

# INSTRUCTION MANUAL

## Orion Three Fan Cooling System for SkyQuest™ XX14g GoTo Dobsonian #7818



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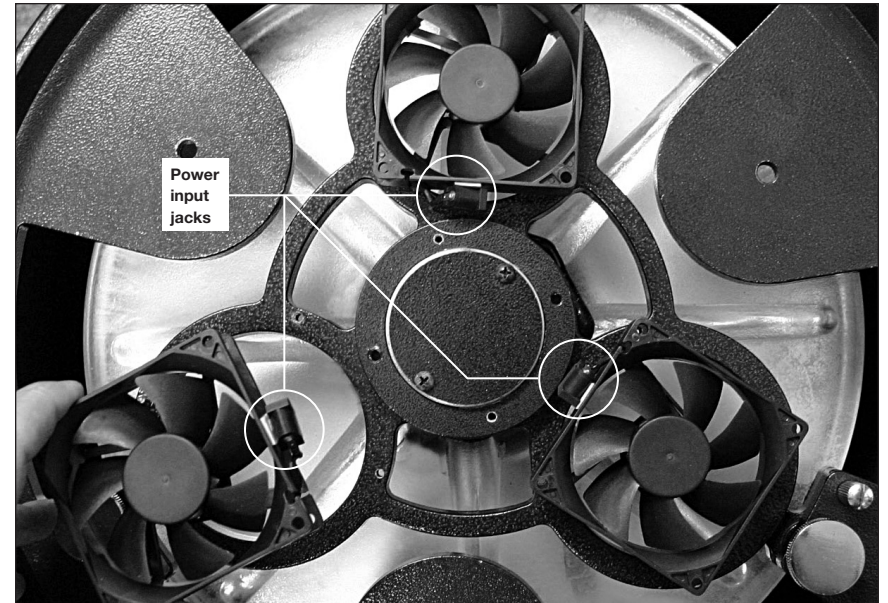
The Orion Three Fan Cooling System is designed to work with the Orion SkyQuest XX14g Dobsonian telescope. The cooling fans significantly reduce the time it takes for the primary mirror to equilibrate to the outdoor ambient temperature. This results in steady, crisp images in a shorter amount of time. The fans, which are powered by 12 volts DC, run quietly and with no vibration imparted to the telescope. These instructions will tell you how to install and use the cooling fans. Please read them thoroughly before beginning the installation.

## Parts List

- 3 Fans
- 3 Wire fan covers
- 1 Battery pack
- 12 Screws
- 12 Washers
- 1 Power cable splitter

## Assembly

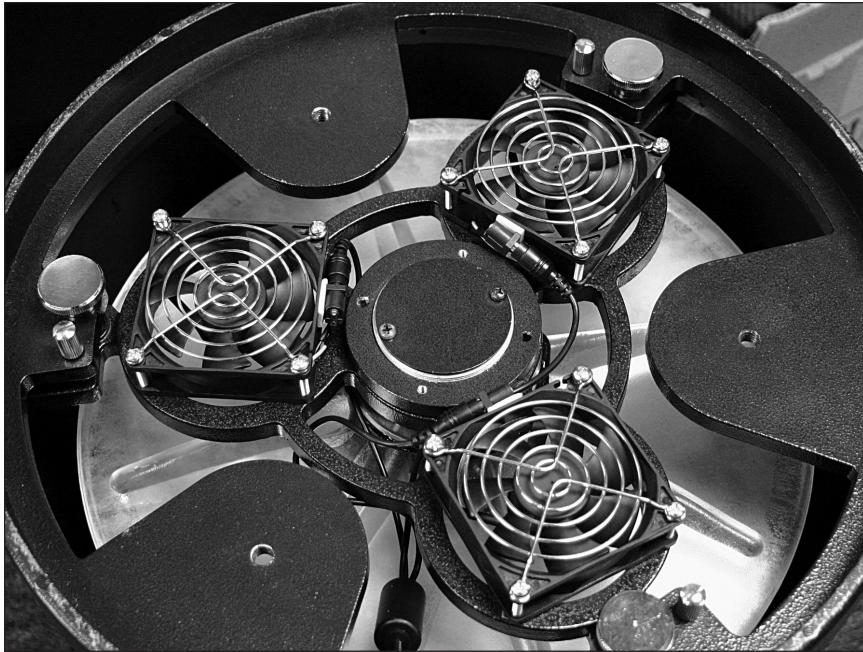
1. Place each fan on the rear of the primary mirror support cell and line up the holes in the corners of the fans with the threaded holes in the mirror cell. *Make certain the label on each fan is facing the primary mirror.* Also make sure that the power input jack on each fan is facing the center of the mirror cell (**Figure 1**).
2. Place a wire fan cover over each fan so the mounting holes line up with the holes in the fan. Each fan cover should be oriented so that its corners seat flush on the fan.
3. Insert a screw, with a washer attached, through the fan cover and fan (**Figure 2**), and thread it into the mirror cell with a Phillips screwdriver. Firmly tighten the screw, but be careful not to overtighten and strip the threads. Repeat this for the other three screws (and washers). Mount all three fans.
4. Insert eight D-cell batteries (not included) into the battery pack. Orient the batteries as shown on the plastic battery holder.



**Figure 1.** Orient the fans as shown, with fan labels facing down and power input jacks facing the center of the mirror support cell.



**Figure 2.** Place a washer on each mounting screw, then insert the screw through the wire cover and fan and into the threaded hole in the metal support cell. Tighten all four screws to secure each fan in place.



**Figure 3.** Fans are shown properly installed, with the power cable running under the mirror support cell to keep it out of the way.

5. Plug one of the three male ends of the power cable splitter into the jack on each fan. We recommend running the power cable splitter under the mirror cell structure then bringing the cable ends back out and into the fan jacks, to keep the cables out of the way as much as possible (**Figure 3**).
6. Now connect the plug from the battery pack to the female jack on the power cable splitter. The fans should now begin rotating. If they do not, check the connections of each fan and the orientation of the batteries and try again. To turn the fans off, unplug the power cable splitter from the battery pack.

The fans can also be powered by a 12-volt DC field battery, such as the Orion Dynamo Pro Power Station.

## Using the Cooling Fans

The cooling fans should be turned on as soon as the telescope is brought outdoors before observing. They should run for approximately 20-30 minutes to properly cool down the large primary mirror. The fans should be turned off while you're observing. This is because even though they run free from vibration, the air currents they generate in the optical tube could degrade image quality. If the temperature changes rapidly during your observing session, you could turn the

fans on again for a period of time until the ambient temperature stabilizes and the mirror has had a chance to equilibrate. Then resume observing. Generally, though, once the mirror has cooled to the ambient temperature initially, the fans will not be needed again until your next observing session.

Eight D-cell batteries will provide a run time of at least 24 hours.

You should not have to remove the fans once they are installed.

**CAUTION:** When installed, the fans do not protrude below the rear end ring of the telescope. However, if you stand the optical tube upright on the ground during assembly or disassembly of the telescope, be sure the surface is flat. If it isn't, one or more of the fans could contact the ground and bear the weight of the telescope, which could damage the fan(s) and the mirror support cell.

## Specifications

Fan type	12-volt DC brushless, 0.12A, 80mm, 2500 RPM (x3)
Fan output	33.4 cubic feet per minute (CFM) airflow
Power	12-volt DC; battery holder for 8 D-cells included (batteries not included)
Power cable	35" power splitter cable with three 5.5mm OD coaxial plugs, 2.1mm tip dia.
Fan covers	Protective wire "grille" covers
Hardware	12 mounting screws (Phillips head) and washers included

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## **One-Year Limited Warranty**

This Orion Three Fan Cooling System for SkyQuest XX14g GoTo Dobsonian is warranted against defects in materials or workmanship for a period of one year from the date of purchase. This warranty is for the benefit of the original retail purchaser only. During this warranty period Orion Telescopes & Binoculars will repair or replace, at Orion's option, any warranted instrument that proves to be defective, provided it is returned postage paid to: Orion Warranty Repair, 89 Hangar Way, Watsonville, CA 95076. If the product is not registered, proof of purchase (such as a copy of the original invoice) is required.

This warranty does not apply if, in Orion's judgment, the instrument has been abused, mishandled, or modified, nor does it apply to normal wear and tear. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state. For further warranty service information, contact: Customer Service Department, Orion Telescopes & Binoculars, 89 Hangar Way, Watsonville, CA 95076; (800) 676-1343.



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