

REVISIONS					
REV.	ECO	DESCRIPTION	VERSION	APPROVAL	DATE
F	31550	REVISED PER ECO	1.1.2.42	GDM	06/19/18
G	32115	REVISED PER ECO	1.2.0.97	G MARTINS	09/25/18
H	32664	REVISED PER ECO	1.3.0.280	E HERNES	01/23/19
J	32991	REVISED PER ECO	1.3.1.31	G MARTINS	03/12/19

RELEASE NOTES:


VERSION:	1.3.1.31	FILE NAME: P449_SC1_Standard_v1_3_1_31.hex
		SIZE: 3,620,094 BYTES

Version: 1.3.1.31

Location: ftp://embedded.ravenind.com/images/ecu/077-0171-449/archive/P449_SC1_Standard_v1_3_1_31.hex

Release Notes:

- 1.Fixed Issues with 500S configuration/operation using eDiff and GS modes
- 2.Added support for updating 500S units with the wrong fleet number to the correct Raven fleet number (40)
- 3.Added support for TC1 node (limits engaged speed to 12 mph)- 0630174070 node
- 4.Added support for the SBGuidance/Implement Steering Only node- 0630173890 node
- 5.CNH Tier4 European tractor support–
 - a.Fixed timing bug with how we were receiving in estimated curvature messages that came int too quickly
 - b.Changed the default SC1 address 0xAA
 - c.Added a partner for reading in the engage switch but it is hard coded to a single serial number for now.
- 6.OXBO 7550 now supports a seat switch input (connected to the HDU)
- 7.We are now overwriting the Diff ID for GS/eDiff/G1ide modes when translating the NMEA0183 to what we display on the UT (ease of understanding)
- 8.Fixed bug with how we are now writing the NMEA2000 Diff ID for GS/eDiff/G1ide modes
- 9.Fixed issue with resetting the system gains not working correctly
- 10.Fixed hard fault issue due to I2C driver communication with magnetometer (no longer reading from this device).
- 11.Killed support for creating an unsupported hex file that locks SC1 to an SBGuidance display
- 12.Added reprogramming support to the header file for the 890 and 070 nodes
- 13.Fixed inertial calibration bug in the calibration wizard.

NOTES:			TITLE:		
			SOFTWARE SPECIFICATION, ISO GUIDANCE CONTROL ECU		
			RAVEN INDUSTRIES, INC. SIOUX FALLS, SD 57104		
			SIZE	DRAWING NUMBER	REV
			A	077-0171-449	J
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			14979	N/A	1 OF 6

RELEASE NOTES:

VERSION:	1.3.0.280	FILE NAME:	P449_SC1_Standard_v1_3_0_280.hex
		SIZE:	3,590,995 BYTES

LOCATION: ftp://embedded.ravenind.com/images/ecu/077-0171-449/archive/P449_SC1_Standard_v1_3_0_280.hex

CHECKSUM: 56d6d15fbbded6b75ba83fe14262742d

RELEASE NOTES:

- 1. FIELD ISSUE FIXES- LOW SPEED STEERING ISSUES, LOSS OF 3D CALIBRATION, RTK STREAMING BUG.
- 2. WAKEUP PIN- FIXED BUGS FOR PROPER HANDLING OF THE WAKEUP PIN FOR SHUTDOWN DURING KEY-OFF CONDITIONS.
- 3. 500S SUPPORT- MODES SUPPORTED IN THIS RELEASE ARE E-DIF, SBAS, AND GS.
- 4. TRIMBLE RADIO MODEM CONFIGURATION- SUPPORT FOR CONFIGURING A TRIMBLE AG715 AT BOTH 450/900 MHZ.
- 5. TERRACE MODE SUPPORT- ADDED THIS FUNCTIONALITY TO FRONT STEER TRACTORS FOR TUNING FLEXIBILITY IN THE FIELD.
- 6. EXIT CODE HISTORY- KEEPS A 9 MONTH HISTORY OF WHAT CAUSED THE SYSTEM TO DISENGAGE (QUANTITY AND LAST OCCURRENCE TIME).
- 7. IMPLEMENT STEERING PHASE 1- INITIAL SOFTWARE DEVELOPMENT FOR IMPLEMENT STEERING, BUT IT IS NOT RELEASED.
- 8. DOT SUPPORT- INITIAL SOFTWARE DEVELOPMENT TO SUPPORT DOT PLATFORMS, BUT THEY ARE NOT RELEASED.
- 9. ROW STEERING SUPPORT- INITIAL SOFTWARE DEVELOPMENT TO SUPPORT ROW STEERING, BUT IT IS NOT RELEASED.
- 10. OEM7500 SUPPORT- INITIAL SOFTWARE DEVELOPMENT TO SUPPORT OEM7500, BUT IT IS NOT RELEASED.
- 11. FREED UP 25K OF RAM THAT WAS RESERVED FOR SOME UNUSED DRIVERS
- 12. BUG FIXES- REMOVED SBAS SELECTION FOR PRN 133 (NO LONGER IN SERVICE) AND ADDED PRN SELECTION 131.
- 13. NMEA2000 NOW CORRECTLY REFERENCES WGS-84.
- 14. FIXED LIMIT CHECKS BUGS FOR MEMORY ACCESS REQUESTS
- 15. GS SUBSCRIPTIONS ENDING IN THE MONTH OF NOVEMBER NOW REFLECT THE CORRECT SUBSCRIPTION STATUS.
- 16. SYSTEM NOW KICKS OUT OF STEERING WHEN A GUIDANCE MESSAGE IS SENT WITHOUT GUIDANCE POINTS INSIDE OF IT.
- 17. CHANGED SOME TRANSPORT MESSAGES TO FIX ISSUES WITH INCONSISTENT RESPONSES TO INACTIVE DTC STATUS.
- 18. SC1 KITS- TITAN 4XXX MY'13 AND NEWER STEER READY
- 19. PATRIOTS 4XXX MY'17 AND NEWER STEER READY
- 20. PATRIOTS 4XXX MY'13-16 STEER READY
- 21. MAGNUM 20156 AND NEWER STEER READY

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RELEASE NOTES:

VERSION:	1.2.0.97	FILE NAME:	P449_SC1_Standard_v1_2_0_97.hex
		SIZE:	3,351,680 BYTES

VERSION 1.2.0.97

1. Software compatibility check updated to 2.2.0.24.

2. Added a SCU SPS Alignment Fault DTC.

3. Improved version compatibility checking for SC1 and SCU.

4. High voltage DTC now requires acknowledgement.

5. Added a steering disengage channel mismatch DTC for encoders disengage types.

6. Removed Septentrio and Novatel Binary GPS support.

7. When initializing a GPS receiver the GPS position data is now reset.

8. Fixed an issue with bias correcting the estimated curvature on pivots.

9. Removed the Navtronics steering partner.

10. Added Beta support for the following machines:

- a. Generic FS Tractor (HDU Analog, HDU PWM)
- b. Generic Articulated Tractor (HDU Analog)
- c. Versatile 2X0 3X0 MFWD (HDU Analog)
- d. Deutz Fahr Agrosky Ready (Steer-ready)
- e. JD 7X20 7X30 (HDU Analog)
- f. Claas Lexion 7xx Gen 2 <Rear Steered> (Steer-ready)
- g. Claas Axion 830 Gen 2 <FS tractor> (Steer-ready)
- h. Claas Axion 850 Gen 2 <FS tractor> (Steer-ready)
- i. Versatile 350 375 380 400 405 430 460 (HDU Analog)
- j. Versatile 450 500 520 550 570 575 610 (HDU Analog)
- k. Versatile HS 300 (HDU Analog)
- l. Case Steiger 400 (HDU Analog)
- m. Case Magnum 275 (HDU PWM)
- n. Case Magnum 380 (HDU PWM)
- o. Agco Terragator C 7300 8300 9300 (Steer-ready)
- p. Agco Terragator C 8400 (Steer-ready)

11. Added Angle Sensor filtering capabilities.

12. Added a machine database entry for disabling SCU CAN2.

13. Fendt Autosteer right/left antenna dimension set to zero.

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		SIZE: 3,351,680 BYTES

- 14. Updated the nav control speed table for articulated machines at speeds < 2.2 mph.
- 15. Updated the nav control speed table for FS tractor machines for the HDU.
- 16. Added the steering control ramp rate to correct value in machine database.
- 17. Added support for SC1 node orientations.
- 18. Improved steering partner detection.
- 19. Prevent div by zero in AveragingFilterFIR function.
- 20. Version change.
- 21. Only configure GS if unlocked.
- 22. Added DART (GS) capability for Septentrio.
- 23. Removed RTK input support for Septentrio.
- 24. Reduced RAM usage.
- 25. Improved service tool support.
- 26. Fixed a NULL pointer issue.
- 27. Updated VT / object pool handler.
- 28. Added support for current compensation in the HDU.
- 29. Fixed an issue with sending DDMs to an external Raven Service tool.
- 30. Updated Onboard Security Controller registration.
- 31. Fixed an issue with sending machine dimensions out in the machine config message.
- 32. Added a yawrate articulation correction for HDU articulated machines.
- 33. Improved the HDLC Task timing.
- 34. Improved OEM Engage health tests.
- 35. Improvement to SPS center correction routine
- 36. Added GPS calibration check for "steerready" call.
- 37. Updates to partner ISO name.
- 38. Added tuneset for NH front boom machine
- 39. Updated dtc defintions
- 40. Added tuneset for Magnum machine (including current comp)
- 41. Added tuneset for Steiger 350/370/400/420/450/470 machine
- 42. Add suport for MD and SBGuidance steering
- 43. Improve ascii conversion
- 44. Updated software date
- 45. Changes to faster disengage mechanism (INS sensor fails for > 300 ms (~10 consecutive samples))
- 46. Add support for communication to a CLASS machine.
- 47. Improvement for configuring a septentrio receiver
- 48. Updated SC1 reading to read the master switch and seat switch only if it and SBG STU is present.
- 49. Added Error status for Valve channel mismatch
- 50. Added SOM Software PN check to HDLC message structure
- 51. Language updates
- 52. Added support for Novatel authorization code

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RELEASE NOTES:

VERSION:

1.1.2.42

FILE NAME: P449_SGC_Standard_v1_1_2_42.hex

SIZE: 3,309,733 BYTES

VERSION 1.1.2.42

1. Added additional checks to make sure liability screen has been accepted.
2. Added support for 3D GPS out on SC1. The secondary serial port can now be switched between RTK output and 3D gps out.
3. RTK Float is now consider a converged state, so that the system can be steered during this condition.
4. Clear GGA status information if GGA message is lost for more than 4 seconds.
5. When switching between receivers we now make sure to update the status of the GPS unlocks.
6. Added support for a PWM encoder disengage type.
7. Changes related to the SBG STU include:
 - Forced the SBG STU to have the enable auto center function set when calibrated.
 - Terrace mode is not selectable for SBG STU.
 - There are no onboard profiles with the SBG STU, so now skipping the profiles check on that hardware in the wizard.
 - Added generic valve selection to the SBG STU wizard.
 - Added a screen in the wizard to manually calibrate the mins.
 - Disengage calibration should now require a disengage sensor selection and shouldn't calibrate the disengage threshold to 0.
 - SBG STU PIDR gains are now getting updated to the screen correctly.
 - Health tests are unavailable with the SBG STU.
8. Lowered the threshold required for left to center and right to center change for considering WAS calibration valid (0.3V or ~15 degrees).
9. Added release support for the following machines:
 - AS640, HDU Analog
 - AS720/30 1020/20/30 1220/30, HDU Analog
 - Generic RB sprayer, HDU Analog and PWM
 - Generic FB sprayer, HDU Analog
10. Added beta support for the following machines:
 - AS740/1040/1240, HDU Analog
 - Massey Ferguson 66xx/67xx, ISO CAN
 - Deutz Agrottron 6180 TTV, ISO CAN, engage switch over CAN
 - Fendt autosteer, ISO CAN, engage switch over CAN
 - CLAAS AXION 830 GEN1, ISO CAN
 - CLAAS AXION 850 GEN1, ISO CAN
11. Changed gains for the following existing machines:
 - Generic Front steer w/SBG STU, PID mins, and NAV gains
 - CASE_PATRIOT_32X0_33X0 w/ HDU Analog/PWM, Nav LA Yaw Rate from 90 to 100
 - CASE_PATRIOT_44X0 w/ HDU Analog/PWM, Nav LA Yaw Rate from 90 to 100,
 - CASE_PATRIOT_32X0_33X0 w/ HDU Analog/PWM, Nav LA Yaw Rate from 90 to 100,
12. Added support for negative LA lookahead values. Fixed issues in 1.1.0.125 release on Articulated tractors.
13. Fixed an issue with how profiles are affected when switching between an ISO CAN valve machine and a SBG STU/HDU/MDU system. System should only register steering partners that align with what it is currently configured for after it has been calibrated.
14. Fixed the heading update issues when running in SBG mode.

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15. Change quality indicator values for GGA mode on receiver side and in DEMO mode to align with other Raven systems.
16. Fixed issue with SC1 locking up some of the additional serial ports when the system is hooked up to a V4.
17. Changed the Septentrio GGA position to have more resolution.
18. Added Diagnostic message for CAN error conditions to try and help better troubleshoot CAN offline conditions. This was in response to issues seen in the field.
19. Fixed issues with GS expiration date not showing up correctly.
20. Fixed issues with machine test not working correctly. Including the following things:
- 1. Adding timeouts for all of the health test condtions
 - 2. Checking for machines requiring engage to pulse the valve
 - C series Agco machines
 - John Deere ISO Valves
 - 3. Machines requiring speed to pulse the valve (added a DTC for this)
 - PVED CLS
 - C series Agco machines
 - John Deere ISO Valves
21. Fixed issues with incorrect information being displayed when switching between different GPS receiver types (Single Solution availability, GS indicators, RTK indicators, RTK-L indicators, receiver unlocks).
22. Removed the handling of the reverse status from the machine. This was due to issues in the field with RBR machines.
23. No longer accept the measurements from an invalid WAS cal.
24. Hide GPS shutdown timer if the system isn't RS1.
25. Correctly display the software version and diagnostic hardware measurements based on the assembly.
26. Fixed issues where invalid authcode wasn't being displayed as a DTC.
27. Sped up how quickly the unlock status shows up on the object pool after entering an unlock.
28. Fixed an issue where the GPS receiver locks up the configuration sequence due to a receiver bug when GS is unlocked with an active RTKL subscription
 - but RTK is not yet unlocked.
29. Updated Terrace mode gains on the ET_APACHE_AS740_1040_1240 machine.
30. Reduced the default disengage calibration for the ET Apache 640 machine to 300PSI
31. Lband tracking is now set to idle for everything other than GS mode.
32. Changed the liability warning to a non-beeping alarm mask.
33. Fixed an issue with configuration commands that don't work with old GPS software.
34. Version uptick

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