

# *CCDAutoPilot:* *Maximizing Performance*

**CCD  
AutoPilot** 

**CCD  
Navigator** 

**CCD  
Inspector** 

**CCDStack** 

*WeatherNinja*

**PEMPro**



15% off all CCDWare  
products and upgrades  
during NEAIC

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[www.CCDWare.com](http://www.CCDWare.com)

# Flight School 101

- **Walters' First Law:** “Automation does **NOT** simplify imaging”  
*False:* “I’m going to automate so I won’t have to understand this stuff”.  
*True:* “When you’re finished, you’ll know **EVERYTHING** about this stuff”.
- **Walters' Second Law:** “Automation does **NOT** solve problems”  
*False:* “Automation will take care of sloppy hardware and software”.  
*True:* “If *X* doesn’t work for you, *X* won’t work for CCDAutoPilot.” (for all *X*)
- **Walters' Third Law:** “Never put untested equipment in a vehicle”  
*False:* “I’m sure that new camera will just pop right in, no problem”.  
*Exception:* This law can be ignored if you’re taking it to UPS, FedEx or USPS

**There is no shortcut.  
Knowledge is essential.**

# Flight School 102

- You MUST “harden” your system
  - Cable management (braid cables, avoid stiffness & snags)
  - Secure cables (don’t rely on contact retention force alone)
  - Lockdown *everything* (electronics, cameras, focusers, etc.)
  - Use commercial grade USB hubs and RS232 adapters
  - Check observatory PC for temperature range
  - Stabilize your software applications (“less is more”)
  - Check collimation, camera tilt, field curvature
  - Check Polar Alignment
  - Train PEC, TPoint, FocusMax, @Focus2, etc.
  - Ensure FOVIs accurately represent your system

# Daily Pre-Flight Checklist

- Launch applications manually (without CCDAutoPilot)
- Connect to mount, camera, guider, focuser and rotator
- Try ALL major functions manually
  - Mount: Home, slew, park
  - Camera: Take photo, inspect collimation, tilt, curvature
  - Focus: Focus with application (i.e. @Focus2, FMx, MDL)
  - Rotator: Check movement with photo, find 0 deg sky position
  - Guider: Take photo with guider, check focus, calibrate guider at slightly rotated position (30 degrees)
  - Guiding: Start and monitor guiding quality

Do this **EVERY** session until your system is **STABLE & REPEATABLE**

# CCDAutoPilot Flight School

## *Instrument Flight Rating Examination*

1. Become familiar with **EVERY** window and control in CCDAutoPilot
2. Perform Pre-Flight Checklist on your system, launch CCDAutoPilot
3. Choose your Software applications, then “Link to Software”
4. Set up Plate solving properties and test it
5. Click on “Initialize” (with guider around 30 degrees)

***Do not proceed further until these work!***

1. Basic: Setup a target, run session with short exposures, no flips, no guiding, no focusing, REVIEW LOG
2. Flipping: Repeat on a target that transits, no guiding, no focusing, REVIEW LOG
3. Guiding: Repeat with guiding, no focusing, REVIEW LOG
4. Focusing: Repeat with guiding and focusing, REVIEW LOG
5. Running: Repeat with normal exposures, all functions enabled, REVIEW LOG

***Congratulations! You just earned your wings!***