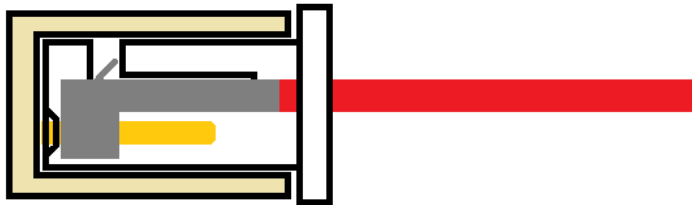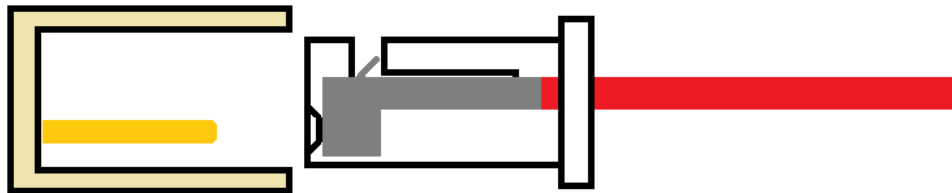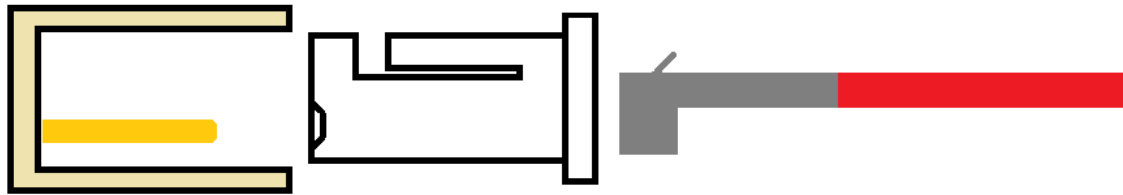# Attachment 21
Addendum 1
General Latch and Pin Arrangement

General Latch and Pin Arrangement
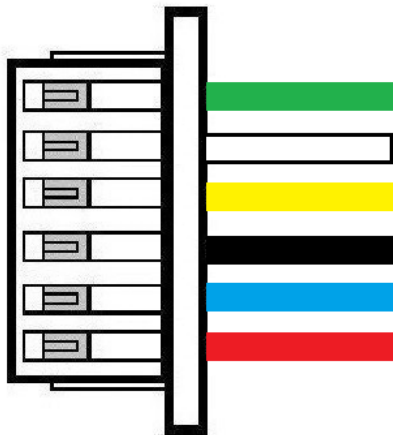
Latches UP
(inserting pins)
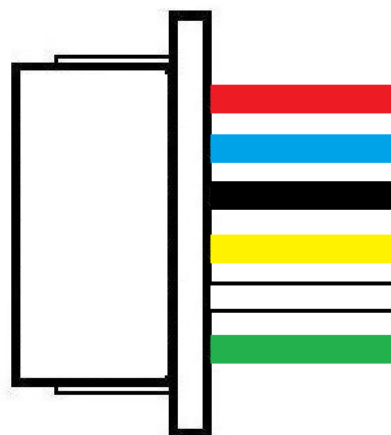
Latches Down
(As installed)

YUNEEC C23 / E90
Contact Plate Wire Color

Brown and Black — GND

Red and Orange — VBAT

Green — TX

Yellow — PWM

C23/E90 Slip Ring Pinout
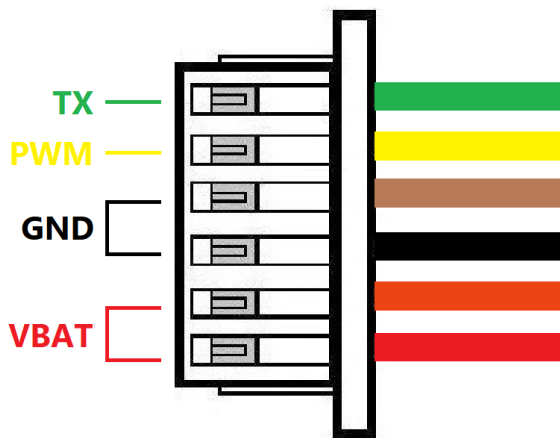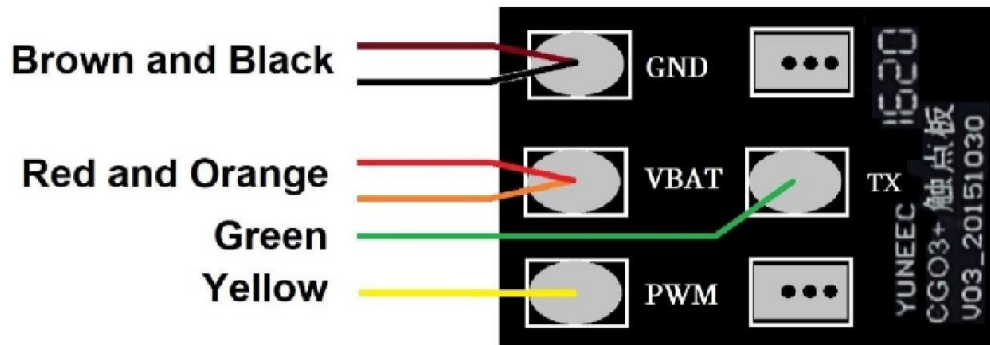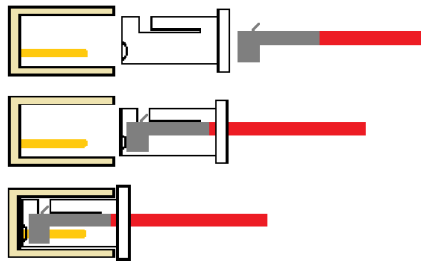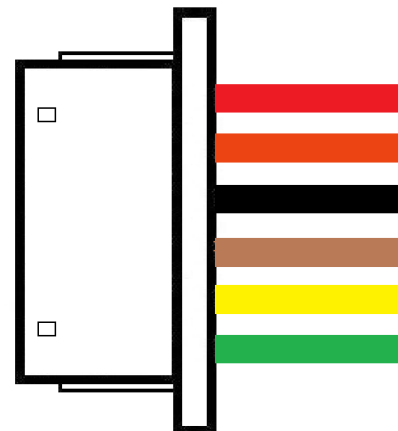
Brown and Black — GND

Red and Orange — VBAT — TX

Green

Yellow — PWM

YUNEEC
CGO3+ 触点板
V03_20151030

TX —
PWM —
GND
VBAT

**Latches UP
(inserting pins)**

Latches Down

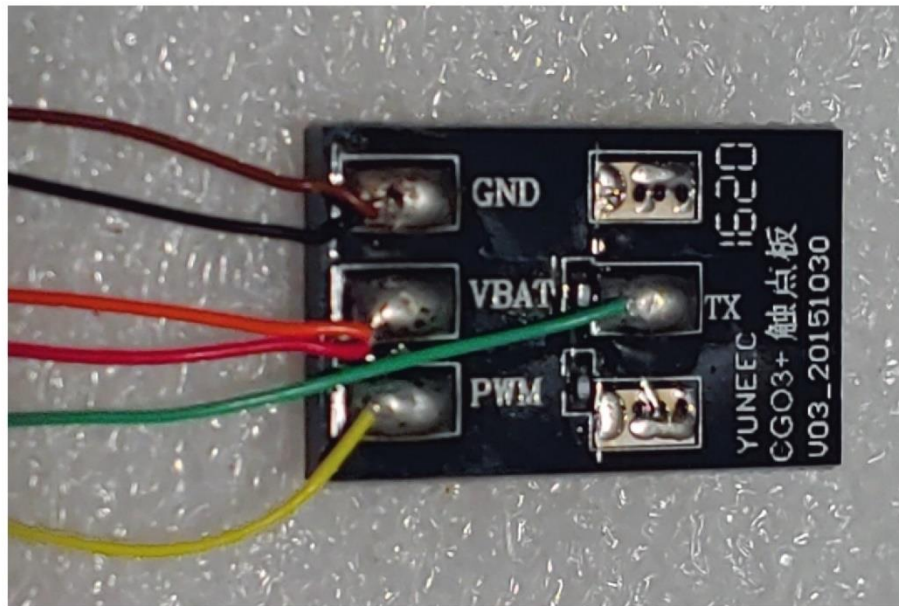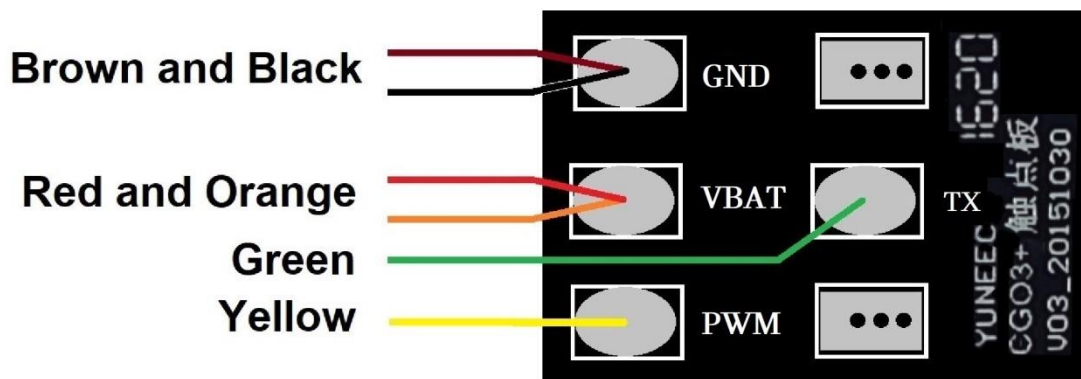# C23 / E90 Gimbal Board Connections
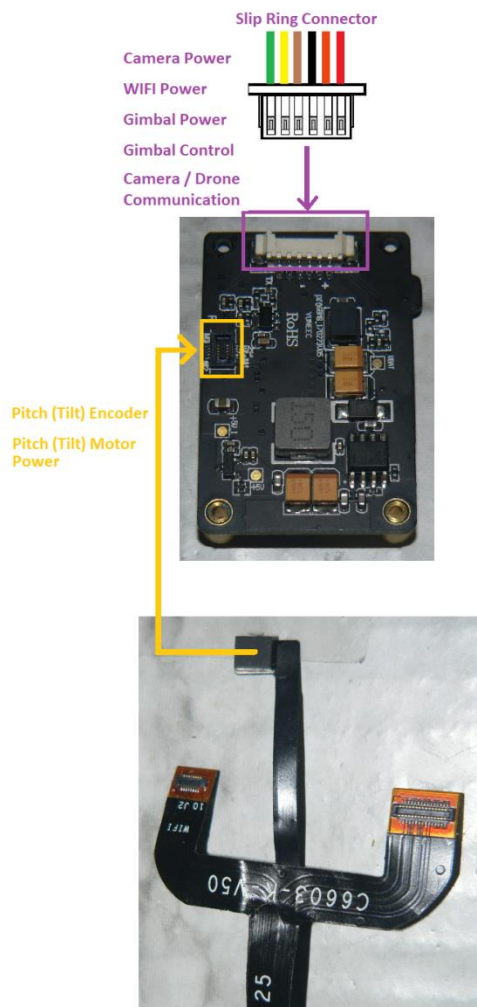
BOTTOM

TOP
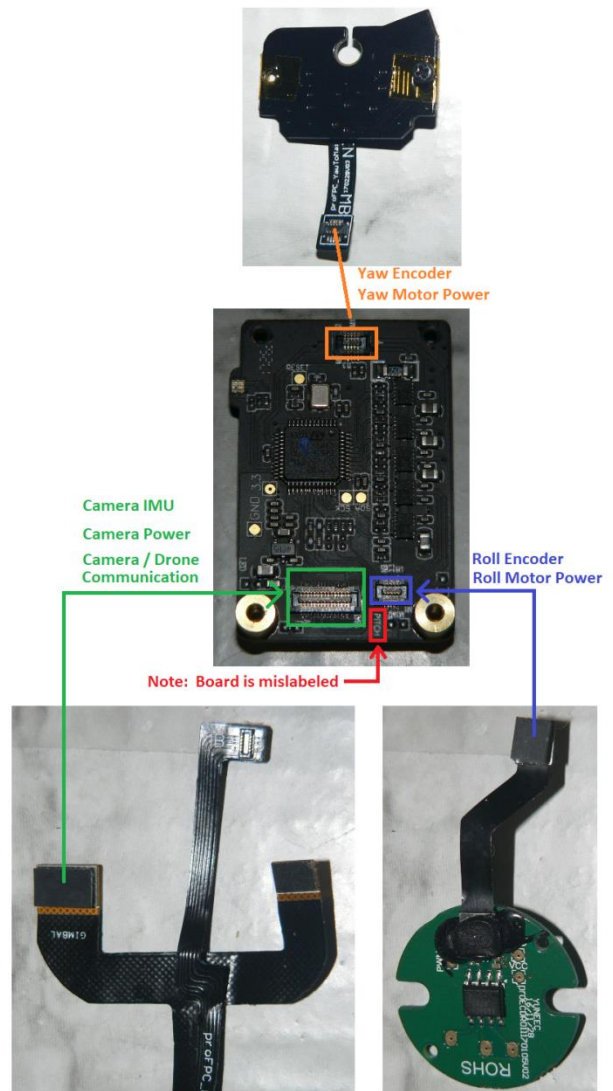
Slip Ring Connector

Camera Power
WIFI Power
Gimbal Power
Gimbal Control
Camera / Drone Communication

Pitch (Tilt) Encoder
Pitch (Tilt) Motor Power

Yaw Encoder
Yaw Motor Power

Camera IMU
Camera Power
Camera / Drone Communication

Roll Encoder
Roll Motor Power

Note: Board is mislabeled

| **Revision 1** | | 2020/05/10 |

C23 / E90 WIFI Board Connections

BOTTOM

MAC:00E074B20025

**WIFI Reciever Power
Video From Camera**

**Video Related Control to Camera
Backup Drone Control to Drone**

TOP

17.40

**Video Related Camera Control From ST16S
Backup Drone Control From ST16S**
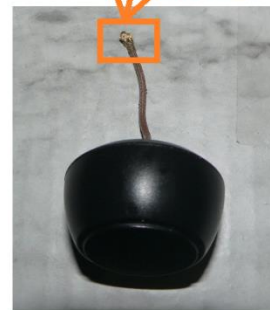
Video to ST16S

Attachment 25
C23 / E90 Pitch Encoder Replacement

Introduction: This document describes the method to replace the Pitch (Tilt) encoder on the C23 and E90 cameras. The process is relatively simple, but it should be noted some cosmetic damage will occur related to removing the black decorative cover.

Use of this information is at your own risk.

Note: Eye protection and gloves should be worn for the first step.

1). Using a stout, sharp blade or similar, pry the black center disk from the right hand decorative cover:

2). Remove the two screws holding the decorative cover:

3). Remove the decorative cover:

4). Remove the two screws holding the Encoder to the Camera Arm:
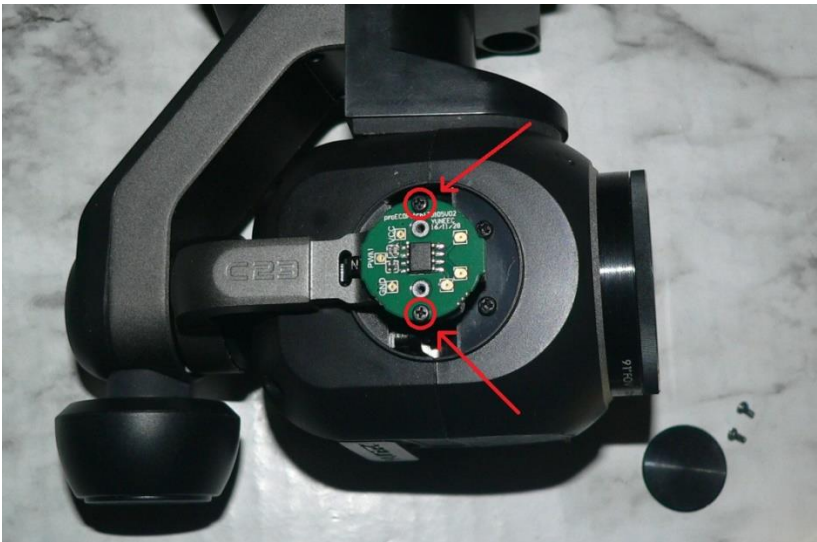
5). Tilt the Encoder slightly backwards, and unplug the motor connector:
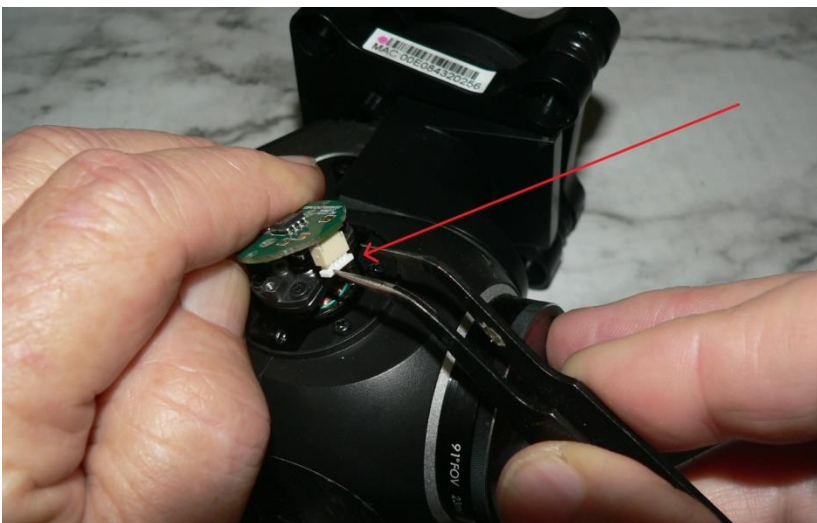
Attachment 25
C23 / E90 Pitch Encoder Replacement

Note: **The encoder ribbon will normally stay attached to the camera arm by a small pad of double sided tape. The connector will normally unsnap itself as the encoder is tilted backwards.**

6). Carefully tilt the Encoder towards the rear of the camera, and verify the Encoder Ribbon separates from the Encoder.
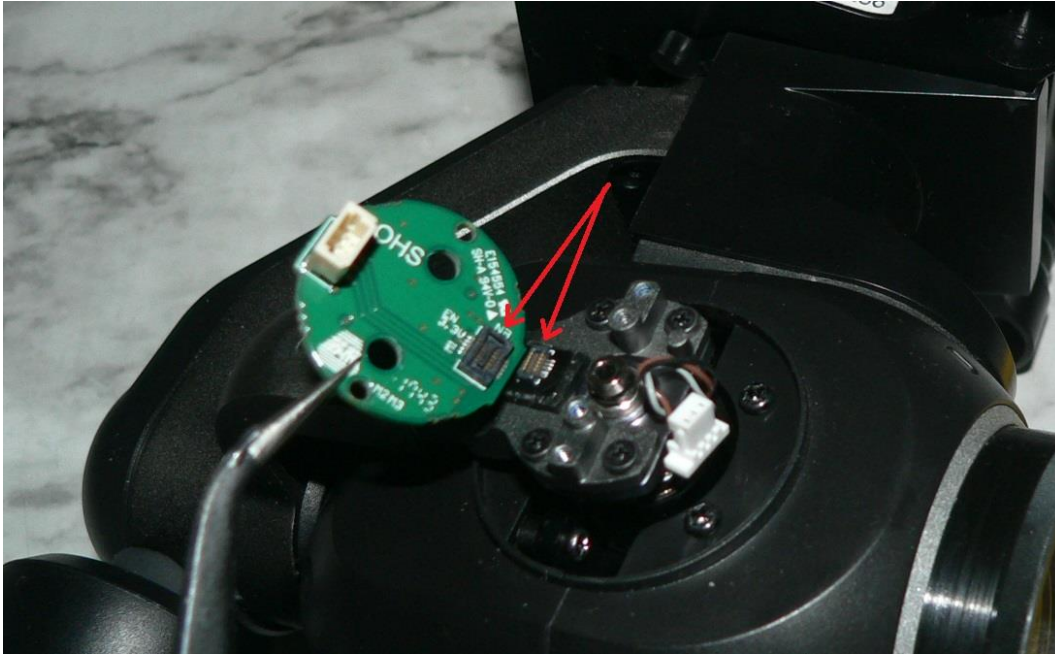
7). IF Encoder Ribbon remains attached to Encoder instead of camera arm, carefully pry the ribbon connector from the Encoder, and reattach ribbon to the tape pad on the camera arm.

8). Remove old Encoder from the work area to avoid confusion with the new Encoder.

9). Attach motor connector to new Encoder:
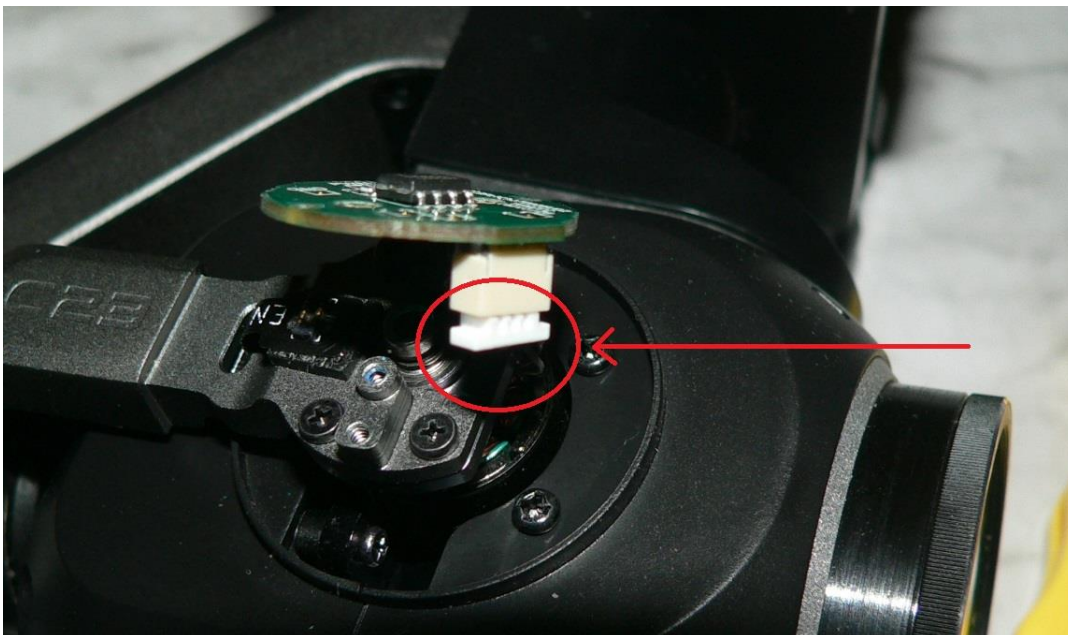
10). CAREFULLY align Encoder connector with Ribbon connector and snap together:
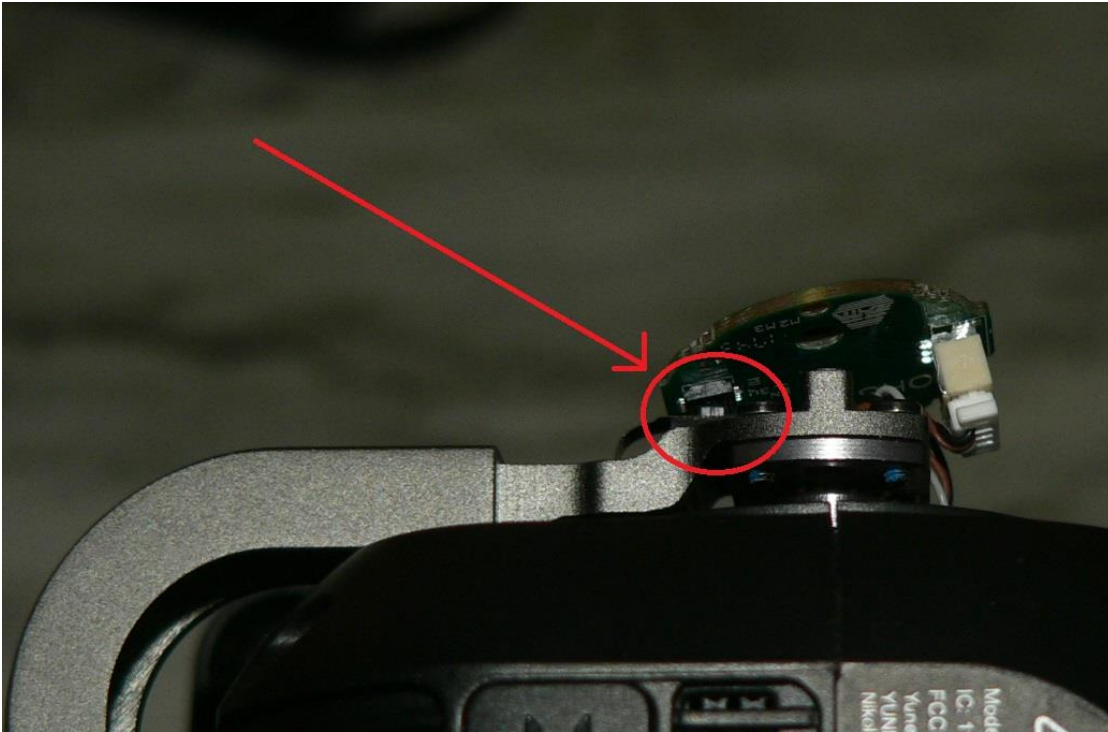
11). Install the two screws holding the Encoder to the Camera Arm:
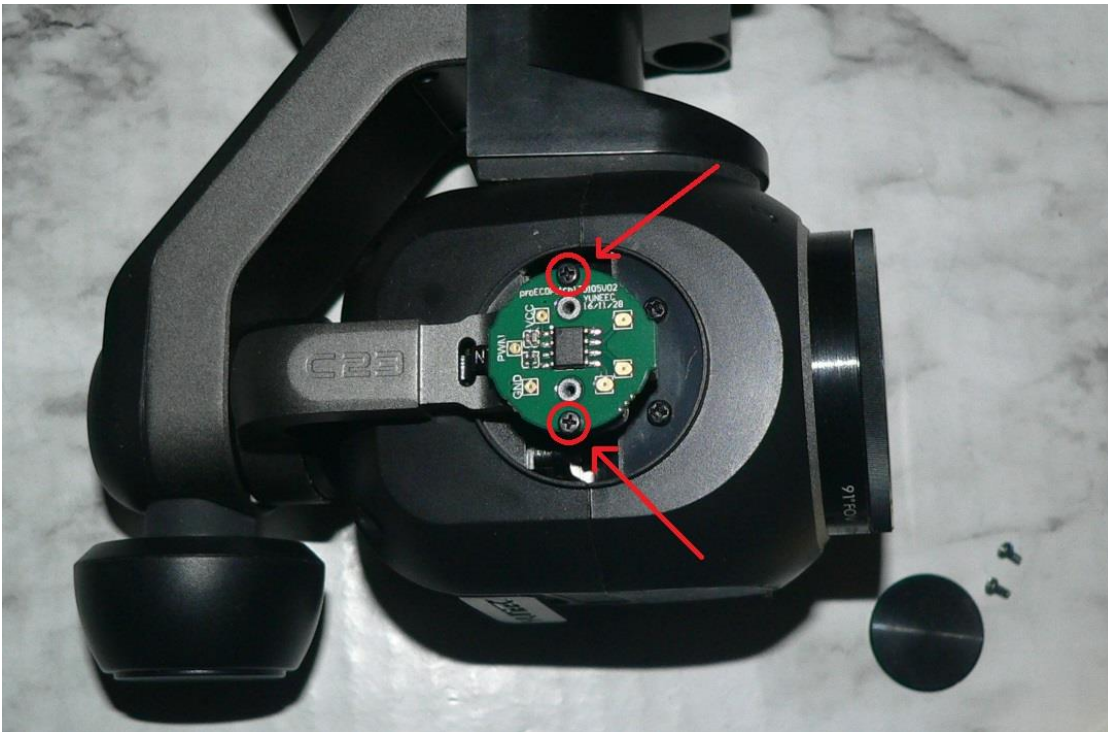
12). Place the decorative cover over the Encoder:

13). Install the two screws holding the decorative cover:

14). Install the black center disk over the decorative cover:

Attachment 26
Typhoon H Plus Binding Notes

To bind an H Plus to a new ST16S controller:

1). Invert the Plus until all the motor LEDs are flashing green.
2). Return the H Plus to the upright position.
3). Return to the ST16S Bind Menu.
4). Refresh the ST16S Bind Menu.

The Typhoon H Plus ID number will now on the ST16S Bind Menu.

To bind a C23 camera to a new ST16S controller:

1). If the new camera does not show in the ST16S Bind Menu:
2). Go to Pad.
3). Go to WIFI settings.
4). Select the camera.
5). Enter the password. (Default Password: 1234567890)
6). Return to the ST16S Bind Menu.
7). Refresh the menu.

The C23 camera SSID should now appear in the ST16S Bind menu.

Use of this information is at your own risk.

1). Ensure SD Card is in Camera.

2). Ensure H Plus and camera bound to ST16.

3). Open Camera Settings:
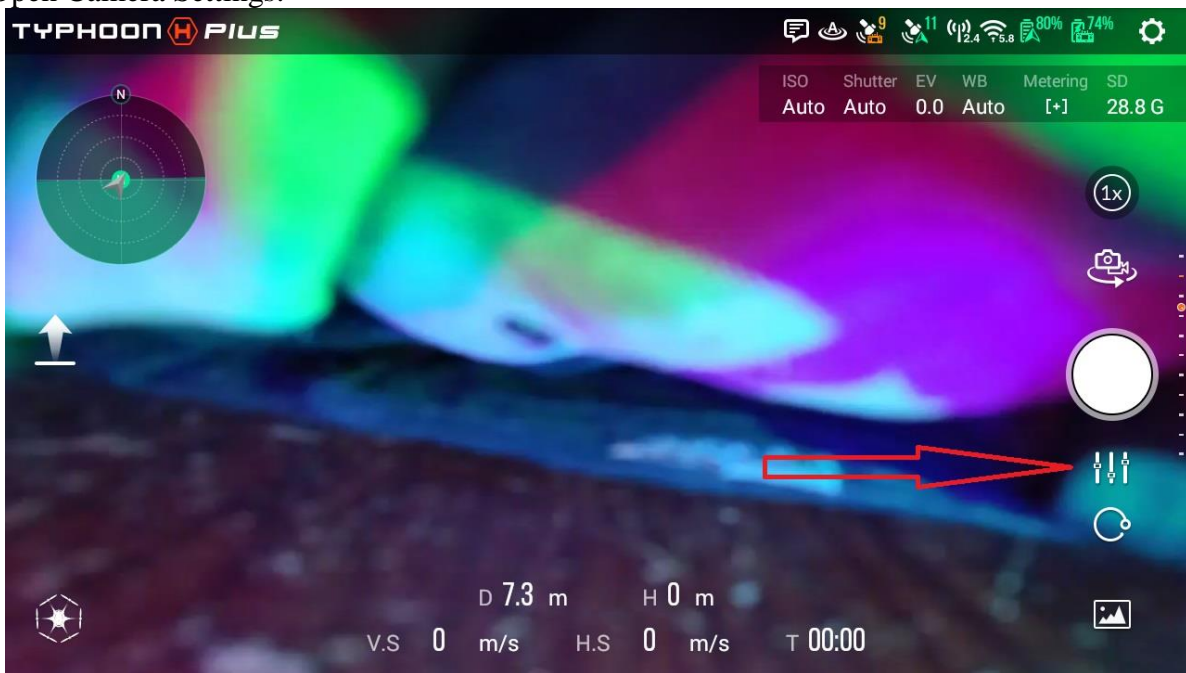
4). Select "SET:
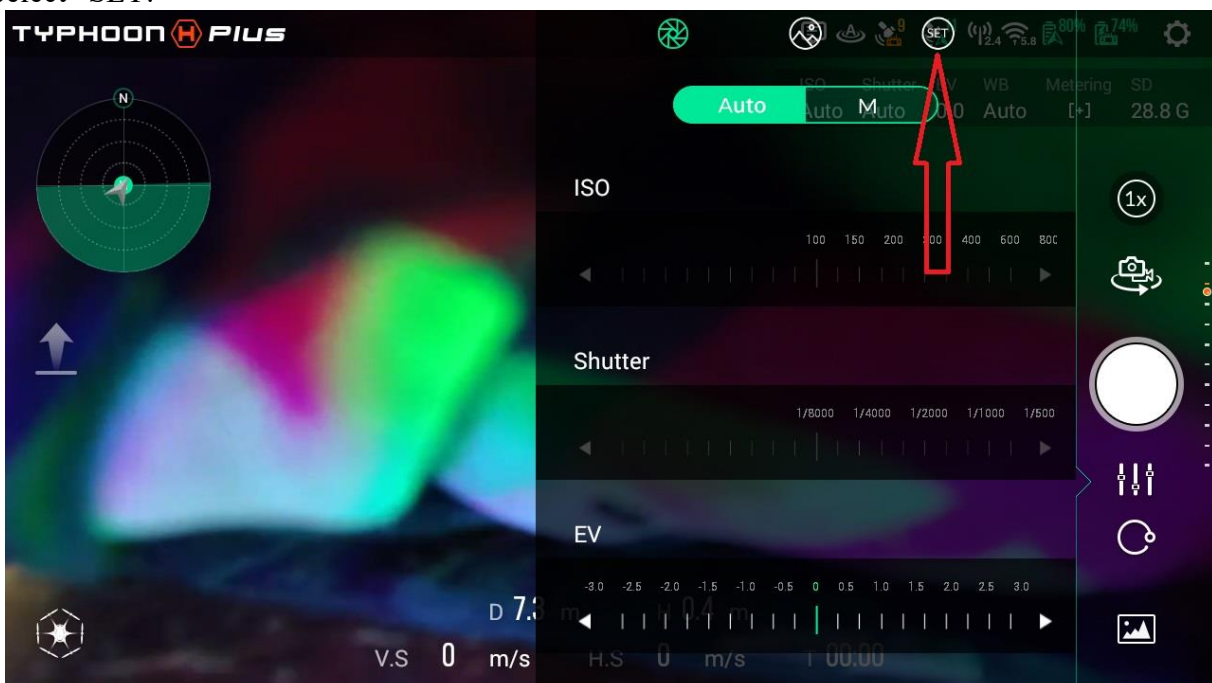
Attachment 27
Format SD Card in C23

5). Select "Format SD Card":
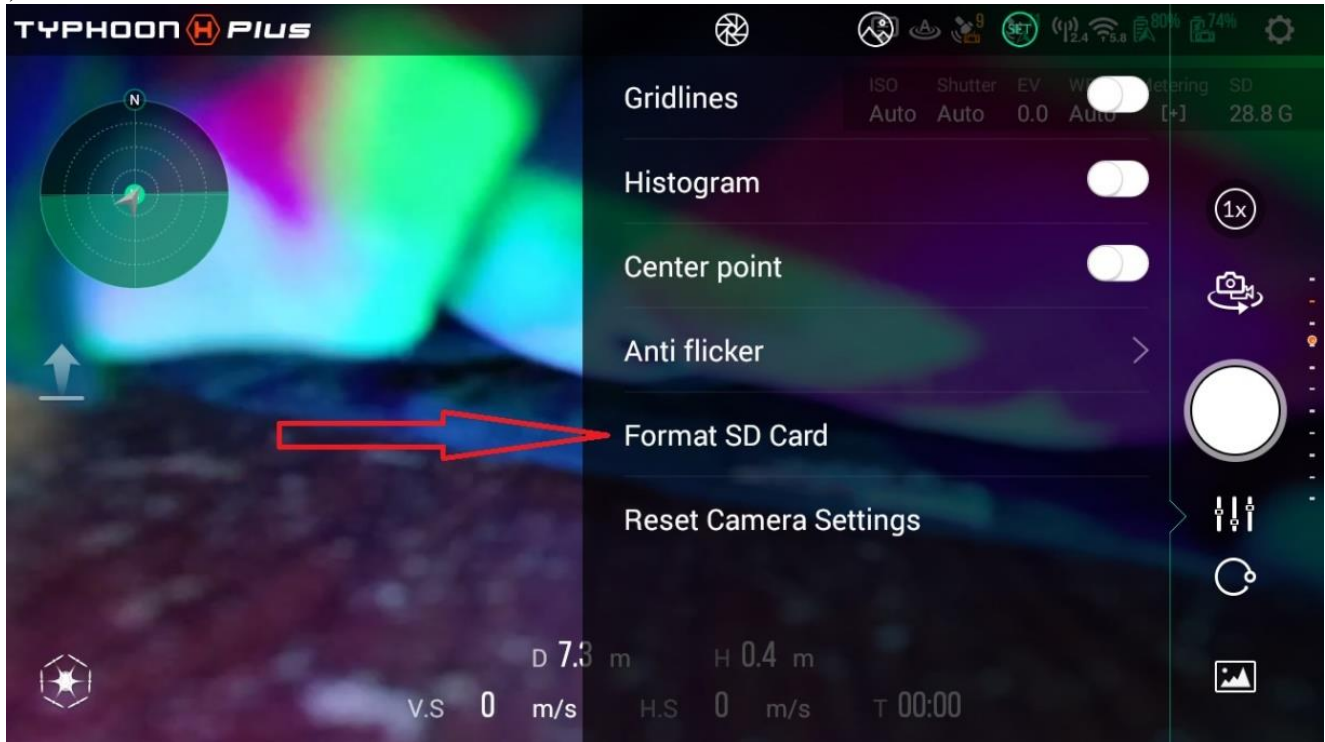
6). Select "Yes":

7). Verify SD Card Format Succeeded.

Attachment 28
SD Card Upgrade/Downgrade H Plus Firmware

Introduction: This document describes the method to perform an H Plus firmware upgrade or downgrade using SD Cards only. These instructions use Build 822 as the example Build. All file names and numbers are associated with Build 822. The general process is the same for other builds, but may require a different source for the necessary files. Not all builds include all components included in Build 822.

Use of this information is at your own risk.

PREPARATION:

15). Tap the "return" arrow on lower right of ST16S screen:
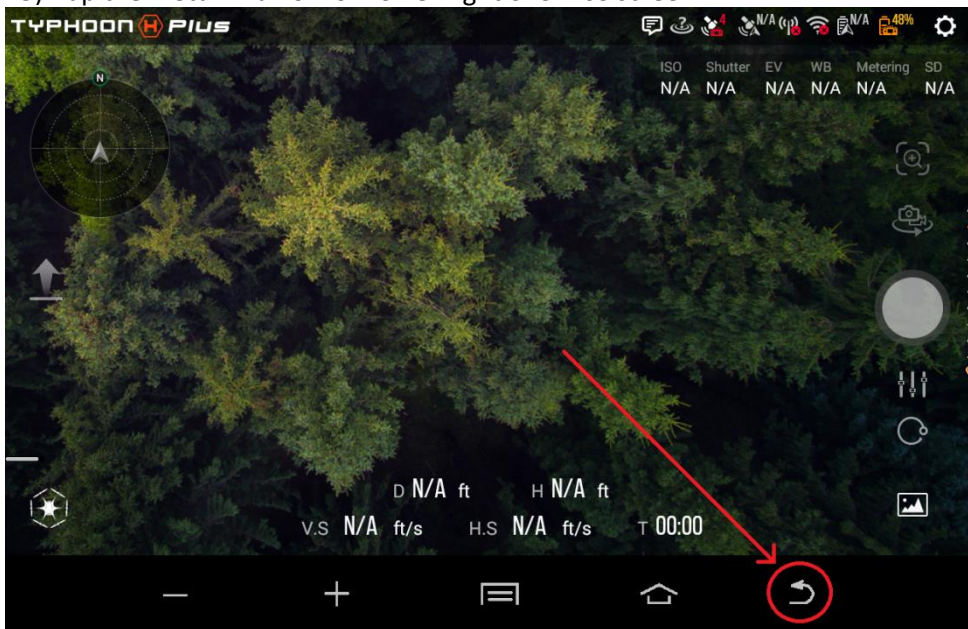
16). Select "Confirm":
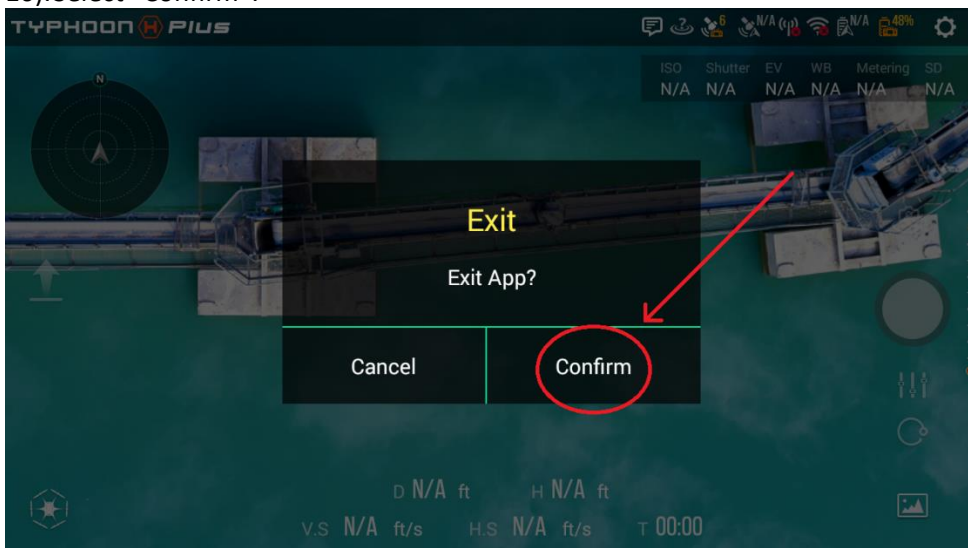
17). Select App symbol:
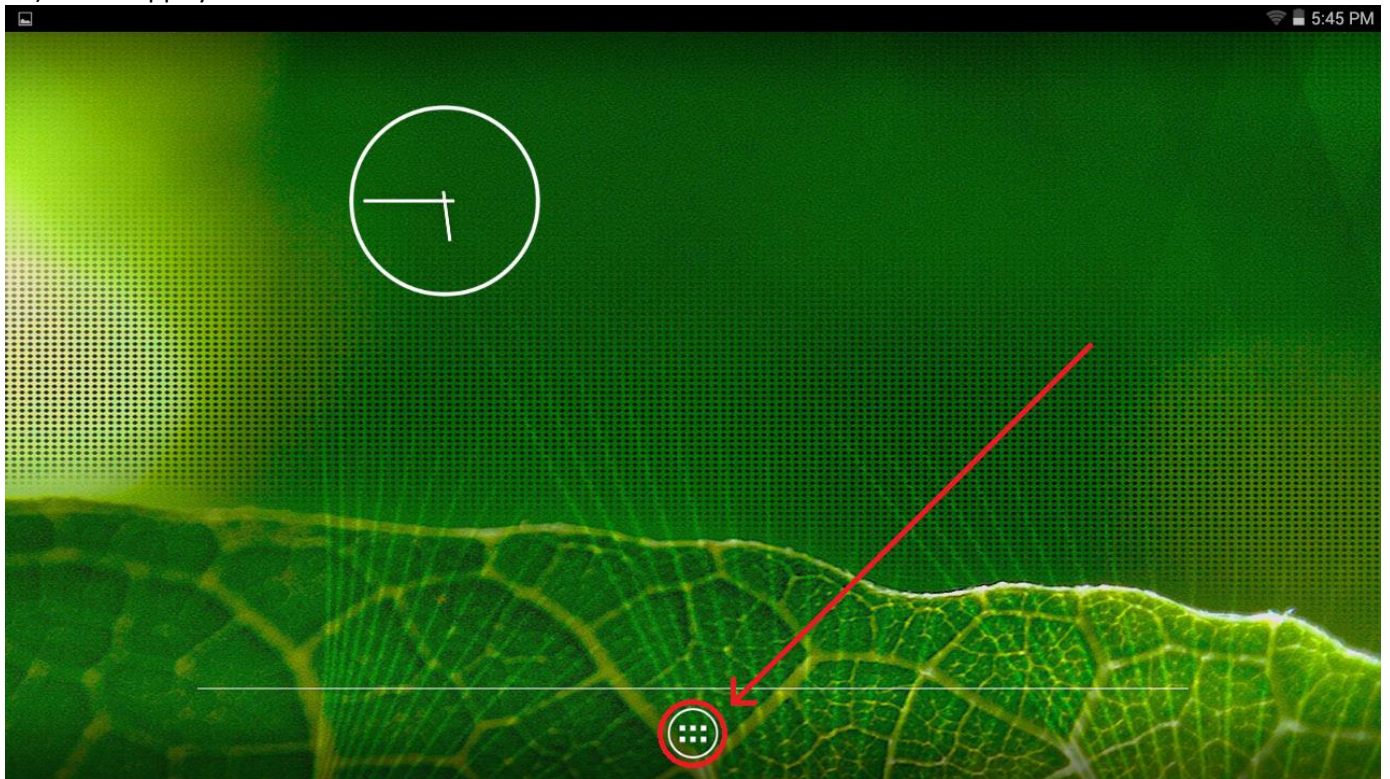
18). Select "Settings:
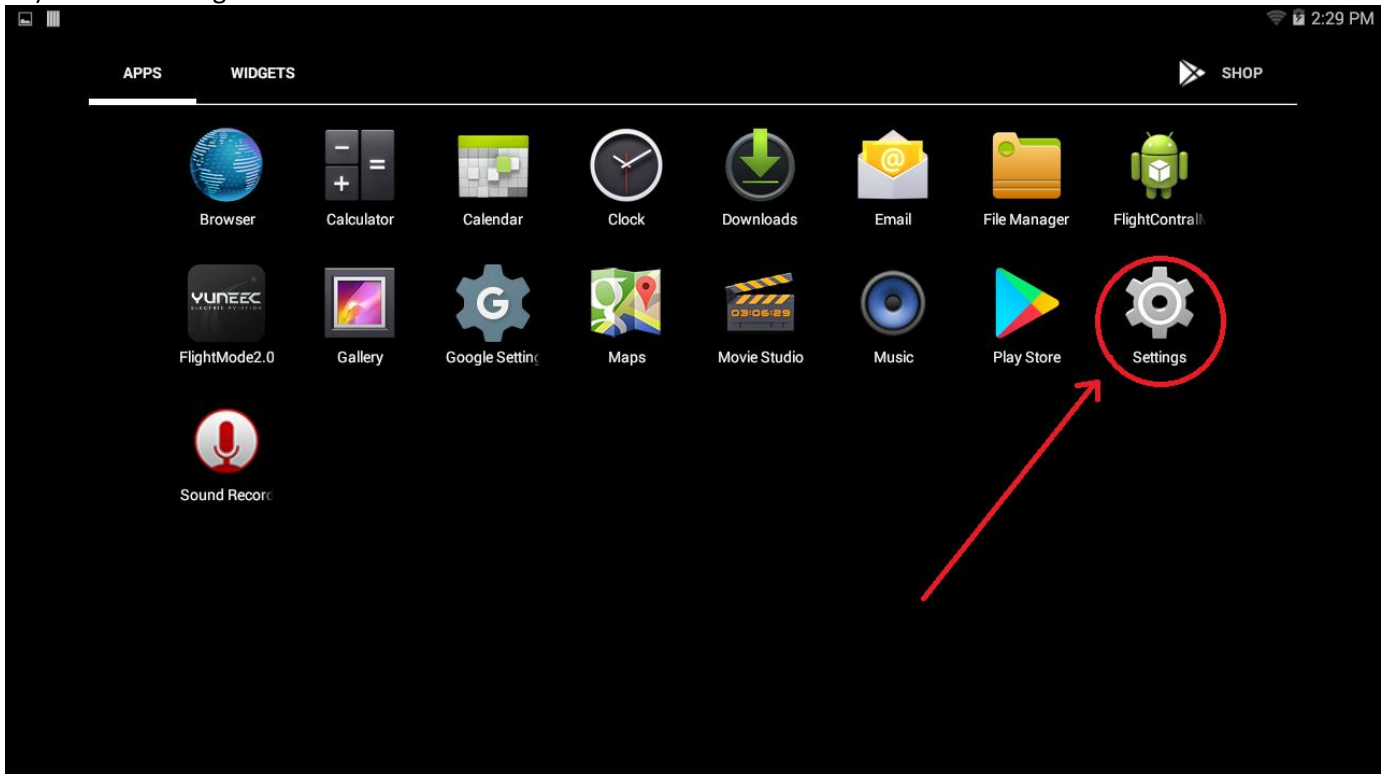
19).Scroll down as required, then select "Security":
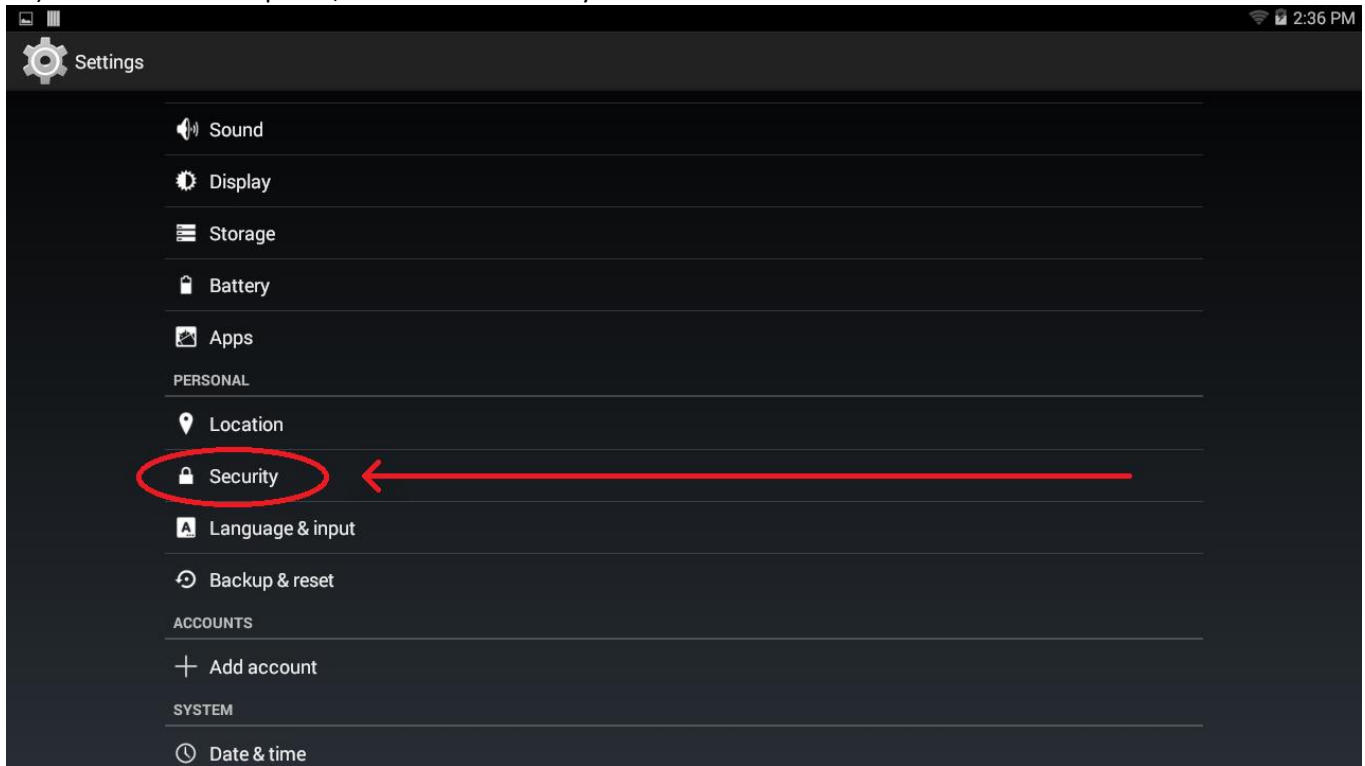
20).Ensure Box for "Unknown Sources" is checked:
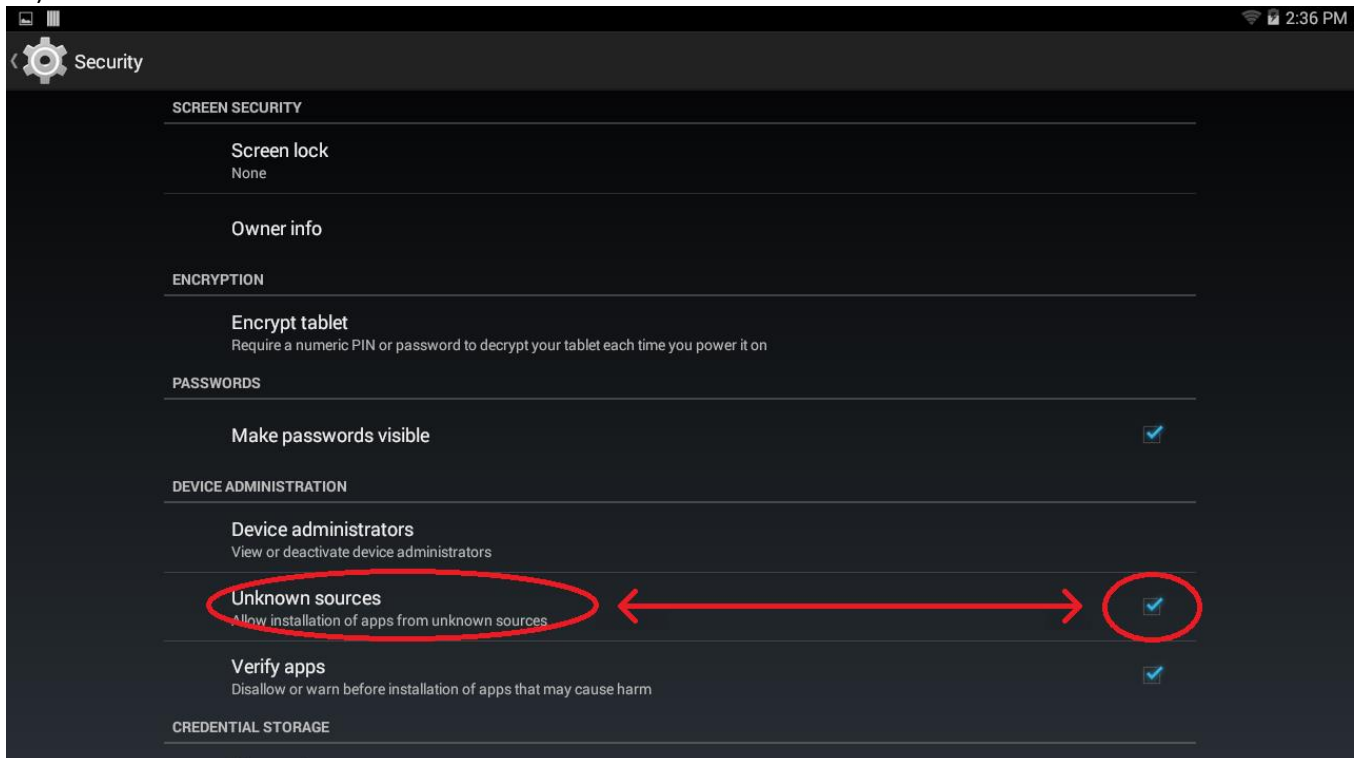
7) Return to the ST16S main screen.

8) Turn OFF the ST16S.

9) Create a folder on your desktop named "Download":
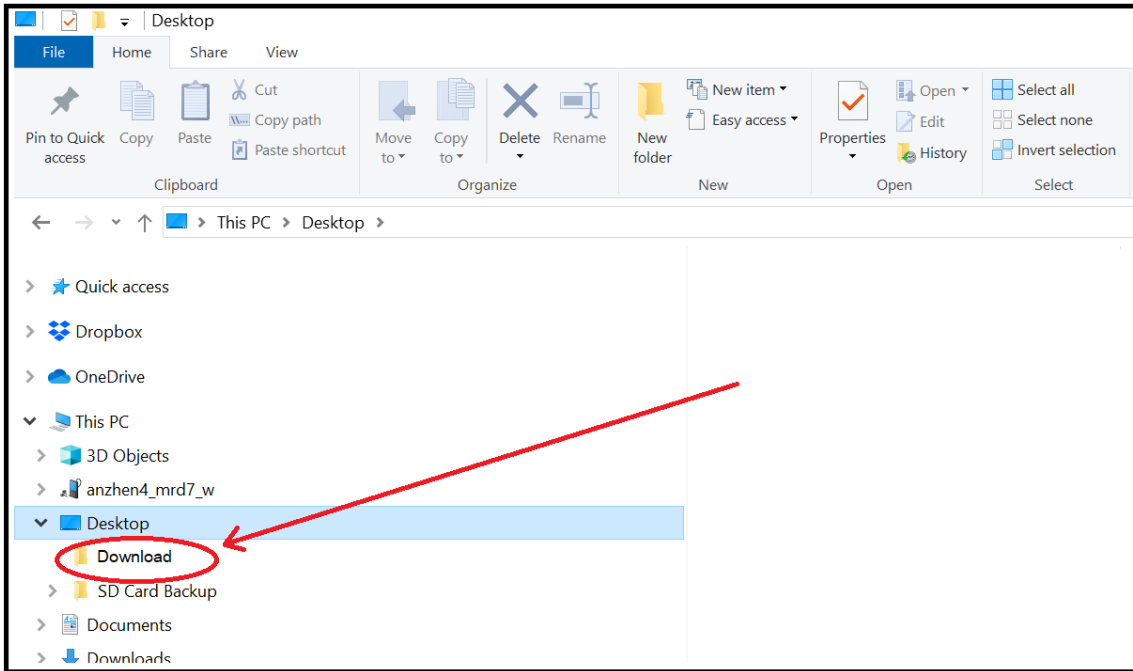
10) Ensure H Plus flight battery is fully charged.

11) Ensure ST16S controller battery is fully charged.

Attachment 28
SD Card Upgrade/Downgrade H Plus Firmware

<u>PHASE 1</u>

Note: The first phase of the process is to update the drone, the camera, and the camera gimbal.

1) Format an SD card.

2) Download "TYPHOONHPLUS_C23_C_1.1.03_BUILD822_20190312.yuneec" from
   https://www.mountainview.enterprises/support.html to the Download directory.

Note: "TYPHOONHPLUS_C23_C_1.1.03_BUILD822_20190312.yuneec" may automatically rename to ".zip" during download.

3) Rename "TYPHOONHPLUS_C23_C_1.1.03_BUILD822_20190312.yuneec" to
   "TYPHOONHPLUS_C23_C_1.1.03_BUILD822_20190312.zip" as required.

4) Extract "TYPHOONHPLUS_C23_C_1.1.03_BUILD822_20190312.zip" to the formatted SD Card.

5) Ensure the SD card now has four files on it:
   a) Autopilot.yuneec
   b) camera.bin
   c) Gimbal.yuneec
   d) Versioninfo.json (this one does not matter).

6) Eject the SD card

7) Put the SD card in the C23.

8) Mount the C23 on the H Plus

9) Turn on the H Plus.

Note: It will take a minute or so before anything starts to happen. The rear LEDs will initially flash blue as always. When they go "solid" is when things will start to happen.

Note: Generally, the camera will stabilize and flash the green camera LED. The camera will then go limp for a while. Things will go off, then back on a couple times. Various color and pattern arm LEDs and camera LED will show. Eventually, the camera should stabilize, and show a green flashing LED. Allow about three more minutes to ensure the update is complete.

10) When you are sure the update is complete, shut down the drone.

11) Remove the SD Card.

12) Format the SD card again.

Attachment 28
SD Card Upgrade/Downgrade H Plus Firmware

PHASE 2

Note: **The second Phase of the project is to update the Controller's User Interface (The "APP").**

Note: **The APP Build shows "829" instead of "822". That is normal for Build 822.**

1). Ensure the SD card is formatted again.

2). Download "TYPHOONHPLUS_APP_1.1.03_BUILD829_20190320.yuneec" from https://www.mountainview.enterprises/support.html , to the Download directory.

Note: "TYPHOONHPLUS_APP_1.1.03_BUILD829_20190320.yuneec" may automatically rename to ".zip" during download.

3). Rename "TYPHOONHPLUS_APP_1.1.03_BUILD829_20190320.yuneec" to "TYPHOONHPLUS_APP_1.1.03_BUILD829_20190320.zip" as required.

4). Extract "TYPHOONHPLUS_APP_1.1.03_BUILD829_20190320.zip" to the formatted SD Card.

5). Ensure the SD card now has "Yuneec-App-Release.apk" on it.

6). Eject the SD card.

7). Ensure the controller is OFF.

8). Insert the SD card into the ST16S.

9). Turn on the ST16S.

Note: **The controller should start almost normally, maybe a restart or two. It should eventually come up to the normal "splash screen"**

10). Go to the ST16S `"Firmware Version" Screen.

11). IF the APP listed is "APP_1.1.03_20190320" then GO TO Step 13). Do not perform Step 12) or it's sub-steps if the correct APP is listed. (It won't hurt anything if you do, but it is not necessary.)

12). IF the APP listed is NOT "APP_1.1.03_20190320" then perform these sub-steps to force an update:
    a) Exit the APP (Return arrow on bar below the main screen).
    b) Select "confirm".
    c) Navigate to "File Manager".
    d) Select External SD card in upper left (if required).
    e) Touch the actual name of "Yuneec-App-Release.apk".
    f) Select "ALL" in the box.
    g) Select "Install" at the bottom of the box.
    h) When "App installed" appears, select "Open" at the bottom of the box.
    i) Check the "Firmware Version" screen to ensure APP listed is now "APP_1.1.03_20190320".

13). Shut the ST16S down.

14). Remove the SD card.

15). Format the SD Card again.

Attachment 28
SD Card Upgrade/Downgrade H Plus Firmware

<u>PHASE 3</u>

Note: This phase is the update of the ST16S operating system and the "TX" subsystem. The process takes time to complete. ST16S battery power is crucial. The controller may not let you start if you have less than 30% battery power. 50% should be considered minimum.

1). Ensure adequate ST16S battery charge.
2). Ensure the SD card is formatted again.
3). Download "TYPHOONHPLUS_CONTROLLER_1.1.03_BUILD822_20190312.yuneec" from https://www.mountainview.enterprises/support.html , to the Download directory.

Note: **"TYPHOONHPLUS_CONTROLLER_1.1.03_BUILD822_20190312.yuneec" may automatically rename to ".zip" during download.**

4). Rename "TYPHOONHPLUS_CONTROLLER_1.1.03_BUILD822_20190312.yuneec" to "TYPHOONHPLUS_CONTROLLER_1.1.03_BUILD822_20190312.zip" as required.

5). Extract "TYPHOONHPLUS_CONTROLLER_1.1.03_BUILD822_20190312.zip" to the formatted SD Card.

6). Ensure the card contains these items:
    a. A folder named "firmware"
    b. A file named "Update.zip". DO NOT extract this zip.

7). Copy the "TX" folder out of the "Firmware" folder to the root of the SD card. Ensure the original "TX" folder also remains in the "Firmware" folder.

8). Ensure the card now contains these items:
    a. A new folder named "TX".
    b. The existing folder named "Firmware"
    c. The existing file named "Update.zip". Again, DO NOT extract this zip.

9). Eject the SD card.
10). Ensure the ST16S is OFF.
11). Insert the SD card into the ST16S.
12). Turn on the ST16S.

Note: **The ST16S will go through several evolutions. The evolutions will Include restarts, display of an android with an energy ball, and progress notifications. Allow the system to perform without interruption until it returns to the splash screen. It may take several minutes. The ST16S will return to the normal Splash Screen when the update has finished.**

13). When the Update has finished, turn off the ST16S.
14). Remove the SD card.
15). Restart the controller.
16). Turn on the drone and camera.
17). Allow time to fully initialize.
18). Bind the Camera and the H Plus to the ST16S.
19). Go to the ST16S `"Firmware Version" Screen.

20). Verify the all version information is correct:

21). Perform a compass calibration of the H Plus.

Attachment 29
Q500 Binding Verification

Using this standard sequence will allow comparison of expected results to actual results at each significant step. It is a way to determine where the process is failing. This sequence is somewhat tedious. Care should be taken to perform all steps in the designated sequence.

Use of this information is at your own risk.

Before you start:

1. Ensure Q500 battery is adequately charged.
2. Ensure Q500 battery is properly installed.
3. Ensure the memory card under the ST10+ battery is properly aligned in the holder, or is completely removed.
4. Ensure the ST10+ battery is properly installed.
5. Ensure the ST10+ battery is adequately charged.
6. Ensure camera is mounted, connected to power, and camera guard removed.
7. Ensure SD card in camera, if desired.
8. Ensure the Q500 is on a flat, stable surface, with enough room to tilt it forward.
9. Ensure ST10+ Mode Selector Switch (S1) is set to Angle Mode.
10. Ensure both the Q500 and the ST10+ are OFF.

Binding Sequence:

1. Turn on ST10+.
2. Allow time for the ST10+ to fully initialize.
3. Verify RED power indicator above ST10+ power switch is illuminated.
4. Verify the blue WIFI indicator is flashing. (directly above the on/off switch)
5. Press "Model Select" on the lower right of the ST10+ screen twice.
6. **IF** a "WARNING!!!" pop-up appears, press "OK".
7. Verify the "Model Select" screen appears.
8. **IF** you want the new model to have the same name as your existing model, delete the existing model.
9. Press "New Model" on the left of the screen, just above center.
10. Press "Type" button near upper right of the screen.
11. Press the desired Model Type from those displayed.
12. Press the "Please input name" window just below the model picture.
13. Verify the keypad screen appears.
14. Use the keypad to enter the desired model name.
15. Press either of the "Done" buttons at the right side of the screen.
16. Verify the screen returns to the "Edit Model" screen.
17. Press "Save" at the lower right of the screen.

18. Verify screen returns to the "Model Select" screen.

19. Verify your new model is selected as indicated by a blue box around it.

20. Verify the new model name is displayed in small letters at the upper left of the screen.

21. Press the ST10+ return.

22. Verify the main screen appears.

23. Again, verify your new model name appears in the far upper left of the screen.

24. Turn on the Q500.

25. Allow a few seconds for the Q500 to fully initialize.

26. Verify the Main (rear) LED is flashing BLUE at a fast rate.

27. Verify the orange (blue?) LED visible through the air vents of the left wing is flashing slowly, ~ 1/sec. (The LED may be blue depending on model.)

28. Tilt Q500 greater than 45 degrees forward at least two times.

29. Verify the Main (rear) LED is flashing orange at a very fast rate.

30. Verify the orange (blue?) LED in the left wing is flashing more rapidly, ~ 2/sec.

31. Press the "Flight Settings" button.

32. Verify the flight settings menu appears.

33. Select "BIND" at the top of the menu.

34. Verify the bind screen appears.

35. Verify the words "Not connected" appear in orange letters, directly below the word "Model".

36. Verify the words "Not connected" appear in orange letters, directly below the word "Camera".

37. Verify the receiver ID is displayed in white letters below the orange "Not connected" label in the "Model" column.

38. Verify the camera ID is displayed in white letters below the orange "Not connected" label in the "Camera" column.

39. Press the white receiver ID in the "Model" column.

40. Verify a "Syncing Model Data" notification briefly appears.

41. Verify the "Connection Status" pop-up appears.

42. Verify the "Connection Status" pop-up displays "Connection Established!".

43. Press OK on the "Connection Status" pop-up.

44. Verify the receiver ID replaced the words "Not connected" in the "Model" column, and is now in orange letters.

45. Verify the Main (rear) LED continues to flash orange at this point.

46. Verify the orange (blue?) LED in the left wing continues to flash at the faster rate, ~2/sec.

47. Press the return button to return to the flight settings menu screen.

48. Verify the orange (blue?) light in left wing is flashing at a slower rate, ~ 1/sec.

49. Press the return button again to return to the main ST10+ display screen.

Attachment 29
Q500 Binding Verification

50. Verify you hear a short beep from the Q500, indicating the bind process has initiated.

51. Verify you hear another short beep from the Q500, indicating the bind process has completed.

52. Verify the Main (rear) LED changed to Purple.

53. Verify the orange (blue?) LED in left wing is solid orange.

54. Verify main ST10+ screen populates with telemetry data.

55. Press "Flight Settings" twice.

56. Press OK on the "WARNING!!" pop-up.

57. Verify you hear a "down tone" from the Q500.

58. Verify the flight settings menu appears.

59. Verify Main (rear) LED returns to rapid blue flashing.

60. Press "Camera Select" on the flight setting menu.

61. Press the name of the desired camera type from the menu.

62. Press the "Select" button at the lower right of the screen.

63. Verify "Set Status" pop-up displays "Setup Complete!"

64. Press OK on the "Set status" menu

65. Press return to return to the flight settings menu.

66. Verify the flight settings menu appears.

67. Press "Bind" on the flight setting menu.

68. Press the white letters of your camera ID.

69. **IF** the "User Login" pop-up appears, do the following:

    a) Press the checkbox beside "Show password".

    b) Press the blue line beside the word "Password".

    c) Use the Touch Screen to enter the camera password. (standard password:1234567890)

    d) Press the blue "Done" button at the lower right of the screen.

    e) Verify User Login screen returns.

    f) Verify the password is entered correctly.

    g) Press OK on the User Login screen.

70. Verify "Connecting to the Flight System" pop-up briefly appears.

71. Verify the "Connection Status" pop-up appears.

72. Verify "Connection Status" pop-up displays "Connection Established".

73. Press OK on "Connection Status" pop-up.

74. Verify the Bind screen appears.

75. Press return to display flight setting menu.

76. Press return again to return to main display screen.

77. Allow time for camera and ST10+ to finish binding.

Attachment 29
Q500 Binding Verification

78. Verify video appears on-screen.

79. Verify Camera tilt control (K1) will move camera. (Not applicable for C-Go1)

80. Turn off the Drone.

81. Turn off the ST10+.

If all verifications were as expected, the system should now be ready for flight.

Attachment 30
Chroma Binding Verification

Use of this information is at your own risk.

Using this standard sequence will allow comparison of expected results to actual results at each significant step. It is a way to determine where the process is failing. This sequence is somewhat tedious. Care should be taken to perform all steps in the designated sequence.

Before you start:

Note: The orange receiver LED may or may not be visible through the rear vents near the base of the GPS mast. IF not, it may be easier to first run the verification without including the receiver. A second verification can then be run, including the receiver, if needed.

1. If it is desired to include the Chroma receiver in this verification and the receiver LED is NOT visible through the rear vents, perform ONE of the following:
   - Route the receiver outside the Chroma body. Refer to Appendix 1 (Expose Chroma Receiver).
     OR
   - Remove wire guard and turn receiver over, such that LED side is visible through the vents.
2. Ensure Chroma battery is adequately charged.
3. Ensure Chroma battery is properly installed.
4. Ensure the memory card under the ST10+ battery is properly aligned in the holder, or is completely removed.
5. Ensure the ST10+ battery is properly installed.
6. Ensure the ST10+ battery is adequately charged.
7. Ensure camera is mounted, connected to power, and camera guard removed.
8. Ensure SD card in camera, if desired.
9. Ensure the Chroma is on a flat, stable surface.
10. Ensure ST10+ Mode Selector Switch (S1) is set to Angle Mode.
11. Ensure both the Chroma and the ST10+ are OFF.

Binding Sequence:
1. Turn on ST10+.
2. Allow time for the ST10+ to fully initialize.
3. Verify RED power indicator above ST10+ power switch is illuminated.
4. Verify the blue WIFI indicator above power indicator is flashing.
5. Verify the blue GPS indicator (to the right of the WIFI indicator) is at least flashing. (It may go solid blue if sufficient GPS is acquired by the ST10+.)
6. Press "Model Select" on the lower right of the ST10+ screen twice.
7. **IF** a "WARNING!!!" pop-up appears, press "OK".
8. Verify the "Model Select" screen appears.
9. **IF** the Chroma is already modeled on the ST10+, delete the existing model.

Attachment 30
Chroma Binding Verification

10. Press "New Model" on the left of the screen, just above center.

11. Press "Type" button near upper right of the screen.

12. Press the "Chroma" model from those displayed.

13. Press the "Please input name" window just below the larger model picture.

14. Verify the keypad screen appears.

15. Use the keypad to enter the desired model name.

16. Press either of the "Done" buttons at the right side of the screen.

17. Verify the screen returns to the "Edit Model" screen.

18. Press "Save" at the lower right of the screen.

19. Verify screen returns to the "Model Select" screen.

20. Verify your new model is selected as indicated by a blue box around it.

21. Verify the new model name is displayed in small letters at the upper left of the screen.

22. Press the ST10+ return.

23. Verify the main screen appears.

24. Again, verify your new model name appears in the far upper left of the screen.

25. Turn on the Chroma.

26. Allow a few seconds for the Chroma to fully initialize.

27. Verify all four "below motor" LEDs are flashing white at a slow rate. (~ 1 per sec).

28. IF receiver LED is visible, verify receiver LED is flashing orange at a relatively slow rate (~2/sec).

29. Verify four white LEDs on the mainboard are flashing rapidly. (view through each of the four vents).

30. Verify the solid red LED is lit on the main board, near left center. (view through left front vent)

31. Verify Chroma emits a short beep about 1 per 15-30 seconds.

32. Turn the Chroma upside down until all four "below motor" LEDs are flashing blue at a rapid rate.

33. Verify all four "below motor" LEDs flashing blue rapidly (~4/sec)

34. IF receiver LED is visible, verify receiver LED is flashing orange rapidly (~4/sec)

35. Press the "Flight Settings" button.

36. Verify the flight settings menu appears.

37. Select "BIND" at the top of the menu.

38. Verify the bind screen appears.

39. Verify the words "Not connected" appear in orange letters, directly below the word "Model".

40. Verify the words "Not connected" (or the camera ID) appears in orange letters, directly below the word "Camera".

41. Verify the receiver ID is displayed in white letters below the orange "Not connected" label in the "Model" column.

42. Verify the camera ID is displayed in white letters below the orange "Not connected" (or orange camera ID) label in the "Camera" column.

Attachment 30
Chroma Binding Verification

43. Press the white receiver ID in the "Model" column.

44. Verify a "Syncing Model Data" notification briefly appears.

45. Verify the "Connection Status" pop-up appears.

46. Verify the "Connection Status" pop-up displays "Connection Established!".

47. Press OK on the "Connection Status" pop-up.

48. Verify the receiver ID replaced the words "Not connected" in the "Model" column, and is now in orange letters.

49. Verify all four "below motor" LEDs continue to flash rapid blue at this point. (~4/sec)

50. IF receiver LED is visible, verify the orange receiver LED continues to flash at the faster rate. (~4/sec)

51. Press the return button to return to the flight settings menu screen.

52. Verify all four "below motor" LEDs continue to flash rapid blue at this point. (~4/sec)

53. IF receiver is exposed, verify the orange receiver LED is now flashing at a slower rate. (~ 2/sec.)

54. Press the return button again to return to the main ST10+ display screen.

55. Verify you hear a short beep from the Chroma, indicating the bind process has initiated.

56. Verify you hear a second short beep from the Chroma, indicating the bind process has completed.

57. Verify the four "below motor" LEDs changed to Purple. (may not see this if GPS has recently been acquired)

58. The four "below motor" LEDs may sequence in a circular pattern if GPS is not yet acquired.

59. When GPS acquired, verify the rear two "below motor" LEDs changed to solid Purple.

60. When GPS acquired, verify the front two "below motor" LEDs changed to solid White.

61. IF receiver LED is visible, verify the orange receiver LED is solid orange.

62. Verify main ST10+ screen populates with telemetry data.

63. Press "Flight Settings".

64. Press OK on the "WARNING!!" pop-up.

65. Verify you hear a "down tone" from the Chroma.

66. Verify the flight settings menu appears.

67. Verify all four "below motor" LEDs are flashing white at a slow rate. (~ 1 per sec).

68. IF receiver LED is visible, verify receiver LED is flashing orange at a relatively slow rate (~2/sec).

69. Verify four white LEDs on the mainboard are flashing rapidly.

70. Verify the solid red LED is lit on the main board, near left center.

71. Press "Camera Select" on the flight setting menu.

72. Press the name of the desired camera type from the menu.

73. Verify the selected camera type is highlighted in blue.

74. Press the "Select" button at the lower right of the screen.

75. Verify "Set Status" pop-up displays "Setup Complete!"

Attachment 30
Chroma Binding Verification

76. Press OK on the "Set status" menu

77. Press return to return to the flight settings menu.

78. Verify the flight settings menu appears.

79. Press "Bind" on the flight setting menu.

80. Verify the words "Not connected" appear in orange below the word "Camera".

81. Press the white letters of your camera ID.

82. IF the "User Login" pop-up appears, do the following:

83. Press the checkbox beside "Show password".

84. Press the blue line beside the word "Password".

85. Use the Touch Screen to enter the camera password. (standard password:1234567890)

86. Press the blue "Done" button at the lower right of the screen.

87. Verify User Login screen returns.

88. Verify the password is entered correctly.

89. Press OK on the User Login screen.

90. Verify "Connecting to the Flight System" pop-up briefly appears.

91. Verify the "Connection Status" pop-up appears.

92. Verify "Connection Status" pop-up displays "Connection Established".

93. Press OK on "Connection Status" pop-up.

94. Verify the camera ID is displayed in orange directly below the word "Camera".

95. Press return to display flight setting menu.

96. Press return again to return to main display screen.

97. Allow time for camera and ST10+ to finish binding.

98. Verify video appears on-screen.

99. The four "below motor" LEDs may sequence in a circular pattern if GPS is not yet acquired.

100. When GPS acquired, verify the rear two "below motor" LEDs changed to solid Purple.

101. When GPS acquired, verify the front two "below motor" LEDs changed to solid White.

102. IF receiver is exposed, verify the orange receiver LED is solid orange.

103. Verify Camera tilt control (K1) will move camera. (Not applicable for C-Go1)

104. Turn off the Chroma.

105. Turn off the ST10+.

If all verifications were as expected, the system should now be ready for flight.

Attachment 31
Typhoon H Binding Verification

Using this standard sequence will allow comparison of expected results to actual results at each significant step. It is a way to determine where the process is failing. This sequence is tedious. The sequence does not match the routine/standard bind sequence you may be accustomed to. Care should be taken to perform all steps and to perform all steps in the exact designated sequence.

Use of this information is at your own risk.

Before you start:

1. Ensure Typhoon H flight battery is adequately charged.
2. Ensure Typhoon H flight battery is properly installed.
3. Ensure the ST16 battery is properly installed.
4. Ensure the ST16 battery is adequately charged.
5. Ensure the Typhoon H is on a flat, level surface, with enough room to tilt it forward.
6. Ensure Landing Gear Switch (S5) is down.
7. Ensure all other ST16 control devices in mid position or OFF.
8. Ensure the Typhoon H is OFF.
9. Ensure the ST16 is OFF.
10. Dismount the Camera.

Binding Sequence:

1. Turn on ST16.
2. Allow time for the ST16 to fully boot.
3. Select "PAD".

4. **IF** a "WARNING!!!" pop-up appears, press "OK".
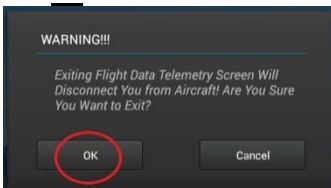
5. Select the menu icon at the bottom of the screen.

6. Select "Settings" (Near upper right).
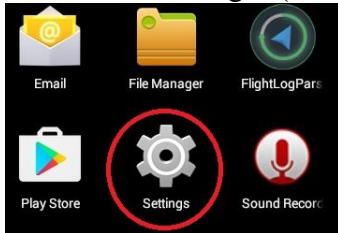
7. Select "Wi-Fi" (near upper left).
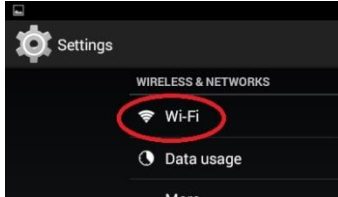
8. Select each Wi-Fi device and/or camera.

9. If any Wi-Fi device or camera is connected, select "Forget".
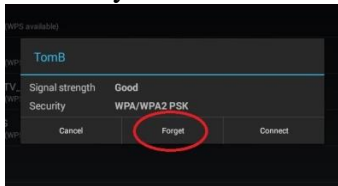
10. Return to ST16 main screen.

11. Select "Model Select" in lower right.
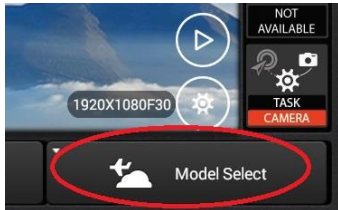
12. **IF** a "WARNING!!!" pop-up appears, press "OK".
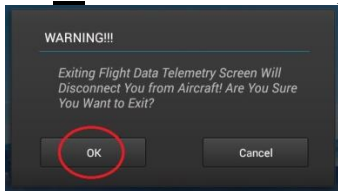
Attachment 31
Typhoon H Binding Verification

13. Verify the "Model Select" screen appears.
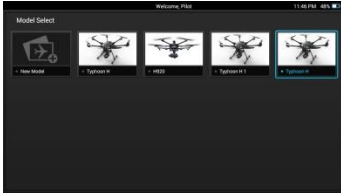
14. **IF** you want the new model to have the same name as your existing model, press and hold the model's Icon, then delete the existing model.
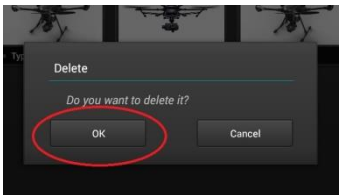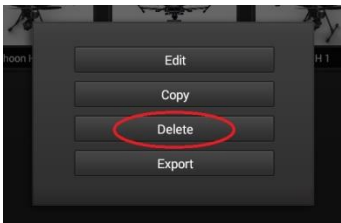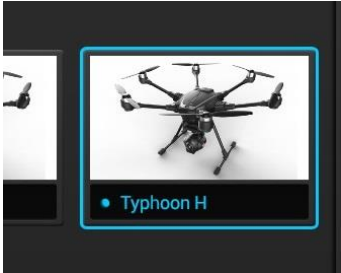
15. Select "New Model" in upper left of screen.
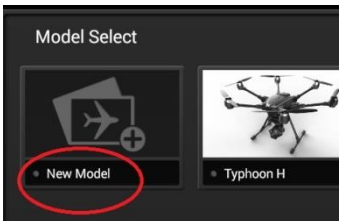
16. Select "Create Model".

17. Select "Type" near upper right of screen.
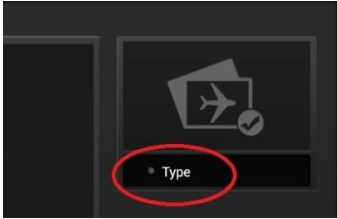
18. Select "Typhoon H".
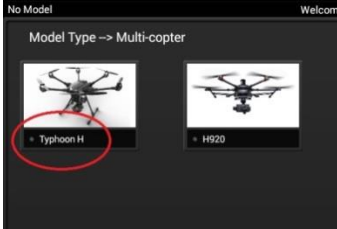
19. Select the "Please input name" in lower left of screen.
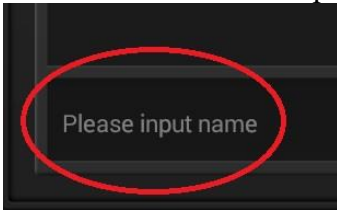
20. Verify the keypad screen appears.

21. Use the keypad to enter the desired model name.
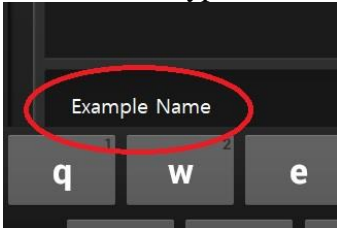
22. Select "Save" at middle right of screen.
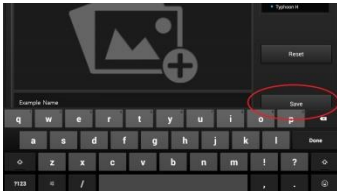
Attachment 31
Typhoon H Binding Verification

23. Verify screen returns to the "Model Select" screen.
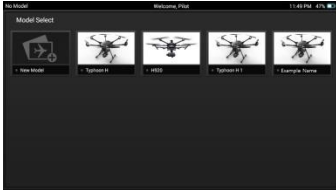
24. Select the Icon for your new model.
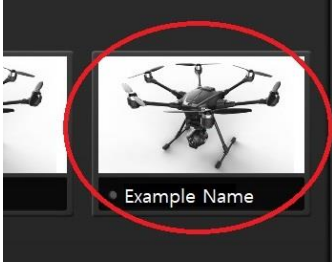
25. If a "Model Selection" notice appears, Select "OK".
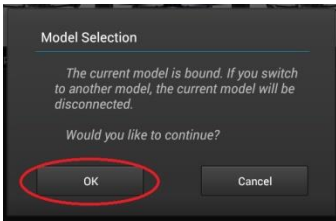
26. Verify ST16 returns to Main Screen.

27. Select "Model Select" again.
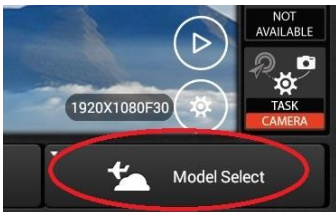
28. Verify your new model is selected as indicated by a blue box around it.
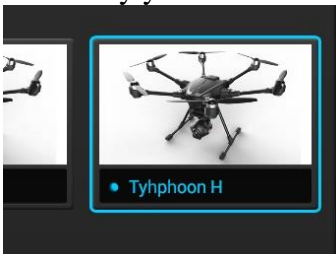
29. Select the ST16 return.

Typhoon H Binding Verification

30. Verify ST16 returns to Main Screen.

31. Verify the new model name is displayed at the upper left of the screen.

32. Turn on the Typhoon H.

33. Allow a few seconds for the Typhoon H to fully initialize.

34. Verify the Main (rear) LED is flashing BLUE at a fast rate.

35. Verify the orange LED visible through the left rear air vent on the bottom of the Typhoon H is flashing slowly, ~ 1/sec.
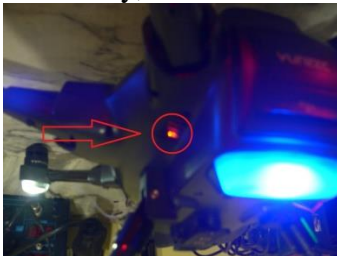
36. Ensure Typhoon H is upright and resting on a flat and level surface.

37. Tilt Typhoon H greater than 45 degrees forward at least two times.

38. Verify the Main (rear) LED is flashing orange at a fast rate.

39. Verify the orange LED in the lower left air vent is flashing more rapidly, ~ 2/sec.

Attachment 31
Typhoon H Binding Verification

**NOTE:** *The following seven steps must be completed without delay. If receiver ID does not display, return to the main screen and repeat the sequence at least once prior to deeming as a failure point.*

40. Select "System Settings".


41. Verify the bind screen appears.
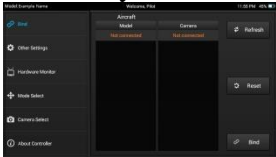
42. Select "Bind" in the upper left of the screen, even if it already appears selected.

43. Ensure "Bind" is displayed in **blue** letters.

44. Verify the words "Not connected" appear in orange letters, directly below the word "Model".
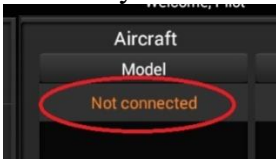
45. Select "Refresh" in upper right corner.

46. Verify the receiver ID is now displayed in white letters below the orange "Not connected" label in the "Model" column.
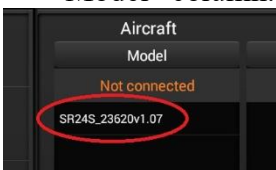
47. *If receiver ID does **NOT** display, return to the main screen and repeat the previous seven steps at least once prior to deeming this as a failure point.*

Attachment 31
Typhoon H Binding Verification

48. Select the white receiver ID in the "Model" column.
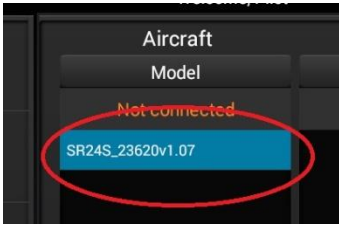
49. Select "Bind" in the lower right of the screen.
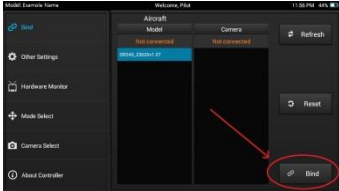
50. A "Syncing Model Data" notification briefly appears.
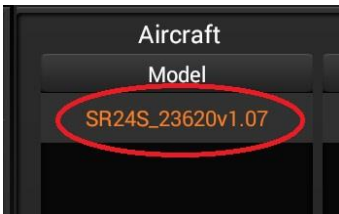
51. Verify the "Connection Status" pop-up appears.

52. Verify the "Connection Status" pop-up displays "Connection Established!".
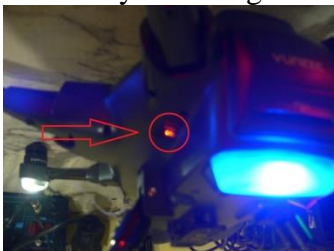
53. Select OK on the "Connection Status" pop-up.
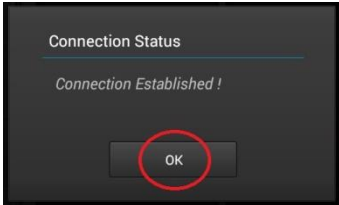
54. Verify the receiver ID replaced the words "Not connected" in the "Model" column, and is now in orange letters.

55. Verify the Main (rear) LED continues to flash orange at this point.

56. Verify the orange LED in the lower left air vent continues to flash at the faster rate, ~2/sec.

Attachment 31
Typhoon H Binding Verification

57. Select the return button again to return to the main ST16 display screen.

NOTE: *The short beeps in the following two steps may occur so quickly they may seem to be a single double beep.*

58. Verify you hear a short beep from the Typhoon H, indicating the bind process has initiated.
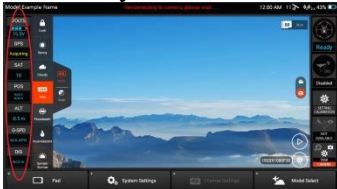
59. Verify you hear another short beep from the Typhoon H, indicating the bind process has completed.

60. Verify the Main (rear) LED changed to Purple.

61. Verify the orange LED in the lower left air vent is solid orange.

62. Verify main ST16 screen begins to populate with telemetry data.

63. Turn off Typhoon H.

64. Mount the camera.

65. Ensure camera guard removed.

66. Ensure SD card in camera.

67. Turn on the Typhoon H.

68. Allow a few seconds for the Typhoon H to fully initialize.

NOTE: *Camera Pan and Tilt should work at this point, but are not included in this verification due to existence of failure modes NOT related to binding issues.*

69. Verify main ST16 screen populates with telemetry data.

70. Allow time for camera to initialize and begin flashing **<u>only</u>** green on camera LED.

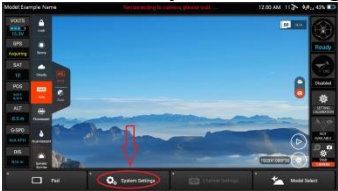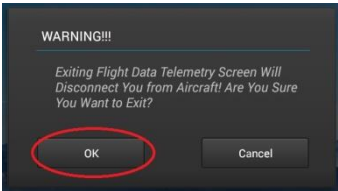71. Verify rear LED flashing purple. (solid if GPS is achieved)

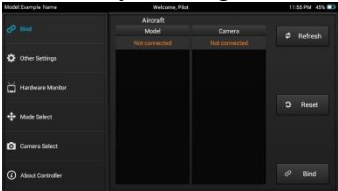72. Verify camera LED flashing green and **only** green.

73. Select "System Settings".

74. Select OK on the "WARNING!!" pop-up.
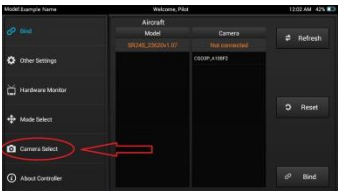

75. Verify the flight settings menu appears.
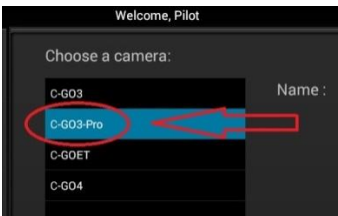

76. Wait ~ 7 seconds.

77. Verify you hear a "down tone" from the Typhoon H.

78. Verify Main (rear) LED returns to rapid blue flashing.

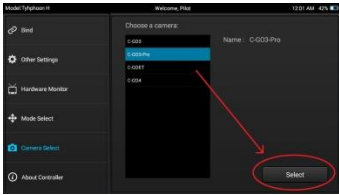79. Select "Camera Select" on the flight setting menu.
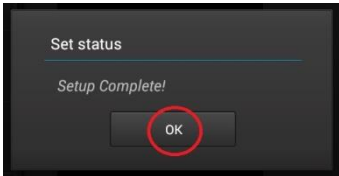

80. Select "C-GO3-Pro" on the menu.

Attachment 31
Typhoon H Binding Verification

81. Select the "Select" button at the lower right of the screen.
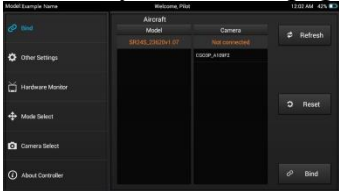

82. Verify "Set Status" pop-up displays "Setup Complete!"
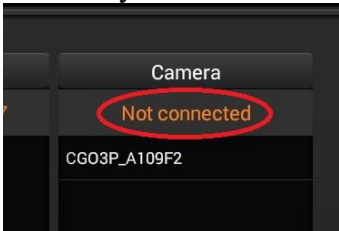
83. Select OK on the "Set Status" pop-up.

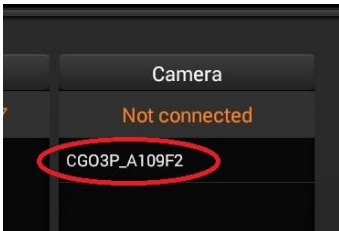84. Select "Bind" on the upper left of the screen.

85. Verify the "Bind" page appears.

86. Verify the words "Not connected" appear in orange letters, directly below the word "Camera".
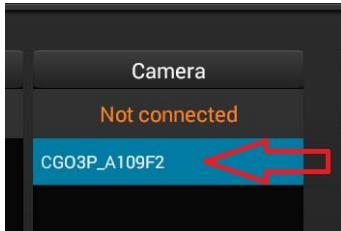

87. Verify the camera ID is displayed in white letters below the orange "Not connected" label in the "Camera" column.
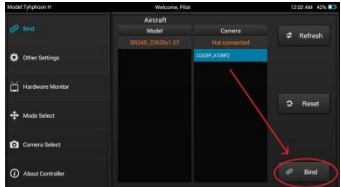
Attachment 31
Typhoon H Binding Verification

88. Select the camera ID in the "Camera" column.


89. Select "Bind" on lower right of screen.

90. **IF** the "User Login" pop-up appears, do the following:

    h) Select the checkbox beside "Show password".

    i) Select the blue line beside the word "Password".

    j) Use the Touch Screen to enter the camera password. (standard password:1234567890)

    k) Select the blue "Done" button at the lower right of the screen.

    l) Verify User Login screen returns.

    m) Verify the password is entered correctly.

    n) Select OK on the User Login screen.

91. Verify the "Connection Status" pop-up appears.

92. Verify the "Connection Status" pop-up displays "Connection Established!".

93. Select OK on the "Connection Status" pop-up.
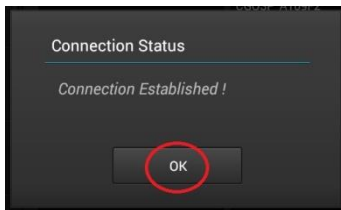
94. Select ST16 return.

95. Allow time for camera and ST16 to finish binding.

96. Verify video appears on-screen.

97. Turn off the Typhoon H.

98. Turn off the ST16.

If all verifications were as expected, the system should now be ready for flight.