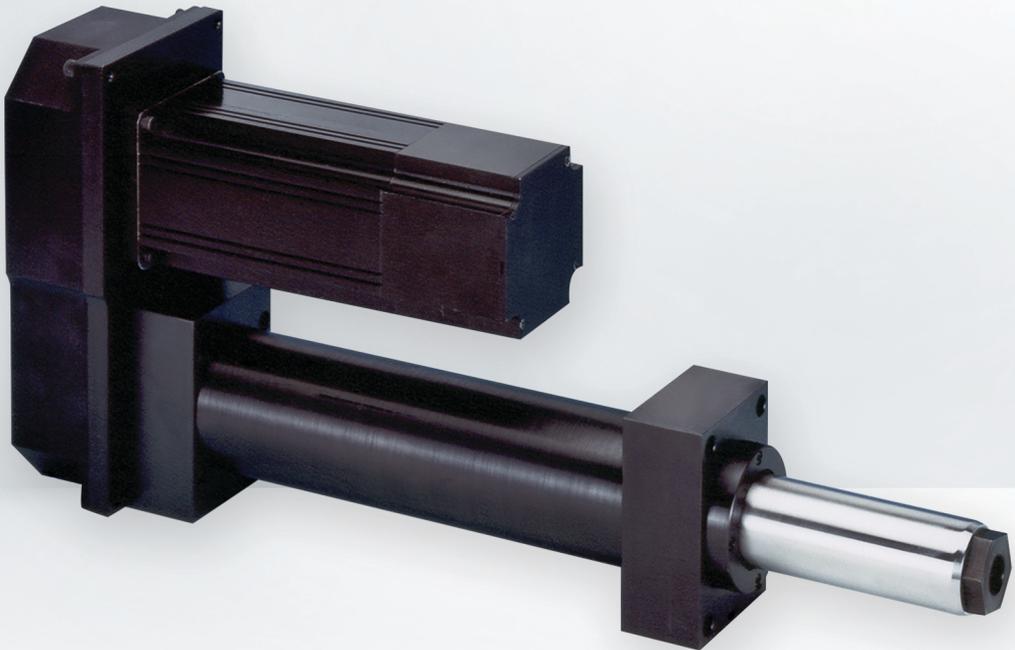


**SERVICE GUIDE****MT™****MACHINE TOOL LINEAR ACTUATORS**

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### **Engineering Assistance**

EDrive Actuators, Inc.  
385 Stamm Road  
Newington, CT 06111  
sales@edriveactuators.com

### **Repair Service**

*Request RMA from:*  
sales@edriveactuators.com  
Please include serial number with request.

**Phone:** 860.953.0588

**Fax:** 860.953.0496

**Website:** www.edriveactuators.com

For warranty information please refer to [www.edriveactuators.com](http://www.edriveactuators.com).

## Important Information for Users

### Installation and Operation

EDrive Linear Actuators must be installed and operated in such a way that all applicable safety requirements are met. As an installer, it is your responsibility to identify and comply with all relevant safety standards. Severe personal injury as well as equipment damage may result from any failure to heed this warning. Read and understand this entire service guide before installation and operation of this equipment.

The installation and maintenance of this actuator should only be performed by personnel who have been appropriately trained. Such persons should be familiar with the potential hazards associated with electrical and mechanical equipment. The individual or group having overall responsibility for this equipment must ensure that operators are adequately trained.

Under no circumstances will EDrive be liable for any incidental, consequential, or special damages resulting from use or misuse of this equipment or this service guide.

### Safety Warning

Motion equipment is capable of rapid movement and very high forces. Unexpected motion may occur at any time. KEEP CLEAR of any machinery until the on-site supervisor has determined that all sources of electrical or mechanical potential energy have been disabled or otherwise "locked out". Avoid contact or physical proximity to the actuator while it is in operation.

This product is sold, as a component, to be installed in a complete system using good engineering practices.

EDrive continually strives to improve all of its products, therefore we reserve the right to modify equipment and service guides without prior notice.

## Product Description

EDrive Linear Actuators are based on a high efficiency anti-friction screw, supported in bearings, and rotated by a motor. The nut is attached to the piston rod. By constraining the piston from rotating, the rotary movement of the motor is converted into linear motion of the piston rod. The motor may be directly coupled or include a gear belt drive or a third-party gear reducer.

Mechanical and performance specifications can be found on our web site, [www.edriveactuators.com](http://www.edriveactuators.com), or by contacting EDrive at [sales@edriveactuators.com](mailto:sales@edriveactuators.com) or at 860.953.0588. All inquiries should include the actuator serial number, this is a number with a "P" prefix that is inscribed on the actuator.

## Safety Considerations

In any situation where safeguards and control systems do not prevent accidental contact between personnel and the actuator, the machine builder/installer must provide suitable warnings.

## Installation Considerations

In mounting any actuator, the following issues need to be considered:

- Avoid distortion of the actuator body.
- Proper alignment of the actuator must be relative to the load travel.
- Prevent side loading of the piston rod.
- Limit linear acceleration and deceleration. It should not exceed 386 in/sec<sup>2</sup>.
- The load, velocity, and motor input torque should not exceed catalog specifications.

As with any ball bearing device, special care must be taken to avoid impact. Any impact will jeopardize actuator life. Before energizing the motor install over-travel limit switches and connect them to control circuitry. This is a necessary step to reduce the possibility of damage through accidental extension or retraction beyond the limits of the actuator.

**Motor Pulley** should be in line with the ball screw pulley within 1/32 inch. Fasten pulley to motor shaft with the supplied set screw or taper lock bushing.

**Gear Belt** should be properly tensioned. Gear belt drives should not be tightened to the same extent as other belt drives (i.e. V-belt, Poly-V, Flat belt, etc.). If the gear belt tension is too great, it imposes excessive and unnecessary loading on the bearings. When the gear belt is too loose, the belt may jump teeth (particularly on high torque applications).

**Coupling** (inline only) Fasten one end of the coupling to the output shaft of the motor or gear reducer using the clamp. Verify and correctly position the coupling to

fully engage the "spider"; also, the end of the shaft/coupling should not apply axial pressure to the ball screw shaft.

**End Effectors** Caution should be exercised when attaching any device to the end of the piston rod. Use the wrench flats on the piston end to prevent rotation while attaching the end effector. Any substantial torque applied to the piston rod may damage the internal anti-rotation system.

**Ball Screw Pulley** In the event this pulley is removed or replaced – DO NOT use the fully retracted or fully extended rod position to counteract the applied wrench torque.

## Air Purge and Vent

This actuator is a sealed chamber. As the piston is extended, the internal volume increases, creating a partial vacuum. Similarly, when the piston retracts, a positive pressure develops. When the linear motions are rapid, there may be a tendency during extension to draw airborne contaminants through the end seal; and similarly, during retraction, to expel air through the seal. These conditions may compromise the seal integrity and subsequently lead to contamination of the ball screw system. We encourage the application of 2-3 psi of clean air to the actuator chamber to compensate for these air flows. If this air purge is not used, we suggest use of a filtered vent or plumbing pipe/hose to a source of clean air.

## Lubrication

### **Air-Oil Mist System** *(optional)*

1. Installation of air mist lubrication should be in accordance with drawing B-251A (p.7). Equipment should be by C.A.Norgren Co. or equivalent.
2. Electrical control must be provided to turn on the air supply when lubrication is required.
3. A low-level alarm must be provided to signal when the oil supply is running low.
4. Lubrication oil must be a high-grade Spindle Oil of 195 to 210 SUS viscosity.
5. A 40-micron breather/filter can be used at the drain port as an option to piping to clean sump.

### **Metered Oil System – Other than Horizontal Positions** *(optional)*

1. Provide lubrication input as per drawing B-956 (p.7).
2. Remove pipe plug from end of piston before connecting piston.
3. Electrical control must be provided to cycle the lubricator during machine operation.
4. Use lowest outlet port on cylinder as drain.
5. Lubricating oil must be a high grade "Way Oil" of 345 to 365 SUS viscosity, i.e. Mobil Vactra # 2.
6. Charge Actuator until oil appears from drain port.
7. Drain line must go to a clean sump.

### Metered Oil System – Horizontal Applications Only *(optional)*

1. The lube ports on the cylinder must be oriented horizontally.
2. With the Actuator in the fully retracted position, fill cylinder until oil comes out of the drain port.
3. Connect lube input line.
4. Drain line must go to a clean sump.

## Maintenance

1. Ball bearings are greased for life and require no maintenance.
2. Piston seals require periodic (6 month approx.) inspection.
3. Gear belts require periodic (6 month approx.) inspection for possible wear and proper tension.

The successful operation and longevity of this actuator is based on superior components, precise manufacturing, and extreme cleanliness. Unless your maintenance personnel are thoroughly familiar with this type of construction, any attempt to perform “field” repairs may aggravate rather than resolve your problem. Emergency repairs and rebuilds are always given the highest priority by EDrive.

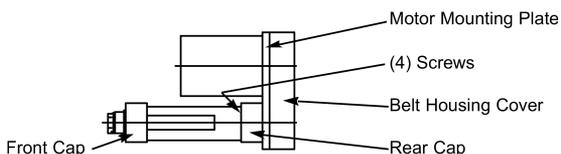
If you have any questions regarding performance or possible explanations for symptoms – we encourage early contact with EDrive ([sales@edriveactuators.com](mailto:sales@edriveactuators.com)) to help define the problem and determine the most appropriate resolution. For answers to common questions, you can check the FAQ page of our website, [www.edriveactuators.com](http://www.edriveactuators.com).

When you call, it is most helpful if you have the actuator serial number available. This is the number with a "P" prefix that is inscribed directly on the actuator.

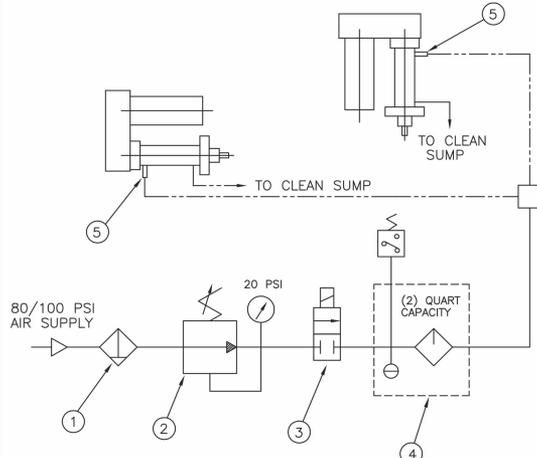
## Gear Belt Installation/Tensioning *(see diagram)*

Remove the belt housing cover. Loosen the (4) screws in the motor but DO NOT remove them. This will allow you to slide the motor mounting plate toward the actuator body. If both pulleys have flanges, it may be necessary to unbolt the motor in order to remove or install the gear belt. Install the gear belt. Then re-assemble with the correct tension and alignment. Detailed tensioning instructions are available on the website.

Gear belt drives do not need to be tightened to the same extent as other belt drives (i.e. V-belt, Poly-V, Flat belt, etc.). If the gear belt tension is too great, it imposes excessive and unnecessary loading on the bearings.



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\* EXAMPLE: 15 DROPS AT LUBE FOR 1-1/2 DROPS AT ACTUATOR.

A	JLP	1-99	UPDATED	P/N'S
REV.	BY	DATE	CHANGE	

- NOTES:
1. USE MOBIL MIST LUBE #24; 150 S.U.S. VISCOSITY @ 100° F.
  2. OIL LINES TO BE 1/4" TUBING.
  3. LINES TO BE APPROXIMATELY EQUAL IN LENGTH WHEN LUBRICATING MORE THAN ONE ACTUATOR..
  4. EACH ACTUATOR MUST RECEIVE 1-1/2 DROPS PER MINUTE.
  5. REF. 1 DROP = .003 CUBIC INCHES.
  6. FOR START-UP AND ADJUSTMENTS SEE LUBRICATORS MANUFACTURERS INSTRUCTIONS.
  - \* 7. 10:1 RATIO AT LUBRICATOR

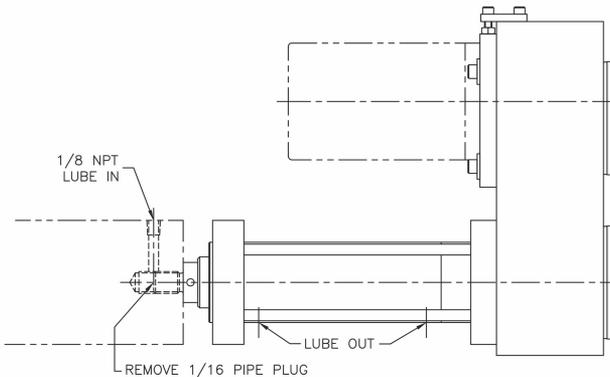
ITEM	QTY	NAME	SPECIFICATION
5	AS REQD	RECLASSIFIER	NORGREN 18-009-014
4	1	LUBRICATOR w/SWITCH	NORGREN 10-015-005-3A
3	1	SOLENOID	ALCON U21-44-21-12
2	1	REGULATOR	NORGREN R73G-2AK-RFG
1	1	FILTER	NORGREN F73G-2AN-AT2



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SCALE	NONE	MATL:		DRAWN BY	SM
DATE	9-84				
DRAWING NAME					
LUBRICATION DIAGRAM					
FOR					
AMBIENT TEMPERATURE'S < 110° F					DRAWING NUMBER
					B-251A

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NOTE:

1. Lubricating oil must be a high grade "Way Oil" of 345 to 365 SUS viscosity, i.e. Mobil Vactra # 2.
2. Fill each Actuator with 8 oz. of oil before each use.
3. Each Actuator must receive 1-1/2 drops of oil per minute.  
Ref.: 1 Drop=0.003 in.<sup>3</sup>



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SCALE	NONE	MATL:		DRAWN BY	TCP
DATE	5-91				
DRAWING NAME					
ACTUATOR LUBE, METERED SYSTEM					
FOR					
					DRAWING NUMBER
					B-956

