Marine Air Flow International

Air Damper Auto Activation

Installation Doc

PURPOSE:
The purpose of this document is to provide our Air Damper Activation system installation instructions so you can fit your MAFI product correctly & ensure its effectiveness.

RESPONSIBILITY:
It is the owner / and or ship repairer's responsibility to correctly install the MAFI products. Any alterations or deviations should be carefully considered.

MAFI would appreciate all deviations to be referenced, made aware & noted for future reference.

TOOLS, GAUGES & FIXTURES:
The installation kit provided contains the following items:

- 1 x Activation Handle
- 25 x Stainless steel tech screw's
- 4 x radius 90 degree brackets
- 2 x straight bracket
- 1 x D-shackle crimped onto 6 meters of the Dyneema pull cord
- 1 x Keeper
- 2 x Activation Handle Crimp plugs
- 1 x Red Instruction Plate
- 1 x Engine Room Temperature Digital Sensor
- 1 x 3M VHB Surface Wipe
- 1 x Pen

The installation kit requires the following:

- Crimping Tool
- Drill

Air Damper Auto Activator
Installation Doc

Selection and Installation of Manual Damper Systems

Guide to selecting the appropriate manual damper control system and subsequent setup process

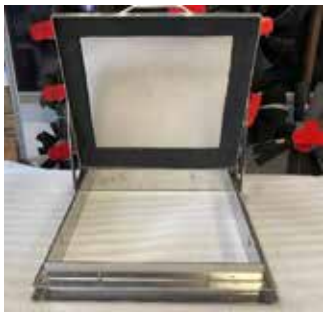
This document contains instructions on:

Selecting Appropriate Manual Damper Control Set

At Marine Air Flow, we supply two different variations of the Manual Damper Control systems; the **Stainless Steel Manual Damper Control Set** and the **Synthetic Manual Damper Control Set**. The type of damper being used is what will dictate which is the appropriate control system to choose. The two styles of damper we have are the Spring Loaded Damper and the Manual Access Air Damper, both of which are shown below.

Spring Loaded Damper

Man Access Air Damper



Stainless Steel Manual Damper Control Set

Advantages: Stainless steel design ensures that the cable does not melt when exposed to heat, meaning it can be used to control the Manual Access Air Damper
Disadvantages: Because the stainless steel does not melt in the heat, it can't be used as a semi-automatic fire control system (IE. when using a Spring Loaded damper, the synthetic cable will melt, therefore causing the Spring Loaded Air Dampers to shut as there is no longer anything holding the flaps open)
When to use: SS Manual Damper Control Set can be used on the Spring Loaded Air Damper, and MUST be used on the Manual Access Air Damper
When not to use: The SS Manual Damper Control set should not be used when a semi-automatic fire control system is wanted as the stainless steel will not melt under heat

Synthetic Manual Damper Control Set

Advantages: Using a synthetic cable ensures that it can melt under heat, which means it can be used as a semi-automatic fire control system (IE. when using a Spring Loaded Air Damper, the rope will melt, therefore causing the Spring Loaded Air Dampers to shut as there is no longer anything holding the flaps open
Disadvantages: Synthetic cable melts so it cannot be used to control the Manual Access Air Damper. The Manual Access Air Damper is closed by pulling a handle to release a parrot beak mechanism holding the damper flap open, so if the synthetic cable melts, the parrot beak mechanism cannot be pulled out to close the flap
When to use: Use with the Spring Loaded Air Damper when a semi-automatic control system is required
When not to use: DO NOT USE THE SYNTHETIC CABLE MANUAL CONTROL SET ON A MANUAL ACCESS AIR DAMPER

Selecting Appropriate Handle

The manual control systems come with the choice of 3 different types of handles, each with their own unique purpose (see figure below). It is imperative that the appropriate handle is selected as not all handle variations can be used in all the air dampers. To understand the appropriate handle for your application, consult the table below.

Handle	When It Can Be Used	When It Cannot Be Used
1: Red Handle	It is recommended for use on commercial craft utilising a Spring Loaded Air Damper larger than 490mm x 490mm. Should be used when the Stainless Steel Manual Damper Control System is used	Handle CANNOT be used in the Manual Access Air Dampers as the release mechanism will not close the damper
2: Large T-Handle	It can be used in either form of air damper that is larger than 490mm x 490mm	It is recommended not to use this handle on dampers 490mm x 490mm or smaller
3: Small T-Handle	It can be used in either form of damper 490mmx 490mm or smaller	Do not use this handle in dampers larger than 490mm x 490mm

Installation Process for Spring Loaded Air Damper With T-Handle

1. Ensure fire damper is correctly and securely mounted

2. Attach looped end of synthetic cable/SS wire to hole in the damper control arm using the D shaped shackle

3. Using the alloy guides supplied, route the synthetic cable/SS wire as required to ensure the handle reaches the required mounting point. Make sure to use the 90 degree brackets at each bend and the straight brackets over each long straight to ensure there is no slack in the chord (*note that the example set up does not utilise these brackets so the photos below are simply for illustrative purposes)

4. Position the stainless steel (SS) rope jammer at required location on the boat, which is the point at which the handle will be accessed. Mount the stainless steel rope jammer using the supplied screws (note the screws in the image below may differ from the ones supplied)

5. Remove the cap from the end of the handle using a flat head screwdriver or alternate thin-tipped tool

6. Slide the aluminium crimps and handle onto the synthetic cable/SS wire ensuring the T-shaped part of th
wards the unfastened end of synthetic cable/SS wire

7. Pull synthetic cable/SS wire so that the flap of the damper are 90% open (approximately vertical). *Note it is extremely important that the dampers are not more than 90% open as there needs to be 10% worth of damper movement to allow the crimp to be disengaged and the damper to subsequently closed.* While the damper is being held 90% open, move the handle and crimps such that the bottom crimp is resting in the SS rope jam, the handle is jammed hard against the bottom crimp and the top crimp is tucked into the recess in the top of the handle. Using a marking device, mark the location of the top of the top crimp.

8. Release the synthetic cable/SS wire so the damper is fully closed
9. Using a crimping device, fasten the top crimp at the marked point

10. Slide the handle and bottom crimp such that the top crimp is flush inside the handle's recess and the bottom crimp is flush against the bottom of the handle

11. Fastern the bottom crimp using a crimping device.

12. Remove excess dyneema/SS wire at the top of the handle using wire cutters
13. Pull the handle so that the bottom crimp is sitting in the SS rope jammer (the damper flaps should be ~90% open)

14. Pull and release the handle to test that the manual damper control system works as expected (damper flaps should slam shut)

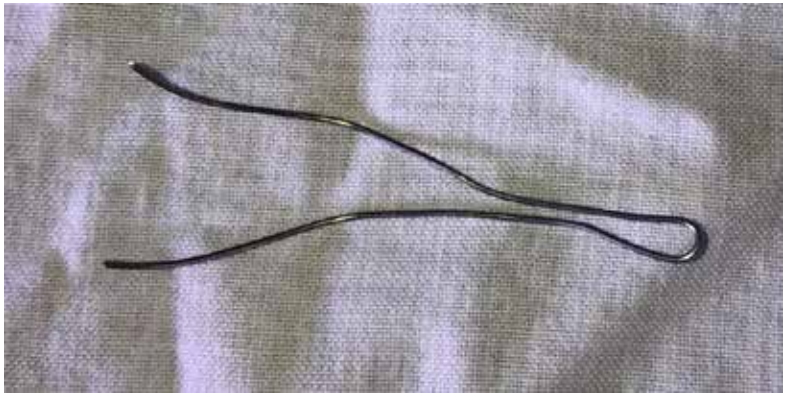
15. If the damper controller is working as expected, return handle to position stated in Step 13 and damper installation is complete

Installation Process For Spring Loaded Damper With Red Handle

1. Ensure fire damper is correctly and securely mounted
2. Attach looped end of synthetic cable/SS wire to hole in the damper control arm using the D-shaped shackle

3. Using the alloy guides supplied, route the synthetic cable/SS wire as required to ensure the handle reaches the required mounting point. Make sure to use the 90 degree brackets at each bend and the straight brackets over each long straight to ensure there is no slack in the chord (*note that the example set up does not utilise these brackets so the photos below are simply for illustrative purposes)

4. Mount the red handle at the point where it is needed using the screws provided



5. Using a thin piece of wire, bend it until it creates a U-shape or similar

6. Loop end of synthetic cable/SS wire through the loop in the U-shaped piece of wire

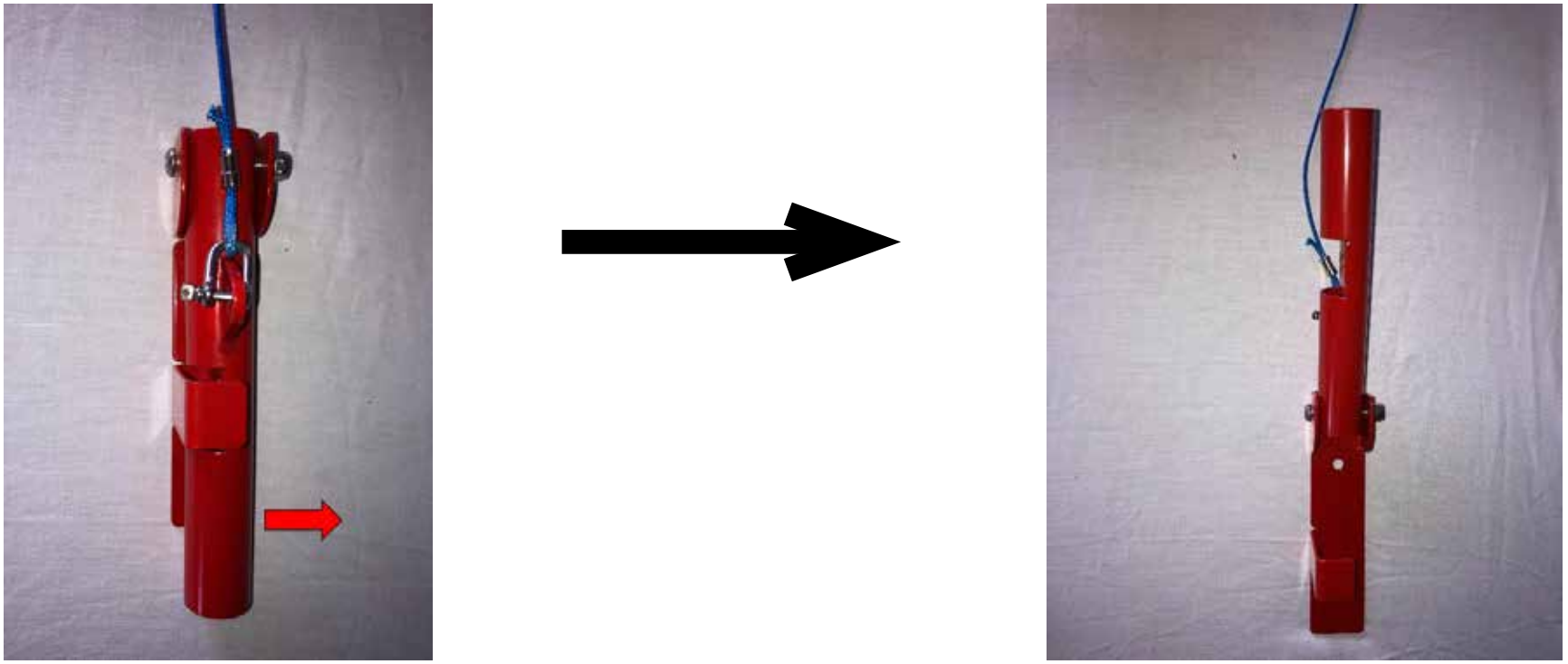
7. Slide the U-shaped piece of wire through the crimp so that the crimp is touching the bent section of the synthetic cable/SS wire

8. Pull crimp hard so that it slides onto synthetic cable/SS wire ensuring that it is slid far enough down to create a small loop at the top (you may need to use pliers to do this). Remove the thin piece of wire
9. Adjust position of the crimp so that when a D-shackle is looped and attached to the red handle, the damper flaps are fully open (might be useful to jam the damper flaps open while doing this so there is no tension on the cable)
10. Fasten the crimp using a crimping device

11. Slip the D-shackle through loop in synthetic cable/SS wire

12. Fasten the D-shackle through the hole in the red handle. Damper flaps should be held fully open

13. Test that the manual controller is working. To do so, pull the end of the handle to the side (as shown in the diagram below) and release. The damper flaps should fully close



14. If damper is working as expected, return handle back to starting position. If not, repeat steps 1-10 until the damper controller is working as expected

Installation Process For Manual Access Air Damper

IMPORTANT: STAINLESS STEEL DAMPER CONTROL SET MUST BE USED WITH THE MANUAL ACCESS AIR DAMPER. DO NOT USE THE SYNTHETIC CONTROL SET. ADDITIONALLY, THE RED HANDLE CANNOT BE USED WITH THE MANUAL ACCESS AIR DAMPER; A T-HANDLE MUST BE USED

1. Mount Manual Access Air Damper in position
2. Attach D-shackle to the frame of the damper at the anchor point

3. Mark out point at which handle is to be located

4. Run the SS wire from the damper to the point at which the handle is to be located. Be sure to use guide brackets (as seen below) to ensure the wire does not get slack. Use a straight guide at maximum 1m intervals and a 90 degree guide every time the direction needs to change. To mount the guide brackets, simply use the M6 screws provided in the kit

5. After the wire has been correctly run to the desired location of the handle, pop the cap off the top of the handle and thread it on to the SS wire
6. Thread crimp onto wire

7. Slide crimp and handle along the wire until they are located at the desired position. At the desired position, it is recommended that approximately 5cm worth of slack is left in the wire
8. When the handle and crimp are in position, and the appropriate slack has been left in the line, fasten the crimp using a crimping device. Cut off any excess wire

9. Slide crimp into recess of handle

10. Mount a cable clamp just below the bottom of the handle to stop it from moving around
11. Lift lid of damper until it locks into place on the parrots beak mechanism. Once in place, pull on the handle to check if damper works as expected. The parrot's beak mechanism should lift up and the damper lid should slam shut

12. If damper is working as expected, lift lid back into position. If not, repeat steps 1-11 until it is

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