



TECHNICAL PUBLICATIONS

# Parts Manual

## WT212-3D







# WT212-3D

For replacement copy order P/N 960-1004  
Updated: 12/04/2019



Descriptions and specifications were current at the time of publication. However, Earth Tool Company LLC (HammerHead Trenchless) reserves the right to make changes in engineering, design and specifications; add improvements; or discontinue manufacturing at any time without notice or obligation. This manual may not reflect the most current version of your machine. Please visit [www.hammerheadtrenchless.com](http://www.hammerheadtrenchless.com) for the most recent and up to date version.



HammerHead and the HammerHead logo are registered trademarks of Earth Tool Company LLC, Lake Mills, WI, USA.

© 2019 Earth Tool Company LLC. All Rights Reserved.

# INTRODUCTION

---

## HOW TO USE THIS MANUAL

This manual contains illustrations and parts list of components and assemblies which make up various HammerHead® models. Each page consists of the name of the assembly or component, a figure number, reference numbers, part numbers, part names, and the quantities of the parts used.

Assembly or component names help identify the illustration and parts for each figure. This name also helps locate the general area of the machine where the assembly or component can be located.

Figure numbers are used to identify each assembly or component and to group these assemblies or components into major categories.

Reference numbers shown in a column refers to the numbered parts in the illustration. This ties the part in the illustration to the part number and description in the parts list. Part numbers are used to identify individual parts or part assemblies.

Part descriptions provide the name of the part, plus additional information such as dimensional specifications and what parts are grouped together to form part assemblies, which helps you identify the part(s).

Quantities listed for each figure are only for that assembly or component and not the total used per machine unless stated so in the "Remarks" column.

This parts manual is not intended to be a complete guide for machine service or repairs. Contact your HammerHead dealer for any of your service or technical requirements.

## ORDERING PARTS

Parts for repair or replacement are available through the worldwide network of authorized HammerHead dealers. The use of aftermarket replacement parts in your HammerHead equipment reduces performance and overall equipment life and may also void or interfere with the factory warranty.

Use only genuine HammerHead parts from your authorized dealer for repair or replacement. Always give the serial number and model number of the machine for which parts are being ordered. When ordering parts for component(s), which are not manufactured by HammerHead Trenchless Equipment, also give the serial number of that component(s). Order all parts by part number, part name, and quantity needed. Do not order parts by illustration reference numbers.

## **UPDATING AND REORDERING MANUALS**

The parts lists, illustrations, and specifications in this manual are based on the latest information available at the time of publication. Your machine may have product improvements and options not yet contained in this manual. Please check the web site [www.hammerheadtrenchless.com](http://www.hammerheadtrenchless.com) for any updates.

Earth Tool Company LLC reserves the right to make changes at any time without notice or obligation to you. Your dealer will receive notice of these changes and can assist you with accurate parts identification when ordering.

A copy of this manual is supplied with each machine. Additional copies are available through your dealer. When ordering additional manuals, use the reorder number listed on the front cover and the quantity needed. Electronic copies of this manual are also available on the web at [www.hammerheadtrenchless.com](http://www.hammerheadtrenchless.com).

## **OPERATIONS INSTRUCTIONS**

Instructions on recommended equipment use and maintenance can be found in the Operator's Manual shipped with your equipment. Operator's Manuals are also available on the web at [www.hammerheadtrenchless.com](http://www.hammerheadtrenchless.com).

Thank you for buying and using Genuine HammerHead® Trenchless Equipment, parts and accessories.



A CHARLES MACHINE WORKS COMPANY

# WARRANTY

---

## Limited Warranty Policy

Earth Tool Company, LLC, dba HammerHead Trenchless ("HammerHead") warrants each new industrial product of its own manufacture to be free from defects in material and workmanship, under normal use and service for one full year after delivery to the owner. During the warranty period, HammerHead shall furnish parts without charge for any HammerHead product that fails because of defects in material and workmanship. This warranty and any possible liability of HammerHead Trenchless here under is in lieu of all other warranties, express, implied, or statutory, including, but not limited to any warranties of merchantability or fitness for a particular purpose.

The parties agree that the Buyer's SOLE AND EXCLUSIVE REMEDY against HammerHead, whether in contract or arising out of warranties, representations, or defects shall be for the replacement or repair of defective parts as provided herein. In no event shall HammerHead's liability exceed the purchase price of the product. The Buyer agrees that no other remedy (including, but not limited to, incidental or consequential loss) shall be available to him. If, during the warranty period, any product becomes defective by reason of material or workmanship and Buyer immediately notifies HammerHead of such defect, HammerHead shall, at its option, supply a replacement part or request the return of the product to its plant in Lake Mills, Wisconsin. No part shall be returned without prior written authorization from HammerHead, and this warranty does not obligate HammerHead to bear any transportation charges in connection with the repair or replacement of defective parts. HammerHead Trenchless will not accept any charges for labor and/or parts incidental to the removal or remounting of parts repaired or replaced under this Warranty.

This Warranty shall not apply to any part or product which shall have been installed or operated in a manner not recommended by HammerHead nor to any part or product which shall have been neglected, or used in any way which, in HammerHead's opinion, adversely affects its performance; nor negligence of proper maintenance or other negligence, fire or other accident; nor with respect to wear items; nor if the unit has been repaired or altered outside of an HammerHead authorized dealership in a manner of which, in the sole judgment of HammerHead affects its performance, stability or reliability; nor with respect to batteries which are covered under a separate adjustment warranty; nor to any product in which parts not manufactured or approved by HammerHead have been used; nor to normal maintenance services or replacement of normal service items. Equipment and accessories not of our manufacture are warranted only to the extent of the original Manufacturer's Warranty and subject to their allowance to us, if found defective by them. HammerHead reserves the right to modify, alter, and improve any product or parts without incurring any obligation to replace any product or parts previously sold with such modified, altered, or improved product or part. No person is authorized to give any other Warranty, or to assume any additional obligation on HammerHead's behalf unless made in writing, and signed by an officer of HammerHead.

**HAMMERHEAD TRENCHLESS**

**LAKE MILLS, WISCONSIN**

---

## **Decals**

Decals.....	8
Decals – Interior.....	12

## **Frame Components**

Frame Components.....	16
-----------------------	----

## **Electrical**

Wire Harness.....	24
-------------------	----

## **Compression Assembly**

Decals – Compression.....	28
Frame – Compression.....	32
Electrical – Compression.....	34
Shafts and Bearings – Compression.....	40
Clamp Cylinders – Compression.....	44
Pneumatic Components – Compression.....	48
Pneumatic Hoses & Fittings – Compression.....	50

## **Conveyor Assembly**

Conveyor Assembly.....	54
------------------------	----

## **Accessories**

Casters.....	58
Cuff Hanger.....	62
Miscellaneous Accessories.....	64

## **Miscellaneous**

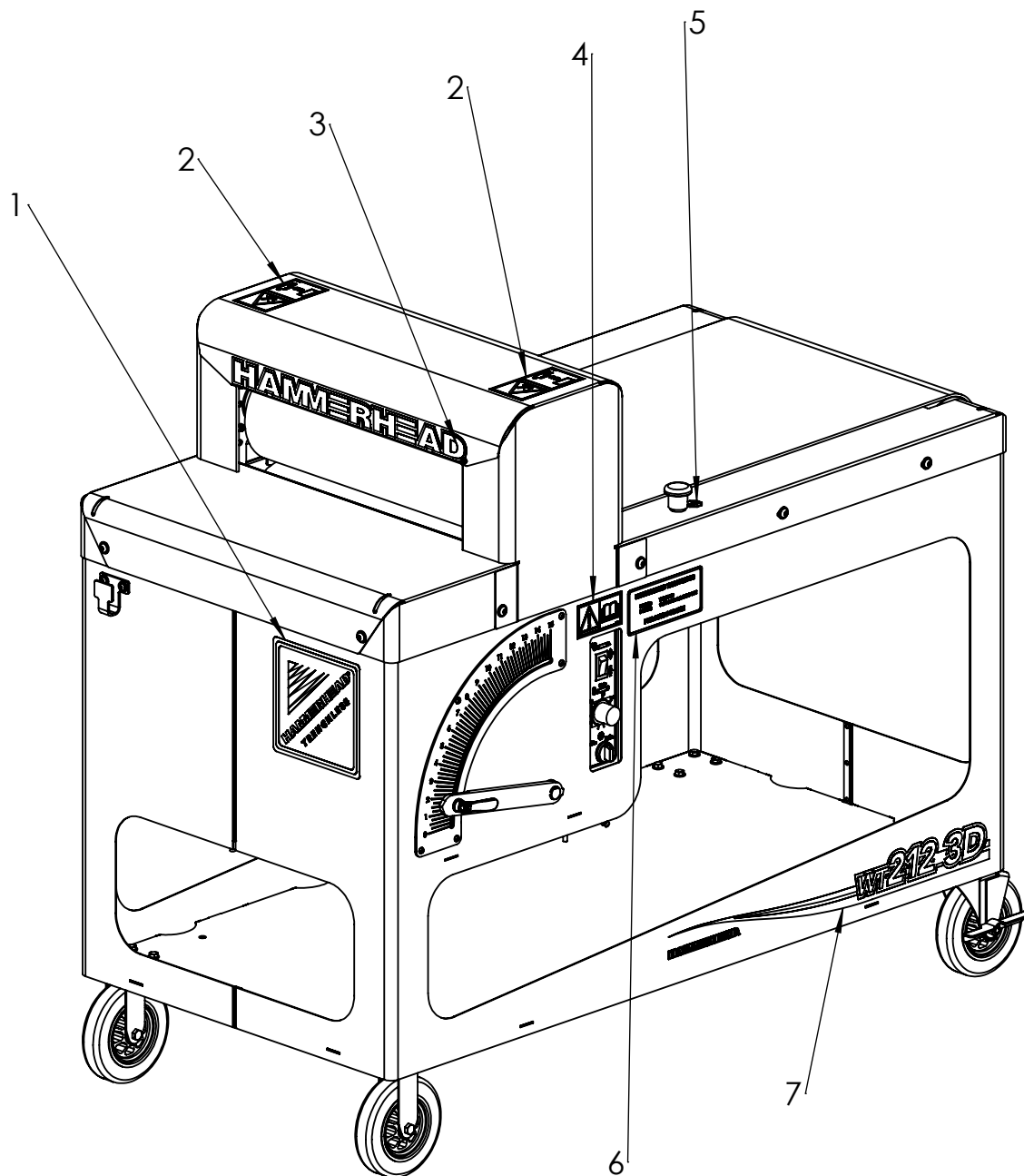
SAE Bolt and Nut Torque Value Chart.....	68
Metric Bolt and Cap Screw Torque Values.....	69
Torque Standards Hydraulic Fittings.....	70





# DECALS

Decals  
WT212-3D



## Decals

WT212-3D

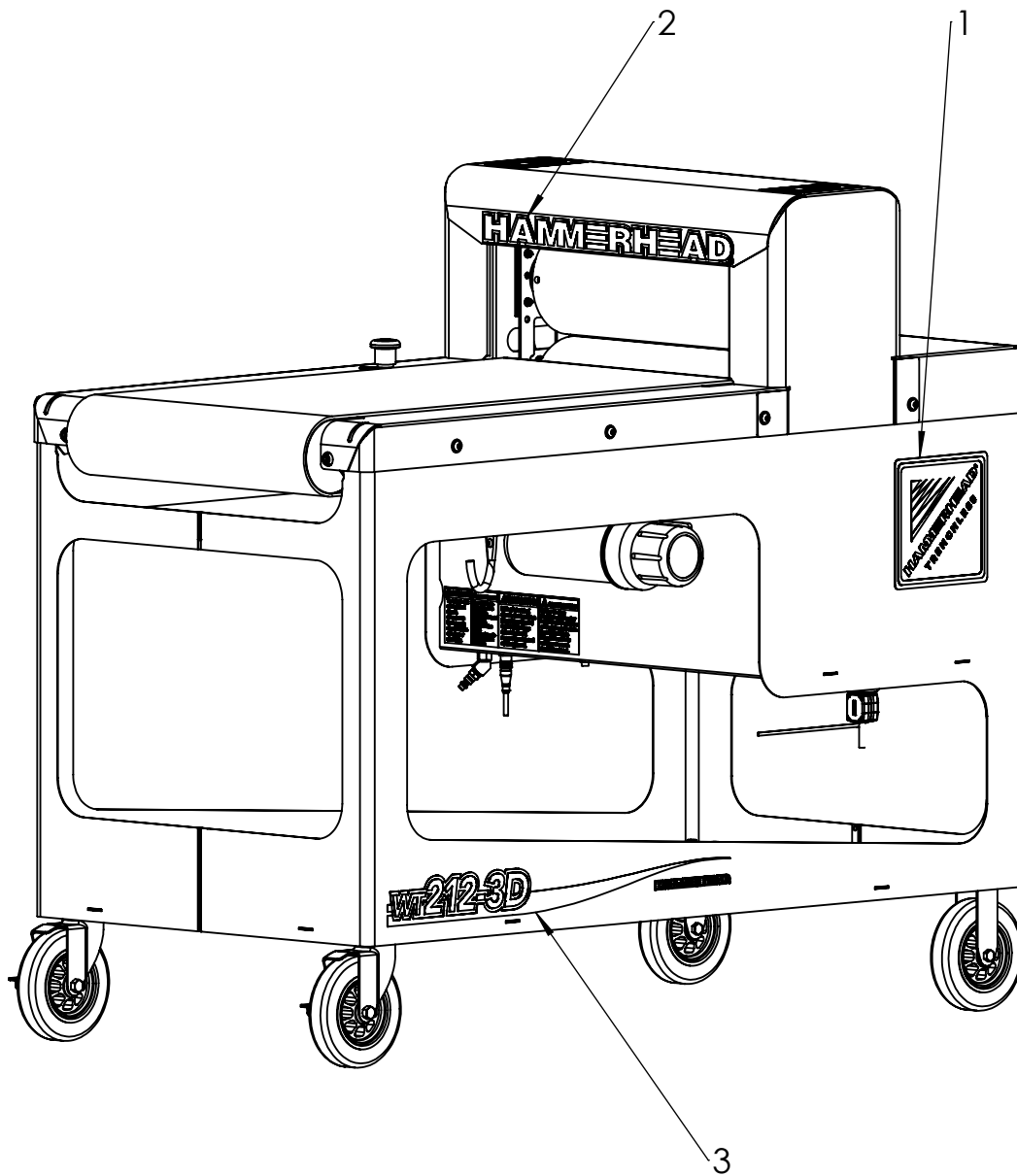
Bom ID	Part No	Description	Qty	Remarks
1	912-4974	DECAL, HH MOUNTAIN SQ-7X7	1	
2	701-184	WARNING MOVING PARTS ISO	2	
3	912-4970	DECAL, HAMMERHEAD - 19"	1	
4	700-143	WARNING READ MANUAL ISO	1	
5	273-601	ENGINE STOP	1	
6	922-1600	DECAL, WT212-3D NAME PLATE	1	
7	922-1594	DECAL, WT212-3D RIGHT	1	

Not Shown:

Footnotes:

Notes:

Decals  
WT212-3D



## Decals

WT212-3D

Bom ID	Part No	Description	Qty	Remarks
1	912-4974	DECAL, HH MOUNTAIN SQ-7X7	1	
2	912-4970	DECAL, HAMMERHEAD - 19"	1	
3	922-1593	DECAL, WT212-3D LEFT	1	

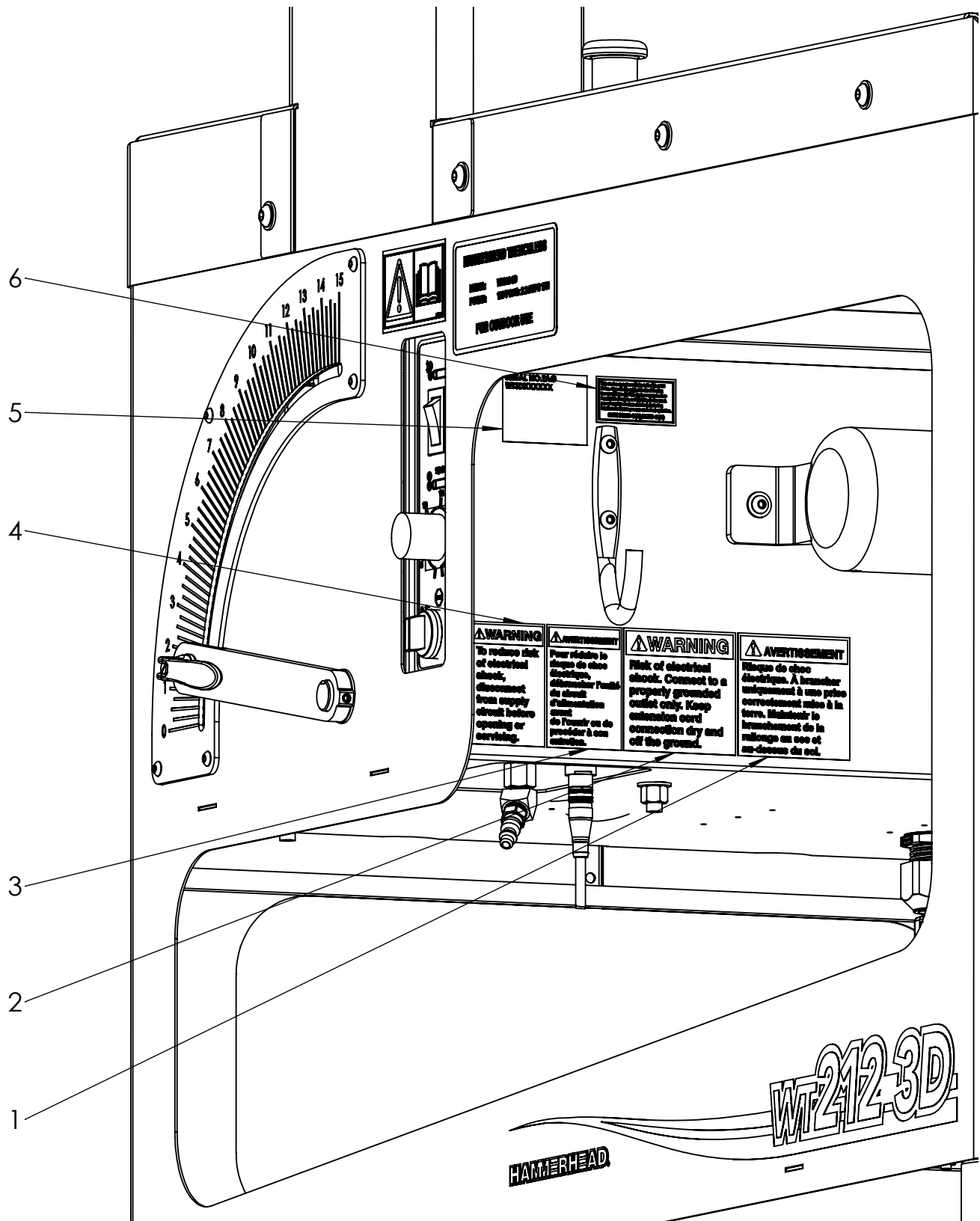
Not Shown:

Footnotes:

Notes:

# Decals – Interior

## WT212-3D



## Decals – Interior

WT212-3D

Bom ID	Part No	Description	Qty	Remarks
1	922-1624	DECAL, ELECTROCUTION FR	1	
2	922-1602	DECAL, ELECTROCUTION	1	
3	922-1623	DECAL, 5A FUSE WARNING FR	1	
4	922-1601	DECAL, 5A FUSE WARNING	1	
5	922-1622	DECAL, SERIAL NO TAG WT212-3D	1	
6	ID0560819	DECAL, FCC/ICES	1	

Not Shown:

Footnotes:

Notes:

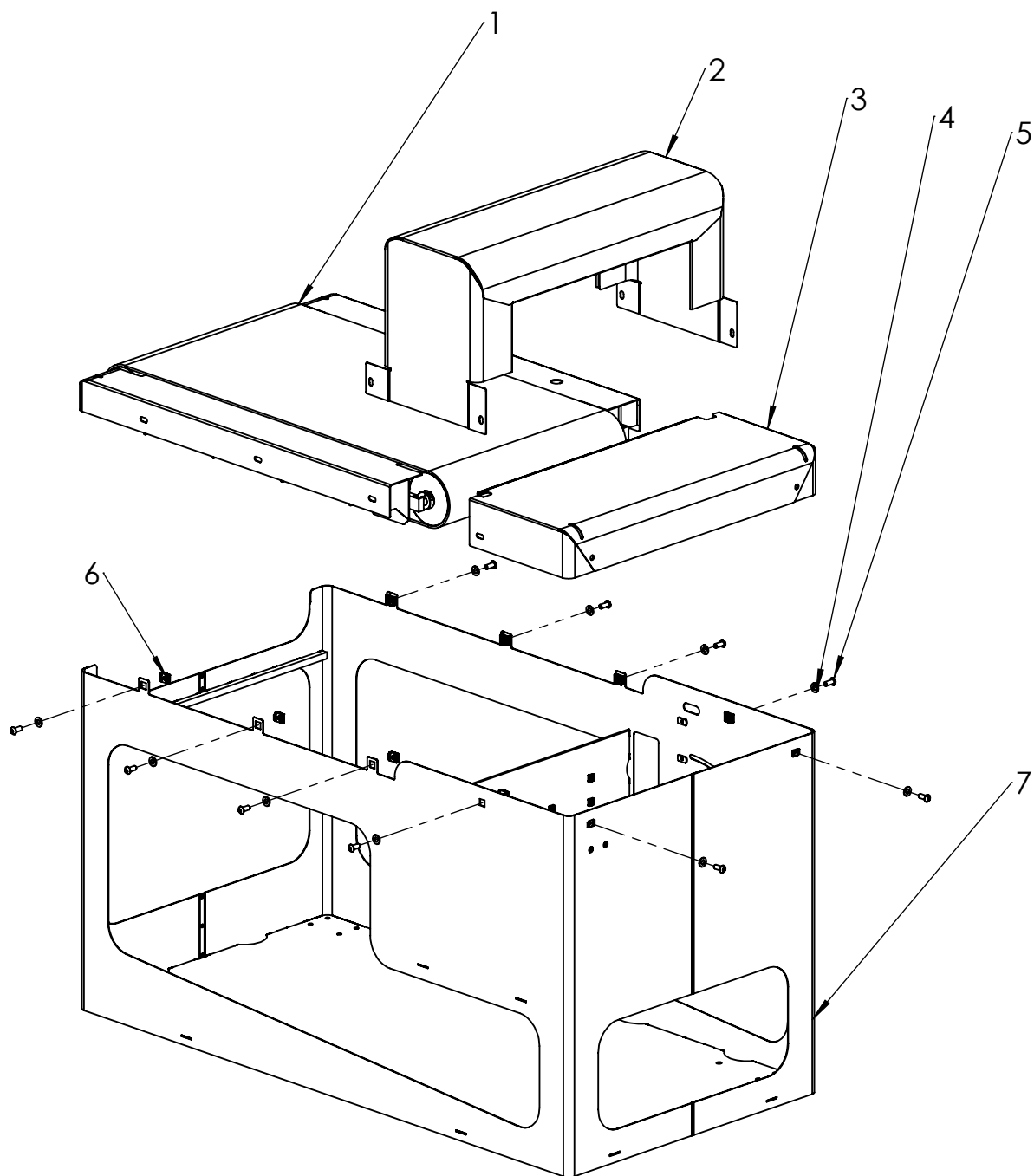
## Notes



# **FRAME COMPONENTS**

# Frame Components

WT212-3D



## Frame Components

WT212-3D

Bom ID	Part No	Description	Qty	Remarks
1	922-1599	ASSEMBLY, CONVEYOR TABLE	1	
2	922-1517	TOP COVER, WET OUT TABLE	1	
3	922-1480	WELDMENT, UPPER COVER	1	
4	922-1686	WASHER, 5/16 CLEAR ZINC	10	
5	05BH12	SCREW, 5/16-18x0.75 BHSC	10	
6	922-1577	NUT, 5/16-18 SNAP-IN	10	
7	922-1455	WELDMENT, FRAME	1	

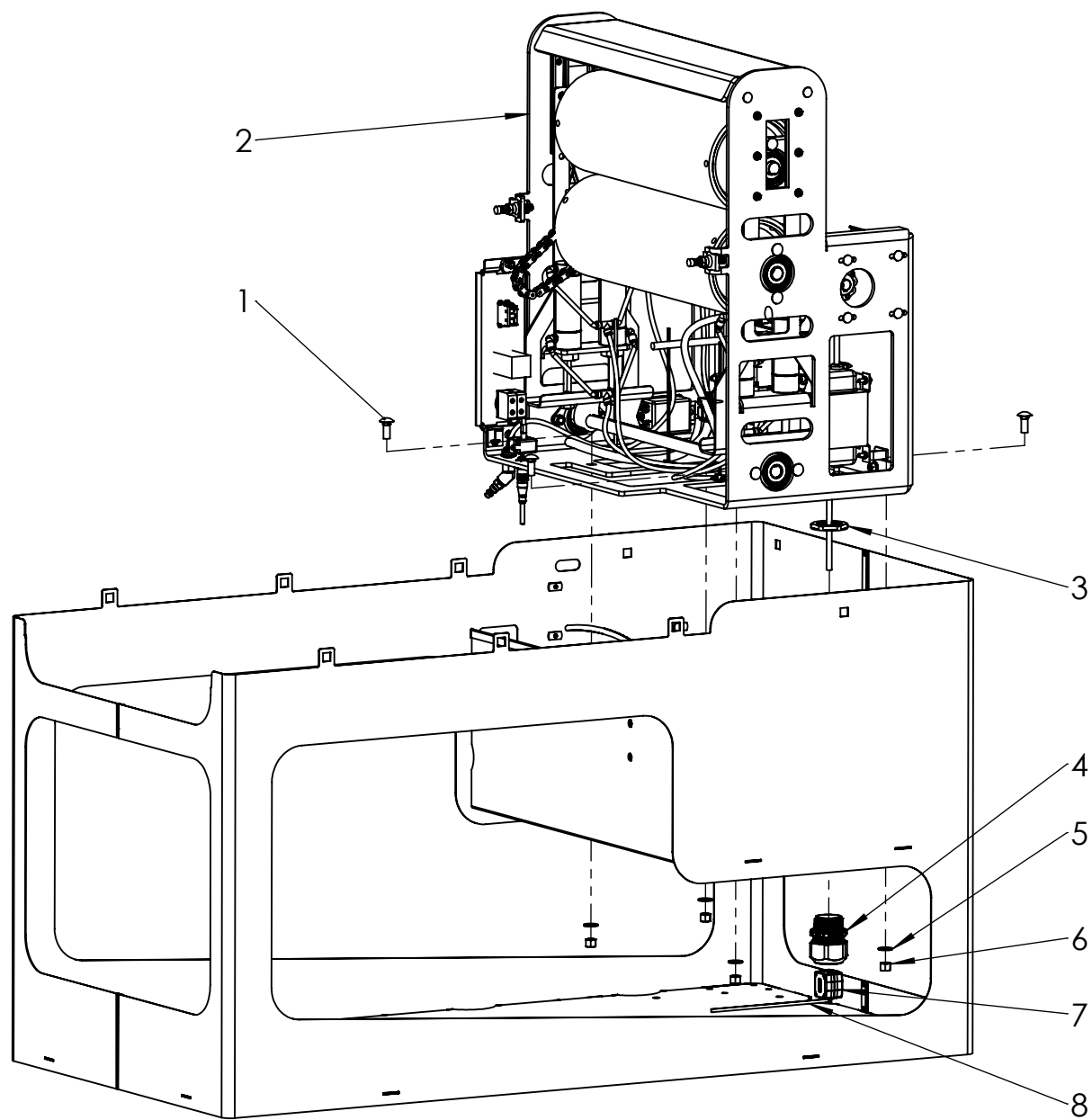
Not Shown:

Footnotes:

Notes:

# Frame Components

WT212-3D



## Frame Components

WT212-3D

Bom ID	Part No	Description	Qty	Remarks
1	06CB16	BOLT, 3/8-16 x 1 CARRIAGE	4	
2	922-1410	ASSEMBLY, COMPRESSION	1	
3	922-1681	LOCK NUT, 1 1/4" NPT NYLON	1	
4	922-1680	CABLE GRIP, 1.25" SPLIT	1	
5	06FW-SAE	WASHER, 3/8"	4	
6	06TLN	NUT, 3/8-16 TOP LOCK	4	
7	922-1682	FERRITE, 145 OHM	1	
8	912-1039	TIE STRAP, NYLON	1	

Not Shown:

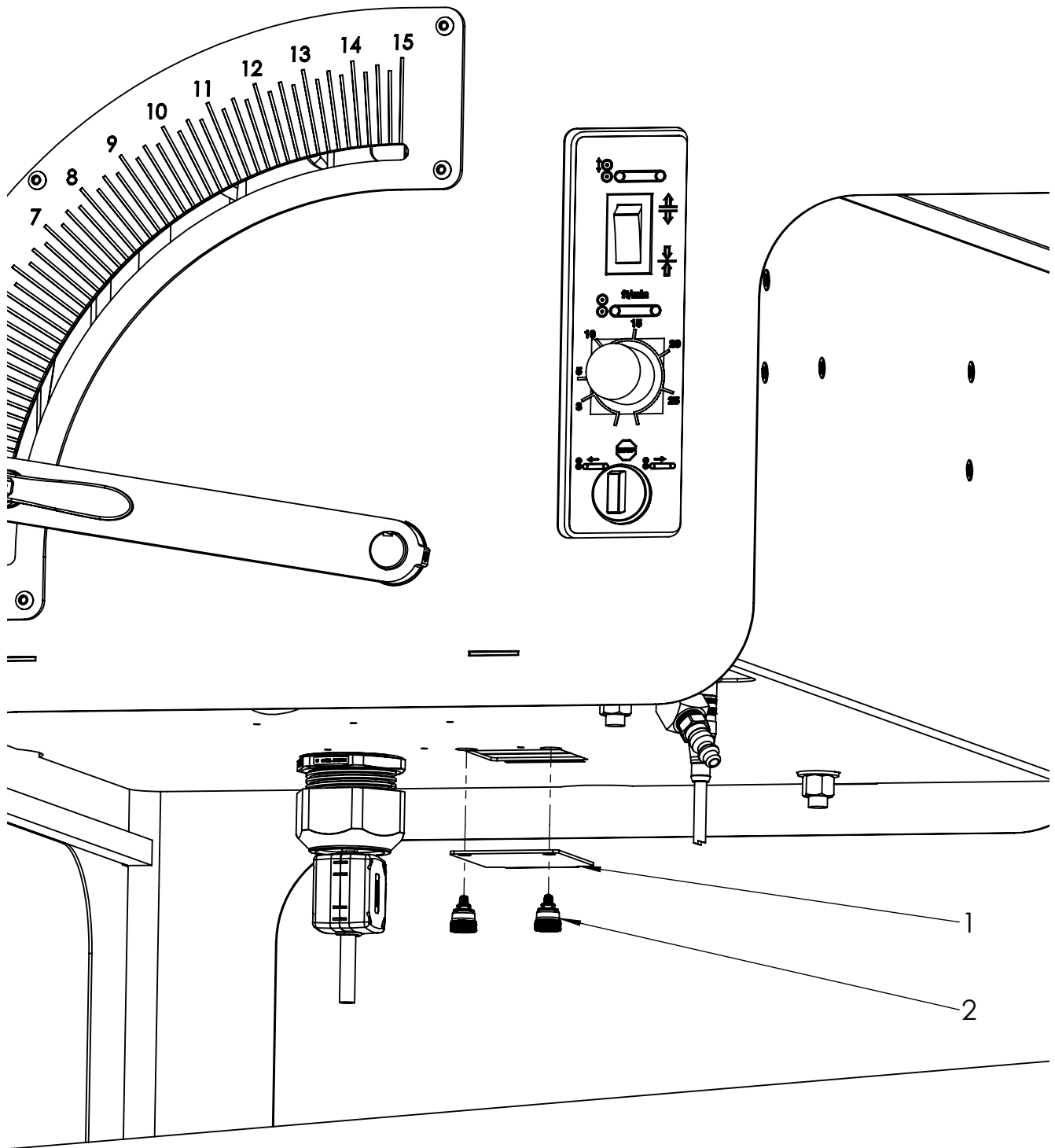
Footnotes:

Notes:

ITEM 7 & 8 INSTALLATION NOTE: SNUG ITEM 7 UP TO ITEM 4, AND CLAMP ITEM 7 AROUND POWER CORD. TIGHTEN ITEM 8 TO POWER CORD TO HOLD ITEM 7 IN PLACE ON CORD.

# Frame Components

WT212-3D



## Frame Components

WT212-3D

Bom ID	Part No	Description	Qty	Remarks
1	922-1679	DOOR, CIRCUIT BREAKER	1	
2	922-1685	CAPTIVE SCREW, 8-32 SNAP-IN	2	

Not Shown:

Footnotes:

Notes:

ITEM 1: DOOR IS CAPTIVE TO ASSEMBLY. FOLD DOWN INTERNAL TAB TO REMOVE. FOLD TAB UP WHEN INSTALLING.

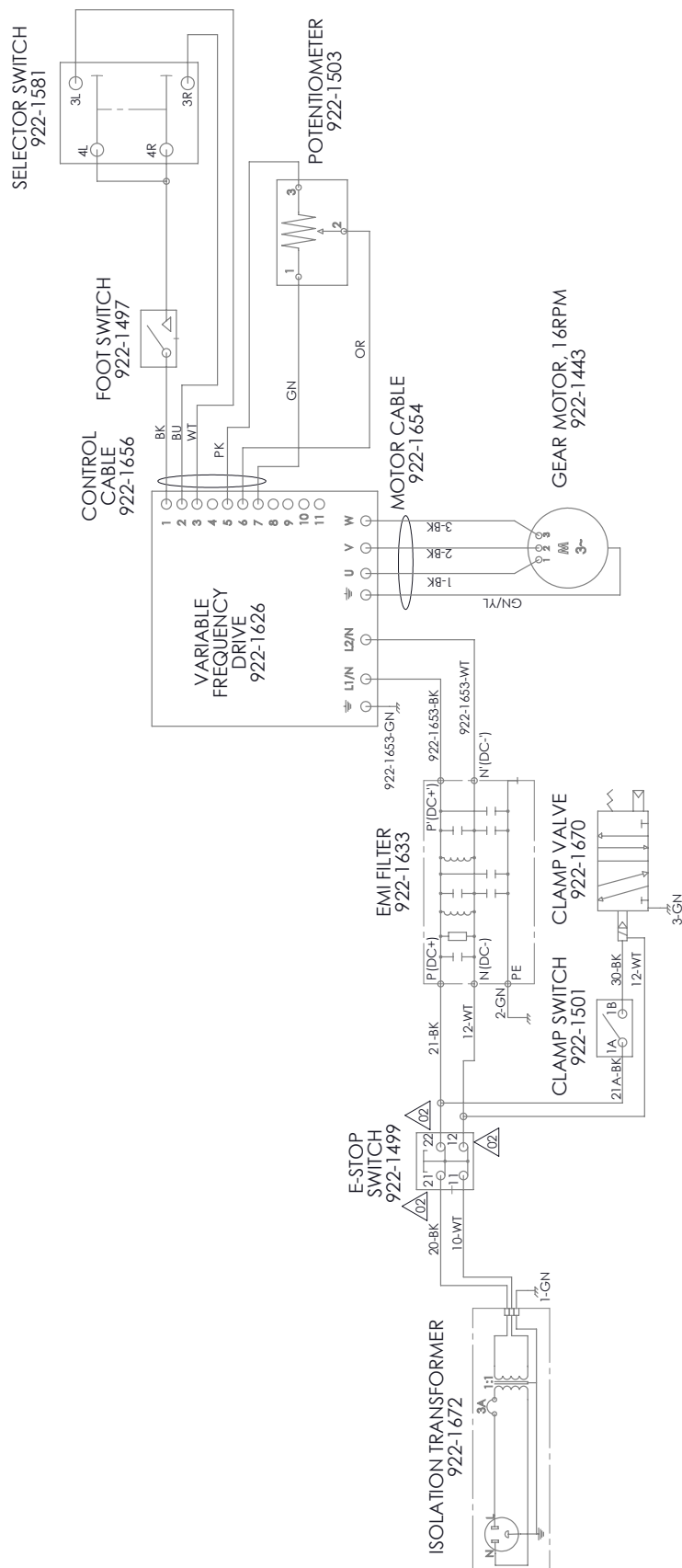
ITEM 2: SCREW IS CAPTIVE TO DOOR. RELEASE TABS TO REMOVE FROM DOOR. PRESS INTO DOOR UNTIL TABS CLIP IN PLACE TO INSTALL.

## Notes



# **ELECTRICAL**

Electrical Schematic—Wire Harness  
WT212-3D



# Electrical Schematic—Wire Harness

WT212-3D

Not Shown:

Footnotes:

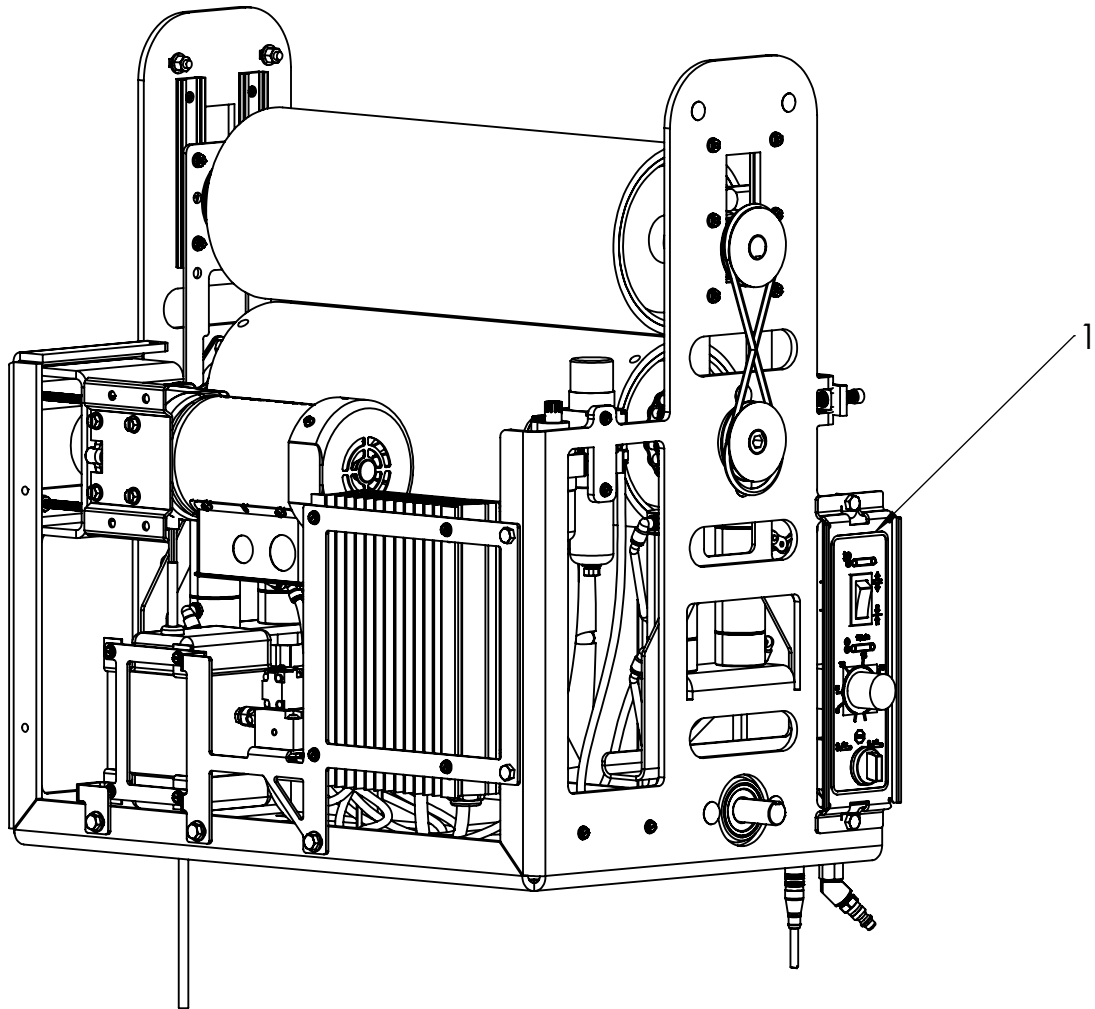
Notes:

## Notes

# **COMPRESSION ASSEMBLY**

# Decals – Compression

WT212-3D



## Decals – Compression

WT212-3D

Bom ID	Part No	Description	Qty	Remarks
1	922-1506	DECAL, CONTROLS	1	

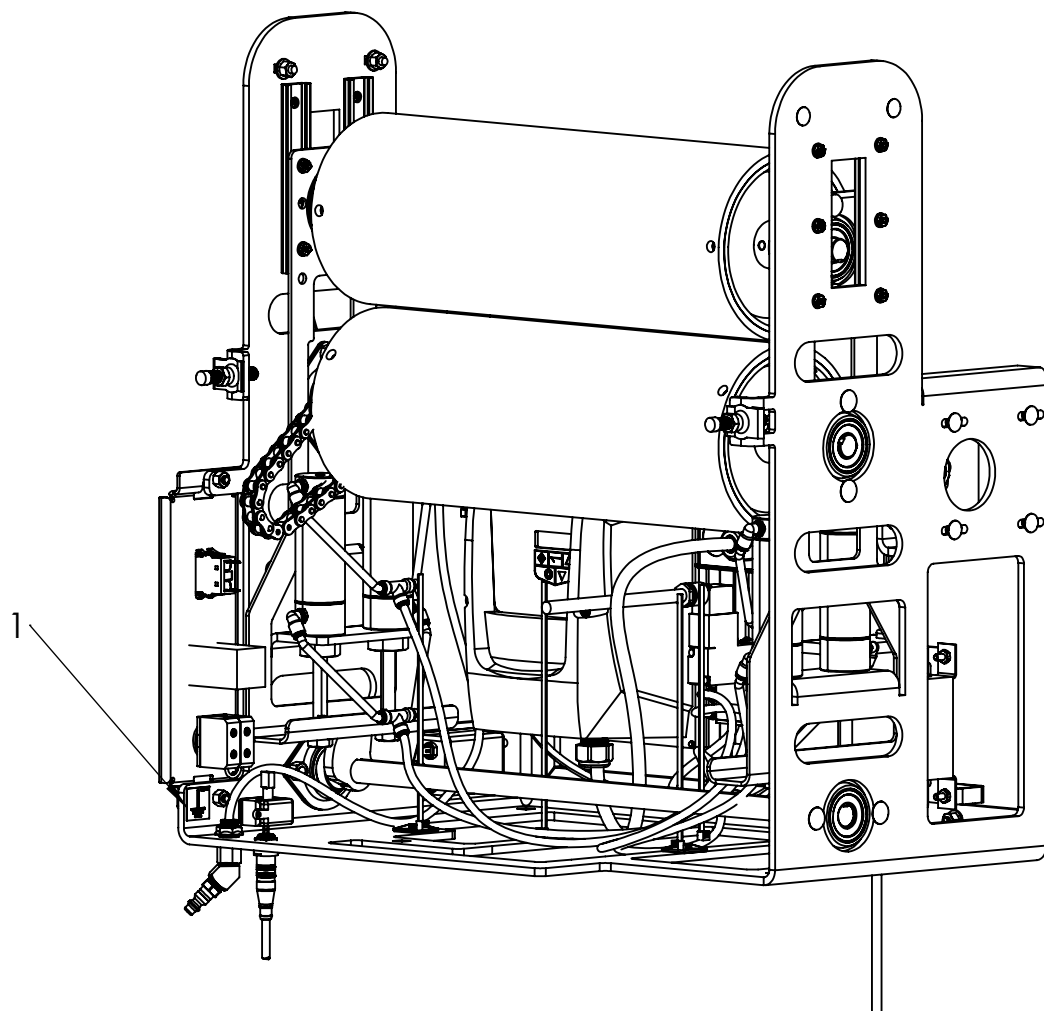
Not Shown:

Footnotes:

Notes:

# Decals – Compression

WT212-3D





## Decals – Compression

WT212-3D

Bom ID	Part No	Description	Qty	Remarks
1	922-2152	DECAL, GROUND	1	

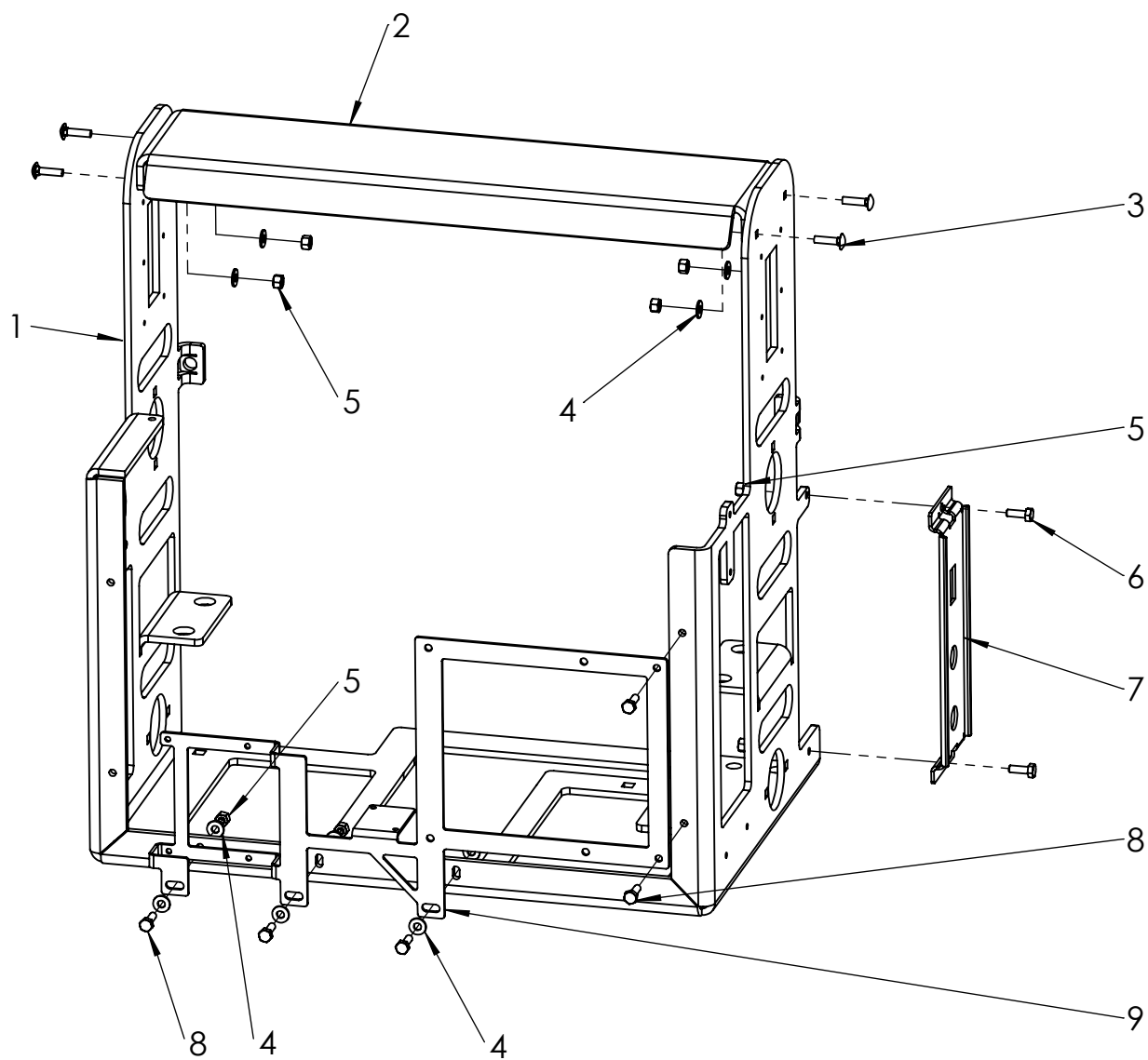
Not Shown:

Footnotes:

Notes:

# Frame – Compression

WT212-3D



## Frame – Compression

WT212-3D

Bom ID	Part No	Description	Qty	Remarks
1	922-1559	ROLLER FRAME	1	
2	922-1509	BRACE, WET OUT TABLE	1	
3	04CB16	BOLT, 1/4-20 x 1 CARRIAGE	4	
4	04FW-SAE	WASHER, 1/4"	10	
5	04TLN	NUT, 1/4-20 TOP LOCK	11	
6	04HH12	SCREW, 1/4-20 x .75 HHC - GR8	2	
7	922-1505	CONTROL PLATE	1	
8	04HH14	SCREW, 1/4-20 x .875 HHC - GR8	5	
9	922-1643	BRACKET, MOTOR MOUNT	1	

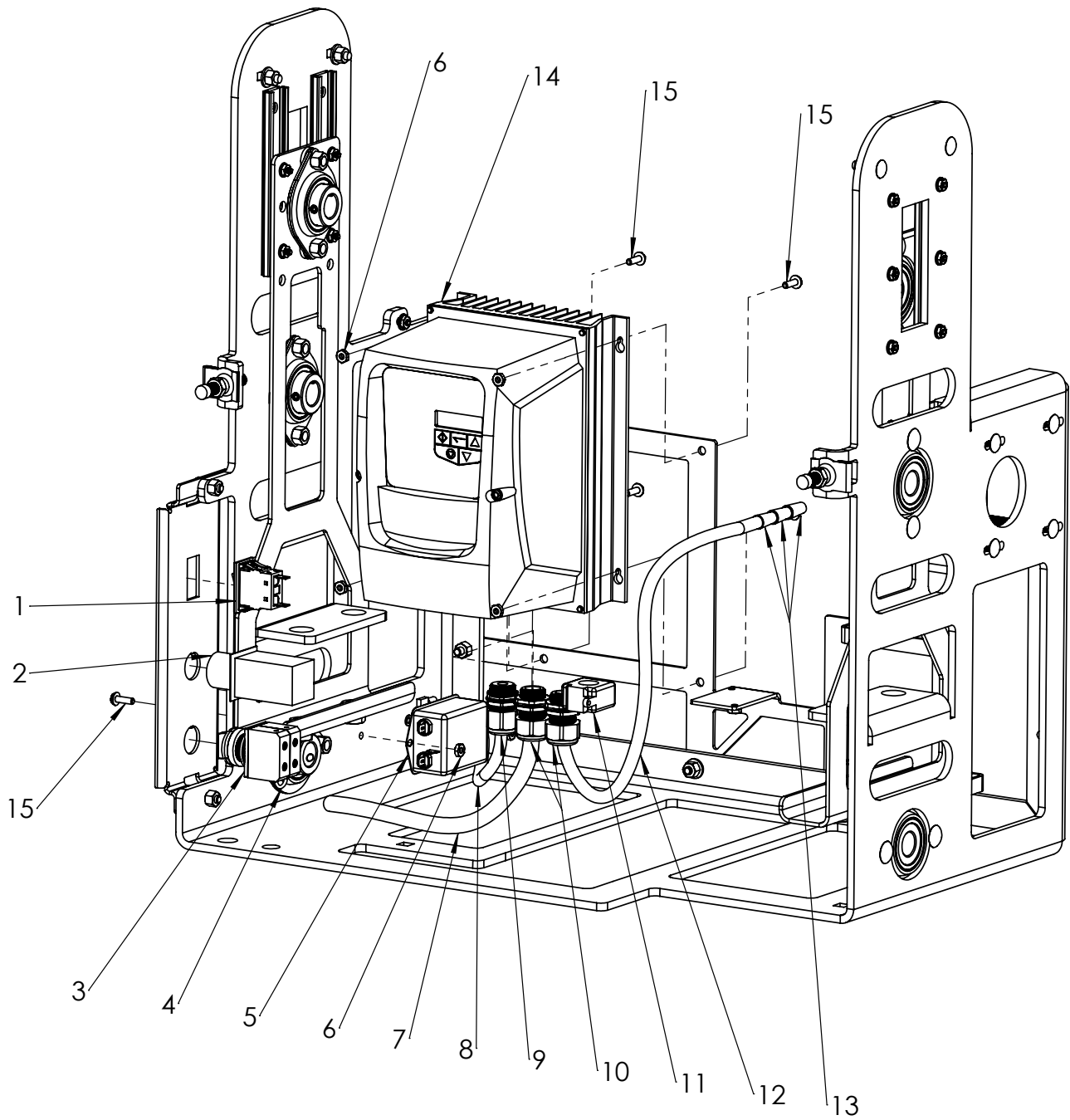
Not Shown:

Footnotes:

Notes:

# Electrical – Compression

WT212-3D



## Electrical – Compression

WT212-3D

Bom ID	Part No	Description	Qty	Remarks
1	922-1501	ROCKER SWITCH, OFF - ON	1	
2	922-1503	POTENTIOMETER, 5K	1	
3	922-1581	LEVER SWITCH, 3 POS, 22MM	1	
4	922-1664	WIRE, JUMPER SWITCH	1	
5	922-1633	LINE FILTER, 120V 6A	1	
6	#10TLN	NUT, #10-24 TOP LOCK	6	
7	922-1656	CABLE ASSEMBLY, VFD CONTROL	1	
8	922-1653	WIRE ASSEMBLY, POWER	1	
9	922-1542	CORD GRIP, 1/2 MEDIUM	1	
10	922-1541	CORD GRIP, 1/2 LARGE	2	
11	922-1641	SNAP FERRITE, 130 OHM	1	
12	922-1654	CABLE ASSEMBLY, MOTOR	1	
13	922-1640	WIRE NUT, SMALL WATERPROOF	3	
14	922-1626	VFD DRIVE	1	
15	922-1690	SCREW, #10-24 X 5/8 FLH	6	

Not Shown:

Footnotes:

Notes:

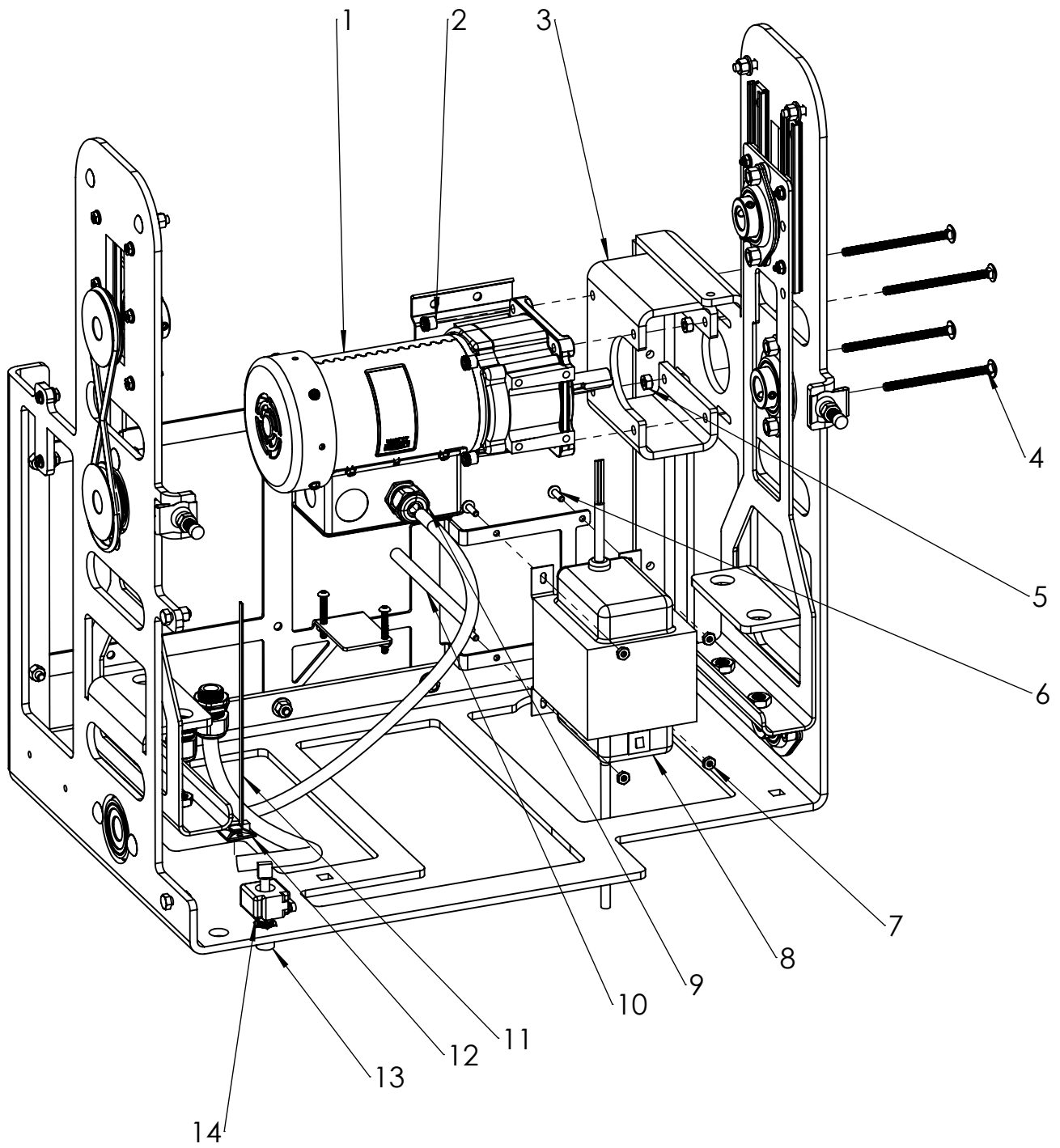
ITEM 11 INSTALLATION: REMOVE ITEM 14 TERMINAL COVER PANEL. CLAMP ITEM 11 AROUND ALL WIRES OF ITEM 7 INSIDE OF ITEM 14. INSTALL ITEM 14 TERMINAL COVER PANEL.

ITEM 14 WIRING: SEE ELECTRICAL SCHEMATIC FOR DETAILS ON WIRING ITEM 14

ITEM 12 WIRING: USE ITEM 13 TO WIRE ITEM 12 TO ELECTRIC MOTOR. SEE ELECTRICAL SCHEMATIC FOR DETAILS.

# Electrical – Compression

WT212-3D



## Electrical – Compression

### WT212-3D

Bom ID	Part No	Description	Qty	Remarks
1	922-1443	GEAR MOTOR, 16RPM	1	
2	922-1590	NUT, 1/4-20 SOCKET	4	
3	922-1514	MOTOR MOUNT, WET OUT TABLE	1	
4	4CB60	BOLT, 1/4-20 X 3.75 CARRIAGE	4	
5	04HN	NUT, 1/4-20 HEX	2	
6	922-1690	SCREW, #10-24 X 5/8 FLH	4	
7	#10TLN	NUT, #10-24 TOP LOCK	4	
8	922-1672	ASSEMBLY, ISOLATION TRANSFORMER	1	
9	922-1541	CORD GRIP, 1/2 LARGE	1	
10	922-1671	WIRE HARNESS, WT212-3D	1	
11	912-1039	TIE STRAP, NYLON	1	
12	922-1677	MOUNT, TIE STRAP ADHESIVE	1	
13	922-1659	CORD ASSEMBLY, M12 2C	1	
14	922-1641	SNAP FERRITE, 130 OHM	1	

Not Shown:

Footnotes:

Notes:

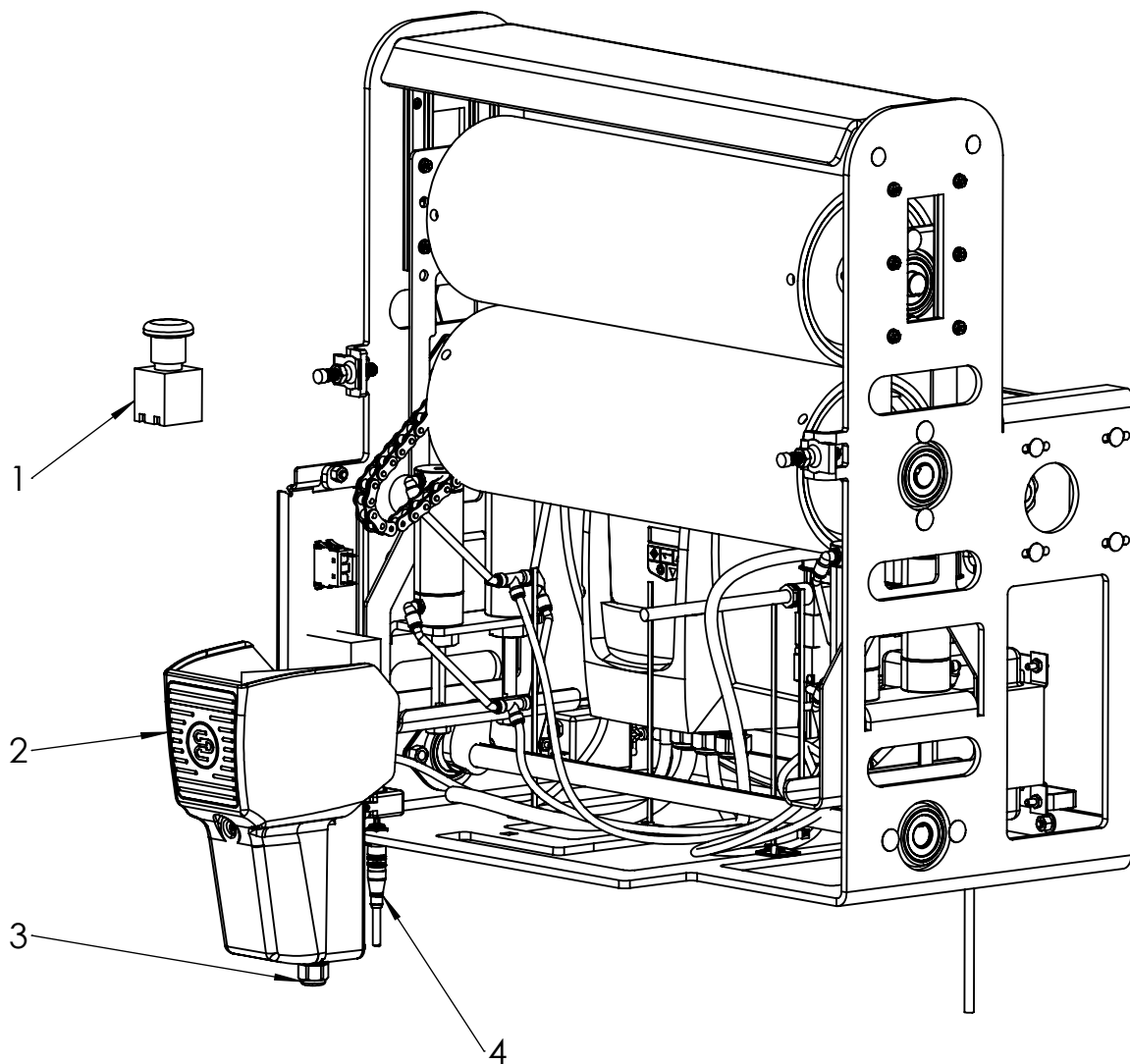
ITEM 1 INSTALLATION: WITH ITEMS 4 FINGER TIGHT, APPLY TENSION TO MOTOR CHAIN.  
TORQUE FASTENERS TO LOCK IN CABLE TENSION.

ITEM 14 INSTALLATION: WRAP BLUE AND BROWN WIRES OF ITEM 13 THROUGH FERRITE 2X. USE ELECTRICAL TAPE TO SECURE FERRITE TO WIRES, SNUG TO CONNECTOR BODY.

ZIP TIE NOTE: USE ZIP TIE AND TIE STRAP MOUNT TO SECURE WIRE HARNESS AND CONTROL CABLE TO FRAME.

# Electrical – Compression

WT212-3D





## Electrical – Compression

WT212-3D

Bom ID	Part No	Description	Qty	Remarks
1	922-1499	E-STOP, 40MM	1	
2	922-1497	FOOT SWITCH	1	
3	922-1619	CORD GRIP, 3/8 LARGE	1	
4	922-1648	CORD, M12 2C - 3FT	1	

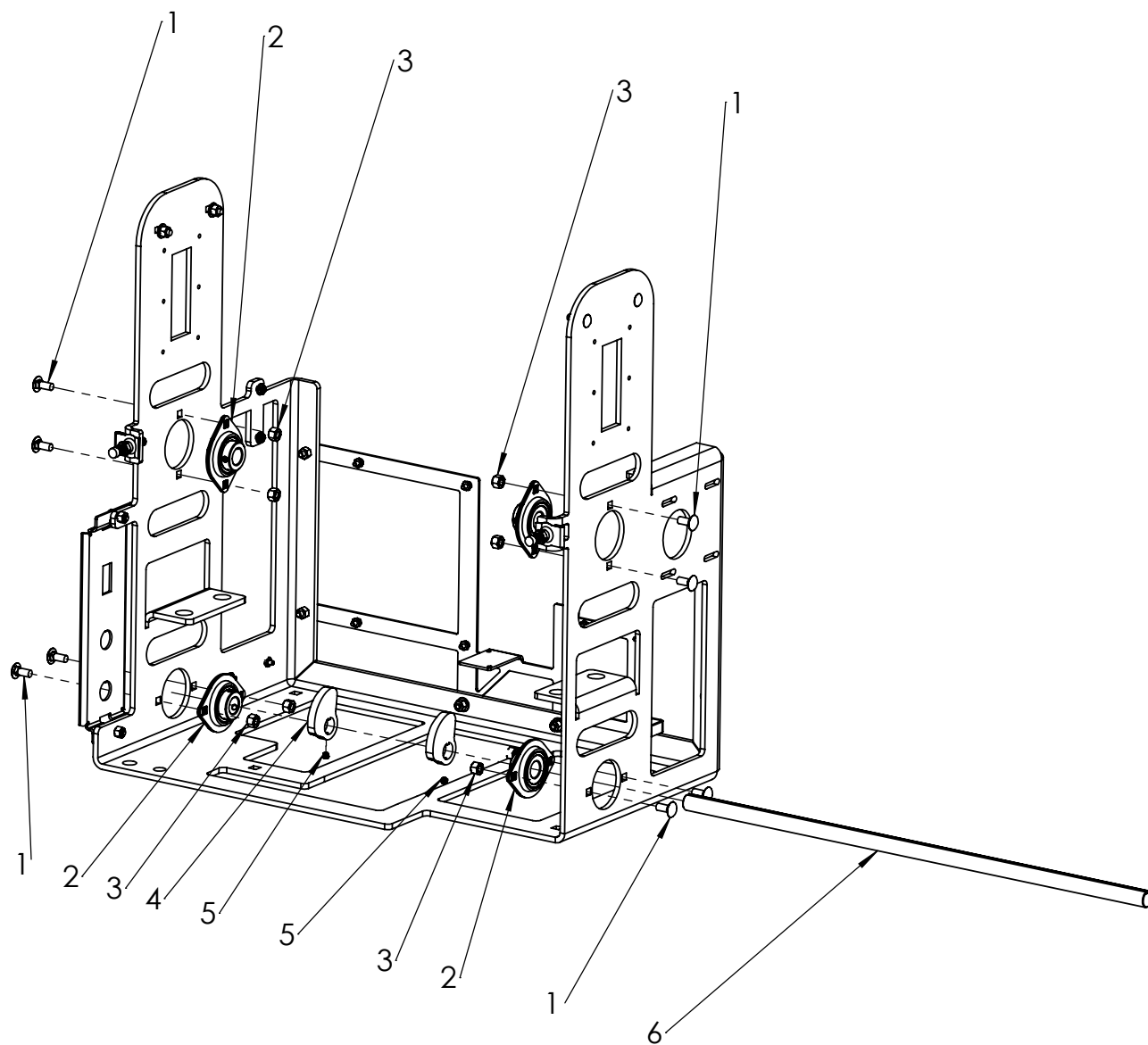
Not Shown:

Footnotes:

Notes:

# Shafts and Bearings – Compression

WT212-3D



## Shafts and Bearings – Compression

WT212-3D

Bom ID	Part No	Description	Qty	Remarks
1	05CB12	BOLT, 5/16-18 x .75 CARRIAGE	8	
2	922-1507	BEARING, LOW PROFILE, 3/4" SHAFT"	4	
3	05TLN	NUT, 5/16-18 TOP LOCK	8	
4	922-1693	CAM, CLAMP STOP 0-15	2	
5	929-0005	SCREW, SET 1/4-20 1/4 LNG	2	
6	922-1529	SHAFT, CLAMP STOP	1	

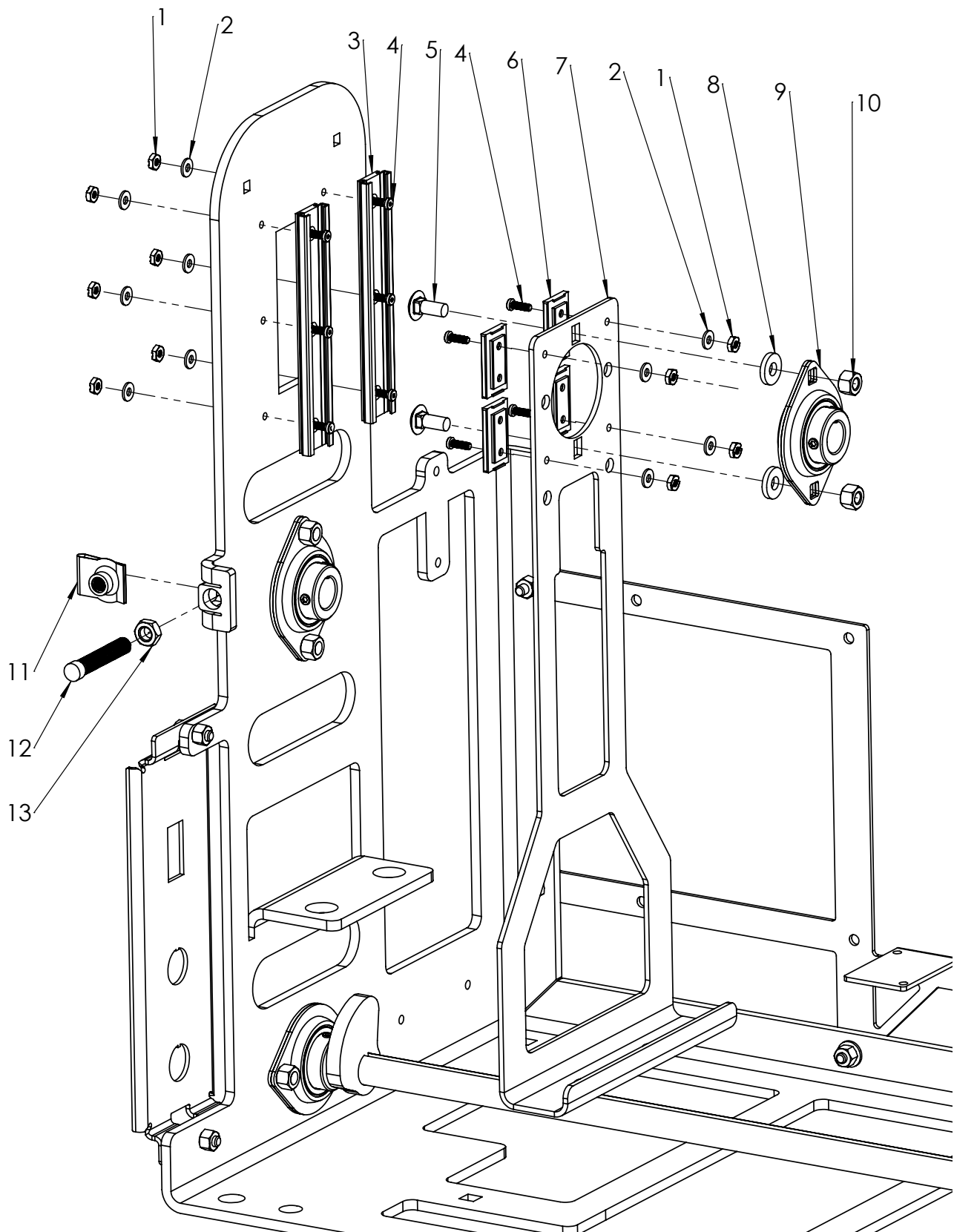
Not Shown:

Footnotes:

Notes:

# Shafts and Bearings – Compression

WT212-3D



## Shafts and Bearings – Compression

WT212-3D

Bom ID	Part No	Description	Qty	Remarks
1	8TLN	NUT, TOP LOCK #8-32	20	(SYMM. BOTH SIDES)
2	8FW-SAE	WASHER, #8	20	(SYMM. BOTH SIDES)
3	922-1511	GUIDE RAIL, WET OUT TABLE	4	(SYMM. BOTH SIDES)
4	922-1531	SCREW, #8-32 X .50 LG. LPSH	20	(SYMM. BOTH SIDES)
5	05CB12	BOLT, 5/16-18 x .75 CARRIAGE	4	(SYMM. BOTH SIDES)
6	922-1512	CARRIAGE, LOW PROFILE SLEEVE	8	(SYMM. BOTH SIDES)
7	922-1513	FLANGE, PULL, WET OUT TABLE	2	(SYMM. BOTH SIDES)
8	922-1688	SPACER, 5/16 X .125 AL	4	(SYMM. BOTH SIDES)
9	922-1507	BEARING, LOW PROFILE, 3/4" SHAFT"	2	(SYMM. BOTH SIDES)
10	05TLN	NUT, 5/16-18 TOP LOCK	4	(SYMM. BOTH SIDES)
11	922-1673	CLIP ON NUT, 3/8-16	2	(SYMM. BOTH SIDES)
12	922-1631	SCREW, 3/8-16 X 2 5/16 LG. SWIVEL-TIP SET	2	(SYMM. BOTH SIDES)
13	06HJN	NUT, 3/8-16 HEX JAM	2	(SYMM. BOTH SIDES)

Not Shown:

OPPOSITE SIDE HAS IDENTICAL PARTS

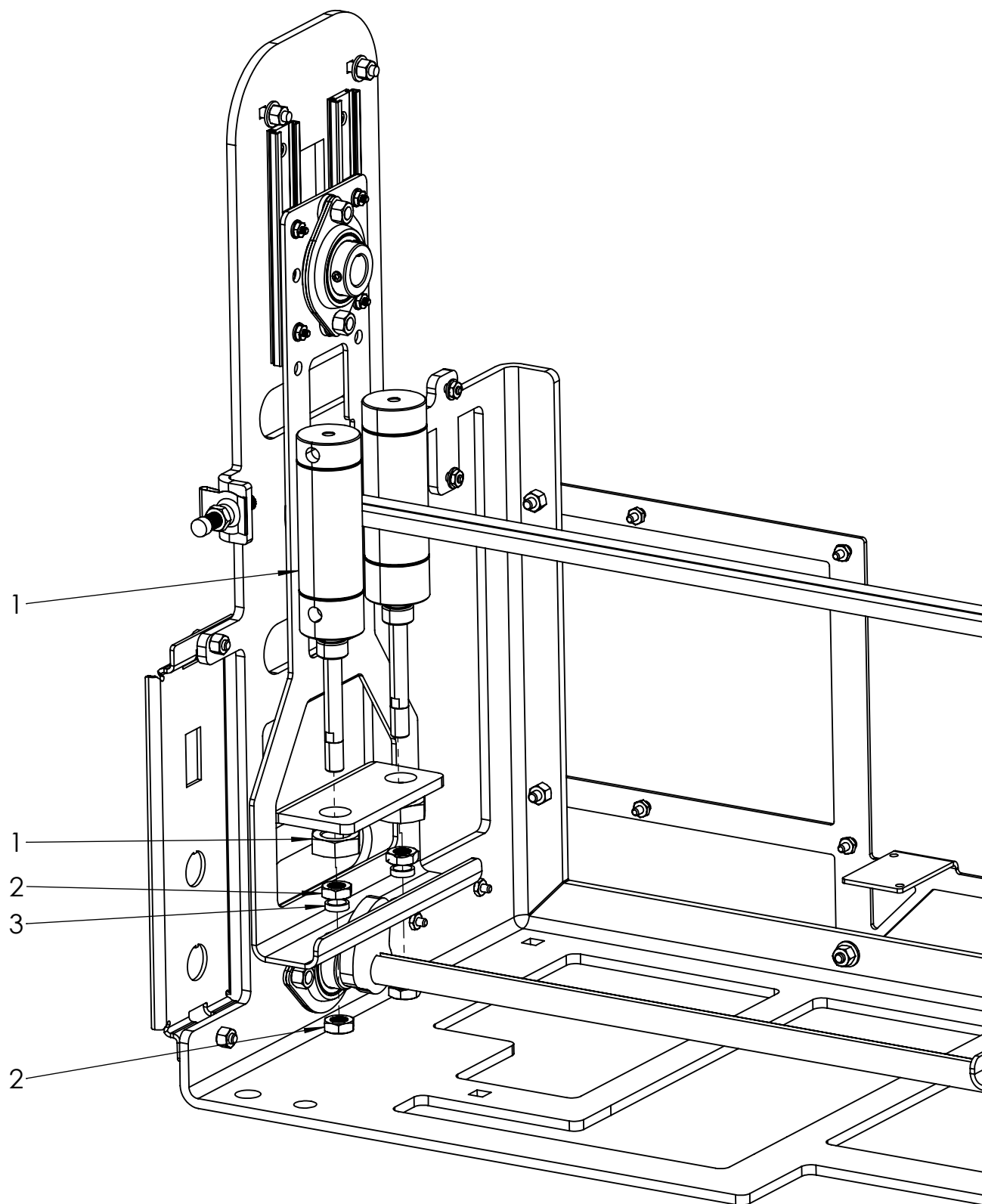
Footnotes:

Notes:

ITEM 12 INSTALLATION: ADJUST ITEM 12 TO REMOVE ANY SLACK BETWEEN COMPRESSION ASSEMBLY AND MAIN FRAME. TIGHTEN ITEM 13 TO LOCK IN PLACE.

# Clamp Cylinders – Compression

WT212-3D



## Clamp Cylinders – Compression

WT212-3D

Bom ID	Part No	Description	Qty	Remarks
1	922-1569	CYLINDER, PNUEMATIC - 1.5 X 2	4	(SYMM. BOTH SIDES)
2	922-1532	NUT, HEX JAM 7/16-20	8	(SYMM. BOTH SIDES)
3	922-1592	SPACER, CLAMP PLATE	4	(SYMM. BOTH SIDES)

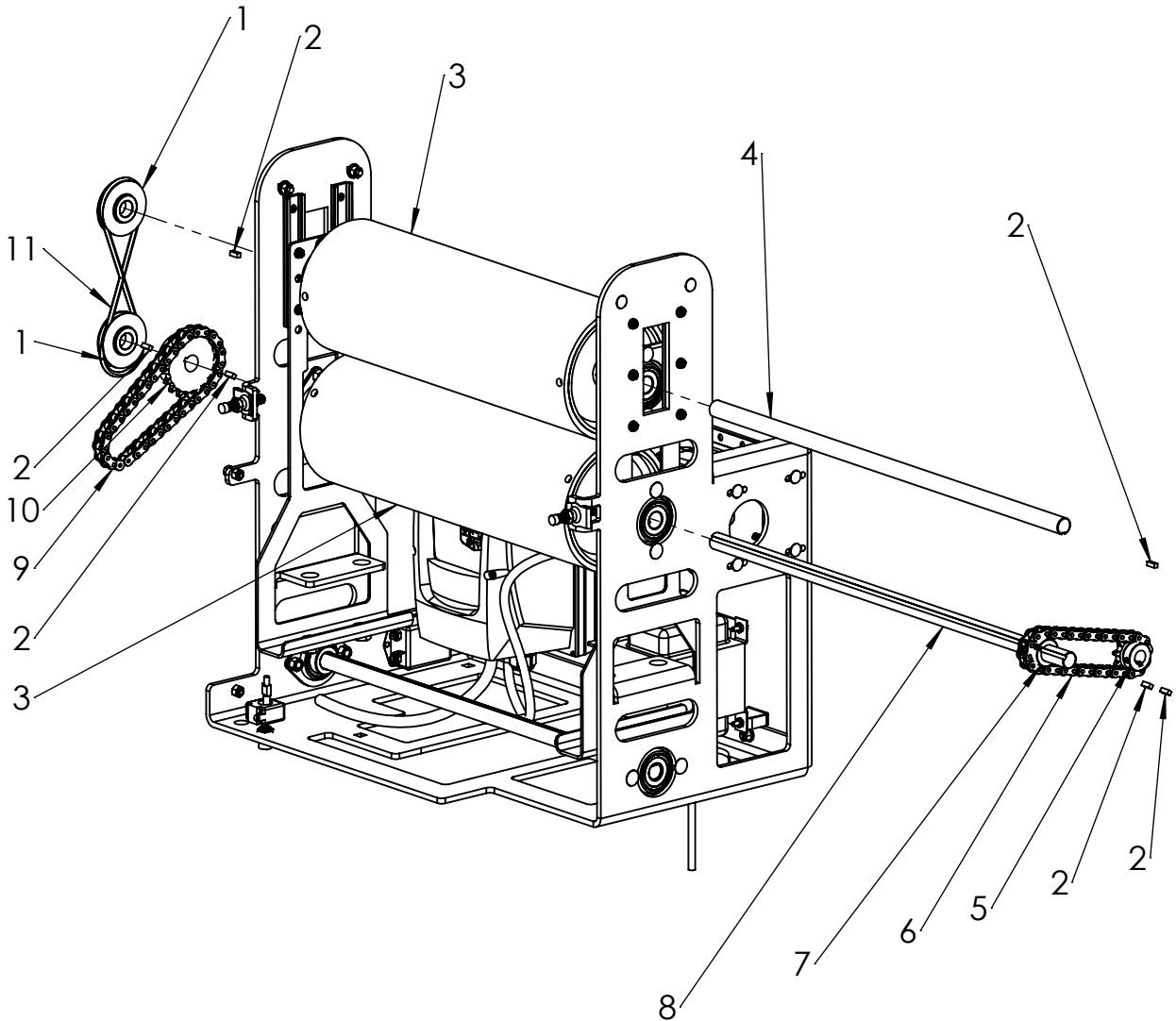
Not Shown:  
OPPOSITE SIDE HAS IDENTICAL PARTS

Footnotes:

Notes:

# Rollers and Drive Sprockets – Compression

## WT212-3D





## Rollers and Drive Sprockets – Compression

WT212-3D

Bom ID	Part No	Description	Qty	Remarks
1	922-1419	PULLEY, ROUND BELT	2	
2	922-1674	MACHINE KEY, 3/16 X 1/2 UNDER	6	
3	922-1441	ROLLER, COMPRESSION	2	
4	922-1668	SHAFT, UPPER ROLLER	1	
5	922-1525	SPROCKET, #40 - 10T X $\phi$ 5/8 BORE	1	
6	922-1444	ROLLER CHAIN, 40H - 32 PITCHES	1	
7	922-1442	SPROCKET, #40 - 10T x $\phi$ 3/4 BORE	1	
8	922-1528	SHAFT, HEX DRIVE	1	
9	922-1448	ROLLER CHAIN, 40H - 36 PITCHES	1	
10	922-1446	SPROCKET, #40 - 18T X $\phi$ 3/4 BORE	1	
11	922-1449	BELT, 3/16 O RING	1	

Not Shown:

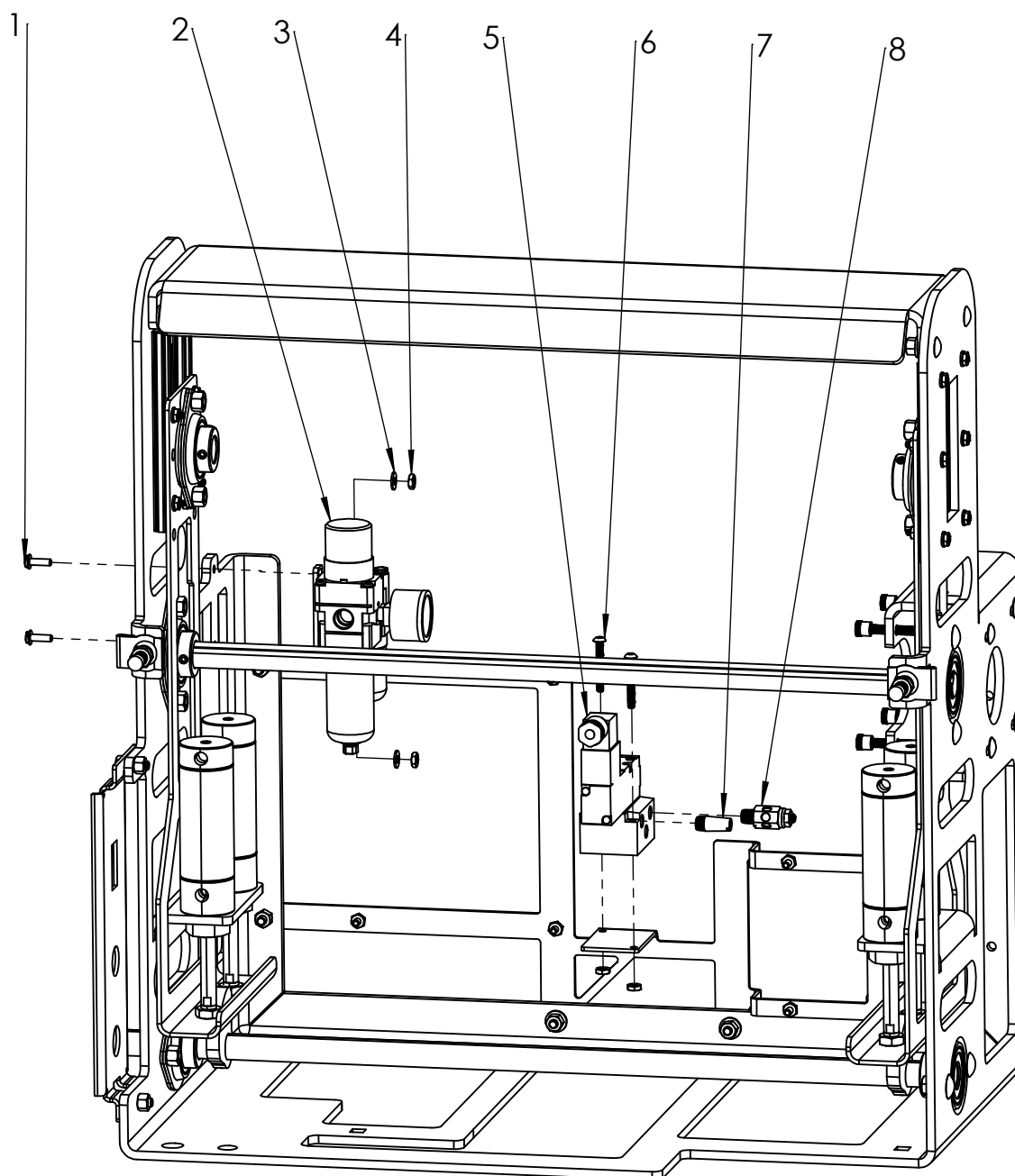
Footnotes:

Notes:

SPROCKET INSTALLATION NOTE: APPLY RED LOCTITE TO SPROCKET LOCKING SET-SCREWS WHEN INSTALLING.

# Pneumatic Components – Compression

WT212-3D



## Pneumatic Components – Compression

WT212-3D

Bom ID	Part No	Description	Qty	Remarks
1	922-1690	SCREW, #10-24 X 5/8 FLH	2	
2	922-1627	FRL, 1/4"	1	
3	#10FW-SAE	WASHER, #10 - GR5	2	
4	#10TLN	NUT, #10-24 TOP LOCK	4	
5	922-1670	PNEUMATIC VALVE, NRTL	1	
6	#10BH24	SCREW, BHSC #10-24 X 1.5"	2	
7	922-1689	MUFFLER, 1/8 NPT AIR	1	
8	922-1588	FLOW CONTROL EXHAUST, 1/8 NPT	1	
9*	922-1676	OIL, WT212-3D	1	

Not Shown:

\* ITEM #9, PART NO. 922-1676

Footnotes:

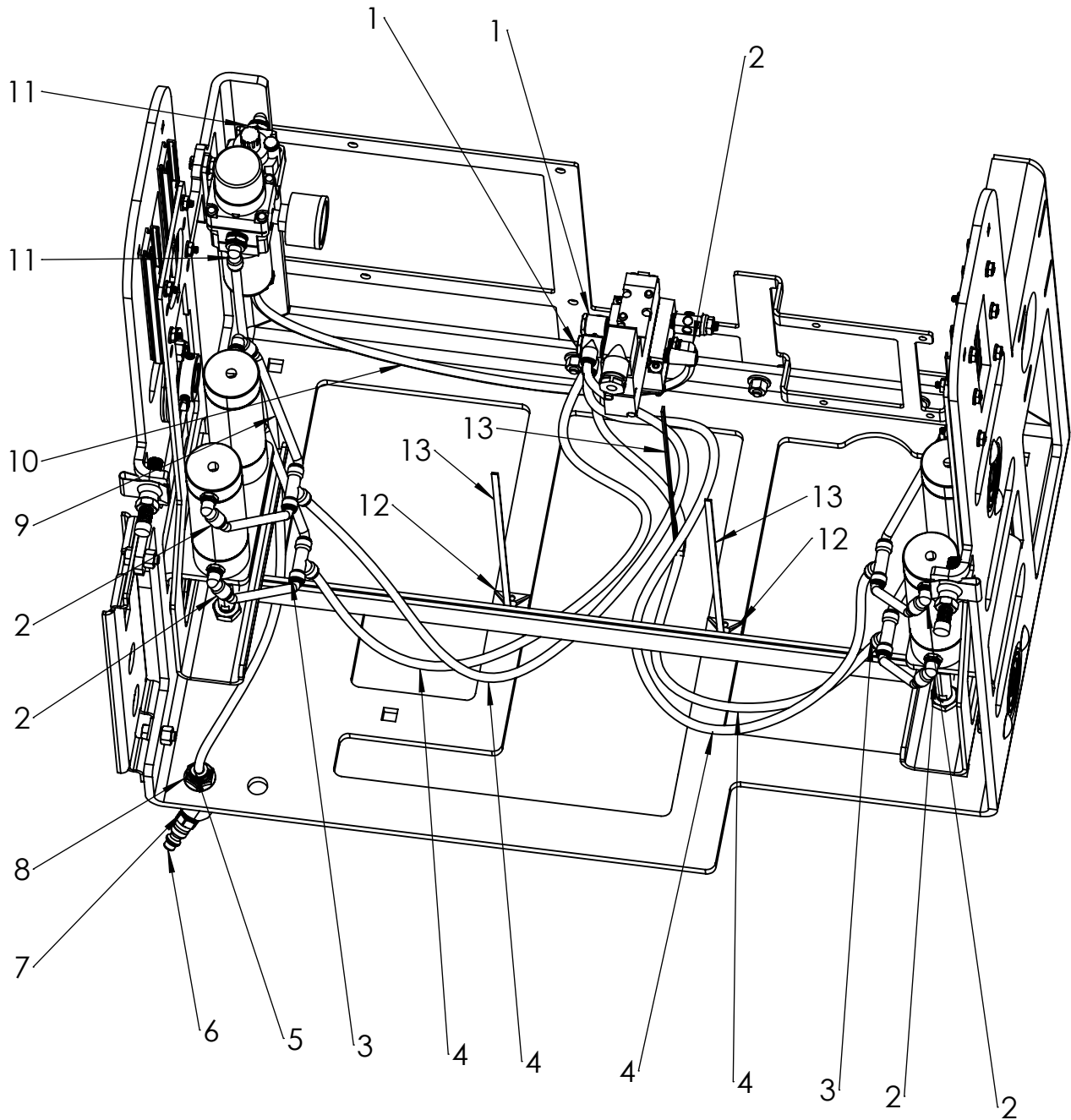
ITEM #2 FRL = FILTER/REGULATOR/LUBRICATOR

Notes:

AIR OIL: FILL ITEM 2 WITH ITEM 9 TO FILL LINE INDICATED.

# Pneumatic Hoses & Fittings – Compression

WT212-3D



## Pneumatic Hoses & Fittings – Compression

WT212-3D

Bom ID	Part No	Description	Qty	Remarks
1	922-1583	TUBE FITTING, 04 TUBE X 02 MP DUAL 90°	2	
2	922-1584	TUBE FITTING, 04 TUBE X 02 MP 90°	9	
3	922-1675	TUBE FITTING, 04 TUBE X 04 TUBE TEE	4	
4	922-1650	AIR HOSE, ø1/4 X 24	4	
5	922-1646	AIR HOSE, ø1/4 X 18	1	
6	922-9005	COUPLING, 4MP X QD MALE	1	
7	922-1621	ELBOW, 04 FP X 04 MP 45°	1	
8	922-1574	TUBE FITTING, 04 TUBE X 04 FP	1	
9	922-1647	AIR HOSE, ø1/4 X 4.5	8	
10	922-1649	AIR HOSE, ø1/4 X 25.5	1	
11	922-1589	TUBE FITTING, 04 TUBE X 04 MP 90°	2	
12	922-1677	MOUNT, TIE STRAP ADHESIVE	2	
13	912-1039	TIE STRAP, NYLON	3	

Not Shown:

Footnotes:

Notes:

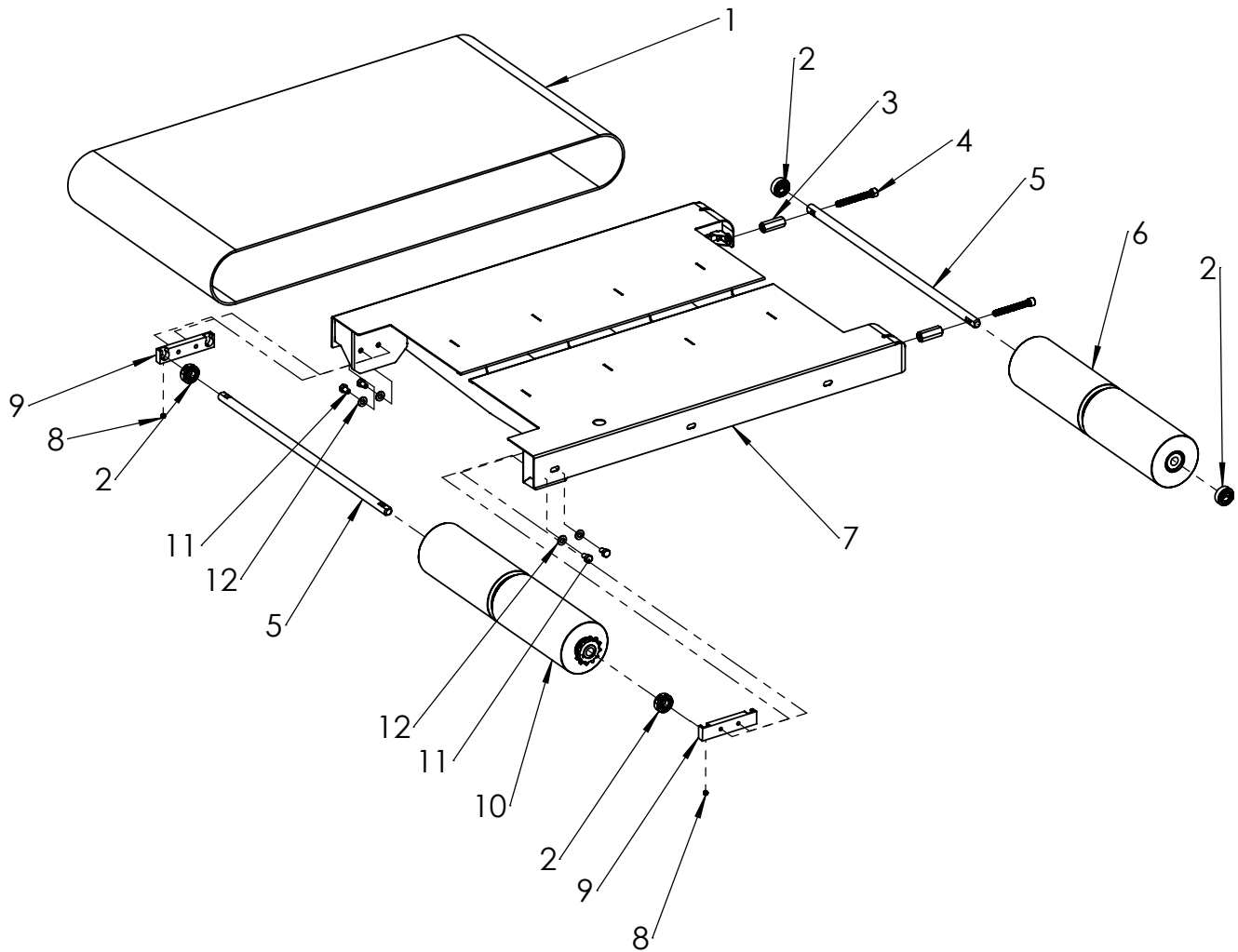
AIR CYLINDER FITTINGS AND AIR HOSES ARE SYMMETRICAL ACROSS CYLINDERS  
 AIR HOSE ROUTING: USE ITEMS 12 & 13 TO ATTACH ITEMS 4 TO FRAME. USE ITEM 13 TO  
 SECURE 4X ITEM 4 TOGETHER.

## Notes

# **CONVEYOR ASSEMBLY**

# Conveyor Assembly

WT212-3D





## Conveyor Assembly

### WT212-3D

Bom ID	Part No	Description	Qty	Remarks
1	922-1493	BELT, 18"	1	
2	922-1582	SHAFT COLLAR, ø5/8	4	
3	922-1629	NUT, 3/8-16 X 1.75 LG. COUPLING	2	
4	922-1628	SCREW, 3/8-16 X 3.00 LG. SHC - FT	2	
5	922-1572	SHAFT, DEAD PULLEY	2	
6	922-1645	ASSEMBLY, TAIL PULLEY	1	
7	922-1599	WELDMENT, CONVEYOR ASSEMBLY	1	
8	922-1630	SCREW, 1/4-20 X .25 LG. SET	2	
9	922-1625	BLOCK, SHAFT	2	
10	922-1598	ASSEMBLY, SPROCKET PULLEY	1	
11	05HH08	SCREW, 5/16-18 x .50 HHC - GR8	4	
12	05FW-SAE	WASHER, 5/16"	4	

Not Shown:

Footnotes:

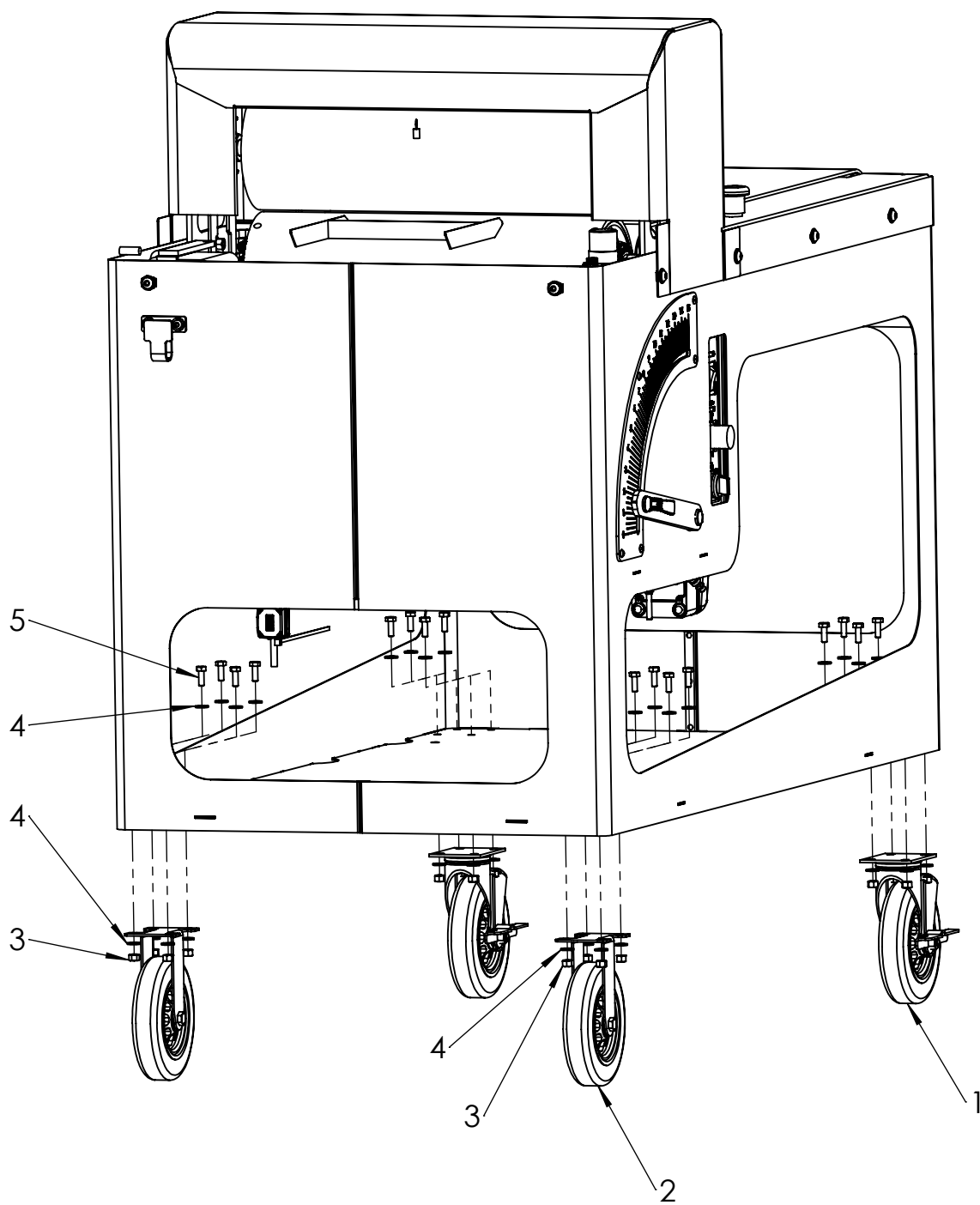
Notes:

## Notes

# **ACCESSORIES**

# Casters

WT212-3D



## Casters

WT212-3D

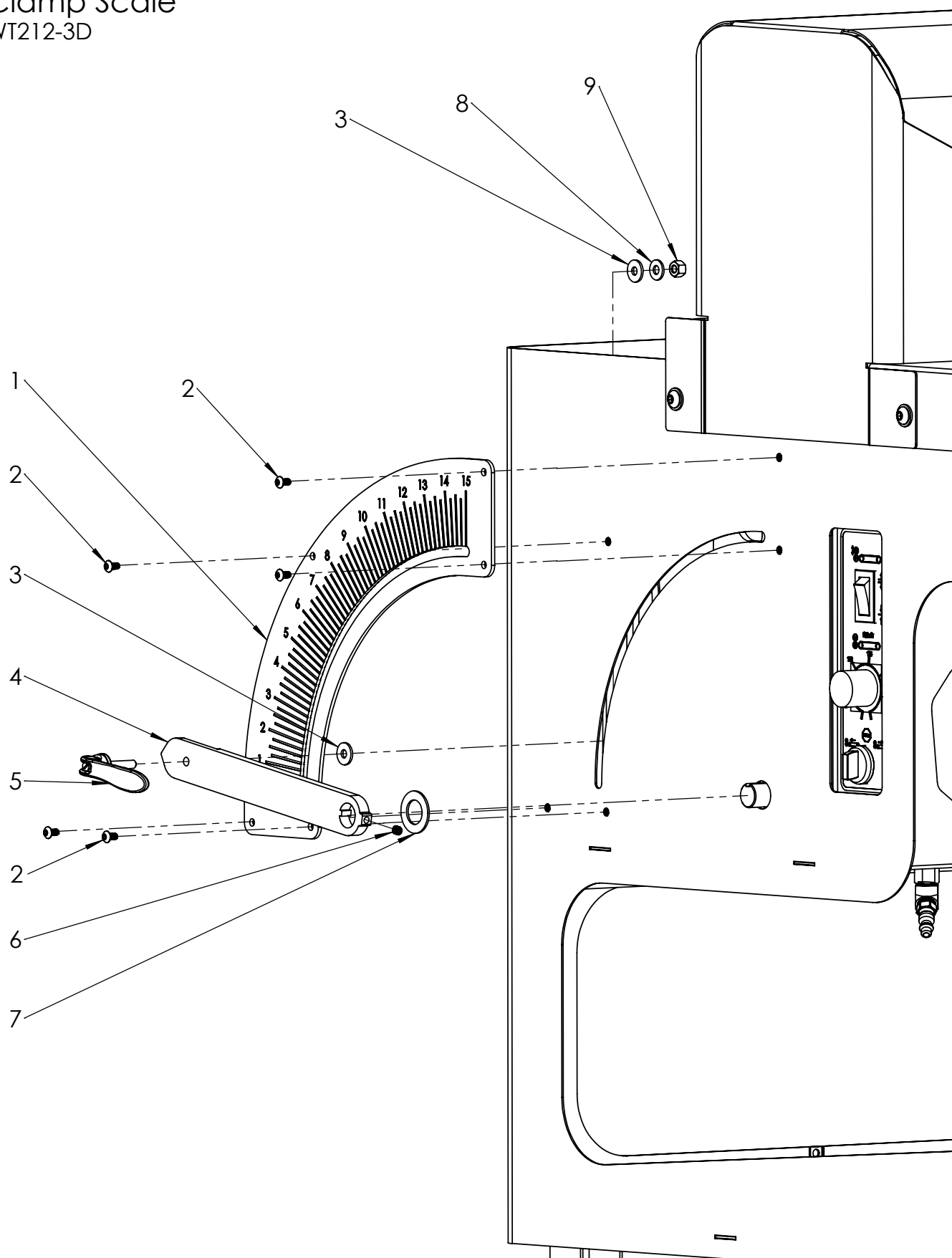
Bom ID	Part No	Description	Qty	Remarks
1	922-1546	CASTER, ø6 X 2 SWIVEL LOCKING	2	
2	922-1545	CASTER, ø6 X 2 RIGID	2	
3	04TLN	NUT, 1/4-20 TOP LOCK	16	
4	04FW-SAE	WASHER, 1/4"	32	
5	04HH12	SCREW, 1/4-20 x .75 HHC - GR8	16	

Not Shown:

Footnotes:

Notes:

# Clamp Scale WT212-3D



## Clamp Scale

WT212-3D

Bom ID	Part No	Description	Qty	Remarks
1	922-1694	PLATE, GAP SCALE 0-15	1	
2	10BH06	SCREW, #10-24 X .375 BHSC	5	
3	922-1687	WASHER, #12 NYLON	2	
4	922-1411	ARM, GAP SETTING	1	
5	922-1678	HANDLE, CLAMPING	1	
6	929-0005	SCREW, SET 1/4-20 1/4 LNG	1	
7	922-1548	WASHER, 3/4 UHMWPE	1	
8	04FW-SAE	WASHER, 1/4"	1	
9	04TLN	NUT, 1/4-20 TOP LOCK	1	

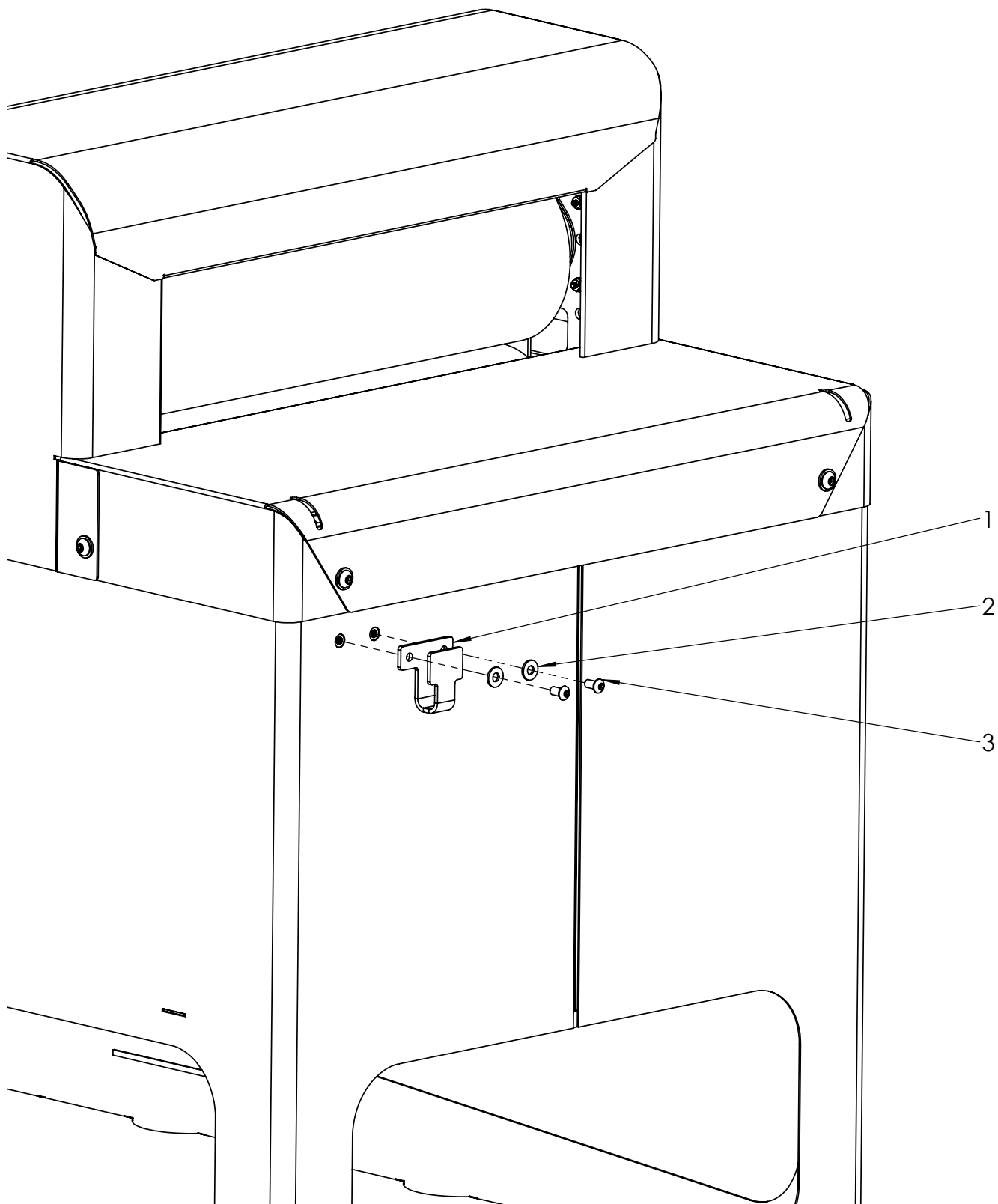
Not Shown:

Footnotes:

Notes:

# Cuff Hanger

WT212-3D





## Cuff Hanger

WT212-3D

Bom ID	Part No	Description	Qty	Remarks
1	922-1422	HANGER, CUFF	1	
2	04FW-SAE	WASHER, 1/4"	2	
3	04BH08	SCREW, 1/4-20x0.5 BHSC	2	

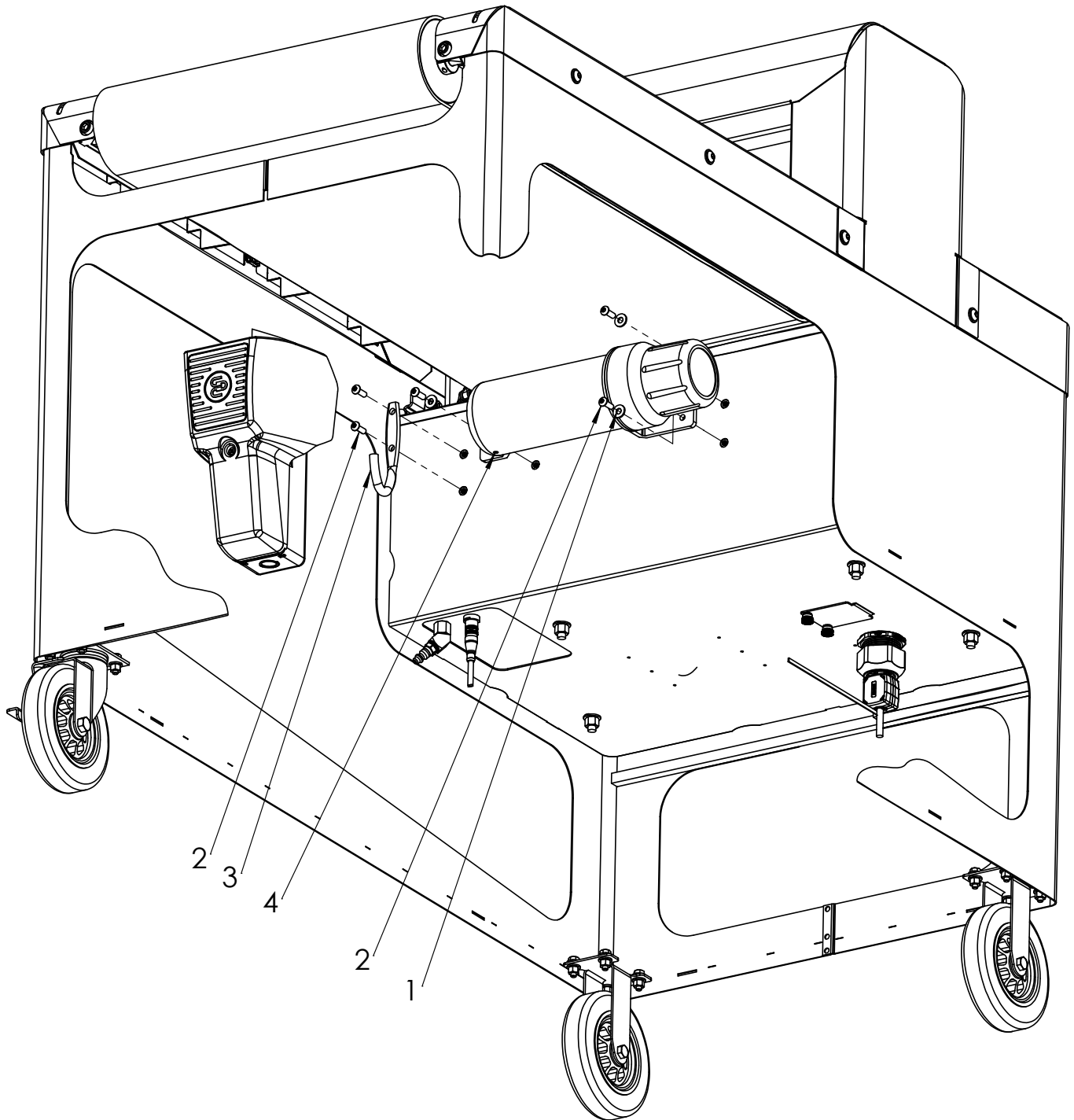
Not Shown:

Footnotes:

Notes:

## Miscellaneous Accessories

WT212-3D



## Miscellaneous Accessories

WT212-3D

Bom ID	Part No	Description	Qty	Remarks
1	04FW-SAE	WASHER, 1/4"	3	
2	04BH12	SCREW, 1/4-20x0.75 BHSC	5	
3	922-1504	HOOK, 4.875 X 1.875	1	
4	302-2531	MANUAL COMPARTMENT - VENTED	1	
5	960-1131	OPERATORS MANUAL, WT212-3D	1	

Not Shown:

Footnotes:

Notes:

ITEM 5 STORED INSIDE ITEM 4

## Notes

# MISCELLANEOUS

# SAE Bolt and Nut Torque Value Chart

## Grade 5: UNC or UNF Thread

Size	Coarse		Fine	
	ft-lb	N-m	ft-lb	N-m
1/4	6	8.5	8	11
5/16	13	18	15	20.5
3/8	25	35	30	40
7/16	40	55	45	60
1/2	60	80	70	95
9/16	90	120	950	130
5/8	120	165	145	200
3/4	210	285	240	325
7/8	320	435	350	475
1	480	650	560	760
1-1/8	700	950	780	1060
1-1/4	1020	1385	1100	1545

## Grade 8: UNC or UNF Thread

Size	Coarse		Fine	
	ft-lb	N-m	ft-lb	N-m
1/4	10	13	11	15
5/16	20	27	22	29.5
3/8	35	47	40	55
7/16	55	75	65	88
1/2	90	120	95	130
9/16	120	165	135	185
5/8	180	245	195	265
3/4	300	405	340	460
7/8	500	680	560	760
1	800	1085	920	1250
1-1/8	1180	1600	1340	1815
1-1/4	1720	2330	1900	2575

# Metric Bolt and Cap Screw Torque Values

Size	Class 4.8				Class 8.8 and 9.8				Class 10.9				Class 12.9			
	Lubricated		Dry		Lubricated		Dry		Lubricated		Dry		Lubricated		Dry	
	N-m	ft-lb	N-m	ft-lb	N-m	ft-lb	N-m	ft-lb	N-m	ft-lb	N-m	ft-lb	N-m	ft-lb	N-m	ft-lb
M6	4.8	3.5	6	4.5	9	6.5	11	8.5	13	9.5	17	12	15	11.5	19	14.5
M8	12	8.5	15	11	22	16	28	20	32	24	40	30	37	28	47	35
M10	23	17	29	21	43	32	55	40	63	47	80	60	75	55	95	70
M12	40	29	50	37	75	55	95	70	110	80	140	105	130	95	165	120
M14	63	47	80	60	120	88	150	110	175	130	225	165	205	150	260	190
M16	100	73	125	92	190	140	240	175	275	200	350	225	320	240	400	300
M18	135	100	175	125	260	195	330	250	375	275	475	350	440	325	560	410
M20	190	140	240	180	375	275	475	350	530	400	675	500	625	460	800	580
M22	260	190	330	250	510	375	650	475	725	540	925	675	850	625	1075	800
M24	330	250	425	310	650	475	825	600	925	675	1150	850	1075	800	1350	1000
M27	490	360	625	450	950	700	1200	875	1350	1000	1700	1250	1600	1150	2000	1500
M30	675	490	850	625	1600	950	1650	1200	1850	1350	2300	1700	2150	1600	2700	2000
M33	900	675	1150	850	1750	1300	2200	1650	2500	1850	3150	2350	2900	2150	3700	2750
M36	1150	850	1450	1075	2250	1650	2850	2100	3200	2350	4050	3000	3750	2750	4750	3500

Do not use these values if a different torque value or tightening procedure is given for specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical property class fasteners.

Fasteners should be replaced with the same or higher property class. If higher property class fasteners are used, these should only be tightened to strength of original.

Make sure fastener threads are clean and that the threads are properly started. This will prevent them from cross threading or galling when tightened.

Tighten plastic insert or crimped type steel locknuts to approximately 50% of dry torque indicated on chart. Apply torque to the nut – not the bolt head. Tighten toothed or serrated type locknuts to full torque value.

LUBRICATED means coated with lubricant. DRY means plain or zinc plated without any type of lubricant.

# Torque Standards Hydraulic Fittings

## O-Ring Boss Fittings

						ASSEMBLY TORQUE (+10% -0)							
DASH SIZE	NOMINAL SIZE (IN)	SAE SIZE	FEMALE THREAD	MALE THREAD	O-RING	O-RING BOSS		O-RING BOSS		HOLLOW HEX		HEX HEAD	
						NON-ADJUSTABLE		ADJUSTABLE		PLUGS			
			I.D. (IN)	O.D. (IN)	I.D. (IN)	ft-lbs (in-lbs)	N-m	ft-lbs (in-lbs)	N-m	ft-lbs (in-lbs)	N-m	ft-lbs (in-lbs)	N-m
-2	1/8	5/16-24	17/64	5/16	17/64	-	-	-	-	(30)	4	(85)	10
-3	3/16	3/8-24	21/64	3/8	21/64	-	-	-	-	(55)	6	(155)	18
-4	1/4	7/16-20	25/64	7/16	25/64	26	35	(180)	20	(120)	14	22	29
-5	5/16	1/2-20	29/64	1/2	29/64	30	40	30	40	(170)	19	23	32
-6	3/8	9/16-18	1/2	9/16	1/2	35	46	35	46	34	46	29	40
-8	1/2	3/4-16	11/16	3/4	11/16	60	80	60	80	60	80	52	70
-10	5/8	7/8-14	13/16	7/8	13/16	100	135	100	135	100	135	85	115
-12	3/4	1-1/16-12	31/32	1-1/16	31/32	135	185	135	185	135	185	135	183
-14	7/8	1-3/16-12	1-7/64	1-3/16	1-7/64	175	235	175	235	175	235	175	237
-16	1	1-5/16-12	1-15/64	1-5/16	1-15/64	200	270	200	270	200	270	200	271
-20	1-1/4	1-5/8-12	1-35/64	1-5/8	1-35/64	250	340	250	340	250	340	250	339
-24	1-1/2	1-7/8-12	1-51/64	1-7/8	1-51/64	305	415	305	415	305	415	305	414
-32	2	2-1/2-12	2-27/64	2-1/2	2-27/64	375	510	375	510	375	510	375	509

## O-Ring Face Seal Fittings

DASH SIZE	NOMINAL SIZE (IN)	THREAD SIZE	FEMALE THREAD	MALE THREAD	ASSEMBLY TORQUE (+10% -0) (PRIMARY METHOD)		FLATS FROM WRENCH RESISTANCE (FFWR) (SECONDARY METHOD)		O-RING
					ft-lb	N-m	TUBE NUTS	SWIVEL & HOSE	
			I.D. (IN)	O.D. (IN)					I.D. (IN)
-4	1/4	9/16-18	1/2	9/16	18	25	1/2	3/4	5/16
-6	3/8	11/16-16	11/16	11/16	30	40	1/2	3/4	3/8
-8	1/2	13/16-16	3/4	13/16	40	55	1/2	3/4	1/2
-10	5/8	1-14	13/16	1	60	80	1/2	3/4	5/8
-12	3/4	1-3/16-12	1-7/64	1-3/16	85	115	1/2	1/2	3/4
-16	1	1-7/16-12	1-23/64	1-7/16	110	150	1/2	1/2	15/16
-20	1-1/4	1-11/16-12	1-19/32	1-11/16	150	205	1/2	1/2	1-3/16
-24	1-1/2	2-12	1-59/64	2	230	315	1/2	1/2	1-1/2

Ensure the threads and sealing surfaces are free from nicks, burrs, scratches or any foreign material. Lubricate the o-ring with a light coat of oil. To tighten adjustable o-ring fittings, hold the fitting and tighten the nut. To tighten non-adjustable o-ring fittings, tighten the fitting. When tightening together fittings with dissimilar coatings, torque to 115% of maximum recommended torque value for a given size.



# Torque Standards Hydraulic Fittings

## Pipe Fittings

Nom. SAE Dash Size	Fractional Size	Threads per Inch	Turns from Finger Tight
2	1/8	27	2-3
4	1/4	18	2-3
6	3/8	18	2-3
8	1/2	14	2-3
12	3/4	14	2-3
16	1	11-1/2	1.5-2.5
20	1-1/4	11-1/2	1.5-2.5
24	1-1/2	11-1/2	1.5-2.5
32	2	11-1/2	1.5-2.5



A CHARLES MACHINE WORKS COMPANY