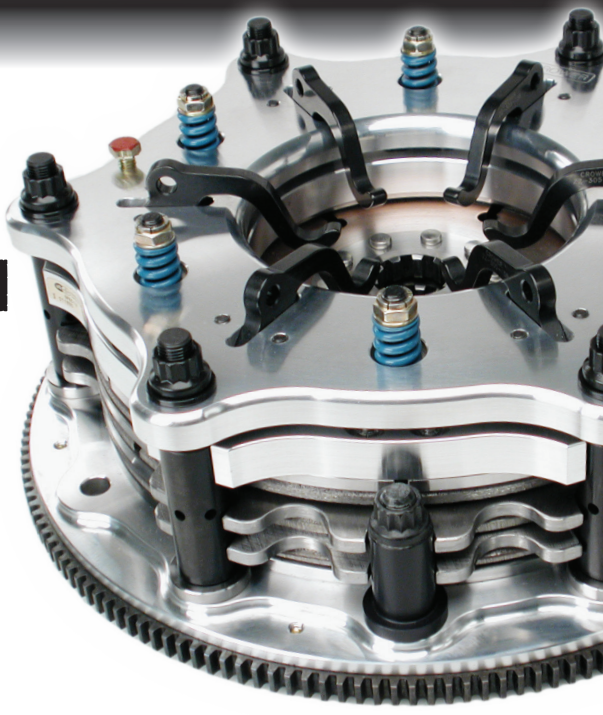
CROWER
CLUTCHES

CROWERGLIDE AUTOMATIC CLUTCH

Instruction Manual



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CAUTION!

Never start the engine with only the flywheel installed.

The engine may only be started once the clutch is installed, complete (stands, pack, pressure plate) torqued etc. in ready to run condition with bell housing and transmission in place.

Failure to follow the guidelines will result in major damage to clutch, vehicle, other components, and can result in

CROWER offers complete clutch rebuilding and technical assistance. All units returned for rebuilding will be rebuilt as necessary by Crower's "Glide" Department. Customer will be notified if rebuilding cost exceeds half the price of a new unit. **There will be a $10.00 service charge for units**

CROWER
Cams & Equipment Company

"CROWERGLIDE CENTRIFUGAL CLUTCH"
BASIC INSTALLATION & OPERATING INSTRUCTIONS

(All Applications)

General Information:
We suggest that upon removal of the pressure plate assembly, you familiarize yourself completely with the working parts of the clutch unit so there will be a better understanding as to how leverage and resistance factors are applied.

Clutch disc engagement is determined by the amount of leverage or force applied by the centrifugal arms. This leverage factor is controlled by the RPM of the engine and the amount of counterweight added to (or subtracted form) these centrifugal arms.

The springs located between each of the centrifugal arms are used ONLY for the control of the stall speed. Special attention should be given when adjusting these springs. The total amount of travel of the stall speed springs is limited to .220" and NO more than * **three (3)** turns of the adjusting nuts should be made from the point of contact with the springs at their free or relaxed length. This will insure proper operation of the clutch and eliminate unnecessary coil binding of the springs. As the clutch discs wear, the stall speed will increase. This is due to the increase in travel of the pressure plate donut to the engaging point of the clutch discs.

* 3 turns brown spring max
* 4 turns blue spring max

INSTALLATION:

1. It is important to inspect all clutch unit parts for any damage that may have occurred during shipping. Contact the shipping agent for file a claim of damage has occurred. Contact CROWER or your supplier for any replacement parts your may require. For your convenience, a parts list (illustrated) is shone on page 10 to help identify specific components.

2. Install flywheel on crankshaft. Make sure all threads are free from grease, dirt, etc.

   Torque specs are:

   7/16" Flywheel bolt 75-80 Ft. Lbs
   1/2" Flywheel bolt 100-105 Ft. Lbs
   * 3 turns brown spring max

INSTALLATION (continued):

3. The clutch is in the neutral position when assembled and must have clearance between the clutch discs to operate properly. With a feeler guage, check for clearance between discs and floater plates. There should be . to . TOTAL clearance. Too much clearance between discs and floaters will hinder the proper operation of the clutch by allowing the centrifugal arms to shock the clutch and possibly result in a “lockin-up” condition. The clutch should be inspected and maintained according to these instructions after each run.

4. Lightly tighten two 5/16”-18 (red) bolts equally, to hold discs in place while installing bell housing. REMOVE these bolts through inspection cover hole. Use clutch shaft to align clutch discs. Torque the 7/16” pressure plate nuts to 50 foot-pounds. We recommend checking these after each run.

5. Throw-out bearing must have full 5/8” or more clearance at fingers. **(THIS IS VERY IMPORTANT.)** There are several special throweout bearing assemblies available form CROWER to accommodate any depth bellhousing. Make sure the throw-out bearing does not come off the end of the collar when depressed.

6. To insure proper use of this clutch, it is recommended that an inspection entrance be made in the clack side and top of the bellhousing.
   Use only NHRA-approved inspection cover. (Inspection covers, bolts and special nuts are available from CROWER.)

7. If the clutch discs seem to be wearing considerably after a few runs, the clutch is slipping more than necessary. Check to be sure the throw-out bearing is releasing properly. Be sure there is enough counterweight on the centrifugal arms.

   Example: (For 2-disc clutch assembly)

Average acceptable wear:	.	To .	Total wear OR
	.	To .	Per side/per disc

8. Discs are worn out and should be replaced at .275” thickness. This applies to all applications except the mini clutch, which is .200” minimum thickness when worn out.

SAFETY PRECAUTIONS:

1. Magneto kill switch should be mounted in a convenient place with easy access in an emergency.

2. Throttle linkage should be inspected by at least two people!! Many accidents are a direct result of panic when the throttle sticks.

3. The fuel shut-off valve must be operative. This rule is in the book for your safety

4. It is suggested that a clutch pedal stop be installed so that the

OPERATIONS:

1. Vehicle must push freely -- or there is something wrong!
   Possibilities:
   a. Lack of clearance between clutch discs.
   b. Disc bent during installation.
   c. Throw-out bearing not clear of centrifugal arms.
   d. Bolts in housing hitting clutch unit.
   e. Housing diameter too small (possibly due to steel liner.)
   f. Be sure that the RED 5/16”-18 bolts have been removed.

2. Push-starting engine: Push clutch pedal in to engage. When engine starts, release clutch pedal so engine can idle at its neutral position.

3. **Remember!** This clutch is **automatic.** The vehicle will move if the throttle is opened. To “clean” the engine, or raise the RPM without the vehicle moving, merely hold the your foot against the clutch pedal to prevent the centrifugal arms form applying any clutch pressure.

4. Shutting down should be done in a normal manner, with the exception of pushing in the clutch pedal. You can wait for the disengagement RPMs which are slightly above stall speed, OR the clutch can be disengaged with the clutch pedal pushed to the neutral position.

5. If earlier lock-up (than that set at factory) is desired, add more counterweight to the centrifugal clutch arms. As counterweight is added, the stall speed will become lower and can increased by adjusting the stall speed springs tighter. The reverse happens when the counterweight is removed. The stall speed will increase and can

- IGNORANCE IS NO EXCUSE FOR CLUTCH PROBLEMS.

- EXCESSIVE HEAT IS WHAT DESTROYS, WARPS AND MUTILATES ANY CLUTCH ASSEMBLY.

- IF YOU ARE EXPERIENCING EXCESSIVE SLIP OR EXTREME CLUTCH HEAT, ABORT THE RUN AND RE-EVALUATE YOUR APPLICATION.

  IF YOU HAVE ANY QUESTIONS REGARDING OPERATION, MAINTENANCE, ETC., PLEASE DON'T HESITATE TO CONTACT

"CROWERGLIDE ADJUSTABLE STANDS"

CROWER adjustable clutch stands are manufactured so that desirable pack clearance can be maintained without removing the pressure plate form the flywheel. Adjustable stands eliminate the need for shims to set pack clearance. They provide a fast, and safe and accurate way to maintain pack clearance between rounds.

To install CROWER adjustable stands (in a regular-stand clutch,) remove the original stands and shims. These items will be replaced with the adjustable stands.

To set the pack clearance, use the following procedure:

1. Loosen the 6 (or 12) pressure plate nuts slightly.
2. To increase pack clearance, turn adjustable stand counter clockwise; to decrease pack clearance, turn clockwise. Each flat is approximately .010". Be sure turn all stands the same number of turns.
3. * Torque down the 6 (or 12) pressure plate nuts to ft. lbs. and check pack clearance. When checking pack clearance, use long feeler blade, passing it completely between the disc and floater. You may use two (2) feeler blades -- one on each side, instead of one long one-- if you prefer.
4. If the pack clearance is correct, your are ready to race. If it is not

INSTRUCTIONS (continued):

Pack clearance is something which must be worked out for each individual vehicle, driver and set of track conditions. Through our experience, we have found between .030" and .080" is a desirable for setting pack clearance.

CROWER adjustable stands help you maintain proper pack clearance. Your clutch will still require the same thorough inspections. Following are some important items to check:

1. Flywheel, floaters and pressure plate should be flat.
2. Check for cracked floaters.
3. Make sure discs are no thinner than minimums shown on page 2 and are not tapered on ends.
4. Hubs in discs should not be loose.
5. Stall speed studs should be tight in pressure plate and not hanging up on cover
6. Pressure plate arms and buttons must not be galled.
7. Pressure plate must be free and not hanging up on stands.
8. Pressure plate bolts must be perpendicular to flywheel and not bent outward.
9. Check all parts for any unusual condition which may exist.

- 7/16 NUTS 55 FT. LBS - 8" CLUTCH
- 1/2 NUTS 75 - 80 FT. LBS - 10, 11, & 12.5 CLUTCH
- 9/16 NUTS 95 - 100 FT. LBS - 10AA & 10.7

"CROWERGLIDE CLUTCH REBUILDING INFORMATION"

78401 **Facings.** Facing plates should be kept flat and replaced if found to be excessively worn. With a straight edge, check facing plates for wear while they are still bolted to donut or flywheel. Facing should not be worn more than .010". High spots or a deposit may be removed with a body grinder. Resurfacing is not recommended because it may bring plates to below SEMA specs.

78407 **Floater Plates.** Floater plates will usually not wear as much as other parts of the clutch. The main problem to watch for is heat cracks or distortion in the six cooling slots which are cut into the plate. If plates are cracked and distorted, they may have a tendency to become locked up to the stands and the clutch may not disengage at the end of a run. In this case, it is important to replace the floater. If floater appears to be OK but has high spots or deposits, this condition may be corrected with a body grinder. Resurfacing is NOT recommended because it could bring the plate to below SEMA specs for safety.

Re-installing Floaters: **IMPORTANT!** Floaters should always be re-installed into the clutch assembly in the same way they cam out so that the warpage conforms to the disc wear.

78408 **Pressure Plate Cover.** It is important that this plate remain straight. To retain side-to-side height tolerance, check cover with a straight edge; it should not be warped over .010" at outer edge of plate. If plate is warped, it may be straightened on a press or returned to CROWER for repair.

The six outer "ear" on the cover plate should not be cracked or elongated in the holes. If they are, cover should be replaced immediately.

78409

Donut Plate. Since this plate pushes against the clutch pack, it naturally receives the most heat. It is important that the donut remain flat at all times. If this part is neglected, it will in turn wear the outer edge of the discs resulting in loss of disc contact. Donut should not be warped more than .010" at outer edge. If it is, straighten on a press or return to CROWER for repair. Be sure that the outer "ears are not enlongated or cracked. Replacement is necessary if this occurs. Be sure buttons are not sinking into donut plate. If this is occurring, clutch is becoming too hot and should be adjusted.

78410

Arms. Since this part produces all the pressure required to insure complete lock-up, it is important that all six arms be free from any galling on radius end where they contact the button pads. Also check for any enlarging of the pin hole. If arms are

78411 **X-pins.** These pins should be free of galling or **cracks**. If these conditions exist, pins must be replaced.

78412 **Buttons.** All six pads should be free from pits or galling. A slight dish may occur without harming the buttons or arms. If galling occurs. Buttons should be replaced.

78413 **Clutch Studs.** Studs should always be free from galling on threads. In addition, check to see if studs are straight and free form cracks. If galled, bent or cracked, they must be replaced.

78415 **Springs.** The stall speed springs are usually trouble-free and rarely loose pressure. Although springs may lose some height, this seldom affects clutch operation.

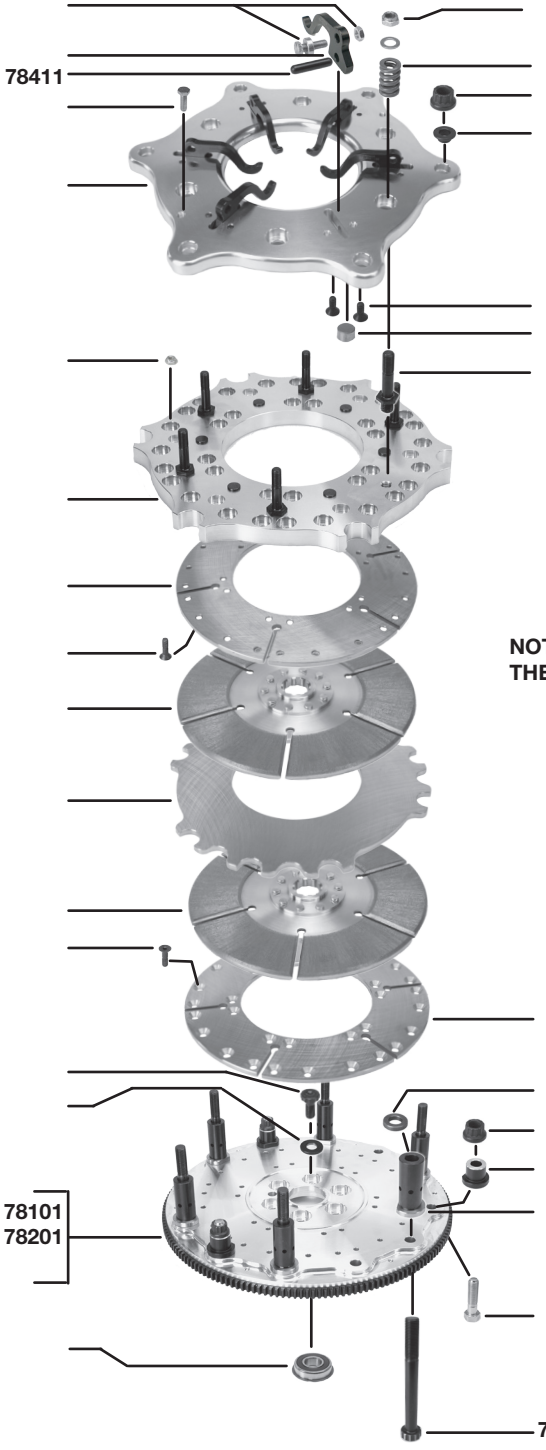
78416 **Pilot Bearing.** Pilot bearing should always be free from dust and sintered particles. It should turn freely without any snags. There should be a slight drag when turning (from grease packing only.)

78422 **Stands.** Clutch Stands should be free of any gouges or worn spots
78423 where floaters contact them.
78424 Replace if necessary.

78432 **Bolts.** Clutch assembly bolts must be free form galled or nicked threads.
78433 Make sure bolts are straight and free form cracks. Be sure bolts are
78434 perpendicular to flywheel. Check this with a small square.

78501 **Discs.** Clutch discs should be maintained between .360” and .270” thick
78502 for proper clutch operation. If discs wear past recommended thickness,
78503 the may contact each other and cause serious damage. Discs will have
78504 a tendency to wear more on the outside edge than on the inside. This is due mostly to the slight warpage that may occur in the donut plate. If discs are tapered more than .010” (total) from inner to outer edge, they should be replaced.

Flywheels. Flywheels should always be flat. Check with a straight edge. No more than .010” warpage is recommended. Check all holes for



NOTE:
THESE ARE BASIC

78401	Facing Plate (Flywheel & Pressure Plate)
78405	Pressure Plate Assembly Complete (Specify 6-or 12-Stand) Specify Automotive or Tractor
78407	Floater Plate
78408	Pressure Plate Cover (Specify 6-or 12-Stand)
78409	Pressure Plate Donut (Specify 6-or 12-Stand)
78410	Centrifugal Arms
78410S	Centrifugal Arms, High Speed
78410T	Centrifugal Arms, Tractor
78411	X-Pins
78412	Buttons (Donut Plate)
78412S	Buttons, High Speed
78413S	Studs (Donut Plate)
78414	Stud Lock Nuts, 3/8”
78415	Stall Speed Resistance Spring (Specify Blue or Brown)
78416	Pilot Bearing, Heavy Duty
78417	Button Cups
78425	Stand Spacer
78419	Feeler Gauge Set for Adjustable Stands
78422A	Stands, Adj. 2-disc
78422A	Stands, Adj. 2-disc
78423A	Stands, Adj. 3-disc
84123A	Stands, Adj. 3-disc
78424A	Stands, Adj. 4-disc
78424A	Stands, Adj. 4-disc
78432	Bolts for 2-disc, 6-stand
78433	Bolts for 3-disc, 6-stand
78434	Bolts for 4-disc, 6-stand
78435	Sleeve Washers (Pressure Plate)
78436	Pressure Plate Lock Nuts, 7/16”
78437	Pressure Plate Lock Nuts, 7/16”
78440	Flat-Head Allen Facing Bolts, 1/4”
78441	Flat-Head Allen Facing Bolts w / Nuts, 1/4”
78446	Special Flywheel Bolts, 7/16”
78447	Flywheel Washers, 7/16” (Heat Treated)
78448	Flywheel Bolts, 1/2” (Special)
78449	Flywheel Washers, 1/2” (Heat Treated)
78450	Counterweight Bolts & Nuts
78450T	Counterweight Bolts & Nuts for Tractor Glide
78452	Shims - Premium Quality
78453	Shims - Premium Quality
78501	Disc, 1-3/8” 10-Spline (Early Ford)
78502	Disc, 1-1/2” 10-Spline
78503	Disc, 1-1/8” 10-Spline (Chevy)
78504	Disc, 1-3/4” 10-Spline (Special)

Crower Cams & Equipment Co., Inc
6180 Business Center Court
San Diego, CA. 92154
Phone: 619.661.6477 ext. 148
Fax: 619.690.7846
www.crower.com