AccuBoom Universal Installation Manual

Manual No. 016-1001-073 Rev. B 12/16 E28917

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CHAPTER 1 INTRODUCTION

The AccuBoom system is designed to provide worry free turn on and turn off of your booms with respect to the as-applied coverage map. The following instructions are designed to assist you in the proper installation of the AccuBoom system. See your Operation Manual for instructions on setting up the software and using the AccuBoom system.

REQUIRED COMPONENTS

The following components are required for complete installation of the Raven AccuBoom system.

Part	Part Number
CAN AccuBoom Control Node	063-0172-316
Universal CAN AccuBoom Cable (10 Sections)	115-1001-038
12' CAN Tee Cable	115-0171-362
Universal AccuBoom Installation Manual	016-1001-073

IMPORTANT: 3rd Party or Raven Serial Product Control: All boom section switches must be in the OFF position during AccuBoom operation.
Raven CAN Product Control: All boom section switches must be in the ON position during AccuBoom operation.

INSTRUCTIONS FOR WIRE ROUTING

The word "harness" is used to mean all electrical leads and cables, bundled and unbundled. When installing harness, secure it at least every 30 cm (12in) to the frame. Follow existing harness as much as possible and use these guidelines:

Harness should not contact or be attached to:

- Lines and hoses with high vibration forces or pressure spikes
- Lines and hoses carrying hot fluids beyond harness component specifications

Avoid contact with any sharp edge or abrading surfaces such as, but not limited to:

- Sheared or flame cut edges
- Edges of machined surfaces
- Fastener threads or cap screw heads
- Ends of adjustable hose clamps
- Wire exiting conduit without protection, either ends or side of conduit

- Hose and tube fittings

Routing should not allow harnesses to:

- Hang below the unit
- Have the potential to become damaged due to exposure to the exterior environment. (i.e. tree limbs, debris, attachments)
- Be placed in areas of or in contact with machine components which develop temperatures higher than the temperature rating of harness components
- Wiring should be protected or shielded if it needs to route near hot temperatures beyond harness component specifications

Harnessing should not have sharp bends

Allow sufficient clearance from machine component operational zones such as:

- Drive shafts, universal joints and hitches (i.e. 3-point hitch)
- Pulleys, gears, sprockets
- Deflection and backlash of belts and chains
- Adjustment zones of adjustable brackets
- Changes of position in steering and suspension systems
- Moving linkages, cylinders, articulation joints, attachments
- Ground engaging components

For harness sections that move during machine operation:

- Allow sufficient length for free movement without interference to prevent: pulling, pinching, catching or rubbing, especially in articulation and pivot points
- Clamp harnesses securely to force controlled movement to occur in the desired harness section
- Avoid sharp twisting or flexing of harnesses in short distances
- Connectors and splices should not be located in harness sections that move

Protect harnesses from:

- Foreign objects such as rocks that may fall or be thrown by the unit
- Buildup of dirt, mud, snow, ice, submersion in water and oil
- Tree limbs, brush and debris
- Damage where service personnel or operators might step or use as a grab bar
- Damage when passing through metal structures

IMPORTANT: Avoid directly spraying electrical components and connections with high pressure water. High pressure water sprays can penetrate seals and cause electrical components to corrode or otherwise become damaged. When performing maintenance:

- Inspect all electrical components and connections for damage or corrosion. Repair or replace components, connections, or cable as necessary.
- Ensure connections are clean, dry, and not damaged. Repair or replace components, connections, or cable as necessary.
- Clean components or connections using low pressure water, pressurized air, or an aerosol electrical component cleaning agent.
- Remove visible surface water from components, connections, or seals using pressurized air or an aerosol electrical component cleaning agent. allow components to dry completely before reconnecting cables.

INSTRUCTIONS FOR HOSE ROUTING

The word "hose" is used to mean all flexible fluid carrying components. Follow existing hoses as much as possible and use these guidelines:

Hoses should not contact or be attached to:

- Components with high vibration forces
- Components carrying hot fluids beyond component specifications

Avoid contact with any sharp edge or abrading surfaces such as, but not limited to:

- Sheared or flame cut edges
- Edges of machined surfaces
- Fastener threads or cap screw heads
- Ends of adjustable hose clamps

Routing should not allow hoses to:

- Hang below the unit
- Have the potential to become damaged due to exposure to the exterior environment. (i.e. tree limbs, debris, attachments)
- Be placed in areas of or in contact with machine components which develop temperatures higher than the temperature rating of hose components
- Hoses should be protected or shielded if it needs to route near hot temperatures beyond hose component specifications

Hoses should not have sharp bends

Allow sufficient clearance from machine component operational zones such as:

- Drive shafts, universal joints and hitches (i.e. 3-point hitch)
- Pulleys, gears, sprockets
- Deflection and backlash of belts and chains
- Adjustment zones of adjustable brackets
- Changes of position in steering and suspension systems
- Moving linkages, cylinders, articulation joints, attachments
- Ground engaging components

For hose sections that move during machine operation:

- Allow sufficient length for free movement without interference to prevent: pulling, pinching, catching or rubbing, especially in articulation and pivot points
- Clamp hoses securely to force controlled movement to occur in the desired hose section
- Avoid sharp twisting or flexing of hoses in short distances

Protect hoses from:

- Foreign objects such as rocks that may fall or be thrown by the unit
- Buildup of dirt, mud, snow, ice, submersion in water and oil
- Tree limbs, brush and debris
- Damage where service personnel or operators might step or use as a grab bar
- Damage when passing through metal structures

- High pressure wash

CHAPTER 2 INSTALLATION

INSTALLATION

MOUNT THE ACCUBOOM NODE

1. Determine suitable location for mounting the AccuBoom node. Location should offer protection from the elements and power washing spray.
2. Securely mount CAN AccuBoom node with the connector receptacles facing down.

CONNECT ACCUBOOM HARNESS TO ACCUBOOM NODE

Connect the two 30 pin rectangular connectors to the corresponding receptacles on the AccuBoom Node.

CONNECT THE ACCUBOOM NODE TO THE CAN BUS

1. Locate the CAN terminator for the CAN bus system.
2. Disconnect CAN terminator and connect the CAN Tee extension cable.
3. Route the CAN Tee extension cable to the AccuBoom node and connect to the CAN bus.
4. Connect CAN terminator to remaining CAN Tee extension cable connector

CONNECT ACCUBOOM CABLE TO BOOM VALVES

Determine the type of Product Control system (3rd Party, Raven Serial, or Raven CAN). See the AccuBoom Configuration Matrix in the Raven Price Book.

NOTE: If running a 3rd party controller or Raven Serial connection, signal from the boom switches is not required.

If running a Raven CAN system, signal from the boom switches to the Boom Speed node will be required.

3RD PARTY OR RAVEN SERIAL PRODUCT CONTROL

Splice boom valve signal wires from AccuBoom node onto boom valve signal wires.

RAVEN CAN PRODUCT CONTROL

1. Break signal wire connection between boom section switch and boom valve.
2. Route signal wire from boom section switch to corresponding boom section inputs of Boom Sense node.
3. Connect signal wires from AccuBoom node to corresponding boom valve signal wires.

Connect Boom Speed wire harness (if applicable) and AccuBoom wire harness to the appropriate wire color and corresponding boom section listed below.

Color	Boom
Black or Gray	1
Brown	2
Blue	3
Black/White	4
Brown/White	5
Blue/White	6
White/Black	7
White/Brown	8
White/Blue	9
Pink or Violet	10

NOTE: Seated in cab facing forward; booms are assigned Left to Right. Boom one is the far left boom section. Depending on number of booms sections on machines, some boom section wires will not be used.

IMPORTANT: Not recommended for boom valves that require more than 2 amps.

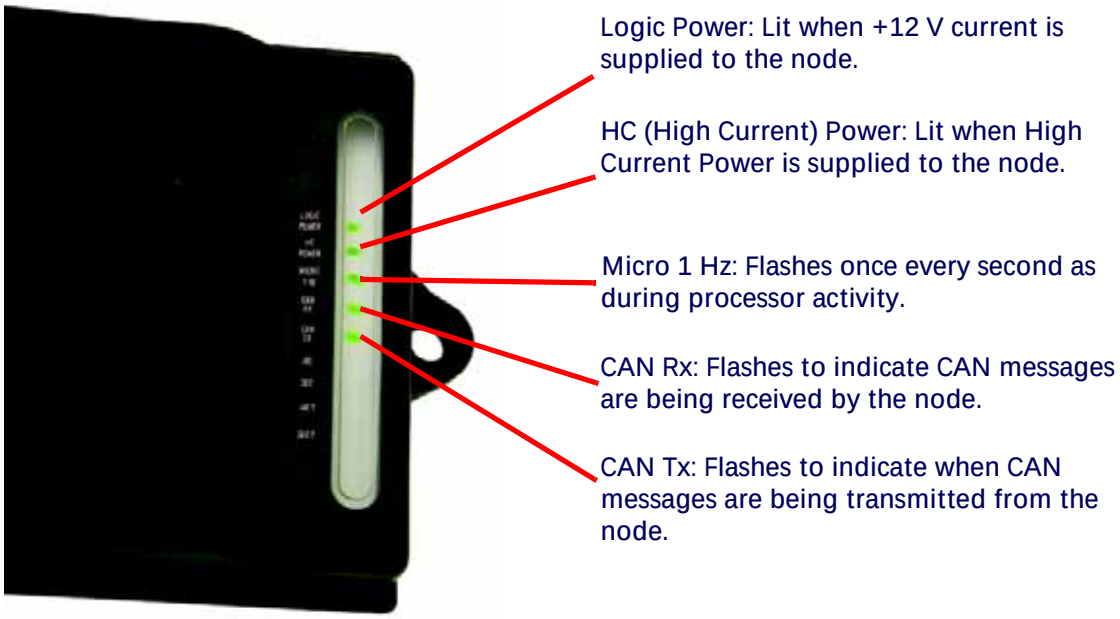
CONNECT MASTER APPLY SWITCH

- 3rd Party or Raven Serial product control with E Plus/E Pro, connect machine master apply switch to the boom sense wire on E Plus/E Pro power cable.
- 3rd Party or Raven Serial product control with Viper/Viper Pro, connect machine master apply switch to the master power wire on the AccuBoom cable (P/N 115-1001-038).
- Raven CAN system, machine master apply switch connection is not required.
- The CAN AccuBoom installation is now complete. Refer to the console specific user's manual for set up instructions.

CHAPTER 3 TROUBLESHOOTING & SYSTEM DRAWINGS

The AccuBoom CAN Control Node (P/N 063-0172-316) enclosure features several green LED lights which may be used to diagnose issues within the AccuBoom system.

FIGURE 1. AccuBoom CAN Control Node (P/N 063-0172-316)



NOTE: If the LED lights are not displayed as described in the figure above, check the CAN connections and the control cable connections on the node. If the issue persists, contact your local Raven dealer for additional technical support.

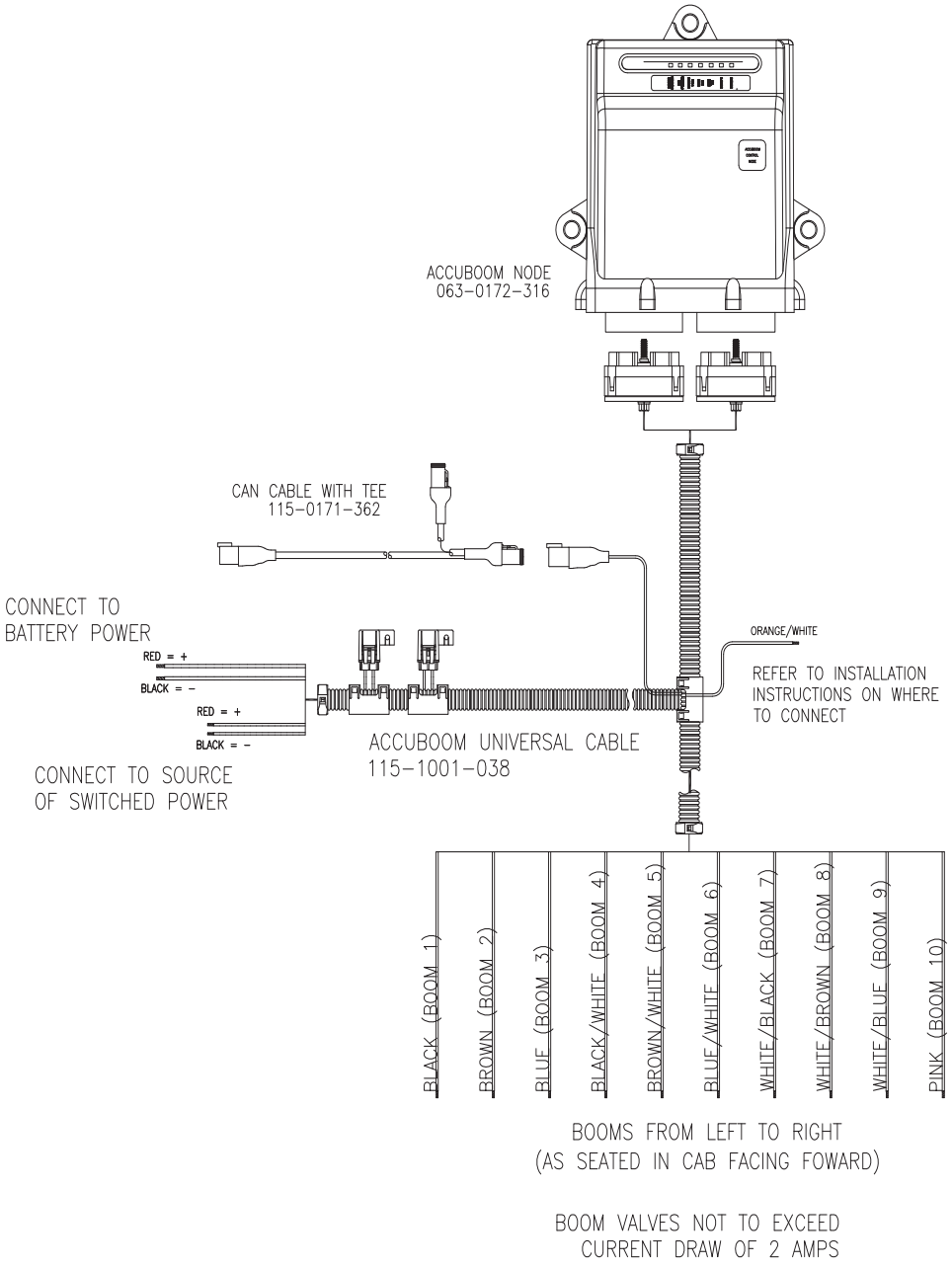
The following diagrams may be helpful for installing or troubleshooting the AccuBoom system. The following diagrams may show optional features or components not required for operation and will not apply to your system if the required hardware has not been installed. Contact your local dealer for purchasing or more information on components shown in the following diagrams.

Additional system diagrams are available from the Raven Industries web site:

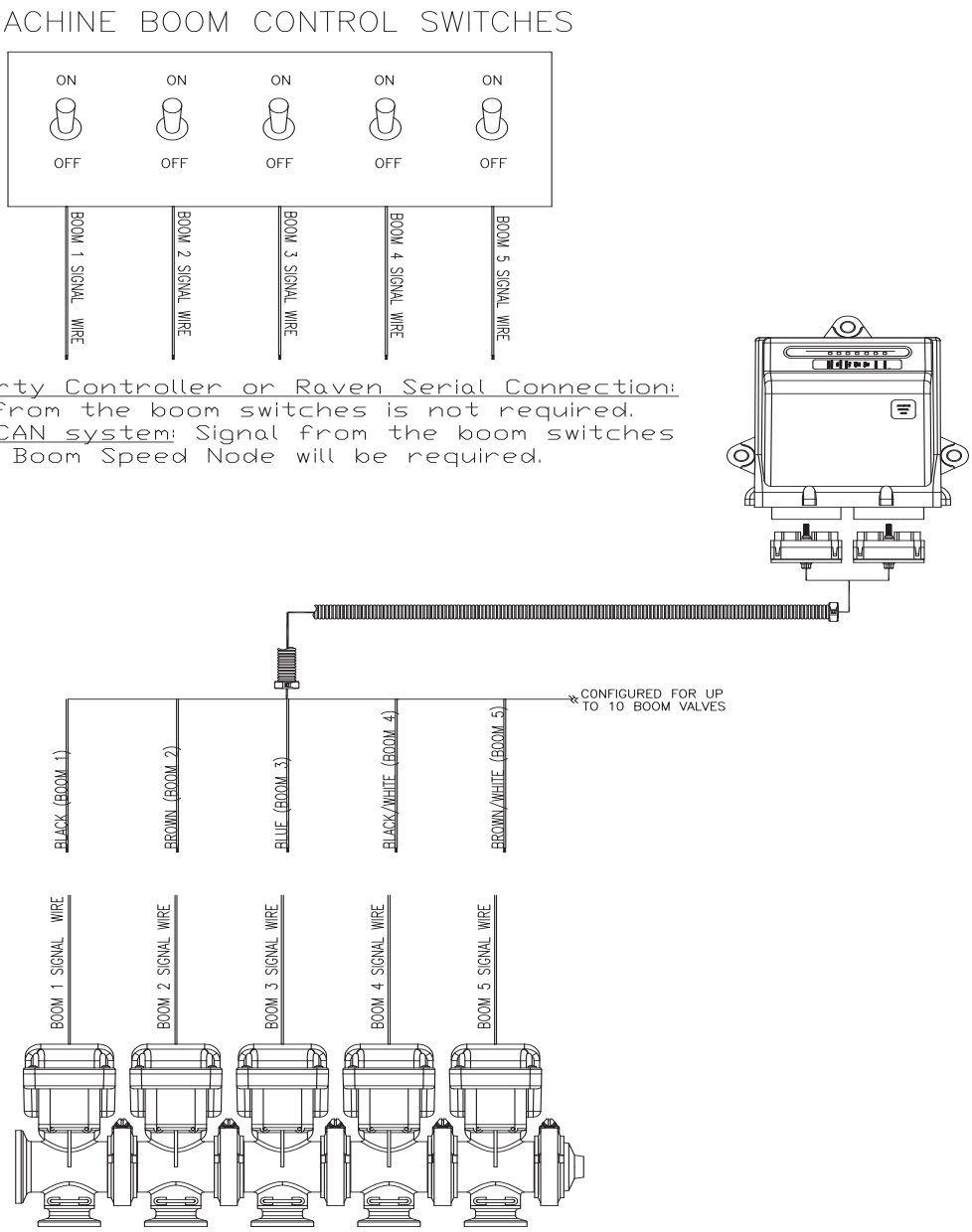
http://www.ravenprecision.com/Support/ApplicationDrawings/index2.jsp

ACCUBOOM UNIVERSAL 10 BOOM KIT

117-1001-073



Serial Connection: Boom Switches OFF
CAN Connection: Boom Switches ON



3rd Party Controller or Raven Serial Connection: Signal from the boom switches is not required. Raven CAN system: Signal from the boom switches to the Boom Speed Node will be required.

RAVEN

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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RAVEN

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.