

# Installation and Service Instructions for Tor-ac<sup>®</sup> CFCB Clutch-Brakes Sizes 3, 5 and 5.5 Standard for "C" Face Motor Mounting

## Important

Please read these instructions carefully before servicing your Stearns clutch-brake. Failure to comply with these instructions could cause injury to personnel and damage to property if the clutch-brake is serviced incorrectly.

## Caution

1. Servicing shall be in compliance with applicable local safety codes including Occupational Safety and Health Act (OSHA). All wiring and electrical connections must comply with the National Electric Code (NEC) and local electric codes in effect.
2. To prevent an electrical hazard, disconnect power source before working on the clutch-brake. If power disconnect point is out of sight, lock disconnect in the off position and tag to prevent accidental application of power.
3. Be careful when touching the exterior of an operating clutch-brake. Allow sufficient time for the clutch-brake to cool before disassembly. Surface may be hot enough to be painful or cause injury.
4. Stearns clutch-brakes have parts that contain burnt and degraded resin dust. Dust from these parts may accumulate in and around the housing. This dust should be removed before servicing or adjusting the unit.

DO NOT BLOW OFF DUST using an air hose. It is important to avoid dispersing dust into the air or inhaling it, as this may be dangerous to your health.

- a) Wear a filtered mask or a respirator while removing dust.
- b) Use a vacuum cleaner or a soft brush to remove dust from the clutch-brake. When brushing, avoid causing the dust to become airborne. Collect the dust in a container, such as a bag, which can be sealed off.

## Description

A Stearns style CFCB consists of a clutch and a brake, equipped with bearing supported extension shaft and mounted in an aluminum housing. A terminal box is attached to the aluminum housing for electrical connections and the clutch rotor is bored with a keyway for attachment to a motor shaft.

## Enclosure

Open construction, protection from weather, dripping oils, oil mist and grease should be provided.

## Power

Requirements are 110-125 volts AC, 50-60 Hz. Consult factory for variable voltage inputs. See figure B for one typical wiring method.

## Mountings

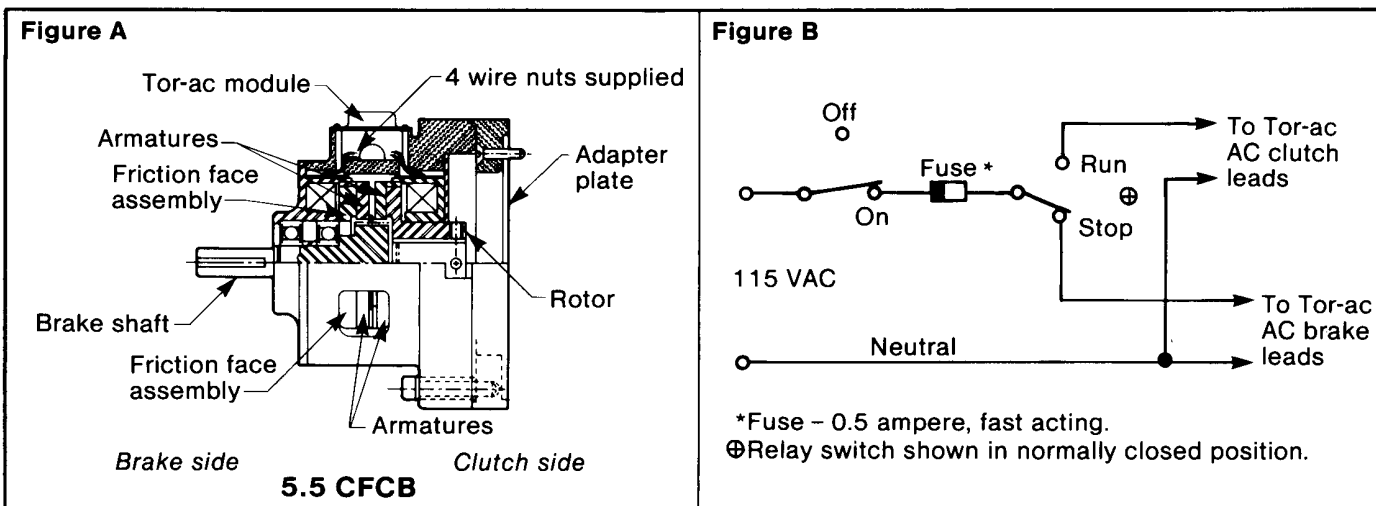
The clutch-brake is shipped completely assembled. To install,

some disassembly must be performed as follows:

Remove adapter plate at flanged end (omit on size 3).

Reassemble as follows:

1. Mount adapter plate on motor "C" flange.  
Size 5.5 – use four flat head bolts, 1/2" diameter  
Size 5 – hold in place during step 2  
Size 3 – omit
2. Prepare to mount clutch-brake by inserting .015" to .020" shim stock or feeler gauges, one on each side between the clutch rotor and armature (make sure the set screws are backed out sufficiently to clear key and shaft).
3. Slide the rotor on the motor shaft, with key in place. (Do not strike brake shaft. Soft taps, however, are permitted with soft faced mallet) until housing can be bolted to adapter plate on motor "C" flange (3/8" diameter size 3 and 5).
4. Securely tighten both rotor set screws and remove shim stock. This should have properly set the rotor - armature air gap while allowing sufficient rotor to magnet body clearance.
5. Rotate motor shaft and clutch-brake brake shaft to insure they turn freely without rubbing or binding.
6. Attach service power control leads



to corresponding leads from Tor-ac module, see figure B.

- The shaft extension provides the means of connecting the clutch-brake to the driven elements in a system by means of direct coupling, V sheaves and belts, pulleys and belts, sprockets and chains, or any combinations of these methods of coupling. When installing, care must be used to limit side loads on the bearings. Refer to bulletin 500 for overhung load capacities.
- Horizontal mounting is the standard position. Consult factory for vertical applications.

### **Burnishing**

Full rated torque of a new clutch will not develop until the mating surfaces (rotor and armature) have been burnished or *run-in*. Burnishing can be accomplished by cycling the clutch-brake under normal operating conditions. Burnishing may also be accomplished by slipping under load at reduced voltage for short periods of time. Consult factory for complete burnishing instructions.

### **Maintenance**

The CFCB clutch-brake is designed to require a minimum of maintenance during the wear life of the unit. Remove wear particles, which accumulate from wear, from the unit occasionally and check to see that the armature engages when that side (clutch or brake) is energized. Armature can be observed through vent holes in the housing.

When the space between the armature and friction face on either side of the CB exceeds 1/8" or at the time the unit fails to engage, the following parts are to be replaced:

- Armature(s)
- Drive hub – clutch rotor
- Friction face – brake rotor

Other parts which are to be replaced

when they become worn or malfunction:

- Springs
- Ball bearings
- Coils (replace magnet body)
- Splined hub and brake shaft
- Tor-ac module

## **Troubleshooting for Tor-ac CFCB clutch-brakes**

### **Overheating or coil burned out**

On these units, clutch coil burnout normally is caused by improper positioning or insufficient tightening of set screws of drive hub. See installation instructions for correct procedure.

- Check voltage supply as close to the Tor-ac module as possible. If this reading is not between 110 - 125 VAC (if variable voltage input is not used), correct voltage source and replace burnt out parts.
- On horizontal or vertical does armature drag excessively on friction surface when de-energized? If so, check for correct air gap and adjust if necessary or convert to spring release if not furnished.
- Check ambient temperature. Is it above 40° C? Consult factory for assistance.
- Check thermal capacity of unit versus actual heat dissipation requirements. See catalog 500 for specifications.
- On units installed with overhung loads, check that overhung load and rpm is not excessive. See catalog 500 for specifications.
- Stop time on brakes and start time on clutches normally should not exceed one second. If excessive, recheck torque rating versus load characteristics.
- Is coil resistance correct? Consult factory for resistance of the specific coil.

- Unit worn excessively. Replace complete unit or the worn parts if economical to do so.
- On spring release style, check for broken, missing or substituted springs not of our design.

### **Loss of torque**

- Check all items above.
- Check for oil/grease on friction elements. If this is found, replacement is recommended of complete unit or affected elements.
- Is unit fully burnished? See *Burnishing instructions*.
- Are control (limit) switches operating properly and set in proper place? A switch malfunction may appear to be loss of torque.

### **Fuse in AC supply blows**

- Never put in a higher rating fuse or replace with a slo-blow type.
- Check resistance of coil(s), if shorted, replace magnet body and coil assembly. If not shorted, obtain coil resistance from factory and compare to your reading.  
Check for grounded lead wire(s) between Tor-ac module and fuse. If grounded, correct problem. In above, correct problem before installing a new fuse.
- If cause was not found in step 2 above, check Tor-ac module by removing all loads and replacing fuse. If fuse flows when AC is applied to Tor-ac module, module is defective. Replace.

### **Unit fails to engage**

- See *Overheating or coil burned out*.
- Check armatures for free movement on splines.
- Check voltage output from Tor-ac when applying 115 volts AC, should be approximately 100 VDC.
- Replace Tor-ac module if unit fails in number 3 above.