

Library Telescope Program: Telescope Hacks and Fixes

Wednesday, August 18, 2021 - 9:00 PM Eastern Time

- Don Ficken, St. Louis Astronomical Society and Astronomical Society of Eastern Missouri
- Marc Stowbridge, New Hampshire Astronomical Society
- Chuck Simms, Astronomical Society of Eastern Missouri
- Tom Lynch, Amateur Observer's Society of New York

Our Resource Library

Date	Topic
2021	
September 15	Library Telescope Star Parties
August 18	Library Telescope Hacks and Fixes
July 21	Navigating the Night Sky with Stellarium Software
June 16	Libraries Share Their Experiences: Missouri
May 19	Libraries Share Their Experiences: Utah
April 21	Unlock the Mysteries of the Changing Night Sky
March 17	Libraries Share Their Experiences: NY, WA
February 17	Library Telescope Programs for Children
January 20	Fun at the Telescope

LibraryTelescope.org
Facebook.com/LibraryTelescope



International Library Telescope Observing Week

Yearly:

First week in September with First Quarter Moon

2021:

Sunday, Sept. 12 – Saturday, Sept. 18

Library Telescope Program

- Library owns a telescope that is loaned out to adult patrons much like a book
- Started in 2008 by the New Hampshire Astronomical Society
- New Hampshire shared telescope modification procedures on their website

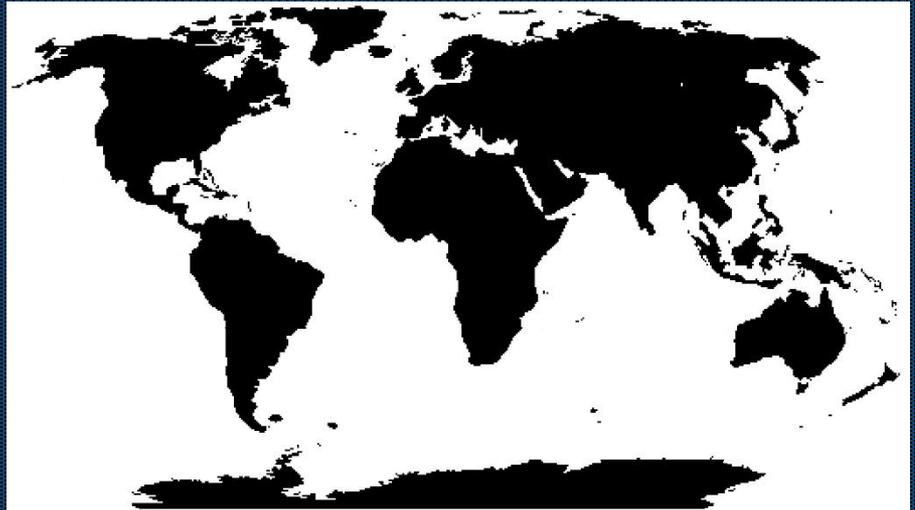


Orion 4.5" StarBlast Reflector
with modifications

World-wide adoption

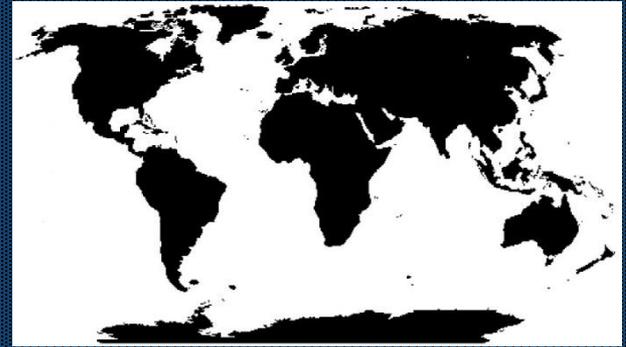
600+ participating locations, world-wide.

- USA (44+ states)
- Canada
- United Kingdom
- Netherlands
- Chile



Library Telescope Task Force

- Each month, experienced meet to:
 - Grow the program
 - Share best practices
- 40+ members
 - Experienced managers
 - Astronomy clubs/organizations
- Activities:
 - Facebook (2,700+ followers)
 - Website (clickable map)
 - YouTube Channel
 - Monthly Programs
 - Resource Library



A foundation of tonight's program is built on ideas exchanged with Task Force Members.

Metro St. Louis Area

Since 2014: 170+ Library Telescopes; 125+ Binoculars

- St. Louis Astronomical Society (Greater St. Louis)
- Astronomical Society of Eastern Missouri
- Eastern Missouri Dark Sky Observers
- River Bend Astronomical Society
- University based groups (SIUE, etc.)



Metro St. Louis Program



Metro St. Louis Program



Metro St. Louis Program



Tonight's Program

- A sampling of the many ideas shared during our monthly “best practice” discussions
- Many contributors, many opinions
(None of the ideas are mine)
- Opinions expressed by me are mine alone
- Neither the Library Telescope Task Force or the Astronomical League officially endorse any hack/fix
- Details instructions not always provided

Hold Questions until the end

Available instructions and files at:
<http://LibraryTelescope.org/Hacks>

My Helpers Tonight

Presenter:

- Don Ficken, St. Louis Astronomical Society and Astronomical Society of Eastern Missouri

Helpers:

- Marc Stowbridge, New Hampshire Astronomical Society
- Chuck Simms, Astronomical Society of Eastern Missouri
- Tom Lynch, Amateur Observer's Society of New York

Unmodified Telescope

- Designed for single family use
- Dials are easily turned
- Parts easily lost

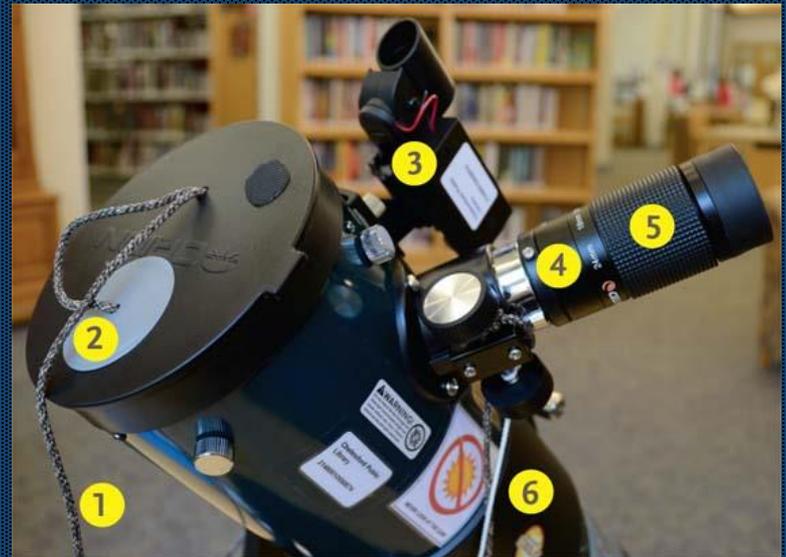
We want a patron's first experience with a telescope to be a good experience.



Modifications

(To make the telescope more patron friendly and durable)

1. Attach lens cap & tube cover to the base with string or wire
2. Low tech Moon filter - cut hole in the tube cover & affix a plug to it with string or wire
3. Affix viewfinder & add AA batteries
4. Affix the zoom eyepiece to the focuser
5. Tape eye guard
6. Add decals
7. Add camera bag (not shown)
8. Replace collimation screws (not shown)



Download modification instructions at:
<http://LibraryTelescope.org/Hacks>

Troublesome areas

The telescope has held up well in spite of heavy use.

- View Finder
- Focuser
- Eyepiece(s)
- Mirror Collimation
- Miscellaneous Issues

View Finder

View Finder



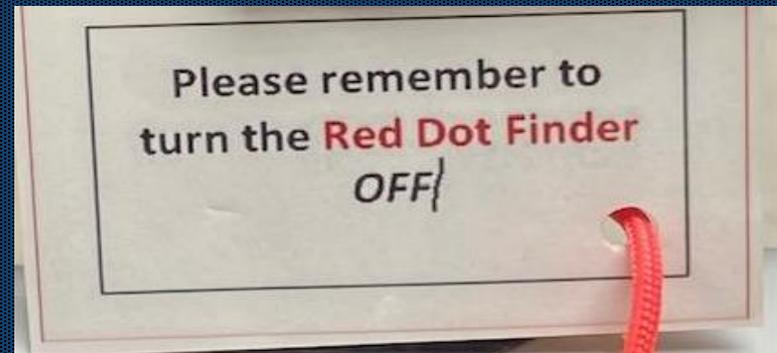
View Finder - Troublesome issues

- Dead batteries
- Intermittent red dot
- On backwards/lost
- Misaligned red dot
- Corroded batteries
- Can't see "Red Dot"
- Lost base screw

View Finder – Label Turn off RDF

- Dead batteries
- Intermittent red dot
- On backwards/lost
- Misaligned
- Corroded batteries
- Can't see "Red Dot"
- Lost base screw

Hack:
Label - Turn off RDF



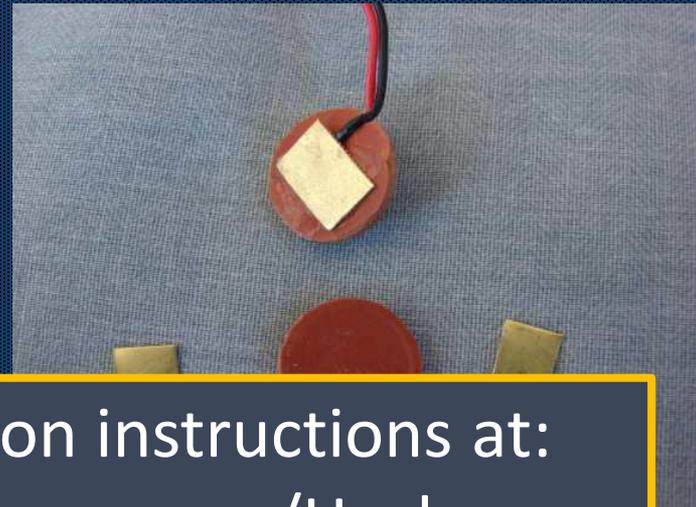
View Finder - Battery Pack

- Dead batteries
- Intermittent red dot
- On backwards/lost
- Misaligned
- Corroded batteries
- Can't see "Red Dot"
- Lost base screw

Hack:
Add battery pack



View Finder - Battery pack



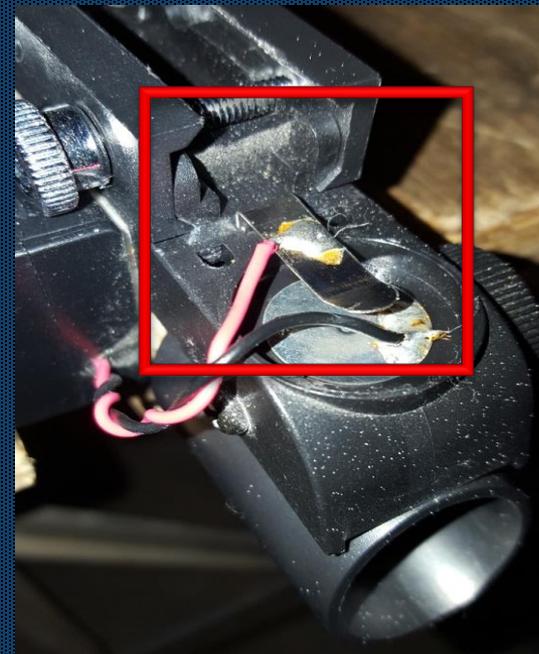
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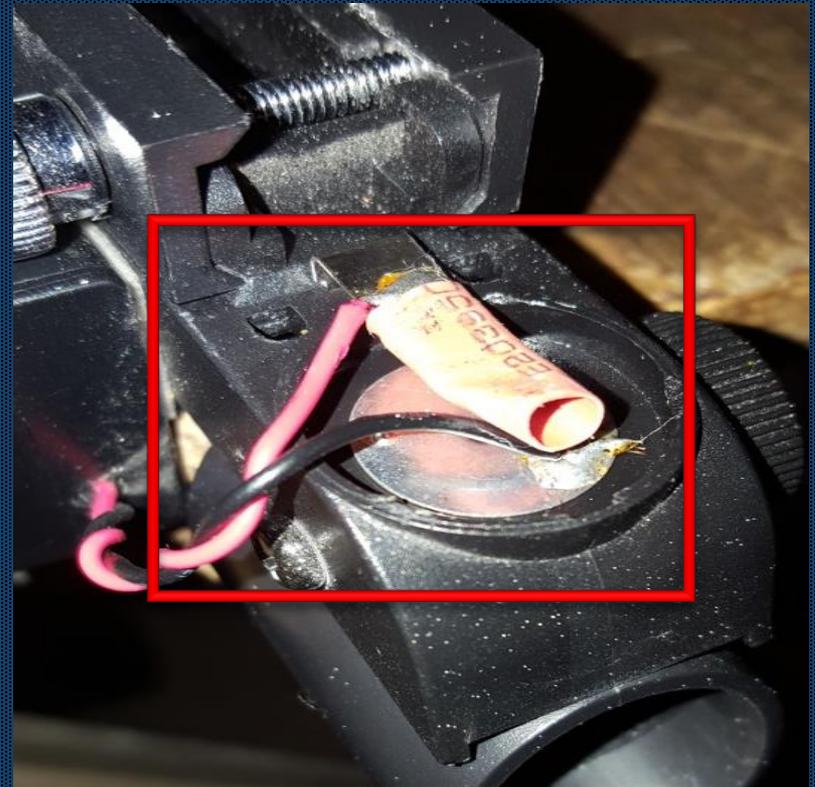
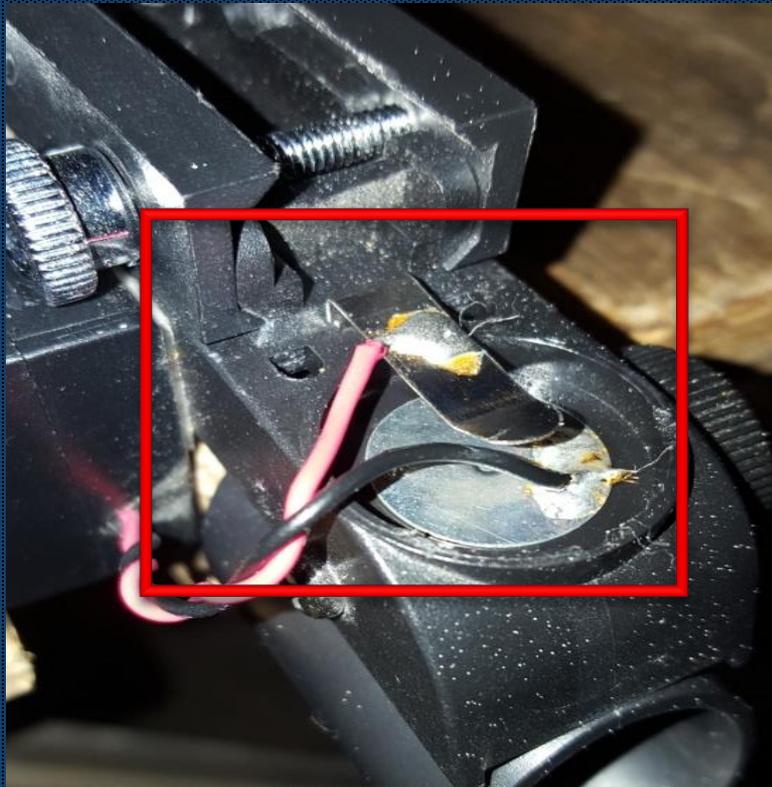
View Finder - Revised solder tech.

- Dead batteries
- Intermittent red dot
- On backwards/lost
- Misaligned
- Corroded batteries
- Can't see "Red Dot"
- Lost base screw

Hack:
Revised solder
technique



View Finder - Revised solder tech.



Download instructions at:
<http://LibraryTelescope.org/Hacks>

View Finder - Zip Tie

- Dead batteries
- Intermittent red dot
- **On backwards/lost**
- Misaligned red dot
- Corroded batteries
- Can't see "Red Dot"
- Lost base screw

Hack:
Zip tie



View Finder - Stickers

- Dead batteries
- Intermittent red dot
- On backwards/lost
- **Misaligned red dot**
- Corroded batteries
- Can't see "Red Dot"
- Lost base screw

Hack:
Labels



View Finder - Labels

- Dead batteries
- Intermittent red dot
- On backwards/lost
- **Misaligned red dot**
- Corroded batteries
- Can't see "Red Dot"
- Lost base screw

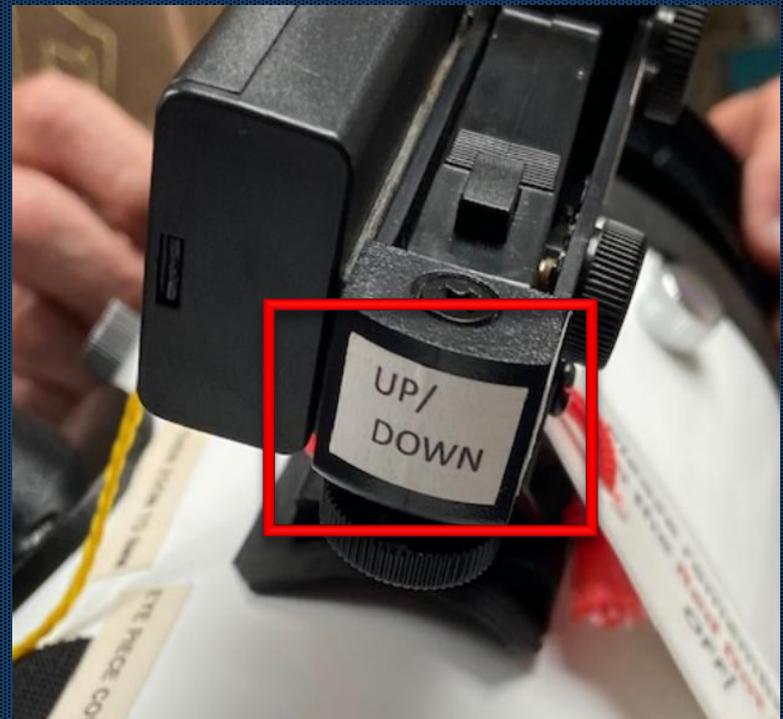
Hack:
Labels



View Finder - Up/Down Label

- Dead batteries
- Intermittent
- On backwards/lost
- **Misaligned red dot**
- Corroded batteries
- Can't see "Red Dot"
- Lost base screw

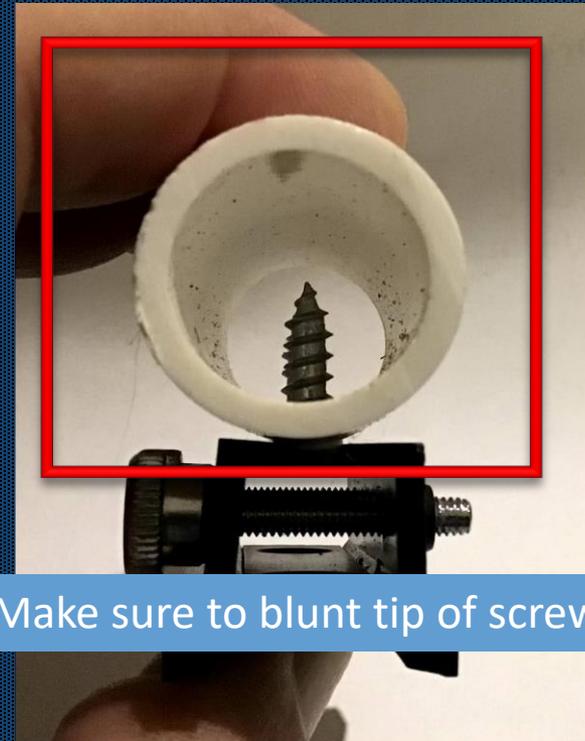
Hack:
Labels



View Finder - PVC Tube Finder

- Dead batteries
- Intermittent red dot
- On backwards/lost
- Misaligned red dot
- Corroded batteries
- Can't see "Red Dot"
- Lost base screw

Hack:
PVC Tube Finder

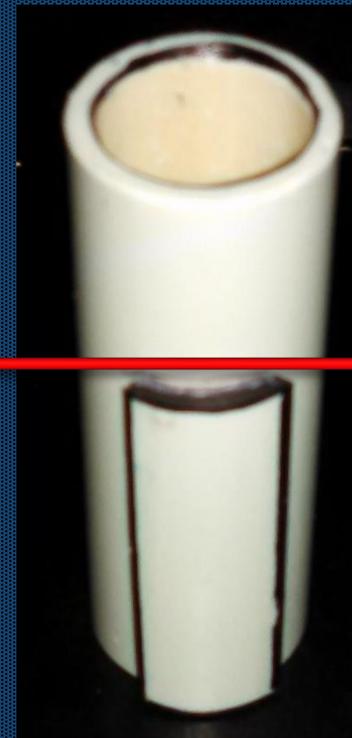


Make sure to blunt tip of screw

View Finder - 3D Saddle Finder

- Dead batteries
- Intermittent red dot
- On backwards/lost
- Misaligned
- Corroded batteries
- Can't see "Red Dot"
- Lost base screw

Hack:
PVC Tube Finder



3/4 inch
PVC

View Finder - 3D Tube Finder

- Dead batteries
- Intermittent red dot
- On backwards/lost
- Misaligned red dot
- Corroded batteries
- Can't see "Red Dot"
- Lost base screw

Hack:
3D Tube Finder



Download 3D File:
<http://LibraryTelescope.org/Hacks>

View Finder - 3D Tube Finder

- Dead batteries
- Intermittent red dot
- On backwards/lost
- Misaligned red dot
- Corroded batteries
- Can't see "Red Dot"
- Lost base screw

Hack:
3D Saddle Finder



Download 3D File:
<http://LibraryTelescope.org/Hacks>

View Finder - 3D Finder Screw

- Dead batteries
- Intermittent red dot
- On backwards/lost
- Misaligned red dot
- Corroded batteries
- Can't see "Red Dot"
- Lost base screw

Hack:
3D Finder Screw



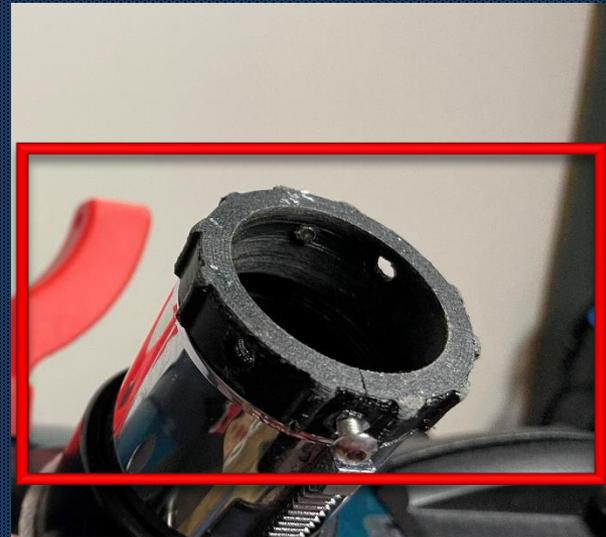
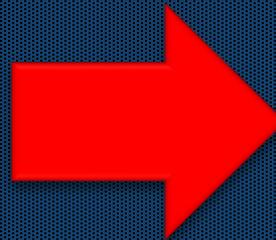
Download 3D File:
<http://LibraryTelescope.org/Hacks>

Focuser

Focuser - 3D Visual Back

- Visual back cracks
- Stripped gears

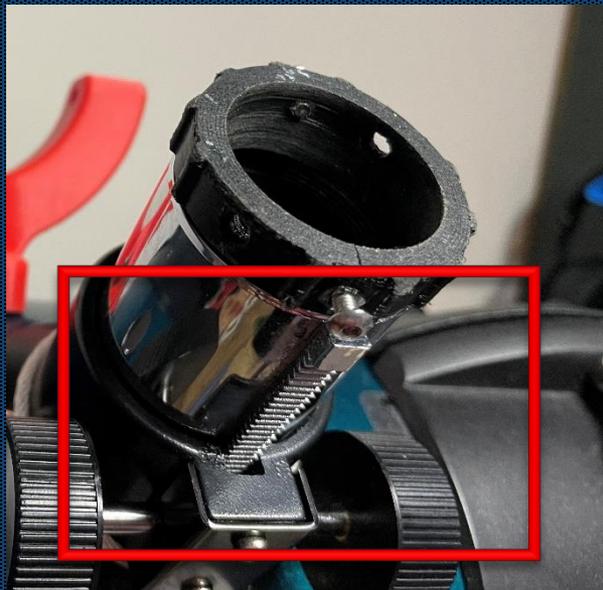
Hack:
3D Visual Back



Download 3D File at:
<http://LibraryTelescope.org/Hacks>

Focuser - Travel Stop

- Visual back cracks
- Stripped gears



Hack:
Travel Stop



Eyepiece(s)

Eyepiece(s)

- Wrong eyepiece
- Lost eyepiece
- Lost eyeguard
- Missing eyepiece cover



75x



26x

Eyepiece(s) – Zoom Lens

- Wrong eyepiece
- Lost eyepiece
- Lost eyeguard

Hack:
Zoom Lens



Eyepiece(s) – Replace Screws

- Wrong eyepiece
- **Lost eyepiece**
- Lost eyeguard
- Missing eyepiece cover

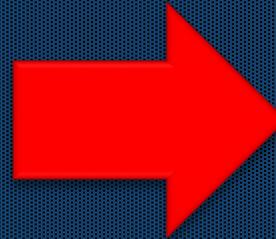
Hack:
Use buttonhead
thumbscrews



Eyepiece(s) – Duct/Electrical Tape

- Wrong eyepiece
- Lost eyepiece
- Lost eyeguard
- Missing eyepiece cover

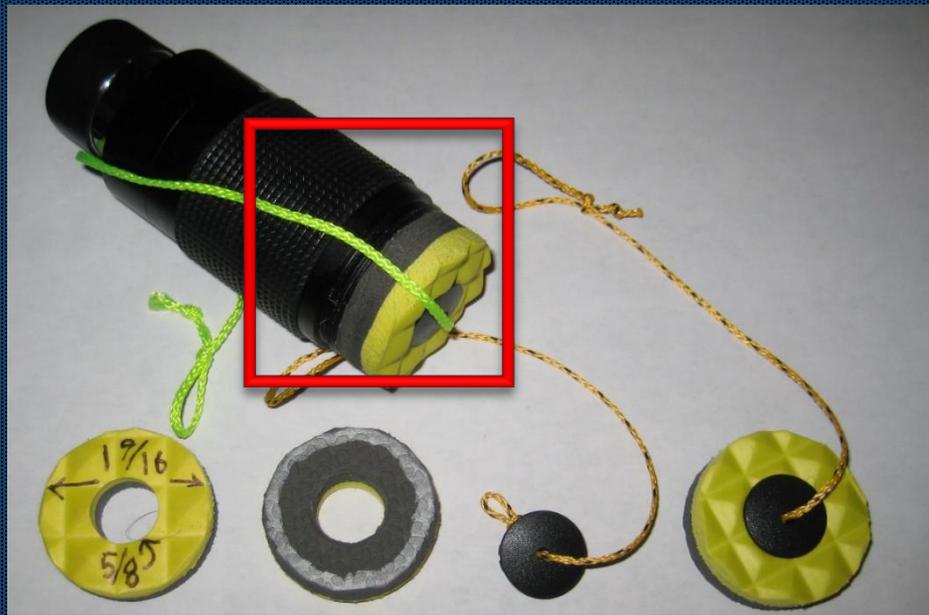
Hack:
Duct/Electrical Tape



Eyepiece(s) – Duct/Electrical Tape

- Wrong eyepiece
- Lost eyepiece
- **Lost eyeguard**
- Missing eyepiece cover

Hack:
Donut Hole
(Foam Flooring Tile)



Eyepiece(s) – 3D Eyepiece Cover

- Wrong eyepiece
- Lost eyepiece
- Lost eyeguard
- **Missing eyepiece cover**

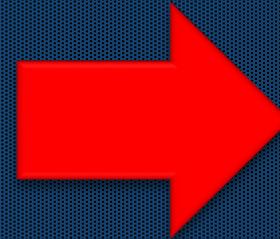
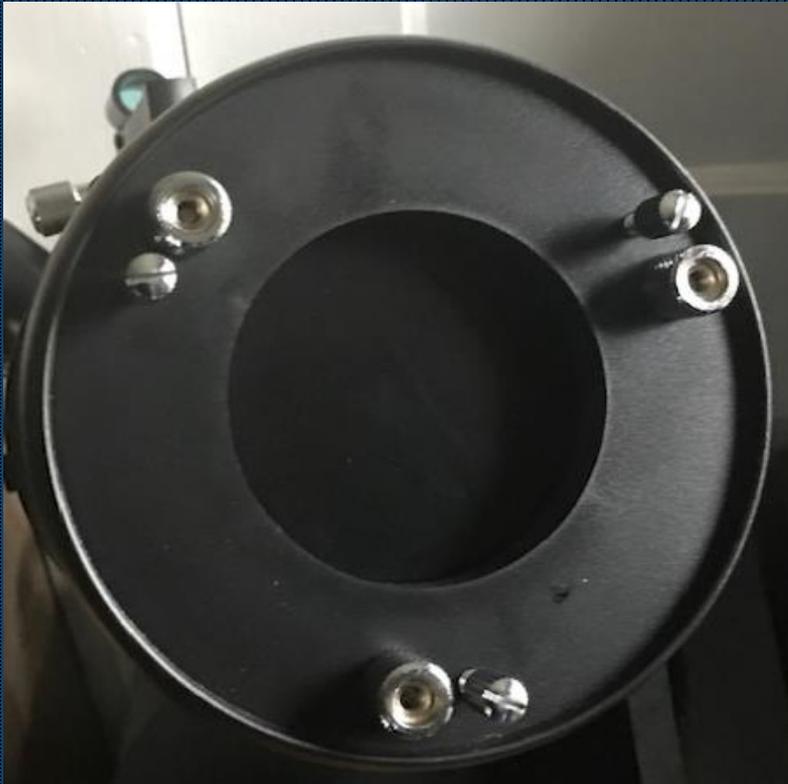
Hack:
3D Eyepiece Cover



Mirror

Mirror

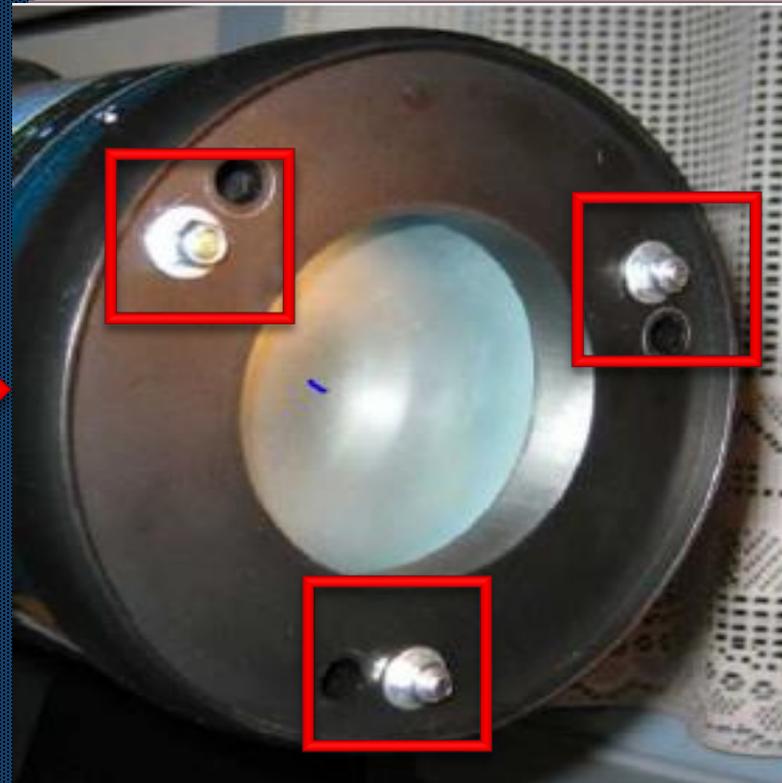
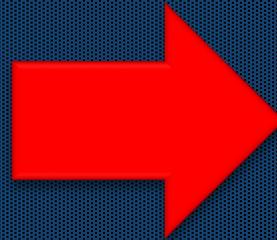
- Collimation wrong



Mirror - Replace Thumb screws

- Collimation wrong

Hack:
Replace Screws



Mirror - Plastic Cover

- Collimation wrong

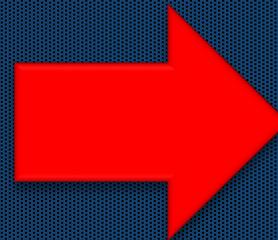
Hack:
Plastic Cover



Mirror - Do Not Touch Label

- Collimation wrong

Hack:
Do Not Touch Label



Mirror – Recenter Donut

- Collimation wrong

Hack:
Tool to
Recenter Donut



Miscellaneous Issues

Misc - Table Display

- Telescope Operation
- Displays

Hack:
Biz Card

Library Telescope Program



Quick Start Resources:

- How to use the telescope
- Introduction to astronomy
- Educator resources
- Sky Map/Other resources
- More about the program

www.librarytelescope.org/get-started

2018-04-LT04

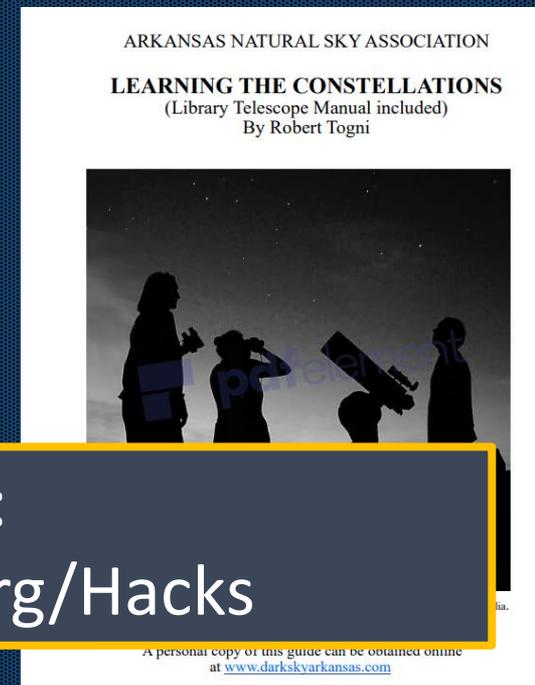
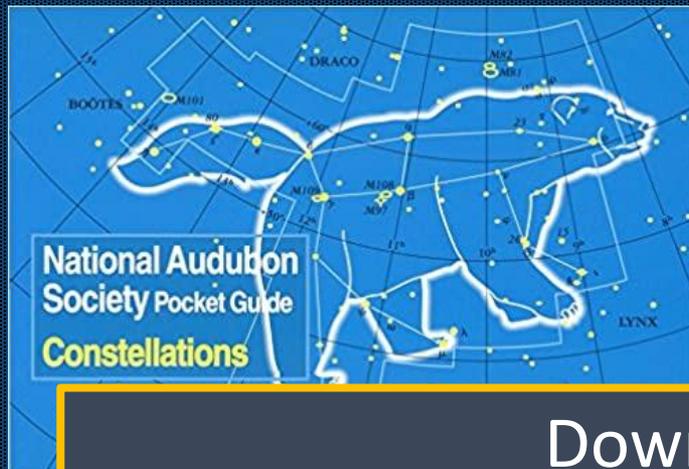


Download File at:
<http://LibraryTelescope.org/Hacks>

Misc - Table Display

- Telescope Operation
- Displays

Hack: Alternate Constellation Guide

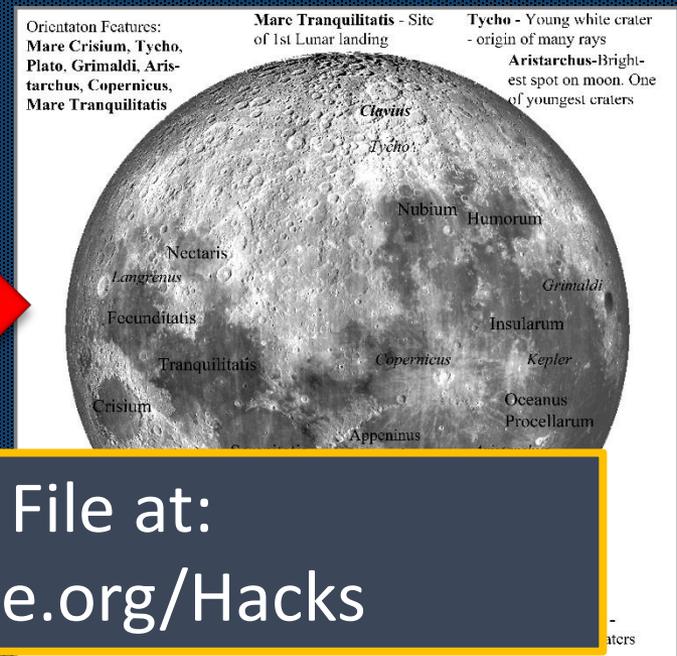
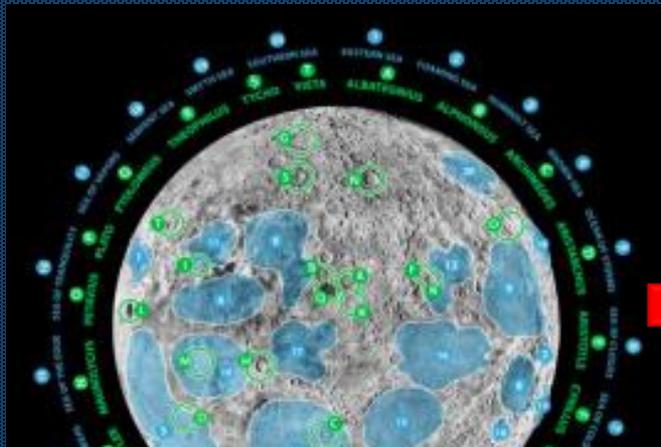


Download PDF at:
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Misc - Table Display

- Telescope Operation
- Displays

Hack: Alternate Moon Map

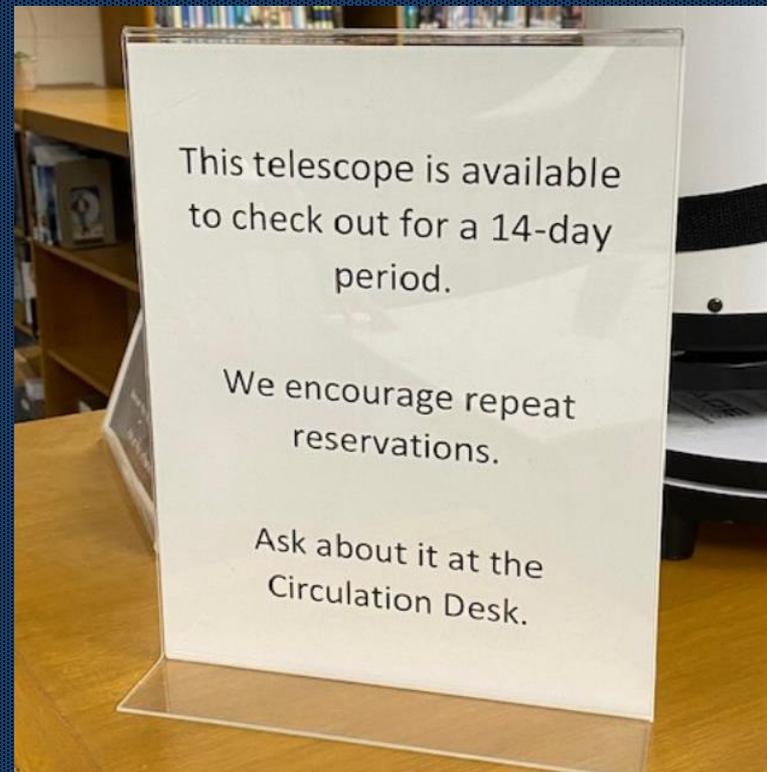


Download Image File at:
<http://LibraryTelescope.org/Hacks>

Misc - Table Display

- Telescope Operation
- Displays

Hack: Table Display



Misc - Cardboard cutout

- Telescope Operation
- **Displays**

Hack:
Picture of telescope



Misc - Cardboard cutout

- Telescope Operation
- **Displays**

Hack:
Cardboard cutout



Acknowledgments:

Many contributors of ideas:

Founder, Marc Stowbridge

In St. Louis, John Beaury and Chuck Simms

Questions?

FACEBOOK: Facebook.com/LibraryTelescope

WEBSITE: LibraryTelescope.org

YOUTUBE: Click on YouTube Icon on website

<http://LibraryTelescope.org/Hacks>