



SIGNODE

MH-RMF

OPERATION, PARTS & MAINTENANCE MANUAL



IMPORTANT!
DO NOT DESTROY

Before operating or servicing equipment,
Operators and Service Personnel must read
and understand the contents of this manual.

SIGNODE ORIGINAL DOCUMENT - ENGLISH VERSION

SIGNODE INDUSTRIAL GROUP LLC • 1600 CENTRAL AVENUE • ROSELLE, ILLINOIS 60172 U.S.A.

© Copyright 2023, Signode Industrial Group LLC • 512589-EN Revision 2



Signode Industrial Group LLC
1600 Central Avenue
Roselle, Illinois 60172
U.S.A.

Phone: (847) 724-6100
Website: Signode.com

© 2023 Signode Industrial Group LLC
All rights reserved. No part of this manual may
be used or reproduced in any manner without
written permission.
Published 2023
Printed in the United States of America

CONTENTS

SAFETY.....	XIV
GENERAL INFORMATION.....	XIV
Operator:.....	XIV
Owner:	XIV
GENERAL SAFETY INSTRUCTIONS.....	XV
Work Area Hazards.....	XV
Fall And Tripping Hazards.....	XV
Electric Shock Hazards.....	XV
HAZARD ALERT	XVI
DANGER.....	XVI
WARNING.....	XVI
CAUTION.....	XVI
NOTICE	XVI
SAFETY INSTRUCTIONS	XVI
MANDATORY ACTION SYMBOLS.....	XVII
Mandatory Action - General	XVII
Mandatory Eye Protection.....	XVII
Mandatory Hand Protection	XVII
Mandatory Ear Protection	XVII
Mandatory Training	XVII
Mandatory Foot Protection.....	XVII
Mandatory Lockout Tagout - Electrical	XVIII
Mandatory Lockout Tagout - Mechanical	XVIII
Mandatory Forklift Lift Points	XVIII
Mandatory Lift Point	XVIII
PROHIBITION SYMBOLS	XVIII
Prohibition - General	XVIII
Forklift access / Use Prohibited	XVIII
Water Prohibited	XVIII
SAFETY SYMBOLS	XIX
Safety Alert - General Hazard	XIX
Hazardous Voltage.....	XIX
Crush Hazard.....	XIX
Shear / Cut Hazard	XIX
Entanglement Hazard - Gears and Chain.....	XIX
Arc Flash and Shock Hazard	XIX
Eye Hazard - Laser Light	XX
Eye Hazard - Flying Objects	XX

Flail Hazard - Strap	XX
Hot Surface	XX
Fall Hazard.....	XX
Conveyor Entanglement Hazard	XX
Entanglement Hazard - Gears	XX

SAFETY SIGNS XXI

MACHINE SAFETY INSTRUCTIONS..... XXII

Use For Intended Purpose Only	XXII
Possible Misuse	XXII
Maintenance	XXII
Disconnect And LockOut Procedures	XXIII
Conveyor Safety Hazards (If Equipped)	XXIII
Improper Strap Usage.....	XXIV
Software.....	XXIV
Machine Installation	XXIV
Customer Requirements For Machine Grounding	XXV
Additional Considerations	XXV
Cutting Tensioned Strapping.....	XXVI
Using A Single-Handle Strap Cutter	XXVII
Using A Two-Handed Strap Cutter	XXVII

SECTION 1

GENERAL MACHINE INFORMATION 1-1

1.1 SPECIFICATIONS 1-4

1.1.1 Original Equipment Manufacturer's (OEM) Information	1-4
1.1.2 Machine Designation	1-4
1.1.3 Machine Description	1-4
1.1.4 Machine Specifications	1-4
1.1.4.1 Electrical:.....	1-4
1.1.4.2 Electrical Supply Cable Installation:	1-4
1.1.4.3 Strap:.....	1-4
1.1.4.4 Rate Of Feed:.....	1-4
1.1.4.5 Rate Of Take-Up:	1-5
1.1.4.6 Strap Tension:	1-5
1.1.4.7 Weights:	1-5
1.1.4.8 Shipping Weight:	1-5
1.1.4.9 Sound:.....	1-5
1.1.4.10 Load Minimum and Maximum dimensions:.....	1-5
1.1.4.11 Environmental Conditions:	1-5
1.1.5 Machine Dimensions And Weights.....	1-6
1.1.5.1 MH-RMF.....	1-6

1.1.5.2	PSD-119 Strap Dispenser	1-6
1.2	MAJOR MACHINE COMPONENTS	1-8
1.2.1	Sealer Module	1-9
1.2.2	Tension Module	1-9
1.3	MACHINE LABELS.....	1-10
1.3.1	Control Panel - Outside.....	1-10
1.3.2	Control Panel - Inside	1-11
1.3.3	Electrical Panel - Outside.....	1-12
1.3.4	Electrical Panel - Inside	1-13
1.3.5	Machine	1-14
1.4	ORDERING REPLACEMENT PARTS	1-15
1.4.1	Instructions For Ordering	1-15
1.4.2	Signode Parts Or Service:	1-15
SECTION 2		
TRANSPORT, INSTALLATION AND SET-UP		2-1
2.1	MACHINE TRANSPORT	2-2
2.1.1	Machine Crating	2-2
2.1.2	Machine Uncrating	2-4
2.1.3	Machine Handling	2-5
2.2	MACHINE INSTALLATION AND SET-UP	2-6
2.2.1	Anchor (Concrete Floor)	2-6
2.2.2	Anchor Dispenser (Concrete Floor)	2-6
2.2.3	Power Supply Connection procedure	2-7
2.2.4	Protective Barrier	2-8
2.3	MACHINE DECOMMISSION.....	2-9
2.3.1	Disassembly.....	2-9
2.3.2	Storage	2-9
2.3.3	Disposal And Scrap.....	2-9
SECTION 3		
MACHINE OPERATION.....		3-1
3.1	PRINCIPLES OF OPERATION	3-4
3.1.1	General	3-4
3.1.1.1	Strap Feed	3-4
3.1.1.2	Carriage Extend	3-4
3.1.1.3	Strap Take-Up	3-4
3.1.1.4	Applied Tension.....	3-4
3.1.1.5	Welding And Cut-Off	3-5
3.1.1.6	Strap Release	3-5
3.1.1.7	Retract.....	3-5

3.2	OPERATOR CONTROLS	3-6
3.2.1	Main Power Disconnect Lever	3-6
3.2.2	Power On	3-6
3.2.3	Emergency Stop	3-6
3.2.3.1	Emergency Stop Procedure	3-6
3.2.4	Cycle Start	3-7
3.2.5	Auto Mode	3-7
3.2.6	Manual Index To Anvil Open	3-7
3.2.7	Operator Workstation	3-8
3.3	HMI CONTROL PANEL.....	3-8
3.3.1	Main Screen	3-8
3.3.2	Password Screen	3-9
3.3.3	Manual Screen	3-9
3.3.4	Alarms Count 1 Screen	3-10
3.3.5	Alarm Count 2 Screen	3-10
3.3.6	Alarm Count 3 Screen	3-11
3.3.7	Alarm Count 4 Screen	3-11
3.3.8	Alarm History Screen	3-12
3.3.9	Cycle Ratio Screen	3-12
3.3.10	Maintenance Screen	3-13
3.3.11	Weld Count Screen	3-13
3.3.12	Weld Setup Screen	3-14
3.3.13	Tension Setup	3-14
3.3.14	Tension Setup - Keypad	3-14
3.3.15	Load Touch Time	3-15
3.3.16	Installed Options	3-15
3.3.17	Prefeed Time	3-15
3.3.18	Analog I/O Screen	3-16
3.3.19	PLC Slot 2 I/O Screen	3-16
3.3.20	PLC Slot 3 I/O Screen	3-16
3.3.21	PLC Slot 4 I/O Screen	3-17
3.3.22	PLC Slot 5 I/O Screen	3-17
3.3.23	PLC Slot 6 I/O Screen	3-17
3.3.24	Remote I/O Link Screen	3-18
3.4	OPERATING PROCEDURE	3-19
3.4.1	Prepare Machine For Operation	3-19
3.4.1.1	Perform Safety Device Function Checks	3-19
3.4.1.2	Load Dispenser	3-19
3.4.1.3	Load Strap In Machine	3-19

3.4.2	Operation Procedure.....	3-20
3.4.2.1	Manual Mode	3-20
3.4.2.2	Auto Mode.....	3-20
SECTION 4		
MAINTENANCE & TROUBLESHOOTING		4-1
4.1	PERIODIC SERVICE INSTRUCTIONS	4-2
4.1.1	Prepare Machine For Maintenance.....	4-2
4.1.2	Machine Function Check	4-2
4.1.3	Lockout-Tagout Procedure.....	4-3
4.1.3.1	Lockout-Tagout Shutdown Sequence	4-4
4.1.3.2	Lockout-Tagout Restore To Service Sequence	4-4
4.1.4	Daily	4-5
4.1.5	Bi-Weekly Or 10,000 To 20,000 Strap Cycles.....	4-5
4.1.6	Quarterly Or 40,000 To 60,000 Strap Cycles	4-5
4.1.7	Annually Or 150,000 To 200,000 Strap Cycles	4-6
4.2	SAFETY DEVICE FUNCTION CHECKS	4-7
4.2.1	Main Power Disconnect Lever	4-7
4.2.2	Power On Button.....	4-7
4.2.3	Emergency Stop Control	4-8
4.2.4	Protective Barrier - Door Lock Switches (If Installed)	4-8
4.3	SERVICE PROCEDURES	4-9
4.3.1	Removal / Replacement Of The Tension Module	4-9
4.3.2	Removal / Replacement Of The Sealer Module	4-10
4.3.3	Weld Motor Brush Replacement	4-12
4.4	TROUBLESHOOTING	4-13
4.4.1	Symptoms:	4-13
SECTION 5		
ELECTRICAL.....		5-1
MH-RMF ELECTRICAL ASSEMBLY - 575V		5-3
	Roll Binder PET Head MH-16 Power Distribution - 575V (20100000679-2)	5-6
	Roll Binder PET Head MH-16 Power Distribution 115/24 (20100000679-2)	5-7
	Roll Binder PET Head MH-16 PLC Slot 0 & 1 PLC/Arm (20100000679-2).....	5-8
	Roll Binder Head MH-16 PLC I/O Slot 2 & 3 (20100000679-2)	5-9
	Roll Binder Head MH-16 PLC I/O Slot 4 & 5 (20100000679-2)	5-10
	Roll Binder Head MH-16 PLC I/O Slot 6 & 7 (20100000679-2)	5-11
	Roll Binder PET Head MH-16 Link I/O Masters (20100000679-2).....	5-12
	Roll Binder PET Head MH-16 Linear Actuators (20100000679-2).....	5-13
	Roll Binder Pet Head MH-16 Feed/Take Up Drive (20100000679-2).....	5-15

Roll Binder PET Head MH-16 Customer Interlocks (20100000679-2).....	5-16
Roll Binder PET Head MH-16 Panel Layout (20100000679-2).....	5-17
Roll Binder PET Head MH-16 Console Exterior - 575V (20100000679-2).....	5-18
Roll Binder PET Head MH-16 Cable PL1 Sealer Module (20100000679-2).....	5-19
Roll Binder PET Head MH-16 Cable PL2 Feeder Module (20100000679-2).....	5-20
Roll Binder PET Head MH-16 JBox-1 (20100000679-2).....	5-21
Roll Binder PET Head MH-16 BOM1 (20100000679-2).....	5-22
Roll Binder PET Head MH-16 BOM2 Console/Machine (20100000679-2).....	5-23
Roll Binder PET Head MH-16 Floor Plan/Conduit (20100000679-2).....	5-24
Roll Binder PET Head MH-16 Conduit Schedule (20100000679-2).....	5-25
MH-RMF ELECTRICAL - OPTIONS	5-27
MHB Drive Kit- 2 HP (813884-2).....	5-30
Indicator Light Assembly (605910-5).....	5-31
SECTION 6	
MACHINE	6-1
MH-RMF RollBinder Label Disposition (35000016533-2).....	6-4
MH-RMF RollBinder (35000016388-2).....	6-8
Base, Head Assembly (35000016390-2).....	6-12
Shaft Mount (35000012649-2).....	6-14
Sub-Assembly Achor and Leveling (35000008721-2).....	6-15
Rear Clevis Mount (35000012631-2).....	6-16
Stop Assembly (35000012731-3).....	6-17
Carriage Pivot Sub Assembly (35000016396-3).....	6-18
MH-RMF Head Mounting Assembly (35000016432-3).....	6-20
Drive Latch Assembly (PJ-000203-1).....	6-24
RMF MH16 Re-Entry Assembly (35000012674-2).....	6-26
Chute Entry Assembly (532150-5).....	6-28
Carriage, Sealer (534686-2).....	6-30
Carriage, Actuator Sub Assembly (35000012652-2).....	6-32
Chute Mount (35000012690-3).....	6-34
Chute Mount (35000012691-3).....	6-36
Chute Mount (35000012692-3).....	6-38
Arch Support Assembly (PJ-000227-1).....	6-40
Cable Carrier Assembly (35000016940-2).....	6-42
Arch Sub Assembly (3500001019-2).....	6-44
Sub-Assembly Achor and Leveling (35000008721-2).....	6-46
Chute Mount (35000012690-3).....	6-48
Chute Mount (35000013128-4).....	6-50
Actuator, Product Guide Arm (35000013183-4).....	6-52
RMF Chute Assembly (35000016949-1).....	6-54

Entry Chute Assembly (35000012665-3)	6-56
RMF chute Assembly - Side (35000012893-3)	6-58
RMF chute Assembly - Top (35000012899-3)	6-60
Re-Entry chute Assembly (35000016950-2)	6-64
Upper Guide Arm (35000016999-4)	6-66
Strap Guide Arm (35000013579-4)	6-68
Adjustable Strap Guide (35000013720-3)	6-70
Spring Mount Assembly (35000013709-4)	6-71
Prox Mount (35000013716-3)	6-72
Lower Guide Arm (35000017001-4)	6-74
Strap Guide Arm (35000013730-4)	6-76
Adjustable Strap Guide (35000013720-3)	6-78
Spring Mount Assembly (35000013709-4)	6-79
Prox Mount (35000013716-3)	6-80
Controls Sub Assembly (35000016638-1)	6-82
Product Present Sensor (35000012645-3)	6-84
Home Switch (35000016639-1)	6-86
SECTION 7	
OPTIONS	7-1
Right Angle Pulley Assembly (513679-4)	7-2
SFD-16 Test Stand Assembly - 16mm (35000012004-3)	7-4
APPENDIX A	
PSD-119 STRAP DISPENSER	
OPERATION, PARTS & MAINTENANCE MANUAL	A-1
GENERAL SAFETY INSTRUCTIONS	A-4
Work Area Hazards	A-4
Fall And Tripping Hazards	A-4
PERSONAL SAFETY INSTRUCTIONS	A-5
Training	A-5
Eye Injury Hazard	A-5
Cut Hazard	A-5
Sound Protection	A-5
Foot Protection	A-5
Back Protection	A-5
MACHINE (DISPENSER) SAFETY INSTRUCTIONS	A-6
Use For Intended Purpose Only	A-6
Operation	A-6
Possible Misuse	A-6
Maintenance	A-6
Cutting Tensioned Strapping	A-7

Using A Single-Handle Strap Cutter	A-8
Using A Two-Handed Strap Cutter	A-8
A.1 INTRODUCTION.....	A-10
A.1.1 Specifications	A-10
A.1.2 Major Components	A-11
A.2 INSTALLATION	A-12
A.3 COIL LOADING INSTRUCTIONS.....	A-13
A.4 PARTS REMOVAL AND REPLACEMENT.....	A-17
A.4.1 Dancer Arm Compression Spring	A-17
A.4.2 Actuation Chain.....	A-18
A.5 PARTS	A-20
A.5.1 PSD-119 EB RH Assembly (606038-3).....	A-22
A.5.2 PSD-119 EB LH Assembly (606046-3)	A-25
A.5.3 PSD-119 Spare Parts Kit (2010200262-1).....	A-29
APPENDIX B	
MH-16 POWER STRAPPING HEAD	
OPERATION, PARTS & MAINTENANCE MANUAL.....	B-I
SAFETY.....	B-VII
GENERAL INFORMATION.....	B-VII
Operator Obligations:.....	B-VII
Owner And Operating Company Obligations:	B-VII
GENERAL SAFETY INSTRUCTIONS.....	B-VIII
Work Area Hazards	B-VIII
Fall And Tripping Hazards	B-VIII
Electric Shock Hazards	B-IX
PERSONAL SAFETY INSTRUCTIONS	B-IX
Training	B-IX
Eye Injury Hazard	B-IX
Cut Hazard.....	B-IX
Sound Protection	B-IX
Foot Protection.....	B-IX
Back Protection.....	B-IX
MACHINE SAFETY INSTRUCTIONS.....	B-X
Use For Intended Purpose Only	B-X
Possible Misuse	B-X
Maintenance	B-X
Disconnect And Lock-Out Procedures	B-XI
Conveyor Safety Hazards (If Equipped)	B-XI
Improper Strap Usage.....	B-XII
Software.....	B-XII

Machine Hazard And Warning Symbols.....	B-XII
DANGER Arc Flash Hazard!	B-XII
DANGER Hazardous Voltage	B-XII
WARNING Crush Point	B-XII
Earth Ground.....	B-XII
Forklift Lift Point Location.....	B-XII
Machine Installation	B-XIII
Customer Requirements For Machine Grounding	B-XIII
Additional Considerations	B-XIII
Cutting Tensioned Strapping	B-XIV
Using A Single-Handle Strap Cutter	B-XV
Using A Two-Handed Strap Cutter	B-XV

APPENDIX B SECTION 1

GENERAL MACHINE INFORMATIONB1-1

1.1 SPECIFICATIONSB1-2

1.1.1 Original Equipment Manufacturer's (OEM) Information	B1-2
1.1.2 Machine Designation	B1-2
1.1.3 Machine Description	B1-2
1.1.4 Machine Specifications	B1-2
1.1.4.1 Strap:.....	B1-2
1.1.4.2 Rate Of Feed:.....	B1-2
1.1.4.3 Rate Of Take-Up:	B1-2
1.1.4.4 Strap Take-Up Tension:.....	B1-2
1.1.4.5 Weights:	B1-2
1.1.4.6 Sound:.....	B1-3
1.1.4.7 Environmental Conditions:	B1-3

1.2 MAJOR MACHINE COMPONENTSB1-4

1.2.1 Sealer Module	B1-4
1.2.2 Tension Module	B1-5

1.3 ORDERING REPLACEMENT PARTSB1-6

1.3.1 Instructions For Ordering	B1-6
1.3.2 Signode Parts Or Service Call	B1-6

APPENDIX B SECTION 2

TRANSPORT, INSTALLATION AND SET-UPB2-1

2.1 MACHINE TRANSPORTB2-2

2.1.1 Machine Crating	B2-2
2.1.2 Machine Uncrating	B2-3
2.1.3 Machine Handling	B2-3

2.2 MACHINE INSTALLATION AND SET-UPB2-4

2.2.1 Installation of feed and take-up module	B2-4
---	------

2.2.2	Installation of Sealer Module.....	B2-4
2.2.4	Protective Barrier	B2-5
2.3	MACHINE DECOMMISSION	B2-6
2.3.1	Disassembly.....	B2-6
2.3.2	Storage	B2-6
2.3.3	Disposal And Scrap.....	B2-6
APPENDIX B SECTION 3		
MACHINE OPERATION.....		B3-1
3.1	PRINCIPLES OF OPERATION	B3-2
3.1.1	General	B3-2
3.2	OPERATOR CONTROLS	B3-3
3.2.1	Main Power Disconnect Lever	B3-3
3.2.2	Emergency Stop Button	B3-3
3.3	OPERATING PROCEDURE	B3-4
3.3.1	Prepare Machine For Operation	B3-4
3.3.1.1	Perform Safety Device Function Checks	B3-4
3.3.1.2	Load Strap In Machine	B3-4
3.3.2	Operation Procedure.....	B3-6
3.3.2.1	Manual Mode	B3-6
3.3.2.2	Auto Mode.....	B3-6
APPENDIX B SECTION 4		
MAINTENANCE & TROUBLESHOOTING		B4-1
4.1	PERIODIC SERVICE INSTRUCTIONS	B4-2
4.1.1	Prepare Machine For Maintenance.....	B4-2
4.1.2	Machine Function Check	B4-2
4.1.3	Lockout-Tagout Procedure.....	B4-2
4.1.4	Daily	B4-3
4.1.5	Bi-Weekly Or 10,000 To 20,000 Strap Cycles.....	B4-3
4.1.6	Quarterly Or 40,000 To 60,000 Strap Cycles	B4-3
4.1.7	Annually Or 150,000 To 200,000 Strap Cycles	B4-3
4.2	SAFETY DEVICE FUNCTION CHECKS	B4-4
4.2.1	Main Power Disconnect Switch.....	B4-4
4.2.2	Emergency Stop	B4-5
4.2.3	Protective Barrier - Door Lock Switches (If Installed)	B4-5
4.3	SERVICE PROCEDURES	B4-6
4.3.1	Weld Motor Brush Replacement	B4-6
4.3.2	Index Motor Brush Replacement	B4-7
4.3.3	Strap Stop Guide	B4-9
4.3.4	Strap Width Guide.....	B4-10
4.3.5	Head Module Removal And	

Replacement Procedures	B4-11
4.3.6 Removal / Replacement Of The Tension Module	B4-12
4.3.7 Removal / Replacement Of The Sealer Module	B4-13
4.4 TROUBLESHOOTING	B4-14
4.4.1 Symptoms:	B4-14
 APPENDIX B SECTION 6	
MACHINE	B6-1
SEALER MODULE	B6-3
MH-16 Sealer Assembly (531450-8)	B6-4
TENSION MODULE	B6-11
MH-16 Tension Module (531426-12)	B6-12
SPARE PARTS LIST	B6-25
MH-16 Head Spare Parts Kit (531801-4)	B6-25
 APPENDIX C	
MH-RMF GENERAL ASSEMBLY	C-27
G.A.I. MH-RMF PET Roll End Strapping (R2103714)	C-29



MACHINE HAZARDS MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH. READ ALL SAFETY INSTRUCTIONS BELOW.

SAFETY

GENERAL INFORMATION

Safety instructions provided in the *Operation and Maintenance Manual* is intended for the safety of the operating and maintenance personnel as well as to prevent damage to the machine. The *Operation and Maintenance Manual* must be stored in a location and manner that allows easy access by all personnel operating or performing maintenance on the machine.

This manual is designed to convey essential safety information with concise language and color graphics. The manual is printed in color to ensure the reader is alerted to safety hazards. Copies of this manual that are not legible or printed in color, may pose a safety hazard to the reader and are not authorized.

Signode reserves the right to make technical modifications that do not influence or change machine operation as described here without having to change the *Operation and Maintenance Manual*.

The user shall bear full liability for damage and operational interruptions resulting from non-observance of the operating instructions. Any modification to the original state of the machine or the accessories is forbidden.

OPERATOR:

- Read and adhere to all operation instructions in the *Operation and Maintenance Manual*.
- Before operating machine, perform Safety Device Function Checks.
Operate machine, only if all safety equipment is present and functional, e.g. protective equipment and Emergency Stop equipment.
- Observe all safety instructions on the machine. Keep these in a complete and legible state.

OWNER:

- Ensure only qualified, trained and reliable personnel operate the machine.
- Verify personnel adhere to all machine safety and operating instructions in the *Operation and Maintenance Manual*.
- Ensure machine installation, maintenance and repairs are carried out in accordance with the *Operation and Maintenance Manual*.
- If repairs are required, use only original or identical spare parts approved by Signode.
- Machine repairs may only be carried out by authorized Signode Personnel.

The applicable accident prevention and safety procedures where the machine is installed must be observed in addition to the safety instructions provided in the *Operation and Maintenance Manual*.



MACHINE HAZARDS MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH. READ ALL SAFETY INSTRUCTIONS BELOW.

GENERAL SAFETY INSTRUCTIONS

- Only trained personnel should operate or service the machine.
- If you require safety instructions in a different language, contact the local Signode Representative.
- Inspect the machine daily and replace all worn or broken parts.
- Never put any part of your body into, or wear loose clothing or jewelry when near, moving machinery.
- Keep all guards in place, and be sure all safety devices are working properly. Never bypass or alter machine guards.
- Keep out of the strap chute area while the machine is operating.
- Do not walk between free standing strap dispensers and the machine.
- The machine and strap dispensers must be secured to prevent movement during operation.
- Read and understand all signs located on the machine.
- Do not remove, modify or deface any sign on the machine.
- Replace all damaged signs.

WORK AREA HAZARDS

- Keep the machine and work area clean.
- Remove used strapping debris and other objects not necessary for the machine's operation.
- Work area must remain uncluttered and have adequate lighting.
- Do not allow pedestrians or visitors in work area.
- Wear protective gloves and non-skid footwear when working outdoors.
- Do not operate machinery in presence of gases or flammable liquids.

FALL AND TRIPPING HAZARDS

- Maintain proper footing and/or balance when operating the machine to prevent tripping or falls.
- Do not operate or service the machine while in an awkward body position.

ELECTRIC SHOCK HAZARDS

- Do not allow body parts to make contact with grounded surfaces, such as pipes, radiators, ranges, refrigerator enclosures.
- When operating equipment outdoors, use only extension cords intended for outdoors and so marked.
- Do not expose machine to water or environmental conditions such as rain or snow.
- Do not allow visitors or pedestrians to make contact with machine or extension cords. Mandatory Action Symbols



MACHINE HAZARDS MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH. READ ALL SAFETY INSTRUCTIONS BELOW.

HAZARD ALERT

Hazard Alerts are used to alert personnel of hazards.

Hazard Alerts identify the following:

- Hazard
- Seriousness of hazard
- Consequence of hazard if not avoided
- How to avoid hazard

The hazard alert panels shown below appear in the *Operation Manual* and as safety signs placed on the machine. Personnel operating or servicing the machine must read and comply with hazard alerts. Personnel in the vicinity of the machine must comply with all hazard alerts.

DANGER



The safety alert symbol  followed by the hazard classification **DANGER** indicates a hazard. If the hazardous situation is not avoided, it **WILL** result in **SERIOUS INJURY** or **DEATH**.

WARNING



The safety alert symbol  followed by the hazard classification **WARNING** indicates a hazard. If the hazardous situation is not avoided, it **COULD** result in **SERIOUS INJURY** or **DEATH**.

CAUTION



The safety alert symbol  followed by the hazard classification **CAUTION** indicates a hazard. If the hazardous situation is not avoided, it **COULD** result in **MINOR** or **MODERATE INJURY**.

NOTICE



The Notice panel is used to provide information related to property damage but does not involve hazards to personnel.

SAFETY INSTRUCTIONS



The Safety Instruction panel is used to provide safety instructions or procedures.



MACHINE HAZARDS MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH. READ ALL SAFETY INSTRUCTIONS BELOW.

MANDATORY ACTION SYMBOLS

Safety symbols below indicate mandatory actions required to avoid hazards. Personnel operating or servicing the machine must comply with mandatory actions. Personnel in the vicinity of the machine must comply with all mandatory actions.



MANDATORY ACTION - GENERAL

Mandatory action required. Read and comply with all instructions to avoid hazards.



MANDATORY TRAINING

Read product manual. For Safety, Operating and Service instructions read machine manual. Do not operate machine unless properly trained. Employers must ensure machine Operators and Service personnel are trained on all safety and operation procedures. If you have any questions, contact your Signode Representative.



MANDATORY EYE PROTECTION

Safety glasses required. Always wear safety glasses with side shields which conform to ANSI Standard Z87.1 or EN 166. Failure to wear safety glasses with side shields can result in severe eye **INJURY** or **BLINDNESS**.



MANDATORY HAND PROTECTION

Protective gloves required. Handling strap or sharp parts could result in cut hands or fingers. Wear protective gloves when handling strap.



MANDATORY EAR PROTECTION

Ear protection required. When operating the machine, wear ear protection. Failure to wear ear protection could result in severe ear damage or **DEAFNESS**.



MANDATORY FOOT PROTECTION

Safety Shoes required. Failure to wear steel reinforced safety shoes could result in severe foot **INJURY**.



MACHINE HAZARDS MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH. READ ALL SAFETY INSTRUCTIONS BELOW.



MANDATORY LOCKOUT TAGOUT - ELECTRICAL

Electrical Lockout Tagout required. Contact with live electrical parts will result in severe **INJURY** or **DEATH**. Disconnect and Lockout all power before servicing machine or electrical enclosures.



MANDATORY LOCKOUT TAGOUT - MECHANICAL

Mechanical Lockout Tagout required. Moving machine parts can entangle body parts and result in severe **INJURY** or **DEATH**. Lockout all mechanical systems before servicing machine or attached equipment such as conveyors.



MANDATORY FORKLIFT LIFT POINTS

Mandatory forklift lift location. Two locations are marked to indicate forklift lift location.



MANDATORY LIFT POINT

Mandatory lift point location. Machines and equipment are marked with lift points to indicate crane or hoist lift point locations.

PROHIBITION SYMBOLS

Prohibition symbols indicate actions that must not be performed to avoid hazards. Personnel operating or servicing the machine must not perform prohibited actions. Personnel in the vicinity of the machine must comply with all prohibition symbols.



PROHIBITION - GENERAL

Action shown within prohibition symbol must NOT be performed to avoid hazards.



FORKLIFT ACCESS / USE PROHIBITED

Forklift access or use prohibited. DO NOT use forklift to lift machines or equipment with this label.



WATER PROHIBITED

Use of water or steam prohibited on machine. Water or steam will damage machine.



MACHINE HAZARDS MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH. READ ALL SAFETY INSTRUCTIONS BELOW.

SAFETY SYMBOLS

Safety symbols are used to convey hazards without words. Personnel operating or servicing the machine must identify Safety Symbols and take required action to avoid the hazard. Personnel in the vicinity of the machine must identify Safety Symbols and take required action to avoid the hazard.

Safety symbols may be attached to the machine or placed in the *Operation and Maintenance Manual* to alert personnel of hazards. The following safety symbols are provided below with hazard alert information:

SAFETY ALERT - GENERAL HAZARD



WARNING SAFETY ALERT - GENERAL HAZARD

Read hazard alert and comply with all instructions to avoid hazard. Failure to comply with safety instructions may result in severe **INJURY** or **DEATH**.

ARC FLASH AND SHOCK HAZARD



DANGER ARC FLASH AND SHOCK HAZARD

Contact with arc flash or live electrical parts will result in severe **INJURY** or **DEATH**. Appropriate PPE required. Failure to use appropriate Personal Protective Equipment (PPE) can result in serious **INJURY** or **DEATH**. Follow requirement in NFPA 70 E for safe work practices and appropriate PPE. Disconnect and Lockout all power before servicing machine or electrical enclosures.

HAZARDOUS VOLTAGE



DANGER HAZARDOUS VOLTAGE

Contact with live electrical parts will result in severe **INJURY** or **DEATH**. Disconnect and Lockout all power before servicing machine or electrical enclosures.

CRUSH HAZARD



WARNING CRUSH HAZARD

Moving machine parts can crush and cause severe **INJURY** or **DEATH**. Keep hands and limbs away from moving machine parts. Disconnect and lockout all power before servicing machine.

SHEAR / CUT HAZARD



WARNING SHEAR / CUT HAZARD

Moving machine parts can shear and cut body parts and cause severe **INJURY** or **DEATH**. Keep hands and limbs away from moving machine parts. Disconnect and lockout all power before servicing machine.

ENTANGLEMENT HAZARD - GEARS AND CHAIN



WARNING ENTANGLEMENT HAZARD - GEARS AND CHAIN

Moving gears and chains can entangle body parts and cause severe **INJURY** or **DEATH**. Moving machine parts can entangle clothing and body parts such as fingers, limbs and hair. Keep hands and limbs away from moving machine parts. Disconnect and lockout all power before servicing machine.



MACHINE HAZARDS MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH. READ ALL SAFETY INSTRUCTIONS BELOW.

ENTANGLEMENT HAZARD - GEARS



⚠ WARNING ENTANGLEMENT HAZARD - GEARS

Moving gears can entangle body parts and cause severe **INJURY** or **DEATH**. Moving machine parts can entangle clothing and body parts such as fingers, limbs and hair. Keep hands and limbs away from moving machine parts. Disconnect and lockout all power before servicing machine.

EYE HAZARD - LASER LIGHT



⚠ WARNING EYE HAZARD - LASER LIGHT

Eye contact with laser light could result in severe eye **INJURY** or **BLINDNESS**. Never look into laser beam.

EYE HAZARD - FLYING OBJECTS



⚠ WARNING EYE HAZARD - FLYING OBJECTS

Eye contact with flying objects could result in severe eye **INJURY** or **BLINDNESS**. Always wear safety glasses with side shields.

FLAIL HAZARD - STRAP



⚠ WARNING FLAIL HAZARD - STRAP

Contact with flailing machine strap could result in severe eye **INJURY** or **BLINDNESS**. Always wear safety glasses with side shields.

HOT SURFACE



⚠ WARNING BURN HAZARD - HOT SURFACE

Contact with hot surface could result in severe **BURNS**. Do not touch hot surface.

FALL HAZARD



⚠ WARNING FALL HAZARD

Failure to maintain proper footing could result in a fall and cause severe **INJURY** or **DEATH**. Maintain proper footing and/or balance when operating the machine to prevent tripping or falls.

CONVEYOR ENTANGLEMENT HAZARD



⚠ WARNING CONVEYOR ENTANGLEMENT HAZARD

Moving conveyor parts can entangle body parts and cause severe **INJURY** or **DEATH**. Disconnect and lockout all power before servicing machine or conveyor.



MACHINE HAZARDS MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH. READ ALL SAFETY INSTRUCTIONS BELOW.

SAFETY SIGNS

Safety signs are designed to convey critical safety information to personnel operating or performing maintenance on the machine. Personnel in the vicinity of the machine must understand and comply with all safety signs. Safety signs are attached to the machine and may incorporate the following various elements to convey hazards:

- Hazard Alerts
- Mandatory Action Symbols (Mandatory actions required to avoid hazards)
- Prohibition Symbols (Prohibited actions to avoid hazards)
- Safety Symbols (Convey hazards without words)

Reference Safety Sign example below:

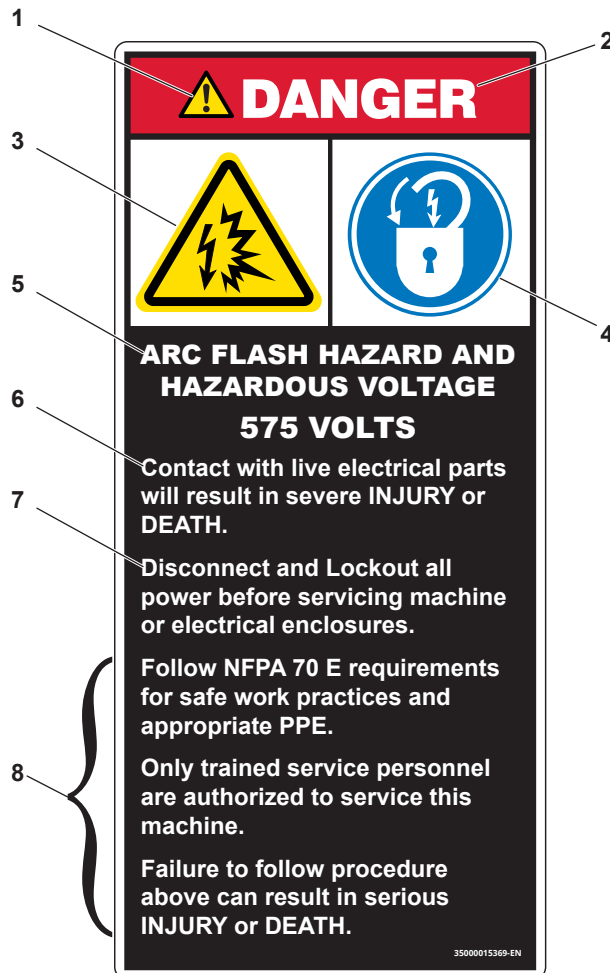


Figure: Safety Sign Example

1. Safety Alert Symbol
2. Hazard Alert Classification
3. Safety Symbol
4. Mandatory Action Symbol
5. Hazard
6. Consequence if hazard is not avoided
7. Mandatory action
8. Additional information to avoid hazards



MACHINE HAZARDS MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH. READ ALL SAFETY INSTRUCTIONS BELOW.

MACHINE SAFETY INSTRUCTIONS

USE FOR INTENDED PURPOSE ONLY

- This machine is designed ONLY for strapping products.
- Do not use machine for any purpose other than what it was designed for, without written approval from Signode.
- Unauthorized modifications or changes to the machine are prohibited.
- Signode is not liable for damages or injuries resulting from unauthorized modifications to the machine, or the use of this machine for purposes other than what it was designed.
- Do not overload the machine by exceeding the package size specifications.
- Machine is not designed for use near, nor with, hazardous or explosive materials.

POSSIBLE MISUSE

- Mishandle the machine for purposes other than the manufacturer's intended purpose.
- Failure to use strap specified for machine.
- Failure to operate or store machine within the required Machine Specifications.

MAINTENANCE

- Only trained personnel should operate or service the machine.
- Follow all operation, maintenance and service instructions in this manual.
- Remove all packages from the machine before performing maintenance.
- Follow the proper procedure when placing the strapping head into the service position.
- Become familiar with the location, and operation of each shutoff device.
- Disconnect/Lockout all power sources before servicing machine.
- Never use machine operating controls as a means for locking out power.



MACHINE HAZARDS MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH. READ ALL SAFETY INSTRUCTIONS BELOW.

DISCONNECT AND LOCKOUT PROCEDURES

This machine is equipped with shut off devices which satisfy OSHA Regulation 1910.147 (control of hazardous energy sources - lock out/tag out).

- Disconnect and lockout all power to the machine as required by OSHA 1910.147.
- Never use stop buttons in place of lock-out devices.
- Never remove a lockout device put in place by someone else.

MAIN DISCONNECT SWITCH - The main disconnect switch is located on the main electrical control panel enclosure.

To disconnect/lockout electrical power to the machine proceed as follows.

- Turn the main disconnect switch to the OFF position.
- Locate an appropriate locking hole on the switch, and apply a locking device.
- Electrical panel may have outside sourced electrical power for interlocks. Identify and isolate electrical power before opening electrical panel.

NOTE: Some electrical components in the machine may be electrically charged after the power is shut off. Wait no less than one minute after the power has been disconnected before servicing the panel.

CONVEYOR SAFETY HAZARDS (IF EQUIPPED)

- Never start a conveyor until all personnel are clear.
- Never block or override conveyor emergency stop buttons.
- If a package should jam or skew, never reposition it yourself - get help. Disconnect and lock-out all power before attempting to fix the issue.
- Never transport packages that the conveyor was not designed to handle. Check that the packages are stable and the pallets are not damaged.
- Stay clear of the conveyor loading and unloading areas.
- When a Signode machine or conveyor is part of another packaging system, be certain you understand how the other equipment's malfunctions may affect Signode products.



MACHINE HAZARDS MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH. READ ALL SAFETY INSTRUCTIONS BELOW.

IMPROPER STRAP USAGE

Strap is designed to be used to secure a load; not for lifting or pulling a load. Lifting or pulling a load by its strap is a dangerous practice that can cause serious injury if the strap breaks and you drop the package, or if you lose your grip and fall. Lifting or pulling a package with a mechanical device, such as a hook, could also cause the strap to break and the package to fall, causing serious injury or death.

SOFTWARE

- This machine is controlled by logic developed by Signode Industrial Group LLC, and may include software.
- Only authorized Signode personnel can alter the electrical panel/program. Any additions, deletions or changes to this electrical panel/program, in any way, can present a hazard to the user of this machine.
- The User and the User's employees or agents assume all risks attendant to any modification of the logic and shall not hold manufacturer responsible for any injury or damage or loss which occurs after any logic modification. User agrees to hold Signode harmless for any claims made against it following any such modification.

MACHINE INSTALLATION

- All customer interlocks must be connected as shown in this manual's electrical drawings.
- Do not defeat or bypass safety interlocks or safety devices.
- Do not operate machine with any safety devices/guards removed.
- Before operating the machine, ensure that all safety interlocks and safety devices are operating properly.
- Unauthorized modification can present a safety hazard to machine personnel and will void the machine warranty.

NOTE: Certain applications of this machine require the installation of additional machine safety equipment in order to comply with local, state or federal laws. It is the customer's responsibility to determine if such additional machine safety equipment is required for the application.



MACHINE HAZARDS MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH. READ ALL SAFETY INSTRUCTIONS BELOW.

CUSTOMER REQUIREMENTS FOR MACHINE GROUNDING

- The National Electrical Code requires that all controller enclosures be properly grounded. (N.E.C. Article 250)

A good grounding system is a major consideration in planning any electrical system. It is essential that a low impedance path to earth ground exist. All filtering devices in programmable controllers and microprocessor type systems require a good earth ground. If structural ground present in the industrial environment does not provide an adequate ground return, a supplementary grounding electrode can be used to achieve proper impedance to equalize potential. A minimum No. 8 AGW stranded copper wire must be used to connect the copper grounding electrode to the grounding lug in the enclosure. Minimum wire size, color code and general safety practices should comply with the N.E.C. A grounding electrode must NOT be used as sole grounding system.

The grounding electrode designated by N.E.C. 250-83 (C) specifies a nonferrous rod of not less than ½" in diameter and at least 8 ft. be in contact with the soil.

ADDITIONAL CONSIDERATIONS

- To ensure proper machine operation, conform to the specified electric, hydraulic and pneumatic requirements.
- Do not overload the machine by exceeding the recommended performance levels as stated in the machine's Operation, Parts and Service Manual.
- Do not alter the machine's design without written approval from Signode.
- Signode Operation and Maintenance manual must be near the machine for easy access and reference.

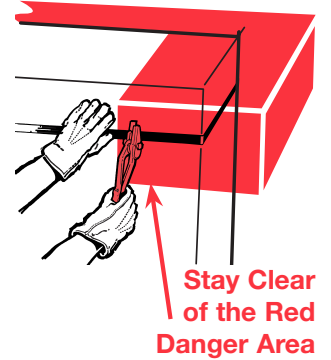


MACHINE HAZARDS MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH. READ ALL SAFETY INSTRUCTIONS BELOW.

CUTTING TENSIONED STRAPPING

Use only cutters designed for cutting strap; never use claw hammers, crowbars, chisels, axes or similar tools. Such tools will cause the strap to fly apart with hazardous force. Before using any Signode product, read the Operation and Safety Manual.

- Establish and maintain proper footing and position before and during the cutting process to prevent injury resulting from a loss of balance.
- Use only cutters specifically designed to cut strap. The use of claw hammers, crow bars, chisels, axes or similar tools will cause tensioned strap to fly apart and flail with hazardous force.
- Cut strapping straight across to avoid sharp ends.
- Be aware that loads secured with strapping may shift or fall when the strapping is cut.





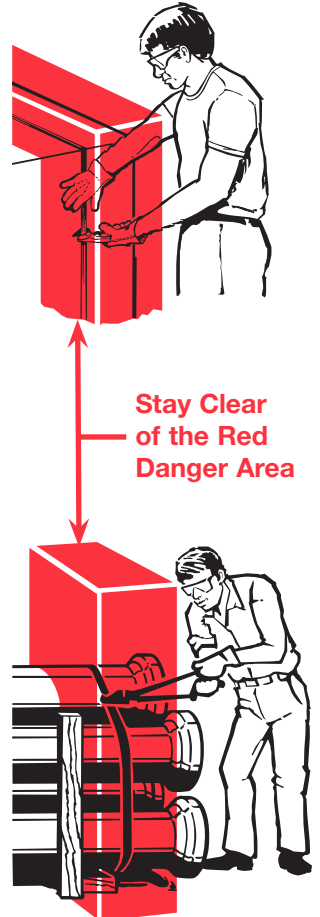
MACHINE HAZARDS MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH. READ ALL SAFETY INSTRUCTIONS BELOW.

Using A Single-Handle Strap Cutter

1. Keep all bystanders at a safe distance, away from the danger zone (red area) and in an area where they cannot possibly be struck by flying or flailing strap ends when the strapping is cut or by anything falling from the load if the load shifts when the strapping is cut.
2. Stand to one side of the strap being cut—outside of the danger zone (red area).
3. Use one hand to hold the strap firmly against the package.
4. Vertical strapping: Cut the strapping below the hold. Horizontal strapping: Cut the strapping on the side of the hold opposite your body.

Using A Two-Handed Strap Cutter

1. Keep all bystanders at a safe distance, away from the danger zone (red area) and possible flying or flailing strap ends. The energy released as the strapping is cut will cause both strap ends to rebound or flail outward.
2. Do not use a strap cutter that requires the use of two hands to cut horizontally tensioned strapping.
3. For vertically tensioned strapping, stand to one side of the strap being cut—outside of the danger zone (red area).
4. Cut the strap.



INTENTIONALLY BLANK

SECTION 1 GENERAL MACHINE INFORMATION

CONTENTS

SECTION 1	
GENERAL MACHINE INFORMATION	1-1
1.1 SPECIFICATIONS	1-4
1.1.1 Original Equipment Manufacturer's (OEM) Information	1-4
1.1.2 Machine Designation	1-4
1.1.3 Machine Description	1-4
1.1.4 Machine Specifications	1-4
1.1.4.1 Electrical:.....	1-4
1.1.4.2 Electrical Supply Cable Installation:	1-4
1.1.4.3 Strap:.....	1-4
1.1.4.4 Rate Of Feed:.....	1-4
1.1.4.5 Rate Of Take-Up:	1-5
1.1.4.6 Strap Tension:	1-5
1.1.4.7 Weights:	1-5
1.1.4.8 Shipping Weight:	1-5
1.1.4.9 Sound:.....	1-5
1.1.4.10 Load Minimum and Maximum dimensions:.....	1-5
1.1.4.11 Environmental Conditions:	1-5
1.1.5 Machine Dimensions And Weights.....	1-6
1.1.5.1 MH-RMF.....	1-6
1.1.5.2 PSD-119 Strap Dispenser	1-6

SECTION 1

1.2	MAJOR MACHINE COMPONENTS	1-8
1.2.1	Sealer Module	1-9
1.2.2	Tension Module	1-9
1.3	MACHINE LABELS.....	1-10
1.3.1	Control Panel - Outside.....	1-10
1.3.2	Control Panel - Inside	1-11
1.3.3	Electrical Panel - Outside.....	1-12
1.3.4	Electrical Panel - Inside	1-13
1.3.5	Machine	1-14
1.4	ORDERING REPLACEMENT PARTS	1-15
1.4.1	Instructions For Ordering	1-15
1.4.2	Signode Parts Or Service:	1-15

INTENTIONALLY BLANK

1.1 SPECIFICATIONS

1.1.1 ORIGINAL EQUIPMENT MANUFACTURER'S (OEM) INFORMATION

Company name and address:

Signode Industrial Group LLC

1600 Central Avenue

Roselle, Illinois 60172

U.S.A.

Phone: (847) 724-6100

Website: www.signode.com

1.1.2 MACHINE DESIGNATION

MH-RMF

1.1.3 MACHINE DESCRIPTION

The MH-RMF is designed to be used in manufacturing facilities for strapping products.

1.1.4 MACHINE SPECIFICATIONS

1.1.4.1 Electrical:

- 575Volts, 60 Hz, 3 Phase, 7.7A
- Electrical Supply Requirements: 575V, 3 Phase, 60 Hz, 18A
- Permitted voltage drops: 5%
- Supply Current = VFD +Transformer+ Power Supply1 + Power Supply2; 3.0A + 1.9A + 1.4A + 1.4A = 7.7A
- VFD = 3A @ 575VAC, 3 Phase, 2HP
- Transformer = 120% of 750VA/480VAC, Single Phase = 1.9A
- Power Supply1 = 480VAC, 3Phase, 1.4A (Vendor Specifications)
- Power Supply2 = 480VAC, 3Phase, 1.4A (Vendor Specifications)

1.1.4.2 Electrical Supply Cable Installation:

- Recommended Position: Bottom of cabinet
- Type: Insulated stranded copper
- Cross-section: $\geq 2.5 \text{ mm}^2$

1.1.4.3 Strap:

- 1822 Tenax (12 mm width)

1.1.4.4 Rate Of Feed:

- Start: 12 feet per second (3.7 meters per second @ 60Hz)**
- End: 4 feet per second (1.2 meters per second @ 60Hz)

** Rate varies during feed and take-up cycle by use of adjustable frequency drive controller.

1.1.4.5 Rate Of Take-Up:

- Start: 12 feet per second (3.7 meters per second @ 60Hz) **
- Middle: 4 feet per second (1.2 meters per second @ 60Hz)
- End: 1.8 feet per second (.5 meters per second @ 60Hz)

** Rate varies during feed and take-up cycle by use of adjustable frequency drive controller.

1.1.4.6 Strap Tension:

- Variable from 25 lb. to 100 lb. (11.3 kg to 45.4 kg). Strap tension may vary based on load characteristics 20 - 70 lb. (9.07 kg to 31.75 kg) initial retained tension.

1.1.4.7 Weights:

- MH-RMF: ~2,500 lb. (1134 kg)
- PSD-119 Strap Dispenser: 126 lb. (57 kg)
- Sealer Module: 22 lb. (10 kg)
- Tension Module: 27.5 lb. (12.5 kg)

1.1.4.8 Shipping Weight:

- MH-RMF: 2,700 - 3,000 lb. (1225 - 1361 kg)

1.1.4.9 Sound:

- Maximum measured: 87.1 dBA and 88.2 dBC

1.1.4.10 Load Minimum and Maximum dimensions:

- Minimum Roll Diameter: 30" (762 mm)
- Maximum Roll Diameter: 65" (1651 mm)

1.1.4.11 Environmental Conditions:

- Operating temperature range: 41°F to 104°F (5°C to 40°C)
- Operating humidity range: 0% to 90% relative humidity
- Operating altitude range: Altitudes up to 3281 ft. (1000 m) above mean sea level
- Transportation and storage temperature range: -13°F to 131°F (-25°C to 55°C)

1.1.5 MACHINE DIMENSIONS AND WEIGHTS

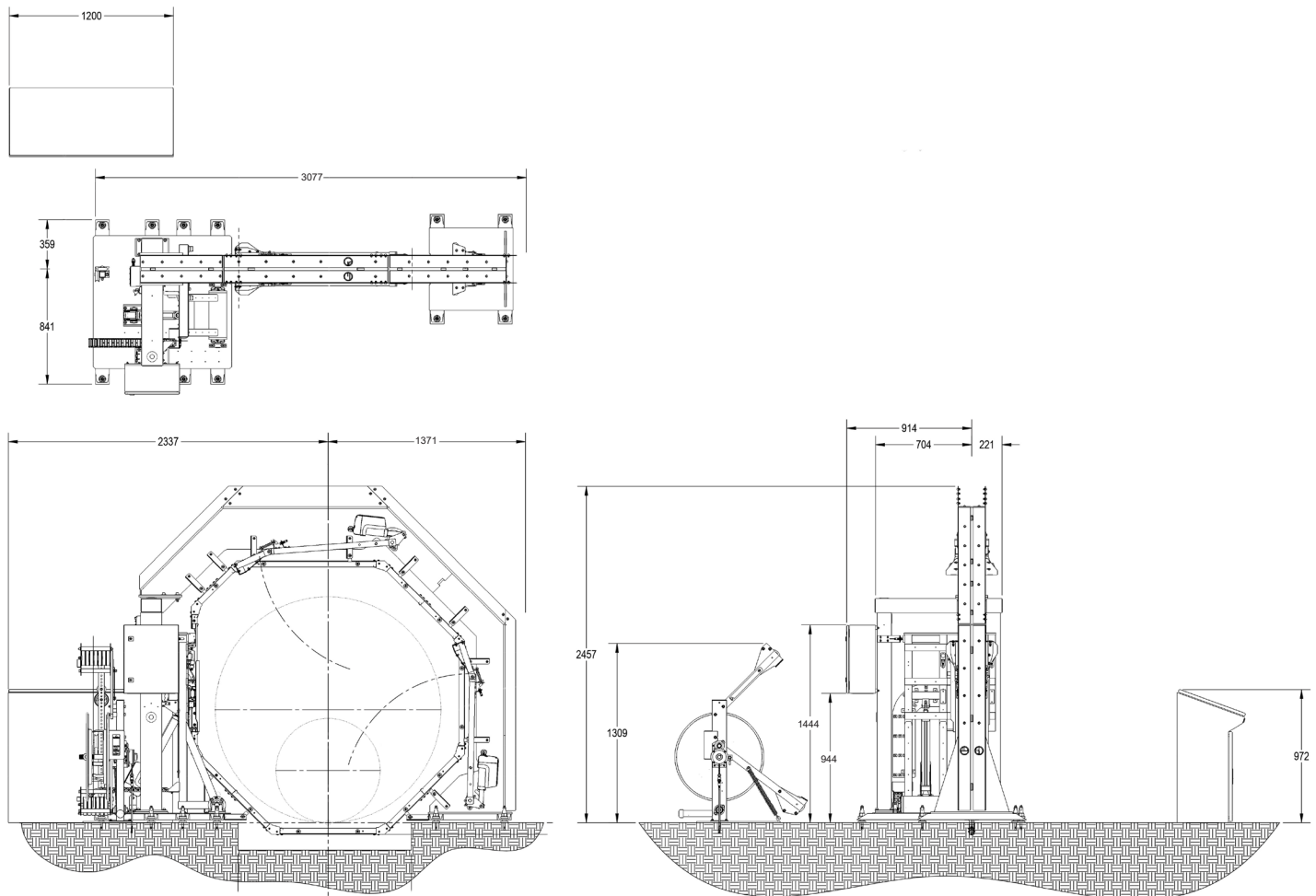


Figure 1-1: MH-RMF Dimensions

1.1.5.1 MH-RMF

- Dimensions: See **(Figure 1-1)**
- Weight: ~2,500 lb. (1134 kg)

1.1.5.2 PSD-119 Strap Dispenser

- Height: 51.5" (1,308.1 mm)
- Width: 14" (355.6 mm)
- Length: 38.2" (970.28 mm)
- Weight: 126 lb. (57 kg)

INTENTIONALLY BLANK

1.2 MAJOR MACHINE COMPONENTS

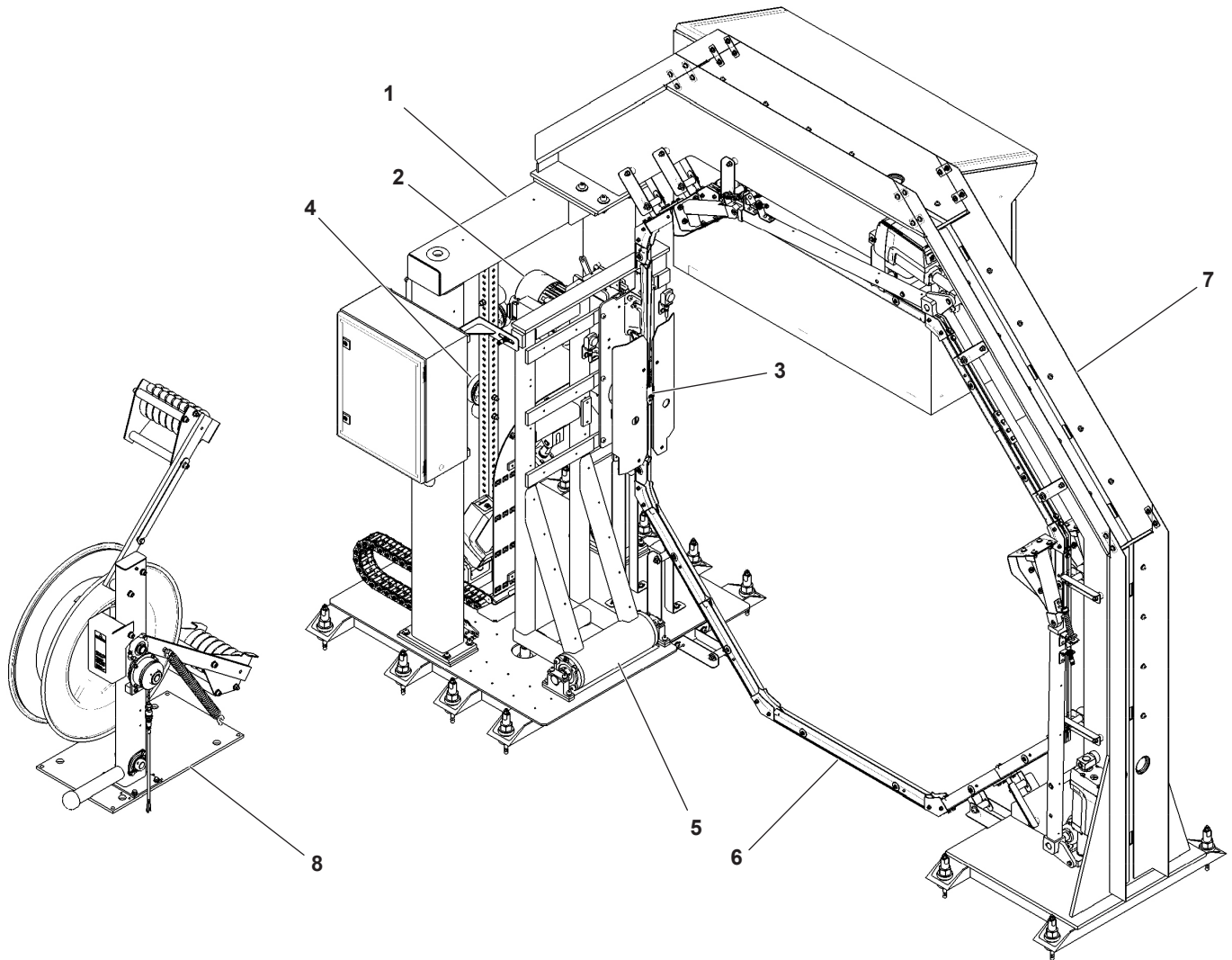


Figure 1-1: Major Components

1. Pivot Head Base Frame
2. Tension Module
3. Sealer Module
4. Right Angle Pulley
5. Pivot Assembly
6. Chute
7. Chute Path Weldment
8. Dispenser

1.2.1 SEALER MODULE

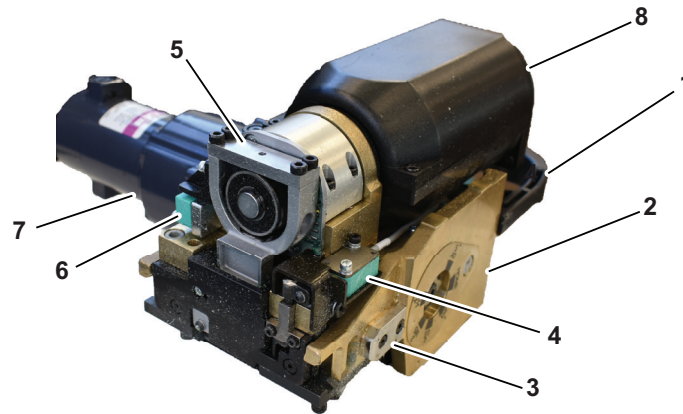


Figure 1-2: Sealer Module

1. Handle
2. Sealer Housing
3. Locating Blocks
4. Feed Limit Proximity Switch (1PRS)
5. Vibrator Bearing Housing
6. Weld Revolution Counter Proximity Switch (6PRS)
7. Index Motor
8. Weld Motor Cover

1.2.2 TENSION MODULE

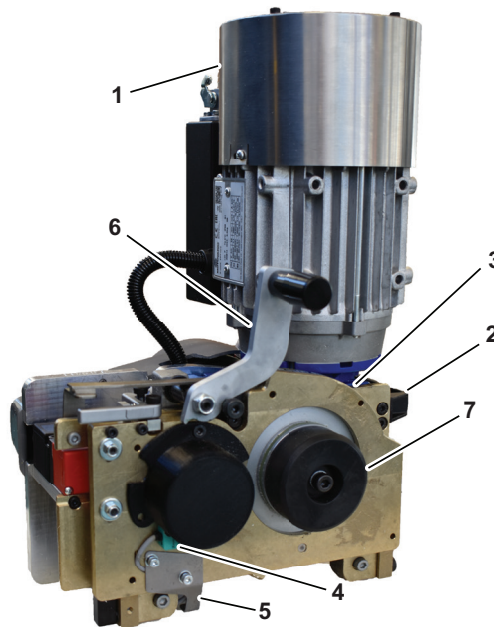


Figure 1-3: Tension Module

1. Tension Motor
2. Handle
3. Strap Inlet
4. Pinch Wheel Rotation Proximity Switch (4PRS)
5. Guide Door Release
6. Pinch Wheel Lever
7. Slip Clutch Spring Cup

1.3 MACHINE LABELS

1.3.1 CONTROL PANEL - OUTSIDE



1.3.3 ELECTRICAL PANEL - OUTSIDE



⚠ WARNING

	SAFETY GLASSES REQUIRED Failure to wear safety glasses with side shields can result in severe eye injury or blindness. Safety glasses must conform to ANSI Standard Z87.1.
	SAFETY SHOES REQUIRED Steel reinforced safety shoes required when handling strap.
	PROTECTIVE GLOVES REQUIRED Protective gloves required when handling strap.
	READ PRODUCT MANUAL For Safety, Operating and Service instructions read machine manual. Failure to follow instructions above can result in serious INJURY or DEATH.

⚠ WARNING





**AUTOMATED MACHINE HAZARD
MACHINE STARTS AUTOMATICALLY**

CRUSH HAZARD
Moving machine parts can crush.

SHEAR AND CUT HAZARD
Moving machine parts can shear and cut.

ENTANGLEMENT HAZARD
Moving machine parts can entangle.

- Do not operate machine with covers and guards removed.
- Do not operate machine unless all safety devices are functional.

Failure to follow instructions above can result in serious INJURY or DEATH.

⚠ DANGER




**ARC FLASH HAZARD AND
HAZARDOUS VOLTAGE
575 VOLTS**

Contact with live electrical parts will result in severe INJURY or DEATH.

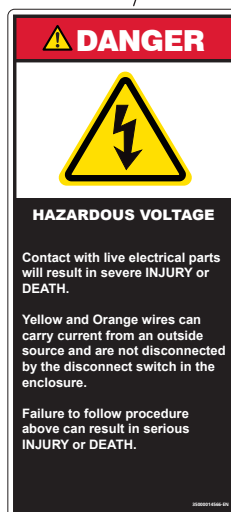
Disconnect and Lockout all power before servicing machine or electrical enclosures.

Follow NFPA 70 E requirements for safe work practices and appropriate PPE.

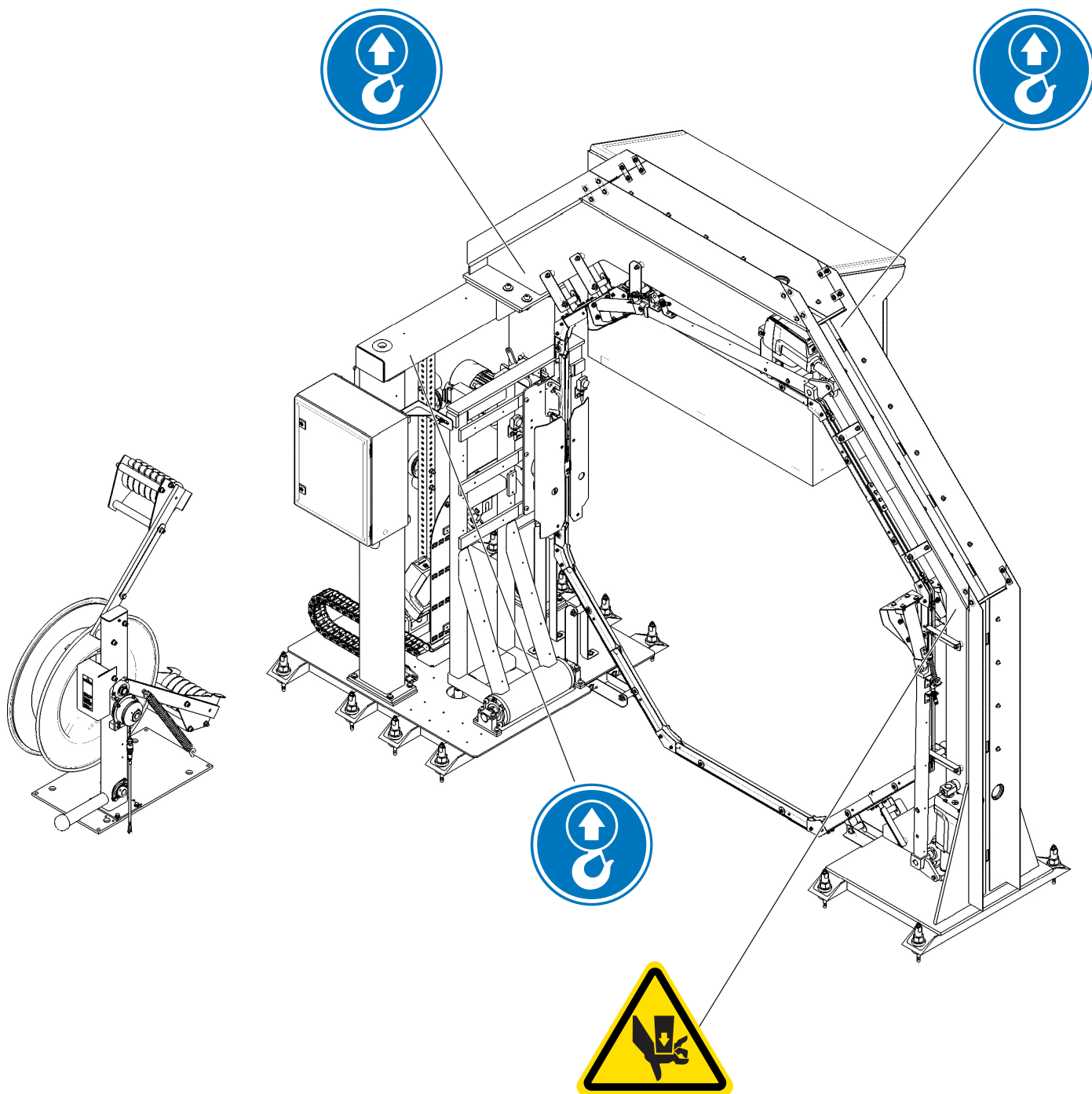
Only trained service personnel are authorized to service this machine.

Failure to follow procedure above can result in serious INJURY or DEATH.

1.3.4 ELECTRICAL PANEL - INSIDE



1.3.5 MACHINE



1.4 ORDERING REPLACEMENT PARTS

1.4.1 INSTRUCTIONS FOR ORDERING

Signode provides a complete parts and service organization to keep your Signode equipment in operating condition.

Signode recognizes the need for our customer to obtain service parts critical to a machine's operation in the fastest and most economical method possible. Therefore, we often agree that the most expedient method to obtain parts is from a local supplier. Parts that Signode purchases for use in our strapping machines come from thousands of sources and one of these sources may be able to deliver a part faster than Signode could obtain it for you. In cases like these, we encourage you to order from these sources. Signode provides several distributor lists for its major product types throughout this manual in the appropriate section. If the part you need is a Signode manufactured part or a purchased part stocked by Signode, it's usually best that you order the part from us.

Before you call be prepared to furnish the information on the machine Nameplate.

Reference the machine Nameplate for the following:

- **Machine Model (Type):** _____
- **Machine #:** _____
- **PSM Model (Type):** _____
- **Part #:** _____

Part number, quantity and description of each part needed. Parts may have a Signode part number, a manufacturer's name and part number, or both. Provide as much information as possible.

- Complete "SHIP TO" and "BILL TO" information.
- Your purchase order number (if any) and preferred method of shipment.

1.4.2 SIGNODE PARTS OR SERVICE:

NOTE: For additional information call Signode Service.

INTENTIONALLY BLANK

SECTION 2 TRANSPORT, INSTALLATION AND SET-UP

CONTENTS

SECTION 2	
TRANSPORT, INSTALLATION AND SET-UP	2-1
2.1 MACHINE TRANSPORT	2-2
2.1.1 Machine Crating	2-2
2.1.2 Machine Uncrating	2-4
2.1.3 Machine Handling	2-5
2.2 MACHINE INSTALLATION AND SET-UP	2-6
2.2.1 Anchor (Concrete Floor)	2-6
2.2.2 Anchor Dispenser (Concrete Floor)	2-6
2.2.3 Power Supply Connection procedure	2-7
2.2.4 Protective Barrier	2-8
2.3 MACHINE DECOMMISSION	2-9
2.3.1 Disassembly	2-9
2.3.2 Storage	2-9
2.3.3 Disposal And Scrap	2-9

SECTION 2

2.1 MACHINE TRANSPORT

⚠ WARNING

For safe operation and to prevent property damage, personal injury and/or death, comply with all forklift manufacturer's safety instructions.

⚠ WARNING

To prevent property damage, personal injury, and/or death, wear safety glasses and steel toe boots during crating and uncrating procedures.

2.1.1 MACHINE CRATING

Use following procedure to crate machine for international shipping.

NOTE: Crating materials and process may vary depending on method of shipment.

Material / Equipment Required:

- Pallet
- Crate (Four sides and cover)
- Mylar Wrap (MIL-PRF-131K, Class 1)
- Cardboard Corrugate (Roll)
- Package Desiccant Bags
- Wood Blocking (2x4 Wood Pieces)
- Packing Tape
- Hand Rotary Heat Sealer
- Pneumatic Air Nailer
- Shop Vacuum

NOTE: All wood used for crating international shipments must have a certification stamp (Figure 2-1). Ensure stamp appears frequently on each piece of wood and is visible on the exterior of the crate.

1. Build machine on pallet. (Figure 2-2).



Figure 2-1: Wood Certification Stamp

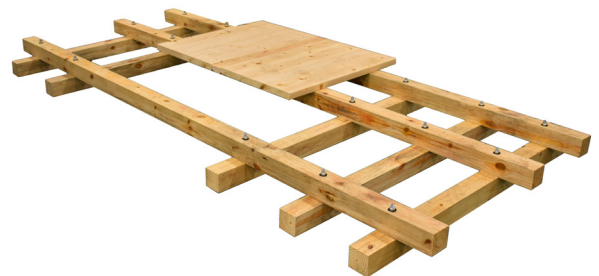


Figure 2-2: Pallet

⚠ WARNING

For safe operation and to prevent property damage, personal injury and/or death, comply with all forklift and/or crane manufacturer's safety instructions.

2. Fasten machine to pallet.
3. Crate machine in accordance with specifications for mode of transport (**Figure 2-3**).



Figure 2-3: Pallet

⚠ WARNING

For safe operation and to prevent property damage, personal injury and/or death, comply with all forklift manufacturer's safety instructions.

⚠ WARNING

To prevent property damage, personal injury, and/or death, wear safety glasses and steel toe boots during crating and uncrating procedures.

⚠ WARNING

**To prevent property damage, personal injury, and/or death, use caution while uncrating machine.
Machine and crate contents may have shifted or become unstable during transit.**

2.1.2 MACHINE UNCRATING

Use following procedure to remove machine from shipping crate:

NOTE: Uncrating procedure may vary based on type of machine and mode of transportation.

1. Material / Equipment Required:

- Forklift
- Pry-Bar

2. Use pry-bar to remove crate top cover.

3. Visually inspect inside of crate to determine if machine and contents are safe to uncrate.

NOTE: Machine and contents should be upright and stable. Crate contents should not lean or be supported by crate walls. If content of crate appears unsafe to unload, contact Signode before proceeding.

NOTE: Contact Signode if machine is damaged or crate is missing contents. Contact Signode before proceeding.

4. Remove metal strapping from crate.

5. Remove narrow walls located on each end of crate.

6. Remove crate support braces.

7. Remove remaining crate walls.

8. Remove shrink wrap and Mylar wrap.

9. Remove cardboard corrugate from machine.

10. Remove block and bracing.

11. Remove machine and components from pallet.

⚠ WARNING

For safe operation and to prevent property damage, personal injury and/or death, comply with all forklift and crane manufacturer's safety instructions.

2.1.3 MACHINE HANDLING

Use following procedure to lift and move machine.

NOTE: Do not lift machine with Dispenser attached.

1. Ensure machine is not attached to pallet or shipping crate.
2. Machine is equipped with three eye-bolts. Use eye-bolts (**Figure 2-4**) to lift and place machine in operating position.

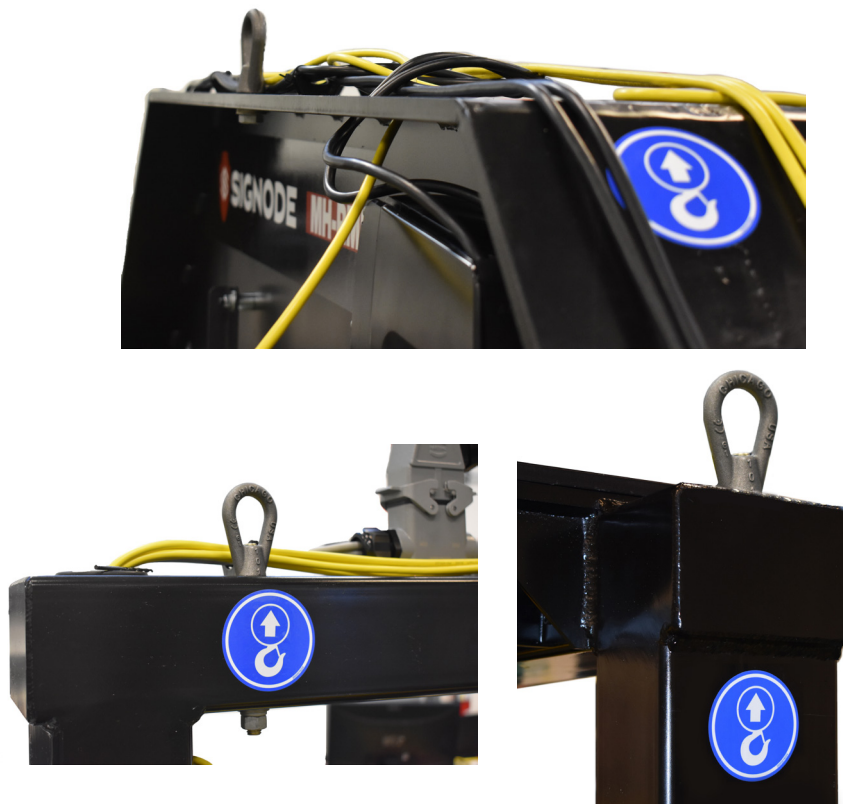


Figure 2-4: Lift Locations

⚠ WARNING

For safe operation and to prevent property damage, personal injury and/or death, maintain a minimum of 12 inches (305 mm) distance between machine and operator.

⚠ WARNING

For safe operation and to prevent property damage, personal injury, and/or death, wear safety glasses and steel toe boots during operation and maintenance procedures.

2.2 MACHINE INSTALLATION AND SET-UP

2.2.1 ANCHOR (CONCRETE FLOOR)

When bolting machine to concrete floor use the 5/8 inch (15.875 mm) center-mounting hole, which passes through each machine leg. Use the following instructions and figures to properly install Wedge anchor concrete bolts for a secure machine installation:

1. Using a 1/2" (12.7 mm) diameter masonry drill, drill holes to any depth exceeding the minimum embedment (**Figure 2-5: A**). Clean hole.
2. Assemble anchor with nut and washer so that the top of the nut is flush with the top of the anchor. Drive anchor through material to be fastened so that nut and washer are flush with surface material (**Figure 2-5: B**).
3. Expand anchor by tightening nut 3 to 5 turns, to the specific torque requirement of 25 lb-ft (33.9 N•m). (**Figure 2-5: C**).

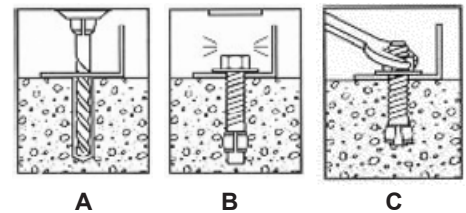


Figure 2-5: Concrete Anchors

2.2.2 ANCHOR DISPENSER (CONCRETE FLOOR)

Reference **Appendix A** for Dispenser installation instructions.

⚠ WARNING

To prevent property damage, personal injury, and/or death, disconnect / lock-out all electrical power before proceeding.

2.2.3 POWER SUPPLY CONNECTION PROCEDURE

Supply machine with 575VAC, 3-Phase, 60Hz power, 18A.

NOTE: Use insulated stranded copper wire with minimum cross-section of 2.5 mm not to exceed 8 mm.

- 1.** Strip 11 mm of insulation from end of wire.
- 2.** Insert bare ends of wires into the line-side of the Main Disconnect switch.
- 3.** Tighten connection screws to 1.6 N•m. Use #2 Pozidrive screwdriver to tighten connection screws.

⚠ WARNING

**For safe operation and to prevent property damage, personal injury and/or death,
do not operate machine without protective barriers.**

2.2.4 PROTECTIVE BARRIER

Protective barriers with an access light barrier are a critical component of the operator protection system.

- Safety guards (protective barriers/fences) must be utilized for strapping systems in accordance with the Machine Directive 2006/42/EC.

Signode is not responsible for providing or installing protective barriers. Due to the fact that there is no standard solution but rather a customized solution for every working and production environment, protective barriers are typically planned, sourced and installed by a third-party supplier.

⚠ WARNING

To prevent property damage, personal injury, and/or death, disconnect / lock-out all electrical power before proceeding.

⚠ WARNING

For safe operation and to prevent property damage, personal injury, and/or death, wear safety glasses and steel toe boots during operation and maintenance procedures.

2.3 MACHINE DECOMMISSION

2.3.1 DISASSEMBLY

Use following instructions to disassemble machine:

1. Disconnect and lock-out all power to machine as required by OSHA 1910.147.
2. Disconnect all electrical and/or pneumatic lines.
3. Remove and/or disassemble protection barriers if installed.
4. Disassemble machine in reverse order of installation procedure.

2.3.2 STORAGE

Use following instructions to place machine in storage:

1. Ensure machine storage location is within environmental operating conditions specified below.
 - Clean and dry
 - Storage temperature range: -13°F to 131°F (-25°C to 55°C)
2. Entire machine must be protected from dust, moisture, water, oil, humidity and extreme temperatures.
3. Machine must be stored in normal operating position.
 - Storing machine in normal operating position will prevent lubrication such as oil or grease from leaking and prevent damage to control systems, electrical components and motors.
4. Do not disassemble machine for storage.

2.3.3 DISPOSAL AND SCRAP

This machine is manufactured without any physical or chemical substances which could be dangerous to health. The legal prescriptions for disposal of all the parts must be observed. The electrical assemblies should be dismantled so that the mechanical, electro-mechanical and electronic components can be disposed of separately.



INTENTIONALLY BLANK

SECTION 3 MACHINE OPERATION

CONTENTS

SECTION 3 MACHINE OPERATION	3-1
3.1 PRINCIPLES OF OPERATION	3-4
3.1.1 General	3-4
3.1.1.1 Strap Feed	3-4
3.1.1.2 Carriage Extend	3-4
3.1.1.3 Strap Take-Up	3-4
3.1.1.4 Applied Tension	3-4
3.1.1.5 Welding And Cut-Off	3-5
3.1.1.6 Strap Release	3-5
3.1.1.7 Retract	3-5
3.2 OPERATOR CONTROLS	3-6
3.2.1 Main Power Disconnect Lever	3-6
3.2.2 Power On	3-6
3.2.3 Emergency Stop	3-6
3.2.3.1 Emergency Stop Procedure	3-6
3.2.4 Cycle Start	3-7
3.2.5 Auto Mode	3-7
3.2.6 Manual Index To Anvil Open	3-7
3.2.7 Operator Workstation	3-8
3.3 HMI CONTROL PANEL	3-8
3.3.1 Main Screen	3-8
3.3.2 Password Screen	3-9
3.3.3 Manual Screen	3-9
3.3.4 Alarms Count 1 Screen	3-10
3.3.5 Alarm Count 2 Screen	3-10
3.3.6 Alarm Count 3 Screen	3-11
3.3.7 Alarm Count 4 Screen	3-11
3.3.8 Alarm History Screen	3-12
3.3.9 Cycle Ratio Screen	3-12
3.3.10 Maintenance Screen	3-13
3.3.11 Weld Count Screen	3-13
3.3.12 Weld Setup Screen	3-14

SECTION 3

3.3.13 Tension Setup	3-14
3.3.14 Tension Setup - Keypad	3-14
3.3.15 Load Touch Time.....	3-15
3.3.16 Installed Options	3-15
3.3.17 Prefeed Time.....	3-15
3.3.18 Analog I/O Screen.....	3-16
3.3.19 PLC Slot 2 I/O Screen.....	3-16
3.3.20 PLC Slot 3 I/O Screen.....	3-16
3.3.21 PLC Slot 4 I/O Screen.....	3-17
3.3.22 PLC Slot 5 I/O Screen.....	3-17
3.3.23 PLC Slot 6 I/O Screen.....	3-17
3.3.24 Remote I/O Link Screen.....	3-18
3.4 OPERATING PROCEDURE	3-19
3.4.1 Prepare Machine For Operation	3-19
3.4.1.1 Perform Safety Device Function Checks	3-19
3.4.1.2 Load Dispenser	3-19
3.4.1.3 Load Strap In Machine	3-19
3.4.2 Operation Procedure.....	3-20
3.4.2.1 Manual Mode	3-20
3.4.2.2 Auto Mode.....	3-20

INTENTIONALLY BLANK

⚠ WARNING

For safe operation and to prevent property damage, personal injury and/or death, maintain a minimum of 12 inches (305 mm) distance between machine and operator.

3.1 PRINCIPLES OF OPERATION

3.1.1 GENERAL

The MH-RMF is integrated into the customer's conveyor system and is controlled by this conveyor system through interlocks. In general, plastic strap is fed through the Head and into the chute system. The load is advanced on the customer's conveyor and positioned at the MH-RMF. Once a Cycle command is received, either manually or automatically, the MH-RMF, feeds strap through the chute system until it re-enters the Head. The MH-RMF extends the Head to the load then the strap is drawn tight around the load, welded and cut from the supply. The completed tie is then released from the Head and the extended components are retracted to their home positions. The MH-RMF will give a Cycle Complete signal to the conveyor system to advance the load. At this point the MH-RMF is ready for the next cycle.

The following are the details of what events occur within the MH-RMF cycle:

3.1.1.1 Strap Feed

The Tension Module rotates the Drive Wheels in feed direction. The feed wheels continue to push strap around the chute until it re-enters the Head. To prevent strap from overfeeding a proximity switch senses the stop position of the strap at the Anvil. Once the Feed Limit switch senses that the strap has completely fed around the chute and back into the Anvil the Tension Module is de-energized, effectively stopping strap feed.

3.1.1.2 Carriage Extend

Once the Feed Limit switch is activated the Sealer Module indexes to Grip position securing the lead end of the strap. A signal is given to the Carriage motor to extend the Head Carriage to the load. The Strap Guide Arms have sensors to detect when load is found. A sensor on the Carriage detects when it strikes the load and stops the Carriage motor.

3.1.1.3 Strap Take-Up

Once the load is detected a signal is given to the Tension Module to rotate the Drive Wheels in the reverse direction. As the drive motor rotates the Drive Wheels withdraw the strap from the chute and continue to pull the strap tightly around the load. The larger Drive Wheel is driven by a mechanical slip clutch. The smaller toothed wheel acts as an idler at this stage and is forced to overrun its drive shaft by use of a one-way roller clutch. Once the strap has been pulled tightly around the load the high speed wheel begins to slip on the mechanical slip clutch. At this point the toothed wheel is no longer overrunning its drive shaft and it also stops rotating. A sensor placed at the toothed wheel senses the stopped motion and signals a Stall condition. The Strap Guide Arms retract away from the load.

3.1.1.4 Applied Tension

When a Stall is detected the Tension Module is switched to Tension mode. At this point the tension motor, which is controlled by the Variable Frequency Drive (VFD) in the control panel, will apply torque as set by the Tension Setting. The Tension motor continues in the reverse direction, but at a lower speed, and will apply the set torque to the strap.

3.1.1.5 Welding And Cut-Off

The index camshaft continues to turn advancing the Head from the tension position to the loop grip position.

The feed and take-up drive motor is de-energized to release strap tension between the strap Drive Wheels and the loop grip.

The weld motor is turned on for a timed duration to allow time for the motor to approach proper welding speed.

The loop grip continues to hold the tensioned strap against the underside of the Anvil. The index camshaft continues to rotate which begins the advancement of the weld pad into the strap path. As the weld pad advances the weld motors eccentric shaft, connected to the weld pad by an eccentric arm, begins to move at a high rate of speed.

Once the Head has stopped in the weld-cool position, the following actions occur:

During the Head's indexing from loop grip to weld-cool, the cutter blade extends and the strap supply is cut-off. Then the rapidly moving weld pad contacts the strap pressing it against the other, placing pressure on the two and beginning the welding process.

When the weld motor times out, the weld motor is turned off and the welding process is complete.

A weld cool timer is then activated. The weld cool timer controls the time during which the two straps are held under pressure to allow the straps to properly fuse and cool.

3.1.1.6 Strap Release

Once the weld cool timer times-out, the index camshaft continues to rotate advancing the Head from the weld-cool position to the Anvil open position.

When the Head stops, the following actions occur:

During the Head's indexing move from weld-cool to Anvil open, the loop-grip, the end grip, the cutter blade and the vibrator pad return to their neutral positions. The Anvil opens and the welded tie is released to the load. At this point in the cycle, the Head will remain in the Anvil open position.

3.1.1.7 Retract

After the Sealer Module has released the welded strap to the load the MH-RMF retracts the Carriage.

Once the Carriage has retracted to home the Sealer Module is then indexed to the Home position effectively closing the Anvil. When the home sensors are activated the respective motors are stopped. At this point the MH-RMF is ready for the next strap cycle.

⚠ WARNING

For safe operation and to prevent property damage, personal injury and/or death, perform function checks on all safety devices before operation and maintenance procedures.

3.2 OPERATOR CONTROLS

Locate the controls on your machine and become familiar with the operation of each individual control before operating the machine.

3.2.1 MAIN POWER DISCONNECT LEVER

Rotate MAIN POWER DISCONNECT lever counter-clockwise **(Figure 3-1)** to disconnect power and rotate lever clockwise to turn power ON. When machine is not in use, disconnect power.



Figure 3-1: Main Power Disconnect Lever

3.2.2 POWER ON

Press POWER ON button **(Figure 3-2)** to reset Machine Safety Circuit. Button will illuminate when Machine Safety Circuit is reset.



Figure 3-2: Power On Button

3.2.3 EMERGENCY STOP

Press EMERGENCY STOP control **(Figure 3-3)** to stop all machine functions. To restore machine power, pull EMERGENCY STOP control outward and press POWER ON button **(Figure 3-2)**.

3.2.3.1 Emergency Stop Procedure

1. Press EMERGENCY STOP to prevent property damage, personal injury, and/or death.



Figure 3-3: Emergency Stop Control

⚠ WARNING

For safe operation and to prevent property damage, personal injury and/or death, perform function checks on all safety devices before operation and maintenance procedures.

3.2.4 CYCLE START

CYCLE START button (**Figure 3-4**) performs the following multiple functions:

- Press CYCLE START button to apply a single strap to a package. CYCLE START will only apply a single strap when button is illuminated and not in automatic mode.
- CYCLE START button must be illuminated to place machine in automatic mode.
- CYCLE START button flashing light indicates machine is not ready to operate. Machine components may not be in the Ready or Home position or the machine has an error. To return machine components to the Ready or Home position and reset all components, press flashing CYCLE START button. CYCLE START button may need to be pressed multiple times to return machine to Ready mode.
- CYCLE START button must be pressed after a Feed Stall Error. When a Feed Stall Error is indicated on the HMI screen, the machine operator must open the tub door and inspect the Feeder Module for any obstruction. After completing this task and closing the tub door, press CYCLE START button to place machine back in Ready mode.



Figure 3-4: Cycle Start Button

3.2.5 AUTO MODE

AUTO MODE button (**Figure 3-5**) toggles machine function from Automatic mode to Manual mode. When AUTO MODE button is illuminated machine is in Automatic mode.



Figure 3-5: Auto Mode Button

3.2.6 MANUAL INDEX TO ANVIL OPEN

MANUAL INDEX TO ANVIL button (**Figure 3-5**) will Index Sealer to Anvil Open position cutting strap and opening Anvil, when in MANUAL MODE. When Sealer is in Home position, light will be illuminated indicating Sealer is in Home or Run position. After Indexing to Anvil Open, remove any cut strap from Sealer as a result of Indexing to Anvil Open.



Figure 3-6: Manual Index to Anvil Open Button

3.2.7 OPERATOR WORKSTATION

The Operator Workstation is located immediately in front of the Control Panel - HMI display (Figure 3-7: 1). The Operator Workstation provides access to all operator controls.



Figure 3-7: Control Panel - HMI

1. HMI

3.3 HMI CONTROL PANEL

Machine functions and diagnostics can be controlled through the HMI control panel.

NOTE: Certain functions may not be available depending on machine configuration.

3.3.1 MAIN SCREEN

- MAIN Button: Displays MAIN screen.
- MANUAL Button: Displays MANUAL screen.
- MAINTENANCE Button: Displays MAINTENANCE screen.
- PERFORMANCE Button: Displays EFFICENCY screen.
- ALARMS Button: Displays ALARM screen.

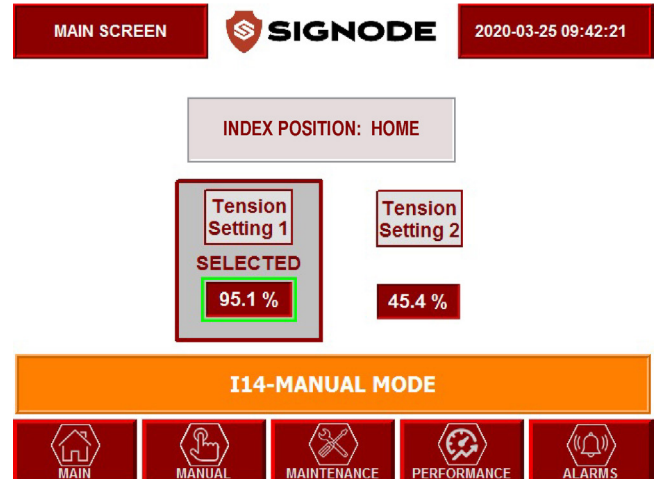


Figure 3-7: Main Screen

3.3.2 PASSWORD SCREEN

- Maintenance Screen accessible after password is entered.

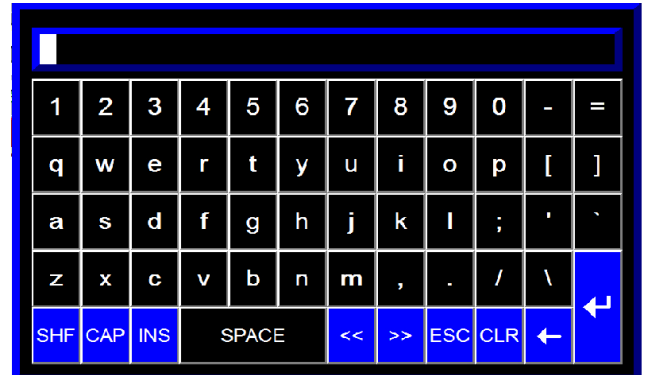


Figure 3-8: Password Screen

3.3.3 MANUAL SCREEN

- MANUAL/AUTO MODE Button: Displays the operation mode.
- DISABLE COMPRESSION Button (Option): Deactivates Compression mode.
- EXTEND CARRIAGE Button: Manual Control Extend Carriage.
- FEED STRAP Button: Manual Control Feed Strap.
- RETRACT CARRIAGE Button: Manual Control Retract Carriage.
- TAKEUP STRAP Button: Manual Control TakeUp Strap.

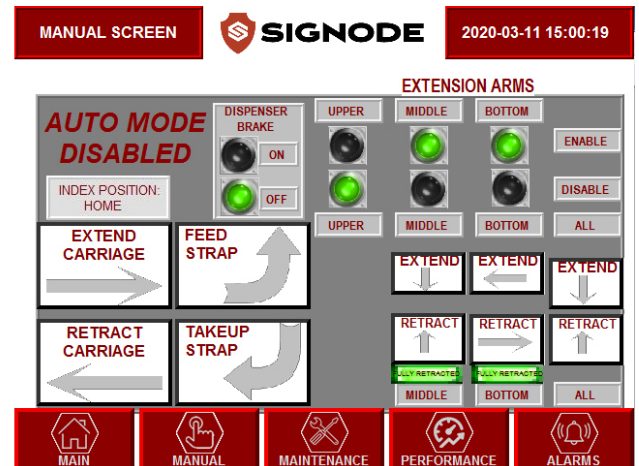


Figure 3-9: Manual Screen - Fully Retracted

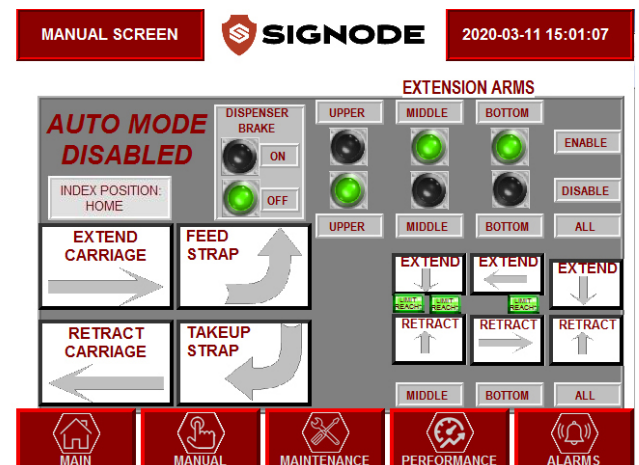


Figure 3-10: Manual Screen - Limit Reached

3.3.4 ALARMS COUNT 1 SCREEN

- E1 - ESTOP IN CYCLE: This alarm is triggered when the Estop button is pressed while in a strapping cycle. Power on, clear strap, and reset.
- E2 - FEEDING TOO LONG: Strap took too long to reach the sealing module. Check for debris or obstructions in chute, dispenser condition, strap tube, out of strap, Anvil is closed, and check Feed Limit switch in Head.
- E3 - TAKEUP TOO LONG: Takeup cycle took too long. This timer is running while the takeup motor is running and the feed wheels have not stalled. Check for short feed or Sealer Module not indexing to grip position.
- E4 - TENSION TOO LONG: This alarm is triggered when the sealing Head is in tension mode for too long. The takeup motor has stalled, but the Head has not indexed to loop grip position. Check for signal from drive at end of tension.
- E5 - INDEX FAULT: This alarm is triggered when the sealing module takes too long to complete an index. Check for mechanical binding in the module, check home prox sensor, check motor rotation.

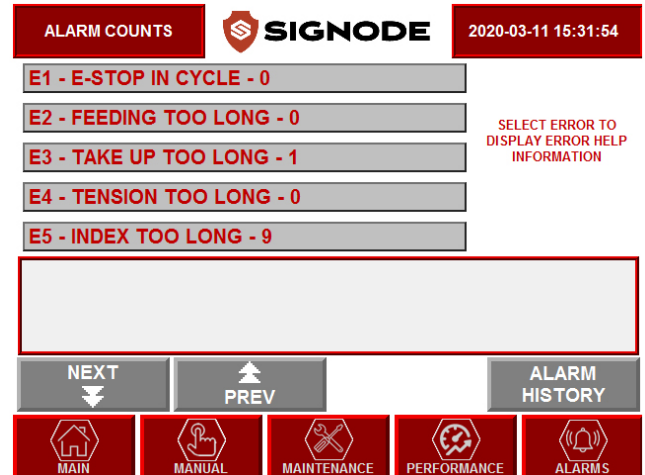


Figure 3-11: Alarms Count 1 Screen

3.3.5 ALARM COUNT 2 SCREEN

- E6 - CYCLE TOO LONG: This alarm is triggered when the overall cycle time is too long. Check condition of the chutes, dispenser jam, feed motor running, etc.
- E7 - FEED MOTOR FAULT: Check frequency drive in main cabinet. Allow motor to cool.
- E8 - WELDING TOO LONG: This alarm is triggered when the weld motor is on for too long. Check weld prox.
- E9 - Carriage RETRACT: This alarm is triggered when the Carriage does not return home. Check for obstructions on the Carriage and the prox sensing home position.
- E10 - DID NOT SEE LOAD: This alarm is triggered when the Carriage does not see the load. Either there is no load, or the Carriage extended prox is triggered. Check for obstructions on the Carriage and the prox sensing extended position.

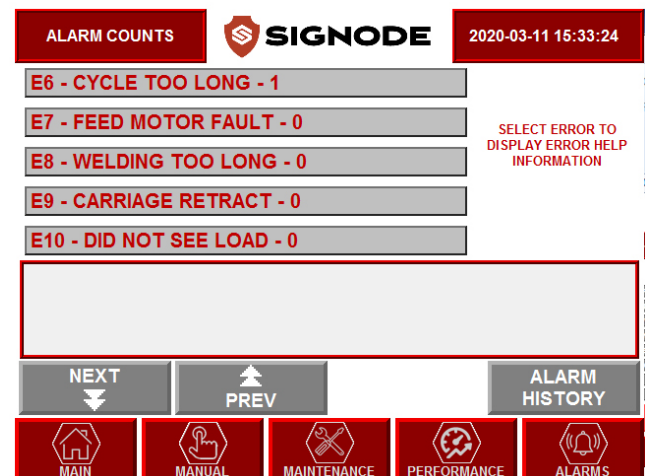


Figure 3-12: Alarms Count 2 Screen

3.3.6 ALARM COUNT 3 SCREEN

- E11 - SPARE
- E12 - SPARE
- E13 - SPARE
- E14 - TAKEUP STALL: This alarm is triggered when the feed motor stalls during the takeup step. Check for strap hitting obstructions in chute transitions. Remove strap from feed module and cut off damaged strap.
- E15 - FEED STALL: This alarm is triggered when the feed motor stalls during feed. Check for strap obstructions/transitions. Remove strap from feed module and cut off damaged strap. Indicated by fast cycle flashing light.

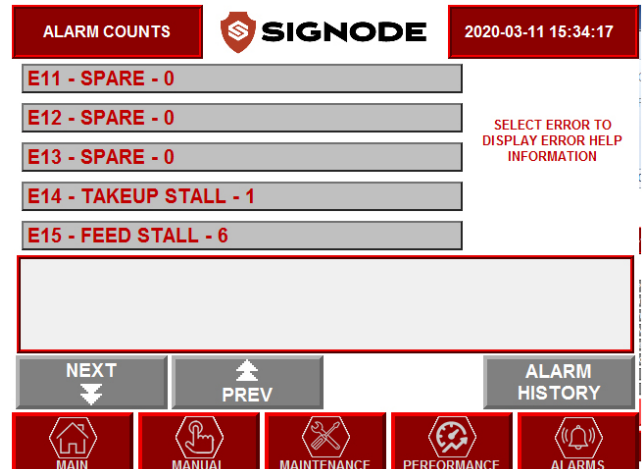


Figure 3-13: Alarms Count 3 Screen

3.3.7 ALARM COUNT 4 SCREEN

- E16 - EARLY FLS: This alarm is triggered when the Feed Limit switch in the Sealer Module is triggered before the strap returns to the module. Check for loose mounting of the sensor or broken spring.
- E17 - STRAP APPLY: This alarm is triggered when the strap detect arm is not triggered as the Carriage is returning home. Check weld, sensor linkage, or faulty prox.
- E18 - SPARE
- E19 - SA ON TOO LONG: Strap applied switch on too long. Look for faulty strap applied sensor or mechanism.

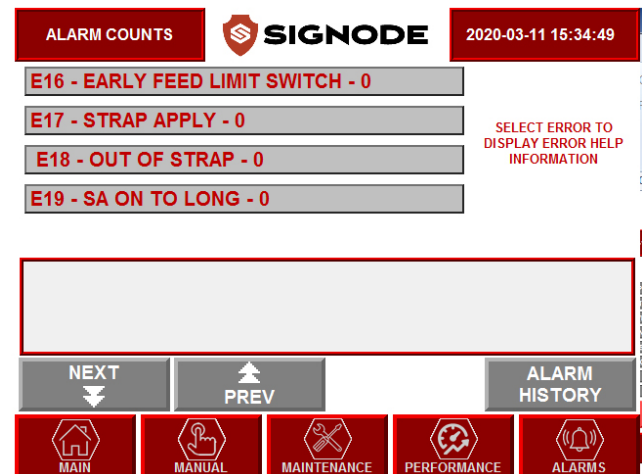


Figure 3-14: Alarms Count 4 Screen

3.3.8 ALARM HISTORY SCREEN

- NEXT: Scrolls to NEXT alarm.
- PREV: Scrolls to PREV alarm.
- CLEAR ALARMS: Clears all Alarms in History.
- ALARM COUNTS: Displays ALARMS COUNTS screen.

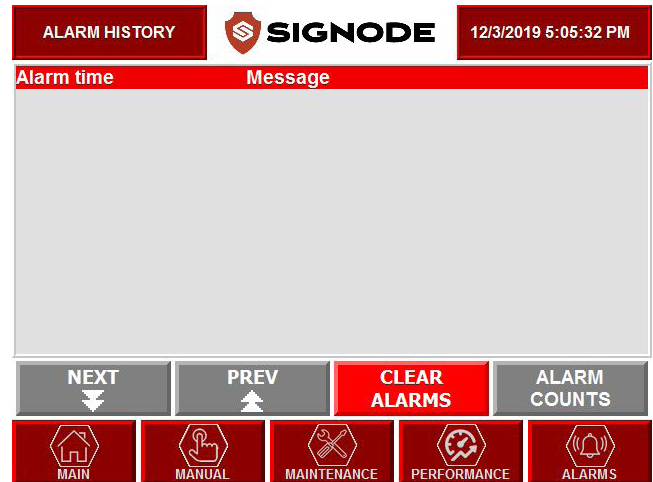


Figure 3-15: Alarm History Screen

3.3.9 CYCLE RATIO SCREEN

- ZERO DAILY: Clears all Daily Cycles and Ratio.
- CLOCK: Adjusts the terminal Time and Date.
- ALARM HISTORY: Displays ALARM HISTORY screen.

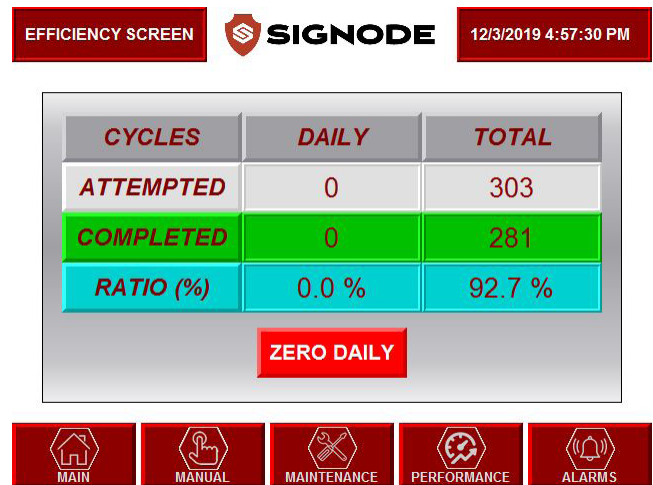


Figure 3-16: Cycle Ratio Screen

3.3.10 MAINTENANCE SCREEN

- WELD COUNT: Jumps to WELD COUNT screen.
- INPUTS OUTPUTS: Jumps to I/O screen.
- TENSION SETUP: Jumps to TENSION SETUP screen.
- WELD SETUP: Jumps to WELD SETUP screen.
- INSTALLED OPTIONS: Jumps to INSTALLED OPTIONS screen.
- POT 1: Displays Tension Setting 1 voltage.
- POT 2: Displays Tension Setting 2 voltage.

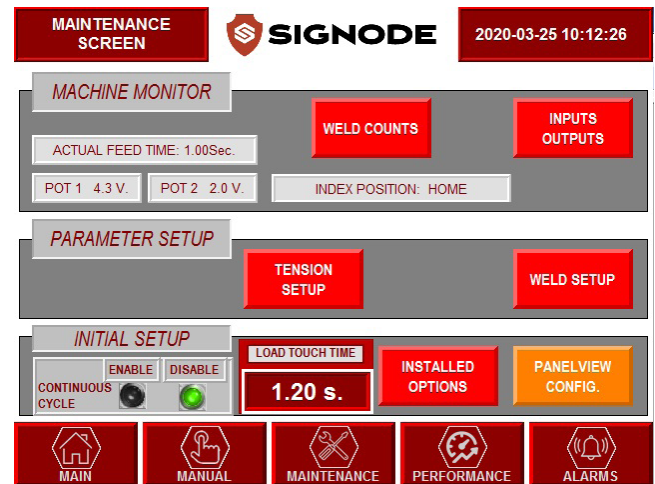


Figure 3-17: Maintenance Screen

3.3.11 WELD COUNT SCREEN

- WELD COUNT: Number of counts set to weld.

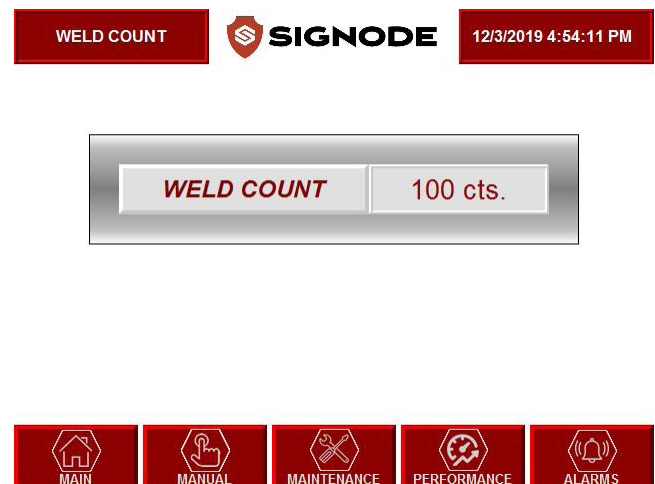


Figure 3-18: Weld Count Screen

3.3.12 WELD SETUP SCREEN

- WELD COUNT PLUS Button: Increase Weld count.
- WELD COUNT MINUS Button: Decrease Weld count.
- WELD COOL TIME PLUS Button: Increase Weld Cool Time.
- WELD COOL TIME MINUS Button: Decrease Weld Cool Time.

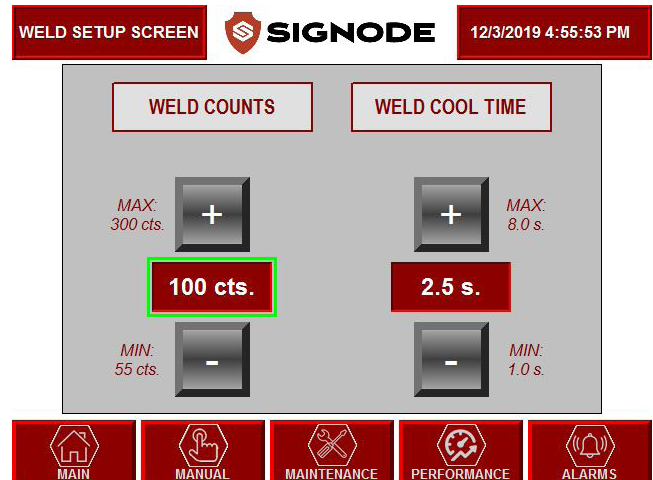


Figure 3-19: Weld Setup Screen

3.3.13 TENSION SETUP

- TENSION SETTING 1 Plus: Increase percentage of tension.
- TENSION SETTING 1 Minus: Decrease percentage of tension.
- TENSION SETTING 2 Plus: Increase percentage of tension.
- TENSION SETTING 2 Minus: Decrease percentage of tension.

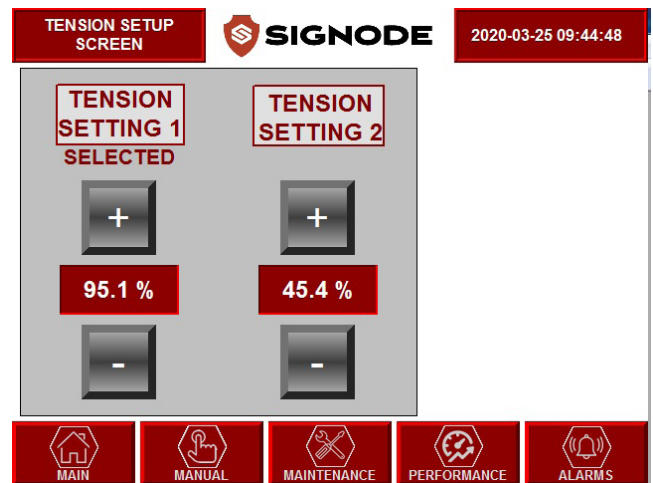


Figure 3-20: Tension Setup Screen

3.3.14 TENSION SETUP - KEYPAD

- Plus or Minus: Press button to display keypad.
- Enter percent value on Keypad and press Return to set value.

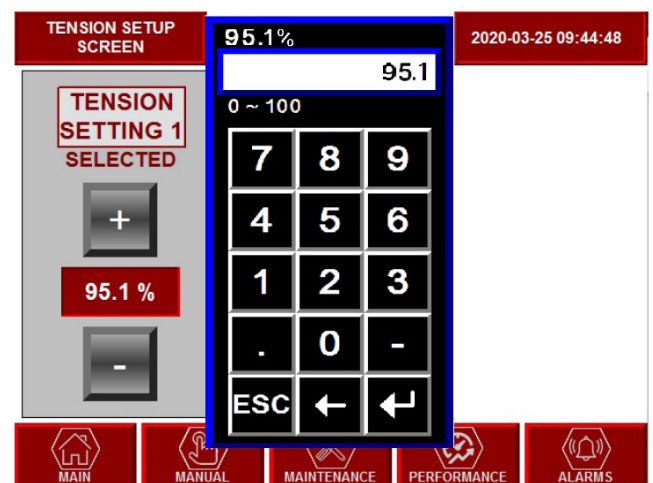


Figure 3-21: Tension Setup - Keypad

3.3.15 LOAD TOUCH TIME

- Load Touch Time: Press button to display keypad.
- Enter time in Seconds on Keypad and press Return to set value.

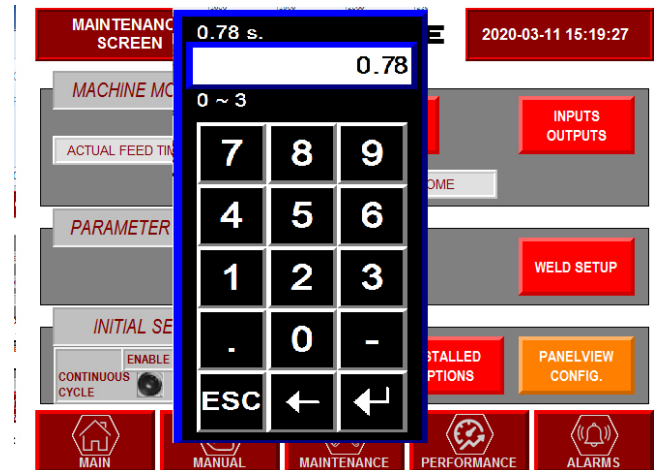


Figure 3-22: Load Touch Time - Keypad

3.3.16 INSTALLED OPTIONS

- PREFEED OPTION
- EXTENSION ARM OPTION

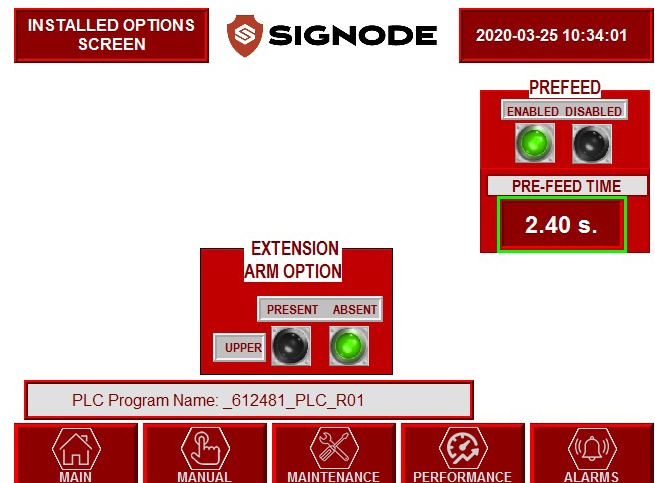


Figure 3-23: Installed Options Screen

3.3.17 PREFEED TIME

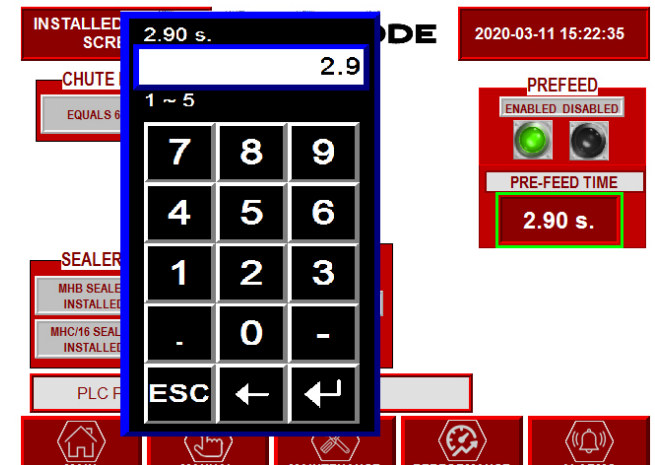


Figure 3-24: Prefeed Time - Keypad

3.3.18 ANALOG I/O SCREEN

Displays the status/value of the Analog outputs from the PLC.

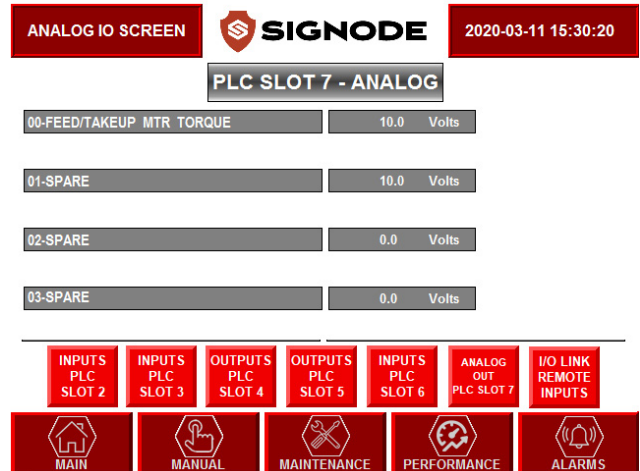


Figure 3-25: Analog I/O Screen

3.3.19 PLC SLOT 2 I/O SCREEN

- Red indicates Input OFF
- Green indicates Input ON

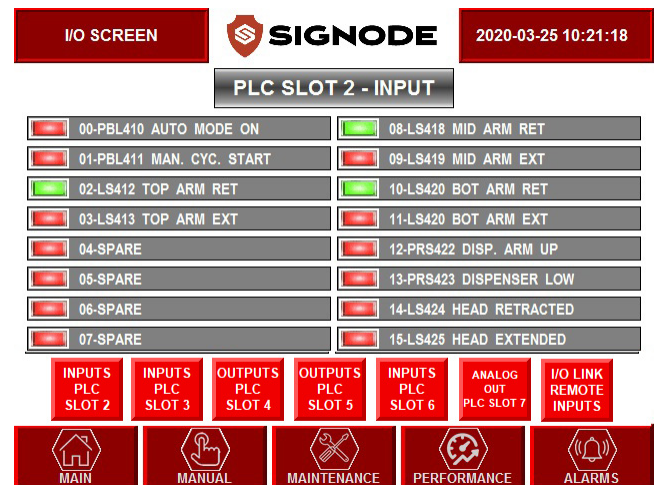


Figure 3-26: PLC Slot 2 I/O Screen

3.3.20 PLC SLOT 3 I/O SCREEN

- Red indicates Input OFF
- Green indicates Input ON

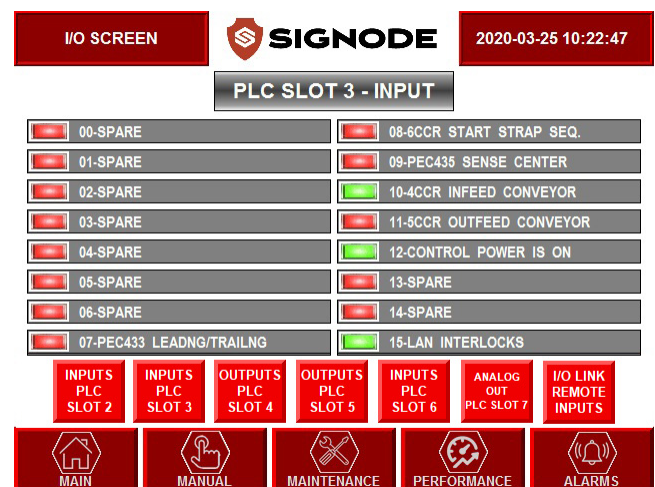


Figure 3-27: PLC Slot 3 I/O Screen

3.3.21 PLC SLOT 4 I/O SCREEN

- Red indicates Output OFF
- Green indicates Output ON

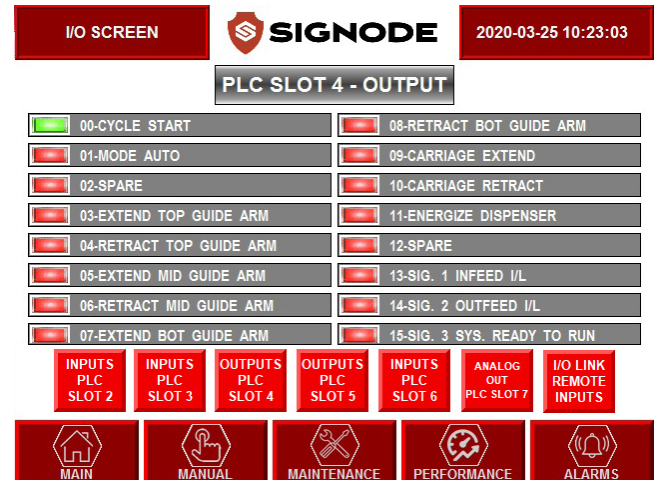


Figure 3-28: PLC Slot 4 I/O Screen

3.3.22 PLC SLOT 5 I/O SCREEN

- Red indicates Output OFF
- Green indicates Output ON

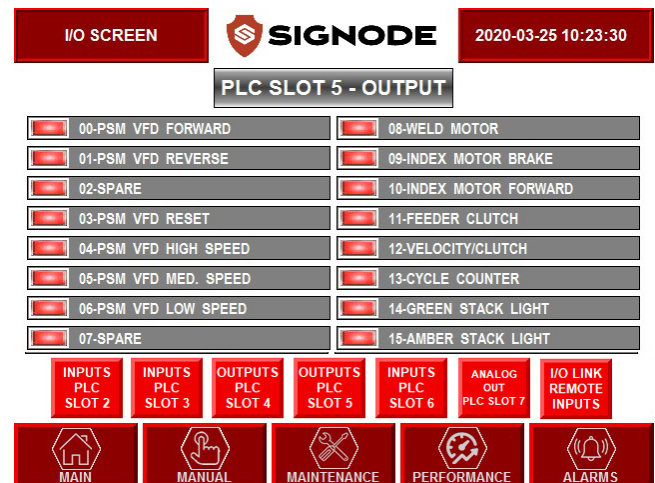


Figure 3-29: PLC Slot 5 I/O Screen

3.3.23 PLC SLOT 6 I/O SCREEN

- Red indicates Input OFF
- Green indicates Input ON

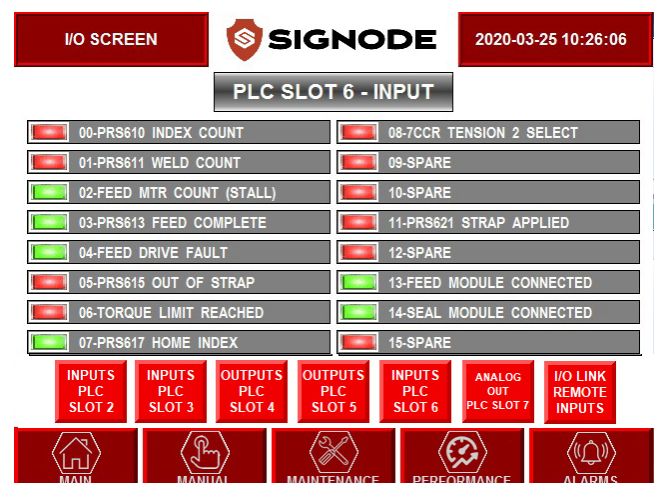


Figure 3-30: PLC Slot 6 I/O Screen

3.3.24 REMOTE I/O LINK SCREEN

- Red indicates Input OFF
- Green indicates Input ON

I/O SCREEN



2020-03-25 10:26:06

REMOTE IO LINK

 00-PRS610 INDEX COUNT	 08-7CCR TENSION 2 SELECT
 01-PRS611 WELD COUNT	Error 21-01-SPARE
 02-FEED MTR COUNT (STALL)	Error 21-02-SPARE not configured in PLC
 03-PRS613 FEED COMPLETE	Error 21-03-SPARE not configured in PLC
 04-FEED DRIVE FAULT	Error 21-04-SPARE not configured in PLC
 05-PRS615 OUT OF STRAP	Error 21-05-SPARE not configured in PLC
 06-TORQUE LIMIT REACHED	Error 21-06-SPARE not configured in PLC
 07-PRS617 HOME INDEX	Error 21-07-SPARE not configured in PLC

INPUTS
PLC
SLOT 2

INPUTS
PLC
SLOT 3

OUTPUTS
PLC
SLOT 4

OUTPUTS
PLC
SLOT 5

INPUTS
PLC
SLOT 6

ANALOG
OUT
PLC SLOT 7

I/O LINK
REMOTE
INPUTS

MAIN

MANUAL

MAINTENANCE

PERFORMANCE

ALARMS

3.4 OPERATING PROCEDURE

3.4.1 PREPARE MACHINE FOR OPERATION

Use following instructions to prepare machine for operation:

3.4.1.1 Perform Safety Device Function Checks

- Ensure all machine safety devices are working properly. Perform function checks on all buttons and switches.

3.4.1.2 Load Dispenser

NOTE: Do not remove the plastic shrink wrapping or corrugated belly band until instructed.

Reference **Appendix A** for Dispenser loading instructions.



3.4.1.3 Load Strap In Machine

To load strap use the following procedure:

1. Pull the pinch lever (**Figure 3-31: 1**) down to open the tension Drive Wheels. Insert strap into tensioner with natural curl face-down.
2. Continue to guide the strap into the Tension Module inlet. Insert approximately 12" (305 mm) of strap into the Tension Module.

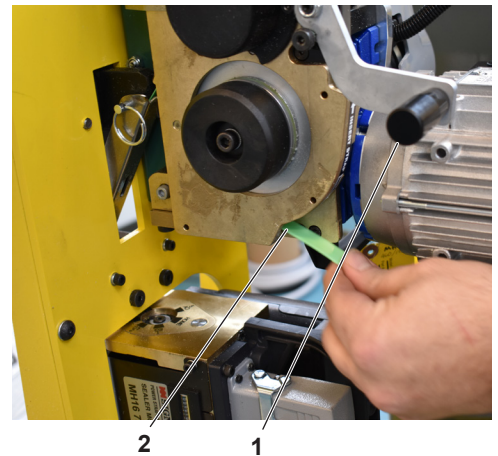


Figure 3-31: Pinch Lever

1. Pinch Lever
2. Strap

3. Raise Pinch Lever (**Figure 3-32: 1**) to securely contain the strap.

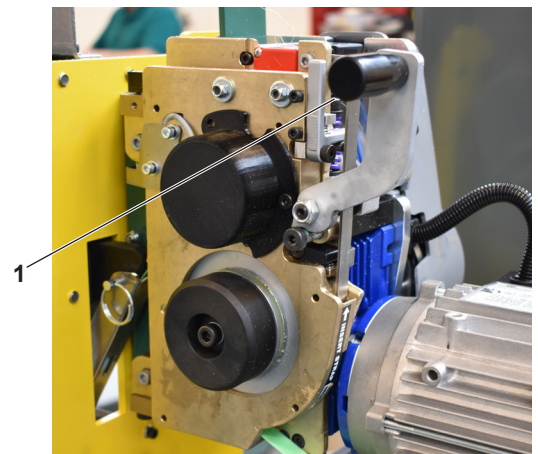


Figure 3-32: Pinch Lever

1. Pinch Lever

⚠ WARNING

For safe operation and to prevent property damage, personal injury and/or death, maintain a minimum of 12 inches (305 mm) distance between machine and operator.

⚠ WARNING

For safe operation and to prevent property damage, personal injury, and/or death, wear safety glasses and steel toe boots during operation and maintenance procedures.

3.4.2 OPERATION PROCEDURE

3.4.2.1 Manual Mode

To operate the machine in Manual Mode, use the following procedure:

1. Pull **Main Power Disconnect** Lever down to the ON position.
2. Press **Power On** button.
3. Ensure customer conveyor system positions load in machine chute properly.
4. Press **Cycle Mode** button to apply strap to load.

3.4.2.2 Auto Mode

To operate the machine in **Auto Mode**, use the following procedure:

1. Pull **Main Power Disconnect** Lever down to the ON position.
2. Press **Power On** button.
3. Press **Auto Mode** button.

NOTE: When AUTO MODE button is illuminated, machine is in Automatic mode.

4. Ensure customer conveyor system positions load in machine chute properly.
5. When customer conveyor system transmits a CYCLE command to the MH-RMF, a strap will be applied to the load automatically.
6. The strapped load is conveyed to the next position.

INTENTIONALLY BLANK

INTENTIONALLY BLANK

SECTION 4 MAINTENANCE & TROUBLESHOOTING

CONTENTS

SECTION 4	
MAINTENANCE & TROUBLESHOOTING	4-1
4.1 PERIODIC SERVICE INSTRUCTIONS	4-2
4.1.1 Prepare Machine For Maintenance.....	4-2
4.1.2 Machine Function Check	4-2
4.1.3 Lockout-Tagout Procedure.....	4-3
4.1.3.1 Lockout-Tagout Shutdown Sequence	4-4
4.1.3.2 Lockout-Tagout Restore To Service Sequence	4-4
4.1.4 Daily	4-5
4.1.5 Bi-Weekly Or 10,000 To 20,000 Strap Cycles.....	4-5
4.1.6 Quarterly Or 40,000 To 60,000 Strap Cycles	4-5
4.1.7 Annually Or 150,000 To 200,000 Strap Cycles	4-6
4.2 SAFETY DEVICE FUNCTION CHECKS	4-7
4.2.1 Main Power Disconnect Lever	4-7
4.2.2 Power On Button.....	4-7
4.2.3 Emergency Stop Control	4-8
4.2.4 Protective Barrier - Door Lock Switches (If Installed)	4-8
4.3 SERVICE PROCEDURES	4-9
4.3.1 Removal / Replacement Of The Tension Module	4-9
4.3.2 Removal / Replacement Of The Sealer Module	4-10
4.3.3 Weld Motor Brush Replacement	4-12
4.4 TROUBLESHOOTING	4-13
4.4.1 Symptoms:	4-13

SECTION 4

⚠ WARNING

To prevent property damage, personal injury, and/or death,
perform Lockout-Tagout procedure prior to servicing machine.

⚠ WARNING

For safe operation and to prevent property damage, personal injury, and/or death,
wear safety glasses and steel toe boots during operation and maintenance procedures.

4.1 PERIODIC SERVICE INSTRUCTIONS

A regular maintenance program is essential for good service and long machine life. Listed below is a suggested maintenance schedule for a machine receiving average use in an average environment. When a machine is subjected to heavy use or used in a demanding environment (excessive lint, dust, moisture, etc.) more frequent attention may be required.

NOTE: Accurate records of machine service, maintenance and Safety Device Function Checks must be maintained and stored near the machine for easy access and reference.

4.1.1 PREPARE MACHINE FOR MAINTENANCE

Before conducting machine maintenance and/or repair ensure the following actions are completed:

1. Perform **LOCKOUT-TAGOUT Shutdown Sequence**.

4.1.2 MACHINE FUNCTION CHECK

After conducting machine maintenance and/or repair ensure the following actions are completed:

1. Perform **LOCKOUT-TAGOUT Restore To Service Sequence**.
2. Perform function checks on machine safety devices to ensure all safety devices work properly before operating.
3. Perform a machine function check to verify machine is operating correctly:
 - Place machine in Manual Mode and apply a single strap to a product.

4.1.3 LOCKOUT-TAGOUT PROCEDURE

1 Isolation Point to be Locked and Tagged

DANGER

Also shut down adjacent non-Signode equipment prior to servicing machine. 3 Phase disconnect located on Machine Panel. Crushing hazard. Take precautions and wear proper PPE when servicing.

Electrical Panel



ALWAYS PERFORM A MACHINE STOP BEFORE LOCKING OUT DISCONNECTS

ID	Source	Device	Location	Method	Check
	Electrical 575V	Padlock	Isolation point on front of machine panel.	Move electrical disconnect to off. Lock out.	Verify machine is deenergized.

Failure to follow the above procedure could result in serious personal injury or death

OPENING A GUARD DOES NOT CONSTITUTE A LOCKOUT

Any modifications to this machine must be shown in procedure. Contact Signode to update procedure.



Safety Is Your Responsibility!

4.1.3.1 Lockout-Tagout Shutdown Sequence

OSHA CFR 1910.147		
Purpose: To protect <u>authorized employees</u> against unexpected or unplanned activation of equipment or energy while servicing equipment.		
Scope: Utilize this procedure for all scheduled PM shutdowns, any maintenance task that requires you to place your body in harms way of the equipment or if you have to leave the area while the equipment is in service.		
Enforcement: Failure to properly follow lockout-tagout procedures may result in disciplinary action.		
SHUTDOWN SEQUENCE - LOCK/TAG, TRY, TEST		
#	STEP	DESCRIPTION
1	<i>Notify</i>	Notify all affected employees that servicing or maintenance is required on a machine or equipment, and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance.
2	<i>Review Lockout Procedure</i>	The authorized employee shall refer to the company procedure to identify the type and magnitude of the energy that the machine or equipment utilizes, shall understand the hazards of the energy, and shall know the methods to control the energy.
3	<i>Perform Machine Stop</i>	If the machine or equipment is operating, shut it down by the normal stopping procedure (depress the e-stop button , open switch, close valve, etc.). <i>Reference operating procedure for normal shutdown.</i>
4	<i>Isolate Energy</i>	Follow graphical lockout-tagout procedure from top to bottom to de-activate the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s) . <i>Note: It may be necessary to dissipate the non-lockable energy sources before isolating the lockable energy sources (i.e. lower machine to lowest position before locking out).</i>
5	<i>Lockout Energy</i>	Perform all lockout-tagout procedure steps from top to bottom starting with page 1. Lock out & tag out the energy isolating device(s) with assigned individual lock(s) and tag(s).
6	<i>Dissipate Energy</i>	Stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc. (<i>i.e. allow 3-5 minutes minimum for VFD/Motor Control Board(s) Capacitor to dissipate, Insert Head Cradle Safety Pins when applicable</i>)
7	<i>Attempt Restart (TRY STEP)</i>	Ensure that the equipment is disconnected from the energy source(s) by first checking that personnel are clear of machine area, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate. Note: This may include Customer Owned In-Feed/Out-Feed Conveyors, Pneumatic, Electric or Hydraulic Controlled Lift/Lower, Bump Gates, End Squeeze Units etc. Discuss these options for LOTO with Local Customer Contact prior to proceeding. Note: Verify all interlocks, on/off buttons, etc. are in proper position for startup to ensure that the lockout is the only means of deenergization when attempting restart.

Caution: Return operating control(s) to neutral or "off" position after verifying the isolation of the equipment.

4.1.3.2 Lockout-Tagout Restore To Service Sequence

RESTORE TO SERVICE SEQUENCE		
#	STEP	DESCRIPTION
1	<i>Check Machine</i>	Check the machine or equipment and the immediate area around the machine to ensure that nonessential items such as parts and tools have been removed and that the machine or equipment components are operationally intact including replacement of guards, interlocks, etc.
2	<i>Check Area</i>	Check the work area to ensure that all employees have been safely positioned or removed from the area.
3	<i>Verify Machine</i>	Verify that the controls are in neutral .
4	<i>Remove Lockout</i>	Remove the locks, tags and lockout devices and reenergize the machine or equipment. Reverse the order of all lockout-tagout procedure steps from bottom to top starting from the last page. <i>Note: The removal of some forms of blocking (Platen Latches, Safety Pins) may require reenergization of the machine before safe removal.</i>
5	<i>Notify</i>	Notify affected employees that the servicing or maintenance is completed and the machine or equipment is ready for use.

Reference: OSHA CFR 1910.147, Appendix A, "Typical minimal lockout procedures - 1910.147 App A"

4.1.4 DAILY

1. Remove strap from Feed and Take-up modules.
2. Use compressed air to remove all dust and debris from strapping head, strap chute and machine frame.
3. Visually inspect a strap joint for full and proper bond with excess material protruding on at least one side of the welded area.

4.1.5 BI-WEEKLY OR 10,000 TO 20,000 STRAP CYCLES

1. Visually inspect Feed and Take-up modules for loose or damaged parts.
2. Use compressed air to remove all dust and debris from Sealer Anvil assembly, Feed Wheel, Strap Guides and Strap Accumulator.
3. Visually check strap seals for proper weld and a clean strap cut.
4. Lubricate Swing Arm bearings. To lubricate Swing Arm bearing use grease fitting located on bearing housing.

4.1.6 QUARTERLY OR 40,000 TO 60,000 STRAP CYCLES

NOTE: Quarterly maintenance should only be performed by trained Maintenance Personnel.

1. Disassemble the Sealer module.
 - Clean all parts with an approved solvent
 - Lubricate all parts including the eccentric arm assembly and the weld pad bearings with a high temperature grease such as Accrolube® or equivalent.
2. Inspect all cam followers and camshaft for excessive wear.
3. Inspect weld motor brushes. Replace brushes if less than 10mm long.
4. Remove Feeder module.
 - Checked for excess wear and worn parts, and clean Feed Wheel.
5. Inspect Carriage and Swing Arms
 - Inspect Carriage Motors and Swing Arm actuators.
 - Inspect Carriage Support and Swing Arm supports.
6. Inspect Strap Chute for proper strap feed and control transitions.
 - Check transitions between Sealer and Strap Chute in both directions.
 - Check transitions between Strap Chute and Tensioner.

4.1.7 ANNUALLY OR 150,000 TO 200,000 STRAP CYCLES

NOTE: Annual maintenance should only be performed by trained Maintenance Personnel.

1. Repeat the quarterly maintenance procedures.
2. Disassemble and clean the strapping head. Inspect and replace any worn or broken parts.
3. Check all electrical connections and re-tighten any which appear to be loose.
4. Replace the weld motor brushes and inspect the motor armature for wear.
5. After reassembling the strapping head run a few test cycles. Check for properly welded strapping and proper operation of machine.

⚠ WARNING

For safe operation and to prevent property damage, personal injury and/or death, perform function checks on all safety devices before operation and maintenance procedures.

4.2 SAFETY DEVICE FUNCTION CHECKS

Perform daily function checks on all machine safety devices. Safety devices must successfully pass all Safety Conditions listed for each device to operate the machine safely. To perform a safety device function check, follow the function check procedures for each device.

NOTE: Safety Device adjustment, maintenance and/or repair are to be completed **ONLY** by Signode Service personnel.

⚠ WARNING

For safe operation and to prevent property damage, personal injury and/or death, **DO NOT** operate machine unless all Safety Devices function properly.

4.2.1 MAIN POWER DISCONNECT LEVER

1. Move MAIN POWER DISCONNECT lever (**Figure 4-1**) to OFF "O" position to disconnect power. Verify the following **Safety Conditions**:
 - MAIN POWER DISCONNECT LEVER must remain in the OFF "O" position.
 - No motors start operating.
 - All motors must stop operating.
 - Machine buttons and controls do not function.
2. Move MAIN POWER DISCONNECT lever (**Figure 4-1**) to ON "I" position to connect power. Verify the following **Safety Conditions**:
 - MAIN POWER DISCONNECT lever must remain in the ON "I" position.
 - No motors start operating.
 - Machine buttons and controls function.
 - Control Panel Enclosure door will not open.



Figure 4-1: Main Power Disconnect Lever

4.2.2 POWER ON BUTTON

1. Press POWER ON button (**Figure 4-2**) to reset Machine Safety Circuit. Verify the following **Safety Conditions**:
 - No motors start operating.
 - All motors must stop operating.



Figure 4-2: Power On Button

⚠ WARNING

For safe operation and to prevent property damage, personal injury and/or death, perform function checks on all safety devices before operation and maintenance procedures.

4.2.3 EMERGENCY STOP CONTROL

To perform a function check on the EMERGENCY STOP control use the following procedure:

- 1.** Push EMERGENCY STOP control (**Figure 4-3**) to disconnect power. Verify the following **Safety Conditions**:
 - Emergency Stop control must remain in the STOP position.
 - All machine movements must stop.
 - Machine buttons and controls do not function.
 - Dispenser must not operate.
- 2.** Pull EMERGENCY STOP control (**Figure 4-3**) to restore power to the machine. Verify the following **Safety Conditions**:
 - No machine movements may start automatically.
 - All controls and buttons are inactive.
 - Dispenser must not start or run.



Figure 4-3: Emergency Stop Control

4.2.4 PROTECTIVE BARRIER - DOOR LOCK SWITCHES (IF INSTALLED)

To perform a function check on the **PROTECTIVE BARRIER - DOOR LOCK SWITCHES** use the following procedure:

- 1.** Open the doors of the protective barrier. Verify the following **Safety Conditions**:
 - No motors start operating.
 - All motors must stop operating.
 - Machine buttons and controls do not function.

⚠ WARNING

To prevent property damage, personal injury, and/or death, disconnect / lock-out all electrical power before proceeding.

⚠ WARNING

For safe operation and to prevent property damage, personal injury, and/or death, wear safety glasses and steel toe boots during operation and maintenance procedures.

4.3 SERVICE PROCEDURES

4.3.1 REMOVAL / REPLACEMENT OF THE TENSION MODULE

NOTE: The Tension Module weighs approximately 27.5 lb. (12.5 kg).

1. Remove strap from Tension module.
2. To remove the Tension Module, first release the electrical quick-connect cable (**Figure 4-4**).
3. While supporting the module from the rear with one hand, push the Green release lever forward using your other hand.
4. Using both hands, lift the tension module at an angle off the lower mounting bracket and remove it from the machine (**Figure 4-5**). Reverse the above instructions for module replacement.

NOTE: When reinstalling the module, simply lift the rear of the module straight up to lock the module in place. The tension module release lever will snap over the front pin of the module securing it in place.

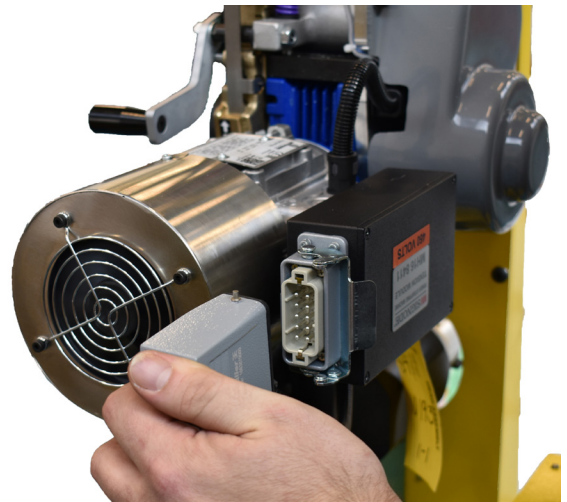


Figure 4-4: Tension Module Quick-Connect Cable



Figure 4-5: Tension Module

⚠ WARNING

To prevent property damage, personal injury, and/or death, disconnect / lock-out all electrical power before proceeding.

⚠ WARNING

For safe operation and to prevent property damage, personal injury, and/or death, wear safety glasses and steel toe boots during operation and maintenance procedures.

4.3.2 REMOVAL / REPLACEMENT OF THE SEALER MODULE

NOTE: The Sealer Module weighs approximately 22 lb. (10 kg).

1. To remove the Sealer Module, release Latch Bar Clamp and pivot Latch Bar open completely (**Figure 4-6**).
2. Remove Electrical Quick-connect Cable from Sealer Module (**Figure 4-7**).

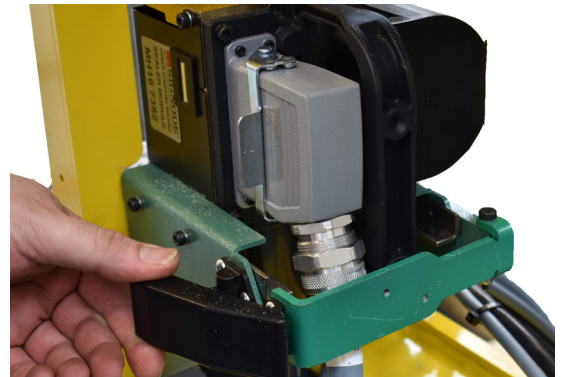


Figure 4-6: Latch Bar Clamp

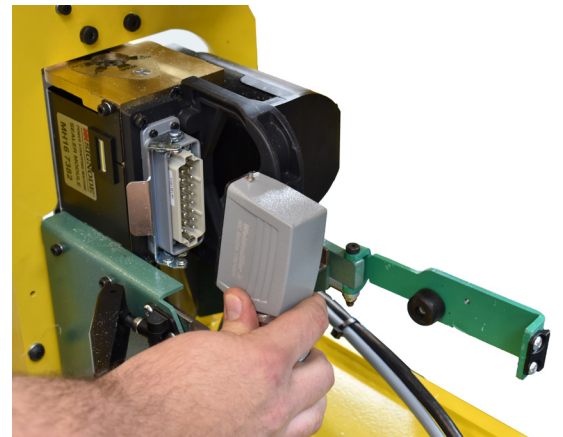


Figure 4-7: Sealer Module Electrical Quick-connect Cable

⚠ WARNING

To prevent property damage, personal injury, and/or death, disconnect / lock-out all electrical power before proceeding.

⚠ WARNING

For safe operation and to prevent property damage, personal injury, and/or death, wear safety glasses and steel toe boots during operation and maintenance procedures.

3. Using both hands, slide Sealer Module out from Frame Guide Bracket (**Figure 4-8**). Remove Sealer Module from machine.
4. Reverse the above instructions for Sealer Module replacement.

NOTE: When reinstalling the Sealer Module make sure that all four of the guide rollers are seated in the guide tracks. Firmly push the sealer module forward until the locating block seats firmly into the frame pocket.



Figure 4-8: Sealer Module

⚠ WARNING

To prevent property damage, personal injury, and/or death, disconnect / lock-out all electrical power before proceeding.

⚠ WARNING

For safe operation and to prevent property damage, personal injury, and/or death, wear safety glasses and steel toe boots during operation and maintenance procedures.

4.3.3 WELD MOTOR BRUSH REPLACEMENT

To replace the brushes in the Weld Motor use the following procedure:

1. Access the Weld Motor by removing the Weld Motor Cover.
2. The brushes (**Figure 4-9: 2**) are located at the end of the Weld Motor and are held in place against the rotor (**Figure 4-9: 3**) by a small compression spring attached to the brush. Brushes are secured in the motor by a screw cap (**Figure 4-9: 5**).
3. Replace the old brush assembly with a new one. Compress the compression spring and align the brush tabs with the rectangular brush receptacle.
4. Follow these instructions for the brush on the opposing side of the motor.

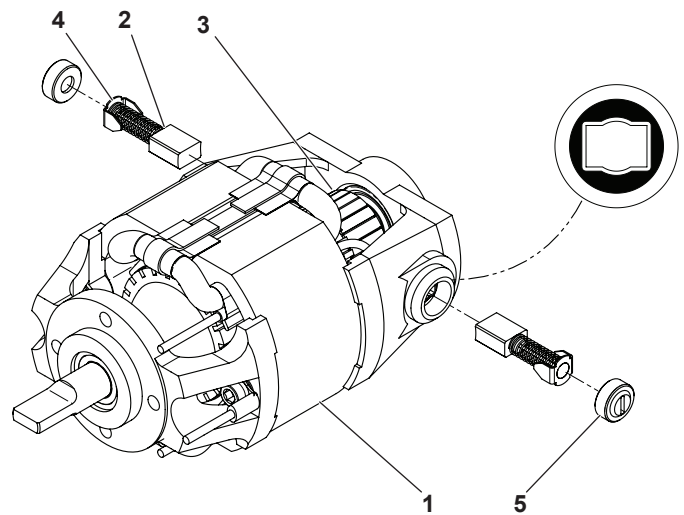


Figure 4-9: Weld Motor - Brush Replacement

1. Weld Motor
2. Brush
3. Rotor
4. Spade Terminal
5. Screw Cap

4.4 TROUBLESHOOTING

The following items are the most common machine symptoms if problems should occur. For symptoms or remedies not shown, contact Signode Service for additional information and details. The following machine symptoms are covered in this manual.

NOTE: Reference HMI - Alarm screen for errors before troubleshooting machine symptoms.

4.4.1 SYMPTOMS:

1. Strapper does not cycle.
2. Machine will not feed strap
3. Strap misfeeds at re-entry in Sealer Module
4. Sealer Module will not index after strap feed
5. Head will not take-up after feed cycle
6. Head does not weld strap (weld motor not operating)
7. Head does not weld strap (vibrator motor operational)
8. Strap pulls out from head at end of take-up cycle
9. Strap pulls out from head at end of strapping cycle
10. Completed strap joint snags on anvil head
11. Head will not index to the weld position

SYMPTOM 1: Strapper does not cycle	
CAUSE	REMEDY
1. Cycle command not received.	Check that interlock relay is receiving signal from conveyor. If the signal is being received check symptoms 2 and 3. Switch to MANUAL and attempt to start a cycle manually.

SYMPTOM 2: Machine will not feed strap	
CAUSE	REMEDY
1. Feed proximity switch (1PRS) not adjusted or not operating properly.	- Inspect switch, adjust or replace if necessary. - Check HMI Input / Output screens to view I/O status.
2. Malfunctioning pinch roller spring.	Inspect pinch roller spring, adjust or replace if broken.
3. Excessive dirt on feedwheels.	Clean all dirt and debris from wheels.
4. Strap path blocked.	Open guides, check and clean all strap from path.
5. Feed proximity switch (1PRS) area blocked.	- Clean area with compressed air and remove any strap debris. - Check HMI Input / Output screens to view I/O status.

SYMPTOM 3: Strap misfeeds at re-entry in Sealer Module

CAUSE	REMEDY
1. Burr or deformation on lead end of strap.	● Cut off bad portion strap.
2. Worn or broken strap cutter.	● Inspect strap cutter, replace if necessary.
3. Burr or deformation on end gripper.	● Inspect strap gripper, replace if necessary.

SYMPTOM 4: Sealer Module will not index after strap feed

CAUSE	REMEDY
1. Home position proximity switch (2PRS) not functioning.	● Inspect proximity switch (2PRS) for proper clearance of .002" (.051 mm). Replace if necessary. ● Check HMI Input / Output screens to view I/O status.
2. Index camshaft not operating properly.	● Inspect index camshaft for proper operation, replace if necessary.
3. Broken or worn index camshaft motor.	● Inspect condition of index motor. Replace as needed.

SYMPTOM 5: Head will not take-up after feed cycle

CAUSE	REMEDY
1. Feed proximity switch (1PRS) not properly set or broken.	● Inspect switch for proper clearance of .002 inch to .020 inch (.051 mm to .508 mm). Replace if necessary. ● Check HMI Input / Output screens to view I/O status.
2. Lead end of strap not activating switch.	● Check strap path for obstructions.

SYMPTOM 6: Head does not weld strap (weld motor not operating)

CAUSE	REMEDY
1. Low or no input voltage at motor.	● Inspect machine wiring and supply voltages.
2. Worn or broken motor brushes.	● Inspect motor brushes, replace if necessary.
3. Bad motor winding.	● Inspect motor winding for possible defects, replace if necessary.

SYMPTOM 7: Head does not weld strap (vibrator motor operational)

CAUSE	REMEDY
1. Oil on strapping.	● Clean all oil away from potential areas of contact within entire machine.
2. Weld eccentric bearing or shaft worn.	● Replace both the bearing and shaft.
3. Weld pad or cage bearings worn.	● Replace weld pad and cage bearings as necessary.

SYMPTOM 8: Strap pulls out from head at end of take-up cycle

CAUSE	REMEDY
1. End gripper not holding strap.	• Replace end gripper compression spring.
2. End gripper (and/or pins) worn.	• Replace the end gripper.

SYMPTOM 9: Strap pulls out from head at end of strapping cycle

CAUSE	REMEDY
1. Malfunctioning strap dispenser.	• Check dispenser adjustments for proper operation.

SYMPTOM 10: Completed strap joint snags on anvil head

CAUSE	REMEDY
1. Anvil pivot pin broken or worn.	• Replace pivot pin.
2. Cam follower worn.	• Replace the cam follower bearing.
3. Anvil cam follower worn, not opening anvil wide enough.	• Replace the cam follower.

SYMPTOM 11: Head will not index to the weld position

CAUSE	REMEDY
1. Feed wheels slipping on strap.	• Inspect pinch roller spring, adjust or replace if broken.
2. Index camshaft not indexing when signaled.	• Check index motor for proper operation. Replace if necessary.

INTENTIONALLY BLANK

REFERENCE INFORMATION	
DESCRIPTION	TYPICAL AREA USED
LUBRICANTS	
MOBIL SHC 1500	WORM GEAR SETS
EP ACCROLUBE®	CONTACT PARTS
LUBRIPLATE SYN LUBE 220	PLANETARY GEARS
THREAD LOCKERS & ADHESIVES	
LOCTITE® #222 (PURPLE)	LOW STRENGTH, SCREWS 1/4" (6 mm) OR SMALLER SIZES
LOCTITE® #242 (BLUE)	MEDIUM STRENGTH SCREWS 5/16" (8 mm) OR LARGER SIZES
LOCTITE® #271 (RED)	HIGH STRENGTH, SEMI-PERMANENT SCREW APPLICATION
LOCTITE® #609 (GREEN)	PERMANENT, CURVED SURFACE PART CONTACT
LOCTITE® #380 (BLACK MAX)	PERMANENT, FLAT SURFACE CONTACT
CLEANING BRUSHES	
SMALL BRUSH	FEEDWHEEL & GRIPPER TEETH
LARGE BRUSH	FEEDWHEEL & GRIPPER TEETH
TORQUE SPECIFICATIONS (UNLESS OTHERWISE NOTED)	
SHCS M2: 6 lb-in (0.69 N•m)	
SHCS M3: 13 lb-in (1.47 N•m)	
SBHCS M3: 13 lb-in (1.47 N•m)	
SHSS M3: 13 lb-in (1.47 N•m)	
SHCS M4: 30 lb-in (4.07 N•m)	
SBHCS M4: 30 lb-in (4.07 N•m)	
SHCS M5: 60 lb-in (6.78 N•m)	
SHSS M5: 60 lb-in (6.78 N•m)	
SHCS M6: 120 lb-in (13.56 N•m)	

INTENTIONALLY BLANK

SECTION 5 ELECTRICAL

CONTENTS

SECTION 5 ELECTRICAL	5-1
MH-RMF ELECTRICAL ASSEMBLY - 575V	5-3
Roll Binder PET Head MH-16 Power Distribution - 575V (20100000679-2)	5-6
Roll Binder PET Head MH-16 Power Distribution 115/24 (20100000679-2)	5-7
Roll Binder PET Head MH-16 PLC Slot 0 & 1 PLC/Arm (20100000679-2).....	5-8
Roll Binder Head MH-16 PLC I/O Slot 2 & 3 (20100000679-2)	5-9
Roll Binder Head MH-16 PLC I/O Slot 4 & 5 (20100000679-2)	5-10
Roll Binder Head MH-16 PLC I/O Slot 6 & 7 (20100000679-2)	5-11
Roll Binder PET Head MH-16 Link I/O Masters (20100000679-2).....	5-12
Roll Binder PET Head MH-16 Linear Actuators (20100000679-2).....	5-13
Roll Binder Pet Head MH-16 Feed/Take Up Drive (20100000679-2).....	5-15
Roll Binder PET Head MH-16 Customer Interlocks (20100000679-2).....	5-16
Roll Binder PET Head MH-16 Panel Layout (20100000679-2).....	5-17
Roll Binder PET Head MH-16 Console Exterior - 575V (20100000679-2).....	5-18
Roll Binder PET Head MH-16 Cable PL1 Sealer Module (20100000679-2).....	5-19
Roll Binder PET Head MH-16 Cable PL2 Feeder Module (20100000679-2).....	5-20
Roll Binder PET Head MH-16 JBox-1 (20100000679-2).....	5-21
Roll Binder PET Head MH-16 BOM1 (20100000679-2).....	5-22
Roll Binder PET Head MH-16 BOM2 Console/Machine (20100000679-2).....	5-23
Roll Binder PET Head MH-16 Floor Plan/Conduit (20100000679-2)	5-24
Roll Binder PET Head MH-16 Conduit Schedule (20100000679-2)	5-25
MH-RMF ELECTRICAL - OPTIONS	5-27
MHB Drive Kit- 2 HP (813884-2)	5-30
Indicator Light Assembly (605910-5).....	5-31

SECTION 5

INTENTIONALLY BLANK

MH-RMF ELECTRICAL ASSEMBLY - 575V

CONTENTS

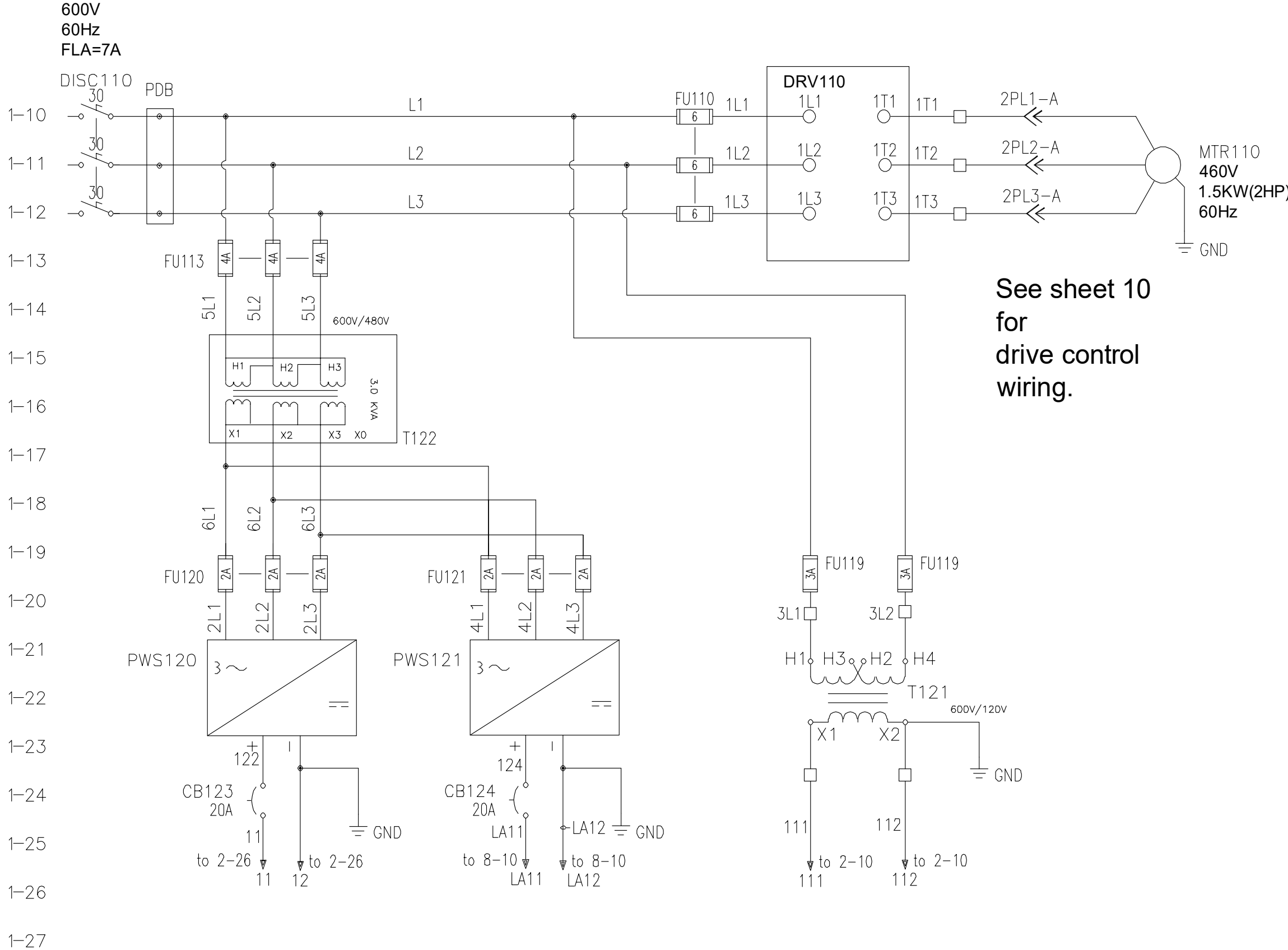
MH-RMF ELECTRICAL ASSEMBLY - 575V	5-3
Roll Binder PET Head MH-16 Power Distribution - 575V (20100000679-2)	5-6
Roll Binder PET Head MH-16 Power Distribution 115/24 (20100000679-2)	5-7
Roll Binder PET Head MH-16 PLC Slot 0 & 1 PLC/Arm (20100000679-2)	5-8
Roll Binder Head MH-16 PLC I/O Slot 2 & 3 (20100000679-2)	5-9
Roll Binder Head MH-16 PLC I/O Slot 4 & 5 (20100000679-2)	5-10
Roll Binder Head MH-16 PLC I/O Slot 6 & 7 (20100000679-2)	5-11
Roll Binder PET Head MH-16 Link I/O Masters (20100000679-2)	5-12
Roll Binder PET Head MH-16 Linear Actuators (20100000679-2)	5-13
Roll Binder Pet Head MH-16 Feed/Take Up Drive (20100000679-2)	5-15
Roll Binder PET Head MH-16 Customer Interlocks (20100000679-2)	5-16
Roll Binder PET Head MH-16 Panel Layout (20100000679-2)	5-17
Roll Binder PET Head MH-16 Console Exterior - 575V (20100000679-2)	5-18
Roll Binder PET Head MH-16 Cable PL1 Sealer Module (20100000679-2)	5-19
Roll Binder PET Head MH-16 Cable PL2 Feeder Module (20100000679-2)	5-20
Roll Binder PET Head MH-16 JBox-1 (20100000679-2)	5-21
Roll Binder PET Head MH-16 BOM1 (20100000679-2)	5-22
Roll Binder PET Head MH-16 BOM2 Console/Machine (20100000679-2)	5-23
Roll Binder PET Head MH-16 Floor Plan/Conduit (20100000679-2)	5-24
Roll Binder PET Head MH-16 Conduit Schedule (20100000679-2)	5-25

5-3 NOTES

INTENTIONALLY BLANK

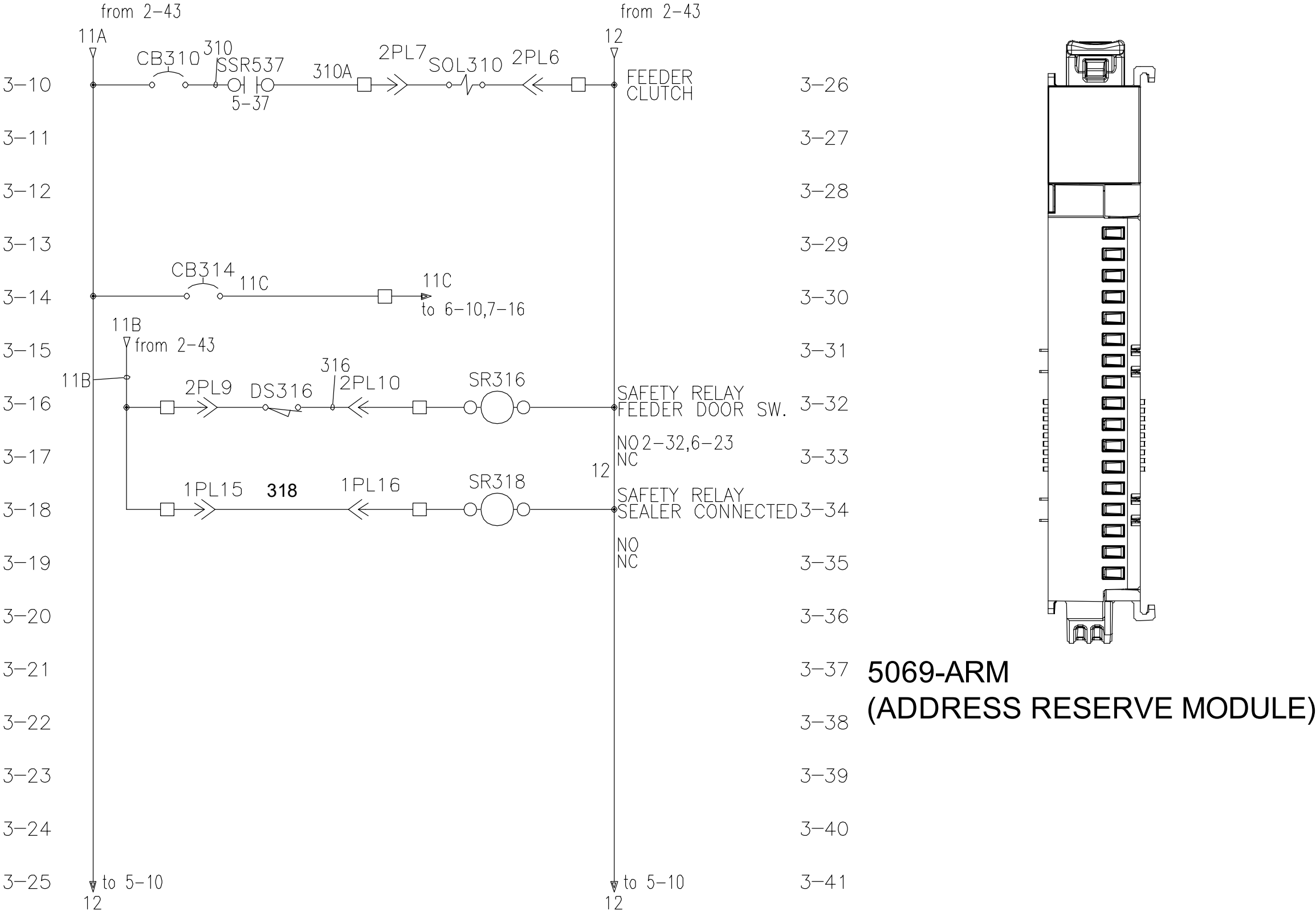
INTENTIONALLY BLANK

ROLL BINDER PET HEAD MH-16 POWER DISTRIBUTION - 575V (20100000679-2)



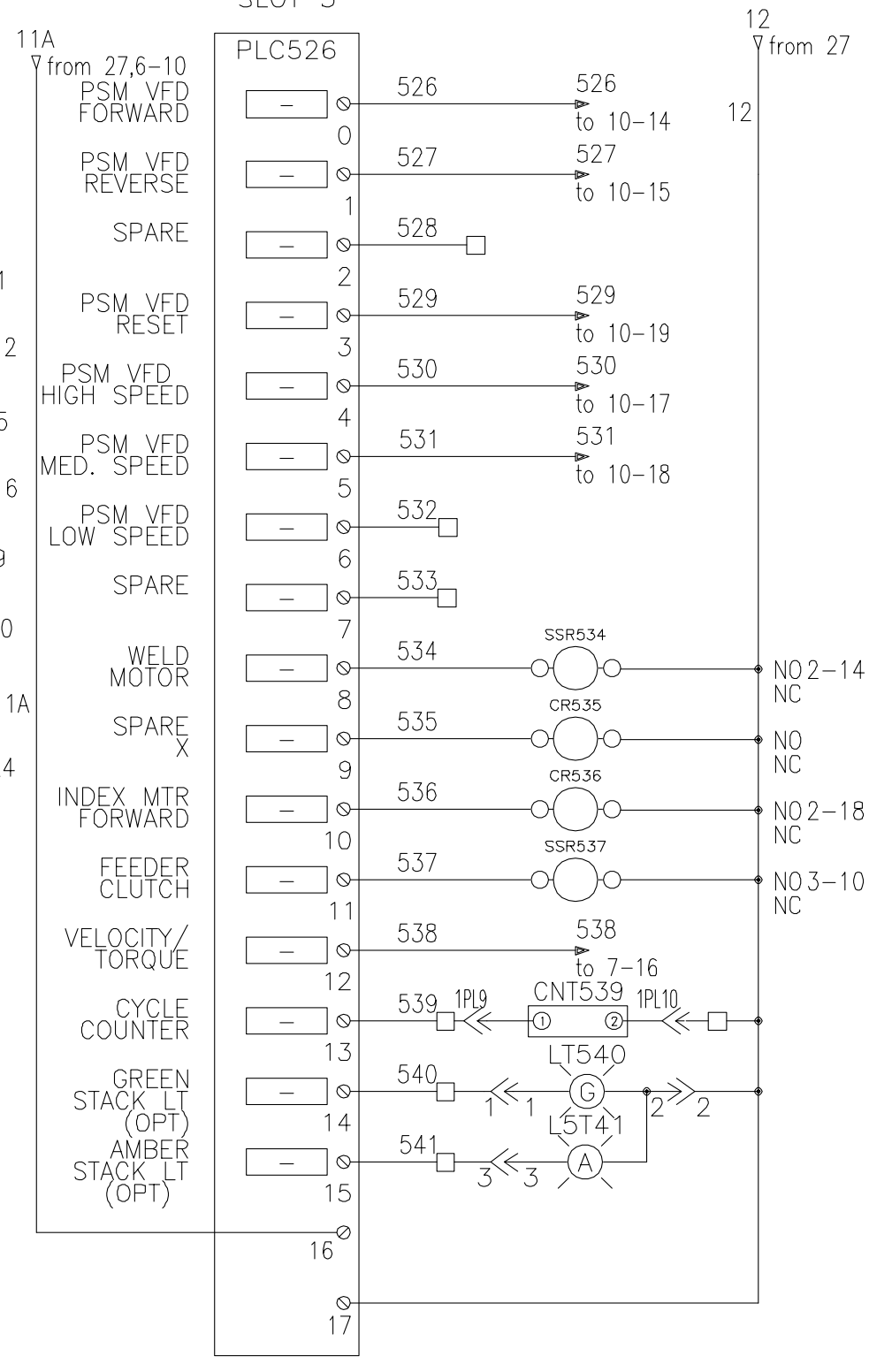
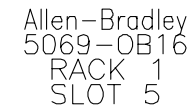
[illegible]

ROLL BINDER PET HEAD MH-16 PLC SLOT 0 & 1 PLC/ARM (20100000679-2)

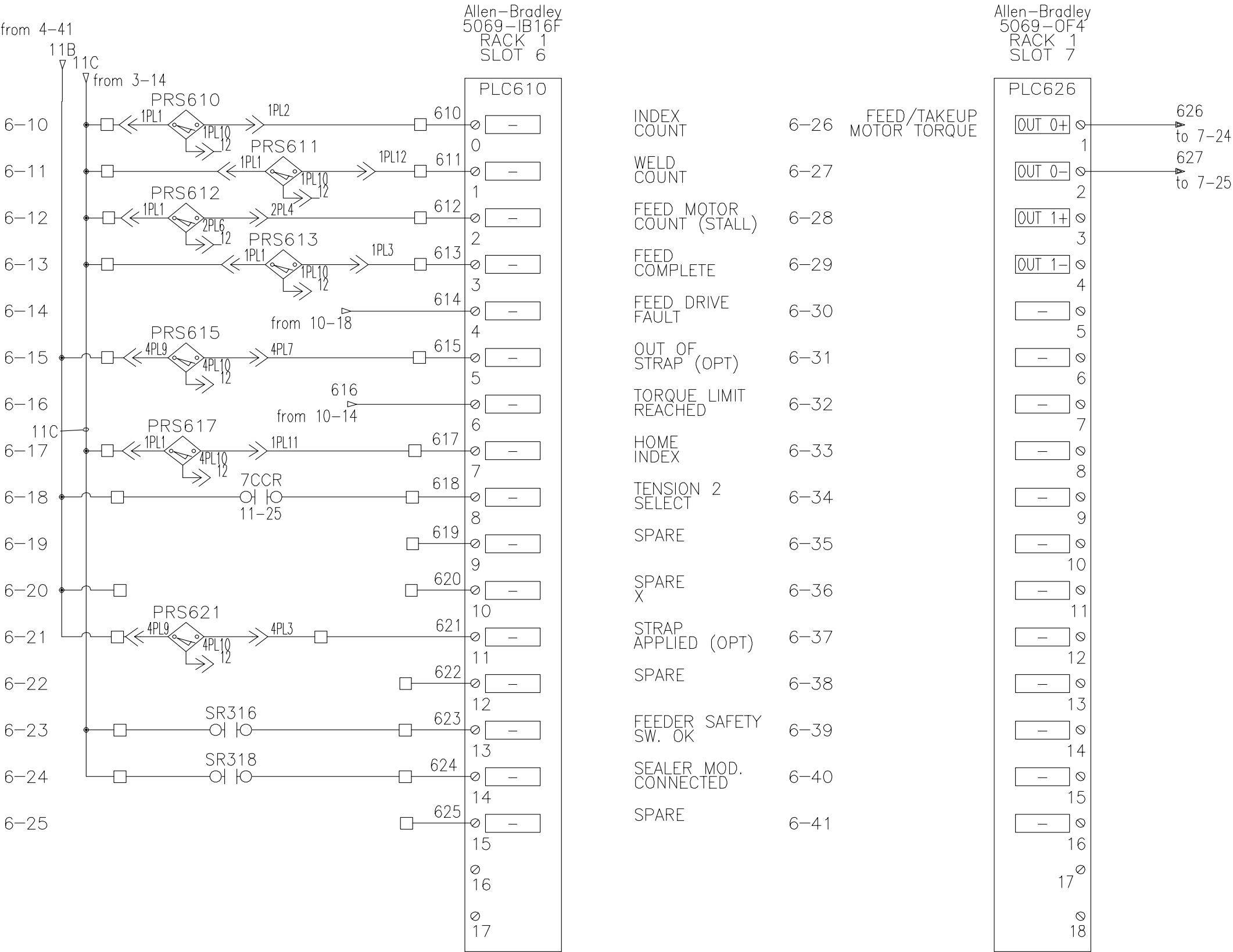




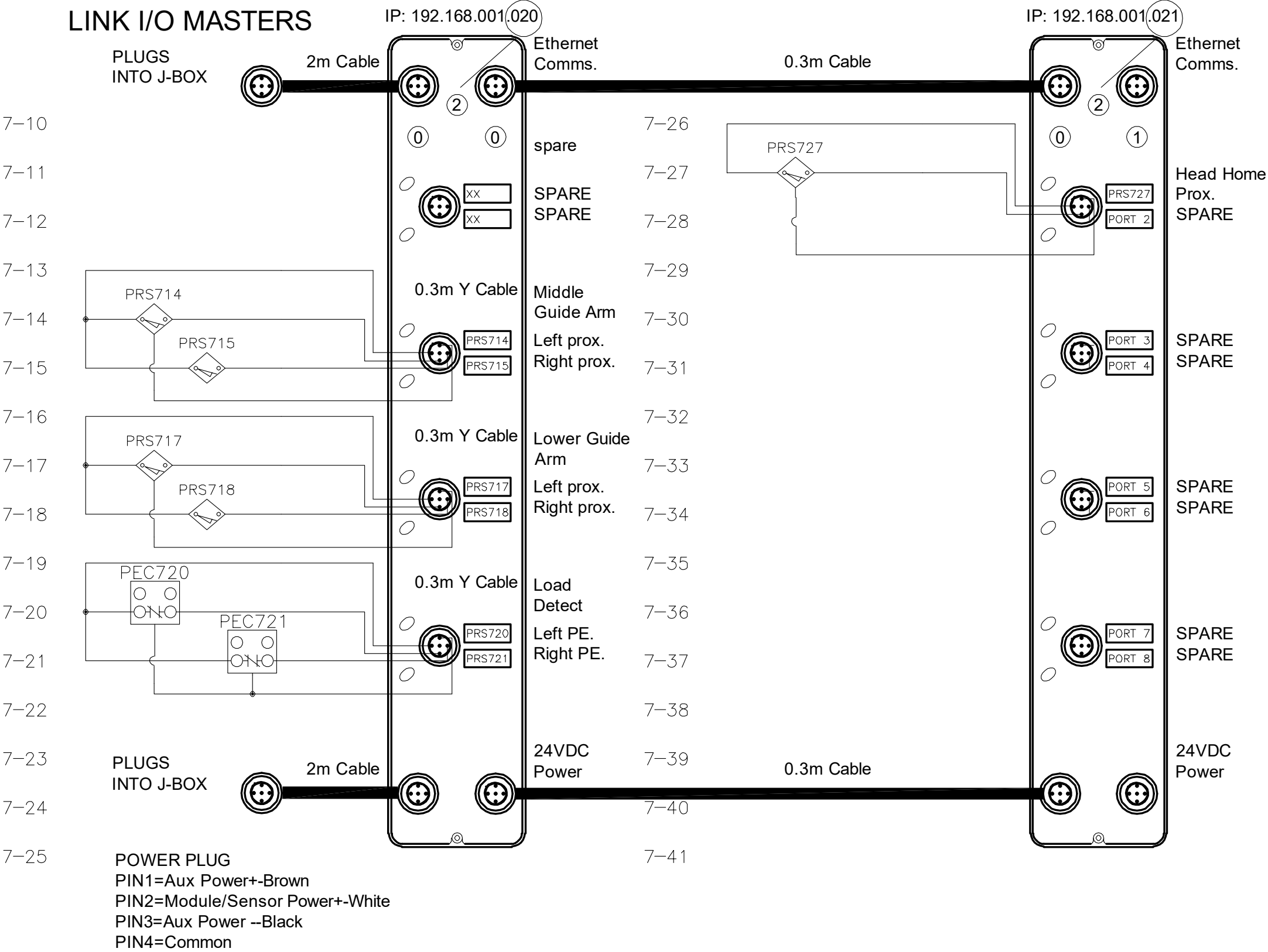
Allen-Bradley
5069-OB16
RACK 1
SLOT 4



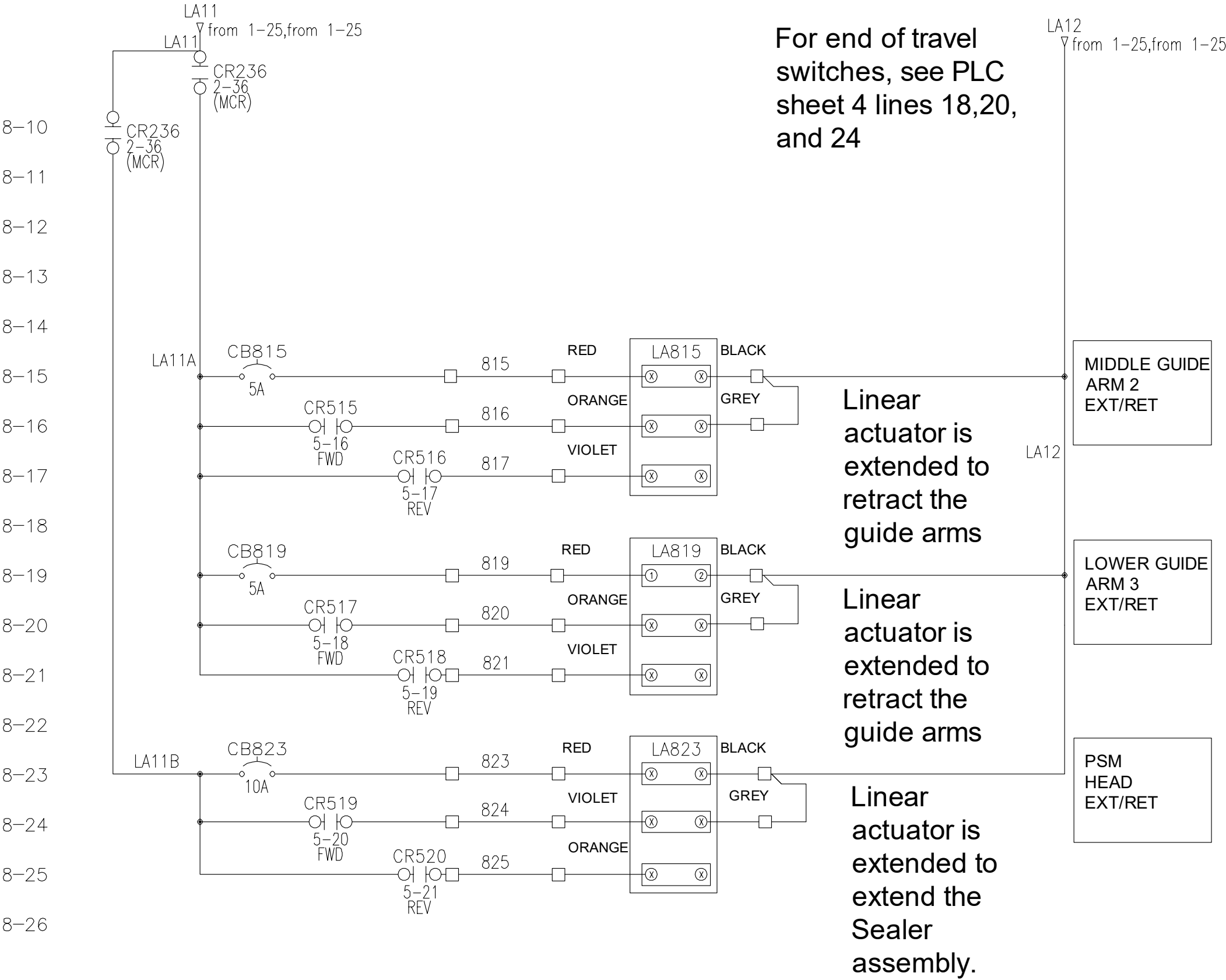
ROLL BINDER HEAD MH-16 PLC I/O SLOT 6 & 7 (20100000679-2)



ROLL BINDER PET HEAD MH-16 LINK I/O MASTERS (20100000679-2)

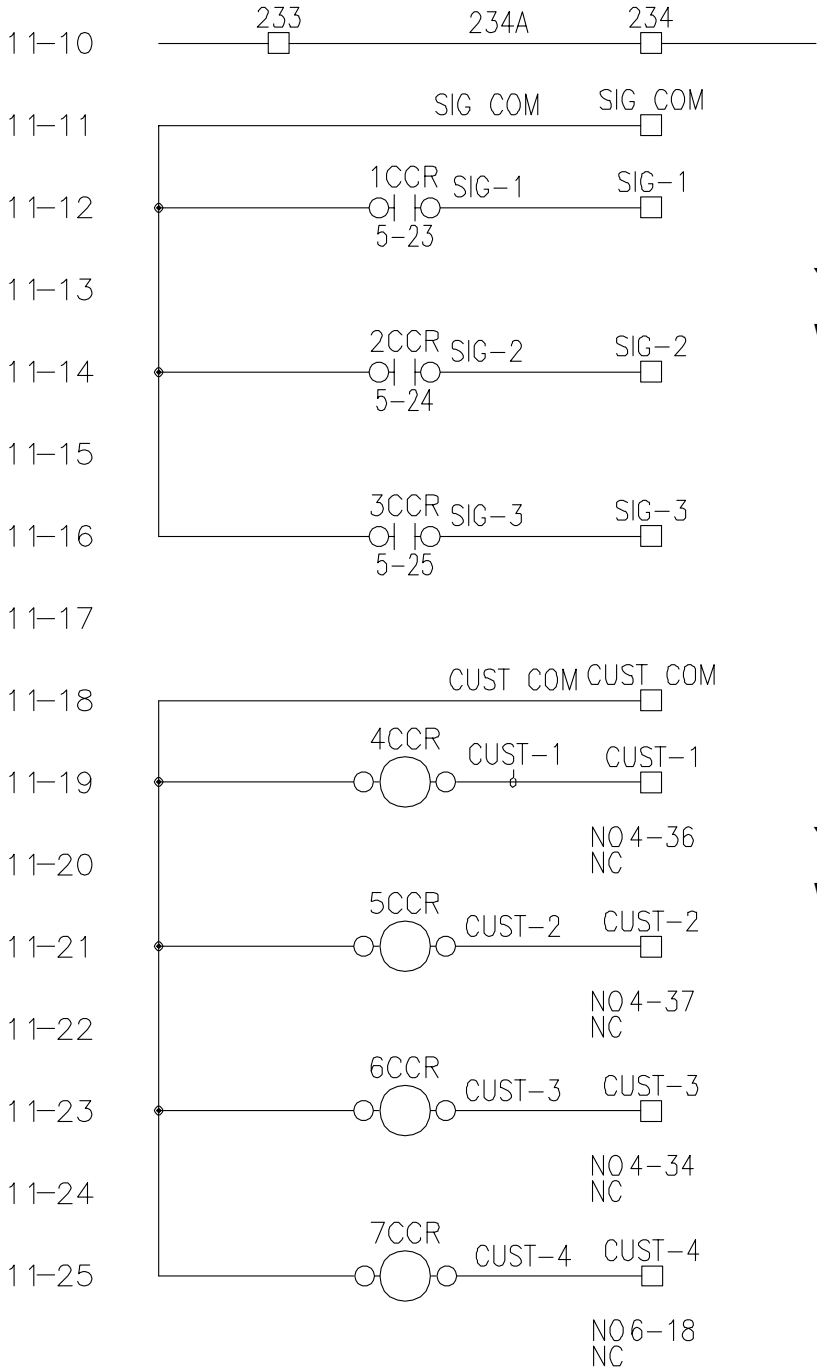


ROLL BINDER PET HEAD MH-16 LINEAR ACTUATORS (20100000679-2)



INTENTIONALLY BLANK

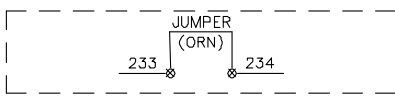
ROLL BINDER PET HEAD MH-16 CUSTOMER INTERLOCKS (20100000679-2)



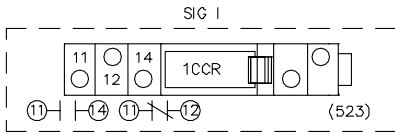
YELLOW WIRES

YELLOW WIRES

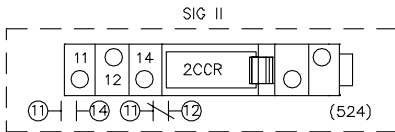
NOTE: CCR RELAYS PROVIDE "ELECTRICAL ISOLATION".
NUMBERS SHOWN ON RELAY SOCKETS REFER TO MANUFACTURER'S STAMPING.



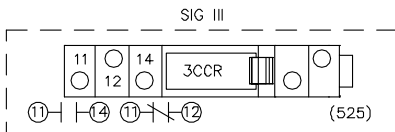
CUSTOMER EMERGENCY STOP:
CUSTOMER MAY INSERT AN EMERGENCY STOP BUTTON(S), NORMALLY CLOSED, IN PLACE OF JUMPER NOTED. BUTTON TO BE AVAILABLE TO MACHINE OPERATOR(S) TO SHUT OFF THE STRAPPING SYSTEM FOR AN EMERGENCY STOP. (SUPPLIED BY AND WIRED BY CUSTOMER.)



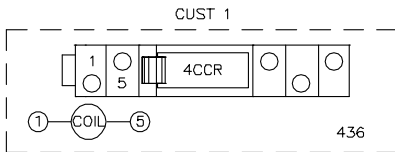
OK TO MOVE INFED CONVEYOR:
PERMISSIVE SIGNAL FROM SIGNODE TO CUSTOMER. CONTACT OPENS TO DISALLOW CONVEYOR MOVEMENT. CONTACT CLOSURES TO ALLOW CONVEYOR TO RUN. CONNECT CUSTOMER'S WIRING TO TERMINALS 11 AND 14 FOR N.O. (SUPPLIED BY SIGNODE AND WIRED BY CUSTOMER.)



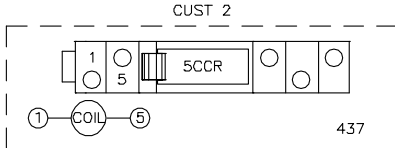
OK TO MOVE OUTFEED CONVEYOR: (OPTION FUTURE)
PERMISSIVE SIGNAL FROM SIGNODE TO CUSTOMER. CONTACT OPENS TO DISALLOW CONVEYOR MOVEMENT. CONTACT CLOSURES TO ALLOW CONVEYOR TO RUN. CONNECT CUSTOMER'S WIRING TO TERMINALS 11 AND 14 FOR N.O. (SUPPLIED BY SIGNODE AND WIRED BY CUSTOMER.)



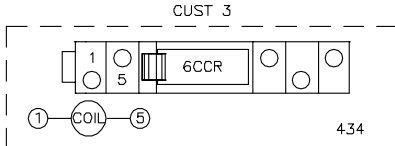
READY TO STRAP:
PERMISSIVE SIGNAL FROM SIGNODE TO CUSTOMER. CONTACT CLOSURES WHEN POWER IS ON, THE MACHINE IS IN AUTOMATIC MODE, AND IT IS READY TO RECEIVE AND ACT UPON A SIGNAL TO STRAP. CONNECT CUSTOMER'S WIRING TO TERMINALS 11 AND 14 FOR N.O. (SUPPLIED BY SIGNODE AND WIRED BY CUSTOMER.)



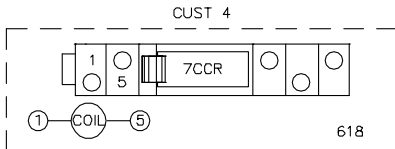
CONVEYOR NOT RUNNING:
PERMISSIVE SIGNAL FROM CUSTOMER TO SIGNODE. RELAY ENERGIZES WHEN CUSTOMER'S CONVEYOR IS STOPPED. CONNECT CUSTOMER'S WIRING TO TERMINALS 1 AND 5 (SUPPLIED BY SIGNODE AND WIRED BY CUSTOMER.)



OUTFEED CONVEYOR STOPPED: (OPTION FUTURE)
PERMISSIVE SIGNAL FROM CUSTOMER TO SIGNODE. RELAY ENERGIZES WHEN CUSTOMER'S EXIT CONVEYOR HAS STOPPED. CONNECT CUSTOMER'S WIRING TO TERMINALS 1 AND 5 (SUPPLIED BY SIGNODE AND WIRED BY CUSTOMER.)



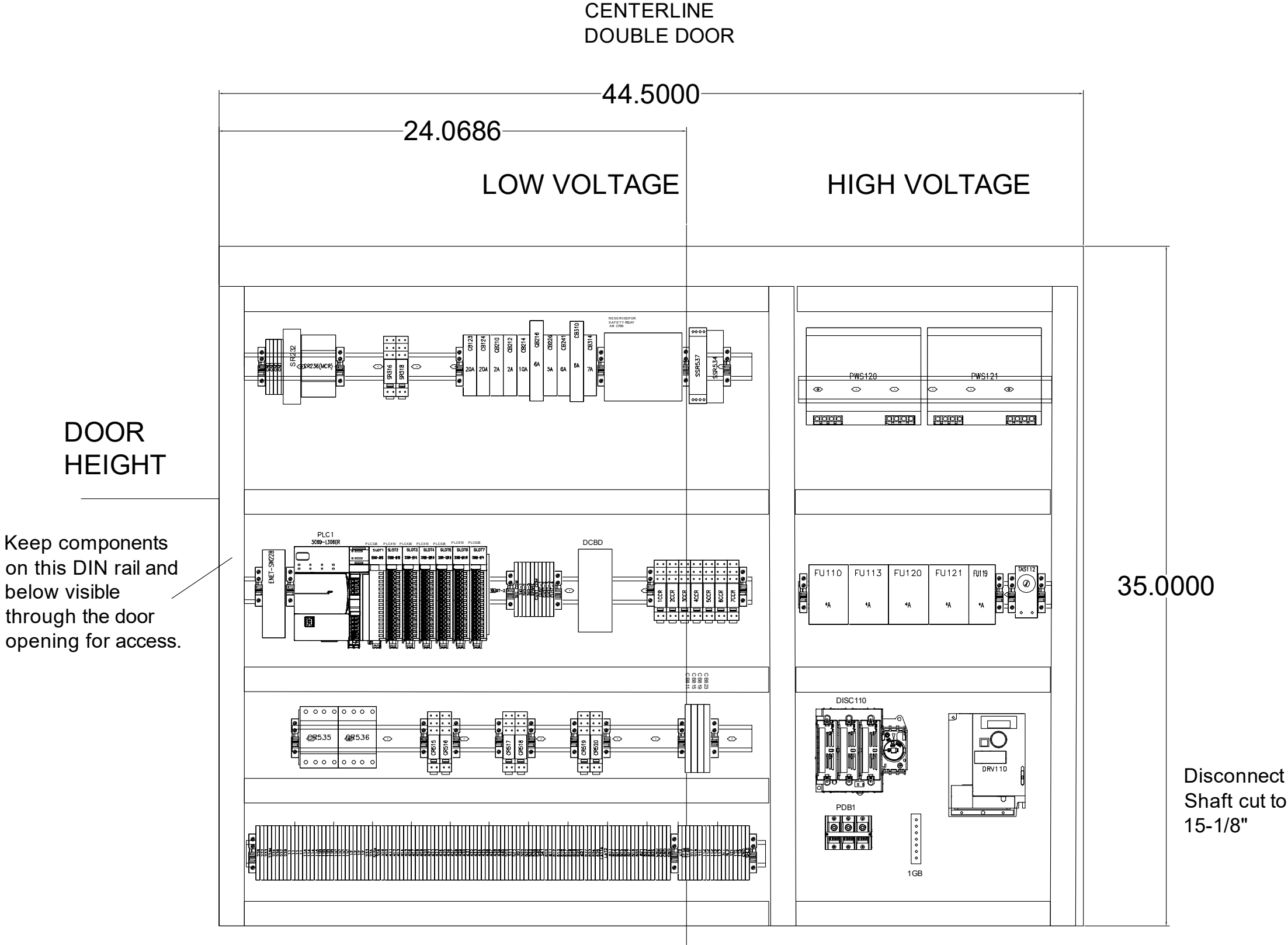
CUSTOMER AUTOMATIC STRAP START:
USED TO BEGIN A STRAP SEQUENCE WHEN CUSTOMER IS CONTROLLING LOAD POSITIONING. WILL NOT FUNCTION IF LOAD POSITIONING OPTION IS INCLUDED WITH STRAPPER. 3CCR MUST BE ON BEFORE INPUT WILL BE RECOGNIZED. CONNECT CUSTOMER'S WIRING TO TERMINALS 1 AND 5 (SUPPLIED BY SIGNODE AND WIRED BY CUSTOMER.)



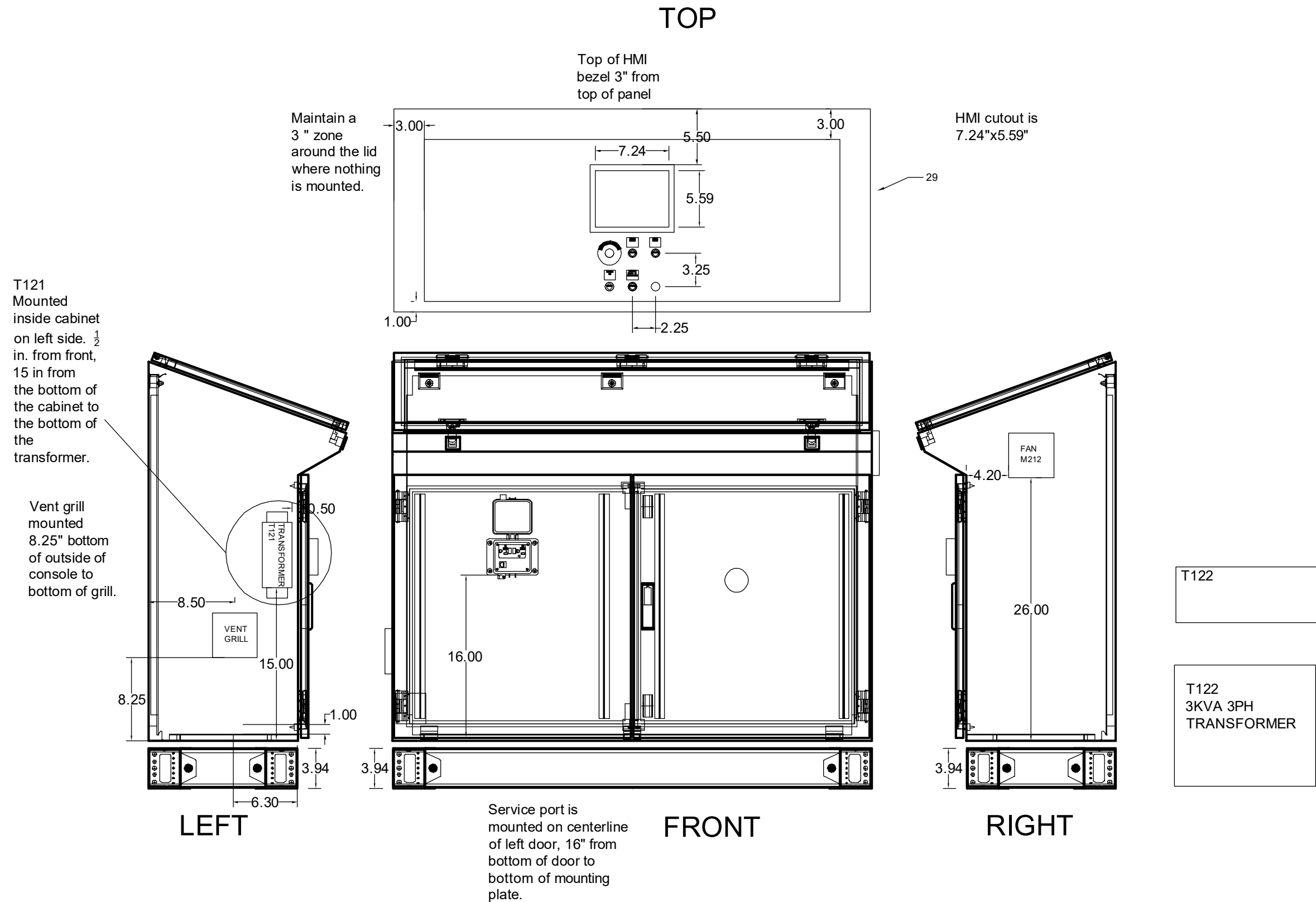
TENSION 2 SELECT
USED TO SELECT AN ALTERNATE TENSION SETTING. CONNECT CUSTOMER'S WIRING TO TERMINALS 1 AND 5 (SUPPLIED BY SIGNODE AND WIRED BY CUSTOMER.)

NOTE: THE FUNCTIONAL DESCRIPTIONS FOR THE ABOVE HARDWIRED INTERLOCKS ARE VALID ALSO FOR THE "LAN" INTERLOCK "OPTION".
*** SEE LINE 57; JUMPER INSTALLED ENABLES THE "LAN" INTERLOCK OPTION AND DISABLES THE HARDWIRED INTERLOCKS.
*** SEE EQUIVALENT B10:XX BITS FOR "LAN" INTERLOCK OPTION INTERLOCKS.[THESE ARE ACCOMMODATED IN THE PLC LOGIC]
*** SEE EQUIVALENT B10:XX BITS FOR "LAN" INTERLOCK OPTION INTERLOCKS.[THESE ARE ACCOMMODATED IN THE PLC LOGIC]

ROLL BINDER PET HEAD MH-16 PANEL LAYOUT (20100000679-2)

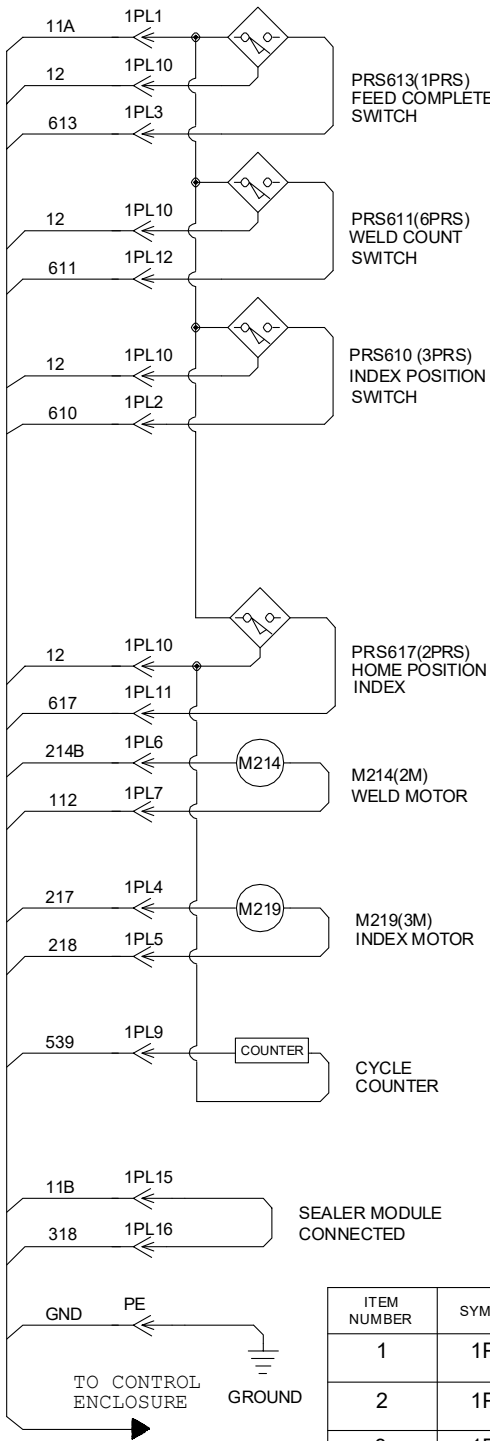


ROLL BINDER PET HEAD MH-16 CONSOLE EXTERIOR - 575V (20100000679-2)



ROLL BINDER PET HEAD MH-16 CABLE PL1 SEALER MODULE (20100000679-2)

CABLE 1PL

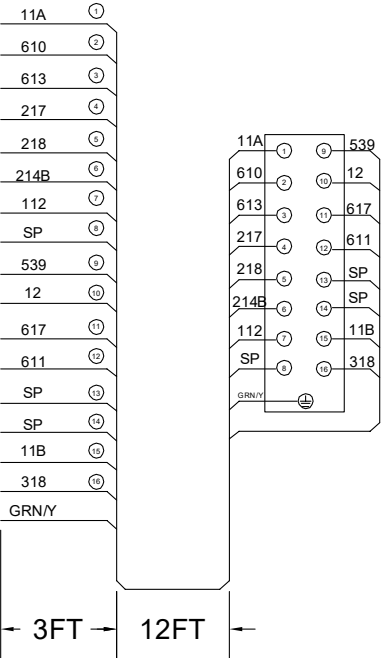
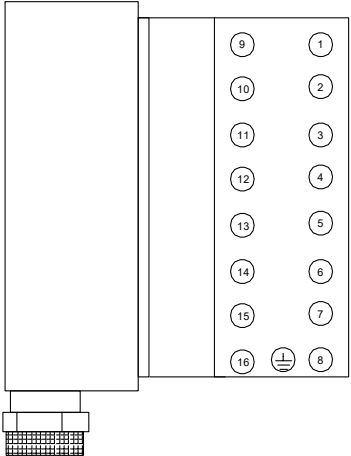


PIN	DESCRIPTION	WIRE#
1	+24VDC	11A
2	PRS610 (3PRS) INDEX POSITION	610
3	PRS613(1PRS) FEED COMPLETE	613
4	INDEX MOTOR +VDC	217
5	INDEX MOTOR -VDC	218
6	120VAC - WELD MOTOR	214B
7	120VAC NUETRAL	112
8	SPARE	
9	CYCLE COUNTER	539
10	24VDC COMMON	12
11	PRS617(2PRS) HOME POSITION	617
12	6PRS-I0.1 WELD COUNT PROX	611
13	SPARE	
14	SPARE	
15	SAFETY CIRCUIT JUMPER	11B
16	SEALER MODULE CONNECTED	318

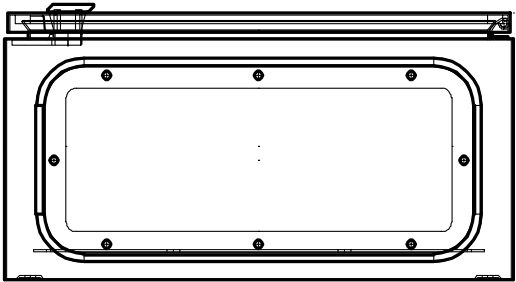
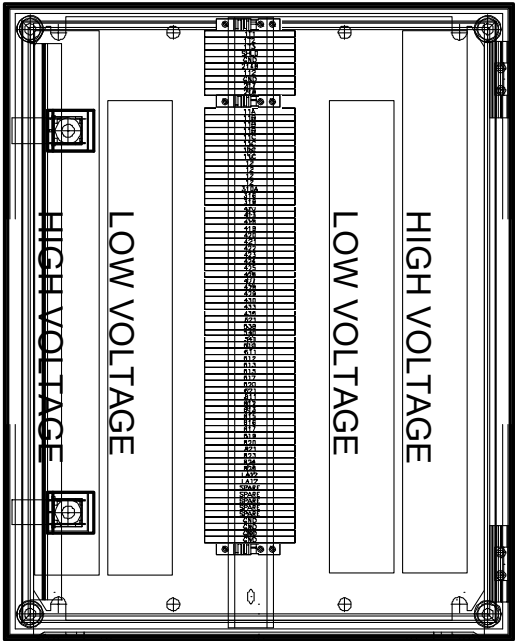
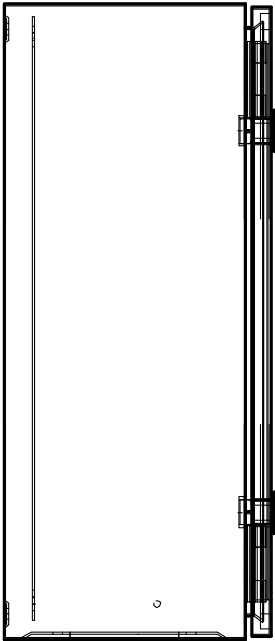
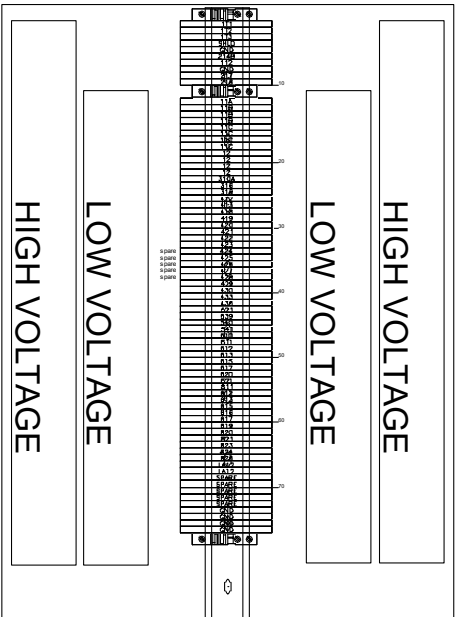
ITEM NUMBER	SYMBOL	QUANTITY	SIGNODE NUMBER	PART DESCRIPTION
1	1PL	1	513729	WIEDMULLER HDC 16A TSLU 1M256, HOOD
2	1PL	1	513712	WIEDMULLER HDC HA 16FS, FEMALE INSERT
3	1PL	1	513746	CORD GRIP
4	1PL	15	513745	CABLE, 18 CONDUCTOR, 14 AWG

NOTE:

- * TOTAL LENGTH OF CABLE TO BE 15FT.
- * CONTACT ARRANGEMENT: View from termination side of female insert.
Seat insert in housing as shown.
- * Please label wires at both ends of cable
- * Please supply one extra set of wire numbers lose to be used if the cable is trimmed to a shorter length.



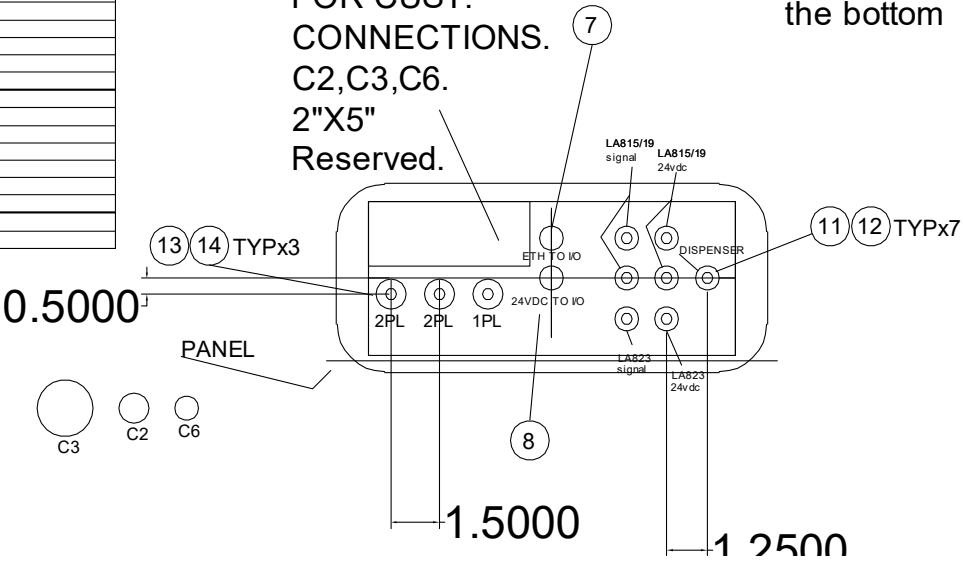
ROLL BINDER PET HEAD MH-16 JBOX-1 (20100000679-2)



JBOX-1&2						
Item Number	SHT. LOC.	ASSM.	SYMBOL/ID	Qty.	Signode Number	Description
1	S16	JBOX-1		1	20100000128	Wall mount junction box 20"Hx16"Wx8"D
2	S16	JBOX-1		80	605429	Terminal block, 4 pos, Spring clamp
3	S16	JBOX-1		2	600546	END BARRIER, GRAY
4	S16	JBOX-1		3	600549	End Anchor, Terminal Blk, Fits 35mm din rail
5	S16	JBOX-1			292837	Din Rail, 35mm. (1.9 inches)
6	S16	JBOX-1		6	605431	Ground Block, 2.5 mm, Green /Yellow Stripe
7	S16	JBOX-1		1	20100000129	Female M12 Receptacle to RJ45 Female Adaptor Right Angle
8	S16	JBOX-1		1	20100000130	Receptacle, DC Micro (M12), Female, Straight, External Threads, 4-Pin, 18AWG, 1 meter (3.28 feet)
9	S16	JBOX-1		1	20100000131	2X2 Narrow Slot Wire Duct Gray (50in)
10	S16	JBOX-1		1	20100000126	Wire Duct Cover, 2in wide (50in)
11	S16	JBOX-1		7	20100000132	CORD GRIP, SAB PNG-1/2
12	S16	JBOX-1		7	20100000133	LOCKNUT, SAB LNG-1/2
13	S16	JBOX-1		4	20100000134	CORD GRIP, SAB PNG-3/4
14	S16	JBOX-1		4	20100000135	LOCKNUT, SAB LNG-3/4
15	S16	JBOX-1		1	20100000136	CORD GRIP, SAB PNG-1
16	S16	JBOX-1		1	20100000139	LOCKNUT, SAB LNG-1
17	S16	JBOX-1	PL1	1	609183	Sealer module cable (includes the following parts)
18	S16	JBOX-1	PL1	1	517195	Entry Hood, 16 pin
19	S16	JBOX-1	PL1	1	517196	Female insert, 16 pin
20	S16	JBOX-1	PL1	1	517191	Cable, 18 conductor, 16 AWG, OD 0.614"
21	S16	JBOX-1	PL2	1	518955	Feeder module cable (WIRE NUMBERS PER THIS DRAWING SET) includes the following parts
22	S16	JBOX-1	PL2	1	517193	Entry Hood, 10 pin
23	S16	JBOX-1	PL2	1	517194	Female Insert, 10 pin
24	S16	JBOX-1	PL2	15	533690	Cable, 7/c #18 AWG shielded
25	S16	JBOX-1	PL2	15	533691	Cable, 7/c #18 AWG unshielded
26	S16	JBOX-1	PL2	1	607026	Cord Grip, PG21
27	S09	JBOX-2		1	20100000958	J-BOX, 6X6X4, VV/BACKPLATE
28	S09	JBOX-2			292837	Din Rail, 35mm. (1.9 inches)
29	S09	JBOX-2		1	600546	END BARRIER, GRAY
30	S09	JBOX-2		2	600549	End Anchor, Terminal Blk, Fits 35mm din rail
31	S00	JBOX-2		2	20100000132	CORD GRIP, SAB PNG-1/2
32	S09	JBOX-2		2	20100000133	LOCKNUT, SAB LNG-1/2
33	S09	JBOX-2		20	605429	Terminal block, 4 pos, Spring clamp

FOR CUST. CONNECTIONS. C2,C3,C6. 2"X5" Reserved.

View from the bottom



Ship parts for a 1", 3/4", and 1/2" cord grip loose.

ROLL BINDER PET HEAD MH-16 BOM1 (20100000679-2)

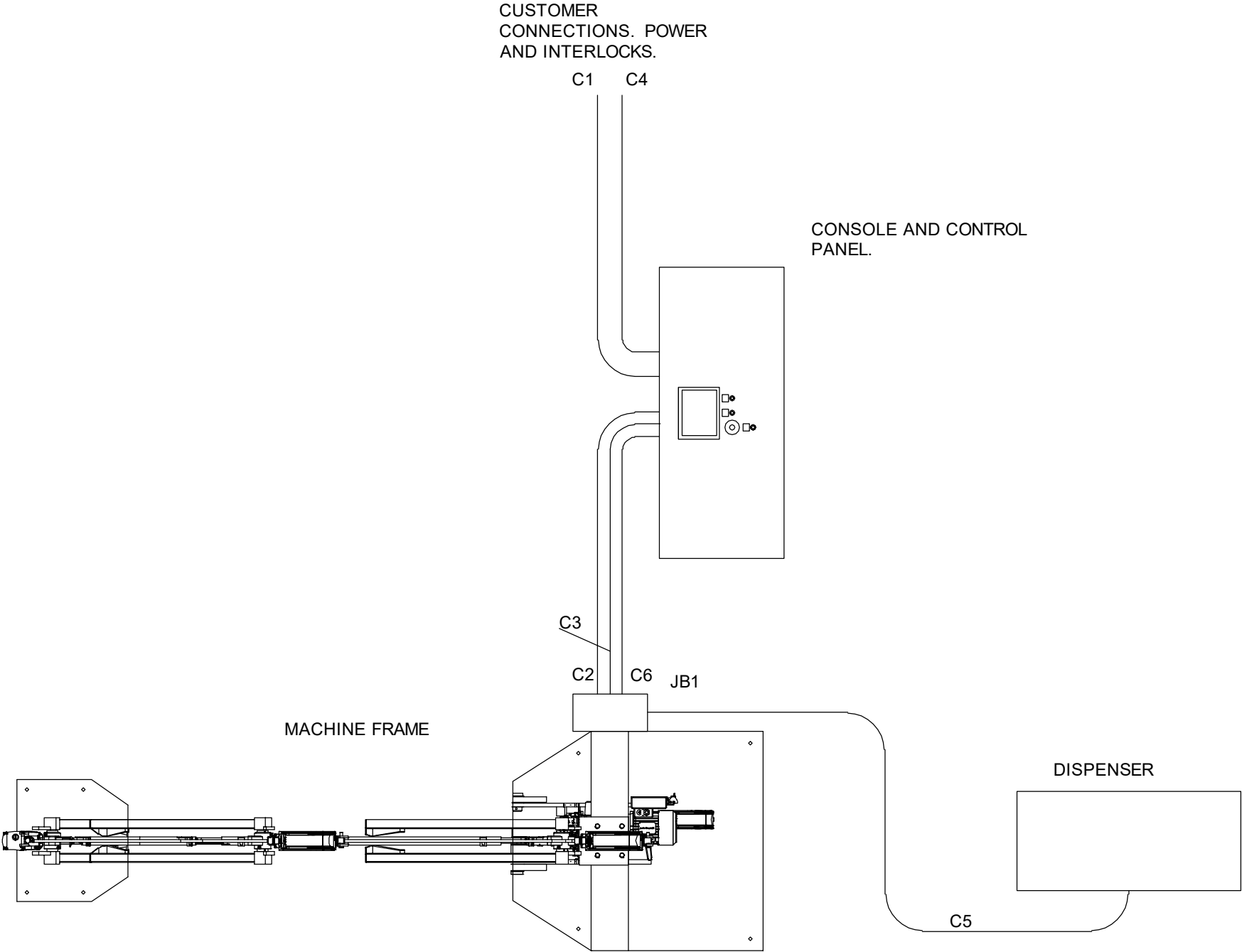
Item Number	SHT. LOC.	ASSM.	SYMBOL/ID	Qty.	Signode Number	Part Description
1	S13	CON. PNL	CONSOLE	1	20100000108	CONSOLE
2	S13	CON. PNL	CONSOLE	1	20100000109	CONSOLE RITTAL PLINTH, FRONT AND REAR
3	S13	CON. PNL	CONSOLE	1	20100000110	CONSOLE RITTAL PLINTH ,ENDS LEFT AND RIGHT
4	S01	CON. PNL	DISC110	1	813855	Rotary disconnect
5	S01	CON. PNL	FU113,FU120,FU121	3	805823	FUSE HOLDER, 3 POLE, 30A, CLASS CC
6	S01	CON. PNL	FU121,FU120	6	814513	FUSE 2A, TIME DELAY, CURRENT LIMITING Alternate: CCMR002.TXP
7	S01	CON. PNL	FU110	1	20100000649	SEE DRIVE KIT FOR PART NUMBER (2HP DRIVE KIT - SIGNODE P/N)
8	S02	CON. PNL	CB214	1	814539	Circuit Breaker, 10Amp
9	S02	CON. PNL	CB210,CB212	2	805541	Circuit Breaker, 2Amp
10	S01	CON. PNL	DRV110	1	20100000649	SEE DRIVE KIT FOR PART NUMBER (2HP DRIVE KIT - SIGNODE P/N)
11	S02	CON. PNL	CR236	1	20100000220	RELAY, SAFETY, Safety Control Relay, 8 Pole, 3 N.O. / 1 N.C. Base, 3 N.O. / 1 N.C. Auxiliary, 24VDC (w/Elec. Coil)
12	S02	CON. PNL	CB241	1	805533	Circuit Breaker 1 pole, 6 Amp
13	S05	CON. PNL	SSR534	1	513723	Solid-State Relay, 10 Amp
14	S05	CON. PNL	SSR537	1	805885	Relay, Solid State, 24VDC Coil 5A, 33VDC Max Load
15	S01	CON. PNL	PWS120,PWS121	2	814516	Power Supply 3PH, 400-50-VAC, OUTPUT 24VDC/480W
16	S02	CON. PNL	PS-PLC230	1	810924	Controller, 600 KB, 8 I/Os 16 Node, Standard
17	S04	CON. PNL	PLC410,PLC426	2	810925	16 Channel 24VDC Sink Digital Input Module
18	S06	CON. PNL	PLC610	1	810927	16 Channel 24VDC Sink Fast Digital Input Module
19	S05	CON. PNL	PLC510,PLC526	2	810928	16 Channel 24VDC Source Digital Output Module
20	S06	CON. PNL	PLC626	1	814517	4 Channel Voltage Analog Output Module
21	S03	CON. PNL	PLC326	1	810929	Address Reserve Module
22			PLC410,PLC426,PLC510,PLC526,PLC610,PLC626	6		Module Terminal Block
	S06	CON. PNL			810934	
23	S05/S11	CON. PNL	1-7CCR	7	512353	Relay, Plug In, 24VDC Coil
24	S05/S11	CON. PNL	1-7CCR	7	814519	Screw Terminal Socket
25	S01	CON. PNL	FU119	1	805822	FUSE HOLDER, 2 POLE, 30A, CLASS CC
26	S01	CON. PNL	FU119	2	805847	FUSE 3A, TIME DELAY, CURRENT LIMITING Alternate: CCMR003.TXP
27	S02	CON. PNL	ENET_SW228	1	814524	ETHERNET SWITCH 8 PORT Manage Alternate: AB, 1783-US5T 5 PORT
28	S02/S03	CON. PNL	CB216,CB310	2	814527	CIRCUIT BREAKER, UL489, 1 POLE, CURVE C, 6A
29	S01	CON. PNL	CB123,CB124	2	814528	CIRCUIT BREAKER, UL1077, 1 POLE, CURVE C, 20A
30	S02	CON. PNL	CB226	1	814529	CIRCUIT BREAKER, UL1077, 1 POLE, CURVE C, 5A
31	S02	CON. PNL	SR232	1	805879	SAFETY RELAY, INP:1NC, 2NC,LIGHT CURTAIN,OUT:3NO, 24VAC/DC, RESET AUTO/MAN
32	S02	CON. PNL	TA6212	1	814531	Thermostat
33	S03	CON. PNL	CB314	1	805855	CIRCUIT BREAKER UL1077 1 POLE 7A
34	S05	CON. PNL	CR535,CR536	2	533515	Relay, 24vDC
35	S05	CON. PNL	CR535,CR536	2	533516	Relay Base
36	S05	CON. PNL	CR535,CR536	2	533518	Diode for Relay
37	S05	CON. PNL	CR513/CR514, CR515/CR516, CR517/CR518	6		Relay, Plug In, 24VDC Coil(CR513 AND CR514 are not used but are spares in the panel)
					512353	
37a	S05	CON. PNL	CR513/CR514, CR515/CR516, CR517/CR518	6		Screw Terminal Socket
					814519	
38	S08	CON. PNL	CB811,CB815,CB819	3	20100000512	MINI CB 2AMP
39	S08	CON. PNL	CB823	1	20100000513	MINI CB 10AMP
40	S08	CON. PNL	CB811,CB815,CB819,CB823	4	20100000514	MINI CB BASE
41	S13	CON. PNL	GND2	1	805506	Ground Bar 5 points.
42	S03	CON. PNL	SR316,SR318	2	480757	Relay, 2 contacts, 24vdc
43	S03	CON. PNL	SR316,SR318	2	480756	Relay baase
44	S13	CON. PNL	MISC	0	805836	Ethernet cable RJ45, 1.0M (3FT)
45	S13	CON. PNL	MISC	2	805837	Ethernet cable RJ45, 2.0M (6FT)
46	S13	CON. PNL	MISC	1	803185	Ethernet cable RJ45, 0.3M (1FT)
47	S13	CON. PNL	MISC	4	600546	END BARRIER, GRAY
48	S13	CON. PNL	MISC	5	20100000121	1X4 Narrow Slot Wire Duct Gray
49	S13	CON. PNL	MISC	5	20100000125	Wire Duct Cover, 1in wide
50	S13	CON. PNL	MISC	3	292837	Din Rail, 35mm.
51	S13	CON. PNL	MISC	24	600549	End Anchor, Terminal Blk, Fits 35mm din rail.
52	S13	CON. PNL	MISC	135	605429	Terminal block, 4 pos, Spring clamp
53	S13	CON. PNL	MISC	4	605431	Ground Block, 2.5 mm, Green / Yellow Stripe
54	S02	CON. PNL	DCBD	1	604695	DC motor control board
55	S02	CON. PNL	DCBD	1	20100000122	Dc motor control board DIN rail mounting adapter
56	S02	CON. PNL	FU113	3	21000000650	FUSE, TIME DELAY, 4A
57	S01	CON. PNL	PDB1	1	20100000281	POWER DISTRIBUTION BLOCK

ROLL BINDER PET HEAD MH-16 BOM2 CONSOLE/MACHINE (20100000679-2)

Item Number	SHT. LOC.	ASSM.	SYMBOL/ID	Qty.	Signode Number	Part Description
1	S01	CONSOLE	T121	1	20100000959	Acme # T-2-53112-S Transformer, Primary: 600V, Secondary 240/120V, 2KVA, ENCLOSED
2	S02	CONSOLE	OUTLET 210	1	533577	OUTLET GRACE PORT
3	S02	CONSOLE	M212	1	805524	Hoffman Cabinet Cooling Fan , HF0416414
4	S13	CONSOLE	G212	1	805525	Hoffman Cabinet Fan Guard, HG0400404
5	S02	CONSOLE	HMI226	1	20100000112	HMI, Panelview Plus 7
6	S02	CONSOLE	PBL232	1	20100000113	E-stop pushbutton operator
7	S02	CONSOLE	PBL232	1	20100000114	Red LED module
8	S02	CONSOLE	PBL232	1	20100000115	Contact block NC
9	S02	CONSOLE	PBL232	1	20100000116	Yellow, round EMERGENCY STOP legend
10	S02	CONSOLE	PBL232	1	20100000117	Contact block latch
11	S02	CONSOLE	PBL232	1	20100000118	Contact block NO
12	S02	CONSOLE	PBL410,PBL411,PBL43 9	2	20100000119	Pushbutton, momentary, illuminated, green, 22mm
13	S02	CONSOLE	PBL410,PBL411,PBL43 9	2	20100000120	Green LED module
14	S02	CONSOLE	PBL410,PBL411,PBL43 9	2	20100000117	Contact block latch
15	S02	CONSOLE	PBL410,PBL411,PBL43 9	2	20100000118	Contact block NO
16	S05	CONSOLE	PBL235	1	20100000123	Pushbutton, momentary, illuminated, blue, 22mm
17	S05	CONSOLE	PBL235	1	20100000124	White LED module
18	S05	CONSOLE	PBL235	1	20100000117	Contact block latch
19	S05	CONSOLE	PBL235	1	20100000118	Contact block NO
20	S05	CONSOLE	LEGENDS	4		legends
21	S13	CONSOLE		1	TBD	HOLE PLUG, 22mm
22	S13	CONSOLE	T122	1	805820	600V PRI,480V SEC, 3KVA, 3PH ENCLOSED

Item Number	SHT. LOC.	ASSM.	SYMBOL/ID	Qty.	Signode Number	Description
1		MACHINE		2	20100000137	ARMORBLOCK, 8 PORT INPUT/OUTPUT, ETHERNET
2		MACHINE		1	20100000138	COMMUNICATION CABLE M12 STRAIGHT MALE, M12 STRAIGHT MALE, 2M
3		MACHINE		2	20100000140	PHOTO SENSOR
4		MACHINE		2	20100000141	PHOTO SNESOR bracket
5		MACHINE		4	20100000142	DC MICRO PATCH CORD 2M
6		MACHINE		6	20100000143	DC MICRO PATCH CORD 5M
7		MACHINE		4	20100000144	Cable Splitter V, 0.3M
8		MACHINE		5	20100000145	Proximity sensor, 10mm sensing range, 12mm dia.
9		MACHINE		6	20100000146	Spring mouning bushing
10		MACHINE		1	20100000147	DC MICRO PATCH CORD, 0.3M
11		MACHINE		1	20100000148	COMMUNICATION CABLE M12 STRAIGHT MALE, M12 STRAIGHT MALE, 0.3M

ROLL BINDER PET HEAD MH-16 FLOOR PLAN/CONDUIT (20100000679-2)



ROLL BINDER PET HEAD MH-16 CONDUIT SCHEDULE (20100000679-2)

COUNT	DEVICE ID	DESCRIPTION	VOLTAGE	WIRE #	AWG	CABLE MFG	MFG#	COLOR	FROM	TO	CONDUIT
1	leg1	Customer provided power	460VAC	tbd	14AWG			BLACK	Customer	CONSOLE	C1
2	leg2		460VAC	tbd	14AWG			BLACK	Customer	CONSOLE	C1
3	leg3		460VAC	tbd	14AWG			BLACK	Customer	CONSOLE	C1
4	Ground		460VAC	tbd	14AWG			GREEN	Customer	CONSOLE	C1
1	MTR110	FEED/TAKE UP	460VAC	1T1	16AWG	BELDEN	29500 010250	BLACK	CONSOLE	J81 machine	C2
2				1T2	16AWG			BLACK	CONSOLE	J81 machine	C2
3				1T3	16AWG			BLACK	CONSOLE	J81 machine	C2
				GND	16AWG			GREEN	CONSOLE	J81 machine	C2
4				SHIELD					CONSOLE	J81 machine	C2
1	MTR214	WELD MOTOR	115VAC	214B	16AWG			RED			C2
2				112	16AWG			WHITE			C2
3				GND	16AWG			GREEN			C2
1	MTR219	INDEX MOTOR	130DC	217	16AWG			BLACK	CONSOLE	J81 machine	C2
2				218	16AWG			BLACK	CONSOLE	J81 machine	C2
1	SOL310	FEEDER CLUTCH	24VDC	310A	16AWG			BLUE	CONSOLE	J81 machine	C3
2	SOL310 COM	FEEDER CLUTCH	24VDC	12	16AWG			BLUE	CONSOLE	J81 machine	C3
3	CB241	CONTROL POWER	24VDC	11B	16AWG			BLUE	CONSOLE	J81 machine	C3
4	CR236(MCR)	CONTROL POWER	24VDC	11A	16AWG			BLUE	CONSOLE	J81 machine	C3
5	(MCR)CB314	CONTROL POWER	24VDC	11C	16AWG			BLUE	CONSOLE	J81 machine	C3
6	LS412	UPPER LA ARM FULLY RET.	24VDC	412	16AWG			BLUE	CONSOLE	J81 machine	C3
7	LS413	UPPER LA ARM FULLY EXT.	24VDC	413	16AWG			BLUE	CONSOLE	J81 machine	C3
8	SPARE		24VDC	414	16AWG			BLUE	CONSOLE	J81 machine	C3
9	SPARE		24VDC	415	16AWG			BLUE	CONSOLE	J81 machine	C3
10	SPARE		24VDC	416	16AWG			BLUE	CONSOLE	J81 machine	C3
11	SPARE		24VDC	417	16AWG			BLUE	CONSOLE	J81 machine	C3
12	LS418	MIDDLE LA ARM FULLY RET.	24VDC	418	16AWG			BLUE	CONSOLE	J81 machine	C3
13	LS419	MIDDLE LA ARM FULLY EXT.	24VDC	419	16AWG			BLUE	CONSOLE	J81 machine	C3
14	LS420	LOWER LA ARM FULLY RET.	24VDC	420	16AWG			BLUE	CONSOLE	J81 machine	C3
15	LS421	LOWER LA ARM FULLY EXT.	24VDC	421	16AWG			BLUE	CONSOLE	J81 machine	C3
16	PRS422	DISPENSER ARM UP	24VDC	422	16AWG			BLUE	CONSOLE	J81 machine	C3
17	PRS423	DISPENSER ARM DOWN	24VDC	423	16AWG			BLUE	CONSOLE	J81 machine	C3
18	LS424	HEAD LA RETRACTED	24VDC	424	16AWG			BLUE	CONSOLE	J81 machine	C3
19	PRS426	HEAD LA EXTENDED	24VDC	425	16AWG			BLUE	CONSOLE	J81 machine	C3
20	PEC433	LEADING TRAILING	24VDC	433	16AWG			BLUE	CONSOLE	J81 machine	C3
21	PEC535	SENSE CENTER	24VDC	435	16AWG			BLUE	CONSOLE	J81 machine	C3
22	SOL521	DISPENSER BRAKE RELEASE	24VDC	521							
23	CTR539	CYCLE COUNTER	24VDC	539	16AWG			BLUE	CONSOLE	J81 machine	C3
24	LTS40	STACK LIGHT GREEN	24VDC	540	16AWG			BLUE	CONSOLE	J81 machine	C3
25	LTS41	STACK LIGHT AMBER	24VDC	541	16AWG			BLUE	CONSOLE	J81 machine	C3
26	PRS610	INDEX COUNT	24VDC	610	16AWG			BLUE	CONSOLE	J81 machine	C3
27	PRS611	WELD COUNT	24VDC	611	16AWG			BLUE	CONSOLE	J81 machine	C3
28	PRS612	FEED MOTOR STALL	24VDC	612	16AWG			BLUE	CONSOLE	J81 machine	C3
29	PRS613	FEED COMPLETE	24VDC	613	16AWG			BLUE	CONSOLE	J81 machine	C3
30	PRS615	OUT OF STRAP	24VDC	615	16AWG			BLUE	CONSOLE	J81 machine	C3
31	PRS617	INDEX HOME	24VDC	617	16AWG			BLUE	CONSOLE	J81 machine	C3
32	PRS621	STRAP APPLIED	24VDC	621	16AWG			BLUE	CONSOLE	J81 machine	C3
33	623A	FEEDER MODULE CONNECTED	24VDC	623	16AWG			BLUE	CONSOLE	J81 machine	C3
34	624A	SEALER MODULE CONNECTED	24VDC	624	16AWG			BLUE	CONSOLE	J81 machine	C3
35	LA811	UPPER ARM LINEAR ACTUATOR	24VDC	811A	16AWG			BLUE	CONSOLE	J81 machine	C3
36		UPPER ARM LINEAR ACTUATOR	24VDC	811B	16AWG			BLUE		J81 machine	C3
37	LA815	MIDDLE ARM LINEAR ACTUATOR	24VDC	815A	16AWG			BLUE	CONSOLE	J81 machine	C3
38		MIDDLE ARM LINEAR ACTUATOR	24VDC	815B	16AWG			BLUE		J81 machine	C3
39	LA819	LOWER ARM LINEAR ACTUATOR	24VDC	819A	16AWG			BLUE	CONSOLE	J81 machine	C3
40		LOWER ARM LINEAR ACTUATOR	24VDC	819B	16AWG			BLUE		J81 machine	C3
41	LA823	PSM HEAD LINEAR ACTUATOR	24VDC	823A	16AWG			BLUE	CONSOLE	J81 machine	C3
42		PSM HEAD LINEAR ACTUATOR	24VDC	823B	16AWG			BLUE		J81 machine	C3
43-45	SPARES		24VDC	621	16AWG			BLUE	CONSOLE	J81 machine	C3

CUSTOMER INTERLOCKS

1	234A	E-stop	form C	233	16/14AWG			yellow	Customer	CONSOLE	C4
2				234							
3	SIG COM	Common for signals to customer	form C	SIG COM	16/14AWG			yellow	Customer	CONSOLE	C4
4	1CCR	OK to move infeed conveyor	form C	SIG-1	16/14AWG			yellow	Customer	CONSOLE	C4
5	2CCR	OK to move outfeed conveyor	form C	SIG-2	16/14AWG			yellow	Customer	CONSOLE	C4
6	3CCR	Ready to strap	form C	SIG-3	16/14AWG			yellow	Customer	CONSOLE	C4
7	CUST COM	Common for signals from customer	24VDC	CUST COM	16AWG			yellow	Customer	CONSOLE	C4
8	4CCR	Infeed conveyor stopped	24VDC	CUST-1	16AWG			yellow	Customer	CONSOLE	C4
9	4CCR	Outfeed conveyor stopped	24VDC	CUST-2	16AWG			yellow	Customer	CONSOLE	C4
10	6CCR	Customer automatic strap start	24VDC	CUST-3	16AWG			yellow	Customer	CONSOLE	C4
11	7CCR	Tension range	24VDC	CUST-4	16AWG			yellow	Customer	CONSOLE	C4

DISPENSER

1	24VDC	CONTROL VOLTAGE	24VDC	11B	16AWG			BLUE	J81 machine	Dispenser	C5
2	0VDC	CONTROL VOLTAGE	24VDC	12	16AWG			BL/WH	J81 machine	Dispenser	C5
3	PRS423	DISPENSER FULL	24VDC	423	16AWG			BLUE	J81 machine	Dispenser	C5
5	SOL521	DISPENSER BRAKE	24VDC	521	16AWG			BLUE	J81 machine	Dispenser	C5

ETHERNET

1	COMM.	ETHERNET COMMUNICATIONS		ENET-1		BELDEN	7905A		CONSOLE	J81 machine	C6
---	-------	-------------------------	--	--------	--	--------	-------	--	---------	-------------	----

INTENTIONALLY BLANK

MH-RMF ELECTRICAL - OPTIONS

CONTENTS

MH-RMF ELECTRICAL - OPTIONS	5-27
MHB Drive Kit- 2 HP (813884-2)	5-30
Indicator Light Assembly (605910-5).....	5-31

5-27 -N- SECTION S

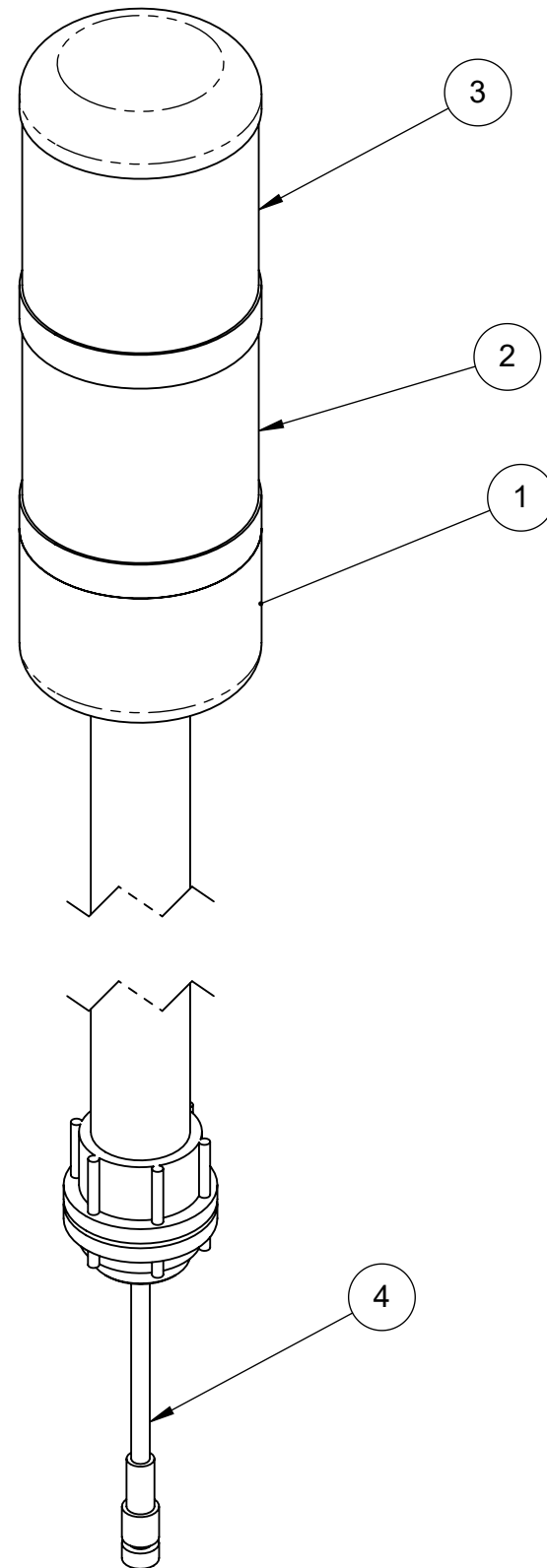
INTENTIONALLY BLANK

INTENTIONALLY BLANK

MHB DRIVE KIT- 2 HP (813884-2)

Item Number	Symbol	Qty.	Signode Number	Part Description
1	1FU	1	805823	AB, 1492-FB3C30, FUSE HOLDER, 3 POLE, 30A, CLASS CC
2	1FU	3	805856	BUSSMAN, LP-CC-12, FUSE 12A, TIME DELAY, CURRENT LIMITING; Alternate: CCMR012.TXP
3	1FREQ	1	20100000029	FREQUENCY DRIVE, 2 HP, 480V - NO DISPLAY

INDICATOR LIGHT ASSEMBLY (605910-5)



NOTES:

REPLACEMENT QUICK DISCONNECT CABLE
PHOENIX CONTACT P/N: 1668043
OR BALLUFF P/N: BCC031N

REPLACEMENT CLUSTER LED'S
GREEN - EATON (C-H) P/N: SL7-L24-G
AMBER - EATON (C-H) P/N: SL7-L24-A

INTENTIONALLY BLANK

SECTION 6 MACHINE

CONTENTS

SECTION 6 MACHINE	6-1
MH-RMF RollBinder Label Disposition (35000016533-2)	6-4
MH-RMF RollBinder (35000016388-2)	6-8
Base, Head Assembly (35000016390-2)	6-12
Shaft Mount (35000012649-2)	6-14
Sub-Assembly Anchor and Leveling (35000008721-2)	6-15
Rear Clevis Mount (35000012631-2)	6-16
Stop Assembly (35000012731-3)	6-17
Carriage Pivot Sub Assembly (35000016396-3)	6-18
MH-RMF Head Mounting Assembly (35000016432-3)	6-20
Drive Latch Assembly (PJ-000203-1)	6-24
RMF MH16 Re-Entry Assembly (35000012674-2)	6-26
Chute Entry Assembly (532150-5)	6-28
Carriage, Sealer (534686-2)	6-30
Carriage, Actuator Sub Assembly (35000012652-2)	6-32
Chute Mount (35000012690-3)	6-34
Chute Mount (35000012691-3)	6-36
Chute Mount (35000012692-3)	6-38
Arch Support Assembly (PJ-000227-1)	6-40
Cable Carrier Assembly (35000016940-2)	6-42
Arch Sub Assembly (3500001019-2)	6-44
Sub-Assembly Anchor and Leveling (35000008721-2)	6-46
Chute Mount (35000012690-3)	6-48
Chute Mount (35000013128-4)	6-50
Actuator, Product Guide Arm (35000013183-4)	6-52
RMF Chute Assembly (35000016949-1)	6-54
Entry Chute Assembly (35000012665-3)	6-56
RMF chute Assembly - Side (35000012893-3)	6-58
RMF chute Assembly - Top (35000012899-3)	6-60
Re-Entry chute Assembly (35000016950-2)	6-64
Upper Guide Arm (35000016999-4)	6-66
Strap Guide Arm (35000013579-4)	6-68
Adjustable Strap Guide (35000013720-3)	6-70
Spring Mount Assembly (35000013709-4)	6-71

SECTION 6

Prox Mount (35000013716-3)	6-72
Lower Guide Arm (35000017001-4)	6-74
Strap Guide Arm (35000013730-4)	6-76
Adjustable Strap Guide (35000013720-3)	6-78
Spring Mount Assembly (35000013709-4)	6-79
Prox Mount (35000013716-3)	6-80
Controls Sub Assembly (35000016638-1)	6-82
Product Present Sensor (35000012645-3)	6-84
Home Switch (35000016639-1)	6-86

INTENTIONALLY BLANK

MH-RMF ROLLBINDER LABEL DISPOSITION (35000016533-2)

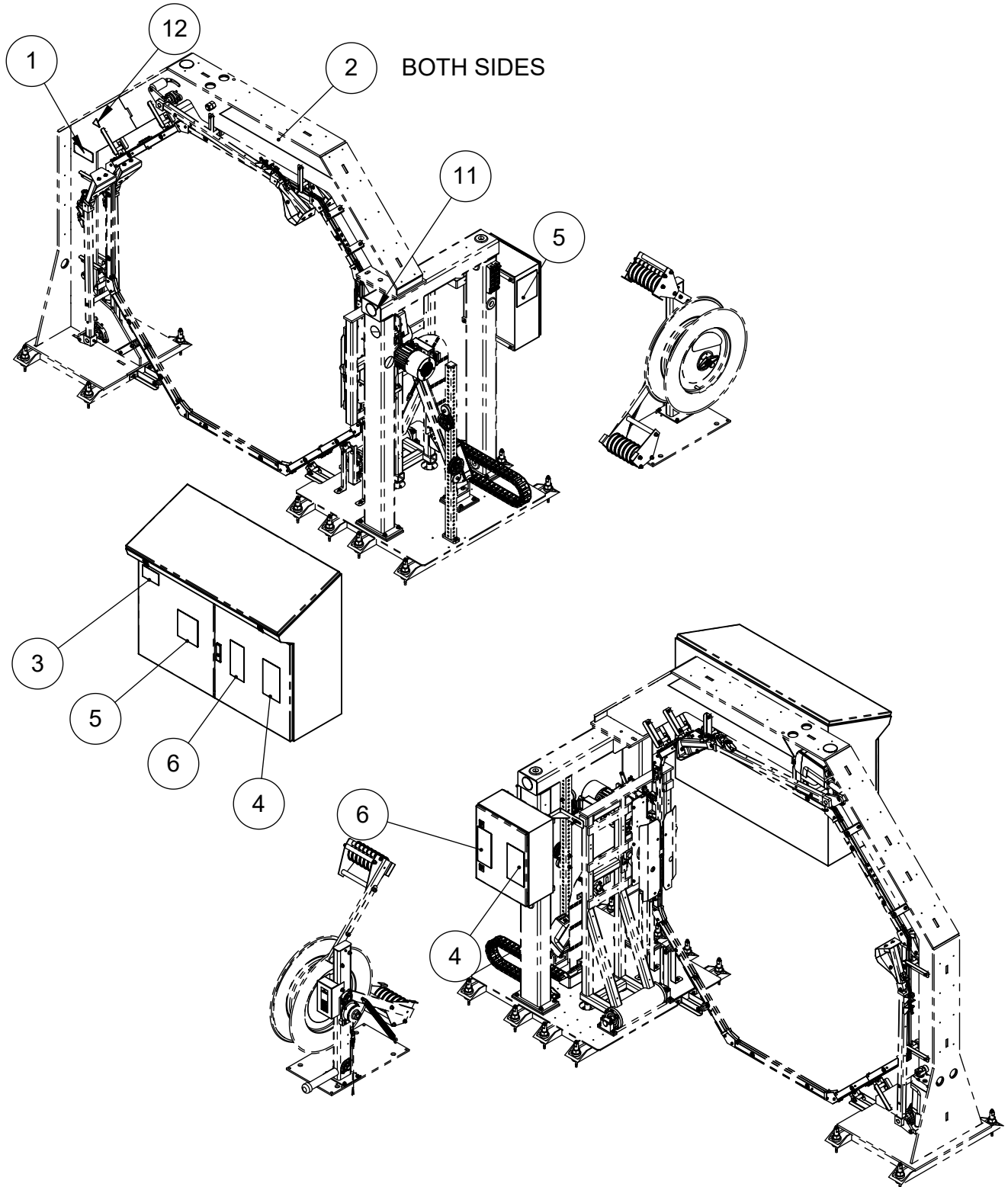
MH-RMF SIGNS INSTALLATION

35000016533-2

SAFETY SIGN MATRIX TABLE - I			
		XX = ISO LANGUAGE CODE	
KEY	QTY.	PART NO.	DESCRIPTION
1	1	020271	NAMEPLATE
2	2	35000002338	MH-RMF MACHINE LABEL
3	1	REFERENCE SAFETY SIGN MATRIX TABLE I	NAME PLATE
4	2	35000014574-XX	WARNING - PPE REQUIRED
5	2	35000014605-XX	WARNING - AUTOMATED MACHINE HAZARD
6	2	REFERENCE SAFETY SIGN MATRIX TABLE II	DANGER - ARC FLASH HAZARD AND HAZARDOUS VOLTAGE
7	1	35000014601-XX	DANGER - PROGRAMING HAZARD
8	1	35000014571-XX	DANGER - STORED ENERGY HAZARDOUS VOLTAGE
9	2	35000014566-XX	DANGER - HAZARDOUS VOLTAGE
10	4	35000016296	ELECTRICAL - GROUND SYMBOL
11	3	35000016224	MANDATORY LIFT POINT HOOK
12	2	35000016280	WARNING HAND CRUSH
NOTES			
SAFETY SIGN MATRIX TABLE - I			
KEY	QTY.	PART NO.	DESCRIPTION
3	1	168607-XX	NAME PLATE
SAFETY SIGN MATRIX TABLE - II			
		XX = ISO LANGUAGE CODE	
KEY	QTY.	PART NO.	DESCRIPTION
6	1	35000015369-XX	DANGER - ARC FLASH HAZARD AND HAZARDOUS VOLTAGE 575 VOLTS

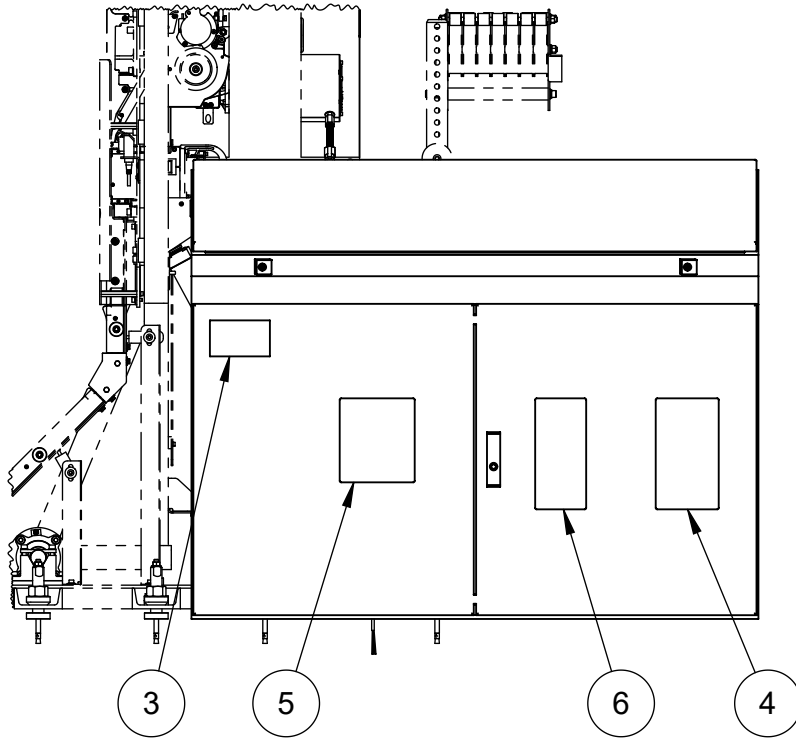
MH-RMF SIGNS INSTALLATION

35000016533-2

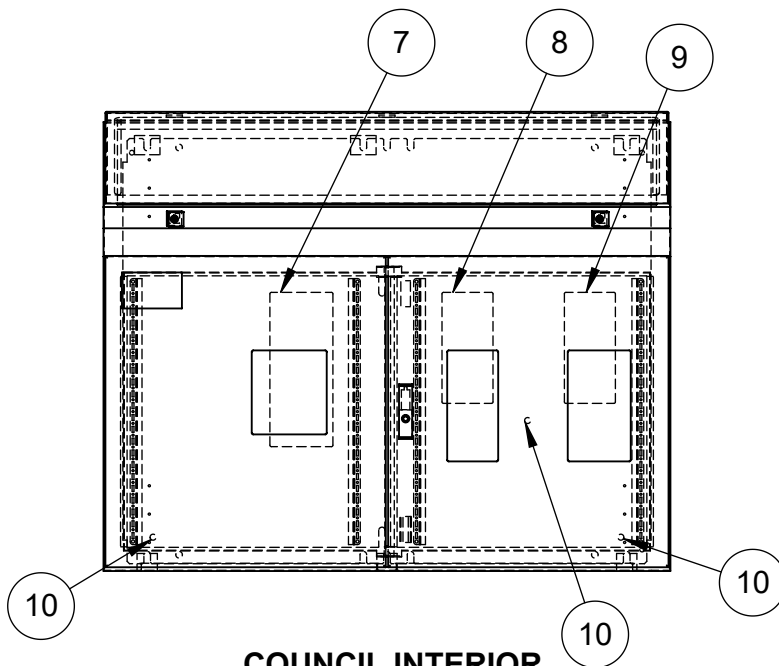


MH-RMF SIGNS INSTALLATION

35000016533-2



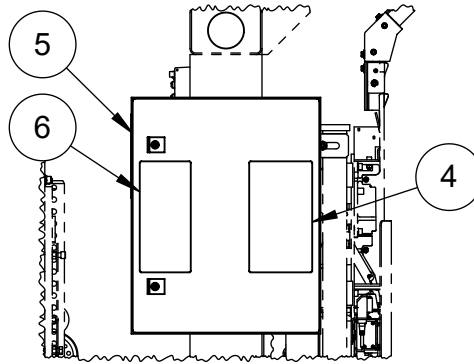
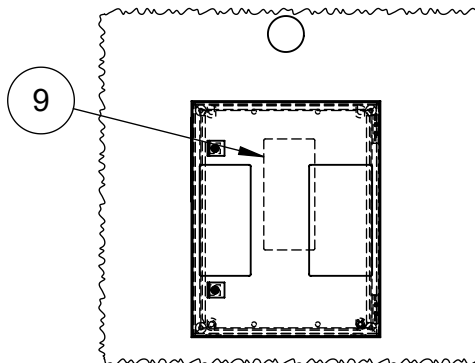
COUNCIL EXTERIOR



COUNCIL INTERIOR

MH-RMF SIGNS INSTALLATION

35000016533-2

**CABINET EXTERIOR****CABINET INTERIOR**

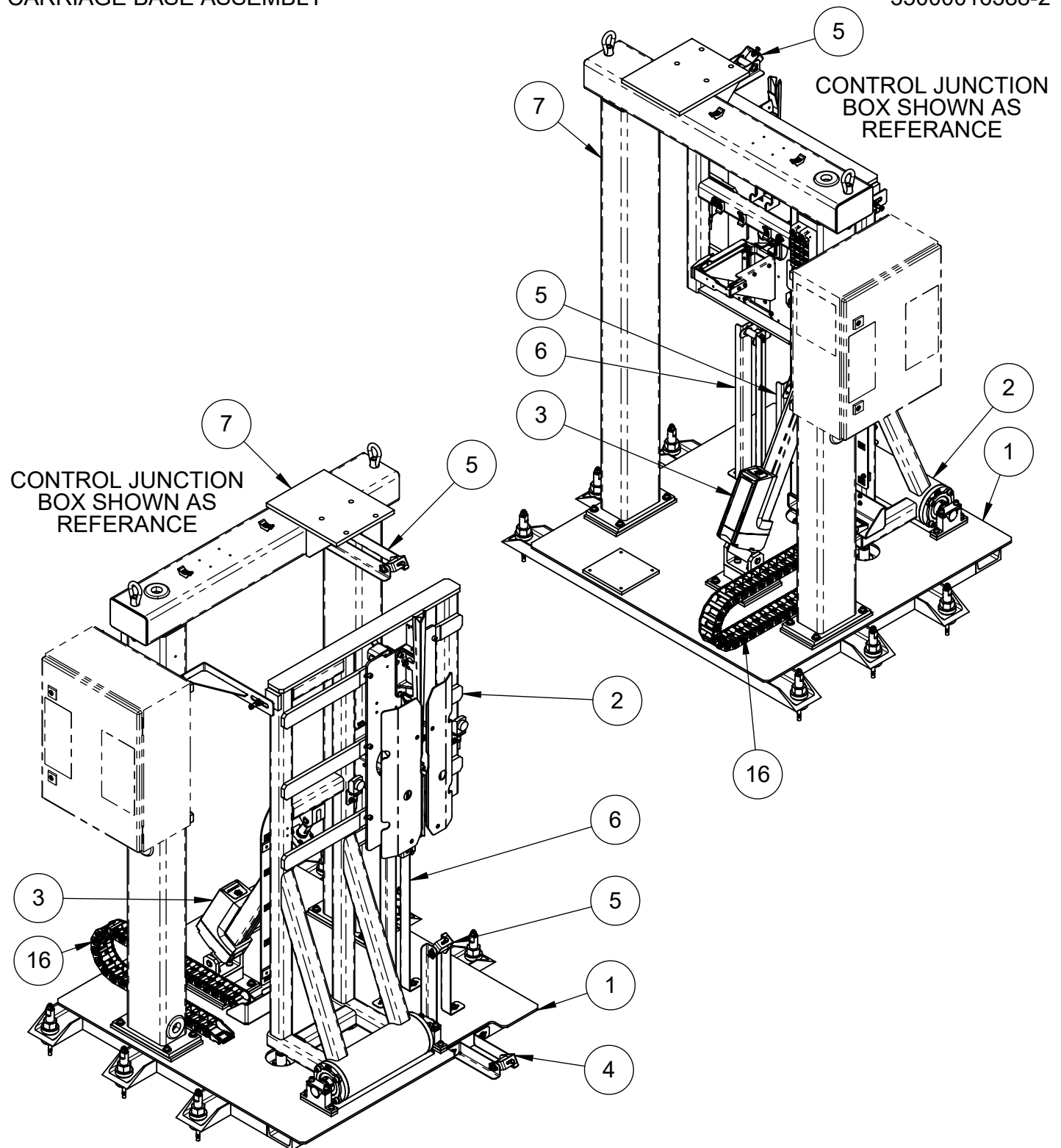
MH-RMF ROLLBINDER (35000016388-2)**CARRIAGE BASE ASSEMBLY**

35000016388-2

KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000016390	BASE: HEAD: ASSEMBLY
2	1	35000016396	CARRIAGE PIVOT SUB ASSEMBLY
3	1	35000012652	CARRIAGE ACTUATOR SUB ASSEMBLY
4	1	35000012690	CHUTE MOUNT
5	2	35000012691	CHUTE MOUNT
6	1	35000012692	CHUTE MOUNT
7	1	PJ-000227	ARCH SUPPORT ASSEMBLY
8			
9			
10			
11			
12			
13			
14			
15			
16	1	35000016940	ASSEMBLY; CABLE CARRIER

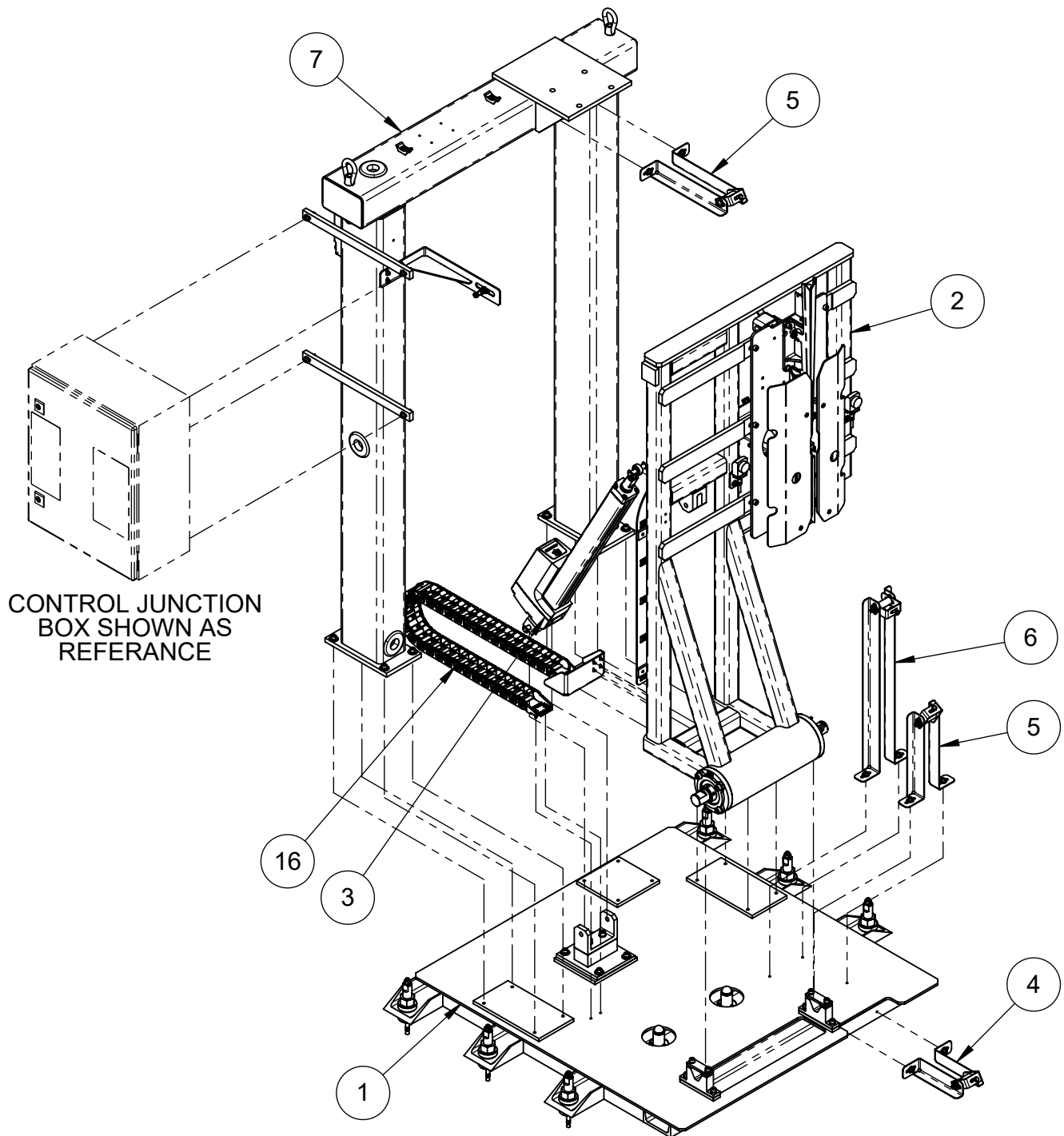
CARRIAGE BASE ASSEMBLY

35000016388-2



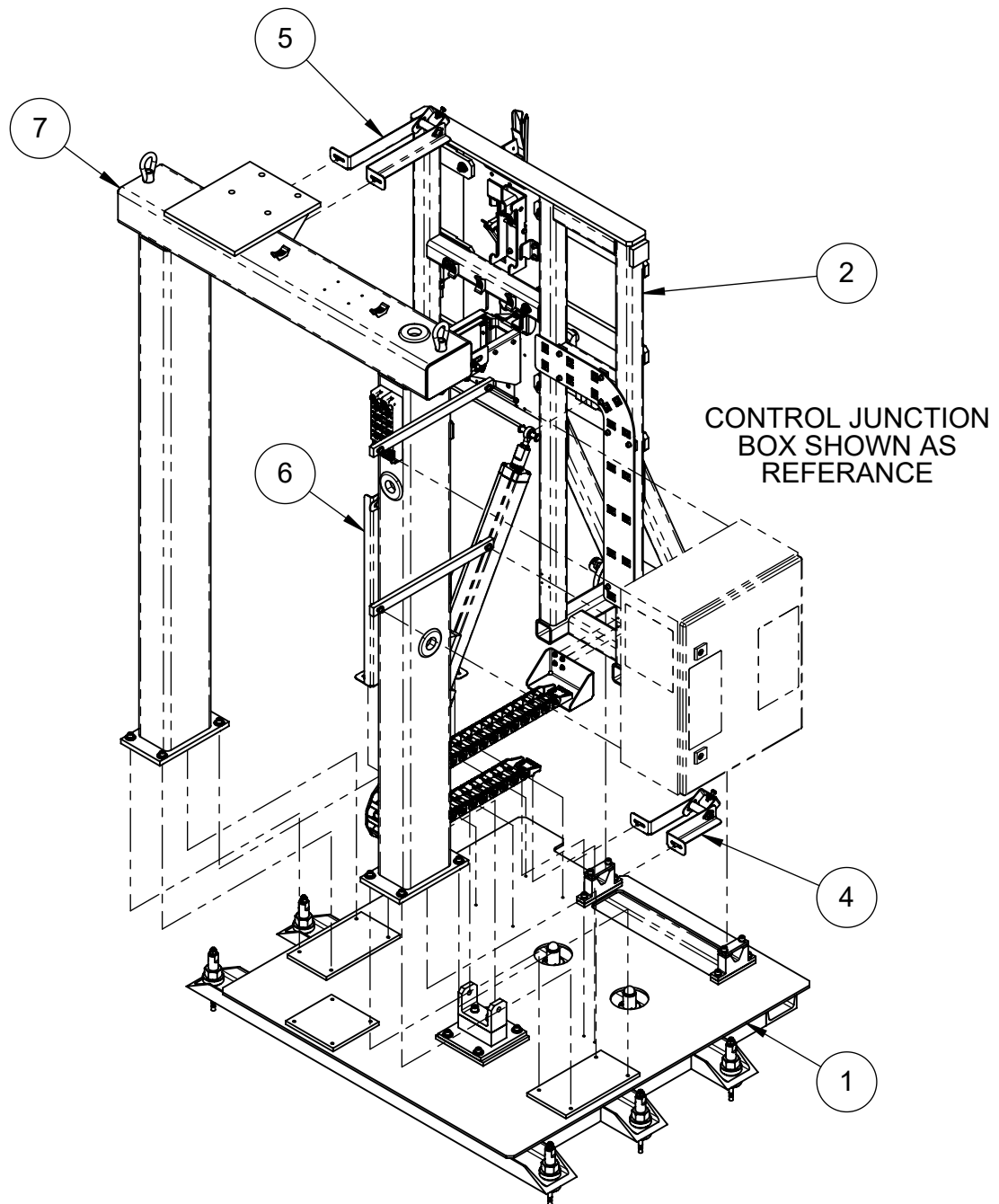
CARRIAGE BASE ASSEMBLY

35000016388-2



CARRIAGE BASE ASSEMBLY

35000016388-2



BASE, HEAD ASSEMBLY (35000016390-2)

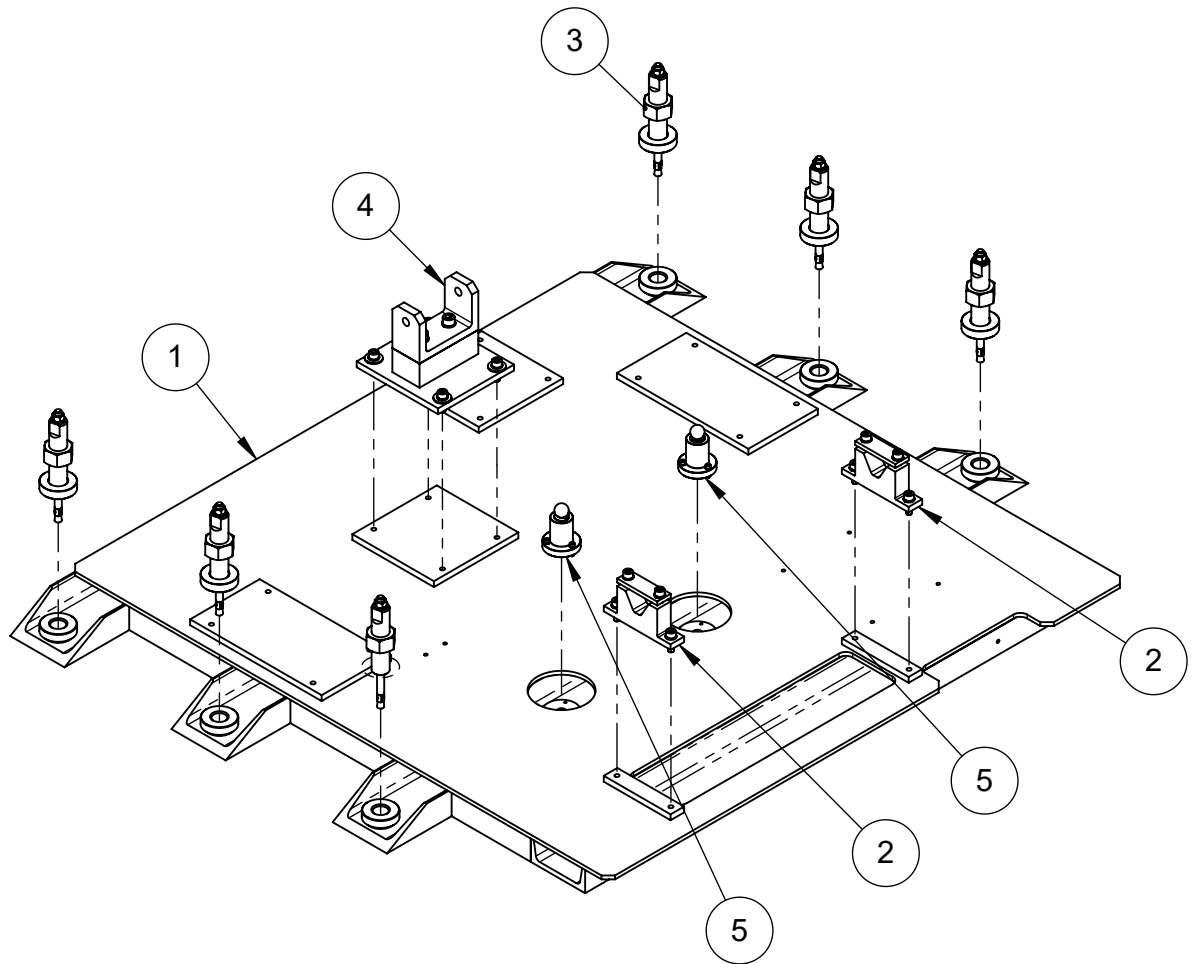
BASE: HEAD: ASSEMBLY

35000016390-2

KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000016392	MACHINING: BASE
2	2	35000012649	SHAFT MOUNT
3	6	35000008721	SUB-ASSEMBLY ACHOR AND LEVELING
4	1	35000012631	REAR CLEVIS MOUNT
5	2	35000012731	STOP ASSEMBLY

BASE: HEAD: ASSEMBLY

35000016390-2

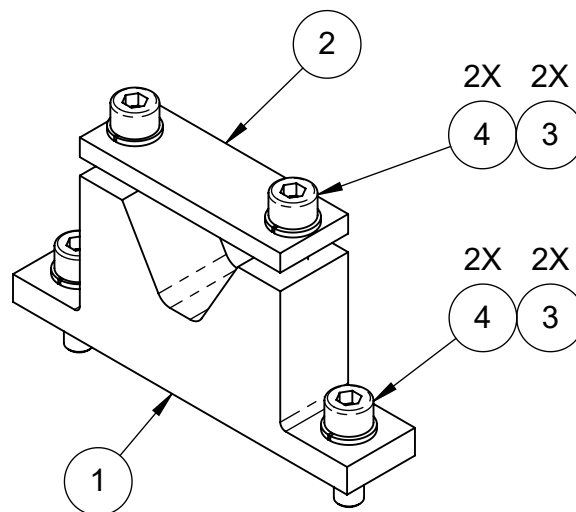


SHAFT MOUNT (35000012649-2)

SHAFT MOUNT

35000012649-2

KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000012395	SHAFT BLOCK
2	1	35000012592	SHAFT BLOCK CAP
3	4	35000013975	LOCK WASHER M8 DIN128A ZN SPLIT
4	4	421268	SHCS M8X1.25 X 25 DIN912 CL12 ZA FTD

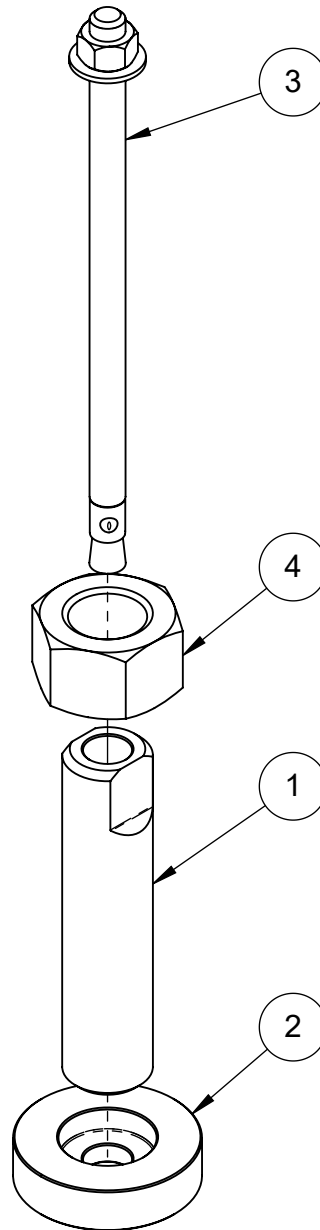


SUB-ASSEMBLY ACHOR AND LEVELING (35000008721-2)

SUB-ASSEMBLY ACHOR AND LEVELING

35000008721-2

KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000008713	ANCHOR/LEVELING SCREW
2	1	35000008716	PAD: LEVELING SCREW
3	1	35000008720	FLOOR ANCHOR, 3/8 X 7
4	1	185776	HEX NUT M24X3 DIN934 CL12 ZA

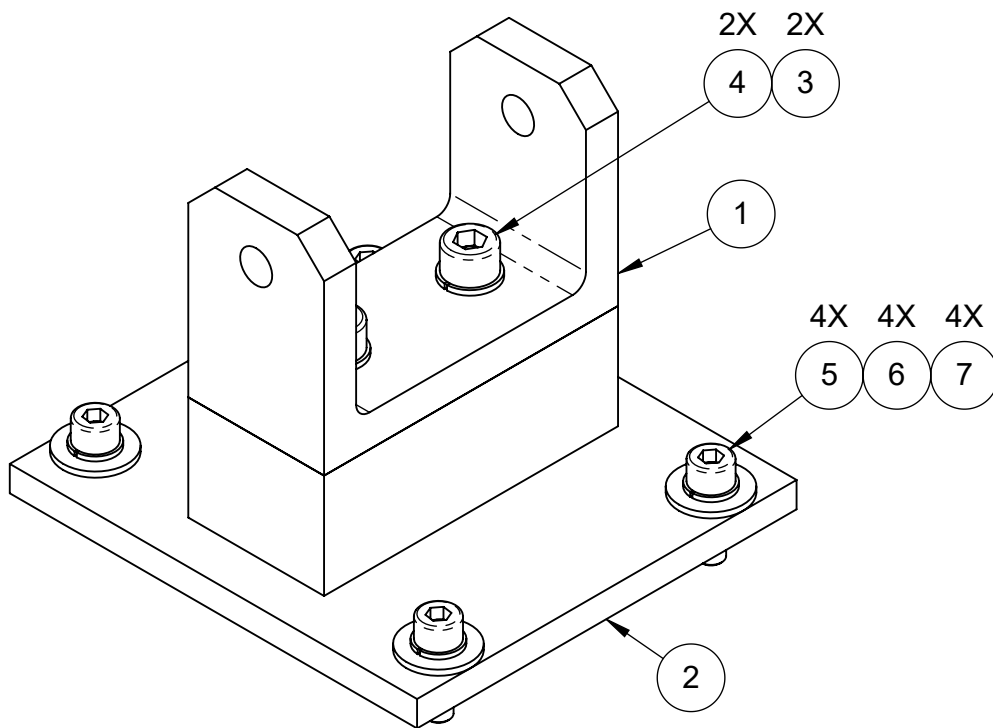


REAR CLEVIS MOUNT (35000012631-2)

REAR CLEVIS MOUNT

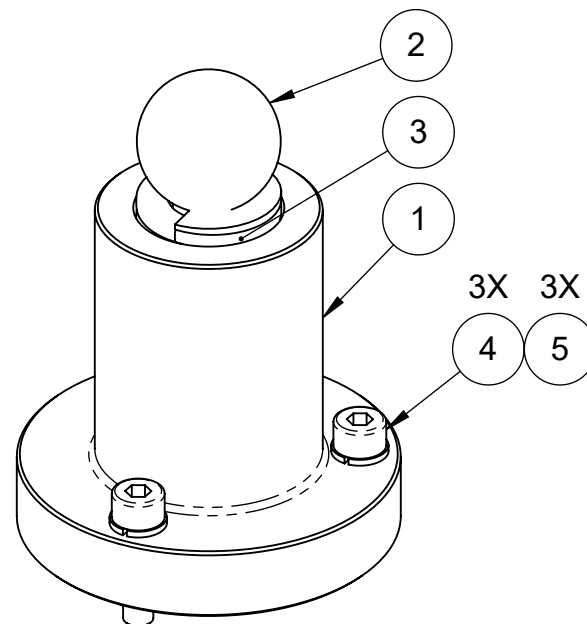
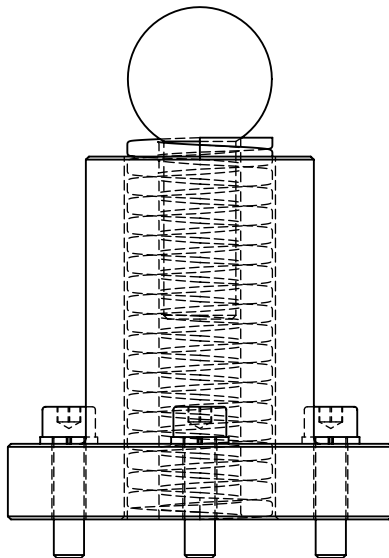
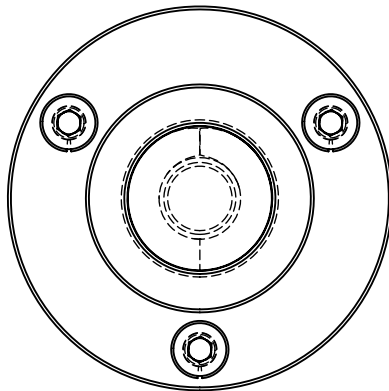
35000012631-2

KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000012396	REAR CLEVIS
2	1	35000012606	MACHINING: REAR CLEVIS MOUNT
3	2	35000013976	LOCK WASHER M10 DIN128A ZN SPLIT
4	2	174902	SHCS M10X1.5 X 25 DIN912 CL12 ZA FTD
5	4	421268	SHCS M8X1.25 X 25 DIN912 CL12 ZA FTD
6	4	35000013975	LOCK WASHER M8 DIN128A ZN SPLIT
7	4	420322	FLAT WASHER M8 ISO7093 140HV ZN FNDR



STOP ASSEMBLY (35000012731-3)
STOP ASSEMBLY
35000012731-3

KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000012733	TUBE: SPRING STOP
2	1	35000012729	HARDSTOP: SPRING
3	1	35000012730	COMPRESSION SPRING
4	3	433917	SHCS M4X0.7 X 16 DIN912 CL12 ZA FTD
5	3	162382	LOCK WASHER M4 DIN127B ZN SPLIT

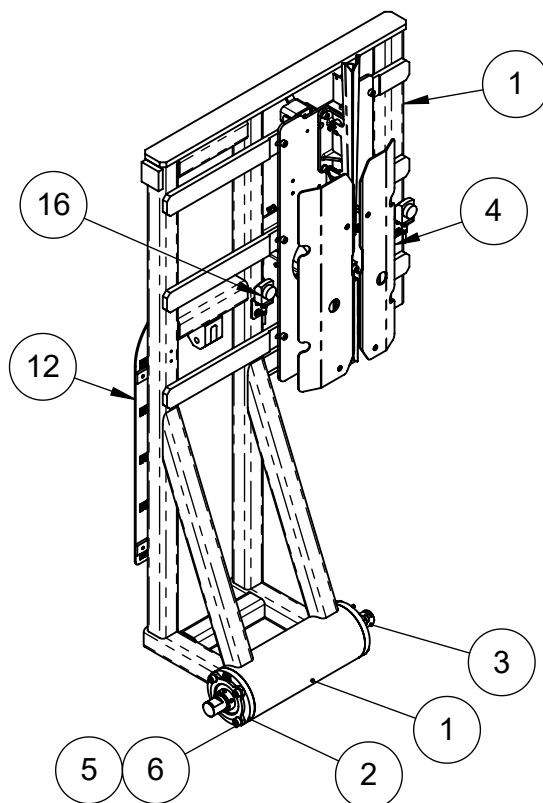


CARRIAGE PIVOT SUB ASSEMBLY (35000016396-3)

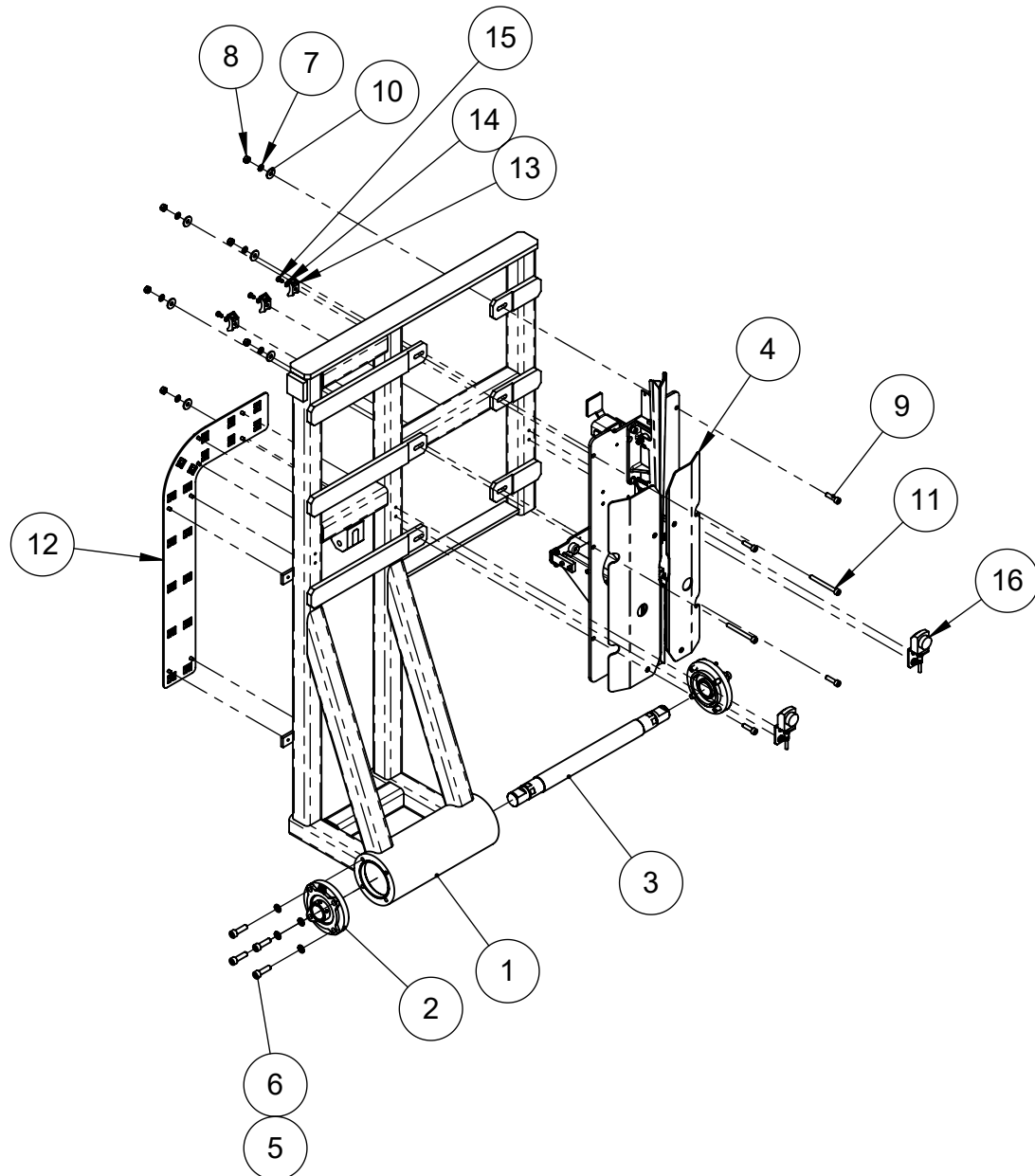
CARRIAGE PIVOT SUB ASSEMBLY

35000016396-3

KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000016395	MACHINING: CARRIAGE: PIVOT
2	2	35000012034	PILOTED BEARING: 35mm SHAFT
3	1	35000012543	SHAFT
4	1	35000016432	MH-RMF HEAD MOUNTING ASSEMBLY
5	8	35000013976	LOCK WASHER M10 DIN128A ZN SPLIT
6	8	171541	SHCS M10X1.5 X 35 DIN912 CL12 ZA FTD
7	6	35000013975	LOCK WASHER M8 DIN128A ZN SPLIT
8	6	164953	HEX NUT M8X1.25 DIN934 CL12 ZA
9	4	280858	SHCS M8X1.25 X 30 DIN912 CL12 ZA FTD
10	6	420322	FLAT WASHER M8 ISO7093 140HV ZN FNDR
11	2	165434	SHCS M8X1.25 X 80 DIN912 CL12 ZA
12	1	35000016863	CABLE ANCHOR
13	3	35000015345	CABLE TIE DOWN
14	3	35000013974	LOCK WASHER M6 DIN128A ZN SPLIT
15	3	188917	SHCS M6X1.0 X 10 DIN7984 C8 ZN FTD LHD
16	2	35000012645	PRODUCT PRESENT SENSOR



35000016396-3



MH-RMF HEAD MOUNTING ASSEMBLY (35000016432-3)

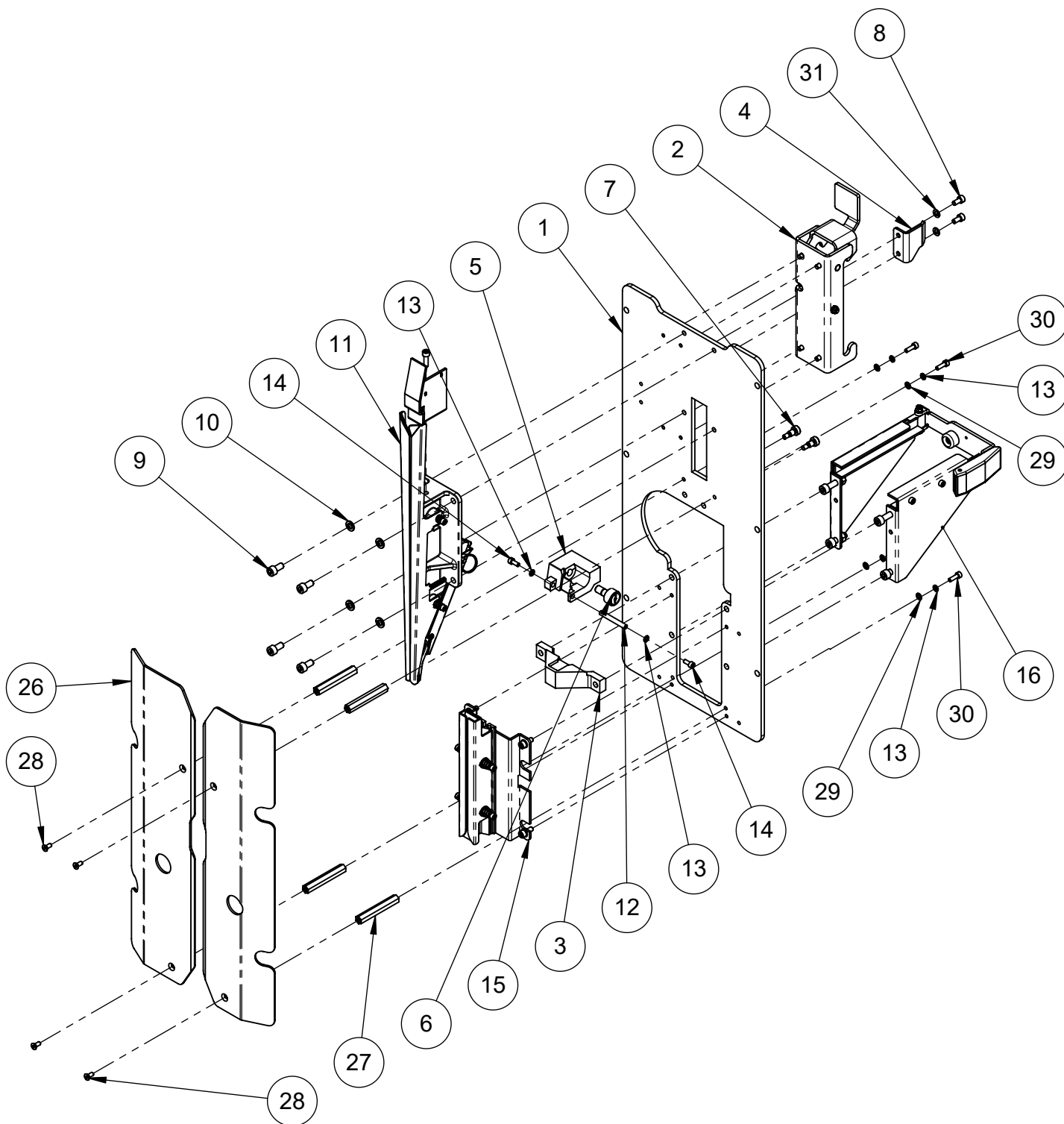
MH-RMF HEAD MOUNTING ASSEMBLY

35000016432-3

KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000016431	MH-RMF HEAD MOUNTING PLATE
2	1	PJ-000203	DRIVE LATCH ASSEMBLY
3	1	513590	SEALER LOCATING BLOCK, TOP
4	1	PJ-000061	DRIVE CENTERING BRKT
5	1	531734	SEALER ALIGNMENT BLOCK
6	1	513592	CAM FOLLOWER, Ø22 X M10 STUD
7	2	510949	SHSS Ø8X10 ISO7379 140KSI Rc32 BLK M6X1.0
8	2	433919	SHCS M6X1 X 12 DIN912 CL12 ZA FTD
9	4	162395	SHCS M8X1.25 X 16 DIN912 CL12 ZA FTD
10	4	280807	LOCK WASHER M8 DIN127B ZN SPLIT
11	1	35000012674	RMF MH16 RE-ENTRY ASSEMBLY
12	1	513360	CHUTE BINDING POST
13	6	010076	LOCK WASHER M5 DIN127B ZN SPLIT
14	2	423288	SHCS M5X0.8 X 12 DIN912 CL12 ZA FTD
15	1	532150	CHUTE ENTRY ASSEMBLY
16	1	534686	CARRIAGE, SEALER
17	1	35000000287	RE-ENTRY GUIDE
18	1	433920	SHCS M6X1 X 20 DIN912 CL12 ZA FTD
19	1	005465	HEX NUT M6X1 DIN934 CL8 ZN
20	1	481889	LOCK WASHER M6 DIN127B ZN SPLIT
21			
22			
23			
24			
25	1	35000016441	MH-RMF STRAP COVER - L.H.
26	1	35000016439	MH-RMF STRAP COVER - R.H.
27	4	532279	STANDOFF
28	4	437290	FHCS M5X0.8 X 12 ISO10642 CL8 ZA FTD
29	4	171571	FLAT WASHER M5 ISO7089 140HV ZN
30	4	011214	SHCS M5X0.8 X 16 DIN912 CL12 ZA FTD
31	2	35000013974	LOCK WASHER M6 DIN128A ZN SPLIT

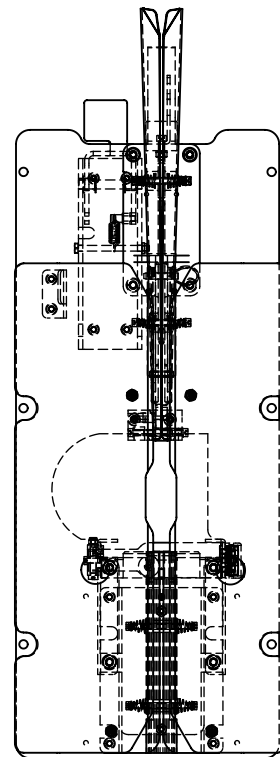
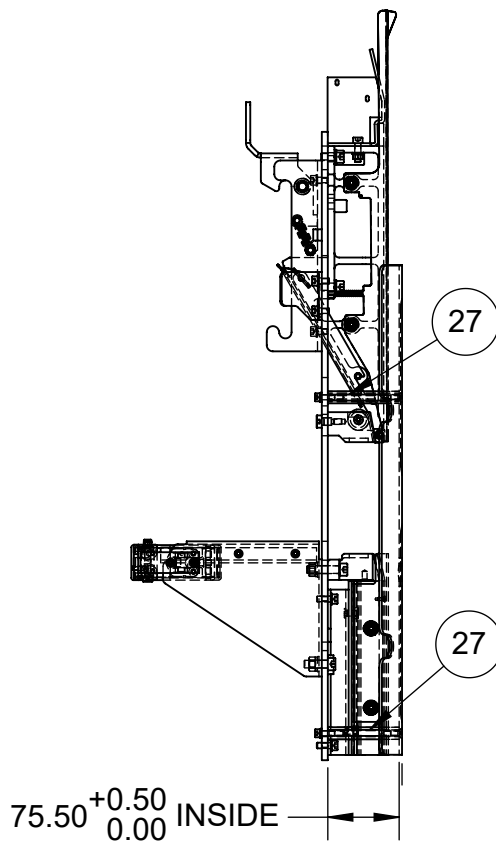
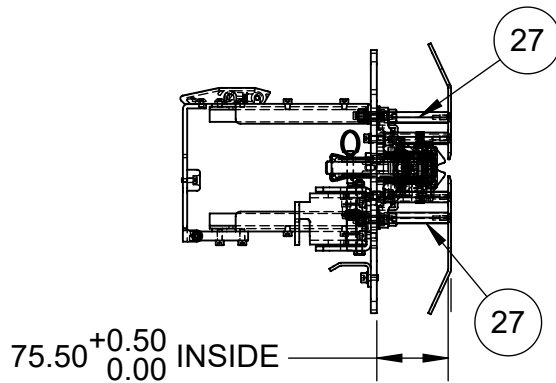
MH-RMF HEAD MOUNTING ASSEMBLY

35000016432-3



MH-RMF HEAD MOUNTING ASSEMBLY

35000016432-3



MH-RMF HEAD MOUNTING ASSEMBLY

35000016432-3

INTENTIONALLY BLANK

DRIVE LATCH ASSEMBLY (PJ-000203-1)

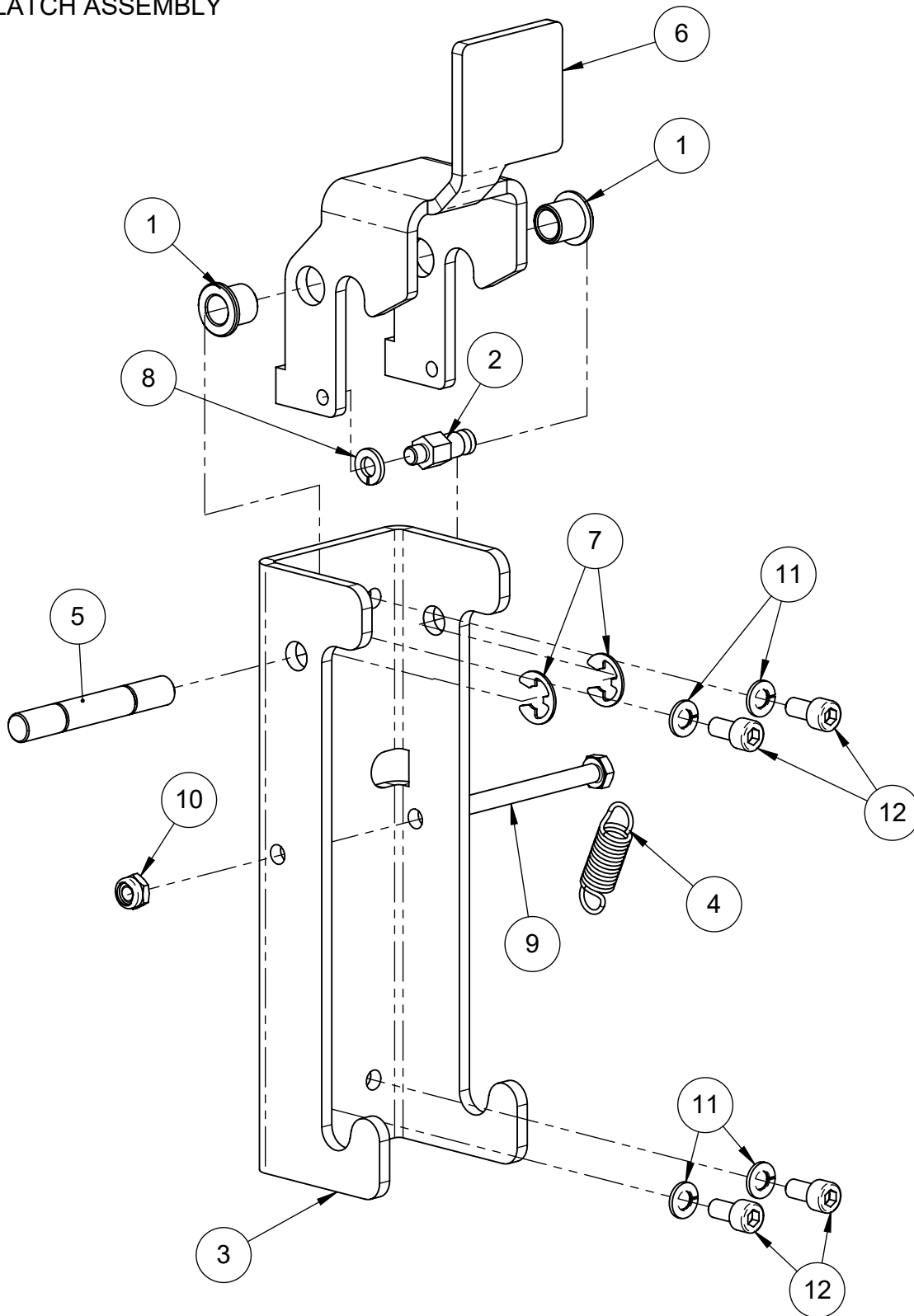
DRIVE LATCH ASSEMBLY

PJ-000203-1

KEY	QTY.	PART NO.	DESCRIPTION
1	2	434307	BUSHING BR. FL. 3/8 ID, 1/2 OD
2	1	510908	SPRING PIN
3	1	PJ-000200	DRIVE LATCH MTG BRKT
4	1	513534	EXT. SPRING, LE-055DE-5-MW
5	1	513536	DRIVE LATCH PIVOT SHAFT
6	1	532161	DRIVE LATCH
7	2	588016	3/8" E-RING (TA# 5133-37)
8	1	481889	LOCK WASHER M6 DIN127B ZN SPLIT
9	1	518419	HHCS (M06X100X075) (C10) (ZINC)
10	1	280849	HEX NUT M6X1 DIN985 C6 ZN JAM NYLK
11	4	35000013974	LOCK WASHER M6 DIN128A ZN SPLIT
12	4	433919	SHCS M6X1 X 12 DIN912 CL12 ZA FTD

DRIVE LATCH ASSEMBLY

PJ-000203-1



RMF MH16 RE-ENTRY ASSEMBLY (35000012674-2)

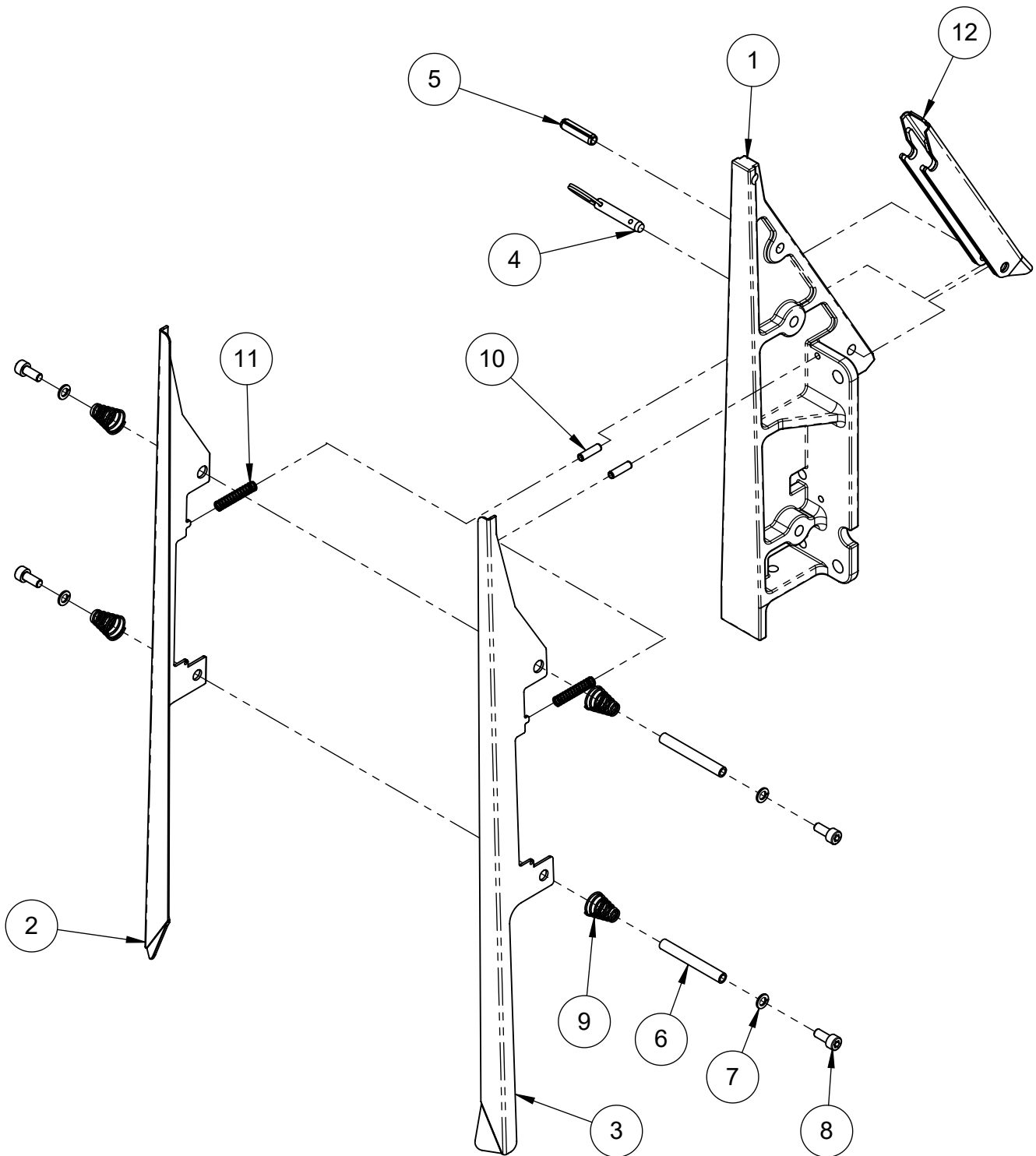
RMF MH16 RE-ENTRY ASSEMBLY

35000012674-2

KEY	QTY.	PART NO.	DESCRIPTION
1	1	513674	RE-ENTRY GUIDE
2	1	35000012675	RE-ENTRY GATE (RIGHT)
3	1	35000012676	RE-ENTRY GATE (LEFT)
4	1	PJ-000204	QUICK-RELEASE PIN; GRIP RING; 1/4DIA X 7/8 LONG
5	1	010023	Ø1/4" X 1" ROLL PIN (ZINC)
6	2	513360	CHUTE BINDING POST
7	4	35000013973	LOCK WASHER M5 DIN128A ZN SPLIT
8	4	423288	SHCS M5X0.8 X 12 DIN912 CL12 ZA FTD
9	4	014879	GATE SPRING
10	2	250310	M4 X 16 ROLL PIN (SPRING STEEL)
11	2	518418	GATE LIFT SPRING
12	1	611859	TRANSITION PATH COVER 16 MM

RMF MH16 RE-ENTRY ASSEMBLY

35000012674-2



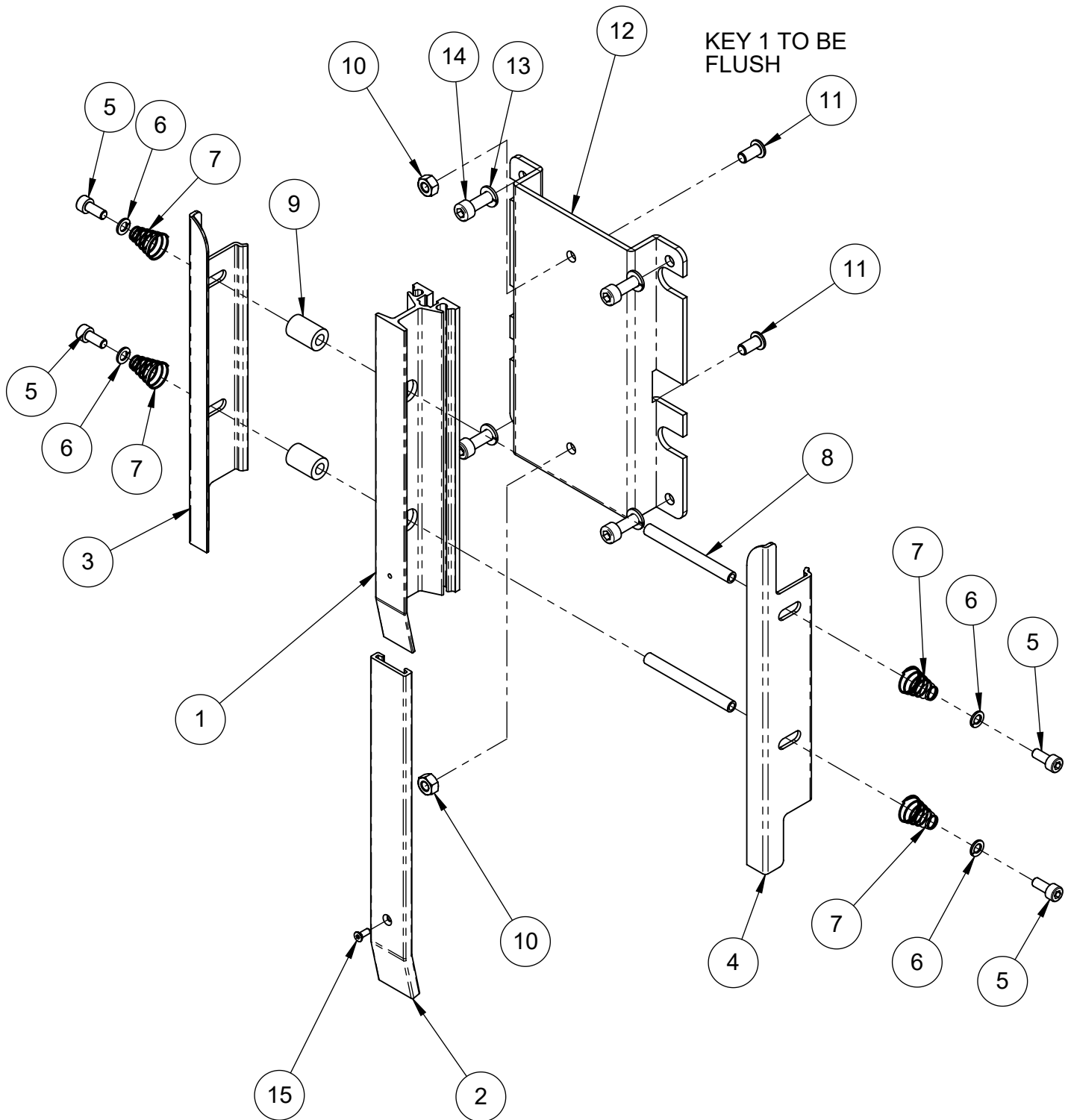
CHUTE ENTRY ASSEMBLY (532150-5)**CHUTE ENTRY ASSEMBLY**

532150-5

KEY	QTY.	PART NO.	DESCRIPTION
1	1	532153	CHUTE BEAM - CHUTE ENTRY
2	1	532154	UHMW LINER - CHUTE ENTRY
3	1	532152	CHUTE GATE - CHUTE ENTRY RH
4	1	532151	CHUTE GATE - CHUTE ENTRY RH
5	4	423288	SHCS M5X0.8 X 12 DIN912 CL12 ZA FTD
6	4	35000013973	LOCK WASHER M5 DIN128A ZN SPLIT
7	4	513686	CONICAL GATE SPRING
8	2	532191	CHUTE BINDING POST
9	2	513363	12.7OD X 6.35ID X 19.05LG BUSHING
10	2	005465	HEX NUT M6X1 DIN934 CL8 ZN
11	2	513182	SHCS M6X1.0 X 12 CL8 ZN FTD XLD NYLK
12	1	532155	ENTRY CHUTE SUPPORT BRACKET
13	4	35000013974	LOCK WASHER M6 DIN128A ZN SPLIT
14	4	280830	SHCS M6X1 X 16 DIN912 CL12 ZA FTD
15	1	251967	FHCS M3X0.5 X 8 ISO10642 CL8 ZN FTD

CHUTE ENTRY ASSEMBLY

532150-5



CARRIAGE, SEALER (534686-2)

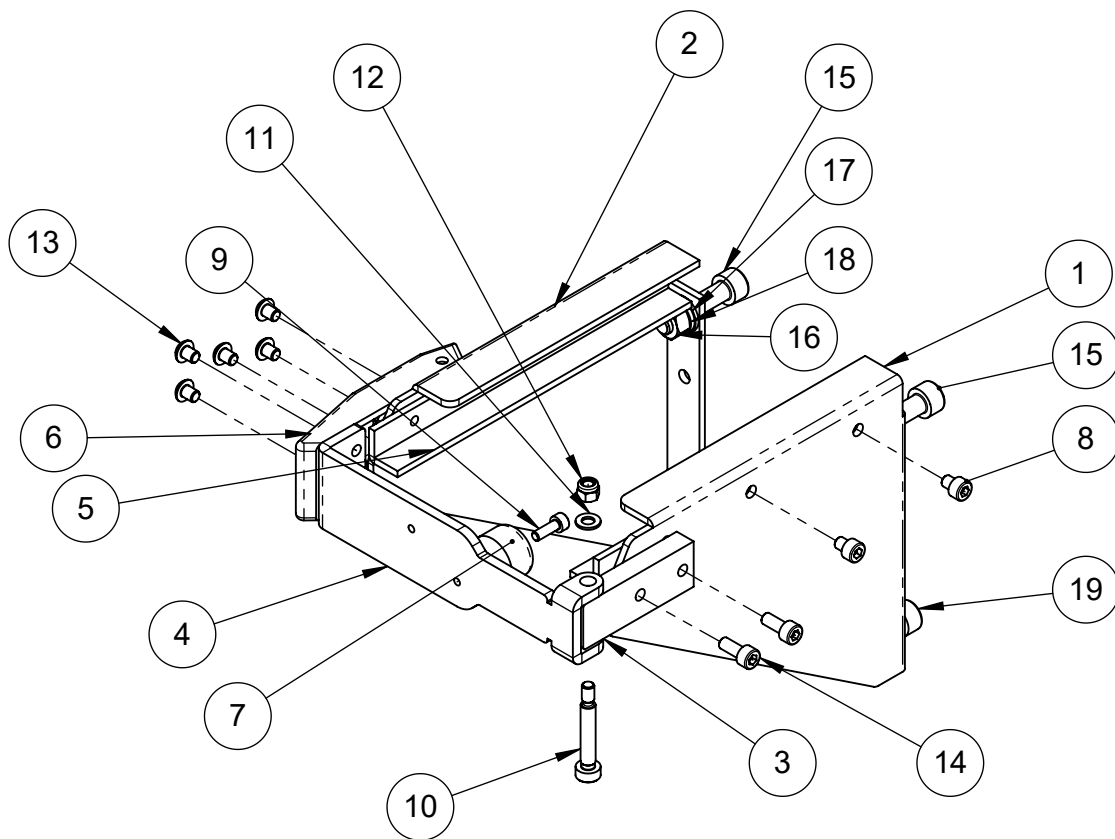
CARRIAGE, SEALER

534686-2

KEY	QTY.	PART NO.	DESCRIPTION
1	1	534685	BRACKET, MH SEALER L
2	1	534687	BRACKET, MH SEALER R
3	1	534689	HINGE, MH SEALER CARRIAGE
4	1	534690	CLAMP PLATE
5	2	534691	GUIDE, MH SEALER INVERTED
6	1	534656	ADJUSTABLE DRAW LATCH
7	1	534655	BUMPER
8	4	433945	SHCS M5X0.8 X 6 DIN912 CL12 ZA FTD
9	1	433916	SHCS M4X0.7 X 12 DIN912 CL12 ZA FTD
10	1	433902	SHSS Ø6X30 ISO7379 140KSI Rc32 BLK M5X0.8
11	1	171571	FLAT WASHER M5 ISO7089 140HV ZN
12	1	35000013960	HEX NUT M5X0.8 DIN982 C6 ZN NYLK
13	5	534692	BHCS M5X0.8 X 6 ISO7380-1 CL8 ZN FTD
14	2	423288	SHCS M5X0.8 X 12 DIN912 CL12 ZA FTD
15	2	185712	SHCS M8X1.25 X 35 DIN912 CL12 ZA FTD
16	4	164953	HEX NUT M8X1.25 DIN934 CL12 ZA
17	4	280335	FLAT WASHER M8 ISO7089 140HV ZN
18	4	280807	LOCK WASHER M8 DIN127B ZN SPLIT
19	2	421268	SHCS M8X1.25 X 25 DIN912 CL12 ZA FTD

CARRIAGE, SEALER

534686-2



CARRIAGE, ACTUATOR SUB ASSEMBLY (35000012652-2)

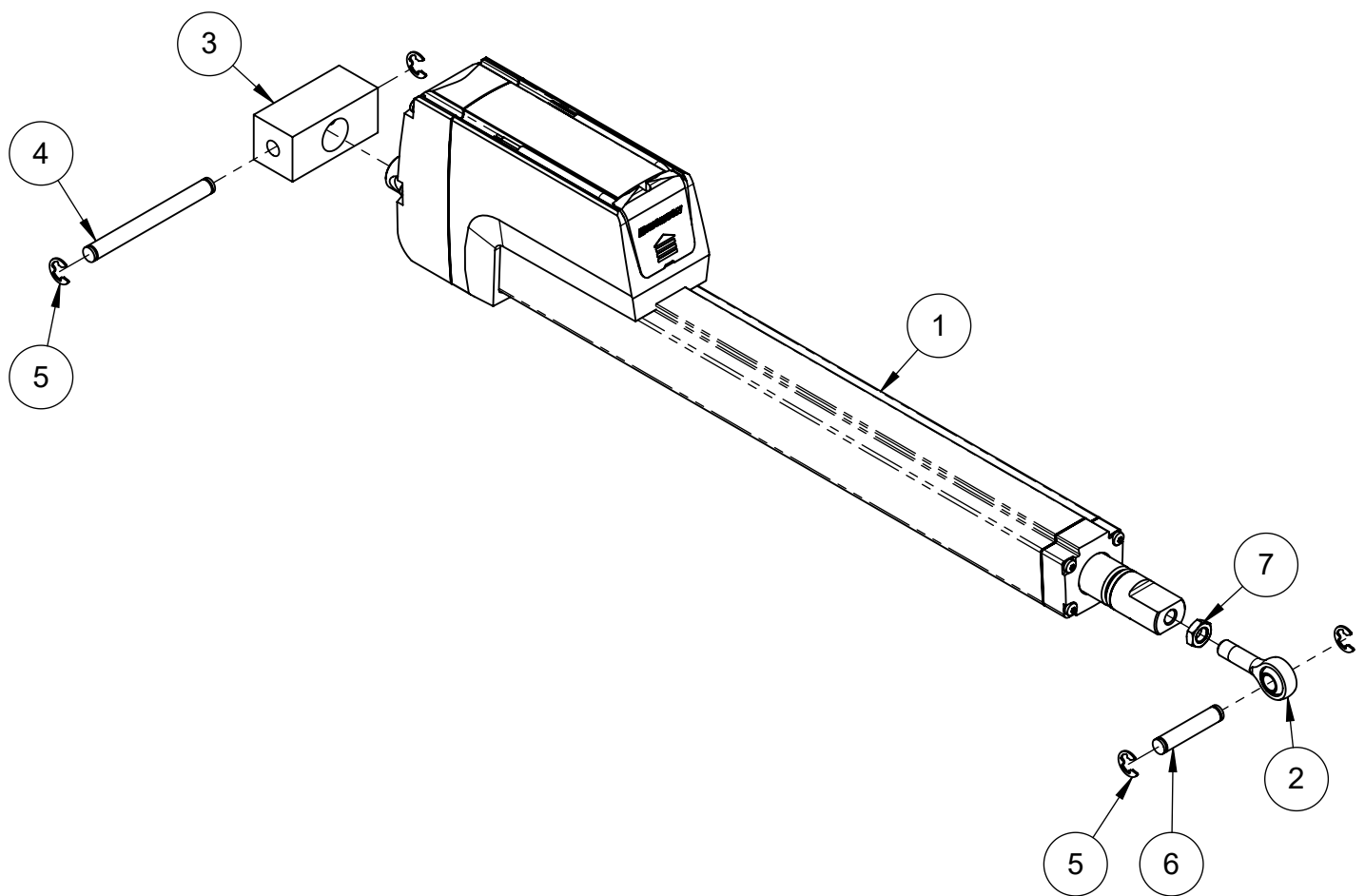
CARRIAGE ACTUATOR SUB ASSEMBLY

35000012652-2

KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000011999	ACTUATOR: ELECTRIC: 1700N: 500mm
2	1	35000012582	ROD END
3	1	35000012632	REAR CLEVIS ADAPTER
4	1	35000012667	REAR CLEVIS PIN
5	4	35000012684	E-CLIP 11-15mm
6	1	35000012685	FRONT CLEVIS PIN
7	1	280836	HEX NUT M12X1.75 DIN439B C4 ZA JAM

CARRIAGE ACTUATOR SUB ASSEMBLY

35000012652-2



CHUTE MOUNT (35000012690-3)

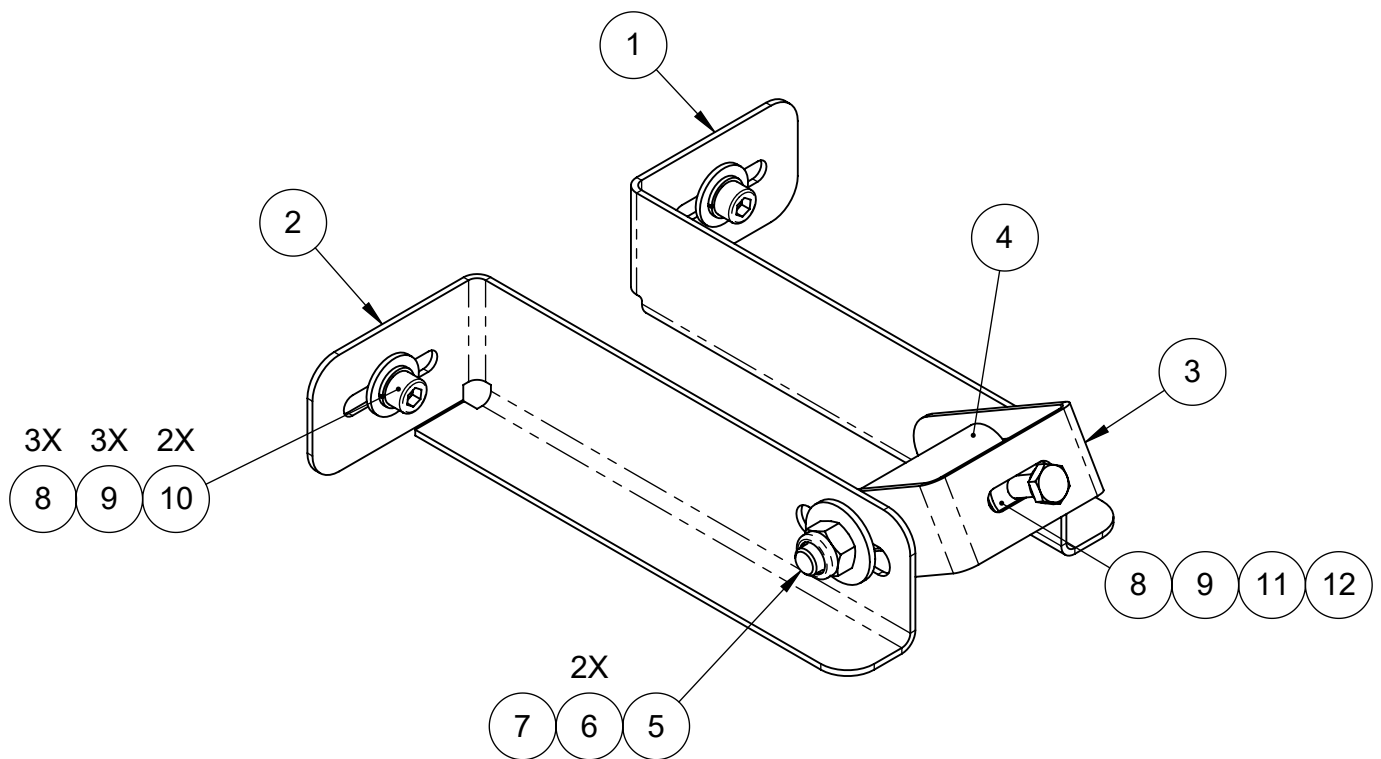
CHUTE MOUNT

35000012690-3

KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000012693	CHUTE MOUNT BRACKET
2	1	35000012694	CHUTE MOUNTINB BRACKET
3	1	35000012695	CHUTE MOUNTIN BRACKET
4	1	35000012696	SPACER
5	1	165434	SHCS M8X1.25 X 75 DIN912 CL12 ZA
6	2	420322	FLAT WASHER M8 ISO7093 140HV ZN FNDR
7	1	35000013962	HEX NUT M8X1.25 DIN982 C6 ZN NYLK
8	3	421876	FLAT WASHER M6 DIN9021 140HV ZN FNDR
9	3	35000013974	LOCK WASHER M6 DIN128A ZN SPLIT
10	2	433919	SHCS M6X1 X 12 DIN912 CL12 ZA FTD
11	1	35000013961	HEX NUT M6X1 DIN982 C6 ZN NYLK
12	1	281543	HHCS M6X1 X 25 ISO4017 CL10 ZN FTD

CHUTE MOUNT

35000012690-3



CHUTE MOUNT (35000012691-3)

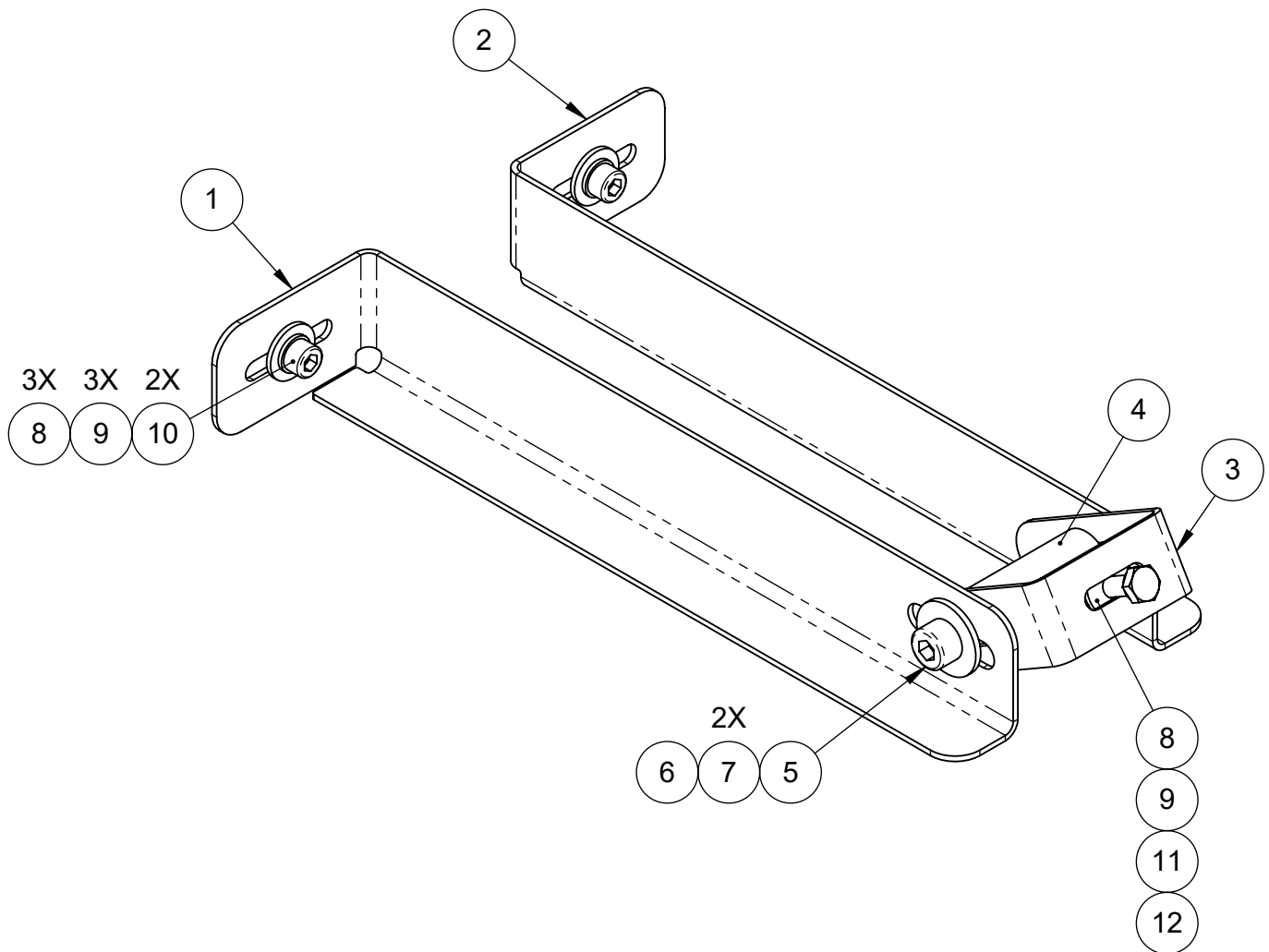
CHUTE MOUNT

35000012691-3

KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000012706	CHUTE MOUNTING BRACKET
2	1	35000012707	CHUTE MOUNTING B RACKET
3	1	35000012695	CHUTE MOUNTIN BRACKET
4	1	35000012696	SPACER
5	1	165434	SHCS M8X1.25 X 75 DIN912 CL12 ZA
6	1	35000013962	HEX NUT M8X1.25 DIN982 C6 ZN NYLK
7	2	420322	FLAT WASHER M8 ISO7093 140HV ZN FNDR
8	3	421876	FLAT WASHER M6 DIN9021 140HV ZN FNDR
9	3	35000013974	LOCK WASHER M6 DIN128A ZN SPLIT
10	2	433919	SHCS M6X1 X 12 DIN912 CL12 ZA FTD
11	1	35000013961	HEX NUT M6X1 DIN982 C6 ZN NYLK
12	1	281543	HHCS M6X1 X 25 ISO4017 CL10 ZN FTD

CHUTE MOUNT

35000012691-3



CHUTE MOUNT (35000012692-3)

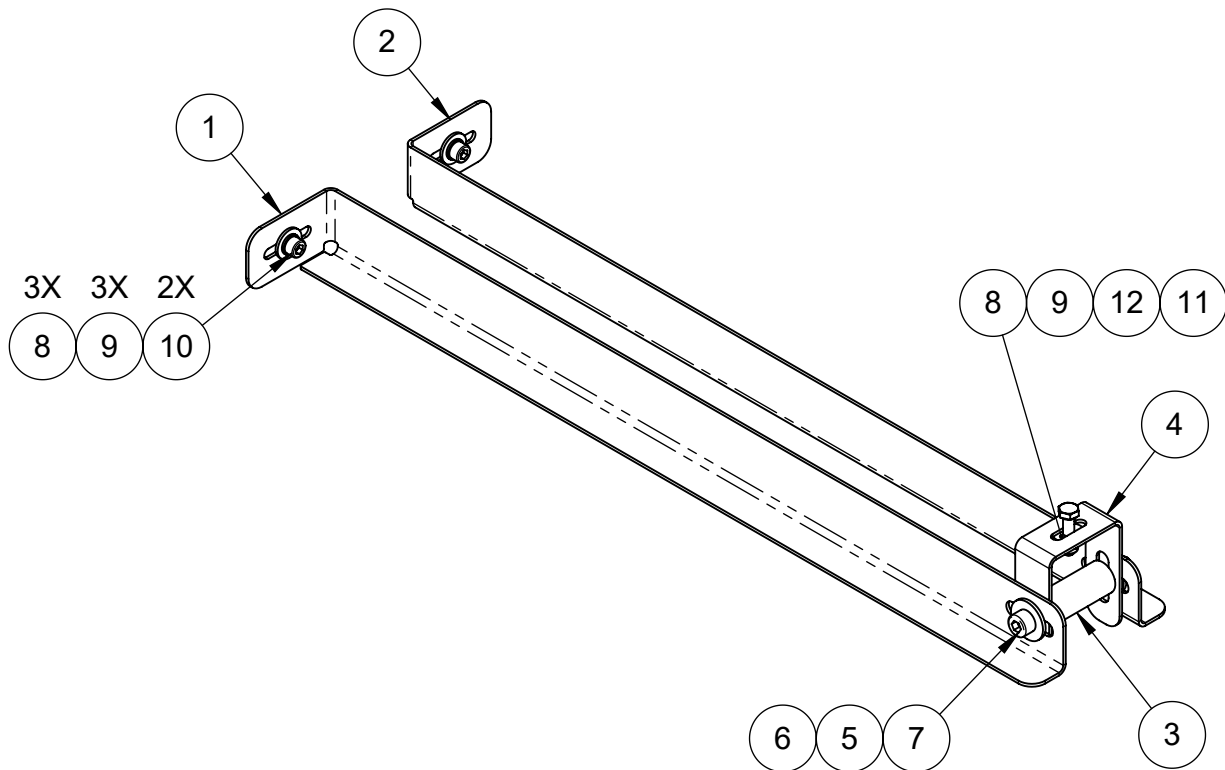
CHUTE MOUNT

35000012692-3

KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000012708	CHUTE MOUNTING BRACKET
2	1	35000012709	CHUTE MOUNTING BRACKET
3	1	35000012696	SPACER
4	1	35000012695	CHUTE MOUNTIN BRACKET
5	2	420322	FLAT WASHER M8 ISO7093 140HV ZN FNDR
6	1	35000013962	HEX NUT M8X1.25 DIN982 C6 ZN NYLK
7	1	165434	SHCS M8X1.25 X 75 DIN912 CL12 ZA
8	3	421876	FLAT WASHER M6 DIN9021 140HV ZN FNDR
9	3	35000013974	LOCK WASHER M6 DIN128A ZN SPLIT
10	2	433919	SHCS M6X1 X 12 DIN912 CL12 ZA FTD
11	1	281543	HHCS M6X1 X 25 ISO4017 CL10 ZN FTD
12	1	35000013961	HEX NUT M6X1 DIN982 C6 ZN NYLK

CHUTE MOUNT

35000012692-3



ARCH SUPPORT ASSEMBLY (PJ-000227-1)

ARCH SUPPORT ASSEMBLY

PJ-000227-1

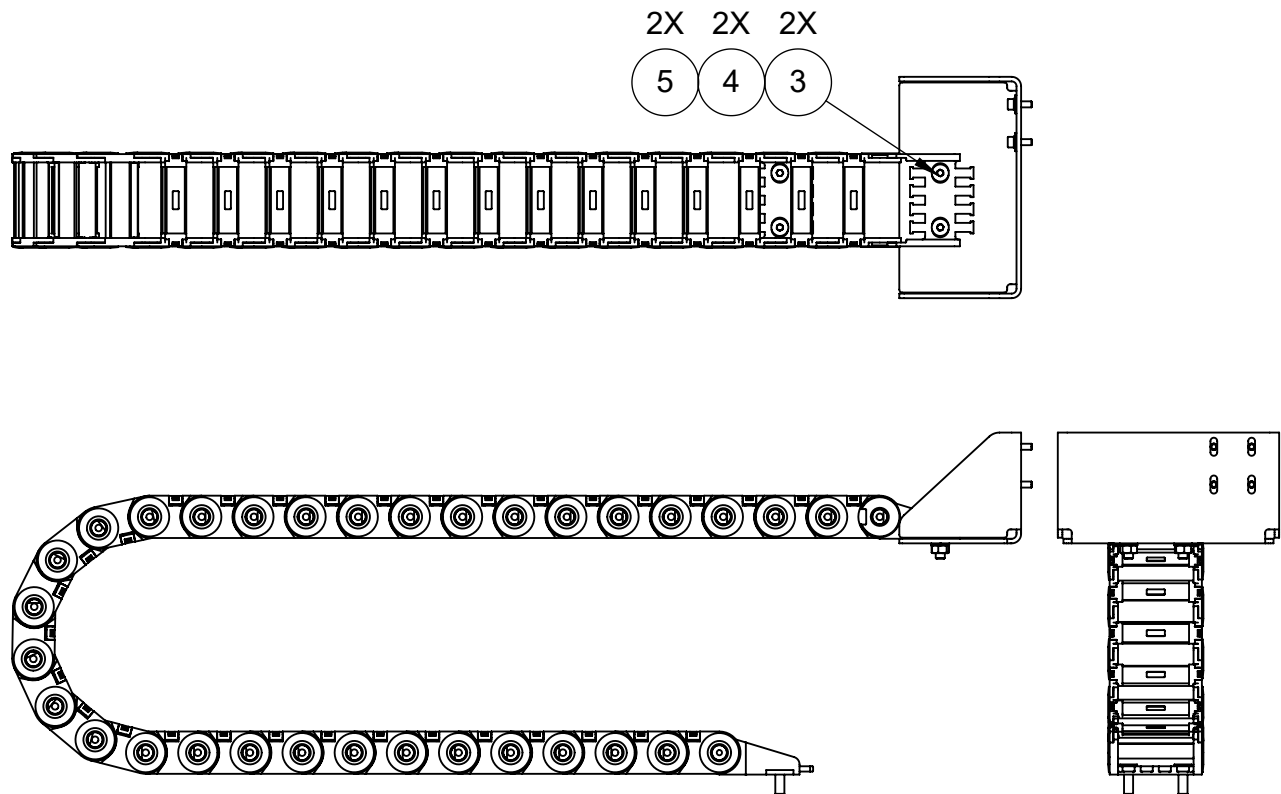
KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000016399	ARCH SUPPORT
2	2	001258	HEX NUT 1/2-13 B18.2.2 GR8 ZA
3	2	35000016487	STEEL OVAL EYE NUT - FOR LIFTING
4	2	35000016652	HARD WASHER: 1/2: RC43
5	2	002434	LW 1/2 REG ASME-SAE GR8 B18.21.1 ZN
6	2	35000016446	THREADED ROD 1/2-13 X 6
7	8	420322	FLAT WASHER M8 ISO7093 140HV ZN FNDR
8	8	35000013975	LOCK WASHER M8 DIN128A ZN SPLIT
9	8	421268	SHCS M8X1.25 X 25 DIN912 CL12 ZA FTD
10	1	35000000301	JUNCTION BOX WITH SIGNS
11	4	437293	SHCS M3X0.5 X 25 DIN912 CL12 ZN FTD
12	2	20100000137	ARMOR BLOCK, I/O LINK
13	1	35000016639	HOME SWITCH
14	5	35000000420	RUBBER GROMMET; 2.5" OD, 1.25 ID
15	2	35000015345	CABLE TIE DOWN
16	6	35000013974	LOCK WASHER M6 DIN128A ZN SPLIT
17	2	188917	SHCS M6X1.0 X 10 DIN7984 C8 ZN FTD LHD
18	8	421876	FLAT WASHER M6 DIN9021 140HV ZN FNDR
19	4	005465	HEX NUT M6X1 DIN934 CL8 ZN
20	4	162374	SHCS M6X1 X 30 DIN912 CL12 ZA FTD

CABLE CARRIER ASSEMBLY (35000016940-2)

ASSEMBLY; CABLE CARRIER

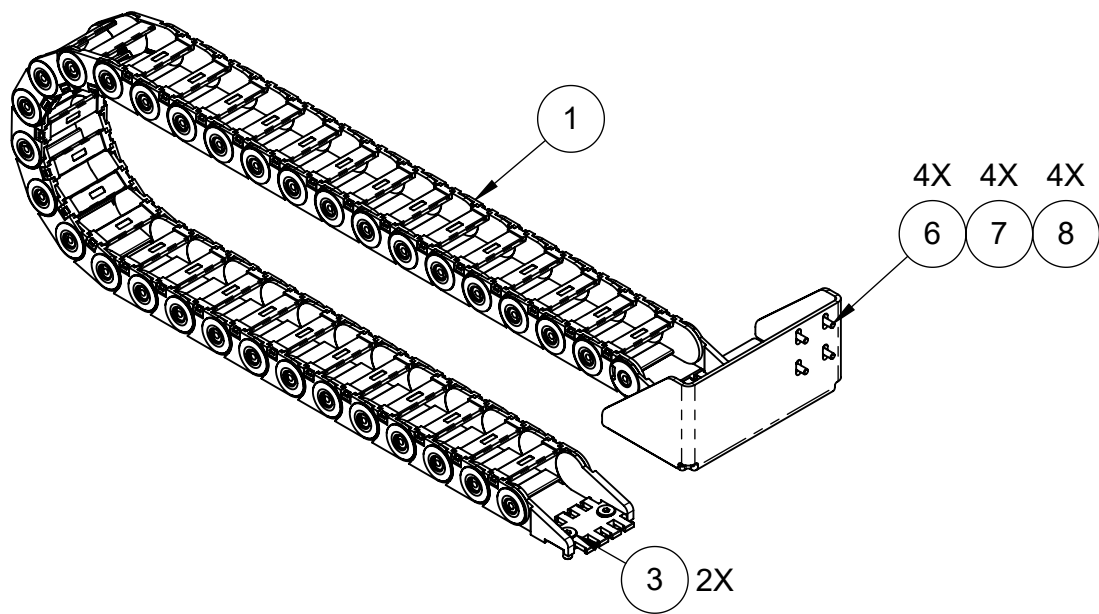
35000016940-2

KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000012791	CABLE CARRIER, 50X65, 1104 LONG
2	1	35000016939	CABLE CARRIER MOUNTING BRACKET
3	4	280804	FHCS M6X1.0 X 20 ISO10642 CL8 ZA FTD
4	2	35000013974	LOCK WASHER M6 DIN128A ZN SPLIT
5	2	005465	HEX NUT M6X1 DIN934 CL8 ZN
6	4	433916	SHCS M4X0.7 X 12 DIN912 CL12 ZA FTD
7	4	438038	FLAT WASHER M4 DIN9021 140HV ZN FNDR
8	4	35000013972	LOCK WASHER M4 DIN128A ZN SPLIT



ASSEMBLY; CABLE CARRIER

35000016940-2



ARCH SUB ASSEMBLY (3500001019-2)

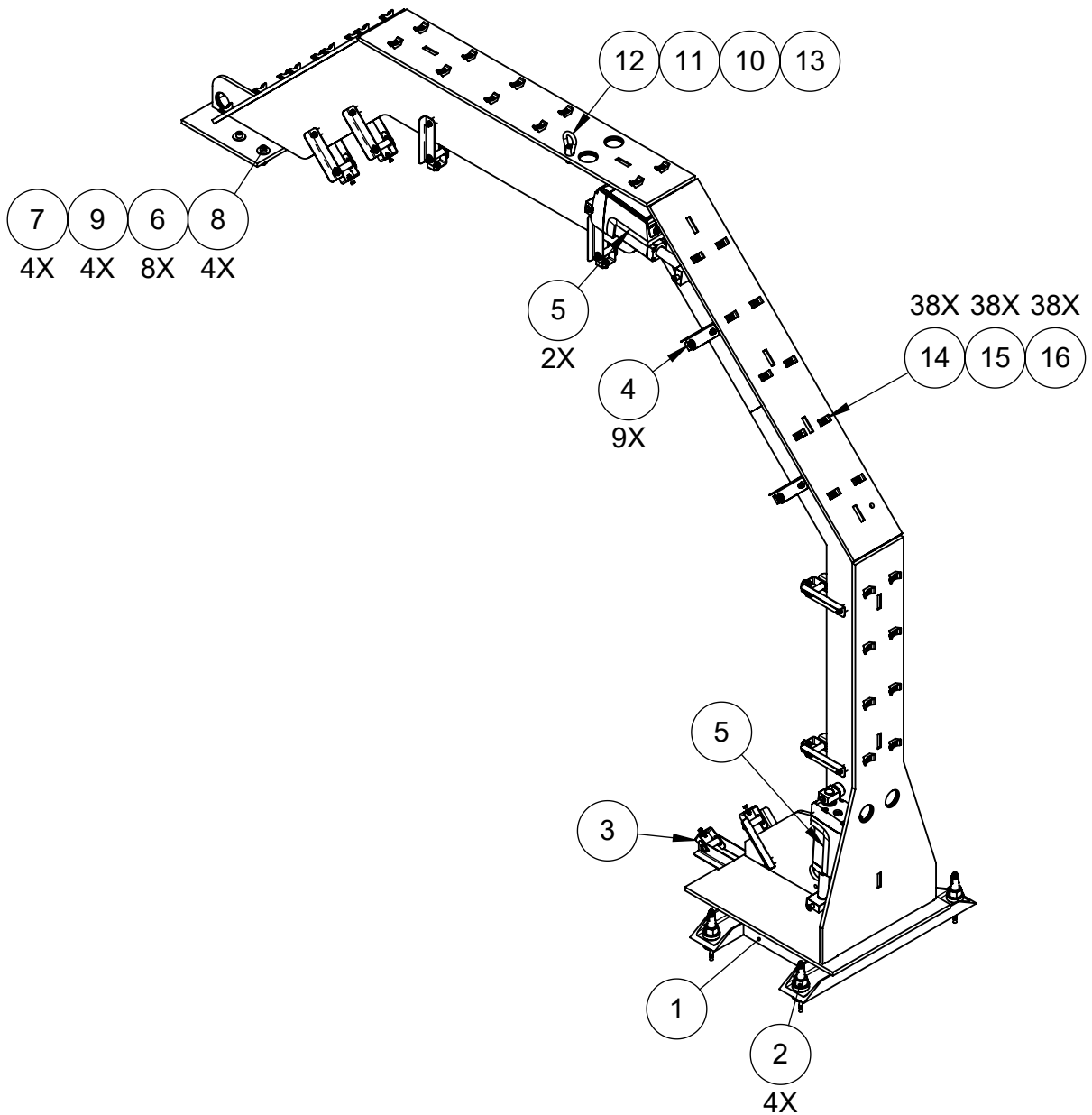
ARCH SUB ASSEMBLY

35000017019-2

KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000016474	ARCH: CHUTE SUPPORT BASE
2	4	35000008721	SUB-ASSEMBLY ACHOR AND LEVELING
3	1	35000012690	CHUTE MOUNT
4	9	35000013128	CHUTE MOUNT
5	2	35000013183	ACTUATOR: PRODUCT GUIDE ARM
6	8	35000015339	FW M12 DIN9021 140HV ZN FNDR
7	4	35000013977	LOCK WASHER M12 DIN128A ZN SPLIT
8	4	600340	SHCS M12X1.75 X 50 DIN912 CL12 ZA FTD
9	4	173537	HEX NUT M12X1.75 DIN934 CL12 ZA
10	1	35000016652	HARD WASHER: 1/2: RC43
11	1	071840	HHCS 1/2-13X1-3/4 B18.2.1/SAE J429 GR8 ZA
12	1	35000016487	STEEL OVAL EYE NUT - FOR LIFTING
13	1	002434	LW 1/2 REG ASME-SAE GR8 B18.21.1 ZN
14	38	35000015345	CABLE TIE DOWN
15	38	35000013974	LOCK WASHER M6 DIN128A ZN SPLIT
16	38	188917	SHCS M6X1.0 X 10 DIN7984 C8 ZN FTD LHD

ARCH SUB ASSEMBLY

35000017019-2

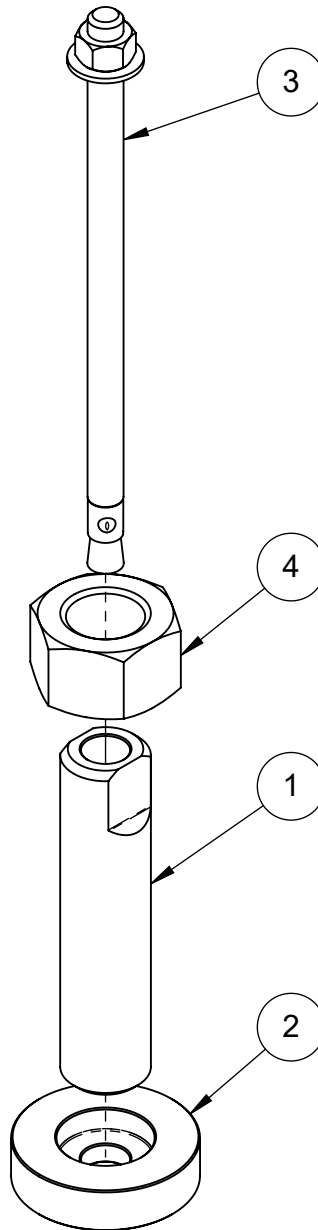


SUB-ASSEMBLY ACHOR AND LEVELING (35000008721-2)

SUB-ASSEMBLY ACHOR AND LEVELING

35000008721-2

KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000008713	ANCHOR/LEVELING SCREW
2	1	35000008716	PAD: LEVELING SCREW
3	1	35000008720	FLOOR ANCHOR, 3/8 X 7
4	1	185776	HEX NUT M24X3 DIN934 CL12 ZA



INTENTIONALLY BLANK

CHUTE MOUNT (35000012690-3)

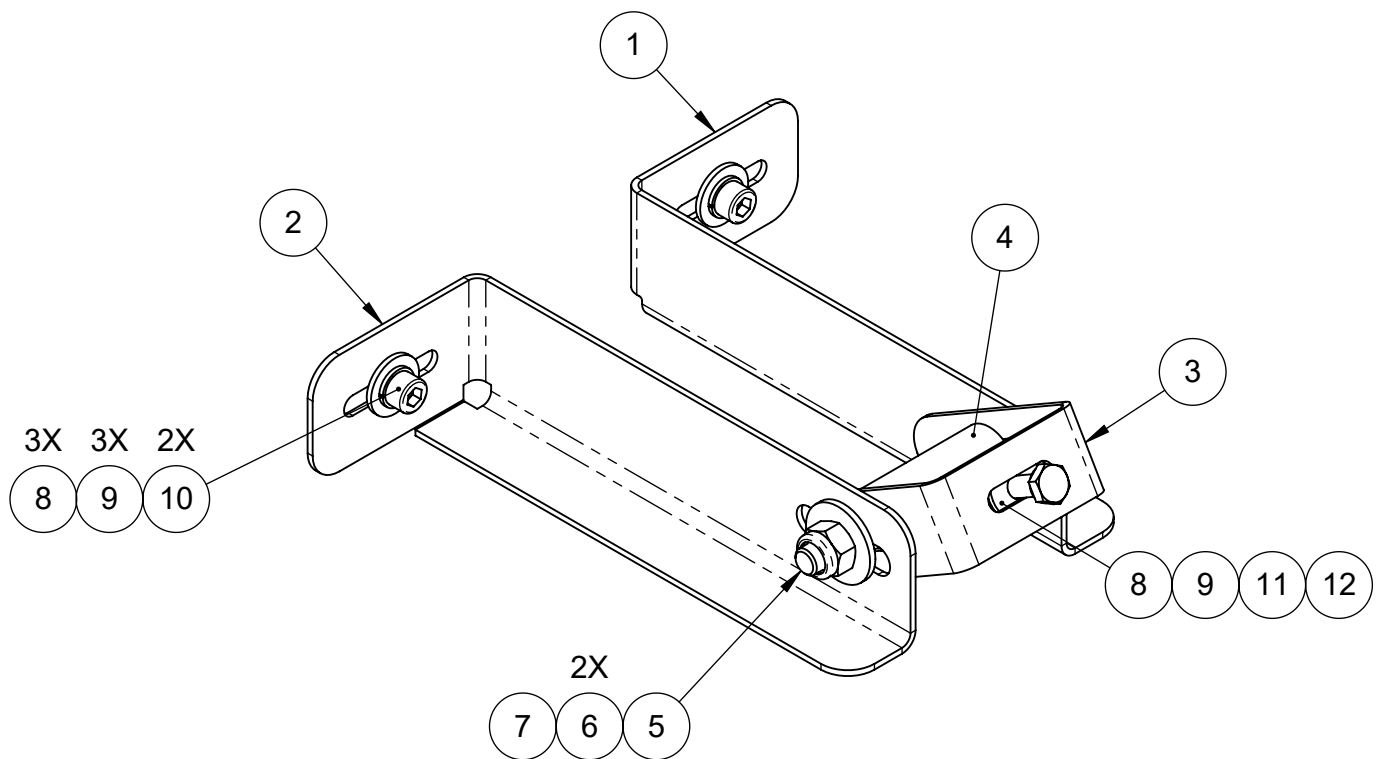
CHUTE MOUNT

35000012690-3

KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000012693	CHUTE MOUNT BRACKET
2	1	35000012694	CHUTE MOUNTINB BRACKET
3	1	35000012695	CHUTE MOUNTIN BRACKET
4	1	35000012696	SPACER
5	1	165434	SHCS M8X1.25 X 75 DIN912 CL12 ZA
6	2	420322	FLAT WASHER M8 ISO7093 140HV ZN FNDR
7	1	35000013962	HEX NUT M8X1.25 DIN982 C6 ZN NYLK
8	3	421876	FLAT WASHER M6 DIN9021 140HV ZN FNDR
9	3	35000013974	LOCK WASHER M6 DIN128A ZN SPLIT
10	2	433919	SHCS M6X1 X 12 DIN912 CL12 ZA FTD
11	1	35000013961	HEX NUT M6X1 DIN982 C6 ZN NYLK
12	1	281543	HHCS M6X1 X 25 ISO4017 CL10 ZN FTD

CHUTE MOUNT

35000012690-3



CHUTE MOUNT (35000013128-4)

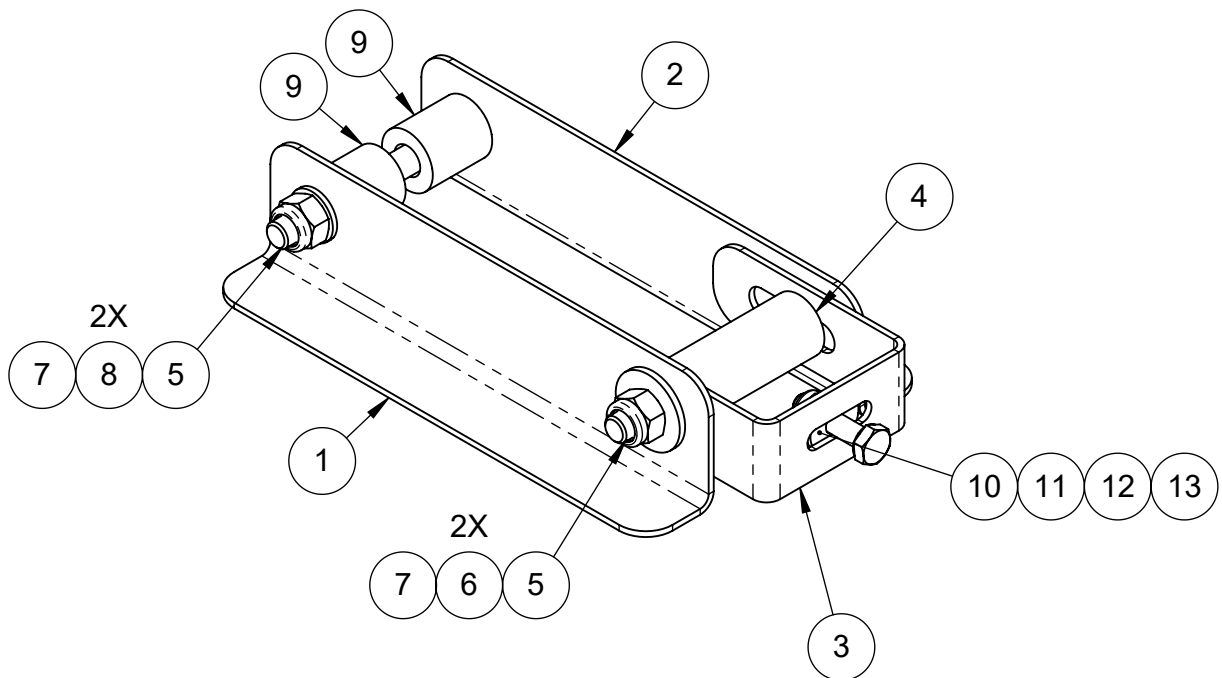
CHUTE MOUNT

35000013128-4

KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000013125	CHUTE MOUNTINB BRACKET
2	1	35000013126	CHUTE MOUNTING BRACKET
3	1	35000012695	CHUTE MOUNTIN BRACKET
4	1	35000012696	SPACER
5	2	165434	SHCS M8X1.25 X 75 DIN912 CL12 ZA
6	2	420322	FLAT WASHER M8 ISO7093 140HV ZN FNDR
7	2	35000013962	HEX NUT M8X1.25 DIN982 C6 ZN NYLK
8	2	280335	FLAT WASHER M8 ISO7089 140HV ZN
9	2	35000013127	SPACER
10	1	421876	FLAT WASHER M6 DIN9021 140HV ZN FNDR
11	1	35000013974	LOCK WASHER M6 DIN128A ZN SPLIT
12	1	35000013961	HEX NUT M6X1 DIN982 C6 ZN NYLK
13	1	281543	HHCS M6X1 X 25 ISO4017 CL10 ZN FTD

CHUTE MOUNT

35000013128-4



ACTUATOR, PRODUCT GUIDE ARM (35000013183-4)

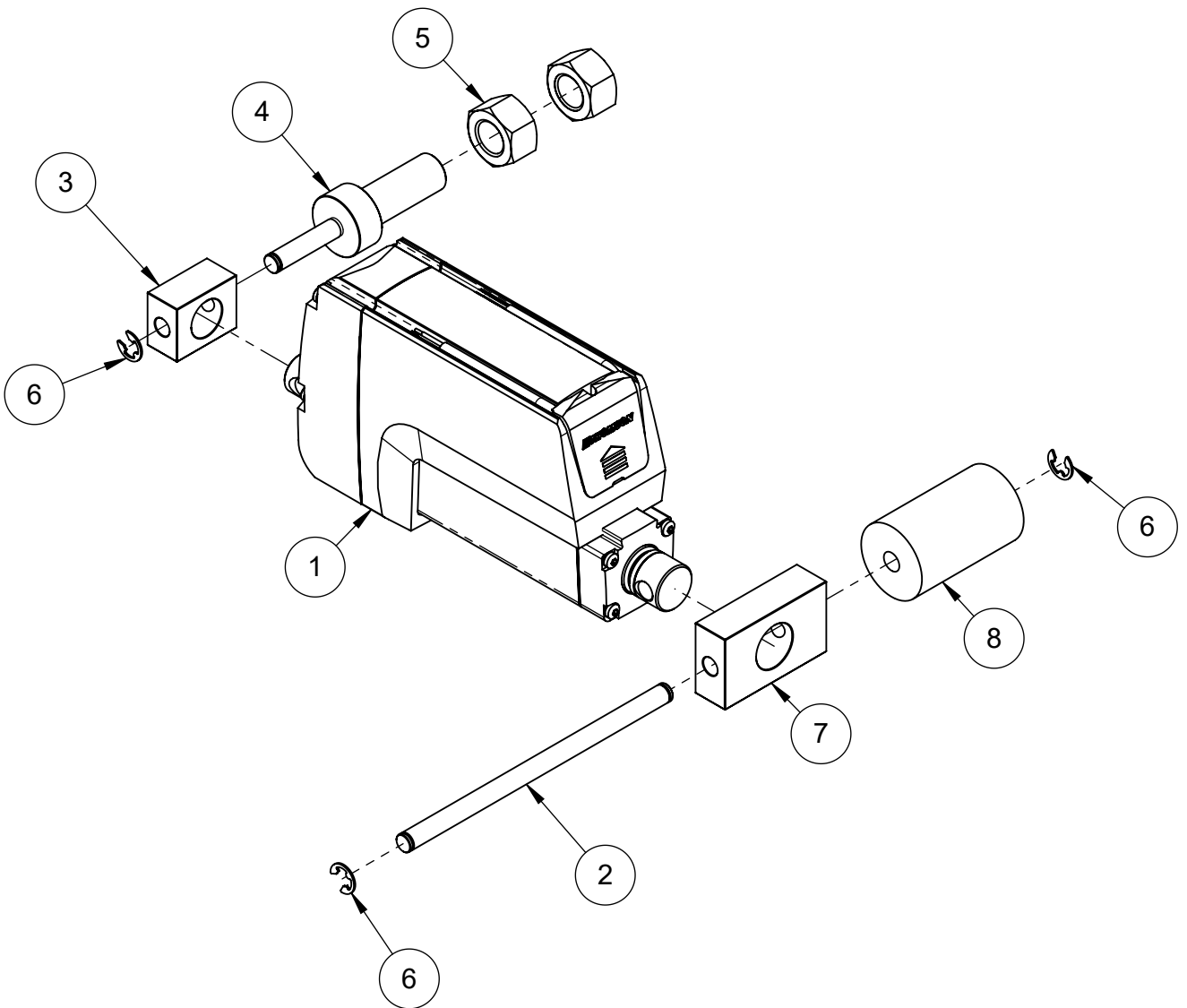
ACTUATOR: PRODUCT GUIDE ARM

35000013183-4

KEY	QTY.	PART NO.	DESCRIPTION
1	1	20102001566	ACTUATOR: ELECTRIC: 1700N: 100mm
2	1	35000013180	ACTTUATOR FRONT CLEVIS PIN
3	1	35000013171	ACTUATOR ADAPTER
4	1	35000013189	ACTUATOR REAR MOUNT
5	2	185776	HEX NUT M24X3 DIN934 CL12 ZA
6	3	35000012684	E-CLIP 11-15mm
7	1	35000013175	ACTUATOR ADAPTER
8	1	35000013179	SPACER: STRAP GUIDE ARM

ACTUATOR: PRODUCT GUIDE ARM

35000013183-4

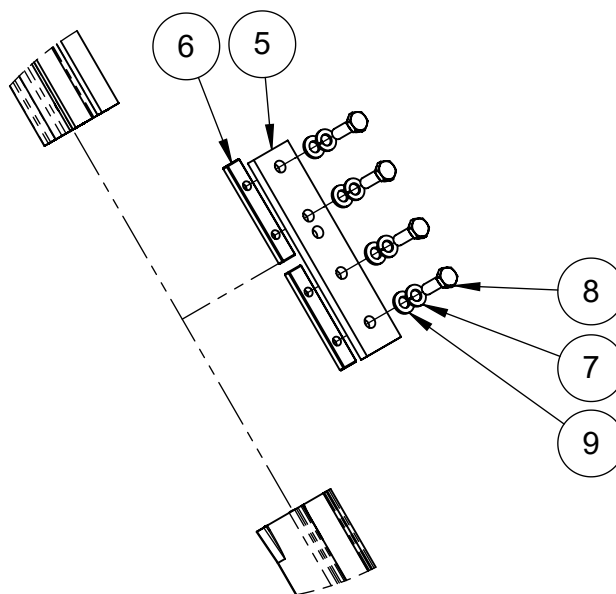


RMF CHUTE ASSEMBLY (35000016949-1)

RMF CHUTE ASSEMBLY

35000016949-1

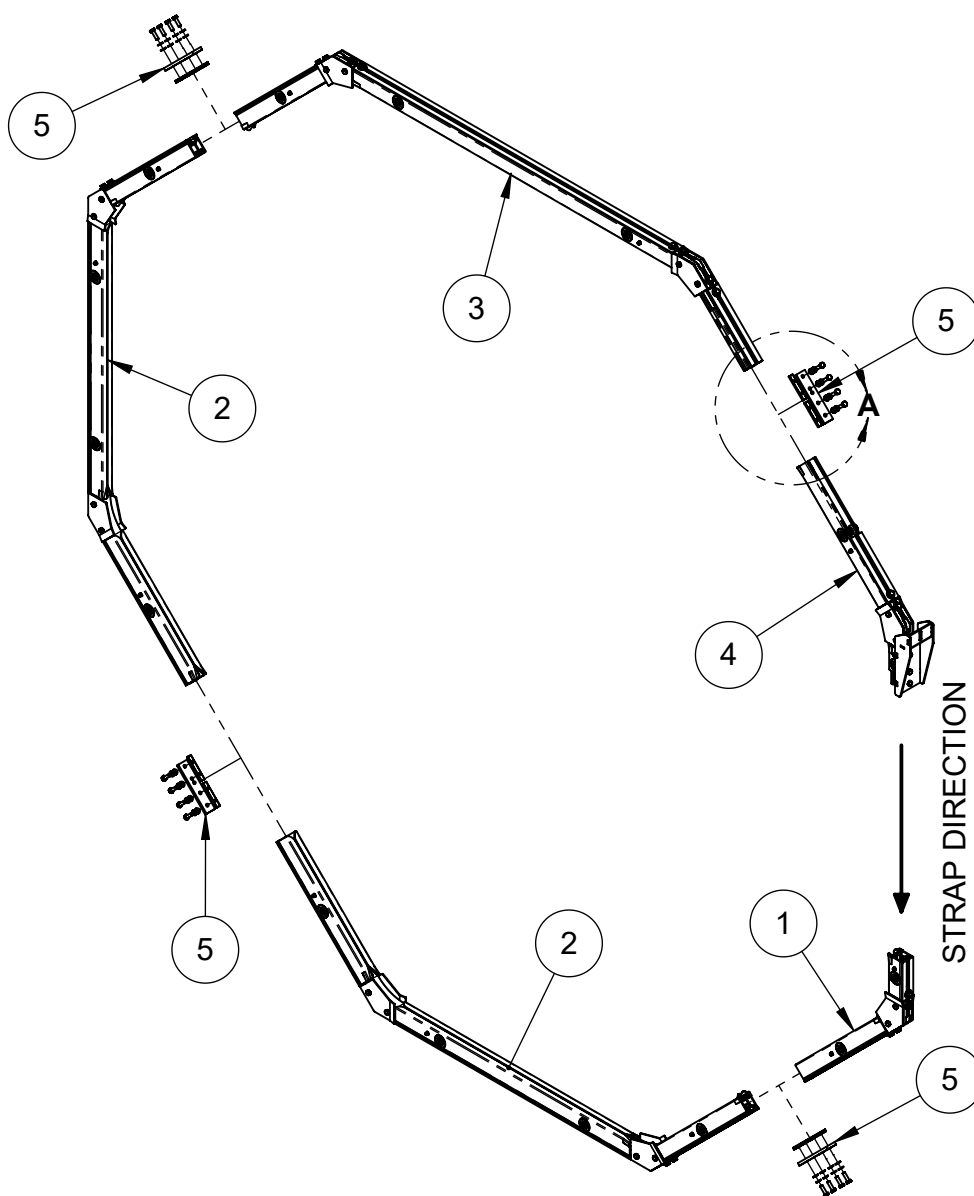
KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000012665	ENTRY CHUTE ASSY
2	2	35000012893	RMF CHUTE ASSEMBLY - SIDE
3	1	35000012899	RMF CHUTE ASSEMBLY - TOP
4	1	35000016950	RE-ENTRY CHUTE ASSEMBLY
5	4	533194	CORNER PLATE
6	8	600408	NUT
7	16	35000013974	LOCK WASHER M6 DIN128A ZN SPLIT
8	16	174156	HHCS M6X1 X 20 ISO4014 CL10 ZN
9	16	280850	FLAT WASHER M6 ISO7089 140HV ZN



DETAIL A
SCALE 1 : 4

RMF CHUTE ASSEMBLY

35000016949-1



ENTRY CHUTE ASSEMBLY (35000012665-3)

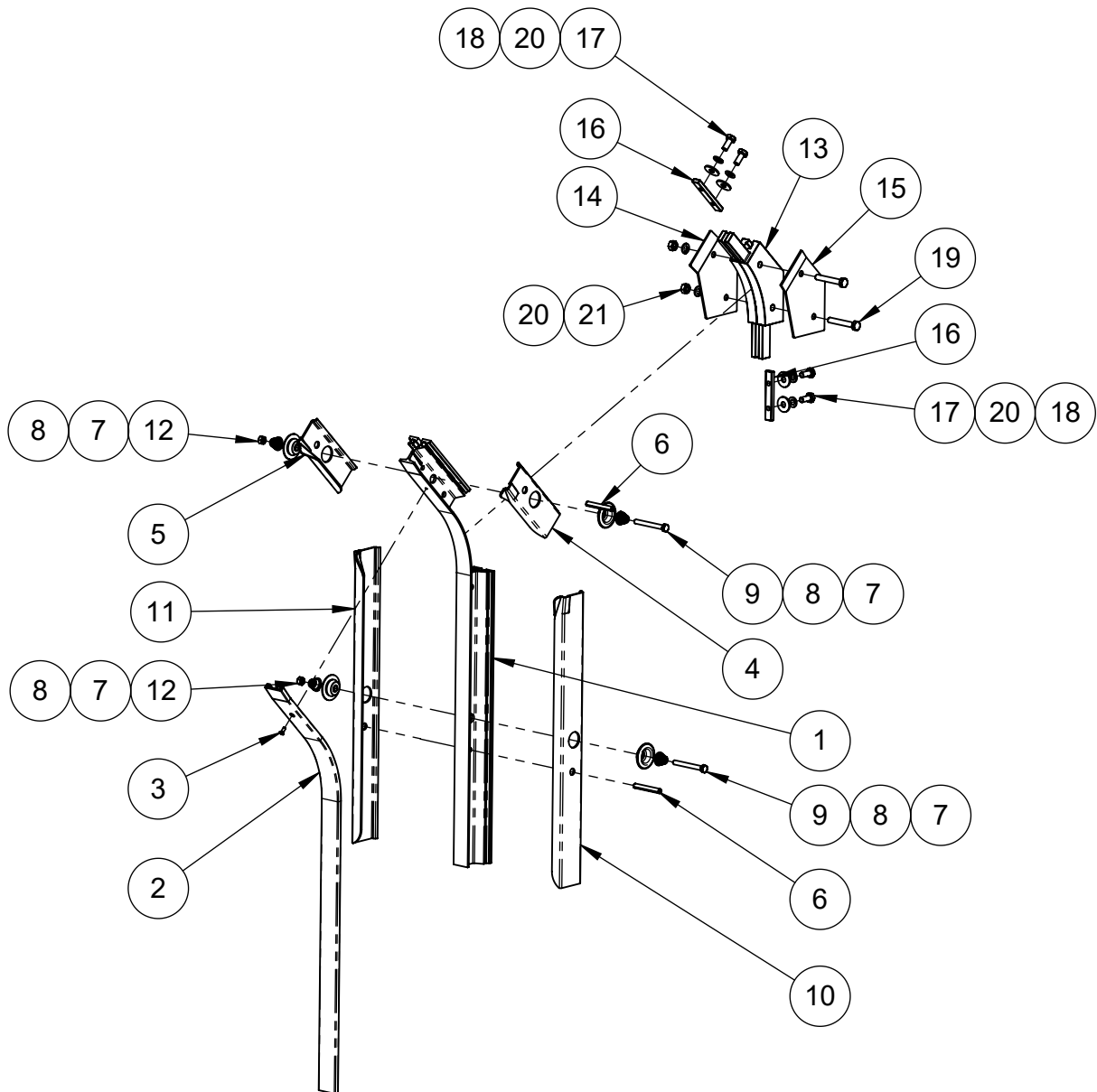
ENTRY CHUTE ASSY

35000012665-3

KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000012666	RMF CHUTE BODY
2	1	35000012668	RMF CHUTE LINER - ENTRY
3	1	251967	FHCS M3X0.5 X 8 ISO10642 CL8 ZN FTD
4	1	35000012669	CHUTE GATE LH
5	1	35000012670	CHUTE GATE RH
6	2	250309	M5 X 40 ROLL PIN (SPRING STEEL)
7	4	225164201	SPRING CUP
8	4	014879	GATE SPRING
9	2	185719	HHCS M5X0.8 X 45 ISO4014 CL10 ZN
10	1	35000012897	CHUTE GATE LH
11	1	35000012898	CHUTE GATE RH
12	2	169440	HEX NUT M5X0.8 DIN934 CL8 ZN
13	2	35000013572	CORNER GUIDE
14	1	35000013643	CORNER GUIDE; SIDE
15	1	35000013644	CORNER GUIDE; SIDE
16	2	600408	NUT
17	4	188841	HHCS M6X1 X 14 ISO4017 CL10 ZN FTD
18	4	421876	FLAT WASHER M6 DIN9021 140HV ZN FNDR
19	2	252100	HHCS M6X1 X 40 ISO4014 CL10 ZN
20	6	35000013974	LOCK WASHER M6 DIN128A ZN SPLIT
21	2	005465	HEX NUT M6X1 DIN934 CL8 ZN

ENTRY CHUTE ASSY

35000012665-3



RMF CHUTE ASSEMBLY - SIDE (35000012893-3)

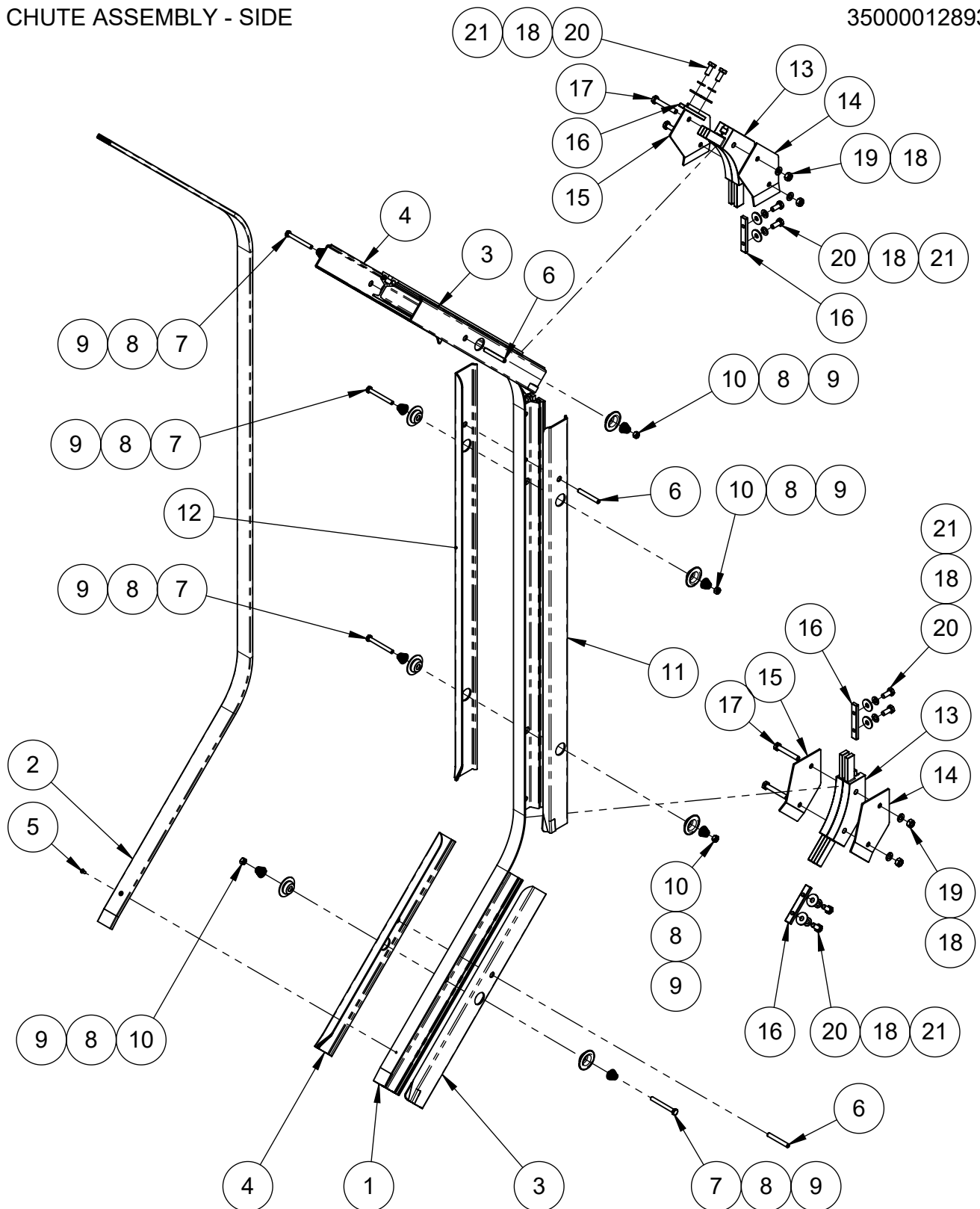
RMF CHUTE ASSEMBLY - SIDE

35000012893-3

KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000012892	RMF CHUTE BODY - SIDE
2	1	35000012896	RMF CHUTE BODY - SIDE
3	2	35000012898	CHUTE GATE RH
4	2	35000012897	CHUTE GATE LH
5	1	251967	FHCS M3X0.5 X 8 ISO10642 CL8 ZN FTD
6	3	250309	M5 X 40 ROLL PIN (SPRING STEEL)
7	4	185719	HHCS M5X0.8 X 45 ISO4014 CL10 ZN
8	8	014879	GATE SPRING
9	8	225164201	SPRING CUP
10	4	169440	HEX NUT M5X0.8 DIN934 CL8 ZN
11	1	35000012895	CHUTE GATE RH
12	1	35000012894	CHUTE GATE LH
13	4	35000013572	CORNER GUIDE
14	2	35000013643	CORNER GUIDE; SIDE
15	2	35000013644	CORNER GUIDE; SIDE
16	4	600408	NUT
17	4	252100	HHCS M6X1 X 40 ISO4014 CL10 ZN
18	12	35000013974	LOCK WASHER M6 DIN128A ZN SPLIT
19	4	005465	HEX NUT M6X1 DIN934 CL8 ZN
20	8	188841	HHCS M6X1 X 14 ISO4017 CL10 ZN FTD
21	8	421876	FLAT WASHER M6 DIN9021 140HV ZN FNDR

RMF CHUTE ASSEMBLY - SIDE

35000012893-3



RMF CHUTE ASSEMBLY - TOP (35000012899-3)

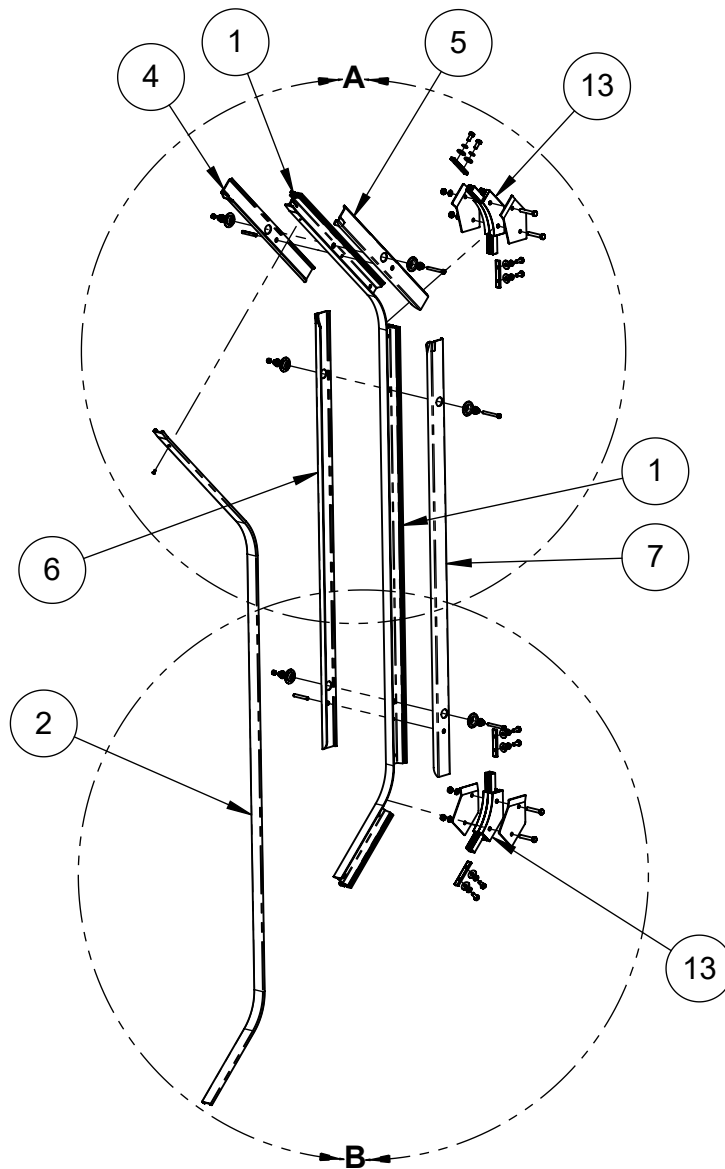
RMF CHUTE ASSEMBLY - TOP

35000012899-3

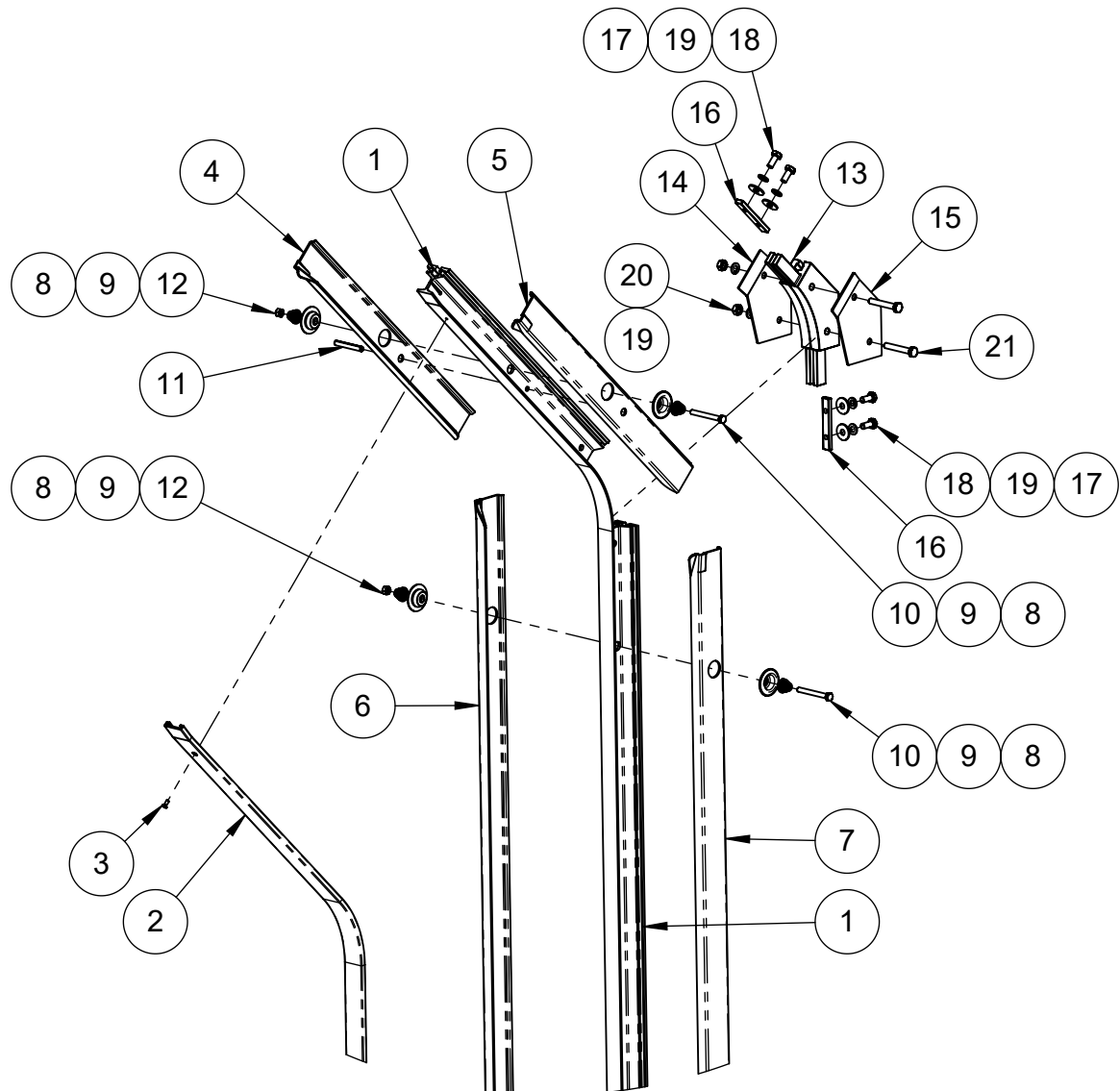
KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000012901	RMF CHUTE BODY - TOP
2	1	35000012906	RMF CHUTE LINER- TOP
3	1	251967	FHCS M3X0.5 X 8 ISO10642 CL8 ZN FTD
4	1	35000012905	CHUTE GATE RH
5	1	35000012904	CHUTE GATE LH
6	1	35000012903	CHUTE GATE RH
7	1	35000012902	CHUTE GATE LH
8	6	225164201	SPRING CUP
9	6	014879	GATE SPRING
10	3	185719	HHCS M5X0.8 X 45 ISO4014 CL10 ZN
11	2	250309	M5 X 40 ROLL PIN (SPRING STEEL)
12	3	169440	HEX NUT M5X0.8 DIN934 CL8 ZN
13	4	35000013572	CORNER GUIDE
14	2	35000013643	CORNER GUIDE; SIDE
15	2	35000013644	CORNER GUIDE; SIDE
16	4	600408	NUT
17	8	421876	FLAT WASHER M6 DIN9021 140HV ZN FNDR
18	8	188841	HHCS M6X1 X 14 ISO4017 CL10 ZN FTD
19	12	35000013974	LOCK WASHER M6 DIN128A ZN SPLIT
20	4	005465	HEX NUT M6X1 DIN934 CL8 ZN
21	4	252100	HHCS M6X1 X 40 ISO4014 CL10 ZN

RMF CHUTE ASSEMBLY - TOP

35000012899-3



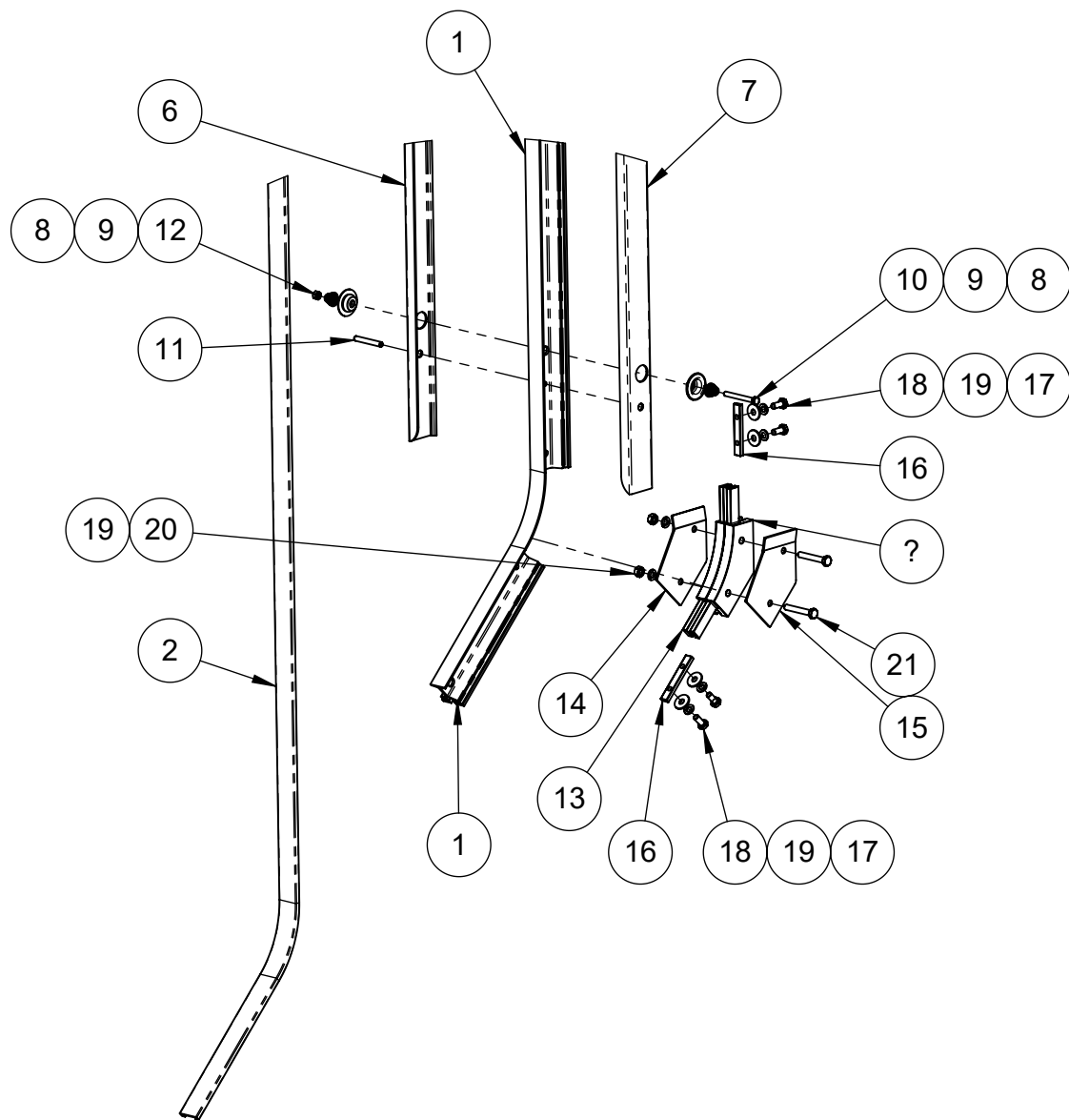
35000012899-3



DETAIL A
SCALE 1 : 8

RMF CHUTE ASSEMBLY - TOP

35000012899-3



DETAIL B
SCALE 1 : 8

RE-ENTRY CHUTE ASSEMBLY (35000016950-2)

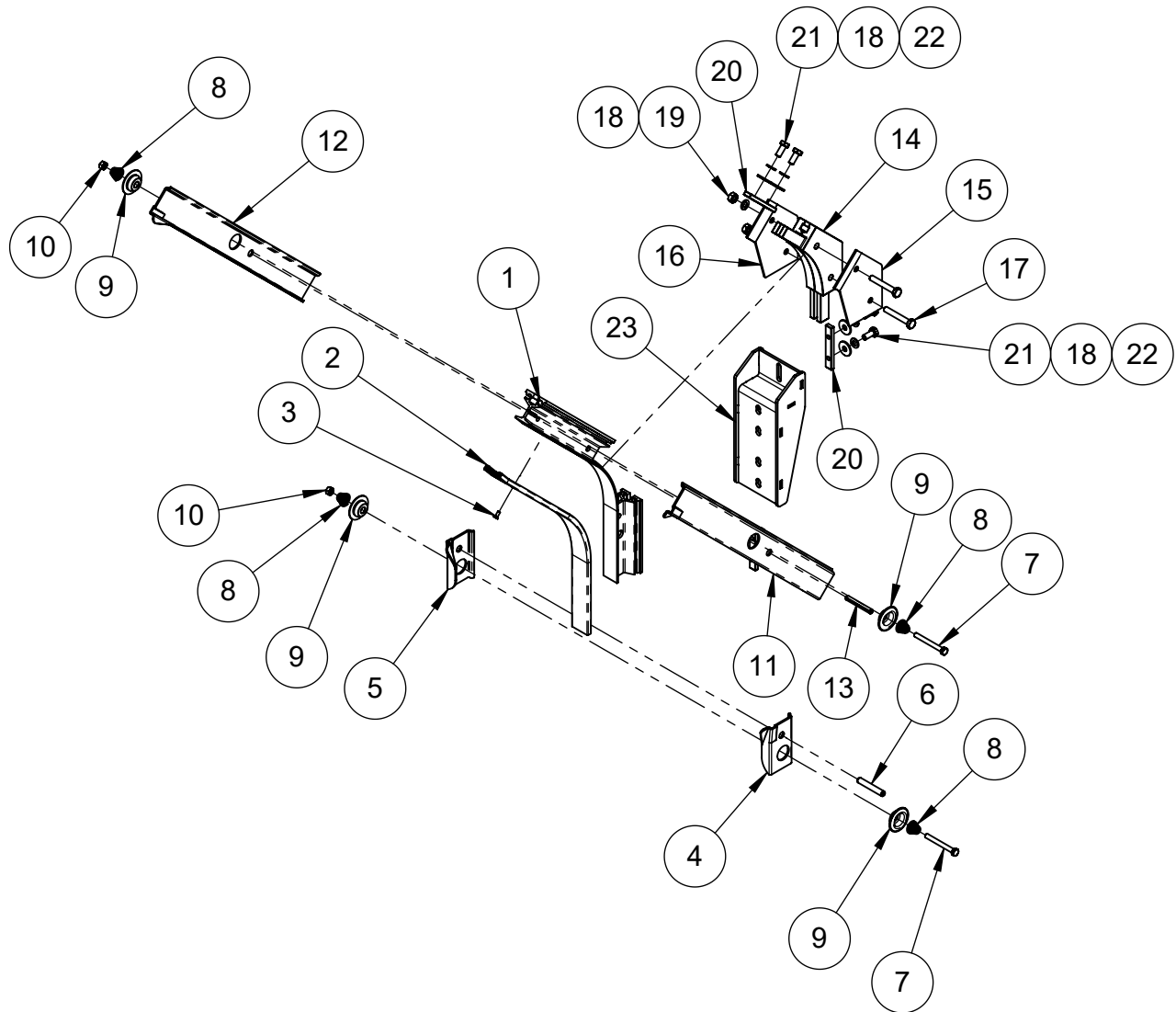
RE-ENTRY CHUTE ASSEMBLY

35000016950-2

KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000012912	RMF CHUTE BODY - RE-ENTRY
2	1	35000012914	RMF CHUTE LINER - RE-ENTRY
3	1	251967	FHCS M3X0.5 X 8 ISO10642 CL8 ZN FTD
4	1	35000012923	CHUTE GATE LH
5	1	35000012924	CHUTE GATE RH
6	1	422854	M6 X 40 ROLL PIN (SPRING STEEL)
7	2	185719	HHCS M5X0.8 X 45 ISO4014 CL10 ZN
8	4	014879	GATE SPRING
9	4	225164201	SPRING CUP
10	2	169440	HEX NUT M5X0.8 DIN934 CL8 ZN
11	1	35000012915	CHUTE GATE LH
12	1	35000012916	CHUTE GATE RH - 200mm LONG
13	1	250309	M5 X 40 ROLL PIN (SPRING STEEL)
14	2	35000013572	CORNER GUIDE
15	1	35000013644	CORNER GUIDE; SIDE
16	1	35000013643	CORNER GUIDE; SIDE
17	2	252100	HHCS M6X1 X 40 ISO4014 CL10 ZN
18	8	35000013974	LOCK WASHER M6 DIN128A ZN SPLIT
19	2	005465	HEX NUT M6X1 DIN934 CL8 ZN
20	3	600408	NUT
21	6	188841	HHCS M6X1 X 14 ISO4017 CL10 ZN FTD
22	6	421876	FLAT WASHER M6 DIN9021 140HV ZN FNDR
23	1	35000016952	BRACKET WELDMENT

RE-ENTRY CHUTE ASSEMBLY

35000016950-2

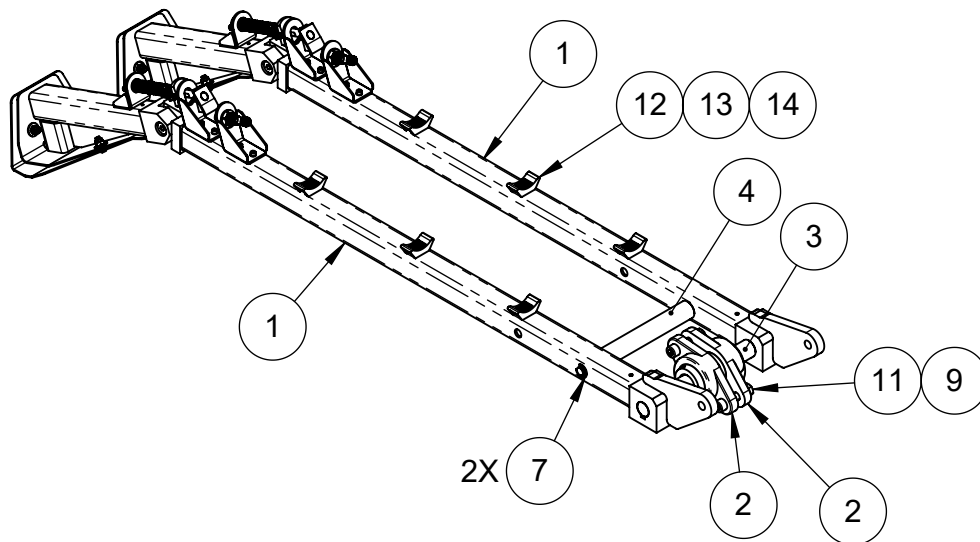


UPPER GUIDE ARM (35000016999-4)

UPPER GUIDE ARM

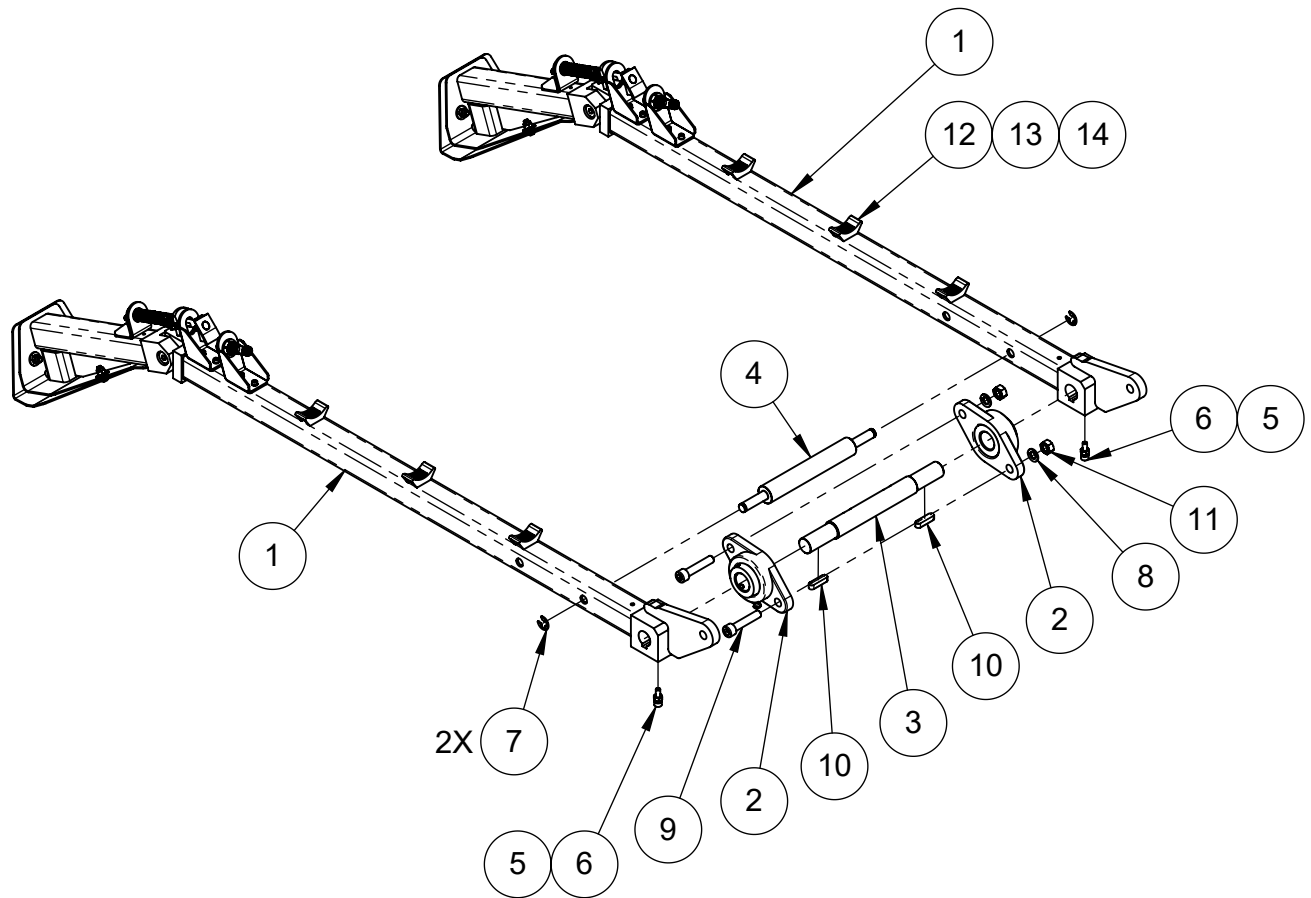
35000016999-4

KEY	QTY.	PART NO.	DESCRIPTION
1	2	35000013579	STRAP GUIDE ARM
2	2	35000000299	MOUNTED BEARING, 1" SHAFT
3	1	35000014393	SHAFT
4	1	35000014384	CROSS PIN
5	2	005465	HEX NUT M6X1 DIN934 CL8 ZN
6	2	433920	SHCS M6X1 X 20 DIN912 CL12 ZA FTD
7	2	35000012684	E-CLIP 11-15mm
8	2	35000013976	LOCK WASHER M10 DIN128A ZN SPLIT
9	2	436827	SHCS M10X1.5 X 50 DIN912 CL12 ZA
10	2	431511	KEY 8X7 X32 DIN6885 ROUNDED ENDS
11	2	164962	HEX NUT M10X1.5 DIN934 CL12 ZA
12	6	35000015345	CABLE TIE DOWN
13	6	35000013974	LOCK WASHER M6 DIN128A ZN SPLIT
14	6	188917	SHCS M6X1.0 X 10 DIN7984 C8 ZN FTD LHD



UPPER GUIDE ARM

35000016999-4

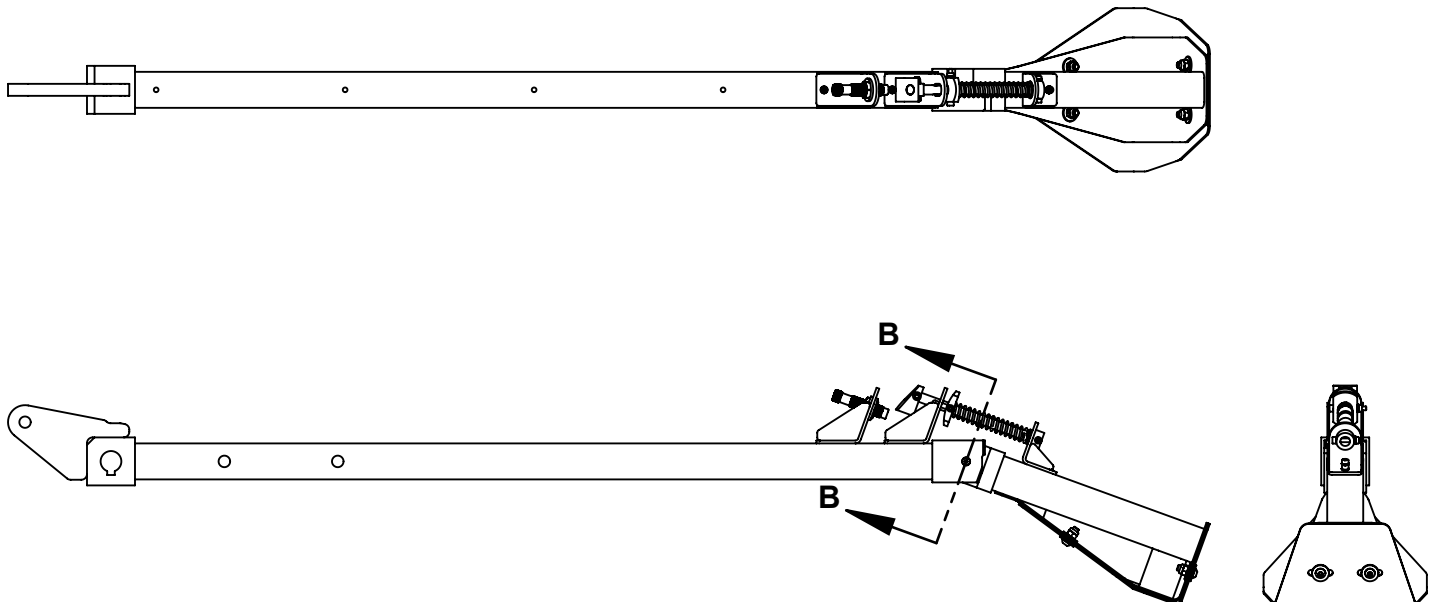


STRAP GUIDE ARM (35000013579-4)

STRAP GUIDE ARM

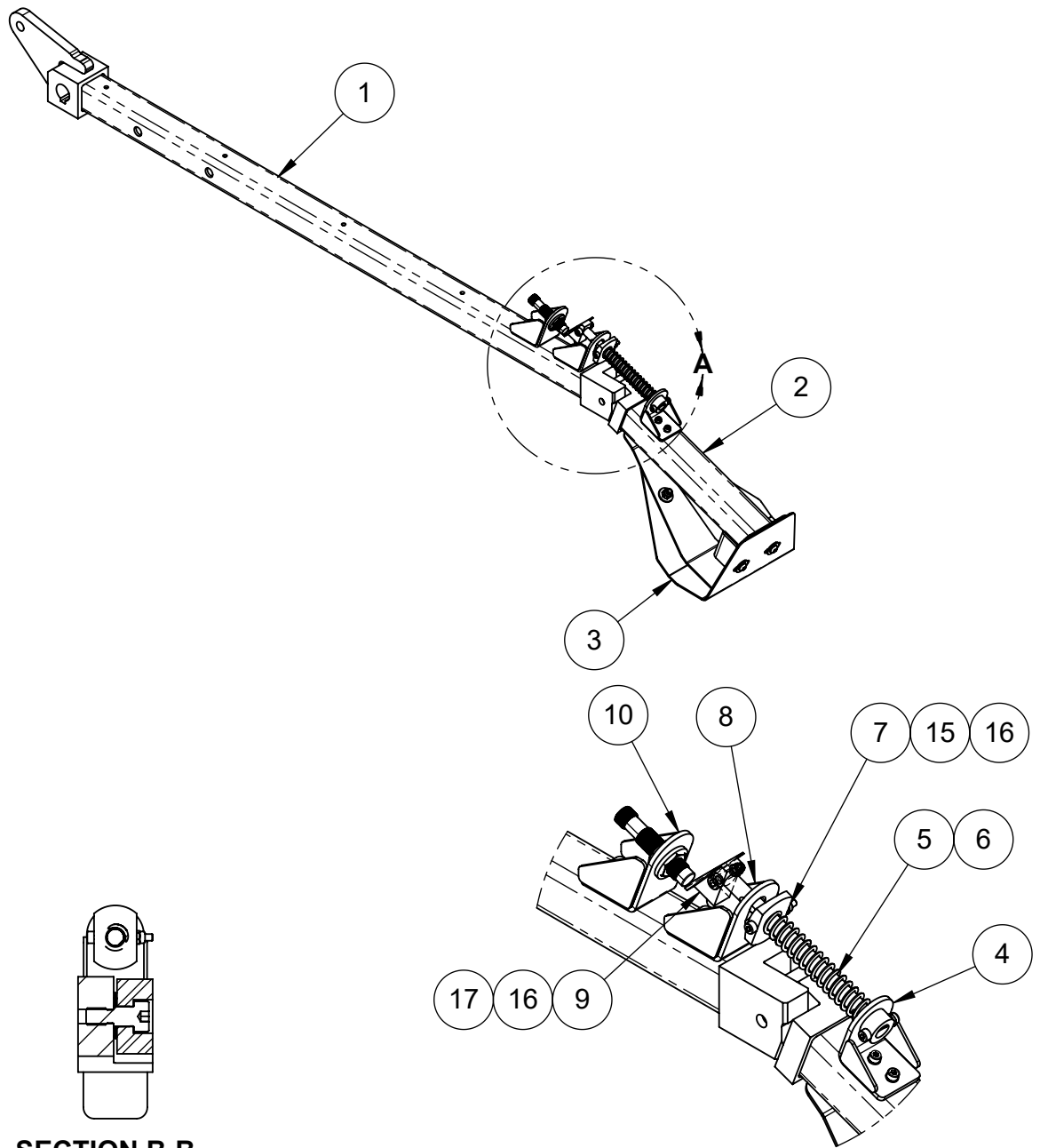
35000013579-4

KEY	QTY.	PART NO.	DESCRIPTION
1	1	PJ-000217	MACHINING: GUIDE ARM
2	1	35000013580	ARM END GUIDE
3	1	35000013720	ADJUSTABLE STRAP GUIDE
4	1	35000013709	SPRING MOUNT ASSEMBLY
5	1	35000013618	SPRING SHAFT
6	1	282005	COMPRESSION SPRING
7	1	35000013592	SPRING MOUNT
8	1	PJ-001562	ASSEMBLY SPRING MOUNT
9	1	35000013603	PROX FLAG
10	1	35000013716	PROX MOUNT
11			
12*	1	517483	SHSS Ø5X12 ISO7379 140KSI RC32 BLK M10X1.5
13	1	35000013717	BRG THRUST; 12MM ID; 26 MM OD; 2MM THK
14			
15	1	432253	SHCS M4X0.7 X 35 LG. CL12.9 BLK FULL TH'D
16	2	510050	HEX NUT M4X0.7 DIN985 C6 ZN JAM NYLK
17	1	166063	SHCS M5X0.8 X 20 DIN912 CL12 ZA FTD



STRAP GUIDE ARM

35000013579-4



SECTION B-B
SCALE 1 : 4

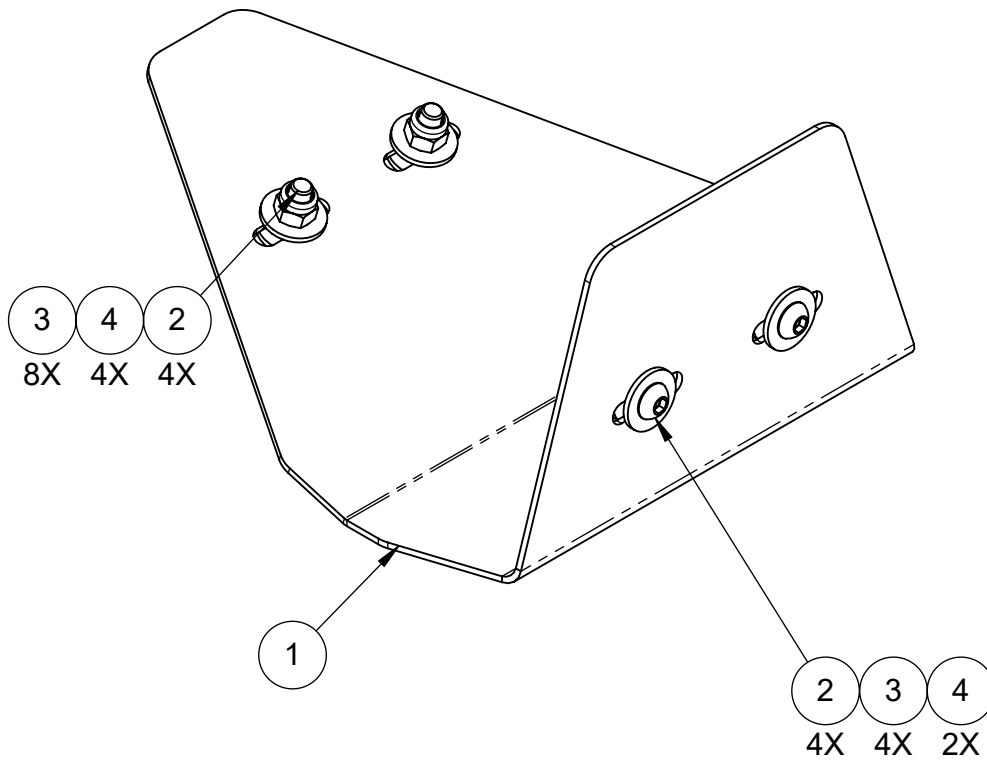
DETAIL A
SCALE 1 : 4

ADJUSTABLE STRAP GUIDE (35000013720-3)

ADJUSTABLE STRAP GUIDE

35000013720-3

KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000013696	ADJUSTABLE STRAP GUIDE
2	4	510029	BHCS M6X1.0 X 18 ISO7380-1 CL8 ZN FTD
3	8	421876	FLAT WASHER M6 DIN9021 140HV ZN FNDR
4	4	35000013961	HEX NUT M6X1 DIN982 C6 ZN NYLK

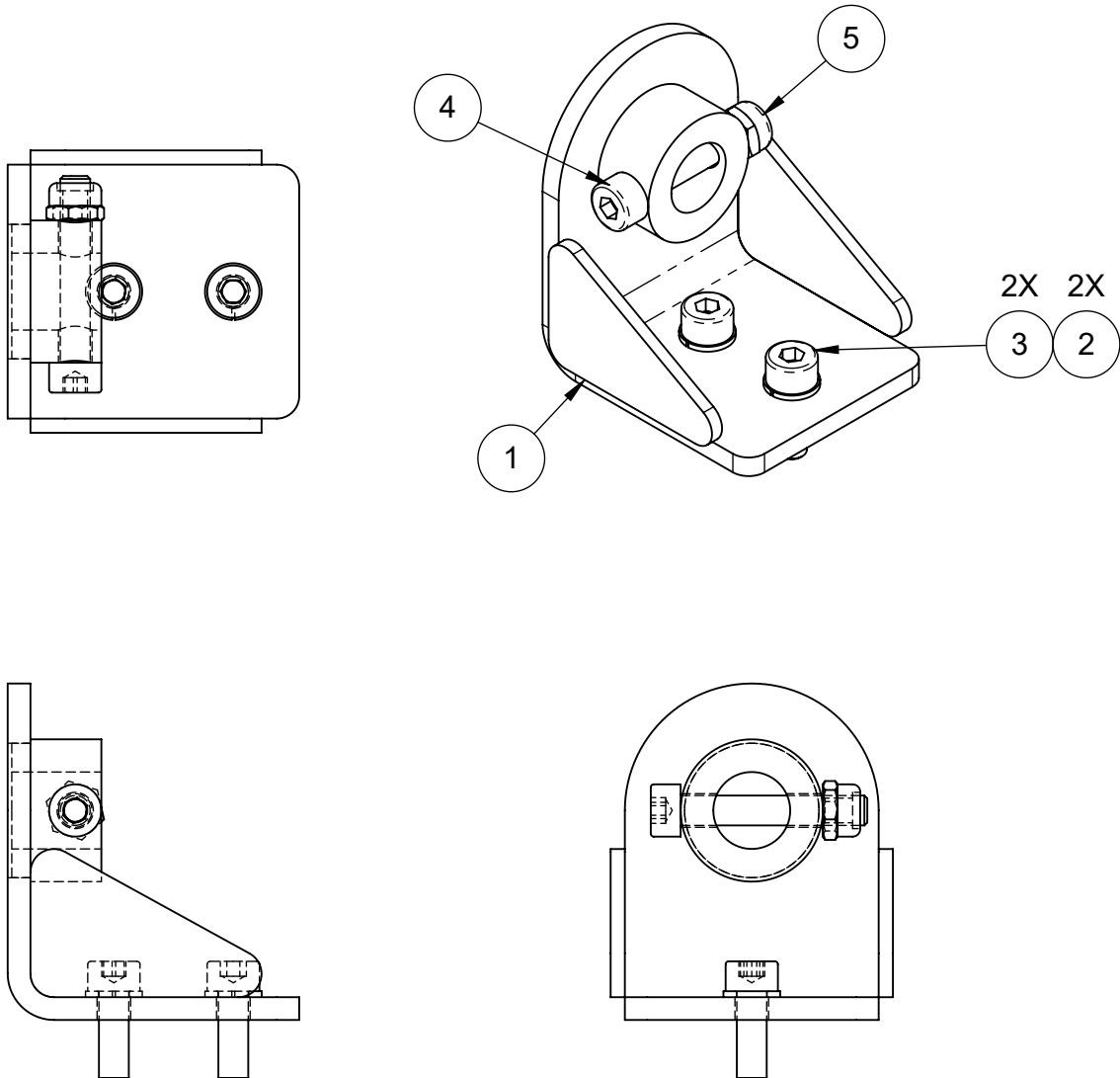


SPRING MOUNT ASSEMBLY (35000013709-4)

SPRING MOUNT ASSEMBLY

35000013709-4

KEY	QTY.	PART NO.	DESCRIPTION
1	1	PJ-000224	WELDMENT SPRING MOUNT
2	2	35000013972	LOCK WASHER M4 DIN128A ZN SPLIT
3	2	433916	SHCS M4X0.7 X 12 DIN912 CL12 ZA FTD
4	1	256970	SHCS M4X0.7 X 25 DIN912 CL12 ZA FTD
5	1	510050	HEX NUT M4X0.7 DIN985 C6 ZN JAM NYLK

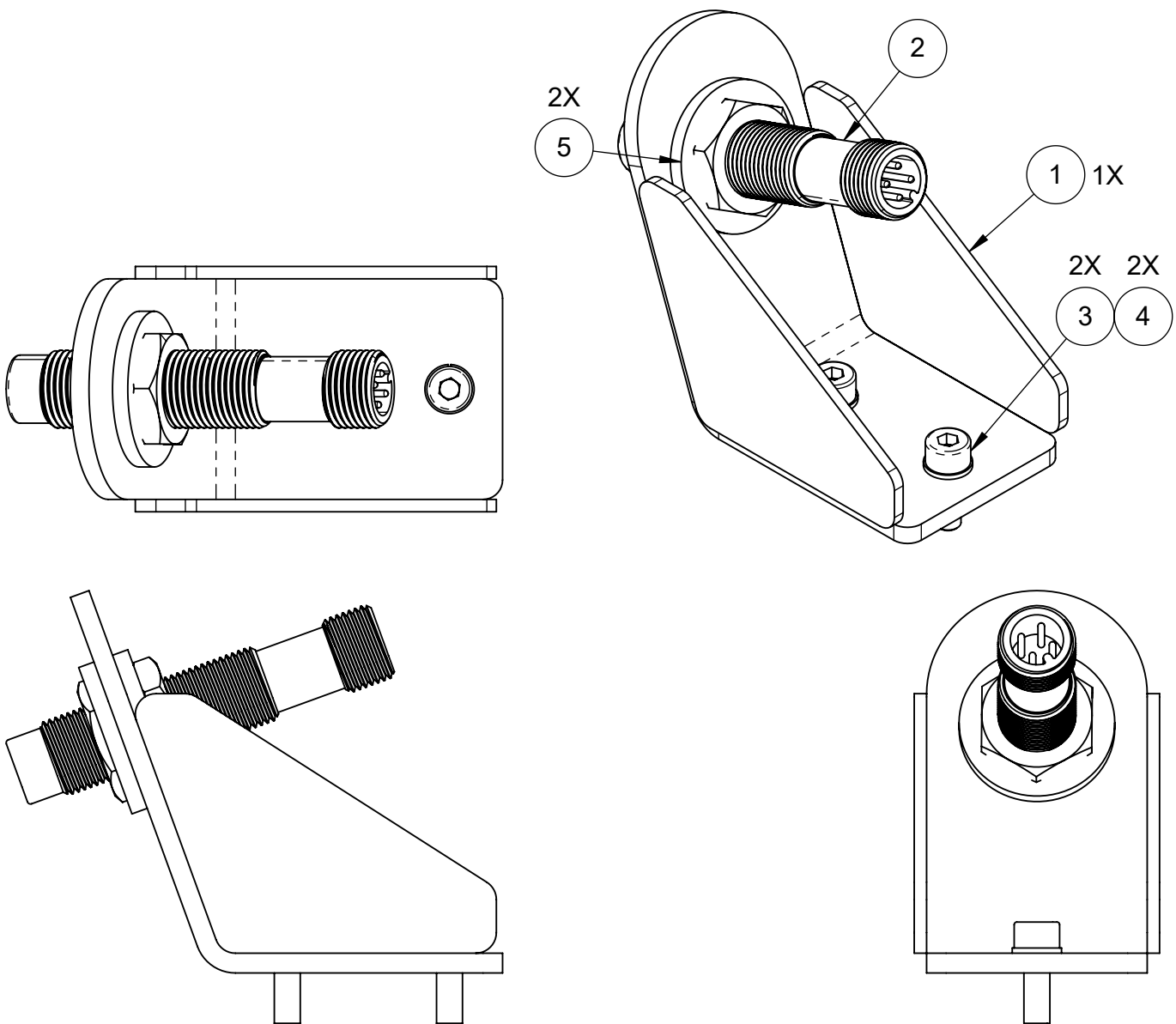


PROX MOUNT (35000013716-3)

PROX MOUNT

35000013716-3

KEY	QTY.	PART NO.	DESCRIPTION
1	1	PJ-000220	WELDMENT: PROX MOUNT
2	1	35000000290	PROXMINITY SENSOR
3	2	433916	SHCS M4X0.7 X 12 DIN912 CL12 ZA FTD
4	2	35000013972	LOCK WASHER M4 DIN128A ZN SPLIT
5	2	180684	FLAT WASHER M12 ISO7089 140HV ZN



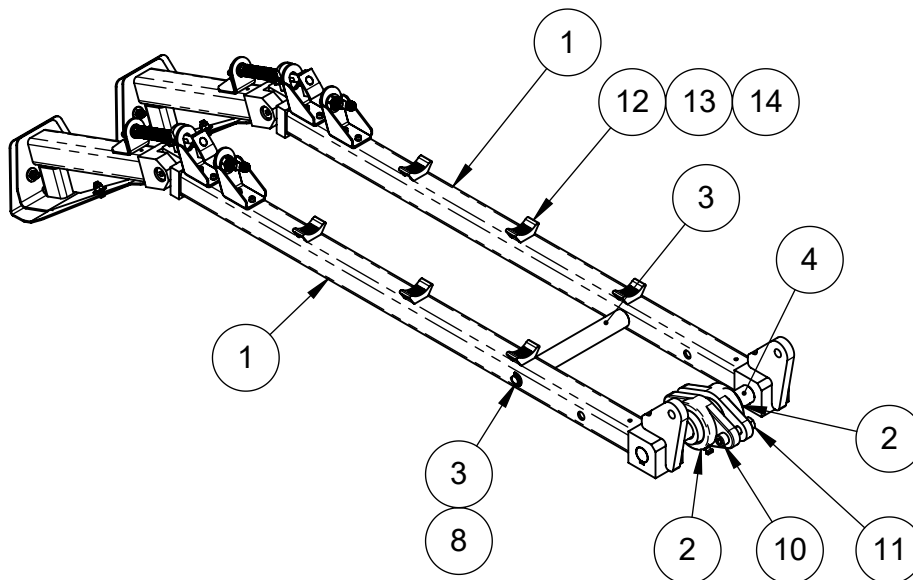
INTENTIONALLY BLANK

LOWER GUIDE ARM (35000017001-4)

LOWER GUIDE ARM ASSEMBLY

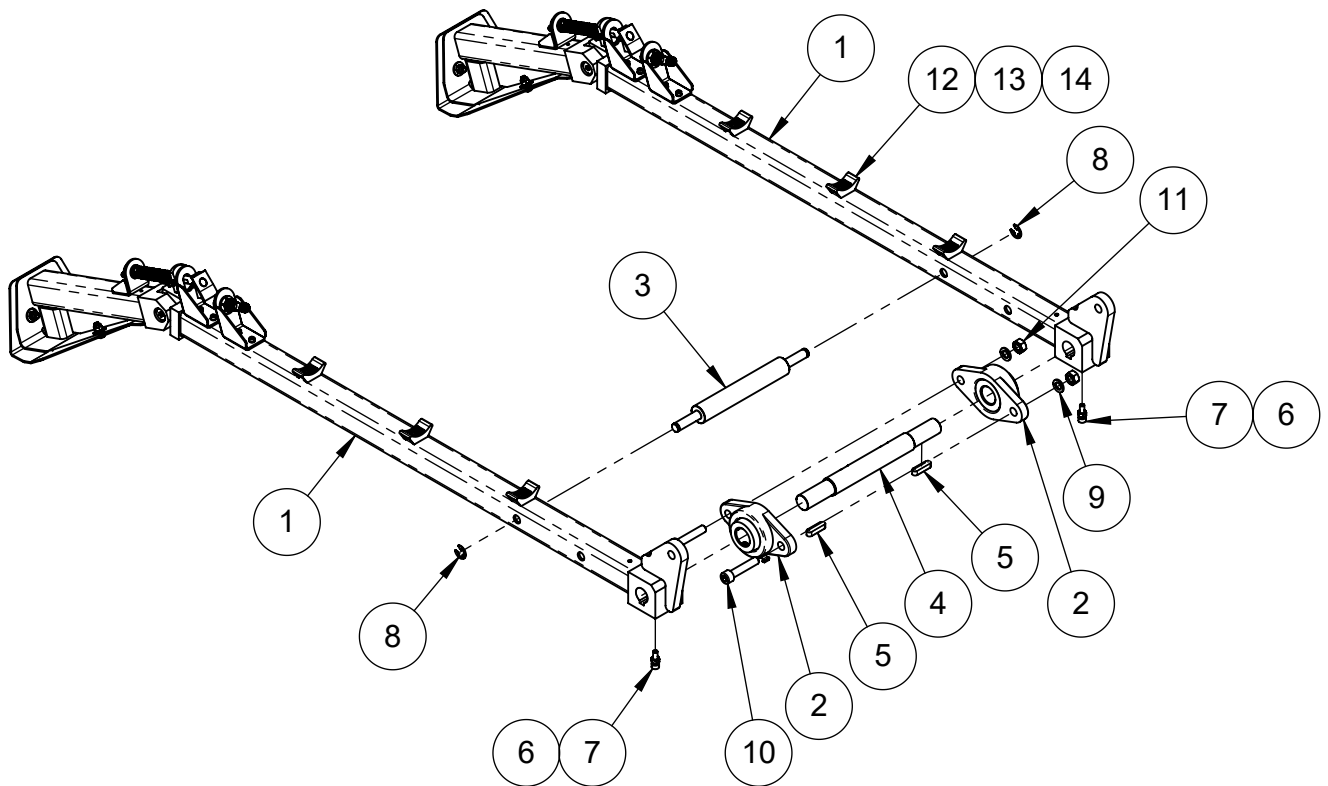
35000017001-4

KEY	QTY.	PART NO.	DESCRIPTION
1	2	35000013730	STRAP GUIDE ARM
2	2	35000000299	MOUNTED BEARING, 1" SHAFT
3	1	35000014384	CROSS PIN
4	1	35000014393	SHAFT
5	2	431511	KEY 8X7 X32 DIN6885 ROUNDED ENDS
6	2	005465	HEX NUT M6X1 DIN934 CL8 ZN
7	2	433920	SHCS M6X1 X 20 DIN912 CL12 ZA FTD
8	2	35000012684	E-CLIP 11-15mm
9	2	35000013976	LOCK WASHER M10 DIN128A ZN SPLIT
10	2	436827	SHCS M10X1.5 X 50 DIN912 CL12 ZA
11	2	164962	HEX NUT M10X1.5 DIN934 CL12 ZA
12	6	35000015345	CABLE TIE DOWN
13	6	35000013974	LOCK WASHER M6 DIN128A ZN SPLIT
14	6	188917	SHCS M6X1.0 X 10 DIN7984 C8 ZN FTD LHD



LOWER GUIDE ARM ASSEMBLY

35000017001-4

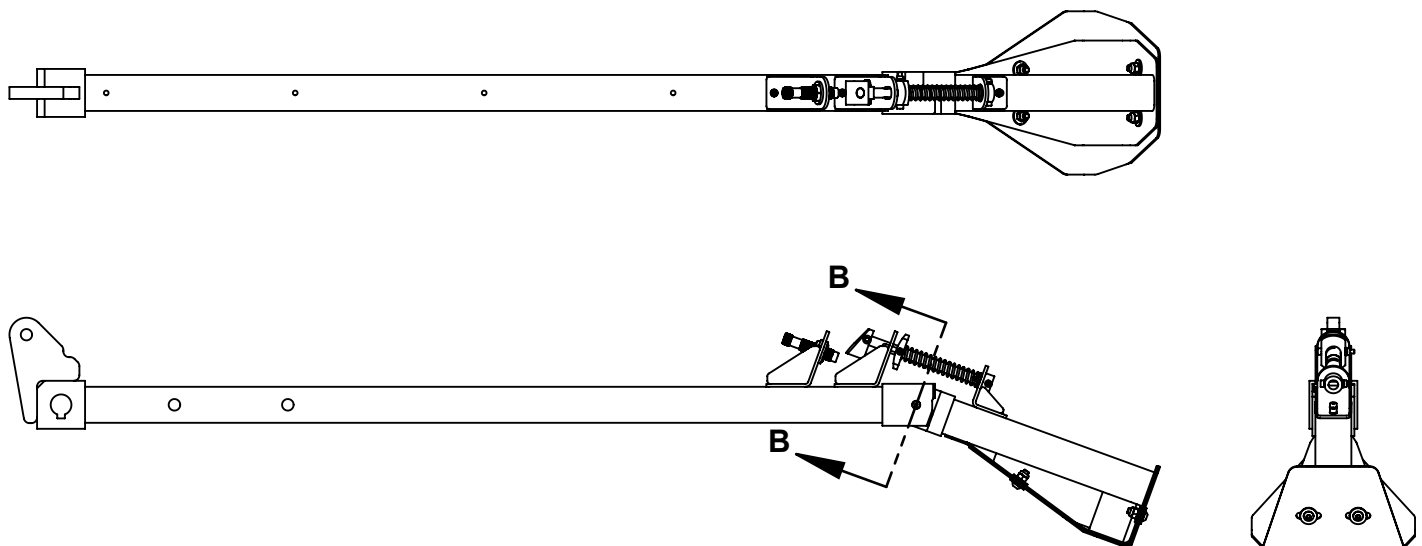


STRAP GUIDE ARM (35000013730-4)

STRAP GUIDE ARM

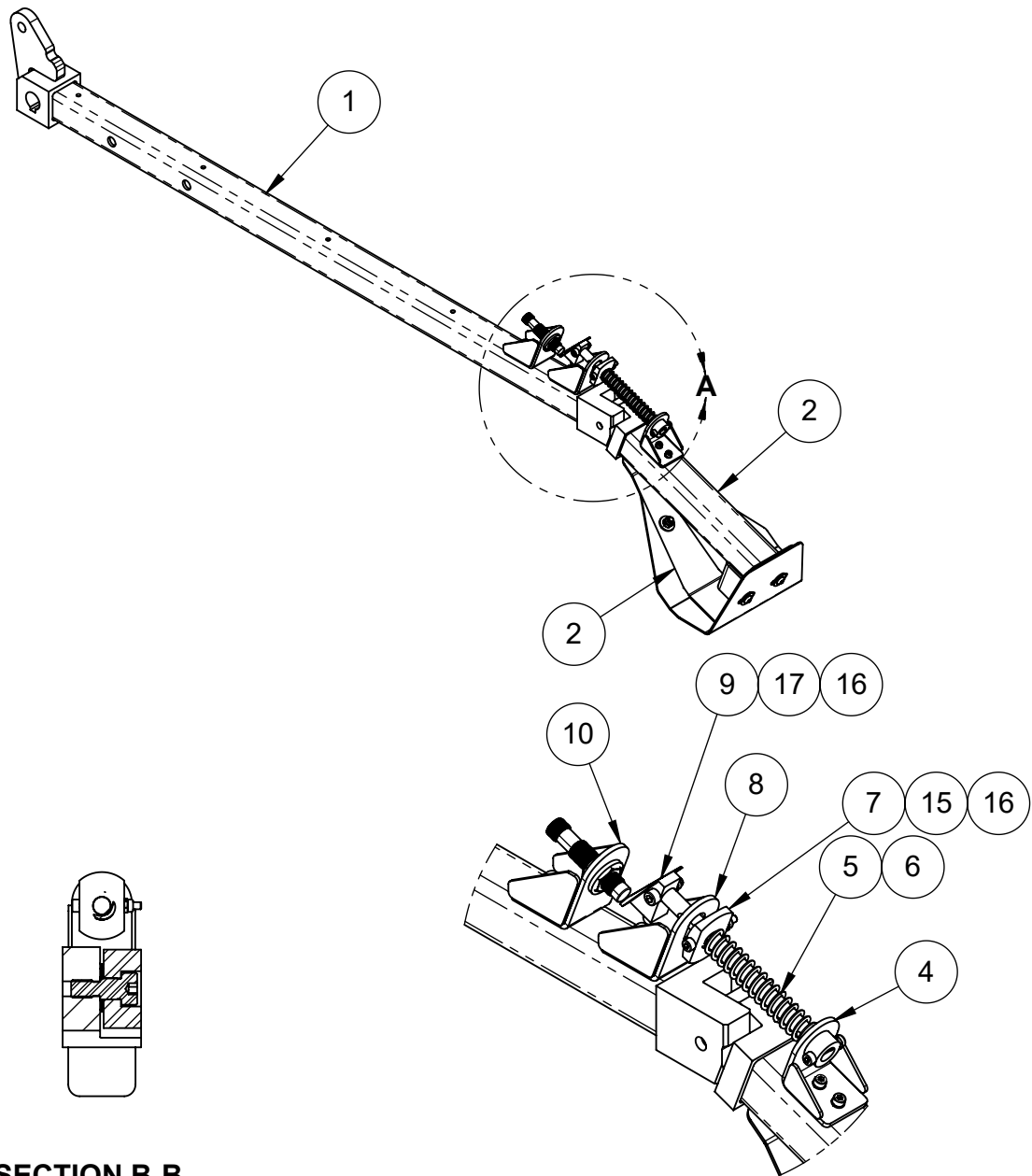
35000013730-4

KEY	QTY.	PART NO.	DESCRIPTION
1	1	PJ-000218	MACHINING: GUIDE ARM
2	1	35000013580	ARM END GUIDE
3	1	35000013720	ADJUSTABLE STRAP GUIDE
4	1	35000013709	SPRING MOUNT ASSEMBLY
5	1	35000013618	SPRING SHAFT
6	1	282005	COMPRESSION SPRING
7	1	35000013592	SPRING MOUNT
8	1	PJ-001562	ASSEMBLY SPRING MOUNT
9	1	35000013603	PROX FLAG
10	1	35000013716	PROX MOUNT
11			
12*	1	517483	SHSS Ø5X12 ISO7379 140KSI RC32 BLK M10X1.5
13	1	35000013717	BRG THRUST; 12MM ID; 26 MM OD; 2MM THK
14			
15	1	432253	SHCS M4X0.7 X 35 LG. CL12.9 BLK FULL TH'D
16	2	510050	HEX NUT M4X0.7 DIN985 C6 ZN JAM NYLK
17	1	166063	SHCS M5X0.8 X 20 DIN912 CL12 ZA FTD



STRAP GUIDE ARM

35000013730-4



SECTION B-B
SCALE 1 : 4

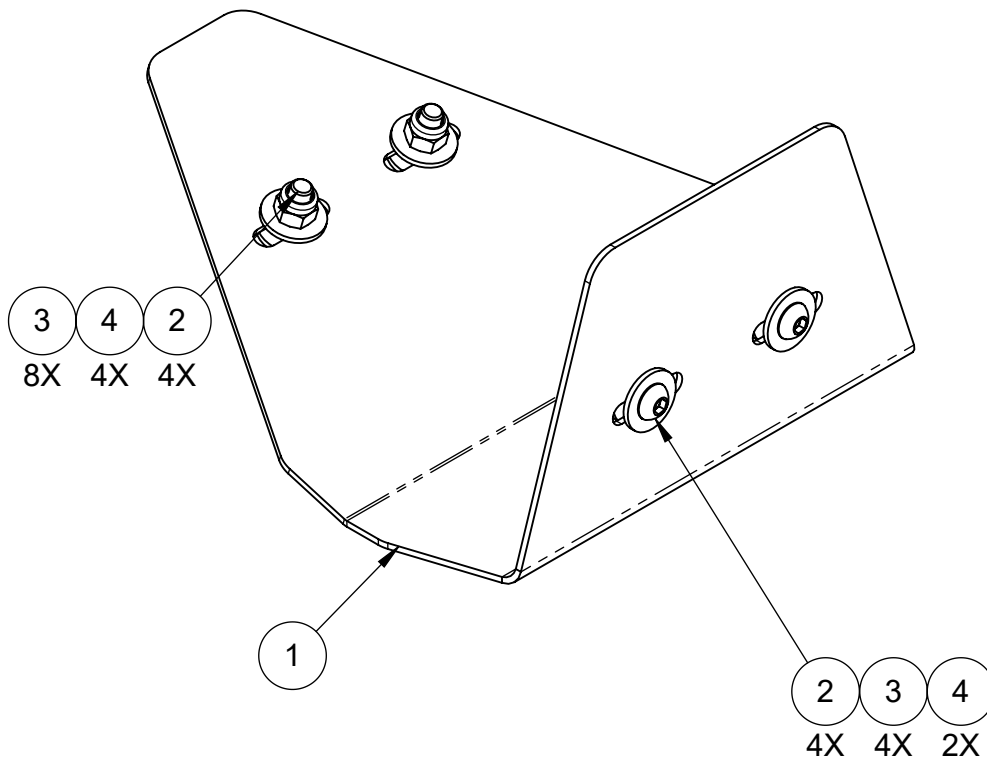
DETAIL A
SCALE 1 : 4

ADJUSTABLE STRAP GUIDE (35000013720-3)

ADJUSTABLE STRAP GUIDE

35000013720-3

KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000013696	ADJUSTABLE STRAP GUIDE
2	4	510029	BHCS M6X1.0 X 18 ISO7380-1 CL8 ZN FTD
3	8	421876	FLAT WASHER M6 DIN9021 140HV ZN FNDR
4	4	35000013961	HEX NUT M6X1 DIN982 C6 ZN NYLK

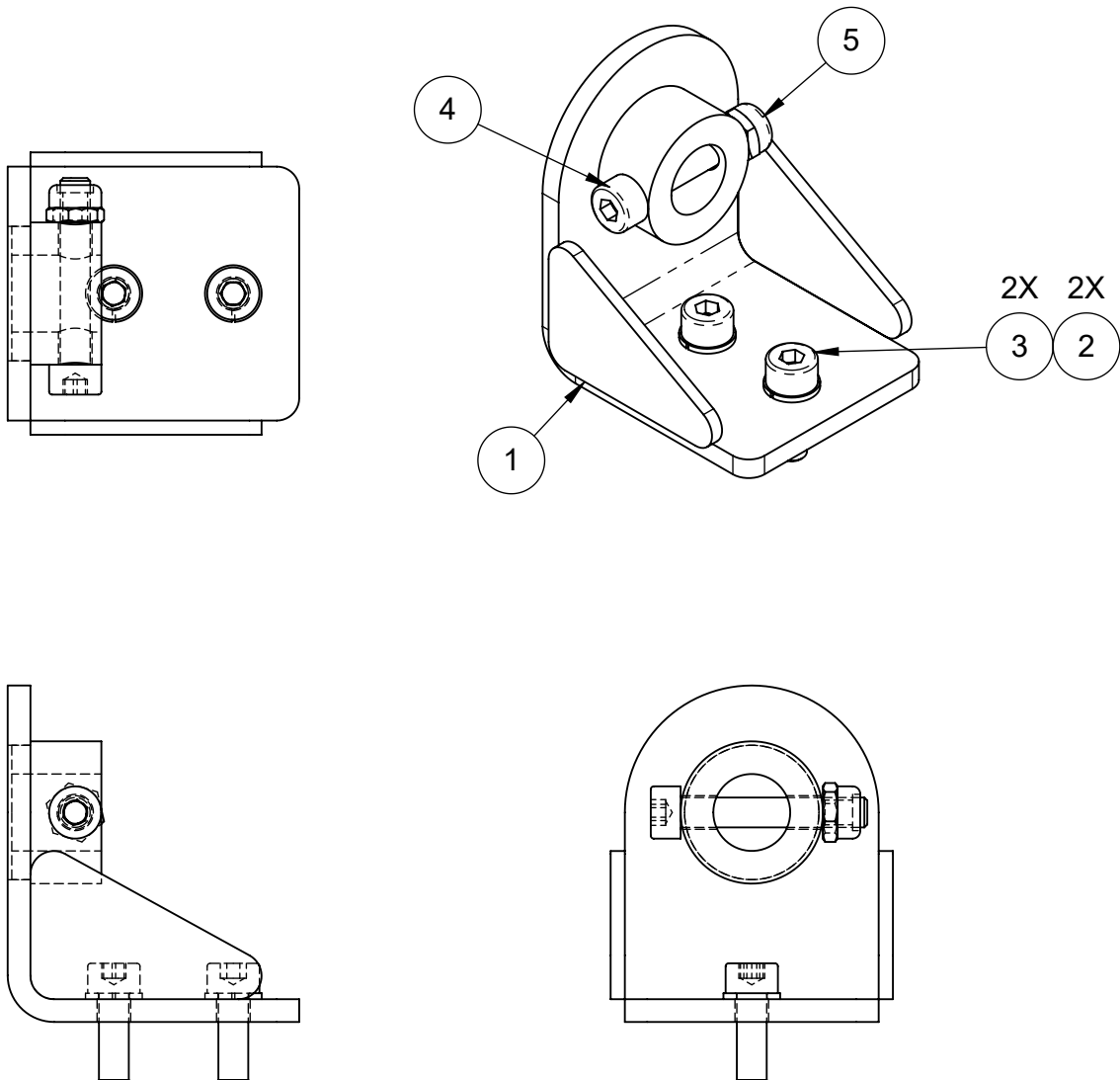


SPRING MOUNT ASSEMBLY (35000013709-4)

SPRING MOUNT ASSEMBLY

35000013709-4

KEY	QTY.	PART NO.	DESCRIPTION
1	1	PJ-000224	WELDMENT SPRING MOUNT
2	2	35000013972	LOCK WASHER M4 DIN128A ZN SPLIT
3	2	433916	SHCS M4X0.7 X 12 DIN912 CL12 ZA FTD
4	1	256970	SHCS M4X0.7 X 25 DIN912 CL12 ZA FTD
5	1	510050	HEX NUT M4X0.7 DIN985 C6 ZN JAM NYLK

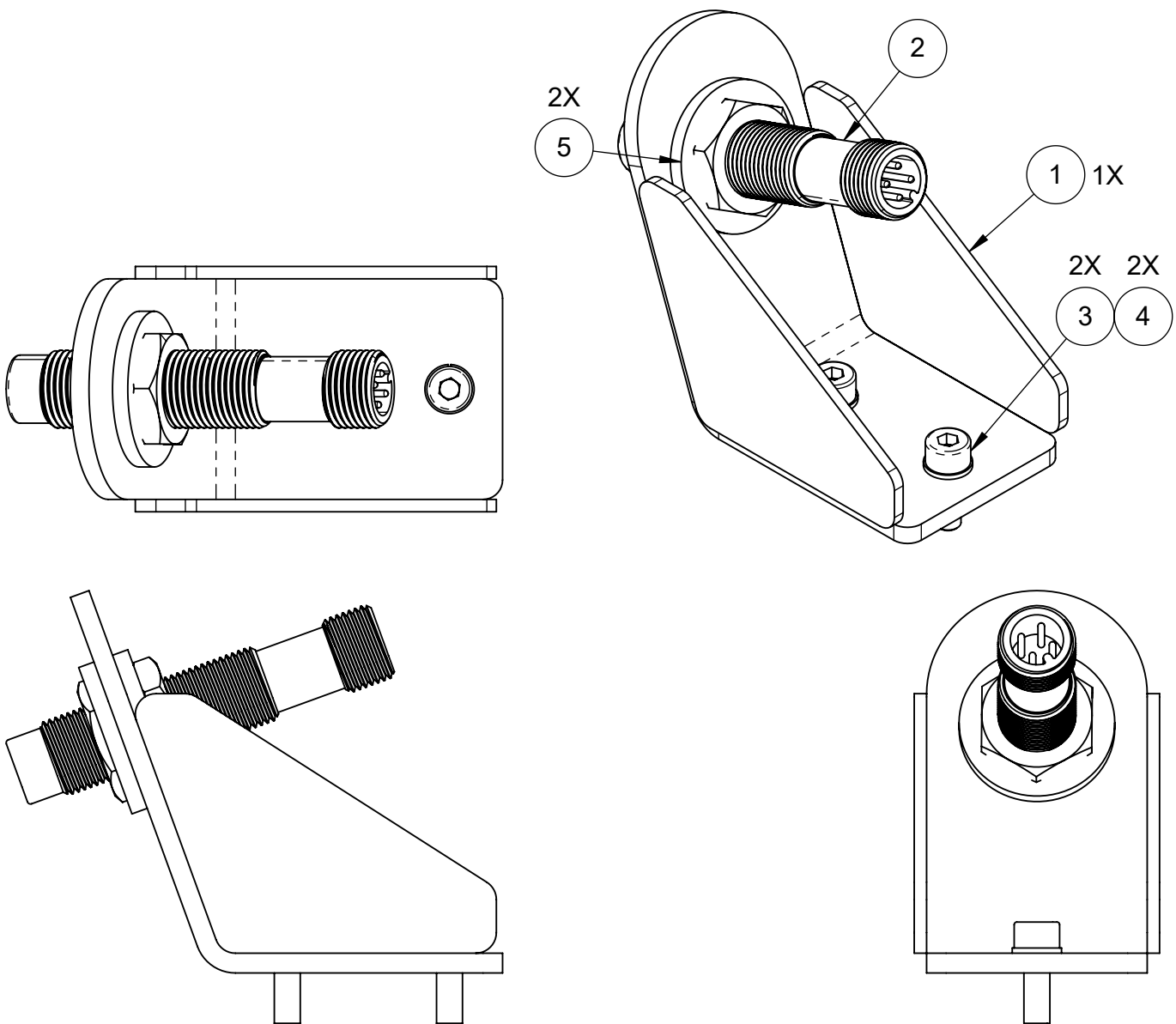


PROX MOUNT (35000013716-3)

PROX MOUNT

35000013716-3

KEY	QTY.	PART NO.	DESCRIPTION
1	1	PJ-000220	WELDMENT: PROX MOUNT
2	1	35000000290	PROXMINITY SENSOR
3	2	433916	SHCS M4X0.7 X 12 DIN912 CL12 ZA FTD
4	2	35000013972	LOCK WASHER M4 DIN128A ZN SPLIT
5	2	180684	FLAT WASHER M12 ISO7089 140HV ZN



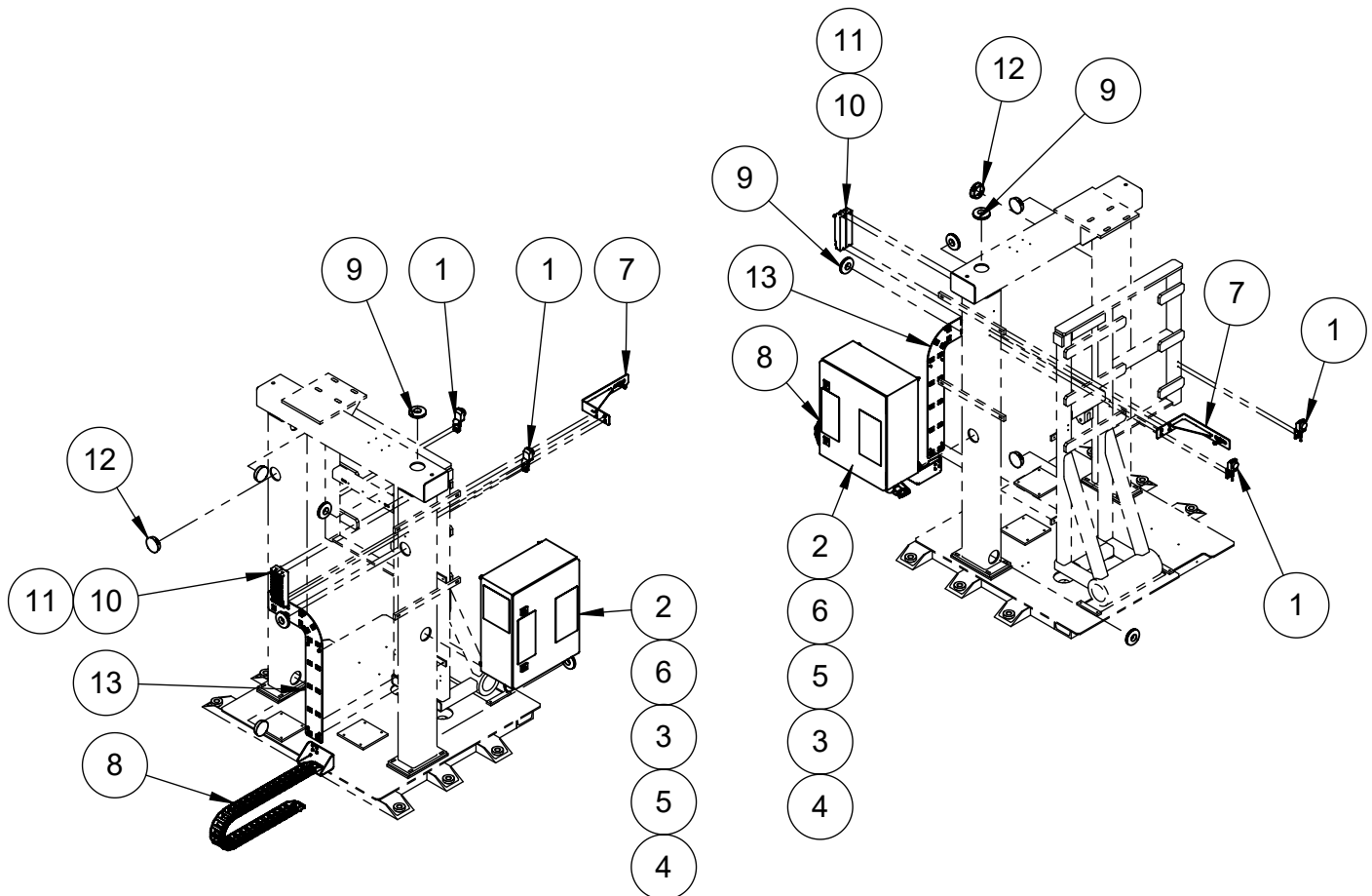
INTENTIONALLY BLANK

CONTROLS SUB ASSEMBLY (35000016638-1)

CONTROLS SUB ASSEMBLY

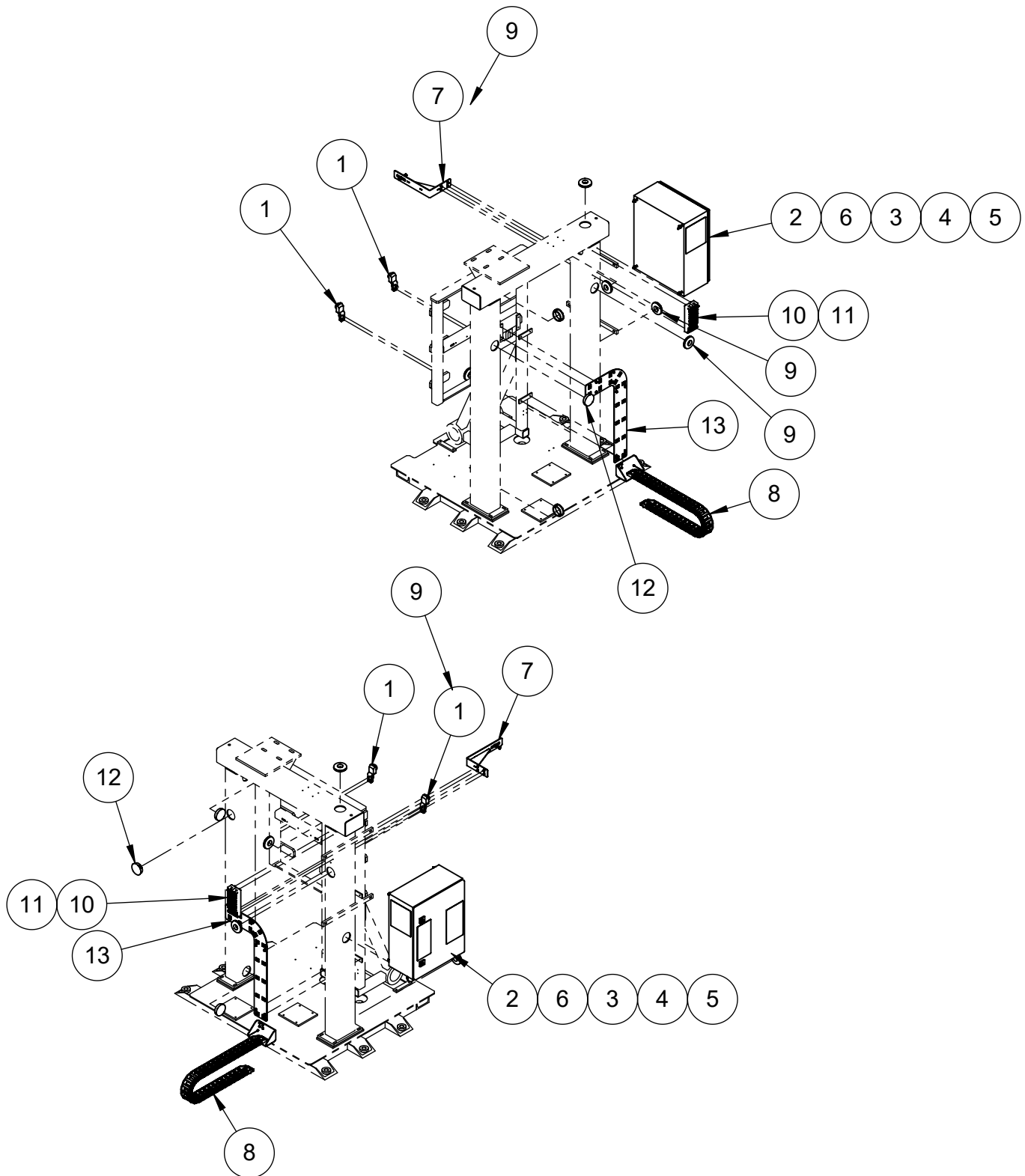
35000016638-1

KEY	QTY.	PART NO.	DESCRIPTION
1	2	35000012645	PRODUCT PRESENT SENSOR
2	1	35000000301	JUNCTION BOX WITH SIGNS
3	8	421876	FLAT WASHER M6 DIN9021 140HV ZN FNDR
4	4	35000013974	LOCK WASHER M6 DIN128A ZN SPLIT
5	4	005465	HEX NUT M6X1 DIN934 CL8 ZN
6	4	162374	SHCS M6X1 X 30 DIN912 CL12 ZA FTD
7	1	35000016639	HOME SWITCH </td
8	1	35000016940	ASSEMBLY; CABLE CARRIER
9	5	35000000420	RUBBER GROMMET; 2.5" OD, 1.25 ID
10	2	20100000137	ARMOR BLOCK, I/O LINK
11	4	437293	SHCS M3X0.5 X 25 DIN912 CL12 ZN FTD
12	3	35000000421	HOLE PLUG
13	1	35000016863	CABLE ANCHOR



CONTROLS SUB ASSEMBLY

35000016638-1



PRODUCT PRESENT SENSOR (35000012645-3)

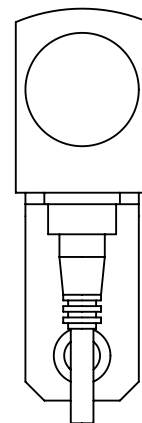
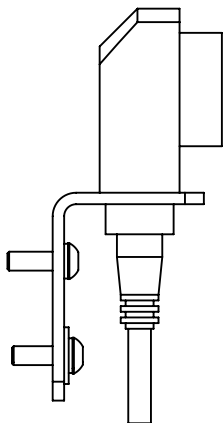
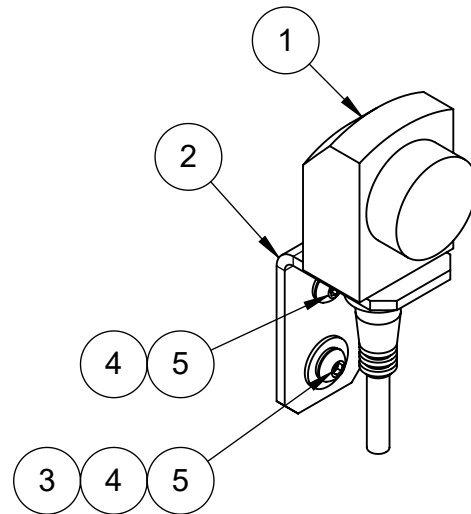
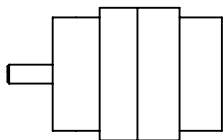
PRODUCT PRESENT SENSOR

35000012645-3

KEY	QTY.	PART NO.	DESCRIPTION
1	1	20100000140	PHOTO SENSOR
2	1	35000012510	MOUNTING BRACKET: PRODUCT PRESENT
3	1	434426	FLAT WASHER M5 DIN9021 140HV ZN FNDR
4	2	35000013973	LOCK WASHER M5 DIN128A ZN SPLIT
5	2	435537	BHCS M5X0.8 X 16 ISO7380-1 CL8 ZN FTD

PRODUCT PRESENT SENSOR

35000012645-3

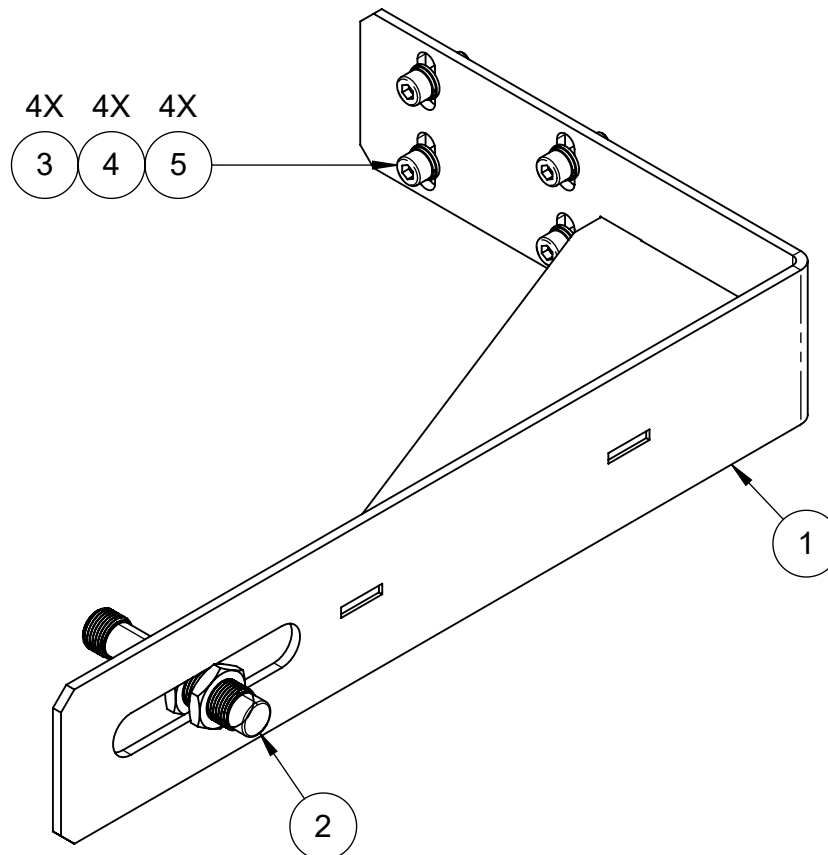


HOME SWITCH (35000016639-1)

HOME SWITCH

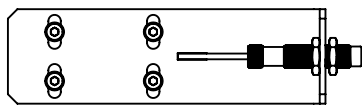
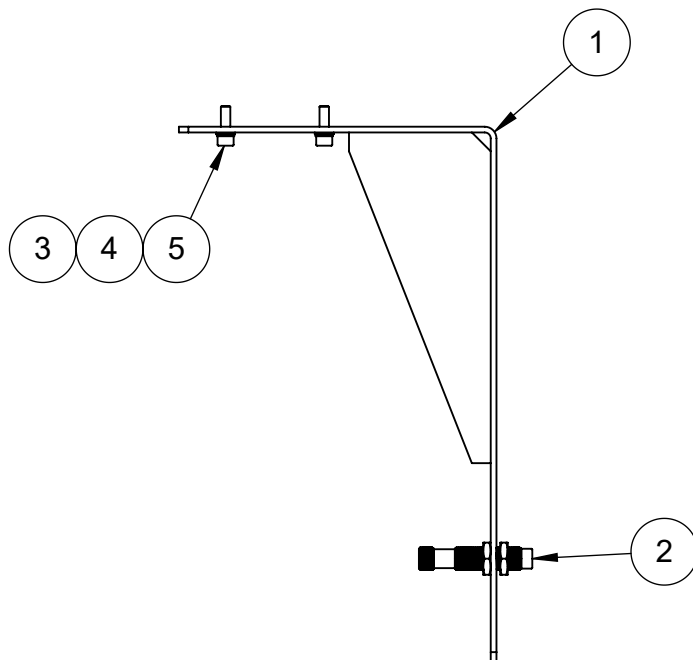
35000016639-1

KEY	QTY.	PART NO.	DESCRIPTION
1	1	35000016640	MOUNT WELDMENT: HOME SWITCH
2	1	35000000290	PROXMINITY SENSOR
3	4	171571	FLAT WASHER M5 ISO7089 140HV ZN
4	4	35000013973	LOCK WASHER M5 DIN128A ZN SPLIT
5	4	011214	SHCS M5X0.8 X 16 DIN912 CL12 ZA FTD



HOME SWITCH

35000016639-1



INTENTIONALLY BLANK

SECTION 7 OPTIONS

CONTENTS

SECTION 7 OPTIONS	7-1
Right Angle Pulley Assembly (513679-4)	7-2
SFD-16 Test Stand Assembly - 16mm (35000012004-3)	7-4

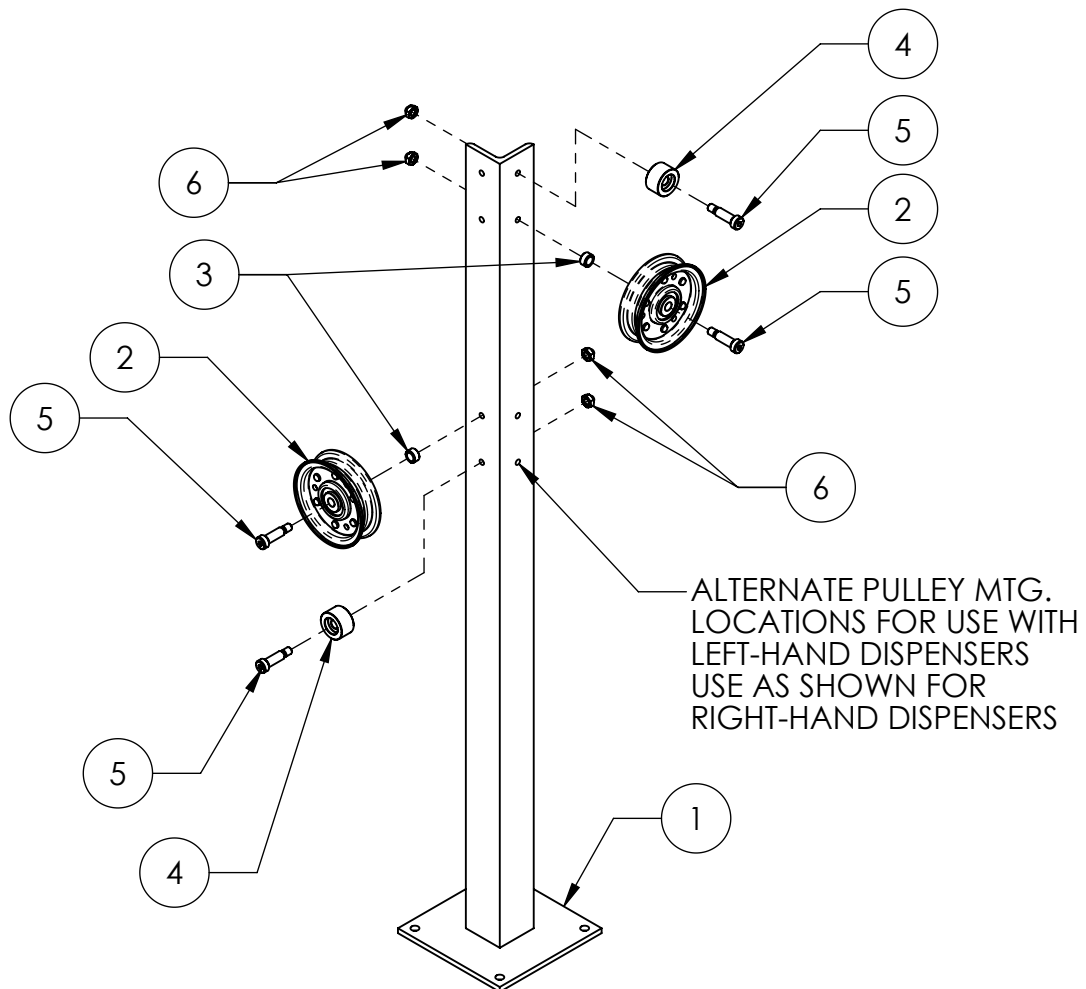
SECTION 7- OPTIONS

RIGHT ANGLE PULLEY ASSEMBLY (513679-4)

RIGHT ANGLE PULLEY ASS'Y

513679-4

KEY	QTY.	PART NO.	DESCRIPTION
1	1	513680	PULLEY SUPPORT WELDMENT
2	2	278733	PULLEY
3	2	278734	SPACER
4	2	278735	RETAINING WHEEL
5	4	023708	SHSS Ø3/8X1 B18.3+F574 140KSI RC32 BLK 0313-18
6	4	005211	HEX NUT 5/16-18 B18.16.6 CD FXTP



INTENTIONALLY BLANK

SFD-16 TEST STAND ASSEMBLY - 16MM (35000012004-3)

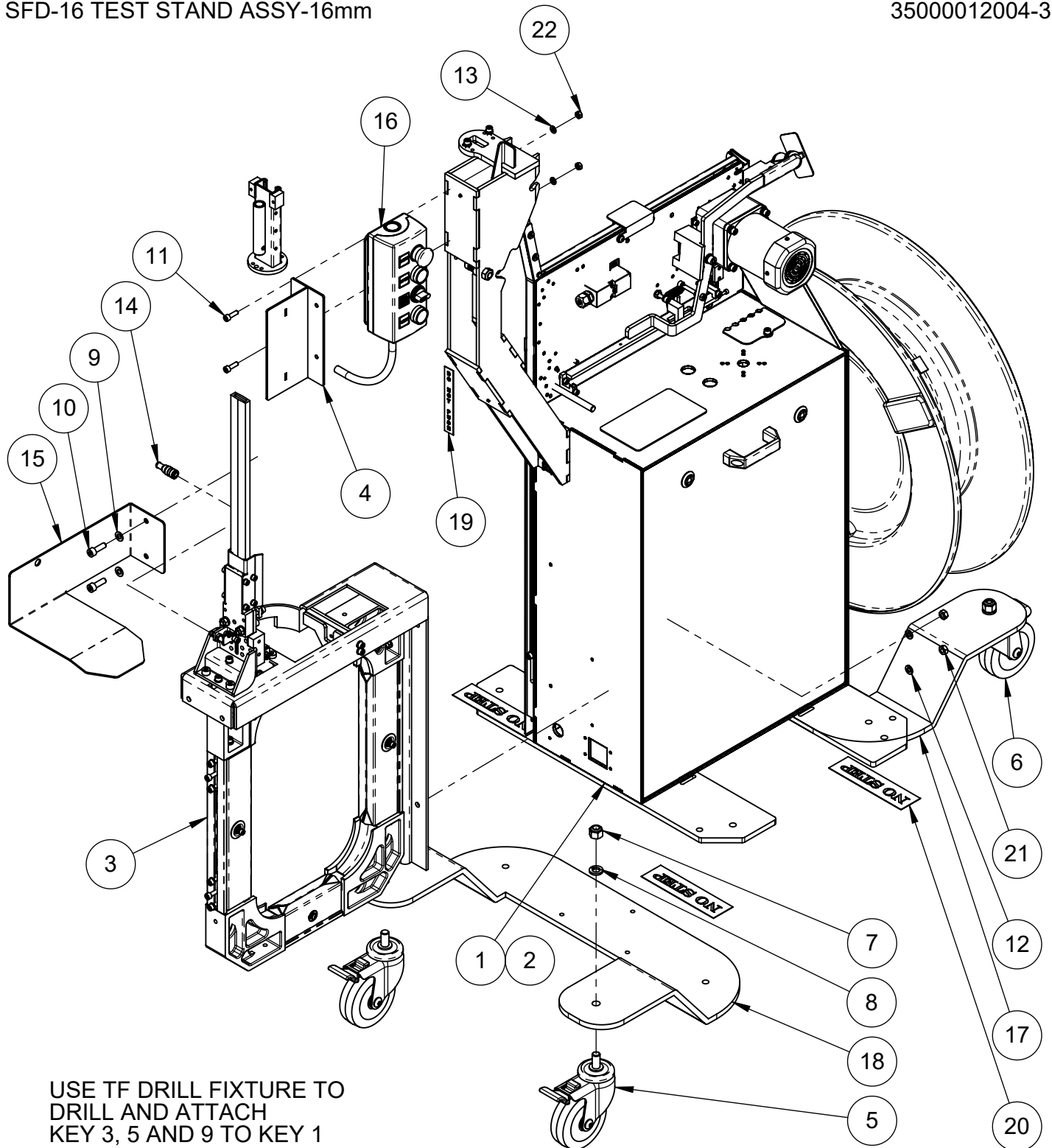
SFD-16 TEST STAND ASSY-16mm

35000012004-3

KEY	QTY.	PART NO.	DESCRIPTION
1	1	612100	SFD-16 DISPENSER ASSEMBLY
2	1	608772	GCU-SF DISPENSER ELECTRICAL
3	1	35000012005	SFD-16 TS FRAME-16mm
4	1	609092	PENDANT DISP. MTG.
5	2	515456	CASTER: 4in: SWIVEL: LOCKING
6	2	515457	4" SWIVEL-W/O LOCK-STEM CASTER
7	4	516116	1/2-13 NYLON INSERT LOCK NUT (ZINC)
8	4	002434	1/2" SPLIT LOCK WASHER - MEDIUM (ZINC)
9	2	251266	M8 FLATWASHER (ZINC)
10	2	280869	M8 X 25 SHCS
11	2	280805	M6 X 20 SHCS
12	2	280807	M8 LOCKWASHER (ZINC)
13	2	005464	M6 LOCKWASHER
14	1	608752	CORDSET, 2M, STR FEMALE
15	1	609097	STRAP STRIPPER
16	1	609091	T.F. PENDANT ASSEMBLY
17	1	612117	CASTER FRAME DISPENSER
18	1	612118	CASTER FRAME CHUTE
19	1	612119	T.F. LABEL
20	4	510491	INFO LABEL - NO STEP
21	2	164953	M8 HEX NUT (ZINC)
22	2	005465	M6 HEX NUT (ZINC)

SFD-16 TEST STAND ASSY-16mm

35000012004-3



INTENTIONALLY BLANK

**APPENDIX A
PSD-119 STRAP DISPENSER
OPERATION, PARTS & MAINTENANCE MANUAL**

APPENDIX-A



Signode Industrial Group LLC
1600 Central Avenue
Roselle, Illinois 60172
U.S.A.

Phone: (847) 724-6100
Website: www.signode.com

© 2021 Signode Industrial Group LLC
All rights reserved. No part of this manual may
be used or reproduced in any manner without
written permission.
Published 2021
Printed in the United States of America

CONTENTS

APPENDIX A

PSD-119 STRAP DISPENSER

OPERATION, PARTS & MAINTENANCE MANUAL.....A-1

GENERAL SAFETY INSTRUCTIONS.....A-4

Work Area HazardsA-4

Fall And Tripping HazardsA-4

PERSONAL SAFETY INSTRUCTIONSA-5

TrainingA-5

Eye Injury HazardA-5

Cut Hazard.....A-5

Sound ProtectionA-5

Foot Protection.....A-5

Back Protection.....A-5

MACHINE (DISPENSER) SAFETY INSTRUCTIONSA-6

Use For Intended Purpose OnlyA-6

OperationA-6

Possible MisuseA-6

MaintenanceA-6

Cutting Tensioned Strapping.....A-7

 Using A Single-Handle Strap CutterA-8

 Using A Two-Handed Strap CutterA-8

A.1 INTRODUCTION.....A-10

A.1.1 SpecificationsA-10

A.1.2 Major Components.....A-11

A.2 INSTALLATIONA-12

A.3 COIL LOADING INSTRUCTIONS.....A-13

A.4 PARTS REMOVAL AND REPLACEMENT.....A-17

A.4.1 Dancer Arm Compression SpringA-17

A.4.2 Actuation Chain.....A-18

A.5 PARTSA-20

A.5.1 PSD-119 EB RH Assembly (606038-3).....A-22

A.5.2 PSD-119 EB LH Assembly (606046-3)A-25

A.5.3 PSD-119 Spare Parts Kit (20102002382-1).....A-29

WARNING

FOR SAFE OPERATION AND TO PREVENT PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH, OBTAIN AND UNDERSTAND ALL SAFETY INSTRUCTIONS.

GENERAL SAFETY INSTRUCTIONS

- Only trained personnel should operate or service the machine.
- If you require safety instructions in a different language, contact you local Signode representative.
- Inspect the machine daily and replace all worn or broken parts.
- Never put any part of your body into, or wear loose clothing or jewelry when near, moving machinery.
- Keep all guards in place, and be sure all safety devices are working properly. Never bypass or alter machine guards.
- Keep out of the strap chute area while the machine is operating.
- Do not walk between free standing strap dispensers and the machine.
- The machine and strap dispensers must be secured to prevent movement during operation.
- Read and understand all signs located on the machine.
- Do not remove, modify or deface any sign on the machine.
- Replace all damaged signs.

WORK AREA HAZARDS

- Keep the machine and work area clean.
- Remove used strapping debris and other objects not necessary for the machine's operation.
- Work area must remain uncluttered and have adequate lighting.
- Do not allow pedestrians or visitors in work area.

FALL AND TRIPPING HAZARDS

- Maintain proper footing and/or balance when operating the machine to prevent tripping or falls.
- Do not operate or service the machine while in an awkward body position.

WARNING

FOR SAFE OPERATION AND TO PREVENT PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH, OBTAIN AND UNDERSTAND ALL SAFETY INSTRUCTIONS.

PERSONAL SAFETY INSTRUCTIONS



TRAINING

Read the operating instructions carefully. This machine must not be used by persons not properly trained in its use. Be certain that you receive proper training from your employer. If you have any questions contact your Signode Representative.



EYE INJURY HAZARD

Failure to wear safety glasses with side shields can result in severe eye injury or blindness. Always wear safety glasses with side shields which conform to ANSI Standard Z87.1 or EN 166.



CUT HAZARD

Handling strap or sharp parts could result in cut hands or fingers. Wear protective gloves.



SOUND PROTECTION

When operating the machine, wear ear protection.



FOOT PROTECTION

Failure to wear steel reinforced safety shoes could result in serious injury.

BACK PROTECTION

To prevent back or other body injuries, your employer must provide proper lifting and/or handling instructions.

WARNING

FOR SAFE OPERATION AND TO PREVENT PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH, OBTAIN AND UNDERSTAND ALL SAFETY INSTRUCTIONS.

MACHINE (DISPENSER) SAFETY INSTRUCTIONS

USE FOR INTENDED PURPOSE ONLY

- Dispenser is designed ONLY for use with strapping products.
- Do not use Dispenser for any purpose other than what it was designed for, without written approval from Signode.
- Unauthorized modifications or changes to the Dispenser are prohibited.
- Signode is not liable for damages or injuries resulting from unauthorized modifications to the Dispenser, or the use of this Dispenser for purposes other than what it was designed.

OPERATION

- Before loading a coil of strap into the dispenser, read the loading and safety instructions.
- Install dispenser properly before using it.
- Do not load dispenser when you are in an awkward position. Use proper lifting techniques when loading a coil of strap into the dispenser.
- Do not hold strapping material if machine power is on.
- When mounting dispensers on wall and/or columns, use the proper Signode suspension brackets.
- Tuck strap end back into dispenser straproller area when not in use.

POSSIBLE MISUSE

- Using the Dispenser for purposes other than the manufacturer's intended purpose.
- Not using strap specified for machine.
- Not operating or storing Dispenser within the required Machine Specifications.

MAINTENANCE

- Only trained personnel should operate or service the machine.
- Follow all operation, maintenance and service instructions in this manual.
- Use correct tools for maintenance and service procedures.

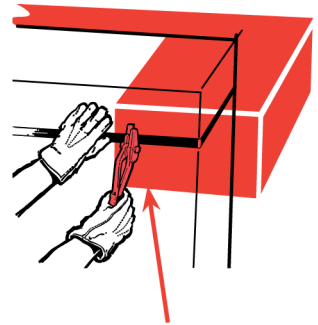
WARNING

FOR SAFE OPERATION AND TO PREVENT PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH, OBTAIN AND UNDERSTAND ALL SAFETY INSTRUCTIONS.

CUTTING TENSIONED STRAPPING

Use only cutters designed for cutting strap; never use claw hammers, crowbars, chisels, axes or similar tools. Such tools will cause the strap to fly apart with hazardous force. Before using any Signode product, read the Operation and Safety Manual.

- Establish and maintain proper footing and position before and during the cutting process to prevent injury resulting from a loss of balance.
- Use only cutters specifically designed to cut strap. The use of claw hammers, crow bars, chisels, axes or similar tools will cause tensioned strap to fly apart and flail with hazardous force.
- Cut strapping straight across to avoid sharp ends.
- Be aware that loads secured with strapping may shift or fall when the strapping is cut.



WARNING

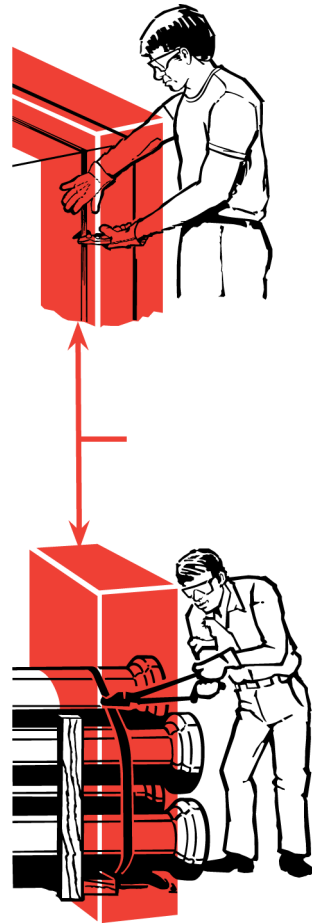
FOR SAFE OPERATION AND TO PREVENT PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH, OBTAIN AND UNDERSTAND ALL SAFETY INSTRUCTIONS.

Using A Single-Handle Strap Cutter

1. Keep all bystanders at a safe distance, away from the danger zone (red area) and in an area where they cannot possibly be struck by flying or flailing strap ends when the strapping is cut or by anything falling from the load if the load shifts when the strapping is cut.
2. Stand to one side of the strap being cut—outside of the danger zone (red area).
3. Use one hand to hold the strap firmly against the package.
4. Vertical strapping: Cut the strapping below the hold. Horizontal strapping: Cut the strapping on the side of the hold opposite your body.

Using A Two-Handed Strap Cutter

1. Keep all bystanders at a safe distance, away from the danger zone (red area) and possible flying or flailing strap ends. The energy released as the strapping is cut will cause both strap ends to rebound or flail outward.
2. Do not use a strap cutter that requires the use of two hands to cut horizontally tensioned strapping.
3. For vertically tensioned strapping, stand to one side of the strap being cut—outside of the danger zone (red area).
4. Cut the strap.



WARNING

FOR SAFE OPERATION AND TO PREVENT PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH, OBTAIN AND UNDERSTAND ALL SAFETY INSTRUCTIONS.

WARNING

**Become familiar with the location, and operation of each shutoff device.
Disconnect/Lock-Out all power sources before servicing machine.
Never use machine operating controls as a means for locking out power.**

WARNING

For safe operation and to prevent property damage, personal injury and/or death, maintain a minimum of 12 inches (305 mm) distance between machine and operator.

WARNING

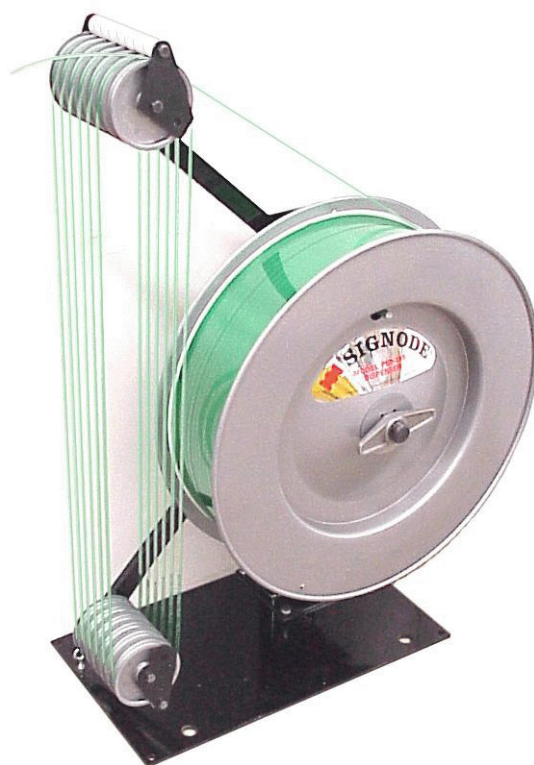
For safe operation and to prevent property damage, personal injury, and/or death, wear safety glasses and steel toe boots during operation and maintenance procedures.

A.1 INTRODUCTION

This dispenser is to be used with power strapping equipment only. It is tension actuated and multi-roller design can accumulate 30 Feet (9.1 Meters) of retracted strap available at an actuation force of 5 lb. (2.3 kg).

DISPENSER OPERATION

As strap is drawn from the dispenser, the dancer arm is raised and the flange brake is released. The multi-roller design permits the strap coil to accelerate smoothly to full speed and strap is dispensed. When strap demand is complete, the dancer arm returns to its lowermost position. The brake is engaged, the strap coil stops rotating and the excess strap is accumulated within the multi-roller configuration.



A.1.1 SPECIFICATIONS

SPECIFICATIONS			
MODEL	STRAPPING		
PSD-119	TYPE	WIDTH	COIL SIZE
	Polyester or Polypropylene	Up to 16 mm	24"OD x 16"ID x 6"W

A.1.2 MAJOR COMPONENTS

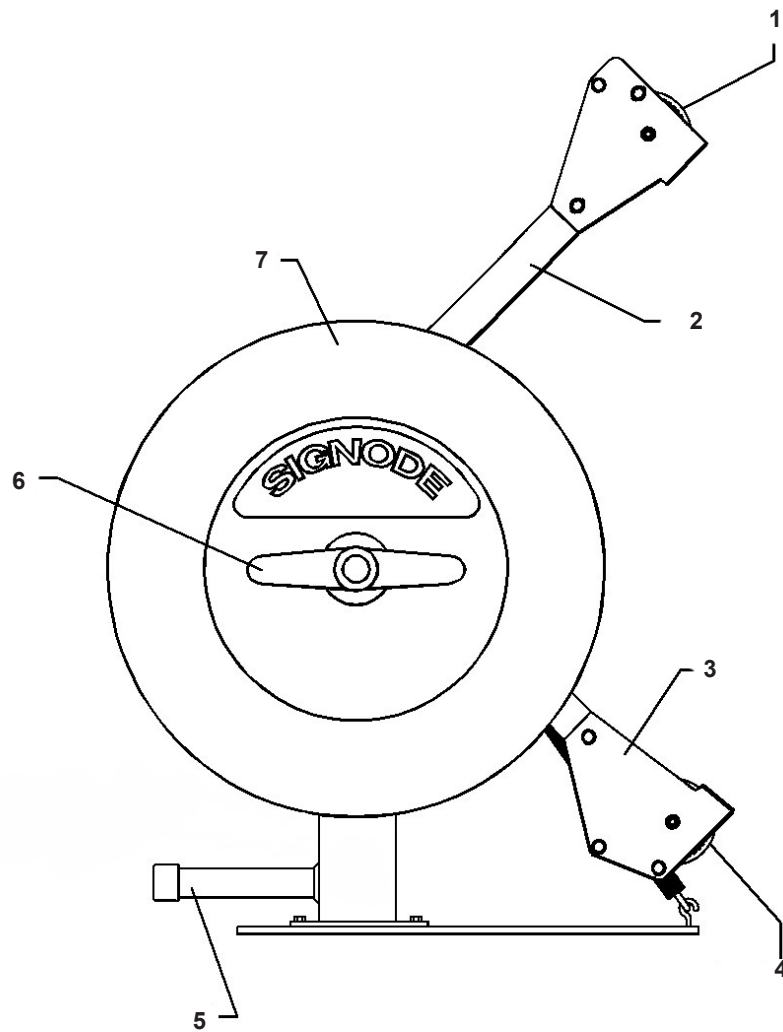


Figure A-1: Dispenser - Major Components

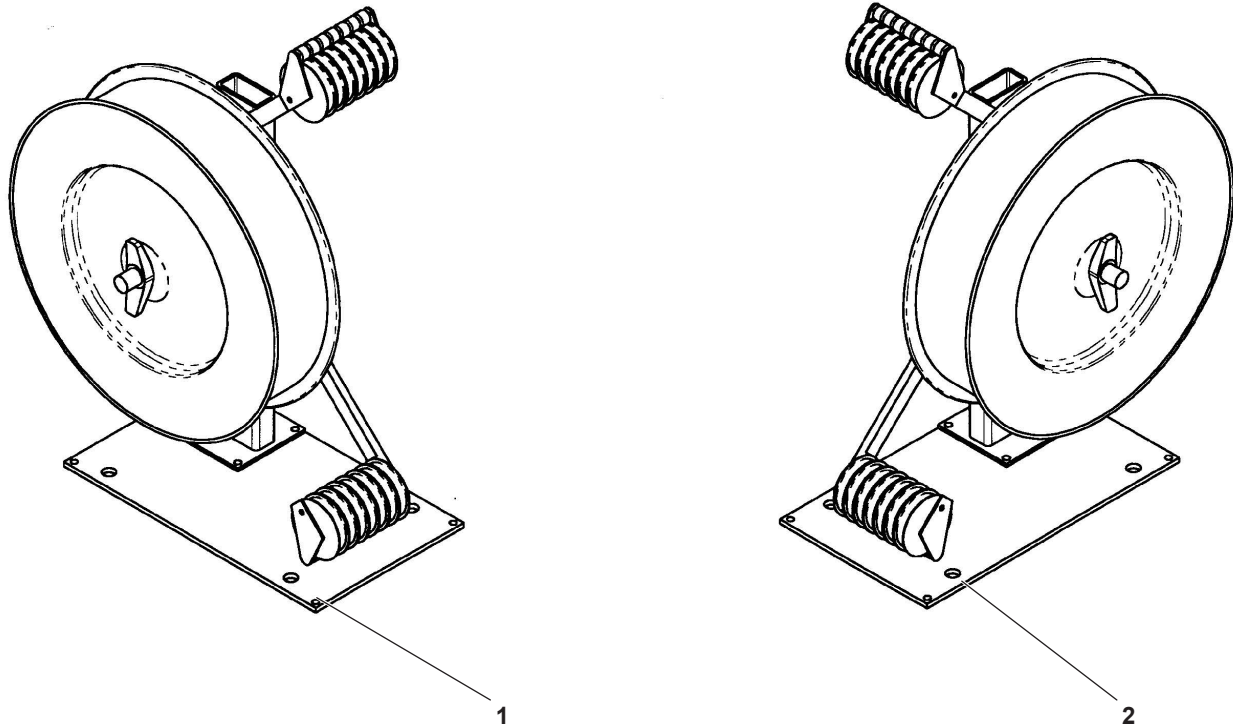


Figure A-2: Dispenser Orientation

1. Right-Hand Orientation (606038)
2. Left-Hand Orientation (606046)

A.2 INSTALLATION

The dispenser should be placed at least 4' (1.2 Meters) from the machinery that it will be serving. The Options Section contains the optional hardware required to accommodate the less common locations relative to the machine. Once permanent location has been determined, use the base as a template to transfer the mounting hole locations to the floor to accept 3/8" (0.375 mm) anchors. Securely fasten the dispenser in place.

⚠ WARNING

To prevent property damage, personal injury, and/or death, disconnect / lock-out all electrical power before proceeding.

⚠ WARNING

For safe operation and to prevent property damage, personal injury, and/or death, wear safety glasses and steel toe boots during operation and maintenance procedures.

⚠ WARNING

For safe operation and to prevent property damage, personal injury, and/or death, do not adjust, repair or perform maintenance procedures on moving machinery.

⚠ WARNING

For safe operation and to prevent property damage, personal injury, and/or death, follow all Coil Loading Instructions.

A.3 COIL LOADING INSTRUCTIONS

1. Remove the wing nut then lift the outer flange from the dispenser.



Figure A-3: Dispenser - Outer Flange

2. Before installing the coil of strap, note the direction of pay-off of the lead end. The coil should be placed on the dispenser with the lead end of the strap feeding off the top towards the upper roller stack.



Figure A-4: Shrink Wrapped Coil

Shrink Wrapped Coils: You may remove or cut the perforated film from the center core for a better fit but LEAVE the film and corrugated band or any other packaging that contains the strap to the coil until after its secure.

NOTE: Cross Tied Coils - Leave the crossties and the face blocks intact and any other coil packaging materials.

3. Place new coil on the step of the rear flange and reinstall the outer reel disc assembly.



Figure A-5: Dispenser Coil



Figure A-6: Dispenser - Outer Reel Disc

4. Snug the wing nut until both flange assemblies are flush on the coil.



Figure A-7: Dispenser - Wing Nut

5. Remove shrink wrapping and corrugated band (or if applicable, cut the cross ties on the coil, carefully remove the ties and the face blocks). Securely tighten the wing nut.



Figure A-8: Dispenser - Wrapping

⚠ WARNING

For safe operation and to prevent property damage and/or personal injury, maintain safe distance from dispenser moving parts before releasing brake.

6. Swing the lacing latch down from the upper arm. Raise the dancer arm and hook it onto the latch. This will release the brake and reduce the distance between the dancer arm and the upper arm.

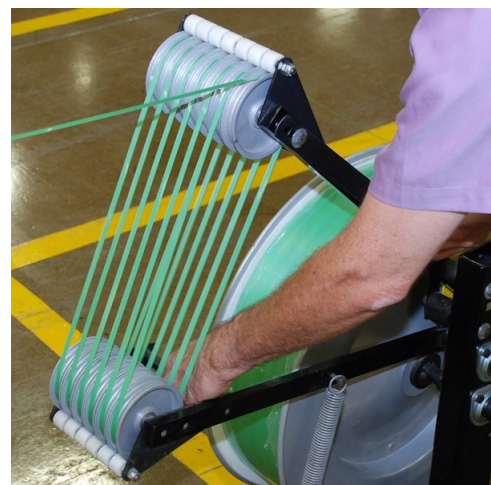


Figure A-9: Dispenser - Brake Release

7. Make sure there are no twists or kinks in the strap. Next, feed strap up and around the outermost roller on the upper roller stack (closest to the operator).



Figure A-10: Dispenser - Upper Roller

8. Direct the lead end down and around the outermost roller on the lower roller stack (2).



Figure A-11: Dispenser - Lower Roller

9. Guide the strap back up and over the next roller on the upper roller stack, (3). Repeat this process until all the rollers are loaded. The lead end of the strap should terminate at the innermost upper arm roller, (4).



Figure A-12: Dispenser - Upper Roller

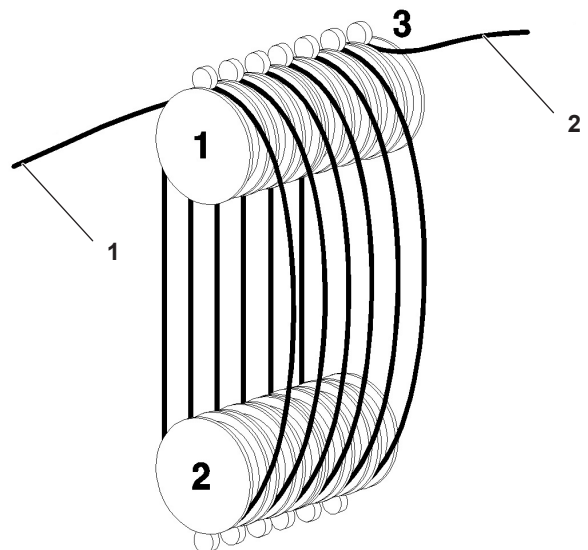


Figure A-13: Dispenser - Rollers

1. From Coil
2. To Machine

10. While holding on to the strap lead end release the dancer arm latch. The spring loaded dancer arm will return to its lower position and the strap is ready to be inserted into the machine.

RETURN THE LACING LATCH TO ITS STORAGE POSITION ON THE UPPER ARM.



Figure A-14: Dispenser - Lacing Latch

⚠ WARNING

To prevent property damage, personal injury, and/or death, disconnect / lock-out all electrical power before proceeding.

⚠ WARNING

For safe operation and to prevent property damage, personal injury, and/or death, wear safety glasses and steel toe boots during operation and maintenance procedures.

⚠ WARNING

For safe operation and to prevent property damage, personal injury, and/or death, do not adjust, repair or perform maintenance procedures on moving machinery.

A.4 PARTS REMOVAL AND REPLACEMENT

A.4.1 DANCER ARM COMPRESSION SPRING

To remove and replace the dancer arm compression spring (6):

1. Place dancer arm in its lowest position.
2. Remove the pipe cap (1) from the spring housing (2).
3. Remove hex nut (3), bushing (4), and spring stud (5). This may be difficult to do as thread sealant was applied during factory assembly.
4. Remove and replace the dancer arm compression spring. **NOTE:** Make sure the chain remains on the brake camshaft sprocket during this procedure.
5. Apply thread adhesive, Loctite® 242 or equivalent, to the spring stud and reassemble the spring bushing and hex nut.

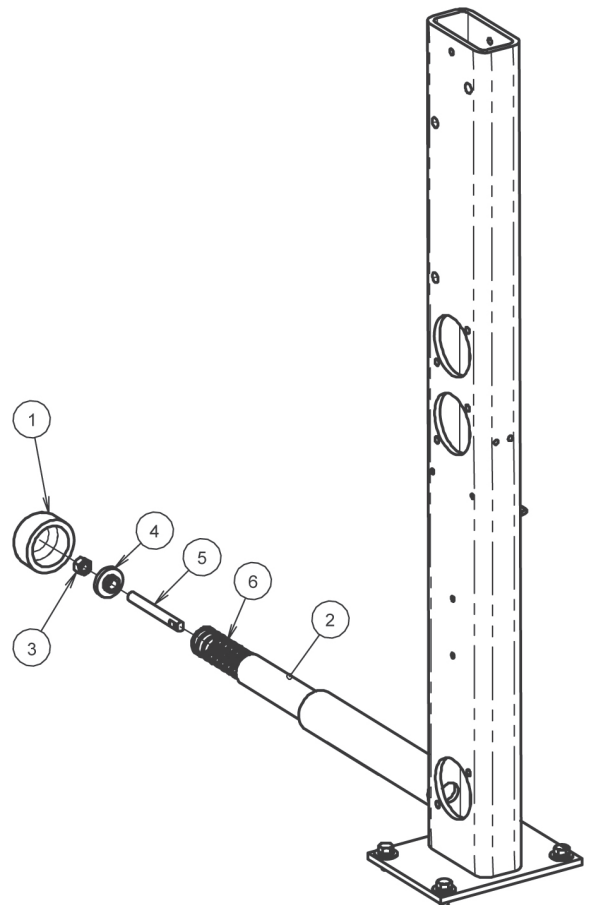


Figure A-15: Dancer Arm Compression Spring

6. Tighten the hex nut until the slack is removed from the chain-then tighten no further. If the dancer arm compression spring is overtightened, the chain or the connecting link may fail during operation.
7. Reinstall the pipe cap.

Failure to install the pipe cap could result in injury to personnel if the chain or connecting link should fail during operation. A sudden release of dancer arm compression should propel the spring stud, bushing, etc. from end of the spring housing at high velocity.

A.4.2 ACTUATION CHAIN

To remove and replace the actuation chain first remove the dispenser shaft (1):

1. Position the dancer arm at its lowest position.
2. Remove the flange bearings (2) from the post (3) and set to the side.
3. Remove the pipe cap (4) from the spring housing (5).
4. Remove the hex nut (6) and the spring bushing (7) from the stud (8). This may be difficult to do as thread sealant was applied during factory assembly.

The dancer arm shaft (9) must then be removed:

5. Remove the rear bearing assembly (10) and the retaining ring (11) from the dancer arm shaft.
6. Remove the fasteners (12) that attach the dancer arm front bearing assembly (13) to the post.
7. Remove the dancer arm assembly, with front bearing intact, from the post, sliding the shaft out of the dancer arm sprocket (14). Note the sprocket key (15).
8. Remove the sprocket and the chain assembly (16) from the post.

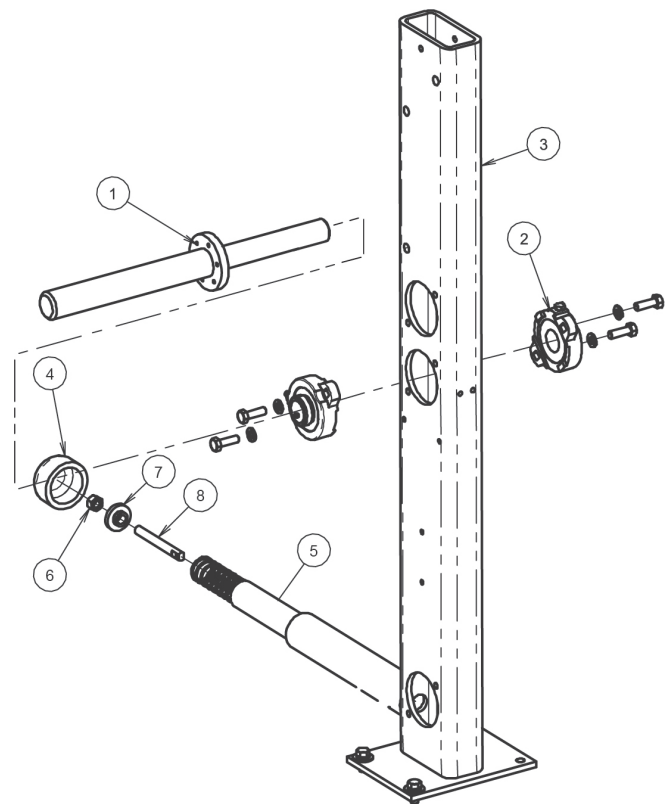


Figure A-16: Actuation Chain

9. Disassemble the sprocket-chain-stud assembly then replace the chain and reassemble the parts.
10. Reassemble the dancer arm assembly in reverse order of disassembly.
11. Separate the post assembly from the base plate by removing the post mounting fasteners.
12. Insert and direct the spring stud through the dancer arm compression spring in the spring housing. Make sure the chain is sealed on the brake arm camshaft sprocket and replace the spring bushing. Apply thread adhesive, Loctite® 242 or equivalent, to the spring stud and reinstall the hex nut.
13. Tighten the hex nut until the stack is removed from the chain- then tighten no further. Chain slack can be detected as free rotational movement of the brake cam. If the dancer arm compression spring is overtightened, the chain or the connecting link may fail during operation.
14. Reinstall the pipe cap.
15. Remount the post assembly to the base plate.
16. Reinstall the dispenser shaft assembly. Position this assembly so that the mounting hub on the rear flange is 2-3/8" (70 mm) from the near face of the post.
17. Readjust the strap accumulation. Details are in the Adjustment Section.

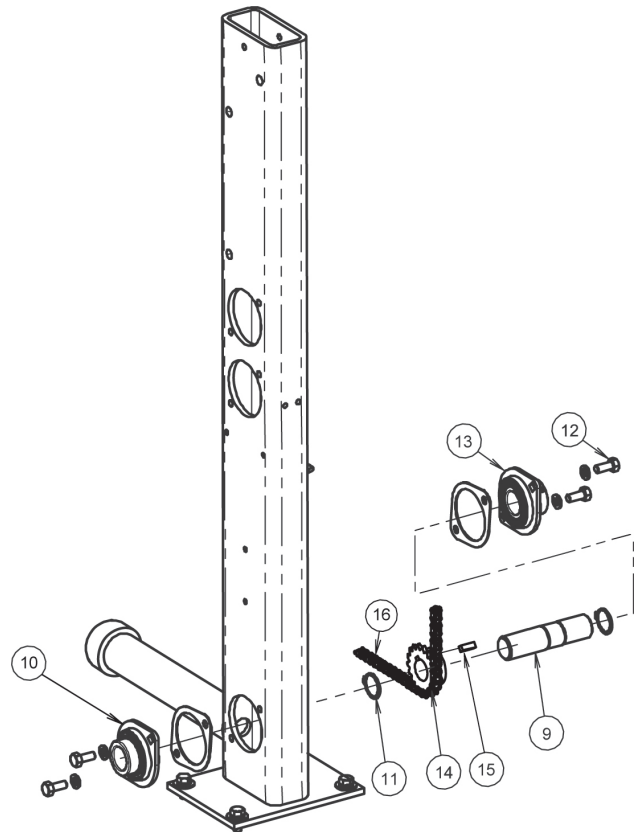


Figure A-17: Dancer Arm Shaft

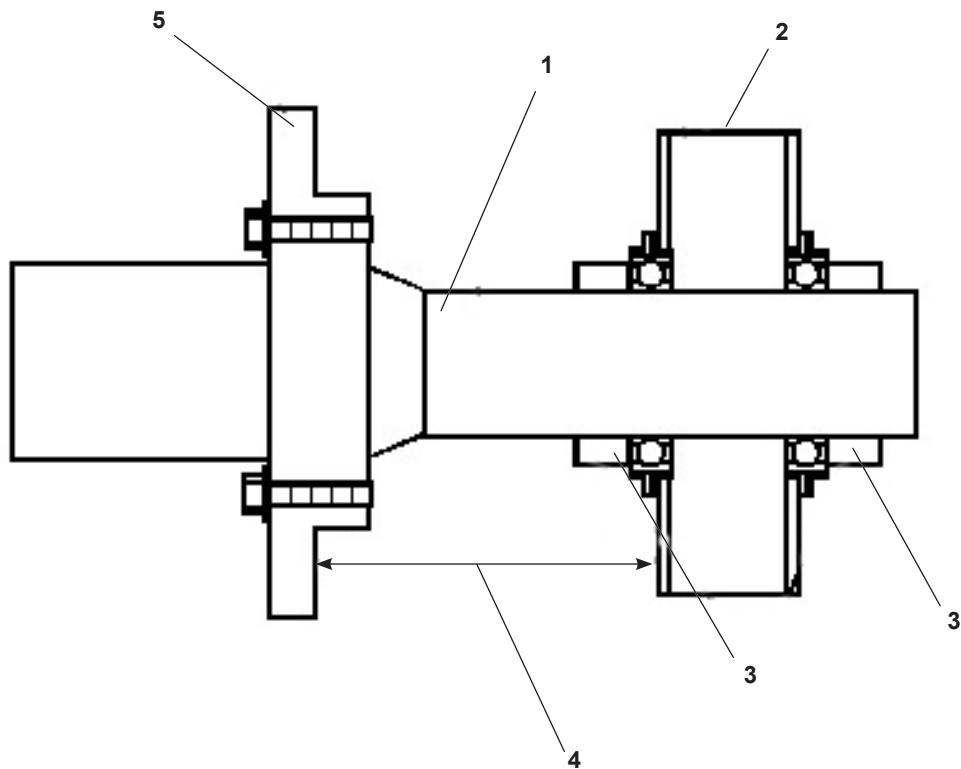


Figure A-18: Dispenser Shaft Assembly

1. Dispenser Shaft
2. Dispenser Post
3. Shaft Collar
4. 2 3/4" (70 mm)
5. Rear Flange Mounting Hub

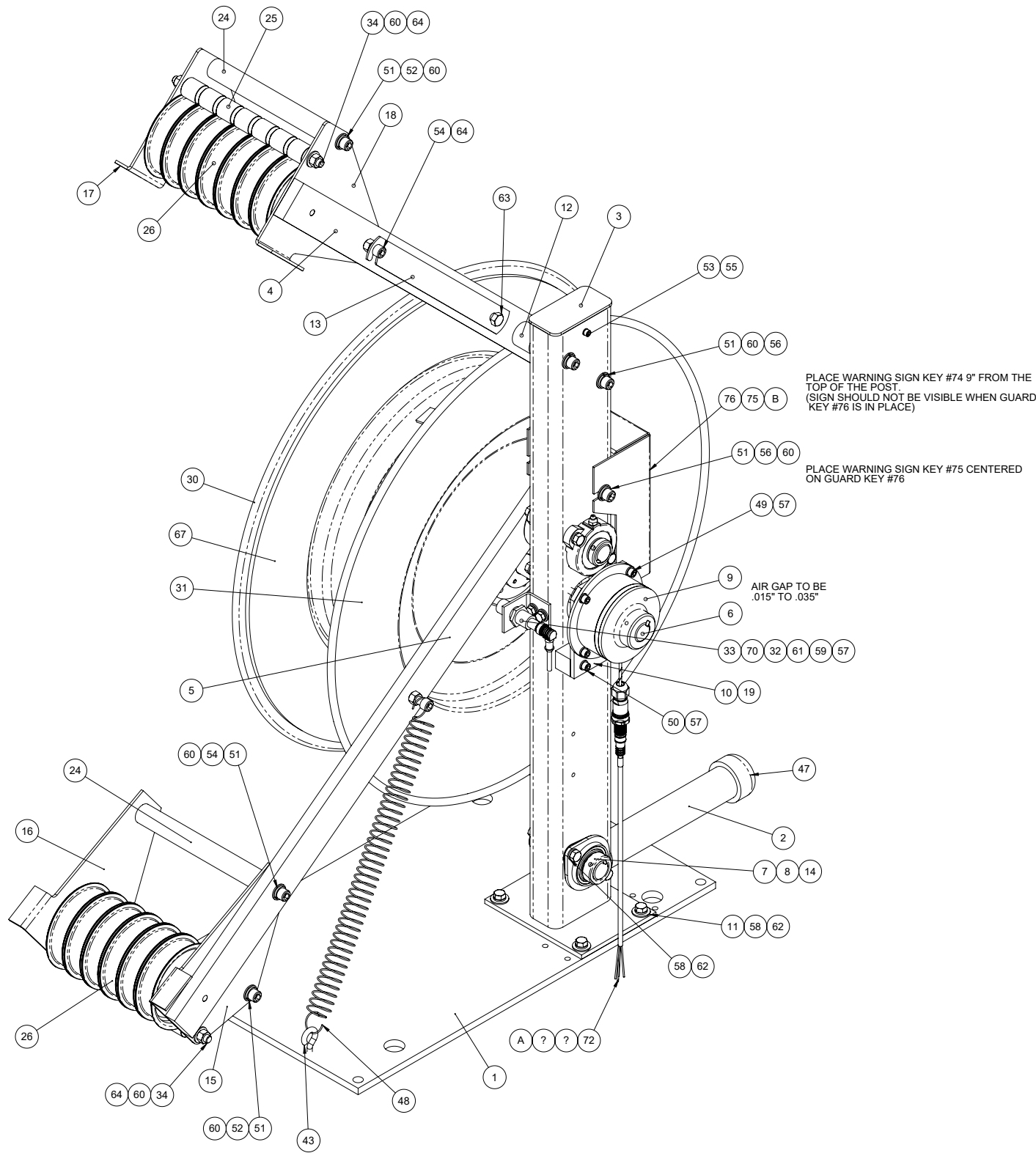
A.5 PARTS

- When ordering parts please indicate tool model, part number and description.
- Common hardware parts can be obtained at any local hardware supply.

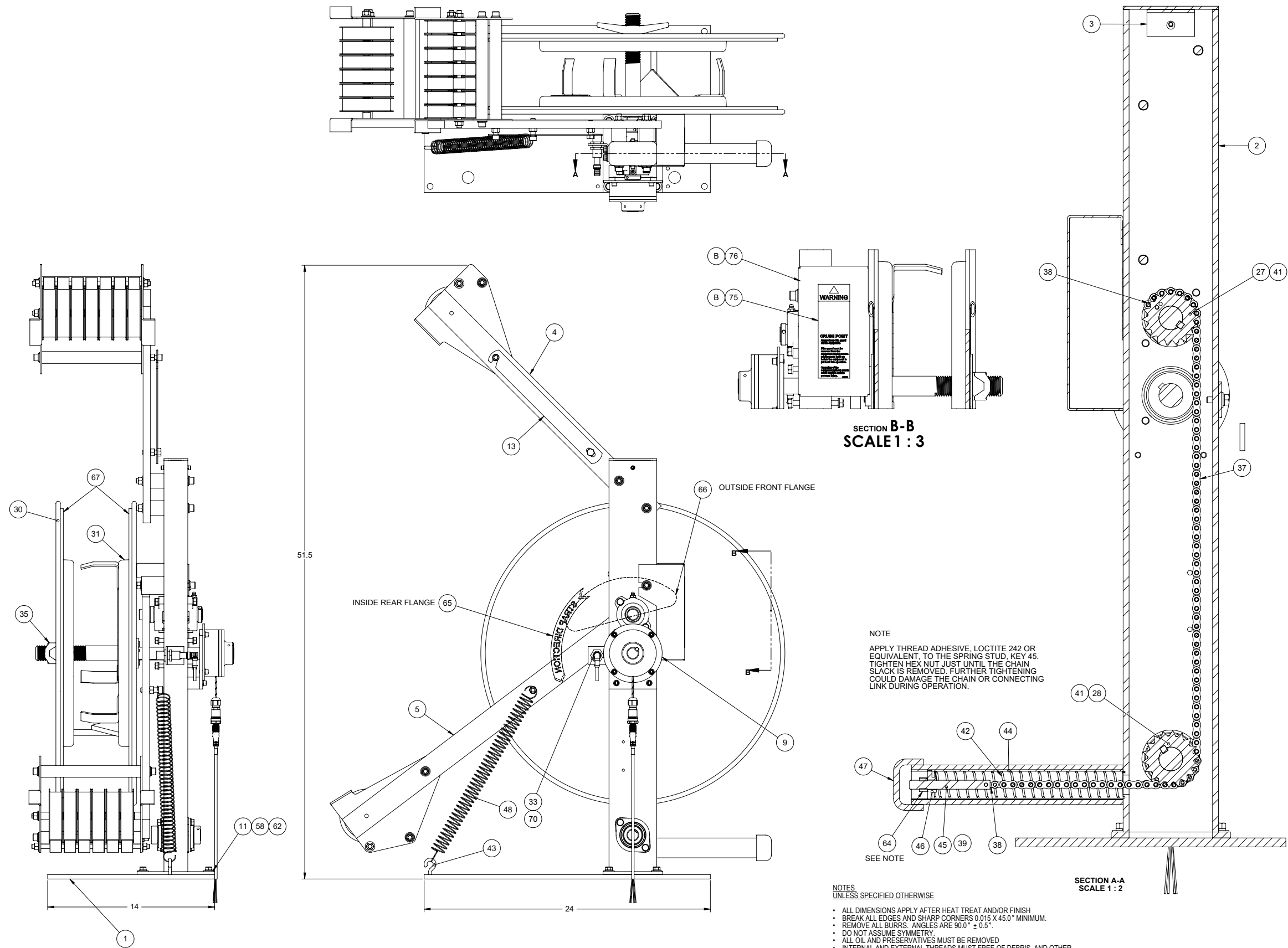
NOTE: See Reference Information for Loctite® requirements and torque specification unless otherwise noted.

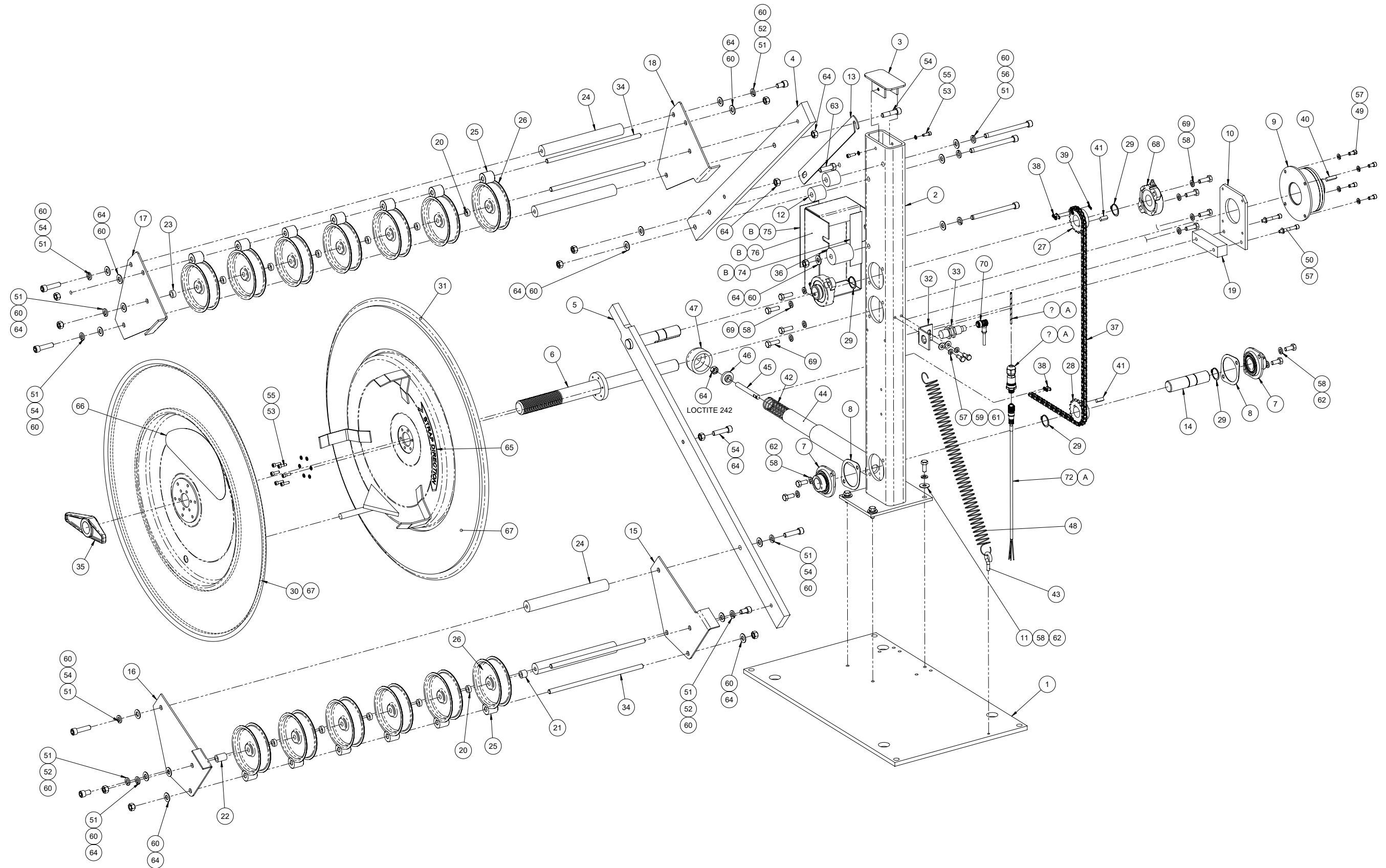
INTENTIONALLY BLANK

A.5.1 PSD-119 EB RH ASSEMBLY (606038-3)

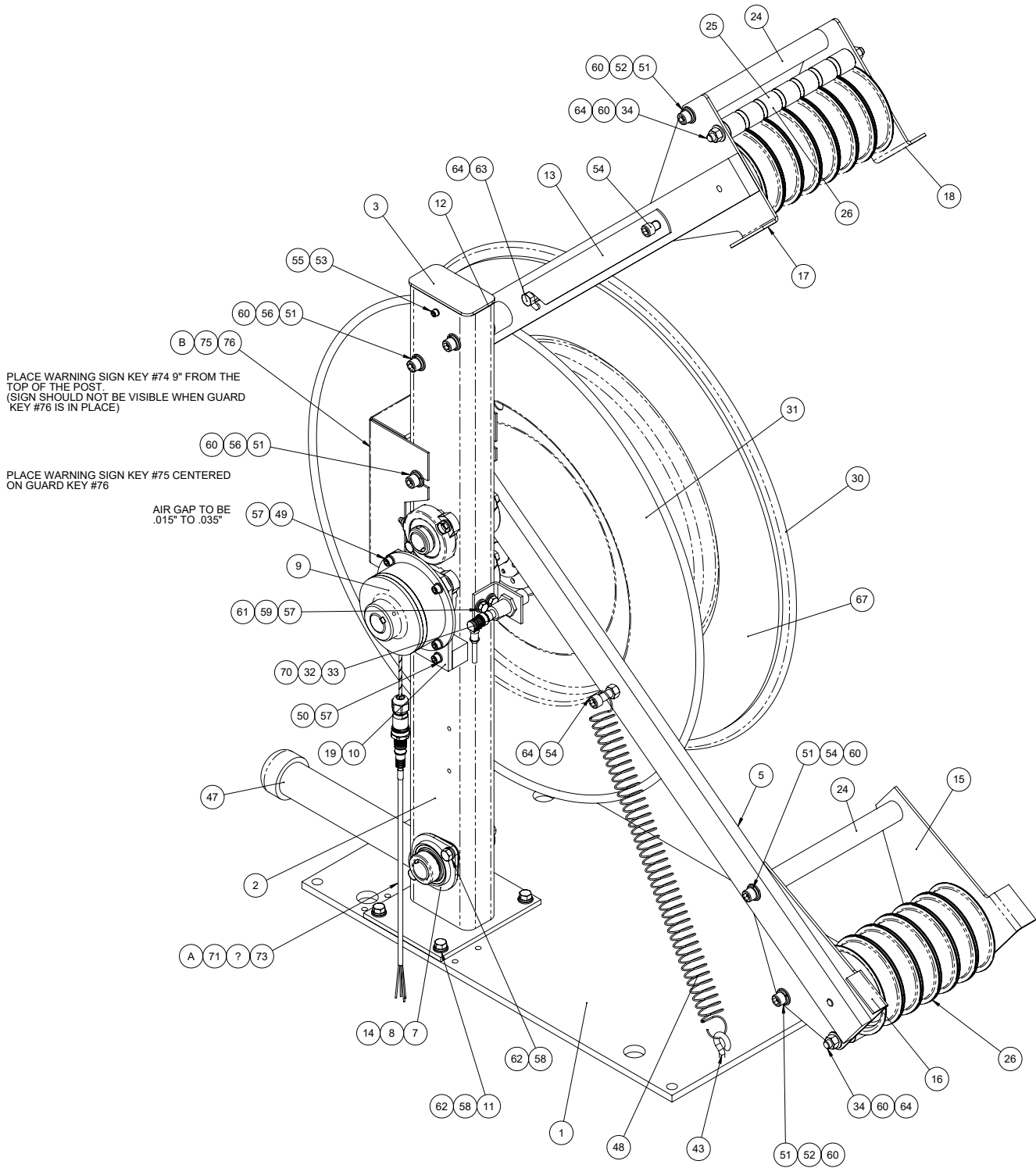


76	1	611299	DISPENSER GUARD
75	1	510486	WARNING SIGN
74	1	611298	WARNING SIGN
73	1	35000014257	SPIRAL SLEEVE
72	1	533512	M12 CABLE TO LEADS 5M
71	1	35000014239	MALE QUICK DISCONNECT CONNECTOR
70	1	600538	CORDSET, 5M, 90° FEMALE
69	8	001916	HHCS 5/16-24 X 1 B18.2.1 GR8 ZN
68	2	606203	FLANGE BEARING
67	2	517783	FLANGE LINER
66	1	606245	LABEL, IDENTIFICATION
65	1	127188201	STRAP DIRECTION DECAL-CW
64	13	009069	HEX NUT 3/8-16 B18.2.2 GR8 ZA
63	1	482947	HHCS 3/8-16 1-1/4 B18.2.1 GR8 ZA FTD
62	8	291541	HHCS 5/16-24 X 3/4 B18.2.1 GR8 ZN FTD
61	2	004234	HHCS 1/4-20 X 3/4 B18.2.1 GR8 ZN FTD
60	19	171380	FLAT WASHER 3/8 SAE B18.21.1 GR8 ZN
59	2	006227	FLAT WASHER 1/4 SAE B18.21.1 GR8 ZN
58	16	002188	LW 5/16 B18-21-1 GR8 ZN SPLIT
57	8	002187	LW 1/4 B18-21-1 GR8 ZN SPLIT
56	3	298001	SHCS 3/8-16 X 4-1/2 A574 170KSI ZA
55	8	004238	LW #10 B18-21-1 GR8 ZN SPLIT
54	6	013565	SHCS 3/8-16 X 1-1/2 A574 170KSI ZA FTD
53	8	004618	SHCS #10-24 X 5/8 A574 170KSI ZN FTD
52	3	009057	SHCS 3/8-16 X 3/4 A574 170KSI ZA FTD
51	12	076557	LW 3/8 B18-21-1 GR8 ZN SPLIT
50	2	009597	SHCS 1/4-20X1-3/4 A574 170KSI ZN FTD
49	4	009098	SHCS 1/4-20 X 1/2 A574 170KSI ZN FTD
48	1	964200029	EXTENSION SPRING
47	1	967900012	PIPE CAP
46	1	231188201	SPRING ADJ. STUD BUSHING
45	1	231181201	SPRING STUD
44	1	231184201	SPRING LINER
43	1	232160201	EYE BOLT
42	1	964100055	COMPRESSION SPRING
41	2	229417201	KEY 1/4 X 1/4 X .69
40	1	071734	KEY
39	1	959100003	HAIRPIN CLIP
38	2	983200007	CHAIN CONNECTING LINK
37	1	231974201	ACTUATION CHAIN
36	1	606033	STOPPER
35	1	127191202	WING NUT
34	4	482934	THREADED ROD
33	1	600461	PLATEN SENSOR
32	1	480615	MOUNTING BRACKET 18 MM
31	1	427597	REAR FLANGE WELDMENT
30	1	231191701	FRONT FLANGE
29	4	953114003	TRUARC RING #N5100-100
28	1	983100034	SPROCKET
27	1	231183201	DANCER ARM SPROCKET
26	13	482886	PULLEY
25	13	482883	KEEPER ROLLER
24	4	482868	SIDE PLATE SPACER
23	1	482871	STACK SPACER, .281" LG
22	1	482869	STACK SPACER, .906" LG
21	1	482870	STACK SPACER, .500" LG
20	11	482872	STACK SPACER, .218" LG
19	1	605875	SPACER
18	1	482936	SIDE PLATE, RH, UPPER STOCK
17	1	482863	SIDE PLATE, LH, UPPER STOCK
16	1	482864	SIDE PLATE, LH, LOWER STOCK
15	1	482935	SIDE PLATE, TH, LOWER STACK
14	1	606032	SHAFT
13	1	482933	LACING LATCH
12	2	231171201	UPPER ROLL ARM SPACER
11	4	004727	FW 5/16 B18.21.1 GR8 ZN
10	1	605874	BRAKE MTG. PLATE
9	1	605867	BRAKE
8	2	231713201	BEARING ALIGNMENT PLATE
7	2	912600009	FLANGE BRG. 1" BORE, 2 BOLTS
6	1	605868	DISPENSER SHAFT WELDMENT
5	1	606026	DANCER ARM
4	1	482866	UPPER ARM
3	1	482942	POST CAP
2	1	606031	POST
1	1	231160201	BASE PLATE
KEY	QTY.	PART NO.	DESCRIPTION

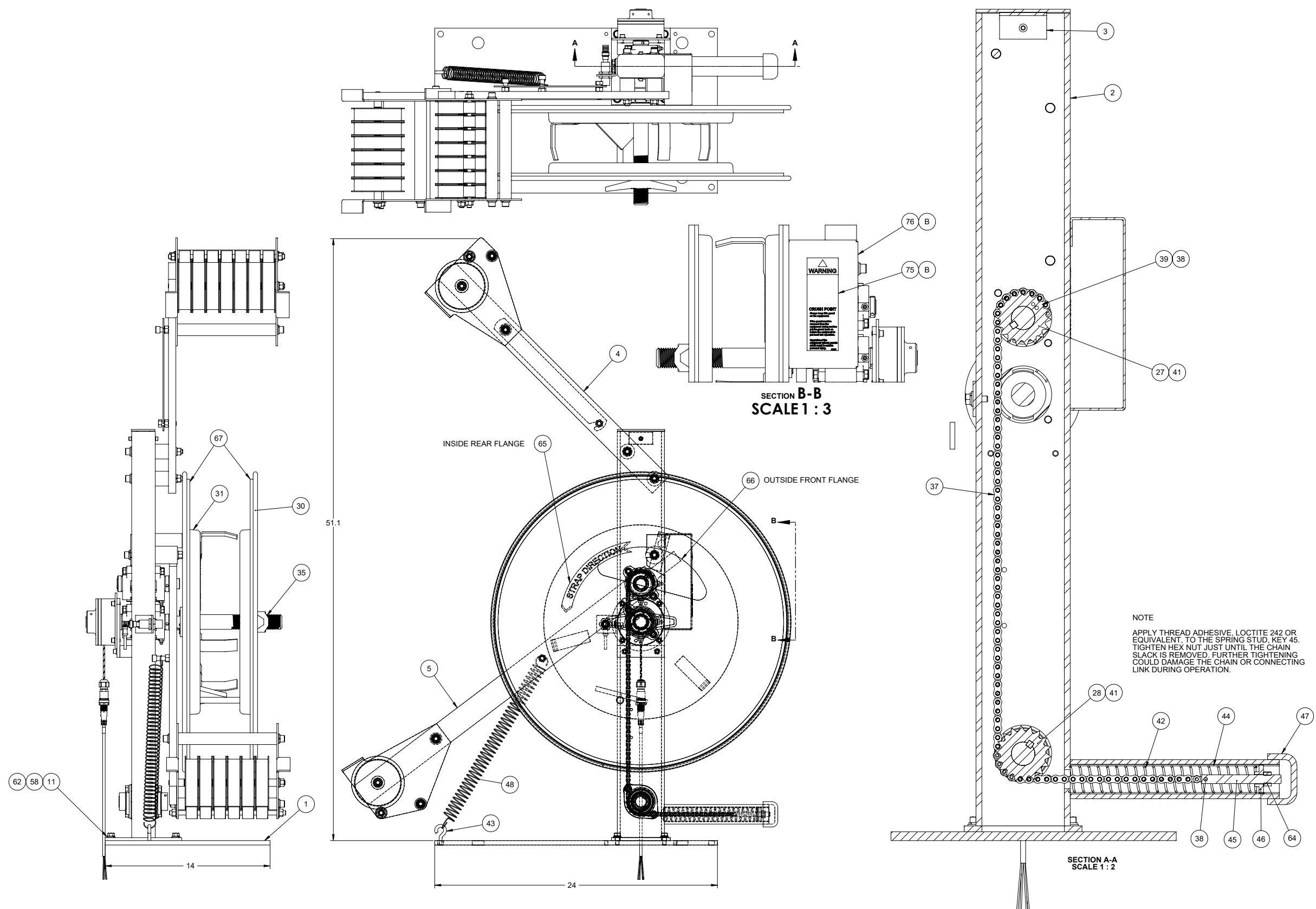


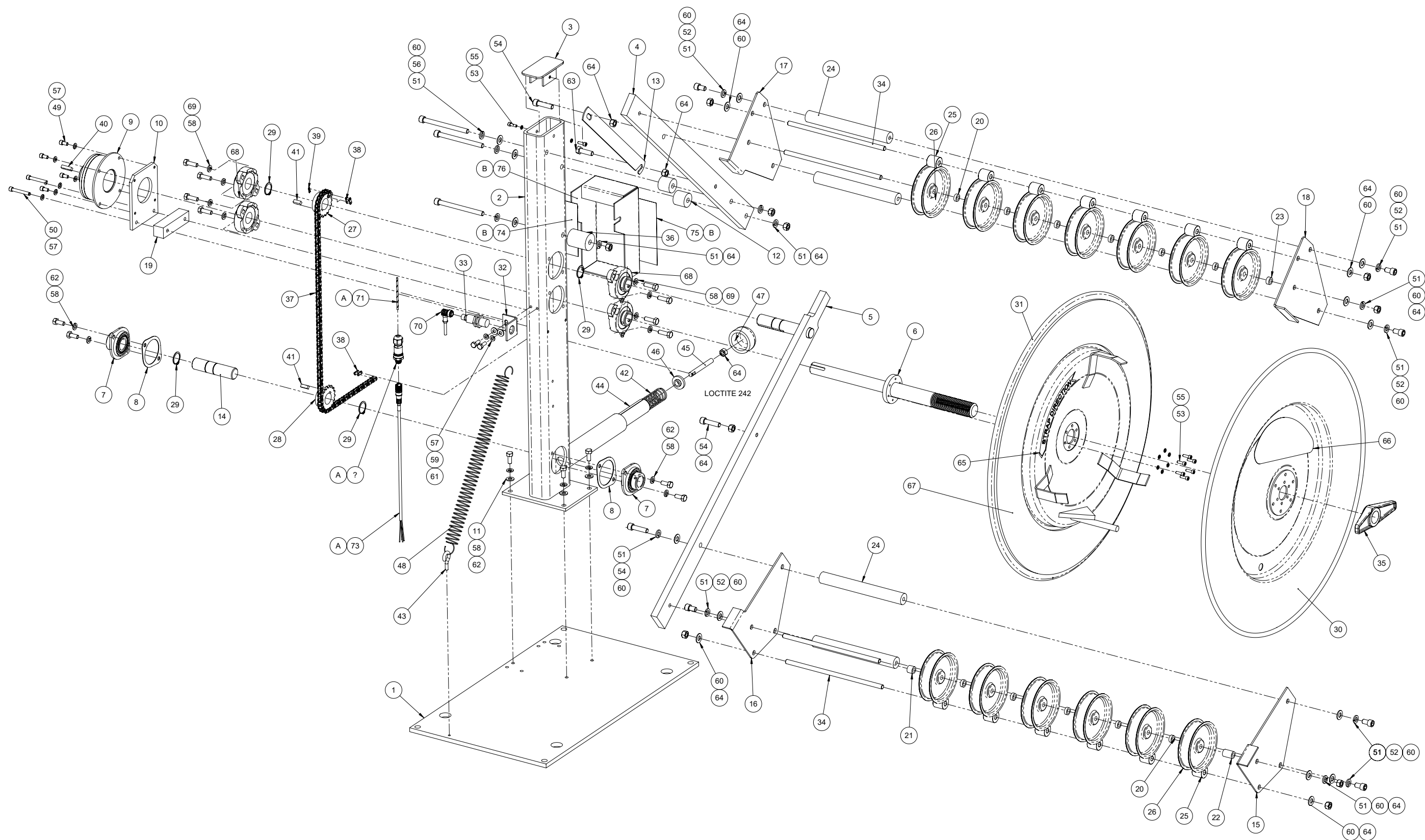


A.5.2 PSD-119 EB LH ASSEMBLY (606046-3)



76	1	611299	DISPENSER GUARD
75	1	510486	WARNING SIGN
74	1	611298	WARNING SIGN
73	1	533512	M12 CABLE TO LEADS 5M
72	1	35000014239	MALE QUICK DISCONNECT CONNECTOR
71	1	35000014257	SPIRAL SLEEVE
70	1	600538	CORDSET, 5M, 90° FEMALE
69	8	001916	HHCS 5/16-24 X 1 B18.2.1 GR8 ZN
68	4	606203	FLANGE BEARING
67	2	517783	FLANGE LINER
66	1	606245	LABEL, IDENTIFICATION
65	1	127188202	STRAP DIRECTION DECAL-CCW
64	13	009069	HEX NUT 3/8-16 B18.2.2 GR8 ZA
63	1	482947	HHCS 3/8-16 1-1/4 B18.2.1 GR8 ZA FTD
62	8	291541	HHCS 5/16-24 X 3/4 B18.2.1 GR8 ZN FTD
61	2	004234	HHCS 1/4-20 X 3/4 B18.2.1 GR8 ZN FTD
60	16	171380	FLAT WASHER 3/8 SAE B18.21.1 GR8 ZN
59	2	006227	FLAT WASHER 1/4 SAE B18.21.1 GR8 ZN
58	16	002188	LW 5/16 B18-21-1 GR8 ZN SPLIT
57	8	002187	LW 1/4 B18-21-1 GR8 ZN SPLIT
56	3	298001	SHCS 3/8-16 X 4-1/2 A574 170KSI ZA
55	8	004238	LW #10 B18-21-1 GR8 ZN SPLIT
54	3	013565	SHCS 3/8-16 X 1-1/2 A574 170KSI ZA FTD
53	8	004618	SHCS #10-24 X 5/8 A574 170KSI ZN FTD
52	6	009057	SHCS 3/8-16 X 3/4 A574 170KSI ZA FTD
51	15	076557	LW 3/8 B18-21-1 GR8 ZN SPLIT
50	2	009597	SHCS 1/4-20X1-3/4 A574 170KSI ZN FTD
49	4	009098	SHCS 1/4-20 X 1/2 A574 170KSI ZN FTD
48	1	964200029	EXTENSION SPRING
47	1	967900012	PIPE CAP
46	1	231188201	SPRING ADJ. STUD BUSHING
45	1	231181201	SPRING STUD
44	1	231184201	SPRING LINER
43	1	232160201	EYE BOLT
42	1	964100055	COMPRESSION SPRING
41	2	229417201	KEY 1/4 X 1/4 X .69
40	1	071734	SQUARE KEY, 1/4X1/4X1
39	1	959100003	HAIRPIN CLIP
38	2	983200007	CHAIN CONNECTING LINK
37	1	231974201	ACTUATION CHAIN
36	1	606033	STOPPER
35	1	127191202	WING NUT
34	4	482934	THREADED ROD
33	1	600461	PLATEN SENSOR
32	1	480615	MOUNTING BRACKET 18 MM
31	1	427597	REAR FLANGE WELDMENT
30	1	231191701	FRONT FLANGE
29	4	953114003	TRUARC RING #N5100-100
28	1	983100034	SPROCKET
27	1	231183201	DANCER ARM SPROCKET
26	13	482886	PULLEY
25	13	482883	KEEPER ROLLER
24	4	482868	SIDE PLATE SPACER
23	1	482871	STACK SPACER, .281" LG
22	1	482869	STACK SPACER, .906" LG
21	1	482870	STACK SPACER, .500" LG
20	11	482872	STACK SPACER, .218" LG
19	1	605875	SPACER
18	1	482936	SIDE PLATE, RH, UPPER STOCK
17	1	482863	SIDE PLATE, LH, UPPER STOCK
16	1	482864	SIDE PLATE, LH, LOWER STOCK
15	1	482935	SIDE PLATE, TH, LOWER STACK
14	1	606032	SHAFT
13	1	482933	LACING LATCH
12	2	231171201	UPPER ROLL ARM SPACER
11	4	004959	FLAT WASHER 5/16 SAE B18.21.1 GR8 ZN
10	1	605874	BRAKE MTG. PLATE
9	1	605867	BRAKE
8	2	231713201	BEARING ALIGNMENT PLATE
7	2	912600009	FLANGE BRG. 1" BORE, 2 BOLTS
6	1	605868	DISPENSER SHAFT WELDMENT
5	1	606026	DANCER ARM
4	1	482866	UPPER ARM
3	1	482942	POST CAP
2	1	606031	POST
1	1	231160201	BASE PLATE
KEY	QTY.	PART NO.	DESCRIPTION





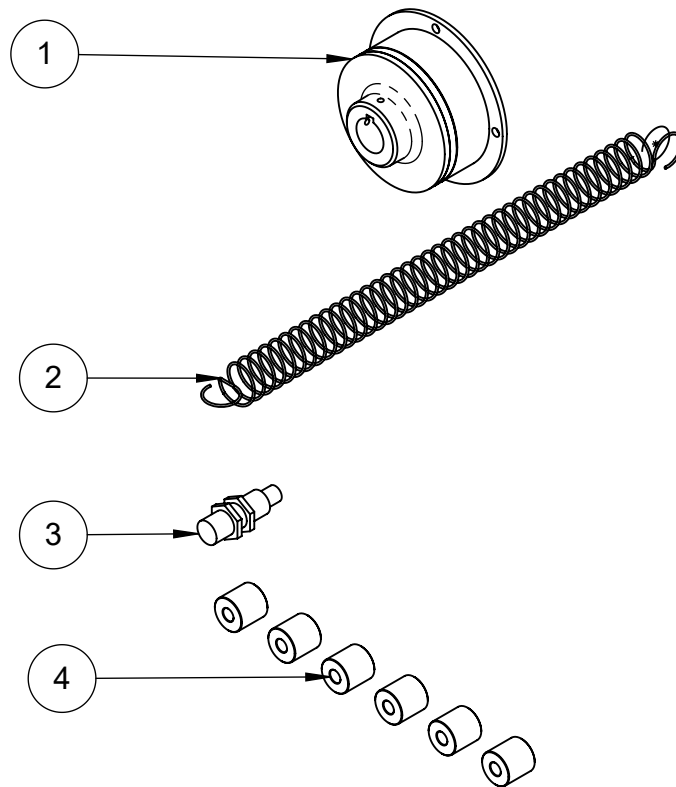
INTENTIONALLY BLANK

A.5.3 PSD-119 SPARE PARTS KIT (2010200262-1)

PSD-119 SPARE PARTS KIT

20102002362-1

KEY	QTY.	PART NO.	DESCRIPTION
1	1	605867	BRAKE
2	1	964200029	EXTENSION SPRING
3	1	600461	INDUCTIVE PROX-18MM
4	6	482883	KEEPER ROLLER



**APPENDIX B
MH-16 POWER STRAPPING HEAD
OPERATION, PARTS & MAINTENANCE MANUAL**

APPENDIX-B



Signode Industrial Group LLC
1600 Central Avenue
Roselle, Illinois 60172
U.S.A.

Phone: (847) 724-6100
Website: Signode.com

© 2021 Signode Industrial Group LLC
All rights reserved. No part of this manual may
be used or reproduced in any manner without
written permission.
Published 2021
Printed in the United States of America

APPENDIX B**OPERATION & MAINTENANCE MANUAL****MH-16 POWER STRAPPING HEADB-I****SAFETY.....B-VII****GENERAL INFORMATION.....B-VII**

Operator Obligations:B-VII

Owner And Operating Company Obligations:B-VII

GENERAL SAFETY INSTRUCTIONS.....B-VIII

Work Area HazardsB-VIII

Fall And Tripping HazardsB-VIII

Electric Shock HazardsB-IX

PERSONAL SAFETY INSTRUCTIONSB-IX

TrainingB-IX

Eye Injury HazardB-IX

Cut HazardB-IX

Sound ProtectionB-IX

Foot Protection.....B-IX

Back ProtectionB-IX

MACHINE SAFETY INSTRUCTIONS.....B-X

Use For Intended Purpose OnlyB-X

Possible MisuseB-X

MaintenanceB-X

Disconnect And Lock-Out ProceduresB-XI

Conveyor Safety Hazards (If Equipped)B-XI

Improper Strap Usage.....B-XII

Software.....B-XII

Machine Hazard And Warning Symbols.....B-XII

DANGER Arc Flash Hazard!B-XII

DANGER Hazardous VoltageB-XII

WARNING Crush PointB-XII

Earth Ground.....B-XII

Forklift Lift Point Location.....B-XII

Machine InstallationB-XIII

Customer Requirements For Machine GroundingB-XIII

Additional ConsiderationsB-XIII

Cutting Tensioned StrappingB-XIV

Using A Single-Handle Strap CutterB-XV

Using A Two-Handed Strap CutterB-XV

APPENDIX B SECTION 1

GENERAL MACHINE INFORMATION	B1-1
1.1 SPECIFICATIONS	B1-2
1.1.1 Original Equipment Manufacturer's (OEM) Information	B1-2
1.1.2 Machine Designation	B1-2
1.1.3 Machine Description	B1-2
1.1.4 Machine Specifications	B1-2
1.1.4.1 Strap:.....	B1-2
1.1.4.2 Rate Of Feed:.....	B1-2
1.1.4.3 Rate Of Take-Up:	B1-2
1.1.4.4 Strap Take-Up Tension:.....	B1-2
1.1.4.5 Weights:	B1-2
1.1.4.6 Sound:.....	B1-3
1.1.4.7 Environmental Conditions:	B1-3
1.2 MAJOR MACHINE COMPONENTS	B1-4
1.2.1 Sealer Module	B1-4
1.2.2 Tension Module	B1-5
1.3 ORDERING REPLACEMENT PARTS	B1-6
1.3.1 Instructions For Ordering	B1-6
1.3.2 Signode Parts Or Service Call	B1-6

APPENDIX B SECTION 2

TRANSPORT, INSTALLATION AND SET-UP	B2-1
2.1 MACHINE TRANSPORT	B2-2
2.1.1 Machine Crating	B2-2
2.1.2 Machine Uncrating	B2-3
2.1.3 Machine Handling	B2-3
2.2 MACHINE INSTALLATION AND SET-UP	B2-4
2.2.1 Installation of feed and take-up module	B2-4
2.2.2 Installation of Sealer Module.....	B2-4
2.2.4 Protective Barrier	B2-5
2.3 MACHINE DECOMMISSION	B2-6
2.3.1 Disassembly.....	B2-6
2.3.2 Storage	B2-6
2.3.3 Disposal And Scrap.....	B2-6

APPENDIX B SECTION 3

MACHINE OPERATION.....	B3-1
3.1 PRINCIPLES OF OPERATION	B3-2
3.1.1 General	B3-2
3.2 OPERATOR CONTROLS	B3-3
3.2.1 Main Power Disconnect Lever	B3-3
3.2.2 Emergency Stop Button	B3-3
3.3 OPERATING PROCEDURE	B3-4
3.3.1 Prepare Machine For Operation	B3-4
3.3.1.1 Perform Safety Device Function Checks	B3-4
3.3.1.2 Load Strap In Machine	B3-4
3.3.2 Operation Procedure.....	B3-6
3.3.2.1 Manual Mode	B3-6
3.3.2.2 Auto Mode.....	B3-6

APPENDIX B SECTION 4

MAINTENANCE & TROUBLESHOOTING	B4-1
4.1 PERIODIC SERVICE INSTRUCTIONS	B4-2
4.1.1 Prepare Machine For Maintenance.....	B4-2
4.1.2 Machine Function Check	B4-2
4.1.3 Lockout-Tagout Procedure.....	B4-2
4.1.4 Daily	B4-3
4.1.5 Bi-Weekly Or 10,000 To 20,000 Strap Cycles.....	B4-3
4.1.6 Quarterly Or 40,000 To 60,000 Strap Cycles	B4-3
4.1.7 Annually Or 150,000 To 200,000 Strap Cycles	B4-3
4.2 SAFETY DEVICE FUNCTION CHECKS	B4-4
4.2.1 Main Power Disconnect Switch.....	B4-4
4.2.2 Emergency Stop	B4-5
4.2.3 Protective Barrier - Door Lock Switches (If Installed)	B4-5
4.3 SERVICE PROCEDURES	B4-6
4.3.1 Weld Motor Brush Replacement	B4-6
4.3.2 Index Motor Brush Replacement	B4-7
4.3.3 Strap Stop Guide	B4-9
4.3.4 Strap Width Guide.....	B4-10
4.3.5 Head Module Removal And Replacement Procedures	B4-11
4.3.6 Removal / Replacement Of The Tension Module	B4-12

4.3.7	Removal / Replacement Of The Sealer Module	B4-13
4.4	TROUBLESHOOTING	B4-14
4.4.1	Symptoms:	B4-14
 APPENDIX B SECTION 6		
	MACHINE	B6-1
	SEALER MODULE	B6-3
	MH-16 Sealer Assembly (531450-8)	B6-4
	TENSION MODULE	B6-11
	MH-16 Tension Module (531426-12)	B6-12
	SPARE PARTS LIST	B6-25
	MH-16 Head Spare Parts Kit (531801-4)	B6-25

WARNING

FOR SAFE OPERATION AND TO PREVENT PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH, OBTAIN AND UNDERSTAND ALL SAFETY INSTRUCTIONS.

SAFETY

GENERAL INFORMATION

Safety instructions provided in the *Operation and Maintenance Manual* is intended for the safety of the operating and maintenance personnel as well as to prevent damage to the machine. The *Operation and Maintenance Manual* must be stored in a location and manner that allows easy access by all personnel operating or performing maintenance on the machine.

Signode reserves the right to make technical modifications that do not influence or change machine operation as described here without having to change the *Operation and Maintenance Manual*.

The user shall bear full liability for damage and operational interruptions resulting from non-observance of the operating instructions. Any modification to the original state of the machine or the accessories is forbidden.

OPERATOR OBLIGATIONS:

- Read and adhere to all operation instructions in the *Operation and Maintenance Manual*.
- Before operating machine, perform Safety Device Function Checks.
Operate machine, only if all safety equipment is present and functional, e.g. protective equipment and Emergency Stop equipment.
- Observe all safety instructions on the machine. Keep these in a complete and legible state.

OWNER AND OPERATING COMPANY OBLIGATIONS:

- Ensure only qualified, trained and reliable personnel operate the machine.
- Verify personnel adhere to all machine safety and operating instructions in the *Operation and Maintenance Manual*.
- Ensure machine installation, maintenance and repairs are carried out in accordance with the *Operation and Maintenance Manual*.
- If repairs are required, use only original or identical spare parts approved by Signode.
- Machine repairs may only be carried out by authorized Signode personnel.

The applicable accident prevention and safety procedures where the machine is installed must be observed in addition to the safety instructions provided in the *Operation and Maintenance Manual*.

WARNING

FOR SAFE OPERATION AND TO PREVENT PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH, OBTAIN AND UNDERSTAND ALL SAFETY INSTRUCTIONS.

GENERAL SAFETY INSTRUCTIONS

- Only trained personnel should operate or service the machine.
- If you require safety instructions in a different language, contact the local Signode representative.
- Inspect the machine daily and replace all worn or broken parts.
- Never put any part of your body into, or wear loose clothing or jewelry when near, moving machinery.
- Keep all guards in place, and be sure all safety devices are working properly. Never bypass or alter machine guards.
- Keep out of the strap chute area while the machine is operating.
- Do not walk between free standing strap dispensers and the machine.
- The machine and strap dispensers must be secured to prevent movement during operation.
- Read and understand all signs located on the machine.
- Do not remove, modify or deface any sign on the machine.
- Replace all damaged signs.

WORK AREA HAZARDS

- Keep the machine and work area clean.
- Remove used strapping debris and other objects not necessary for the machine's operation.
- Work area must remain uncluttered and have adequate lighting.
- Do not allow pedestrians or visitors in work area.
- Wear protective gloves and non-skid footwear when working outdoors.
- Do not operate machinery in presence of gases or flammable liquids.

FALL AND TRIPPING HAZARDS

- Maintain proper footing and/or balance when operating the machine to prevent tripping or falls.
- Do not operate or service the machine while in an awkward body position.

WARNING

FOR SAFE OPERATION AND TO PREVENT PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH, OBTAIN AND UNDERSTAND ALL SAFETY INSTRUCTIONS.

ELECTRIC SHOCK HAZARDS

- Do not allow body parts to make contact with grounded surfaces, such as pipes, radiators, ranges, refrigerator enclosures.
- When operating equipment outdoors, use only extension cords intended for outdoors and so marked.
- Do not expose machine to water or environmental conditions such as rain or snow.
- Do not allow visitors or pedestrians to make contact with machine or extension cords.

PERSONAL SAFETY INSTRUCTIONS



TRAINING

Read the operating instructions carefully. This machine must not be used by persons not properly trained in its use. Be certain that you receive proper training from your employer. If you have any questions contact your Signode Representative.



EYE INJURY HAZARD

Failure to wear safety glasses with side shields can result in severe eye injury or blindness. Always wear safety glasses with side shields which conform to ANSI Standard Z87.1 or EN 166.



CUT HAZARD

Handling strap or sharp parts could result in cut hands or fingers. Wear protective gloves.



SOUND PROTECTION

When operating the machine, wear ear protection.



FOOT PROTECTION

Failure to wear steel reinforced safety shoes could result in serious injury.

BACK PROTECTION

To prevent back or other body injuries, your employer must provide proper lifting and/or handling instructions.

WARNING

FOR SAFE OPERATION AND TO PREVENT PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH, OBTAIN AND UNDERSTAND ALL SAFETY INSTRUCTIONS.

MACHINE SAFETY INSTRUCTIONS

USE FOR INTENDED PURPOSE ONLY

- This machine is designed ONLY for strapping products.
- Do not use machine for any purpose other than what it was designed for, without written approval from Signode.
- Unauthorized modifications or changes to the machine are prohibited.
- Signode is not liable for damages or injuries resulting from unauthorized modifications to the machine, or the use of this machine for purposes other than what it was designed.
- Do not overload the machine by exceeding the package size specifications.
- Machine is not designed for use near or with hazardous or explosive materials.

POSSIBLE MISUSE

- Using the machine for purposes other than the manufacturer's intended purpose.
- Not using strap specified for machine.
- Not operating or storing machine within the required Machine Specifications.

WARNING

**Become familiar with the location, and operation of each shutoff device.
Disconnect/Lock-Out all power sources before servicing machine.
Never use machine operating controls as a means for locking out power.**

MAINTENANCE

- Only trained personnel should operate or service the machine.
- Follow all operation, maintenance and service instructions in this manual.
- Remove all packages from the machine before performing maintenance.
- Follow the proper procedure when placing the strapping head into the service position.

WARNING

FOR SAFE OPERATION AND TO PREVENT PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH, OBTAIN AND UNDERSTAND ALL SAFETY INSTRUCTIONS.

DISCONNECT AND LOCK-OUT PROCEDURES

This machine is equipped with shut off devices which satisfy OSHA Regulation 1910.147 (control of hazardous energy sources - lock out/tag out).

- Disconnect and lock-out all power to the machine as required by OSHA 1910.147.
- Never use stop buttons in place of lock-out devices.
- Never remove a lock-out device put in place by someone else.

MAIN DISCONNECT SWITCH - The main disconnect switch is located on the main electrical control panel enclosure.

To disconnect/lock-out electrical power to the machine proceed as follows.

- Turn the main disconnect switch to the OFF position.
- Locate an appropriate locking hole on the switch, and apply a locking device.
- Electrical panel may have outside sourced electrical power for interlocks. Identify and isolate electrical power before opening electrical panel.



NOTE: Some electrical components in the machine may be electrically charged after the power is shut off. Wait no less than one minute after the power has been disconnected before servicing the panel.

WARNING

To prevent property damage, personal injury and/or death, only authorized Signode personnel can alter the electrical panel/program.

CONVEYOR SAFETY HAZARDS (IF EQUIPPED)

- Never start a conveyor until all personnel are clear.
- Never block or override conveyor emergency stop buttons.
- If a package should jam or skew, never reposition it yourself - get help. Disconnect and lock-out all power before attempting to fix the issue.
- Never transport packages that the conveyor was not designed to handle. Check that the packages are stable and the pallets are not damaged.
- Stay clear of the conveyor loading and unloading areas.
- When a Signode machine or conveyor is part of another packaging system, be certain you understand how the other equipment's malfunctions may affect Signode products.

WARNING

FOR SAFE OPERATION AND TO PREVENT PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH, OBTAIN AND UNDERSTAND ALL SAFETY INSTRUCTIONS.

IMPROPER STRAP USAGE

Strap is designed to be used to secure a load; not for lifting or pulling a load. Lifting or pulling a load by its strap is a dangerous practice that can cause serious injury if the strap breaks and you drop the package, or if you lose your grip and fall. Lifting or pulling a package with a mechanical device, such as a hook, could also cause the strap to break and the package to fall, causing serious injury or death.

SOFTWARE

- This machine is controlled by logic developed by Signode Corporation, and may include software.
- Any additions, deletions or changes to this electrical panel/program, in any way, can present a hazard to the user of this machine.
- The User and the User's employees or agents assume all risks attendant to any modification of the logic and shall not hold manufacturer responsible for any injury or damage or loss which occurs after any logic modification. User agrees to hold Signode harmless for any claims made against it following any such modification.

MACHINE HAZARD AND WARNING SYMBOLS



DANGER Arc Flash Hazard!

Follow requirement in NFPA 70 E for safe work practices and appropriate PPE.
Failure to comply can result in death or injury.



DANGER Hazardous Voltage



WARNING Crush Point

Keep away from this area.



Earth Ground



Forklift Lift Point Location

WARNING

FOR SAFE OPERATION AND TO PREVENT PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH, OBTAIN AND UNDERSTAND ALL SAFETY INSTRUCTIONS.

MACHINE INSTALLATION

- All customer interlocks must be connected as shown in this manual's electrical drawings.
- Do not defeat or bypass safety interlocks or safety devices.
- Do not operate machine with any safety devices/guards removed.
- Before operating the machine, ensure that all safety interlocks and safety devices are operating properly.
- Unauthorized modification can present a safety hazard to machine personnel and will void the machine warranty.

NOTE: Certain applications of this machine require the installation of additional machine safety equipment in order to comply with local, state or federal laws. It is the customer's responsibility to determine if such additional machine safety equipment is required for the application.

CUSTOMER REQUIREMENTS FOR MACHINE GROUNDING

- The National Electrical Code requires that all controller enclosures be properly grounded. (N.E.C. Article 250)

A good grounding system is a major consideration in planning any electrical system. It is essential that a low impedance path to earth ground exist. All filtering devices in programmable controllers and microprocessor type systems require a good earth ground. If structural ground present in the industrial environment does not provide an adequate ground return, a supplementary grounding electrode can be used to achieve proper impedance to equalize potential. A minimum No. 8 AGW stranded copper wire must be used to connect the copper grounding electrode to the grounding lug in the enclosure. Minimum wire size, color code and general safety practices should comply with the N.E.C. A grounding electrode must NOT be used as sole grounding system.

The grounding electrode designated by N.E.C. 250-83 (C) specifies a nonferrous rod of not less than ½" in diameter and at least 8 ft. be in contact with the soil.

ADDITIONAL CONSIDERATIONS

- To ensure proper machine operation, conform to the specified electric, hydraulic and pneumatic requirements.
- Do not overload the machine by exceeding the recommended performance levels as stated in the machine's Operation, Parts and Service Manual.
- Do not alter the machine's design without written approval from Signode.
- Signode Operation and Maintenance manual must be near the machine for easy access and reference.

WARNING

FOR SAFE OPERATION AND TO PREVENT PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH, OBTAIN AND UNDERSTAND ALL SAFETY INSTRUCTIONS.

CUTTING TENSIONED STRAPPING

Use only cutters designed for cutting strap; never use claw hammers, crowbars, chisels, axes or similar tools. Such tools will cause the strap to fly apart with hazardous force. Before using any Signode product, read the Operation and Safety Manual.

- Establish and maintain proper footing and position before and during the cutting process to prevent injury resulting from a loss of balance.
- Use only cutters specifically designed to cut strap. The use of claw hammers, crow bars, chisels, axes or similar tools will cause tensioned strap to fly apart and flail with hazardous force.
- Cut strapping straight across to avoid sharp ends.
- Be aware that loads secured with strapping may shift or fall when the strapping is cut.



WARNING

FOR SAFE OPERATION AND TO PREVENT PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH, OBTAIN AND UNDERSTAND ALL SAFETY INSTRUCTIONS.

Using A Single-Handle Strap Cutter

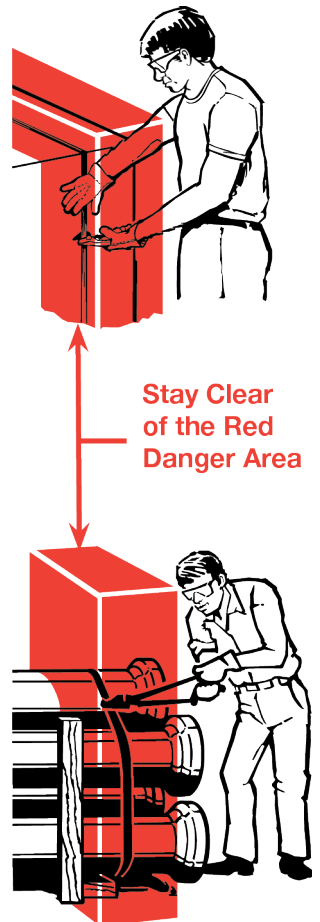
1. Keep all bystanders at a safe distance, away from the danger zone (red area) and in an area where they cannot possibly be struck by flying or flailing strap ends when the strapping is cut or by anything falling from the load if the load shifts when the strapping is cut.
2. Stand to one side of the strap being cut—outside of the danger zone (red area).
3. Use one hand to hold the strap firmly against the package.
4. Vertical strapping: Cut the strapping below the hold. Horizontal strapping: Cut the strapping on the side of the hold opposite your body.

Using A Two-Handed Strap Cutter

1. Keep all bystanders at a safe distance, away from the danger zone (red area) and possible flying or flailing strap ends. The energy released as the strapping is cut will cause both strap ends to rebound or flail outward.
2. Do not use a strap cutter that requires the use of two hands to cut horizontally tensioned strapping.

For vertically tensioned strapping, stand to one side of the strap being cut—outside of the danger zone (red area).

3. Cut the strap.



INTENTIONALLY BLANK

APPENDIX B SECTION 1 GENERAL MACHINE INFORMATION

CONTENTS

APPENDIX B SECTION 1 GENERAL MACHINE INFORMATION	B1-1
1.1 SPECIFICATIONS	B1-2
1.1.1 Original Equipment Manufacturer's (OEM) Information	B1-2
1.1.2 Machine Designation	B1-2
1.1.3 Machine Description	B1-2
1.1.4 Machine Specifications	B1-2
1.1.4.1 Strap:.....	B1-2
1.1.4.2 Rate Of Feed:.....	B1-2
1.1.4.3 Rate Of Take-Up:	B1-2
1.1.4.4 Strap Take-Up Tension:.....	B1-2
1.1.4.5 Weights:	B1-2
1.1.4.6 Sound:.....	B1-3
1.1.4.7 Environmental Conditions:	B1-3
1.2 MAJOR MACHINE COMPONENTS	B1-4
1.2.1 Sealer Module	B1-4
1.2.2 Tension Module	B1-5
1.3 ORDERING REPLACEMENT PARTS	B1-6
1.3.1 Instructions For Ordering	B1-6
1.3.2 Signode Parts Or Service Call	B1-6

APPENDIX-B

1.1 SPECIFICATIONS

1.1.1 ORIGINAL EQUIPMENT MANUFACTURER'S (OEM) INFORMATION

Company name and address:

Signode Industrial Group LLC

1600 Central Avenue

Roselle, Illinois 60172

U.S.A.

Phone: (847) 724-6100

Website: Signode.com

1.1.2 MACHINE DESIGNATION

MH-16 Power Strapping Head

1.1.3 MACHINE DESCRIPTION

The head is designed to be used on machines.

1.1.4 MACHINE SPECIFICATIONS

The head is typically installed into an application machine. Specifications for the application machine will appear in the machine manual. The following specifications are for the MH-16 Power Strapping Head.

1.1.4.1 Strap:

- 3/8" to 1/2"

1.1.4.2 Rate Of Feed:

- Start: 12 feet per second (3.7 meters per second @ 60Hz)**
- End: 10 feet per second (3.0 meters per second @ 50Hz)

** Rate varies during feed and take-up cycle by use of adjustable frequency drive controller.

1.1.4.3 Rate Of Take-Up:

- Start: 12 feet per second (3.7 meters per second @ 60Hz)**
- End: 10 feet per second (3.0 meters per second @ 50Hz)

** Rate varies during feed and take-up cycle by use of adjustable frequency drive controller.

1.1.4.4 Strap Take-Up Tension:

- 25 lb. to 200 lb. (11.3 kg to 90.72 kg)

1.1.4.5 Weights:

- Sealer Module: 22 lb. (10 kg)
- Tension Module: 35 lb. (16 kg)

1.1.4.6 Sound:

- Maximum measured: 106 dB

1.1.4.7 Environmental Conditions:

- Operating temperature range: 41°F to 104°F (5°C to 40°C)
- Operating humidity range: 0% to 90% relative humidity
- Operating altitude range: Altitudes up to 3281 ft. (1000 m) above mean sea level
- Transportation and storage temperature range: -13°F to 131°F (-25°C to 55°C)

1.2 MAJOR MACHINE COMPONENTS

1.2.1 SEALER MODULE

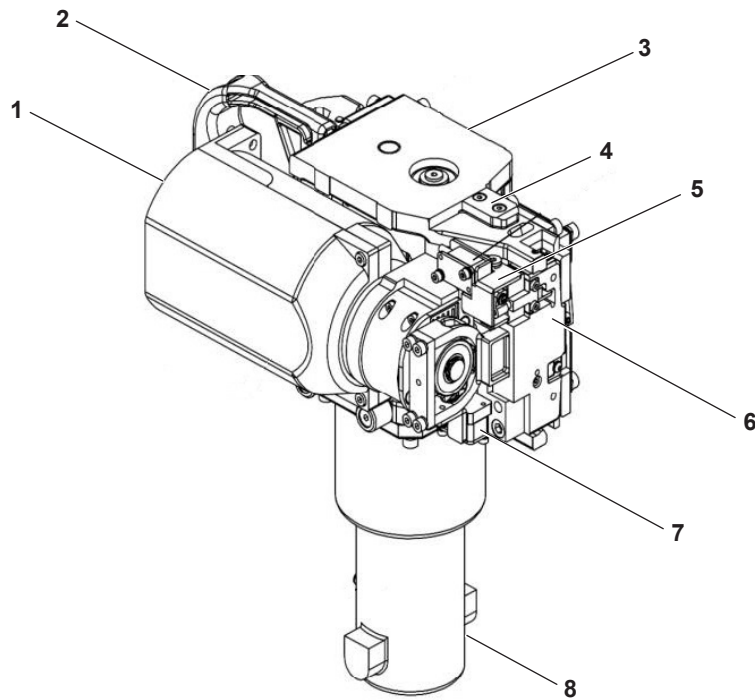


Figure 1-1: Sealer Module

1. Sealer Housing
2. Handle
3. Locating Blocks
4. Feed Limit Proximity Switch (1PRS)
5. Vibrator Bearing Housing
6. Weld Revolution Counter Proximity Switch (6PRS)
7. Index Motor
8. Weld Motor

1.2.2 TENSION MODULE

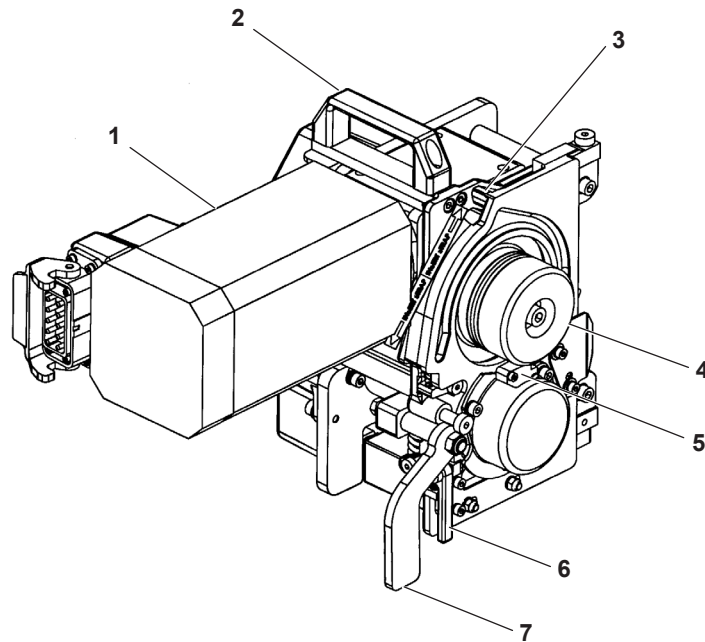


Figure 1-2: Tension Module

1. Tension Motor
2. Handle
3. Strap Inlet
4. Slip Clutch Spring Cup
5. Pinch Wheel Rotation Proximity Switch (4PRS)
6. Guide Door Release
7. Pinch Wheel Lever

1.3 ORDERING REPLACEMENT PARTS

1.3.1 INSTRUCTIONS FOR ORDERING

Signode provides a complete parts and service organization to keep your Signode equipment in operating condition.

Signode recognizes the need for our customer to obtain service parts critical to a machine's operation in the fastest and most economical method possible. Therefore, we often agree that the most expedient method to obtain parts is from a local supplier. Parts that Signode purchases for use in our strapping machines come from thousands of sources and one of these sources may be able to deliver a part faster than Signode could obtain it for you. In cases like these, we encourage you to order from these sources. Signode provides several distributor lists for its major product types throughout this manual in the appropriate section. If the part you need is a Signode manufactured part or a purchased part stocked by Signode, it's usually best that you order the part from us.

Before you call be prepared to furnish the information on the machine Nameplate.

Reference the machine Nameplate for the following:

- **Machine Model (Type):** _____
- **Machine #:** _____
- **PSM Model (Type):** _____
- **Part #:** _____

Part number, quantity and description of each part needed. Parts may have a Signode part number, a manufacturer's name and part number, or both. Provide as much information as possible.

- Complete "SHIP TO" and "BILL TO" information.
- Your purchase order number (if any) and preferred method of shipment.

1.3.2 SIGNODE PARTS OR SERVICE CALL

NOTE: For additional information please call Signode Service.

APPENDIX B SECTION 2 TRANSPORT, INSTALLATION AND SET-UP

CONTENTS

APPENDIX B SECTION 2 TRANSPORT, INSTALLATION AND SET-UP	B2-1
2.1 MACHINE TRANSPORT	B2-2
2.1.1 Machine Crating	B2-2
2.1.2 Machine Uncrating	B2-3
2.1.3 Machine Handling	B2-3
2.2 MACHINE INSTALLATION AND SET-UP	B2-4
2.2.1 Installation of feed and take-up module	B2-4
2.2.2 Installation of Sealer Module.....	B2-4
2.2.4 Protective Barrier	B2-5
2.3 MACHINE DECOMMISSION.....	B2-6
2.3.1 Disassembly.....	B2-6
2.3.2 Storage	B2-6
2.3.3 Disposal And Scrap.....	B2-6

APPENDIX-B

2.1 MACHINE TRANSPORT

⚠ WARNING

For safe operation and to prevent property damage, personal injury and/or death, comply with all forklift manufacturer's safety instructions.

⚠ WARNING

To prevent property damage, personal injury, and/or death, wear safety glasses and steel toe boots during crating and uncrating procedures.

2.1.1 MACHINE CRATING

Use following procedure to crate the Power Strapping Head for international shipping.

NOTE: Crating materials and process may vary depending on method of shipment.

Material / Equipment Required:

- Pallet
 - Heavy Duty Industrial Shipping Container
 - Mylar Wrap (MIL-PRF-131K, Class 1)
 - Shipping Foam
 - Zip Ties
 - Hand Rotary Heat Sealer
 - Shop Vacuum
1. Position Shipping Container on floor or pallet.
 2. Place Shipping Foam in bottom of container.
 3. If required for international shipping, enclose components within Mylar wrap.
 4. Place Desiccant bags inside Mylar with components.
 5. Use Hand Rotary Heat Sealer to seal Mylar wrap. Retain a small opening in Mylar to insert Shop Vacuum hose.
 6. Use Shop Vacuum to remove air from inside the Mylar wrap.
 7. Remove Shop Vacuum hose and seal opening with Hand Rotary Heat Sealer.
 8. Place additional Shipping Foam in the container to protect components.
 9. Close lid and seal Shipping Container with Zip Ties.

⚠ WARNING

For safe operation and to prevent property damage, personal injury and/or death, comply with all forklift manufacturer's safety instructions.

⚠ WARNING

To prevent property damage, personal injury, and/or death, wear safety glasses and steel toe boots during crating and uncrating procedures.

⚠ WARNING

**To prevent property damage, personal injury, and/or death, use caution while uncrating machine.
Machine and crate contents may have shifted or become unstable during transit.**

2.1.2 MACHINE UNCRATING

Use following procedure to remove product from shipping crate:

1. Review crating procedure to fully understand how machine is crated for shipment.
2. Open shipping container lid.
3. Visually inspect inside of crate to determine if contents are safe to remove.

NOTE: Contact Signode if machine is damaged or crate is missing contents. Contact Signode before proceeding.

4. Open Mylar wrap.
5. Remove components from Shipping Container.

⚠ WARNING

To prevent property damage, personal injury and/or death, use proper lifting methods when handling equipment.

2.1.3 MACHINE HANDLING

Use following procedure to lift and move components.

1. Move components to location of intended installation.

NOTE: Place components on stable surface that will not damage components.

⚠ WARNING

For safe operation and to prevent property damage, personal injury and/or death, maintain a minimum of 12 inches (305 mm) distance between machine and operator.

⚠ WARNING

For safe operation and to prevent property damage, personal injury, and/or death, wear safety glasses and steel toe boots during operation and maintenance procedures.

⚠ WARNING

To prevent property damage, personal injury and/or death, use proper lifting methods when handling equipment.

⚠ WARNING

To prevent property damage, personal injury, and/or death, disconnect / lock-out all electrical power before proceeding.

2.2 MACHINE INSTALLATION AND SET-UP

2.2.1 INSTALLATION OF FEED AND TAKE-UP MODULE

1. Using two hands, lift the feed and take-up module. Lower the module on to the rear of the module support shelf aligning the module base with the module receptacle.
2. Push the module forward until the Green locking latch locks the module on to the shelf. Install the electrical quick-connect cable to the module.
3. Reverse the above instructions for module removal.

2.2.2 INSTALLATION OF SEALER MODULE

1. Using two hands, lift and insert the sealer module on to the lower mounting shelf of the machine frame. Make sure the module properly aligned and seated on the mounting shelf.
2. Firmly push the sealer module forward until it has been fully seated in the cradle and the Yellow locking handle has contained the module.
3. Once the module has been seated into place, install the electrical quick-connect cable to bottom of the module.
4. Reverse the above instructions for module removal.

⚠ WARNING

**For safe operation and to prevent property damage, personal injury and/or death,
do not operate machine without protective barriers.**

2.2.4 PROTECTIVE BARRIER

Protective barriers with an access light barrier are a critical component of the operator protection system.

- Safety guards (protective barriers/fences) must be utilized for strapping systems in accordance with the Machine Directive 2006/42/EC.

Signode is not responsible for providing or installing protective barriers. Due to the fact that there is no standard solution but rather a customized solution for every working and production environment, protective barriers are typically planned, sourced and installed by a third-party supplier.

⚠ WARNING

To prevent property damage, personal injury, and/or death, disconnect / lock-out all electrical power before proceeding.

⚠ WARNING

For safe operation and to prevent property damage, personal injury, and/or death, wear safety glasses and steel toe boots during operation and maintenance procedures.

2.3 MACHINE DECOMMISSION

2.3.1 DISASSEMBLY

Use following instructions to disassemble machine:

1. Disconnect and lock-out all power to machine as required by OSHA 1910.147.
2. Disconnect all electrical and/or pneumatic lines.
3. Remove and/or disassemble protection barriers if installed.
4. Disassemble machine in reverse order of installation procedure.

2.3.2 STORAGE

Use following instructions to place machine in storage:

1. Ensure storage location is within environmental operating conditions specified below.
 - Clean and dry
 - Storage temperature range: -13°F to 131°F (-25°C to 55°C)
2. Entire machine must be protected from dust, moisture, water, oil, humidity and extreme temperatures.
3. Machine must be stored in normal operating position.
 - Storing machine in normal operating position will prevent lubrication such as oil or grease from leaking and prevent damage to control systems, electrical components and motors.
4. Do not disassemble machine for storage.

2.3.3 DISPOSAL AND SCRAP

This machine is manufactured without any physical or chemical substances which could be dangerous to health. The legal prescriptions for disposal of all the parts must be observed. The electrical assemblies should be dismantled so that the mechanical, electro-mechanical and electronic components can be disposed of separately.



APPENDIX B SECTION 3 MACHINE OPERATION

CONTENTS

APPENDIX B SECTION 3 MACHINE OPERATION	B3-1
3.1 PRINCIPLES OF OPERATION	B3-2
3.1.1 General	B3-2
3.2 OPERATOR CONTROLS	B3-3
3.2.1 Main Power Disconnect Lever	B3-3
3.2.2 Emergency Stop Button	B3-3
3.3 OPERATING PROCEDURE	B3-4
3.3.1 Prepare Machine For Operation	B3-4
3.3.1.1 Perform Safety Device Function Checks	B3-4
3.3.1.2 Load Strap In Machine	B3-4
3.3.2 Operation Procedure	B3-6
3.3.2.1 Manual Mode	B3-6
3.3.2.2 Auto Mode	B3-6

APPENDIX-B

⚠ WARNING

For safe operation and to prevent property damage, personal injury and/or death, maintain a minimum of 12 inches (305 mm) distance between machine and operator.

3.1 PRINCIPLES OF OPERATION

3.1.1 GENERAL

The exact sequence of events of a strapping cycle depends, to a large degree, upon the Application into which the head has been placed. But, in general, plastic strap is fed through the head and into a chute system. It re-enters the head, is drawn up around the package, welded and cut from the supply. The completed tie is then released from the head in readiness for the next cycle.

NOTE: Reference *Principles of Operation* for the machine which the head is placed.

⚠ WARNING

For safe operation and to prevent property damage, personal injury and/or death, perform function checks on all safety devices before operation and maintenance procedures.

3.2 OPERATOR CONTROLS

Locate the controls on your machine and become familiar with the operation of each individual control before operating the machine. Reference machine Operation, Parts and Maintenance Manual for full description of operator controls.

3.2.1 MAIN POWER DISCONNECT LEVER

Pull MAIN POWER DISCONNECT lever (**Figure 3-1**) down to disconnect power and push lever up to turn power ON. When machine is not in use, pull lever down to disconnect power.



Figure 3-1: Main Power Disconnect Lever

3.2.2 EMERGENCY STOP BUTTON

Press EMERGENCY STOP (**Figure 3-2**) to prevent property damage, personal injury, and/or death.



Figure 3-2: Emergency Stop Control

3.3 OPERATING PROCEDURE

3.3.1 PREPARE MACHINE FOR OPERATION

Use following instructions to prepare machine for operation:

3.3.1.1 Perform Safety Device Function Checks

- Ensure all machine safety devices are working properly. Perform function checks on all buttons and switches.



3.3.1.2 Load Strap In Machine

Plastic strap, as supplied by the dispenser, must be manually inserted into the tension module through the accumulator box and loaded through the spring loaded feed drive wheels of the tension module and finally into the guide system (**Figure 3-2**).

To load strap use the following procedure:

1. Open the access door of the machine. Insert strap (**Figure 3-3: 1**) (with the natural curl facing up) into the rear of the accumulator box under the eccentric wheel (**Figure 3-3: 2**). Using any of the three access openings, guide the strap to the front of the accumulator box.

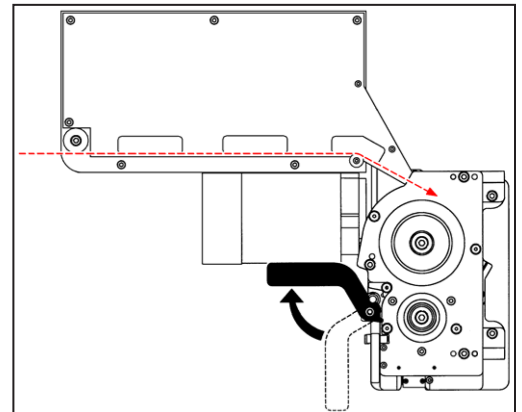


Figure 3-3: Strap Loading

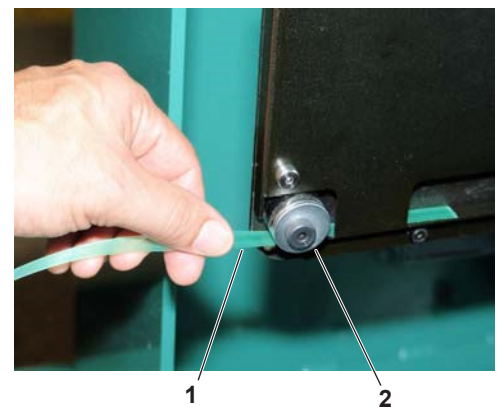


Figure 3-4: Insert Strap

1. Strap
2. Eccentric Wheel

1. Pull the pinch lever (**Figure 3-4: 1**) upward to open the tension drive wheels.



Figure 3-5: Pinch Lever

1. Pinch Lever

2. Continue to guide the strap down into the tension module inlet (**Figure 3-5**). Insert approximately 12" (305 mm) of strap into the tension module.

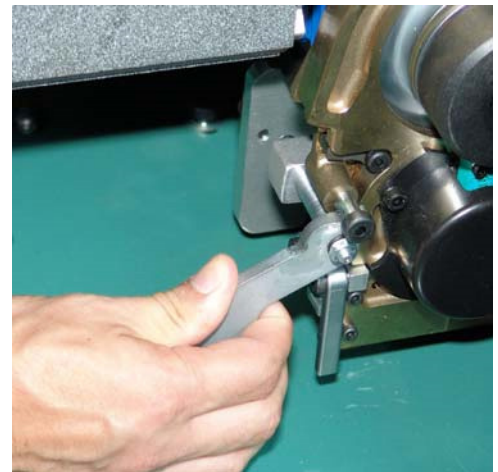


Figure 3-6: Guide Strap

3. Lower the pinch lever (**Figure 3-6: 1**) to securely contain the strap. Close the access door.



Figure 3-7: Pinch Lever

1. Pinch Lever

⚠ WARNING

For safe operation and to prevent property damage, personal injury and/or death, maintain a minimum of 12 inches (305 mm) distance between machine and operator.

⚠ WARNING

For safe operation and to prevent property damage, personal injury, and/or death, wear safety glasses and steel toe boots during operation and maintenance procedures.

3.3.2 OPERATION PROCEDURE

3.3.2.1 Manual Mode

To operate the machine in Manual Mode, use the following procedure:

1. Pull **Main Power Disconnect** Lever down to the ON position.
2. Press RESET button.
3. Ensure customer conveyor system positions load in machine chute properly.
4. Press **Cycle Mode** button to apply strap to load.
5. The strapped load is conveyed to the next position.

3.3.2.2 Auto Mode

To operate the machine in **Auto Mode**, use the following procedure:

1. Pull **Main Power Disconnect** Lever down to the ON position.
2. Press RESET button.
3. Press **Auto Mode** button.

NOTE: When AUTO MODE button is illuminated, machine is in Automatic mode.

4. Ensure customer conveyor system positions load in machine chute properly.
5. When customer conveyor system transmits a CYCLE command, a strap will be applied to the load automatically.
6. The strapped load is conveyed to the next position.

APPENDIX B SECTION 4 MAINTENANCE & TROUBLESHOOTING

CONTENTS

APPENDIX B SECTION 4 MAINTENANCE & TROUBLESHOOTING	B4-1
4.1 PERIODIC SERVICE INSTRUCTIONS	B4-2
4.1.1 Prepare Machine For Maintenance.....	B4-2
4.1.2 Machine Function Check	B4-2
4.1.3 Lockout-Tagout Procedure.....	B4-2
4.1.4 Daily	B4-3
4.1.5 Bi-Weekly Or 10,000 To 20,000 Strap Cycles.....	B4-3
4.1.6 Quarterly Or 40,000 To 60,000 Strap Cycles	B4-3
4.1.7 Annually Or 150,000 To 200,000 Strap Cycles	B4-3
4.2 SAFETY DEVICE FUNCTION CHECKS	B4-4
4.2.1 Main Power Disconnect Switch.....	B4-4
4.2.2 Emergency Stop	B4-5
4.2.3 Protective Barrier - Door Lock Switches (If Installed)	B4-5
4.3 SERVICE PROCEDURES	B4-6
4.3.1 Weld Motor Brush Replacement	B4-6
4.3.2 Index Motor Brush Replacement	B4-7
4.3.3 Strap Stop Guide	B4-9
4.3.4 Strap Width Guide.....	B4-10
4.3.5 Head Module Removal And Replacement Procedures	B4-11
4.3.6 Removal / Replacement Of The Tension Module.....	B4-12
4.3.7 Removal / Replacement Of The Sealer Module.....	B4-13
4.4 TROUBLESHOOTING	B4-14
4.4.1 Symptoms:	B4-14

APPENDIX-B

⚠ WARNING

To prevent property damage, personal injury, and/or death,
perform Lockout-Tagout procedure prior to servicing machine.

⚠ WARNING

For safe operation and to prevent property damage, personal injury, and/or death,
wear safety glasses and steel toe boots during operation and maintenance procedures.

4.1 PERIODIC SERVICE INSTRUCTIONS

A regular maintenance program is essential for good service and long machine life. Listed below is a suggested maintenance schedule for a machine receiving average use in an average environment. When a machine is subjected to heavy use or used in a demanding environment (excessive lint, dust, moisture, etc.) more frequent attention may be required.

NOTE: Accurate records of machine service, maintenance and Safety Device Function Checks must be maintained and stored near the machine for easy access and reference.

4.1.1 PREPARE MACHINE FOR MAINTENANCE

Before conducting machine maintenance and/or repair ensure the following actions are completed:

1. Perform **LOCKOUT-TAGOUT Shutdown Sequence**.

4.1.2 MACHINE FUNCTION CHECK

After conducting machine maintenance and/or repair ensure the following actions are completed:

1. Perform **LOCKOUT-TAGOUT Restore To Service Sequence**.
2. Perform function checks on machine safety devices to ensure all safety devices work properly before operating.
3. Perform a machine function check to verify machine is operating correctly:
 - Place machine in Manual Mode and apply a single strap to a product.

4.1.3 LOCKOUT-TAGOUT PROCEDURE

Reference machine **Operation, Parts and Maintenance Manual** for machine Lockout-Tagout procedure.

4.1.4 DAILY

1. Use compressed air to remove all dust and debris from the strapping head, the strap chute and machine frame.
2. Open and clean outer strap guide on feed and take-up drive assembly.
3. Index the strapping head until the anvil opens. It is normal for particles of Polyester strapping to accumulate in the weld/grip areas. These particles should be removed using moisture free compressed air or a stiff brush.
4. Visually inspect a strap joint sample for full and proper bond with excess material protruding on at least one side of the welded area.

4.1.5 BI-WEEKLY OR 10,000 TO 20,000 STRAP CYCLES

1. Index the head until the anvil opens and visually inspect the vibrator pad, welding linkage and the cutter blade.
2. Visually inspect the entire head for loose or damaged parts.
3. Lubricate the eccentric arm assembly and the weld pad bearings with a high temperature grease such as Accrolube or equivalent.

4.1.6 QUARTERLY OR 40,000 TO 60,000 STRAP CYCLES

NOTE: Quarterly maintenance should only be performed by trained Maintenance Personnel.

1. Disassemble the welding module. Clean all parts with an approved solvent and lubricate with a high temperature grease such as Accrolube or equivalent.
2. Check compression spring tension, proximity switch adjustments and camshaft timing.
3. Inspect all cam followers and camshaft for excessive wear.

4.1.7 ANNUALLY OR 150,000 TO 200,000 STRAP CYCLES

NOTE: Annual maintenance should only be performed by trained Maintenance Personnel.

1. Repeat the quarterly maintenance procedures.
2. Disassemble and clean the strapping head. Inspect and replace any worn or broken parts.
3. Check all electrical connections and tighten any which appear to be loose.
4. Replace the weld motor brushes and inspect the motor armature for wear.
5. After reassembling the strapping head run a few test cycles. Check for properly welded strapping and make any necessary adjustments.

⚠ WARNING

For safe operation and to prevent property damage, personal injury and/or death, perform function checks on all safety devices before operation and maintenance procedures.

4.2 SAFETY DEVICE FUNCTION CHECKS

Perform daily function checks on all machine safety devices. Safety devices must successfully pass all Safety Conditions listed for each device to operate the machine safely. To perform a safety device function check, follow the function check procedures for each device.

NOTE: Safety Device adjustment, maintenance and/or repair are to be completed ONLY by Signode Service personnel.

⚠ WARNING

For safe operation and to prevent property damage, personal injury and/or death, DO NOT operate machine unless all Safety Devices function properly.

NOTE: The following Safety Devices are located on the machine control panel.

4.2.1 MAIN POWER DISCONNECT SWITCH

1. Rotate MAIN POWER DISCONNECT switch (**Figure 4-1**) to OFF "O" position to disconnect power. Verify the following **Safety Conditions**:
 - MAIN POWER DISCONNECT switch must remain in the OFF "O" position.
 - No motors start operating.
 - All motors must stop operating.
 - Machine buttons and controls do not function.
2. Move MAIN POWER DISCONNECT switch (**Figure 4-1**) to ON "I" position to connect power. Verify the following **Safety Conditions**:
 - MAIN POWER DISCONNECT switch must remain in the ON "I" position.
 - No motors start operating.
 - Machine buttons and controls function.
 - Control Panel Enclosure door will not open.



Figure 4-1: Main Power Disconnect Switch

⚠ WARNING

For safe operation and to prevent property damage, personal injury and/or death, perform function checks on all safety devices before operation and maintenance procedures.

4.2.2 EMERGENCY STOP

To perform a function check on the EMERGENCY STOP button use the following procedure:

1. Push EMERGENCY STOP button (**Figure 4-2**) to disconnect power. Verify the following **Safety Conditions**:
 - Emergency Stop button must remain in the STOP position.
 - All machine movements must stop.
 - Machine buttons and controls do not function.
 - Dispenser must not operate.
2. Pull EMERGENCY STOP button to first button stop position and pull again to restore power to machine (**Figure 4-2**). Verify the following **Safety Conditions**:
 - No machine movements may start automatically.
 - All controls and buttons are inactive.
 - Dispenser must not start or run.



Figure 4-2: Emergency Stop button

4.2.3 PROTECTIVE BARRIER - DOOR LOCK SWITCHES (IF INSTALLED)

To perform a function check on the **PROTECTIVE BARRIER - DOOR LOCK SWITCHES** use the following procedure:

1. Open the doors of the protective barrier. Verify the following **Safety Conditions**:
 - No motors start operating.
 - All motors must stop operating.
 - Machine buttons and controls do not function.

⚠ WARNING

To prevent property damage, personal injury, and/or death, disconnect / lock-out all electrical power before proceeding.

⚠ WARNING

For safe operation and to prevent property damage, personal injury, and/or death, wear safety glasses and steel toe boots during operation and maintenance procedures.

4.3 SERVICE PROCEDURES

4.3.1 WELD MOTOR BRUSH REPLACEMENT

To replace the brushes in the Weld Motor use the following procedure:

1. Access the Weld Motor by removing the Weld Motor Cover.
2. The brushes (**Figure 4-3: 2**) are located at the end of the Weld Motor and are held in place against the rotor (**Figure 4-3: 3**) by a small compression spring attached to the brush. Brushes are secured in the motor by a screw cap (**Figure 4-3: 5**).
3. Replace the old brush assembly with a new one. Compress the compression spring and align the brush tabs with the rectangular brush receptacle.
4. Follow these instructions for the brush on the opposing side of the motor.

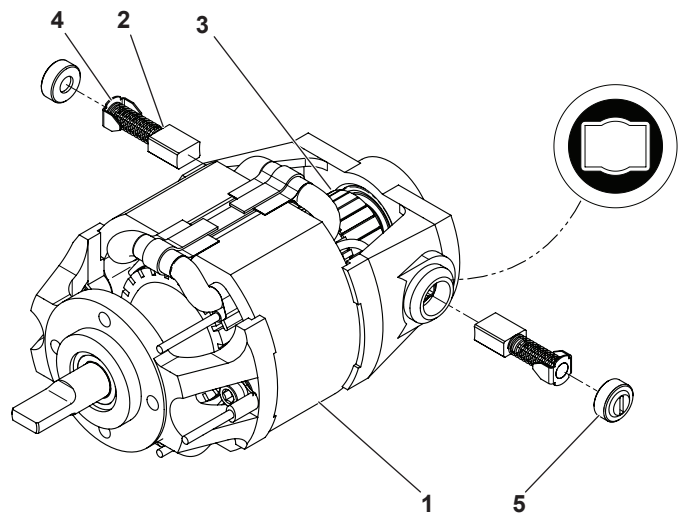


Figure 4-3: Weld Motor - Brush Replacement

1. Weld Motor
2. Brush
3. Rotor
4. Spade Terminal
5. Screw Cap

⚠ WARNING

To prevent property damage, personal injury, and/or death, disconnect / lock-out all electrical power before proceeding.

⚠ WARNING

For safe operation and to prevent property damage, personal injury, and/or death, wear safety glasses and steel toe boots during operation and maintenance procedures.

4.3.2 INDEX MOTOR BRUSH REPLACEMENT

To replace the brushes in the Index Motor use the following procedure:

1. The brushes (**Figure 4-4: 2**) are located at the end of the Index Motor. Each brush is secured in the motor under a standard brush cap (**Figure 4-4: 1**).
2. Using a flat blade screwdriver, remove the brush cap from the motor. The brush can now be removed from the motor.

NOTE: There are two motors available for this product. Identify the proper motor before ordering any replacement brush spring assemblies. Inspect the motor and the motor labeling (**Figure 4-4: 3**) to determine the proper parts.

3. Replace the old brush assembly with a new one. Compress the compression spring and reinstall the brush caps.

NOTE: Do not over-tighten the plastic brush caps.

4. Follow these instructions for the brush on the opposing side of the motor.

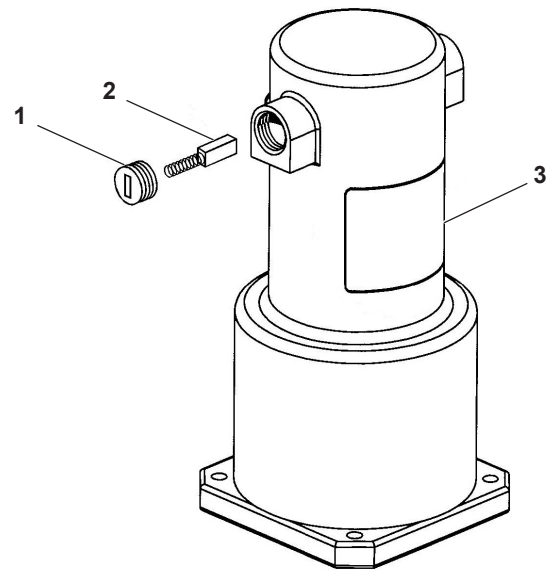
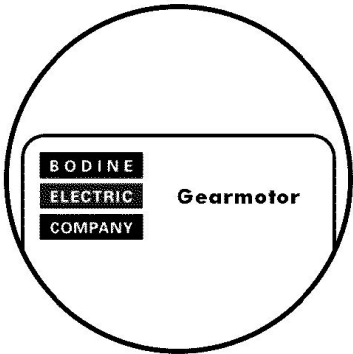


Figure 4-4: Index Motor - Brush Replacement

1. Cap
2. Motor Brush
3. Label

BRUSH REPLACEMENT	
MOTOR MANUFACTURER	
BODINE ELECTRIC	SPG ELECTRIC
HOUSING COLOR	
BLACK	GREY
LABEL	
	
BRUSH REPLACEMENT ASSEMBLY	
SIGNODE PART NUMBER: 439775	SIGNODE PART NUMBER: 532075

⚠ WARNING

To prevent property damage, personal injury, and/or death, disconnect / lock-out all electrical power before proceeding.

⚠ WARNING

For safe operation and to prevent property damage, personal injury, and/or death, wear safety glasses and steel toe boots during operation and maintenance procedures.

4.3.3 STRAP STOP GUIDE

The Strap Stop Guide that mounts to the anvil is shimmed for optimum machine performance. This guide aids in directing the strap through the sealer and prevents the lead end of the strap from traveling too far upon re-entry. Multiple shims are used to adjust the strap path as needed to improve feeding reliability. Spare shims (**Figure 4-5: 5**) are kept under the head of the mounting screw for future use.

1. Remove the Button Head Cap Screw (**Figure 4-5: 1**) that secures the Strap Stop Guide (**Figure 4-5: 4**). The guide should easily lift out from the anvil once the mounting screw has been removed.

NOTE: The mounting screw also contains the spare shims. Use caution when removing the guide to not lose any of the spare shims.

2. Add or remove shims (**Figure 4-5: 5**) from under the stop guide to adjust how deep the guide mounts in the anvil. Heavier gauge strap configuration should have more shims under the guide to raise its mounting position. Lighter gauge strap configuration should have less shims under the guide to lower it's mounting position.

NOTE: More than one adjustment may be necessary to achieve optimum performance. Store any extra shims not used under the head of the mounting screw.

3. Securely tighten the mounting screw to maintain the guide's position.

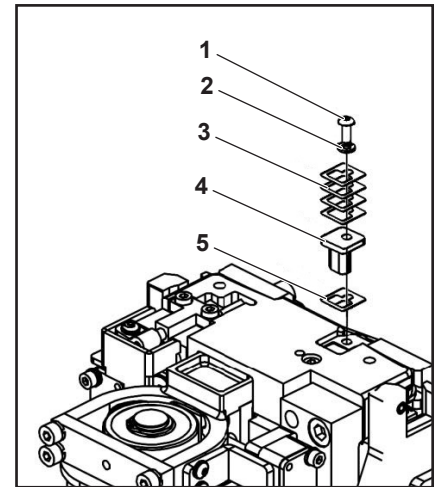


Figure 4-5: Strap Stop Guide

1. BHCS
2. Lock Washer
3. Spare Shims
4. Strap Stop Guide
5. Shims(s)

⚠ WARNING

To prevent property damage, personal injury, and/or death, disconnect / lock-out all electrical power before proceeding.

⚠ WARNING

For safe operation and to prevent property damage, personal injury, and/or death, wear safety glasses and steel toe boots during operation and maintenance procedures.

4.3.4 STRAP WIDTH GUIDE

The strap stop guide that mounts to the gripper cover is shimmed for optimum machine performance. This guide is used to keep the strap as straight as possible as it travels through the sealer. Five shims are used to adjust the strap path as needed to improve feeding reliability or if changing strap types. Use the instructions below to modify shim configurations.

1. Remove the Sealer Cover (Figure 4-6: 8) by removing the four Socket Head Cap Screws (Figure 4-6: 7) that secure the cover to the sealer housing.

NOTE: The mounting screw (Figure 4-6: 5) also contains the spare shims (Figure 4-6: 3). Use caution when removing the guide to not lose any of the spare shims.

2. Release the spring tension from the anvil pivot assembly by unhooking the exposed end of the Extension Spring (Figure 4-6: 4) from the pin mount in the gripper cover.

NOTE: Optimum setting – Subtract shims from under the strap stop guide until excess strap tail is eliminated.

3. Pivot the anvil assembly backwards to expose the strap guide block, left-hand guide, and shims.
4. Remove the socket head cap screw that secures the guide block, left-hand guide and shims. The components should easily slide off the alignment pin once the mounting screw has been removed.

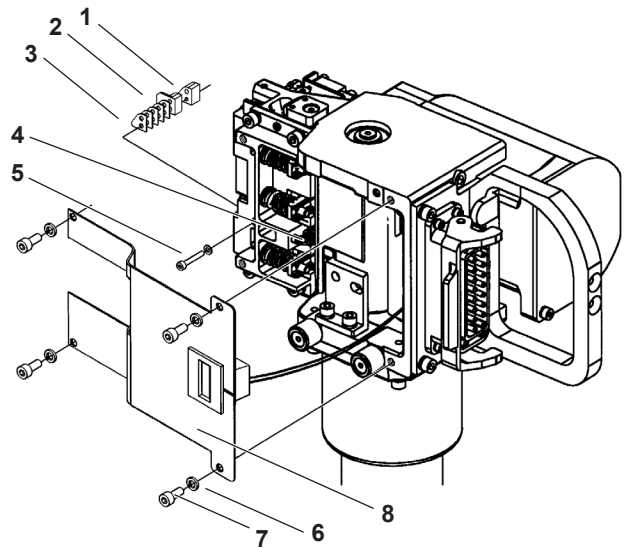


Figure 4-6: Strap Width Guide

1. Strap Guide Block
2. LH Strap Guide
3. Shims
4. Extension Spring
5. Mounting Screw
6. Lockwasher
7. SHCS
8. Sealer Cover

⚠ WARNING

To prevent property damage, personal injury, and/or death, disconnect / lock-out all electrical power before proceeding.

⚠ WARNING

For safe operation and to prevent property damage, personal injury, and/or death, wear safety glasses and steel toe boots during operation and maintenance procedures.

4.3.5 HEAD MODULE REMOVAL AND REPLACEMENT PROCEDURES

Before either the tension or sealer modules can be removed the accumulator box must be removed to gain access. Any strap in the accumulator box must also be removed. Remove the accumulator box as follows:

1. Reach behind the accumulator box and locate the locking lever (arrow) **(Figure 4-7)** which secures the mounting. Loosen the locking lever two or three rotations counter-clockwise.
2. Slide the accumulator box outwards and remove it from the machine.
3. Reverse the above steps to install the accumulator box.

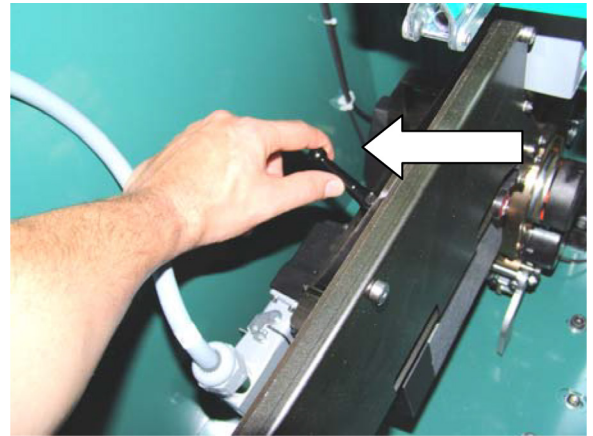


Figure 4-7: Accumulator Box Locking Lever

⚠ WARNING

To prevent property damage, personal injury, and/or death, disconnect / lock-out all electrical power before proceeding.

⚠ WARNING

For safe operation and to prevent property damage, personal injury, and/or death, wear safety glasses and steel toe boots during operation and maintenance procedures.

4.3.6 REMOVAL / REPLACEMENT OF THE TENSION MODULE

NOTE: The tension module weighs approximately 35 lb. (16 kg).

1. To remove the tension module, first release the electrical quick-connect cable (**Figure 4-8**).
2. While supporting the module from the rear with one hand, push the Green release lever forward using your other hand.
3. Using both hands, lift the tension module at an angle off the lower mounting bracket and remove it from the machine (**Figure 4-9**). Reverse the above instructions for module replacement.

NOTE: When reinstalling the module, simply lift the rear of the module straight up to lock the module in place. The tension module release lever will snap over the front pin of the module securing it in place.

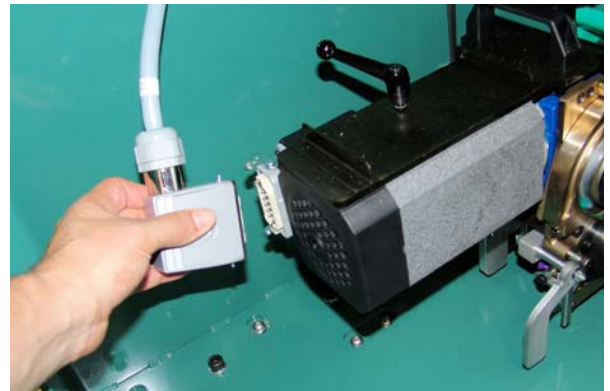


Figure 4-8: Tension Module Quick-Connect Cable

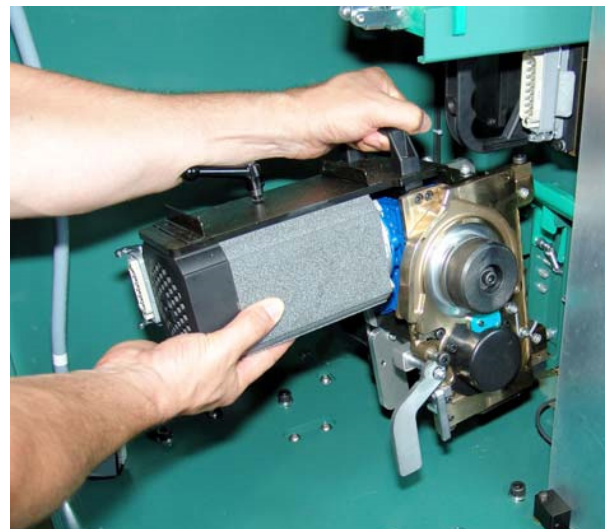


Figure 4-9: Tension Module

⚠ WARNING

To prevent property damage, personal injury, and/or death, disconnect / lock-out all electrical power before proceeding.

⚠ WARNING

For safe operation and to prevent property damage, personal injury, and/or death, wear safety glasses and steel toe boots during operation and maintenance procedures.

4.3.7 REMOVAL / REPLACEMENT OF THE SEALER MODULE

NOTE: The sealer module weighs approximately 22 lb. (10 kg).

1. To remove the sealer module, first release the electrical quick-connect cable (**Figure 4-10**).
2. Lower the clamp handle to release the module. Lift (pivot) the latch bar assembly up (**Figure 4-11**) and out of the way of the sealer module.
3. Using both hands, slide the sealer module out from the guide brackets of the machine frame (**Figure 4-12**). Remove the module from the machine.
4. Reverse the above instructions for module replacement.

NOTE: When reinstalling the sealer module make sure that all four of the guide rollers are seated in the guide tracks. Firmly push the sealer module forward until the locating block seats firmly into the frame pocket.

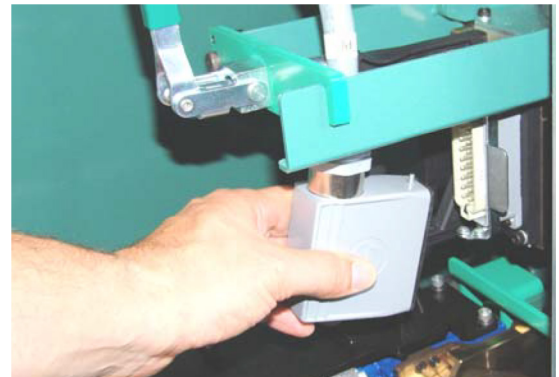


Figure 4-10: Sealer Module Quick-Connect Cable

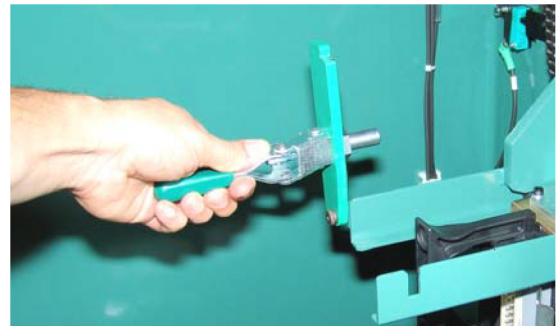


Figure 4-11: Latch Bar Assembly

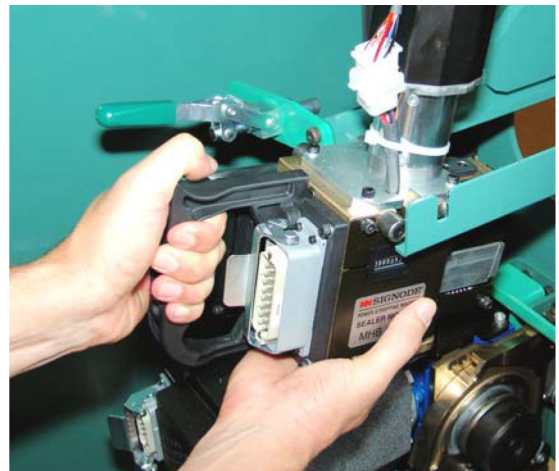


Figure 4-12: Sealer Module

4.4 TROUBLESHOOTING

The following items are the most common machine symptoms if problems should occur. For symptoms or remedies not shown, contact Signode Service for additional information and details. The following machine symptoms are covered in this manual.

4.4.1 SYMPTOMS:

1. Machine will not feed strap.
2. Head misfeeds on re-entry.
3. Head will not index after strap feed.
4. Head will not take-up after feed cycle.
5. Head does not weld strap (vibrator motor not operating).
6. Head does not weld strap (vibrator motor operational).
7. Strap pulls out from head at end of take-up cycle.
8. Strap pulls out from head at end of strapping cycle.
9. Completed strap joint snags on anvil head.
10. Head will not index to the weld position.

SYMPTOM 1: Machine will not feed strap

CAUSE	REMEDY
1. Feed proximity switch (1PRS) not adjusted or not operating properly.	● Inspect switch, adjust or replace if necessary. ● Check HMI Input / Output screens to view I/O status.
2. Malfunctioning pinch roller spring.	● Inspect pinch roller spring, adjust or replace if broken.
3. Excessive dirt on feedwheels.	● Clean all dirt and debris from wheels.
4. Strap path blocked.	● Open guides, check and clean all strap from path.
5. Feed proximity switch (1PRS) area blocked.	● Clean area with compressed air and remove any strap debris. ● Check HMI Input / Output screens to view I/O status.

SYMPTOM 2: Head misfeeds on re-entry

CAUSE	REMEDY
1. Burr or deformation on lead end of strap.	● Cut off bad portion strap.
2. Worn or broken strap cutter.	● Inspect strap cutter, replace if necessary.
3. Burr or deformation on end gripper.	● Inspect strap gripper, replace if necessary.

SYMPTOM 3: Head will not index after strap feed

CAUSE	REMEDY
1. PSM index proximity switch not operating.	● Inspect proximity switch for proper clearance of .002" to .020". Replace if necessary.
2. Index camshaft not operating properly.	● Inspect index camshaft for proper operation, replace if necessary.
3. Broken or worn index camshaft motor.	● Inspect condition of index motor. Replace as needed.

SYMPTOM 4: Head will not take-up after feed cycle

CAUSE	REMEDY
1. Feed proximity switch (1PRS) not properly set or broken.	● Inspect switch for proper clearance of .002 inch to .020 inch (.051 mm to .508 mm). Replace if necessary. ● Check HMI Input / Output screens to view I/O status.
2. Lead end of strap not activating switch.	● Check strap path for obstructions.

SYMPTOM 5: Head does not weld strap (weld motor not operating)

CAUSE	REMEDY
1. Low or no input voltage at motor.	● Inspect machine wiring and supply voltages.
2. Worn or broken motor brushes.	● Inspect motor brushes, replace if necessary.
3. Bad motor winding.	● Inspect motor winding for possible defects, replace if necessary.

SYMPTOM 6: Head does not weld strap (vibrator motor operational)

CAUSE	REMEDY
1. Oil on strapping.	• Clean all oil away from potential areas of contact within entire machine.
2. Weld eccentric bearing or shaft worn.	• Replace both the bearing and shaft.
3. Weld pad or cage bearings worn.	• Replace weld pad and cage bearings as necessary.

SYMPTOM 7: Strap pulls out from head at end of take-up cycle

CAUSE	REMEDY
1. End gripper not holding strap.	• Replace end gripper compression spring.
2. End gripper (and/or pins) worn.	• Replace the end gripper.

SYMPTOM 8: Strap pulls out from head at end of strapping cycle

CAUSE	REMEDY
1. Malfunctioning strap dispenser.	• Check dispenser adjustments for proper operation.

SYMPTOM 9: Completed strap joint snags on anvil head

CAUSE	REMEDY
1. Anvil pivot pin broken or worn.	• Replace pivot pin.
2. Cam follower worn.	• Replace the cam follower bearing.
3. Anvil cam follower worn, not opening anvil wide enough.	• Replace the cam follower.

SYMPTOM 10: Head will not index to the weld position

CAUSE	REMEDY
1. Feed wheels slipping on strap.	• Inspect pinch roller spring, adjust or replace if broken.
2. Index camshaft not indexing when signaled.	• Check index motor for proper operation. Replace if necessary.

REFERENCE INFORMATION	
DESCRIPTION	TYPICAL AREA USED
LUBRICANTS	
MOBIL SHC 1500	WORM GEAR SETS
EP ACCROLUBE®	CONTACT PARTS
LUBRIPLATE SYN LUBE 220	PLANETARY GEARS
LUBRIPLATE AIR TOOL LUBRICANT	PNEUMATIC
THREAD LOCKERS & ADHESIVES	
LOCTITE® #222 (PURPLE)	LOW STRENGTH, SCREWS 1/4" (6 mm) OR SMALLER SIZES
LOCTITE® #242 (BLUE)	MEDIUM STRENGTH SCREWS 5/16" (8 mm) OR LARGER SIZES
LOCTITE® #271 (RED)	HIGH STRENGTH, SEMI-PERMANENT SCREW APPLICATION
LOCTITE® #609 (GREEN)	PERMANENT, CURVED SURFACE PART CONTACT
LOCTITE® #380 (BLACK MAX)	PERMANENT, FLAT SURFACE CONTACT
CLEANING BRUSHES	
SMALL BRUSH	FEEDWHEEL & GRIPPER TEETH
LARGE BRUSH	FEEDWHEEL & GRIPPER TEETH
TORQUE SPECIFICATIONS (UNLESS OTHERWISE NOTED)	
SHCS M2: 6 lb-in (0.69 N•m)	
SHCS M3: 13 lb-in (1.47 N•m)	
SBHCS M3: 13 lb-in (1.47 N•m)	
SHSS M3: 13 lb-in (1.47 N•m)	
SHCS M4: 30 lb-in (4.07 N•m)	
SBHCS M4: 30 lb-in (4.07 N•m)	
SHCS M5: 60 lb-in (6.78 N•m)	
SHSS M5: 60 lb-in (6.78 N•m)	
SHCS M6: 120 lb-in (13.56 N•m)	

INTENTIONALLY BLANK

APPENDIX B SECTION 6 MACHINE

CONTENTS

APPENDIX B SECTION 6 MACHINE	B6-1
SEALER MODULE	B6-3
MH-16 Sealer Assembly (531450-8)	B6-4
TENSION MODULE	B6-11
MH-16 Tension Module (531426-12)	B6-12
SPARE PARTS LIST	B6-25
MH-16 Head Spare Parts Kit (531801-4)	B6-25

APPENDIX-B

INTENTIONALLY BLANK

SEALER MODULE

CONTENTS

SEALER MODULE.....	B6-3
MH-16 Sealer Assembly (531450-8)	B6-4

APPENDIX-B

MH-16 SEALER ASSEMBLY (531450-8)

MH16 SEALER ASSEMBLY

531450-8

KEY	QTY	P/N	DESCRIPTION	KEY	QTY	P/N	DESCRIPTION
1	1	534701	MHC SEALER HOUSING MACHINED	63	9	166063	M5 X 20 SHCS
2	2	611951	END GRIP BASE	64	3	280280	M5 X 10 SFHCS
3	2	531455	END GRIP	65	3	150589	M3 X 8 SBHCS
4	3	434792	DIE SPRING LHL-375D-1	66	7	280629	M3 X 20 SHCS
5	3	273812	DIE SPRING - RECT. 3/4 x 1	67	2	438241	M5 X 10 SHCS SPECIAL LOW
6	3	513271	CAM FOLLOWER BLOCK PLATEN	68	2	010076	M5 LOCKWASHER (ZINC)
7				69	1	420047	M3 X 6 SBHCS
8	4	438638	CAM FOLLOWER	70	1	510746	20mm EXT. RETRING (TA# 5100-78)
9	2	513065	PIN - GRIPPER	71	2	278155	M4 X 10 SFHCS (ZINC)
10	20	280820	M5 LOCKWASHER HC	72	1	517505	12mm EXT. RET. RING (BN 818)
11	12	423288	M5 X 12 SHCS	73	4	517758	M3 FLATWASHER (ZINC)
12	6	531449	GRIPPER PIN 3 X 20	74			
13	4	280303	FLATCAGENDLR BRG	75	1	611932	FRONT PLATE
14	1	513070	SPACER - CAM FOLLOWER	76			
15	3	513094	FLATCAGENEEDLE BEARING - MODIFIED	77			
16	1	518109	EXTENSION SPRING .4 DIA X 1.7 L	78	1	434673	.187" X .625" GROOVED PIN
17	1	518770	GROSCHOFF 3/4 HP 24K RPM AC	79			
18	1	513075	WELD MOTOR SPACER	80			
19	1	513077	Ø 12 THRUST BEARING AXK1226	81	A/R	611948	CUTTER SHIM, 0.002"
20	2	513078	Ø 12 THRUST RACE AS1226	82	A/R	611949	CUTTER SHIM, 0.005"
21	1	518267	WELD MOTOR COVER-BOTTOM	83			
22	1	518268	WELD MOTOR COVER-TOP	84			
23	4	518233	Ø 8/M6 X 12 SHSS - MODIFIED	85			
24	REF	611946	MH16 ANVIL	86	1	513134	LOOP GRIP CAM - MACHINING
25	REF	513067	VIBRATOR WEAR PAD	87	1	534708	POSITION CAM
26	REF	611941	GRIPPER PAD	88	1	513136	HOME TARGET - MACHINING
27	REF	434336	Ø 6 X 18 DOWEL PIN	89	1	513137	PLATEN CAM
28				90	1	534709	ANVIL CAM
29				91	1	513139	END GRIP CAM - MACHINING
30	1	513290	FLS FINGER WELDMENT	92	1	518766	MHC SEALER INDEX MOTOR
31	1	531803	M4x10 SELF-TAPPING SCREW FLG HEX HD	93	REF	513199	SQ. KEY 1/8" x 3-1/2"
32	5	513173	STRAP STOP SHIM	94	REF	513307	CAMSHAFT SPACER
33	1	518154	STRAP STOP	95	1	004958	Ø 1/8" X 7/8" ROLL PIN
34	1	518138	STRAP GUIDE - RIGHT HAND	96	1	513053	12 x 28 x 8 BALL BRG. SEALED
35	1	513168	FLS - PROX. MTG. BRACKET	97	1	682195	INDICATOR WASHER
36	1	513169	FLS PROX. COVER	98	1	513182	M6 x 12 SHCS SPECIAL LOW HEAD
37	REF	513325	PROX. SWITCH	99	1	513071	16 POLE PANEL MT. BASE
38	8	259935	M3 X 12 SHCS	100	2	513106	LOCATING PIN
39	24	162568	M3 LOCKWASHER (ZINC)	101	REF	513072	16 POLE ELEC. INSERT
40	2	306429	Ø 3 X 22 DOWEL PIN	102	1	513064	ANVIL PIVOT SHAFT
41	2	432153	M3 X 6 SHCS	103	3	513051	COMPRESSION SPRING Ø 0.48 x 1 x 0.059
42	10	280851	M4 X 12 SHCS	104	4	513074	SEALER MODULE ROLLER
43	9	280852	M4 LOCKWASHER HC	105	REF	439433	COUNTER
44	3	251261	M3 X 16 SHCS (ZINC)	106	1	513059	INDEX PROX. MOUNTING BRACKET
45	1	438632	COMP. SPRING Ø .188 x 0.625 x 0.012 WIRE	107	1	513277	SEALER HANDLE
46	1	513395	BRACKET - VIBRATOR BEARING	108	1	513288	MHC SEALER COVER
47	2	422835	Ø 5 X 12 DOWEL PIN	109	2	518486	LOCATING PAD
48	1	518265	ANVIL PIVOT	110	1	513191	STRAP GUIDE - LEFT HAND
49	1	518235	ECCENTRIC SHAFT	111	1	513193	STRAP GUIDE BLOCK
50	2	513445	BEARING: 20 ID, 42 OD, 12 THK	112	4	513198	STRAP GUIDE SPACER
51	1	518231	VIBRATOR WITH BRG HOUSING ASSY	113	6	518398	M4 X 8 SHCS (LOW)
52				114	2	266502	M3 X 35 SHCS
53	1	518234	Ø 20.2 X Ø 24 X 6 WIDE SPACER	115	4	271612	Ø 6/M5 X 16 SHSS
54	1	518236	ECCENTRIC BEARING CLAMP	116	2	299415	M6 X 35 SHCS
55	1	518237	WASHER VIBRATOR	117	1	611111	PLATEN BASE
56	1	518272	FLAG SENSOR	118	1	531453	MH16 PLATEN GRIP
57	1	518241	BRACKET SENSOR	119	1	513066	PIN - PLATEN
58	1	433354	BALL BRG. Ø 12 X Ø 32 X 16	120	1	531448	MH16 CUTTER BLADE
59	1	518242	BAR CLOSING WITH CARBIDE INSERT				
60	3	439717	PROX. NUT BAR	122	1	611947	MH16 ANVIL ASSEMBLY
61	4	280806	M6 LOCKWASHER HC	123	1	682196	POSITION INDICATOR STICKER
62	2	165438	M6 X 16 SHCS (ZINC)	125	1	611940	COMPRESSION SPRING Ø 0.312" X 0.75"

UNLESS OTHERWISE SPECIFIED:
 FOR ALL MALE THREADS M4 AND SMALLER APPLY LOCTITE #222 (PURPLE), OR EQUIVALENT.
 FOR ALL MALE THREADS M5 AND LARGER APPLY LOCTITE #243 (BLUE), OR EQUIVALENT.



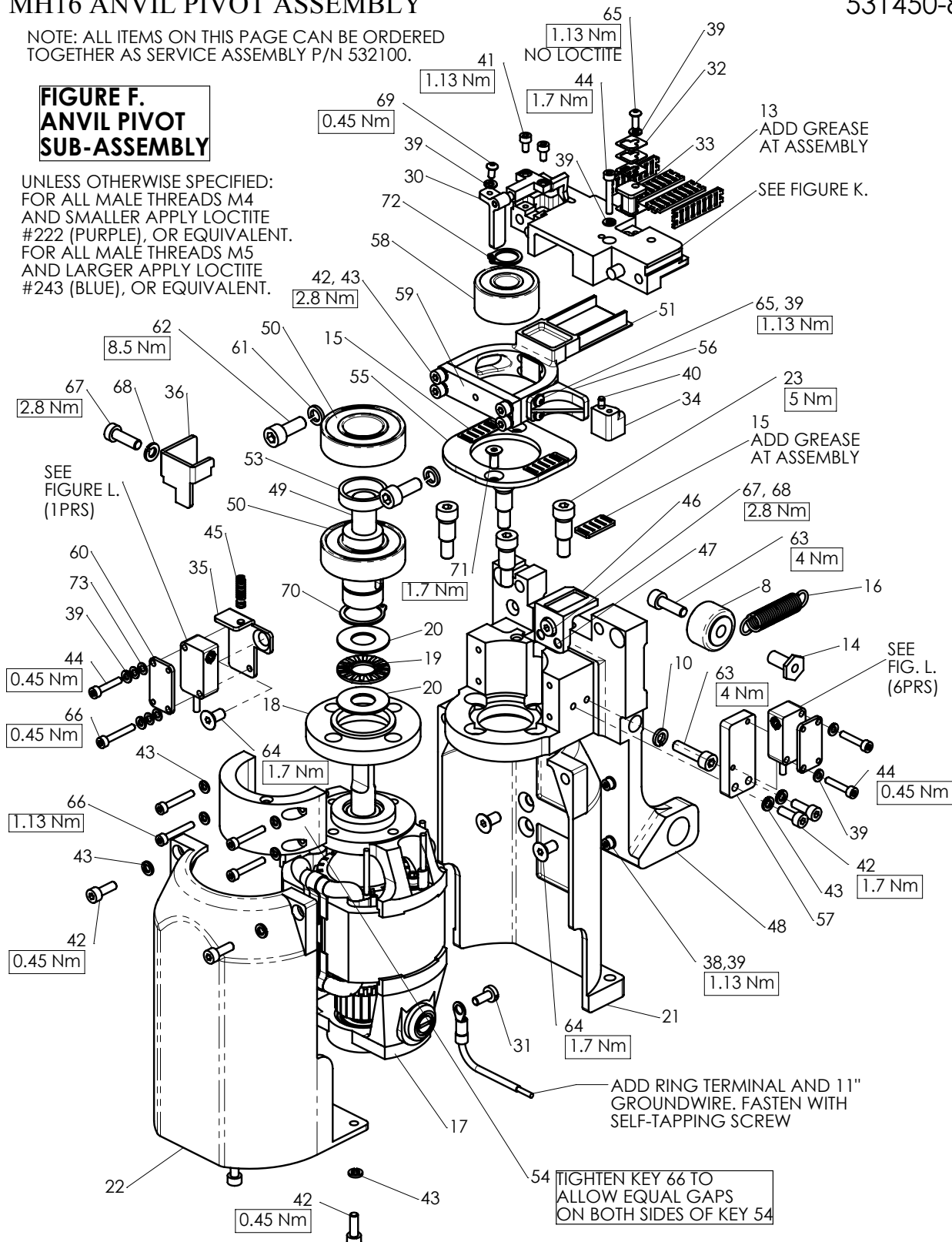
MH16 ANVIL PIVOT ASSEMBLY

531450-8

NOTE: ALL ITEMS ON THIS PAGE CAN BE ORDERED TOGETHER AS SERVICE ASSEMBLY P/N 532100.

FIGURE F. ANVIL PIVOT SUB-ASSEMBLY

UNLESS OTHERWISE SPECIFIED:
FOR ALL MALE THREADS M4
AND SMALLER APPLY LOCTITE
#222 (PURPLE), OR EQUIVALENT.
FOR ALL MALE THREADS M5
AND LARGER APPLY LOCTITE
#243 (BLUE), OR EQUIVALENT.



MH16 SUB-ASSEMBLIES

531450-8

FIGURE H.
GRIPPER ASSEMBLY
PURCHASE AS
ASSEMBLY
#531452

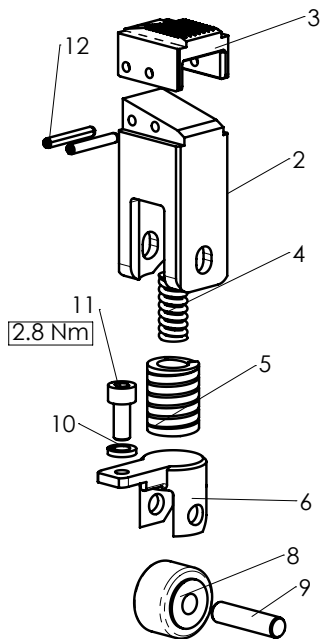
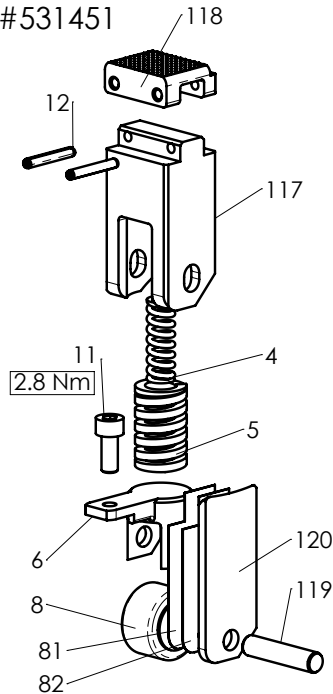
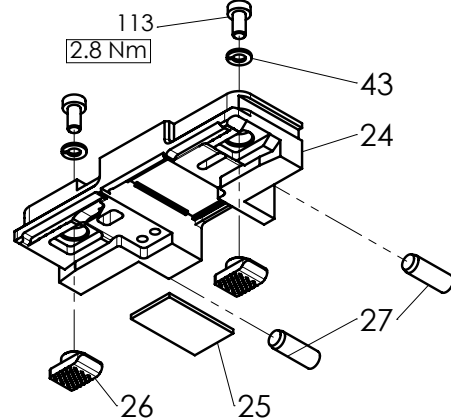


FIGURE G.
PLATEN ASSEMBLY
PURCHASE AS ASSEMBLY
#531451



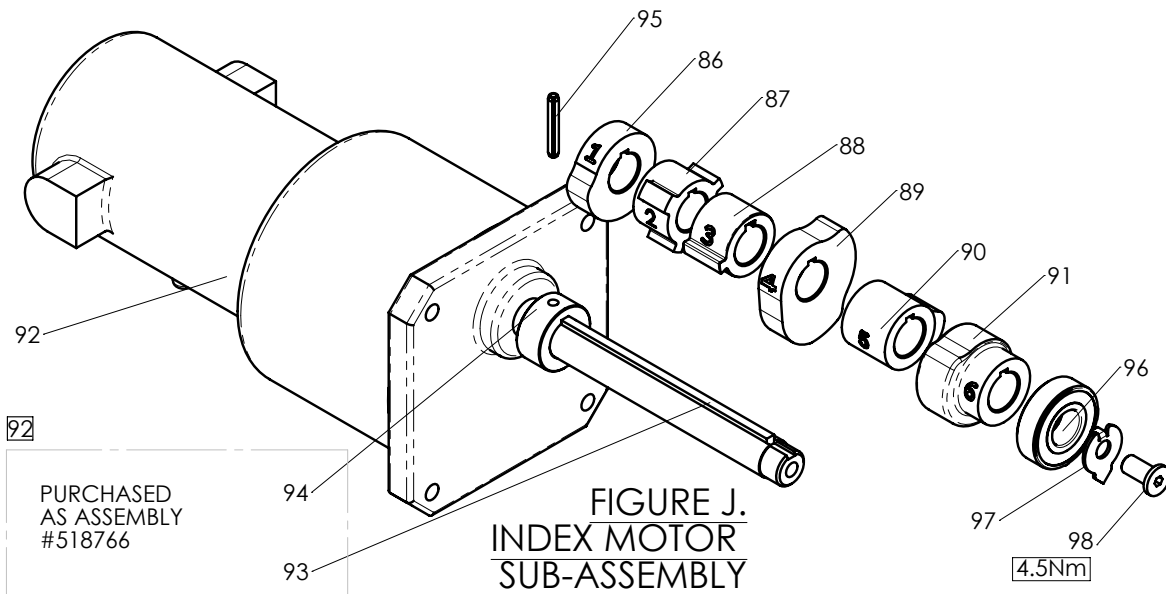
ADD SHIMS AS REQ.
FOR PROPER CUT-OFF

FIGURE K.
ANVIL ASSEMBLY
PURCHASE AS ASSEMBLY
#611947



NOTE:
PRESS PINS (KEY 9 & KEY 119)
0.5-0.7 mm BELOW FLUSH

UNLESS OTHERWISE SPECIFIED:
FOR ALL MALE THREADS M4
AND SMALLER APPLY LOCTITE
#222 (PURPLE), OR EQUIVALENT.
FOR ALL MALE THREADS M5
AND LARGER APPLY LOCTITE
#243 (BLUE), OR EQUIVALENT.



PURCHASED
AS ASSEMBLY
#518766

FIGURE J.
INDEX MOTOR
SUB-ASSEMBLY

MHC SEALER ELECTRICAL SUB-ASS'Y

531450-8

PURCHASED AS COMPLETE ASSEMBLY #513221

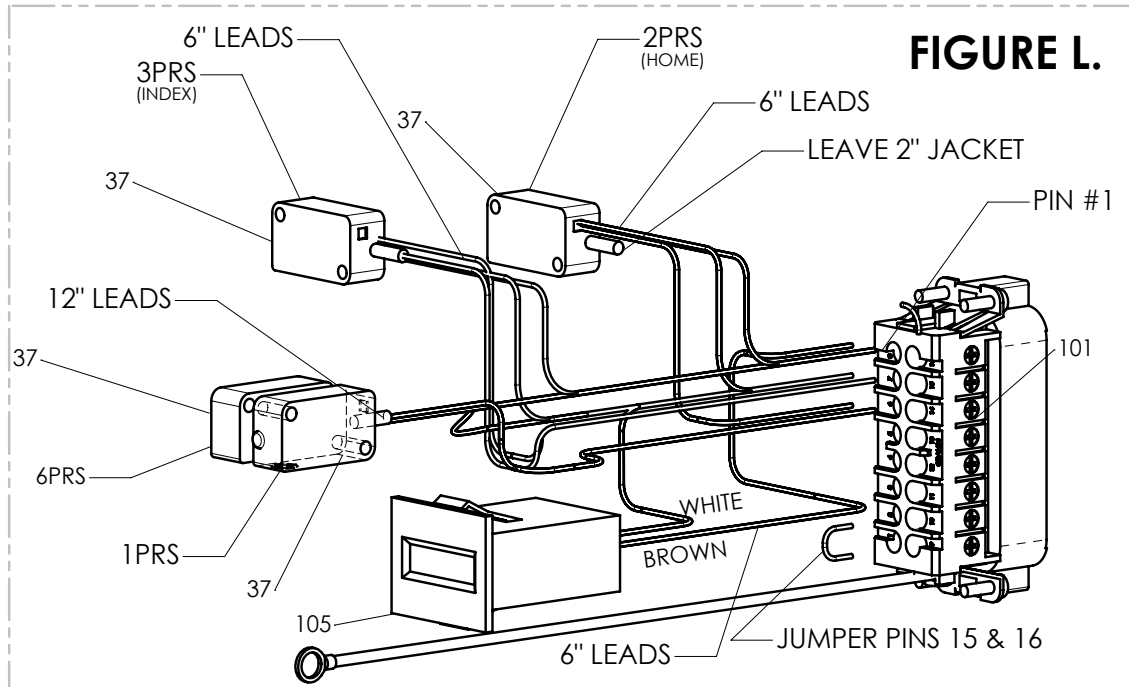


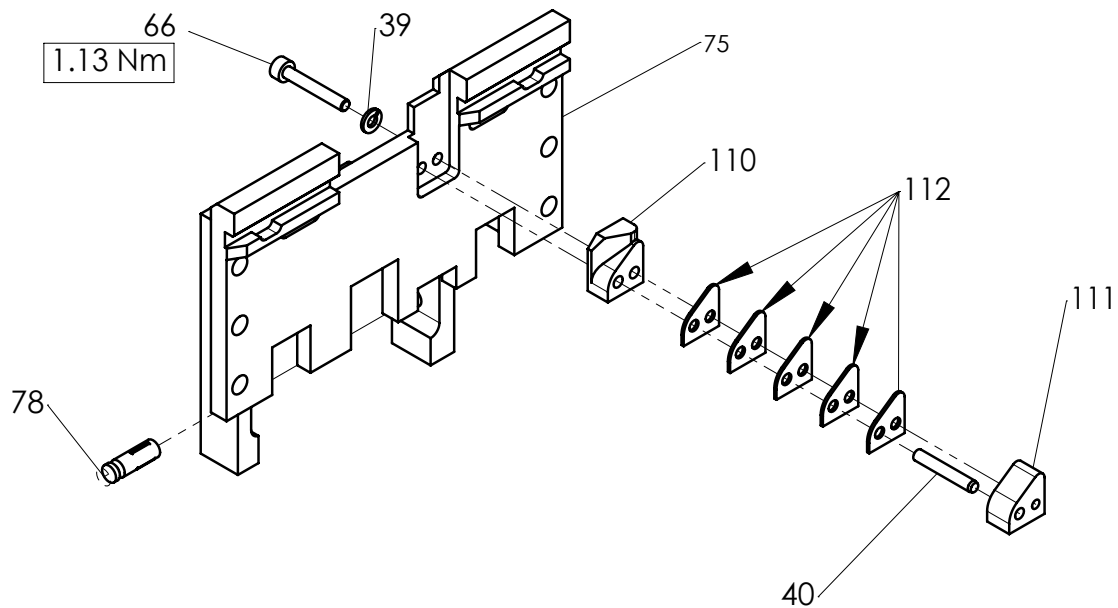
FIGURE L.

QTY	Part No.	DESCRIPTION
1	513072	INSERT -- MALE SCREW CLAMP (16A 16 PIN)
4	513325	PROX. SWITCH - EFECTOR
1	439433	COUNTER

WIRING DIAGRAM			
PIN #	DESIGNATION	DESCRIPTION	WIRE
1	+24V DC	brown	14
2	3PRS - Index Prox.2 - I0.2	INDEX	102
3	1PRS - Feed Limit I0.0	FLS	100
4	+120V DC to Index Motor	white	27
5	-120V DC to Index Motor	black	28
6	120V AC from 1SSR to Weld Motor	blue	24
7	120V AC Neutral to Weld Motor	blue	21
8	Spare		
9	24V Counter	brown	202
10	-24V DC	blue	11
11	2PRS - Index Prox.1 - I1.5	HOME	113
12	6PRS - Weld Count - I0.1	WELD COUNT	101
13	Spare		
14	Spare		
15	Jumper pins 15 & 16 together	Safety	13B
16		Circuit	13C

MH16 SEALER ASSEMBLY

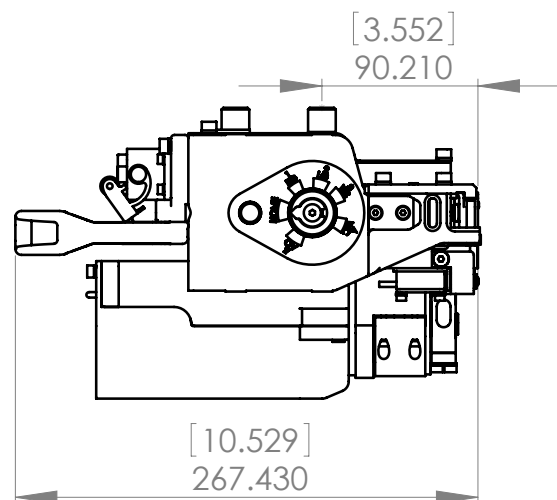
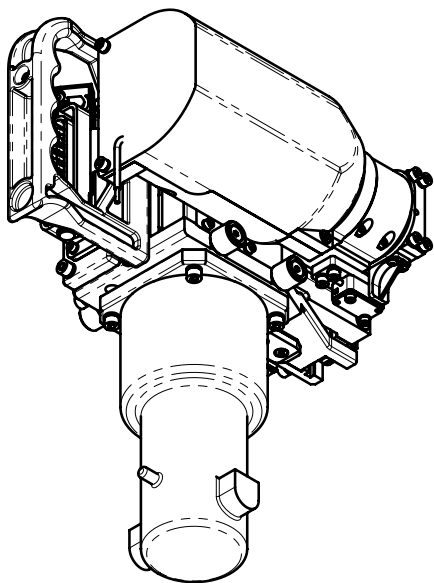
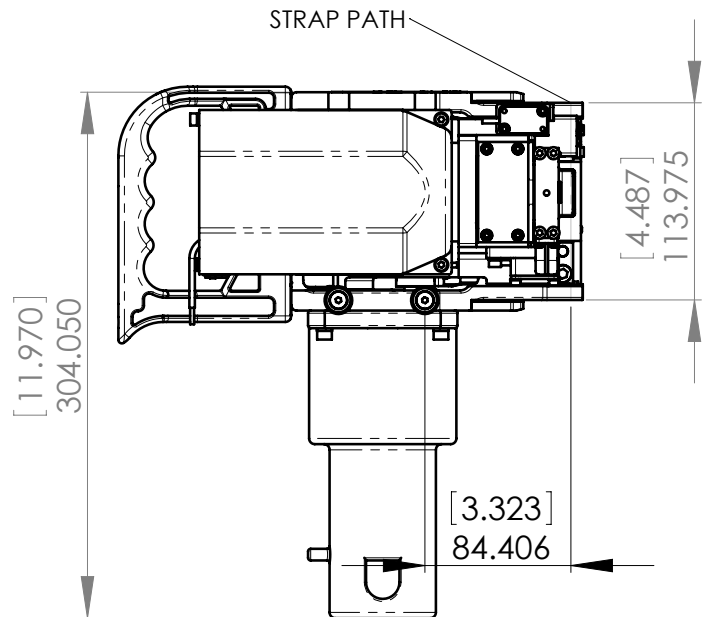
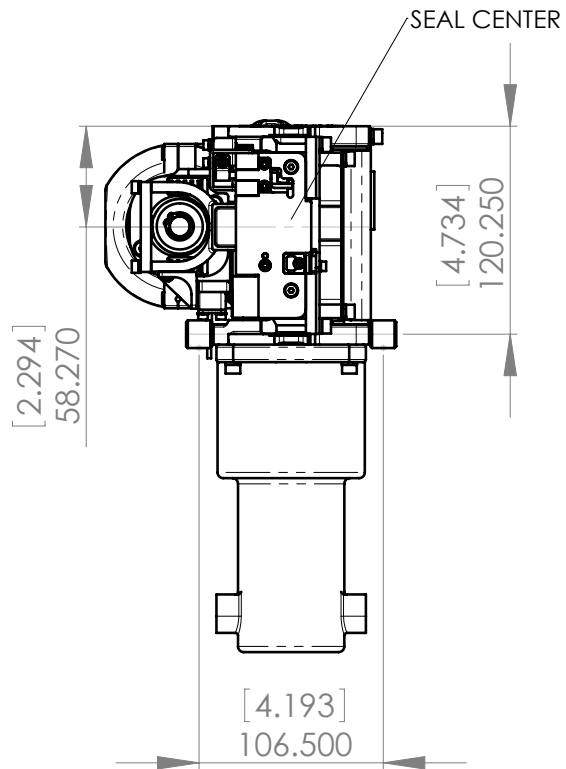
531450-8

FIGURE M: WIDTH ADJUSTMENT ASSEMBLY

UNLESS OTHERWISE SPECIFIED:
FOR ALL MALE THREADS M4 AND SMALLER APPLY LOCTITE #222 (PURPLE), OR EQUIVALENT.
FOR ALL MALE THREADS M5 AND LARGER APPLY LOCTITE #243 (BLUE), OR EQUIVALENT.

MH16 SEALER ASS'Y

531450-8



TENSION MODULE

CONTENTS

TENSION MODULE	B6-11
MH-16 Tension Module (531426-12).....	B6-12
SPARE PARTS LIST	B6-25
MH-16 Head Spare Parts Kit (531801-4)	B6-25

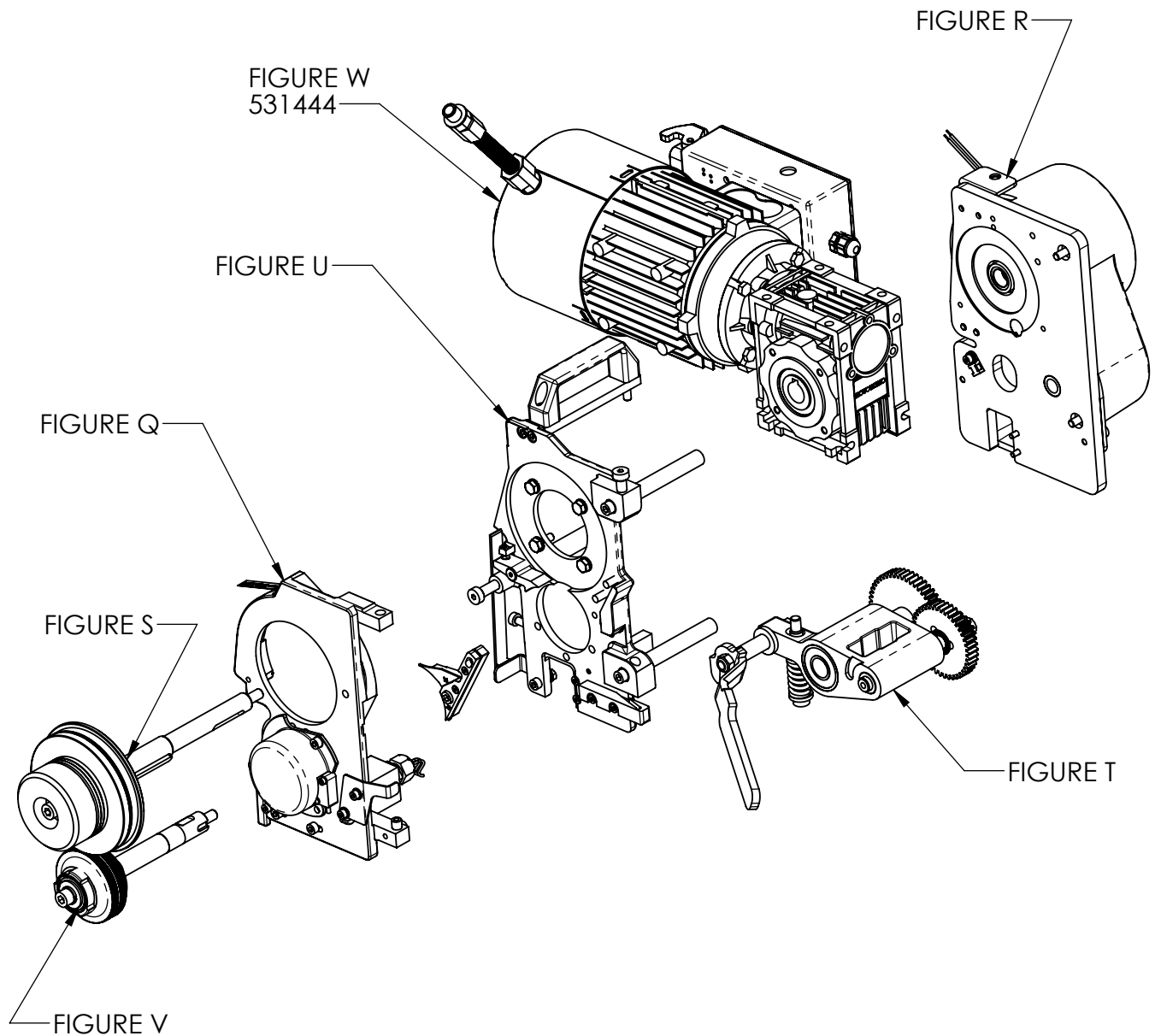
APPENDIX-B

MH-16 TENSION MODULE (531426-12)
MH16 TENSIONER MODULE
531426-12

KEY	QTY	P/N	DESCRIPTION
1	1	513420	BACK PLATE PRESS ASS'Y
2	1	513425	BRACKET ASSY - HANDLE
3	1	608589	GEAR - IDLER: 32 TEETH
4	1	513428	SPACER - IDLER GEAR
5	1	513430	BEARING: 12ID, 24OD, 6THK
6	1	513475	24 mm Int Ret. Ring
7	1	421876	M6 FENDER WASHER
8	1	531445	SPACER - FEED GEAR(15mm ID)
9	1	608588	GEAR FEED - 24 TEETH
10	1	531436	CLUTCH ADAPTER SPIDER
11	1	608598	CLUTCH SPACER
12	1	531438	KEB CLUTCH
13	2	513402	MOUNT ANCHOR TIE
14	1	608593	PIVOT SHAFT BEARING SPACER
15	2	608595	BEARING: 12ID, 21OD, 5THK
16	2	531440	BEARING: 15 ID, 24 O.D. 5 THK
17			
18	4	005465	M6 HEX NUT (ZINC)
19	6	262617	M6 FLATWASHER (ZINC)
20	6	165438	M6 X 16 SHCS (ZINC)
21			
22	7	010028	M5 X 12 SHCS (ZINC)
23	2	420216	M4 X 10 SHCS (ZINC)
24			
25	4	171570	M4 FLATWASHER (ZINC)
26	15	433916	M4 X 12 SHCS (ZINC)
27	1	433922	M6 X 16 SHCS (ZINC)
28	1	433920	M6 X 20 SHCS (ZINC)
29	2	433919	M6 X 12 SHCS (ZINC)
30			
31	2	513408	MOUNTING ROD
32	1	513409	CARRYING HANDLE
33	1	513405	COMP. SPRING LC-018BC-6
34	1	518785	BAR SWITCH MTG
35	1	513467	BAR HANDLE MTG
36	1	513466	BAR NUT PINCH BOLT
37	1	513464	BRACKET COVER WIRE
38	1	518108	PLATE FRONT MACHINED
39	1	278155	M4 X 10 SHCS (ZINC)
40	1	011214	M5 X 16 SHCS (ZINC)
41	6	010076	M5 LOCKWASHER (ZINC)
42	3	169440	M5 HEX NUT (ZINC)
43	2	292450	Ø6/M5 X 12 SHSS
44	7	005464	M6 LOCKWASHER
45			

KEY	QTY	P/N	DESCRIPTION
46	4	173028	M6 X 16 HHCS (ZINC)
47	2	280806	M6 LOCKWASHER HC
48	2	274385	Ø6 X 20 DOWEL PIN
49	3	162374	M6 X 30 SHCS (ZINC)
50	2	280820	M5 LOCKWASHER HC
51	19	280852	M4 LOCKWASHER HC
52	1	164956	Ø8/M6 X 12 SHSS
53	1	436605	Ø8/M6 X 35 SHSS
54	2	432963	M3 X 12 FHCS
55	1	611936	STRAP SCOOP BACK
56	1	531434	STRAP WIPER
57	1	510351	STRAP GUIDE
58	1	611938	STRAP SCOOP FRONT
59	1	611937	STRAP SCOOP PLATE
60	1	531431	DOOR MAIN PLATE
61	1	513325	PROX. SWITCH
62	1	531432	PROX WIRE COVER
63	1	513410	BLOCK MTG LATCH
64	1	510741	DOOR LATCH, MACH.
65	1	510582	COMP. SPRING (LC-035C-6-MM)
66	1	171044	Ø6/M5 X 10 SHSS
67	1	513418	PIN HOLLOW 8X20
68	1	436377	INFORMATION SIGN
69	1	518151	ASSEMBLY SWITCH
70	1	513465	COVER TENSION WHEEL
71	5	438241	M5 X 10 SHCS SPECIAL LOW
72	4	281532	M5 X 10 SHCS (ZINC)
73	2	432253	M4 X 35 SHCS (DIS)
74	2	166063	M5 X 20 SHCS
76	2	433938	M3 X 12 SHCS (ZINC)
77	14	162568	M3 LOCKWASHER (ZINC)
78	1	513491	PIVOT CARRIAGE - ASSEMBLY
79	1	513934	M8 NORDLOCK WASHER
80	1	608591	GEAR - DRIVER: 20 TEETH
81	1	513454	PINCH RELEASE ROD
82	1	608596	PIVOT SHAFT
83	1	608590	GEAR - DRIVER: 41 TEETH
84	1	608592	GEAR - TENSION: 52 TEETH
85	1	513463	5 X 5 X 9 KEY
86	1	518161	WASHER 8.4 X 23 X 4
87	2	513285	WASHER 10.5 X 19 X 3
88	1	513456	LEE SPRING: LHL-750B-04
89	1	423557	Ø10/M8 X 60 SHSS
90	2	280335	M8 FLATWASHER
91	3	162381	M8 LOCKWASHER (ZINC)

KEY	QTY	P/N	DESCRIPTION
92	4	164953	M8 HEX NUT (ZINC)
93	1	433068	M8 HEX LOCKNUT
94	1	518916	RELEASE - HANDLE
95	1	513449	TENSION SHAFT SPACER
96	1	513443	TENSION SHAFT
97	1	531429	TENSION WHEEL
98	1	513445	BEARING: 20 ID, 42 OD, 12 THK
99	1	513446	ONE-WAY CLUTCH: 20 ID, 16 LNG
100	1	513447	BEARING: 15 ID, 32 OD, 9 THK
101	1	162395	M8 X 16 SHCS
102	2	420322	M8 FENDER WASHER (ZINC)
103	1	531427	FEED SHAFT
104	1	513460	KEY : 6 X 6 X 63
105	1	513241	47 X 20 X 20 DOUBLE ROW BALL BRG
106	1	439622	RULON WASHER
107	1	439623	RULON DRIVE PLATE
108	6	439533	DIE SPRING LHL-500D-1
109	1	531428	FEED WHEEL
110	1	531443	SPRING SPACER, RULON CLUTCH
111	1	160331	M8 X 20 SHCS (ZINC)
112	1	608322	1 HP GEARMOTOR
113	1	531951	JUNCTION BOX W/ LID
114	1	531446	KEY : 6 X 8 X 35
115	1	531441	ELECTRICAL HARNESS
116	REF	517391	TERM BLOCK END PLATE W/ MTG FLG
117	REF	517394	TERM BLOCK, 4 POLE W/ MTG FLG
118	REF	517392	TERM BLOCK, 2 POLE
119	REF	513251	INSERT -- MALE SCREW CLAMP (10A 10 PIN)
120	REF	434592	14 GA GRN/YELLOW WIRE
121	REF	070642	INS. RING TERM. (14-18 GA)
122	1	513250	BULKHEAD MOUNTING HOUSING 10 POLE
123	1	518220	FITTING M12 X 1.5 FOR 13 MM COND.
124	8	262551	M3 X 8 SHCS (ZINC)
125	6	256901	M3 FLATWASHER (ZINC)
126	1	513483	CONDUIT PLASTIC 10 MM ID
127	1	513485	NUT PLASTIC M12X1.75
128	1	531827	FAN KIT
129	1	608594	FEED GEAR BEARING SPACER
130	1	513182	M6 X 12 SHCS SPECIAL LOW W/ NY LOCK
131	1	531461	M5x80 HEADLESS BOLT
132	15	433917	M4 X 16 SHCS (ZINC)
133	1	531442	REAR COVER
134	1	514330	RUBBER GROMMET
135	1	435460	PG-7 CORD GRIP
136	3	531482	0.005 SHIM

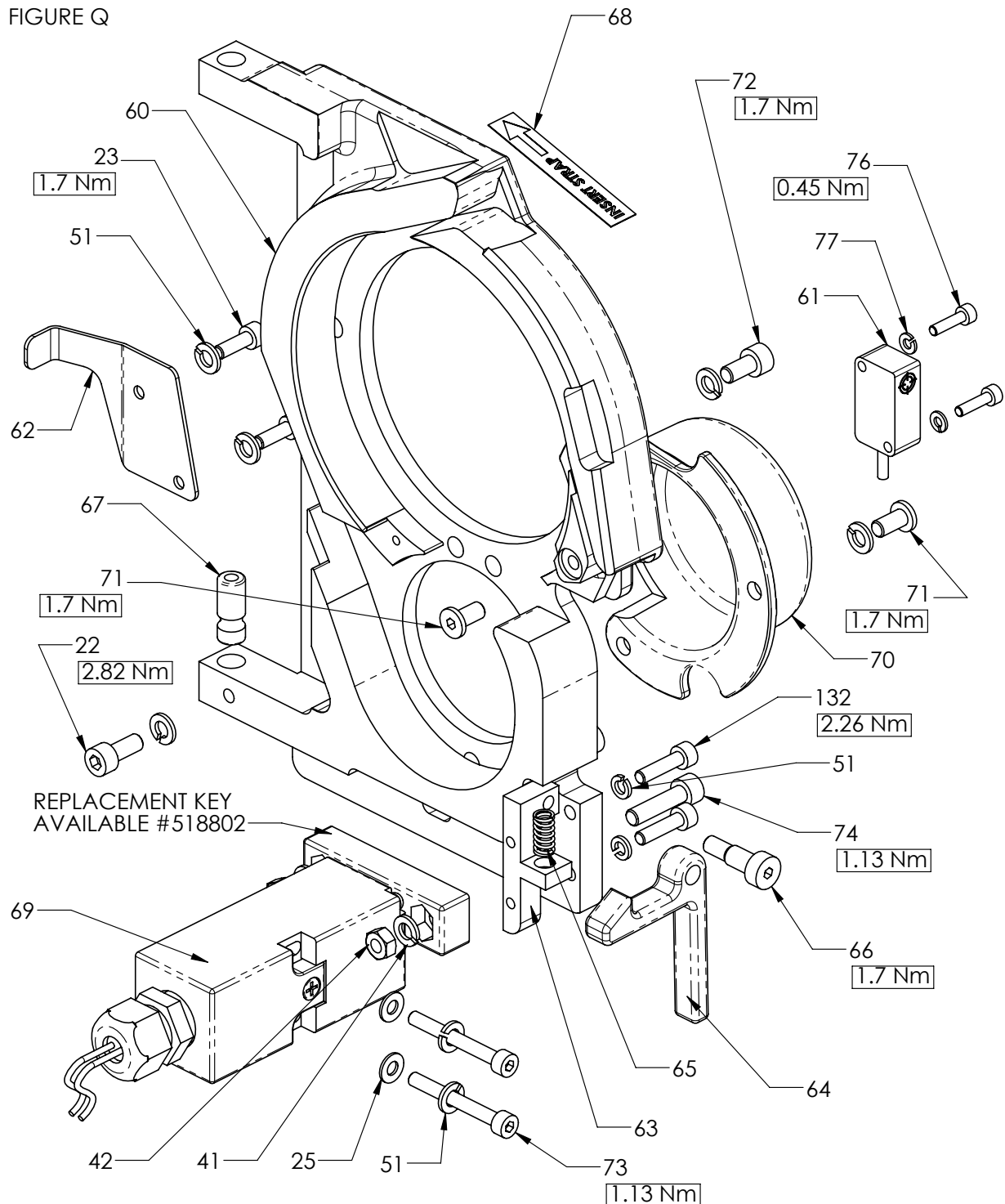


UNLESS OTHERWISE SPECIFIED:
FOR ALL MALE THREADS M4 AND SMALLER APPLY LOCTITE #222 (PURPLE), OR EQUIVALENT.
FOR ALL MALE THREADS M5 AND LARGER APPLY LOCTITE #243 (BLUE), OR EQUIVALENT.

MAIN PLATE DOOR

531426-12

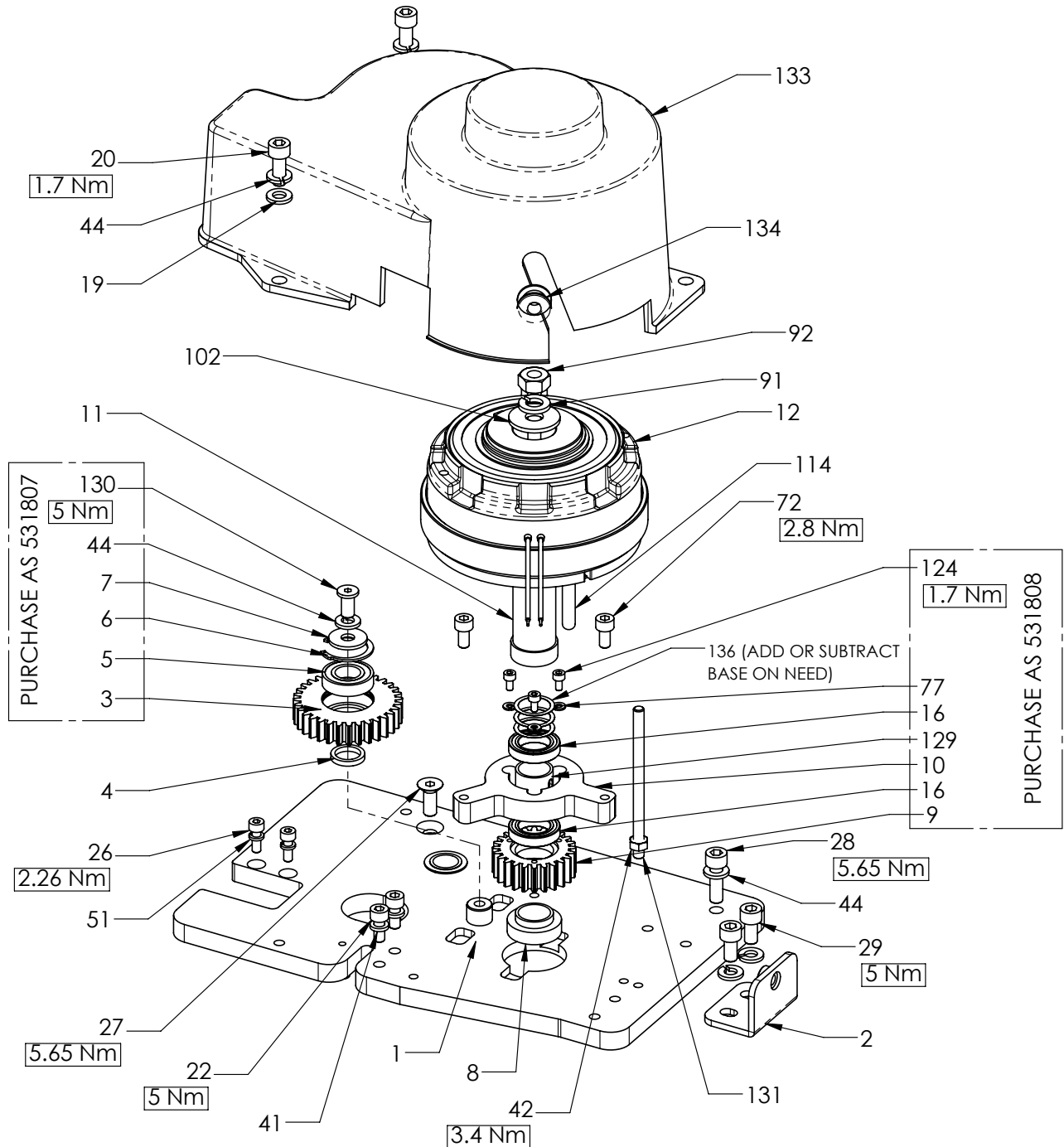
FIGURE Q



BACK PLATE ASSEMBLY

FIGURE R

531426-12

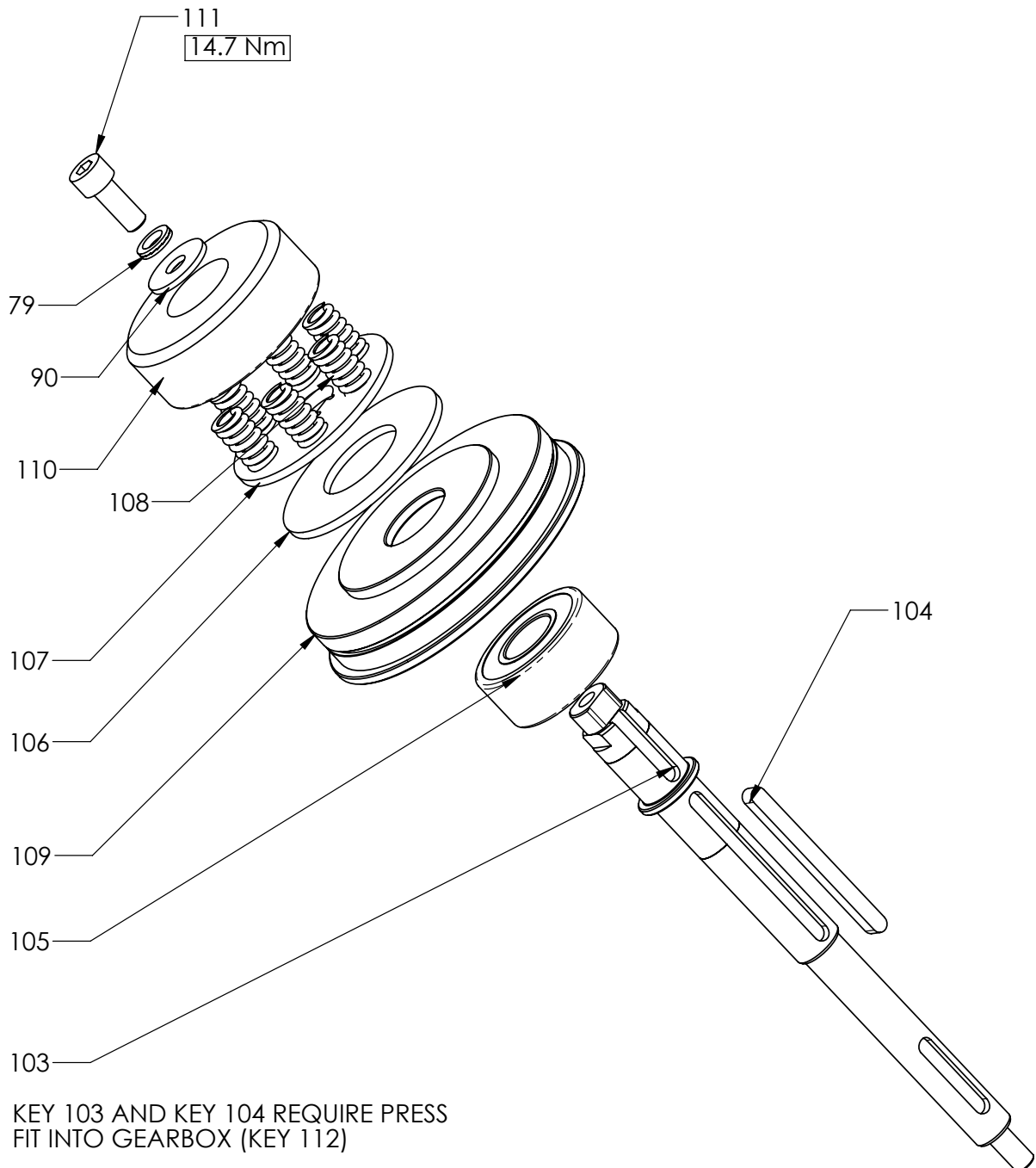


UNLESS OTHERWISE SPECIFIED:
FOR ALL MALE THREADS M4 AND SMALLER APPLY LOCTITE #222 (PURPLE), OR EQUIVALENT.
FOR ALL MALE THREADS M5 AND LARGER APPLY LOCTITE #243 (BLUE), OR EQUIVALENT.

FEED SHAFT ASSEMBLY

531426-12

FIGURE S

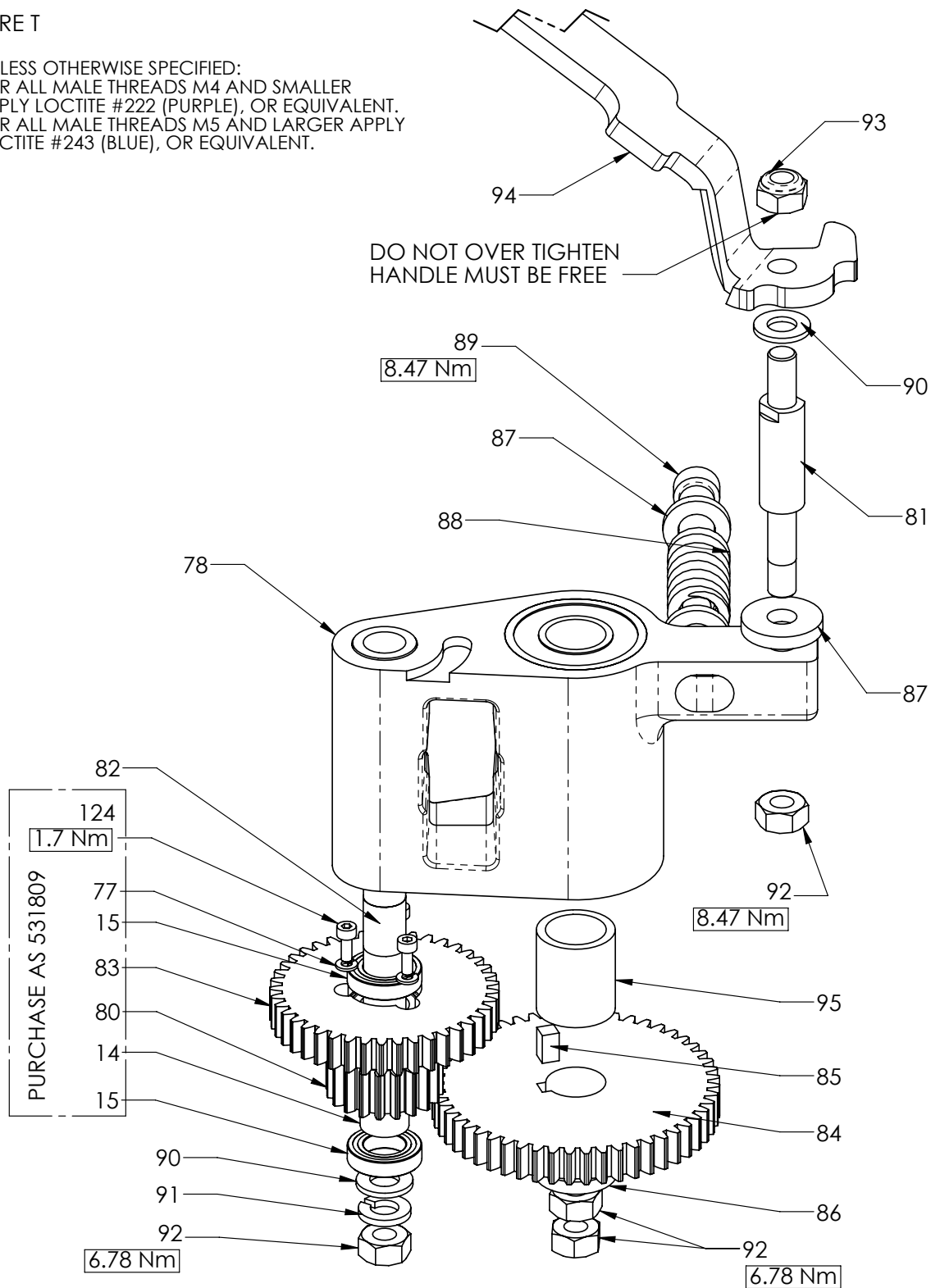


PIVOT CARRIAGE ASSEMBLY

531426-12

FIGURE T

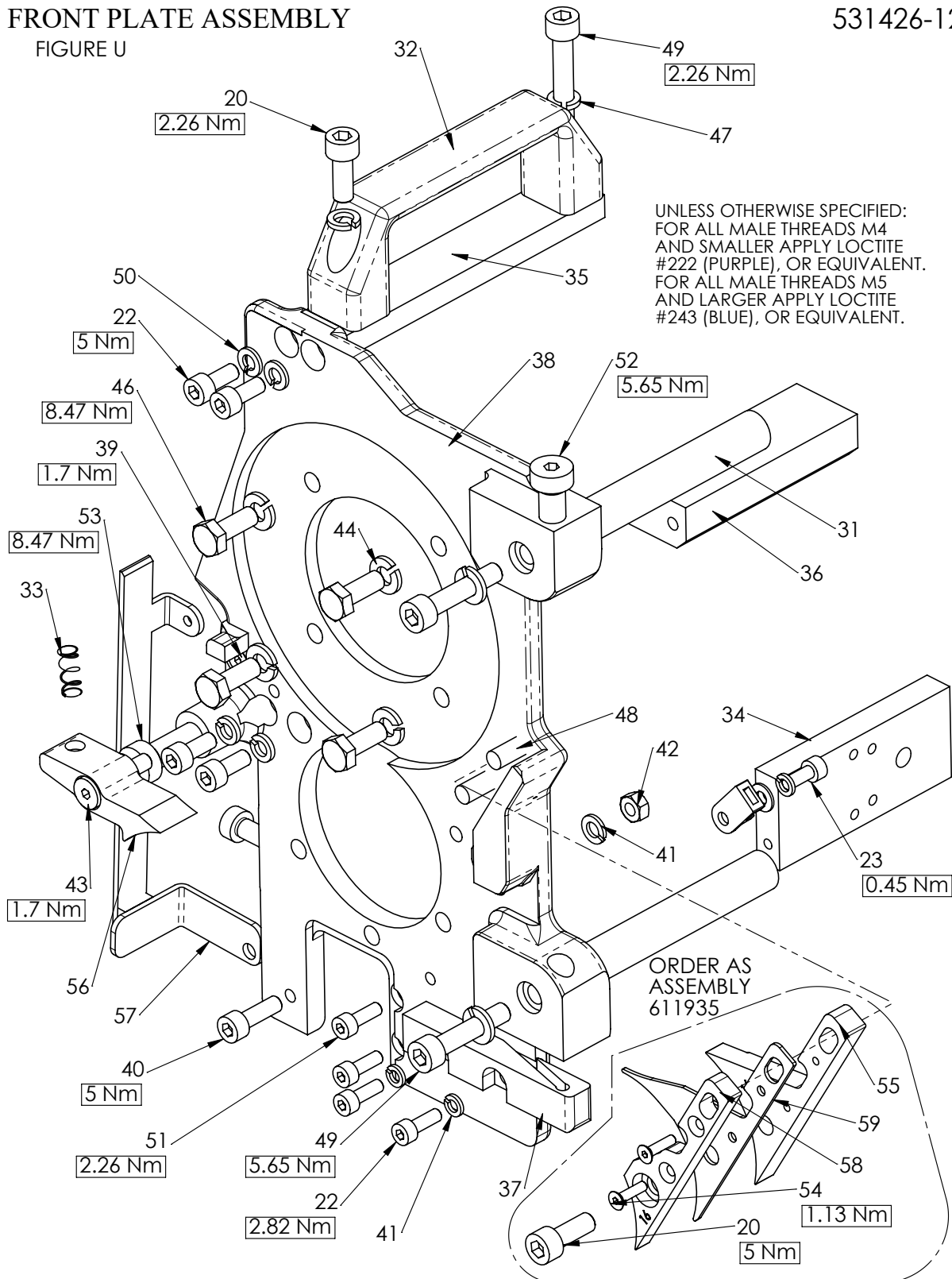
UNLESS OTHERWISE SPECIFIED:
FOR ALL MALE THREADS M4 AND SMALLER
APPLY LOCTITE #222 (PURPLE), OR EQUIVALENT.
FOR ALL MALE THREADS M5 AND LARGER APPLY
LOCTITE #243 (BLUE), OR EQUIVALENT.



FRONT PLATE ASSEMBLY

FIGURE U

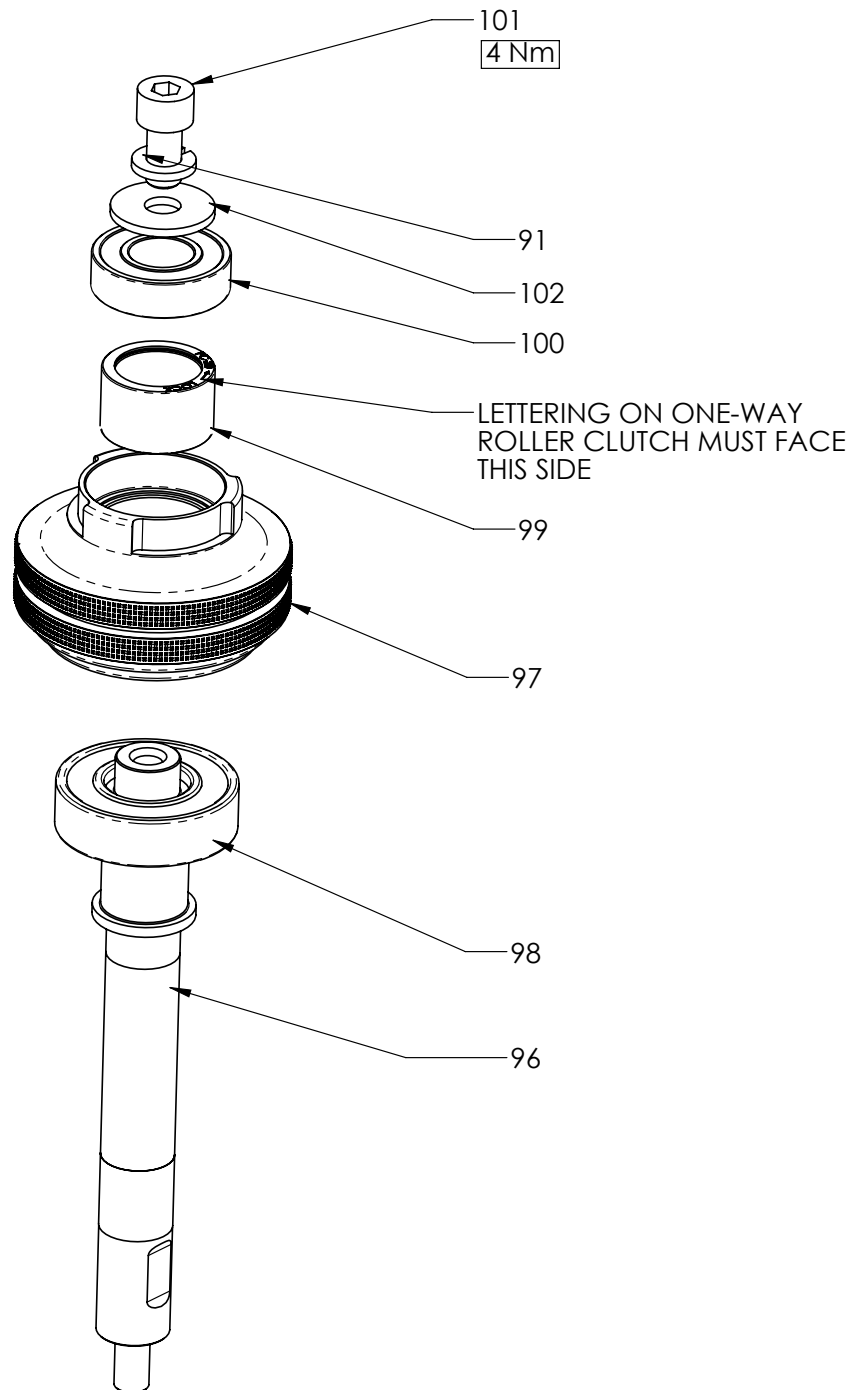
531426-12



TENSION SHAFT ASSEMBLY

531426-12

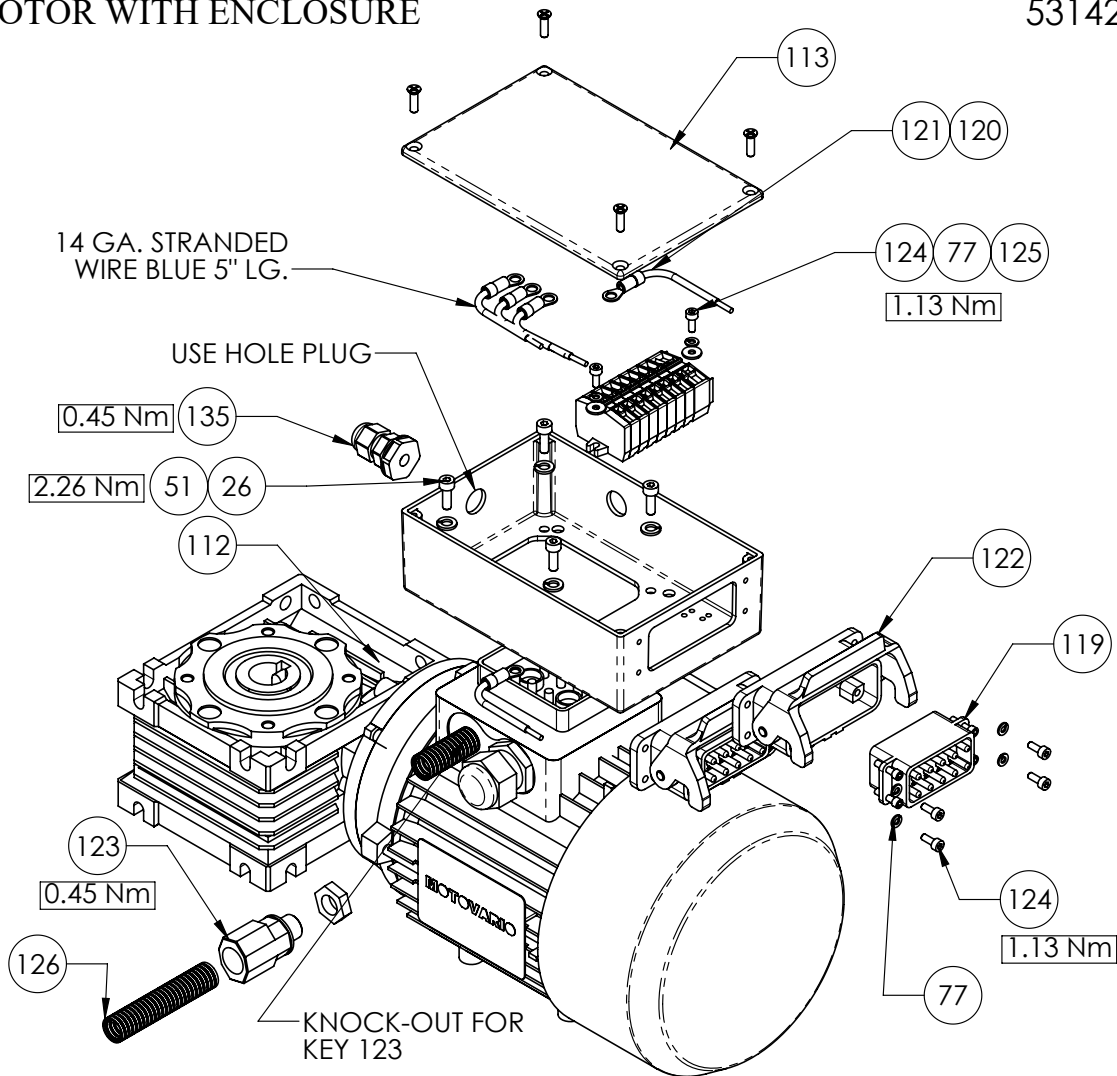
FIGURE V



UNLESS OTHERWISE SPECIFIED:
FOR ALL MALE THREADS M4 AND SMALLER APPLY LOCTITE #222 (PURPLE), OR EQUIVALENT.
FOR ALL MALE THREADS M5 AND LARGER APPLY LOCTITE #243 (BLUE), OR EQUIVALENT.

MOTOR WITH ENCLOSURE

531426-12



1	U1
2	V1
3	W1
4	Prox Switch Wire (black) signal
5	Prox Switch Wire (brown +24V) Fan Motor (red)
6	Clutch (green-blue) Prox Switch Wire (blue -24V) Motor Thermal Overload Protection Varistor leg Fan Motor (black)
7	Clutch (green-red) Varistor Leg
8	Motor Thermal Overload Protection
9	Safety Switch Wire
10	Safety Switch Wire

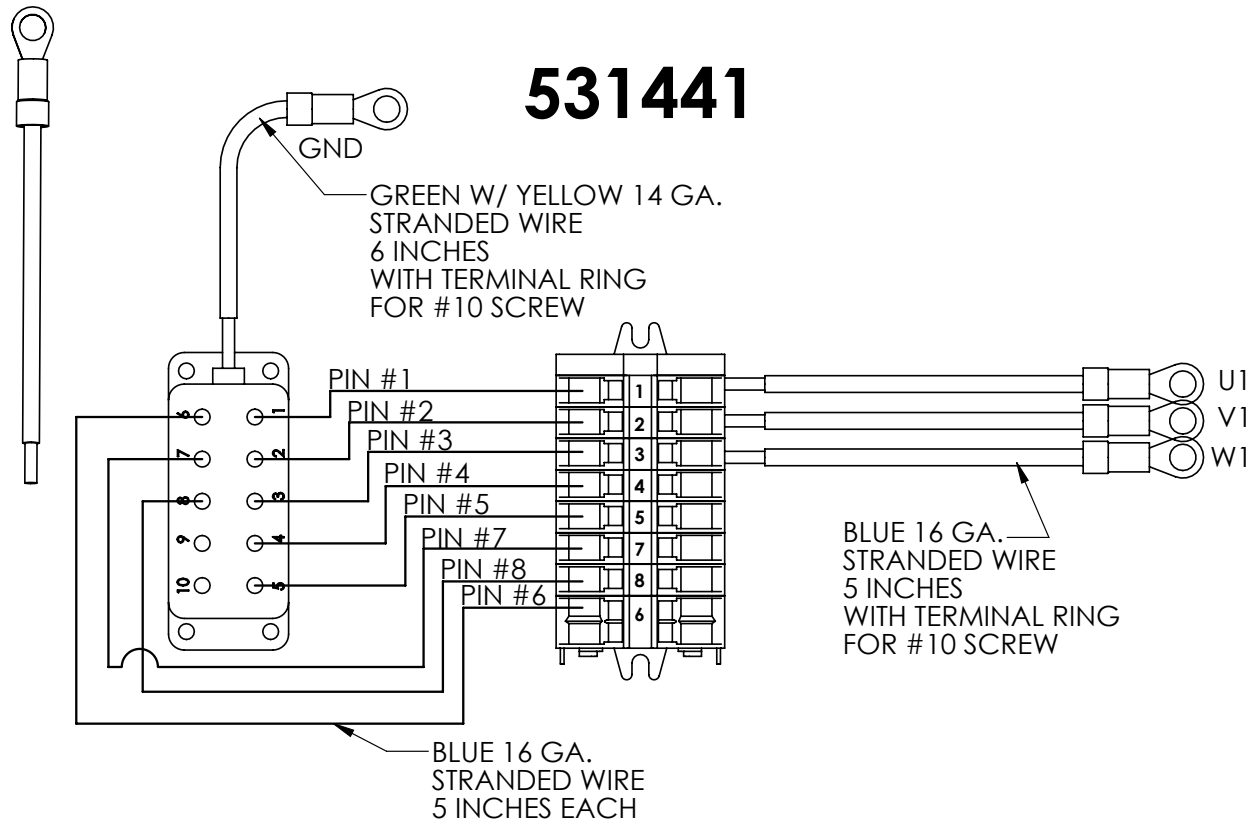
PURCHASE AS COMPLETE ASSEMBLY 531444

UNLESS OTHERWISE SPECIFIED:
FOR ALL MALE THREADS M4 AND SMALLER
APPLY LOCTITE #222 (PURPLE), OR EQUIVALENT.
FOR ALL MALE THREADS M5 AND LARGER
APPLY LOCTITE #243 (BLUE), OR EQUIVALENT.

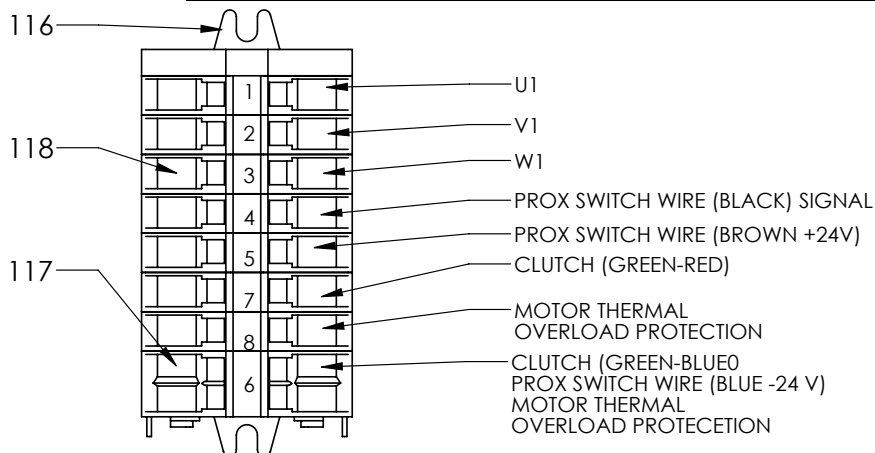
HIGH VOLTAGE	W2 ○ U2 ○ V2 ○	○ U1 L1 ○ V1 L2 ○ W1 L3
LOW VOLTAGE	W2 ○ U2 ○ V2 ○	○ U1 L1 ○ V1 L2 ○ W1 L3

TERMINAL BLOCK ASSEMBLY

531426-12

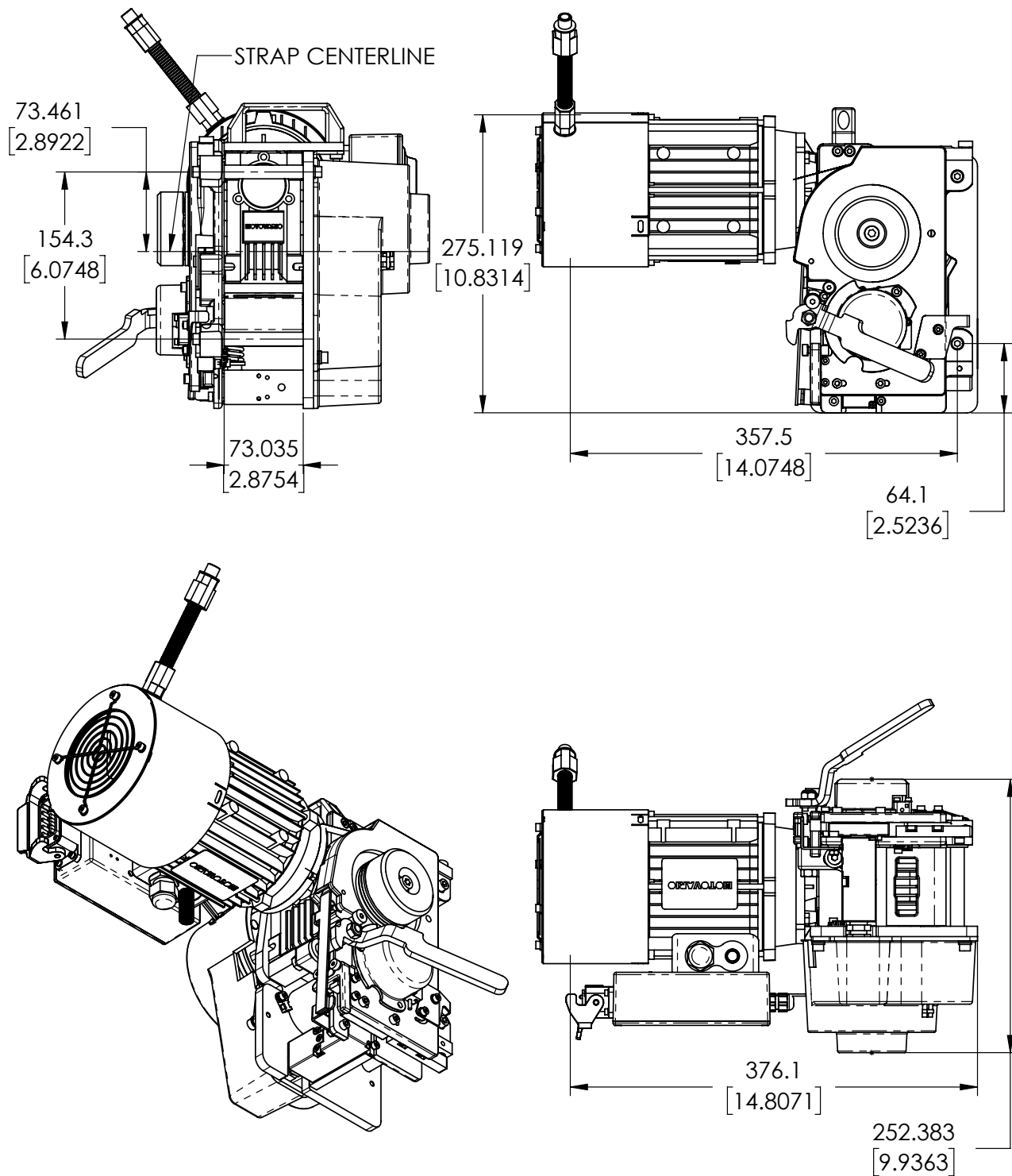


KEY	QTY	P/N	DESCRIPTION
116	1	517391	TERM BLOCK END PLATE W/ MTG FLG
117	1	517394	TERM BLOCK, 4 POLE W/ MTG FLG
118	7	517392	TERM BLOCK, 2 POLE
119	1	513251	INSERT -- MALE SCREW CLAMP (10A 10 PIN)
121	4	070642	INS. RING TERM. (14-18 GA)



MH16 TENSIONER MODULE

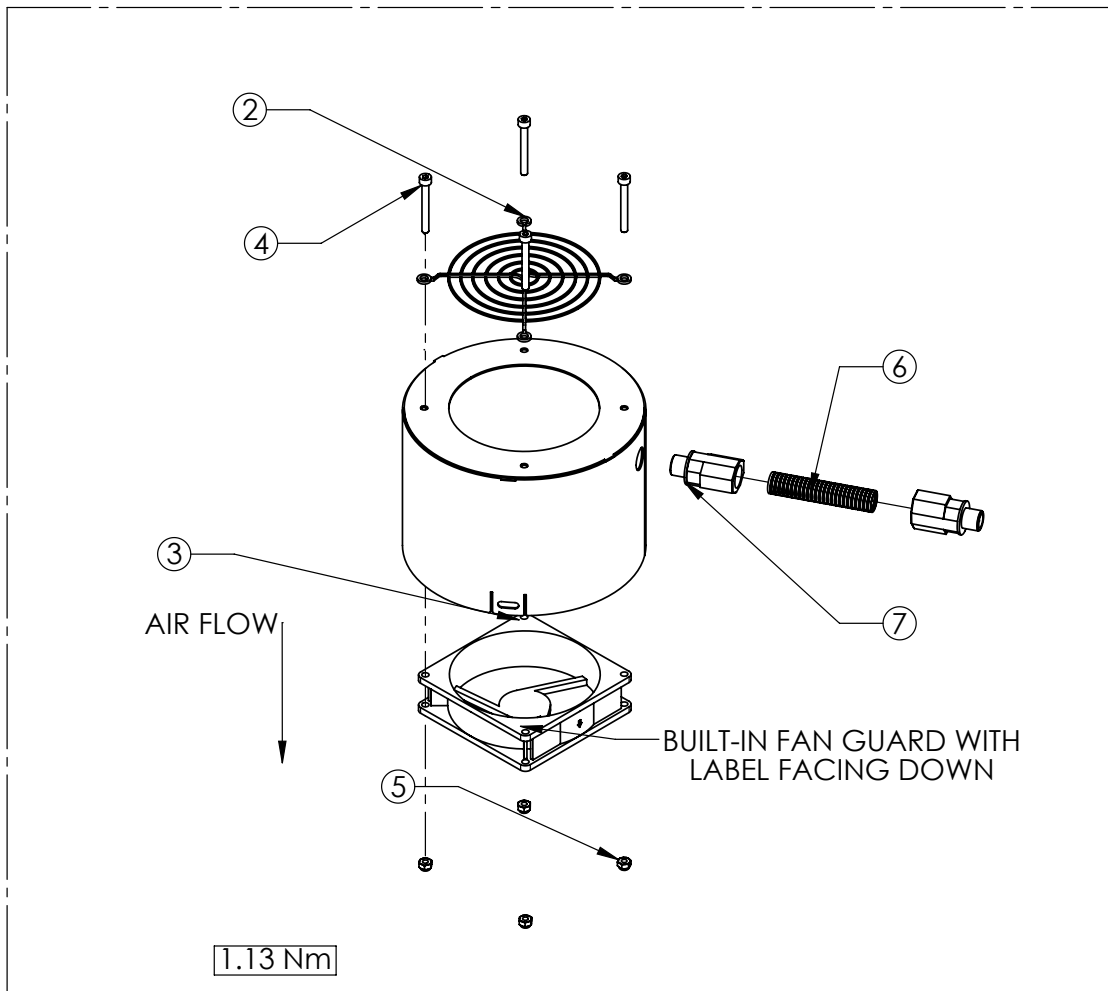
531426-12



FAN SHROUD

531426-12

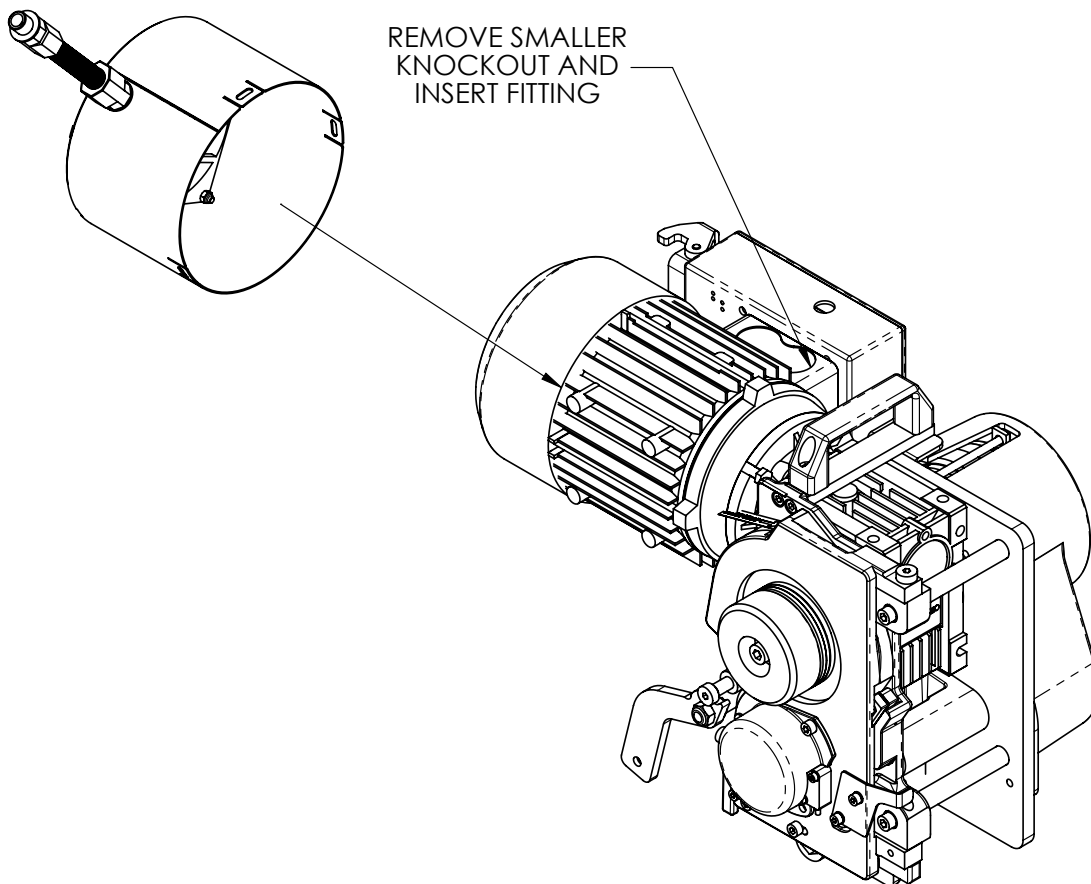
BOM #531827			
KEY	QTY.	PART NO.	DESCRIPTION
1	1	531828	SHROUD WELDMENT
2	1	609203	COOLING FAN SCREEN
3	1	518283	FAN 24VDC
4	4	432253	M4 X 35 SHCS (DIS)
5	4	252230	M4 HEX LOCKNUT
6	1	513483	CONDUIT PLASTIC 10 MM ID
7	2	518220	FITTING M12 X 1.5 FOR 13 MM COND.



FAN KIT INSTALLATION

531426-12

PIN	DESCRIPTION
1	U1
2	V1
3	W1
4	Prox Switch Wire (black) signal
5	Prox Switch Wire (brown +24V) Fan Motor (red)
6	Clutch (green-blue) Prox Switch Wire (blue -24V) Motor Thermal Overload Protection Varistor leg Fan Motor (black)
7	Clutch (green-red) Varistor Leg
8	Motor Thermal Overload Protection
9	Safety Switch Wire
10	Safety Switch Wire



UNLESS OTHERWISE SPECIFIED:
FOR ALL MALE THREADS M4 AND SMALLER APPLY LOCTITE #222 (PURPLE), OR EQUIVALENT.
FOR ALL MALE THREADS M5 AND LARGER APPLY LOCTITE #243 (BLUE), OR EQUIVALENT.

SPARE PARTS LIST

MH-16 HEAD SPARE PARTS KIT (531801-4)

P/N	Q'TY	DESCRIPTION
280303	4	Flat Cage Needle Roller
432322	1	Accrolube Grease, 1.5 oz tube
433354	1	Bearing 12 ID, 32 OD, 15.875 thick (Vibrator)
438632	1	Compression Spring Ø0.188 x 0.625 x 0.012 (FLS)
439533	4	Compression Die Spring Ø1/2 X 1" orange (Rulon clutch)
439622	1	Rulon washer
531448	1	Cutter blade
513051	3	Compression Spring Ø 0.48 x 1 x 0.059 (Grippers)
513075	1	Weld Motor Spacer
513077	1	Ø12 ID Needle thrust bearing
513078	2	Ø12 ID Thrust Race
513094	3	Flat Cage Needle Roller – Modified
513269	1	Separator Blade
513325	1	Proximity sensor
513405	1	Compression Spring Ø 0.21 x 0.563 x 0.022 (Wiper)
531434	1	Strap Wiper
531438	1	24V Clutch – 12 ID, 186 lb-in
513445	2	Bearing 20 ID, 42 OD, 12 wide (Weld Motor & Pinch Wheel)
531802	1	Tension Wheel Assembly
513497	1	Bearing Ø 6 X Ø 13 X 5 wide (Separator)
517505	1	Ø12 External Retaining Ring (Eccentric)
518109	1	Extension Spring Ø 0.4 X 1.7 X 0.057 (Anvil return)
518233	4	Ø8/M6 x 12 SHSS – Modified
518231	1	Vibrator with Housing Assembly
518235	1	Eccentric Shaft
518242	1	Bar Closing with Carbide
609249	2	Brush – Weld Motor Groschopp
532075	2	Brush – Index Motor (for Sealer with SPG Index Motor only)
531455	2	Gripper
023963	1	Wire Brush
424556	1	Sm Screwdriver
531826	1	Loctite Assortment
611940	3	Compression Spring Ø0.312 x 0.75 x 0.037 (Grippers)
518237	1	Washer Vibrator
518236	1	Eccentric Bearing Clamp

INTENTIONALLY BLANK

APPENDIX C
MH-RMF GENERAL ASSEMBLY

CONTENTS

APPENDIX C	
MH-RMF GENERAL ASSEMBLY	C-27
G.A.I. MH-RMF PET Roll End Strapping (R2103714).....	C-29

APPENDIX-C

INTENTIONALLY BLANK

G.A.I. MH-RMF PET ROLL END STRAPPING (R2103714)

