

# Formsprag Fan Backstops Models LCB-200 & LCB-400

Service & Installation Instructions

P-4051-FC  
Bulletin A-3041



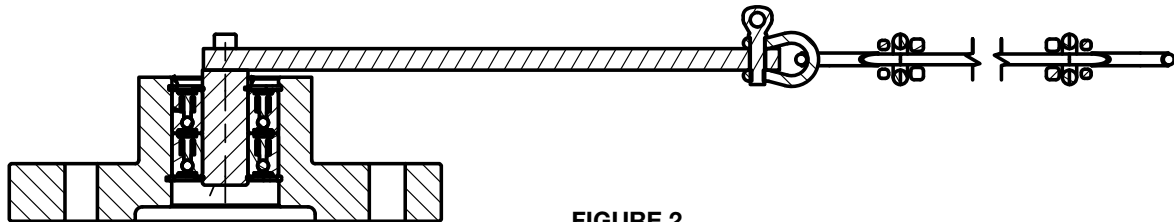
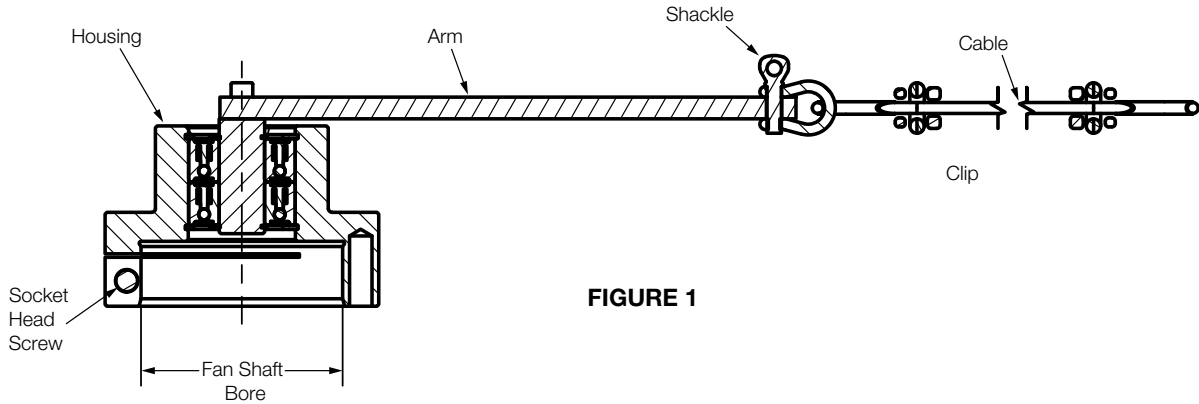
 **Formsprag Clutch**<sup>®</sup>  
*Altra Industrial Motion*

**TEKMATIC**

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## Introduction

Formsprag Fan Backstops, Models LCB-200 and LCB-400 were designed to economically solve the “wind-milling” problems in fan applications. When a fan is turned off, the air flow from other fans present in the system or from the environment may cause it to rotate in the opposite direction. This so called “back-drive” becomes very harmful at the starting of the fan because it can damage the motor and drastically reduce the life of the belts. Formsprag Fan Backstops Model LCB are using sprag clutch technology with lip seals internal to the torque housing and a clamping cable assembly. This design prevents the reverse rotation of the shaft in fan applications with small to medium shaft diameters and low backstopping torque requirements.



### **⚠ WARNING**

**Failure to follow these instructions may result in product and equipment damage and in serious or fatal injury to personnel.**

## Pre-Installation Check

Before installing, check:

Review Figures 1 and 2 to identify the nomenclature for all the components of the model LCB Fan Backstop.

- Mating Shaft  
The shaft of the fan must fit into the bore of the housing of the backstop. Make sure that the diameter of the shaft matches the diameter of the bore.
- For LCB-201 with the flanged housing, verify bolt pattern to be used for clamping and connecting the shaft onto and prepare the hardware required
- The Bolt patterns has the following bushings but not limited to:
  - 3X 4030 Taper-Lock 5/8-11 X 1-3/4
  - 3X 3525 Taper-Lock 1/2-13 x 1-1/2
  - 3X E QD Bushings 1/2-13 X 2-3/4
  - 3X F QD Bushings 9/16-12 X 3-5/8.
- Retaining assembly  
The length of the arms combined with the length of the retaining cable must be enough to allow a secure restraint of the backstop.
- Installation Instructions  
Make sure that you read carefully and understand the Installation Instructions provided in this bulletin. Failure to do so may result in voiding the warranty because of product damage and in serious or fatal injury to personnel.

## Installation

1. Make sure that both hex head screws at both ends of the arm are tightened.
2. For LCB 200/400 loosen the socket head screw and slide the housing over the shaft of the fan. Make sure that the shaft goes all the way into the bore of the housing.
3. Tighten the socket head screw at the housing of the backstop to a maximum of 38 to 40 lb-ft (450 to 480 lb-in or 50 to 55 Nm).
4. For LCB-201 Mounts onto “QD” and “TL” style bushing connection as per the bolt pattern chosen.
5. Verify that the run-out at the housing of the backstop is within 0.002” T.I.R. If it is necessary, repeat steps 2 and 3 until the desired run-out is obtained.

### **▲ WARNING**

**Verify the rotation of the shaft to be the correct one. Failure to do so may result in product and equipment damage and in serious or fatal injury to personnel.**

6. Attach the retaining cable assembly to the housing of the fan or to another rigid structure and make sure that the cable does not interfere with the moving parts of the fan. Make sure that the cable is perpendicular to the shaft within 15 degrees as shown in Figure 3 and 4.

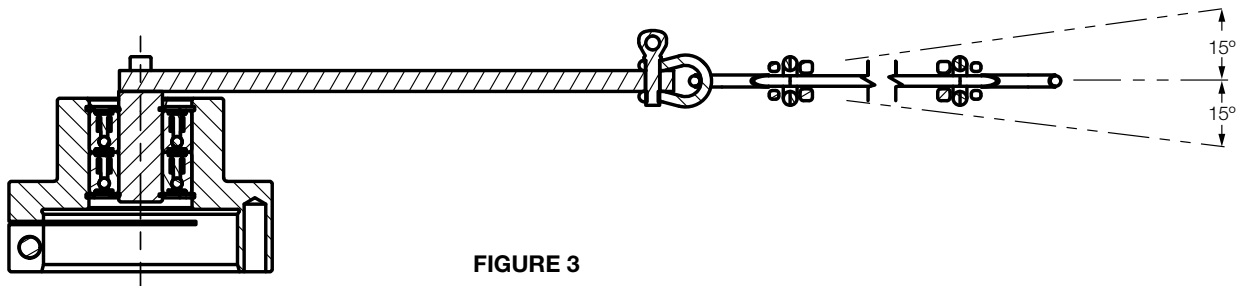


FIGURE 3

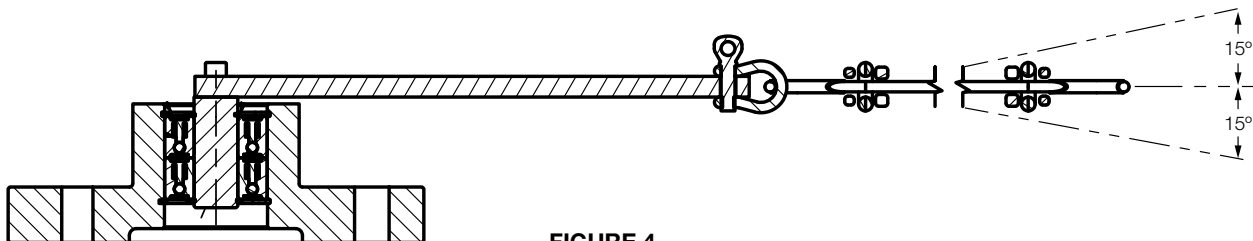


FIGURE 4

### **▲ WARNING**

**Make sure that the pin at the shackle and the nuts at both clips are tightened. Also make sure that the thimbles at both ends of the retaining cable are in place and that the cable is placed snug around them.**

7. If an adjustment in the length of the cable is necessary, loosen the nuts at the clip positioned the farthest from the backstop and re-adjust the length. Make sure that after the adjustment, the thimble is properly installed and the nuts at the clip are tightened.

### **▲ WARNING**

**Make sure that, after adjusting the length of the cable, the deflection of the cable and the arms is at least 0.75” and not bigger than 1.5” per side or 3” in total. Failure to do so may result in product and equipment damage and in serious or fatal injury to personnel.**

8. The arm and the retaining cable are not supposed to be rigid. Cable and arm deflection of at least 0.75” and not to exceed 1.5” deflection per side (or 3” total) will allow the retaining assembly to float and, if it is necessary, will permit free axial and angular movement of the whole assembly resulted from shaft run-out and eccentricity.

## Vibration

If unacceptable levels of vibration occur after the installation, disassemble and re-install the backstop making sure to respect the procedure described above and to tighten the fasteners as described. Make sure that the shaft end sits flush in the housing of the backstop and that the movement of the retaining assembly is not bound in any way.

## Lubrication and Maintenance

The model LCB comes from the factory lubricated for life. No regular scheduled maintenance is required for this design, however it is recommended to replace the CSK clutch every five years to ensure uninterrupted service of your equipment. Contact Formsprag for replacing the CSK clutch.

## Clutch Rebuilding Service

Formsprag clutches are precision devices manufactured under careful controls to meet exacting standards. When reconditioning is required, clutches should be returned to Formsprag Clutch.

These instructions cannot cover all details or variations in equipment and applications nor provide for every possible contingency which may be met in installations, operation, or maintenance. Should further information be needed, contact Formsprag Clutch For Application Assistance call 1-800-927-3262.

## Rotating Equipment

### **▲ WARNING**

**Rotating Equipment is potentially dangerous and should be properly guarded. The user should check for all applicable safety codes (in local area) and provide a suitable guard.**



## Warranty

Formsprag Clutch LLC warrants that it will repair or replace (whichever in its sole discretion it deems advisable) any product it manufactured and sold which proves to be defective in material or workmanship within a period of one (1) year from date of original purchase for consumer, commercial or industrial use. This warranty extends only to the original purchaser and is not transferable or assignable without Formsprag LLC's prior consent.

This warranty covers normal use and does not cover damage or defect which results from alterations, accident, neglect, disassembly, or improper installation, operation, or maintenance.

Formsprag LLC's obligation under this warranty is limited to the repair or replacement of the defective product. In no event shall Formsprag LLC be liable for consequential, indirect or incidental damages of any kind incurred by reason of manufacture, sale or use of any defective product. Formsprag LLC neither assumes nor authorizes any other person to give any other warranty or to assume any other obligation or liability on its behalf.



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