

## Applications

The AM-676 universal shaft extension extends the length of the damper shaft in applications where the damper shaft is too short to reach the damper actuator.

The AM-686 damper position indicator mounts the actuator to indicate actuator position when the V-bolt indicator is not visible.

The AM-687 universal clamp assembly is used to replace the standard universal clamp assembly when mounting to shafts up to 1.05" diameter or up to 5/8" square.

The AM-688 replacement universal clamp is used to clamp the actuator up to 3/4" diameter or up to 1/2" square. Available to replace lost standard clamps shipped with actuator.

The AM-689 rotation limiter is used to limit the angle of rotation of a direct-coupled damper actuator in applications where the damper does not have a proper end-stop.

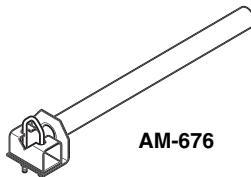
The AM-690 and AM-691 crankarms are used in non-direct mounting applications.

The AM-692 V-bolt kit is used with the AM-690 and AM-691 crankarm. The V-bolts in the kit are used for standard and larger diameter damper shafts when crankarm assembly is necessary.

The AM-693 damper linkage kit provides a mechanical linkage between the damper actuator and the damper shaft when a direct coupling is not possible. Requires using the AM-692 V-bolt kit.

The AM-762 replacement anti-rotation bracket is used to secure the actuator and prevent it from rotating around the shaft. Available to replace lost anti-rotation brackets shipped with the actuator.

The AM-763 replacement 1/8" hex crankarm is used with Mx41-707x, 715x, units to rotate the manual override mechanism. Available to replace crankarm shipped with the actuator.



AM-676



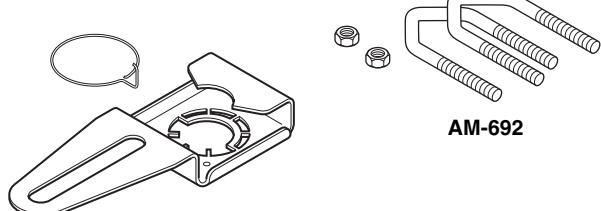
AM-686



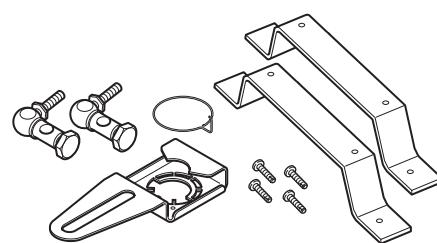
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AM-689



AM-690  
AM-691



AM-692



AM-693

## Applicable Literature

- Cross-Reference Guide, F-23638
- DuraDrive MA40-704x, MA4x-707x and MA4x-715x Series Spring Return Two Position Actuators, General Instructions, F-26642
- DuraDrive MF40-7043, MF4x-7073 and MF4x-7153 Series Spring Return Floating Actuators, General Instructions, F-26644
- DuraDrive MS40-7043, MS4x-7073 and MS4x-7153 Series Spring Return Proportional Actuators, General Instructions, F-26645
- DuraDrive Series Selection Guide, F-26646
- DuraDrive MA40-717x Series Spring Return Two Position Actuators, General Instructions, F-26742
- DuraDrive MF40-6083 and MF40-6153 Series Non-Spring Return Floating Actuators, General Instructions, F-26743
- DuraDrive MF40-6343 Series Non-Spring Return Floating Actuators, General Instructions, F-26744
- DuraDrive MS40-634x Non-Spring Return Proportional Actuators, General Instructions, F-26745
- DuraDrive MS40-6083 and MS40-6153 Non-Spring Return Proportional Actuators, General Instructions, F-26747
- DuraDrive MS40-717x Series Spring Return Two Position Actuators, General Instructions, F-26748
- DuraDrive MF40-7173 Spring Return Floating Actuators, General Instructions, F-26749
- Electric/Electronic Products Catalog, F-27382

## SPECIFICATIONS

Table-1 Model Chart for Accessories.

Part Number	Compatible Actuators	Description		Tools Required
AM-676	Mx40-704x Mx4x-707x Mx4x-715x Mx40-717x Mx41-6153 Mx41-634x	Universal Shaft Extension	Length: Approximately 9-1/2" (13 mm) Damper Shaft Sizes: 3/8" to 11/16" (10 to 18 mm) round shafts 3/8" to 9/16" (10 to 14 mm) square shafts Customer Supplied Parts: (2) #8 sheet metal screws	No. 24 drill bit for #8 sheet metal screws See Table-2
AM-689	Mx4x-707x Mx4x-715x	Rotation Limiter	Maximum Angle Allowed: 95° Setting Increments: 5° (Approximate) for AM-689. Parts Included in AM-689 kit: Retaining Clip Position Indicator bolt stop	Phillips Head Screwdriver
AM-687		Universal Clamp Assemblies	Maximum Damper Shaft Size: 1.05" (27 mm) diameter, 5/8" (15 mm) square Parts Included in AM-687 Kit: Universal Clamp Retaining Clip	10 mm wrench
AM-686		Damper Position Indicator	Parts Included: Retaining Clip Position Indicator	
AM-688		Replacement Universal Clamp	Maximum Damper Shaft Size: 3/4" (19 mm) diameter, 1/2" (13 mm) square Parts Included in AM-688 Kit: Universal Clamp Retaining Clip	10 mm wrench
AM-690		Crankarm	Crankarm for shafts up to 3/4" diameter and 1/2" square	
AM-691		Crankarm	Crankarm for shafts up to 1.05" diameter and 5/8" square	
AM-692		V-bolt Kit for AM-690 and AM-691 Crankarms	Parts Included in Kit: (2) nuts (2) v-bolts	10 mm wrench
AM-693		Damper Linkage Kit	Parts Included in Kits: (1) Crankarm with wire clip (2) "C" Mounting Brackets (2) Ball Joints (4) #10 self-tapping screws Customer Supplied Parts: (4) #8 sheet metal screws	10 mm wrench 13 mm wrench No. 24 drill bit for # 8 sheet metal screws Screwdriver with torx head for #10 self tapping screws Screwdriver with flat head for #8 sheet metal screws
AM-762		Replacement Anti-Rotation Bracket	Parts Included in Kits: (1) Anti-rotation bracket	
AM-763		Replacement Manual Override Crank	(1) 1/8" hex manual override crank	

## INSTALLATION

### Inspection

Inspect the package for damage. If damaged, notify the appropriate carrier immediately. If undamaged, open the package and inspect the device for obvious damage. Return damaged products.

### Requirements

- Tools (not provided):
  - See Table-1
  - Torque wrench with appropriate sockets
- Training: Installer must be a qualified, experienced technician.

### Mounting

#### AM-676 Universal Shaft Extension

##### ***NOTE***

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For additional information on the spring return and non-spring return actuators, refer to the General Instructions listed in the Applicable Literature section.

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The AM-676 can be used with several types of actuator. Depending on which actuator is installed, a Universal Clamp kit must be used (See Table-2).

**Table-2 Tightening Torque.**

Actuator	Kit	Tightening Torque	V-Clamp Wrench Size
Mx4x-707x Mx4x-715x	AM-687, AM-688 (or original clamp supplied with actuator)	6 to 8 ft-lb (8 to 11 N-m)	10 mm and 7/16"
Mx40-704x	AM-710	4 to 6 ft-lb (5 to 8 N-m)	10 mm
Mx40-717x Mx41-634x	AM-753 Use both Universal Clamps	4 to 6 ft-lb (5 to 8 N-m)	1/2"
Mx41-615x	None	6 to 8 ft-lb (8 to 11 N-m)	18 mm

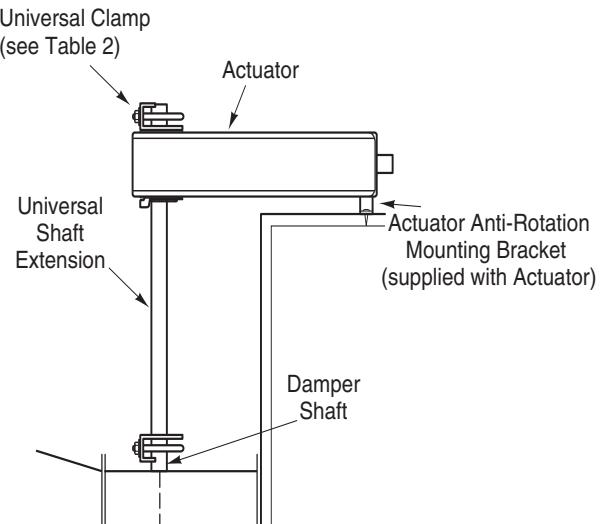


Figure-1 Installation of Universal Shaft Extension.

1. Loosen the universal clamp nuts on the universal shaft extension and the damper actuator.
2. Fit the universal shaft extension fully onto the damper shaft. Finger-tighten the extension's universal clamp nuts.
3. Assemble the damper actuator onto the universal shaft extension, allowing the extension to slide through the actuator's universal clamp assembly. Fit the actuator mounting bracket onto the actuator and position the actuator and bracket on the mounting surface. See Figure-1.
4. Adjust the position of the damper actuator on its mounting surface, as necessary, so that the actuator's universal clamp assembly and the universal shaft extension are in alignment with the damper shaft. Mark the position of the actuator's mounting bracket on the mounting surface.
5. If the universal shaft extension protrudes excessively above the damper actuator's universal clamp assembly complete the following:
  - a. Mark the point at which the extension must be cut.
  - b. Remove the damper actuator from the universal shaft extension, and remove the extension from the damper shaft.
  - c. Shorten the universal shaft extension by cutting it at the mark.
  - d. Re-assemble actuator and shaft extension.
6. Drill holes in the mounting surface for the actuator's mounting bracket. Install the bracket onto the mounting surface using the sheet metal screws.
7. Slide the universal shaft extension approximately halfway into the damper actuator's universal clamp assembly. Finger tighten the actuator's universal clamp nuts.
8. Install the damper actuator onto its mounting bracket. Loosen the actuator's universal clamp nuts, and extend the universal shaft extension until it is fitted fully onto the damper shaft.
9. Make sure the actuator's universal clamp assembly and the universal shaft extension are in alignment with the damper shaft, and tighten the universal clamp nuts on both the shaft extension and the actuator.

## AM-693 Damper Linkage Kit

### ***NOTE***

For additional information on the Mx4x-707x Series, and Mx4x-715x Series, refer to the General Instructions listed in the Applicable Literature section. The AM-693 is used only with the Mx4x-707x and Mx4x-715x actuators.

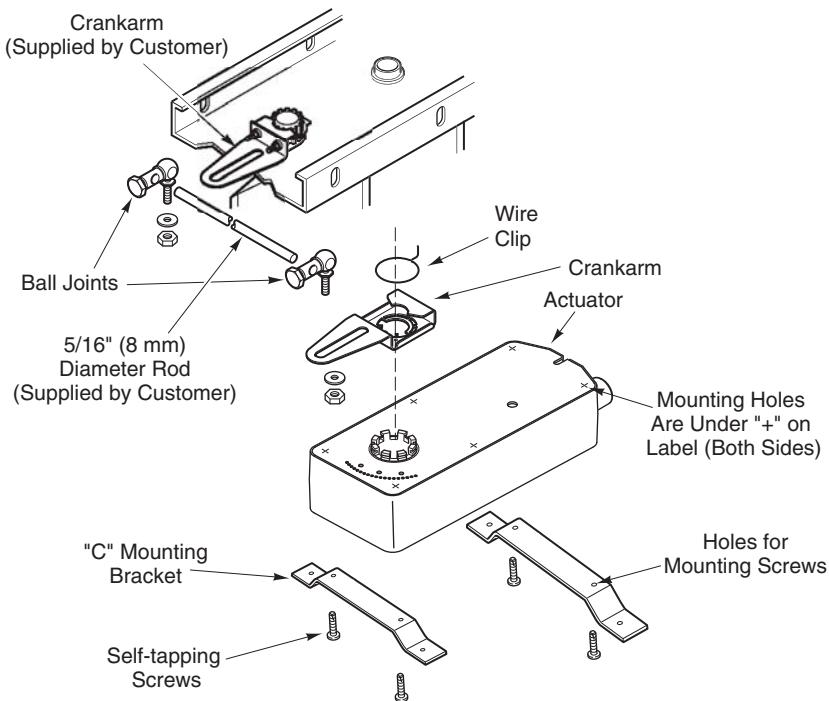


Figure-2 Installation of AM-693 Damper Linkage Kit.

1. Remove the universal clamp from the damper actuator.
2. Install the crankarm onto the damper actuator. Slide the crankarm into position replacing the universal clamp previously removed.
3. Secure the crankarm using the wire clip provided. See Figure-6. Place the wire clip inside the crankarm, making sure to align the wire clip with the grooves on the actuator mounting. Tighten the wire clip with finger pressure until it clicks into place.
4. Locate the pre-drilled mounting holes on the actuator label that are covered by a white "+" sign. See Figure-2.
5. Puncture the four locations that will be used for the "C" mounting brackets.

### ***CAUTION***

Do not drill holes in the actuator body. Use #10 self-tapping screws provided with accessory kit to screw into actuator body.

6. Use the #10 self-tapping screws to secure the two "C" brackets to the actuator. See Figure-2.
7. On a suitably rigid mounting surface, position the damper actuator in alignment with the damper shaft. If the mounting surface is uneven, make sure that there is a minimum clearance of 3/8" (10 mm) between the actuator and the mounting surface. Drill four holes in the mounting surface using the "C" mounting brackets as templates.
8. Secure the actuator to the mounting surface using four sheet metal screws (not provided).
9. Install a suitable crankarm, supplied by the customer, onto the damper shaft.
10. Install the two ball joints onto the crankarms on the damper actuator and the damper shaft.
11. Install the customer-supplied 5/16" (8 mm) rod between the two crankarms.

12. Adjust the positions of the ball joints on the crankarms, and the position of the 5/16" (8 mm) rod in the ball joints, as necessary. Tighten all fasteners.

#### **AM-689 Rotation Limiter for Mx4x-707x and Mx4x-715x Actuators**

***N O T E***

- For additional information on the Mx4x-707x Series, and Mx4x-715x Series, refer to the General Instructions listed in the Applicable Literature section.
- For clockwise spring return, install the rotation limiter on the "R" side of the actuator and on the "L" side for counterclockwise spring return.
- The V-clamp and the rotation limiter must be on opposite sides of the actuator.

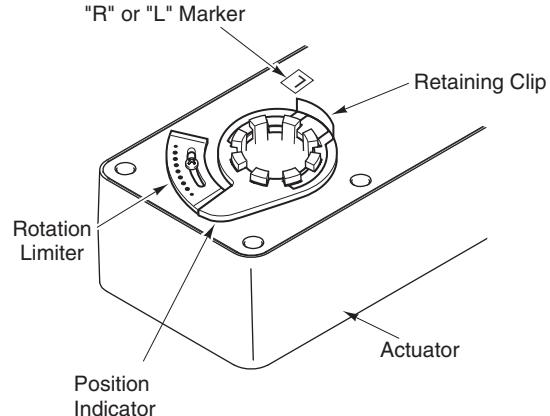


Figure-3 Installation of AM-689 Rotation Limiter.

1. Place the position indicator on the actuator as shown in Figure-3. Secure it in place using the retaining clip provided.
2. Determine the limit of rotation necessary for the application and align the recesses on the actuator with the studs on the rotation limiter.
3. Within the selected rotation range, a "+" marks the location of a hole under the actuator label. Insert the screw provided and tighten using a Phillips head screwdriver.

## AM-687 Universal Clamp for Jackshafts up to 1.05" (26.7 mm) in Diameter and 5/8" Square

### ***N O T E***

For additional information on the Mx4x-707x and Mx4x-715x Series actuators, refer to the General Instructions listed in the Applicable Literature section.

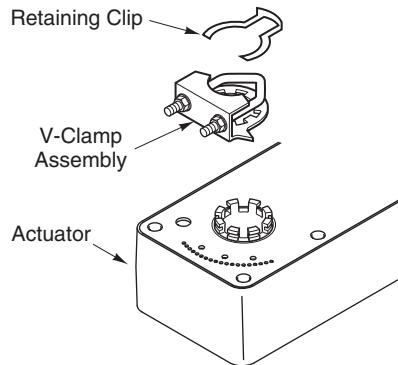


Figure-4 Installation of Clamp for Jackshafts.

1. Replace the factory installed universal clamp with the AM-687 universal clamp for jackshafts. Remove the retaining clip and universal clamp from the actuator.
2. Place the AM-687 universal clamp in the same orientation as the universal clamp previously installed on the actuator. Secure it in place using the retaining clip. See Figure-4.
3. Tighten V-bolt nuts between 6 to 8 lb-ft (8 to 11 N-m) of torque.

## AM-688 Replacement Universal Clamp

The AM-688 is used to clamp the actuator up to 3/4" diameter round shaft or up to 1/2" square shaft. This clamp is available to replace lost standard clamps shipped with the actuator.

### ***N O T E***

Refer to General Instructions listed in the Applicable Literature section for universal clamp and Mx4x-707x/Mx4x-715x installation instructions.

## AM-686 Damper Position Indicator

### ***NOTE***

- For additional information on the Mx4x-707x and Mx4x-715x Series actuators, refer to the General Instructions listed in the Applicable Literature section.
- For clockwise spring return, install the position indicator on the "R" side of the actuator and on the "L" side for counterclockwise spring return.
- The AM-686 is used in short shaft (3/4" to 3 1/2") applications.

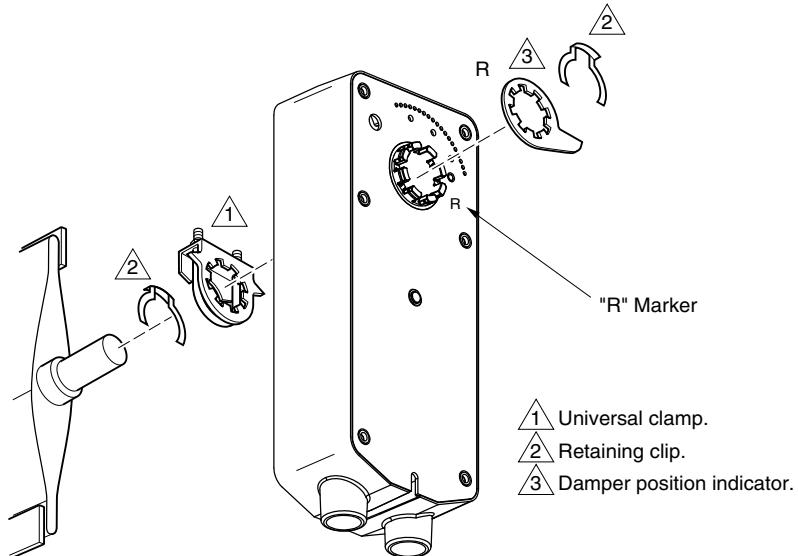


Figure-5 Installation of AM-686 Damper Position Indicator.

1. Place the position indicator on the actuator as shown in Figure-5 and secure in place, using the retaining clip provided.

## AM-690 and AM-691 Crankarms with AM-692 V-bolt Kit

### ***NOTE***

For additional information on the Mx4x-707x and Mx4x-715x Series actuators, refer to the General Instructions listed in the Applicable Literature section.

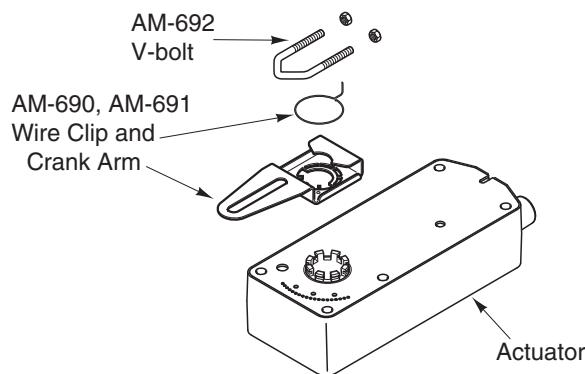


Figure-6 Installation of AM-69x Crankarm and AM-692 V-bolt Kit.

1. Remove the universal clamp from the damper actuator.
2. Install the AM-690 or AM-691 crankarm onto the damper actuator. Slide the crankarm into place replacing the universal clamp previously removed.
3. Secure the crankarm in place using the wire clip provided. See Figure-6. Place the wire clip inside the crankarm, making sure to align the wire clip with the grooves on the actuator mounting. Tighten the wire clip with finger pressure until it clicks into place.
4. Select a V-bolt from AM-692 appropriate for the damper shaft size. Insert the V-bolt into the holes on the crankarm and secure in place, using the two nuts provided.
5. Tighten V-bolt nuts between 6 to 8 lb-ft (8 to 11 N-m) of torque.

### **AM-762 Anti-Rotation Bracket**

The AM-762 replacement anti-rotation bracket is used to secure the actuator and prevent it from rotating around the shaft. Available to replace lost anti-rotation brackets shipped with the actuator.

#### ***NOTE***

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Refer to General Instructions listed in the Applicable Literature section for installation instructions.

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### **AM-763 Replacement Crankarm**

The AM-763 replacement 1/8" hex crankarm is used to replace lost crankarms shipped with Mx41-707x and Mx41-715x actuators. The crankarm is used to rotate the manual override mechanism.

## **MAINTENANCE**

AM-600 and AM-700 Series accessories require no maintenance.

Regular maintenance of the total system is recommended to assure sustained, optimum performance.

## **FIELD REPAIR**

None. Replace any damaged or failed parts with functional replacements.



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