



Duraflow Industrial Louvers

Installation and Maintenance Instructions

PRE-INSTALLATION ACTIVITIES:

1. With the louver crate resting firmly on either saw horses or a smooth and level area at grade, remove packing crate top and sides.
2. Make a visual inspection of the louver frame, blades and all linkages/drive mechanisms to ensure there was no shipping damage.
3. Various small parts needed to connect the drive linkages are shipped in a separate and smaller cardboard box. Keep this box at hand but out of the way and in a safe place.
4. Inspect the mounting surface of the cooler giving particular attention to ensure it provides uniform support of the louver perimeter and that it is structurally adequate to support all static and dynamic loadings.
 - a. If the louver is to be mounted in a horizontal configuration, it is **CRITICALLY IMPORTANT** to ensure the mounting surface is uniform and level to +/- .25" over 20'. Airtech louvers are manufactured to precise tolerances and bolting to an off-level surface will cause binding in the moving parts. This will result in inconsistent operation, shorten product life and can cause permanent damage that voids the manufacturers' warranty.
 - b. If the louver is to be mounted in a vertical configuration, the installer must confirm there will be uniform support / attachment to the mounting surface at spacing not greater than 18" centers on the louver perimeter flange. Failure to do so may result in bending of the louver frame and inconsistent operation, a shortened product life and can cause damage that voids the manufacturers' warranty.
5. Take a moment to visualize the installation and plan the placement of individual louver sub-assemblies. Although all louver installations involve essentially the same procedure, any given application will have some unique characteristics. Some projects will require louver sections to link together at the side via torque tube connectors while others may link together at the ends via end links on the actuator rod. Small projects may require neither type of connection while large projects will require both.
6. Open the cardboard box of small parts and confirm all the necessary pieces are at hand. Depending on the application, this could be torque tube couplings, actuator rod end links, grade level operator components, clevises, etc. Please note, unless the louvers are to be attached via angle clips, the actual attachment hardware won't be included in the louver shipment.
7. Most of the time, louver installation is easiest done using self-drilling speed screws, ¼" x 1¼" long, fine thread. Ensure a screw is in place on all corners and not greater than 18" centers on the louver perimeter. Simply drill through the louver flange into the host structure making sure the screw is completely pulled down tight. If retaining clips is your preferred method of attachment, please review to "Reference A" for instructions on use and installation.

MOUNTING & ATTACHMENT

1. Hoist the louver (or first louver sub-section) into place making sure the lift is well supported around the perimeter. DO NOT ALLOW THE LOUVER TO RACK or excessively bend during the lifting process.
 - a. **For horizontal applications**, set the louver onto the mounting surface and visually confirm 100% of the perimeter is supported and resting flat upon the top of the cooler. Make sure the operating mechanism travels freely through the entire range of motion and there is no interference from complete shut to complete open. If the louver is supplied in multiple sections, install the section with the operator first and perform the motion/operation test noted above. Square the louver to the cooler as best you can but above all, be sure the louver remains square – do not force to the louver out of square to accommodate the cooler. THE LOUVER MUST BE SQUARE to operate properly. After confirming the louver is properly placed relative to the mounting surface (and to other subsequent sections, if applicable), install a self-drilling screw at each corner and at no greater than 18” centers along all flanges. If applicable, hoist subsequent sections into place and following the above instructions, attach each to the host structure. DO NOT STEP ON LOUVER BLADES AT ANY TIME. If you must step out onto the louver, use dimension lumber or plywood as a walking surface.
 - b. **For vertical applications**, hoist the louver (or first louver section) into place and after checking for clearance on moving parts, attach to the cooler with a self drilling screw at each corner and at no greater than 18” spaces along all flanges. Install all attachment screws before releasing hoist cables or hoisting device to ensure the louver is fully attached and there is no deflection in the louver frame. If applicable, hoist subsequent sections into place and following the above instructions, attach each to the host structure.
2. If the louver is supplied in multiple sections, remove the connecting links / couplers from the shipping box and install them as required at the ends of actuator rods and torque tubes. End link installation instructions are detailed as attached “Reference B” for internal action 700/740/900 Series louvers and “Reference B1” for external actuation louvers in 500/700 or 900 Series. Torque Tube coupling installation instructions are detailed in attached “Reference C”.
3. When all sections are installed and connected, test the drive mechanism to ensure it moves freely, without binding or interference. On very large louvers with multiple sections, this may require use of a lever. Small to average size louvers should easily operate by hand strength on the torque tube.
4. Complete the installation by attaching any remaining components such as pneumatic actuator or grade level operators. Detailed installation instructions for actuator can be found in its shipping carton. For instructions on grade level operators, refer to the attached for the most commonly used models or www.airtechproducts.com for all types ***note the drop rod must have lateral support brackets installed at 6’ (foot) increments over the length.***
5. After installing any remaining operators, complete the installation process by cycling the louver several times to ensure it moves freely, without interference and isn’t binding at any location. Some adjustment of end links may be required to ensure all louver blades open and shut consistently down the entire length of the louver.
6. Check all attachment fasteners to ensure all are properly tightened and completely engaged to the louver flange.
7. If applicable, check all end link connections and torque tube couplers to ensure they are properly tightened and fasteners are completely engaged.

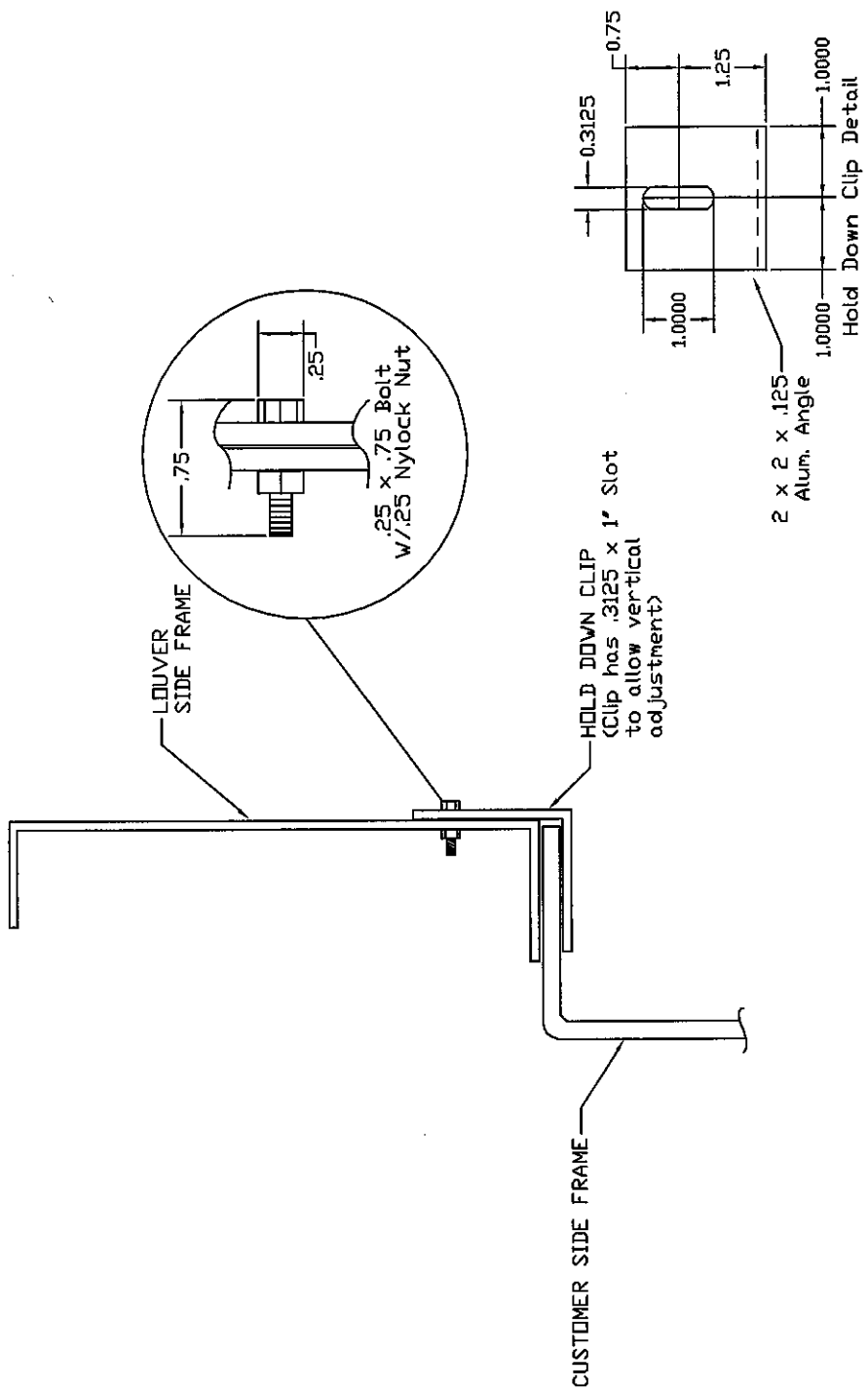
MAINTENANCE INSTRUCTIONS (Annual)

1. Visually inspect all blade pins to ensure the pin bearings are in place and do not have unacceptable wear.
2. Visually inspect all connections between blade horns and actuator rod to confirm all connecting bearing, bolts and nuts are in place and not showing unacceptable wear.
3. Visually inspect all attachment screws to ensure none have backed off or are missing.
4. If dirt or grease buildup is excessive, clean louver blades and operating mechanisms with high pressure clear water wash.
5. Operate any manual levers or grade level operators to confirm all are in good working order and move freely without binding or interference.
6. If actuators are installed, visually inspect the mounting bolts to ensure all are tight and in place. Visually inspect the condition of all connecting links, the clevis and clevis pin.
7. Visually inspect all actuator rod end links and torque tube connectors to confirm all are in place and properly engaged.
8. Remove any leaves or other debris that may have collected in corners or between the louver blades and integral hailguards.

RECOMMENDED SPARE PARTS LIST

Item Description	Suggested Quantity
1. Blade horn bearing, bolt and nut kit	1 per 5 Ft ² louver area
2. Actuator rod end link kit	1 per 2 connections
3. Torque Tube couplings	1 per 2 torque tube connections
4. Blade Pin and Pin Bearing kits	5 per 10 Ft ² louver area
5. Manual handle kits	1

Note: This document and supporting documentation/owner's manuals and technical data on all Airtech Products equipment can be found on our website www.airtechproducts.com.

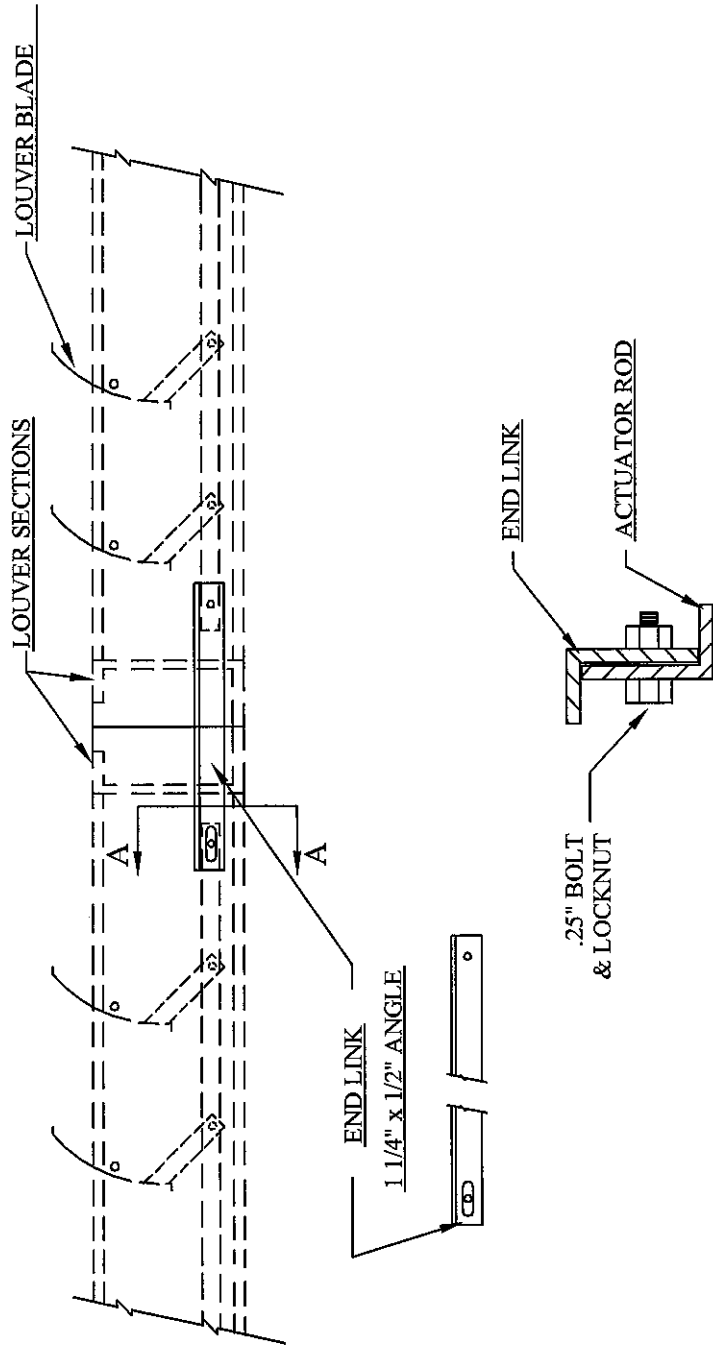


REFERENCE "A"

Airtech Products Inc.
Mounting Clip Detail
12/23/08
Stewart

All Dimensions in inches except as noted

700 / 740 / 900 SERIES



INSTALLATION:

1. Position "Leading" section of louvers (closest to control end) to full open & attach end link to actuator rod using the included hardware.
2. Position blades in both louver sections to full closed.
3. Complete the installation by attaching the end link to actuator rod in "Trailing" section using the included hardware.

REFERENCE "B"

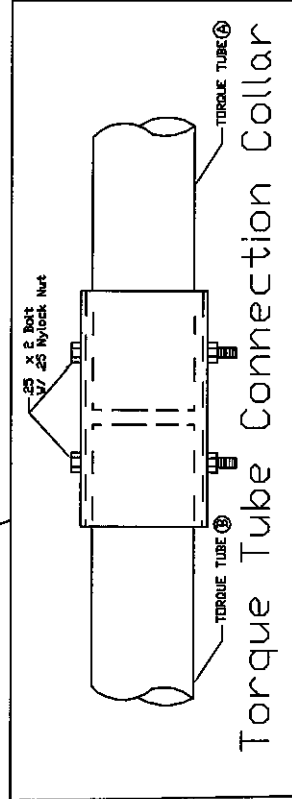
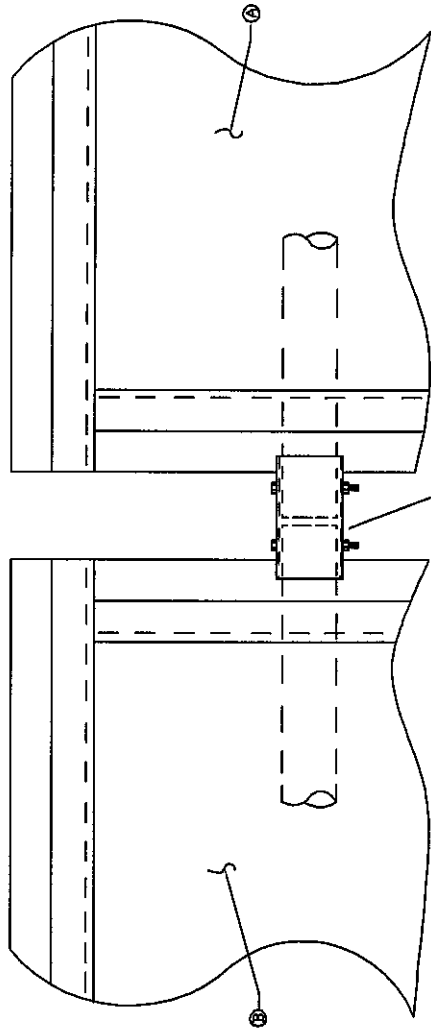
AIRTECH PRODUCTS, INC.

Dwg. Name:

END LINK INSTALLATION

Date: 12/23/08

By: Stewart



Torque Tube Connection Collar

Installation:

1. Attach lower section "A" to structure.
2. Remove 1/4" bolt and nut from end of connecting collar where section "B" torque tube will attach.
3. Slide section "B" torque tube into connection collar as section "B" is placed into position on structure.
4. Attach section "B" to structure.
5. This will rotate the torque tube to the fully closed position.

This will rotate the torque tube and the connecting collar so the empty hole (the bolt was removed in Step 2) will face to the front. Position the blades in Section B to the fully closed position. Using the existing hole in the connecting collar as a guide, drill a 9/32" hole in the structure. Then, insert the 1/4" x 3/8" bolt and nut. Insert the 1/4" x 3/8" bolt and nut and securely tighten with Nylock nut.

REFERENCE "C"

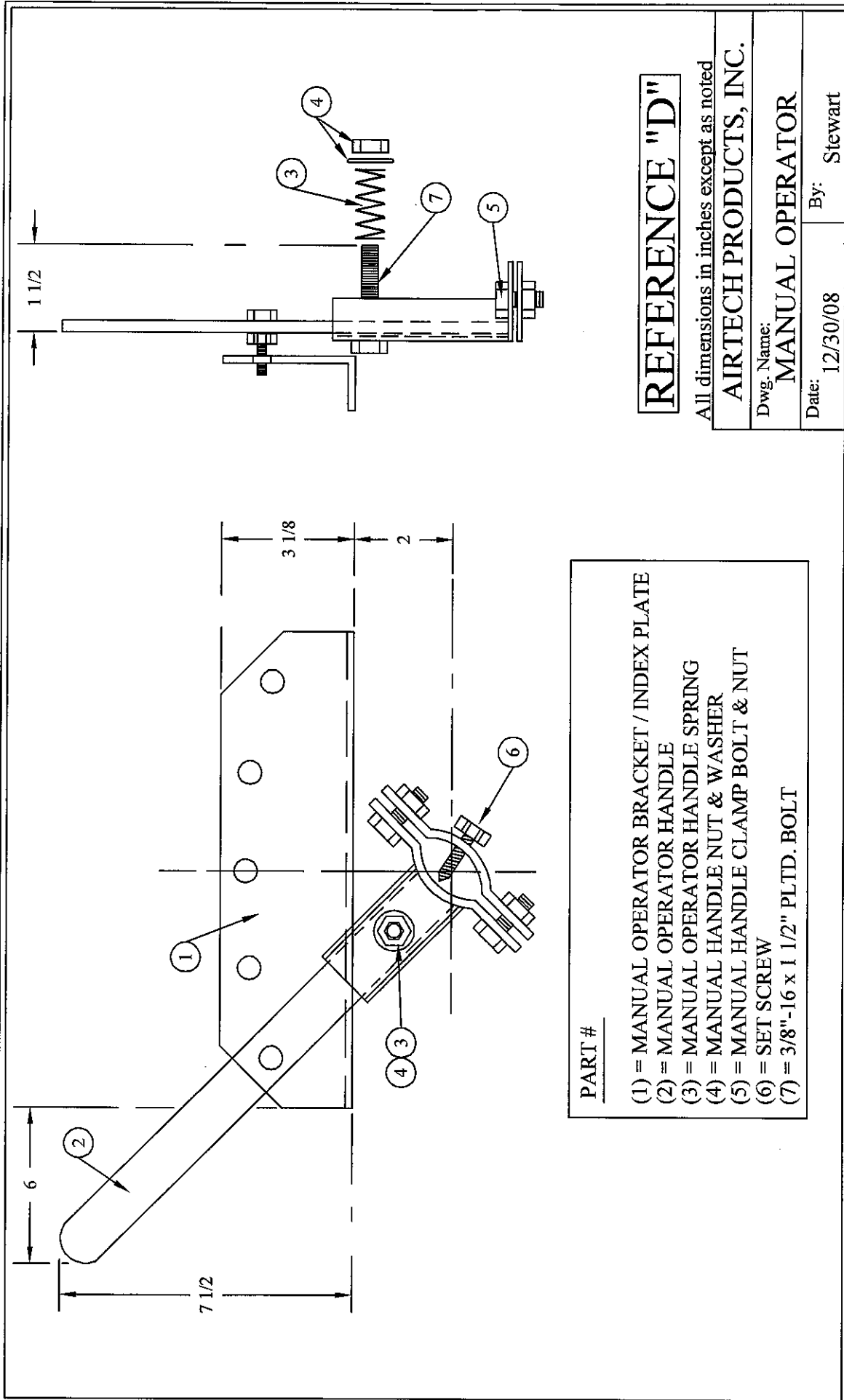
All Dimensions in inches except as noted

Airtech Products Inc.

CONNECTING COLLAR INSTALLATION

12/23/08

Stewart



REFERENCE "D"

All dimensions in inches except as noted

AIRTECH PRODUCTS, INC.

Dwg. Name:

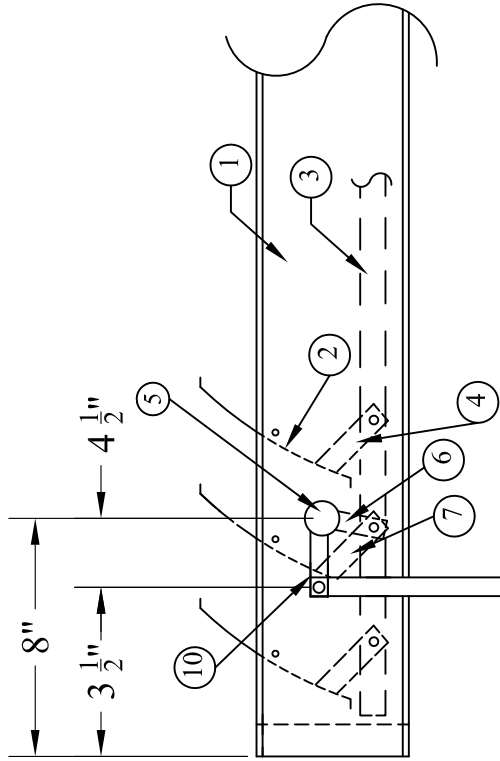
MANUAL OPERATOR

Date: 12/30/08

By: Stewart

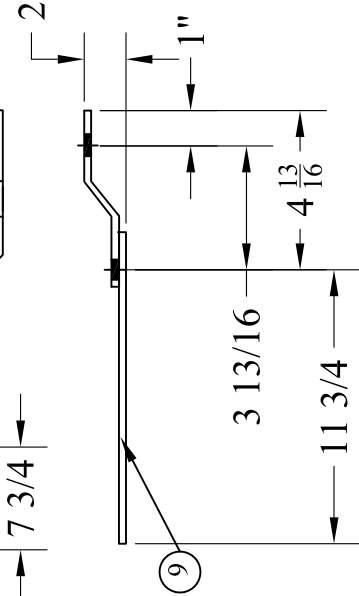
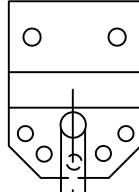
PART #

- (1) = MANUAL OPERATOR BRACKET / INDEX PLATE
- (2) = MANUAL OPERATOR HANDLE
- (3) = MANUAL OPERATOR HANDLE SPRING
- (4) = MANUAL HANDLE NUT & WASHER
- (5) = MANUAL HANDLE CLAMP BOLT & NUT
- (6) = SET SCREW
- (7) = 3/8" -16 x 1 1/2" PLTD. BOLT



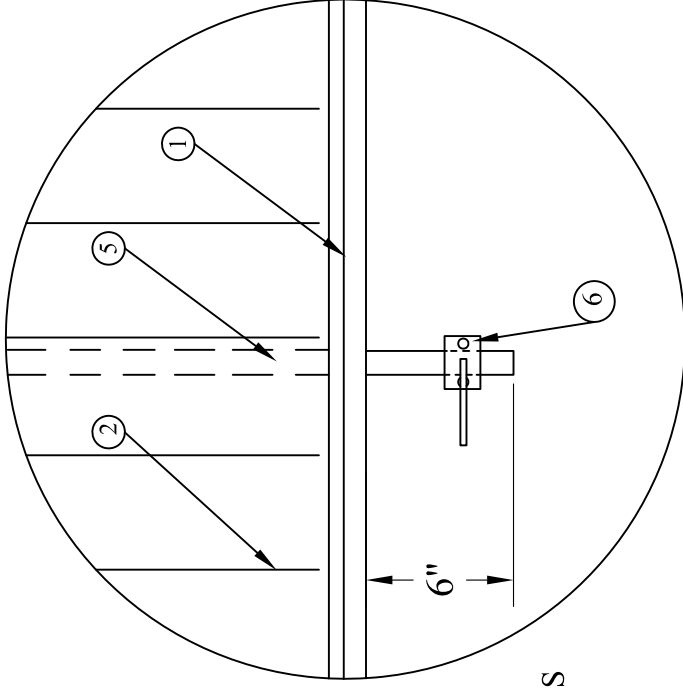
* LATERAL BRACING REQ'D @ 6' INTERVALS

PER CUSTOMER SPEC.*



LOUVER WITH SIDE DROP GRADE LEVEL OPERATOR

#	PART NAME
①	LOUVER FRAME
②	LOUVER BLADE
③	ACTUATOR ROD
④	BLADE HORN
⑤	TORQUE TUBE,
⑥	TORQUE TUBE LEVER ARM
⑦	CONTROL LINK
⑧	DROP ROD
⑨	GLO MANUAL HANDLE
⑩	LINK-ROD TO GLO
⑪	OVER THE END BRACKET



- △ REV TO NON SERIES SPECIFIC 3-18-15
- △ ADDED DIMS 5-26-15
- △ ADDED LATERAL SUPPORT REQ 12-27-16

AIRTECH PRODUCTS, INC.

Dwg. Name:

SIDE DROP GRADE LEVEL OPER.

Date:

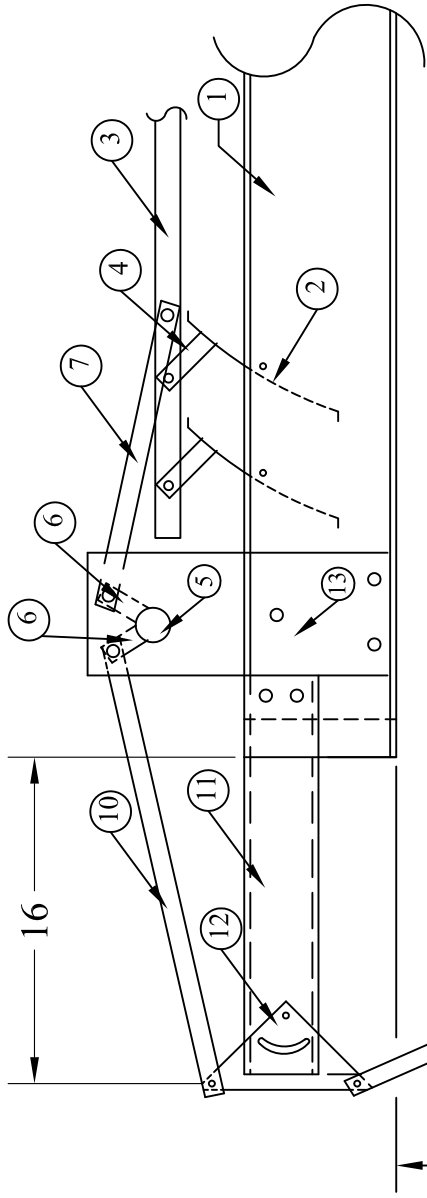
12-27-16

By: Miller

Customer:

File #:

PARTS



* LATERAL BRACING REQ'D @ 6' INTERVALS

PER
CUSTOMER
SPEC. *

500 SERIES LOUVER WITH OVER-THE-
END GRADE LEVEL OPERATOR

#	PART NAME
①	LOUVER FRAME
②	6 1/2" LOUVER BLADE
③	ACTUATOR ROD
④	BLADE HORN
⑤	TORQUE TUBE, 1" SCH. 40
⑥	TORQUE TUBE LEVER ARM
⑦	CONTROL LINK
⑧	DROP ROD
⑨	GLO MANUAL HANDLE
⑩	LINK-ROD TO GLO
⑪	OVER THE END BRACKET
⑫	TRIANGLE BRACKET
⑬	TORQUE TUBE SUPPORT BRACKET
⑭	
⑮	

AIRTECH PRODUCTS, INC.

Dwg. Name:

OVER THE END GRADE LEVEL OPER.

Date:

12-27-16

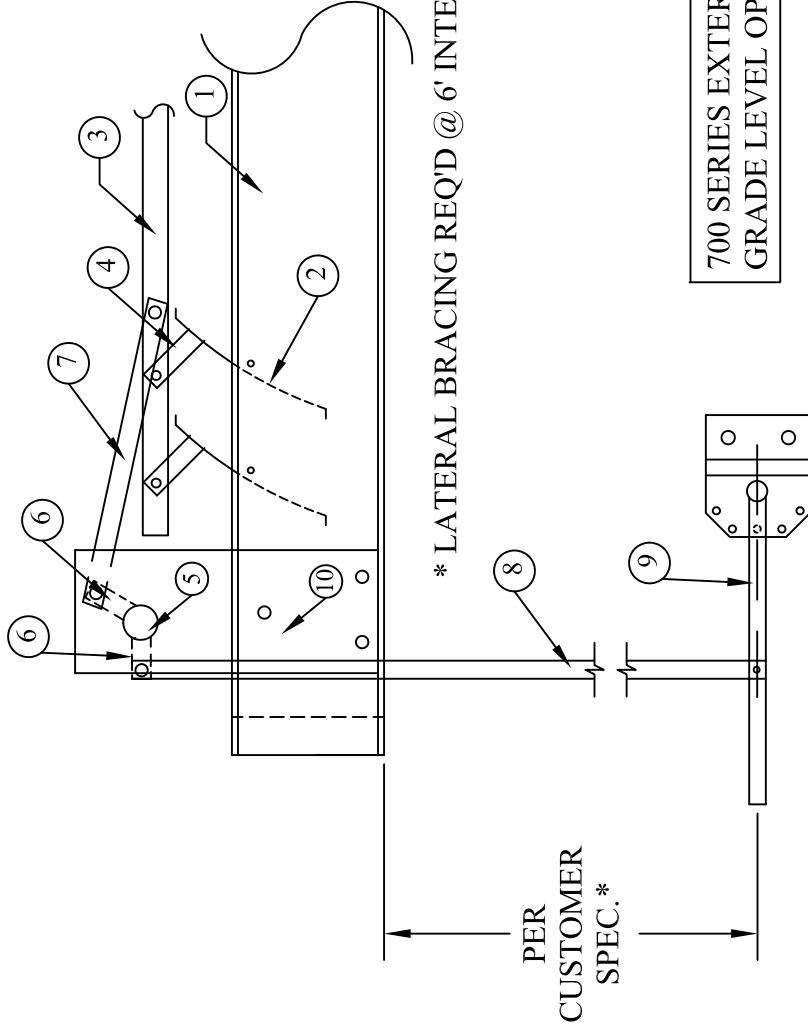
By:

Miller

Customer:

File #:

PARTS



700 SERIES EXTERNAL LOUVER WITH SIDE DROP
GRADE LEVEL OPERATOR

#	PART NAME
①	LOUVER FRAME
②	6 1/2" LOUVER BLADE
③	ACTUATOR ROD
④	BLADE HORN
⑤	TORQUE TUBE, 1" SCH 40
⑥	TORQUE TUBE LEVER ARM
⑦	CONTROL LINK
⑧	DROP ROD
⑨	GLO MANUAL HANDLE
⑩	TORQUE TUBE SUPPORT BRACKET

AIRTECH PRODUCTS, INC.

Dwg. Name:

SIDE DROP GRADE LEVEL OPER.

Date:

12-27-16

By: Miller

Customer:

File #:

PARTS