

Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

# Dayton® Linear Actuators

## Description

Dayton linear actuators are adaptable for general and special purpose applications, including fan louvers, lift tables, film processing, and wherever else compact, quiet and reliable linear actuators are required. Features include a rigid die cast gear housing machined to closely held tolerances, precision hobbled gearing and quality controlled assembly. Prelubricated bearings support motor, acme screw shafts and needle thrust bearings, to assure rated thrust load carrying capabilities. Actuators are equipped with a factory preset integral limit switch system that can be field adjusted to control linear travel length. All models are equipped with a steel drive tube with an additional acme nut, provided for alternate mounting.



Figure 1

## Specifications

Model Number	Load Rating Lbs.	HP	Rated Amps	Max. On Time Minutes*	Gear Ratio	Linear Speed In/Min	Travel Inches	"L" Retracted Dimension Pin to Pin	"M" Extended Dimension Pin to Pin
1XFX9	400	1/10	1.4	10	24:1	8.4"	12"	20.00"	32.00"
1XFY1	300	1/10	1.4	10	10.3:1	19.4	12	20.00	32.00

(\*) To prevent overheating of motor, follow the duty cycle recommendations listed under Operation.

**NOTE:** All actuators are totally enclosed 115VAC, 1 Ph, 60 Hz, reversible rotation, permanent split capacitor, 5°C to 40°C ambient, Class "B" insulation with automatic thermal protection, intermittent duty, 4-wire flexible cords.

**NOTE:** Refer to Figure 7 for alternate acme nut dimensions.

## Dimensions

Model Number	"A"	"B"	"C"	"D"	"E"	"G"	"H"	"J"	"N"
1XFX9	5.43"	0.382/0.376"	1.66"	1.38"	3/4"-8	18.92"	18.63"	4.63"	0.50"
1XFY1	5.43	0.382/0.376	1.66	1.38	3/4-8	18.92	18.63	4.63	0.50

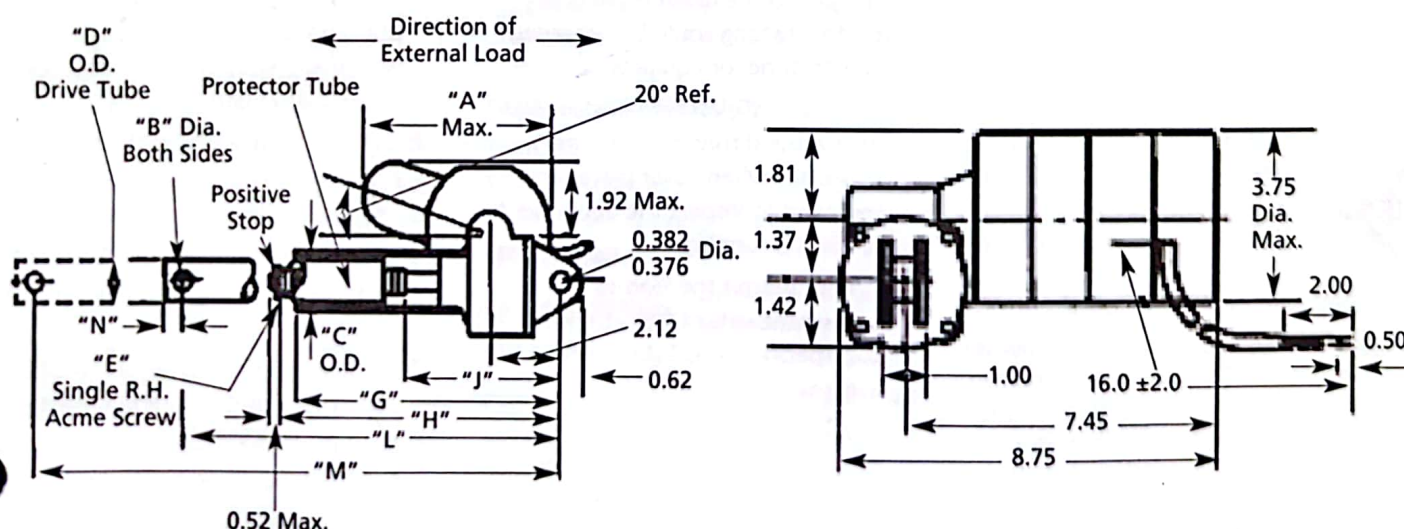


Figure 2 - Dimensions (in inches)



# Dayton® Linear Actuators

## Unpacking

After unpacking the actuator, carefully inspect the unit for any damage that may have occurred during transit. Check for loose, missing, or damaged parts. Check that the drive tube is not damaged. Check that the capacitor, covers, etc. are intact.

**NOTE:** An acme screw nut has been packed with the actuator. Do not discard.

## General Safety Information

**⚠ DANGER** *Voltage and rotating parts can cause serious or fatal injury. Safe installation, operation, and maintenance must be performed by qualified personnel. Familiarization with and adherence to NEMA MG2, the National Electrical Code, OSHA, and local codes is recommended. It is important to observe the following safety precautions to protect personnel from possible injury:*

**⚠ WARNING** *Disconnect power before installing or servicing.*

**⚠ WARNING** *Do not install this equipment in an explosive atmosphere.*

1. Be familiar with the equipment and read all instructions thoroughly before installing or working on it.
2. Avoid contact with energized circuits or rotating parts.
3. Follow all local electrical and safety codes, as well as the National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).
4. Motor must be securely and adequately grounded. This can be accomplished by wiring with a grounded metal-clad raceway system, by using a separate ground wire connected to the bare metal of the motor frame, or other suitable means. Refer to NEC Article 250 (Grounding) for additional information.

5. A qualified electrician should perform the electrical installation of this equipment.
6. Do not depend on motor control devices (motor starters, etc.) to prevent unexpected motor starting. Always disconnect power source before working on or near a motor or its connected load. If the power disconnect point is out of sight, lock it in the open position, and tag it to prevent unexpected application of power.
7. Be careful touching an operating motor: it may be hot enough to hurt or injure you. At full rated voltage and load, modern motors run hot.
8. Protect the power cable: don't let it touch sharp objects, hot surfaces, oil, grease, or chemicals.
9. Do not kink the power cable.
10. Make certain that the power source conforms to the requirements of your equipment.
11. Do not use automatic reset starting devices where unexpected gearmotor starting could be hazardous to personnel or equipment.
12. Wear safety glasses to protect your eyes around running machinery, especially when cover plates are removed to inspect the equipment while it is running.
13. Do not permit the load to exceed the values listed for it in the Specifications Table.
14. Store the gearmotor only in a clean, dry, indoor area, even if it is still in the original shipping container.
15. When cleaning electrical or electronic equipment, always use an approved nonflammable cleaning

agent such as a dry solvent. Be careful about choosing and about using cleaning agents. Some of them attack motor insulation, finish, or bearing lubricants; some are highly flammable. If using cleaning agents, make sure the area is well-ventilated.

16. Provide guarding for all moving parts.
17. If the application involves a holding or overhauling type of load (such as hoist or conveyor), install a separate magnetic brake or other locking device to prevent the load from moving when the gearmotor is not running. Do not depend on gear friction to hold the load.
18. Do not modify when servicing. Use only identical replacement parts.

**⚠ WARNING** *Failure to follow instructions may cause serious or fatal injury.*

## UNWARRANTED APPLICATIONS

**⚠ WARNING** *These actuators are not recommended or warranted for use in applications involving the following conditions:*

1. Lifting, supporting, holding or positioning loads over people or where an inadvertent malfunction may result in personal injury.
2. Outdoor service or wet environments.
3. Explosive atmospheres (see Article 500 of the National Electrical Code).
4. Jamming by overtraveling limit switches or driving actuator against an immovable object.
5. Installation of actuator below 5°C or above 40°C ambient temperature.
6. Operation of actuator without positive stop on acme screw.
7. As a clamping device.



# Models 1AFX9 and 1XFY1

## Installation

### AMBIENT TEMPERATURE

Actuator should be located in a clean and dry area with access to adequate cooling supply. Ambient temperature around gearmotor should be between 5°C and 40°C. Temperature above this range can create insulation and lubrication problems. Temperature below this range can create difficulty in providing sufficient starting thrust due to stiffening of gear and bearing lubricants, and possibilities of condensation accumulation inside actuator.

### VARIATION OF VOLTAGE AND FREQUENCY

Combined variation of voltage and frequency should be within 10% of nameplate rating, provided frequency does not exceed 5%.

### WIRING CONNECTIONS

1. For proper motor connections, refer to the Wiring Diagram (Figure 3).
2. Actuator should be grounded by use of separate grounding conductor, connected to the green motor wire.

**⚠ WARNING** Actuator is provided with internal automatic reset thermal protection. Assure that motor failure due to malfunction or overload condition will not cause a safety hazard. Do not use actuators in devices where unexpected starting of the unit could be hazardous to personnel or equipment.

3. Verify that the ground wire runs to a good electrical ground such as a grounded conduit or cold water pipe that is continuous to an earth ground.

4. All wiring and electrical connections must comply with the National Electrical Code, and local electrical

codes in effect. In particular, refer to Article 430 (Motor, Motor Circuits and Controllers) of the NEC.

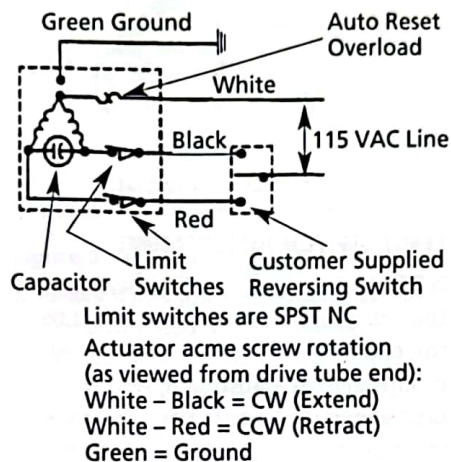


Figure 3 - Wiring Diagram

**NOTE:** Actuator must come to a complete stop before reversing.

5. Whenever possible, the actuator should be powered from a separate branch circuit of adequate capacity to keep voltage drop to a minimum during starting and running. For longer runs, increase wire size in accordance with the wire selection guide shown below. Never use smaller than #14 AWG for permanent installation.

### WIRE SELECTION GUIDE

#14	25 - 50'
#10	100 - 150'
#8	200'

### MOUNTING

**⚠ WARNING** Do not install in an explosive atmosphere!

**⚠ CAUTION** When an installation involves a holding or overhauling application (such as a hoist), a separate braking device should be used. Do not depend on gear friction to hold the load.

1. The structure on which the actuator is mounted should have ample strength to carry the maximum thrust load, and be rigid enough to prevent undue deflection or distortion of supporting members.
2. The axes of the clevis mounting pins should be parallel so that the actuator can pivot without binding.
3. A few drops of oil or grease should be used on all pivot points.
4. During normal use, some small amount of grease leakage may occur around the acme shaft.

**NOTE:** A variety of mounting options are provided. (See Figure 4.)

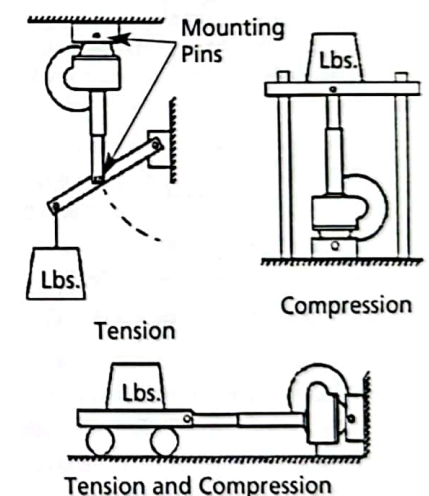


Figure 4 - Mounting Options

**⚠ WARNING** Never mount actuator in a position that would have motor below the gearhousing as shown in Figure 5.

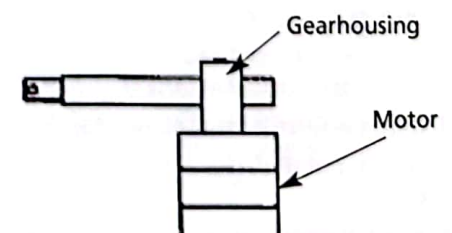


Figure 5 - Incorrect Mount of Actuator

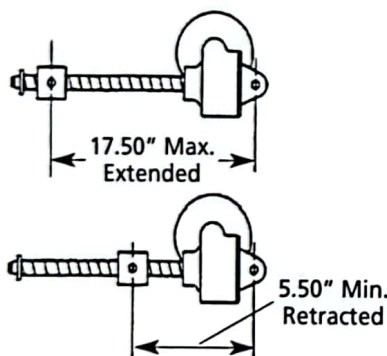


# Dayton® Linear Actuators

## Installation (Continued)

### PROTECTOR TUBE

1. Actuator has a protector tube provided, to conceal exposed acme screw threads as the drive tube is extended.
2. If the protector tube is removed, the drive tube should be returned to the retracted position when not in use, if possible.
3. Dust and grit should not be permitted to accumulate on the acme screw threads.

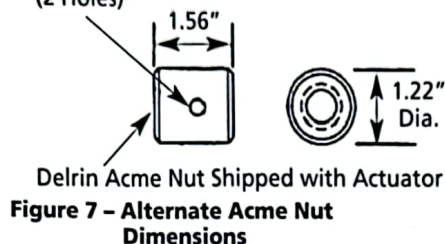


**Figure 6 – Mounting with Acme Nut**  
**ALTERNATE ACME NUT MOUNTING**

The actuator can be utilized with the acme nut packaged with unit, instead of drive tube (See Figure 6). Thrust loads can be connected to the nut by the use of a yoke or any other similar type fastening device. Follow the procedure below for acme nut mounting. Refer to Figure 9.

1. Unscrew left-hand thread positive stop bolt (Ref. No. 13) and washers (Ref. Nos. 11 and 12).
2. Remove two hex head screws (Ref. No. 8) and protector tube (Ref. No. 9).
3. Unscrew drive tube (Ref. No. 14).
4. Thread nut (Ref. No. 24) onto acme screw.
5. Reinstall positive stop bolt and washers.

0.262/0.252" Dia.  
0.16" Deep Min.  
(2 Holes)



**Figure 7 – Alternate Acme Nut Dimensions**

### LIMIT SWITCH ADJUSTMENT

**NOTE:** As received, the limit switches of the actuator have been factory set to the extreme limits of travel. For ease of limit switch adjustment, remove protector tube to note the drive tube location with respect to gearhousing and acme screw. Replace protector tube after limit switch adjustment. Refer to DISASSEMBLY and REASSEMBLY instructions, pages 6 and 7.

**CAUTION** Before operating actuator, refer to Wiring Diagram (Figure 3).

1. Check of Maximum Travel and Pin to Pin Dimensions:

- a. Do not install actuator in application at this time.
- b. With the drive tube unrestrained, operate the actuator toward the retracted position until the switch cam actuates the limit switch.

**WARNING** Do not allow tube or acme nut to jam against gearhousing before the switch cam actuates limit switch.

- c. Rotate the drive tube by hand, if needed, to the retracted (pin to pin) dimension listed in the Specifications Table. If the two pivot end holes are not oriented as required, rotate the drive tube no more than

1/2 turn in either direction until they are properly oriented.

- d. With the drive tube restrained by hand against rotation, operate the actuator toward the extended position until the switch cam actuates the limit switch or the drive tube jams against the positive stop and rotates. Measure this extended (pin to pin) dimension and compare it to the one listed in the Specifications Table. If these dimensions are different, restrain the drive tube from rotation, retract actuator (see Warning above) and proceed to Step 3 of "Limit Switch Adjustment".

2. Setting Drive Tube for Retracted Position:

- a. Do not install actuator in application at this time.
- b. With the drive tube unrestrained, operate the actuator toward the retracted position until the switch cam actuates the limit switch (see Warning above).
- c. Rotate the drive tube by hand to the desired retracted position. This retracted (pin to pin) dimension is not to be less than the one listed in the Specifications Table.

- d. Proceed to Step 3 (Setting Limit Switches for Extended Position).

3. Setting Limit Switches for Extended Position:

**WARNING** Disconnect power before making any adjustment of the limit switches.



# Models 1XFX9 and 1XFY1

## Installation (Continued)

- Remove the limit switch cover from the end of the motor to reveal the limit switch assembly. (See Figure 8.) Loosen the two cam adjustment screws enough to allow the upper switch cam to rotate freely.
- With the drive tube restrained by hand against rotating, run the actuator drive tube to the desired extended position. Do not exceed the Extended (Pin to Pin) Dimension listed in the Specifications Table.
- Adjust the switch cam to actuate the limit switch and then tighten the two screws. Turn the switch cam CCW (counterclockwise) to increase the length of travel and CW (clockwise) to decrease the length of travel.

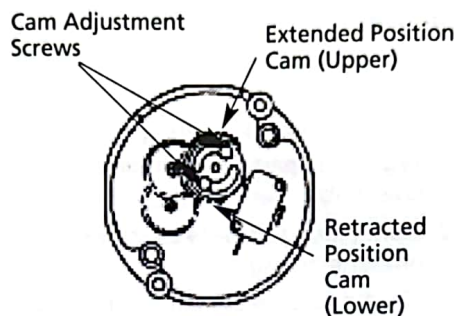
**NOTE:** Only the upper (extended) cam is adjustable. Do not attempt to adjust lower (retracted) cam.

- After adjusting the switch cam, operate the actuator to check desired retracted and extended dimensions and length of travel. Repeat Steps 2 and 3 until the desired length of travel is obtained.

## Operation

### THRUST LOAD

- General care should be taken to see that the actuator selected is of sufficient capacity to handle the thrust load imposed upon it. The actual thrust load imposed on the actuator will depend on the design of your mechanism.



**Figure 8 - Limit Switch Adjustment**

- Heavy shock loads should be avoided. Do not exceed thrust load for model in Specifications Table.

**CAUTION** Actuator and loads must be properly supported to prevent any loading other than along the axis of acme screw.

### DUTY CYCLE

- Actuator is designed for intermittent operation only.
- Follow duty cycle recommended for "ON-time" and "OFF-time" per calculations below.
- Do not exceed maximum "ON time" in Specifications Chart for model.
- Duty cycle is defined as:

$$\text{Percentage of Duty Cycle} = \frac{\text{Total "On Time" for One Cycle}}{\text{Total "On-Off Time" for One Cycle}}$$

### DUTY CYCLE CHART

Cycle "On Time"	Duty Cycle	Examples of Total Cycle Time
1 Min. or less	25% Max.	a. 1 Min. ON-3 Min. OFF b. 30 Sec. ON-90 Sec. OFF
1 Min. to 3 Min.	20% Max.	a. 3 Min. ON-12 Min. OFF b. 2 Min. ON-8 Min. OFF
3 Min. to Max.	10% Max.	a. 5 Min. ON-45 Min. OFF b. 7 Min. ON-63 Min. OFF

**CAUTION** Exceeding maximum "ON time" of actuator will cause thermal protector to trip. Automatic recycling of thermal protector could cause serious damage to the actuator and void the warranty.

## Maintenance INSPECTION

**WARNING** Make certain that the power supply is disconnected before attempting to service or remove any components. If the power disconnect point is out of sight, lock it in the open position and tag to prevent unexpected application of power.

**WARNING** Before servicing and touching capacitor terminals, always discharge the capacitor by shorting the terminal (for example, with an insulated screwdriver) to prevent electrical shock.

The actuator should be inspected on a periodic basis (See "Periodic Inspection") with attention being given to the following items:

- Clevis ends for wear, cracks, distortion or other damage.
- Loose bolts, screws on actuator and clevis or drive tube connections
- Limit switches for proper setting and operation.
- Acme screw and drive tube for excessive wear or lack of lubrication.
- Electrical wiring and power supply cord for frayed insulation or loose connections.
- Excessive or unusual noises.
- Dirt and dust from interfering with proper ventilation or clogging of moving parts. Any of the above deficiencies should be repaired or corrected before restoring the actuator to service.



# Dayton® Linear Actuators

## Maintenance (Continued)

### PERIODIC INSPECTION

The exact periods for inspection of the actuator cannot be predetermined, due to the many variables involved such as frequency of operation, type and size of loading, operational environment, etc. Determination should be based on the user's experience. It is recommended that the user begin with a weekly inspection, extending that to monthly, quarterly, or annually as conditions dictate.

### LUBRICATION

The actuator is lubricated for design life at the factory. Periodic lubrication should not be required under normal operating conditions. During normal use, slight oil or grease leakage around drive tube or acme screw is expected.

### ACME SCREW

If inspection indicates a need for additional lubrication, a small amount of grease (Nonfluid Oil Corp. #HB-11/MS-2 or equivalent) should be applied to the acme screw at a location which passes through the acme nut.

### BEARINGS

Ball or sleeve bearings are lubricated and do not normally require field relubrication or replacement if run under normal operating conditions. Under more adverse operating conditions, bearings may require additional servicing or replacement.

### MOUNTING PINS

Periodically a few drops of oil or grease should be applied to the mounting pins at the pivot points.

## GENERAL PROCEDURES

Read instructions thoroughly and follow the recommended procedure for disassembly and assembly:

1. Tag critical parts to facilitate reassembly.
2. Mark mating surfaces to ensure proper meshing.
3. Clean and lubricate parts as required.
4. Disassembly and reassembly should be accomplished on a clean surface.

## DISASSEMBLY

Refer to Figure 9.

1. Make sure that actuator is in retracted position and power is disconnected before disassembly.
2. Remove two screws (Ref. No. 8) and remove protector tube (Ref. No. 9).
3. Unscrew left-hand thread positive stop bolt (Ref. No. 13) and remove positive stop washers (Ref. Nos. 11 and 12).
4. Unscrew drive tube (Ref. No. 14).
5. Remove four screws (Ref. No. 1).
6. Gently pull off trunnion cover (Ref. No. 2).
7. Remove gasket (Ref. No. 3) carefully. If gasket is soaked with grease or broken, discard and replace.
8. Remove and replace two thrust washers (Ref. No. 4) and thrust bearing (Ref. No. 5) from acme screw shaft. Store thrust package in a plastic bag to prevent any accumulation of dust or dirt.
9. Removing output gear and acme screw shaft from gearhousing:
  - a. Gently push acme screw shaft (Ref. No. 10) toward the gearhousing until output gear (Ref. No. 7) is accessible for disassembly.
  - b. Support acme screw shaft on 1/2" diameter portion near output gear and on threaded portion of acme screw, to prevent bending. Carefully drive out roll pin (Ref. No. 6).
  - c. Remove output gear by gently rotating and pulling.
  - d. Remove thrust washers and bearing and acme screw from gearhousing.
10. Remove limit switch cover screws (Ref. No. 23) and limit switch cover.
11. Disconnect cord assembly (Ref. No. 21) from limit switches by removing lead wires from limit switch terminals. Tag lead wire connections with respect to limit switches.
12. Remove wire nut (Ref. No. 26) from white leads. Remove ground screw (Ref. No. 25). Remove strain relief bushing (Ref. No. 22) and then remove cord assembly.
13. Gently remove retainer nuts from limit switch pins. After removal, retainer nuts are not reusable. Discard and replace.
14. Carefully remove limit switches (Ref. No. 19) from limit switch pins.
15. Remove retaining ring from cam pin. Remove limit switch cams and gears (Ref. No. 20). Observe and make a note of their locations with respect to mounting pins.
16. Remove two screws (Ref. No. 18) and remove capacitor cover (Ref. No. 16). Gently pry capacitor (Ref. No. 17) out of capacitor cover. Discharge the capacitor by shorting the terminals (for example, with an insulated screwdriver) to prevent electrical shock. Disconnect lead wire from capacitor terminals.



## Models 1AFX9 and 1XFY1

### Maintenance (Continued)

#### REASSEMBLY

Refer to Figure 9.

1. Assembly of Output Gear and Acme Screw to Gearhousing:
  - a. Insert acme shaft (Ref. No. 10) into gearhousing. Replace thrust bearing (Ref. No. 5) and thrust washers (Ref. No. 4) on the acme screw shaft. Make sure that thrust bearing is in between washers. Lubricate thrust bearing with Nonfluid Oil Corp. Grease #HB-11/MS-2 or equivalent, if needed.
  - b. Insert output gear (Ref. No. 7) on acme screw shaft. Align holes in output gear and acme screw shaft and install roll pin (Ref. No. 6). Acme screw shaft should be supported properly to prevent bending.
  - c. Replace thrust washers and bearing properly on acme screw shaft. Align output gear with worm and pull threaded portion of acme screw away from gearhousing until output gear is seated.
2. Add two fluid ounces of grease (Nonfluid Oil Corp. #HB-11/MS-2 or equivalent) inside gearhousing. Replace gasket (Ref. No. 3) and trunnion cover (Ref. No. 2). Tighten four screws (Ref. No. 1). Push and pull on acme screw threads and measure the movement. Acme screw movement in excess of 0.03" indicates some missing parts inside the gearhousing.
3. Lubricate acme screw with Nonfluid Oil Grease Corp #HB-11/MS-2 or equivalent. Replace drive tube (Ref. No. 14) or alternate acme nut (Ref. No. 24). Replace positive stop washers (Ref. Nos. 11 and 12) and left-hand threaded bolt (Ref. No. 13).
4. Connect lead wires to capacitor terminals and snap capacitor (Ref. No. 17) into capacitor cover (Ref. No. 16). Make sure that indented end of capacitor cover is toward the terminals. This prevents capacitor terminals from shorting against the cover.
5. Install capacitor cover assembly to the motor assembly (Ref. No. 15) with two screws (Ref. No. 18). Make sure that lead wires are not pinched between capacitor cover and motor frame. Do not strip threads in motor assembly by overtightening two screws.
6. Carefully replace limit switch gears and cams (Ref. No. 20) to their proper location. Assure that gears are meshing freely without any binding. Replace retaining ring on cam pin. Apply a light coat of grease (Syntech Ltd. #NS-5078-G or equivalent) to limit switch gears.
7. Install limit switches on limit switch pins, making sure that limit switches are not damaged. Replace new retainer nuts on limit switch pins.
8. Replace cord assembly (Ref. No. 21), strain relief bushing (Ref. No. 22) and ground screw (Ref. No. 25). Connect lead wires to proper limit switch terminals. Reconnect white lead wires with wire nut.
9. Connect power, start and stop motor. The gearing should turn freely and quietly. Refer to Troubleshooting Chart if actuator fails to operate or generates excessive noise. Refer to "Limit Switch Adjustment" listed under Installation section for setting limit switches.
10. Replace limit switch cover and limit switch cover screws (Ref. No. 23).
11. Replace protector tube (Ref. No. 9) and tighten two screws (Ref. No. 8).

#### ⚠ CAUTION

*Before connecting power to actuator, Dielectric Withstand Test (Hypot) must be performed. Apply 1240VAC for one second (a) between motor frame and white lead wire (b) between motor frame and red lead wire, (c) between motor frame and black lead wire. Motor must withstand this voltage for one second without failure.*

#### ⚠ CAUTION

*Operation of actuator without positive stop could cause serious damage due to overtravel of acme nut, and void warranty.*

# Dayton® Linear Actuators

## Troubleshooting Chart

Symptom	Possible Cause(s)	Corrective Action
Actuator fails to operate	<ol style="list-style-type: none"> <li>1. Automatic thermal protector tripped</li> <li>2. Blown fuse or open circuit breaker</li> <li>3. Improper electrical connections</li> <li>4. No power</li> <li>5. Defective limit switch or reversing switch</li> <li>6. Defective capacitor</li> <li>7. Actuator drive tube jammed against stop</li> <li>8. Defective actuator</li> </ol>	<ol style="list-style-type: none"> <li>1. Disconnect power, fan cool motor and reduce duty cycle</li> <li>2. Replace fuse or reset circuit breaker</li> <li>3. Reconnect properly</li> <li>4. Contact power company</li> <li>5. Repair or replace</li> <li>6. Replace capacitor</li> <li>7. Readjust drive tube position or readjust limit switch cam setting</li> <li>8. Repair or replace</li> </ol>
Actuator runs continuously, to stall condition	<ol style="list-style-type: none"> <li>1. Defective limit switches</li> <li>2. Improper limit switch cam adjustment</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace limit switches</li> <li>2. Readjust cam setting</li> </ol>
Actuator operates but with reduced thrust capacity	<ol style="list-style-type: none"> <li>1. Low voltage</li> <li>2. Lack of lubrication on acme screw</li> <li>3. Defective capacitor</li> <li>4. Defective actuator</li> <li>5. Side load on acme screw due to misalignment</li> </ol>	<ol style="list-style-type: none"> <li>1. Disconnect and check voltage</li> <li>2. Add specified lubricant</li> <li>3. Replace capacitor</li> <li>4. Repair or replace</li> <li>5. Remove side load and align actuator mounting</li> </ol>
Motor shaft rotates, acme screw remains stationary or rotates intermittently	Defective gear assembly (possibly caused by shock load or excessive thrust load)	Replace gear assembly and avoid shock load or reduce thrust load
Acme screw rotates but no linear motion of drive tube	Acme nut separated from drive tube	Replace
Excessive noise	<ol style="list-style-type: none"> <li>1. Loose bolts, screws on actuator and clevis connection</li> <li>2. Thrust load exceeds rating</li> <li>3. Lack of lubrication on acme screw</li> <li>4. Defective or worn gearing</li> <li>5. Side load on acme shaft due to misalignment</li> </ol>	<ol style="list-style-type: none"> <li>1. Retighten screws and bolts</li> <li>2. Reduce load</li> <li>3. Check lubrication and add if required</li> <li>4. Replace</li> <li>5. Remove side load and align actuator mounting</li> </ol>



## Models 1AFX9 and 1XFY1

### LIMITED WARRANTY

**DAYTON ONE-YEAR LIMITED WARRANTY.** DAYTON® LINEAR ACTUATORS, MODELS COVERED IN THIS MANUAL, ARE WARRANTED BY DAYTON ELECTRIC MFG. CO. (DAYTON) TO THE ORIGINAL USER AGAINST DEFECTS IN WORKMANSHIP OR MATERIALS UNDER NORMAL USE FOR ONE YEAR AFTER DATE OF PURCHASE. ANY PART WHICH IS DETERMINED TO BE DEFECTIVE IN MATERIAL OR WORKMANSHIP AND RETURNED TO AN AUTHORIZED SERVICE LOCATION, AS DAYTON DESIGNATES, SHIPPING COSTS PREPAID, WILL BE, AS THE EXCLUSIVE REMEDY, REPAIRED OR REPLACED AT DAYTON'S OPTION. FOR LIMITED WARRANTY CLAIM PROCEDURES, SEE "PROMPT DISPOSITION" BELOW. THIS LIMITED WARRANTY GIVES PURCHASERS SPECIFIC LEGAL RIGHTS WHICH VARY FROM JURISDICTION TO JURISDICTION.

**LIMITATION OF LIABILITY.** TO THE EXTENT ALLOWABLE UNDER APPLICABLE LAW, DAYTON'S LIABILITY FOR CONSEQUENTIAL AND INCIDENTAL DAMAGES IS EXPRESSLY DISCLAIMED. DAYTON'S LIABILITY IN ALL EVENTS IS LIMITED TO AND SHALL NOT EXCEED THE PURCHASE PRICE PAID.

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**Product Suitability.** Many jurisdictions have codes and regulations governing sales, construction, installation, and/or use of products for certain purposes, which may vary from those in neighboring areas. While attempts are made to assure that Dayton products comply with such codes, Dayton cannot guarantee compliance, and cannot be responsible for how the product is installed or used. Before purchase and use of a product, review the product applications, and all applicable national and local codes and regulations, and be sure that the product, installation, and use will comply with them.

Certain aspects of disclaimers are not applicable to consumer products; e.g., (a) some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you; (b) also, some jurisdictions do not allow a limitation on how long an implied warranty lasts, consequently the above limitation may not apply to you; and (c) by law, during the period of this Limited Warranty, any implied warranties of implied merchantability or fitness for a particular purpose applicable to consumer products purchased by consumers, may not be excluded or otherwise disclaimed.

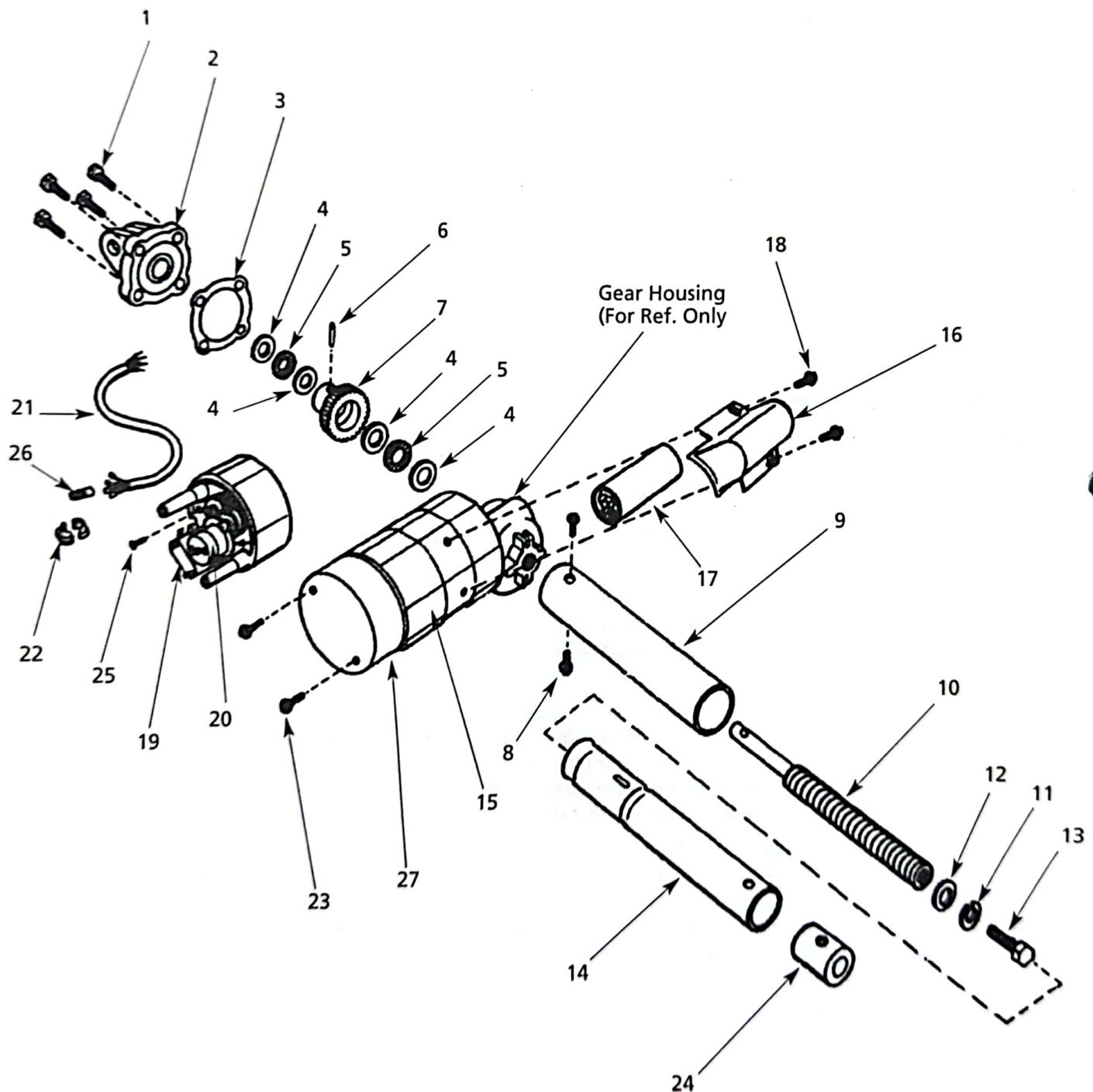
**Prompt Disposition.** A good faith effort will be made for prompt correction or other adjustment with respect to any product which proves to be defective within limited warranty. For any product believed to be defective within limited warranty, first write or call dealer from whom the product was purchased. Dealer will give additional directions. If unable to resolve satisfactorily, write to Dayton at address below, giving dealer's name, address, date, and number of dealer's invoice, and describing the nature of the defect. Title and risk of loss pass to buyer on delivery to common carrier. If product was damaged in transit to you, file claim with carrier.

**Manufactured for Dayton Electric Mfg. Co., 5959 W. Howard St., Niles, Illinois 60714-4014 U.S.A.**

**For Repair Parts, call 1-800-323-0620****24 hours a day – 365 days a year**

Please provide following information:

- Model number
- Serial number (if any)
- Part description and number as shown in parts list

**Figure 9 – Repair Parts Illustration for Linear Actuators**



## Models 1AFX9 and 1XFY1

### Repair Parts List for Linear Actuators

Reference Number	Description	Part Number for Models:		Quantity
		1AFX9	1XFY1	
1	1/4" -20 x 3/4", Hexhead screw	*	*	4
2	Trunnion cover	X292564820000	X292564820000	1
3	Gasket	G102564690000	G102564690000	1
4	Thrust washer	W104501070002	W104501070002	4
5	Thrust bearing	B452564700000	B452564700000	2
6	3/16 x 1 3/8", Rollpin	*	*	1
7	Output gear	G152599160002	G152599160003	1
8	#10-24 x 3/8", Hexhead screw	*	*	2
9	Protector tube	T502564720007	T502564720007	1
10	Acme shaft	S252564640018	S252564640018	1
11	3/8", split lockwasher	*	*	1
12	Washer	W102595240006	W102595240006	1
13	Positive stop bolt	470204	470204	1
14	Drive Tube	X8625648800080L	X8625648800080L	1
15	Motor assembly (for reference only)	**	**	-
16	Capacitor cover	C643035640001	C643035640001	1
17	Capacitor	C1075585500490L	C1075585500490L	1
18	#10-24 x 1/4", Hexhead screw	*	*	2
19	Limit switch assembly	-	-	1
20	Limit switch gears and cams	-	-	1
21	Cord assembly	C542595160001	C542595160001	1
22	Strain relief bushing	R152174230000	R152174230000	1
23	#8-32 x 3/8", Hexhead screw	*	*	2
24	Alternate acme nut	N4025648900070L	N4025648900070L	1
25	#10-24 x 1/4", Groundscrew	*	*	1
26	18 gauge wire nut	*	*	1
27	Limit switch cover	C722564470000	C722564470000	1

(\*) Standard hardware item, available locally.

(\*\*) Not available as a replacement part (for reference only).