

# MAC 2000 Wash Barndoors

user manual





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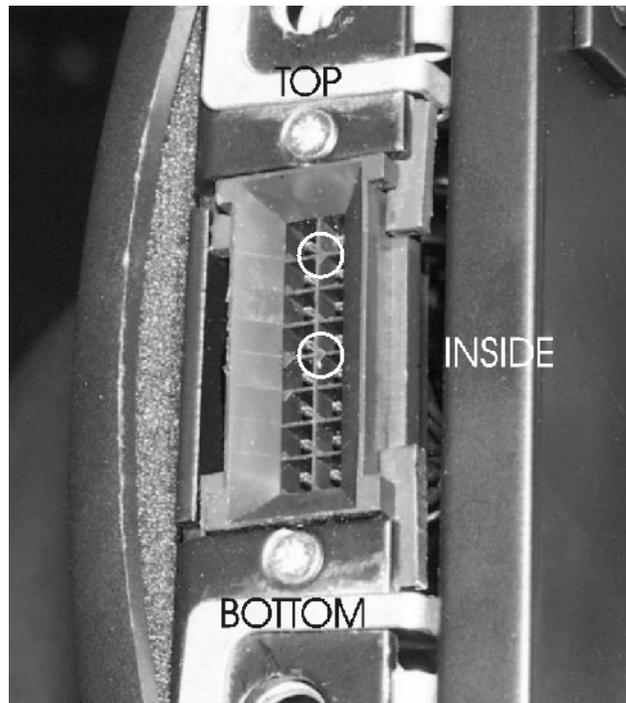
# MOUNTING AND OPERATING THE BARNDOOR UNIT

The barndoor unit is designed to be mounted on a MAC 2000 Wash fixture and this documents describes the process for mounting the barndoors on a MAC 2000 Wash running version 1.7 software (or later).

## Before starting

The electric connection socket for the barndoor accessory was reversed on some MAC 2000 Washes before S/N 4001816001 (you can find the serial number of your MAC 2000 Wash on the serial number label underneath the base). Although the socket is coded, the barn door plug can be forced in backwards. Damage to the electronics will occur if power is applied with the connection reversed.

To avoid damaging the barndoor's electronics, check the socket's orientation before installing and operating the barndoors. The orientation can be checked by examining the triangles in the middle of the socket. When installed correctly, the tips of the triangles point IN towards the lens as shown here.



If the triangles point away from the lens, you can contact your Martin Dealer and have them perform the modification, or you can do it yourself:

- 1 Lock the head in the horizontal position with the top-side up.
- 2 Remove the left-front head side cover.
- 3 Loosen, but do not remove, the top screw for the connection socket.
- 4 Remove the bottom screw.
- 5 Work the socket free and turn it 180 degrees.
- 6 Place the u-shaped bracket on the bottom of the socket.
- 7 Position the socket in the top u-bracket and fasten.
- 8 Verify that the socket is squarely aligned and the triangles point in.

- 9 Replace the head side cover.

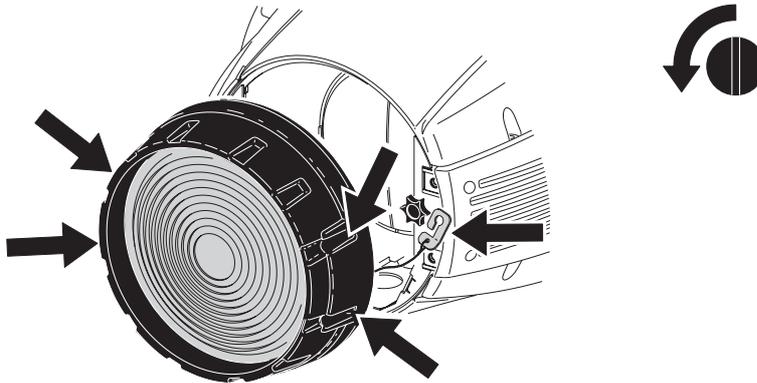
## Mounting the barndoors

**Warning** For safety reasons we do not recommend that this procedure be performed while the fixture is rigged.

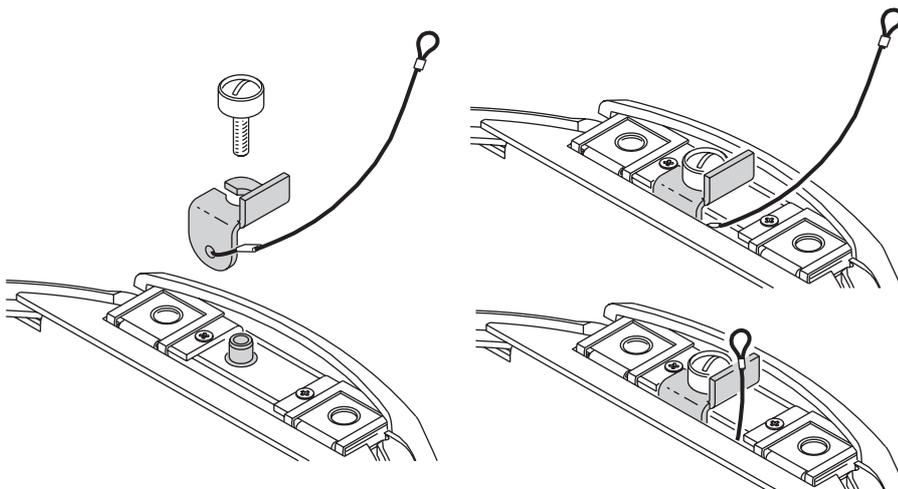
- 1 Disconnect the MAC 2000 Wash fixture from power and allow it to cool.
- 2 Lock the fixture head in the “top” horizontal position.



- 3 If present, remove the lens that is installed on the MAC 2000 Wash by unscrewing the four quarter-turn screws, pulling the lens housing away from the fixture, and releasing the safety cable.

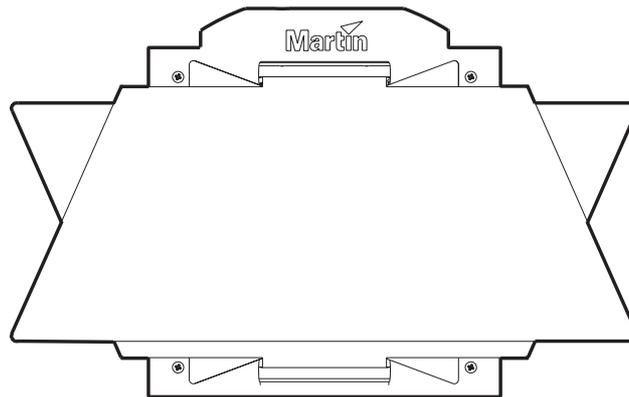


- 4 Attach the barndoor safety cable to the MAC 2000 Wash and lock it in place using the thumb-screw. Ensure that the cable slack is pushed into the slot provided for this purpose (as shown in the following illustrations).

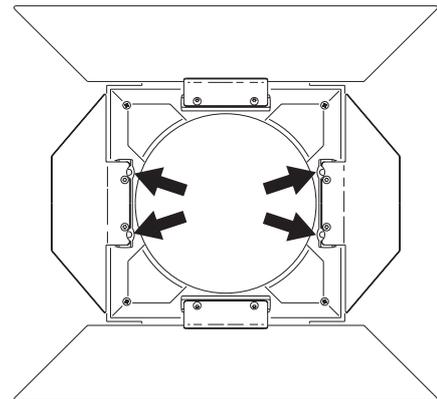
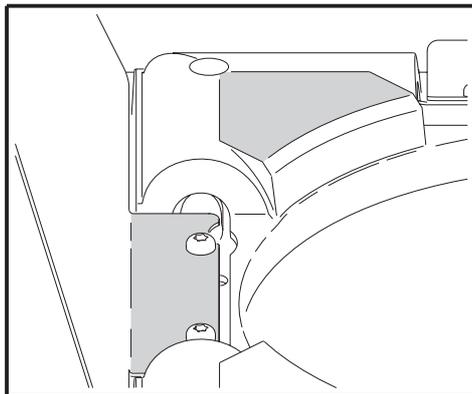


- 5 Push the barndoor unit into place so that the interface connector on the rotation assembly (at the rear of the barndoor unit) connects correctly to its counterpart on the MAC 2000 Wash.

- 6 Rotate the barndoor unit to the upright neutral position.



- 7 Open the barndoor blades to an angle that will allow you to access the four quarter-turn screws



- 8 Fasten the four quarter-turn screws. These are only accessible when the barndoor unit is in the neutral position illustrated in step 66.
- 9 Apply power to the MAC 2000 Wash.

## Operating the barndoors

To operate the barndoors the MAC 2000 Wash must have software version 1.3 (or later) installed.

The barndoors can be rotated, or opened and closed using DMX control signals. Five DMX channels are allocated in the MAC 2000 Wash for barndoor control irrespective of whether or not they are connected to the fixture (see the Protocol chapter in the *MAC 2000 Wash user manual* for details). This is to cover the possibility that you rig and begin programming your MAC 2000 Wash and add barndoors to it later. If the DMX channels were not already assigned, you would have to re-patch your console and therefore would lose any programming already completed.

The position of the individual barndoor blades is monitored so that the system is always aware of their position. The software will not allow movement of an individual barndoor blade through a position where another blade is in the way, or through a position where the blade might come into contact with the MAC 2000 Wash. Similarly the MAC 2000 Wash will not tilt to a position that will allow the barndoors to come into contact with the fixture.

## Updating the barndoor unit firmware

A cable is supplied together with the barndoor unit that is only used when updating the firmware.

The version number of the barndoor firmware is displayed in the MAC 2000 Wash display when the unit is powered up.

When updated firmware becomes available for the barndoor unit it will be made available for download from the Martin site (<http://www.martin.com>). Instructions for performing the upload procedure will also be made available on the support site.

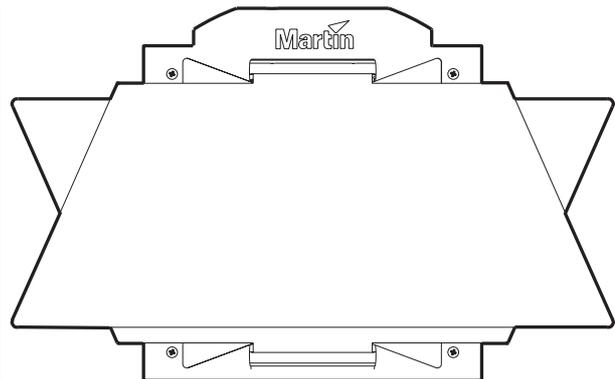
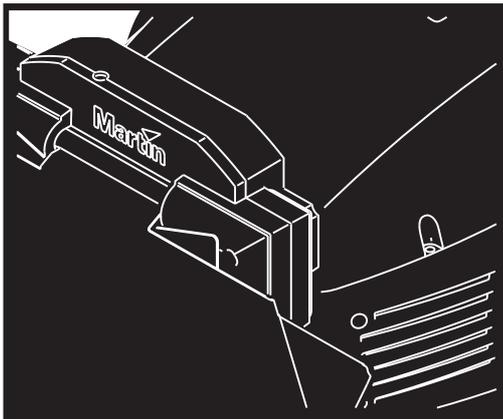
# REMOVING THE BARNDOOR UNIT

**Warning** For safety reasons we do not recommend that this procedure be performed while the fixture is rigged.

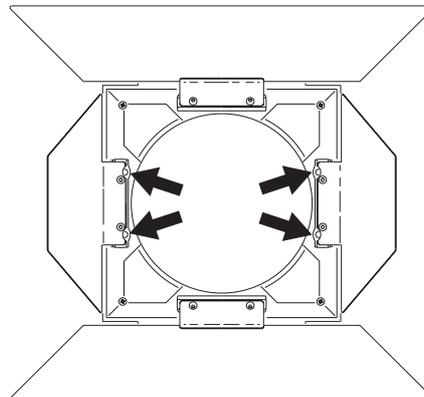
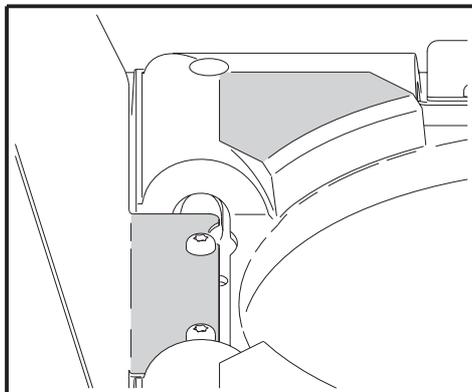
- 1 Close all of the barndoor blades. Close the smaller left- and right-hand doors completely before closing the the two larger blades.
- 2 Disconnect the MAC 2000 Wash fixture from power.
- 3 Lock the fixture head in the “top” horizontal position.



- 4 Manually rotate the MAC 2000 Wash Barndoors to the neutral position (shown in the following illustrations).

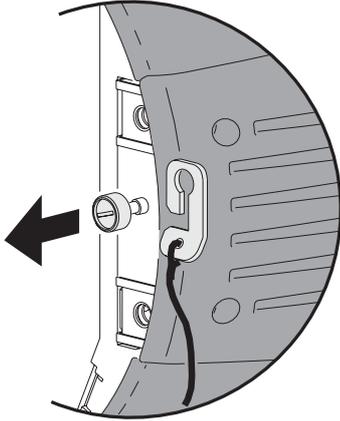


- 5 Open the barndoor blades to an angle sufficient to access the four recessed quarter-turn screws with a flat head screwdriver.

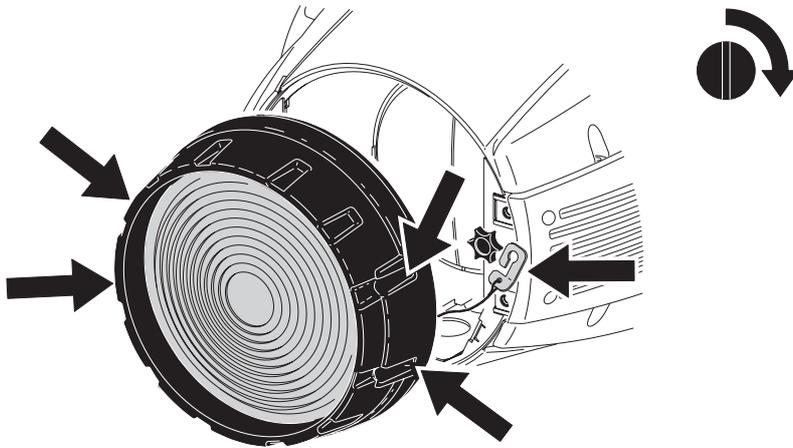


- 6 Unscrew the four quarter-turn screws and detach the MAC 2000 Wash Barndoors from the MAC 2000 Wash fixture.

- 7 Loosen the safety-cable thumb-screw and detach the safety cable.



- 8 Do not operate the MAC 2000 Wash without a front lens or barndoors installed. If installing one of the standard lenses, attach the safety wire and place the lens on the fixture. Lock it into place using the 4 quarter-turn screws.

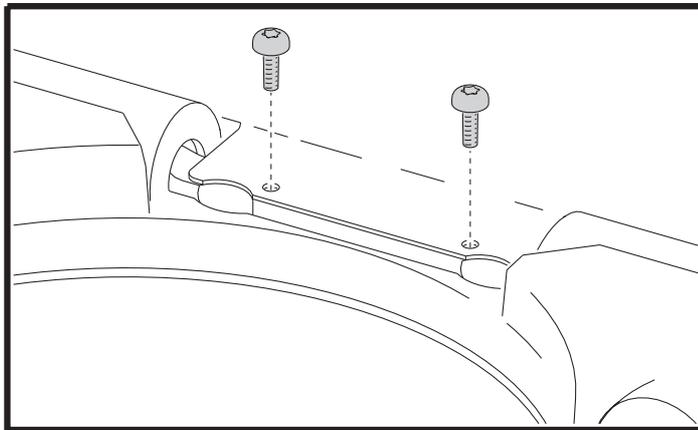


# CHANGING THE LENS IN THE BARNDOR UNIT

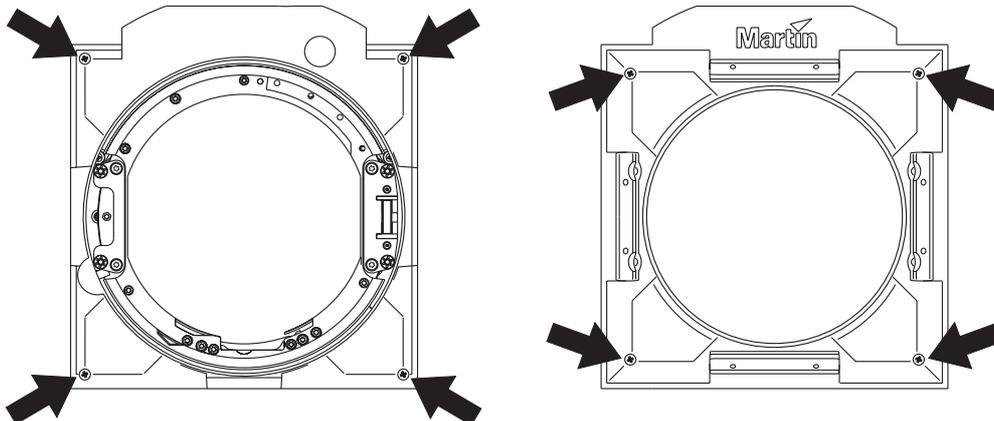
The MAC 2000 Wash Barndoors are supplied with a diffuser lens. The lenses that are supplied with the MAC 2000 Wash can be removed from their housings and installed in the barndoor unit, or you can order the lens individually from your Martin Dealer.

The procedure for changing the lens in the barndoor unit is described in detail here and it is important to follow the steps in precisely the order they are stated:

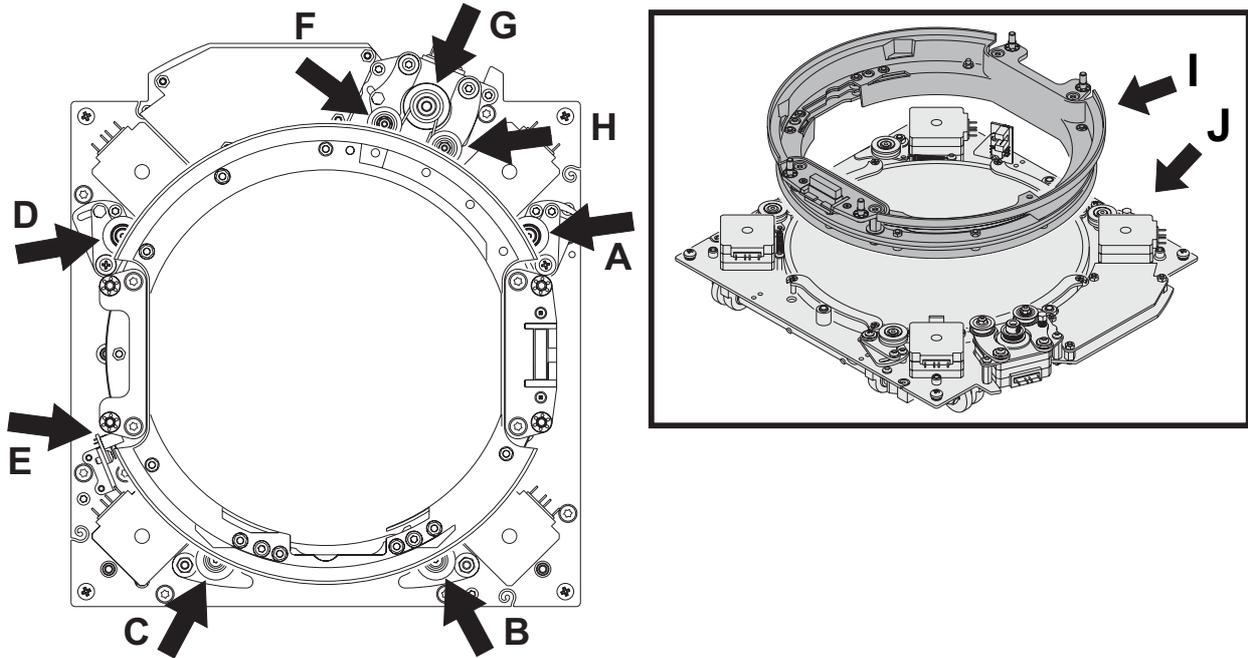
- 1 Remove the MAC 2000 Wash Barndoors from the MAC 2000 Wash as described in "Removing the barndoor unit" on page 7.
- 2 Remove all four blades from the Barndoors using a Torx 20 screwdriver.



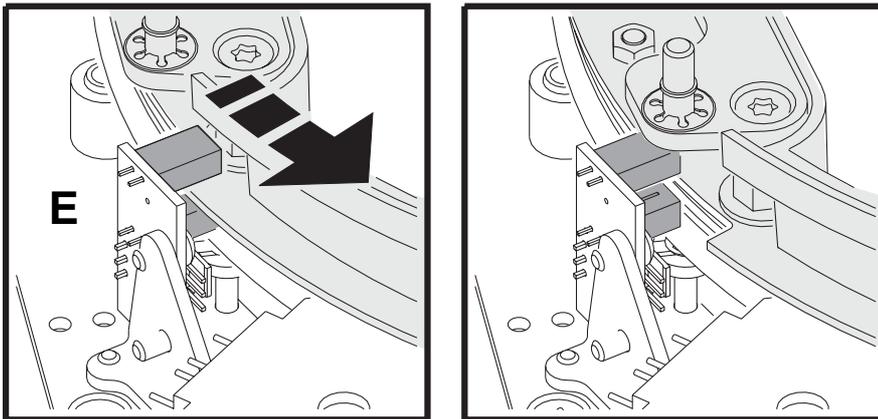
- 3 Remove the front and rear casings by unscrewing the Phillips screws at each corner.



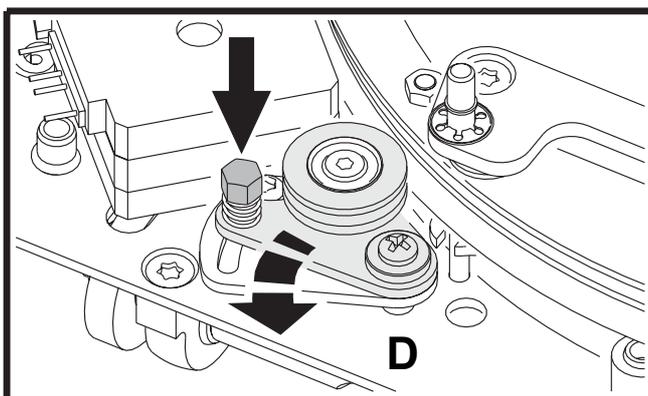
The following diagrams show an overview of the lens chassis (J) and rotation assembly (I) of the barndoors with labels at the key positions that are referred to in the following steps.



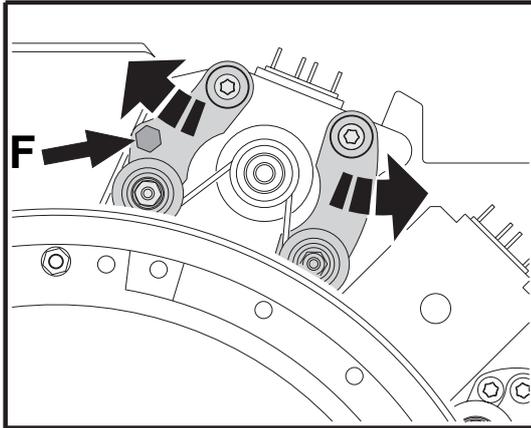
- 4 Move the rotation assembly (I) to a position where it is free of the sensor at position E.



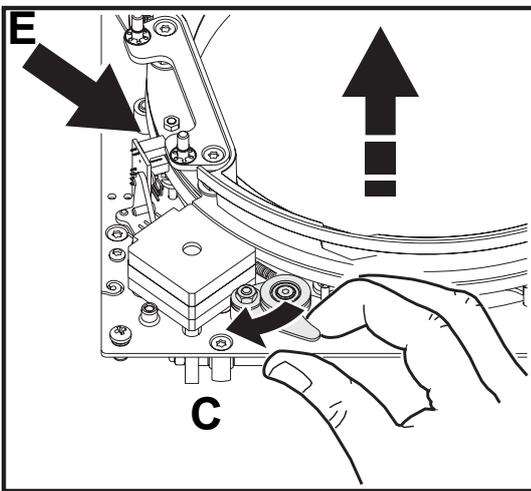
- 5 Release the roller at position D by pressing down on the spring-loaded bolt.



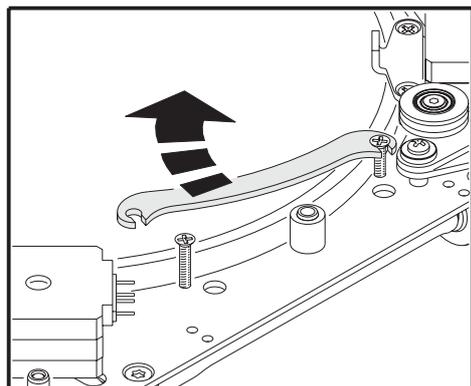
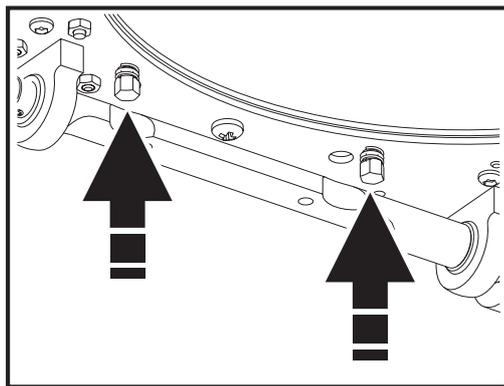
- 6 Release the roller at position F by pressing down on the spring-loaded bolt



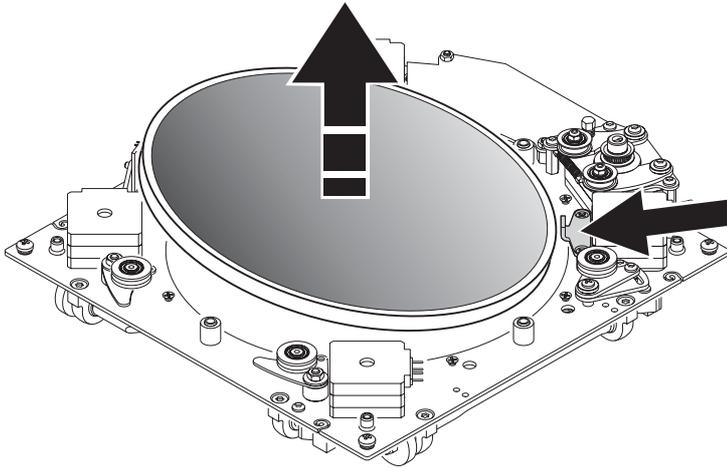
- 7 Pull back on the spring-loaded clamp at position C and lift the rotation assembly (I) clear of the lens chassis (J), being careful to avoid the sensor at position E, and carefully freeing the rubber drive belt from the rollers at positions F, G and H.



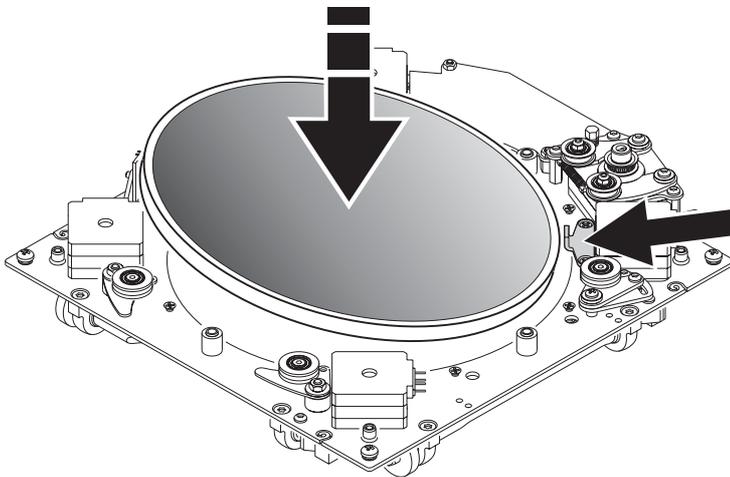
- 8 The lens is held in place in the chassis (J) by four plates. To release each plate, push the sprung bolts from underneath the lens chassis. This will release the pressure on the plates and allow you to pull them free.



9 Push the lens free of the chassis (J) and remove it.

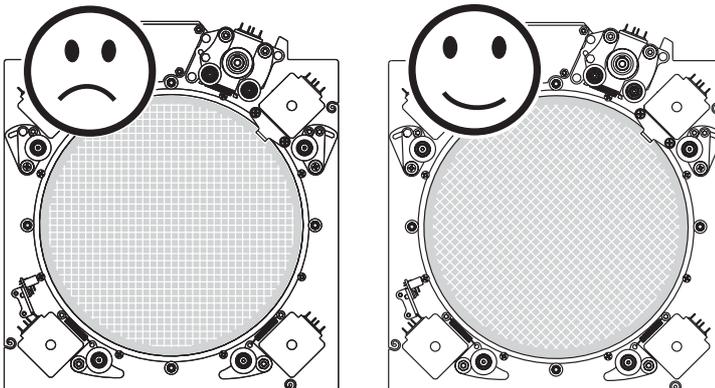


10 Place the replacement lens into position in the chassis (J) being careful to avoid the rotation stop bracket (marked with an arrow in the following illustration).

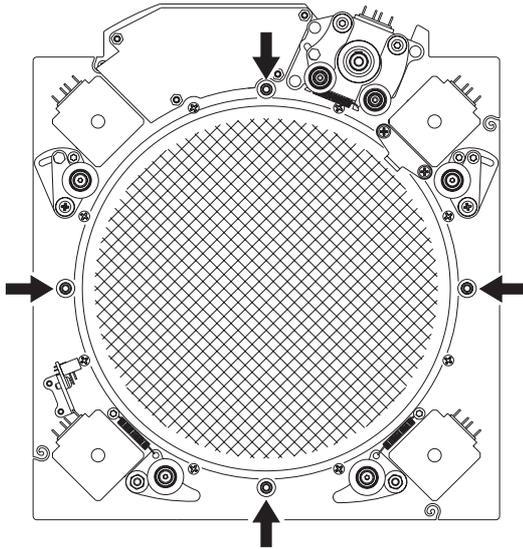


**Note** *If you are installing the standard diffuser lens, the textured side should face the lamp and the rotation assembly.*

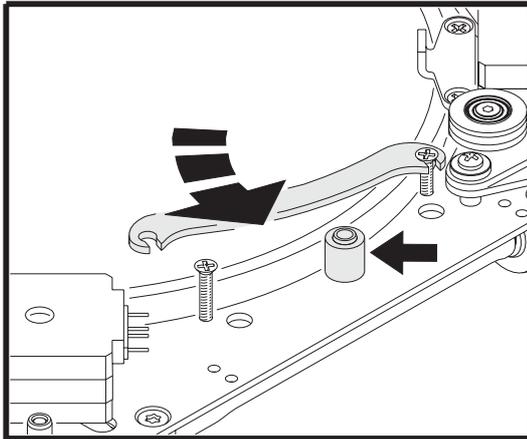
*If you are installing the Super Wide angle lens the grid pattern must lie at approximately 45-degrees to the lens assembly.*



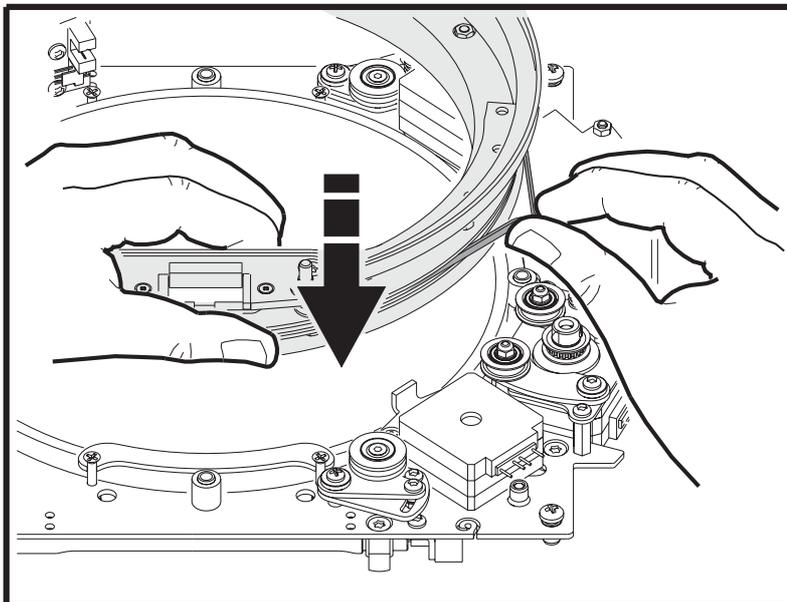
The lens should sit snugly against the four rubber-encased posts marked in the following illustration.



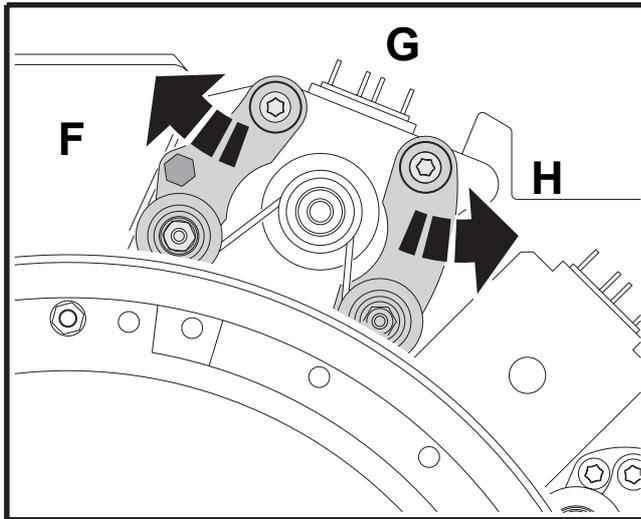
- 11 Install the four plates that hold the lens against the chassis (J) by pushing up on the spring-loaded bolts and sliding the plates into position against the rubber-coated posts (indicated with an arrow in the following illustration).



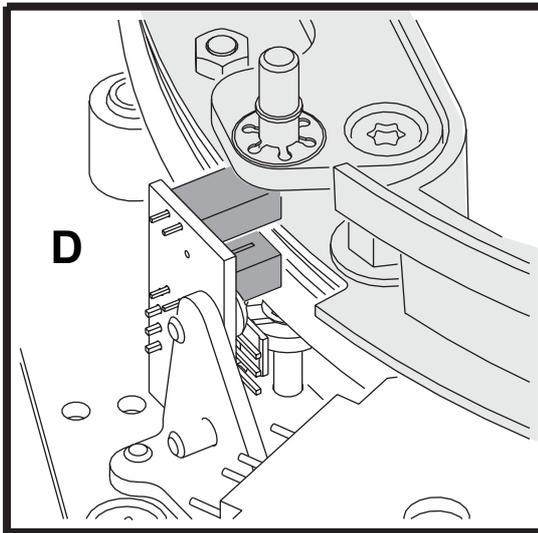
- 12 Hold the rotation assembly (I) over the lens chassis in the neutral position described in step 4 on page 10. Gather the slack in the rubber drive belt of the rotation assembly in your fingers over rollers F, G and H, ensuring that there are no twists, and place the rotation assembly onto the lens chassis (J). Do not press, or force, the ring into place.



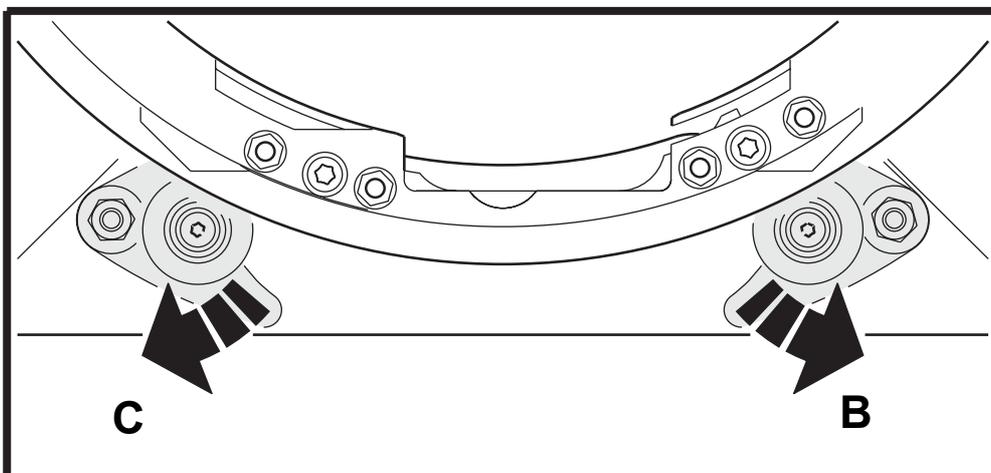
- 13 Keeping the tension in the drive belt, place it inside rollers F and H, and over roller G, as illustrated here. Move rollers F or H to provide more slack if necessary.



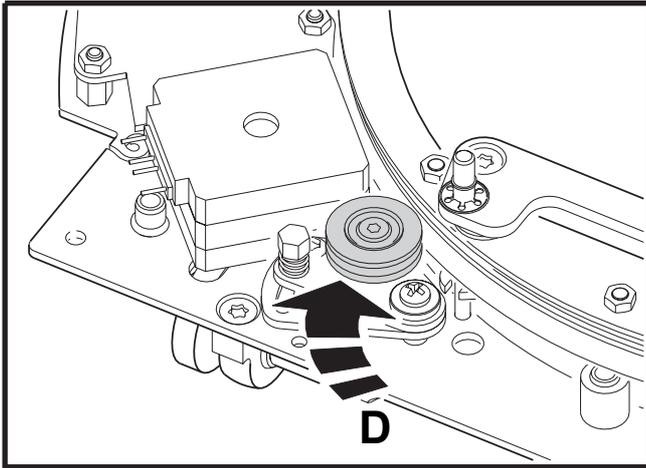
- 14 Ensure that the rotation assembly (I) is free of the sensor at position D.



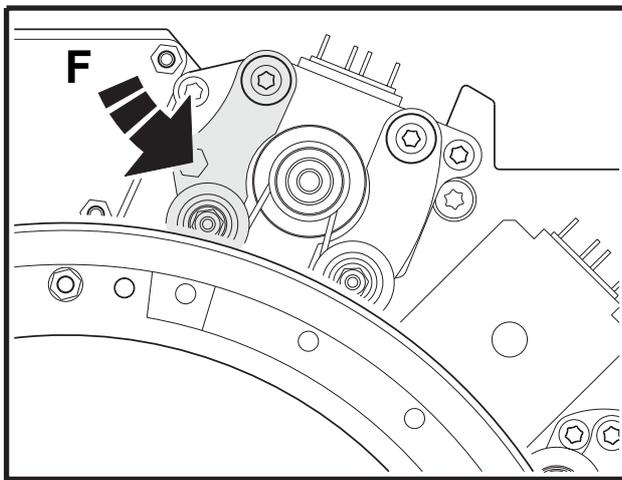
- 15 Pull back on the spring-loaded clamps at positions B and C simultaneously using your thumbs and the rotation assembly (I) should fall into place and “click” in the grooves of the rollers.



16 Push the roller (not the spring-load bolt) at position D until it is locked into position.

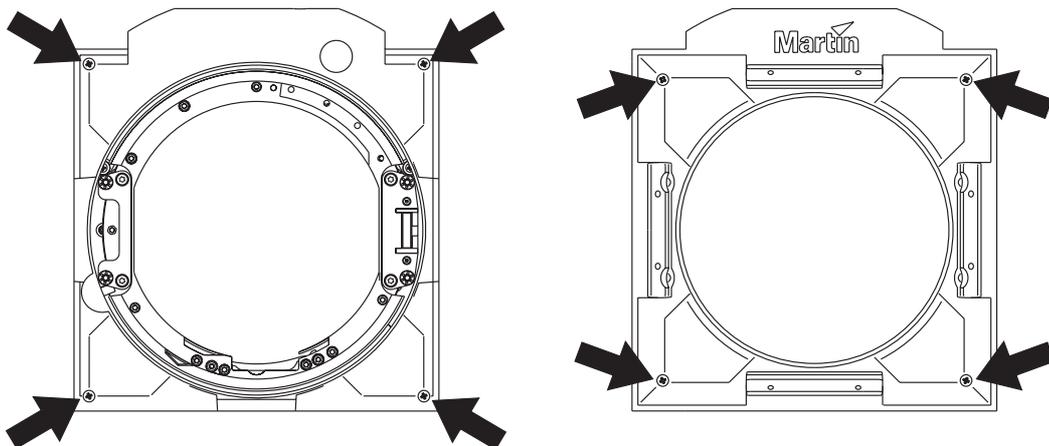


17 Push the roller (not the spring-loaded bolt) at position F until it is locked into position.

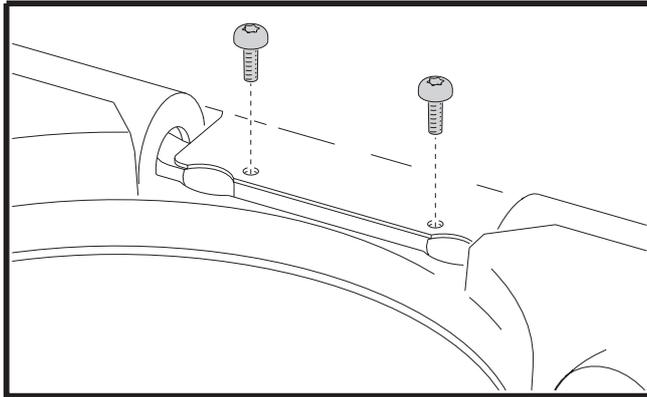


18 Move the rotation assembly (I) from stop-to-stop several times to ensure that it moves smoothly and without hindrance. If this is not the case then the rotation assembly is probably not installed correctly; remove the lens and repeat the re-assembly steps in this procedure.

19 Replace the front and rear casings by replacing the Phillips screws at each corner.



20 Replace the four barndoor blades. The smaller blades are the left and right blades, the larger ones are the upper and lower blades.



21 Mount the barndoor unit on the MAC 2000 Wash using the procedure in "Mounting the barndoors" on page 5.

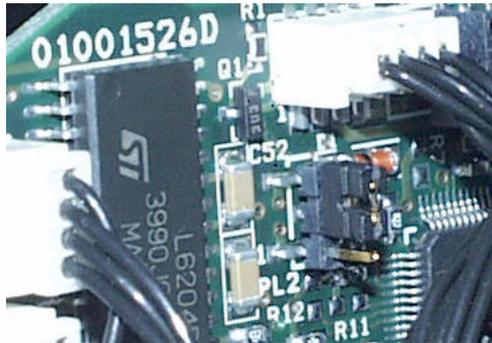
# FIRMWARE

## Updating the barndoors firmware

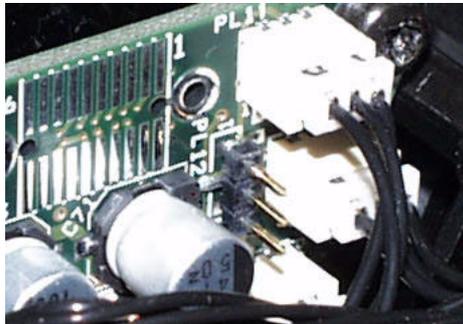
To perform this procedure you will need a Martin uploader, such as an MP-2.

Follow this procedure to update the Barndoors firmware.

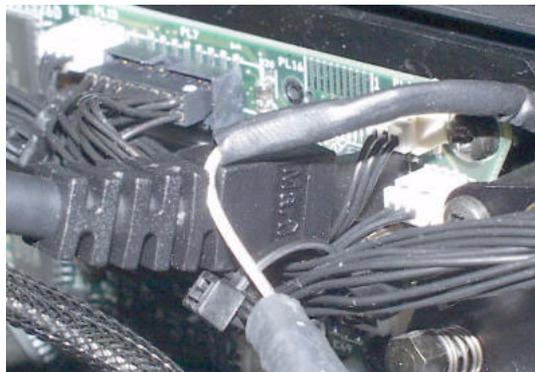
- 1 With the Barndoors removed from the fixture, remove the 4 screws that fasten the rear cover of the barndoors unit. Lift off the rear cover; this remains trapped by the data cable.
- 2 On the Barndoors PCB, move the jumper at PL2 to pins 2 and 3, the boot mode position, as shown. These are the 2 pins closest to the outside edge of the PCB.



- 3 With the back cover hanging to the side, install the Barndoors on the fixture as described in the Barndoors user manual.
- 4 Locate PL12 on the Barndoors PCB. Pin 1 is the pin closest to the "P".



- 5 Connect the upload cable supplied with the Barndoors to PL12 with pin 1 on the cable (marked by triangle) on pin 1 of PL12. When the cable is correctly connected, the Martin logo faces the nearest side-edge of the PCB.



- 6 Prepare your uploader for a boot mode upload. Stop when you get the message (in MP-2) to "Set fixtures in boot mode now." Apply power to the Wash and cancel the pan/tilt reset by pressing Menu and Enter, then start the upload.
- 7 When the upload is complete, turn off the Wash and disconnect the upload cable. Move the PL2 jumper back to pins 1 and 2.
- 8 Turn the Wash on again and watch the control panel to verify the Barndoors software version. The version number is displayed after the message "bVER". Note: The Barndoors shutters must be fully closed before the software version can be displayed. Close them manually before applying power to the Wash.  
  
If the "barndoors" message does not appear on startup after displaying the Wash software version, then the Barndoors were not detected. This can be due to the wrong PL2 jumper position (move it to pins 1 and 2 before applying power to the Wash), a failed software upload, a bad connection between the Barndoors and the Wash, or incorrect version of the MAC 2000 Wash control software (must be version 1.4.0 or later).
- 9 Calibrate the barndoors as described in the following procedure.
- 10 Turn off the Wash, remove the Barndoors, and install the rear cover.

## Calibrating the barndoors

- 1 With the Barndoors installed, apply power to the MAC 2000 Wash and allow the fixture to reset. If the blades jam, you can help close them by hand.
- 2 When the reset is finished, go to UTIL > AdJ > HEAd in the control menu.
- 3 Press Enter.
- 4 Select a blade (bd 1 = top, bd 2 = bottom, bd 3 = 3 o'clock, bd 4 = 9 o'clock) with the arrow keys.
- 5 Press Enter. "CLOS" is displayed in the menu and the selected blade closes. Side blades 3 and 4 also close when blades 1 or 2 are selected.
- 6 Press Down. "AdJ" is displayed. Press the blade down lightly to make sure that it is fully closed.
- 7 Press Enter to save the closed position setting for this blade.
- 8 With the same blade selected, press Enter.
- 9 Press Down twice to display "127". The blade opens.
- 10 Using the Up and Down keys, move the blade in or out, respectively, to align the blade perpendicular to the lens. Tip: Get an approximately 16 x 16 cm square piece of cardboard and cut a notch out of one corner. Place the cardboard square on the lens with the notch over the rim and hold an edge up to the selected blade to measure perpendicular.



- 11 Press Enter to store the adjustment setting for this blade.
- 12 Repeat steps 4 - 9 for the other blades.
- 13 If the back cover of the Barndoors is removed, you can verify that all adjustment settings have been saved by checking the red LED on the Barndoors PCB. When blinking, the blades need to be adjusted; when off, the adjustment settings have been saved.