Number: **SB2X-42-17**
Issued: 18 Mar 2019

SNS SUBJECT: 42-20 INTEGRATED MODULAR AVIONICS - Perspective S/W Update v0764.37

1. COMPLIANCE

SR22T Serials w/ Perspective Avionics s/w v0764.36 or prior: Cirrus considers this Service Bulletin to be **MANDATORY**. Accomplish this Service Bulletin within 50 flight hours or at the next scheduled maintenance, whichever occurs first. Compliance time begins upon receipt of this Service Bulletin.

SR20 and SR22 Serials w/ Perspective Avionics s/w v0764.36 or prior: Cirrus considers this Service Bulletin to be optional. Accomplishment of this Service Bulletin is at the owner's option.

SR20, SR22 and SR22T Serials w/ Perspective Avionics s/w prior to 0764.23: Accomplishment of Service Bulletin SB2X-42-10 must be completed prior to completion of this Service Bulletin.

SR22TN Serials w/ Perspective Avionics s/w prior to 0764.23: Accomplishment of Service Bulletin SB2X-42-11 must be completed prior to completion of this Service Bulletin.

2. EFFECTIVITY

SR20 Serials 1907, 2016 thru 2338 and 2340 w/ Perspective Avionics s/w v0764.36 or prior

SR22 Serials 2487, 2979, 2992, 3002, 3024, 3026 thru 4434, 4659 thru 4663 w/ Perspective Avionics s/w v0764.36 or prior

SR22T Serials 0001 thru 1459, 1461 thru 1470, 1472, 1614 and 1615 w/ Perspective Avionics s/w v0764.36 or prior

3. APPROVAL

FAA approval has been obtained on all technical data in this Service Bulletin that affects type design.

Aircraft not operating under FAA requirements and regulatory oversight: It is the operator's responsibility to ensure that installation of this Service Bulletin has been accepted by the local airworthiness authorities.

4. PURPOSE

For affected aircraft, this Service Bulletin provides instructions for Perspective Integrated Avionics System software update.

5. DESCRIPTION

This Service Bulletin describes installation of Perspective Integrated Avionics System software update v0764.37. This incorporates the following incremental enhancements for aircraft upgraded from v0764.35 and v0764.36. See SB2X-42-12 for the incremental enhancements for aircraft updated from v0764.34 and prior.

A. v0764.36 Software Change Synopsis

(1) General

(a) Miscellaneous minor bug fixes.

(b) *SR22T Serials:* Added high boost fuel pump lockout.

(c) Added "600" voice alert that triggers at 600 ft AGL during climb.

(d) Added auto yaw damper disconnect below 200 ft AGL.

(e) Enabled selected audio to copilot when using the split COM function.

(2) PFD

(a) Added new CAS messages:

1 ROL MODE Advisory: triggered if Flight Director is in roll mode for greater than 30 seconds.

2 TAKEOFF FLAPS Caution: triggered if flaps are not set to 50% during takeoff.

3 *Serials w/ Ice Protection:* ANTI ICE TEMP Caution: triggered when OAT is less than -30 °F and Ice Protection System is on.

4 *Serials w/ Ice Protection:* FLAPS ICE Warning: triggered if flaps are at 100% and Ice Protection System is on.

5 *SR22T Serials:* FUEL FLOW Warning triggered when fuel flow is high.

(3) GDL 88

(a) Updated GDL 88 software to fix nuisance "service required" faults.

B. v0764.37

(1) General

(a) Miscellaneous minor bug fixes.

(2) PFD

(a) *SR22T Serials:* Set FUEL FLOW Warning trigger to 42 GPH.

(b) “CHECK FUEL” CAS Advisory now called “FUEL IMBALANCE” Advisory.

6. WARRANTY INFORMATION

SR20 and SR22 Serials w/ Perspective Avionics s/w v0764.32, v0764.33, or v0764.36;
SR22T Serials w/ Perspective Avionics s/w v0764.36 or prior: For serials under warranty at the issue date of this Service Bulletin, Cirrus will cover all parts and labor costs for this Service Bulletin, if the work is accomplished within the Compliance time period and the work is performed at an authorized Cirrus Service Center.

SR20 and SR22 Serials w/ Perspective Avionics s/w v0764.24 or prior: Part and labor cost for this Service Bulletin are at the owner's expense.

7. MANPOWER REQUIREMENTS

Serials w/ GMA 347, w/o GFC 700, and w/o Ice Protection: 2.0 man-hours

Serials w/ GMA 347, w/ GFC 700, and w/o Ice Protection: 2.75 man-hours

Serials w/ GMA 347, w/ GFC 700, and w/ Ice Protection: 3.5 man-hours

Serials w/ GMA 350, w/o GFC 700, and w/o Ice Protection: 2.5 man-hours

Serials w/ GMA 350, w/ GFC 700, and w/o Ice Protection: 3.25 man-hours

Serials w/ GMA 350, w/ GFC 700, and w/ Ice Protection: 4.5 man-hours

8. OTHER PUBLICATIONS AFFECTED

SR20 Airplane Maintenance Manual (p/n 12137-001)

SR20 Pilot's Operating Handbook Supplement - GFC 700 Autopilot (p/n 11934-S41)

SR20 Pilot's Operating Handbook (p/n 11934-004)

SR22 / SR22T Airplane Maintenance Manual (p/n 13773-001)

SR22 / SR22T Pilot's Operating Handbook Supplement - GFC 700 Autopilot (p/n 13772-135)

SR22 / SR22T Pilot's Operating Handbook Supplement - TKS Anti-Ice System (p/n 13772-134)

SR22 Pilot's Operating Handbook Supplement - TKS Anti-Ice System (3600 lb) (p/n 13772-150)

SR22T Pilot's Operating Handbook Supplement - TKS Anti-Ice System (3600 lb) (p/n 13772-151)

SR22 Pilot's Operating Handbook (p/n 13772-002)

SR22T Pilot's Operating Handbook (p/n 13772-003)

SR22 Pilot's Operating Handbook (3600 lb) (p/n 13772-004)

SR22T Pilot's Operating Handbook (3600 lb) (p/n 13772-005)

9. WEIGHT AND BALANCE

N/A

10. MATERIAL INFORMATION

N/A

11. ACCOMPLISHMENT INSTRUCTIONS

A. Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Software Update Self-Extracting Executable File	29442-037 *or* 006-B0764-37	Cirrus *or* Garmin Dealer Resource Center	Install software and configuration update files to SD Card.
SD Card	2, 4, or 8 GB	SanDisk Milpitas, CA 95035 408-801-1000	Upload software and configuration files.
Unlock Card(s)[1]	-	Garmin International, Inc. Olathe, KS 66062 888-606-5482	Unlock option software (if installed).
Serials before v0764.32: MFD and PFD Supplemental Data Card[2]	31145-001 *or* 010-00474-44	Cirrus *or* Garmin International, Inc. Olathe, KS 66062 888-606-5482	Supports new higher resolution 4.9 arc-sec terrain database format.

1. Unlock card(s) for any previously installed option are retained with aircraft.
2. Aircraft w/ v0764.32 or v0764.35 have 24646-004/010-00330-45 cards installed, which are compatible with v0764.37 software and can be retained.

(1) Contact Cirrus or visit Garmin Dealer Resource Center to obtain self-extracting executable file.

(a) Copy self-extracting executable file to working directory of Windows PC.

(b) Insert SD card into PC SD card slot.

(c) Double-click on self-extracting executable file.

Note: All existing data on SD card will be erased.

(d) Follow prompts to identify location of SD card, erase all SD card data, and install software. SD card will be reformatted and all software loader card files will be installed.

(e) Remove SD card from PC SD card slot.

(f) Label SD card “0764.37”.

B. Connect 24 - 28 VDC external power to external power receptacle.

C. Pull STARTER and FUEL PUMP circuit breakers.

D. Set BAT 1, BAT 2, and AVIONICS switches to ON positions.

E. Verify display cooling fan and avionics cooling fan operation by visual or audible inspection.

F. Verify no abnormal CAS messages are present.

G. Verify GFC 700 Automatic Flight Control System preflight self test completes normally.

H. On MFD, rotate outer [FMS] knob to select Aux group.

I. Rotate inner [FMS] knob to select System Status page.

J. Verify all installed avionics display green check marks. Troubleshoot and resolve any failure indications prior to updating software.

K. *Serials w/ GMA 347:* Ensure left-hand VOL knob is rotated clockwise out of OFF position.

CAUTION: Software configuration options must be accurately recorded prior to initiating software and configuration loading. Once airframe configuration load is initiated, all digital traces of any currently installed configuration options and Marker Beacon Sensitivity settings will be overwritten. If those values are not recorded, a series of test flights may be required to adjust sensitivity properly.

Pilot saved data will be deleted during software loading process. If desired, data should be recorded manually before beginning software loading process.

L. Using PRE-LOAD column in Installed Options Checklist and Worksheet, check applicable installed options. The Installed Options Checklist and Worksheet will be used to select basic airframe configuration and optional configuration items during software loading process. (See Figure 1)

Note: Navigate subsequent pages by use of MFD/PFD controls.

- To change page groups or move between data fields, rotate outer dial of [FMS] knob.
- To change pages in group or change field that cursor is on, rotate inner dial of [FMS] knob.
- To activate cursor, press inner dial of [FMS] knob.
- To cancel selection, press inner dial of [FMS] knob in again, deactivating cursor. [CLR] key may also be pressed to cancel a selection or deactivate cursor.
- To accept entry of current selection, press [ENT] key.

M. Using ACTIVE VALUE column in Marker Beacon Sensitivity Threshold table, check and record current thresholds for marker beacon sensitivity as follows: (See Figure 2)

(1) Pull MFD and PFD circuit breakers.

(2) While holding far right softkey on PFD, reset PFD circuit breakers and hold softkey until “INITIALIZING SYSTEM” appears to restart PFD in Configuration mode.

(3) On PFD, rotate outer [FMS] knob to select GMA group.

(4) *Serials w/ GMA 347:*

(a) Rotate inner [FMS] knob to select GMA Configuration page.

(b) Press [LEVELS] softkey.

(c) In MARKER BEACON window, note current ACTIVE values for “HI SENSE THRESHOLD” and “LO SENSE THRESHOLD”.

(5) *Serials w/ GMA 350:*

(a) Rotate inner [FMS] knob to select GMA Marker Beacon Configuration page.

(b) In MARKER BEACON field, note current ACTIVE values for “HI SENSITIVITY OFFSET” and “LO SENSITIVITY OFFSET”.

(6) Pull PFD circuit breakers to power down PFD.

N. Load updated MFD and PFD software.

(1) Confirm MFD and PFD circuit breakers are pulled.

(2) On MFD and PFD, remove and retain any SD cards from top and bottom SD card slots.

(3) Load MFD software files.

Note: If prompted, follow on-screen instructions to update GDU boot block.

(a) Insert Loader Card into top SD card slot of MFD.
(b) While holding far right softkey on MFD, reset MFD circuit breakers and hold softkey until "INITIALIZING SYSTEM" appears to restart MFD in Configuration mode.
(c) Press [YES] softkey to acknowledge prompt to update system files.
(d) Verify "Updating System Files Please Wait" message appears.
(e) If prompted to update boot block, press [YES] softkey to confirm.
(f) When prompted, follow on-screen instructions to load custom graphics file (updated splash screen named ARFRM_IMGS.ZIP).
(g) Verify System Status page appears, and pull MFD circuit breakers.
(h) If System Status page does not appear, MFD continues to reboot, or MFD displays yellow caution message, pull MFD circuit breakers and repeat procedure to load updated MFD software files.
(i) Remove Loader Card from top SD card slot of MFD.

Note: If prompted, follow on-screen instructions to update GDU boot block.

(4) Load PFD software files.
(a) Insert Loader Card into top SD card slot of PFD.
(b) While holding far right softkey on PFD, reset PFD circuit breakers and hold softkey until "INITIALIZING SYSTEM" appears to restart PFD in Configuration mode.
(c) Press [YES] softkey to acknowledge prompt to update system files.
Verify "Updating System Files Please Wait" message appears.

Note: Do not pull PFD circuit breakers.

(d) When prompted, follow on-screen instructions to load custom graphics file (updated splash screen named ARFRM_IMGS.ZIP).
(e) When system file updates are complete, verify PFD starts in Configuration mode.
(f) If prompted to update boot block, press [YES] softkey to confirm.
(g) Verify System Status page appears in configuration mode.
(h) If System Status page does not appear, PFD continues to reboot, or PFD displays yellow caution message, pull PFD circuit breakers and repeat procedure to load updated PFD software files.

(5) Boot MFD into configuration mode by holding far right softkey on MFD, reset MFD circuit breakers and hold softkey until "INITIALIZING SYSTEM" appears to restart MFD in Configuration mode.

O. Load software for base aircraft.

CAUTION: For remaining software installation/configuration procedures, MFD and PFD must be in configuration mode. Do not operate MFD while loading software or configuration files unless specifically instructed to do so. A failed or canceled load may result.

(1) On PFD, rotate outer [FMS] knob to select System group.
(2) Rotate inner [FMS] knob to select System Upload page.
(3) Press inner [FMS] knob to activate cursor.
(4) Rotate inner [FMS] knob to highlight airframe type in GROUP field.

Note: Loading the base aircraft type overwrites all previously installed software options and configuration settings.

GROUP menu selections for aircraft type include:

- 01-Cirrus SR20
- 02-Cirrus SR22
- 03-Cirrus SR22 Turbo
- 04-SR22 Turbo Normalized

(5) Set GROUP to appropriate aircraft type. Press [ENT] key to accept.

(6) Once airframe type is selected, cursor moves to ITEM field. Rotate inner [FMS] knob to activate drop-down menu. Rotate inner [FMS] knob to move cursor to highlight appropriate aircraft model. Press [ENT] key to accept.

(7) Verify PRODUCT window populates and displays software/configuration file information for each Perspective LRU.

(8) Verify LRU VERS column shows currently loaded software version in LRU, and CARD VERS column shows LRU software version stored on Loader Card.

Note: Each check in SOFTWARE and CONFIGURATION columns designates a file to be loaded to applicable Perspective LRU.

By default, if different versions are displayed between LRU VERS and CARD VERS columns, SOFTWARE and CONFIGURATION boxes are automatically checked.

(9) Verify all applicable software and configuration files are checked, and press [LOAD] softkey. System automatically begins uploading software and configuration files to selected LRUs.

Note: If software or configuration files fail to load, refer to Cirrus Perspective Line Maintenance Manual for troubleshooting.

(10) After system successfully uploads, verify that each previously checked box indicates “PASS” in green when uploading process has completed and inspect SUMMARY window to verify that upload is successful. Press [ENT] key to acknowledge that upload is complete.

P. Procedure - Install Aircraft Configuration Options

CAUTION: Oil temperature will read 40-50 °F high or low if the sensor option does not match the installed sensor. The oil temperature sensor can be identified by visual inspection. For “MS28034 Oil Temp Sensor Config” option, the sensor has a metallic circular connector at the sensor. For “DIN IEC 751 Oil Temp Sensor Config” option, the sensor has a wire lead labeled with part number 24761-001 or 24761-002. (Refer to AMM 79-30)

Note: If configuration for an optional system is inadvertently loaded for a system that is not installed, the base aircraft configuration files must be reloaded. Additionally, any optional systems that had been configured will also need to be reconfigured.

For aircraft equipped with multiple data link options, each option should be loaded in the order shown in the ITEM menu.

*Serials SR22-2487, 2979, 2992, 3002, 3026 thru 3428: “*Disable GDU Fan Monitoring*”* option is required to deactivate MFD and PFD fan monitoring in aircraft which are not configured for this capability.

Serials w/ Electronic Stability and Protection (ESP): ESP is an extension of GFC 700 AFCS. “GFC 700 Installation Option” must be loaded prior to loading “ESP - No Low Speed Mode Installation Option” or “ESP - Low Speed with Stall Warn Installation Option”.

- "ESP - No Low Speed Mode Installation Option" can only be selected for serials that do not include a wiring provision that simulates an AOA input. SB2X-22-08 adds the wiring provision that simulates an AOA input. Therefore, only serials that do not include the factory-installed wiring provision and have not complied with SB2X-22-08 are candidates for the "ESP - No Low Speed Mode Installation Option". Refer to effectivity table below.
- "ESP - Low Speed with Stall Warn Installation Option" can only be selected for serials that include the wiring provision that simulates an AOA input. Beginning with

serials 20-2269, 22-4117, and 22T-0852, aircraft were equipped at the factory with this wiring provision. SB2X-22-08 adds the wiring provision to serials that were not factory-equipped. Therefore, any serial that includes the simulated AOA wiring provision is a candidate for the "ESP - Low Speed with Stall Warn Installation Option". Refer to effectivity table below.

Model	Serials w/o wiring provision	Serials w/ wiring provision
SR20	2033 thru 2268 before SB2X-22-08	2033 thru 2268 after SB2X-22-08, 2269 & subs
SR22	3586 thru 4116 before SB2X-22-08	3586 thru 4116 after SB2X-22-08, 4117 & subs
SR22T	0001 thru 0840, 0842 thru 0851 before SB2X-22-08	0001 thru 0840, 0842 thru 0851 after SB2X-22-08, 0841, 0852 & subs

Serials w/ GDL 69/69A P/N 011-03177-10: Software loading process may install updated firmware. If software loading process does not complete on first attempt, pull and reset GDL 69A circuit breaker and load the option again. After system successfully uploads, verify 'GDL 69A XM Firmware' box indicates "PASS" in green when the uploading process has completed. LRU VERS and CARD VERS columns may not agree. This is normal and not indicative of a problem.

(1) Ensure PFD and MFD are in Configuration mode, and Loader Card is installed in top SD card slot in PFD.

(2) On PFD, rotate outer [FMS] knob to select System group.

(3) Rotate inner [FMS] knob to select System Upload page.

(4) With cursor active in GROUP field, rotate inner [FMS] knob once to activate GROUP menu.

Note: GROUP menu selections for aircraft options include:

- 10-AHRS ADC Options
- 20-Airframe Sensor Options
- 30-Autopilot Options
- 40-Transponder Options
- 50-Traffic Options
- 60-Data Link Options
- 70-Audio Panel Options
- 80-Other Options
- 90-Ice Protection Options

(5) Rotate inner [FMS] knob to select appropriate aircraft configuration or option folder from GROUP window (e.g., 10-AHRS ADC Options) and press [ENT] key.

(6) With cursor active in ITEM field, rotate inner [FMS] knob once to activate ITEM window.

Note: Using POST LOAD column in Installed Options Checklist and Worksheet, check applicable installed options as software is configured. (See Figure 1)

(7) From ITEM window, select appropriate option title for option being installed (e.g., Dual AHRS / Dual ADC Installation Option) and press [ENT] key.

(8) Press [LOAD] softkey.

(9) Monitor status of upload. When upload is completed, press [ENT] key.

(10) View SUMMARY field and ensure that all items indicate “COMPLETED”. Verify “PASS” appears in green at all available check boxes.

Q. Repeat Procedure - Install Aircraft Configuration Options for all applicable installed options by following the Installed Options Checklist and Worksheet.

R. *Serials w/ GTX 32 Mode A and C Transponder:* Enter Aircraft Configuration data.

(1) Rotate inner [FMS] knob to select Aircraft Configuration page.

(2) Press inner [FMS] knob to activate cursor. The cursor will appear in AIRCRAFT REGISTRATION field.

(3) Use inner and outer [FMS] knobs on PFD to enter registration number for aircraft.

(4) Press [ENT] key to accept registration number.

(5) Position cursor at ICAO ADDRESS field, and press [CLR] key to clear field.

(6) Press [ENT] key to prompt system to derive ICAO address from aircraft registration.

(7) Position cursor at VFR CODE field. Verify that VFR code is pre-configured for “1200” or applicable code for country of registration.

(8) Press [ENT] key to accept VFR code.

(9) Press [SET GTX1] softkey to cross-fill ICAO ADDRESS to GTX transponder. Press [ENT] key to confirm cross-fill.

(10) Press [ENT] key to acknowledge successful cross-fill.

S. *Serials w/ Mode S transponders (i.e., GTX 33 or GTX 33 ES), GTS 800 TAS, or GDL 88:* Update Mode S Transponder Address.

Note: Existing Mode S address must be acknowledged and reconfigured for GTX transponder, GTS TAS, and if installed GDL88 after software load process is completed as follows.

(1) *Serials registered in United States:* Update Mode S Transponder Address.

(a) With PFD and MFD in Configuration mode, rotate outer [FMS] knob on PFD to select GTX group.

(b) Rotate inner [FMS] knob to select Transponder Configuration page.

(c) Confirm “US TAIL” appears in ADDRESS TYPE field in SET and XPDR 1 columns.

(d) If “US TAIL” does not appear in ADDRESS TYPE field, reconfigure XPDR 1.

1 Press inner [FMS] knob to activate cursor.

2 Rotate outer [FMS] knob to highlight ADDRESS TYPE field.

3 Rotate inner [FMS] knob to select “US TAIL”. Press [ENT] key to accept.

4 Press [ENT] key to acknowledge successful configuration.

5 Verify “US TAIL” appears in ADDRESS TYPE field in SET and XPDR 1 columns. Press inner [FMS] knob to deactivate cursor.

(e) Rotate outer [FMS] knob to select System group.

(f) Rotate inner [FMS] knob to select Aircraft Configuration page.

(g) Press inner [FMS] knob to activate cursor. The cursor will appear in AIRCRAFT REGISTRATION field.

(h) Use inner and outer [FMS] knobs on PFD to enter registration number for aircraft.

(i) Press [ENT] key to accept registration number.

(j) Position cursor at ICAO ADDRESS field, and press [CLR] key to clear field.

(k) Press [ENT] key to prompt system to derive ICAO address from aircraft registration.

(l) Position cursor at VFR CODE field. Verify that VFR code is pre-configured for “1200”.

(m) Press [ENT] key to accept VFR code.

(2) *Serials registered outside United States:* Update Mode S Transponder Address, default VFR code, and Flight ID.

(a) With PFD and MFD in Configuration mode, rotate outer [FMS] knob on PFD to select GTX group.

(b) Rotate inner [FMS] knob to select Transponder Configuration page.

(c) Confirm "HEX ID" appears in ADDRESS TYPE field in SET and XPDR 1 columns.

(d) If "HEX ID" does not appear in ADDRESS TYPE field, reconfigure XPDR 1.

1 Press inner [FMS] knob to activate cursor.

2 Rotate outer [FMS] knob to highlight ADDRESS TYPE field.

3 Rotate inner [FMS] knob to select "HEX ID". Press [ENT] key to accept.

4 Press [ENT] key to acknowledge successful configuration.

5 Verify "HEX ID" appears in ADDRESS TYPE field in SET and XPDR 1 columns.

(e) Enter Flight ID for aircraft.

1 Rotate outer [FMS] knob to highlight FLIGHT ID TYPE field.

2 If Flight ID for aircraft will not change from one flight to next, rotate inner [FMS] knob to select "CONFIG ENTRY". Press [ENT] key to accept.

3 If Flight ID for aircraft may change from one flight to next based on local air traffic control practices and procedures, rotate inner [FMS] knob to select "PFD ENTRY". Press [ENT] key to accept.

Note: If "PFD ENTRY" is selected, Flight ID must be configured on PFD TMR/REF for each flight. The following steps will set default ID.

4 Rotate outer [FMS] knob to highlight FLIGHT ID field.

5 Use outer and inner [FMS] knobs to enter default Flight ID.

6 Press [ENT] key to accept FLIGHT ID.

7 Verify correct value appears in FLIGHT ID field.

8 Press inner [FMS] knob to deactivate cursor.

(f) Rotate outer [FMS] knob to select System group.

(g) Rotate inner [FMS] knob to select Aircraft Configuration page.

(h) Press inner [FMS] knob to activate cursor. The cursor will appear in AIRCRAFT REGISTRATION field.

(i) Use outer and inner [FMS] knobs to enter registration number for aircraft.

(j) Press [ENT] key to accept registration number.

(k) Position cursor at ICAO ADDRESS field, and press [CLR] key to clear field.

(l) Use outer and inner [FMS] knobs to enter assigned HEX ID for aircraft.

(m) Press [ENT] key to accept ICAO address.

(n) Position cursor at ICAO REGION field and rotate inner [FMS] knob to select region as required.

(o) Position cursor at VFR CODE field. Verify that VFR code is pre-configured for "1200" or applicable code for country of registration.

(p) Press [ENT] key to accept VFR code.

(3) *Serials w/ GTX 33 and GTX 33ES*: Cross-fill ICAO address to GTX transponder.

(a) Press [SET GTX1] softkey to cross-fill ICAO ADDRESS to GTX transponder. Press [ENT] key to confirm cross-fill.

(b) Press [ENT] key to acknowledge successful cross-fill.

(c) Press inner [FMS] knob to deactivate cursor.

(d) Note ICAO ADDRESS value. On PFD, rotate outer [FMS] knob to select GTX group.

(e) Rotate inner [FMS] knob to select Transponder Configuration page.

(f) Verify successful cross-fill of VFR code and ICAO address from Aircraft Configuration page.

(4) *Serials w/ GTS 800*: Cross-fill ICAO address to GTS 800 TAS.

(a) Press inner [FMS] knob to deactivate cursor.

(b) Rotate outer [FMS] knob to select System group.

(c) Rotate inner [FMS] knob to select Aircraft Configuration page.

(d) Press [SET GTS] softkey to cross-fill ICAO ADDRESS to GTS 800 TAS. Press [ENT] key to confirm cross-fill.

(e) Press [ENT] key to acknowledge successful cross-fill.

(f) Note ICAO ADDRESS value. On PFD, rotate outer [FMS] knob to select GTS group.

(g) Rotate inner [FMS] knob to select GTS Configuration page.

(h) Verify successful cross-fill of ICAO address from Aircraft Configuration page.

(5) *Serials w/ GDL 88*: Cross-fill ICAO address to GDL 88.

(a) Press inner [FMS] knob to deactivate cursor.

(b) Rotate outer [FMS] knob to select System group.

(c) Rotate inner [FMS] knob to select Aircraft Configuration Page.

(d) Press [Set GDL] softkey to cross-fill ICAO ADDRESS TO GDL 88. Press [ENT] key.

(e) Press [ENT] key to acknowledge successful cross-fill.

(f) Verify successful cross-fill of ICAO address.

T. Procedure - Configure Marker Beacon Thresholds

(1) Confirm PFD and MFD remain in Configuration mode.

(2) On PFD, rotate outer [FMS] knob to select GMA group.

(3) *Serials w/ GMA 347:*

(a) Rotate inner [FMS] knob to select GMA Configuration page.

(b) Press [LEVELS] softkey.

(c) Press inner [FMS] knob to activate cursor.

(d) In MARKER BEACON field, scroll down SET column to highlight value for “HI SENSE THRESHOLD” and change value to match ACTIVE VALUE noted in Marker Beacon Sensitivity Threshold table. (See Figure 2)

(e) Press inner [FMS] knob to deactivate cursor.

(4) *Serials w/ GMA 350:*

(a) Rotate inner [FMS] knob to select GMA Marker Beacon Configuration page.

(b) Press inner [FMS] knob to activate cursor.

(c) In MARKER BEACON field, scroll down SET column to highlight value for “HI SENSITIVITY OFFSET” and change value to match ACTIVE VALUE noted in Marker Beacon Sensitivity Threshold table. (See Figure 2)

(5) Press [ENT] key to accept value.

(6) Press [ENT] key to acknowledge “OK” in pop-up window.

(7) Repeat Procedure - Configure Marker Beacon Thresholds for “LO SENSE THRESHOLD” (GMA 347) or “LO SENSITIVITY OFFSET” (GMA 350).

U. Confirm software load.

(1) On PFD, rotate outer [FMS] knob to select System group.

(2) Rotate inner [FMS] knob to select System Upload page.

(3) Press [UPDT CFG] softkey to copy all configuration data to external configuration module. Press [ENT] key to confirm update.

(4) Press [ENT] key to acknowledge successful update.

(5) Rotate inner [FMS] knob to select Manifest Configuration page.

(6) Verify correct system part number (006-B0764-37) and system software version (v0764.37) are indicated in SYSTEM window.

(7) If incorrect software has been loaded in Garmin Avionics equipment, ensure appropriate Loader Card is being used and reload software as required.

(8) Set BAT 1, BAT 2, and AVIONICS switches to OFF positions.

(9) Remove Loader Card from top SD card slot of PFD.

V. Procedure - Unlock Software To Enable Options

Note: The associated Unlock Card becomes locked to the system ID of the aircraft and must be retained with the aircraft for future updates. Options (if installed) requiring procedure to unlock software include: TAWS, Synthetic Vision, Chartview, and ESP.

(1) Insert applicable Unlock Card into top SD card slot of PFD.

(2) While holding far right softkeys on MFD and PFD, set BAT 1 and AVIONICS switches to ON positions and hold softkeys until “INITIALIZING SYSTEM” appears to restart MFD and PFD in Configuration mode.

(3) On PFD, rotate outer [FMS] knob to select System group.

(4) Rotate inner [FMS] knob to select System Upload page.

(5) Press inner [FMS] knob to activate cursor. Rotate inner [FMS] knob to activate drop-down menu.

(6) Highlight appropriate option selected for upload. Press [ENT] key to accept.

(7) Once option is selected, configuration files in PRODUCT field will be displayed. All files should be checked. If not, press [CHK ALL] softkey.

(8) Press [LOAD] softkey.

(9) Ensure all items in SUMMARY window indicate “COMPLETE”.

(10) When upload is finished, press [ENT] key to acknowledge upload complete confirmation.

(11) Press inner [FMS] knob to de-activate cursor.

Note: If multiple feature unlocks are to be installed, it is acceptable to pull the PFD circuit breakers between each unlock in lieu of setting BAT 1 and AVIONICS switches to OFF.

(12) Set BAT 1 and AVIONICS switches to OFF positions.

(13) Remove Unlock Card from top SD card slot of PFD and store in SD card holder to retain with aircraft.

W. Repeat Procedure - Unlock Software To Enable Options to unlock other optional installed systems as required.

Note: Perspective software v0764.37 incorporates display software GDU version 15.24. Database subscriptions with Jeppesen or FlyGarmin.com should be updated to ensure the navigation database is in the AVDB2 format and the 4.9 arc-sec terrain database is selected.

X. *Serials w/ Perspective s/w prior to v0764.3X:* Load NAV databases onto new SD database cards using instructions from Jeppesen Update Manager or www.flygarmin.com.

Y. Install supplemental data SD cards in bottom SD card slots of MFD and PFD.

Note: Cards should be marked to identify PFD and MFD. The MFD card should include the checklists, startup screens, and electronic charts.

(1) Install Garmin PN 010-00474-44 or 010-00330-45 SD cards in bottom slot of PFD and MFD. Refer to current revision of Service Advisory 17-06 for additional guidance.

(2) *Serials w/ Perspective s/w prior to v0764.3X:* Insert Jeppesen/Nav database updater SD card in top slot of MFD.

(3) Pull both PFD circuit breakers.

(4) Set BAT 1 and AVIONICS switches to ON positions.

(5) When prompted "TO UPDATE THE STANDBY NAVIGATION DATABASE ON THE BOTTOM CARD", press [YES] softkey.

(6) When prompted "TO UPDATE THE ACTIVE NAVIGATION DATABASE?", press [YES] softkey.

(7) Wait until MFD completes database update process and completes boot up in normal mode.
(8) Pull both MFD circuit breakers.
(9) Move Jeppesen/Nav database updater SD card to top slot of PFD.
(10) Close both PFD circuit breakers.
(11) When prompted "TO UPDATE THE STANDBY NAVIGATION DATABASE ON THE BOTTOM CARD", press [YES] softkey.
(12) When prompted "TO UPDATE THE ACTIVE NAVIGATION DATABASE?", press [YES] softkey.
(13) Insert data logger SD card in top slot of MFD.
(14) Set BAT 1 and AVIONICS switches to ON positions.
(15) Close both MFD circuit breakers.
(16) After both PFD and MFD complete boot up in normal mode, select Aux - System Status page on MFD.
(17) Using "MFD1 DB/PFD1 DB" softkey and [FMS] outer knob, scroll through list of MFD and PFD databases to ensure all databases are present and verification process is complete.
(18) *Serials w/ Perspective s/w prior to v0764.3X:* Remove Jeppesen/Nav database updater SD card from top slot of PFD.

Z. Clear user settings from system.
(1) Set BAT 1 and AVIONICS switches to OFF positions.
(2) While holding [CLR] softkey on PFD and second from right softkey on MFD, set BAT 1 and AVIONICS switches to ON positions.
(3) When prompted to clear user settings on PFD, press [YES] softkey on PFD.
(4) When prompted to clear user settings on MFD, press [YES] softkey on MFD.
(5) Verify “User Settings Cleared” message appears on PFD and MFD prior to starting in normal mode.

Note: *Serials w/ ESP:* The message advisory “ESP FAIL - ESP” displays briefly during power up while AFCS completes automatic pre-flight check. Upon successful completion of AFCS pre-flight check, “ESP FAIL - ESP” should extinguish.

Serials w/ ESP: If message advisory “ESP CONFIG - ESP” is displayed when restarting in normal mode, the following has occurred:

- software for ESP option was not installed as specified in Procedure - Install Aircraft Configuration Options,
- or ESP option was not unlocked as specified in Procedure - Unlock Software To Enable Options.

AA. Verify PFD and MFD start in normal mode.

AB. If unexpected CAS messages or failures display, refer to Cirrus Perspective Line Maintenance Manual for troubleshooting.

AC. Set BAT 1 and AVIONICS switches to OFF positions.

AD. Reset STARTER, FUEL PUMP, PFD, and MFD circuit breakers.

AE. Disconnect 24 - 28 VDC external power from external power receptacle.

Note: Cirrus recommends referencing the latest revision of the applicable SR2X POH and all current temporary revisions, which can be obtained from the Cirrus Aircraft Service Center website, or www.cirrusaircraft.com.

AF. Obtain any applicable POH Temporary Revisions and insert into AFM/POH.

AG. Obtain Perspective Integrated Avionics System Pilot’s Guide P/N 190-00820-12 or later from Garmin website, https://fly.garmin.com/fly-garmin/support/, and retain for reference.

AH. Obtain Cirrus Perspective Cockpit Reference Guide P/N 190-00821-12 or later from Garmin website, https://fly.garmin.com/fly-garmin/support/, and retain for cockpit reference.

AI. Complete airplane records by noting compliance with SB2X-42-17 in Aircraft Logbook.

To submit a Technical Publication change request, visit:
http://servicecenters.cirrusdesign.com/tech_pubs/SR2X/serviceloopform.asp
or contact us by email at techpubs@cirrusaircraft.com.

PRE-LOAD	POST LOAD	Airframe/System Status:	NOTES
❑	❑	SR20, SR22, SR22T, SR22 Turbo Normalized:_____	Navigate to Aux - System Status page on MFD. Model is displayed in AIRFRAME field in upper right corner.
❑	❑	System ID:_____	Navigate to Aux - System Status page on MFD. System ID is displayed in AIRFRAME field in upper right corner.
❑	❑	SR22 and SR22T: ❑3400 lb ❑3600 lb	Serials 22-0002 thru 22-3914, and 22T-0001 thru 22T-0441: Select 3400 lb. Serials 22-3915 & subs, and 22T-0442 & subs: Select 3600 lb.
❑		Checklist and Startup Screens:_____	After completion of software upgrade, download latest MFD Checklist file and Startup Screens file to MFD Supplemental Data Card. If present, remove prior versions of MFD Checklist file and Startup Screens file from MFD Data Logging Card. Files can be downloaded at: http://servicecenters.cirrusdesign.com/tech_pubs/SR2X/
	❑	Checklist and Startup Screens:_____	
❑	❑	Synthetic Vision Unlock Card	Before beginning software and configuration loading process, determine which software unlock cards are available for the aircraft. These cards are locked to the aircraft and Perspective System ID number and should be kept with the aircraft at all times.
❑	❑	TAWS-B Unlock Card	
❑	❑	Enhanced AFCS Unlock Card	
❑	❑	Chartview Unlock Card	
PRE-LOAD	**POST LOAD**	**AHRS ADC Options (select one):**	
❑	❑	Single AHRS/Single ADC Installation Option	To verify which option is installed: 1) Ensure system is in normal mode. 2) Press [SENSOR] softkey on PFD. 3) If dual AHRS and/or dual ADC are present, [AHRS1] and [AHRS2] and/or [ADC1] and [ADC2] softkeys will appear.
❑	❑	Single AHRS/Dual ADC Installation Option	
❑	❑	Dual AHRS/Single ADC Installation Option	
❑	❑	Dual AHRS/Dual ADC Installation Option	
PRE-LOAD	**POST LOAD**	**Airframe Sensor Options:**	**Select one oil temperature sensor [SR22 only] and one fuel indicator type.**
❑	❑	SR22 DIN IEC 751 Oil Temp Sensor Config	The DIN IEC 751 Oil Temp Sensor is standard equipment for Serials 22-3670 & subs, and 22T-0001 & subs. The MS 28034 Oil Temp Sensor is standard for serials 22-0002 thru 22-3669. The displayed oil temperature will read 40-50 °F high or low if the sensor option does not match the installed sensor. For “MS28034 Oil Temp Sensor Config” option, sensor has metallic circular connector. For “DIN IEC 751 Oil Temp Sensor Config” option, sensor wire lead is labeled p/n 24761-001 or 24761-002. The oil temperature sensor can be identified by visual inspection. (Refer to AMM 79-30)
❑	❑	SR22 MS28034 Oil Temp Sensor Config	
❑	❑	In-Console Fuel Quantity Indicators	Select for aircraft equipped with analog fuel quantity gauges in the center console (analog fuel sensors). For aircraft with CiES & Aerospace Logic digital level sender STC with in-console display and wiring to the GEA, load the integrated fuel quantity option instead.
❑	❑	SR22 Integrated Fuel Quantity Indicators	Select for SR22 aircraft equipped with digital fuel quantity sensors (Serials 22-3849 & subs, and 22T-0319 & subs).
❑	❑	SR20 Integrated Fuel Quantity Indicators	Select for SR20 aircraft equipped with digital fuel quantity sensors (Serials 20-2156 & subs).

Figure 1
Installed Options Checklist and Worksheet

PRE-LOAD	POST LOAD	A/P Options (select all that apply):	
❑	❑	GFC 700 on SR2X (without YD) Installation Option	Verify Garmin AP control panel is present in center console stack with blue LVL button and no YD button.
❑	❑	GFC 700 on SR2X (with YD) Installation Option	Verify Garmin AP control panel is present in center console stack with blue LVL button and a YD button.
❑	❑	ESP on SR2X - No Low Speed Mode Installation Option	Do not select if Enhanced AFCS unlock card is not available. ESP is an extension of GFC 700 AFCS. “GFC 700 Installation Option” must be loaded prior to loading “ESP - No Low Speed Mode Installation Option.” This option can only be selected for serials that do not include a wiring provision that simulates an AOA input: *Serials 20-2033 thru 20-2268, 22-3586 thru 22-4116, and 22T-0001 thru 22T-0840, 22T-0842 thru 22T-0851 before SB2X-22-08.*
❑	❑	ESP on SR2X - Low Speed with Stall Warn Installation Option	Do not select if Enhanced AFCS unlock card is not available. ESP is an extension of GFC 700 AFCS. “GFC 700 Installation Option” must be loaded prior to loading “ESP - Low Speed with Stall Warn Installation Option”. This option can only be selected for serials that include the wiring provisions that simulate and AOA input: S*erials 20-2269 & subs, 22-4117 & subs, and 22T-0841, 22T-0852 & subs, and serials 20-2033 thru 20-2268, 22-3586 thru 22-4116, and 22T-0001 thru 22T-0840, 22T-0842 thru 22T-0851 after SB2X-22-08.*
❑	❑	S-TEC 55X/55SR Installation Option	Select this option if S-TEC 55X control panel is present in center console. Do not load any GFC 700 or ESP options.
PRE-LOAD	**POST LOAD**	**Transponder Options (select one):**	**To visually check GTX transponder P/N, access through aft avionics bay. Alternatively, while PFD is in configuration mode, navigate to System-System Status page to view GTX Description.**
❑	❑	GTX 32 Installation Option	Select for Modes A & C only - part number 011-00768-00.
❑	❑	GTX 33 Installation Option	Select for Mode S - part number 011-00779-10.
❑	❑	GTX 33 ES Installation Option	Select for Mode S plus Enhanced Squitter - part number 011-00779-30.
PRE-LOAD	**POST LOAD**	**Traffic Options (select one or none):**	**The aircraft may or may not be equipped with a traffic advisory system.**
❑	❑	GTS 8XX (without GTX 33ES) Installation Option	Select for GTS 800 with GTX 32 or 33 transponder. Verify GTS 800 is installed by navigating to Aux - System Status page and confirming it is listed. The aircraft will have a dual blade antenna on top of fuselage directly above center console.
❑	❑	GTS 8XX (with GTX 33ES) Installation Option	Select for GTS 800 with GTX 33 ES transponder. Verify GTS 800 is installed by navigating to Aux - System Status page and confirming it is listed. The aircraft will have a dual blade antenna on top of fuselage directly above center console.
❑	❑	Skywatch 497 Installation Option	Select for Skywatch 497. The aircraft will have a large oval disc antenna on top of fuselage directly above center console.
❑	❑	Avidyne TAS 6XX Installation Option	Select for Avidyne TAS 610. The aircraft will have a single vertical blade antenna on top of fuselage directly above center console and a dual blade on bottom of fuselage.

Figure 1
Installed Options Checklist and Worksheet (Continued)

PRE-LOAD	POST LOAD	**Data Link Options (select all that apply):**	**Verify FS, GDL, and GSR components are installed by navigating to the Aux - System Status page and confirming applicable components are listed.**
❑	❑	GDL 69/69A XM Installation Option	Select for Sirius/XM weather and entertainment reception.
❑	❑	GDL 59 Installation Option	Do not select this option.
❑	❑	GSR 56 (Voice/SMS/CONNEXT) Option	Select for Iridium with Garmin data services (CONNEXT is replacement for Garmin Flight Data Services (GFDS)).
❑	❑	GSR 56 (Voice/SMS) Option	Select for Iridium without CONNEXT or GFDS.
❑	❑	CONNEXT Position Reports Option	Select if CONNEXT Position Reporting is to be activated.
❑	❑	GDL 88 UAT Transceiver Option	Select if GDL 88 UAT is installed with no additional Traffic Advisory System.
❑	❑	GDL 88 UAT Transceiver with GTS 8XX Option	Select if GDL 88 UAT is installed and the aircraft is equipped with a GTS 8XX Traffic Advisory System.
❑	❑	GDL 88 UAT Transceiver with Skywatch 497 Option	Select if GDL 88 UAT is installed and the aircraft is equipped with a Skywatch 497 Traffic Advisory System.
❑	❑	GDL 88 UAT Transceiver with Avidyne TAS 6XX Option	Select if GDL 88 UAT is installed and the aircraft is equipped with a Avidyne TAS 6XX Traffic Advisory System.
❑	❑	GDL 90 UAT Transceiver Option	Select if GDL 90 UAT is installed.
❑	❑	FlightStream 210 Installation Option	Select if FlightStream 210 is installed.
PRE-LOAD	**POST LOAD**	**Audio Panel Options (select one):**	**Visually inspect audio panel face plate to determine model.**
❑	❑	GMA 347 Installation Option	Select if GMA 347 audio panel is installed.
❑	❑	GMA 350 Installation Option	Select if GMA 350 audio panel is installed.
❑	❑	GMA 350H Installation Option	Select if GMA 350H audio panel is installed.
❑	❑	GMA 350c Installation Option	Select if GMA 350c audio panel is installed.
❑	❑	GMA 350Hc Installation Option	Select if GMA 350Hc audio panel is installed.
PRE-LOAD	**POST LOAD**	**Other Options (select all that apply):**	
❑	❑	CO Guardian Installation Option	Select if carbon monoxide detector is installed. Navigate to Aux-System Status page in normal mode and confirm SN is reported.
❑	❑	Disable GDU Fan Monitoring	Serials 22-2487, 22-2979, 22-2992, 22-3002, 22-3026 thru 22-3428: "Disable GDU Fan Monitoring" option is required to deactivate MFD and PFD fan monitoring in aircraft which are not configured for this capability.
❑	❑	EVS Installation Option	Verify installation of Enhanced Vision Camera under left wing.
❑	❑	KN63 DME Installation Option	Select if KN63 DME is installed. If installed, [DME] softkey will appear on PFD.
❑	❑	KR87 ADF Installation Option	Select if KR87 ADF is installed. Verify ADF Control Panel is installed in center console.
❑	❑	Oxygen Installation Option	Select if Oxygen system is installed. Navigate to Engine page and verify oxygen quantity is displayed.
❑	❑	WX-500 Stormscope Installation Option	Select if WX-500 Stormscope is installed. Verify Stormscope map is available on MFD.
❑	❑	Dual Bearing Pointer Option	Select if Dual Bearing Pointer is installed. Verify HSI displays single needle for VOR1 and double needle for VOR2. Install if requested by aircraft owner.

Figure 1
Installed Options Checklist and Worksheet (Continued)

PRE-LOAD	POST LOAD	Ice Protection Options (select one or none):	Aircraft with basic ice protection (No Haz) are equipped with deicing panels along the leading edges of the wings and horizontal stabilizer. Aircraft with FIKI are equipped with deicing panels along the leading edges of the wings and horizontal stabilizer and two spray nozzles for windshield anti-icing. If aircraft has In-Console fuel quantity indicators, then fuel and TKS quantity sensors are analog. If aircraft does not have In-Console fuel quantity indicators, then fuel and TKS quantity sensors are digital.
❑	❑	Known IPS (FIKI) Digital Option	Select for aircraft with FIKI configured with digital TKS quantity sensors.
❑	❑	Known IPS (FIKI) Analog Option	Select for aircraft with FIKI configured with analog TKS quantity sensors.
❑	❑	Basic IPS (No Haz) Digital Option	Select for aircraft with Basic Ice Protection and digital quantity sensors.
❑	❑	Basic IPS (No Haz) Analog Option	Select for aircraft with Basic Ice Protection and analog quantity sensors.

Figure 1
Installed Options Checklist and Worksheet (Continued)

ACTIVE VALUE [1] [2]	Marker Beacon Threshold
	HI SENSE THRESHOLD (GMA 347) / HI SENSITIVITY OFFSET (GMA 350)
	LO SENSE THRESHOLD (GMA 347) / LO SENSITIVITY OFFSET (GMA 350)

1. Serials w/ GMA 347: In MARKER BEACON field, note current ACTIVE values for "HI SENSE THRESHOLD" and "LO SENSE THRESHOLD".
2. Serials w/ GMA 350: In MARKER BEACON field, note current ACTIVE values for “HI SENSITIVITY OFFSET” and “LO SENSITIVITY OFFSET”.

Figure 2
Marker Beacon Sensitivity Threshold Checklist