

Hawkeye® 2 Installation
Manual for New Holland/
Miller MY 2018 Small
Frame and MY 2019+ All
Frames

016-2005-006 Rev. A

3/2021

E36913



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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.

WARNING

AGRICULTURAL CHEMICAL SAFETY

Follow all federal, state, and local regulations regarding the handling, use, and disposal of agricultural chemicals, products, and containers. Triple-rinse and puncture or crush empty containers before properly disposing of them. Contact a local environmental agency or recycling center for additional information.

- Always follow safety labels and instructions provided by the chemical manufacturer or supplier.
- Always wear appropriate personal protective equipment as recommended by the chemical and/or equipment manufacturer.
- When storing unused agricultural chemicals:
 - Store agricultural chemicals in the original container and do not transfer chemicals to unmarked containers or containers used for food or drink.
 - Store chemicals in a secure, locked area away from human and livestock food.
 - Keep children away from chemical storage areas.
- Fill, flush, calibrate, and decontaminate chemical application systems in an area where runoff will not reach ponds, lakes, streams, livestock areas, gardens, or populated areas.
- Follow all label instructions for chemical mixing, handling, and disposal.
- Avoid direct contact with agricultural chemicals or inhaling chemical dust or spray particulate. Seek immediate medical attention if symptoms of illness occur during, or soon after, use of agricultural chemicals or products.
- After handling or applying agricultural chemicals:
 - Thoroughly wash hands and face after using agricultural chemicals and before eating, drinking, or using the restroom.
 - Thoroughly flush or rinse equipment used to mix, transfer, or apply chemicals with water after use or before servicing any component of the application system.

CAUTION

ELECTRICAL SAFETY

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

TOUCH SCREEN

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

RECOMMENDATIONS AND BEST PRACTICES

HARNESS ROUTING

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

- Leave protective caps/covers over harness connectors until needed to avoid dirt and moisture from contaminating electrical circuits.
- Secure the harness to the frame or solid structural members at least every 12 in [30 cm].
- Follow existing harness runs already routed on the implement as much as possible. Proper harness routing should:
 - Secure harnessing and prevent the harness from hanging below the implement.
 - Provide sufficient clearance from moving components and operational zones around shafts; universal joints and suspension components; pulleys, gears, belts, and chains; moving linkages, cylinders, articulation joints, etc.
 - Protect harnessing from field debris and surrounding hazards (e.g. tree limbs, fence posts, crop stubble, dirt clumps or rocks that may fall or be thrown by the implement).
 - Protect harnessing from sharp bends, twisting, or flexing over short distances and normal implement operation.
 - Connectors and splices should not be located at bending points or in harness sections that move.
 - Ensure sufficient length for free movement of the implement during normal operation and prevent pulling, pinching, catching, or rubbing, especially in articulation and pivot points. Clamp harnessing securely to force controlled movement of the harness.
 - Avoid abrasive surfaces and sharp edges such as sheared or flame cut corners, fastener threads or cap screw heads, hose clamp ends, etc.
- Do not connect, affix, or allow harnessing to come into contact with components with high vibration forces, hot surfaces, or components carrying hot fluids beyond the temperature rating of harness components.
 - Harnessing should be protected or shielded if routing requires the hose to be exposed to conditions beyond harnessing component specifications.
- Avoid routing harnesses in areas where damage may occur due to build up of material (e.g. dirt, mud, snow, ice, etc.).
- Avoid routing harnesses in areas where the operator or service personnel might step or use as a grab bar.

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

- Inspect electrical components and connectors for corrosion, damaged pins or housings, etc. Repair or replace components or harnessing as necessary.
- Ensure connectors are kept clean and dry. Apply dielectric grease to the sealing surfaces of all connections exposed to moisture, dirt, debris, and other 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.

MAKE AND MODEL COMPATIBILITY

Hawkeye® 2 is a pressure-based product control system which allows for precise sprayer application over a range of conditions and reduced spray drift. Each nozzle is controlled by an individual pulsing valve giving you a consistent spray pattern as speed and conditions change.

Hawkeye® 2 is built on the ISOBUS communication platform which allows the system to work with most ISO Universal Terminals (UTs) and task controllers, including the Viper® 4.

This manual is intended to provide installation instructions on the following equipment:

TABLE 1. Compatible Equipment Information

Make and Model	Nozzle Body Type	Nozzle Spacing	Boom Type	Boom Width	Kit Number	
MY18+: NH SP285F NH SP310F Miller 7285 Miller 7310	TeeJet	15"	Mono	90'	117-2005-211	
				100'	117-2005-213	
				120'	117-2005-215	
			Truss	120'	117-2005-082	
				120' MY20+	117-2005-083	
				132'	117-2005-084	
MY19+: NH SP370F NH SP380F NH SP410F NH SP420F Miller 7370 Miller 7380 Miller 7410 Miller 7420		Mono	20"	Mono	135'	117-2005-085
					90'	117-2005-217
					100'	117-2005-219
		Truss		120'	117-2005-010	
				120'	117-2005-015	
				120' MY20+	117-2005-016	
132'	117-2005-017					
135'	117-2005-018					

INSTALLATION OVERVIEW

The recommended process for installing the Hawkeye® 2 nozzle control system is as follows:

1. Confirm Hawkeye® 2 kit contents. See “Kit Contents” on page 7.
2. Replace existing strainer with an 80 mesh (or finer) strainer.
3. Remove spray tips and flush each section individually for a minimum of 20 seconds to thoroughly flush the boom.
4. Mount Hawkeye® 2 nozzle control valves.
5. Route and connect the inner, mid, and outer boom cables (as applicable).
6. Mount the RCM - Sprayer.
7. Route and connect chassis and RCM - Sprayer cables.
8. Review the Post-Installation Notes for machine configuration tips.

REQUIRED COMPONENTS

The following components must be installed with the Hawkeye® 2 nozzle control system:

- Updated software on field computers or control monitors
- PWM pump control valve
- Raven compatible flow meter
- Raven compatible pressure transducer
- 80 (or finer) mesh strainer

NOTE: Air induction style spray tips should not be used with the Hawkeye® 2 nozzle control system. A fan or cone style spray tip is required for the Hawkeye® 2 system to operate properly.

TOOLS AND MATERIALS NEEDED

The following tools are recommended for completing the installation:

- SAE and metric sized wrenches and tools
- Drill bit set and drill
- Corrosion X HD
- Cable ties (supplied)

POINT OF REFERENCE

The instructions provided in this manual assume the installer is standing behind the machine, looking toward the machine cabin.

KIT CONTENTS

FIGURE 1. Hawkeye® 2 NH/Miller MY18 Small Frame & MY19+ All Models, 90'/15" Mono Boom Kit Components (P/N 117-2005-211 Rev. A)

QTY	PART #	DESCRIPTION
1	053-0159-197	BOX, SHIPPING (LABELED 1 OF 5)
1	063-0173-956	RCM, HAWKEYE 2
1	115-2005-024	CABLE, ECU ADAPTER, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-025	CABLE, POWER TEE, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-026	CABLE, LEFT/RIGHT, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
2	115-2005-235	CABLE, MID, 90'/15", NH, MONO, HAWKEYE 2
2	115-2005-237	CABLE, OUTER, 90'/15", NH, MONO, HAWKEYE 2
1	117-2005-050	KIT, HAWKEYE 2 SYSTEM SERVICE, TEEJET
1	116-0159-847	WELDMENT, MOUNTING PLATE, RCM, NEW HOLLAND
1	053-0159-110	ENVELOPE, PLASTIC
4	311-4073-135	M6 X 18MM, SOCKET, FLATHEAD, 304 SS
1	311-4078-143	M6 X 55MM, SOCKET, BUTTONHEAD, 304 SS
2	311-4078-146	M6 X 70MM, SOCKET, BUTTONHEAD, 304 SS
3	313-6000-011	WASHER, M6, FLAT, 304 SS
1	053-0159-110	ENVELOPE, PLASTIC
1	063-2005-001	NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	053-0159-015	ENVELOPE, PLASTIC
1	016-0171-649	SHEET, WARRANTY/HELP
1	115-2005-233	(LABELED BOX 2 OF 5) CABLE, RIGHT INNER, 90'/15", NH MY18 SMALL&MY19+, MONO BOOM KIT
1	115-2005-234	(LABELED BOX 3 OF 5) CABLE, LEFT INNER, 90'/15", NH MY18 SMALL&MY19+, MONO BOOM KIT
36	063-2005-001	(LABELED BOX 4 OF 5) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	219-2005-115M	O-RING, 38-PACK, VITON, PURPLE, SIZE -115
1	219-2005-116M	O-RING, 38-PACK, VITON, BLACK, SIZE -116
36	063-2005-001	(LABELED BOX 5 OF 5) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	219-2005-115M	O-RING, 38-PACK, VITON, PURPLE, SIZE -115
1	219-2005-116M	O-RING, 38-PACK, VITON, BLACK, SIZE -116

FIGURE 2. Hawkeye® 2 NH/Miller MY18 Small Frame & MY19+ All Models, 100'/15" Mono Boom Kit Components (P/N 117-2005-213 Rev. A)

QTY	PART #	DESCRIPTION
1	053-0159-197	BOX, SHIPPING (LABELED BOX 1 OF 6)
1	063-0173-956	RCM, HAWKEYE 2
1	115-2005-024	CABLE, ECU ADAPTER, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-025	CABLE, POWER TEE, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-026	CABLE, LEFT/RIGHT, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
2	115-2005-235	CABLE, MID, 100'/15", NH, MONO, HAWKEYE 2
2	115-2005-236	CABLE, OUTER, 100'/15", NH, MONO, HAWKEYE 2
1	117-2005-050	KIT, HAWKEYE 2 SYSTEM SERVICE, TEEJET
1	116-0159-847	WELDMENT, MOUNTING PLATE, RCM, NEW HOLLAND
1	053-0159-110	ENVELOPE, PLASTIC
4	311-4073-135	M6 X 18MM, SOCKET, FLATHEAD, 304 SS
1	311-4078-143	M6 X 55MM, SOCKET, BUTTONHEAD, 304 SS
2	311-4078-146	M6 X 70MM, SOCKET, BUTTONHEAD, 304 SS
3	313-6000-011	WASHER, M6, FLAT, 304 SS
1	053-0159-015	ENVELOPE, PLASTIC
1	016-0171-649	SHEET, WARRANTY/HELP
1	115-2005-233	(LABELED BOX 2 OF 6) CABLE, RIGHT INNER, 100'/15", NH MY18 SMALL&MY19+, MONO
1	115-2005-234	(LABELED BOX 3 OF 6) CABLE, LEFT INNER, 100'/15", NH MY18 SMALL&MY19+, MONO

FIGURE 3. Hawkeye® 2 NH/Miller MY18 Small Frame & MY19+ All Models, 100'/15" Mono Boom Kit Components (P/N 117-2005-213 Rev. A) Cont.

QTY	PART #	DESCRIPTION
36	063-2005-001	(LABELED BOX 4 OF 6) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	219-2005-115M	O-RING, 38-PACK, VITON, PURPLE, SIZE -115
1	219-2005-116M	O-RING, 38-PACK, VITON, BLACK, SIZE -116
36	063-2005-001	(LABELED BOX 5 OF 6) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	219-2005-115M	O-RING, 38-PACK, VITON, PURPLE, SIZE -115
1	219-2005-116M	O-RING, 38-PACK, VITON, BLACK, SIZE -116
1	053-0159-291	BOX, SHIPPING (LABELED BOX 6 OF 6)
2	053-0159-292	DIVIDER SHEET, INSERT, SHIPPING BOX
1	053-0159-293	14 PCS DIVIDER, INSERT, SHIPPING BOX
9	063-2005-001	NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	053-0159-110	ENVELOPE, PLASTIC
10	219-2005-115	O-RING, VITON, PURPLE, SIZE -115
1	053-0159-110	ENVELOPE, PLASTIC
10	219-2005-116	O-RING, VITON, BLACK, SIZE -116

FIGURE 4. Hawkeye® 2 NH/Miller MY18 Small Frame & MY19+ All Models, 120'/15" Mono Boom Kit Components (P/N 117-2005-215 Rev. A)

QTY	PART #	DESCRIPTION
1	053-0159-197	BOX, SHIPPING (LABELED BOX 1 OF 6)
1	063-0173-956	RCM, HAWKEYE 2
1	115-2005-024	CABLE, ECU ADAPTER, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-025	CABLE, POWER TEE, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-026	CABLE, LEFT/RIGHT, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
2	115-2005-231	CABLE, MID, 120'/15", NH, MONO, HAWKEYE 2
2	115-2005-232	CABLE, OUTER, 120'/15", NH, MONO, HAWKEYE 2
1	117-2005-050	KIT, HAWKEYE 2 SYSTEM SERVICE, TEEJET
1	116-0159-847	WELDMENT, MOUNTING PLATE, RCM, NEW HOLLAND
1	053-0159-110	ENVELOPE, PLASTIC
4	311-4073-135	M6 X 18MM, SOCKET, FLATHEAD, 304 SS
1	311-4078-143	M6 X 55MM, SOCKET, BUTTONHEAD, 304 SS
2	311-4078-146	M6 X 70MM, SOCKET, BUTTONHEAD, 304 SS
3	313-6000-011	WASHER, M6, FLAT, 304 SS
1	053-0159-015	ENVELOPE, PLASTIC
1	016-0171-649	SHEET, WARRANTY/HELP
1	115-2005-229	(LABELED BOX 2 OF 6) CABLE, RIGHT INNER, 120'/15", NH MY18 SMALL&MY19+, MONO
1	115-2005-230	(LABELED BOX 3 OF 6) CABLE, LEFT INNER, 120'/15", NH MY18 SMALL&MY19+, MONO
36	063-2005-001	(LABELED BOX 4 OF 6) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	219-2005-115M	O-RING, 38-PACK, VITON, PURPLE, SIZE -115
1	219-2005-116M	O-RING, 38-PACK, VITON, BLACK, SIZE -116
36	063-2005-001	(LABELED BOX 5 OF 6) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	219-2005-115M	O-RING, 38-PACK, VITON, PURPLE, SIZE -115
1	219-2005-116M	O-RING, 38-PACK, VITON, BLACK, SIZE -116
25	063-2005-001	(LABELED BOX 6 OF 6) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	053-0159-110	ENVELOPE, PLASTIC
26	219-2005-115	O-RING, VITON, PURPLE, SIZE -115
1	053-0159-110	ENVELOPE, PLASTIC
26	219-2005-116	O-RING, VITON, BLACK, SIZE -116

FIGURE 5. Hawkeye® 2 NH/Miller MY18 Small Frame & MY19 All Models, 120'/15" Truss Boom Kit Components (P/N 117-2005-082 Rev. A)

QTY	PART #	DESCRIPTION
1	053-0159-197	BOX, SHIPPING (LABELED BOX 1 OF 6)
1	063-0173-956	RCM, HAWKEYE 2
1	115-2005-024	CABLE, ECU ADAPTER, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-025	CABLE, POWER TEE, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-026	CABLE, LEFT/RIGHT, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
2	115-2005-114	CABLE, MID, 120'/15", NH, TRUSS, HAWKEYE 2
2	115-2005-115	CABLE, OUTER, 120'/15", NH, MY17-MY19 TRUSS, HAWKEYE 2
1	117-2005-050	KIT, HAWKEYE 2 SYSTEM SERVICE, TEEJET
1	116-0159-847	WELDMENT, MOUNTING PLATE, RCM, NEW HOLLAND
1	053-0159-110	ENVELOPE, PLASTIC
4	311-4073-135	M6 X 18MM, SOCKET, FLATHEAD, 304 SS
1	311-4078-143	M6 X 55MM, SOCKET, BUTTONHEAD, 304 SS
2	311-4078-146	M6 X 70MM, SOCKET, BUTTONHEAD, 304 SS
3	313-6000-011	WASHER, M6, FLAT, 304 SS
1	053-0159-015	ENVELOPE, PLASTIC
1	016-0171-649	SHEET, WARRANTY/HELP
1	115-2005-112	(LABELED BOX 2 OF 6) CABLE, RIGHT INNER, 120'/15", NH, TRUSS, HAWKEYE 2
1	115-2005-113	(LABELED BOX 3 OF 6) CABLE, LEFT INNER, 120'/15", NH, TRUSS, HAWKEYE 2
36	063-2005-001	(LABELED BOX 4 OF 6) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	219-2005-115M	O-RING, 38-PACK, VITON, PURPLE, SIZE -115
1	219-2005-116M	O-RING, 38-PACK, VITON, BLACK, SIZE -116
36	063-2005-001	(LABELED BOX 5 OF 6) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	219-2005-115M	O-RING, 38-PACK, VITON, PURPLE, SIZE -115
1	219-2005-116M	O-RING, 38-PACK, VITON, BLACK, SIZE -116
25	063-2005-001	(LABELED BOX 6 OF 6) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	053-0159-110	ENVELOPE, PLASTIC
27	219-2005-115	O-RING, VITON, PURPLE, SIZE -115
1	053-0159-110	ENVELOPE, PLASTIC
27	219-2005-116	O-RING, VITON, BLACK, SIZE -116

FIGURE 6. Hawkeye® 2 NH/Miller MY20+ All Models, 120'/15" Truss Boom Kit Components (P/N 117-2005-083 Rev. A)

QTY	PART #	DESCRIPTION
1	053-0159-197	BOX, SHIPPING (LABELED BOX 1 OF 6)
1	063-0173-956	RCM, HAWKEYE 2
1	115-2005-024	CABLE, ECU ADAPTER, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-025	CABLE, POWER TEE, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-026	CABLE, LEFT/RIGHT, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
2	115-2005-114	CABLE, MID, 120'/15", NH, TRUSS, HAWKEYE 2
2	115-2005-303	CABLE, OUTER, 120'/15", NH, MY20+ TRUSS, HAWKEYE 2
1	117-2005-050	KIT, HAWKEYE 2 SYSTEM SERVICE, TEEJET
1	116-0159-847	WELDMENT, MOUNTING PLATE, RCM, NEW HOLLAND
1	053-0159-110	ENVELOPE, PLASTIC
4	311-4073-135	M6 X 18MM, SOCKET, FLATHEAD, 304 SS
1	311-4078-143	M6 X 55MM, SOCKET, BUTTONHEAD, 304 SS
2	311-4078-146	M6 X 70MM, SOCKET, BUTTONHEAD, 304 SS
3	313-6000-011	WASHER, M6, FLAT, 304 SS
1	053-0159-015	ENVELOPE, PLASTIC
1	016-0171-649	SHEET, WARRANTY/HELP
1	115-2005-112	(LABELED BOX 2 OF 6) CABLE, RIGHT INNER, 120'/15', NH, TRUSS, HAWKEYE 2
1	115-2005-113	(LABELED BOX 3 OF 6) CABLE, LEFT INNER, 120'/15", NH, TRUSS, HAWKEYE 2
36	063-2005-001	(LABELED BOX 4 OF 6) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	219-2005-115M	O-RING, 38-PACK, VITON, PURPLE, SIZE -115
1	219-2005-116M	O-RING, 38-PACK, VITON, BLACK, SIZE -116
36	063-2005-001	(LABELED BOX 5 OF 6) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	219-2005-115M	O-RING, 38-PACK, VITON, PURPLE, SIZE -115
1	219-2005-116M	O-RING, 38-PACK, VITON, BLACK, SIZE -116
25	063-2005-001	(LABELED BOX 6 OF 6) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	053-0159-110	ENVELOPE, PLASTIC
27	219-2005-115	O-RING, VITON, PURPLE, SIZE -115
1	053-0159-110	ENVELOPE, PLASTIC
27	219-2005-116	O-RING, VITON, BLACK, SIZE -116

FIGURE 7. Hawkeye® 2 NH/Miller MY18 Small Frame & MY19+ All Models, 132'/15" Truss Boom Kit Components (P/N 117-2005-084 Rev. A)

QTY	PART #	DESCRIPTION
1	053-0159-197	BOX, SHIPPING (LABELED BOX 1 OF 6)
1	063-0173-956	RCM, HAWKEYE 2
1	115-2005-024	CABLE, ECU ADAPTER, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-025	CABLE, POWER TEE, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-026	CABLE, LEFT/RIGHT, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
2	115-2005-226	CABLE, MID, 132'/15", NH, TRUSS, HAWKEYE 2
2	115-2005-227	CABLE, OUTER, 132'/15", NH, TRUSS, HAWKEYE 2
1	117-2005-050	KIT, HAWKEYE 2 SYSTEM SERVICE, TEEJET
1	116-0159-847	WELDMENT, MOUNTING PLATE, RCM, NEW HOLLAND
1	053-0159-110	ENVELOPE, PLASTIC
4	311-4073-135	M6 X 18MM, SOCKET, FLATHEAD, 304 SS
1	311-4078-143	M6 X 55MM, SOCKET, BUTTONHEAD, 304 SS
2	311-4078-146	M6 X 70MM, SOCKET, BUTTONHEAD, 304 SS
3	313-6000-011	WASHER, M6, FLAT, 304 SS
1	053-0159-015	ENVELOPE, PLASTIC
1	016-0171-649	SHEET, WARRANTY/HELP
1	115-2005-112	(LABELED BOX 2 OF 6) CABLE, RIGHT INNER, 132'/15", NH, TRUSS, HAWKEYE 2
1	115-2005-113	(LABELED BOX 3 OF 6) CABLE, LEFT INNER, 132'/15", NH, TRUSS, HAWKEYE 2
36	063-2005-001	(LABELED BOX 4 OF 6) NOZZLE CONTROL VAVLE, HAWKEYE 2, TEEJET
1	219-2005-115M	O-RING, 38-PACK, VITON, PURPLE, SIZE -115
1	219-2005-116M	O-RING, 38-PACK, VITON, BLACK, SIZE -116
36	063-2005-001	(LABELED BOX 5 OF 6) NOZZLE CONTROL VAVLE, HAWKEYE 2, TEEJET
1	219-2005-115M	O-RING, 38-PACK, VITON, PURPLE, SIZE -115
1	219-2005-116M	O-RING, 38-PACK, VITON, BLACK, SIZE -116
33	063-2005-001	(LABELED BOX 6 OF 6) NOZZLE CONTROL VAVLE, HAWKEYE 2, TEEJET
1	219-2005-115M	O-RING, 38-PACK, VITON, PURPLE, SIZE -115
1	219-2005-116M	O-RING, 38-PACK, VITON, BLACK, SIZE -116

FIGURE 8. Hawkeye® 2 NH/Miller MY18 Small Frame & MY19+ All Models, 135'/15" Truss Boom Kit Components (P/N 117-2005-085 Rev. A)

QTY	PART #	DESCRIPTION
1	053-0159-197	BOX, SHIPPING (LABELED BOX 1 OF 6)
1	063-0173-956	RCM, HAWKEYE 2
1	115-2005-024	CABLE, ECU ADAPTER, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-025	CABLE, POWER TEE, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-026	CABLE, LEFT/RIGHT, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
2	115-2005-226	CABLE, MID, 135'/15", NH, TRUSS, HAWKEYE 2
2	115-2005-228	CABLE, OUTER, 135'/15", NH, TRUSS, HAWKEYE 2
1	117-2005-050	KIT, HAWKEYE 2 SYSTEM SERVICE, TEEJET
1	116-0159-847	WELDMENT, MOUNTING PLATE, RCM, NEW HOLLAND
1	053-0159-110	BOX, SHIPPING
1	063-2005-001	NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	053-0159-110	ENVELOPE, PLASTIC
4	311-4073-135	M6 X 18MM, SOCKET, FLATHEAD, 304 SS
1	311-4078-143	M6 X 55MM, SOCKET, BUTTONHEAD, 304 SS
2	311-4078-146	M6 X 70MM, SOCKET, BUTTONHEAD, 304 SS
3	313-6000-011	WASHER, M6, FLAT, 304 SS
1	053-0159-015	ENVELOPE, PLASTIC
1	016-0171-649	SHEET, WARRANTY/HELP
1	115-2005-112	(LABELED BOX 2 OF 6) CABLE, RIGHT INNER, 135'/15", NH, TRUSS, HAWKEYE 2
1	115-2005-113	(LABELED BOX 3 OF 6) CABLE, LEFT INNER, 135'/15", NH, TRUSS, HAWKEYE 2
36	063-2005-001	(LABELED BOX 4 OF 6) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	219-2005-115M	O-RING, 38-PACK, VITON, PURPLE, SIZE -115
1	219-2005-116M	O-RING, 38-PACK, VITON, BLACK, SIZE -116
36	063-2005-001	(LABELED BOX 5 OF 6) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	219-2005-115M	O-RING, 38-PACK, VITON, PURPLE, SIZE -115
1	219-2005-116M	O-RING, 38-PACK, VITON, BLACK, SIZE -116
36	063-2005-001	(LABELED BOX 6 OF 6) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	219-2005-115M	O-RING, 38-PACK, VITON, PURPLE, SIZE -115
1	219-2005-116M	O-RING, 38-PACK, VITON, BLACK, SIZE -116

FIGURE 9. Hawkeye® 2 NH/Miller MY18 Small Frame & MY19+ All Models, 90'/20" Mono Boom Kit Components (P/N 117-2005-217 Rev. A)

QTY	PART #	DESCRIPTION
1	053-0159-197	BOX, SHIPPING (LABELED BOX 1 OF 6)
1	063-0173-956	RCM, HAWKEYE 2
1	115-2005-024	CABLE, ECU ADAPTER, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-025	CABLE, POWER TEE, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-026	CABLE, LEFT/RIGHT, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
2	115-2005-241	CABLE, MID, 90'/20", NH, MONO, HAWKEYE 2
2	115-2005-243	CABLE, OUTER, 90'/20", NH, MONO, HAWKEYE 2
1	117-2005-050	KIT, HAWKEYE 2 SYSTEM SERVICE, TEEJET
1	116-0159-847	WELDMENT, MOUNTING PLATE, RCM, NEW HOLLAND
1	053-0159-110	ENVELOPE, PLASTIC
4	311-4073-135	M6 X 18MM, SOCKET, FLATHEAD, 304 SS
1	311-4078-143	M6 X 55MM, SOCKET, BUTTONHEAD, 304 SS
2	311-4078-146	M6 X 70MM, SOCKET, BUTTONHEAD, 304 SS
3	313-6000-011	WASHER, M6, FLAT, 304 SS
1	053-0159-015	ENVELOPE, PLASTIC
1	016-0171-649	SHEET, WARRANTY
1	115-2005-240	(LABELED BOX 2 OF 6) CABLE, RIGHT INNER, 90'/20", NH MY18 SMALL&MY19+, MONO
1	115-2005-239	(LABELED BOX 3 OF 6) CABLE, LEFT INNER, 90'/20", NH MY18 SMALL&MY19+, MONO

FIGURE 10. Hawkeye® 2 NH/Miller MY18 Small Frame & MY19+ All Models, 90'/20" Mono Boom Kit Components (P/N 117-2005-217 Rev. A) Cont.

QTY	PART #	DESCRIPTION
36 1 1	063-2005-001 219-2005-115M 219-2005-116M	(LABELED BOX 4 OF 6) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET O-RING, 38-PACK, VITON, PURPLE, SIZE -115 O-RING, 38-PACK, VITON, BLACK, SIZE -116
1 2 1 9 1 10 1 10	053-0159-291 053-0159-292 053-0159-293 063-2005-001 053-0159-110 219-2005-115 053-0159-110 219-2005-116	BOX, SHIPPING (LABELED 5 OF 6) DIVIDER SHEET, INSERT, SHIPPING BOX 14 PCS DIVIDER, INSERT, SHIPPING BOX NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET ENVELOPE, PLASTIC O-RING, VITON, PURPLE, SIZE -115 ENVELOPE, PLASTIC O-RING, VITON, BLACK, SIZE -116
1 2 1 10 1 12 1 12	053-0159-291 053-0159-292 053-0159-293 063-2005-001 053-0159-110 219-2005-115 053-0159-110 219-2005-116	BOX, SHIPPING (LABELED 6 OF 6) DIVIDER SHEET, INSERT, SHIPPING BOX 14 PCS DIVIDER, INSERT, SHIPPING BOX NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET ENVELOPE, PLASTIC O-RING, VITON, PURPLE, SIZE -115 ENVELOPE, PLASTIC O-RING, VITON, BLACK, SIZE -116

FIGURE 11. Hawkeye® 2 NH/Miller MY18 Small Frame & MY19+ All Models, 100'/20" Mono Boom Kit Components (P/N 117-2005-219 Rev. A)

QTY	PART #	DESCRIPTION
1	053-0159-197	BOX, SHIPPING (LABELED BOX 1 OF 5)
1	063-0173-956	RCM, HAWKEYE 2
1	115-2005-024	CABLE, ECU ADAPTER, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-025	CABLE, POWER TEE, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-026	CABLE, LEFT/RIGHT, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
2	115-2005-241	CABLE, MID, 100'/20", NH, MONO, HAWKEYE 2
2	115-2005-242	CABLE, OUTER, 100'/20", NH, MONO, HAWKEYE 2
1	117-2005-050	KIT, HAWKEYE 2 SYSTEM SERVICE, TEEJET
1	116-0159-847	WELDMENT, MOUNTING PLATE, RCM, NEW HOLLAND
1	053-0159-110	ENVELOPE, PLASTIC
4	311-4073-135	M6 X 18MM, SOCKET, FLATHEAD, 304 SS
1	311-4078-143	M6 X 55MM, SOCKET, BUTTONHEAD, 304 SS
2	311-4078-146	M6 X 70MM, SOCKET, BUTTONHEAD, 304 SS
3	313-6000-011	WASHER, M6, FLAT, 304 SS
1	053-0159-015	ENVELOPE, PLASTIC
1	016-0171-649	SHEET, WARRANTY
1	115-2005-240	(LABELED BOX 2 OF 5) CABLE, RIGHT INNER, 100'/20", NH MY18 SMALL&MY19+, MONO
1	115-2005-239	(LABELED BOX 3 OF 5) CABLE, LEFT INNER, 100'/20", NH MY18 SMALL&MY19+, MONO
36	063-2005-001	(LABELED BOX 4 OF 5) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	219-2005-115M	O-RING, 38-PACK, VITON, PURPLE, SIZE -115
1	219-2005-116M	O-RING, 38-PACK, VITON, BLACK, SIZE -116
25	063-2005-001	(LABELED BOX 5 OF 5) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	053-0159-110	ENVELOPE, PLASTIC
26	219-2005-115	O-RING, VITON, PURPLE, SIZE -115
1	053-0159-110	ENVELOPE, PLASTIC
26	219-2005-116	O-RING, VITON, BLACK, SIZE -116

FIGURE 12. Hawkeye® 2 NH/Miller MY18 Small Frame & MY19+ All Models, 120'/20" Mono Boom Kit Components (P/N 117-2005-010 Rev. A)

QTY	PART #	DESCRIPTION
1	053-0159-197	BOX, SHIPPING (LABELED BOX 1 OF 5)
1	063-0173-956	RCM, HAWKEYE 2
1	115-2005-024	CABLE, ECU ADAPTER, NH MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-025	CABLE, POWER/ECU TEE, NH MY18 SMALL, ALL M19+, HAWKEYE 2
1	115-2005-026	CABLE, LEFT/RIGHT, NH MY18 SMALL, ALL MY19+, HAWKEYE 2
2	115-2005-085	CABLE, MID, 120/20, NH, MONO, HAWKEYE 2
2	115-2005-086	CABLE, OUTER, 120/20, NH, MONO, HAWKEYE 2
1	117-2005-050	KIT, HAWKEYE 2 SYSTEM SERVICE, TEEJET
1	116-0159-847	WELDMENT, MOUNTING PLATE, RCM, NEW HOLLAND
1	053-0159-110	ENVELOPE, PLASTIC
4	311-4073-135	M6 X 18MM, SOCKET, FLATHEAD, 304 SS
1	311-4078-143	M6 X 55MM, SOCKET, BUTTONHEAD, 304 SS
2	311-4078-146	M6 X 70MM, SOCKET, BUTTONHEAD, 304 SS
3	313-6000-011	WASHER, M6, FLAT, 304 SS
1	053-0159-015	ENVELOPE, PLASTIC
1	016-0171-649	SHEET, WARRANTY/HELP
1	053-0159-110	ENVELOPE, PLASTIC
1	063-2005-001	NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	115-2005-084	(LABELED BOX 2 OF 5) CABLE, LEFT INNER, NEW HOLLAND, 120'/20", MONO BOOM,
1	115-2005-083	(LABELED BOX 3 OF 5) CABLE, RIGHT INNER, NEW HOLLAND, 120'/20", MONO BOOM
36	063-2005-001	(LABELED BOX 4 OF 5) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	219-2005-115M	O-RING, 38-PACK, VITON, PURPLE, SIZE -115
1	219-2005-116M	O-RING, 38-PACK, VITON, BLACK, SIZE -116
36	063-2005-001	(LABELED BOX 5 OF 5) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	219-2005-115M	O-RING, 38-PACK, VITON, PURPLE, SIZE -115
1	219-2005-116M	O-RING, 38-PACK, VITON, BLACK, SIZE -116

FIGURE 13. Hawkeye® 2 NH/Miller MY18 Small Frame & MY19 All Models, 120'/20" Truss Boom Kit Components (P/N 117-2005-015 Rev. A)

QTY	PART #	DESCRIPTION
1	053-0159-197	BOX, SHIPPING (LABELED BOX 1 OF 5)
1	063-0173-956	RCM, HAWKEYE 2
1	115-2005-024	CABLE, ECU ADAPTER, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-025	CABLE, POWER TEE, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-026	CABLE, LEFT/RIGHT, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
2	115-2005-131	CABLE, MID, 120'/20", NH, TRUSS, HAWKEYE 2
2	115-2005-244	CABLE, OUTER, 120'/20", NH, TRUSS, MY17-MY19, HAWKEYE 2
1	117-2005-050	KIT, HAWKEYE 2 SYSTEM SERVICE, TEEJET
1	116-0159-847	WELDMENT, MOUNTING PLATE, RCM, NEW HOLLAND
1	053-0159-110	ENVELOPE, PLASTIC
4	311-4073-135	M6 X 18MM, SOCKET, FLATHEAD, 304 SS
1	311-4078-143	M6 X 55MM, SOCKET, BUTTONHEAD, 304 SS
2	311-4078-146	M6 X 70MM, SOCKET, BUTTONHEAD, 304 SS
3	313-6000-011	WASHER, M6, FLAT, 304 SS
1	053-0159-015	ENVELOPE, PLASTIC
1	016-0171-649	SHEET, WARRANTY/HELP
1	053-0159-110	ENVELOPE, PLASTIC
1	063-2005-001	NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	115-2005-129	(LABELED BOX 2 OF 5) CABLE, RIGHT INNER, 120'/20", NH, TRUSS, HAWKEYE 2
1	115-2005-130	(LABELED BOX 3 OF 5) CABLE, LEFT INNER, 120'/20", NH, TRUSS, HAWKEYE 2
36	063-2005-001	(LABELED BOX 4 OF 5) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	216-2005-115M	O-RING, 38-PACK, VITON, PURPLE, SIZE -115
1	216-2005-116M	O-RING, 38-PACK, VITON, BLACK, SIZE -116
36	063-2005-001	(LABELED BOX 5 OF 5) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	216-2005-115M	O-RING, 38-PACK, VITON, PURPLE, SIZE -115
1	216-2005-116M	O-RING, 38-PACK, VITON, BLACK, SIZE -116

FIGURE 14. Hawkeye® 2 NH/Miller MY20+ All Models, 120'/20" Truss Boom Kit Components (P/N 117-2005-016 Rev. A)

QTY	PART #	DESCRIPTION
1	053-0159-197	BOX, SHIPPING (LABELED BOX 1 OF 5)
1	063-0173-956	RCM, HAWKEYE 2
1	115-2005-024	CABLE, ECU ADAPTER, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-025	CABLE, POWER TEE, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-026	CABLE, LEFT/RIGHT, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
2	115-2005-131	CABLE, MID, 120'/20", NH, TRUSS, HAWKEYE 2
2	115-2005-303	CABLE, OUTER, 120'/20", NH, TRUSS, MY20+, HAWKEYE 2
1	117-2005-050	KIT, HAWKEYE 2 SYSTEM SERVICE, TEEJET
1	116-0159-847	WELDMENT, MOUNTING PLATE, RCM, NEW HOLLAND
1	053-0159-110	ENVELOPE, PLASTIC
4	311-4073-135	M6 X 18MM, SOCKET, FLATHEAD, 304 SS
1	311-4078-143	M6 X 55MM, SOCKET, BUTTONHEAD, 304 SS
2	311-4078-146	M6 X 70MM, SOCKET, BUTTONHEAD, 304 SS
3	313-6000-011	WASHER, M6, FLAT, 304 SS
1	053-0159-015	ENVELOPE, PLASTIC
1	016-0171-649	SHEET, WARRANTY/HELP
1	053-0159-110	ENVELOPE, PLASTIC
1	063-2005-001	NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	115-2005-129	(LABELED BOX 2 OF 5) CABLE, RIGHT INNER, 120'/20", NH, TRUSS, HAWKEYE 2
1	115-2005-130	(LABELED BOX 4 OF 5) CABLE, LEFT INNER, 120'/20", NH, TRUSS, HAWKEYE 2
36	063-2005-001	(LABELED BOX 4 OF 5) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	216-2005-115M	O-RING, 38-PACK, VITON, PURPLE, SIZE -115
1	219-2005-116M	O-RING, 38-PACK, VITON, BLACK, SIZE -116
36	063-2005-001	(LABELED BOX 5 OF 5) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET
1	219-2005-115M	O-RING, 38-PACK, VITON, PURPLE, SIZE -115
1	219-2005-116M	O-RING, 38-PACK, VITON, BLACK, SIZE -116

FIGURE 15. Hawkeye® 2 NH/Miller MY18 Small Frame & MY19+ All Models, 132'/20" Truss Boom Kit Components (P/N 117-2005-017 Rev. A)

QTY	PART #	DESCRIPTION
1	053-0159-197	BOX, SHIPPING (LABELED BOX 1 OF 6)
1	063-0173-956	RCM, HAWKEYE 2
1	115-2005-024	CABLE, ECU ADAPTER, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-025	CABLE, POWER TEE, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-026	CABLE, LEFT/RIGHT, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
2	115-2005-131	CABLE, MID, 132'/20", NH, TRUSS, HAWKEYE 2
2	115-2005-245	CABLE, OUTER, 132'/20", NH, TRUSS, HAWKEYE 2
1	117-2005-050	KIT, HAWKEYE 2 SYSTEM SERVICE, TEEJET
1	116-0159-847	WELDMENT, MOUNTING PLATE, RCM, NEW HOLLAND
1	053-0159-110	ENVELOPE, PLASTIC
4	311-4073-135	M6 X 18MM, SOCKET, FLATHEAD, 304 SS
1	311-4078-143	M6 X 55MM, SOCKET, BUTTONHEAD, 304 SS
2	311-4078-146	M6 X 70MM, SOCKET, BUTTONHEAD, 304 SS
3	313-6000-011	WASHER, M6, FLAT, 304 SS
1	053-0159-015	ENVELOPE, PLASTIC
1	016-0171-649	SHEET, WARRANTY/HELP
1	115-2005-129	(LABELED BOX 2 OF 6) CABLE, RIGHT INNER, 132'/20", NH, TRUSS, HAWKEYE 2
1	115-2005-130	(LABELED BOX 3 OF 6) CABLE, LEFT INNER, 132'/20", NH, TRUSS, HAWKEYE 2

FIGURE 16. Hawkeye® 2 NH/Miller MY18 Small Frame & MY19+ All Models, 132'/20" Truss Boom Kit Components (P/N 117-2005-017 Rev. A) Cont.

QTY	PART #	DESCRIPTION
36 1 1	063-2005-001 219-2005-115M 219-2005-116M	(LABELED BOX 4 OF 6) NOZZLE CONTROL VAVLE, HAWKEYE 2, TEEJET O-RING, 38-PACK, VITON, PURPLE, SIZE -115 O-RING, 38-PACK, VITON, BLACK, SIZE -116
36 1 1	063-2005-001 219-2005-115M 219-2005-116M	(LABELED BOX 5 OF 6) NOZZLE CONTROL VAVLE, HAWKEYE 2, TEEJET O-RING, 38-PACK, VITON, PURPLE, SIZE -115 O-RING, 38-PACK, VITON, BLACK, SIZE -116
1 2 1 7 1 9 1 9	053-0159-291 053-0159-292 053-0159-293 063-2005-001 053-0159-110 219-2005-115 053-0159-110 219-2005-116	BOX, SHIPPING (LABELED BOX 6 OF 6) DIVIDER SHEET, INSERT, SHIPPING BOX 14 PCS DIVIDER, INSERT, SHIPPING BOX NOZZLE CONTROL VAVLE, HAWKEYE 2, TEEJET ENVELOPE, PLASTIC O-RING, VITON, PURPLE, SIZE -115 ENVELOPE, PLASTIC O-RING, VITON, BLACK, SIZE -116

FIGURE 17. Hawkeye® 2 NH/Miller MY18 Small Frame & MY19+ All Models, 135'/20" Truss Boom Kit Components (P/N 117-2005-018 Rev. A)

QTY	PART #	DESCRIPTION
1	053-0159-197	BOX, SHIPPING (LABELED BOX 1 OF 5)
1	063-0173-956	RCM, HAWKEYE 2
1	115-2005-024	CABLE, ECU ADAPTER, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-025	CABLE, POWER TEE, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
1	115-2005-026	CABLE, LEFT/RIGHT, NH, MY18 SMALL, ALL MY19+, HAWKEYE 2
2	115-2005-131	CABLE, MID, 135'/20", NH, TRUSS, HAWKEYE 2
2	115-2005-132	CABLE, OUTER, 135'/20", NH, TRUSS, HAWKEYE 2
1	117-2005-050	KIT, HAWKEYE 2 SYSTEM SERVICE, TEEJET
1	116-0159-847	WELDMENT, MOUNTING PLATE, RCM, NEW HOLLAND
1	053-0159-110	ENVELOPE, PLASTIC
4	311-4073-135	M6 X 18MM, SOCKET, FLATHEAD, 304 SS
1	311-4078-143	M6 X 55MM, SOCKET, BUTTONHEAD, 304 SS
2	311-4078-146	M6 X 70MM, SOCKET, BUTTONHEAD, 304 SS
3	313-6000-011	WASHER, M6, FLAT, 304 SS
1	053-0159-015	ENVELOPE, PLASTIC
1	016-0171-649	SHEET, WARRANTY/HELP
1	115-2005-129	(LABELED BOX 2 OF 6) CABLE, RIGHT INNER, 135'/20", NH, TRUSS, HAWKEYE 2
1	115-2005-130	(LABELED BOX 3 OF 6) CABLE, LEFT INNER, 135'/20", NH, TRUSS, HAWKEYE 2

FIGURE 18. Hawkeye® 2 NH/Miller MY18 Small Frame & MY19+ All Models, 135'/20" Truss Boom Kit Components (P/N 117-2005-018 Rev. A) Cont.

QTY	PART #	DESCRIPTION
36 1 1	063-2005-001 219-2005-115M 219-2005-116M	(LABELED BOX 4 OF 6) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET O-RING, 38-PACK, VITON, PURPLE, SIZE -115 O-RING, 38-PACK, VITON, BLACK, SIZE -116
36 1 1	063-2005-001 219-2005-115M 219-2005-116M	(LABELED BOX 5 OF 6) NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET O-RING, 38-PACK, VITON, PURPLE, SIZE -115 O-RING, 38-PACK, VITON, BLACK, SIZE -116
1 2 1 9 1 10 1 10	053-0159-291 053-0159-292 053-0159-293 063-2005-001 053-0159-110 219-2005-115 053-0159-110 219-2005-116	BOX, SHIPPING (LABELED BOX 6 OF 6) DIVIDER SHEET, INSERT, SHIPPING BOX 14 PCS DIVIDER, INSERT, SHIPPING BOX NOZZLE CONTROL VALVE, HAWKEYE 2, TEEJET ENVELOPE, PLASTIC O-RING, VITON, PURPLE, SIZE -115 ENVELOPE, PLASTIC O-RING, VITON, BLACK, SIZE -116

TABLE 2. Hawkeye® 2 Service Kit Components for TeeJet Nozzle Bodies (P/N 117-2005-050)

Picture	Item Description	Part Number	Quantity
	Valve, TeeJet Hawkeye® 2 Nozzle Control	063-2005-001	1
Not Pictured	Kit, TeeJet Hawkeye® 2 Valve Seal	117-2005-060	3
Not Pictured	Cable, Hawkeye® 2 8-pin Ampseal Jumper	115-2005-070B	2
Not Pictured	O-Ring, Size -115 Purple Viton (Single)	219-2005-115	1
Not Pictured	O-Ring, Size -116 Black Viton (Single)	219-2005-116	1
Not Pictured	Tool, Hawkeye® 2 Universal	321-0000-490	2
Not Pictured	Relay, SPST Micro 12V N.O. 280 SRS	415-1001-020	2
Not Pictured	Fuse, Mini-Blade Type 15 Amp	510-1003-041	2

UPDATES

Raven software and documentation updates may be made available periodically on the Raven Applied Technology web site:

portal.ravenprecision.com

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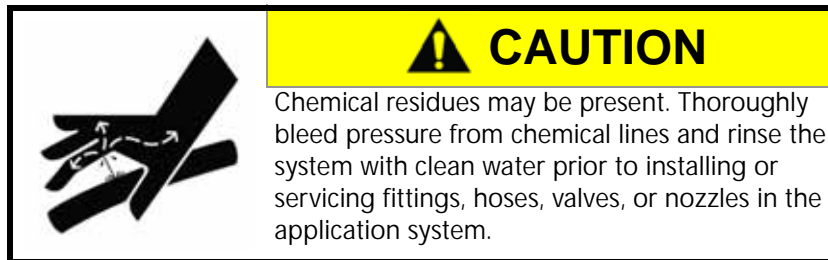
techwriting@ravenind.com

- Hawkeye® 2 Installation Manual for New Holland/Miller MY 2018 Small Frame and MY 2019+ All Frames
- 016-2005-006 Rev. A
- Any comments or feedback (include chapter or page numbers if applicable).
- Let us know how long have you been using this or other Raven products.

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

Thank you for your time.

Perform the following procedure to prepare the implement for installation of the Hawkeye® 2 nozzle control system.



1. Rinse and fill the tank with clean water.
2. Move the equipment to an open area suitable for testing application system operation and rinsing the boom plumbing.
3. Unfold the boom and enable the application control system. Verify that all control hardware (e.g. control valves, section valves, etc.) and spray tips function as expected.
4. Operate the system until any chemicals are rinsed from the boom supply lines.
5. Disable the application control system and de-pressurize the boom.
6. Replace existing carrier line strainer(s) with an 80 mesh strainer. An 80 mesh or finer strainer is required for use with the Hawkeye® 2 nozzle control system.
7. If turret style nozzle bodies are installed on the implement, rotate the turret to an open spray position, if available. If an open spray position is not available, or for nozzle bodies without a turret, remove the spray tips from the boom and set aside for later use.
8. Enable the application control system and run clean water for at least 20 seconds to rinse any remaining debris from the boom plumbing and nozzle bodies.
9. Remove the cap and diaphragm from the nozzle bodies.

FIGURE 1. Nozzle Body Cap and Diaphragm Removed



Cap and Diaphragm
Removed

CHAPTER

4

HAWKEYE® 2 NCV AND BOOM CABLE INSTALLATION

HAWKEYE® 2 NOZZLE CONTROL VALVE INSTALLATION

BEST PRACTICES AND RECOMMENDATIONS

- Do not connect battery leads until all cables are installed and connected.
- If a dual channel turret nozzle body is installed on the implement, always mount the Hawkeye® 2 nozzle control valve to the straight nozzle port to avoid excessive pressure drop across the nozzle.

NOZZLE CONTROL VALVE 2 INSTALLATION

1. Locate the Hawkeye® 2 NCVs and the O-rings provided with the kit.

NOTE: If using TeeJet QJS (straight) nozzle bodies, use the purple coated (size 115) O-rings.

If using TeeJet QJ (turret) nozzle bodies, use the black (size 116) O-rings.

2. Place the O-ring on the face of the stainless valve body of the NCV2 and press the O-ring into place in the outer groove as shown below.

FIGURE 1. Hawkeye® 2 NCV Installation



3. Align the NCV2 with the port of the nozzle body while being careful not to lose the O-ring.

NOTE: On TeeJet straight and stackable nozzle bodies, the NCV2 should always be located on the port closest to the wet boom tube unless interferences do not allow this. This will create the least amount of stress on the nozzle body and should allow satisfactory cable routing.

4. Turn the fly nut of the NCV2 to engage the threads of the nozzle body. Tighten the fly nut using the supplied universal wrench (P/N 333-0002-490), included in the system service kit, until the NCV2 no longer rotates freely, or approximately 50 in-lbs.
5. Repeat step 1 through step 4 for each nozzle location on the spray boom.

NOTE: A leak test is recommended after the installation is complete.

BOOM CABLE ROUTING AND CONNECTION

BEST PRACTICES AND RECOMMENDATIONS

- Route the Hawkeye® 2 inner, mid, and outer boom cables along existing cables or plumbing to avoid cable damage.
- Route cables to avoid pinch points and to avoid stretching the cable during folding and unfolding operations. Pay special attention to cable routing near folding or break-away points.
- Route cables through existing cable retention devices as appropriate.
- When securing the inner, mid, and outer boom cables on the implement, begin at the outer boom tips. Adjust the cable position to provide sufficient slack between valve tee branches while working toward the center of the implement.
- Route the boom cables on the inside of the boom frame when possible.
- Secure cables using a zip tie at each nozzle control valve tee branch, and one between each tee branch along the cable length.

BOOM CABLE ROUTING AND CONNECTIONS (INNER, MIDDLE, AND OUTER BOOM CABLES)

1. Locate the boom cables included with the Hawkeye® 2 installation kit. There are typically six boom cables for a single system:
 - 2 inner boom cables (may be left and right specific).
 - 2 mid boom cables.
 - 2 outer boom cables.
2. For each boom cable, beginning with the inner boom cables, locate the end of the cable with the rotating locking collar.
3. Start with the rotating locking collar end of the cable near the corresponding left or right lift arm of the center rack and route the cable so the first group of 8-pin connector drops align with the group of NCVs on the center rack of the boom. The inner cable will then route over the boom pivot point, towards the end of the boom, following plumbing routing whenever possible.

FIGURE 2. Boom Cable Routing - Over Pivot



NOTE: Keep the boom connections clean and off the ground while routing.

Do not secure cables with cable ties until all cables are in place and routings are checked for pinch points and other interferences.

Ensure sufficient slack is available at fold and break-away joints to allow for full range of motion without stretching the cable.

4. Next, repeat step 2 through 3 for the inner boom cable for the opposite side.
5. Continue routing both mid and outer boom cables by starting each consecutive cable at the end of the previous cable, and repeat step 2 through 4 until all cables have been routed.

NOTE: The connector with the rotating locking collar will always go towards the center of the machine.

6. If not already applied, apply a single, short burst of corrosion inhibitor to all connections. Corrosion X HD (P/N 222-0000-020 or available from <http://www.corrosionx.com/corrosionx-heavy-duty.html>) is recommended.

FIGURE 3. Boom Cable Routing - Over Mid Fold Joint



7. Be sure the corrosion inhibitor has coated the connector electrical contacts and recessed portions of the connector.

NOTE: To determine if corrosion inhibitor has been applied, inspect for a thick liquid in the bottom of the connector.

8. Once all boom cables are routed along the boom as desired, begin connecting the boom cables to the Hawkeye® 2 NCVs previously installed.
9. Use provided cable ties to secure the boom cables to the boom components as needed to ensure they are secure.

NOTE: Do not put strain on cables and connections while applying tie-downs.

Do not leave any exposed cable loops that may get caught on crops or other debris while the vehicle is in use.

10. The inner boom cables will be connected to the LEFT/RIGHT chassis cable in a later section.

FIGURE 4. Outer Boom Cable Section Installed



CHAPTER

5

RCM - SPRAYER MOUNTING AND CONNECTION

MOUNTING PLATE PREPARATION

1. Locate the Product Controller II (PCII) ECU mounted on the back of the sprayer cabin.

FIGURE 1. PCII ECU



2. Remove the four 12-pin DT connectors connected to the PCII ECU.
3. Remove the hardware securing the PCII ECU to the cabin. Remove the PCII ECU and set aside.

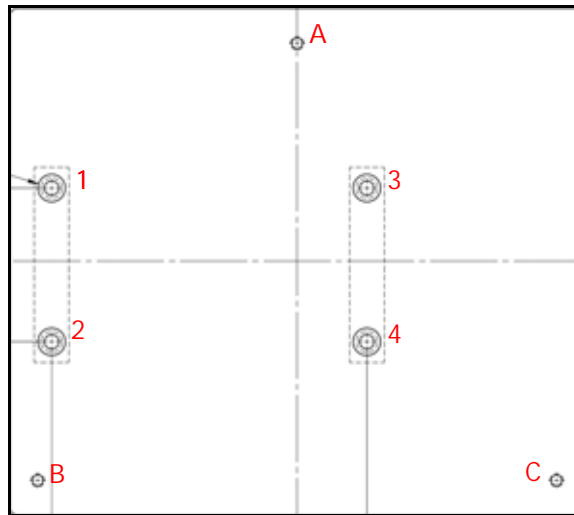
NOTE: The space where the PCII is mounted is narrow. An L-shaped hex key is recommended to remove the PCII hardware and install the RCM - Sprayer.

RCM - SPRAYER INSTALLATION

INSTALL THE MOUNTING PLATE AND RCM - SPRAYER

1. Locate the RCM - Sprayer mounting bracket (P/N 116-0159-847), M6 flathead screws, M6 bolts (1x55MM and 2x70MM), and M6 washers provided with the Hawkeye® 2 kit.

FIGURE 2. RCM - Sprayer Mounting Bracket Hole Diagram



NOTE: The mounting bracket has four countersunk holes (marked above as holes 1 through 4) to mount the plate to the cab. These holes match the inserts in the cab previously used to mount the PCII. The three threaded holes (marked above as holes A through C) in a triangular pattern are used to mount the RCM - Sprayer to the bracket.

2. Begin mounting the bracket to the cab by hand tightening a flathead screw through hole number 4 as seen in Figure 2, "RCM - Sprayer Mounting Bracket Hole Diagram," above.

NOTE: The bracket must be oriented with the single threaded hole A pointed up, and the countersunk holes pointed out from the cab.

While installing the first screw, allow the bracket to rotate counterclockwise. Use the brown plastic box to the left of the mounting location for support.

FIGURE 3. Brown Plastic Box Near RCM - Sprayer Mounting Location



3. Insert and hand tighten the remaining flathead screws, starting with hole number 1.
4. Tighten all flathead screws with a hex key to secure the mounting bracket to the cab.
5. Insert all three bolts through the washers into their respective RCM - Sprayer mounting bosses.

NOTE: Observe the different length of the M6 hex bolts and their respective ECU mounting bosses.

6. Position the RCM - Sprayer on the mounting bracket and hand tighten the top bolt to secure the RCM - Sprayer.
7. Hand tighten the remaining bolts and secure the RCM - Sprayer by tightening all three bolts with a hex key.

FIGURE 4. RCM - Sprayer Mounted



INSTALL THE RCM - SPRAYER CABLES AND SYSTEM POWER CABLES

1. Locate the RCM - Sprayer cable (P/N 115-2005-024) provided in the kit.
2. Identify the three RCM - Sprayer connectors (two black, one gray) and connect these to the RCM - Sprayer.

FIGURE 5. RCM - Sprayer Connections



3. Identify the four 12-pin Deutsch connectors (one of each: gray, black, green, brown) grouped together and connect them to the previously disconnected PCII cable connections.

4. Locate the RCM - Sprayer power cable (P/N 115-2005-025) provided in the kit.
5. Connect the 12-pin Deutsch connector (gray) of the power cable to the remaining 12-pin Deutsch connector (also gray) of the RCM - Sprayer cable.

NOTE: Secure the RCM - Sprayer cable to nearby existing cables with zip ties, ensuring not to pull on any connections and prevent any cable loops from drooping below chassis.

6. Route the power cable forward along the chassis frame beneath the cab to the right lift arm, following the existing cabling along the lift arm to the back of the center rack.
7. Connect the large, round female receptacle to the mating connector on the power cable of the sprayer.

NOTE: The remaining large, round male connector will be connected in a later step.

8. Locate the RCM - Sprayer left/right cable (P/N 115-2005-026).
9. Locate the bulkhead connector hole on the back side of the center section near the right lift arm.
10. From the front side of the spray boom, insert the round female bulkhead receptacle of the left/right cable into the mounting hole. Use the provided washer and nut to secure the receptacle to the center section.

FIGURE 6. Bulkhead Connection Location



11. Connect the round male bulkhead connector of the power cable to the receptacle of the left/right cable.

FIGURE 7. Bulkhead Connection of Power Cable and Left/Right Cable



12. On the front side of the center section, route the left/right cable fuse and relay blocks toward the center of the machine and secure with zip ties.
13. Locate the connector labeled "RIGHT BOOM" and connect it to the right inner boom cable.
14. Locate the "LEFT BOOM" connector and route it along the top side of the center section and towards the left boom.
15. Connect the "LEFT BOOM" connector to the mating connector on the left inner boom cable.
16. Use zip ties to secure all routed cables.

A

SYSTEM DIAGRAM

FIGURE 1. Chassis Cables for MY18 Small Frames and MY19+ All Frames (P/N 054-2005-003 Rev. B)

CHASSIS CABLES, MY18 SMALL FRAME & ALL MY19+ MODELS

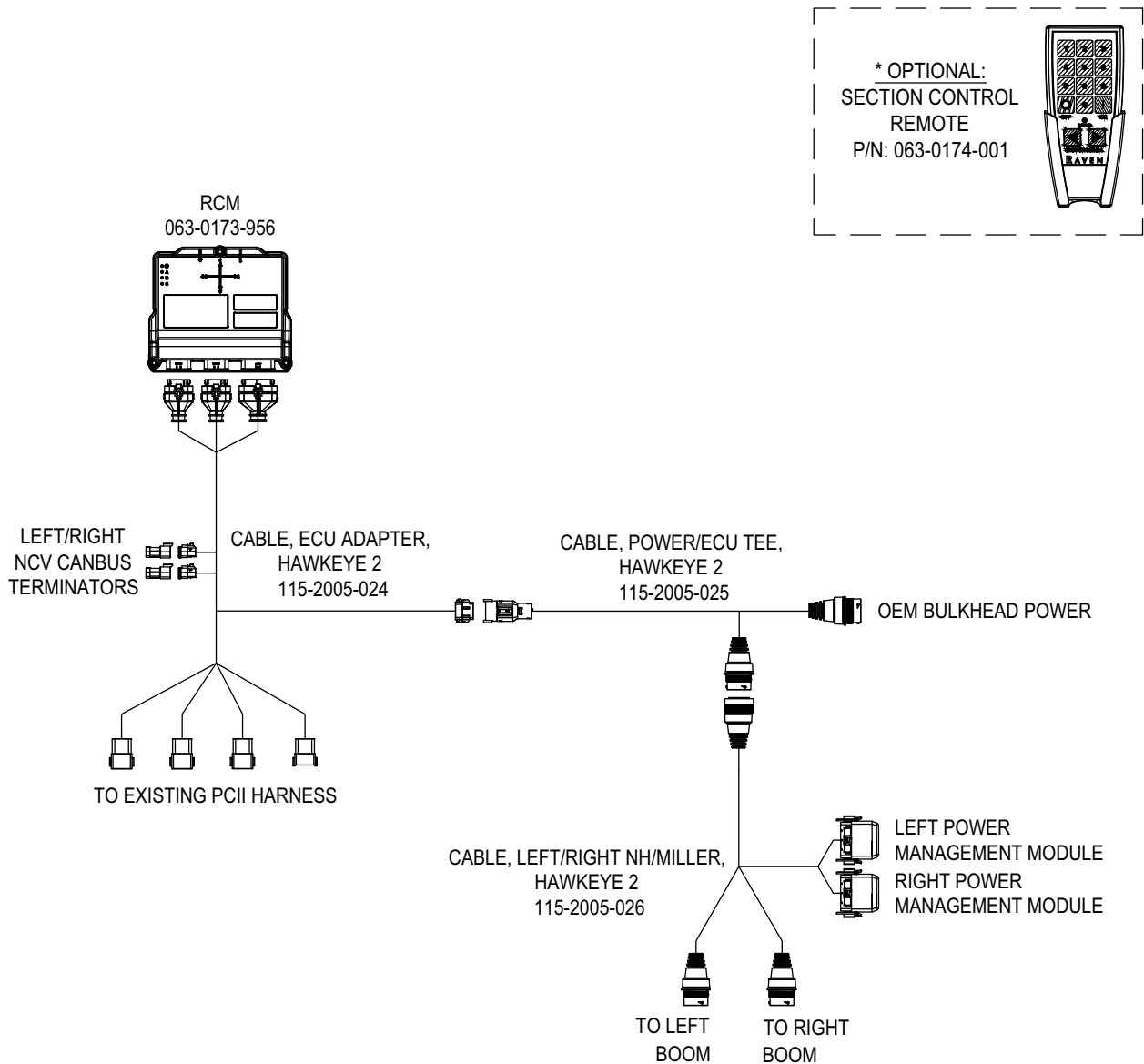
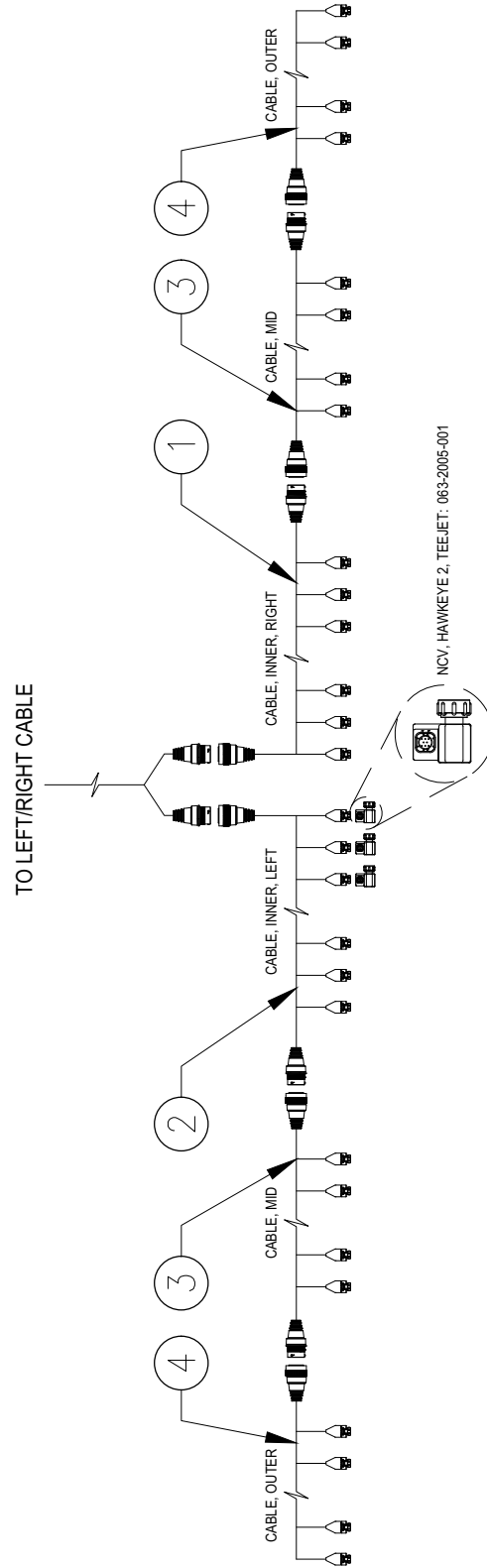


FIGURE 2. Boom Cables for MY18 Small Frame & MY19+ All Frames (P/N 054-2005-003)

BOOM CABLES AND KITS, MY18 SMALL FRAME & ALL MY19+ MODELS

ITEM NO.	DESCRIPTION	90' BOOM 15" SPACING MONO	90' BOOM 20" SPACING MONO	100' BOOM 15" SPACING MONO	100' BOOM 20" SPACING MONO	120' BOOM 15" SPACING MONO	120' BOOM 20" SPACING MONO	120' BOOM 15" SPACING TRUSS	120' BOOM 20" SPACING TRUSS MY20+	120' BOOM 15" SPACING TRUSS MY20+	120' BOOM 20" SPACING TRUSS MY20+	132' BOOM 15" SPACING TRUSS	132' BOOM 20" SPACING TRUSS	135' BOOM 15" SPACING TRUSS	135' BOOM 20" SPACING TRUSS
1	CABLE, INNER (RIGHT)	115-2005-233	115-2005-240	115-2005-229	115-2005-233	115-2005-083	115-2005-112	115-2005-129	115-2005-112	115-2005-112	115-2005-129	115-2005-112	115-2005-112	115-2005-112	115-2005-129
2	CABLE, INNER (LEFT)	115-2005-234	115-2005-239	115-2005-230	115-2005-234	115-2005-084	115-2005-113	115-2005-130	115-2005-113	115-2005-113	115-2005-130	115-2005-113	115-2005-113	115-2005-113	115-2005-130
3	CABLE, MID (QTY 2)	115-2005-235	115-2005-241	115-2005-231	115-2005-235	115-2005-085	115-2005-114	115-2005-131	115-2005-114	115-2005-114	115-2005-131	115-2005-226	115-2005-226	115-2005-226	115-2005-131
4	CABLE, OUTER (QTY 2)	115-2005-237	115-2005-243	115-2005-232	115-2005-236	115-2005-086	115-2005-115	115-2005-244	115-2005-303	115-2005-303	115-2005-302	115-2005-227	115-2005-227	115-2005-228	115-2005-132
N/A	NCV TOTAL	73	55	97	81	73	97	73	97	73	73	105	79	109	81
N/A	KITS	117-2005-211	117-2005-217	117-2005-215	117-2005-213	117-2005-010	117-2005-082	117-2005-015	117-2005-083	117-2005-016	117-2005-017	117-2005-084	117-2005-017	117-2005-085	117-2005-018



- NOTES:
1. NOT ALL CONNECTIONS SHOWN
 2. ALL KITS INCLUDE A SYSTEM SERVICE KIT SPECIFIC TO TEEJET NOZZLE BODIES - 117-2005-050
 3. ALL KITS INCLUDE Z-RINGS SERVICE FOR EACH NCV - 117-2005-115 (PURPLE) & 117-2005-116 (BLACK)
 4. REFER TO INSTALLATION MANUAL - 016-2005-006

POWER AND RCM - SPRAYER HARNESS MAINTENANCE

1. Disconnect the RCM - Sprayer harness connector and inspect for signs of moisture or corrosion.
2. If moisture or corrosion is detected, use Deoxit D5, brushes, and compressed air to clean and dry the connector.
3. When clean, apply a coating of Corrosion X HD to the connector mating surfaces and contacts.
4. Reattach the connectors.

HAWKEYE® 2 BOOM HARNESS CONNECTOR MAINTENANCE

NOTE: The electrical connection of the Hawkeye® 2 NCVs may come with CorrosionX HD pre-applied and protected with a dust cap. Verify the pins are coated adequately with CorrosionX HD when removing the dust caps from the NCV.

Prior to connecting the Hawkeye® 2 boom cable to the Nozzle Control Valves (NCV), perform the following steps to all 8-pin NCV connectors and 19-pin circular connectors between the boom cables and ECU cable connections to ensure high quality connections:

1. Verify the NCV connectors and the accompanying boom cable connectors are free of moisture, contamination, or oxidation. Oxidation will appear as a dry, white coating on the contacts. If any connectors show signs of moisture, contamination, or oxidation, perform Step 2 - Step 6. If this is a new installation, skip to Step 7. All components listed below can be ordered in the Hawkeye® 2 NCV Connection Maintenance Kit (P/N 117-0171-692).

2. Spray the connection with a deoxidizing agent (DeoxIT D5 is recommended (P/N 222-4001-006)).



3. Clean contacts with a small wire brush (P/N 321-0000-477).



4. Spray the contacts again with the deoxidizing agent. This will rinse out debris.
5. Remove all residue of deoxidizing agent from the connection. Not removing deoxidizing agent can damage the connector seal.

6. Dry out the connection with dry, compressed air. Dust Off Electronics Duster (P/N 222-4001-007) is recommended however, if unavailable, alternate compressed air sources can be used. If using compressed air from a large volume air compressor, be sure the lines are free of moisture.



7. If not already applied, apply a single short burst of corrosion inhibitor (Corrosion X HD (Raven P/N 222-0000-020 or available from <http://www.corrosionx.com/corrosionx-heavy-duty.html>)) into the NCV connection. Be sure the corrosion inhibitor has coated the NCV contacts and recessed portions of the connector.

NOTE: To determine if corrosion inhibitor has been applied, inspect for a thick liquid in the bottom of the connector (as shown in the Corrosion Inhibitor Applied image below).

Applying Corrosion Inhibitor



Corrosion Inhibitor Applied



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.

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.