do **NOT** use any type of lubricant on the splines of the input shaft.
3. Inspect the bell housing for proper alignment. This is crucial to the proper operation of your *Ace* clutch. Misalignment may be found on aftermarket bell housings, and most manufacturers provide alignment instructions with the bell housing.
  - Inspect transmission pilot hole/crankshaft concentricity, using a dial indicator with the base attached to the crankshaft flange. Inspect the transmission pilot hole for concentricity to the crankshaft centerline within .010” total indicated runout.
  - Inspect the pilot bushing/bearing for wear. *Ace* recommends installing a new pilot bushing/bearing, this assures proper transmission shaft alignment. A defective pilot bushing/bearing will allow the input shaft to run out, causing release problems, this runout condition can break discs, hubs, or cause severe chatter.
  - Inspect the transmission face of the bell housing to assure it is square to the crankshaft face within .006” If the measurement is not within this specification, have the bell housing machined flat to bring the mounting surfaces parallel.

**Warning:** If the bell housing is not square to the block and/or the transmission pilot hole is not concentric with the crankshaft, improper release and accelerated wear **WILL** occur.



**Figure 1**

**STEP 2: Clutch Installation**

- 1) Install pilot bearing in flywheel (most applications).
- 2) Install flywheel on crankshaft. Fit should be easy slip or slightly snug.
- 3) Install flywheel fasteners and washers, making sure all threads are clean and free of oil and debris. Use red or green loctite and torque to proper specs. (1/2-20 bolts – 100 to 105 ft lbs; 7/16 – 20 bolts – 75 to 80 ft lbs).
- 4) Install stands making sure flats are not overlapping heat shield.
- 5) Install discs and floater plates in proper sequence and insert pilot shaft to line up and hold discs into position (See Figure 1).
- 6) Install pressure plate/ cover assembly, cover locating washers and nuts (using a small amount of anti-seize on threads is recommended).
- 7) In a rotational cross pattern, snug cover nuts enough to draw pressure plate assembly down to within .010” of its final position. Use the dial indicator at each stand location.
- 8) Rotate stands up to meet the cover and torque (3/8 nuts – 44 ft lbs; 7/16 nuts – 50 ft lbs; 1/2 nuts – 70 ft lbs).

Note: At this point the pressure plate assembly should have .850” from the top cover to the contact point on the pressure ring (this may be the top of the pressure ring or a step machined into the pressure ring to achieve this dimension). Note: The dial indicator is used as a reference gauge and should be checked periodically to insure accuracy. To calibrate dial indicator, set up clutch to proper height by using dial caliper, using the depth-measuring blade. This measurement can be made through the inspection hole. Calibrate the dial indicator by inserting it into the checking hole and re-setting if necessary.

- 9) To move pressure plate, loosen cover nut and rotate adjusting stand up or down to achieve proper height.
- 10) Now that the pressure plate is close to its final setting, use the dial indicator again to obtain the exact pressure plate height. Slip the dial indicator into one of the six checking holes, the needle should make less than one full revolution back to zero. This is the correct installed height. Proceed to the next hole until all six have been “zeroed” and double-checked. Make sure cover nuts are torqued before checking with indicator.
- 11) Setting Clutch Release Clearance – Insert dial indicator into checking hole and hold into position. Have team member depress clutch pedal. Set pedal stop so that the clutch has between .050” and .070” release clearance. Always check 2 holes 180 degrees apart then average the number. Always use a pedal stop, never allow the clutch levers to contact the pressure plate.

### **Ace Racing Clutch Maintenance:**

#### **Between Round Procedures (Minimum Recommendations)**

- 1) Remove bell housing inspection cover/ covers.
- 2) Cool clutch with electric fan.
- 3) Check for wear with dial indicator.
- 4) Re-zero clutch if wear exceeds .003”.
- 5) Check release clearance.
- 6) Reset release clearance if it exceeds .005” of original setting.
- 7) Visually inspect clutch through inspection hole:
  - Make sure there is ample throw-out clearance
  - All static and counterweight nuts and bolts are tight
  - No excessive wear of levers
  - No immediate discoloration of discs or floaters or anything else unusual.
- 8) Always re-torque cover nuts after each run regardless of whether or not readjustment is required.
- 9) Make any clutch changes that may be required and re-install inspection cover/ covers.

#### **Between Race Maintenance (Minimum Recommendations)**

- 1) Remove clutch from vehicle making sure to keep all parts such as discs and floaters in the same order they were installed in.
- 2) Wipe clutch discs clean with dry cloth (Never use solvents).

- 3) Clean floaters, flywheel, stands and pressure plate assembly with a non-petroleum based cleaning fluid and dry thoroughly. Make sure not mix-up stands if you remove male from female.
- 4) Inspect discs for chipping, warping, glazing, discoloring and hardness, if possible. Resurface if necessary.
- 5) Inspect floaters for cracks, warping, worn lugs, high spots and discoloration.
- 6) Inspect flywheel for warping. Check heat shield for wear, high spots, discoloration and excessive smearing. Check stand bolts for thread damage, pilot bearing condition and general condition of flywheel.
- 7) Inspect pressure plate assembly for warping, cracks, worn levers, discoloration, heat shield wear, excessive smearing or wear on partial surface.
- 8) Inspect throw-out bearing and associated components for wear, freedom of movement and general condition.

### **Parts and Service:**

Ace offers complete service and repair on Ace racing clutches and Ace Racing products, as well as technical support.

Remember the clutch is a crucial part of a successful combination and is subjected to the worst possible abuse, therefore it is imperative that it is maintained regularly and properly for maximum performance.

### **Returning your Ace Racing Clutch:**

Package the complete unit carefully (it's always a good idea to hold on to the original packaging). Place a note explaining any problems you might have encountered, or instructions for rebuilding, in a conspicuous place inside the box, include your name; return address, daytime phone number, and billing instructions. Send the packaged clutch to: Ace Manufacturing, 300 Ramsey St., Sullivan, MO., 63080, Attn.: Racing.

### **Payment/Billing Instructions:**

We accept (Visa or MasterCard). We will need the credit card number with expiration date and the name that appears on the card before rebuilding your clutch, so please include this information with your note. We will send the rebuilt clutch COD if requested.

### **Limited Warranty:**

Your *Ace Racing Clutch* is covered by a 30 day limited warranty, effective from the date of purchase. Your *Ace Racing Clutch* will be free of defects in materials and workmanship. Due to the abnormal abuse normally encountered by racing clutches, no other warranty, either expressed or implied, is given. In the event of a suspected warranty, the *complete* unit must be returned, freight prepaid, to the factory with a copy of the original sales receipt. The clutch will be thoroughly inspected, and if *Ace* feels there is a legitimate claim, the clutch will be repaired or replaced.