RS1 Installation Manual for Claas OSI

016-5036-023 Rev. A *10/2020* *E35659*

DISCLAIMER

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CHAPTER 1 IMPORTANT INFORMATION

SAFETY

NOTICE

Follow the operation and safety instructions included with the implement and/or controller and read this manual carefully before installing or operating this Raven system.

- Follow all safety information presented within this manual. Review implement operation with your local dealer.
- Contact a local Raven dealer for assistance with any portion of the installation, service, or operation of Raven equipment.
- Follow all safety labels affixed to system components. Be sure to keep safety labels in good condition and replace any missing or damaged labels. Contact a local Raven dealer to obtain replacements for safety labels.

Observe the following safety measures when operating the implement after installing this Raven system:

- Do not operate this Raven system or any agricultural equipment while under the influence of alcohol or an illegal substance.
- Be alert and aware of surroundings and remain in the operator seat at all times when operating this Raven system.
    - Do not operate the implement on any public road with this Raven system enabled.
    - Disable this Raven system before exiting the operator seat.
    - Determine and remain a safe working distance from obstacles and bystanders. The operator is responsible for disabling the system when a safe working distance has diminished.
    - Disable this Raven system prior to starting any maintenance work on the implement or components of this Raven system.
- Do not attempt to modify or lengthen any of the system control cables. Extension cables are available from a local Raven dealer.

DISPLAYS AND CONTROL CONSOLES

- If the display will not be used for an extended period, it is best to remove the display from the machine and store it in a climate controlled environment. This may help to extend the service life of electronic components.
- To prevent theft, secure the display and GPS antenna when leaving the machine unattended.

⚠ CAUTION

ELECTRICAL SAFETY

- Always verify that power leads are connected to the correct polarity as marked. Reversing the power leads could cause severe damage to the Raven system or other components.
- To prevent personal injury or fire, replace defective or blown fuses with only fuses of the same type and amperage.
- Do not connect the power leads to the battery until all system components are mounted and all electrical connections are completed.
- Always start the machine before initializing this Raven system to prevent power surges or peak voltage.
- To avoid tripping and entanglement hazards, route cables and harnesses away from walkways, steps, grab bars, and other areas used by the operator or service personnel when operating or servicing the equipment.

TOUCH SCREEN

- Only touch the touch-screen with your finger or by using a special touch-screen stylus/pen. Operating the touch-screen with sharp objects may cause permanent damage to the screen.
- Only clean the screen using a damp cloth. Never use caustic or other aggressive substances.

RECOMMENDATIONS AND BEST PRACTICES

HARNESS ROUTING

The word “harness” is used to describe any electrical cables and leads, both bundled and unbundled. Use the following guidelines and recommendations when connecting and routing harnesses while installing or maintaining this Raven system:

- Leave protective caps/covers over harness connectors until needed to avoid dirt and moisture from contaminating electrical circuits.
- Secure the harness to the frame or solid structural members at least every 12 in [30 cm].
- Follow existing harness runs already routed on the implement as much as possible. Proper harness routing should:
    - Secure harnessing and prevent the harness from hanging below the implement.
    - Provide sufficient clearance from moving components and operational zones around shafts; universal joints and suspension components; pulleys, gears, belts, and chains; moving linkages, cylinders, articulation joints, etc.
    - Protect harnessing from field debris and surrounding hazards (e.g. tree limbs, fence posts, crop stubble, dirt clumps or rocks that may fall or be thrown by the implement).
    - Protect harnessing from sharp bends, twisting, or flexing over short distances and normal implement operation.
    - Connectors and splices should not be located at bending points or in harness sections that move.
    - Ensure sufficient length for free movement of the implement during normal operation and prevent pulling, pinching, catching, or rubbing, especially in articulation and pivot points. Clamp harnessing securely to force controlled movement of the harness.

    - Avoid abrasive surfaces and sharp edges such as sheared or flame cut corners, fastener threads or cap screw heads, hose clamp ends, etc.
- Do not connect, affix, or allow harnessing to come into contact with components with high vibration forces, hot surfaces, or components carrying hot fluids beyond the temperature rating of harness components.
    - Harnessing should be protected or shielded if routing requires the hose to be exposed to conditions beyond harnessing component specifications.
- Avoid routing harnesses in areas where damage may occur due to build up of material (e.g. dirt, mud, snow, ice, etc.).
- Avoid routing harnesses in areas where the operator or service personnel might step or use as a grab bar.

IMPORTANT: Avoid applying direct spray or pressure washing of electrical components and connections. High pressure streams and sprays can penetrate seals, cause corrosion, or otherwise damage electrical components. When performing maintenance:

- Inspect electrical components and connectors for corrosion, damaged pins or housings, etc. Repair or replace components or harnessing as necessary.
- Ensure connectors are kept clean and dry. Apply dielectric grease to the sealing surfaces of all connections exposed to moisture, dirt, debris, and other contaminates. Repair or replace harnessing as necessary.
- Clean electrical components with pressurized air, aerosol electrical cleaning agent, or low pressure rinse.
- Remove visible surface water from electrical components and connections using pressurized air or an aerosol cleaning agent. Allow components to dry thoroughly before reconnecting cables.

CHAPTER 2 INTRODUCTION

Congratulations on your purchase of the Raven RS1™ system! This system is designed to provide cutting-edge, hands-free steering of the machine via Global Positioning System (GPS) coordinates.

This manual applies to the following machines. For future reference, write your serial number in the space below.

Make. Claas

Model. 500, 600, 800, 900 Series - Autopilot Ready with Open Steering Interface (OSI)

FIGURE 1. Claas Tractors

INSTALLATION BEST PRACTICES

⚠ WARNING

Carefully read and follow all safety requirements and precautions contained in this manual and the machine-specific Installation Manual. Failure to follow safety instructions may lead to equipment damage, personal injury, or death.

RECOMMENDATIONS

Before installing the RS1™ system, park the machine where the ground is level, clean, and dry. Bleed pressure from the hydraulic system and leave the machine turned off for the duration of the installation process.

During the installation process, follow good safety practices. Be sure to carefully read the instructions in this manual as you complete the installation process.

Raven Industries recommends the following best practices when installing or operating the RS1™ system for the first time, at the start of the season, or when moving the RS1™ system to another machine:

- Verify that the machine's hydraulic system is using fresh oil and that the filters have been recently changed
- Ensure there are no issues with the machine's hydraulic system (e.g., pump issues, faulty hydraulic motors, fine metal deposits in the hydraulic hoses, etc.).

POINT OF REFERENCE

The instructions in this manual assume that you are standing behind the machine, looking toward the cab.

KIT COMPONENTS

This section contains a list of the components that are included in the RS1 kit. Before beginning the system installation, compare the items in the kit with the components on this list. If you have questions about the kit, contact your Raven dealer.

FIGURE 2. Claas OSI CR7 and RS1 Kit Components (P/N 117-5036-023 Rev. A)

QTY	PART #	DESCRIPTION
1	115-4010-181	CABLE, ROOF, RS1, CLAAS OSI, W/GLAND
1	115-4010-116	CABLE, RS1, AGCO STEER READY, CAN VALVE, W/ IGNITION
1	115-4010-186	CABLE, T-EXTENSION, CLAAS OSI ISOBUS
1	117-5001-058	KIT, ROOF, RS1, STICK-ON
1	115-8000-319	HARNESS, CR7 ISO-INCAB W/ POWER
1	016-5036-023	MANUAL, INSTALLATION, CLAAS OSI, RS1
1	077-7000-061	CLAAS OPEN STEERING INTERFACE ACTIVATION
1	117-5001-068	KIT, ROOF GLAND, AMPHENOL ECTA

FIGURE 3. Claas OSI CR12 and RS1 Kit Components (P/N 117-5036-024 Rev. A)

QTY	PART #	DESCRIPTION
1	115-4010-181	CABLE, ROOF, RS1, CLAAS OSI, W/GLAND
1	115-4010-116	CABLE, RS1, AGCO STEER READY, CAN VALVE, W/ IGNITION
1	115-4010-186	CABLE, T-EXTENSION, CLAAS OSI ISOBUS
1	117-5001-058	KIT, ROOF, RS1, STICK-ON
1	115-7300-157	CABLE, CR12, ISO INCAB 9P, AUX POWER, EXTERNAL GPS
1	016-5036-023	MANUAL, INSTALLATION, CLAAS OSI, RS1
1	077-7000-061	CLAAS OPEN STEERING INTERFACE ACTIVATION
1	117-5001-068	KIT, ROOF GLAND, AMPHENOL ECTA

UPDATES

Updates for Raven manuals as well as software updates for Raven consoles, and product controllers are available at the Applied Technology Division web site:

https://portal.ravenprecision.com

Sign up for e-mail alerts to receive notifications when updates for your Raven products are available on the Raven web site.

At Raven Industries, we strive to make your experience with our products as rewarding as possible. One way to improve this experience is to provide us with feedback on this manual.

Your feedback will help shape the future of our product documentation and the overall service we provide. We appreciate the opportunity to see ourselves as our customers see us and are eager to gather ideas on how we have been helping or how we can do better.

To serve you best, please send an email with the following information to

techwriting@ravenind.com

-RS1 Installation Manual for Claas OSI
-016-5036-023 Rev. A
-Any comments or feedback (include chapter or page numbers if applicable).
-Let us know how long have you been using this or other Raven products.

We will not share your email or any information you provide with anyone else. Your feedback is valued and extremely important to us.

Thank you for your time.

CHAPTER 3 INSTALLATION

INSTALL THE RS1

INSTALL THE RS1 ROOF GLAND AND CABLE

1. Locate the Claas OSI connector as shown in Figure 1, “Connector Location,” in the cab of the tractor.

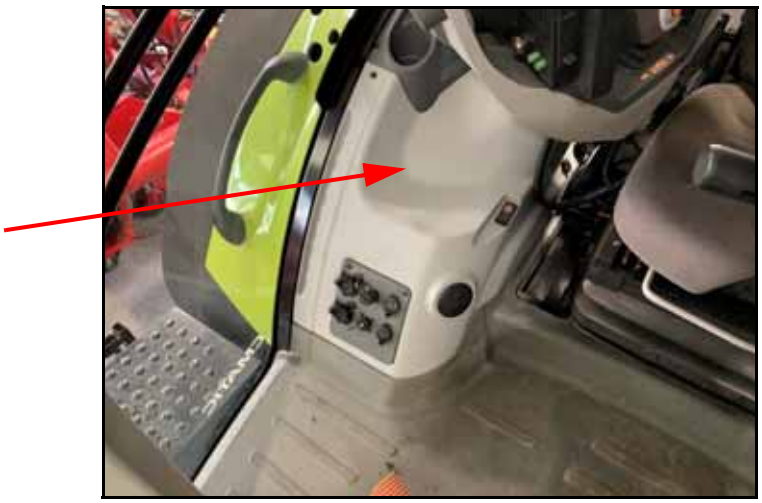
FIGURE 1. Connector Location

2. Remove the panels from the C-pillar.

FIGURE 2. Tractor Cap Interior

3. Remove the panel to expose the cable routing

FIGURE 3. Panel Cover



4. Connect the 115-4010-186 cable to the connection between the green connectors of the in-cab ISOBUS.
5. Route the 115-4010-186 cable to the roof gland.

FIGURE 4. Cable Connected

6. Route the 115-4010-181 cable from the Claas OSI connector through the C-pillar to the roof gland.

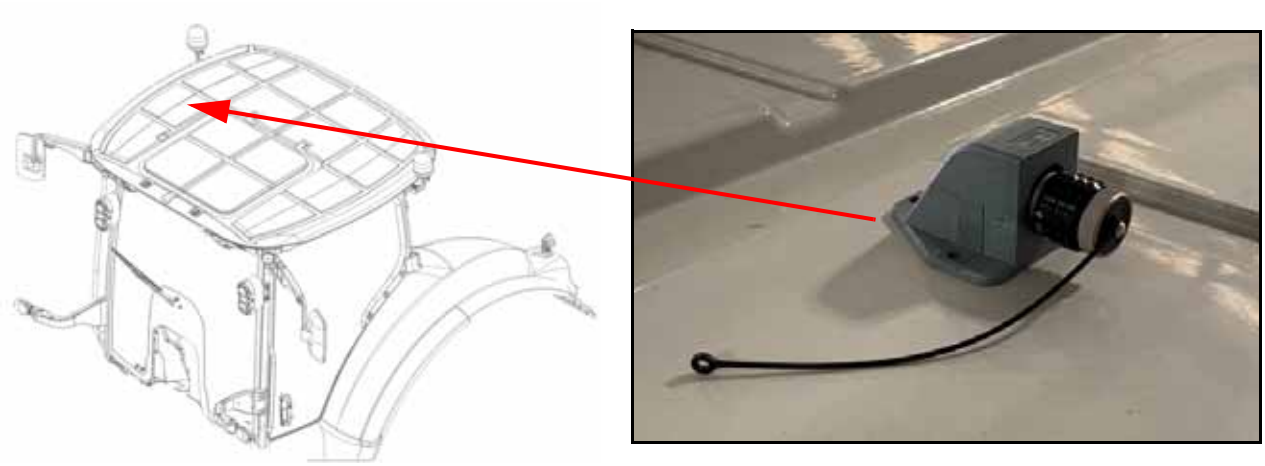
FIGURE 5. Cable Routing

7. Use the opening on the right side of the cab to guide the cables to the front of the cab.

FIGURE 6. Openings to Right Side of Cab

8. Place the roof gland on the right side of the cab, preferably on a place that can be reached from the opening on the right side of the roof.

FIGURE 7. Mounted Roof Gland



NOTE: Ensure the RS1 cable is long enough to reach the roof gland or mount the roof gland within the length of the RS1 cable.

The mount stays permanently attached to the roof of the tractor.

9. Mark screw holes and a center hole using the roof gland as a guide.

NOTE: Ensure the center hole will have enough room to fit the cable, but not larger than the center of the seal of the roof gland.

10. Connect the 115-4010-181 cable and the 115-4010-186 cable to the roof gland connector.
11. Fit the roof gland assembly as shown in Figure 8, “Roof Gland Assembly,” as shown below.

FIGURE 8. Roof Gland Assembly

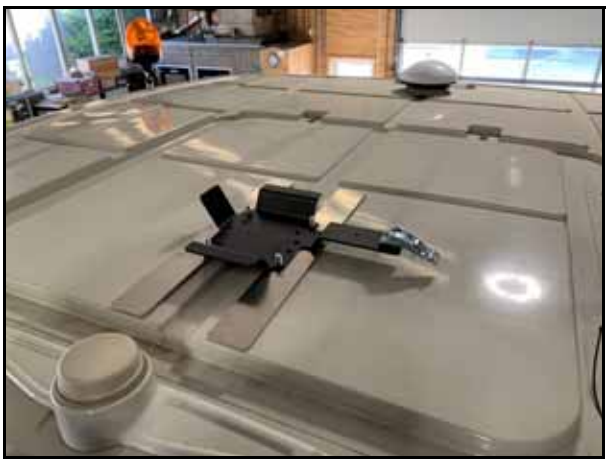
NOTE: Ensure the cables are connected to the roof gland before the roof gland is mounted.

12. Mount the roof gland with the supplied self-drilling screws.
13. When mounted, tighten the black ring to prevent water and dirt into the roof gland.

MOUNT THE RS1

1. Mount the generic bracket with the provided adhesive plates on the center line of the cab.
2. Mount the latch plate onto the RS1 using the provided screws.

FIGURE 9. RS1 Mounted on Generic Bracket



NOTE: This latch plate stays connected to the RS1.

3. Secure the RS1, already connected to the latch plate, onto the fixed plate.
4. Secure the assembly with the latch.
5. Mount the round adhesive plate for the Laird antenna within 50 cm from the RS1 bracket.

FIGURE 10. Laird Antenna Adhesive Plate

6. Connect the connector.

NOTE: The LAIRD antenna is the main receiver of the RS1. Ensure all of the following for best functionality of RS1:

- The antennas are mounted at least 50 cm apart.
- The antennas are positioned to point to the backside of the tractor.
- The GPS antenna is mounted in front of the rear axle.

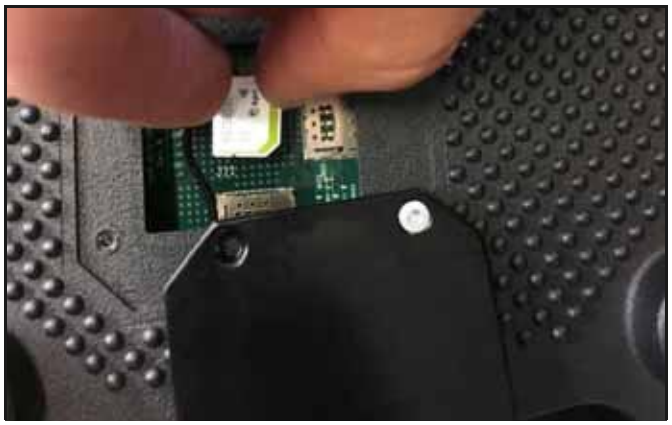
INSERT THE SIM CARD

When the RS1 is used with RTK accuracy or remote support, a working SIM card is needed. Before installing the SIM card, ensure the SIM pin code is switched off.

To install a SIM card:

1. Unscrew the four screws located on the bottom of the RS1.
2. Remove the SIM slot cover.
3. Insert the SIM card into the SIM slot.

FIGURE 11. SIM Card Inserted in SIM Slot



NOTE: The SIM card must be inserted into the J11 slot or the RS1 will not receive any GPS signal.

INSTALL CR7 OR CR12

Ensure the installer follows all of the following guidelines for best installation practices.

- Always ensure the terminal is placed in the most appropriate position facing the driver seat for easy access and use.
- Always use a RAM-C ball attachment.
- Mount the terminal with a solid bracket in a place free of vibrations.
- Secure all cables int he cabin so there are no free-hanging cables.
- Ensure the driver has a clear, unobstructed view all around the cabin.

FIGURE 12. CR7 Mounted in Various Positions

FIGURE 13. CR12 Mounted in Various Positions

INSTALL FIELD COMPUTER HARNESS

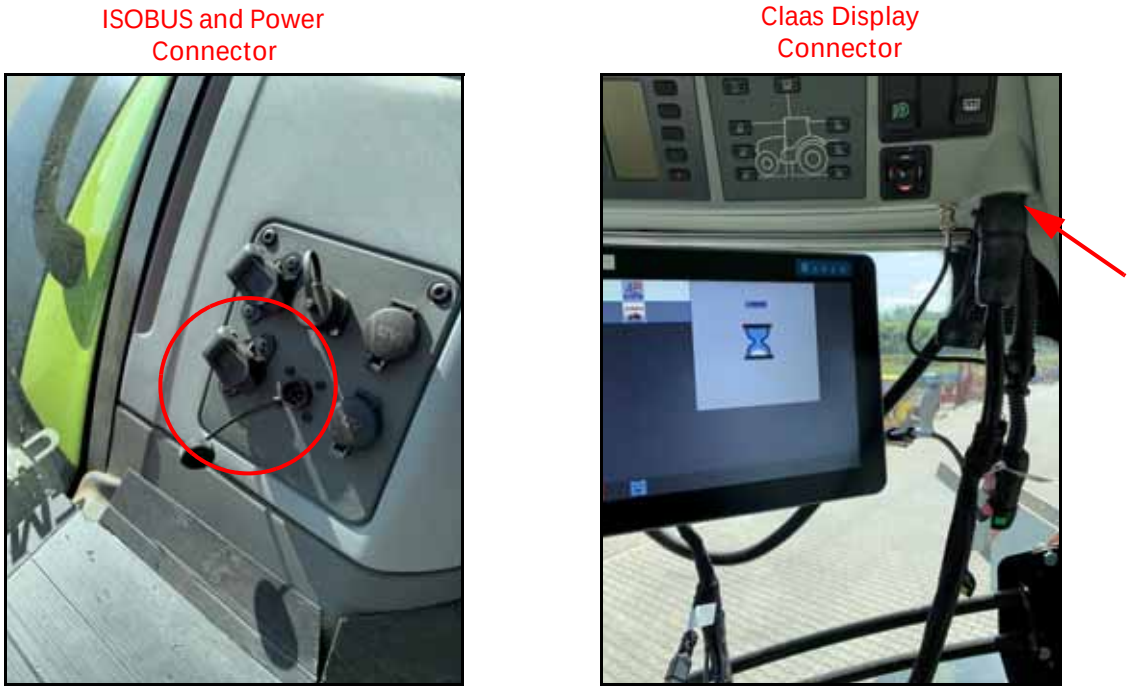
Ensure the installer follows all of the following guidelines for best installation practices.

- Install the field computer harness between the field computer and the standard connectors of the tractor.
- The display can be connected by two options:

  The 9-pin in-cab ISOBUS connector.

  The Claas display connector.
- Guide the harness to the field computer.

FIGURE 14. ISOBUS and Power Connector



ACTIVATE AUTOMATIC STEERING

NOTE: Before activating automatic steering, ensure that the tractor is unlocked for third-party steering systems. Contact a Claas dealer to unlock this feature.

TABLE 1. Claas Dealer Codes for Raven

Characteristics	Part Number
I41_0580	00 1403 178 0

To activate automatic steering for Claas systems with SC1:

1. To activate the steering valve, flip the steering-wheel switch to the on position.

FIGURE 15. Steering Button

2. Top engage Raven automatic steering, press the “A” button located on the joystick.

FIGURE 16. A Button on Joystick

SYSTEM DRAWINGS

FIGURE 17. Claas OSI CR7 & RS1 System Drawing (P/N 054-5036-023 Rev. A)

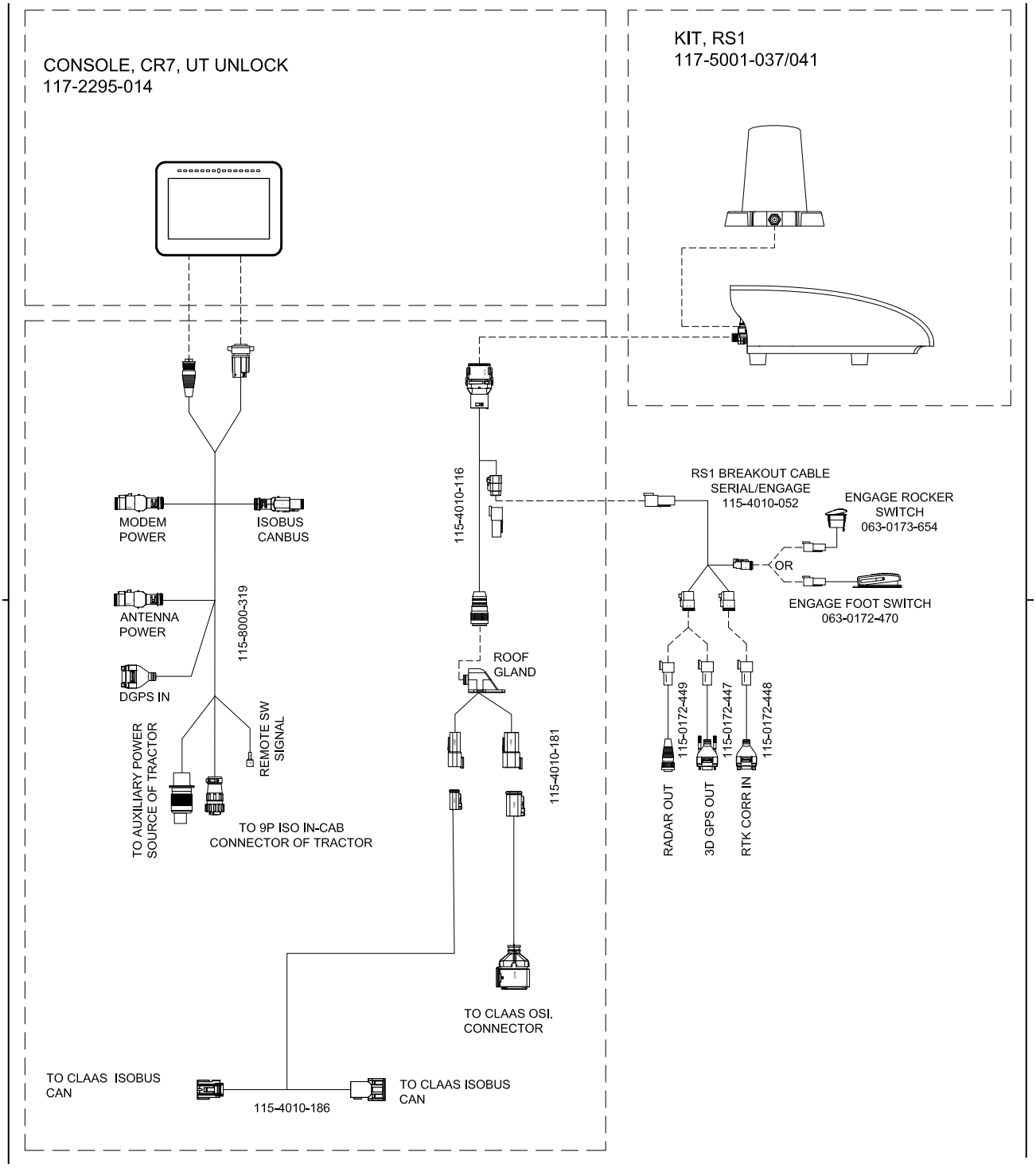
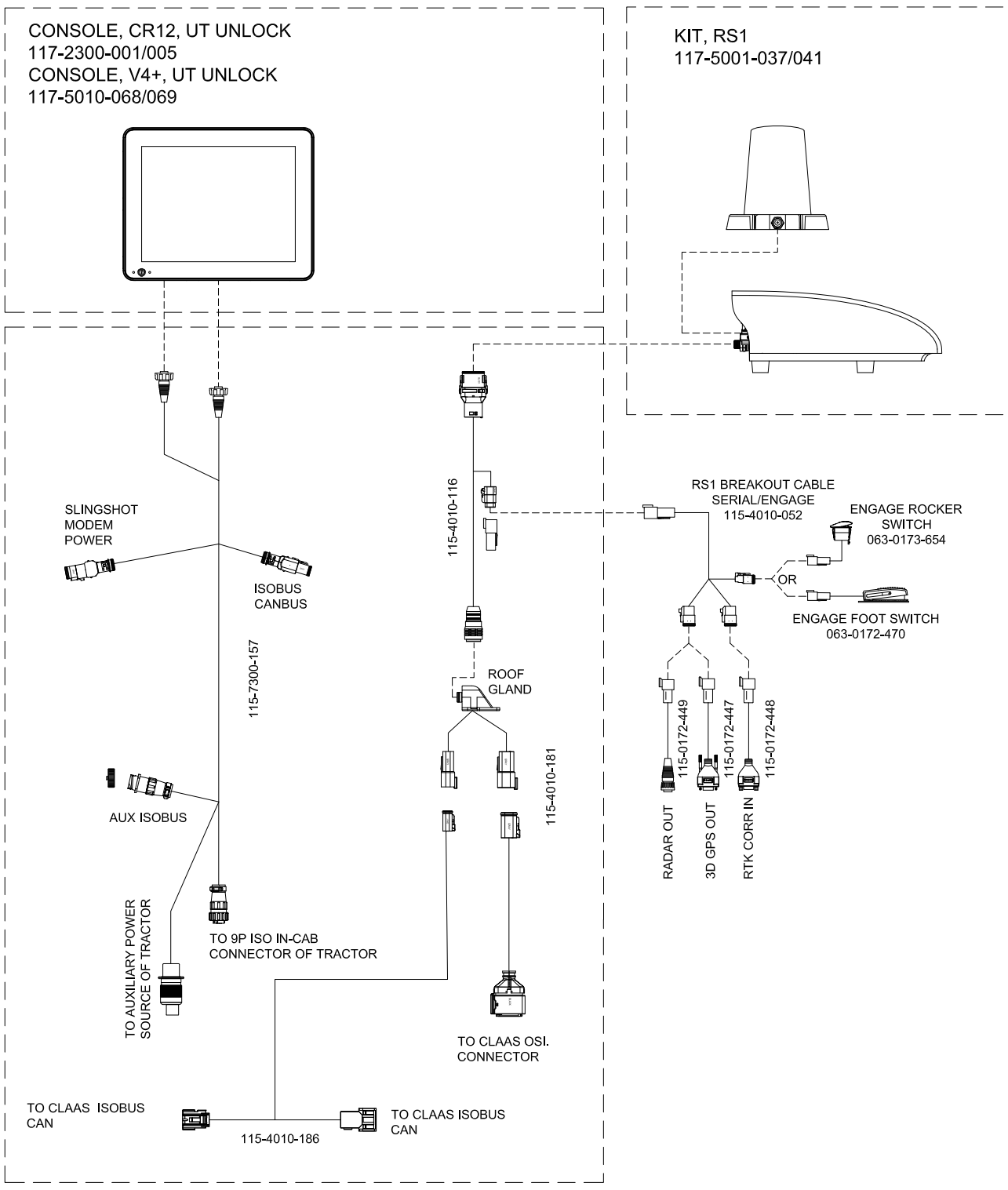


FIGURE 18. Claas OSI CR12 & RS1 System Drawing (P/N 054-5036-024 Rev. A)



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LIMITED WARRANTY

WHAT DOES THIS WARRANTY COVER?

This warranty covers all defects in workmanship or materials in your Raven Applied Technology Division product under normal use, maintenance, and service when used for intended purpose.

HOW LONG IS THE COVERAGE PERIOD?

Raven Applied Technology products are covered by this warranty for 12 months from the date of retail sale. In no case will the Limited Warranty period exceed 24 months from the date the product was issued by Raven Industries Applied Technology Division. This warranty coverage applies only to the original owner and is non-transferable.

HOW CAN I GET SERVICE?

Bring the defective part and proof of purchase to your Raven dealer. If the dealer approves the warranty claim, the dealer will process the claim and send it to Raven Industries for final approval. The freight cost to Raven Industries will be the customer's responsibility. The Return Materials Authorization (RMA) number must appear on the box and all documentation (including proof of purchase) must be included inside the box to be sent to Raven Industries.

WHAT WILL RAVEN INDUSTRIES DO?

Upon confirmation of the warranty claim, Raven Industries will (at our discretion) repair or replace the defective product and pay for the standard return freight, regardless of the inbound shipping method. Expedited freight is available at the customer's expense.

WHAT IS NOT COVERED BY THIS WARRANTY?

Raven Industries will not assume any expense or liability for repairs made outside our facilities without written consent. Raven Industries is not responsible for damage to any associated equipment or products and will not be liable for loss of profit, labor, or other damages. The obligation of this warranty is in lieu of all other warranties, expressed or implied, and no person or organization is authorized to assume any liability for Raven Industries.

Damages caused by normal wear and tear, misuse, abuse, neglect, accident, or improper installation and maintenance are not covered by this warranty.

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EXTENDED WARRANTY

WHAT DOES THIS WARRANTY COVER?

This warranty covers all defects in workmanship or materials in your Raven Applied Technology Division product under normal use, maintenance, and service when used for intended purpose.

DO I NEED TO REGISTER MY PRODUCT TO QUALIFY FOR THE EXTENDED WARRANTY?

Yes. Products/systems must be registered within 30 days of retail sale to receive coverage under the Extended Warranty. If the component does not have a serial tag, the kit it came in must be registered instead.

WHERE CAN I REGISTER MY PRODUCT FOR THE EXTENDED WARRANTY?

To register, go online to www.ravenhelp.com and select Product Registration.

HOW LONG IS THE EXTENDED WARRANTY COVERAGE PERIOD?

Raven Applied Technology products that have been registered online are covered for an additional 12 months beyond the Limited Warranty for a total coverage period of 24 months from the date of retail sale. In no case will the Extended Warranty period exceed 36 months from the date the product was issued by Raven Industries Applied Technology division. This Extended Warranty coverage applies only to the original owner and is non-transferable.

HOW CAN I GET SERVICE?

Bring the defective part and proof of purchase to your Raven dealer. If the dealer approves the warranty claim, the dealer will process the claim and send it to Raven Industries for final approval. The freight cost to Raven Industries will be the customer's responsibility. The Return Materials Authorization (RMA) number must appear on the box and all documentation (including proof of purchase) must be included inside the box to be sent to Raven Industries. In addition, the words "Extended Warranty" must appear on the box and all documentation if the failure is between 12 and 24 months from the retail sale.

WHAT WILL RAVEN INDUSTRIES DO?

Upon confirmation of the product's registration for the Extended Warranty and the claim itself, Raven Industries will (at our discretion) repair or replace the defective product and pay for the standard return freight, regardless of the inbound shipping method. Expedited freight is available at the customer's expense.

WHAT IS NOT COVERED BY THE EXTENDED WARRANTY?

Raven Industries will not assume any expense or liability for repairs made outside our facilities without written consent. Raven Industries is not responsible for damage to any associated equipment or products and will not be liable for loss of profit, labor, or other damages. Cables, hoses, software enhancements, and remanufactured items are not covered by this Extended Warranty. The obligation of this warranty is in lieu of all other warranties, expressed or implied, and no person or organization is authorized to assume any liability for Raven Industries.

Damages caused by normal wear and tear, misuse, abuse, neglect, accident, or improper installation and maintenance are not covered by this warranty.

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