



## **TITAN CLUTCHES GENERAL INSTRUCTIONS**

### **CLEANING THE PARTS**

Use only soap and water on friction surfaces. Do not use solvent. Do not get any grease or oil on friction surfaces. Keep an eye on new pilot bearings, as they sometimes leak and get grease between the front disc and the flywheel. (Never use a pilot bushing.)

### **TRANSMISSION INPUT SHAFT**

The transmission input shaft must have .090 to .100 end play with the transmission in **high** gear. This should be checked along with any crankshaft, block, or bellhousing changes. Make sure that the splines fully engage all clutch hubs.

### **BELLHOUSING/TRANSMISSION ALIGNMENT**

The center hole in the bellhousing must have no more than .004 run-out on **both** the bore and the face (rear) of the crankshaft bore.

### **FLYWHEEL MOUNTING**

Make sure that there are no burrs and that the crank flange is flat. Also, make sure that the crank flange fits the flywheel register. Red (strong) type loctite should be used on the bolts. Torque bolts to \_\_\_\_\_ ft. lbs. Pressure plate cover bolts should be torqued in the following manner:

7/16 inch bolts - 65 ft. lbs.

1/2 inch bolts - 75-80 ft. lbs.

9/16 inch bolts - 100-110 ft lbs.

### **DISENGAGEMENT**

The linkage must have a minimum of 1/4 of an inch of travel between the release bearing and the clutch fingers (free play). The release bearing should depress levers around 1/2 to 5/8 of an inch. (This is an air gap of approximately .060.)

### **BETWEEN RUNS**

**Cool the clutch.** Check lever height, ring height, and spring adjustment. Lever adjustment bolts should be snug, but **do not over tighten them.** Normal clutch wear varies with application and gearing etc.



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1. Input shaft end play must be .090 to .100. Too little ruins the transmission and the engine thrust bearing, and too much can disengage the clutch disc.
2. Clutch disc hub should be installed towards the rear of the clutch, towards the cover.
3. Check for loose rivets or bolts in the hub's facing.
4. Be sure that all levers and yokes have cotter pins in place and that they pivot freely.
5. Set the air gap between .050 and .060. (During the first run, the air gap should be set wide - approximately .060.)
6. The base spring pressure in your clutch is \_\_\_\_\_.  
This is at a ring height of \_\_\_\_\_.
7. If you have adjustable stands, readjust them as needed. Reset ring height after .010 (or more) of wear to keep the friction the same.
8. To add spring pressure or static, turn the adjusters counter clockwise until the screw starts to depress the spring. One turn on all 6 springs adds \_\_\_\_\_ lbs. of pressure, 1/2 turn adds \_\_\_\_\_ lbs. of pressure, and a 1/4 turn adds 75 lbs. of pressure.  
Start with a total of \_\_\_\_\_. Take the base pressure of \_\_\_\_\_ and add \_\_\_\_\_ by turning all the adjusters \_\_\_\_\_ turns.  
Do not exceed 3 turns, as this can cause a bind between the shoe and the spring adjuster.
9. Lever height can be run from as little as \_\_\_\_\_ up to as much as \_\_\_\_\_. More ring height allows more lever height. Less lever height usually adds aggressive action, whereas more lever height softens the transition. Remember that the combination of both static and counter weight effects clutch lockup, as well as the RPM during which it occurs. As the clutch wears it becomes more aggressive. As it wears the levers move towards less lever height.



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10. Counter weight - On three levers, start with:

| Aluminum | Steel         |
|----------|---------------|
| _____    | _____ bolts   |
| _____    | _____ nuts    |
| _____    | _____ washers |

A firm high speed shift should be felt. If the clutch is excessively violent, remove up to 12 grams (2 washers pre lever) per pass. One washer per lever (6 total) is a moderate size change.

11. Clutch wear varies with horsepower, number of discs, disc hardness, and material.  
Typical two disc unit - .002 to .008  
Typical three disc unit - .001 to .004  
Typical four disc unit (fuel lock-up) - .010 to .065
12. Bellhousing - There **must** be within .003 run-out on the bore and the face. If the bellhousing is not properly aligned, it will overheat the clutch (edges always drag), ruin the transmission bearings and the transmission clutches, and ruin the engine mains. Also be sure that your bellhousing has cross shaft supports mounted close to the fork on both sides. This helps stop deflections when staging the car.
13. The minimum thickness of most clutch discs is .300. It is possible to run them thinner, but rivet clearance and heat sink can make them dangerous.
14. The minimum thickness (alcohol) of floaters is .260. Watch for cracks. If the floaters turn blue, the clutch is **too hot!** (Add some counter weight) Make sure that floaters are flat.
15. Be sure that the shoe liner is not overworn and/or warped.
16. Be sure to check the run-out on the flywheel. Make sure that there are no burrs or high spots on the crankshaft flange. Also, make sure that the threads in the in the bolt/stud holes are in good shape.
17. The fingers should rotate freely, and they should be lubricated every now and then. **DO NOT** get oil, grease, or solvent on friction surfaces.



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18. When cleaning the clutch , never put solvent on the disc. **Wash friction surfaces with soap and water only.**
19. Free play - Finger to throw out bearing clearance should be a minimum of .250
20. The more you slide the clutch , the more you must cool it. (A leaf blower works well.) Be sure that the motor plate has both vents and that the bellhousing has its vent hole as well.
21. Every two or three runs, check the wear, make sure that the lever adjustment bolts are tight, and check spring adjustment (springs sometimes back off slightly). Also re-torque the cover bolts, and check the air gap.

### FLYWHEEL BOLTS

Torque: use red locktite

Chrysler 1/2 inch bolts - 12 point (fuel bolt) - 105 ft. lbs.  
Chevrolet 7/16 inch bolts - 12 point - 95 ft. lbs.

### CLUTCH COVER

Torque: use thread lubricant

9/16 inch cover nuts - 100 ft. lbs.  
1/2 inch cover nuts - 75 ft. lbs.  
7/16 inch cover nuts - 60 ft. lbs.  
5/16 inch lever adjusters - 20 ft. lbs.  
steel counter weights - 8 ft. lbs.  
aluminum counter weights - 5 ft. lbs.

22. If you have any questions, please call or fax: **(805) 525-8660**

We have put the best parts and workmanship into your clutch. Due to its use and abuse we extend **no warranty.** **If misused, these parts can cause injury or death.**



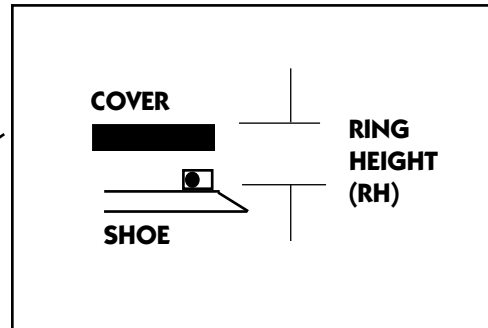
# TITAN CLUTCHES GENERAL INSTRUCTIONS CLUTCH SPECIFICATION SHEET

1. Base spring pressure \_\_\_\_\_.  
To add pressure, turn spring Allen counter clockwise after removing free travel.

Maximum turns \_\_\_\_\_.  
1 turn on all 6 = \_\_\_\_\_.  
1/2 turn on all 6 = \_\_\_\_\_.  
1/4 turn on all 6 = \_\_\_\_\_.

2. Base lever (one) \_\_\_\_\_.  
Starting point recommendations:

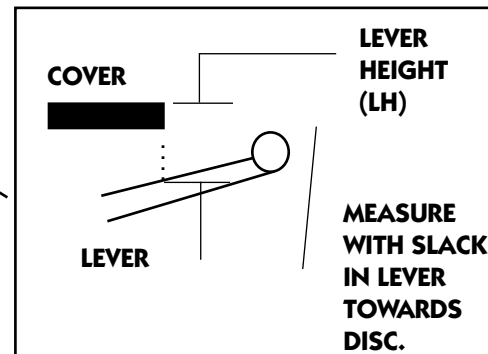
Set ring height at \_\_\_\_\_.  
Spring pressure \_\_\_\_\_ (total).  
Base total \_\_\_\_\_.  
Plus \_\_\_\_\_ Total \_\_\_\_\_.  
Add \_\_\_\_\_ grams to each lever.  
Set lever height at \_\_\_\_\_.



3. Torque:

Flywheel bolts: use red loctite  
7/16 inch bolts - 95 ft. lbs.  
1/2 inch bolts - 105 ft. lbs.

Pressure plate bolts : use thread lubricant  
7/16 inch bolts - 65 ft. lbs.  
1/2 inch bolts - 75 - 80 ft. lbs.  
9/16 inch bolts - 100 - 110 ft. lbs.





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### CLUTCH GUIDELINES

If clutch wear is more than .010 on the three disc unit (.001 to .003 is normal) the clutch is too loose. On the two disc unit, more than .013 is excessive (.002 to .005 is normal).

**START SAFE** - It's always better to start clutch adjustment with too much clutch. Small changes of approximately 6 grams (1 gram per lever) can be made, followed by changes of 3 grams for fine tuning purposes until the desired adjustment is achieved. Different weights can be run, as long as every other lever is the same (3 at one weight, 3 at another). A similar process is possible with the springs, although this can be difficult as it is hard to keep track of which spring is at which pressure.

The air vents, two of which are located in the motor plate and one of which is located in the bellhousing, are very important (see rule book). The clutch is designed to help cool itself, but it must have airflow to do so. The throw-out bearing cross shaft must have some sort of supports near the fork (located behind the shaft to prevent deflection during clutch disengagement).

Stand bolts should be re-torqued every 4-5 runs (60 ft. lbs.). When on the starting line, **do not** load the clutch to the point of melt-down. A **very slight** load is fine, but too much will result in excessive heating of the clutch. If floaters turn blue, it's time to stop and look at the clutch. All friction surfaces must be flat and parallel - a 50 grit cloth may be used on the block to rough them up.

Never put more than 10-12 runs on any clutch without thoroughly checking everything. All lever pivots should be lubricated with high temperature thread lubricant (such as copper coat, etc.).