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## INSTALLATION MAINTENANCE, OPERATING INSTRUCTIONS

**IM-220**

# FAN OUTLET AND INLET BOX DAMPERS

## INSTALLATION

Dampers are designed and manufactured with flanges and mounting holes to match the fan's outlet flange. Gasketing may be used between the flanges as required.

Standard construction of **nyb** fan outlet dampers requires dampers to be mounted with the control arm and linkage positioned on the inlet side of the fan with the control arm pointing toward the fan. (Figure 1)

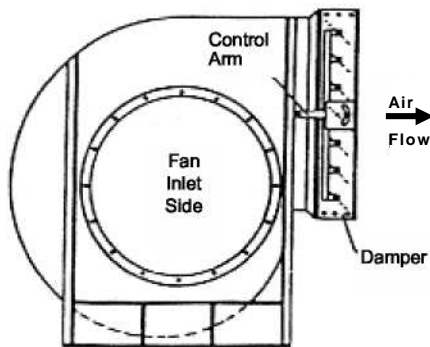


Figure 1

For manual operation of the damper, the locking bolt should be loosened sufficiently to permit movement of the control arm to the desired position. The locking bolt should be retightened to maintain the desired position.

For electric, hydraulic, pneumatic or mechanical operation of the damper, the locking bolt should be removed from the control arm. This allows freedom of movement for the damper and operator linkage.

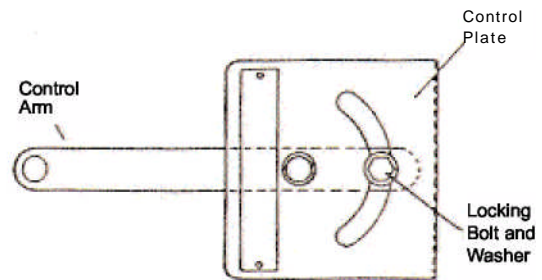


Figure 2

## MAINTENANCE

Routine maintenance of dampers should include periodic inspection of the vanes and rods in the airstream to determine if replacement is necessary due to airstream corrosion or abrasion.

Vane rod bearings and linkage bushings should be inspected for looseness or wear and replaced when necessary. Standard dampers may require occasional lubrication of friction points with 30W oil.

Optional flanged ball bearings with grease fittings should be lubricated with lithium base NLGI Grade No. 2 grease every six (6) months during typical operation.

Optional stuffing box packing should be repacked with 1/8" diameter graphite packing when leakage is excessive.

## OPERATION

Air moving across a damper exerts a considerable amount of force on the damper vanes. Vanes tend to close as a result of this force. A locking bolt is provided on the control arm to hold the vanes in the desired position, (Figure 2). See separate Catalog Sheet for Outlet Dampers for Centrifugal Fans for calculating required operating torque.

## SHIPPING

Fan outlet dampers are shipped mounted on fans whenever possible. Shipment on separate skids may be required when the size of the fan/damper combination poses shipping difficulties.

## RECEIVING AND INSPECTION

Unpack and inspect the damper. Loosen the control arm locking bolt and operate the damper from the closed to open positions several times to insure that the vanes and linkage move freely and do not bind. Any visible sign of damage should be noted on the Bill of Lading.

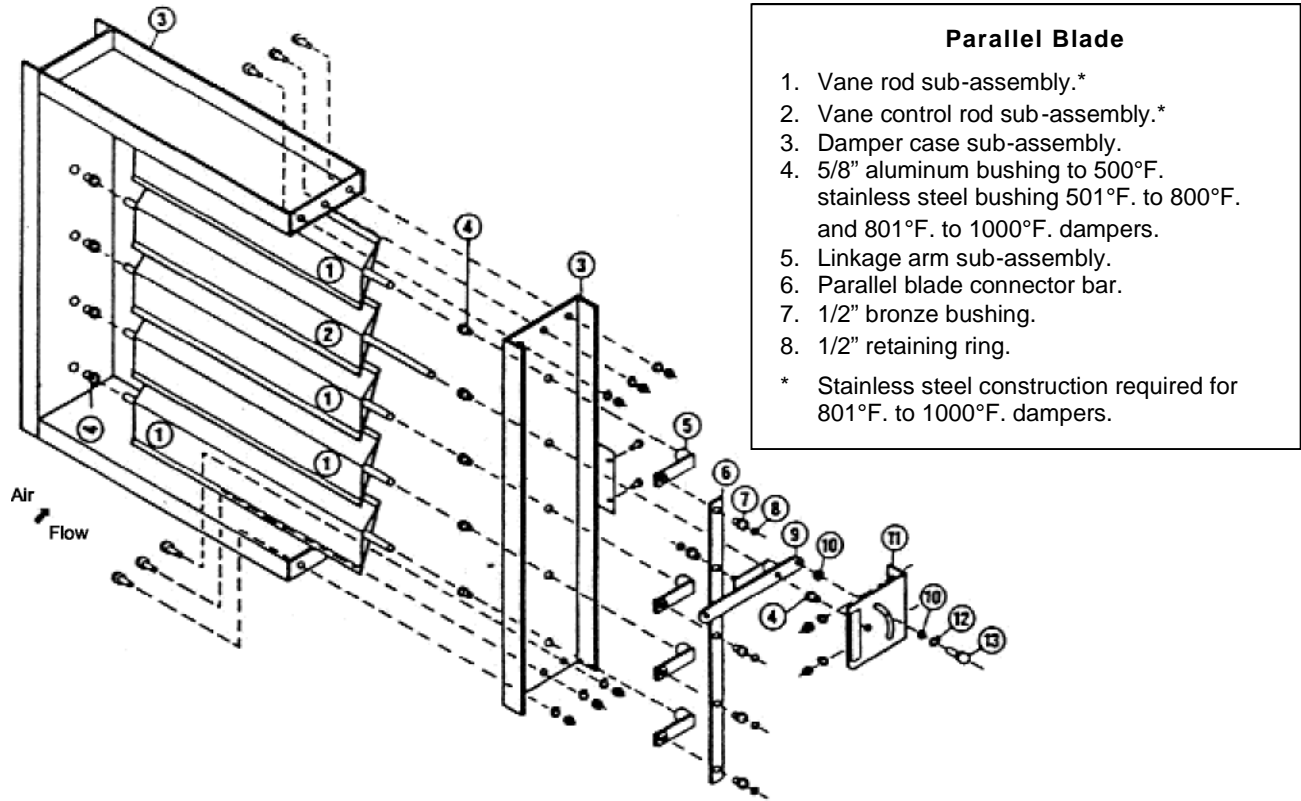
## HANDLING AND STORAGE

Damper should be lifted by the external case only, never by the vanes, linkage, control plate or control arm.

Whenever possible, dampers should be stored in clean, dry locations to prevent rust and corrosion. If outdoor storage is necessary, damper should be as well protected as possible against the elements.

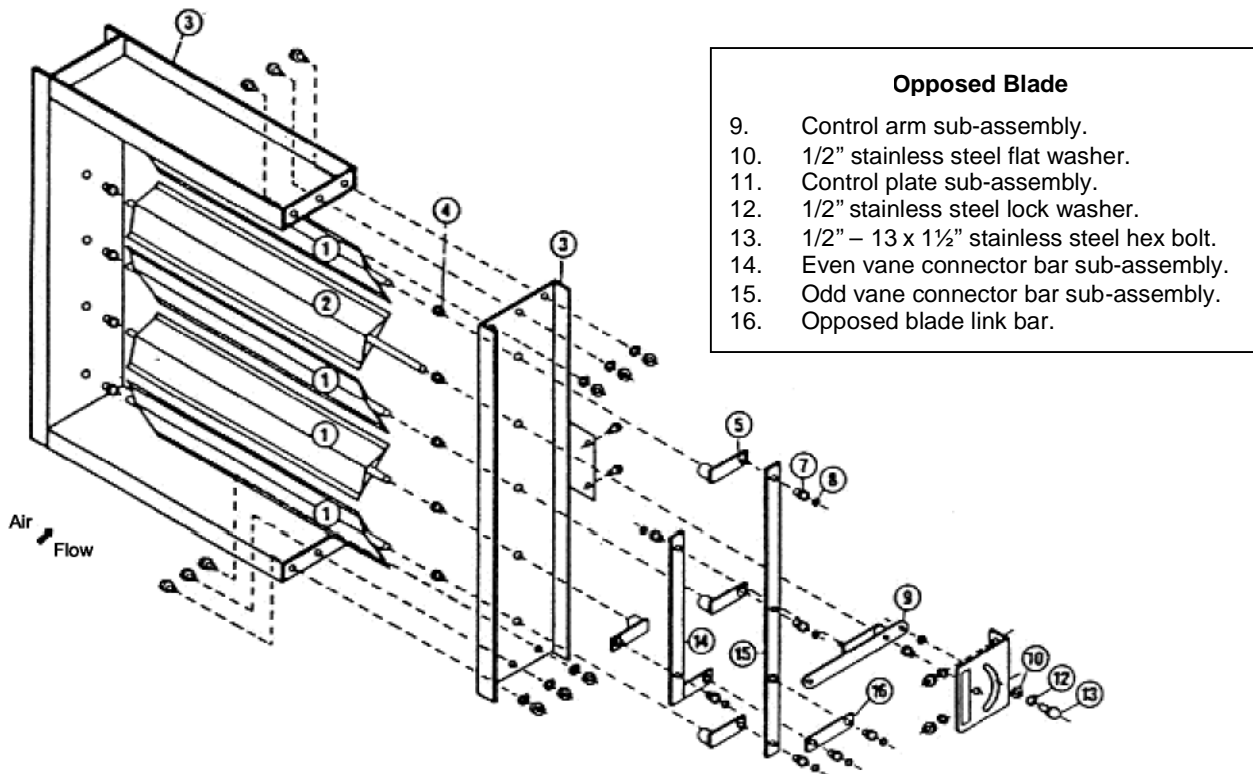
If long term storage is required, routine maintenance procedures should be followed and the damper should be modulated periodically to insure free movement of vanes and linkage.

## STANDARD DAMPER CONSTRUCTION



**Figure 3**

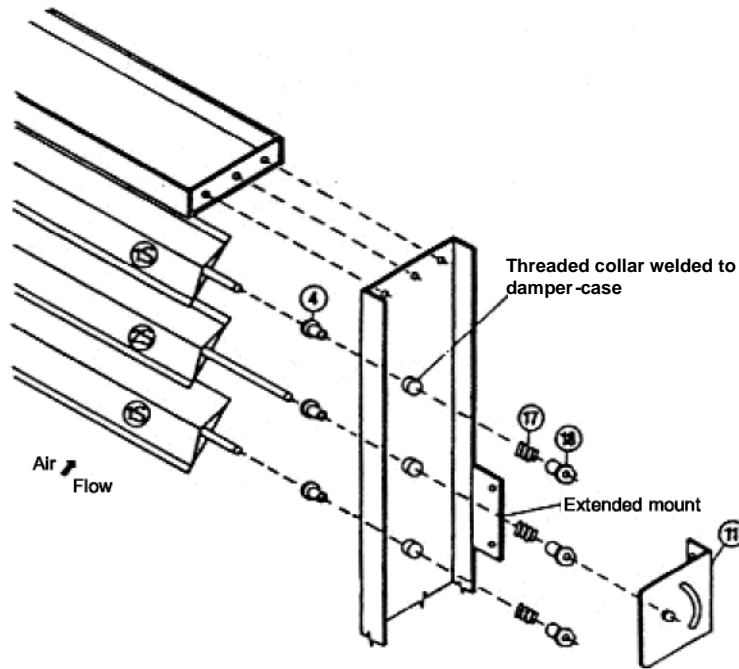
Exploded view of parallel blade outlet dampers . . . airflow is opposite for inlet box dampers.



**Figure 4**

Exploded view of opposed blade outlet dampers.

## OPTIONAL CONSTRUCTION FEATURES



**Figure 5**  
Exploded view stuffing box option.

**Note:**

Control arm, linkage, bearing, bushings, and hardware are dictated by damper blade configuration. Refer to Figure 3 for parallel blade damper or Figure 4 for opposed blade damper linkage detail.

Recommended spare parts packages for ball bearings dampers include:

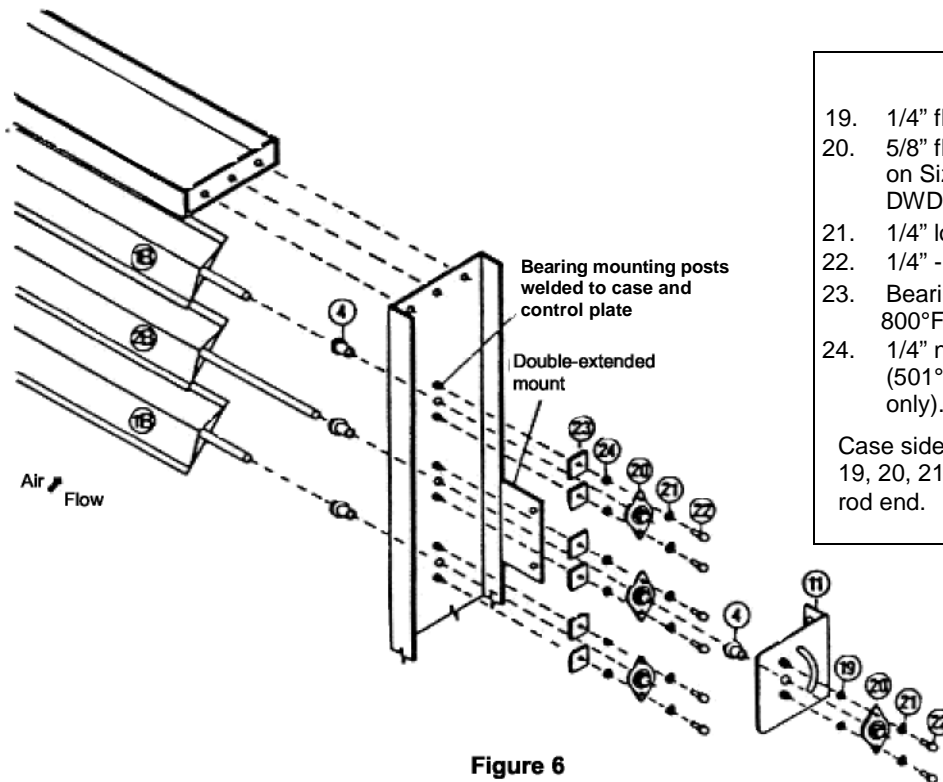
- 4. Case bushings
- 7. Bronze bushings
- 8. Retaining rings
- 20. Flanged ball bearings

**Parts List**

**Stuffing Box**

- 17. 1/8" diameter graphite packing.
- 18. Packing bushing.

Not shown: welded caps installed on damper case (opposite of linkage side) to enclose ends of vane rods.



**Figure 6**

**Ball Bearing**

- 19. 1/4" flat washer.
- 20. 5/8" flanged ball bearing. (3/4" on Size 44 - 73 AcF/PLR DWDI only.)
- 21. 1/4" lock washer.
- 22. 1/4" - 20 x 1" hex bolt.
- 23. Bearing heat sink (501°F to 800°F. construction only).
- 24. 1/4" non-metallic washer (501°F to 800°F. construction only).

Case side not shown has parts 19, 20, 21, and 22 for each vane rod end.

## REPLACEMENT PARTS

Dampers can be disassembled in the field by removing control plate, control arm, linkage, case side, and vane/rod sub-assemblies in that order without removing the remainder of the damper case from the fan or ductwork.

Only ordinary hand tools are required to replace vanes, bearings and bushings.

Exploded views and parts identification are shown in Figure 3 through Figure 6 for various types of dampers and optional construction features.

## Required Ordering Information

Fan Size and Type: \_\_\_\_\_

Rotation: \_\_\_\_\_

Damper Type: \_\_\_\_\_

Optional Construction Features: \_\_\_\_\_

nyb File (Shop) Number: \_\_\_\_\_

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## INLET BOX DAMPERS

### SHIPPING

Inlet boxes and inlet box dampers are normally shipped independently on separate skids, (factory mounting may be available in certain circumstances).

Refer to page 1 for Receiving and Inspection, Handling and Storage, Maintenance and Operational Instructions.

### INSTALLATION

Inlet box dampers should be mounted on inlet boxes with the control arm and linkage positioned on the outside of the inlet box, (side furthest from fan inlet) with the control arm pointing toward the inlet box, (Figure 7).

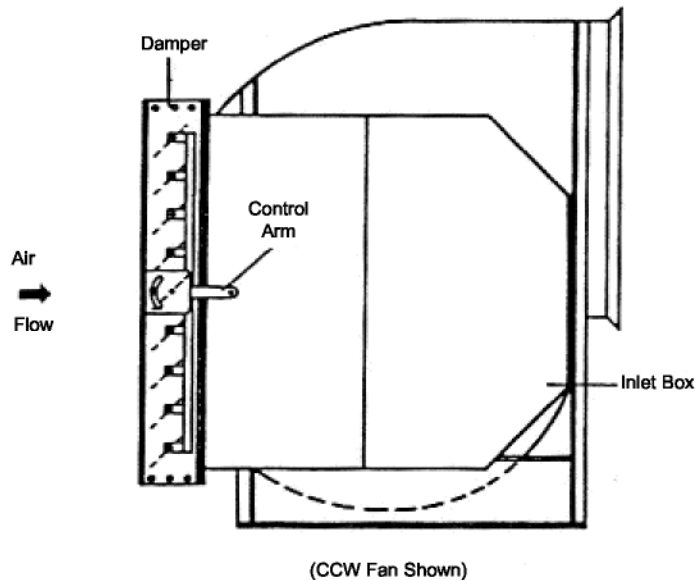


Figure 7