



## Installation & Maintenance Manual

### MECHANICAL FRICTION TORQUE LIMITERS THROUGH SHAFT MOUNT - BALL BEARING PILOT



#### Catalog Products:

[T3A2H-STL](#)

[T4A2H-STL](#)

[T5A2H-STL](#)

[T6A1G-STL](#), [T6A2G-STL](#)

[T8A1K-STL](#), [T8A2K-STL](#)

*And non-catalog variations  
of this torque limiter design.*

CLICK on product numbers above  
to obtain the product detail sheet  
which includes dimensional data  
helpful during installation.

#### Mach III Technical Support

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[www.machiii.com](http://www.machiii.com)

Detail sheets and 3D models are available on the Mach III website:

<http://www.machiii.com/Products/Torque-Limiter/Pilot-Mount-Torque-Limiters-Ball-Bearing.asp>

Please contact Mach III to obtain assembly and parts list drawings.



**These products include rotating equipment and should be guarded according to OSHA requirements and other Federal, State and local regulations. It is the responsibility of the user to provide the necessary guarding.**

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## I. Torque Setting

Mach III torque limiters are typically shipped to the customer with the torque value they have specified. (Note: All torque settings are +/- 10%.) If a torque limiter requires setting or re-setting in the field, please refer to section VIII of this document.

## II. Installing a Sprocket or Pulley

Mach III units are typically shipped from the factory with the required sprocket or pulley preinstalled. This section pertains only to those who need to install or replace a pulley or sprocket in the field. Please use the links on page one of this document to obtain the detail sheet for your unit. This sheet will include the pilot diameter and other dimensions needed to machine the sprocket or pulley.

Bore the sprocket or pulley for clearance (slide fit) over pilot and drill standard clearance holes for the number and type of screws on corresponding bolt circle. The cap screws used to attach the sprocket or pulley should not be longer than the sum of the depth of the threaded hole plus the thickness of the sprocket or pulley. Otherwise, the cap screws may bottom out. Tighten all screws to uniform torque based on screw size and use proper Loctite<sup>®</sup> (or equivalent) compound to assure a permanent mount.

## III. Torque Limiter Installation

### A. SHAFT PREPARATION & MOUNTING

Mach III Clutch products are bored to fit a precision plug gauge for the specified bore size and should slide fit the mating shaft. Make certain that the shaft is free of burrs or nicks. It may be necessary to file or sand the shaft to assure a slide fit. **Never hammer the torque limiter onto the shaft.** Hammering on the torque limiter may cause evident damage or subtle injury that will shorten the wear life of the unit, and will void the warranty.

- (1) Apply the anti-seize (E-Z Break<sup>®</sup>) lubricant from the packet provided, or equivalent, to the shaft.
- (2) Insert key (customer supplied) onto the shaft.
- (3) Slide torque limiter over key on the shaft, align the sprocket or pulley.
- (4) Tighten set screws to secure the torque limiter to the shaft.

### B. FINAL INSPECTION & TESTING

Check alignment of the sprocket or pulley. After a short run, check set screws and alignment.

## IV. Torque Limiter Operation

This is a manually adjusted torque limiter. Torque is proportional to the amount of spring compression.

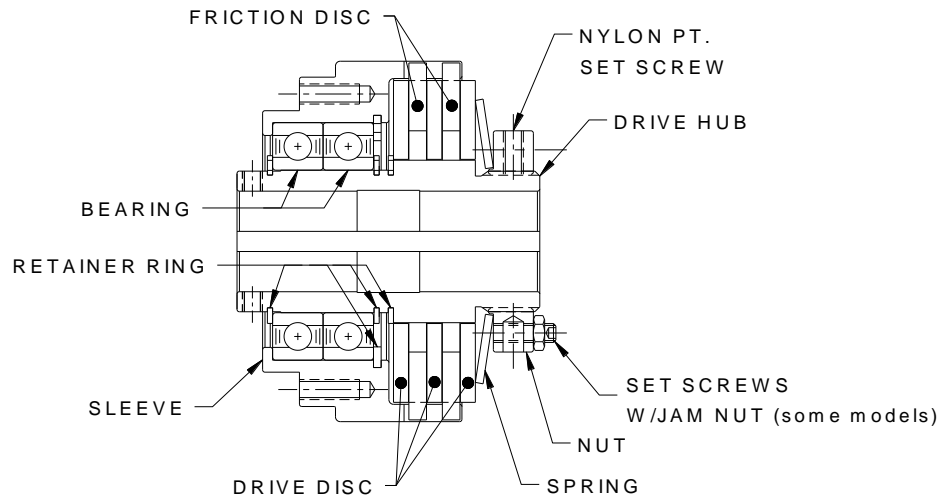
### ***Special Note Regarding Friction Disc Contamination:***

The friction material used in this product will absorb oil, water, chemicals and other contaminants. Depending on the type of contamination, torque limiter may either seize up entirely or lose torque capacity. If friction discs become contaminated, they should be replaced. See repair kit ordering information below.

## V. Routine Maintenance

When installed and operated according to the preceding guidelines, Mach III Clutch products should require little or no routine maintenance. A repair kit is available which contains all parts subject to typical wear: friction discs, springs.

## VI. Parts diagram



<b>Repair Kit:</b>	Part number = Clutch Product Number + “-RPRK” (e.g. T3A2H-STH-RPRK)
<b>Facing Kit:</b>	Part number = Clutch Product Number + “-FCGK” (e.g. T3A2H-STH-FCGK)
<b>Additional Parts:</b>	Contact Mach III to obtain a complete listing of additional parts kits available for your specific clutch. Please reference product number when calling or e-mailing.
<b>Repair services:</b>	Factory repair is available. A return materials authorization (RMA) number must be obtained prior to sending any unit in for repair

## VII. Repair Kit Installation Procedure

<p><b>Tools Required</b></p> <p>Hex Wrench Set Retainer (snap) Ring Pliers Spanner Wrench</p>	<p><b>Compounds Required</b></p> <p>Anti-Seize Lubricant (for re-installation)</p>
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### A. DISASSEMBLY

- (1) Remove torque limiter from shaft and place in vertical position with nut end facing upward.
- (2) Loosen nylon point set screw, set screws and jam nuts (some models) and remove nut. Drive hub will need to be held stationary for this procedure.
- (3) The disc package (consisting of spring, drive discs and friction discs) will now be accessible.

### B. FRICTION DISC & SPRING REPLACEMENT

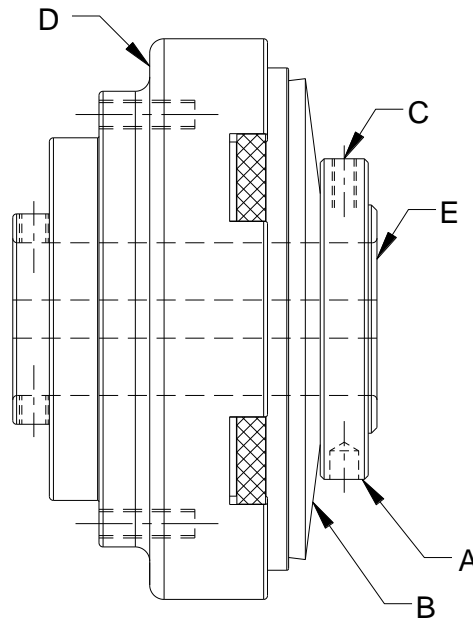
- (1) Remove the spring, drive discs and friction discs.
- (2) Drive discs should be clean, dry and free of burrs or nicks.
- (3) Reassemble drive & friction disc section according to reference drawing using new spring, drive discs & friction discs as necessary.
- (4) Assure that drive discs move freely on the drive hub and that the lugs of the friction disc discs move freely in the drive slots of the sleeve.

### C. REASSEMBLY

- (1) Replace the nut.
- (2) Adjust to desired torque.
- (3) Tighten nylon point set screw.
- (4) See “Torque Limiter Installation” portion of these instructions for the proper procedure for reinstalling the clutch.

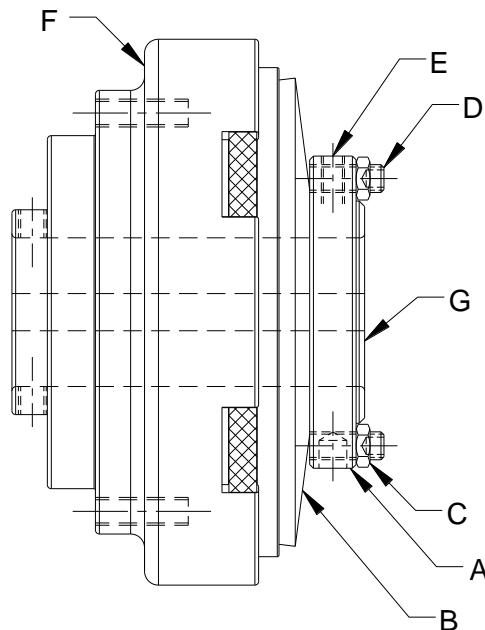
## VIII. Torque Setting Instructions

- A. Product Numbers: T3A2H-STL, T4A2H-STL, T5A2H-STL and non-catalog variations of this torque limiter design.



- (1) Make sure the nylon-tipped set screw (REF. C) in the outside diameter of the adjustment nut (REF. A) is loose.
- (2) Make sure the adjustment nut (REF. A) is snug against the disc spring (REF. B).
- (3) Using a spanner wrench, tighten the adjustment nut (REF. A) against the disc spring
- (4) Check torque value after each 1/4-turn increment of the adjustment nut (REF. A) while holding adapter/sleeve (REF. D) stationary and turning drive hub (REF. E) with a torque wrench.
- (5) Tighten the nylon-tipped set screw (REF. C) in the outside diameter of the adjustment nut (REF. A).

B. Product Numbers: T6A1G-STL, T6A2G-STL, T8A1K-STL, T8A2K-STL and non-catalog variations of this torque limiter design.



- (1) Make sure the adjustment nut (REF. A) is snug against the disc spring (REF. B).
- (2) Make sure the six jam nuts (REF. C) mounted on the six set screws (REF. D) which are placed axially in adjustment nut (REF. A) are loose.
- (3) Screw the six set screws (REF. D) in the adjustment nut (REF. A) until they contact the disc spring (REF. B).
- (4) Using a circular pattern, tighten the six set screws (REF. D) in the adjustment nut (REF. A) one 1/4-turn each.

**NOTE:** If needed, fine tune the torque value of the unit in 1/8-turn increments of the six set screws (REF. D).

- (5) Check torque value after each 1/4-turn increment of all six set screws (REF. D) while holding adapter/sleeve (REF. F) stationary and turning drive hub (REF. G) with a torque wrench.

**NOTE:** A torque wrench with a multiplier may be needed for higher torque settings.

- (6) Once desired torque is reached, confirm each of the six set screws (REF. D) are in contact with the disc spring (REF. B).
- (7) Tighten the jam nuts (REF. C) mounted on the six set screws (REF. D) firmly against the adjustment nut (REF. A).
- (8) Tighten the nylon-tipped set screw (REF. E) in the outside diameter of the adjustment (REF. A).



**Technical assistance is available by contacting Mach III Clutch, Inc.**  
Mach III Product Warranty

<http://www.machiii.com/Resources/Warranty-Info.asp>

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