



Installation & Maintenance Manual

NEMA FRAME MECHANICAL FRICTION TORQUE LIMITERS



Catalog Products:

[T3C2H-56L](#), [T3C2H-56LCA](#), [T3C2H-56LSS](#)
[T3C2H-14L](#), [T3C2H-14LCA](#), [T3C2H-14LSS](#)
[T4C2H-18L](#), [T4C2H-18LCA](#), [T4C2H-18LSS](#)
[T4C2H-21L](#), [T4C2H-21LCA](#), [T4C2H-21LSS](#)

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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Email: engineering@machiii.com
www.machiii.com

Detail sheets and 3D models are available on the Mach III website:
<http://www.machiii.com/Products/Torque-Limiter/NEMA-Frame-Torque-Limiters-C-Face-Mount.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 VII of this document.

II. 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 and key. Make certain that the shaft is free of burrs or nicks. It may be necessary to file or sand the shaft or key 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[®]) 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.
- (4) Tighten flange with cap screws (customer supplied) to motor frame.
- (5) Tighten set screw via set screw access hole to secure the key on the shaft.
- (6) The torque limiter mounts between a motor and gear reducer. These units are not suitable for belt drive (pulley output) applications. Consult factory for options.

B. FINAL INSPECTION & TESTING

After a short run, check set screws and alignment.

III. Torque Limiter Operation

This is a manually adjusted torque limiter. Torque is proportional to the amount of spring compression. This is a friction device and should be monitored for slip. The torque limiter will burn up if allowed to slip for an extended period of time.

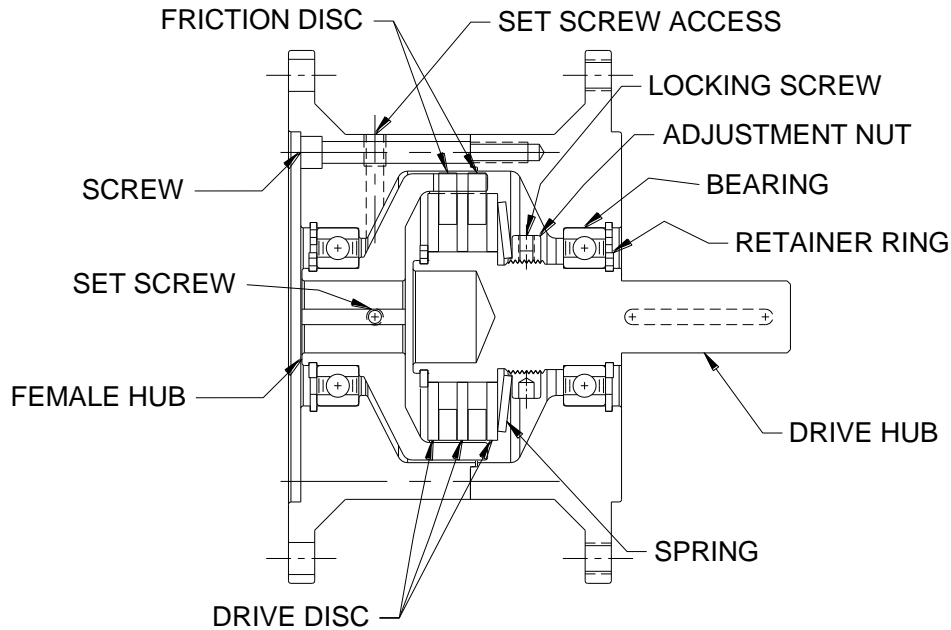
Special Note Regarding Friction Disc Contamination:

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.

IV. 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.

V. Parts Diagram



Repair Kit:	Part number = Product Number + "-RPRK" (e.g. T3C2H-56L-RPRK)
Facing Kit:	Part number = Product Number + "-FCGK" (e.g. T3C2H-56L-FCGK)
Additional Parts:	Contact Mach III to obtain a complete listing of additional parts kits available for your specific torque limiter. Please reference product number when calling or e-mailing.
Repair services:	Factory repair is available. A return materials authorization (RMA) number must be obtained prior to sending any unit in for repair

VI. Repair Kit Installation Procedure

<p>Tools Required</p> <ul style="list-style-type: none"> Hex Wrench Set Rubber Mallet or similar soft face hammer Retainer (snap) Ring Pliers Scraper Spanner Wrench 	<p>Compounds Required</p> <ul style="list-style-type: none"> Loctite® #609 Retaining Compound Anti-Seize Lubricant (for re-installation)
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A. DISASSEMBLY

- (1) Loosen set screws and remove reducer from torque limiter and torque limiter from motor.
- (2) Remove (3) screws from torque limiter case and separate halves.
- (3) Remove retainer ring from drive hub.
- (4) Using a soft mallet remove drive hub from bearing.
- (5) Loosen locking screw and remove nut. Drive hub will need to be held stationary for this procedure.
- (6) The disc package (consisting of spring, drive discs and friction discs) will now be accessible.

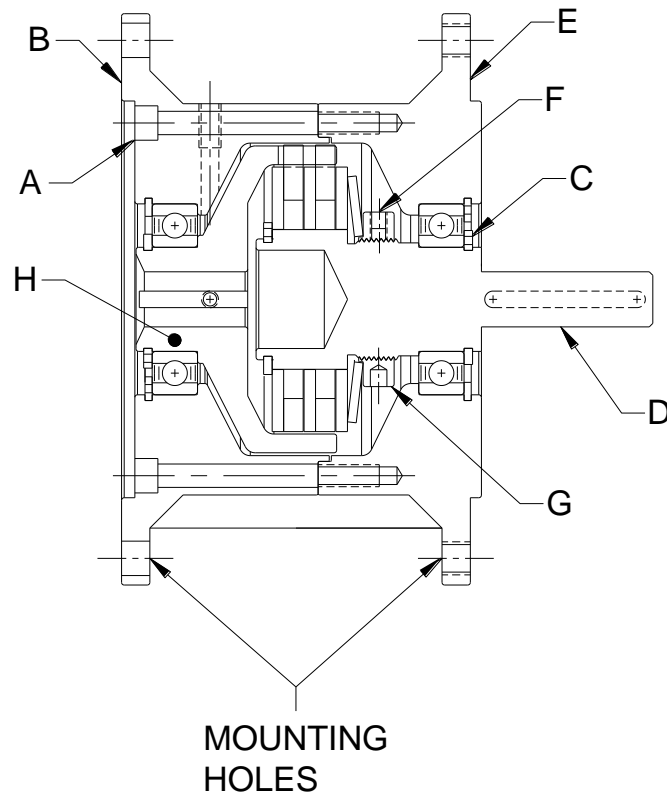
B. FRICTION DISC & SPRING REPLACEMENT

- (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 spring and nut.
- (2) Adjust to desired torque by placing the tabs of the friction discs into the slots of the female hub which should be attached to a fixed shaft. A torque wrench can be attached to the drive hub and adjustments to the nut should be made until the desired torque is achieved.
- (3) Tighten locking screw in adjustment nut.
- (4) Insert drive hub into bearing using Loctite® #609 retaining compound on inner race of the bearing (if needed old Loctite® can be removed using a scraper) and replace retainer ring.
- (5) Place housing halves back together and reinstall the 3 cap screws.
- (6) See "Torque Limiter Installation" portion of these instructions for the proper procedure for reinstalling to the motor.

VII. Torque Setting Instructions



- (1) Remove the (3) socket head cap screws (REF. A) from the female adapter (REF. B).
- (2) Separate the two halves of the torque limiter.
- (3) Remove the retainer ring (REF. C) from the drive hub (REF. D).
- (4) Using a non-marring mallet, remove the drive hub from the male adapter (REF. E).
Note: Using a press to remove the drive hub is also acceptable.
- (5) Loosen the nylon-point set screw (REF. F) in the adjustment nut (REF. G).
- (6) Place the female adapter assembly in a fixture so that the sleeve (REF. H) cannot rotate.
- (7) Place the drive hub assembly in the female adapter assembly so that the adjustment nut (REF. G) faces upward and the friction lugs drop into the mating cut outs in the sleeve (REF. H).
- (8) Using a spanner wrench, either tighten (clockwise direction) the adjustment nut (REF. G) to increase torque or loosen (counter-clockwise direction) the adjustment nut (REF. G) to decrease torque.
- (9) Check the torque value after each 1/4 turn of the adjustment nut (REF. G) while holding the drive hub assembly in the sleeve (REF. H) using a torque wrench.



- (10) Once the desired torque is reached is, tighten the nylon-point set screw (REF. F) in the adjustment nut (REF. G).
- (11) Insert the drive hub assembly back into the male adapter (REF. E) bearing using Loctite #609 compound on the inner race of the bearing. If any old Loctite remained on the drive hub (REF. D) or the male adapter (REF. E) bearing, remove it with a scrapper.
- (12) Replace the drive hub (REF. D) retainer ring (REF. C).
- (13) Join both halves of the torque limiter back together. Be sure that the mounting holes are positioned so they are aligned with one another.
- (14) Reinstall the (3) socket head cap screws (REF. A) into the female adapter (REF. B).

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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