

AutoBoom® XRT Installation Manual for Case IH Patriot 3x0/44x0 and Trident 5550 (MY 2017-2021)

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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.

WARNING

HYDRAULIC SAFETY

When installing or servicing a hydraulic system or hydraulic components, be aware that hydraulic fluid may be extremely hot and under high pressure. Caution must be exercised.

- Always wear appropriate personal protective equipment when installing or servicing hydraulic systems.
- Never attempt to open or work on a hydraulic system with the implement running.
- Any work performed on the hydraulic system must be done in accordance with the machine manufacturer's approved maintenance instructions.
- Care should always be taken when servicing or opening a system that has been pressurized.
- The implement or machine must remain stationary and switched off with booms or implement sections unfolded and supported during installation or maintenance.
- Take precautions to prevent foreign material or contaminants from being introduced into the implement hydraulic system. Contaminants that are able to bypass the hydraulic filtration system will reduce performance and may damage hydraulic components.
- Stand clear of the implement when starting the system for the first time after installing or servicing hydraulic components in case a hose has not been properly connected or tightened.

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

HOSE ROUTING

The word “hose” is used to describe any flexible, fluid carrying components. Use the following guidelines and recommendations when connecting and routing hoses while installing or maintaining this Raven system:

- Leave protective caps/covers over hose ends until connecting the end into the hydraulic system to help prevent contaminants from entering the system.
- Follow existing hose runs already routed on the implement as much as possible. Proper hose routing should:
 - Secure hoses and prevent hoses 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 hoses 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 hoses from sharp bends, twisting, or flexing over short distances and normal implement operation.
 - 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 hoses securely to force controlled movement of the hose.
 - Avoid abrasive surfaces and sharp edges such as sheared or flame cut corners, fastener threads or cap screw heads, hose clamp ends, etc.
 - Avoid areas where the operator or service personnel might step or use as a grab bar.
- Do not connect, affix, or allow hoses to come into contact with components with high vibration forces, hot surfaces, or components carrying hot fluids beyond the temperature rating of hose components.
 - Hoses should be protected or shielded if routing requires the hose to be exposed to conditions beyond hose component specifications.
- Avoid routing hoses in areas where damage may occur due to build up of material (e.g. dirt, mud, snow, ice, etc.).

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 contaminants. 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.

INTRODUCTION

The AutoBoom XRT system is designed to provide automated boom height adjustment for agricultural equipment.

This manual applies to the following machines:

MAKE: Case IH
MODEL: Patriot 3xx0/44x0 and Trident 5550
YEAR: 2017-2021

FIGURE 1. **Case IH 4440**

Steel Boom



Aluminum Boom



PREPARING FOR INSTALLATION

Before installing AutoBoom, park the machine where the ground is level, clean, and dry. 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.

RECOMMENDATIONS

Raven Industries recommends the following before installing or operating the AutoBoom XRT system for the first time, at the start of the season, or when moving the AutoBoom XRT system to another machine:

- Ensure the machine hydraulic filters have been recently changed and there are no issues with the machine hydraulic system (e.g., pump issues, faulty hydraulic motors, fine metal deposits in the hydraulic hoses, etc.).
- Operate each of the machine boom hydraulic functions (i.e., tilt, fold, center rack, tongue extension, or other hydraulic valve functions) three times to ensure the machine hydraulic valve is using fresh oil and debris is flushed from the hydraulic hoses, valves, and filters.
- Upon installation of the AutoBoom XRT system, operate the boom and center rack raise/lower functions through the machine manual control functions first before operating them via the AutoBoom XRT controller/field computer to ensure the hydraulic system has been installed correctly and air is released from the system.

Raven Industries recommends the following when installing the AutoBoom XRT system.

- Use part numbers to identify the parts.
- Do not remove the plastic wrap from a part until it is necessary for installation.
- Do not remove plastic caps from a part until it is necessary for installation.

TOOLS NEEDED

The following tools are recommended for installation of the AutoBoom XRT system:

- Standard-sized wrenches
- Cable ties
- Set of tools

POINT OF REFERENCE

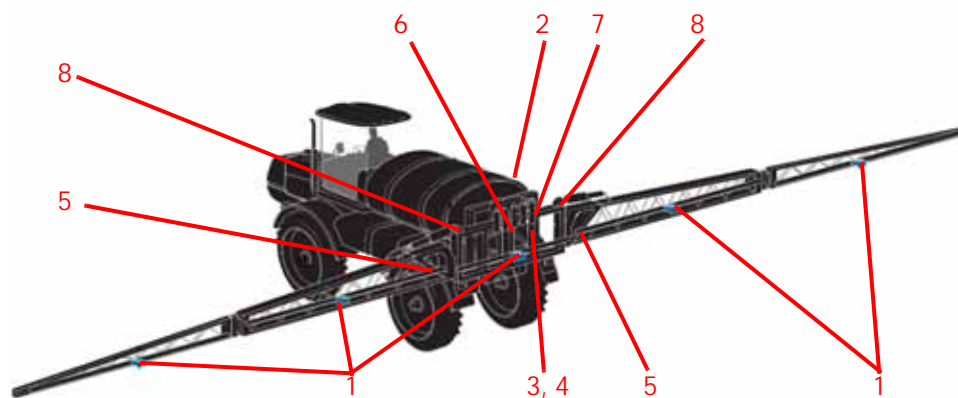
The instructions in this manual assume that you are standing behind the machine, looking toward the cab.

INSTALLATION OVERVIEW

The image below shows approximate installation locations for the sensor and nodes. Depending on machine configuration and desired performance some of the sensors and dampers may not be installed.

FIGURE 2. Example Component Locations

1. Radar Sensors
2. ABM Node
3. REM Node
4. Hydraulic Valve
5. Tilt Sensor
6. Rotary Sensor
7. Variable Damper
8. Proximity Sensor



For additional information on the component installation, refer to the:

- Hydraulic valve mounting and installation instructions in Chapter 3, *Hydraulic System Installation*.
- Rotary sensor installation instructions in *Center Rack Rotary Sensor Installation* section on page 31.
- Variable damper installation instructions in *Optional Damper Installation* section on page 22.
- REM node installation instructions in *Mount the AutoBoom® XRT Valve* section on page 15.
- ABM node installation instructions in *AutoBoom® ABM Node Installation* section on page 41.
- Tilt sensor installation instructions in either the *90' and 100' Boom* section on page 35, *120' Steel Boom* section on page 36, or the *120', 132', and 135' Aluminum Boom* section on page 38.
- Outer sensor installation information in *90', 100', and 120' Steel Boom* section on page 25.
- Inner sensor installation information in *90', 100', and 120' Steel Boom* section on page 25.
- Center sensor installation instructions in *90', 100', and 120' Steel Boom* section on page 25.
- Proximity sensor installation instructions in *Proximity Sensor* section on page 40.

HYDRAULIC FITTINGS

This manual may reference the following types of hydraulic fittings:

- SAE O-ring fittings
- ORFS (O-Ring Face Seal) fittings
- JIC fittings

SAE O-Ring Fittings



ORFS Fittings



JIC Fitting



UPDATES

Software and manual updates are available on the Raven Applied Technology website:

<https://ravenprecision.com>

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

-AutoBoom® XRT Installation Manual for Case IH Patriot 3xx0/44x0 and Trident 5550 (MY 2017-2021)

-016-0236-001 Rev. E

-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.

KIT CONTENTS

This section contains a list of kits available depending on machine features. For a full list of kit contents, refer to the specific kits numbers listed in "Kits Lists" on page 51.

TABLE 1. Case IH XRT Kits

Model Year	Model	Series	Boom	AutoBoom Hydraulics Present?	Kit Numbers
2017-2019	Case IH Patriot	3xx0/44x0	120', 132', and 135' Aluminum	No	117-0236-009 117-0236-030 117-0236-023 (Optional)
2017-2021	Case IH Patriot	3xx0/44x0	120' Steel	No	117-0236-001 117-0236-021 117-0236-023 (Optional)
				Yes	117-0236-002 117-0236-021 117-0236-023 (Optional)
	Case IH Trident	5550	120' Steel	No	117-0236-003 117-0236-021 117-0236-023 (Optional)
				Yes	117-0236-004 117-0236-021 117-0236-023 (Optional)
	Case IH Patriot	3xx0/44x0	90'/100'	No	117-0236-005 117-0236-024 117-0236-023 (Optional)
				Yes	117-0236-006 117-0236-024 117-0236-023 (Optional)
	Case IH Trident	5550	90'/100'	No	117-0236-007 117-0236-024 117-0236-023 (Optional)
				Yes	117-0236-008 117-0236-024 117-0236-023 (Optional)
2020-2021	Case IH Patriot	44x0	132'/135' Aluminum	No	117-0236-044 117-0236-023 (Optional)



CHAPTER

3

HYDRAULIC SYSTEM INSTALLATION



WARNING

The machine must remain stationary and switched off, with the booms unfolded and supported, during installation or maintenance.



CAUTION

When installing hydraulics or performing diagnostics, maintenance, or routine service, ensure precautions are taken to prevent any foreign material from being introduced into the machine hydraulic system.

Objects or materials that are able to bypass the machine hydraulic filtration system will reduce performance and possibly cause damage to the hydraulic valve.



NOTICE

The appearance of the hydraulic valve may vary slightly from the images contained in this manual. However, the fittings, hose connections, and cable connections remain the same.

INSTALL FITTINGS ON THE AUTOBOOM® XRT VALVE

Before mounting the AutoBoom XRT valve on the machine, install the proper fittings in the valve.

Refer to the following table to install the fittings in the appropriate ports of the AutoBoom XRT valve:

Fitting	Part Number	Port
Fitting - -6 ORFS (M) to -8 SAE O-Ring (M) 90° Elbow	333-0012-165	LF CYL RTN, RTCYLRTN
Fitting - -6 ORFS (M) to -6 SAE O-Ring (M) Straight Adapter	333-0012-084	LC, RC
Fitting - -8 ORFS (M) to -8 SAE O-Ring (M) Straight Adapter	333-0012-168	P, T
Fitting - -6 Hex 9/16" O-Ring Plug	333-0012-194	LV, RV

REMOVE THE ORIFICE FITTINGS (FOR MACHINES WITH AUTOBOOM® ALREADY INSTALLED)

On machines with AutoBoom already installed, it is necessary to remove the existing AutoBoom node and mounting plate as well as remove the orifice fittings in the AutoBoom valve. The AutoBoom valve will be reused for the AutoBoom XRT installation.

1. Locate Ports 3A and 3B on the AutoBoom valve.

FIGURE 1. Port 3A and 3B Location



2. Remove the coils from the solenoids near Ports 3A and 3B to gain easy access to those ports.

FIGURE 2. Coil Removed from the AutoBoom Valve



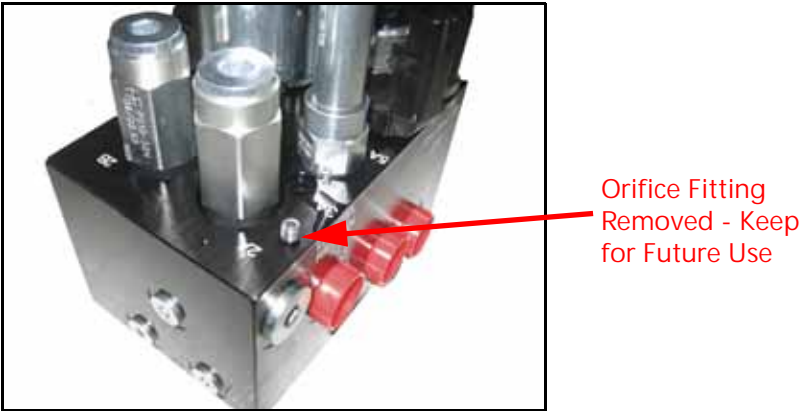
3. Use an Allen wrench to remove the plugs from Ports 3A and 3B.

FIGURE 3. Port Plugs Removed from the AutoBoom Valve



4. Remove the orifice fittings from Ports 3A and 3B.

FIGURE 4. Orifice Fitting Removed from the AutoBoom Valve



NOTE: Tip the AutoBoom valve on its side and use the Allen wrench to remove the orifice from the cavity, taking care not to let the fitting fall into the valve.

5. Use the Allen wrench to reinstall the port plugs on Ports 3A and 3B of the AutoBoom valve.

FIGURE 5. Port Plug Reinstalled on the AutoBoom Valve



6. Reinstall the coils on the solenoids of the AutoBoom valve.

FIGURE 6. Coil Reinstalled on the AutoBoom Valve



MOUNT THE AUTOBOOM® XRT VALVE

1. Secure the AutoBoom XRT valve (P/N 334-0235-001) to the mounting bracket (P/N 107-0235-011) using four 5/16" hex bolts and four 5/16" lock washers.

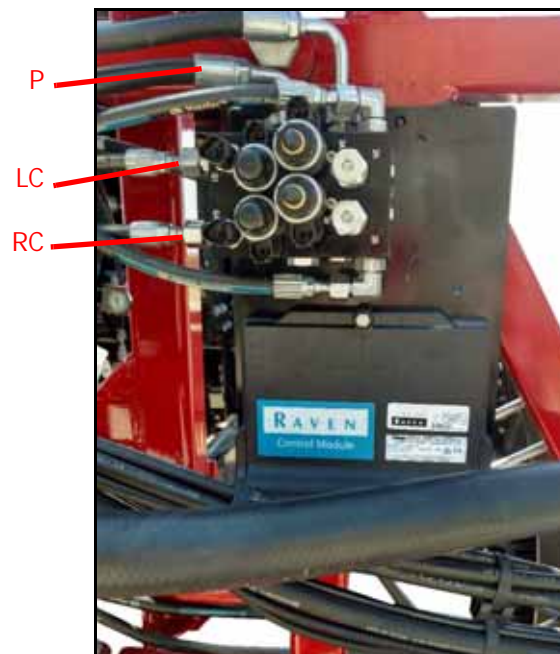
FIGURE 7. XRT Valve Mounting Location



NOTE: For model year 2020 and newer 132' and 135' aluminum booms, the AutoBoom valve may be mounted to the existing plate where the REM ECU will be mounted.

Mount the AutoBoom valve so that Port P is facing up and LC and RC Ports are facing the center of the machine.

FIGURE 8. AutoBoom XRT Valve Mounted on the Sprayer



2. Mount the REM node (P/N 063-0173-965) to the valve mounting bracket using two 1/4"-20 x 3" hex bolts, one 1/4"-20 x 2.5" hex bolt, three washers, and three 1/4" - 20 lock nuts.

NOTE: Position the node so that the cable connectors will face down.


The REM ECU is installed at the factory on model year 2020 and newer machines with a 132' and 135' aluminum boom.

FIGURE 9. REM Node Installed




3. Secure the mounting bracket to the machine center rack using two 2-9/16" W x 3-1/2" L x 3/8" thread U-bolts and four 3/8"-16 flange nuts.

INSTALL THE PRESSURE AND TANK HOSES



⚠ WARNING

Hydraulics are under pressure. Care should always be taken with a system that has been pressurized. When disconnecting or purging hydraulic hoses, be aware that the hydraulic fluid within the machine system may be extremely hot and under high pressure.



⚠ CAUTION

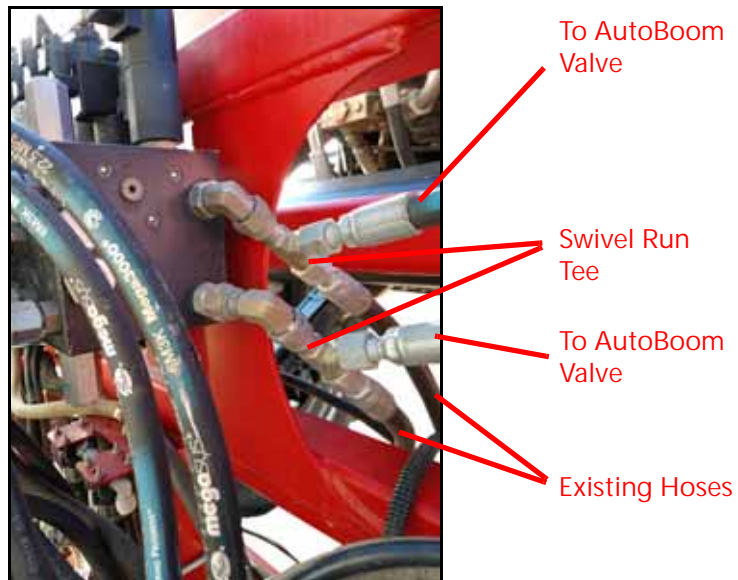
When installing hydraulics or performing diagnostics, maintenance, or routine service, ensure precautions are taken to prevent any foreign material or contaminants from being introduced into the machine hydraulic system.

Objects or materials that are able to bypass the machine hydraulic filtration system will reduce performance and possibly cause damage to the hydraulic valve.

Refer to Figure 14 on page 21 while performing the following steps.

1. Disconnect the machine pressure hose from the machine hydraulic valve.

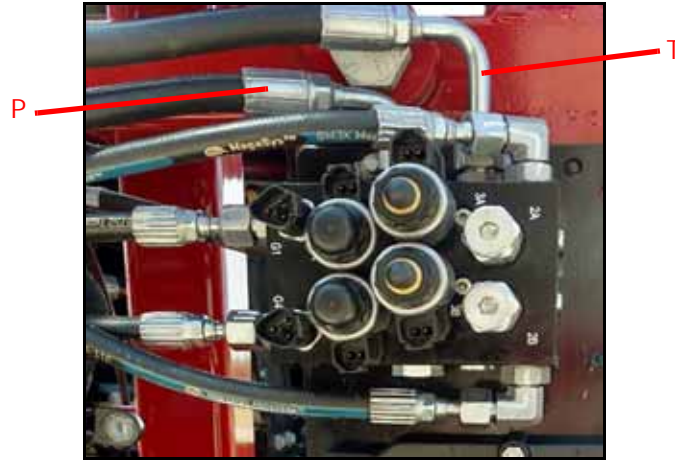
FIGURE 10. Pressure Hoses with Tee Fitting Installed on Machine Hydraulic Valve



2. Install a -8 ORFS M/M/F swivel run tee fitting (P/N 333-0012-028) in the machine pressure port.
3. Attach the machine pressure hose to the opposite end of the installed tee fitting.

4. Connect the straight end of the supplied hydraulic hose (P/N 214-1000-311) to the 90° end of the installed tee fitting.
5. Connect the 90° end of the installed hydraulic hose to Port P on the AutoBoom valve.

FIGURE 11. Pressure and Tank Hoses Installed



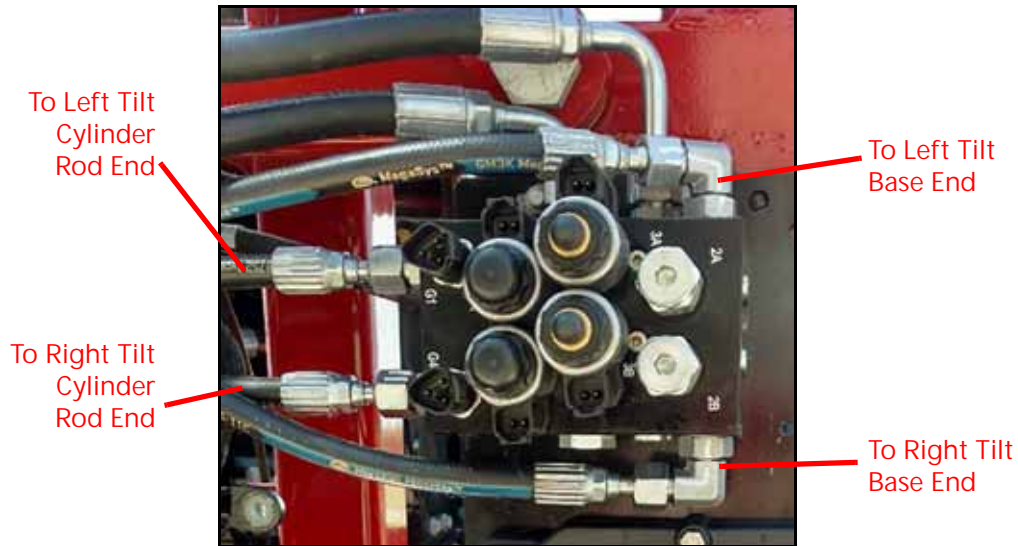
6. Disconnect the machine tank hose from the machine hydraulic valve.
7. Install a -8 ORFS M/M/F swivel run tee fitting (P/N 333-0012-028) in the machine tank port.
8. Attach the machine tank hose to the opposite end of the installed tee fitting.
9. Connect the straight end of the supplied hydraulic hose (P/N 214-1000-311) to the 90° end of the installed tee fitting.
10. Connect the 90° end of the installed hydraulic hose to Port T on the AutoBoom valve.

INSTALL THE LEFT AND RIGHT CYLINDER HOSES

1. Verify the booms are cradled.

IMPORTANT: If booms are not cradled, the booms will drop when the hydraulic hoses are disconnected.

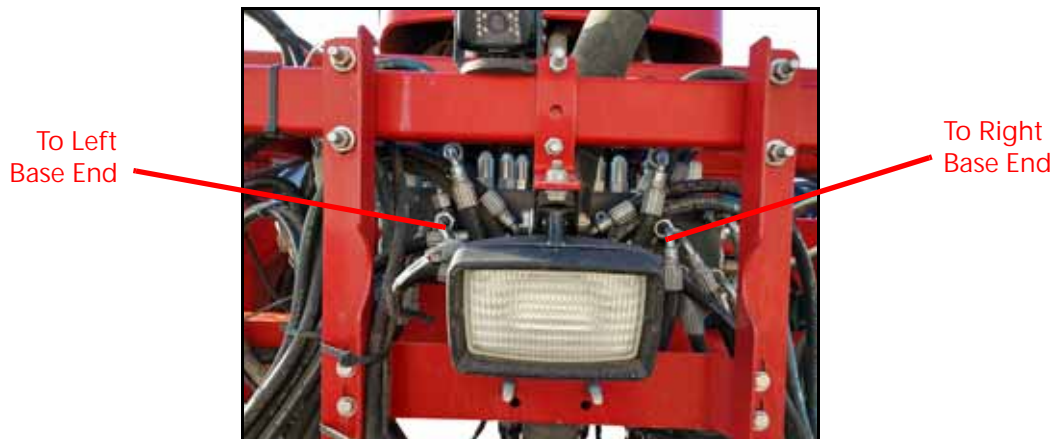
FIGURE 12. Left and Right Cylinder Hoses Installed



2. Trace the machine left and right cylinder tilt hoses from the rod-end of the tilt cylinders to the machine hydraulic valve.
3. Disconnect the machine left and right cylinder tilt hoses from the machine hydraulic valve.
4. Install -6 ORFS M/M/F swivel run tee adapter fittings (P/N 333-0012-069) in the tilt hose ports of the machine hydraulic block.
5. Connect the machine right tilt hose to the opposite end of the tee fitting installed in the right tilt port of the machine hydraulic valve.
6. Connect the 90° end of the supplied hydraulic hose (P/N 214-1000-494) to the 90° end of the installed tee fitting.
7. Connect the straight end of the installed hydraulic hose to the installed fitting in Port RC of the AutoBoom valve.
8. Connect the machine left tilt hose to the opposite end of the tee fitting installed in the left tilt port of the machine hydraulic valve.
9. Connect the 90° end of the supplied hydraulic hose (P/N 214-1000-494) to the 90° end of the installed tee fitting.
10. Connect the straight end of the installed hydraulic hose to the installed fitting in Port LC of the AutoBoom valve.

INSTALL THE LEFT AND RIGHT RETURN HOSES

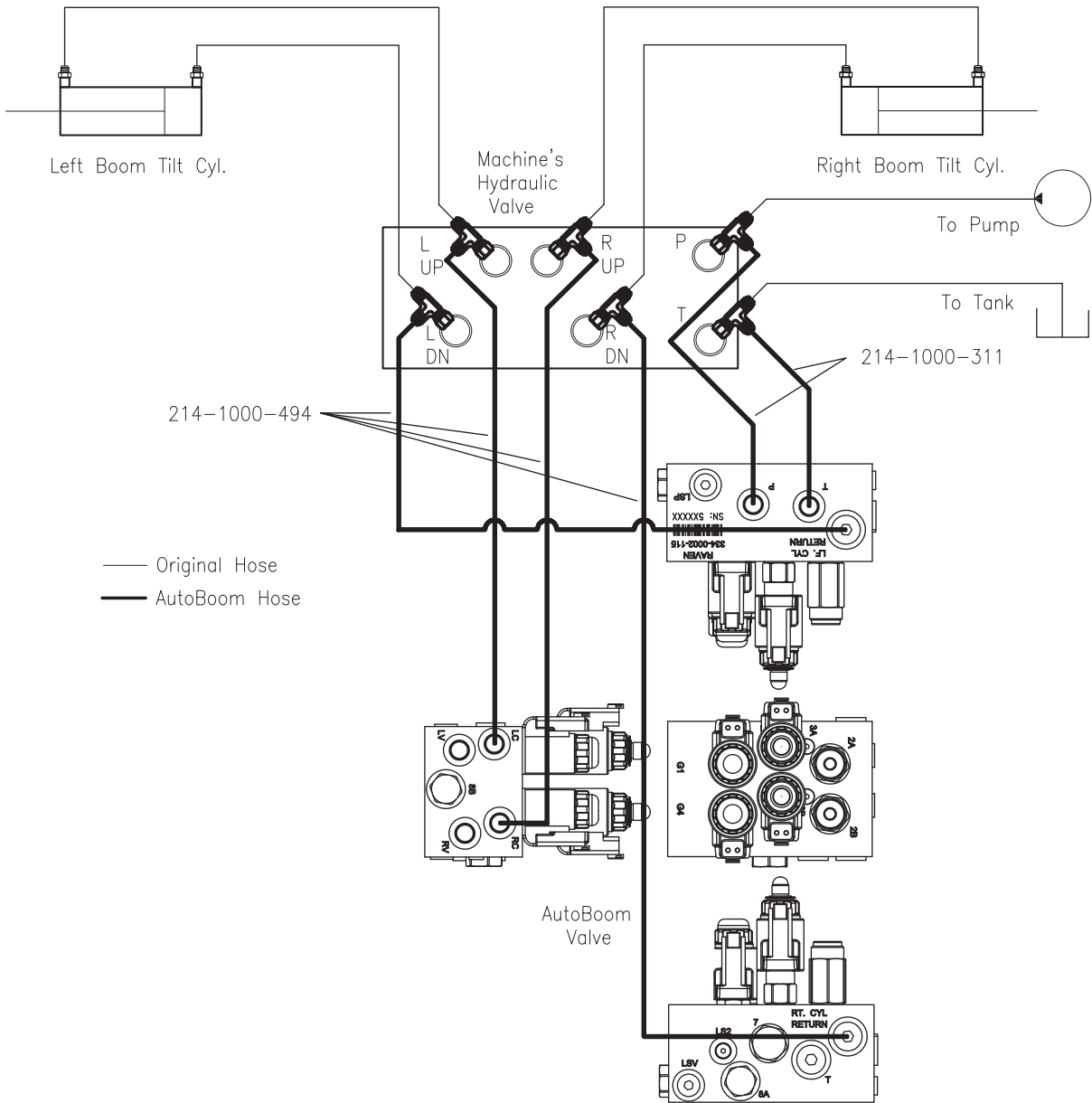
FIGURE 13. Left and Right Return Hoses Installed



1. Trace the machine left and right cylinder return hoses from the base-end of the tilt cylinders to the machine hydraulic valve.
2. Disconnect the machine left and right cylinder return hoses from the machine hydraulic valve.
3. Install -6 ORFS M/M/F swivel run tee adapter fittings (P/N 333-0012-069) in the return ports of the machine hydraulic valve.
4. Connect the machine right cylinder return hose to the opposite end of the tee fitting installed in the right return port.
5. Connect the 90° end of the supplied hydraulic hose (P/N 214-1000-494) to the 90° end of the installed tee fitting.
6. Connect the straight end of the installed hydraulic hose to the installed fitting in Port RT CYL RTN of the AutoBoom valve.
7. Connect the machine left cylinder return hose to the opposite end of the tee fitting installed in the left return port.
8. Connect the 90° end of the supplied hydraulic hose (P/N 214-1000-494) to the 90° end of the installed tee fitting.
9. Connect the straight end of the installed hydraulic hose to the installed fitting in Port LF CYL RTN of the AutoBoom valve.

AUTOBOOM® XRT HYDRAULIC SCHEMATIC

FIGURE 14. AutoBoom XRT Hydraulic Diagram (P/N 054-0236-001)



OPTIONAL DAMPER INSTALLATION

For optimal performance, install variable dampers on the machine center rack:

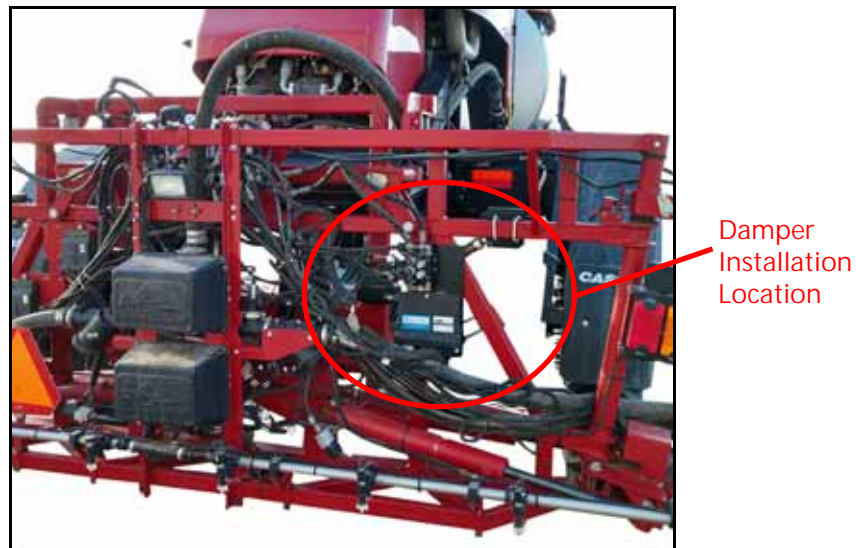
1. Identify the damper installation location. This is on the right side of the center rack just below where the existing cable is routed.

NOTE: Weld studs on the center rack may need to be removed for proper damper installation and operation.

FIGURE 15. Welding Stud Locations



FIGURE 16. Damper Installation Location



2. Remove the cable ties that secure any cables that may be in the way when mounting the damper brackets to the boom center rack.

FIGURE 17. Detailed Damper Installation Location



- Using the provided 1/2" - 13 U-bolts, loosely install one of the damper mounting brackets to the front of the center rack cross tube with the two holes facing towards the centerline of the machine.

FIGURE 18. Damper Brackets Loosely Installed with Damper Spacing Template



- Using the provided U-bolts, loosely install the other damper mounting bracket to the back of the center frame vertical tube with the two holes facing towards the outside.
- Using the provided 5/8" clevis pins, install the damper spacing templates (P/N 107-0235-029) to both holes on each of the mounting brackets. It may be necessary to slide the brackets to install the template.

NOTE: The bracket installed on the vertical member should be as low as possible. Slide the upper bracket to work with the lower bracket as low as possible.

- Adjust the brackets so they are level to the machine.
- Tighten the U-bolts to secure the brackets in place.

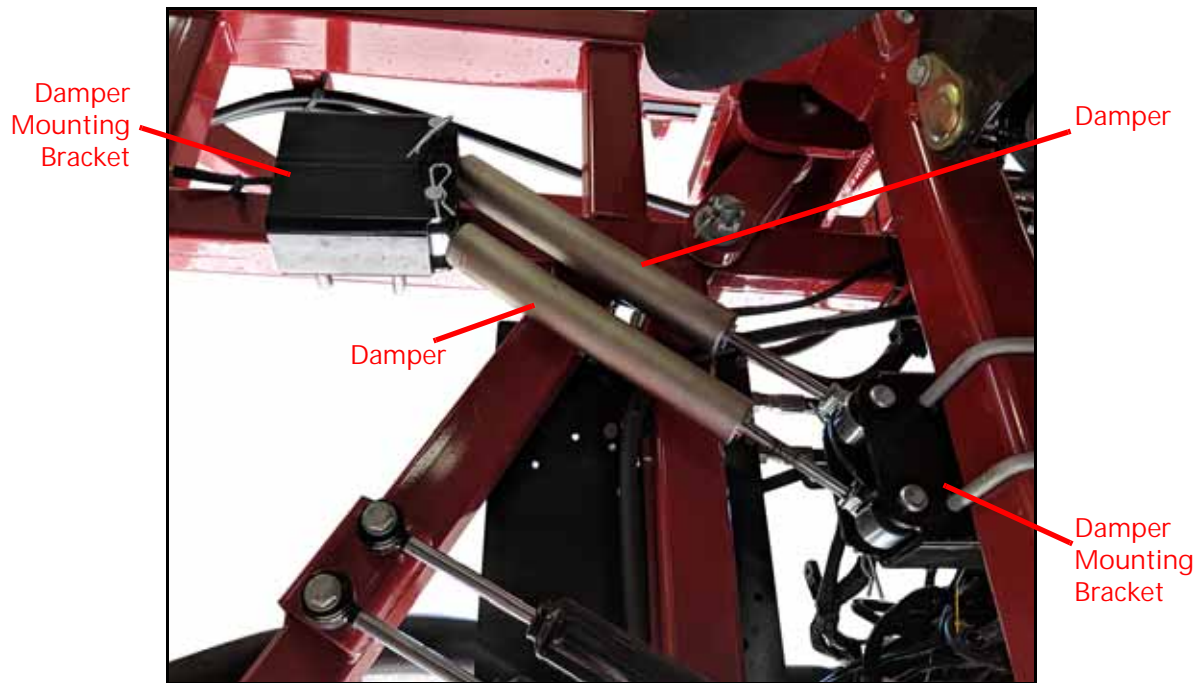
8. Remove the damper spacing template.

NOTE: It will be necessary to compress the dampers to fit into the spacing. To do this:

- connect two ends of a ratchet strap to each other
- place the ratchet strap around the damper like a belt
- tighten the ratchet strap until the damper is the desired length

9. With the cylinder end of the damper at the top, use the provided 5/8" clevis pins to install the top damper in the top holes on each bracket.

FIGURE 19. Installed Dampers



10. Use the provided 5/8" clevis pins to install the bottom damper in the bottom holes in each bracket.

11. Install the cotter pins in the ends of all the 5/8" clevis pins.


MOUNT THE BOOM SENSORS

BOOM SENSOR MOUNTING LOCATIONS

Sensor mounting locations may be influenced by the boom configuration. If an object enters the sensor’s blind range unexpectedly, a false return to the sensor could occur. To ensure optimal operation of the AutoBoom XRT system and to protect the sprayer boom, the sensor should be mounted behind the boom structure (if possible), above the lowest hanging part of the boom.

NOTE: Mount the radar sensors so they are spaced approximately half way between the nozzle bodies.

90', 100', AND 120' STEEL BOOM



⚠ **WARNING**

The machine must remain stationary and switched off, with the boom unfolded and supported, during installation or maintenance.

- The table below provides the approximate mounting locations for various boom widths. The information on this table is for reference only. If there is interference or other issues with these mounting locations, mount the sensors as close to these locations as possible.

TABLE 1. Sensor Mounting Location

Boom Width	Inner Sensor Mounting Distance from Boom Pivot Point	Outer Sensor Mounting Distance from Boom Pivot Point
90'	280"	460"
100'	280"	520"
120'	330"	630"

NOTE: The numbers in the table above are the approximate distance. As a rule, the sensor should be mounted half way between two spray nozzles to minimize potential drift interference.

2. Install the radar sensors (P/N 063-0173-962) on the sensor mounting brackets (P/N 107-0235-001) using two 1/4"-20 x 5/8" Phillips pan head bolts (P/N 311-0050-255) and two 1/4"-20 nylon locking nuts per sensor (P/N 312-4000-164).

NOTE: Install two of the sensors in one orientation and three in the other orientation on the bracket so, when installed, the sensor connection is facing towards the center of the machine.

FIGURE 1. Sensor Installed on Mounting Bracket



3. Mount the boom sensor assemblies on the back of the outer boom sections using 2-1/16" W x 3" L x 3/8" thread U-bolts and 3/8"-16 flanged lock nuts.

FIGURE 2. Boom Sensor Installed



Sensor Mounted Near End of Boom

4. Mount the inner boom sensor assemblies using 2-1/16" W x 3" L x 3/8" thread U-bolts and 3/8"-16 flanged lock nuts.

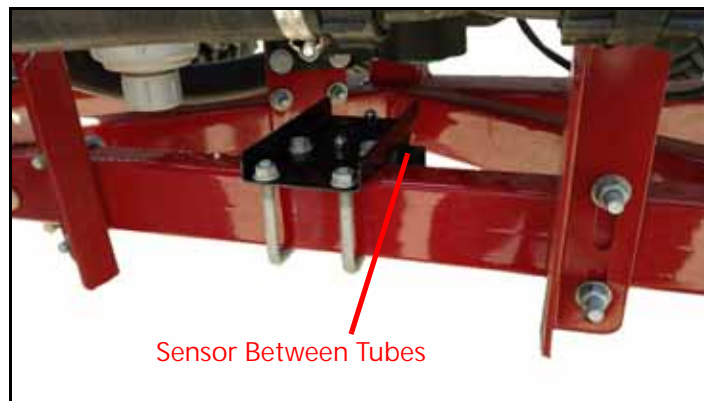
FIGURE 3. Inner Boom Sensor Installed (120' Steel Boom Shown)




NOTE: For other boom configurations where the sensor assembly doesn't fit between the rails, mount the sensor behind the boom.

5. Mount the center sensor assembly to the middle of the center rack using 2-1/16" W x 3" L x 3/8" thread U-bolts and 3/8"-16 flanged lock nuts.

FIGURE 4. Center Sensor Installed



120', 132', AND 135' ALUMINUM BOOM



⚠ WARNING

The machine must remain stationary and switched off, with the boom unfolded and supported, during installation or maintenance.

1. The table below provides the approximate mounting locations for various boom widths. The information on this table is for reference only. If there is interference or other issues with these mounting locations, mount the sensors as close to these locations as possible.

TABLE 2. Sensor Mounting Location

Boom Width	Inner Sensor Mounting Distance from Boom Pivot Point	Optional Mid Sensor Mounting Distance from Boom Pivot Point	Outer Sensor Mounting Distance from Boom Pivot Point
120'	330"		630"
132'	304"	503"	701"
135'	331"	531"	731"

NOTE: The numbers in the table above are the approximate distance. As a rule, the sensor should be mounted half way between two spray nozzles to minimize potential drift interference.

2. Install the radar sensors (P/N 063-0173-962) on the sensor mounting brackets (P/N 107-0235-001) using two 1/4"-20 x 5/8" Phillips pan head bolts (P/N 311-0050-255) and two 1/4"-20 nylon locking nuts per sensor (P/N 312-4000-164).

NOTE: Install two of the sensors in one orientation and three in the other orientation on the bracket so, when installed, the sensor connection is facing towards the center of the machine.

FIGURE 5. Sensor Installed on Mounting Bracket



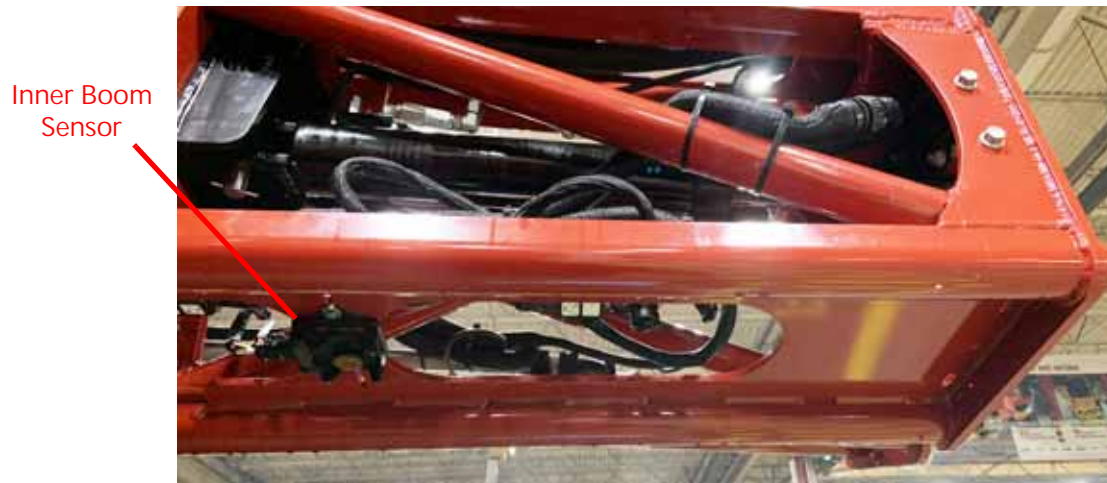
3. Mount the boom sensor assemblies on the inside of the boom frame using two 1/4"-20 nylon lock nuts and two 1/4"-20 bolts.

FIGURE 6. Example of the Radar Sensor Installed at the Right Boom Tip



4. The inner boom sensor assembly will be mounted directly to the boom at the location shown.

FIGURE 7. Inner Boom Sensor



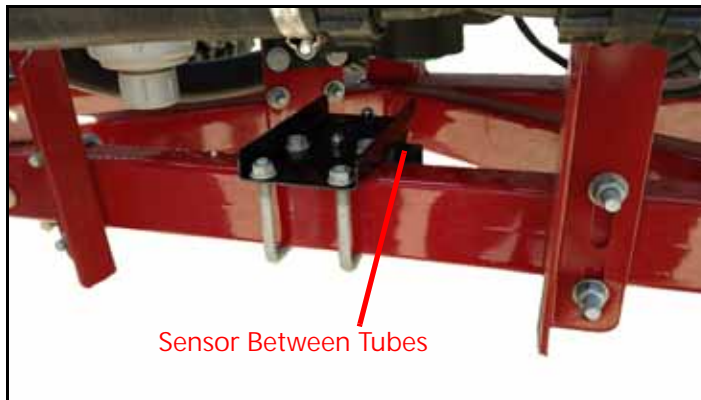
5. Install the radar sensor (P/N 063-0173-962) directly to the boom using two 1/4"-20 x 5/8" Phillips pan head bolts (P/N 311-0050-255) and two 1/4"-20 nylon locking nuts per sensor (P/N 312-4000-164).

FIGURE 8. Inner Boom Sensor Installed



6. Mount the center sensor assembly to the middle of the center rack using 2-1/16" W x 3" L x 3/8" thread U-bolts and 3/8"-16 flanged lock nuts.

FIGURE 9. Center Sensor Installed

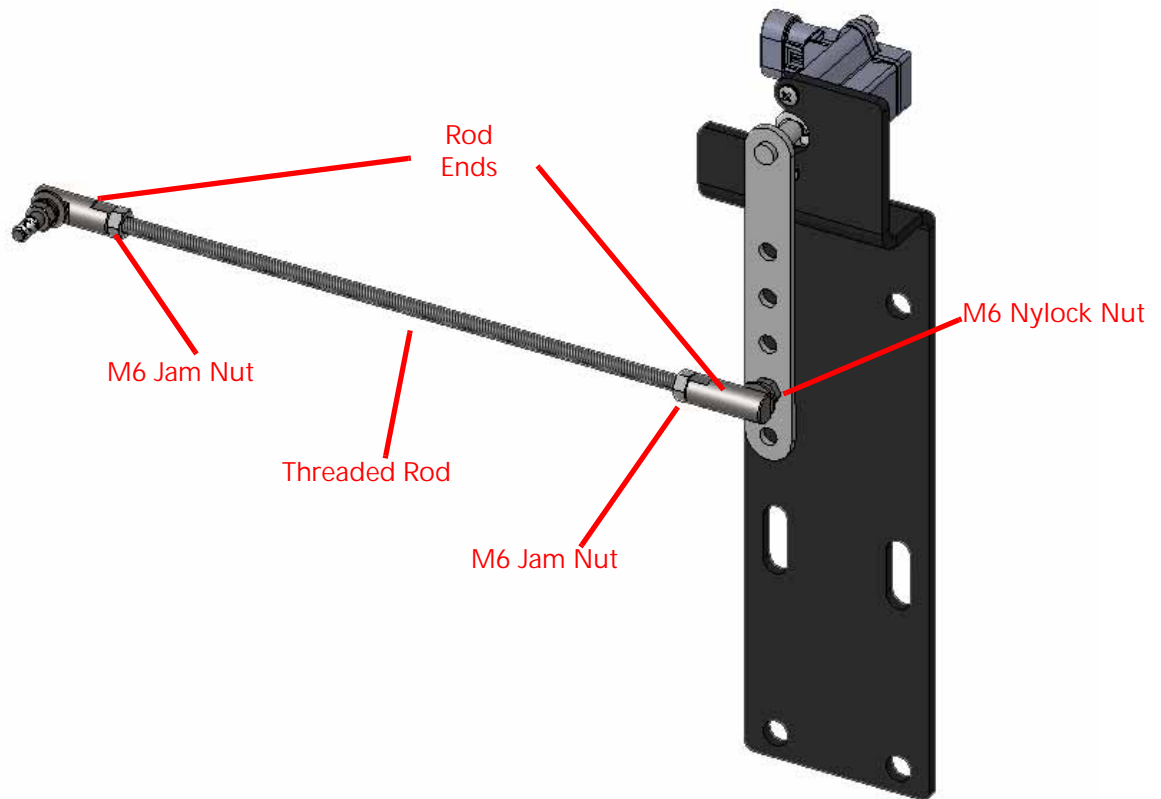


CENTER RACK ROTARY SENSOR INSTALLATION

120' STEEL BOOM AND 120', 132', AND 135' ALUMINUM BOOM

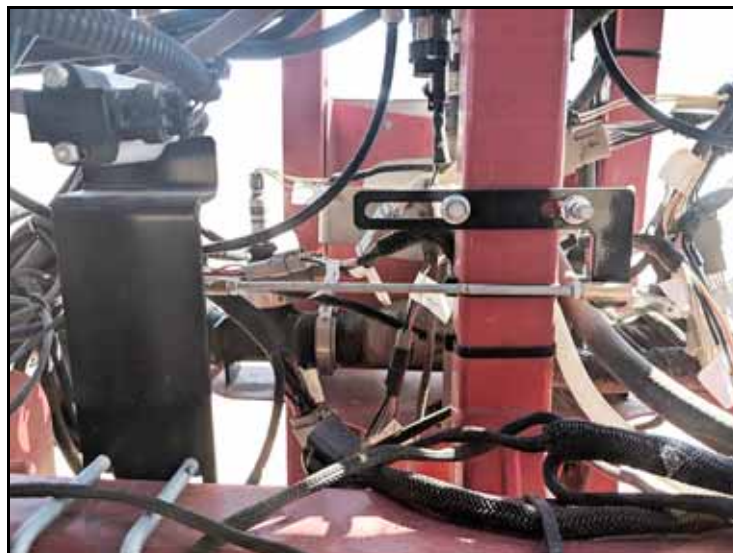
1. Locate the open position between the center rack and center frame to mount the rotary sensor.

FIGURE 10. Center Rack Rotary Sensor Assembly for 120' Booms



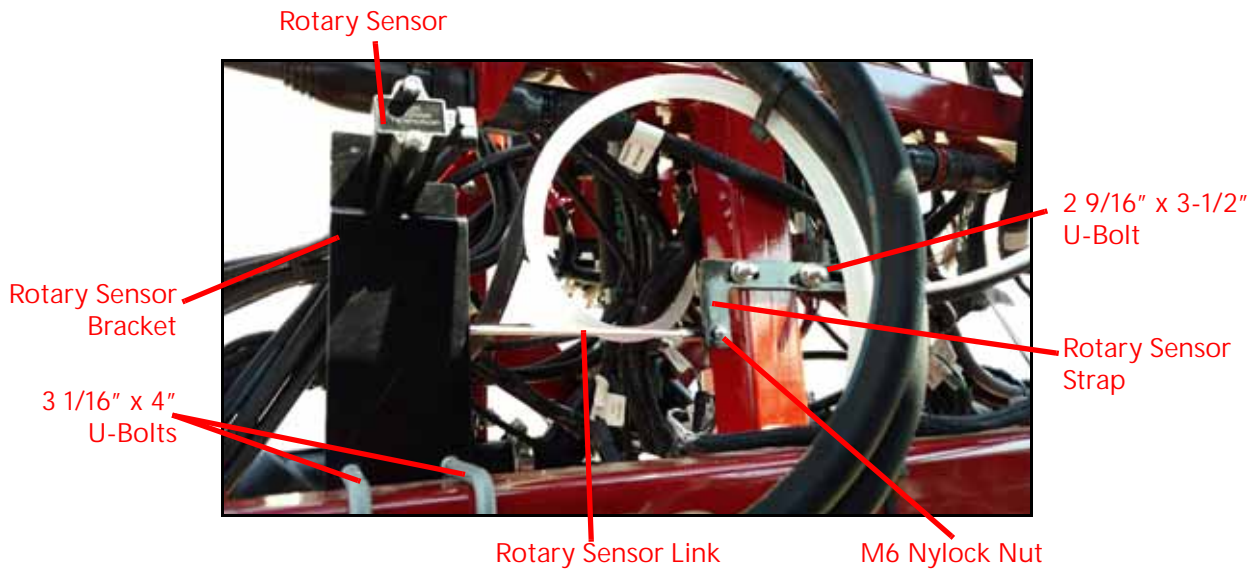
2. Assemble the items in above figure to the rotary sensor assembly labeled "Center Rack" as shown.

FIGURE 11. Rotary Sensor Installation Location on Center Rack



- Using a provided 2-9/16" x 3-1/2" U-bolt, loosely install the rotary sensor strap bracket to the vertical tube on the front side of the center rack. The short leg of the bracket will be pointing down on the left side of the center.

FIGURE 12. Installed Rotary Sensor

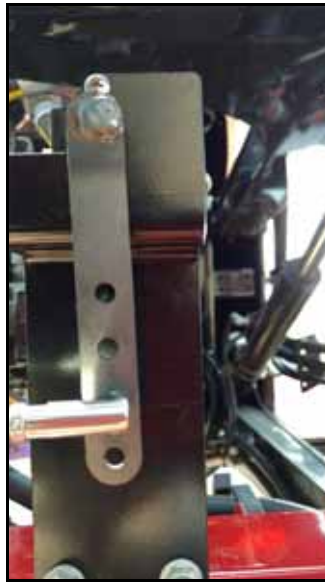


- On the center frame, use two provided 3-1/16" x 4" U-bolts to loosely install the rotary sensor assembly labeled "Center Rack" to the lower horizontal tube positioned between the center rack and the center frame. The sensor mounts on the right side of the center. The connector on the sensor will point down the left side of the machine.
- Install the rotary sensor link and rod end to the rotary sensor strap and secure with an M6 nylock nut.

NOTE: The rotary sensor link should be installed so it is parallel to the ground.

- Using two wrenches, secure the rotary sensor link.
- Adjust the rotary sensor bracket and the rotary sensor strap until the rotary sensor arm is vertical.
- Tighten all hardware.

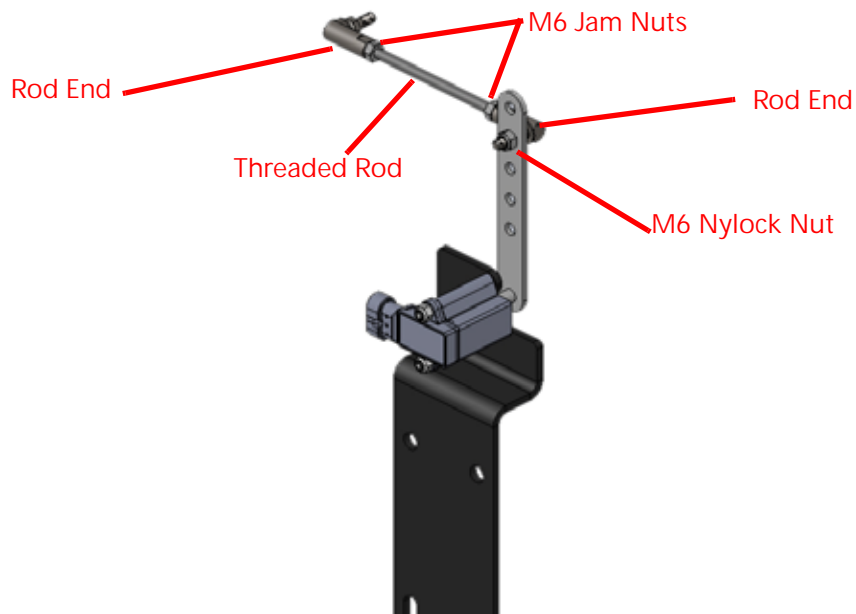
FIGURE 13. Rotary Sensor Arm Position



90' AND 100' BOOM

1. Locate the open position between the center rack and center frame to mount the rotary sensor.

FIGURE 14. Center Rack Rotary Sensor Assembly for 90'-100' Booms



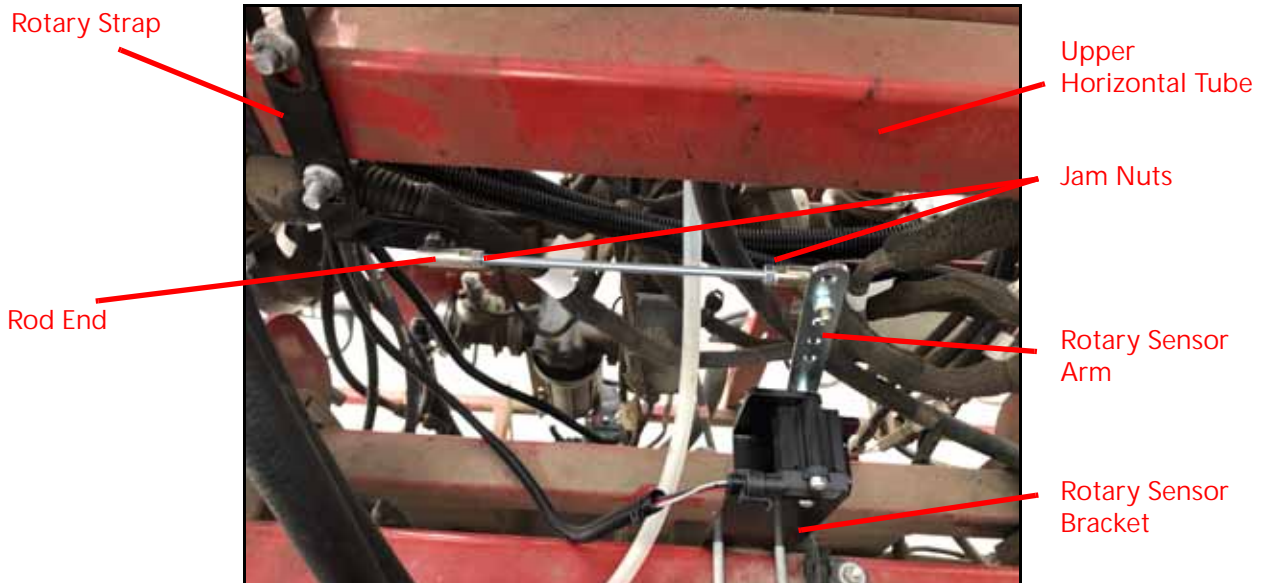
2. Assemble the items in above figure to the rotary sensor assembly labeled "Center Rack 90/100 FT" as shown.

FIGURE 15. Rotary Sensor Installation Location on Center Rack



- Using a provided 2-9/16" x 3-1/2" U-bolt, loosely install the rotary sensor strap bracket to the upper horizontal tube that pivots (see Figure 16 on page 34).

FIGURE 16. Rotary Strap and Sensor Bracket Installation



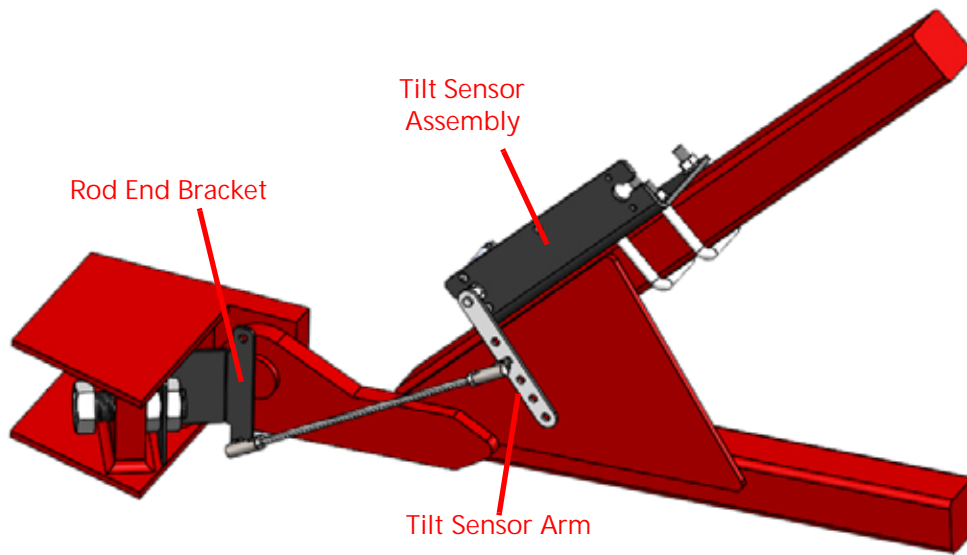
- On the center frame, use two provided 3-1/16" x 4" U-bolts to loosely install the rotary sensor assembly labeled "Center Rack 90/100 FT" to the lower horizontal tube positioned between the center rack and the center frame. The sensor mounts on the right side of the center.
- Install the rotary sensor link and rod end to the rotary sensor strap and secure with an M6 nylock nut.
- Adjust the rotary sensor bracket and the rotary sensor strap until the rotary sensor arm is roughly in a vertical orientation.
- Tighten all hardware.

LEFT AND RIGHT TILT SENSOR INSTALLATION

90' AND 100' BOOM

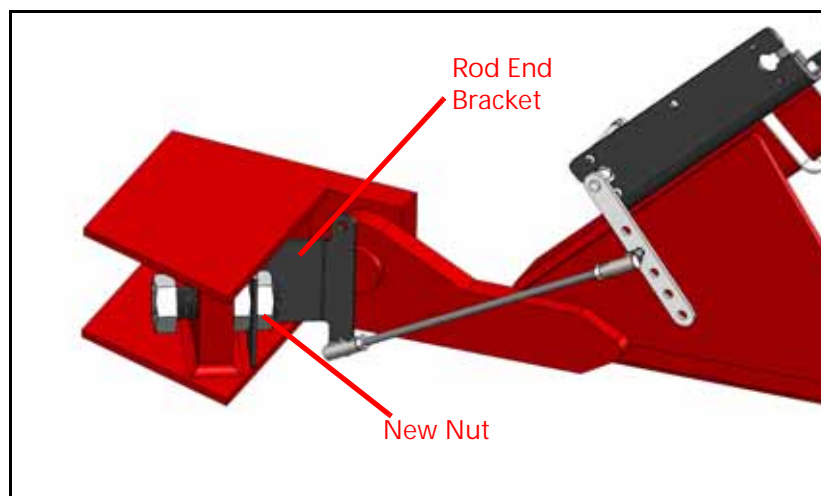
1. Identify a mounting location on the boom frame for the tilt sensor assembly which is labeled "RIGHT TILT" for the right boom and "LEFT TILT" for the left boom. The mounting position should be in a location near the boom pivot point and, when installed, the tilt bracket sensor arm should be on the back of the boom.

FIGURE 17. Tilt Sensor Bracket Installed (Right Boom Shown)



2. Loosely install the tilt sensor assembly to the angled boom structure using two provided U-bolts and nuts.

FIGURE 18. Rod End Bracket Installation



3. Slide the rod end bracket over the threaded end of the 1" bolt.
4. Install and tighten the new nut on the threaded end of the 1" bolt.

NOTE: Do not tighten or loosen the existing bolt or nut to which the rod end bracket and new nut are mounted.

5. Use the provided hardware to install the tilt sensor link to the tilt sensor arm. When the installation is complete the tilt sensor arm should be perpendicular to the tilt sensor bracket.
6. Attach the other rod end to the rod end bracket with M6 nylock nut.
7. Tighten all hardware.
8. Repeat step 1 through step 7 to install the left boom tilt sensor.

120' STEEL BOOM

1. Remove the cover over the factory installed tilt and fold sensors.

FIGURE 19. Remove Cover



2. Disconnect the factory wire harness connectors.
3. Connect the Left Tilt position connector to the factory installed Tilt position sensor.
4. Connect the Left Fold position connector to the factory installed Left Fold position sensor.

FIGURE 20. Tilt and Fold Harness Connections



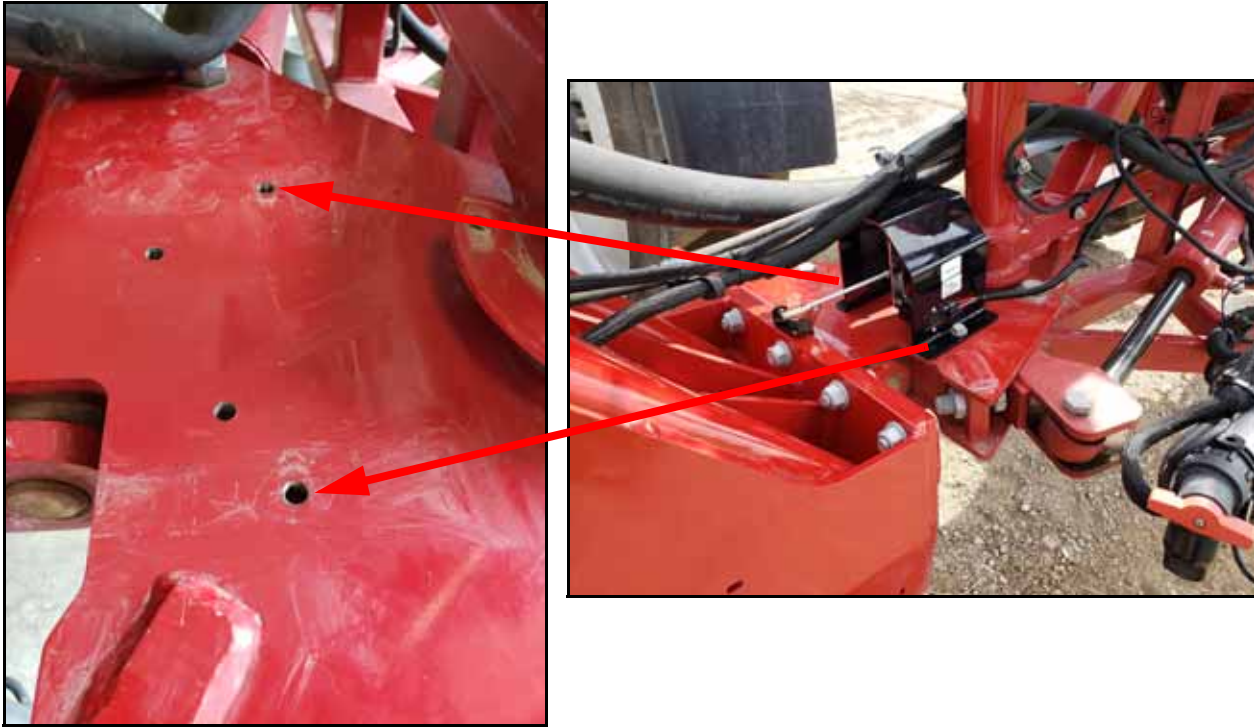
5. Repeat step 1 through step 4 to connect the right boom tilt and fold sensors.

120', 132', AND 135' ALUMINUM BOOM

NOTE: Factory installed booms already have the tilt sensors installed and wired to the REM ECU. Complete the following steps only if the boom was installed after the machine left the factory.

1. Identify the tilt sensor mounting location near the center rack on the left boom.

FIGURE 21. Left Boom Tilt Sensor Mounting Location



2. Mount the tilt sensor housing in the outside holes with the tilt sensor arm pointing in the direction of the length of the boom.
3. Install the rod end bracket on the sensor bolt in so the rod will be parallel with the sensor arm.

FIGURE 22. Rod End Bracket Installed



4. Use the provided hardware to install the tilt sensor link to the tilt sensor arm. When the installation is complete the tilt sensor arm should be perpendicular to the tilt sensor bracket.
5. Attach the other rod end to the rod end bracket with M6 nylock nut.
6. Tighten all hardware.
7. Repeat step 1 through step 7 to install the right boom tilt sensor.

PROXIMITY SENSOR

NOTE: The following steps are not required for machines with 120', 132', and 135' boom configurations.

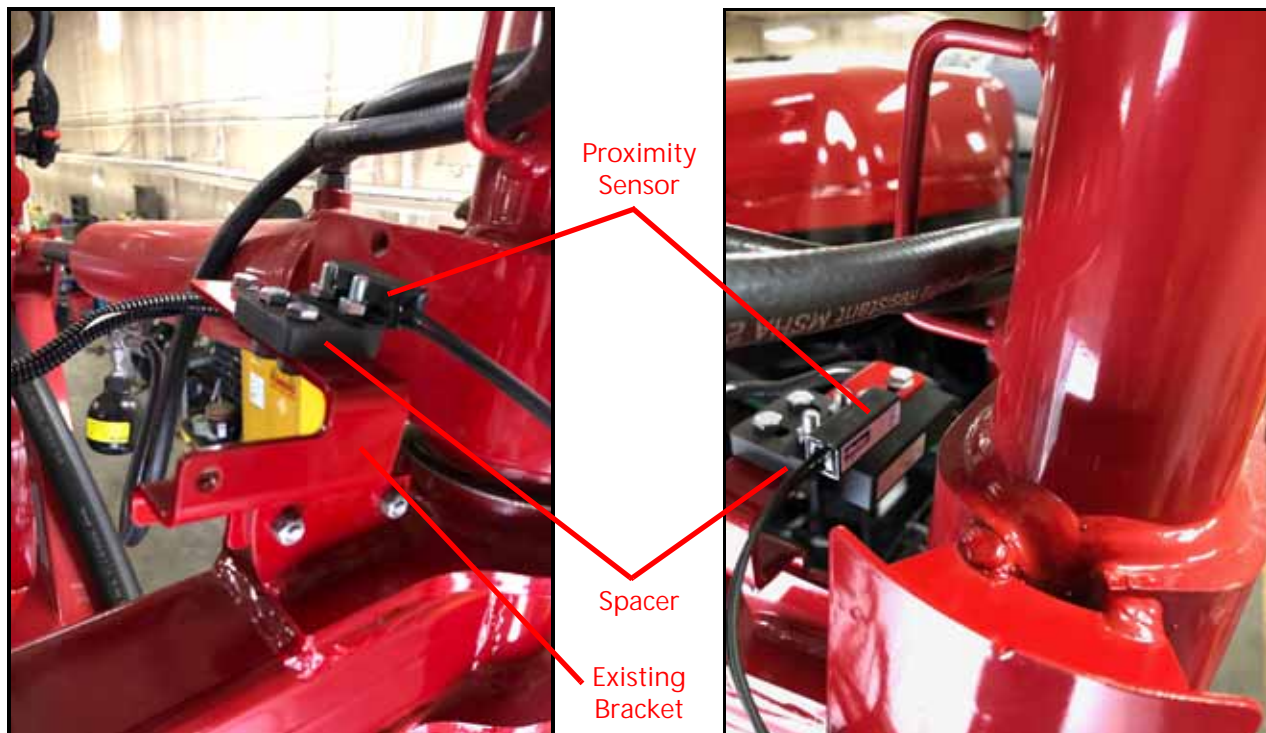
1. Install proximity sensors in the location shown in Figure 23 on page 40 (right side shown).

FIGURE 23. Proximity Sensor Mounting Location



2. Attach the proximity sensors to the existing bracket using a spacer and the M6 hardware provided (see Figure 24 on page 40).

FIGURE 24. Proximity Sensor Mounting



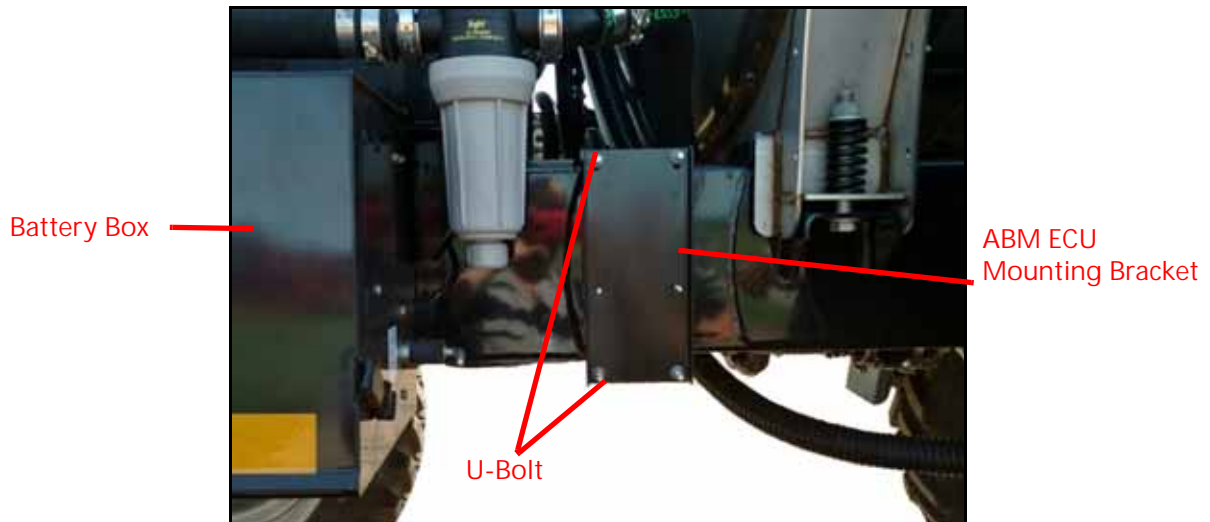
AUTOBOOM® ABM NODE INSTALLATION

PATRIOT

NOTE: The ABM ECU is already installed on machines with factory 132' and 135' aluminum booms. The ABM ECU can be located in front of the rear axle on the left side of the machine.

1. Locate the machine battery box.
2. Using the two provided angle brackets (P/N 107-0235-013) and 3/8" x 6-1/2" or 3/8" x 7-1/2" bolts, secure the AutoBoom node mounting bracket (P/N 107-0235-009) to the machines frame in front of the battery box.

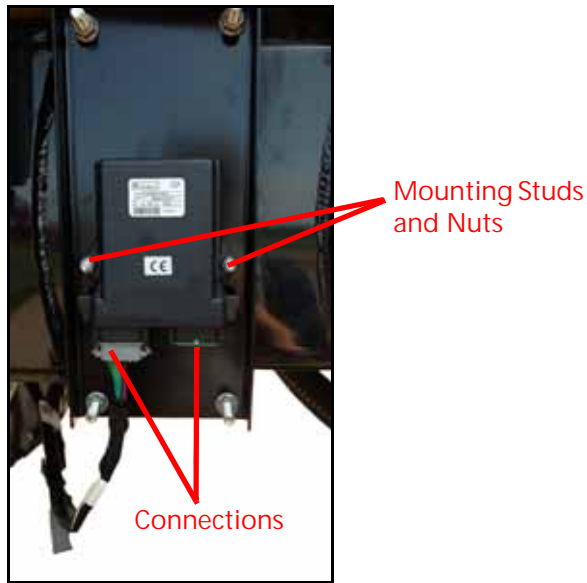
FIGURE 1. Installed AutoBoom XRT Node



3. Using the provided 1/4"-20 lock nuts, secure the AutoBoom node to the mounting studs on the AutoBoom mounting bracket.

NOTE: Position the node so the connections are facing down.

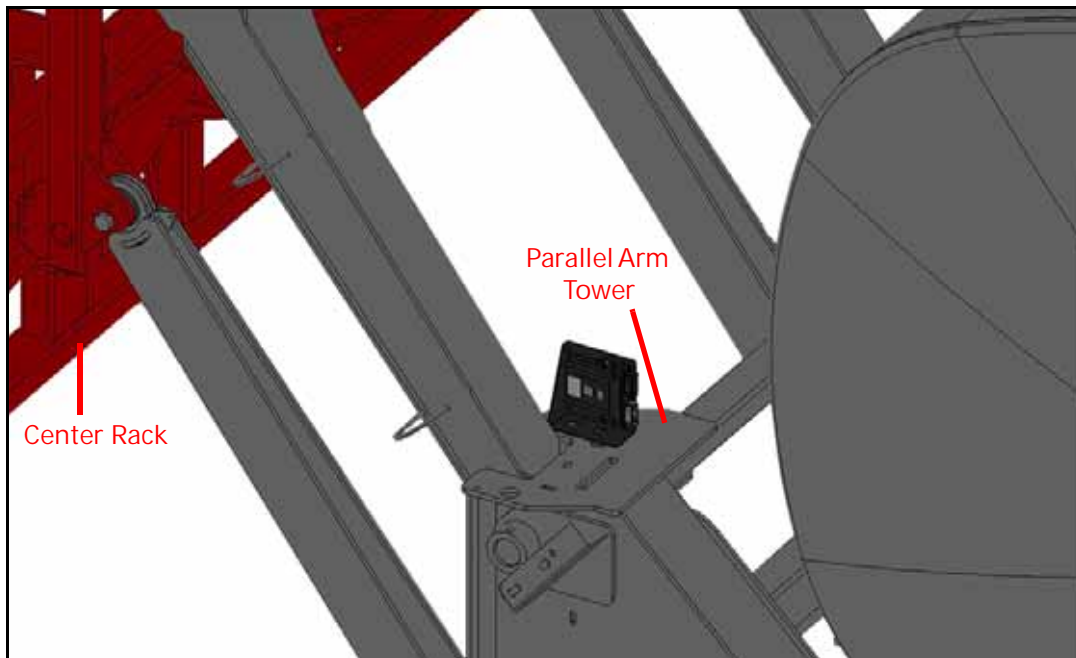
FIGURE 2. Installed AutoBoom Node



TRIDENT

1. Attach the ABM to the ABM mounting bracket (P/N 107-0235-033) using 1/4" - 2- nylon lock nuts. The connectors of the ABM should face away from the gusset.
2. Use the provided 7/16" x 1.75" bolts, washers, and nylon lock nuts to mount the ABM bracket to the sprayer chassis at the top of the parallel arm tower on the right hand side.

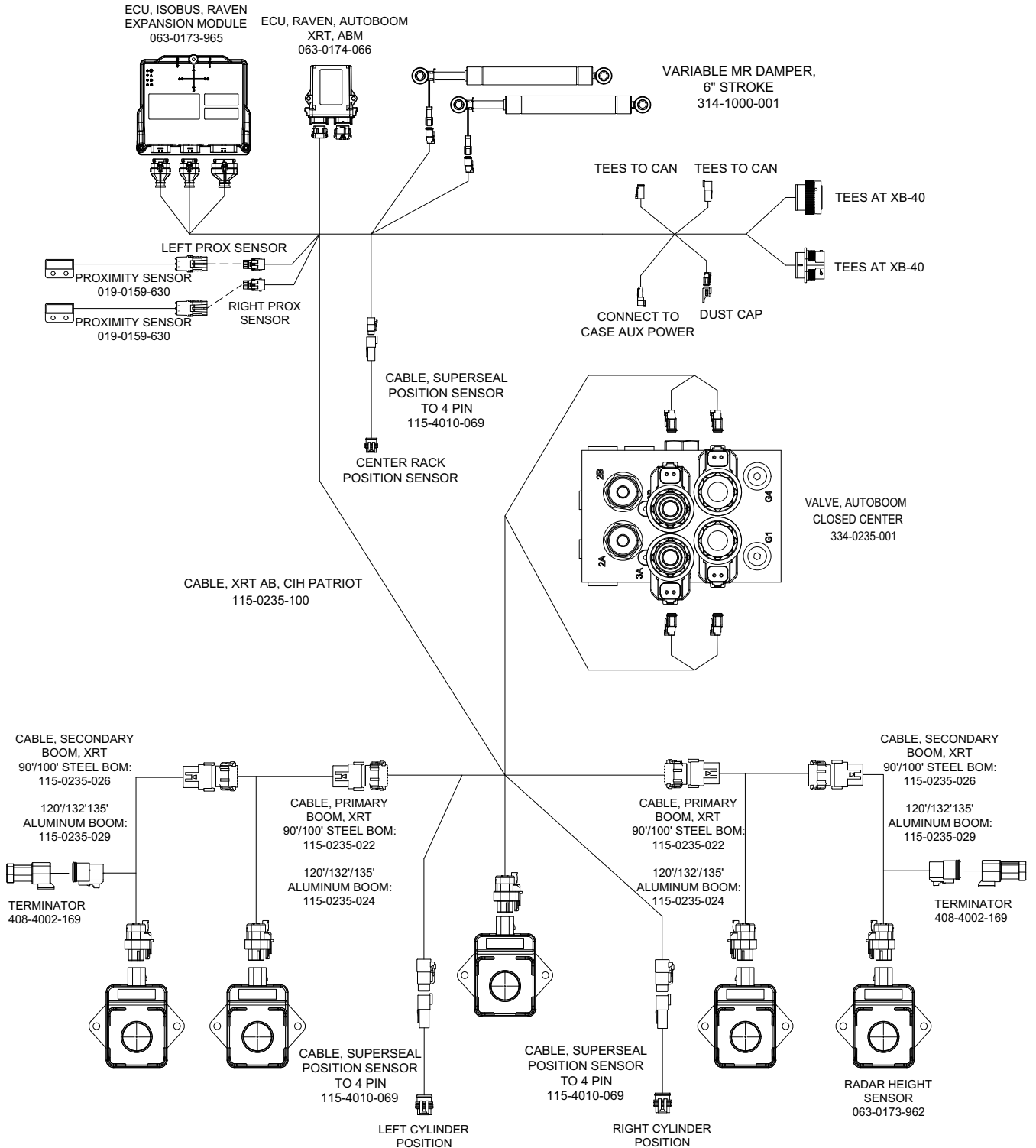
FIGURE 3. ABM Installation Location



CONNECT THE HARNESS TO THE POWER/CAN CONTROLS

90'-100' STEEL AND 120', 132', 135' ALUMINUM BOOMS

FIGURE 4. AutoBoom XRT, Patriot 3XX0/4XX0 90'/100' Steel and 120'/132'/135' Aluminum Cabling (P/N 054-0236-005)



NOTE: While making the following connections, be aware of the cable routing and avoid possible cable pinch points and other issues.

1. Plug gray 23 pin plug on the XRT cable (P/N 115-0235-100) to the mating connector on the bottom of the REM node.
2. Plug black 23 pin plug on the XRT cable to the mating connector on the bottom of the REM node.
3. Plug black 35 pin plug on the XRT cable to the mating connector on the bottom of the REM node.
4. Route the connector labeled ABM along the machine hoses and towards the ABM node.
5. Connect the connector labeled ABM to the AutoBoom node.
6. Use the provided 12-pin green DTM plug to protect the unused connector of the ABM node.

FIGURE 5. AutoBoom Cable Connected to Node



7. Connect the RIGHT CYLINDER POSITION plug to the 4-pin receptacle on the Superseal Position Sensor cable (P/N 115-0235-069).
8. Route and connect the other end of the cable (P/N 115-0235-069) to the previously installed tilt sensor.
9. Repeat step 7 through step 8 for the left cylinder position plug.
10. Connect the CENTER RACK ANGULAR POSITION plug to the 4-pin receptacle on the Superseal Position Sensor cable (P/N 115-4010-069).
11. Route and connect the other end of the cable (P/N 115-0235-069) to the previously installed center rotation sensor.
12. If dampers were installed, connect the plug labeled DAMPER 1 to the mating receptacle on the top damper.
13. If dampers were installed, connect the plug labeled DAMPER 2 to the mating receptacle on the bottom damper.
14. Connect the RIGHT SOLENOID plug on the XRT cable to port 4B on the AutoBoom XRT valve.
15. Connect the LEFT SOLENOID plug on the XRT cable to port 4A on the AutoBoom XRT valve.
16. Connect the LEFT PROP plug on the XRT cable to port 5A on the AutoBoom XRT valve.
17. Connect the RIGHT PROP plug on the XRT cable to port 13A on the AutoBoom XRT valve.
18. Locate the machine CAN connection near the top-left corner of the center rack.

FIGURE 6. CAN and PWR Connections



19. Connect the machine CAN connector to one side of the CAN tee on the XRT Cable.
20. Reconnect the machine harness (or CAN terminator) to the other end of the CAN tee.
21. Connect the machine AUX POWER connector to the LOGIC POWER connector on the AutoBoom harness.

NOTE: If the machine AUX POWER connector is connected to another harness, disconnect it and connect it to the AUX POWER connector of the AutoBoom Harness.

22. Locate the machine harness cable bulkhead on the center boom section, near the pressure transducers on the spray line.

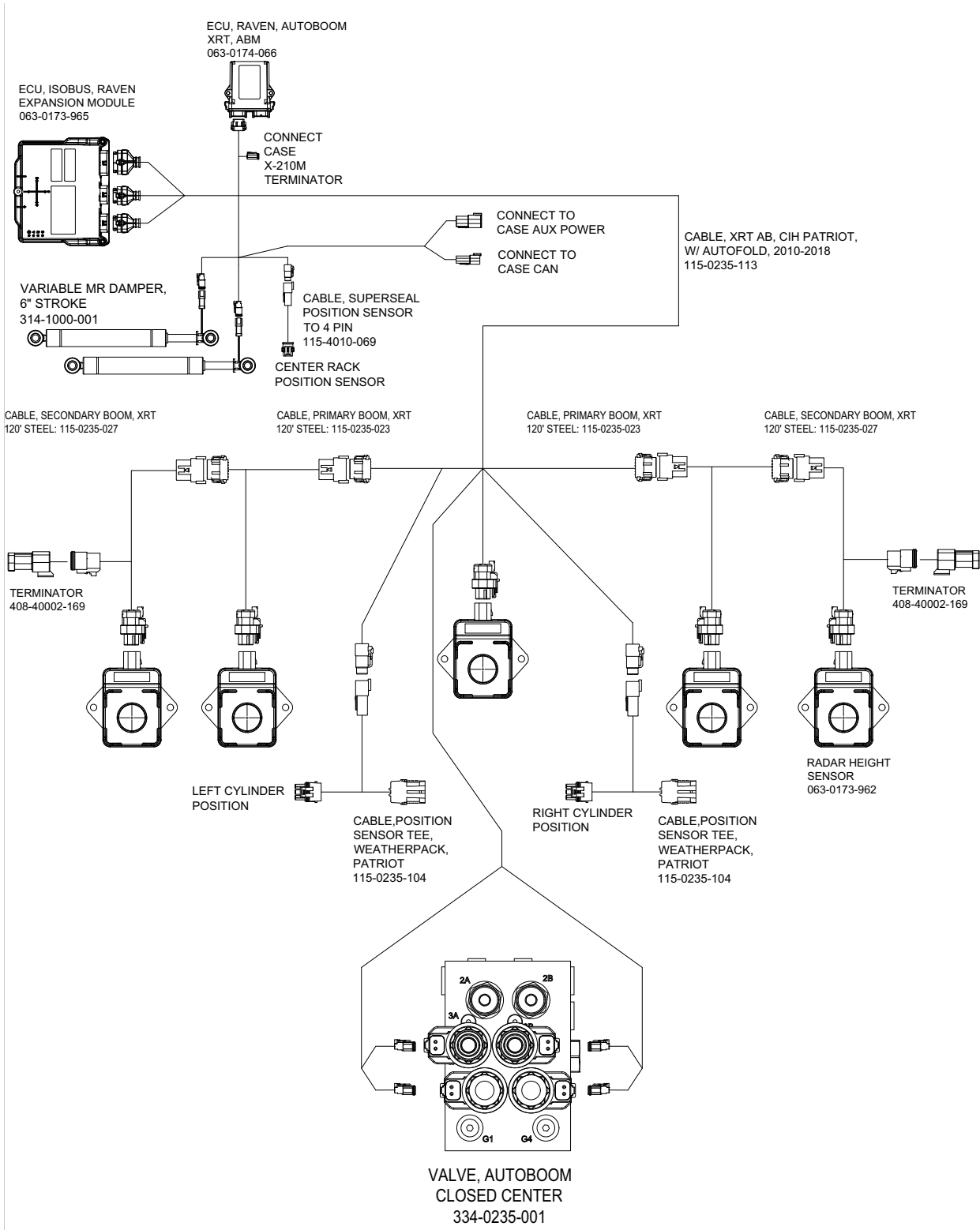
FIGURE 7. AutoBoom Harness Cable Installed



23. Disconnect the machine cable from the bulkhead connector.
24. Attach the appropriate ends of the AutoBoom harness cable to the machine cable and the bulkhead connector.
25. Attach the connectors labeled 'LT and RT PROX SW' to the Proximity switches installed in Chapter 4, *Sensor Installation*.

120' STEEL BOOM

FIGURE 8. AutoBoom XRT System Diagram for 120' Steel Booms (P/N 054-0236-001)



NOTE: While making the following connections, be aware of the cable routing and avoid possible cable pinch points and other issues.

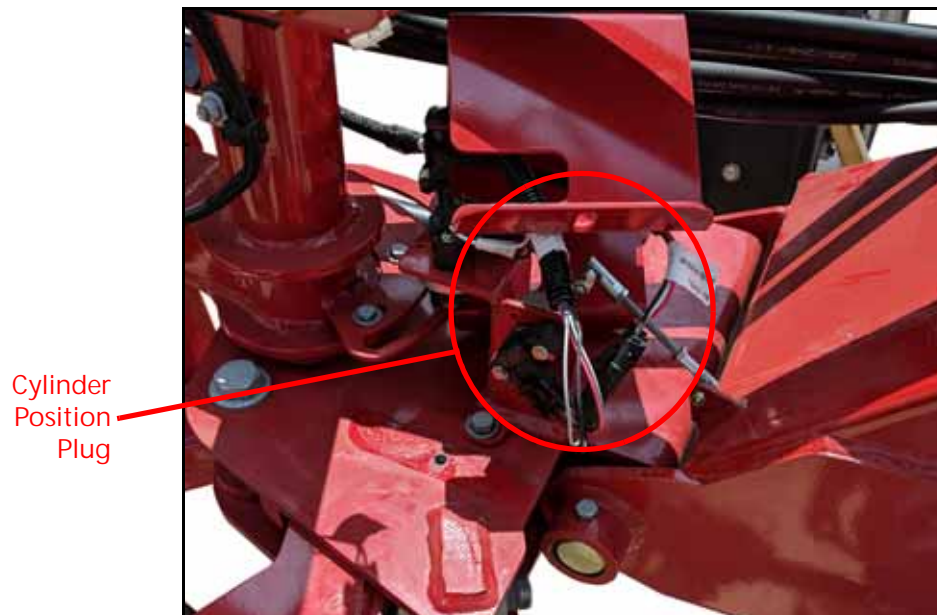
1. Plug gray 23 pin plug on the XRT cable (P/N 115-0235-113) to the mating connector on the bottom of the REM node.
2. Plug black 23 pin plug on the XRT cable to the mating connector on the bottom of the REM node.
3. Plug black 35 pin plug on the XRT cable to the mating connector on the bottom of the REM node.
4. Route the connector labeled ABM along the machine hoses and towards the ABM node.
5. Connect the connector labeled AMB to the AutoBoom node.
6. Use the provided 12-pin green DTM plug to protect the unused connector of the ABM node.

FIGURE 9. AutoBoom Cable Connected to Node



7. Connect the RIGHT CYLINDER POSITION plug to the 4-pin receptacle on the Patriot Sensor Tee cable (P/N 115-0235-104).

FIGURE 10. Machine Tilt Sensor



8. Route and connect the other end of the tee cable (P/N 115-0235-104) between the RH LEVEL POS SENSOR connection and OEM cabling located on the right side of the center rack.
9. Repeat step 7 though step 8 for the left cylinder position plug.

NOTE: The LEVEL POS SENSORS may need to be adjusted to be within the voltage range of 4.4 to 4.6 volts when booms are tilted all the way up. AutoFold will require recalibration once these sensors are adjusted.

10. Connect the CENTER RACK ANGULAR POSITION plug to the 4-pin receptacle on the Superseal Position Sensor cable (P/N 115-010-069).
11. Route and connect the other end of the cable (P/N 115-0235-069) to the previously installed center rotation sensor.
12. If dampers were installed, connect the plug labeled DAMPER 1 to the mating receptacle on the top damper.
13. If dampers were installed, connect the plug labeled DAMPER 2 to the mating receptacle on the bottom damper.
14. Remove the existing CAN Terminator and connect the ISO CAN/PWR receptacles to the mating AUX PWR and CAN plugs on the machine existing harness.

FIGURE 11. CAN and PWR Connections

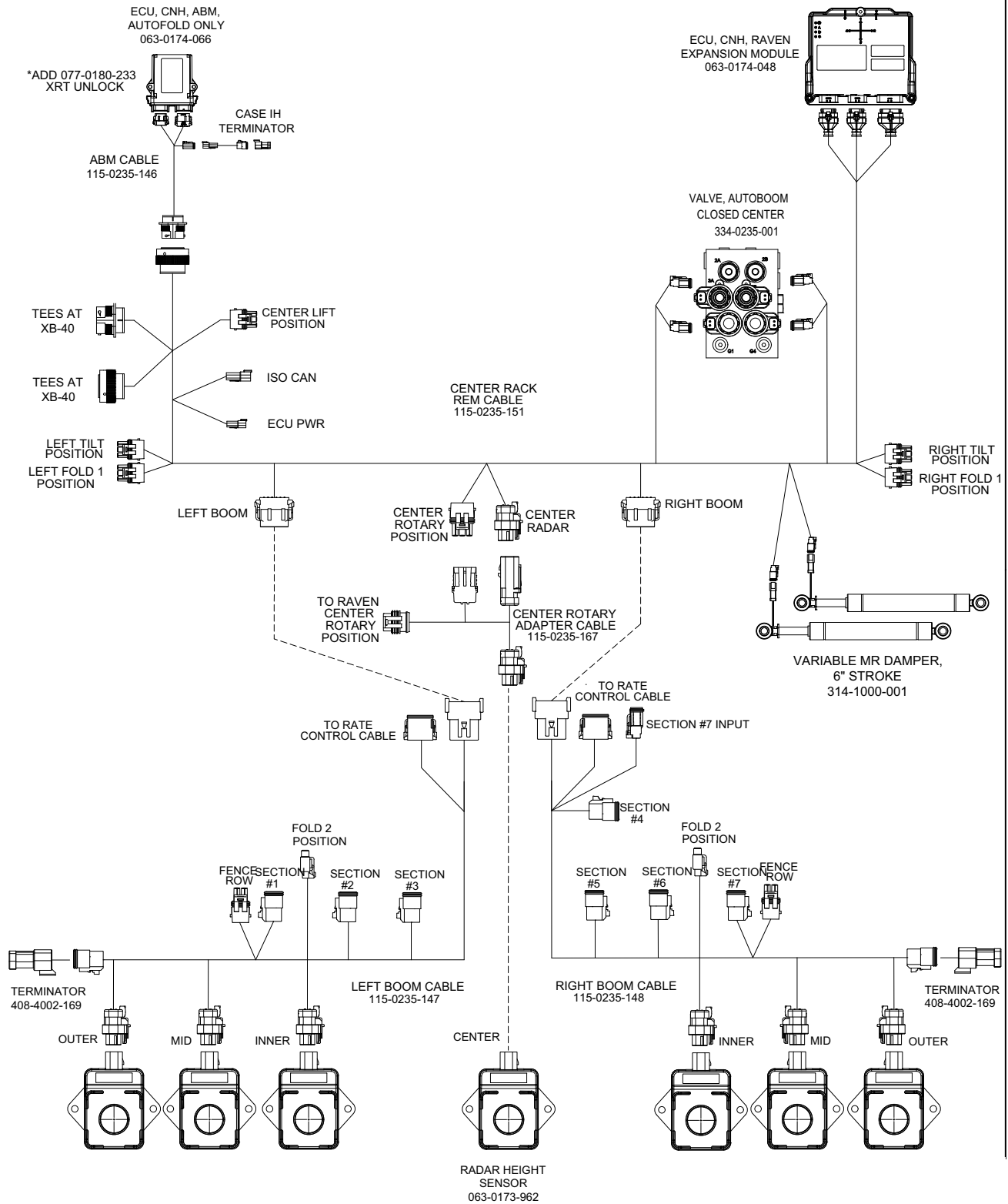


15. Reinstall the CAN terminator on the open connector next to the ABM node.
16. Connect the LEFT SOLENOID plug on the XRT cable to port 4A on the AutoBoom XRT valve.
17. Connect the LEFT PROP plug on the XRT cable to port 5A on the AutoBoom XRT valve.
18. Connect the RIGHT SOLENOID plug on the XRT cable to port 5B on the AutoBoom XRT valve.
19. Connect the RIGHT PROP plug on the XRT cable to port 13A on the AutoBoom XRT valve.

132' AND 135' ALUMINUM BOOM WITH FACTORY INSTALLED AUTOFOLD OPTION

NOTE: The following steps will apply to machines with both the AutoFold option and 132'/135' aluminum booms installed from the factory. If the machine does not come from the factory with the AutoFold option, please refer to the *90'-100' Steel and 120', 132', 135' Aluminum Booms* section on page 43.

FIGURE 12. AutoBoom XRT, Patriot 132'/135' Aluminum Cabling (P/N 054-0236-005)



1. Remove the dust caps from the factory AutoFold harness on the center rack.
2. Connect the LEFT SOLENOID (PORT 4A) plug on the cable to port 4A on the AutoBoom XRT valve.
3. Connect the LEFT PROP (PORT 5A) plug on the cable to port 5A on the AutoBoom XRT valve.

4. Connect the RIGHT SOLENOID (PORT 4B) plug on the cable to port 5B on the AutoBoom XRT valve.
5. Connect the RIGHT PROP (PORT 13A) plug on the cable to port 13A on the AutoBoom XRT valve.
6. If dampers are installed, connect the plug labeled DAMPER 1 to the mating receptacle on the top damper.
7. If dampers are installed, connect the plug labeled DAMPER 2 to the mating receptacle on the bottom damper.
8. Remove dust caps from the height sensor connectors on the factory AutoFold cable.
9. Connect the INNER, MID, and OUTER height sensor connectors to the appropriate height sensors installed on the boom.
10. Locate the provided center rack rotation sensor adapter cable (P/N 115-0235-167).
11. Connect one end to the height sensor installed on the center rack.
12. Connect the mating end to the "CTR RADAR" connector on the factory AutoFold center rack cable.
13. Route the center rack rotation sensor adapter cable to the center rack rotation sensor.
14. Connect one end to the installed rotation sensor.
15. Connect the other end to the "CENTER ROTARY SENSOR" connector on the factory AutoFold center rack cable.

A

AUTOBOOM® XRT KITS

The following kits are included in this appendix:

TABLE 1. AutoBoom XRT Kits

Kit Description	Kit Number-
Kit, Hydraulic, AutoBoom, Case IH, 3320/4420	117-0134-075
Kit, AutoBoom XRT, Case IH Patriot, 3XX0/44X0, MY 17-21, 120' Steel Boom	117-0236-001
Kit, AutoBoom XRT, Case IH Patriot, 3XX0/44X0, MY 17-21, 120' Steel Boom No Hydraulics	117-0236-002
Kit, AutoBoom XRT, Case IH Trident, 5550, MY 17-21, 120' Steel Boom	117-0236-003
Kit, AutoBoom XRT, Case IH Trident, 5550, MY 17-21, 120' Steel Boom No Hydraulics	117-0236-004
Kit, AutoBoom XRT, Case IH Patriot, 3XX0/44X0, MY 17-18, 90' - 100' Steel Boom	117-0236-005
Kit, AutoBoom XRT, Case IH Patriot, 3XX0/44X0, MY 17-21, 90' - 100' Steel Boom No Hydraulic	117-0236-006
Kit, AutoBoom XRT, Case IH Trident, 5550, MY 17-18, 90' - 100' Steel Boom	117-0236-007
Kit, AutoBoom XRT, Case IH Trident, 5550, MY 17-18, 90' - 100' Steel Boom No Hydraulics	117-0236-008
Kit, AutoBoom XRT, Boom Case IH Patriot 120', 132', 135' Aluminum Boom	117-0236-009
Kit, AutoBoom XRT, Boom, Case IH 120' Steel Boom	117-0236-021
Kit, AutoBoom XRT, Damper, Case IH, Patriot	117-0236-023
Kit, AutoBoom XRT, Boom, Case IH, 90'/100'	117-0236-024
Kit, AutoBoom XRT, Patriot 132'/135' Aluminum Cabling Factory AutoFold Cabling with Aftermarket Upgrade to AutoBoom	117-0236-044

FIGURE 1. Case IH 3xx0/44x0 AutoBoom Hydraulic Kit (P/N 117-0134-075 Rev. B)

THIS KIT TO CONTAIN THE FOLLOWING ITEMS LISTED BELOW:						
PART #	QTY	DESCRIPTION			ITEM #	
333-0012-028	2	FTG., SWIVEL RUN TEE, -8 ORFS M/M/F			1	
333-0012-065	2	FTG., ELBOW, 90° SWIVEL, -6 ORFS M/F			2	
333-0012-069	4	FTG., SWIVEL RUN TEE, -6 ORFS M/M/F			3	
333-0012-084	2	FTG., ADAPTER, STR., -6 ORFS (M) TO -6 SAE O-RING (M)			4	
333-0012-165	2	FTG., ELBOW, 90°, -6 ORFS (M) TO -8 SAE O-RING (M)			5	
333-0012-168	2	FTG., ADAPTER, STR., -8 ORFS (M) TO -8 SAE O-RING (M)			6	
333-0012-194	2	FTG., PLUG, -6, O-RING, 11/16" HEX			7	
214-1000-311	2	END 1	HOSE	OVERALL LENGTH	END 2	8
		8FF	8	36	8FF90S	
214-1000-494	4	6FF90S	6	44	6FF	9

FIGURE 2. Case IH Patriot 3xx0/44x0 (MY 17-21, 120' Steel Boom) AutoBoom XRT Kit (P/N 117-0236-001 Rev. B1)

THIS KIT TO CONTAIN THE FOLLOWING ITEMS LISTED BELOW:						
	ITEM #	QTY	PART #	DESCRIPTION	OEM P/N	
(B)	1	1	053-0159-197	BOX, SHIPPING (LABELED BOX 1 OF 3)	N/A	
	2	1	334-0235-001	VALVE, HYDRAULIC, CLOSED CENTER, AUTOBOOM XRT	N/A	
	3	2	107-0235-013	BRACKET, ANGLE, ABM NODE MOUNT	N/A	
	4	1	107-0172-435	STRAP, ROTARY SENSOR **REMOVED**	N/A	
	5	1	107-0235-009	BRACKET, ABM NODE, CNH	N/A	
	6	1	107-0235-011	PLATE, MOUNTING, HYD VALVE AND REM, CIH	N/A	
	7	2	115-0235-104	CABLE, POSITION SENSOR TEE, WEATHERPACK, PATRIOT	N/A	
	8	1	115-4010-069	CABLE, SUPERSEAL POSITION SENSOR TO 4 PIN	N/A	
	9	1	063-0235-001	ASSEMBLY, ROTARY SENSOR, AUTOBOOM XRT, CENTER RACK	N/A	
	10	1	117-0134-075	KIT, HYDRAULIC, AUTOBOOM, CASE IH 3320/4420	N/A	
	11	1	053-0159-015	ENVELOPE, PLASTIC	N/A	
	12	2	107-0171-608	U-BOLT 3 1/16"WX4"LX3/8"THD	N/A	
	13	3	107-0171-616	U-BOLT 2 9/16"WX3 1/2"LX3/8"TH	N/A	
	14	1	107-0172-434	ROD, THREADED, M6	N/A	
	15	1	311-0050-236	BOLT MACHINE HEX HEAD 1/4-20 X 2-1/2 LONG, STAINLESS S	N/A	
	16	2	311-0050-238	BOLT MACHINE HEX HEAD 1/4-20 X 3 LONG, STAINLESS STEEL	N/A	
	17	4	311-0052-104	BOLT, 5/16-18 X 7/8" GRADE 8	N/A	
	18	4	311-0054-099	BOLT, 3/8-16 X 7-1/2L	N/A	
	19	14	312-4000-252	NUT, FLANGE, LOCK, 3/8	N/A	
	20	5	312-4000-164	NUT, 1/4-20 NYLON LOCKING, SS	N/A	
	21	4	313-1000-019	WASHER, LOCK, 5/16", ZINC PLATED	N/A	
	22	4	313-2300-014	WASHER, FLAT, 3/8, NARROW	N/A	
	23	5	313-2301-810	WASHER, FLAT, 1/4, NARROW	N/A	
	24					
	25	1	053-0159-057	ENVELOPE, PLASTIC	N/A	
	26	2	312-6000-017K	NUT, HEX, M6	N/A	
	27	2	312-6001-017K	NUT, LOCK, NYLON INSERT, M6	N/A	
	28	2	325-0000-031	BEARING, ROD END	N/A	
(B)	29	1	053-0159-079	BOX, SHIPPING (LABELED BOX 2 OF 3)	N/A	
	30	1	016-0171-649	SHEET, WARRANTY/HELP (016-0236-001)	N/A	
	31	1	063-0173-965	ECU, ISOBUS, REM, RAVEN	N/A	
	32	1	063-0174-066	ECU, RAVEN, AUTOBOOM XRT, ABM, WITH AUTOBOOM UNLC	N/A	
	33	1	115-0235-113	CABLE, XRT AB, CIH PATRIOT, W/ AUTOFOLD, 2010-2018	N/A	
	34	1	117-0236-021	KIT, XRT, BOOM, PATRIOT 120' (LABELED BOX 3 OF 3)	N/A	

FIGURE 3. Case IH Patriot 3xx0/44x0 (MY 17-21, 120' Steel Boom, No Hydraulics) AutoBoom XRT Kit (P/N 117-0236-002 Rev. B1)

THIS KIT TO CONTAIN THE FOLLOWING ITEMS LISTED BELOW:					
	ITEM #	QTY	PART #	DESCRIPTION	OEM P/N
	1	1	053-0159-197	BOX, SHIPPING (LABELED BOX 1 OF 3)	N/A
	2	2	107-0235-013	BRACKET, ANGLE, ABM NODE MOUNT	N/A
	3	1	107-0172-435	STRAP, ROTARY SENSOR	N/A
(B)				**REMOVED**	
	4	1	107-0235-009	BRACKET, ABM NODE, CNH	N/A
	5	1	107-0235-011	PLATE, MOUNTING, HYD VALVE AND REM, CIH	N/A
	6	2	115-0235-104	CABLE, POSITION SENSOR TEE, WEATHERPACK, PATRIOT	N/A
	7	1	115-4010-069	CABLE, SUPERSEAL POSITION SENSOR TO 4 PIN	N/A
(B)	8	1	063-0235-001	ASSEMBLY, ROTARY SENSOR, AUTOBOOM XRT, CENTER RACK	N/A
	9	1	053-0159-015	ENVELOPE, PLASTIC	N/A
	10	2	107-0171-608	U-BOLT 3 1/16"WX4"LX3/8"THD	N/A
	11	3	107-0171-616	U-BOLT 2 9/16"WX3 1/2"LX3/8"TH	N/A
	12	1	107-0172-434	ROD, THREADED, M6	N/A
	13	1	311-0050-236	BOLT MACHINE HEX HEAD 1/4-20 X 2-1/2 LONG, STAINLESS S	N/A
	14	2	311-0050-238	BOLT MACHINE HEX HEAD 1/4-20 X 3 LONG, STAINLESS STEEL	N/A
	15	4	311-0052-104	BOLT, 5/16-18 X 7/8" GRADE 8	N/A
	16	4	311-0054-099	BOLT, 3/8-16 X 7-1/2L	N/A
	17	14	312-4000-252	NUT, FLANGE, LOCK, 3/8	N/A
	18	5	312-4000-164	NUT, 1/4-20 NYLON LOCKING, SS	N/A
	19	4	313-1000-019	WASHER, LOCK, 5/16", ZINC PLATED	N/A
	20	4	313-2300-014	WASHER, FLAT, 3/8, NARROW	N/A
	21	5	313-2301-810	WASHER, FLAT, 1/4, NARROW	N/A
(B)	22	1	053-0159-057	ENVELOPE, PLASTIC	N/A
(B)	23	2	312-6000-017K	NUT, HEX, M6	N/A
(B)	24	2	312-6001-017K	NUT, LOCK, NYLON INSERT, M6	N/A
(B)	25	2	325-0000-031	BEARING, ROD END	N/A
	26	1	053-0159-079	BOX, SHIPPING (LABELED BOX 2 OF 3)	N/A
	27	1	016-0171-649	SHEET, WARRANTY/HELP (016-0236-001)	N/A
	28	1	063-0173-965	ECU, ISOBUS, REM, RAVEN	N/A
(B)	29	1	063-0174-066	ECU, RAVEN, AUTOBOOM XRT, ABM, WITH AUTOBOOM UNLOCK	N/A
	30	1	115-0235-113	CABLE, XRT AB, CIH PATRIOT, W/ AUTOFOLD, 2010-2018	N/A
	31	1	117-0236-021	KIT, XRT, BOOM, PATRIOT 120' (LABELED BOX 3 OF 3)	N/A

FIGURE 4. Case IH Trident 5550 (MY 17-21, 120' Steel Boom) AutoBoom XRT Kit (P/N 117-0236-003 Rev. B1)

THIS KIT TO CONTAIN THE FOLLOWING ITEMS LISTED BELOW:					
	ITEM #	QTY	PART #	DESCRIPTION	OEM P/N
	1	1	053-0159-197	BOX, SHIPPING (LABELED BOX 1 OF 3)	N/A
	2	1	334-0235-001	VALVE, HYDRAULIC, CLOSED CENTER, AUTOBOOM XRT	N/A
	3	1	117-0134-075	KIT, HYDRAULIC, AUTOBOOM, CASE IH 3320/4420	N/A
	4	1	107-0172-435	STRAP, ROTARY SENSOR	N/A
(B)				**REMOVED**	
	5	1	107-0235-033	BRACKET, ABM NODE, TRIDENT	N/A
	6	1	107-0235-011	PLATE, MOUNTING, HYD VALVE AND REM, CIH	N/A
	7	2	115-0235-104	CABLE, POSITION SENSOR TEE, WEATHERPACK, PATRIOT	N/A
	8	1	115-4010-069	CABLE, SUPERSEAL POSITION SENSOR TO 4 PIN	N/A
(B)	9	1	063-0235-001	ASSEMBLY, ROTARY SENSOR, AUTOBOOM XRT, CENTER RACK	N/A
	10	1	053-0159-015	ENVELOPE, PLASTIC	N/A
	11	2	311-0056-167	BOLT, 7/16-14 X 1.75 LG	N/A
	12	2	107-0171-608	U-BOLT 3 1/16"WX4"LX3/8"THD	N/A
	13	3	107-0171-616	U-BOLT 2 9/16"WX3 1/2"LX3/8"TH	N/A
	14	1	107-0172-434	ROD, THREADED, M6	N/A
	15	1	311-0050-236	BOLT MACHINE HEX HEAD 1/4-20 X 2-1/2 LONG, STAINLESS S	N/A
	16	2	311-0050-238	BOLT MACHINE HEX HEAD 1/4-20 X 3 LONG, STAINLESS STEEL	N/A
	17	4	311-0052-104	BOLT, 5/16-18 X 7/8" GRADE 8	N/A
	18	2	312-4000-063	NUT, NYLON LOCK, 7/16	N/A
	19	10	312-4000-252	NUT, FLANGE, LOCK, 3/8	N/A
	20	5	312-4000-164	NUT, 1/4-20 NYLON LOCKING, SS	N/A
	21	4	313-1000-019	WASHER, LOCK, 5/16", ZINC PLATED	N/A
	22	2	313-2300-316	WASHER, FLAT, 7/16 NARROW	N/A
	23	5	313-2301-810	WASHER, FLAT, 1/4, NARROW	N/A
(B)	24	1	053-0159-057	ENVELOPE, PLASTIC	N/A
(B)	25	2	312-6000-017K	NUT, HEX, M6	N/A
(B)	26	2	312-6001-017K	NUT, LOCK, NYLON INSERT, M6	N/A
(B)	27	2	325-0000-031	BEARING, ROD END	N/A
	28	1	053-0159-079	BOX, SHIPPING (LABELED BOX 2 OF 3)	N/A
	29	1	016-0171-649	SHEET, WARRANTY/HELP (016-0236-001)	N/A
	30	1	063-0173-965	ECU, ISOBUS, REM, RAVEN	N/A
(B)	31	1	063-0174-066	ECU, RAVEN, AUTOBOOM XRT, ABM, WITH AUTOBOOM UNLC	N/A
	32	1	115-0235-113	CABLE, XRT AB, CIH PATRIOT, W/ AUTOFOLD, 2010-2018	N/A
	33	1	117-0236-021	KIT, XRT, BOOM, PATRIOT 120' (LABELED BOX 3 OF 3)	N/A

FIGURE 5. Case IH Trident 5550 (MY 17-21, 120' Steel Boom, No Hydraulics) AutoBoom XRT Kit (P/N 117-0236-004 Rev. B1)

THIS KIT TO CONTAIN THE FOLLOWING ITEMS LISTED BELOW:					
	ITEM #	QTY	PART #	DESCRIPTION	OEM P/N
	1	1	053-0159-197	BOX, SHIPPING (LABELED BOX 1 OF 3)	N/A
	2	1	115-4010-069	CABLE, SUPERSEAL POSITION SENSOR TO 4 PIN	N/A
(B)	3	1	063-0235-001	ASSEMBLY, ROTARY SENSOR, AUTOBOOM XRT, CENTER RACK	N/A
	4	1	107-0172-435	STRAP, ROTARY SENSOR	N/A
(B)				**REMOVED**	
	5	1	107-0235-033	BRACKET, ABM NODE, TRIDENT	N/A
	6	1	107-0235-011	PLATE, MOUNTING, HYD VALVE AND REM, CIH	N/A
	7	2	115-0235-104	CABLE, POSITION SENSOR TEE, WEATHERPACK, PATRIOT	N/A
	8	1	053-0159-015	ENVELOPE, PLASTIC	N/A
	9	2	311-0056-167	BOLT, 7/16-14 X 1.75 LG	N/A
	10	2	107-0171-608	U-BOLT 3 1/16"WX4"LX3/8"THD	N/A
	11	3	107-0171-616	U-BOLT 2 9/16"WX3 1/2"LX3/8"TH	N/A
	12	1	107-0172-434	ROD, THREADED, M6	N/A
	13	1	311-0050-236	BOLT MACHINE HEX HEAD 1/4-20 X 2-1/2 LONG, STAINLESS S	N/A
	14	2	311-0050-238	BOLT MACHINE HEX HEAD 1/4-20 X 3 LONG, STAINLESS STEEL	N/A
	15	4	311-0052-104	BOLT, 5/16-18 X 7/8" GRADE 8	N/A
	16	2	312-4000-063	NUT, NYLON LOCK, 7/16	N/A
	17	10	312-4000-252	NUT, FLANGE, LOCK, 3/8	N/A
	18	5	312-4000-164	NUT, 1/4-20 NYLON LOCKING, SS	N/A
	19	4	313-1000-019	WASHER, LOCK, 5/16", ZINC PLATED	N/A
	20	2	313-2300-316	WASHER, FLAT, 7/16 NARROW	N/A
	21	5	313-2301-810	WASHER, FLAT, 1/4, NARROW	N/A
(B)	22	1	053-0159-057	ENVELOPE, PLASTIC	N/A
(B)	23	2	312-6000-017K	NUT, HEX, M6	N/A
(B)	24	2	312-6001-017K	NUT, LOCK, NYLON INSERT, M6	N/A
(B)	25	2	325-0000-031	BEARING, ROD END	N/A
	26	1	053-0159-079	BOX, SHIPPING (LABELED BOX 2 OF 3)	N/A
	27	1	016-0171-649	SHEET, WARRANTY/HELP (016-0236-001)	N/A
	28	1	063-0173-965	ECU, ISOBUS, REM, RAVEN	N/A
(B)	29	1	063-0174-066	ECU, RAVEN, AUTOBOOM XRT, ABM, WITH AUTOBOOM UNLC	N/A
	30	1	115-0235-113	CABLE, XRT AB, CIH PATRIOT, W/ AUTOFOLD, 2010-2018	N/A
	31	1	117-0236-021	KIT, XRT, BOOM, PATRIOT 120' (LABELED BOX 3 OF 3)	N/A

FIGURE 6. Case IH Patriot 3xx0/44x0 (MY 17-21, 90/100' Steel Boom) AutoBoom XRT Kit Sheet 1 of 2 (P/N 117-0236-005 Rev. C1)

THIS KIT TO CONTAIN THE FOLLOWING ITEMS LISTED BELOW:					
	ITEM #	QTY	PART #	DESCRIPTION	OEM P/N
	1	1	053-0159-197	BOX, SHIPPING (LABELED BOX 1 OF 3)	N/A
	2	1	334-0235-001	VALVE, HYDRAULIC, CLOSED CENTER, AUTOBOOM XRT	N/A
	3	2	107-0235-013	BRACKET, ANGLE, ABM NODE MOUNT	N/A
	4	1	107-0172-435	STRAP, ROTARY SENSOR	N/A
(C)	5	1	063-0235-002	ASSEMBLY, ROTARY SENSOR, AUTOBOOM XRT, CENTER RACK	N/A
	6	1	107-0235-009	BRACKET, ABM NODE, CNH	N/A
	7	1	107-0235-011	PLATE, MOUNTING, HYD VALVE AND REM, CIH	N/A
	8	2	107-0235-031	BRACKET, ROD END, CIH 90/100' BOOM	N/A
(C)	9	3	115-4010-069	CABLE, SUPERSEAL POSITION SENSOR TO 4 PIN	N/A
	10	1	063-0235-003	ASSEMBLY, ROTARY SENSOR, AUTOBOOM XRT, RIGHT TILT, C	N/A
(C)	11	1	117-0134-075	KIT, HYDRAULIC, AUTOBOOM, CASE IH 3320/4420	N/A
(C)	12	1	063-0235-004	ASSEMBLY, ROTARY SENSOR, AUTOBOOM XRT, LEFT TILT, CAS	N/A
	13	1	053-0159-015	ENVELOPE, PLASTIC	N/A
	14	2	107-0171-608	U-BOLT 3 1/16"W X 4"L X 3/8"THD	N/A
	15	4	107-0171-609	U-BOLT 2 1/16"W X 3"L X 3/8"THD	N/A
	16	3	107-0171-616	U-BOLT 2 9/16"W X 3 1/2"L X 3/8"TH	N/A
(C)	17	2	107-0172-434	ROD, THREADED, M6	N/A
	18	1	311-0050-236	BOLT MACHINE HEX HEAD 1/4-20 X 2-1/2 LONG, STAINLESS S	N/A
	19	2	311-0050-238	BOLT MACHINE HEX HEAD 1/4-20 X 3 LONG, STAINLESS STEE	N/A
	20	4	311-0052-104	BOLT, 5/16-18 X 7/8" GRADE 8	N/A
	21	4	311-0054-099	BOLT, 3/8-16 X 7-1/2L	N/A
	22	2	312-1002-044	NUT, JAM, 1-14 UNS	N/A
	23	22	312-4000-252	NUT, FLANGE, LOCK, 3/8	N/A
	24	5	312-4000-164	NUT, 1/4-20 NYLON LOCKING, SS	N/A
	25	4	313-1000-019	WASHER, LOCK, 5/16", ZINC PLATED	N/A
	26	4	313-2300-014	WASHER, FLAT, 3/8, NARROW	N/A
	27	5	313-2301-810	WASHER, FLAT, 1/4, NARROW	N/A
(C)	28	1	107-0172-205	ROD, THREADED, 110MM, M6 THREADS	N/A
(C)	29	1	053-0159-057	ENVELOPE, PLASTIC	N/A
(C)	30	6	312-6000-017K	NUT, HEX, M6	N/A
(C)	31	6	312-6001-017K	NUT, LOCK, NYLON INSERT, M6	N/A
(C)	32	6	325-0000-031	BEARING, ROD END	N/A

FIGURE 7. Case IH Patriot 3xx0/44x0 (MY 17-21, 90/100' Steel Boom) AutoBoom XRT Kit Sheet 2 of 2 (P/N 117-0236-005 Rev. C1)

THIS KIT TO CONTAIN THE FOLLOWING ITEMS LISTED BELOW:					
	ITEM #	QTY	PART #	DESCRIPTION	OEM P/N
	33	1	053-0159-079	BOX, SHIPPING (LABELED BOX 2 OF 3)	N/A
	34	1	063-0173-965	ECU, ISOBUS, REM, RAVEN	N/A
(C)	35	1	063-0174-066	ECU, RAVEN, AUTOBOOM XRT, ABM, WITH AUTOBOOM UNLOC	N/A
	36	1	115-0235-100	CABLE, XRT AB, CIH PATRIOT, 2010-2018	N/A
	37	1	016-0171-649	SHEET, WARRANTY/HELP (016-0236-001)	N/A
	38	1	117-0236-024	KIT, XRT, BOOM, PATRIOT 90/100' (LABELED BOX 3 OF 3)	N/A

FIGURE 8. Case IH Patriot 3xx0/44x0 (MY 17-21, 90/100' Steel Boom, No Hydraulics) AutoBoom XRT Kit Sheet 1 of 2 (P/N 117-0236-006 Rev. C1)

THIS KIT TO CONTAIN THE FOLLOWING ITEMS LISTED BELOW:					
	ITEM #	QTY	PART #	DESCRIPTION	OEM P/N
	1	1	053-0159-197	BOX, SHIPPING (LABELED BOX 1 OF 3)	N/A
	2	2	107-0235-031	BRACKET, ROD END, CIH 90/100' BOOM	N/A
	3	2	107-0235-013	BRACKET, ANGLE, ABM NODE MOUNT	N/A
	4	1	107-0172-435	STRAP, ROTARY SENSOR	N/A
(C)	5	1	063-0235-002	ASSEMBLY, ROTARY SENSOR, AUTOBOOM XRT, CENTER RACK	N/A
	6	1	107-0235-009	BRACKET, ABM NODE, CNH	N/A
	7	1	107-0235-011	PLATE, MOUNTING, HYD VALVE AND REM, CIH	N/A
(C)	8	1	063-0235-003	ASSEMBLY, ROTARY SENSOR, AUTOBOOM XRT, RIGHT TILT, C	N/A
	9	3	115-4010-069	CABLE, SUPERSEAL POSITION SENSOR TO 4 PIN	N/A
(C)	10	1	063-0235-004	ASSEMBLY, ROTARY SENSOR, AUTOBOOM XRT, LEFT TILT, CAS	N/A
	11	1	053-0159-015	ENVELOPE, PLASTIC	N/A
	12	2	107-0171-608	U-BOLT 3 1/16"W X 4"L X 3/8"THD	N/A
	13	4	107-0171-609	U-BOLT 2 1/16"W X 3"L X 3/8"THD	N/A
	14	3	107-0171-616	U-BOLT 2 9/16"W X 3 1/2"L X 3/8"TH	N/A
(C)	15	2	107-0172-434	ROD, THREADED, M6	N/A
	16	1	311-0050-236	BOLT MACHINE HEX HEAD 1/4-20 X 2-1/2 LONG, STAINLESS S	N/A
	17	2	311-0050-238	BOLT MACHINE HEX HEAD 1/4-20 X 3 LONG, STAINLESS STEE	N/A
	18	4	311-0052-104	BOLT, 5/16-18 X 7/8" GRADE 8	N/A
	19	4	311-0054-099	BOLT, 3/8-16 X 7-1/2L	N/A
	20	2	312-1002-044	NUT, JAM, 1-14 UNS	N/A
	21	22	312-4000-252	NUT, FLANGE, LOCK, 3/8	N/A
	22	5	312-4000-164	NUT, 1/4-20 NYLON LOCKING, SS	N/A
	23	4	313-1000-019	WASHER, LOCK, 5/16", ZINC PLATED	N/A
	24	4	313-2300-014	WASHER, FLAT, 3/8, NARROW	N/A
	25	5	313-2301-810	WASHER, FLAT, 1/4, NARROW	N/A
(C)	26	1	107-0172-205	ROD, THREADED, 110MM, M6 THREADS	N/A
(C)	27	1	053-0159-057	ENVELOPE, PLASTIC	N/A
(C)	28	6	312-6000-017K	NUT, HEX, M6	N/A
(C)	29	6	312-6001-017K	NUT, LOCK, NYLON INSERT, M6	N/A
(C)	30	6	325-0000-031	BEARING, ROD END	N/A

FIGURE 9. Case IH Patriot 3xx0/44x0 (MY 17-21, 90/100' Steel Boom, No Hydraulics) AutoBoom XRT Kit Sheet 2 of 2 (P/N 117-0236-006 Rev. C1)

THIS KIT TO CONTAIN THE FOLLOWING ITEMS LISTED BELOW:					
	ITEM #	QTY	PART #	DESCRIPTION	OEM P/N
	31	1	053-0159-079	BOX, SHIPPING (LABELED BOX 2 OF 3)	N/A
	32	1	063-0173-965	ECU, ISOBUS, REM, RAVEN	N/A
(C)	33	1	063-0174-066	ECU, RAVEN, AUTOBOOM XRT, ABM, WITH AUTOBOOM UNLOC	N/A
	34	1	115-0235-100	CABLE, XRT AB, CIH PATRIOT, 2010-2018	N/A
	35	1	016-0171-649	SHEET, WARRANTY/HELP (016-0236-001)	N/A
	36	1	117-0236-024	KIT, XRT, BOOM, PATRIOT 90/100' (LABELED BOX 3 OF 3)	N/A

FIGURE 10. Case IH Trident 5550 (MY 17-21, 90/100' Steel Boom) AutoBoom XRT Kit Sheet 1 of 2 (P/N 117-0236-007 Rev. C1)

THIS KIT TO CONTAIN THE FOLLOWING ITEMS LISTED BELOW:					
	ITEM #	QTY	PART #	DESCRIPTION	OEM P/N
	1	1	053-0159-197	BOX, SHIPPING (LABELED BOX 1 OF 3)	N/A
	2	1	334-0235-001	VALVE, HYDRAULIC, CLOSED CENTER, AUTOBOOM XRT	N/A
	3	2	107-0235-031	BRACKET, ROD END, CIH 90/100' BOOM	N/A
	4	1	107-0172-435	STRAP, ROTARY SENSOR	N/A
(C)	5	1	063-0235-002	ASSEMBLY, ROTARY SENSOR, AUTOBOOM XRT, CENTER RACK	N/A
	6	1	107-0235-033	BRACKET, ABM NODE, TRIDENT	N/A
	7	1	107-0235-011	PLATE, MOUNTING, HYD VALVE AND REM, CIH	N/A
(C)	8	1	063-0235-003	ASSEMBLY, ROTARY SENSOR, AUTOBOOM XRT, RIGHT TILT, C	N/A
	9	3	115-4010-069	CABLE, SUPERSEAL POSITION SENSOR TO 4 PIN	N/A
(C)	10	1	063-0235-004	ASSEMBLY, ROTARY SENSOR, AUTOBOOM XRT, LEFT TILT, CAS	N/A
	11	1	117-0134-075	KIT, HYDRAULIC, AUTOBOOM, CASE IH 3320/4420	N/A
	12	1	053-0159-015	ENVELOPE, PLASTIC	N/A
	13	2	312-4000-063	NUT, NYLON LOCK, 7/16	N/A
	14	2	107-0171-608	U-BOLT 3 1/16"W X 4"L X 3/8"THD	N/A
	15	4	107-0171-609	U-BOLT 2 1/16"W X 3"L X 3/8"THD	N/A
	16	3	107-0171-616	U-BOLT 2 9/16"W X 3 1/2"L X 3/8"TH	N/A
(C)	17	2	107-0172-434	ROD, THREADED, M6	N/A
	18	1	311-0050-236	BOLT MACHINE HEX HEAD 1/4-20 X 2-1/2 LONG, STAINLESS S	N/A
	19	2	311-0050-238	BOLT MACHINE HEX HEAD 1/4-20 X 3 LONG, STAINLESS STEE	N/A
	20	4	311-0052-104	BOLT, 5/16-18 X 7/8" GRADE 8	N/A
	21	2	311-0056-167	BOLT, 7/16-14 UNC x 1.75 LG	N/A
	22	2	312-1002-044	NUT, JAM, 1-14 UNS	N/A
	23	18	312-4000-252	NUT, FLANGE, LOCK, 3/8	N/A
	24	5	312-4000-164	NUT, 1/4-20 NYLON LOCKING, SS	N/A
	25	4	313-1000-019	WASHER, LOCK, 5/16", ZINC PLATED	N/A
	26	2	313-2300-316	WASHER, FLAT, 7/16, NARROW	N/A
	27	5	313-2301-810	WASHER, FLAT, 1/4, NARROW	N/A
(C)	28	1	107-0172-205	ROD, THREADED, 110MM, M6 THREADS	N/A
(C)	29	1	053-0159-057	ENVELOPE, PLASTIC	N/A
(C)	30	6	312-6000-017K	NUT, HEX, M6	N/A
(C)	31	6	312-6001-017K	NUT, LOCK, NYLON INSERT, M6	N/A
(C)	32	6	325-0000-031	BEARING, ROD END	N/A

FIGURE 11. Case IH Trident 5550 (MY 17-21, 90/100' Steel Boom) AutoBoom XRT Kit Sheet 2 of 2 (P/N 117-0236-007 Rev. C1)

THIS KIT TO CONTAIN THE FOLLOWING ITEMS LISTED BELOW:					
	ITEM #	QTY	PART #	DESCRIPTION	OEM P/N
	33	1	053-0159-079	BOX, SHIPPING (LABELED BOX 2 OF 3)	N/A
	34	1	063-0173-965	ECU, ISOBUS, REM, RAVEN	N/A
(C)	35	1	063-0174-066	ECU, RAVEN, AUTOBOOM XRT, ABM, WITH AUTOBOOM UNLOC	N/A
	36	1	115-0235-100	CABLE, XRT AB, CIH PATRIOT, 2010-2018	N/A
	37	1	016-0171-649	SHEET, WARRANTY/HELP (016-0236-001)	N/A
	38	1	117-0236-024	KIT, XRT, BOOM, PATRIOT 90/100' (LABELED BOX 3 OF 3)	N/A

FIGURE 12. Case IH Trident 5550 (MY 17-21, 90/100' Steel Boom, No Hydraulics) AutoBoom XRT Kit Sheet 1 of 2 (P/N 117-0236-008 Rev. C1)

THIS KIT TO CONTAIN THE FOLLOWING ITEMS LISTED BELOW:					
	ITEM #	QTY	PART #	DESCRIPTION	OEM P/N
	1	1	053-0159-197	BOX, SHIPPING (LABELED BOX 1 OF 3)	N/A
(C)	2	1	063-0235-002	ASSEMBLY, ROTARY SENSOR, AUTOBOOM XRT, CENTER RACK	N/A
	3	2	107-0235-031	BRACKET, ROD END, CIH 90/100' BOOM	N/A
	4	1	107-0172-435	STRAP, ROTARY SENSOR	N/A
(C)	5	1	063-0235-003	ASSEMBLY, ROTARY SENSOR, AUTOBOOM XRT, RIGHT TILT, C	N/A
	6	1	107-0235-033	BRACKET, ABM NODE, TRIDENT	N/A
	7	1	107-0235-011	PLATE, MOUNTING, HYD VALVE AND REM, CIH	N/A
(C)	8	1	063-0235-004	ASSEMBLY, ROTARY SENSOR, AUTOBOOM XRT, LEFT TILT, CAS	N/A
	9	3	115-4010-069	CABLE, SUPERSEAL POSITION SENSOR TO 4 PIN	N/A
	10	1	053-0159-015	ENVELOPE, PLASTIC	N/A
	11	2	312-4000-063	NUT, NYLON LOCK, 7/16	N/A
	12	2	107-0171-608	U-BOLT 3 1/16"W X 4"L X 3/8"THD	N/A
	13	4	107-0171-609	U-BOLT 2 1/16"W X 3"L X 3/8"THD	N/A
	14	3	107-0171-616	U-BOLT 2 9/16"W X 3 1/2"L X 3/8"TH	N/A
(C)	15	2	107-0172-434	ROD, THREADED, M6	N/A
	16	1	311-0050-236	BOLT MACHINE HEX HEAD 1/4-20 X 2-1/2 LONG, STAINLESS S	N/A
	17	2	311-0050-238	BOLT MACHINE HEX HEAD 1/4-20 X 3 LONG, STAINLESS STEE	N/A
	18	4	311-0052-104	BOLT, 5/16-18 X 7/8" GRADE 8	N/A
	19	2	311-0056-167	BOLT, 7/16-14 UNC x 1.75 LG	N/A
	20	2	312-1002-044	NUT, JAM, 1-14 UNS	N/A
	21	18	312-4000-252	NUT, FLANGE, LOCK, 3/8	N/A
	22	5	312-4000-164	NUT, 1/4-20 NYLON LOCKING, SS	N/A
	23	4	313-1000-019	WASHER, LOCK, 5/16", ZINC PLATED	N/A
	24	2	313-2300-316	WASHER, FLAT, 7/16, NARROW	N/A
	25	5	313-2301-810	WASHER, FLAT, 1/4, NARROW	N/A
(C)	26	1	107-0172-205	ROD, THREADED, 110MM, M6 THREADS	N/A
(C)	27	1	053-0159-057	ENVELOPE, PLASTIC	N/A
(C)	28	6	312-6000-017K	NUT, HEX, M6	N/A
(C)	29	6	312-6001-017K	NUT, LOCK, NYLON INSERT, M6	N/A
(C)	30	6	325-0000-031	BEARING, ROD END	N/A

FIGURE 13. Case IH Trident 5550 (MY 17-21, 90/100' Steel Boom, No Hydraulics) AutoBoom XRT Kit Sheet 2 of 2 (P/N 117-0236-008 Rev. C1)

THIS KIT TO CONTAIN THE FOLLOWING ITEMS LISTED BELOW:					
	ITEM #	QTY	PART #	DESCRIPTION	OEM P/N
	31	1	053-0159-079	BOX, SHIPPING (LABELED BOX 2 OF 3)	N/A
(C)	32	1	063-0173-965	ECU, ISOBUS, REM, RAVEN	N/A
	33	1	063-0174-066	ECU, RAVEN, AUTOBOOM XRT, ABM, WITH AUTOBOOM UNLOC	N/A
	34	1	115-0235-100	CABLE, XRT AB, CIH PATRIOT, 2010-2018	N/A
	35	1	016-0171-649	SHEET, WARRANTY/HELP (016-0236-001)	N/A
	36	1	117-0236-024	KIT, XRT, BOOM, PATRIOT 90/100' (LABELED BOX 3 OF 3)	N/A

FIGURE 14. Case IH Patriot 3xx0/4xx0 (MY 17-21, 120', 132' Aluminum Boom) AutoBoom XRT Kit Sheet 1 of 2 (P/N 117-0236-009 Rev. A)

THIS KIT TO CONTAIN THE FOLLOWING ITEMS LISTED BELOW:

ITEM #	QTY	PART #	DESCRIPTION	OEM P/N
1	1	053-0159-197	BOX, SHIPPING (LABELED BOX 1 OF 3)	N/A
2	1	334-0235-001	VALVE, HYDRAULIC, CLOSED CENTER, AUTOBOOM XRT	N/A
3	2	107-0235-013	BRACKET, ANGLE, ABM NODE MOUNT	N/A
4	1	107-0172-435	STRAP, ROTARY SENSOR	N/A
5	1	063-0235-001	ASSEMBLY, ROTARY SENSOR, AUTOBOOM XRT, CENTER RACK	N/A
6	1	107-0235-009	BRACKET, ABM NODE, CNH	N/A
7	1	107-0235-011	PLATE, MOUNTING, HYD VALVE AND REM, CIH	N/A
8	2	107-0235-042	BRACKET, ROD END, TILT SENSOR	N/A
9	3	115-4010-069	CABLE, SUPERSEAL POSITION SENSOR TO 4 PIN	N/A
10	1	063-0235-014	ASSEMBLY, ROTARY SENSOR, AUTOBOOM XRT, PATRIOT TILT,	N/A
11	1	117-0134-075	KIT, HYDRAULIC, AUTOBOOM, CASE IH 3320/4420	N/A
12	1	063-0235-015	ASSEMBLY, ROTARY SENSOR, AUTOBOOM XRT, PATRIOT TILT,	N/A
13	1	053-0159-015	ENVELOPE, PLASTIC	N/A
14	2	107-0171-608	U-BOLT 3 1/16"W X 4"L X 3/8"THD	N/A
15	3	107-0171-616	U-BOLT 2 9/16"W X 3 1/2"L X 3/8"TH	N/A
16	3	107-0172-434	ROD, THREADED, M6	N/A
17	1	311-0050-236	BOLT MACHINE HEX HEAD 1/4-20 X 2-1/2 LONG, STAINLESS S	N/A
18	2	311-0050-238	BOLT MACHINE HEX HEAD 1/4-20 X 3 LONG, STAINLESS STEEL	N/A
19	4	311-0052-104	BOLT, 5/16-18 X 7/8" GRADE 8	N/A
20	4	311-0054-099	BOLT, 3/8-16 X 7-1/2L	N/A
21	4	311-4050-224N	HEX BOLT, DIN931, M10 X 30MM, 8.8 STEEL, CLASS V	N/A
22	14	312-4000-252	NUT, FLANGE, LOCK, 3/8	N/A
23	5	312-4000-164	NUT, 1/4-20 NYLON LOCKING, SS	N/A
24	4	313-1000-019	WASHER, LOCK, 5/16", ZINC PLATED	N/A
25	4	313-2300-014	WASHER, FLAT, 3/8, NARROW	N/A
26	5	313-2301-810	WASHER, FLAT, 1/4, NARROW	N/A
27	4	313-6000-016N	WASHER, DIN125, M10, CLASS V	N/A
28	1	053-0159-057	ENVELOPE, PLASTIC	N/A
29	6	312-6000-017K	NUT, HEX, M6	N/A
30	6	312-6001-017K	NUT, LOCK, NYLON INSERT, M6	N/A
31	6	325-0000-031	BEARING, ROD END	N/A

FIGURE 15. Case IH Patriot 3xx0/4xx0 (MY 17-21, 120', 132' Aluminum Boom) AutoBoom XRT Kit Sheet 2 of 2 (P/N 117-0236-009 Rev. A)

THIS KIT TO CONTAIN THE FOLLOWING ITEMS LISTED BELOW:

ITEM #	QTY	PART #	DESCRIPTION
32	1	053-0159-079	BOX, SHIPPING (LABELED BOX 2 OF 3)
33	1	063-0173-965	ECU, ISOBUS, REM, RAVEN
34	1	063-0174-066	ECU, RAVEN, AUTOBOOM XRT, ABM, WITH AUTOBOOM UNLOC
35	1	115-0235-100	CABLE, XRT AB, CIH PATRIOT, 2010-2018
36	1	016-0171-649	SHEET, WARRANTY/HELP (016-0236-001)
37	1	117-0236-030	(LABELED BOX 3 OF 3) KIT, AUTOBOOM XRT, BOOM, CIH PATRIOT, 120/132' ALUMINU

FIGURE 16. Case IH 120' Boom AutoBoom XRT Kit (P/N 117-0236-021 Rev. A)

THIS KIT TO CONTAIN THE FOLLOWING ITEMS LISTED BELOW:					
	ITEM #	QTY	PART #	DESCRIPTION	OEM P/N
	1	1	053-0159-079	BOX, SHIPPING,	N/A
	2	2	115-0235-023	CABLE, PRIMARY BOOM XRT 35'	N/A
	3	2	115-0235-027	CABLE, SECONDARY BOOM XRT 25'	N/A
	4	5	063-0173-962	SENSOR, BOOM HEIGHT, RADAR, BAUMER	N/A
	5	5	107-0235-001	BRACKET, RADAR SENSOR	N/A
	6	1	053-0159-015	ENVELOPE, PLASTIC	N/A
	7	10	107-0171-609	U-BOLT 2 1/16"WX3"LX3/8"THD	N/A
	8	10	311-0050-255	BOLT, 1/4-20 X 5/8" PHILLIPS PAN HEAD	N/A
	9	10	312-4000-164	NUT, 1/4-20 NYLON LOCKING, SS	N/A
	10	20	312-4000-252	NUT, FLANGE, LOCK, 3/8	N/A

FIGURE 17. Case IH Patriot AutoBoom XRT Damper Kit (P/N 117-0236-023 Rev. A)

THIS KIT TO CONTAIN THE FOLLOWING ITEMS LISTED BELOW:					
	ITEM #	QTY	PART #	DESCRIPTION	OEM P/N
	1	1	053-0159-079	BOX, SHIPPING,	N/A
	2	2	115-0235-022	CABLE, PRIMARY BOOM XRT 30'	N/A
	3	2	115-0235-026	CABLE, SECONDARY BOOM XRT 20'	N/A
	4	5	063-0173-962	SENSOR, BOOM HEIGHT, RADAR, BAUMER	N/A
	5	5	107-0235-001	BRACKET, RADAR SENSOR	N/A
	6	1	053-0159-015	ENVELOPE, PLASTIC	N/A
(B)	7	8	107-0171-609	U-BOLT 2 1/16"WX3"LX3/8"THD	N/A
	8	10	311-0050-255	BOLT, 1/4-20 X 5/8" PHILLIPS PAN HEAD	N/A
	9	10	312-4000-164	NUT, 1/4-20 NYLON LOCKING, SS	N/A
	10	20	312-4000-252	NUT, FLANGE, LOCK, 3/8	N/A
(B)	11	2	107-0171-612	U-BOLT, 1-5/16" W X 2" L X 3/8" THREAD	N/A

FIGURE 18. Case IH 90/100' Boom AutoBoom XRT Kit (P/N 117-0236-024 Rev. C)

THIS KIT TO CONTAIN THE FOLLOWING ITEMS LISTED BELOW:

ITEM #	QTY	PART #	DESCRIPTION
1	1	053-0159-079	BOX, SHIPPING,
2	2	115-0235-022	CABLE, PRIMARY BOOM XRT 30'
3	2	115-0235-026	CABLE, SECONDARY BOOM XRT 20'
4	5	063-0173-962	SENSOR, BOOM HEIGHT, RADAR, BAUMER
5	5	107-0235-001	BRACKET, RADAR SENSOR
6	1	053-0159-015	ENVELOPE, PLASTIC
7	8	107-0171-609	U-BOLT 2 1/16"WX3"LX3/8"THD
8	10	311-0050-255	BOLT, 1/4-20 X 5/8" PHILLIPS PAN HEAD
9	10	312-4000-164	NUT, 1/4-20 NYLON LOCKING, SS
10	20	312-4000-252	NUT, FLANGE, LOCK, 3/8
11	2	107-0171-612	U-BOLT, 1-5/16" W X 2" L X 3/8" THREAD
12	1	053-0159-015	ENVELOPE, PLASTIC
13	2	019-0159-630	MODIFICATION, SENSOR, PROXIMITY, FP3000 6" LEADS
14	2	107-0235-048	SPACER, PROXIMITY SWITCH
15	4	311-4053-134	HEX BOLT, DIN931, M6-1 x 16MM
16	4	311-4053-137	HEX BOLT, DIN931, M6-1 x 25MM
17	8	312-6001-019	HEX NUT, NYLOCK, DIN985, M6
18	8	313-6000-011	WASHER, DIN125, M6

FIGURE 19. Case IH Patriot 4440 (MY 2020, 132', 135' Aluminum Boom) AutoBoom XRT Kit (P/N 117-0236-044 Rev. A)

THIS KIT TO CONTAIN THE FOLLOWING ITEMS LISTED BELOW:

ITEM #	QTY	PART #	DESCRIPTION
1	1	053-0159-197	BOX, SHIPPING
2	5	063-0173-962	SENSOR, BOOM HEIGHT, AUTOBOOM XRT
3	1	063-0235-001	ASSEMBLY, ROTARY SENSOR, AUTOBOOM XRT, CENTER RACK
4	1	107-0172-435	STRAP, ROTARY SSENSOR
5	1	107-0235-001	BRACKET, RADAR SENSOR
6	2	107-0235-036	BRACKET, RADAR SENSOR, ALUMINUM BOOM BREAKAWAY
7	1	115-0235-167	CABLE, ADAPTER, CASE IH FACTORY XRT CABLE TO AFTERMARKET
8	1	117-0134-075	KIT, HYDRAULIC, AUTOBOOM, CASE IH 3320/4420
9	1	334-0235-001	VALVE, HYDRAULIC, CLOSED CENTER, AUTOBOOM XRT
10	1	053-0159-015	ENVELOPE, PLASTIC
11	1	016-0171-649	SHEET, WARRANTY/HELP (016-0236-044)
12	1	077-0180-233	AUTHORIZATION CODE, AUTOBOOM XRT HEIGHT CONTROL
13	1	053-0159-015	ENVELOPE, PLASTIC
14	2	107-0171-608	U-BOLT, 3-1/16" W X 4" L X 3/8"-16 THREAD
15	2	107-0171-609	U-BOLT, 2-1/16" W X 3" L X 3/8"-16" THREAD
16	1	107-0171-616	U-BOLT, 2-9/16" W X 3-1/2" L X 3/8"-16 THREAD
17	1	107-0172-434	ROD, THREADED, M6
18	10	311-0050-255	BOLT, 1/4"-20 X 5/8", PHILLIPS PAN HEAD
19	4	311-0052-104	BOLT, 5/16"-18 X 7/8" GRADE 8
20	10	312-4000-164	NUT, 1/4"-20 NYLON LOCKING, SS
21	10	312-4000-252	NUT, FLANGE, LOCK, 3/8"-16
22	2	312-6000-017K	NUT, HEX, M6
23	2	312-6001-017K	NUT, LOCK, NYLON INSERT, M6
24	4	313-1000-019	WASHER, LOCK, 5/16", ZINC PLATED
25	10	313-2300-014	WASHER, FLAT, 3/8", NARROW
26	10	313-2301-810	WASHER, FLAT, 1/4", NARROW
27	2	325-0000-031	BEARING, ROD END

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 36 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 completed RMA form, Certificate of Decontamination, and retail 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 this product or any component of the product found to be defective during the warranty period. Replacement will be made with a new or remanufactured product or component. Standard return freight will be paid, regardless of 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 outside our facility 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, improper installation and maintenance are not covered by this warranty.
- Worn/Chafed hoses and cables.
- Items in contact with fluids and chemicals including seals and O-rings.
- Software downloads and updates.
- Tamper-Evident label broken or customer disassembly.
- Any customer modification to the original product outside normal calibration and adjustments, without written approval.
- Intentional modification to cables.
- Failures due to lack of cleaning or preventive maintenance, and any condition, malfunction or damage not resulting from defects in material or workmanship.
- Items in contact with fluids or chemicals, returned without proper cleaning, decontamination and documentation.

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.portal.ravenprecision.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 completed RMA form, Certificate of Decontamination, and Extended Warranty Registration Number) 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 warranty claim, Raven Industries will (at our discretion) repair or replace this product or any component of the product found to be defective during the warranty period. Replacement will be made with a new or remanufactured product or component. Standard return freight will be paid, regardless of 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 outside our facility 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, improper installation and maintenance are not covered by this warranty.
- Worn/Chafed hoses and cables.
- Items in contact with fluids and chemicals including seals and O-rings.
- Software downloads and updates.
- Tamper-Evident label broken or customer disassembly.
- Any customer modification to the original product outside normal calibration and adjustments, without written approval.
- Intentional modification to cables.
- Failures due to lack of cleaning or preventive maintenance, and any condition, malfunction or damage not resulting from defects in material or workmanship.
- Items in contact with fluids or chemicals, returned without proper cleaning, decontamination and documentation.