



TECHNICAL PUBLICATIONS







# HB5058

For replacement copy order **P/N 960-1012**

Updated: 9/12/2019

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.



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# INTRODUCTION

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## 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.

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.



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# INTRODUCTION

## 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.

# WARRANTY

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## 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**

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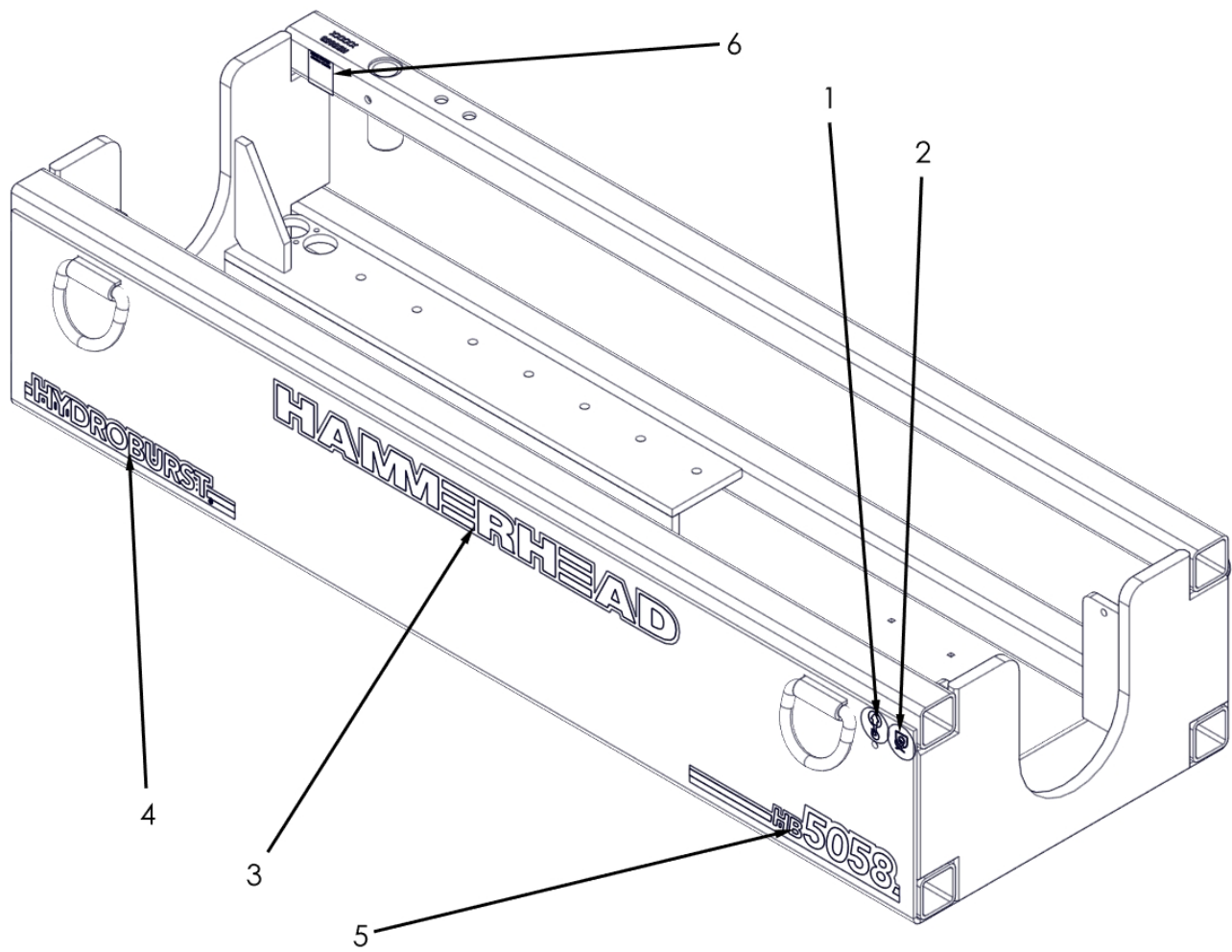
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# DECALS

# Frame Decals - 913-5237

HB5058



## Frame Decals - 913-5237

HB5058

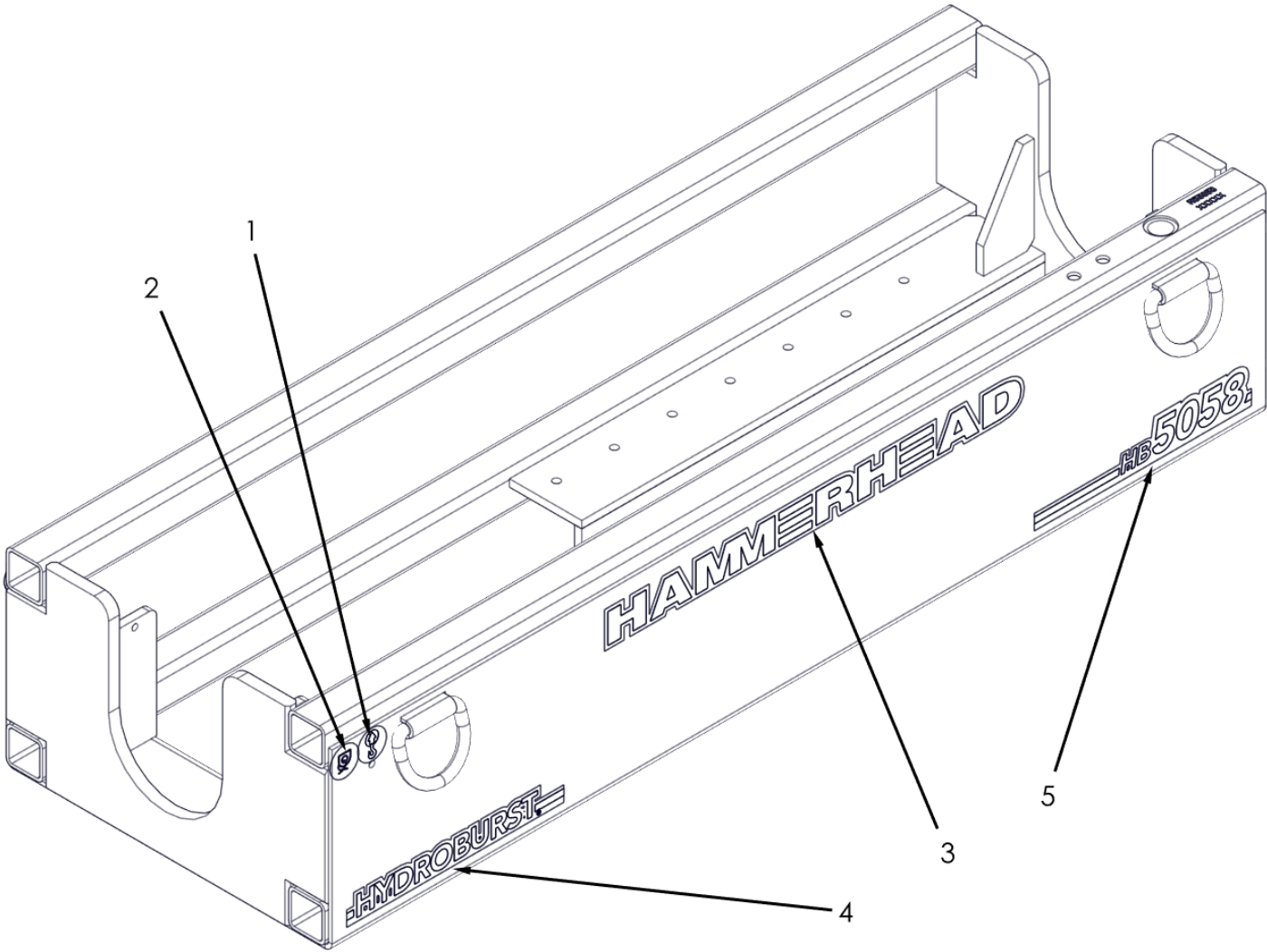
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1	909-8194	DECAL, LIFT POINT	1	
2	909-8195	DECAL, TIE DOWN	1	
3	912-4971	DECAL, HAMMERHEAD - 29"	1	
4	913-3199	DECAL, HYDROBURST - 15"	1	
5	913-5196	DECAL, HB5058 - 15"	1	
6	913-5223	DECAL, SERIAL NO. TAG HB5058	1	

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Footnotes:

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Frame Decals - 913-5237  
HB5058





## Frame Decals - 913-5237

HB5058

Bom ID	Part No	Description	Qty	Remarks
1	909-8194	DECAL, LIFT POINT	1	
2	909-8195	DECAL, TIE DOWN	1	
3	912-4971	DECAL, HAMMERHEAD - 29"	1	
4	913-3199	DECAL, HYDROBURST - 15"	1	
5	913-5196	DECAL, HB5058 - 15"	1	

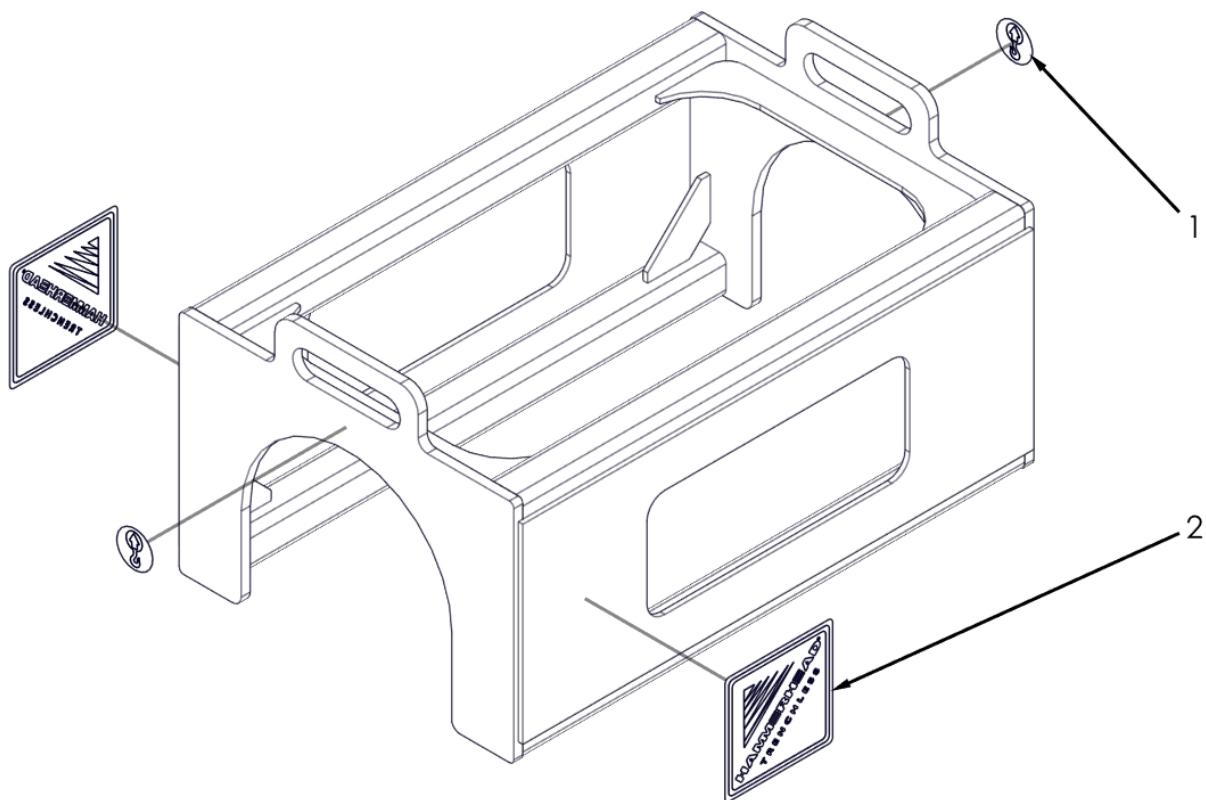
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# Cage Decals - 913-5406

HB5058



## Cage Decals - 913-5406

HB5058

Bom ID	Part No	Description	Qty	Remarks
1	909-8194	DECAL, LIFT POINT	2	
2	912-4973	DECAL, HH MOUNTAIN SQ - 6X6	2	

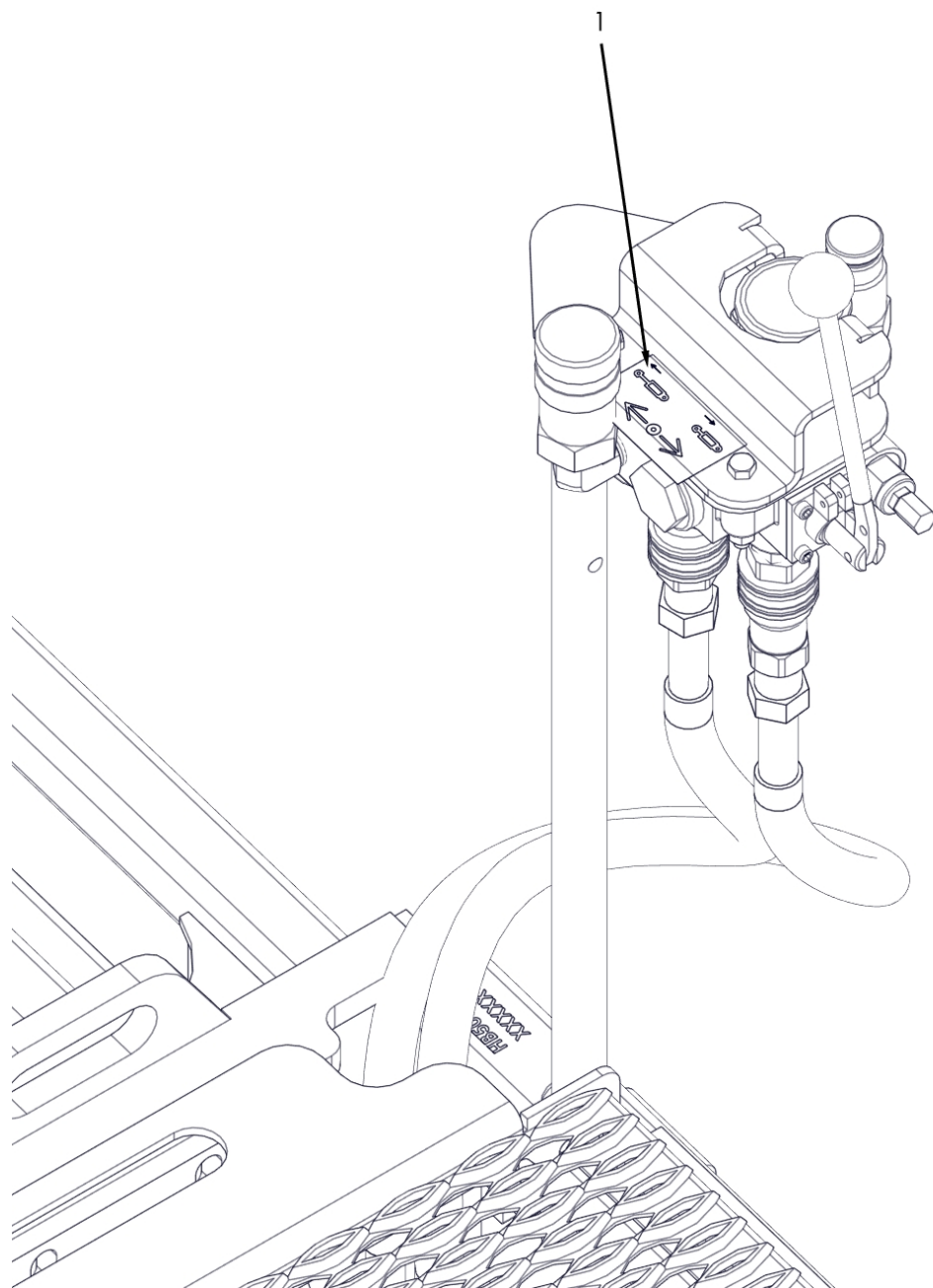
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# Valve Decal - 913-5236

HB5058



# Valve Decal - 913-5236

HB5058

Bom ID	Part No	Description	Qty	Remarks
1	913-0065	DECAL, VALVE CONTROL	1	

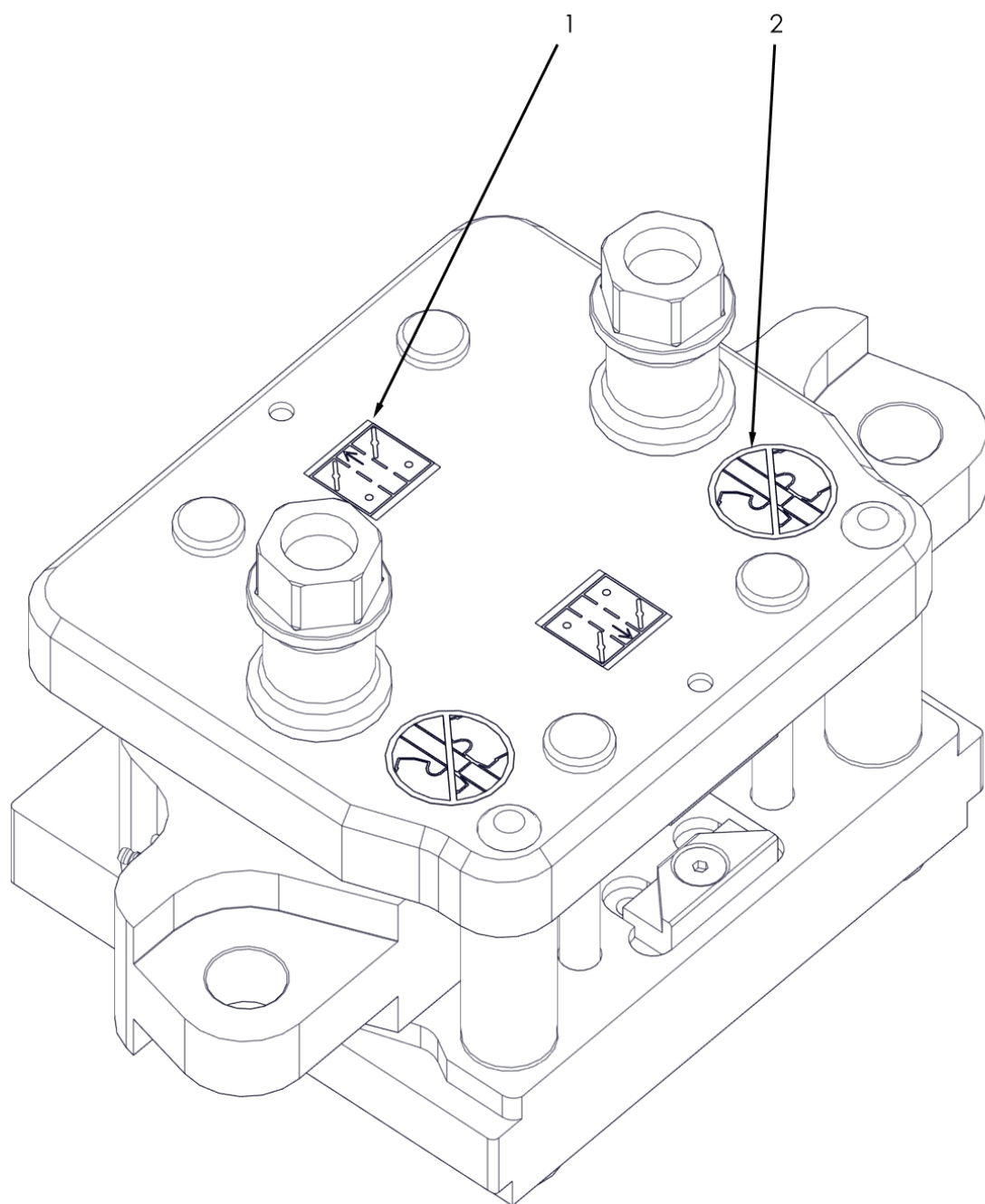
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# Jaw Assembly Decals - 913-5236

HB5058



# Jaw Assembly Decals - 913-5236

HB5058

Bom ID	Part No	Description	Qty	Remarks
1	913-0066	DECAL, PUSH ROD	2	
2	913-3093	DECAL, NO JOINT GRIP	2	

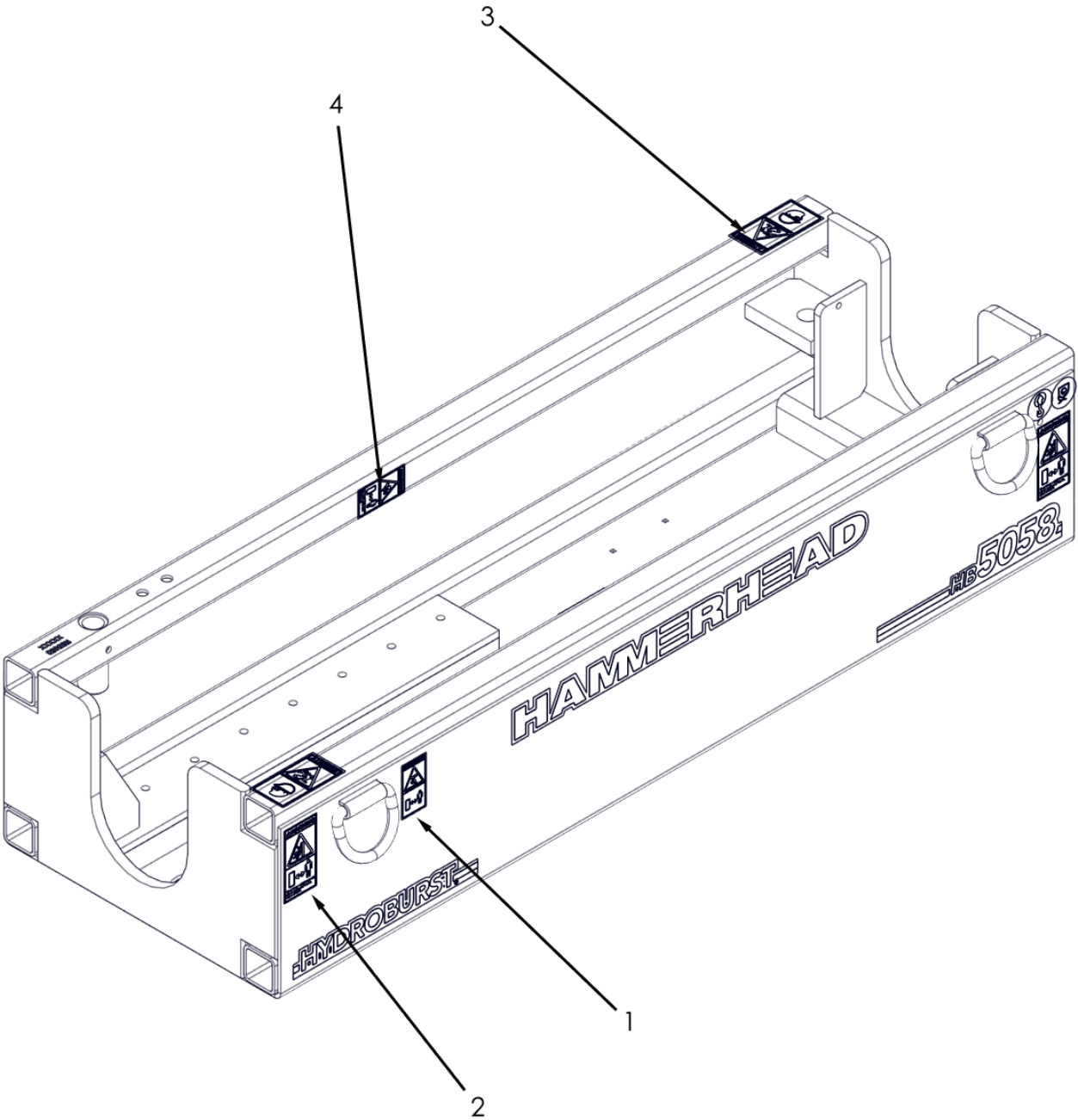
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Notes

Decals - Domestic - 913-5237

HB5058





## Decals - Domestic - 913-5237

HB5058

Bom ID	Part No	Description	Qty	Remarks
1	923-2204	DECAL, FALLING LOAD	1	
2	923-2205	DECAL, CRUSH HAZARD	2	
3	923-2206	DECAL, IMPACT HAZARD	1	
4	923-2207	DECAL, PINCH POINT	1	

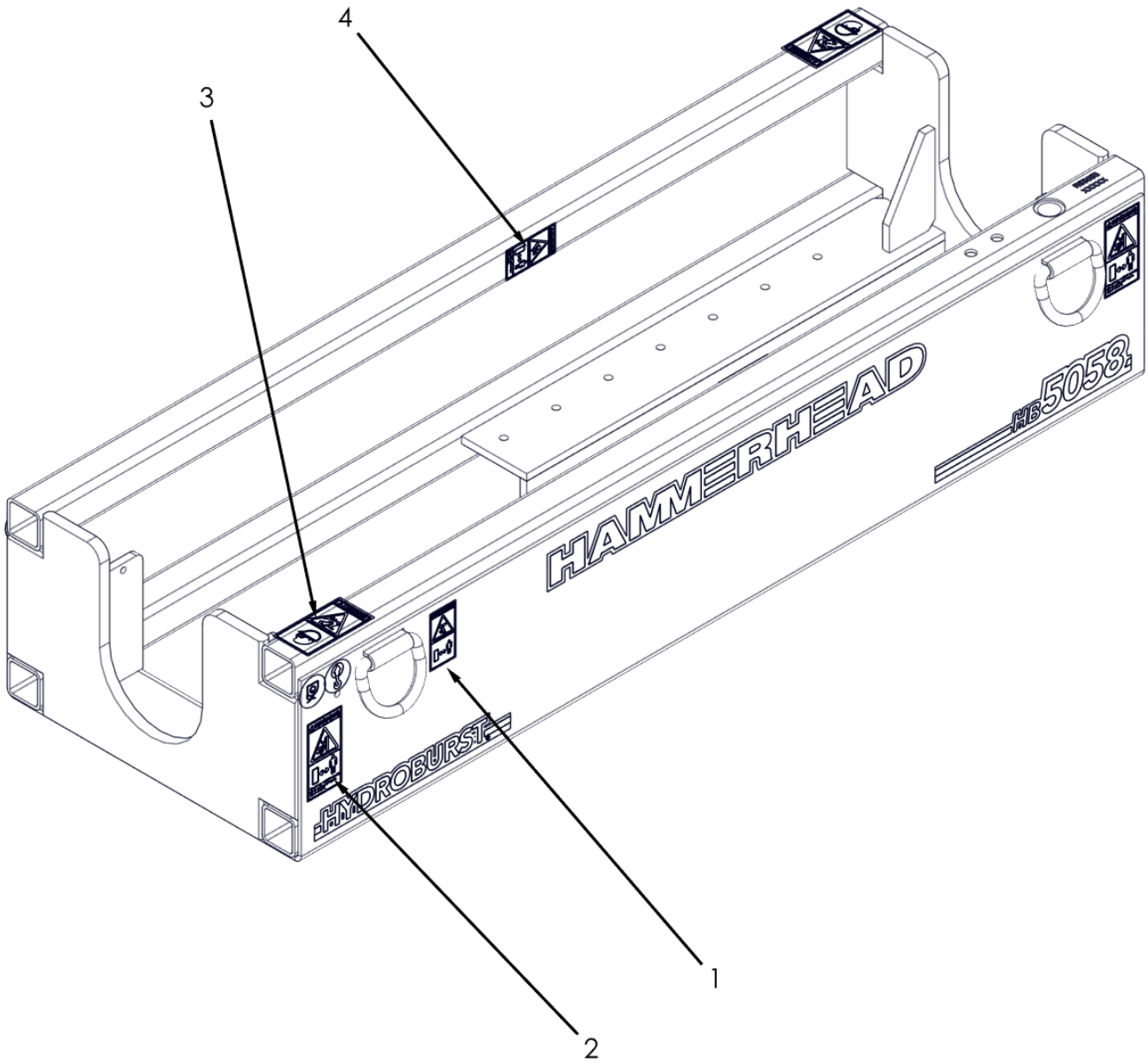
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Decals - Domestic - 913-5237

HB5058



## Decals - Domestic - 913-5237

HB5058

Bom ID	Part No	Description	Qty	Remarks
1	923-2204	DECAL, FALLING LOAD	1	
2	923-2205	DECAL, CRUSH HAZARD	2	
3	923-2206	DECAL, IMPACT HAZARD	1	
4	923-2207	DECAL, PINCH POINT	1	

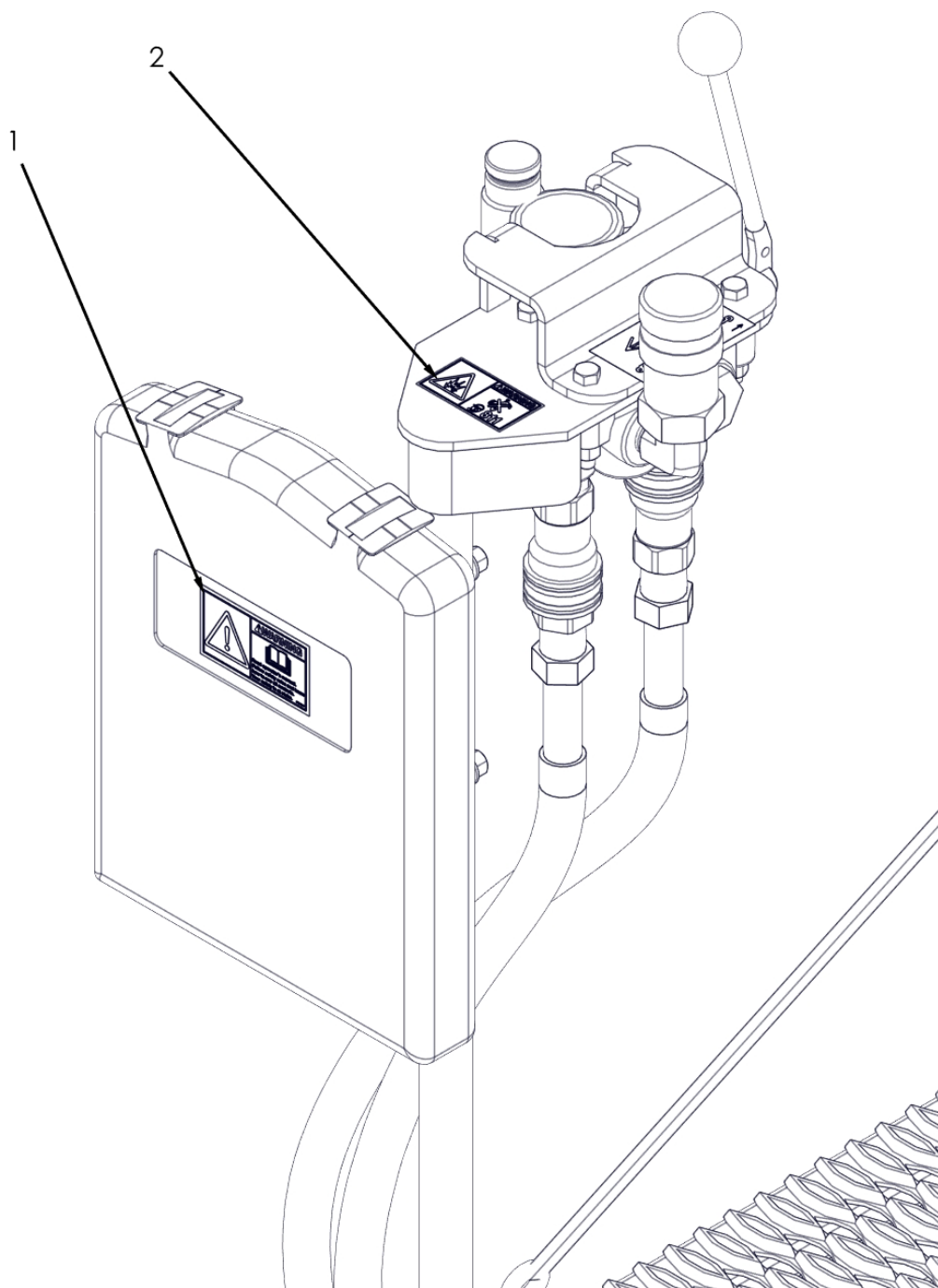
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# Decals - Domestic - 913-5236

HB5058



## Decals - Domestic - 913-5236

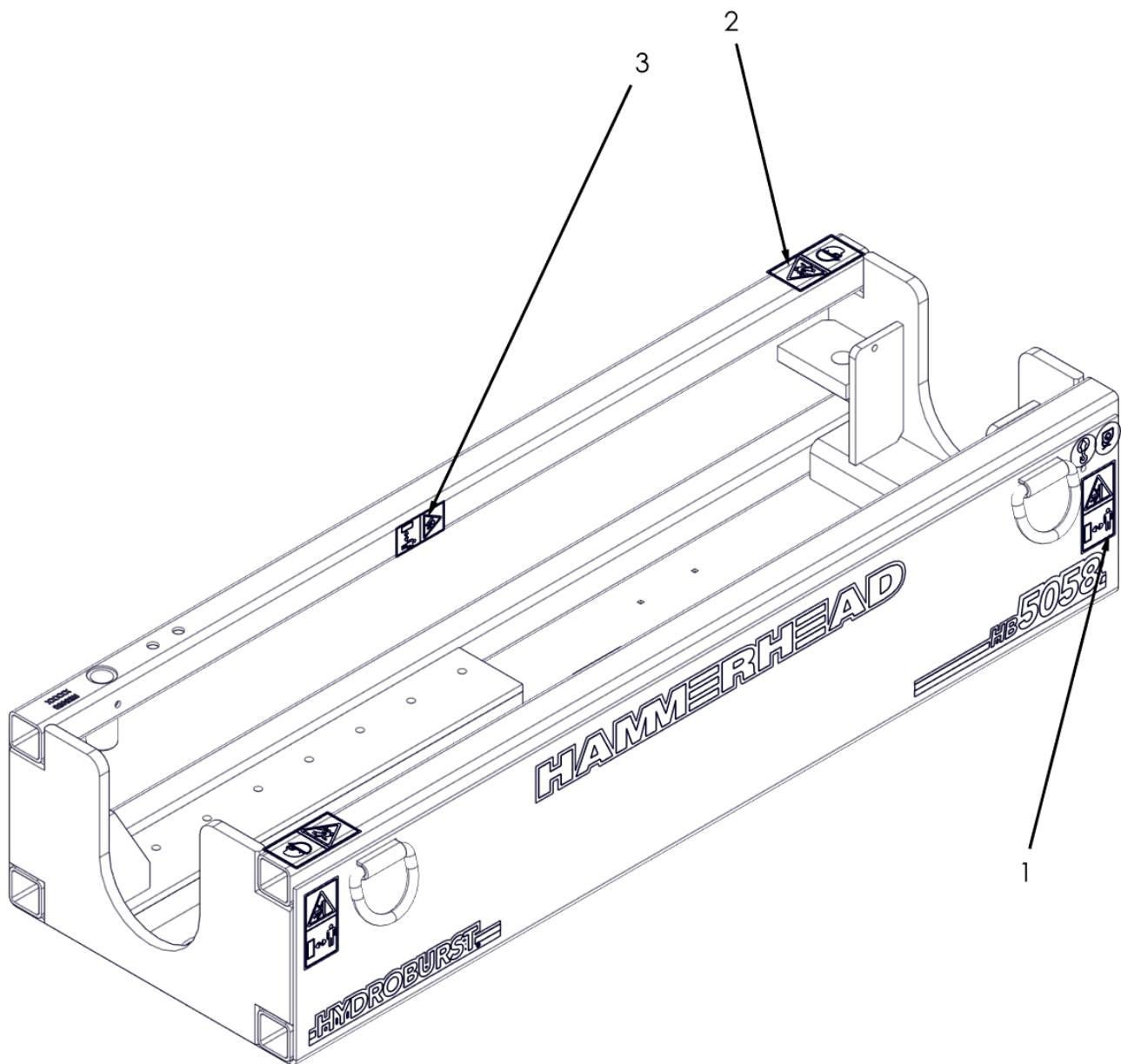
HB5058

Bom ID	Part No	Description	Qty	Remarks
1	923-2224	DECAL, READ OPS MAN (DOM)	1	
2	923-2230	DECAL, ONE CALL (DOM)	1	

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Notes:



## Decals - International - 913-5237

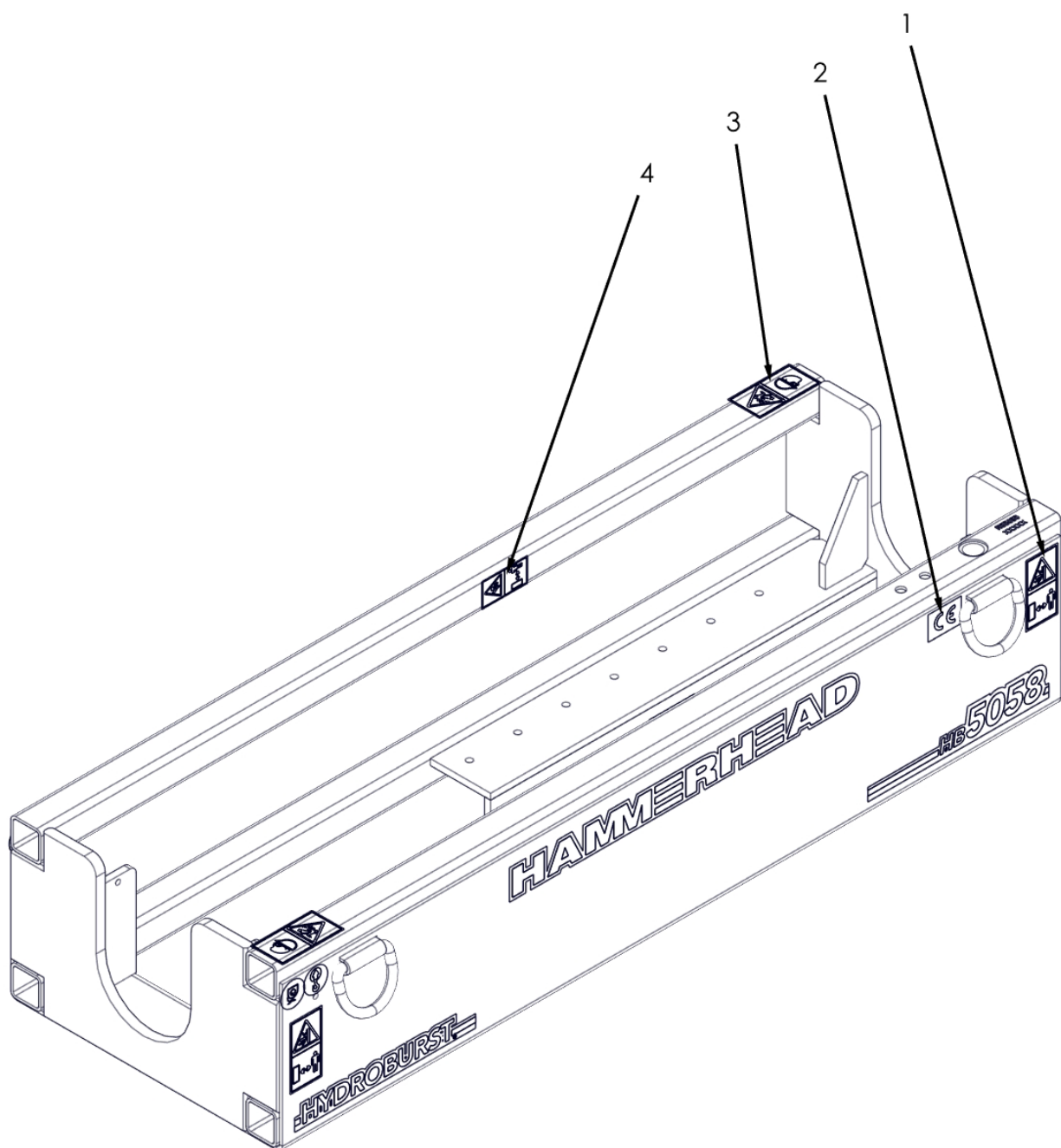
HB5058

Bom ID	Part No	Description	Qty	Remarks
1	923-2210	DECAL, CRUSH HAZARD (INT)	2	
2	923-2211	CAUTION FLYING OBJECTS (INT)	1	
3	923-2214	DECAL, HAND CRUSH (INT)	1	

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## Decals - International - 913-5237

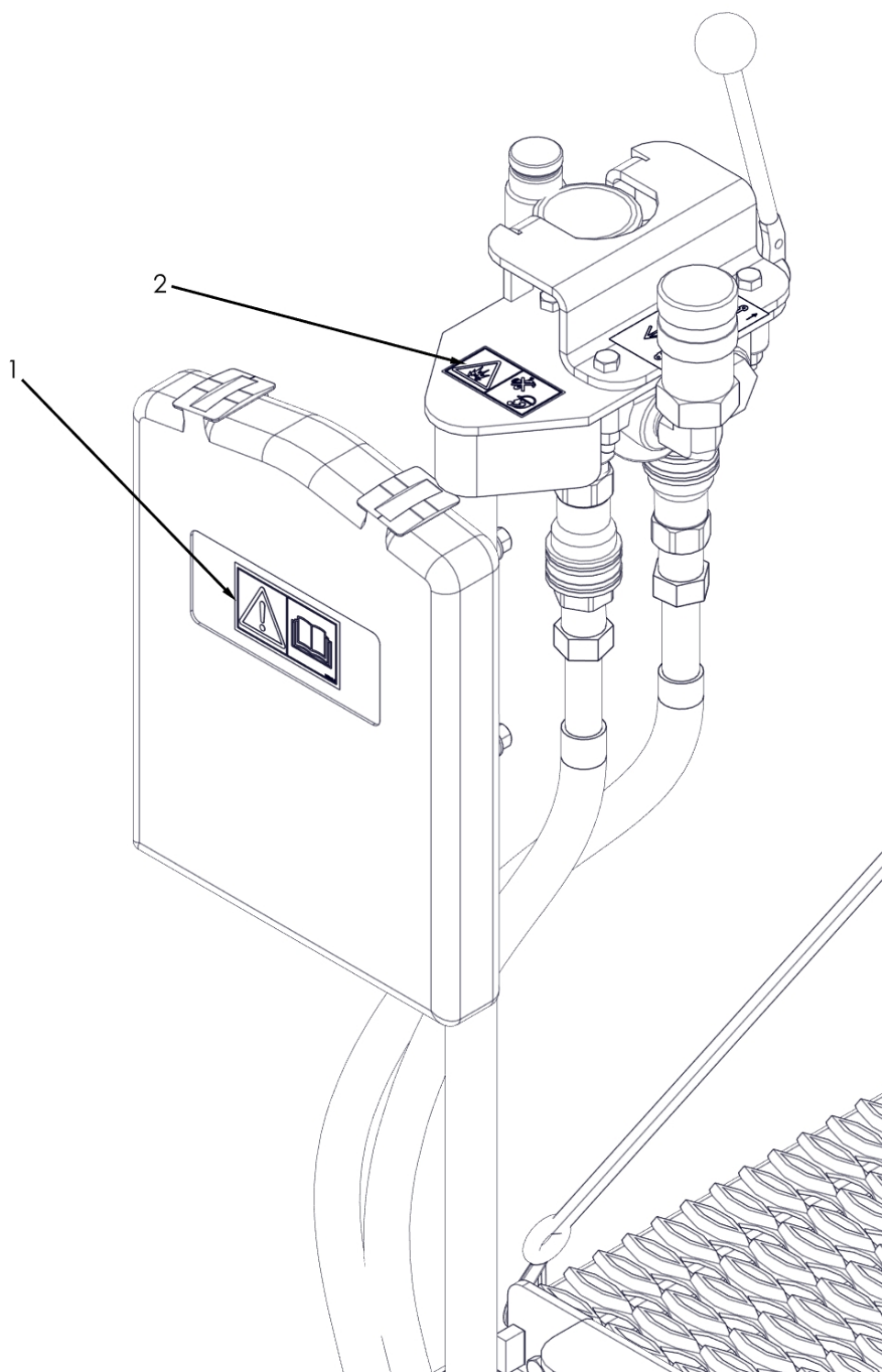
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Bom ID	Part No	Description	Qty	Remarks
1	923-2210	DECAL, CRUSH HAZARD (INT)	2	
2	274-364	DECAL, CE	1	
3	923-2211	CAUTION FLYING OBJECTS (INT)	1	
4	923-2214	DECAL, HAND CRUSH (INT)	1	

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## Decals - International - 913-5236

HB5058

Bom ID	Part No	Description	Qty	Remarks
1	923-2225	DECAL, READ OPS MAN (INT)	1	
2	923-2232	DECAL, ONE CALL (INT)	1	

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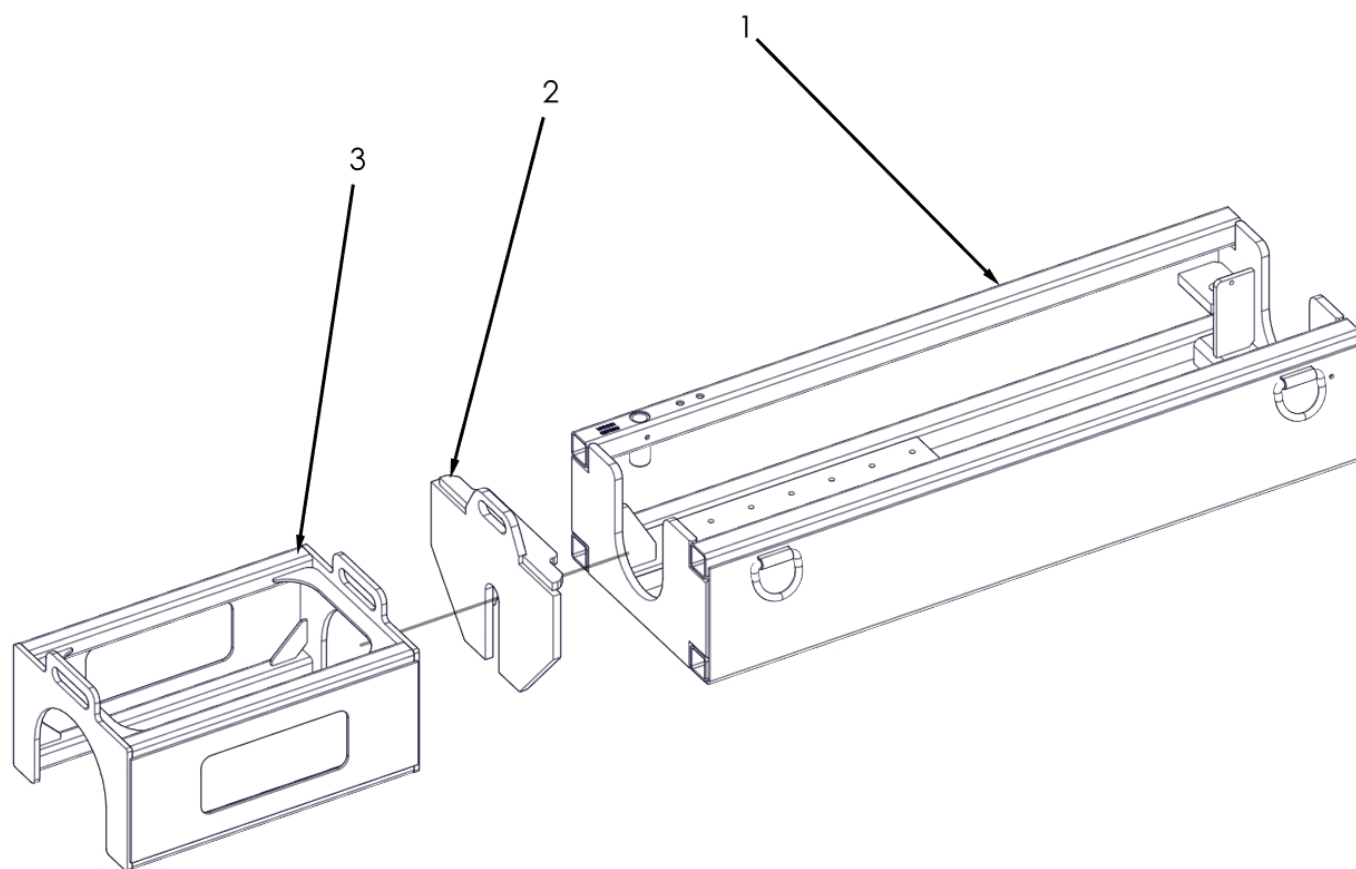
## Notes

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# **FRAME COMPONENTS**

# Frame and Cage - 913-5236

HB5058



## Frame and Cage - 913-5236

HB5058

Bom ID	Part No	Description	Qty	Remarks
1	913-5237	FRAME WELDMENT, HB 5058	1	
2	913-3142	SHORE PLATE	1	
3	913-5406	CAGE HB3038 & HB5058	1	

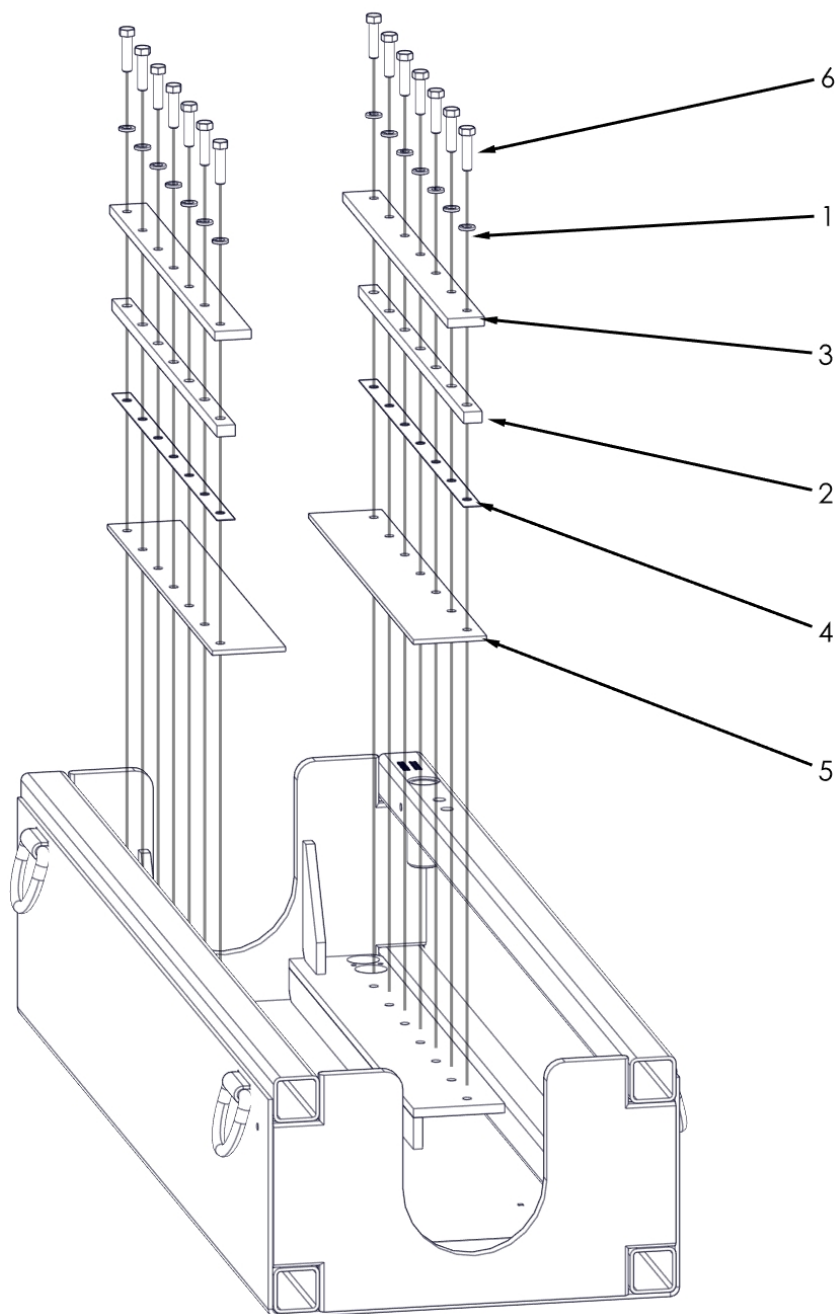
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# Jaw Guides - 913-5236

HB5058





# Jaw Guides - 913-5236

HB5058

Bom ID	Part No	Description	Qty	Remarks
1	08LW	WASHER, 1/2" LOCK	14	
2	913-5112	JAW GUIDE-SPACER	2	
3	913-5113	JAW GUIDE-TOP	2	
4	913-5114	JAW GUIDE-SHIM	2	
5	913-5115	JAW GUIDE-PLASTIC	2	
6	08HH32	SCREW, 1/2-13 x 2.0 HHC - GR8	14	APPLY LOCTITE 242

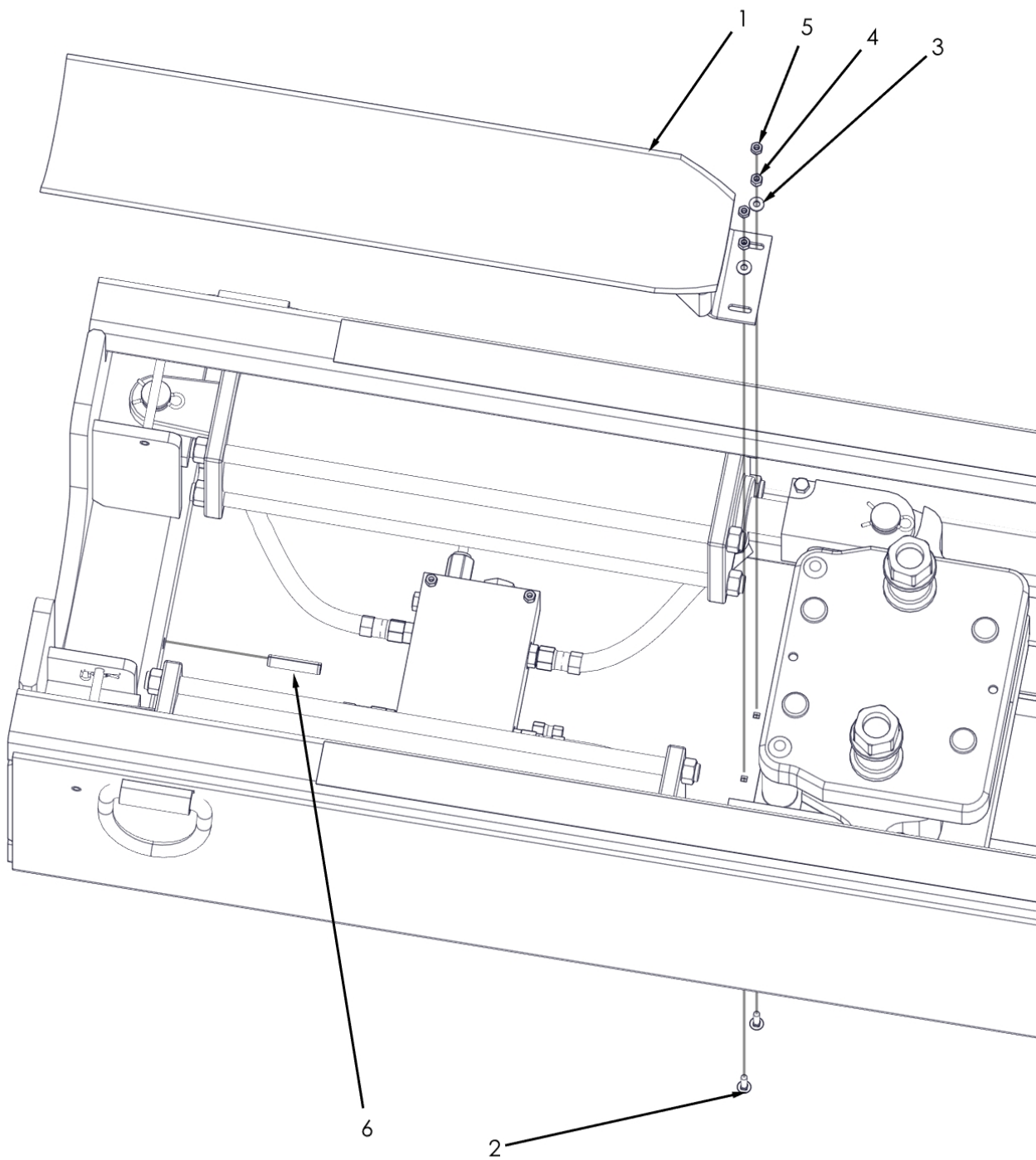
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# Manifold Cover - 913-5236

HB5058



## Manifold Cover - 913-5236

HB5058

Bom ID	Part No	Description	Qty	Remarks
1	913-5125	MANIFOLD COVER	1	
2	04CB16	BOLT, 1/4-20 x 1 CARRIAGE	2	
3	04FW-SAE	WASHER, 1/4"	2	
4	04TLN	NUT, 1/4-10 TOP LOCK	2	
5	04HN	NUT, 1/4-20 HEX	2	
6	906-1605	PIN, COILED 1/2 x 2.25	1	

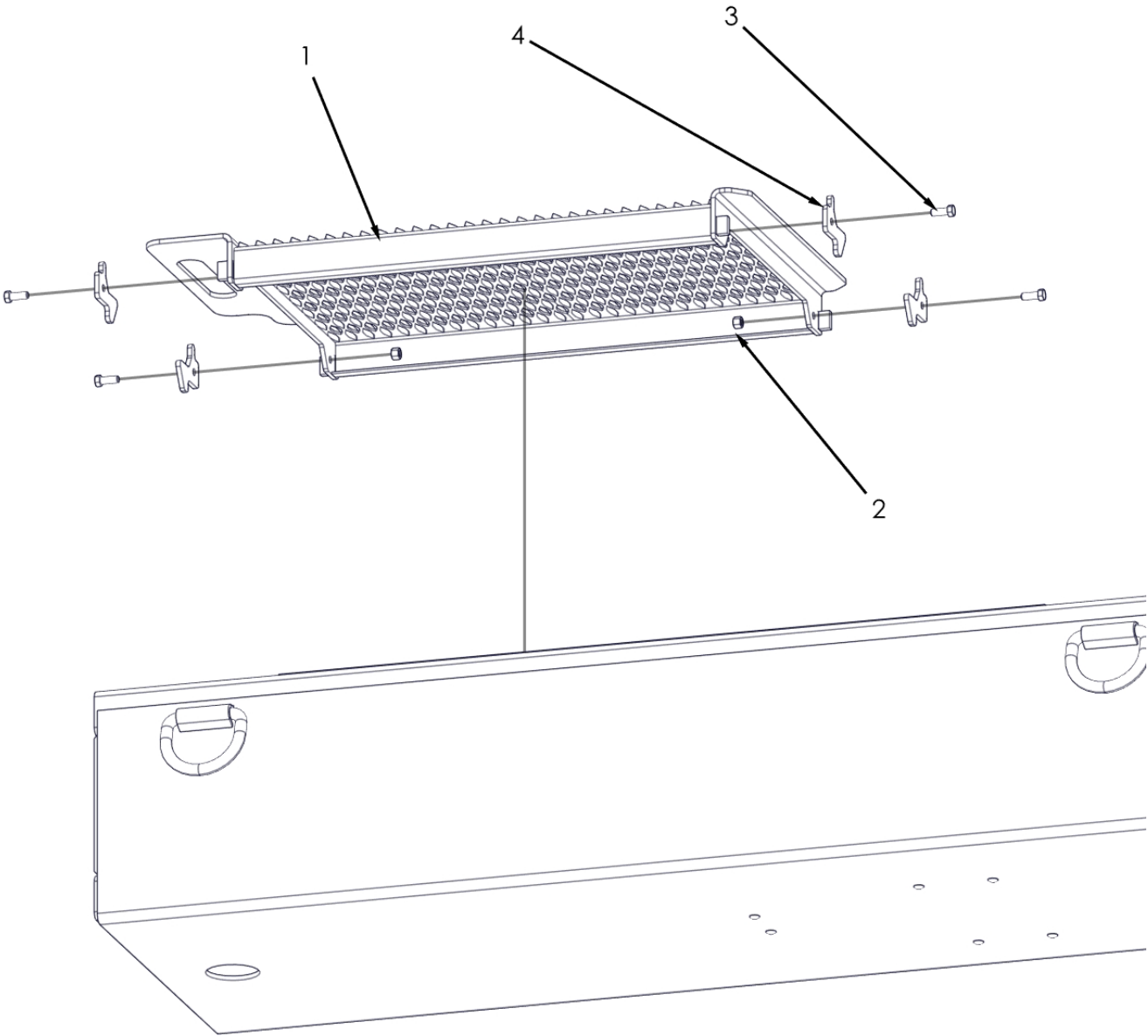
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Notes:

Platform - 913-5236

HB5058



## Platform - 913-5236

HB5058

Bom ID	Part No	Description	Qty	Remarks
1	913-3187	PLATFORM	1	
2	06TLN	NUT, 3/8-16 TOP LOCK	4	
3	06HH16	SCREW, 3/8-16 x 1.00 HHC - GR8	4	
4	913-3194	PLATFORM LOBE	4	

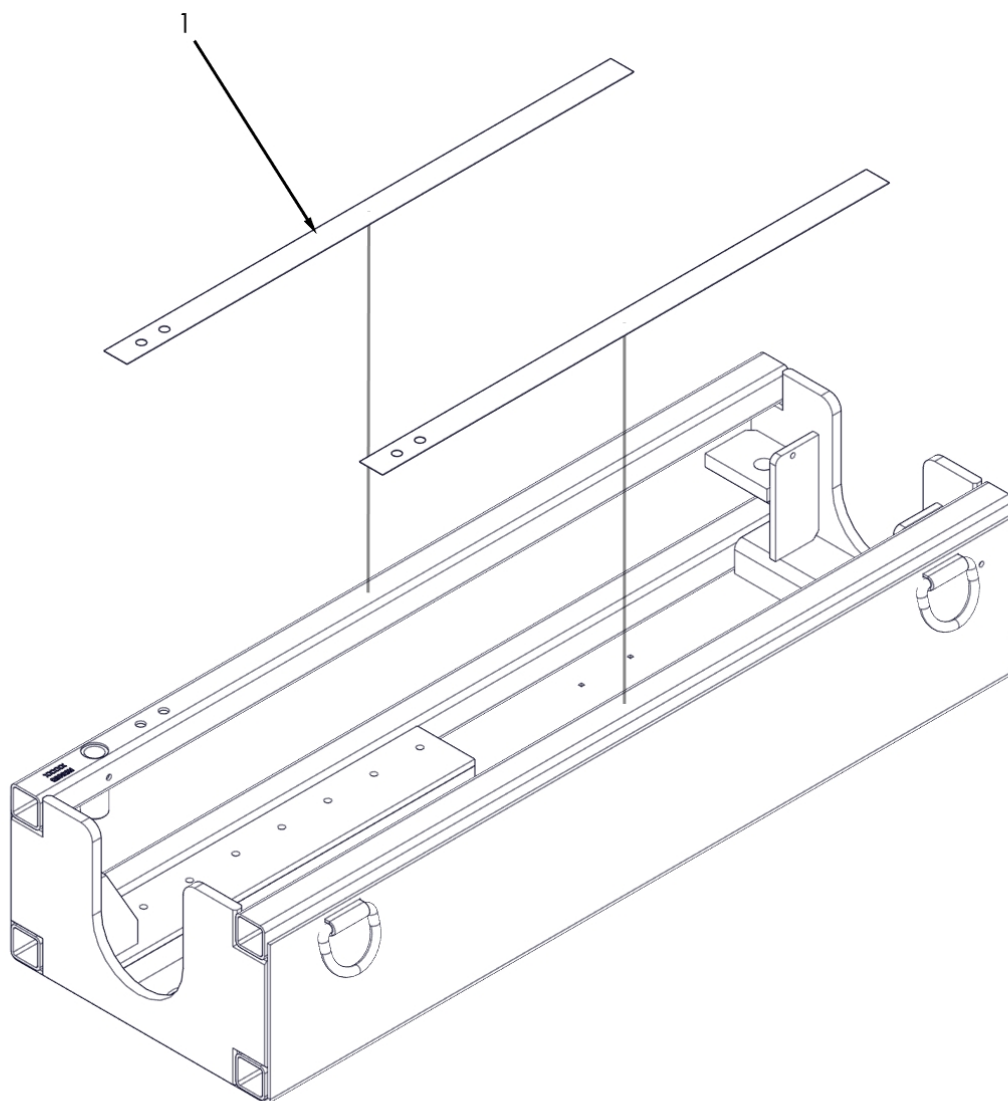
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# Grip Strips - 913-5237

HB5058



Grip Strips - 913-5237

HB5058

Bom ID	Part No	Description	Qty	Remarks
1	913-3180	GRIP STRIP	2	

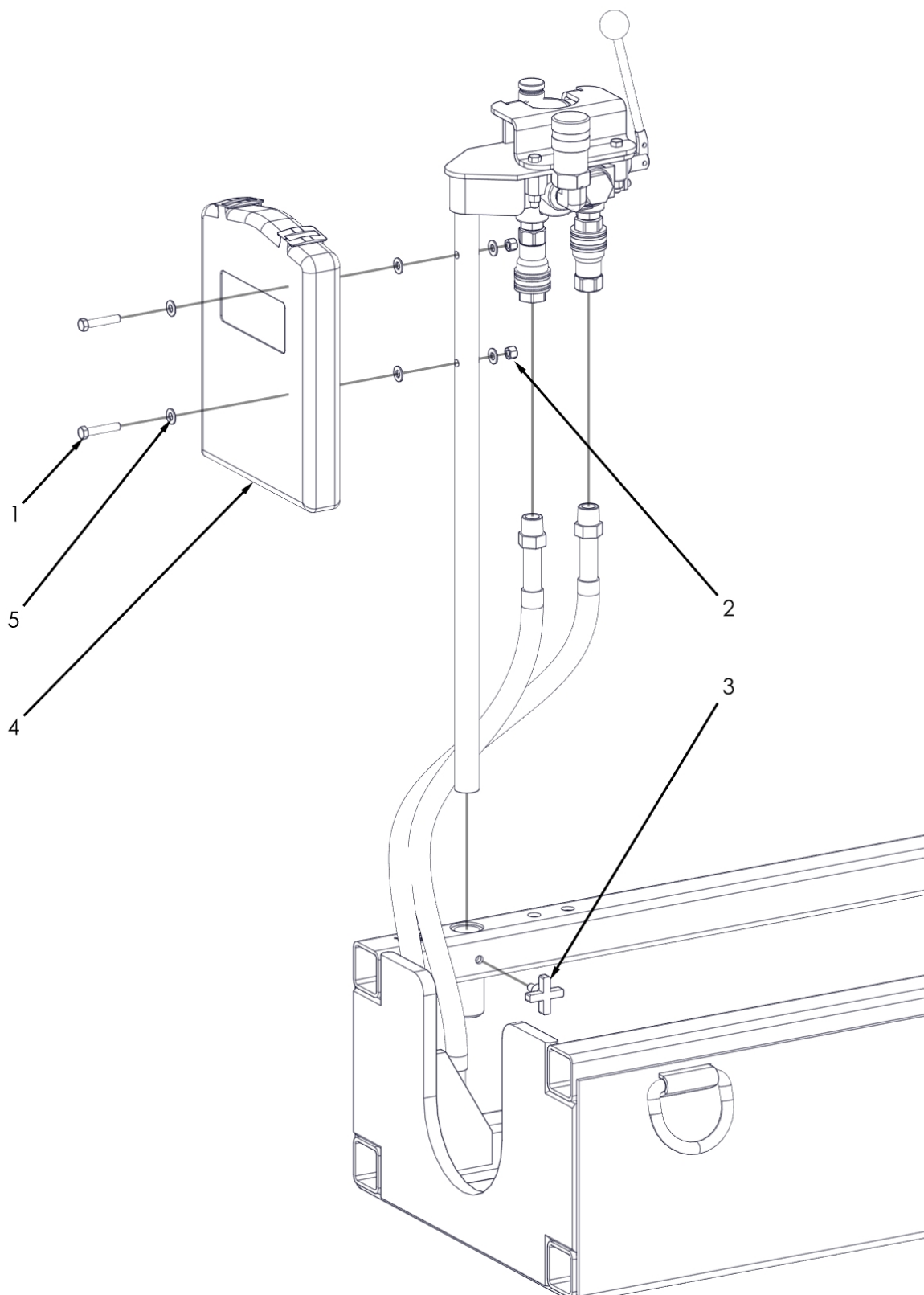
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# Manual Box - 913-5236

HB5058





## Manual Box - 913-5236

HB5058

Bom ID	Part No	Description	Qty	Remarks
1	06HH32	SCREW, 3/8-16 x 2.0 HHC - GR8	2	
2	06TLN	NUT, 3/8-16 TOP LOCK	2	
3	913-3136	KNOB	1	
4	318-588	BOX, MANUAL	1	
5	06FW-SAE	WASHER, 3/8"	6	

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960-1126 - OPS MANUAL, HB5058

960-1012 - PARTS MANUAL, HB5058

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## Notes

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# HYDRAULICS

## HB5058



# Hydraulic Schematic

HB5058

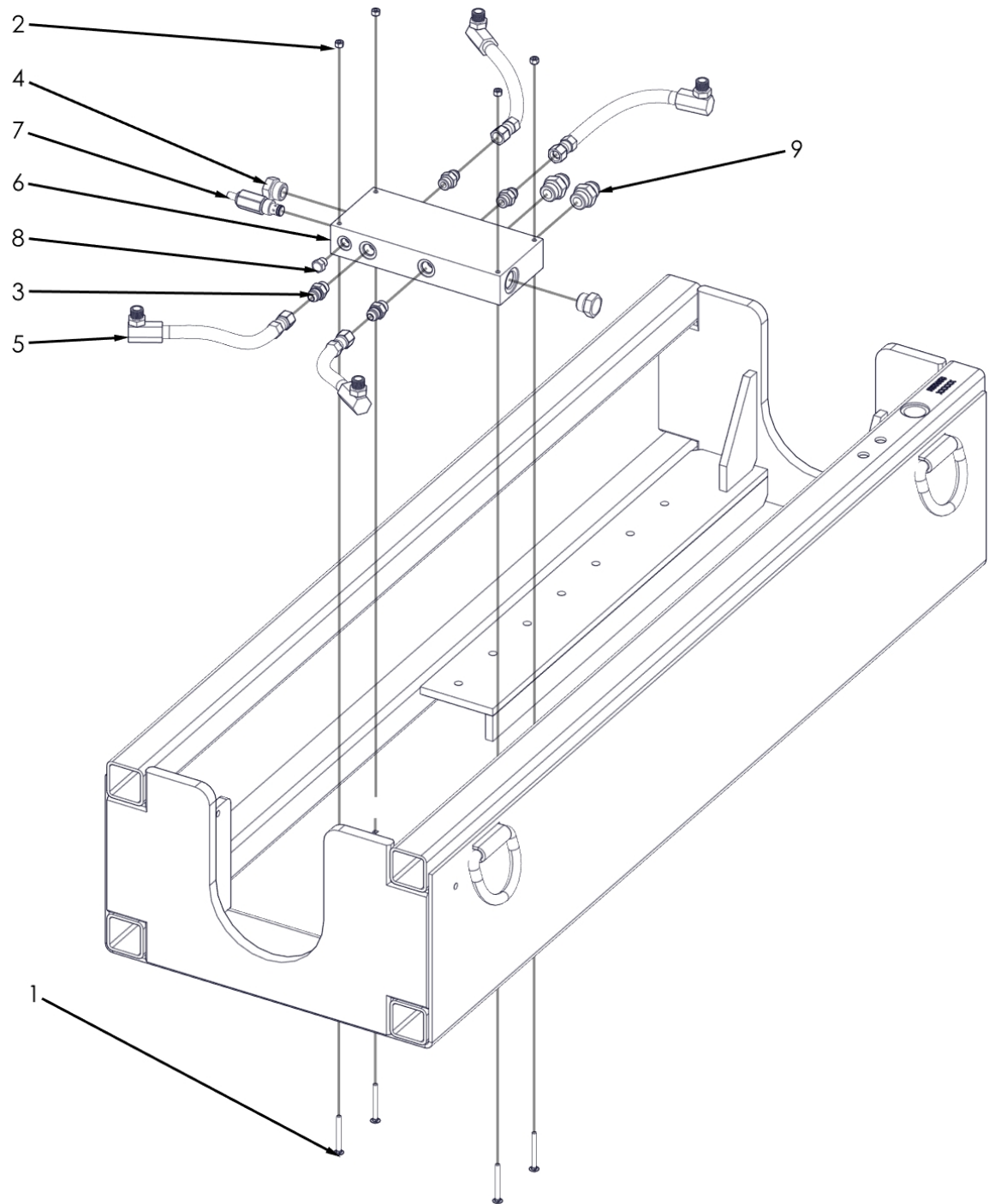
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# Hydraulic Manifold - 913-5236

HB5058



## Hydraulic Manifold - 913-5236

HB5058

Bom ID	Part No	Description	Qty	Remarks
1	04CB40	BOLT, 1/4-20 x 2.5 CARRIAGE	4	
2	04TLN	NUT, 1/4-20 TOP LOCK	4	
3	926-4311	ADAPTER, 8MJ X 8MB	4	
4	926-4104	PLUG, 12MB	2	
5	913-5110	CYLINDER FEED HOSE	4	
6	913-5132	MANIFOLD W/RELIEF CAVITY	1	
7	913-5133	VALVE, RELIEF	1	
8	926-4101	PLUG, 06MB	1	
9	926-4322	ADAPTER, 12 MJ X 12MB	2	

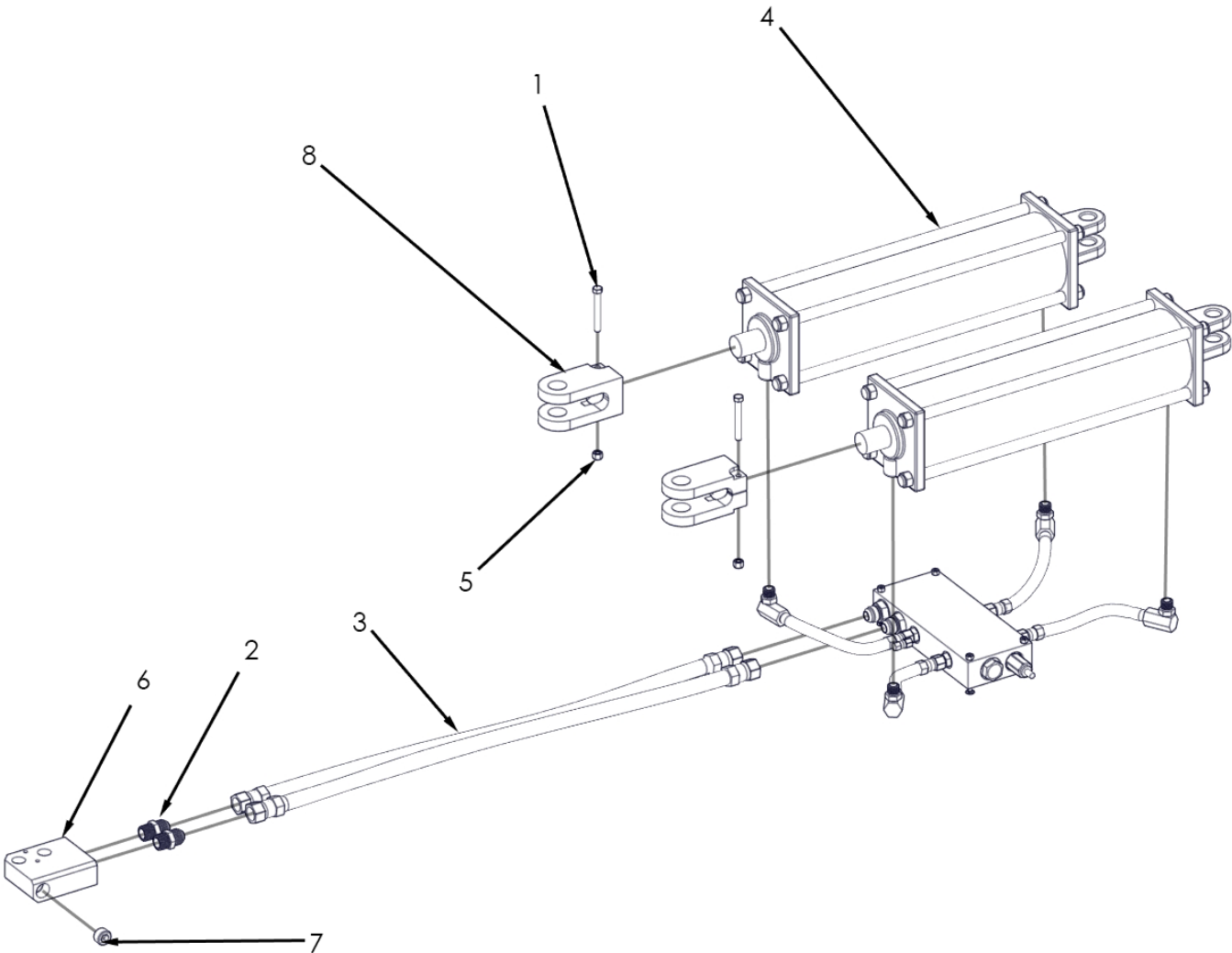
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# Hydraulic Cylinder Hoses

HB5058





## Hydraulic Cylinder Hoses

HB5058

Bom ID	Part No	Description	Qty	Remarks
1	06HH48	SCREW, 3/8-16 x 3.0 HHC - GR8	2	
2	913-0062	ADAPTER, 12MJ X 12MP	2	APPLY LOCTITE 545
3	913-5111	MANIFOLD SUPPLY HOSE	2	APPLY LOCTITE 545
4	913-5126	5 X 18 CYLINDER	2	
5	06TLN	NUT, 3/8-16 TOP LOCK	2	
6	913-3091	MANIFOLD, FORWARD	1	
7	913-3124	PLUG, 12MP HEX SOCKET	1	APPLY LOCTITE 545
8	913-5116	CLEVIS, 1-1/2	2	

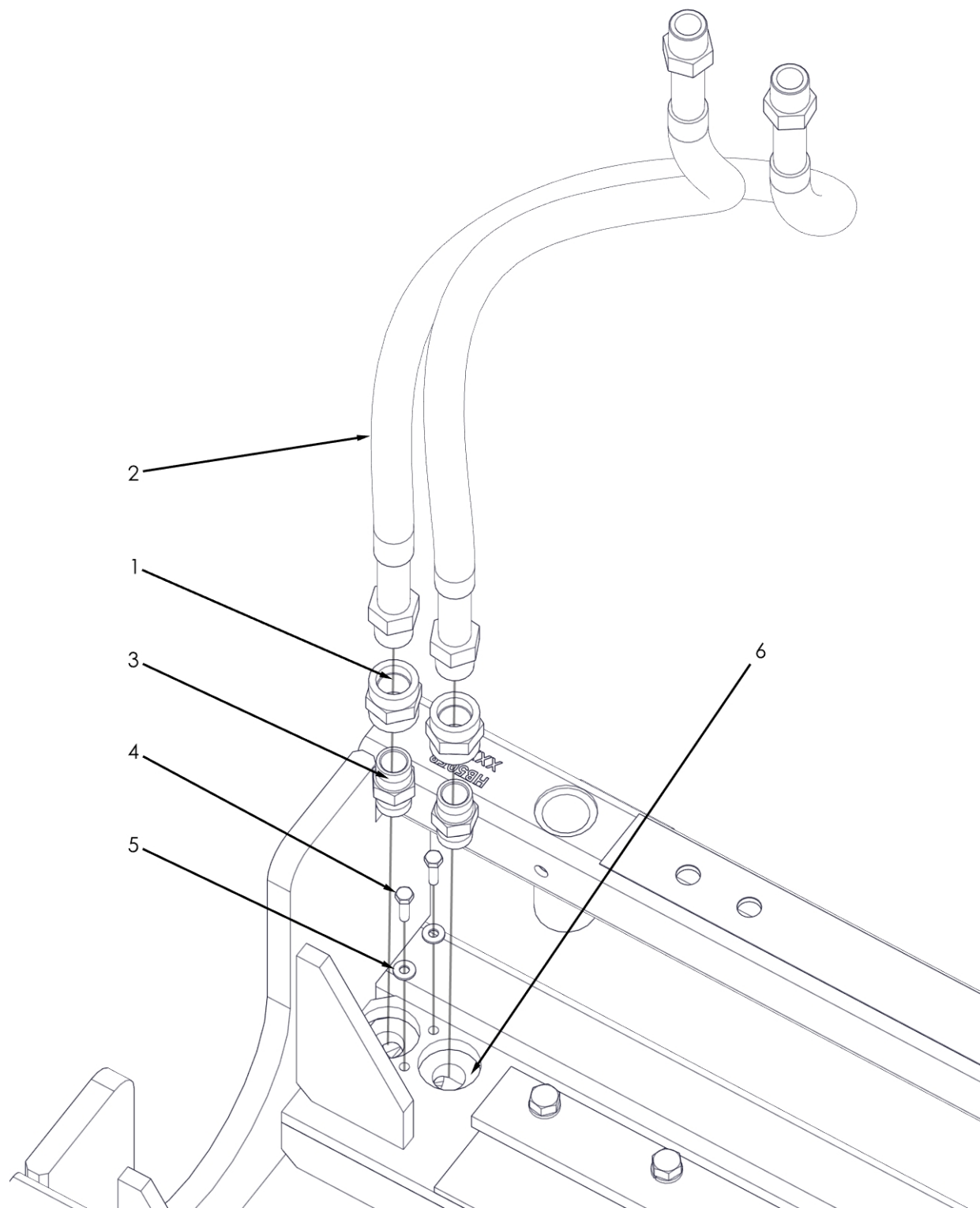
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# Valve Supply Hoses - 913-5236

HB5058



## Valve Supply Hoses - 913-5236

HB5058

Bom ID	Part No	Description	Qty	Remarks
1	926-6411	COUPLING, 3/4 NPTF	2	APPLY LOCTITE 545
2	913-3120	HOSE, VALVE SUPPLY	2	APPLY LOCTITE 545
3	926-9302	ADAPTER, 12MP X 12MP	2	APPLY LOCTITE 545
4	04HH16	SCREW, 1/4-20 x 1.0 HHC - GR8	2	APPLY LOCTITE 242
5	04FW-SAE	WASHER, 1/4"	2	
6	913-3091	MANIFOLD, FORWARD	1	

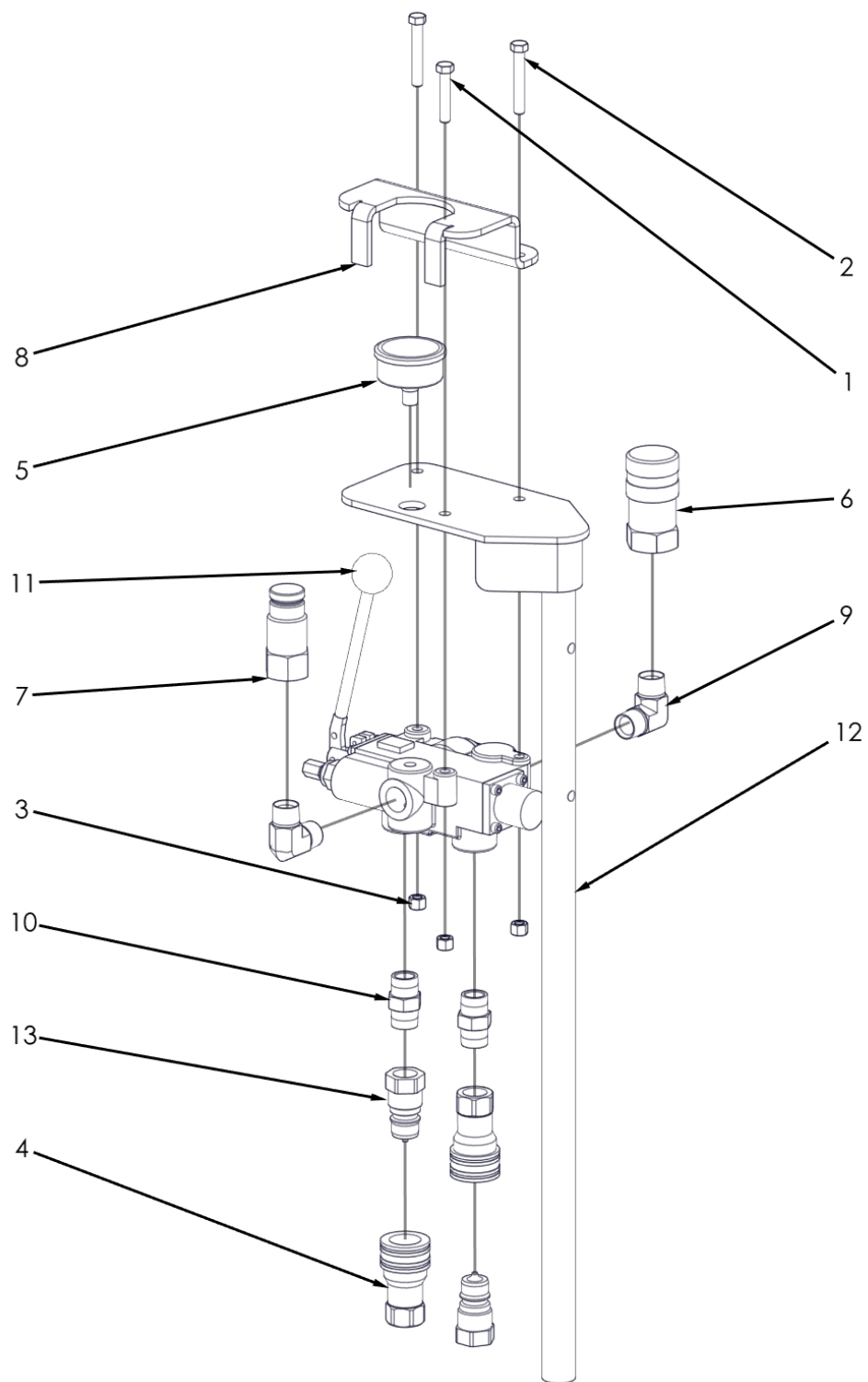
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Notes:

# Valve Assembly

HB5058



# Valve Assembly

HB5058

Bom ID	Part No	Description	Qty	Remarks
1	06HH32	SCREW, 3/8-16 x 2.0 HHC - GR8	1	
2	06HH40	SCREW, 3/8-16 x 2.5 HHC - GR8	2	
3	06TLN	NUT, 3/8-16 TOP LOCK	3	
4	912-0143	SOCKET QUICK CONNECT 3/4" NPTF	2	
5	912-0917	PRESSURE GAUGE, 3000 PSI	1	APPLY LOCTITE 545
6	913-0036	COUPLING, FEMALE 3/4"	1	
7	913-0037	NIPPLE, MALE 3/4"	1	APPLY LOCTITE 545
8	913-3190	GAUGE PROTECTOR-HOR	1	
9	926-9102	ELBOW, 12MP x 12MP 90°	2	APPLY LOCTITE 545
10	926-9302	NIPPLE, HEX 12MP X 12MP	2	APPLY LOCTITE 545
11	913-0120	VALVE, PRINCE 5100	1	
12	913-3111	CONTROL STEM	1	
13	912-0154	PLUG-QUICK DISCONNECT	2	

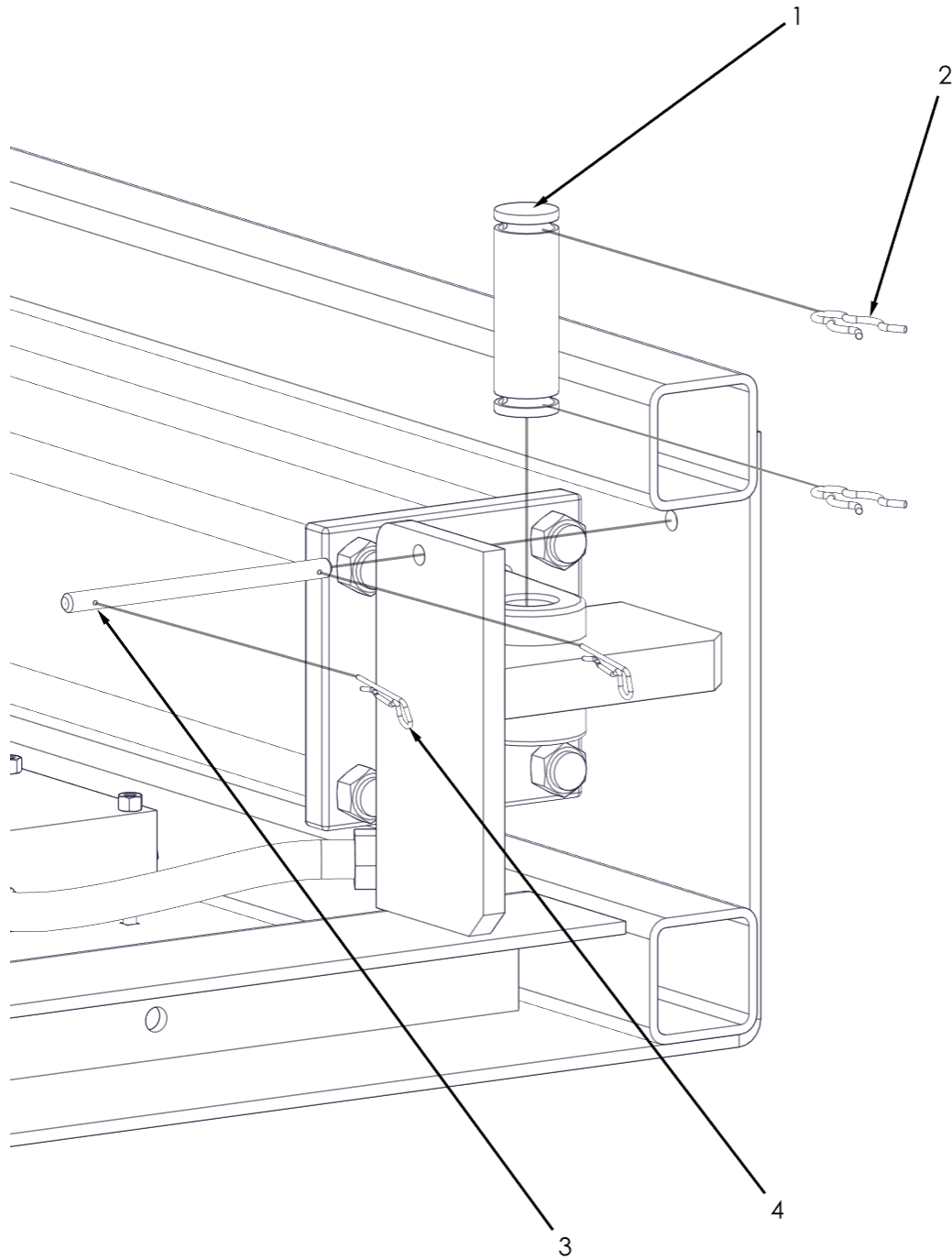
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# Cylinder Pins - 913-5236

HB5058



## Cylinder Pins - 913-5236

HB5058

Bom ID	Part No	Description	Qty	Remarks
1	912-2061	CLEVIS PIN, 1-1/4"	2	APPLY ANTI-SEIZE
2	913-5121	PIN CLIP	4	
3	913-5128	PIN, RETAINING	2	
4	ET1003	SAFETY CLIP	4	

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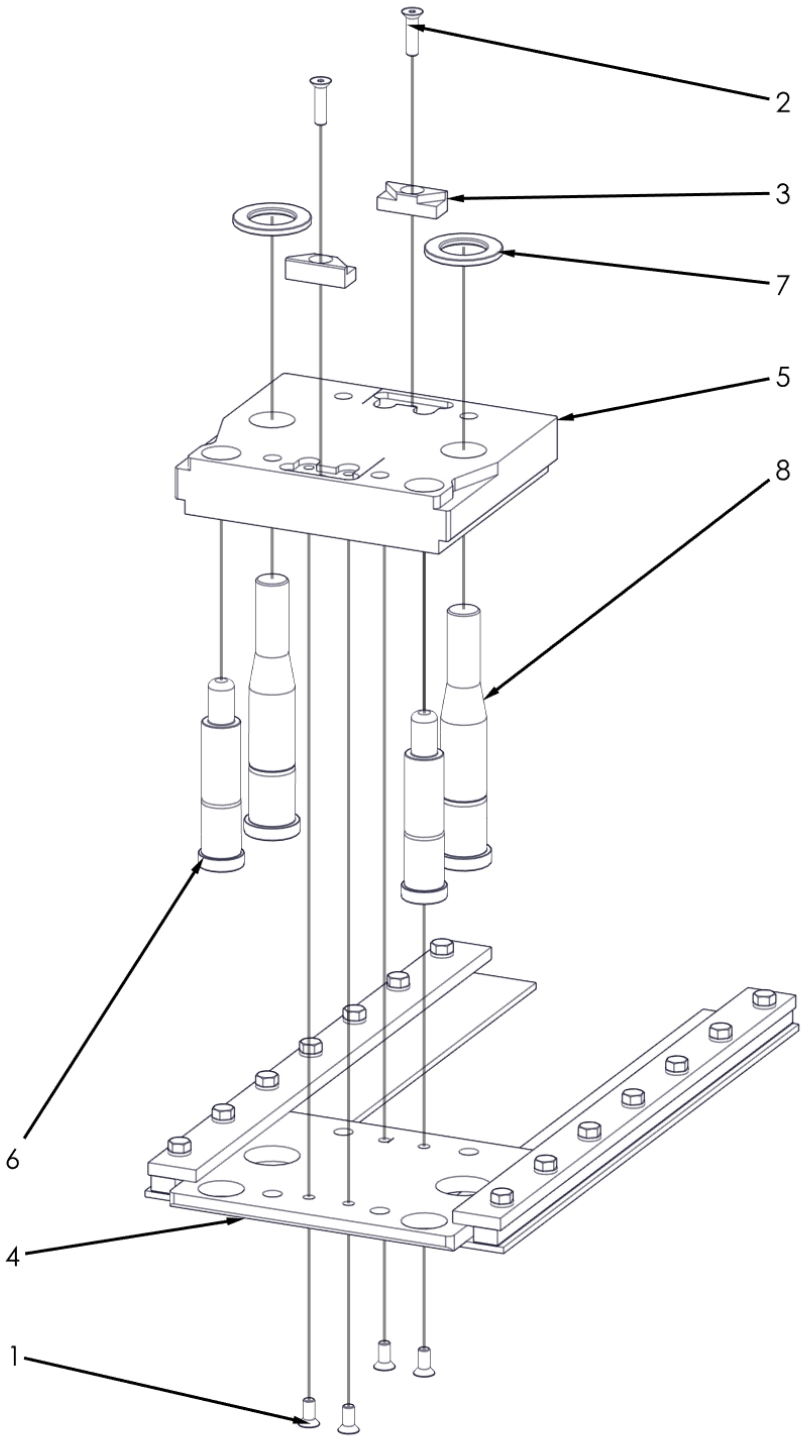
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# **JAW COMPONENTS**

Lower Jaw Assembly

HB5058



## Lower Jaw Assembly

HB5058

Bom ID	Part No	Description	Qty	Remarks
1	07FH16	SCREW, 7/16-14 x 1.0 FLAT HEAD CAP	4	APPLY ANTI-SEIZE
2	07FH28	SCREW, 7/16 X 1.0 FLAT HEAD CAP	2	APPLY ANTI-SEIZE
3	913-3055	ROD GUIDE	2	
4	913-5052	BEARING PLATE	1	
5	913-5053	LOWER JAW PLATE	1	
6	913-5054	PIN, SUPPORT	2	SEE FOOTNOTE 1
7	913-5062	JAW BUSHING	2	APPLY ANTI-SEIZE
8	913-5095	PIN, JAW PIVOT	2	SEE FOOTNOTE 1

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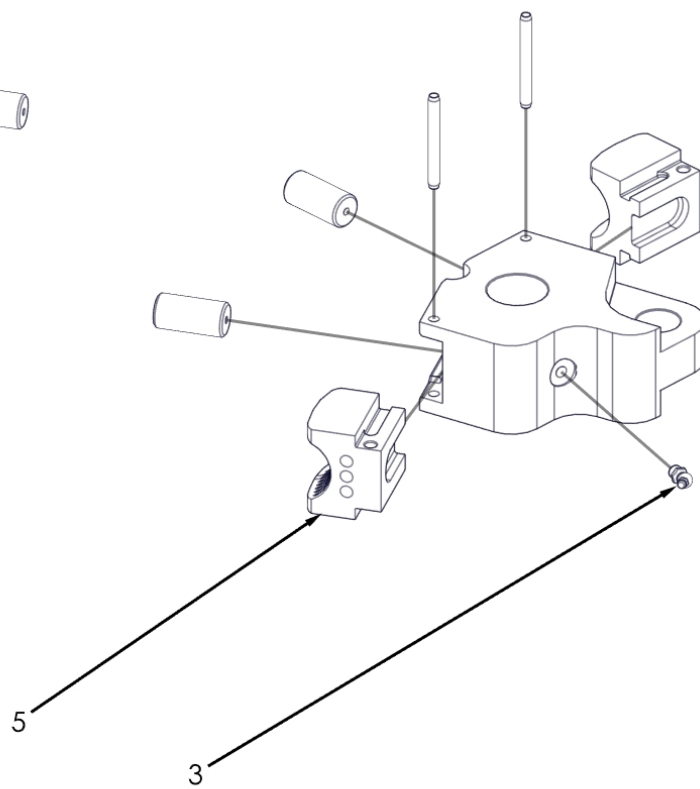
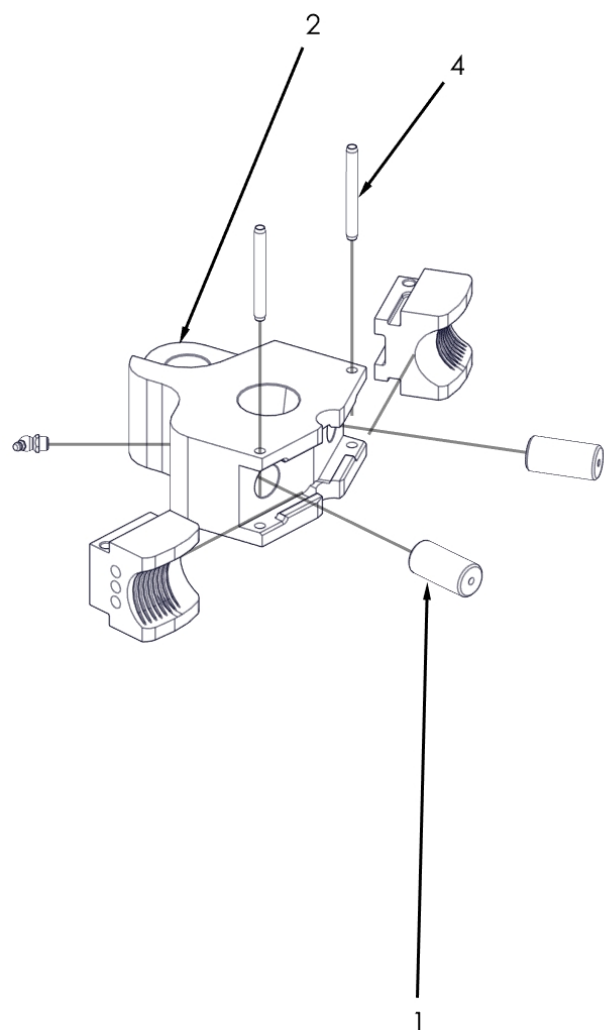
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1) ANTI-SEIZE APPLIED ON ITEMS 6 & 8 ONLY WHERE THEY MAKE CONTACT WITH ITEM 5

Notes:

# Jaw Assembly

HB5058



# Jaw Assembly

HB5058

Bom ID	Part No	Description	Qty	Remarks
1	913-5057	SHEAR PIN	4	APPLY ANTI-SEIZE
2	913-5058	JAW CARRIER	2	
3	913-5096	FITTING, GREASE 1/8 NPT 45°	2	
4	913-5214	COIL PIN, 5/16 X 3.0	4	SEE FOOTNOTE 1
5	913-5216	JAW INSERT, MOD T-SLOT	4	SEE FOOTNOTE 1

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Footnotes:

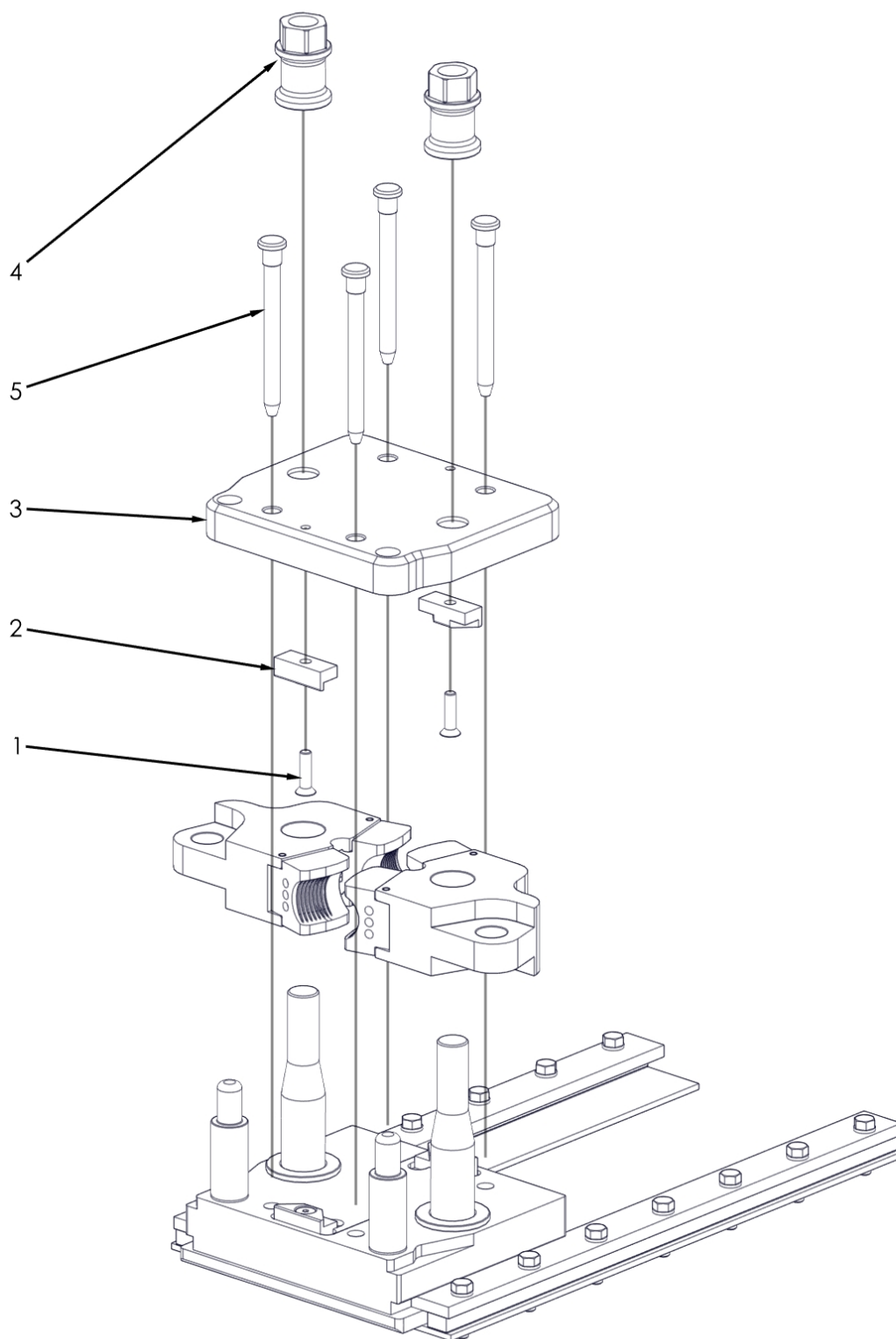
1. ITEMS 4 AND 5 ARE NOT SOLD INDIVIDUALLY AND ONLY SOLD AS JAW KIT 913-5217

Notes:

1. ITEM 4 MUST BE FLUSH WITH ITEM 2 WHEN INSERTED
2. ITEM 3 SHOULD BE ORIENTED SO ZERK TIP IS TOWARDS THE FRONT OF JAW BLOCK
3. GREASE JAW BLOCK WITH H-D PLUS PG-2 GREEN GREASE

# Upper Jaw Assembly

HB5058



# Upper Jaw Assembly

HB5058

Bom ID	Part No	Description	Qty	Remarks
1	07FH28	SCREW, 7/16 X 1.75 FLAT HEAD CAP	2	APPLY ANTI-SEIZE
2	913-3055	ROD GUIDE	2	
3	913-5056	UPPER JAW PLATE	1	
4	913-5061	TOP NUT	2	APPLY ANTI-SEIZE, TORQUE TO 265 FT-LBS
5	913-5117	PIN, DIRECTION	4	

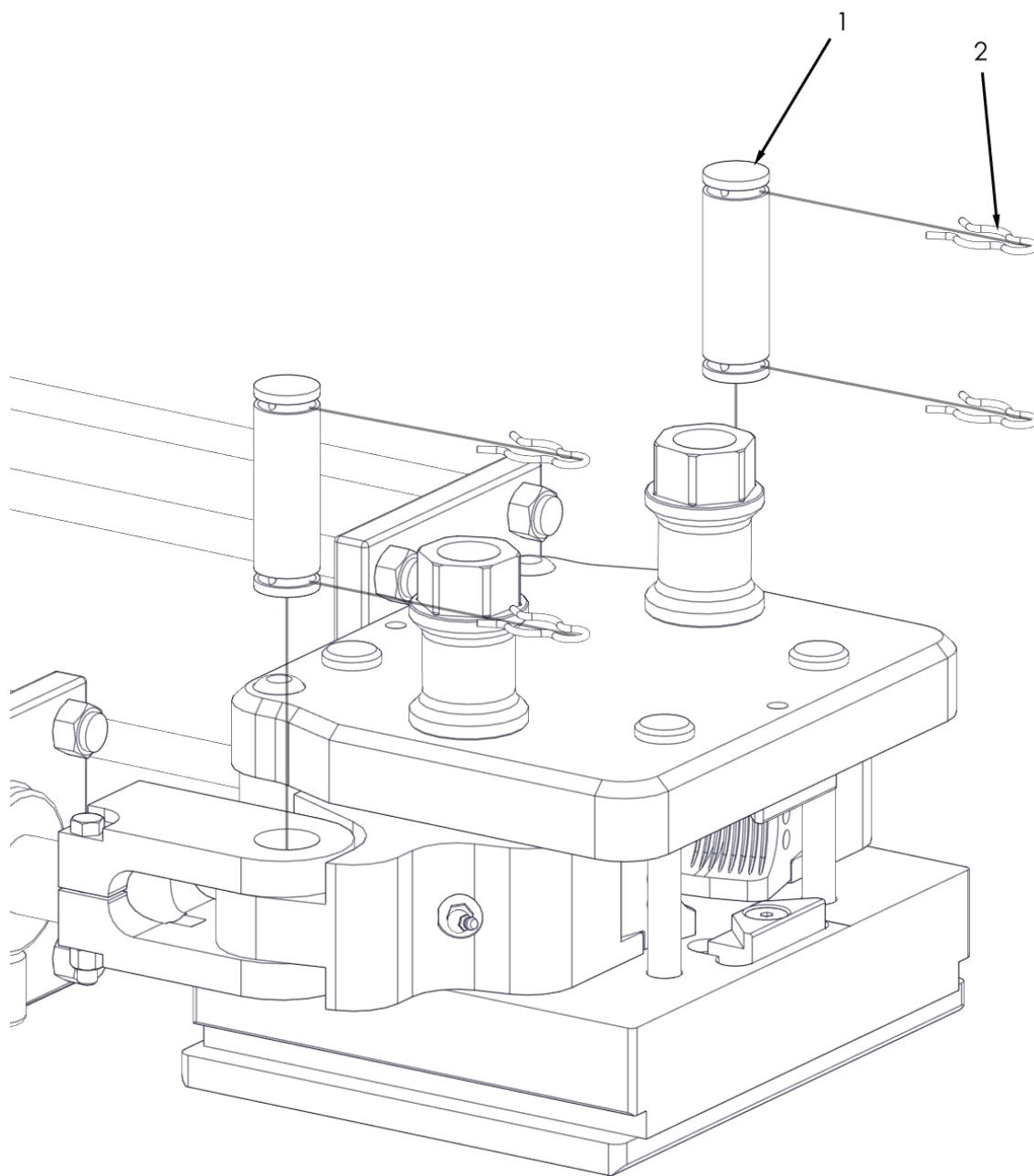
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Footnotes:

Notes:

# Jaw Pins

HB5058





## Jaw Pins

HB5058

Bom ID	Part No	Description	Qty	Remarks
1	912-2061	CLEVIS PIN, 1-1/4"	2	APPLY ANTI-SEIZE
2	913-5121	PIN CLIP	4	

Not Shown:

Footnotes:

Notes:



# ACCESSORIES

Hose Caps

HB5058



# Hose Caps

HB5058

Bom ID	Part No	Description	Qty	Remarks
1	912-5108	DUST PLUG/CAP	4	

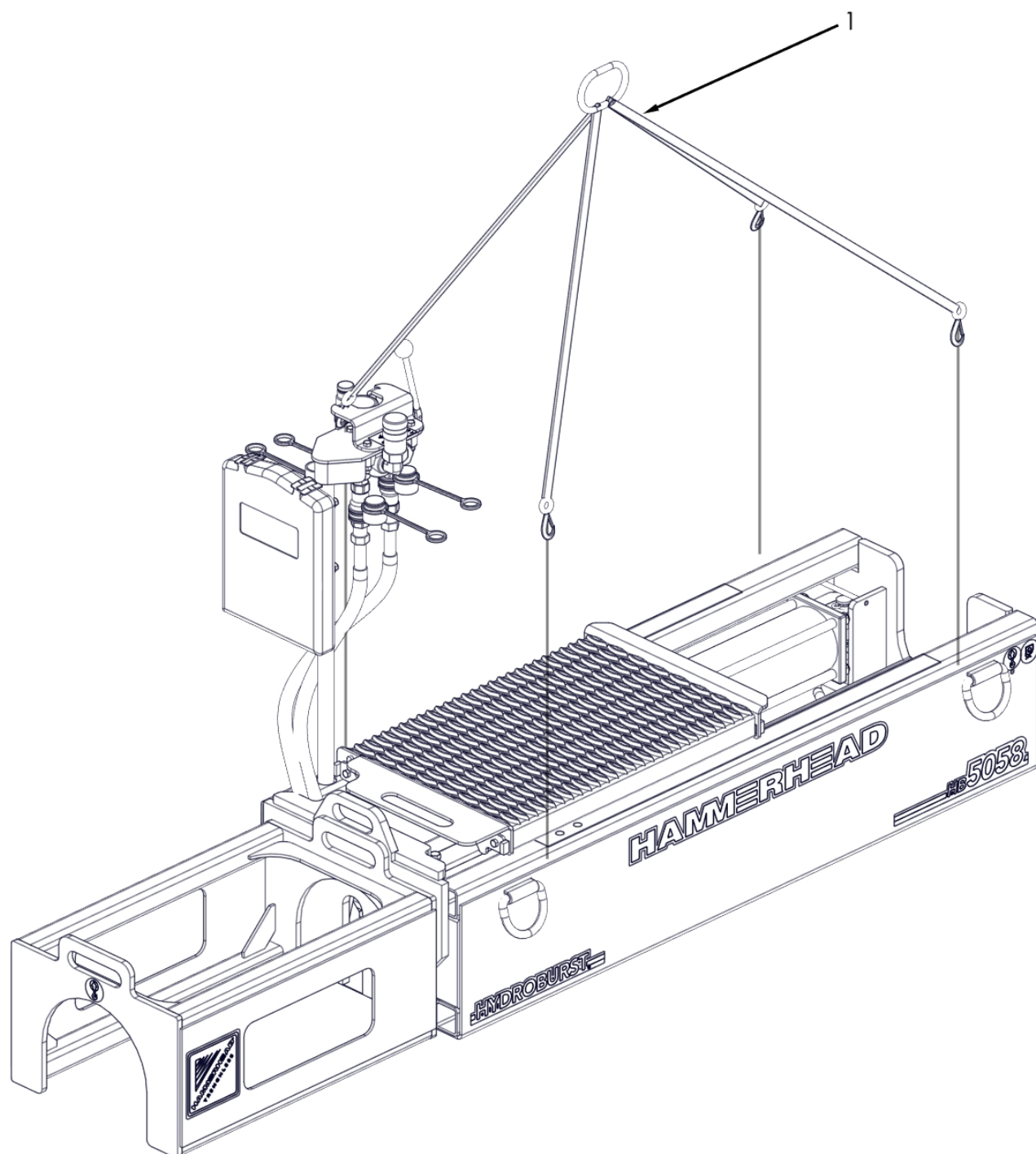
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Footnotes:

Notes:

# Lifting Straps - 913-5236

HB5058



## Lifting Straps - 913-5236

HB5058

Bom ID	Part No	Description	Qty	Remarks
1	913-8779	SLING, 4-LEG	1	

Not Shown:

Footnotes:

Notes:

## Notes

Notes



# MISCELLANEOUS

# Torque Standards Hydraulic Fittings

## O-Ring Boss Fittings

						ASSEMBLYTORQUE (+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

NOTE: Apply sealant/lubricant to male pipe threads. The first two threads should be left uncovered to avoid system contamination. Screw pipe fitting into female pipe port to the finger tight position. Wrench tighten fitting to the appropriate turns from finger tight (TFFT) shown in table above, making sure the tube end of an elbow or tee fitting is aligned to receive incoming tube or hose fitting.

# 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	95	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.

