Installation & Maintenance Manual

SPRING ENGAGED FRICTION CLUTCHES
END OF SHAFT MOUNT - BALL BEARING PILOT

Catalog Products:

E3D3R-STH
E4D3R-STH
E5D3R-STH
E6D3G-STH

And non-catalog variations of this clutch design.

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

Mach III Technical Support
Toll Free: 866-291-0849
International: 001-859-291-0849
Email: engineering@machiii.com
www.machiii.com

Detail sheets and 3D models are available on the Mach III website:
http://www.machiii.com/Products/Clutches/Industrial-Friction-Clutches/End-of-Shaft-Pilot-Mount-Clutches-Spring-Engaged.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.

© Mach III Clutch, Inc. All Rights Reserved

I. New Clutch Torque

New clutch torque is approximately 40% less than rated design torque until the friction and drive discs are worn in (lapped, burnished). The length of time for wear-in to occur depends upon the application.

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® (or equivalent) compound to assure a permanent mount.

III. Clutch 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 clutch onto the shaft.*** Hammering on the clutch 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 clutch over key on the shaft, align the sprocket or pulley.
(4) Tighten set screws to secure the clutch to the shaft.

B. AIR LINE CONNECTION

Refer to the dimensional spec sheet for NPT or TUBING size. If installing an NPT fitting use a thread sealing compound to prevent air leakage. Connect a flexible air line to the fitting. ***Do not use rigid piping.*** Air supply should be both filtered and regulated. Contamination in the air supply may damage the clutch.

C. FINAL INSPECTION & TESTING

Check alignment of the sprocket or pulley. Cycle the clutch with the machine off to check for air leaks and to ensure proper engagement and release. After a short run, check set screws and alignment.

IV. Clutch Operation

The maximum operating pressure should not exceed 90 PSI. Operation at pressures greater than that required for proper function will decrease the life of the air seal.

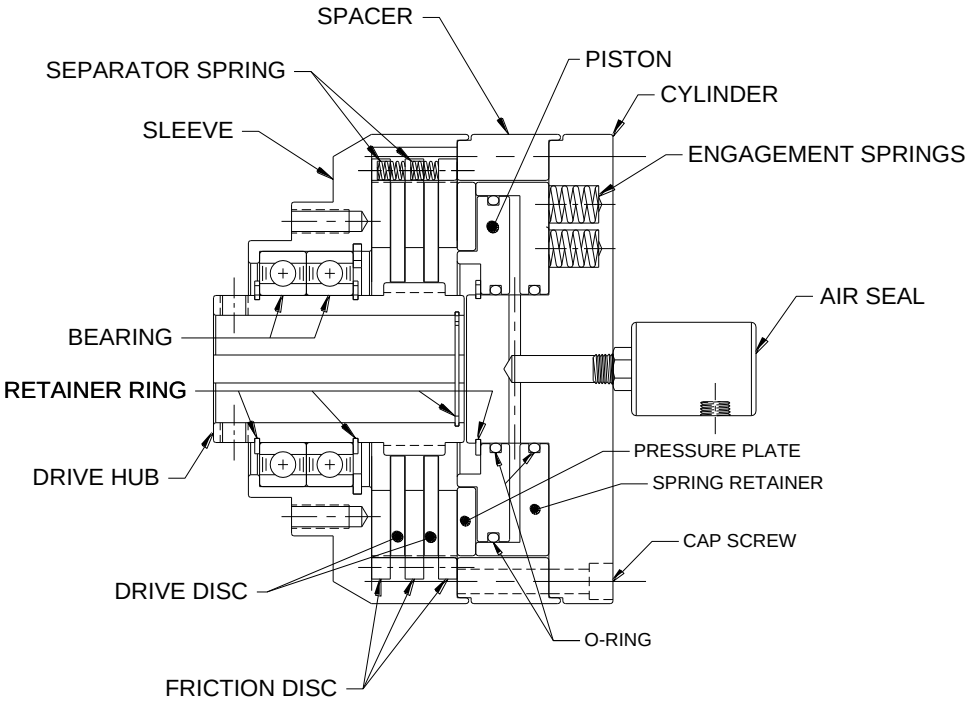
Special Note Regarding Friction Disc Contamination:

The friction material used in this product will absorb oil, water, chemicals and other contaminants. Depending on the type of contamination, clutch 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 and O-rings.

VI. Parts diagram



Repair Kit:	Part number = Clutch Product Number + "-RPRK" (e.g. E3D3R-STH-RPRK)
Additional Parts:	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.
Repair services:	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

Tools Required	***Compounds Required***
Hex Wrench Set Retainer (snap) Ring Pliers	Grease O-ring Lubricant Anti-Seize Lubricant (for re-installation)

A. DISASSEMBLY

(1) Remove clutch from shaft and place in vertical position with cylinder end facing upward.
(2) Apply a minimum of 80 psi and remove cap screws.
(3) Remove air cylinder with piston, spacer and pressure plate from unit.
(4) The disc package (consisting of friction discs, drive discs & release springs) will now be accessible.

B. FRICTION DISC & RELEASE SPRING REPLACEMENT

(1) Remove the drive discs, release springs 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 friction discs, release springs and steel drive 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. O-RING REPLACEMENT

(1) Remove air supply from removed cylinder assembly. If needed compress piston in a hydraulic press to compress the engagement springs and remove retainer ring.
(2) Inspect O-ring seals (in piston and spring retainer). If worn, replace using new O-rings that have been lubricated with an O-ring lubricant such as Dow Corning® #4 Compound or equivalent.
(3) A very *thin* coat of O-ring lubricant should also be applied to the inner wall of the spring retainer and boss of the cylinder.
(4) Replace engagement springs if necessary.

D. REASSEMBLY

(1) Replace the spring retainer and piston onto cylinder. If needed compress piston in a hydraulic press to compress the engagement springs and replace retainer ring.
(2) Apply a minimum of 80 psi to the removed cylinder assembly.
(3) Replace pressure plate and spacer and align cap screw holes with tapped holes in sleeve.
(4) Place the air cylinder/piston sub-assembly onto spacer with holes aligned.
(5) Make sure that all components are well seated and replace and tighten cap screws.
(6) See “Clutch Installation” portion of these instructions for the proper procedure for reinstalling the clutch.

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

Mach III Product Warranty
http://www.machiii.com/Resources/Warranty-Info.asp

Mach III Clutch, Inc.
101 Cummings Drive ● Walton, KY 41094
Toll free 866.291.0849 ● International 859.291.0849 ● Fax 859.655.8362
info@machiii.com ● engineering@machiii.com ● www.machiii.com