



TECHNICAL PUBLICATIONS

# Parts Manual

# HB4500XT

Issue 1.0

960-1140





# HB4500XT

For replacement copy order **P/N 960-1140**

Updated: 3/25/2021

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.

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.

# 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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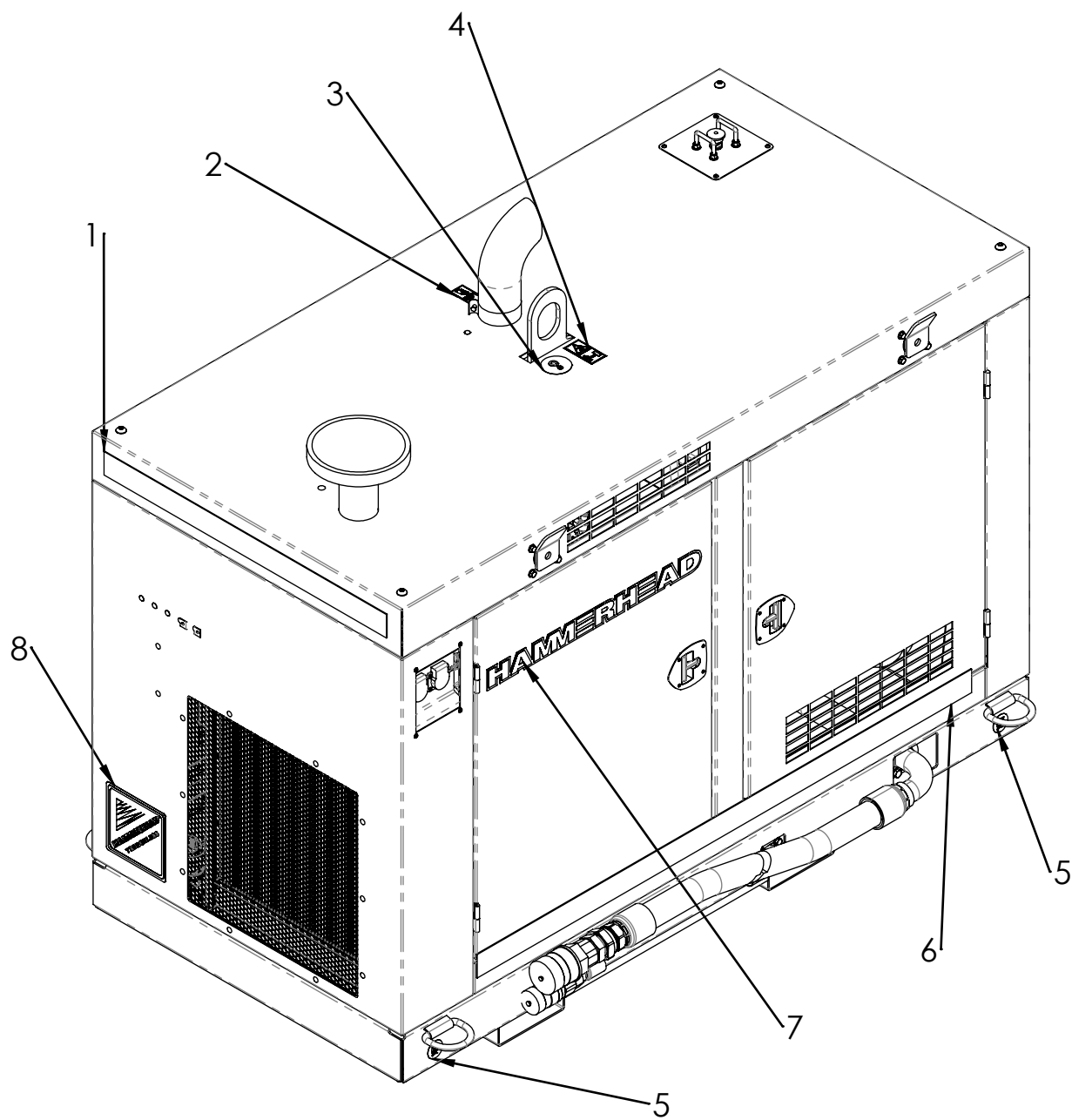
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# DECALS

Decals  
HB4500XT



## Decals

HB4500XT

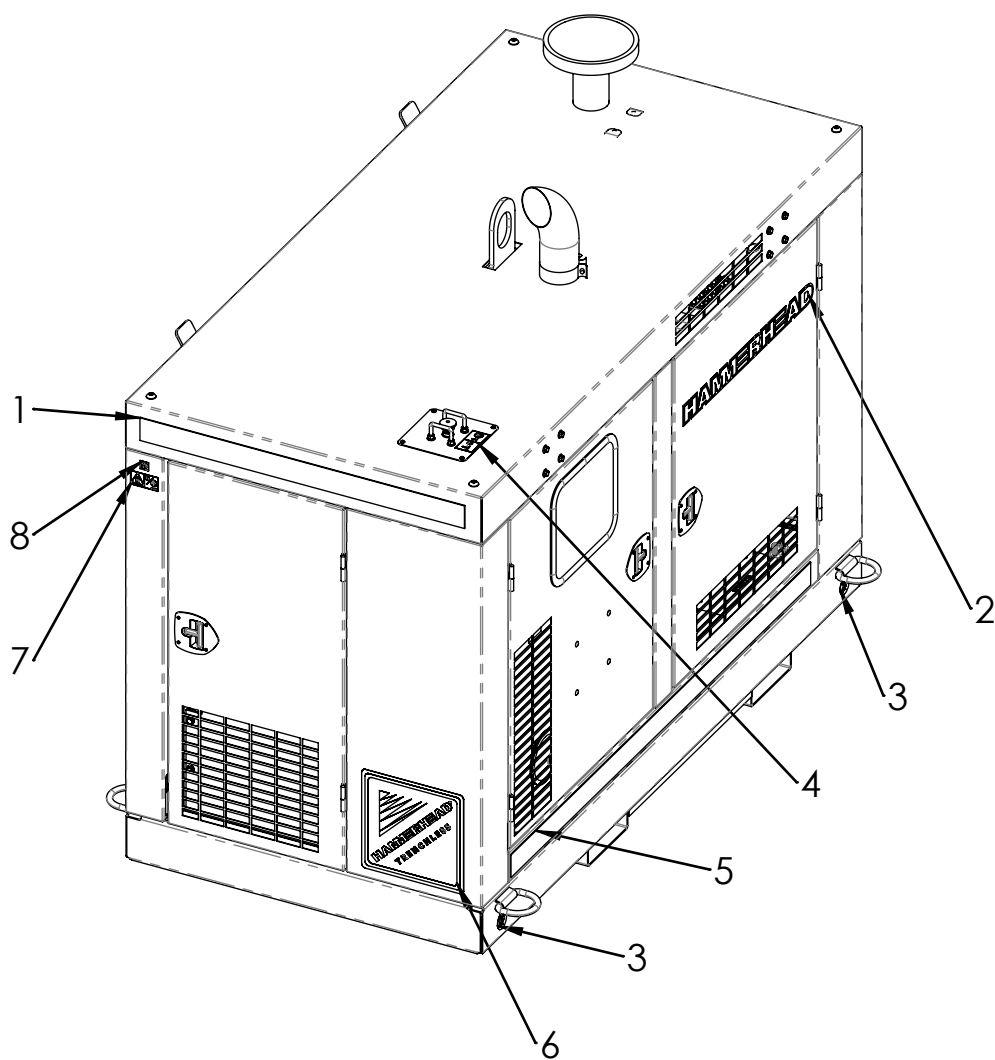
| Bom ID | Part No  | Description                   | Qty | Remarks |
|--------|----------|-------------------------------|-----|---------|
| 1      | 933-0549 | DECAL, HB4500XT, SIDES        | 1   |         |
| 2      | 923-2216 | DECAL, HOT (INT)              | 1   |         |
| 3      | 912-1130 | DECAL, LIFT POINT             | 1   |         |
| 4      | 923-2209 | DECAL, FALLING LOAD (INT)     | 1   |         |
| 5      | 909-8195 | DECAL, TIE DOWN (SMALL)       | 2   |         |
| 6      | 933-0550 | DECAL, HB4500XT, FRONT & BACK | 1   |         |
| 7      | 912-4971 | DECAL, HAMMERHEAD - 29"       | 1   |         |
| 8      | 912-4975 | DECAL, HH MOUNTAIN SQ-8X8     | 1   |         |

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Footnotes:

Notes:

# Decals HB4500XT





## Decals

HB4500XT

| Bom ID | Part No  | Description                   | Qty | Remarks |
|--------|----------|-------------------------------|-----|---------|
| 1      | 933-0549 | DECAL, HB4500XT, SIDES        | 1   |         |
| 2      | 912-4971 | DECAL, HAMMERHEAD - 29"       | 1   |         |
| 3      | 909-8195 | DECAL, TIE DOWN (SMALL)       | 2   |         |
| 4      | 933-6000 | DECAL, REMOTE STOP            | 1   |         |
| 5      | 933-0550 | DECAL, HB4500XT, FRONT & BACK | 1   |         |
| 6      | 912-4976 | DECAL, HH MOUNTAIN SQ - 12X12 | 1   |         |
| 7      | 913-0195 | DECAL, REFUELING WARNING      | 1   |         |
| 8      | 913-0198 | DECAL, DIESEL FUEL            | 1   |         |

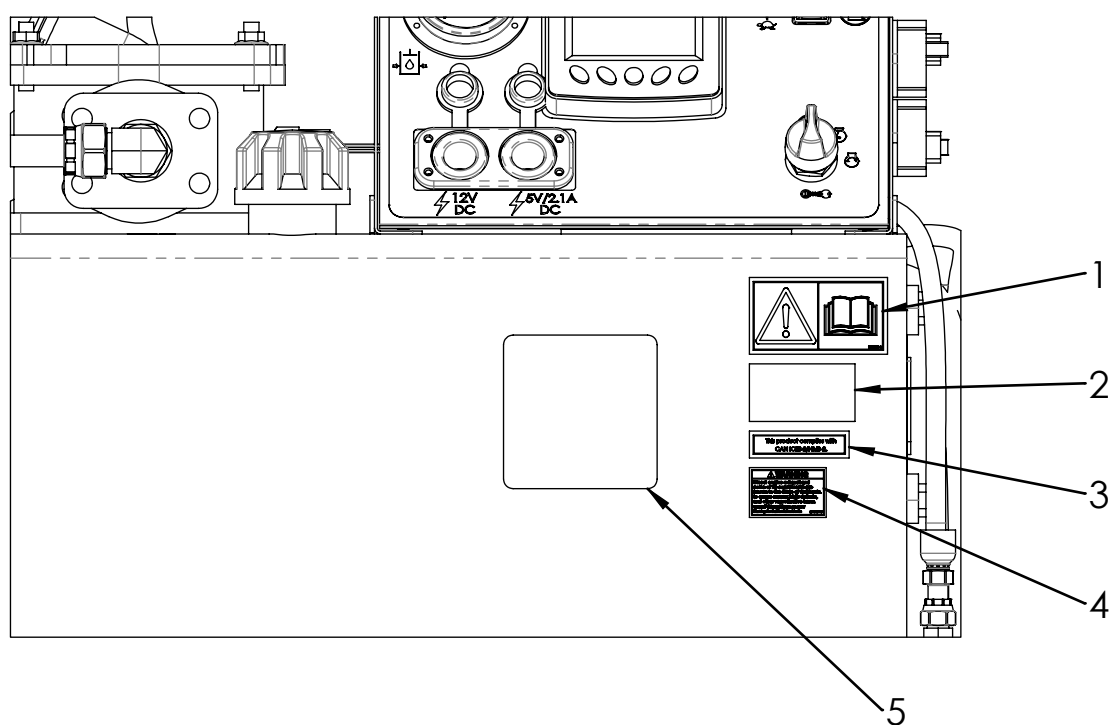
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# Decals

## HB4500XT



## Decals

HB4500XT

| Bom ID | Part No  | Description                            | Qty | Remarks |
|--------|----------|----------------------------------------|-----|---------|
| 1      | 700-143  | WARNING READ MANUAL ISO                | 1   |         |
| 2      | 270-6911 | WARNING ONE CALL NOTIFICAION ISO       | 1   |         |
| 3      | 270-6297 | CANADA ICES COMPLIANCE DECAL - ISSUE 5 | 1   |         |
| 4      | 270-7950 | CALIFORNIA PROP 65 WARNING - DIESEL    | 1   |         |
| 5      | 933-0904 | DECAL, CU SERVICE INTERVALS            | 1   |         |

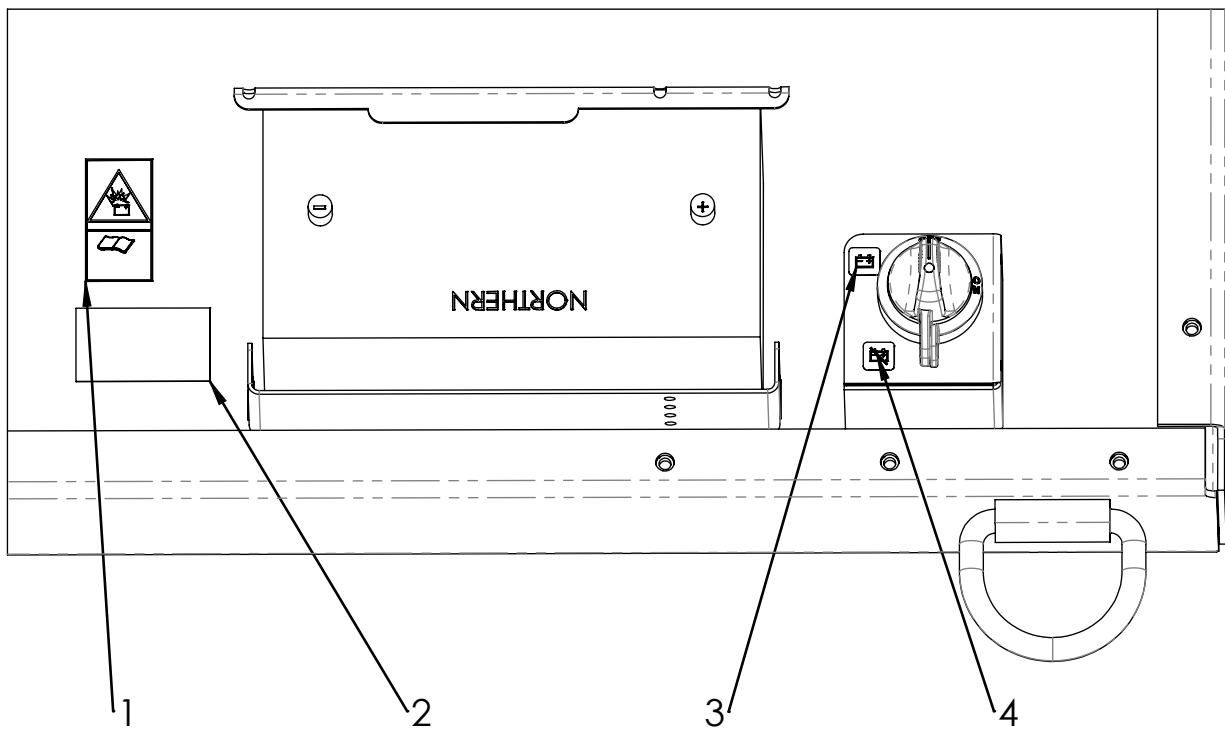
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# Decals

HB4500XT



## Decals

HB4500XT

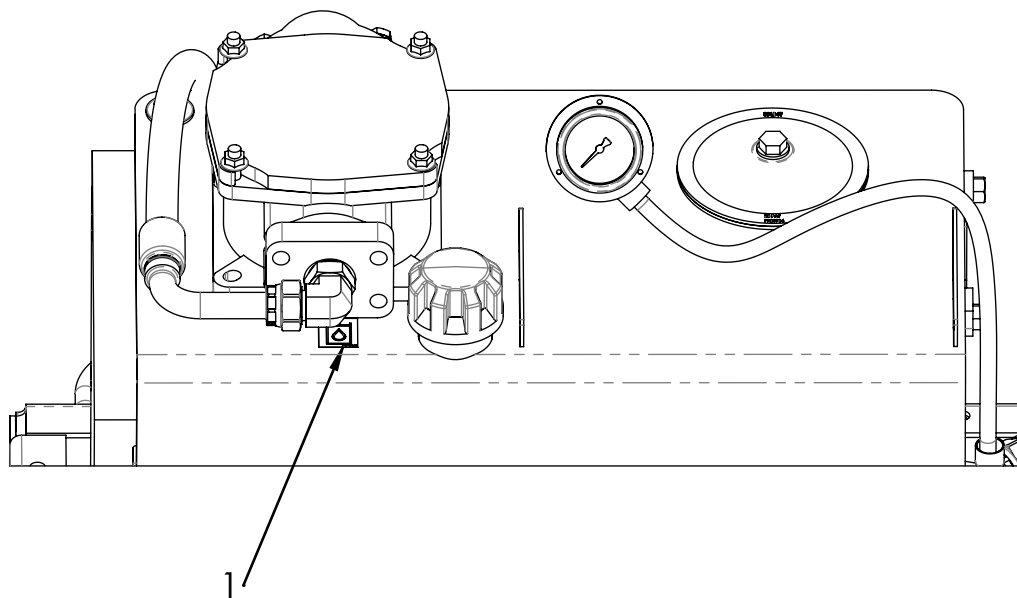
| Bom ID | Part No  | Description              | Qty | Remarks |
|--------|----------|--------------------------|-----|---------|
| 1      | 913-0194 | DECAL, BATTERY WARNING   | 1   |         |
| 2      | 933-0551 | SERIAL PLATE, HB4500XT   | 1   |         |
| 3      | 270-5131 | BATTERY DISCONNECT (ON)  | 1   |         |
| 4      | 270-5131 | BATTERY DISCONNECT (OFF) | 1   |         |

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Decals  
HB4500XT



## Decals

HB4500XT

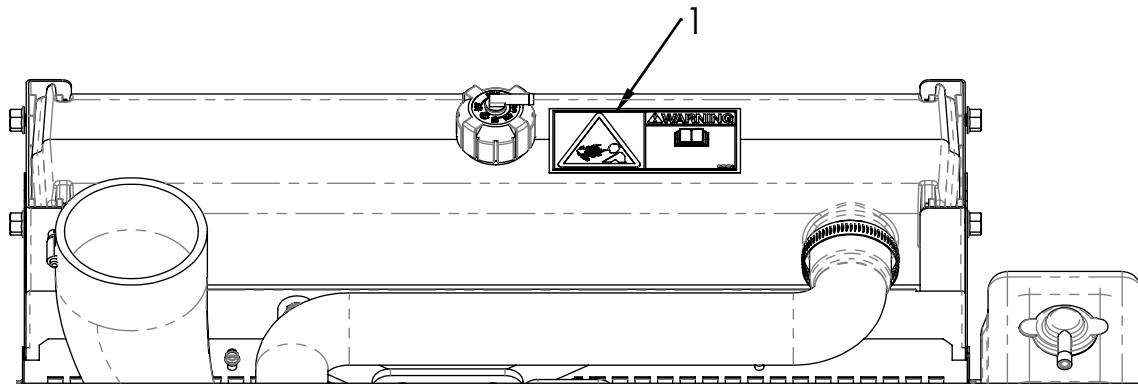
| Bom ID | Part No  | Description                | Qty | Remarks |
|--------|----------|----------------------------|-----|---------|
| 1      | 912-1131 | DECAL, HYDRAULIC OIL (INT) | 1   |         |

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Decals  
HB4500XT





## Decals

HB4500XT

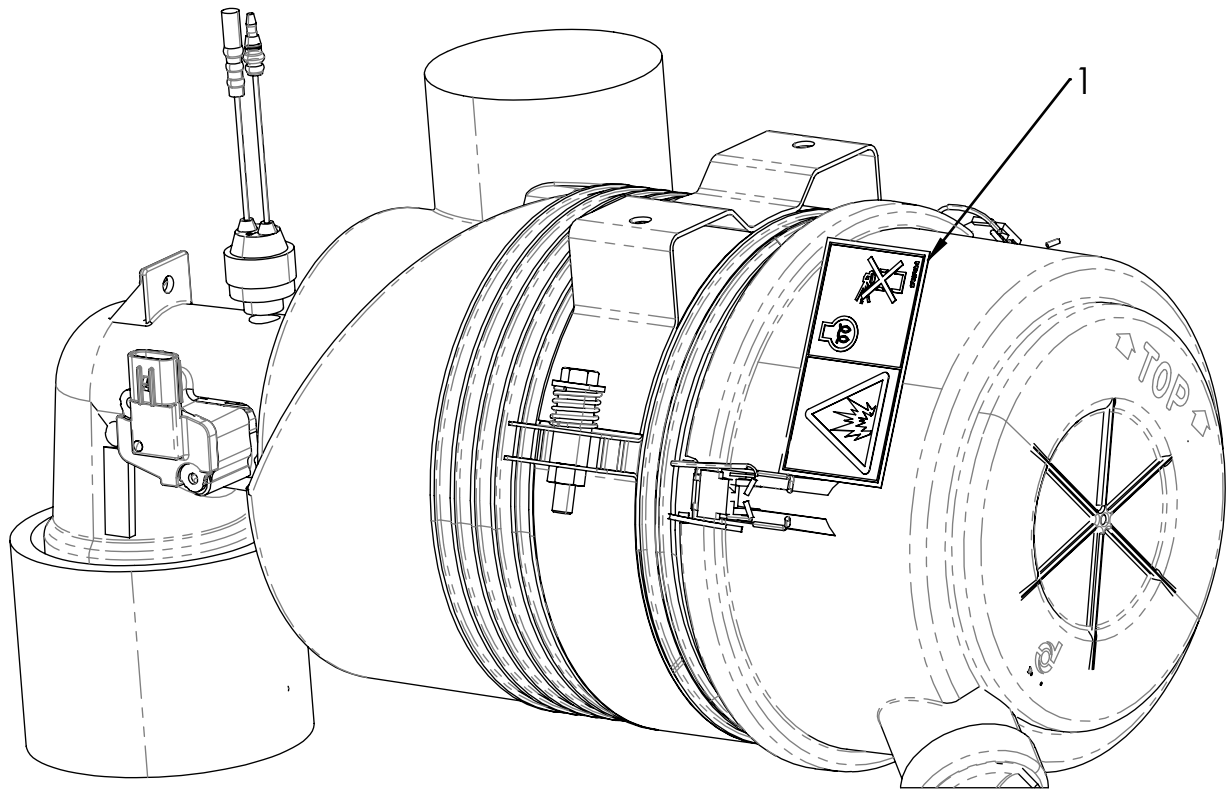
| Bom ID | Part No  | Description                           | Qty | Remarks |
|--------|----------|---------------------------------------|-----|---------|
| 1      | 270-2734 | WARNING CONTENTS UNDER PRESSURE DECAL | 1   |         |

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Footnotes:

Notes:

Decals  
HB4500XT



## Decals

HB4500XT

| Bom ID | Part No  | Description                        | Qty | Remarks |
|--------|----------|------------------------------------|-----|---------|
| 1      | 270-5742 | WARNING NO ETHER/STARTER FLUID ISO | 1   |         |

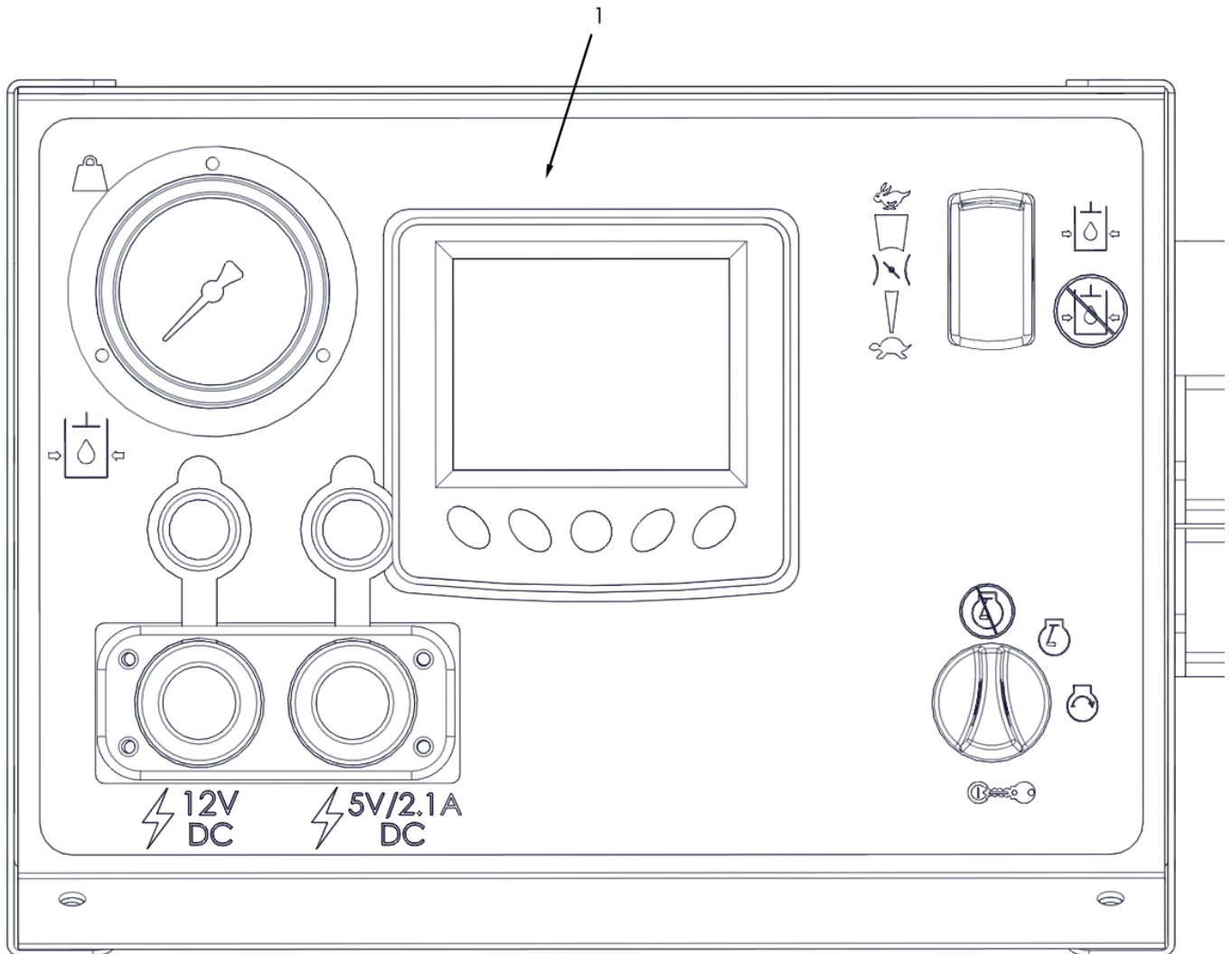
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# Control Panel Decal

HB4500XT



## Control Panel Decal

HB4500XT

| Bom ID | Part No  | Description                   | Qty | Remarks |
|--------|----------|-------------------------------|-----|---------|
| 1      | 933-0432 | DECAL, HB4500XT CONTROL PANEL | 1   |         |

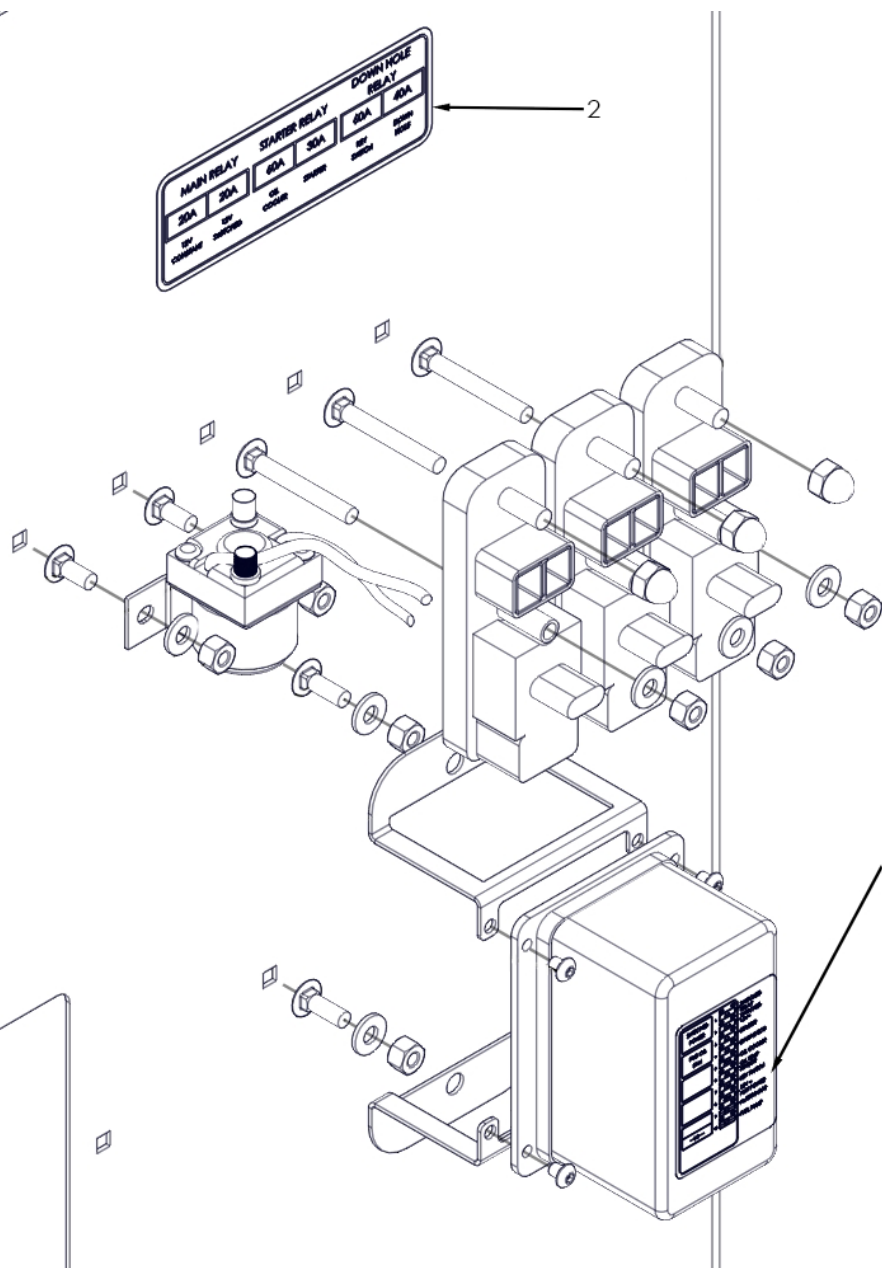
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# Relay and Glow Plugs Decals

HB4500XT



## Relay and Glow Plugs Decals

HB4500XT

| Bom ID | Part No  | Description          | Qty | Remarks |
|--------|----------|----------------------|-----|---------|
| 1      | 933-6107 | DECAL, FUSE HB4500T4 | 1   |         |
| 2      | 933-6115 | DECAL, RELAY BLOCK   | 1   |         |

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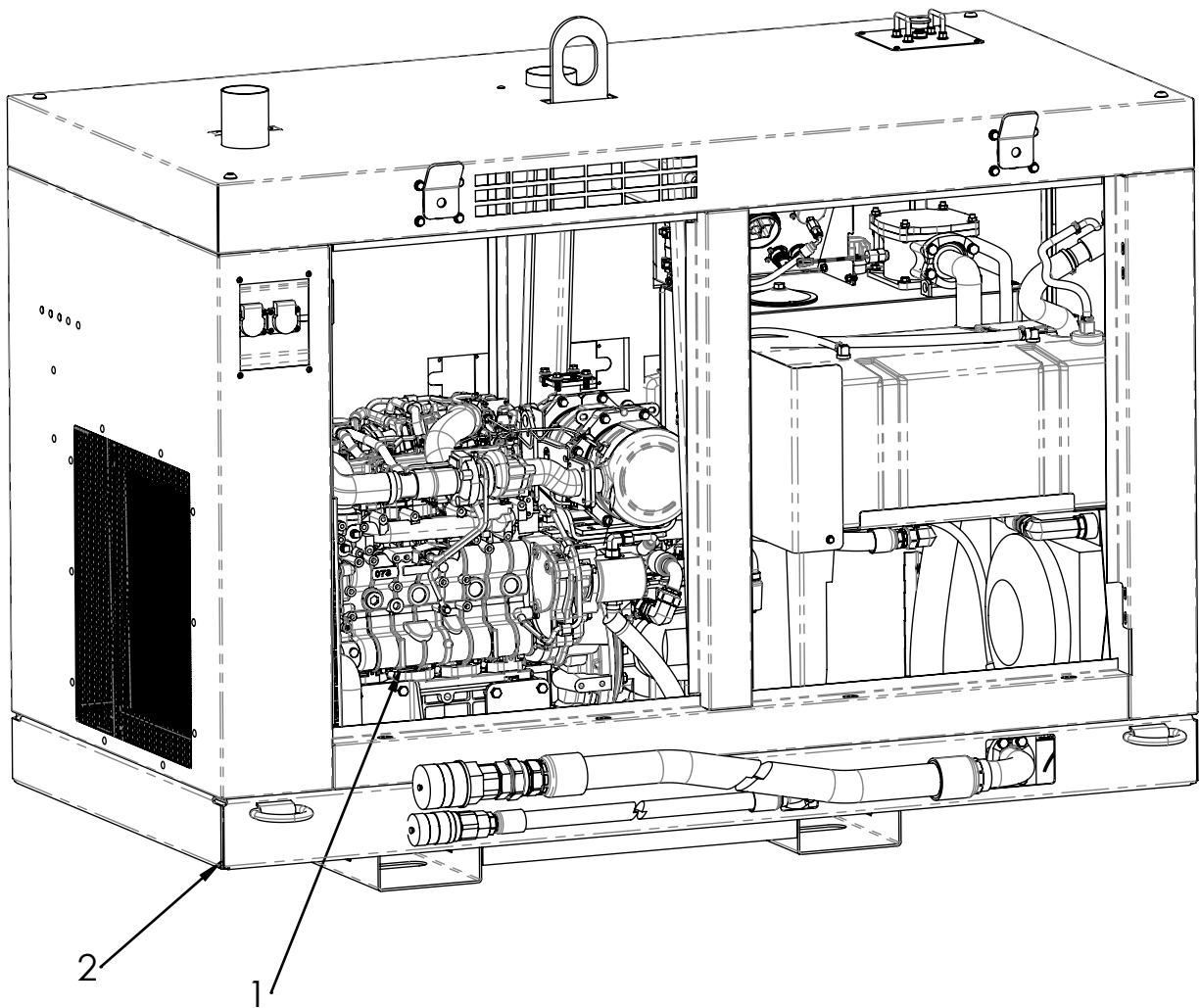
## Notes



# **ENGINE COMPONENTS**

# Engine Placement

HB4500XT



## Engine Placement

HB4500XT

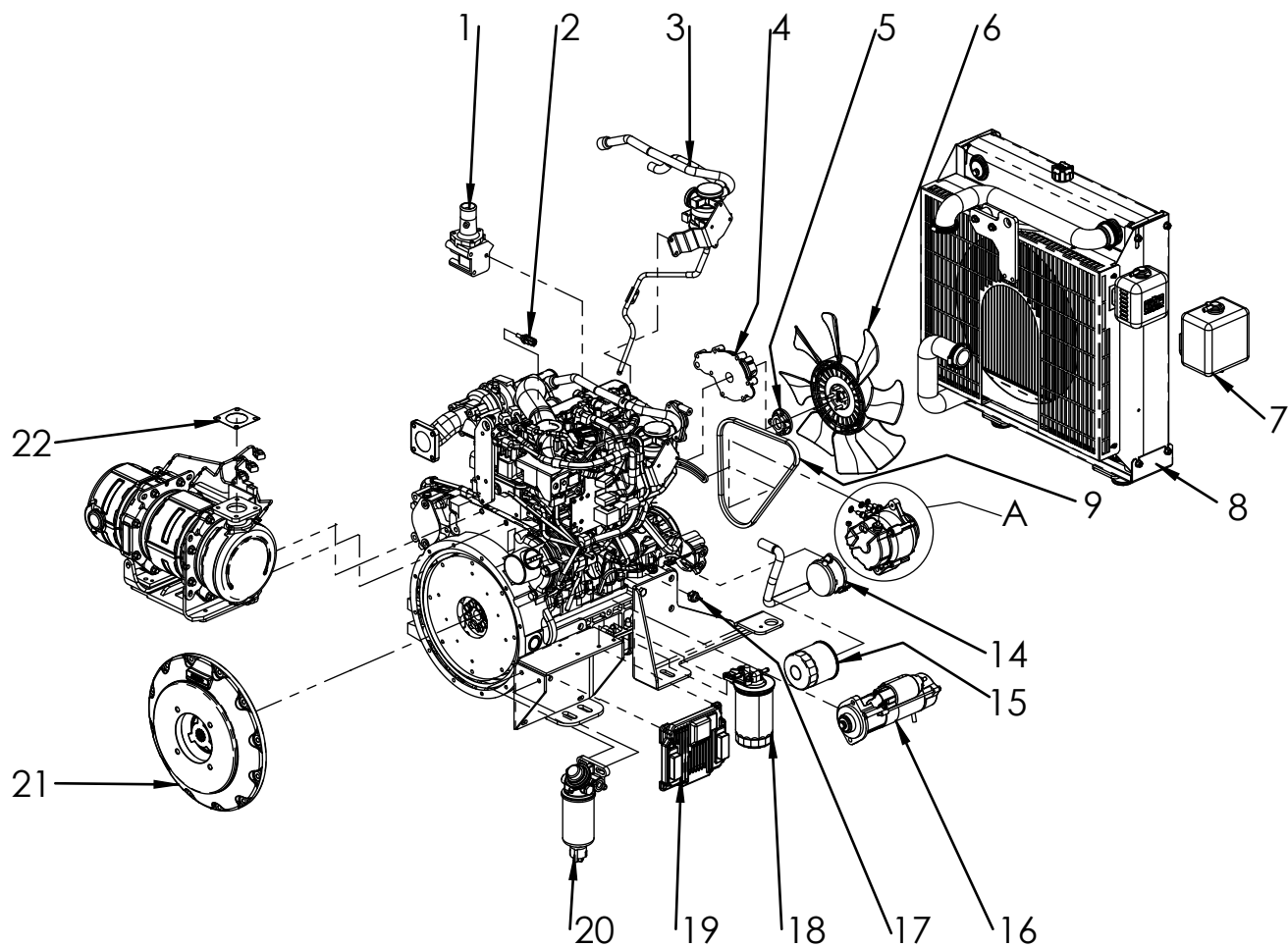
| Bom ID | Part No  | Description                     | Qty | Remarks |
|--------|----------|---------------------------------|-----|---------|
| 1      | 933-0548 | ENGINE ASSEMBLY, V3307T STAGE 5 | 1   |         |
| 2      | 933-0314 | BASE FRAME WELDMENT             | 1   |         |

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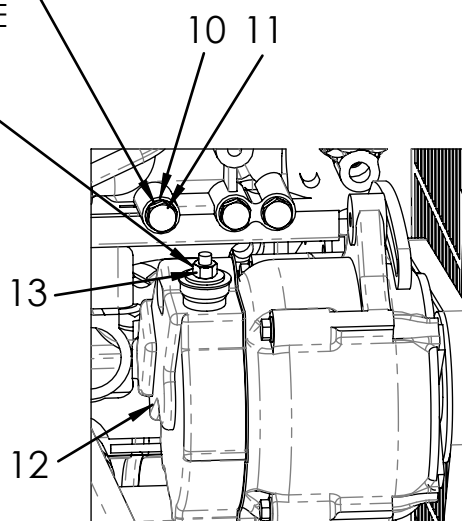
Notes:

# Engine Assembly HB4500XT



ATTACH GROUND  
WIRE LUGS HERE

ATTACH ALTERNATOR  
WIRE HERE



WIRE HARNESS  
ATTACHMENT DETAILS

## Engine Assembly

HB4500XT

| Bom ID | Part No  | Description                 | Qty | Remarks |
|--------|----------|-----------------------------|-----|---------|
| 1      | 933-4539 | THERMOSTAT                  | 1   |         |
| 2      | 933-0309 | WATER TEMPERATURE SENSOR    | 1   |         |
| 3      | 933-0354 | OIL SEPARATOR FILTER        | 1   |         |
| 4      | 933-0313 | WATER PUMP                  | 1   |         |
| 5      | 933-0304 | FAN SPACER                  | 1   |         |
| 6      | 933-4567 | FAN, PUSHER - V3307T        | 1   |         |
| 7      | 933-4543 | TANK OVER FLOW              | 1   |         |
| 8      | 933-0303 | RADIATOR                    | 1   |         |
| 9      | 933-0310 | BELT, FAN                   | 1   |         |
| 10     | M08ITLW  | WASHER, M8 ITLW             | 3   |         |
| 11     | M08HH16  | SCREW, M8-1.25mm x 16mm HHC | 3   |         |
| 12     | 933-0306 | ALTERNATOR                  | 1   |         |
| 13     | M06TLN   | NUT, M6-1.0 TOP LOCK        | 1   |         |
| 14     | 933-0361 | OIL COOLER                  | 1   |         |
| 15     | 913-7701 | FILTER, OIL                 | 1   |         |
| 16     | 933-0307 | STARTER                     | 1   |         |
| 17     | 933-0308 | OIL SWITCH                  | 1   |         |
| 18     | 933-0539 | FUEL FILTER ASSSEMBLY       | 1   |         |
| 19     | 933-0533 | ECU - STAGE 5               | 1   |         |
| 20     | 933-0352 | FUEL/WATER SEPARATOR FILTER | 1   |         |
| 21     | 933-4560 | HOUSING KIT, SAE 'C' 4 BOLT | 1   |         |
| 22     | 933-0305 | MUFFLER GASKET              | 1   |         |

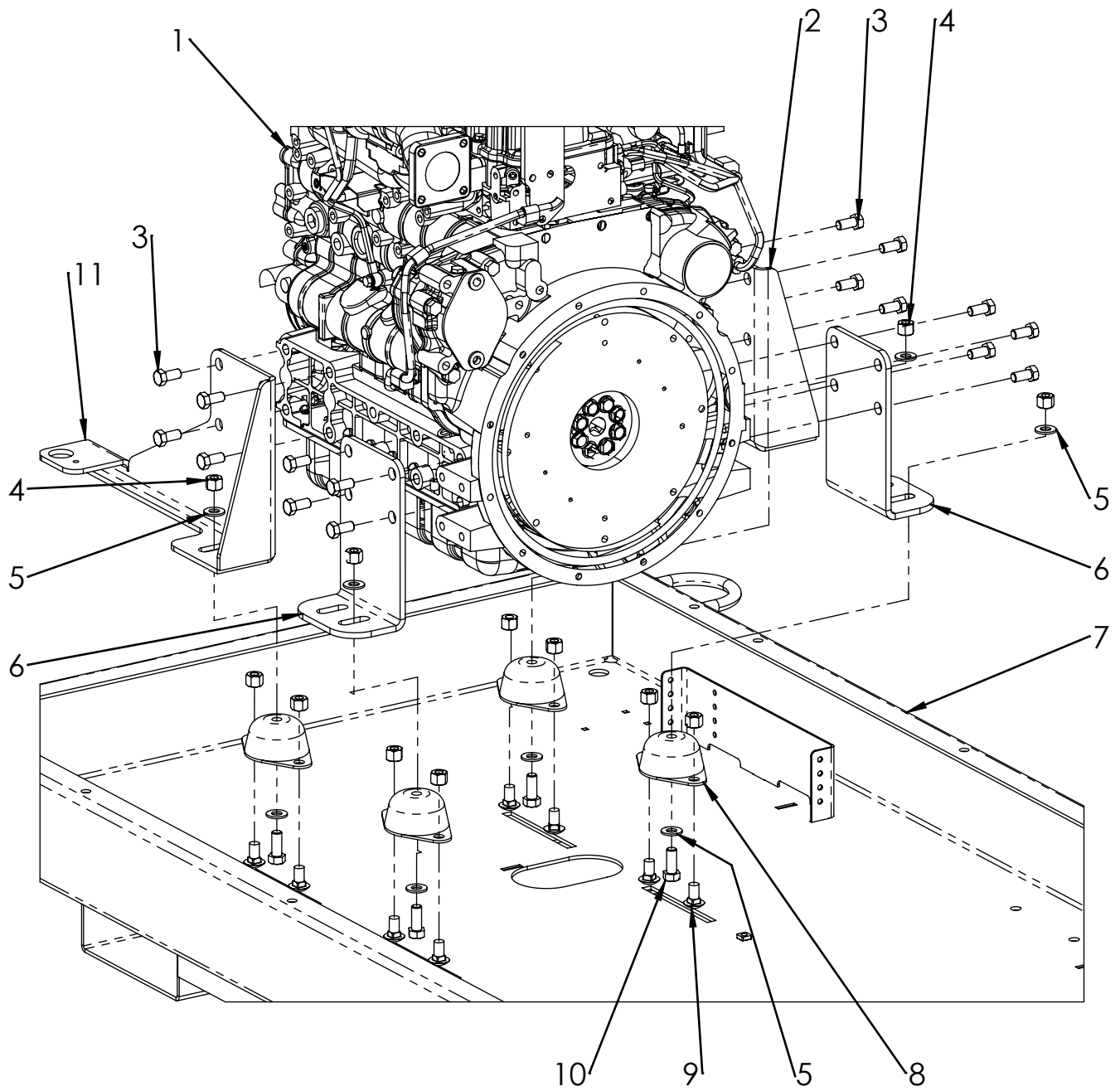
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# Engine Mounting

HB4500XT



## Engine Mounting

HB4500XT

| Bom ID | Part No  | Description                              | Qty | Remarks |
|--------|----------|------------------------------------------|-----|---------|
| 1      | 933-0538 | ENGINE, KUBOTA V3307T - TIER 4 / STAGE 5 | 1   |         |
| 2      | 933-5582 | BRACKET, RIGHT ENGINE                    | 1   |         |
| 3      | M12HH25F | SCREW, M12-1.25 x 25mm HHC               | 16  |         |
| 4      | 08TLN    | NUT, 1/2-13 TOP LOCK                     | 12  |         |
| 5      | 08FW-SAE | WASHER, 1/2"                             | 8   |         |
| 6      | 933-5610 | ENGINE MOUNT, REAR                       | 2   |         |
| 7      | 933-0314 | BASE FRAME WELDMENT                      | 1   |         |
| 8      | 913-7301 | MOUNT, ENGINE                            | 4   |         |
| 9      | 08CB16   | BOLT, 1/2-13 x 1 CARRIAGE                | 8   |         |
| 10     | 08HH20   | SCREW, 1/2-13 x 1.25 HHC - GR8           | 4   |         |
| 11     | 933-5581 | BRACKET, LEFT ENGINE                     | 1   |         |

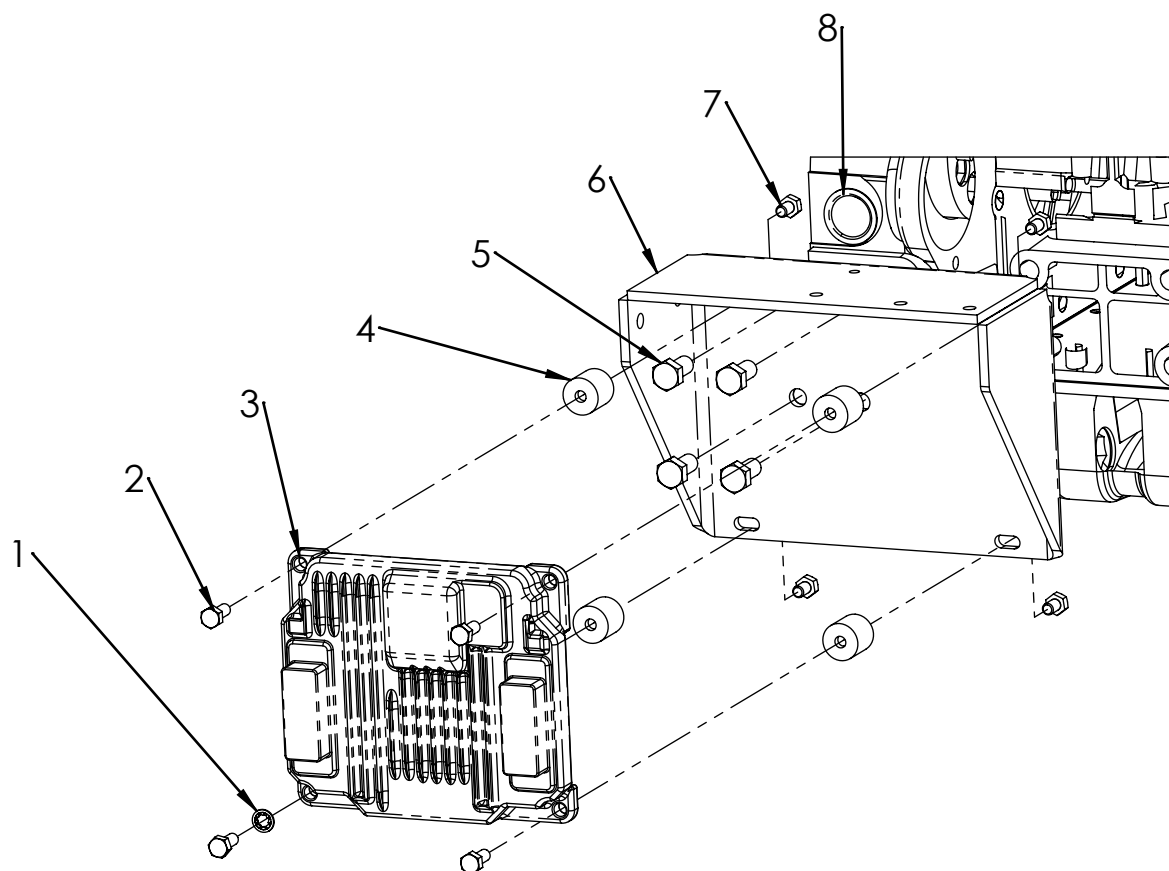
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# ECU Mounting

HB4500XT





## ECU Mounting

HB4500XT

| Bom ID | Part No  | Description                              | Qty | Remarks |
|--------|----------|------------------------------------------|-----|---------|
| 1      | 05ITLW   | WASHER, 5/16" ITLW                       | 1   |         |
| 2      | 05HH12   | SCREW, 5/16-18 x .75 HHC - GR8           | 4   |         |
| 3      | 933-0533 | ECU - STAGE 5                            | 1   |         |
| 4      | 933-0383 | RUBBER MOUNT, ECU                        | 4   |         |
| 5      | M12HH25F | SCREW, M12-1.25 x 25mm HHC               | 4   |         |
| 6      | 933-0524 | BRACKET, ECU/FILTER                      | 1   |         |
| 7      | 05HH08   | SCREW, 5/16-18 x .50 HHC - GR8           | 4   |         |
| 8      | 933-0538 | ENGINE, KUBOTA V3307T - TIER 4 / STAGE 5 | 1   |         |

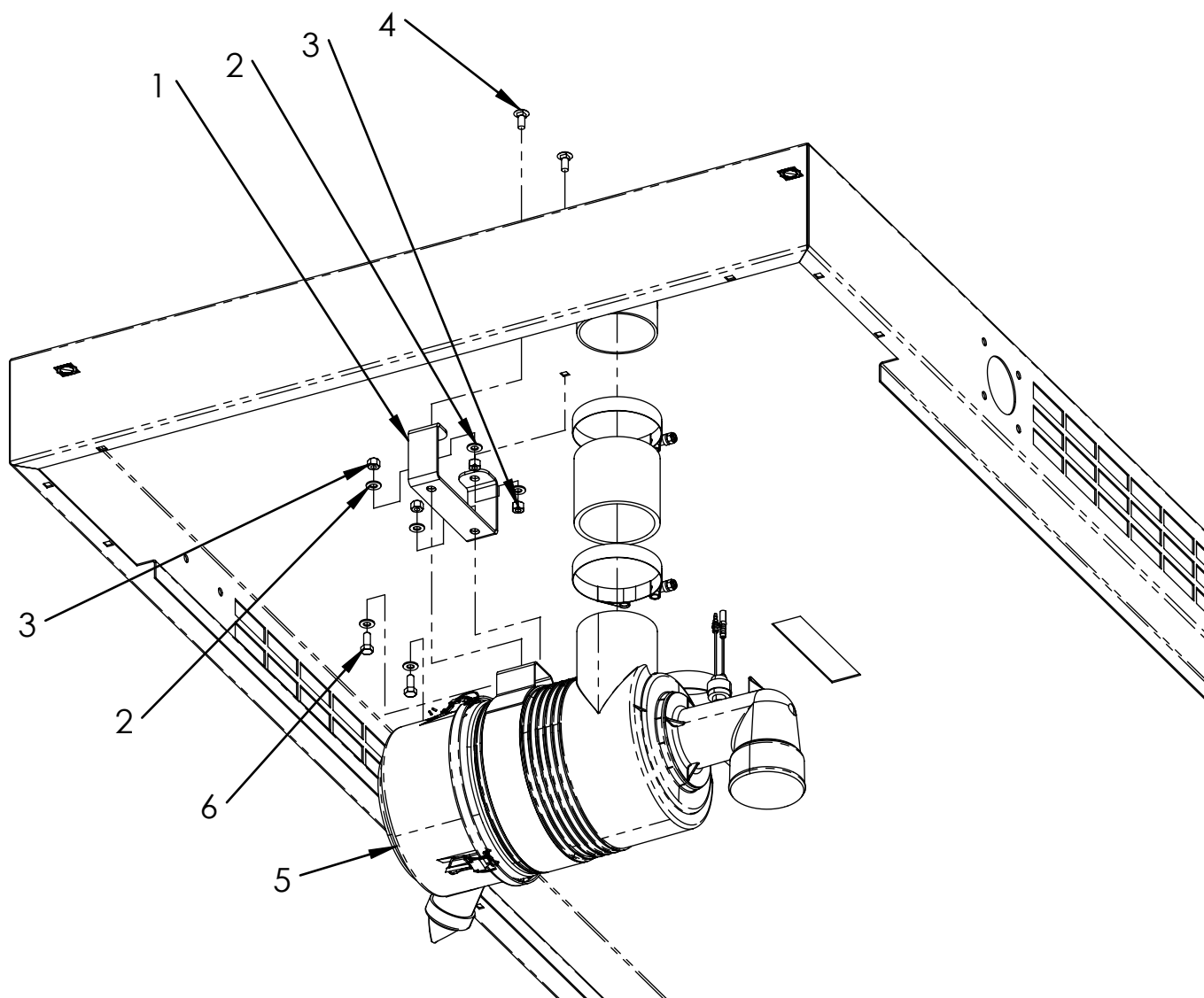
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# Air Filter Mounting

HB4500XT



## Air Filter Mounting

HB4500XT

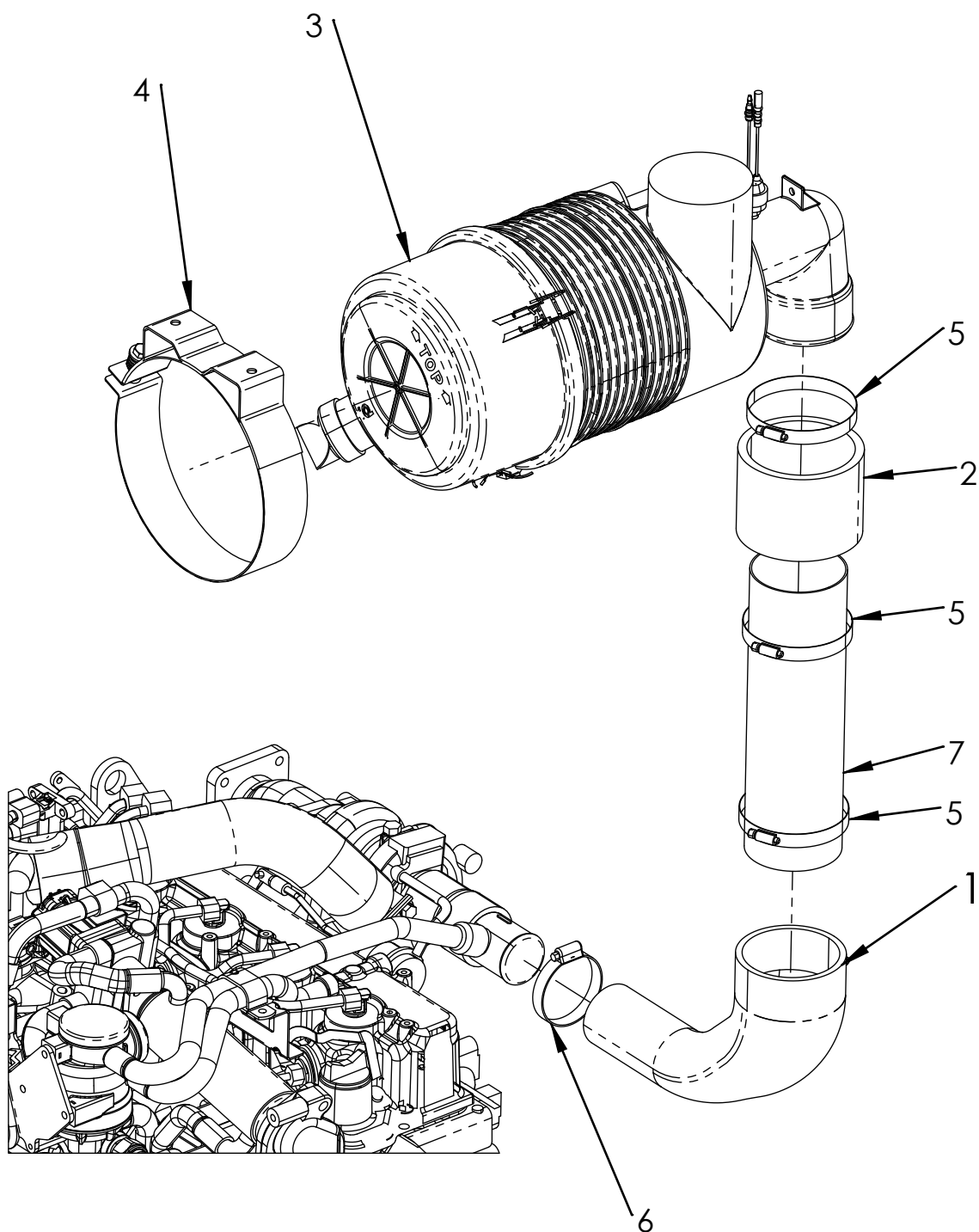
| Bom ID | Part No  | Description                  | Qty | Remarks |
|--------|----------|------------------------------|-----|---------|
| 1      | 933-0522 | SPACER BRACKET, AIR CLEANER  | 1   |         |
| 2      | 05FW-SAE | WASHER, 5/16"                | 6   |         |
| 3      | 05TLN    | NUT, 5/16-18 TOP LOCK        | 4   |         |
| 4      | 05CB12   | BOLT, 5/16-18 x .75 CARRIAGE | 2   |         |
| 5      | 933-0534 | AIR CLEANER                  | 1   |         |
| 6      | 05HH12   | BOLT, 5/16-18 x .75 HEX HEAD | 2   |         |

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Footnotes:

Notes:

# Air Filter Assembly HB4500XT



## Air Filter Assembly

HB4500XT

| Bom ID | Part No  | Description               | Qty | Remarks |
|--------|----------|---------------------------|-----|---------|
| 1      | 933-0532 | HOSE, INLET               | 1   |         |
| 2      | 933-0540 | COUPLING, RUBBER - 3.5 ID | 1   |         |
| 3      | 933-0534 | AIR CLEANER               | 1   |         |
| 4      | 933-0535 | BAND, AIR CLEANER         | 1   |         |
| 5      | 933-0537 | HOSE, CLIP                | 3   |         |
| 6      | 933-0536 | CLAMP, HOSE               | 1   |         |
| 7      | 933-0528 | TUBE, INTAKE              | 1   |         |

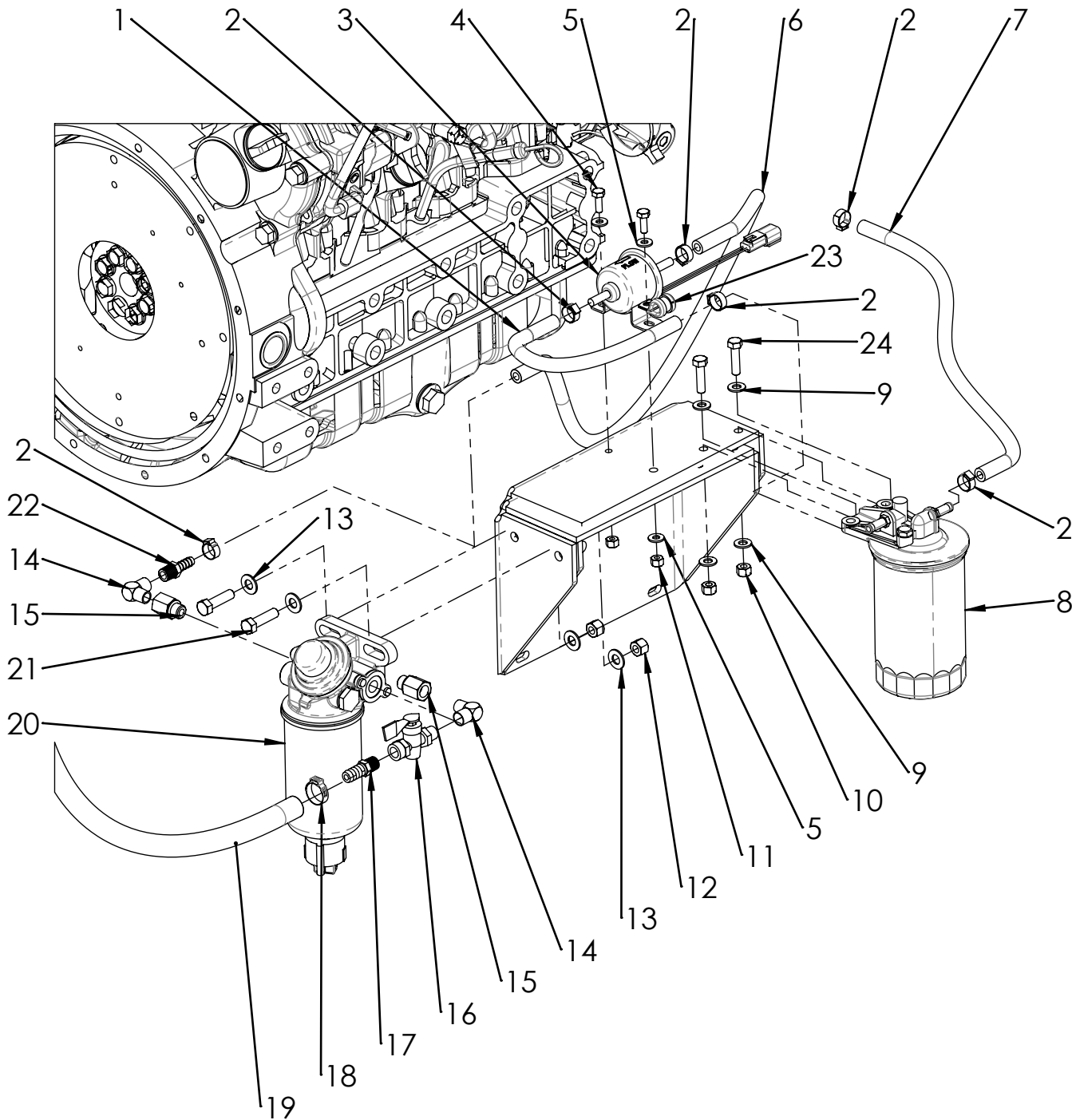
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# Fuel System

## HB4500XT



## Fuel System

HB4500XT

| Bom ID | Part No  | Description                     | Qty | Remarks |
|--------|----------|---------------------------------|-----|---------|
| 1      | 933-0525 | HOSE, 5/16" X 11"               | 1   |         |
| 2      | 941-6951 | CLAMP, HOSE 33/64" TO 5/8" ID   | 6   |         |
| 3      | 912-6289 | FUEL PUMP ASSEMBLY              | 1   |         |
| 4      | 04HH12   | SCREW, 1/4-20 x .75 HHC - GR8   | 2   |         |
| 5      | 04FW-SAE | WASHER, 1/4"                    | 4   |         |
| 6      | 933-0526 | HOSE, 5/16" X 20"               | 1   |         |
| 7      | 933-0527 | HOSE, 5/16" X 15"               | 1   |         |
| 8      | 933-0539 | FUEL FILTER ASSSEMBLY           | 1   |         |
| 9      | 05FW-SAE | WASHER, 5/16"                   | 4   |         |
| 10     | 05TLN    | NUT, 5/16-18 TOP LOCK           | 2   |         |
| 11     | 04TLN    | NUT, 1/4-20 TOP LOCK            | 2   |         |
| 12     | 06TLN    | NUT, 3/8-16 TOP LOCK            | 2   |         |
| 13     | 06FW-SAE | WASHER, 3/8"                    | 4   |         |
| 14     | 909-8163 | ELBOW, 4MP-4FP 90 DEGREE        | 2   |         |
| 15     | 926-7252 | ADAPTER, METRIC-ORR/NPTF        | 2   |         |
| 16     | 913-7130 | FUEL SHUT-OFF PLUG VALVE        | 1   |         |
| 17     | 933-0443 | FITTING, BARB 1/2 x 1/4NPT      | 1   |         |
| 18     | 933-0450 | CLAMP, HOSE 49/64" TO 57/64"    | 1   |         |
| 19     | 933-0444 | HOSE 1/2" X 60"                 | 1   |         |
| 20     | 933-0352 | FUEL/WATER SEPARATOR FILTER     | 1   |         |
| 21     | 06HH22   | SCREW, 3/8-16 x 1.375 HHC - GR8 | 2   |         |
| 22     | 913-7083 | FITTING, BARB 5/16 x 1/4" NPT"  | 1   |         |
| 23     | 909-8396 | CLAMP, HOSE 1/2"                | 1   |         |
| 24     | 05HH20   | SCREW, 5/16-18 x 1.25 HHC - GR8 | 2   |         |

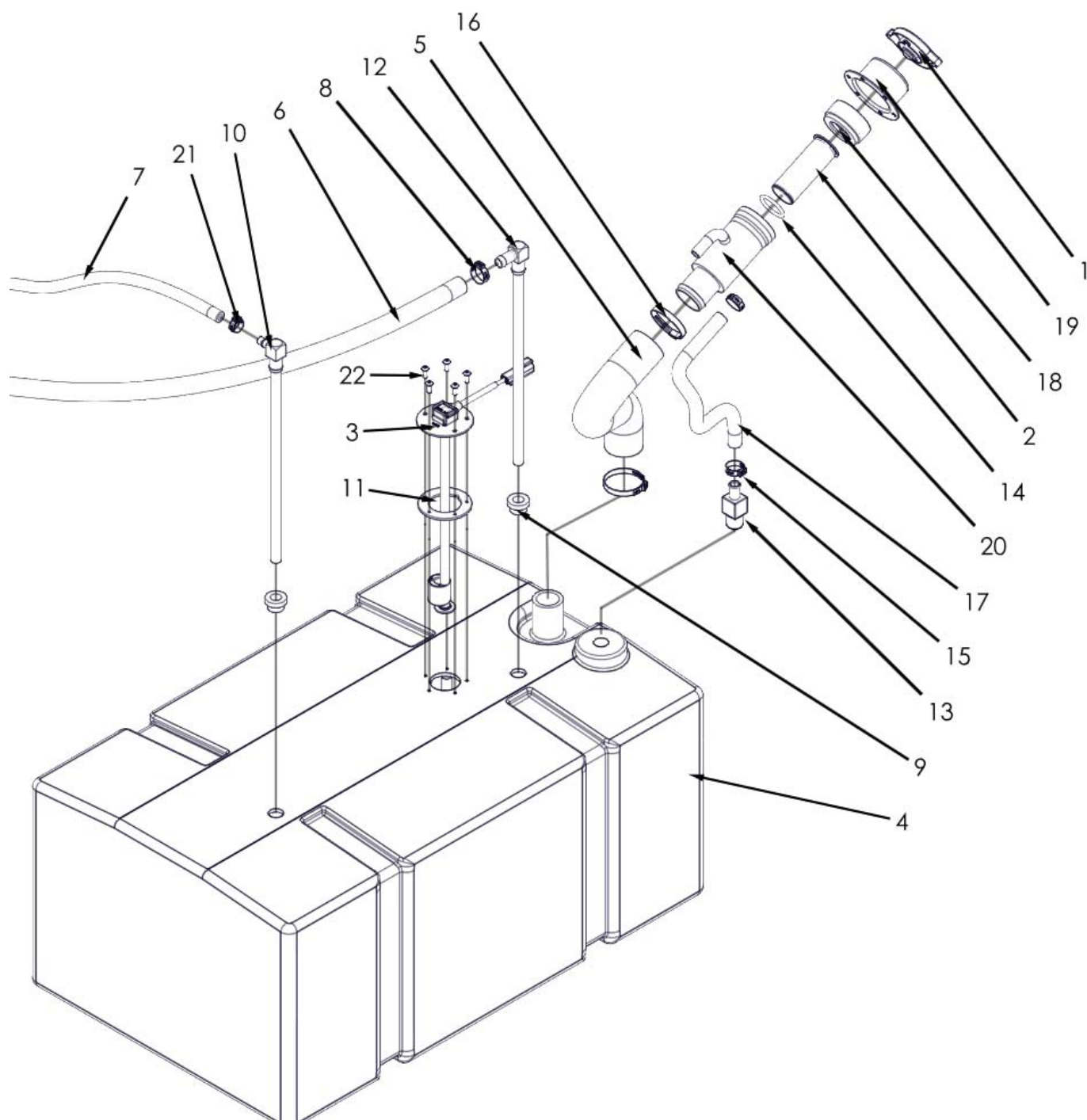
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Footnotes:

Notes:

# Fuel System Assembly

HB4500XT





## Fuel System Assembly

HB4500XT

| Bom ID | Part No  | Description                    | Qty | Remarks |
|--------|----------|--------------------------------|-----|---------|
| 1      | 110-010  | FUEL CAP (11-1/2")             | 1   |         |
| 2      | 364-663  | FILLER NECK SCREEN             | 1   |         |
| 3      | 215-2120 | REED SWITCH FUEL SENDER        | 1   |         |
| 4      | 364-1015 | FUEL TANK, 25 GALLON           | 1   |         |
| 5      | 150-3568 | FORMED FUEL HOSE               | 1   |         |
| 6      | 933-0444 | HOSE 1/2" X 60"                | 1   |         |
| 7      | 933-0446 | HOSE, 3/8 X 60"                | 1   |         |
| 8      | 933-0450 | CLAMP, HOSE 49/64" TO 57/64"   | 1   |         |
| 9      | 117-990  | GROMMET (.620 X .750)          | 2   |         |
| 10     | 150-2493 | FUEL TANK PICKUP - (06H-08H90) | 1   |         |
| 11     | 165-704  | GASKET                         | 1   |         |
| 12     | 150-2494 | FUEL TANK PICKUP (08H-08H90)   | 1   |         |
| 13     | 514-312  | S/O COUPLER (08N-08H)          | 1   |         |
| 14     | 155-708  | O-RING                         | 1   |         |
| 15     | 110-217  | WORM CLAMP (7/16" TO 1")       | 2   |         |
| 16     | 110-250  | WORM CLAMP (1.25" TO 2.25")    | 2   |         |
| 17     | 933-0474 | HOSE, FUEL 1/2" X 13"          | 1   |         |
| 18     | 179-769  | FILLER NECK WASHER             | 1   |         |
| 19     | 364-081  | FLANGED FILLER NECK            | 1   |         |
| 20     | 364-631  | FILLER NECK                    | 1   |         |
| 21     | 941-6951 | CLAMP, HOSE 33/64" TO 5/8" ID  | 1   |         |
| 22     | #10BH08  | SCREW, #10-24x0.5 BHSC         | 5   |         |

Not Shown:

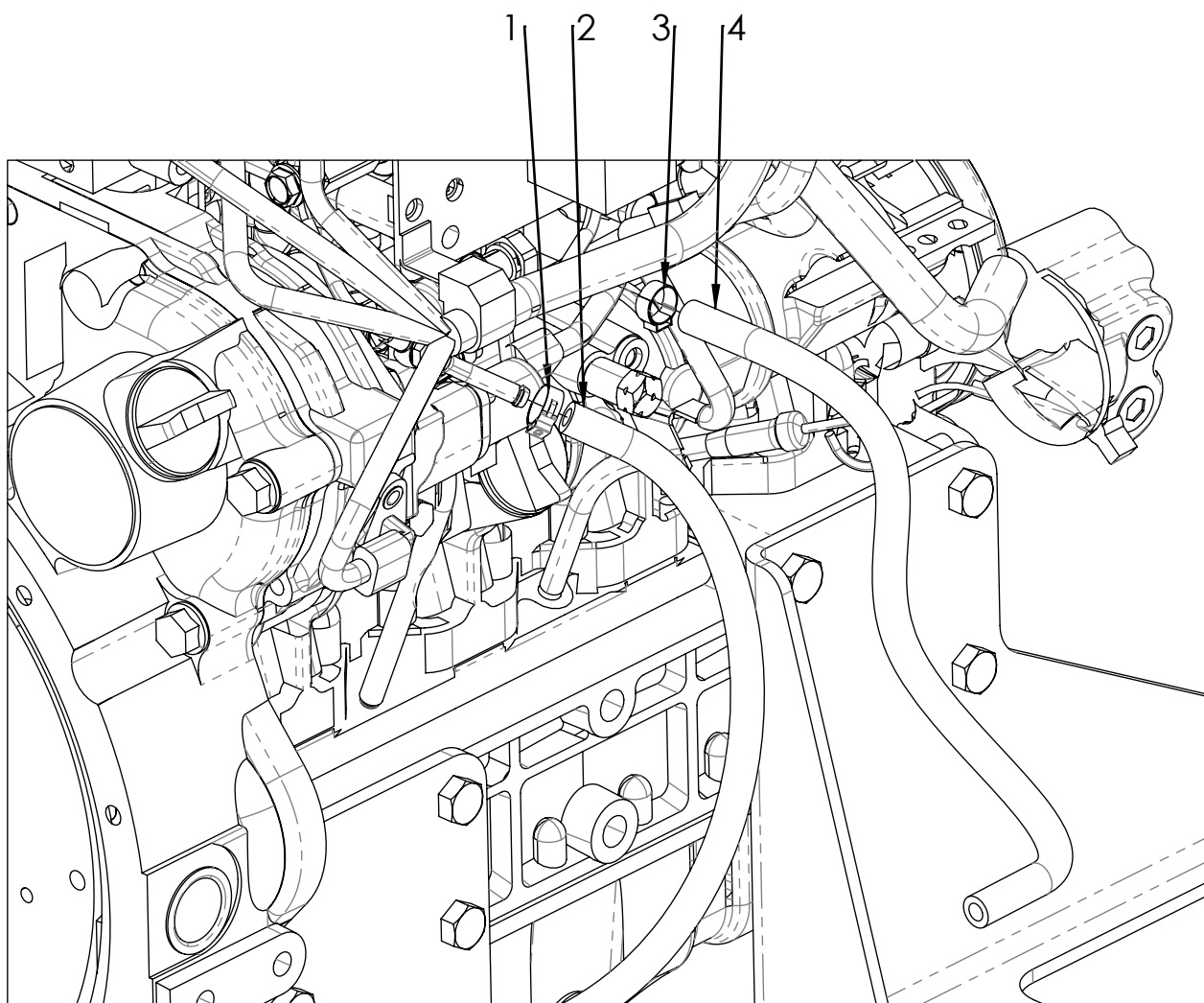
Footnotes:

ALIGN BREATHER TUBE ON 364-631 WITH TOP MOUNTING HOLE ON 364-081

Notes:

## Fuel Hoses to Engine

HB4500XT



## Fuel Hoses to Engine

HB4500XT

| Bom ID | Part No  | Description                   | Qty | Remarks |
|--------|----------|-------------------------------|-----|---------|
| 1      | 933-0448 | CLAMP, HOSE 37/64" TO 43/64"  | 1   |         |
| 2      | 933-0446 | HOSE, 3/8 X 60"               | 1   |         |
| 3      | 941-6951 | CLAMP, HOSE 33/64" TO 5/8" ID | 1   |         |
| 4      | 933-0527 | HOSE, 5/16" X 15"             | 1   |         |

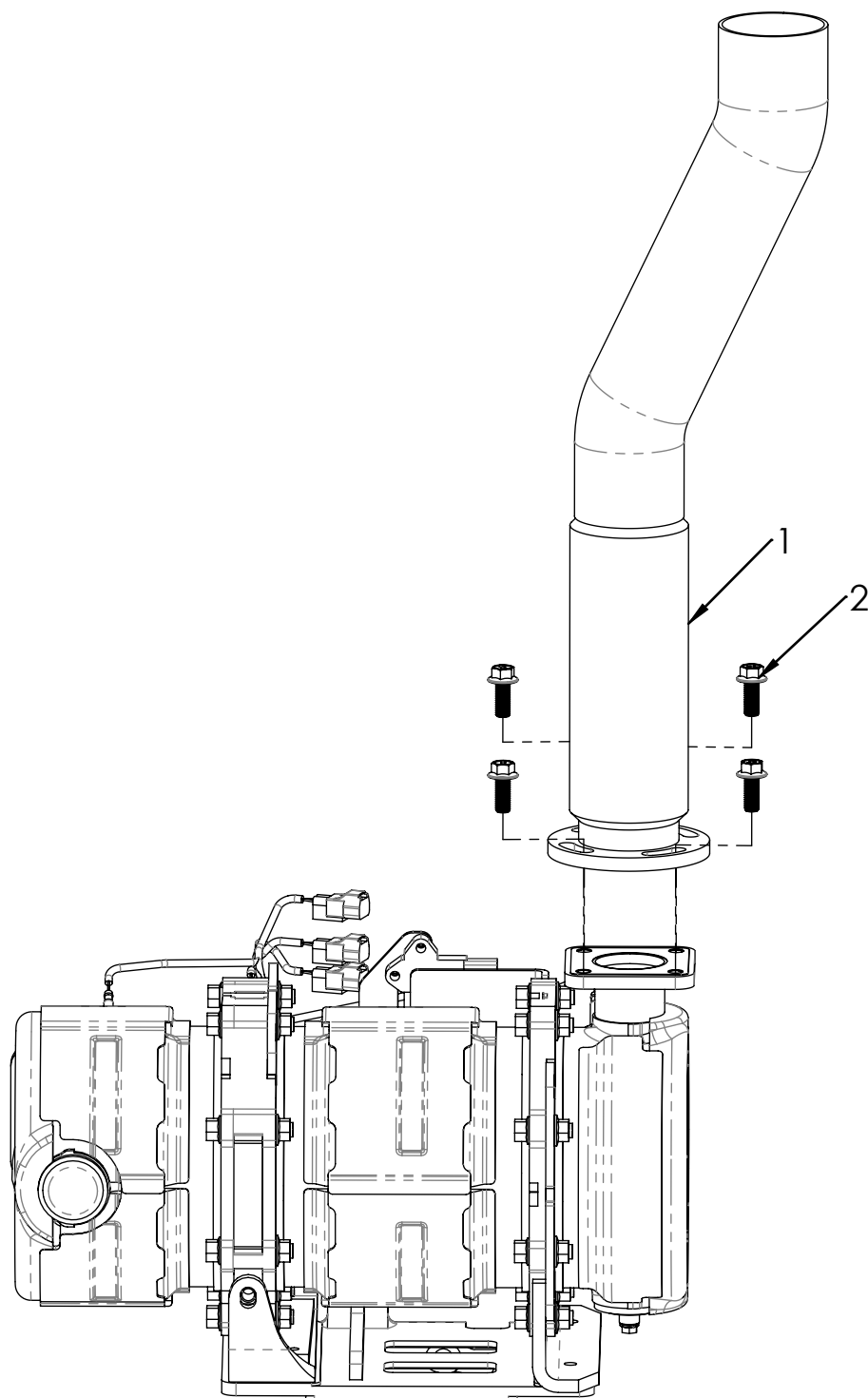
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Footnotes:

Notes:

# Exhaust Mounting

HB4500XT



## Exhaust Mounting

HB4500XT

| Bom ID | Part No   | Description                    | Qty | Remarks |
|--------|-----------|--------------------------------|-----|---------|
| 1      | 933-0373  | EXHAUST WELDEMENT              | 1   |         |
| 2      | M10FLH25F | SCREW, FLANGE, M10-1.25 X 25mm | 4   |         |

Not Shown:

Footnotes:

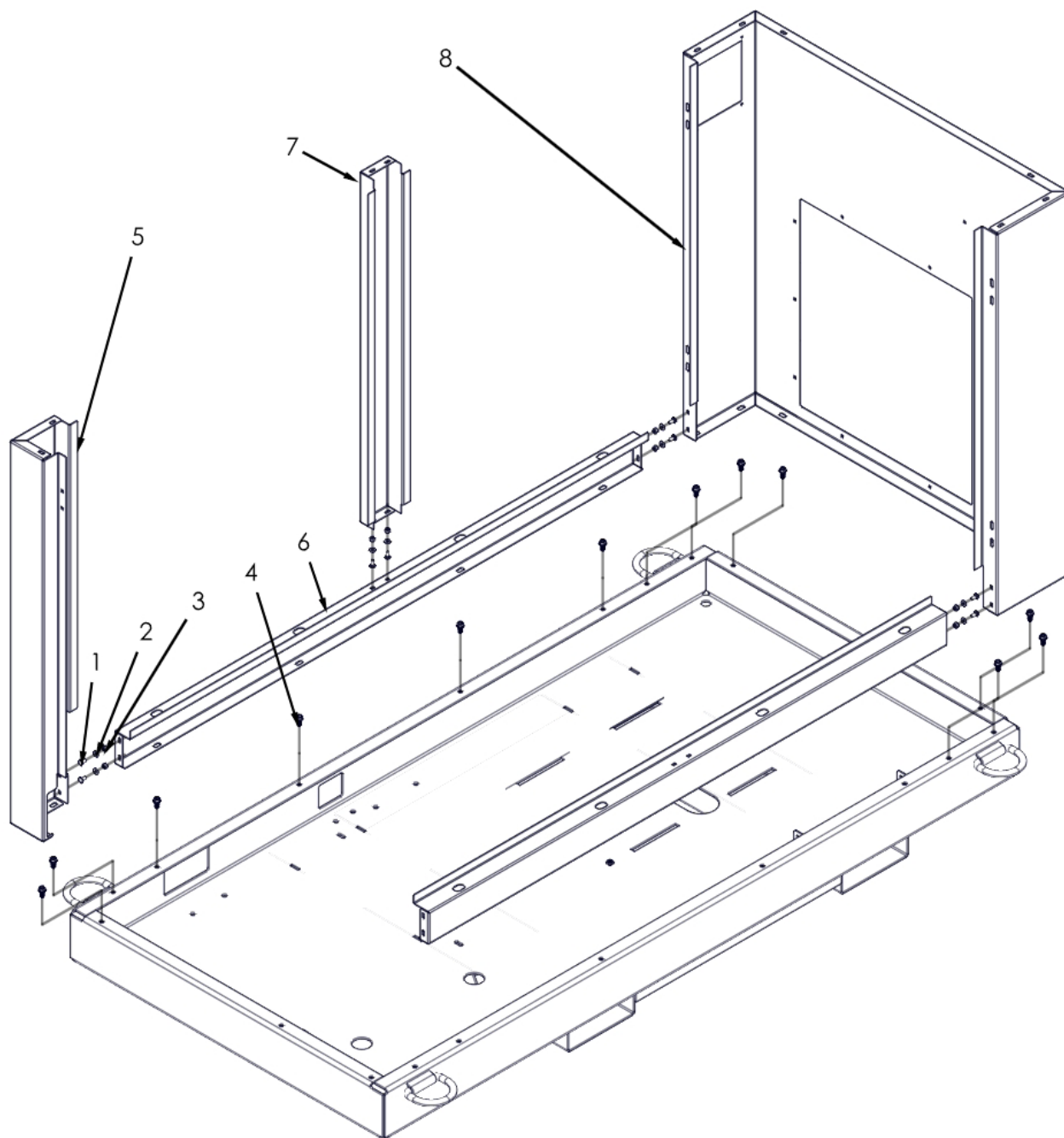
Notes:

## Notes

# **FRAME COMPONENTS**

# Sheet Metal to Tub

HB4500XT





## Sheet Metal to Tub

HB4500XT

| Bom ID | Part No  | Description                    | Qty | Remarks |
|--------|----------|--------------------------------|-----|---------|
| 1      | 04CB10   | BOLT, 1/4-20 x .625 CARRIAGE   | 8   |         |
| 2      | 04FW-SAE | WASHER, 1/4"                   | 8   |         |
| 3      | 04TLN    | NUT, 1/4-20 TOP LOCK           | 8   |         |
| 4      | 05FLH12  | HEX SCREW, 5/16 X 3/4, FLANGED | 12  |         |
| 5      | 933-0322 | PANEL, REAR LEFT               | 1   |         |
| 6      | 933-0324 | PANEL, BOTTOM                  | 2   |         |
| 7      | 933-0325 | PANEL, POST                    | 1   |         |
| 8      | 933-0381 | PANEL, FRONT RIGHT             | 1   |         |

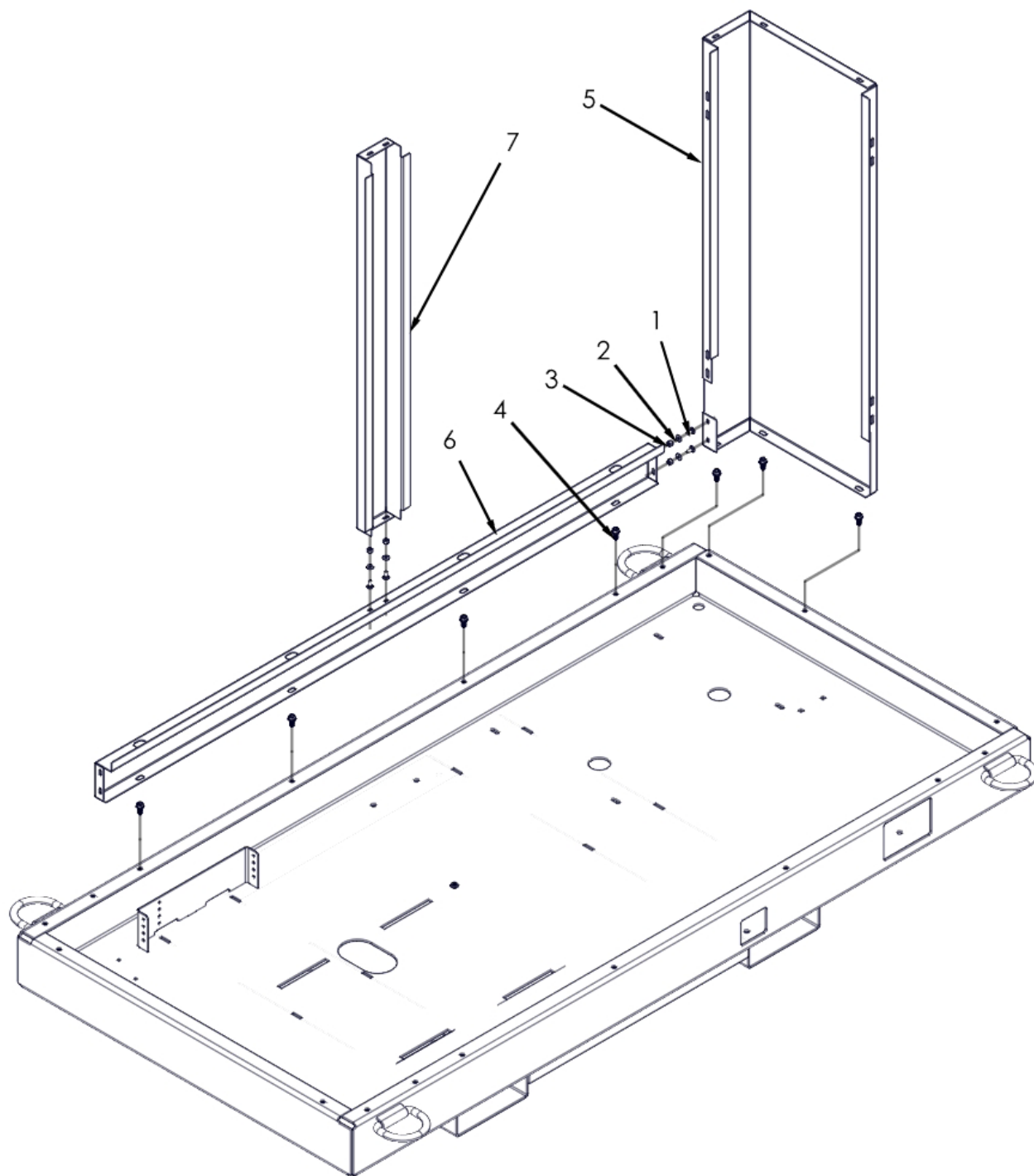
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Footnotes:

Notes:

# Sheet Metal to Tub

HB4500XT



## Sheet Metal to Tub

HB4500XT

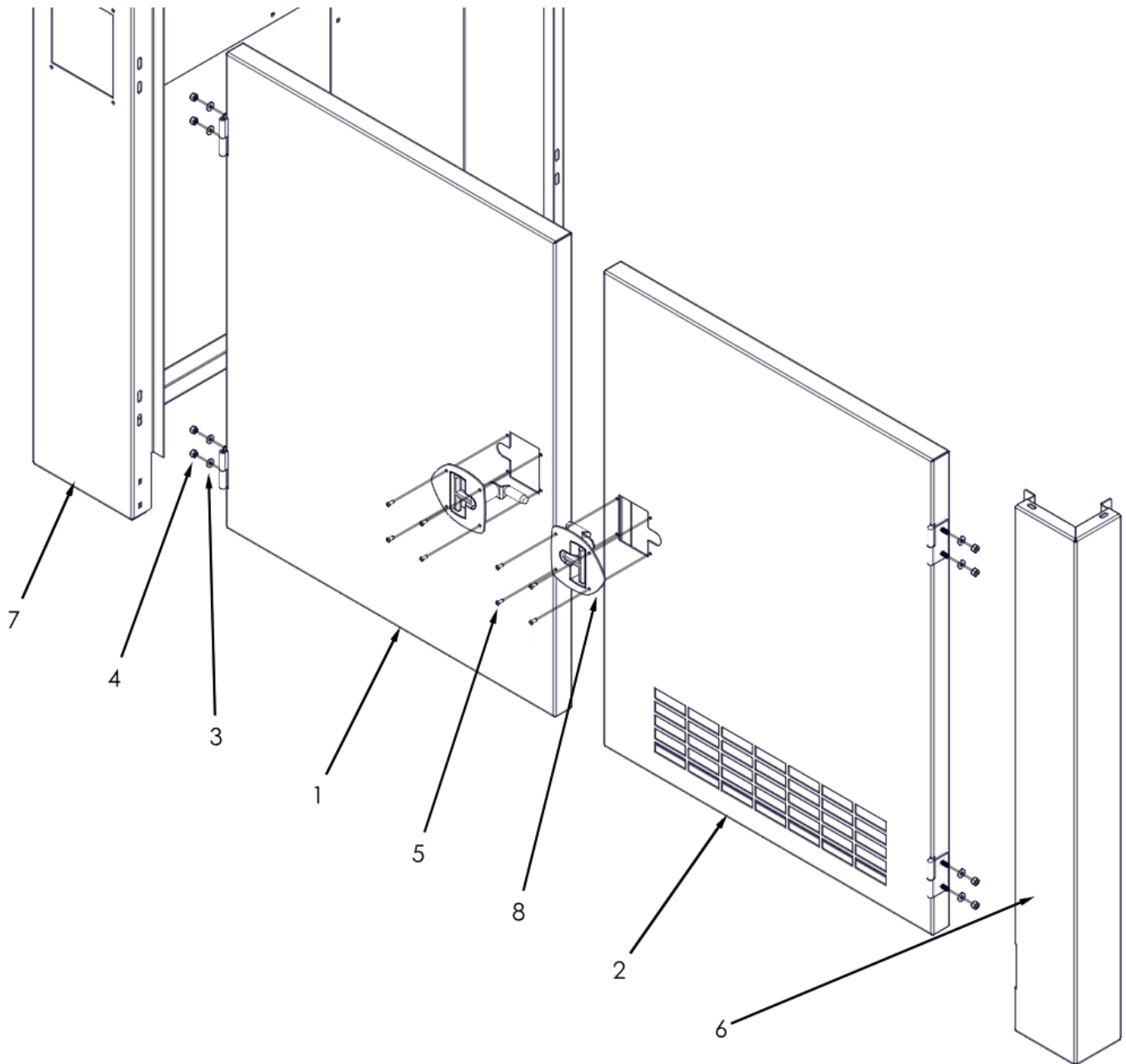
| Bom ID | Part No  | Description                    | Qty | Remarks |
|--------|----------|--------------------------------|-----|---------|
| 1      | 04CB10   | BOLT, 1/4-20 x .625 CARRIAGE   | 4   |         |
| 2      | 04FW-SAE | WASHER, 1/4"                   | 4   |         |
| 3      | 04TLN    | NUT, 1/4-20 TOP LOCK           | 4   |         |
| 4      | 05FLH12  | HEX SCREW, 5/16 X 3/4, FLANGED | 7   |         |
| 5      | 933-0323 | PANEL, REAR RIGHT              | 1   |         |
| 6      | 933-0324 | PANEL, BOTTOM                  | 1   |         |
| 7      | 933-0325 | PANEL, POST                    | 1   |         |

Not Shown:

Footnotes:

Notes:

# Engine Assembly Doors HB4500XT



## Engine Assembly Doors

HB4500XT

| Bom ID | Part No  | Description                | Qty | Remarks |
|--------|----------|----------------------------|-----|---------|
| 1      | 933-0390 | DOOR, LEFT ENGINE ASSY     | 1   |         |
| 2      | 933-0391 | DOOR, ENGINE ASSY          | 1   |         |
| 3      | 04FW-SAE | WASHER, 1/4"               | 8   |         |
| 4      | 04TLN    | NUT, 1/4-20 TOP LOCK       | 8   |         |
| 5      | 912-6302 | BLIND RIVET, ALUMINUM, 6-4 | 8   |         |
| 6      | 933-0322 | PANEL, REAR LEFT           | 1   |         |
| 7      | 933-0381 | PANEL, FRONT RIGHT         | 1   |         |
| 8      | 933-5530 | LATCH, QUARTER TURN        | 2   |         |

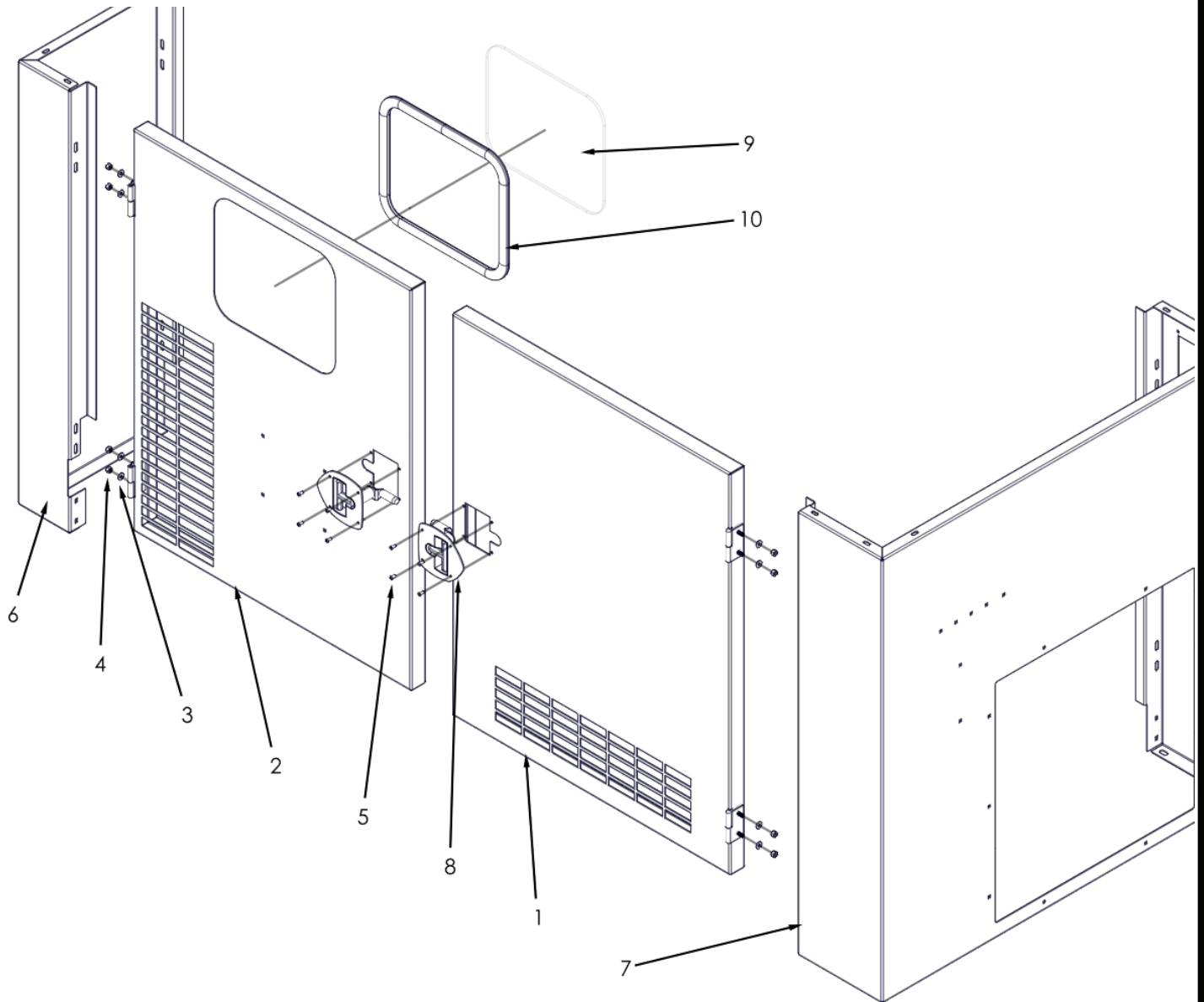
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Footnotes:

Notes:

# Control Panel Doors

HB4500XT



## Control Panel Doors

HB4500XT

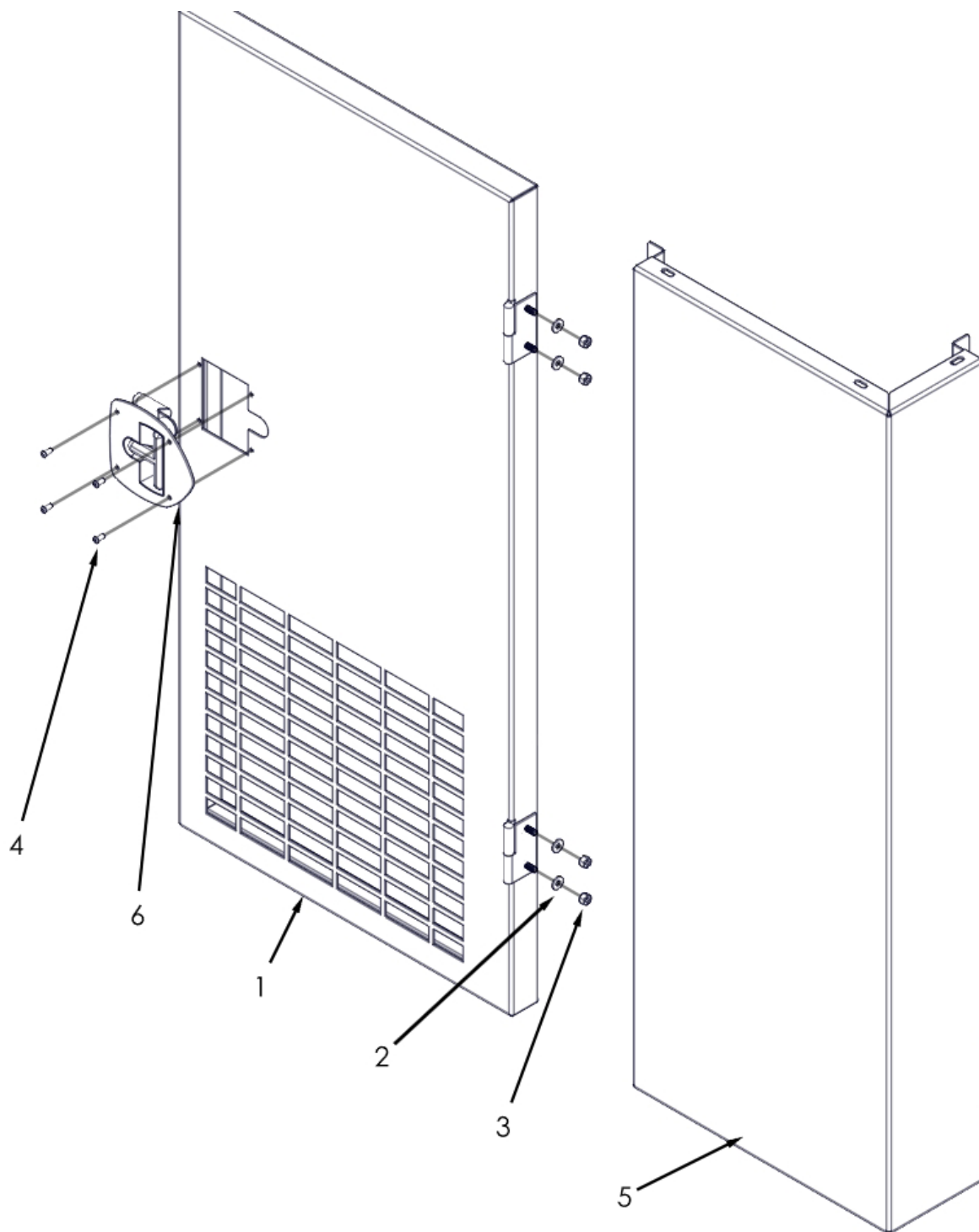
| Bom ID | Part No  | Description                  | Qty | Remarks |
|--------|----------|------------------------------|-----|---------|
| 1      | 933-0391 | DOOR, ENGINE ASSY            | 1   |         |
| 2      | 933-0393 | DOOR, OPERATOR CONTROLS ASSY | 1   |         |
| 3      | 04FW-SAE | WASHER, 1/4"                 | 8   |         |
| 4      | 04TLN    | NUT, 1/4-20 TOP LOCK         | 8   |         |
| 5      | 912-6302 | BLIND RIVET, ALUMINUM, 6-4   | 8   |         |
| 6      | 933-0323 | PANEL, REAR RIGHT            | 1   |         |
| 7      | 933-0381 | PANEL, FRONT RIGHT           | 1   |         |
| 8      | 933-5530 | LATCH, QUARTER TURN          | 2   |         |
| 9      | 933-6102 | WINDOW, CONTROL PANEL        | 1   |         |
| 10     | 933-6103 | WINDOW SEAL, OPERATOR PANEL  | 1   |         |

Not Shown:

Footnotes:

Notes:

# Oil Cooler Door HB4500XT





## Oil Cooler Door

HB4500XT

| Bom ID | Part No  | Description                | Qty | Remarks |
|--------|----------|----------------------------|-----|---------|
| 1      | 933-0392 | DOOR, COOLER INLET ASSY    | 1   |         |
| 2      | 04FW-SAE | WASHER, 1/4"               | 4   |         |
| 3      | 04TLN    | NUT, 1/4-20 TOP LOCK       | 4   |         |
| 4      | 912-6302 | BLIND RIVET, ALUMINUM, 6-4 | 4   |         |
| 5      | 933-0323 | PANEL, REAR RIGHT          | 1   |         |
| 6      | 933-5530 | LATCH, QUARTER TURN        | 1   |         |

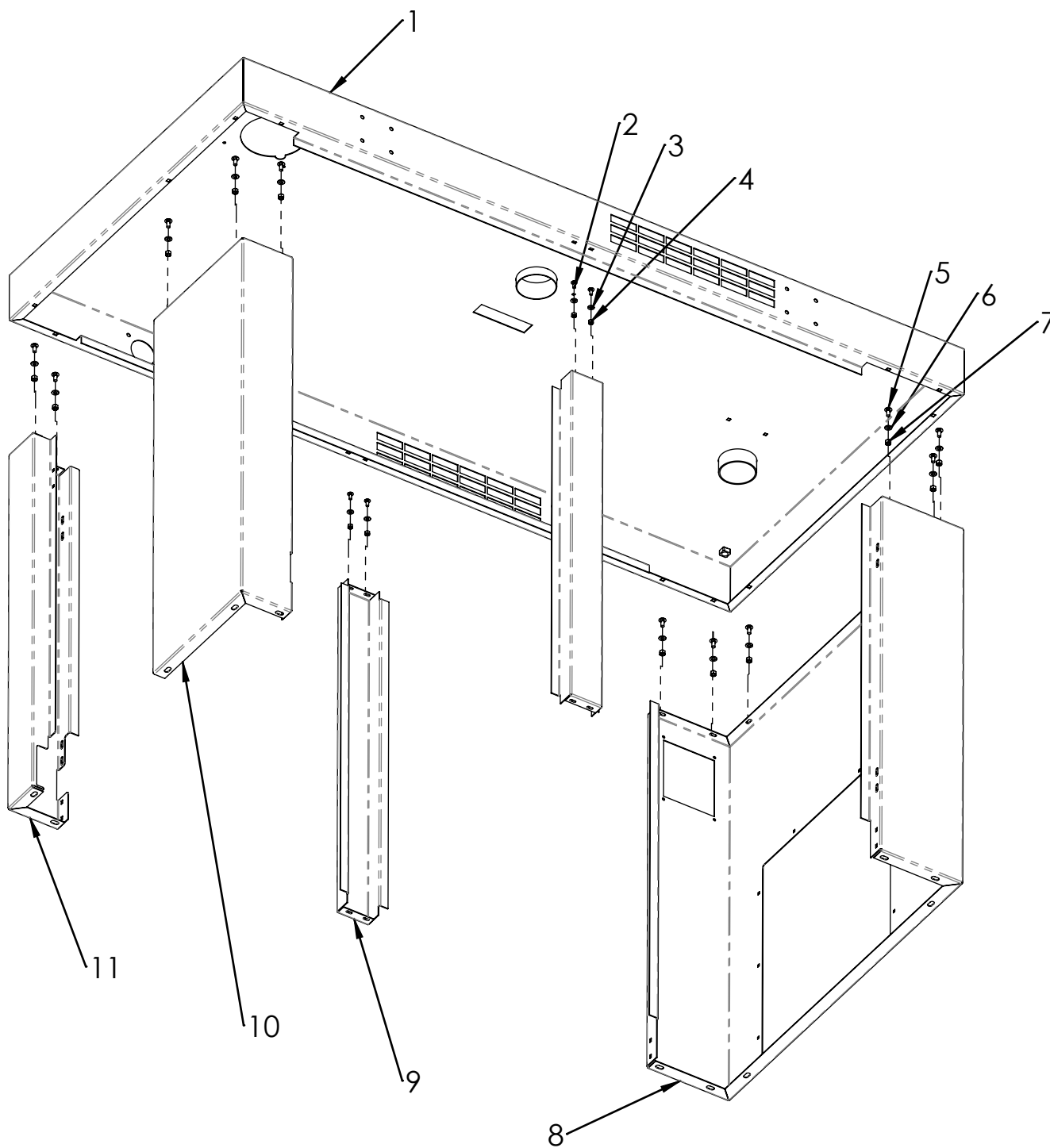
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Footnotes:

Notes:

# Top to Sides

HB4500XT



## Top to Sides

HB4500XT

| Bom ID | Part No  | Description                  | Qty | Remarks |
|--------|----------|------------------------------|-----|---------|
| 1      | 933-0521 | PANEL, ROOF WELDMENT         | 1   |         |
| 2      | 04CB10   | BOLT, 1/4-20 x .625 CARRIAGE | 4   |         |
| 3      | 04FW-SAE | WASHER, 1/4"                 | 4   |         |
| 4      | 04TLN    | NUT, 1/4-20 TOP LOCK         | 4   |         |
| 5      | 05CB12   | BOLT, 5/16-18 x .75 CARRIAGE | 11  |         |
| 6      | 05FW-SAE | WASHER, 5/16"                | 11  |         |
| 7      | 05TLN    | NUT, 5/16-18 TOP LOCK        | 11  |         |
| 8      | 933-0381 | PANEL, FRONT RIGHT           | 1   |         |
| 9      | 933-0325 | PANEL, POST                  | 2   |         |
| 10     | 933-0323 | PANEL, REAR RIGHT            | 1   |         |
| 11     | 933-0322 | PANEL, REAR LEFT             | 1   |         |

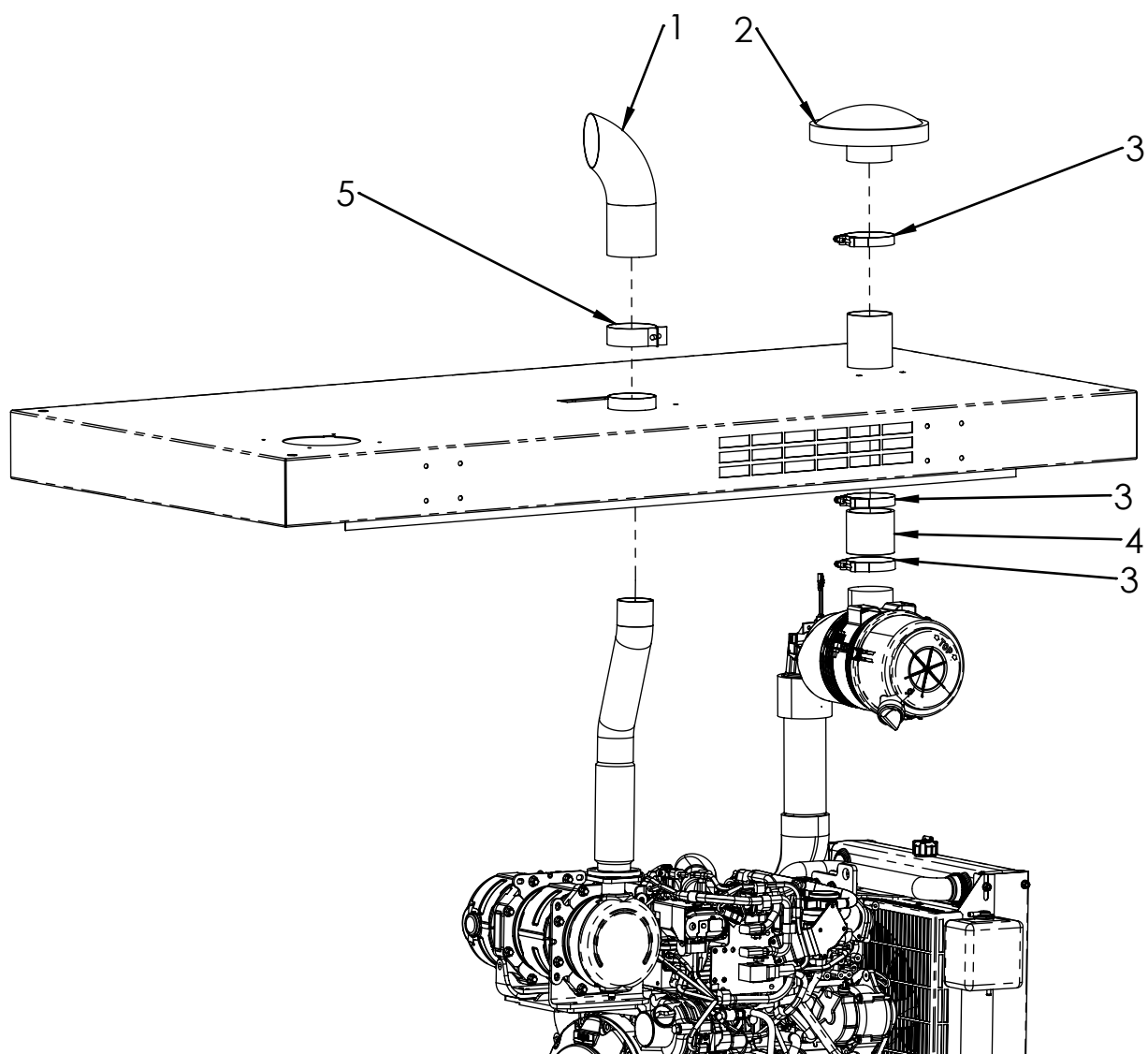
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Footnotes:

Notes:

# Top Exhausts and Intake

HB4500XT



## Top Exhausts and Intake

HB4500XT

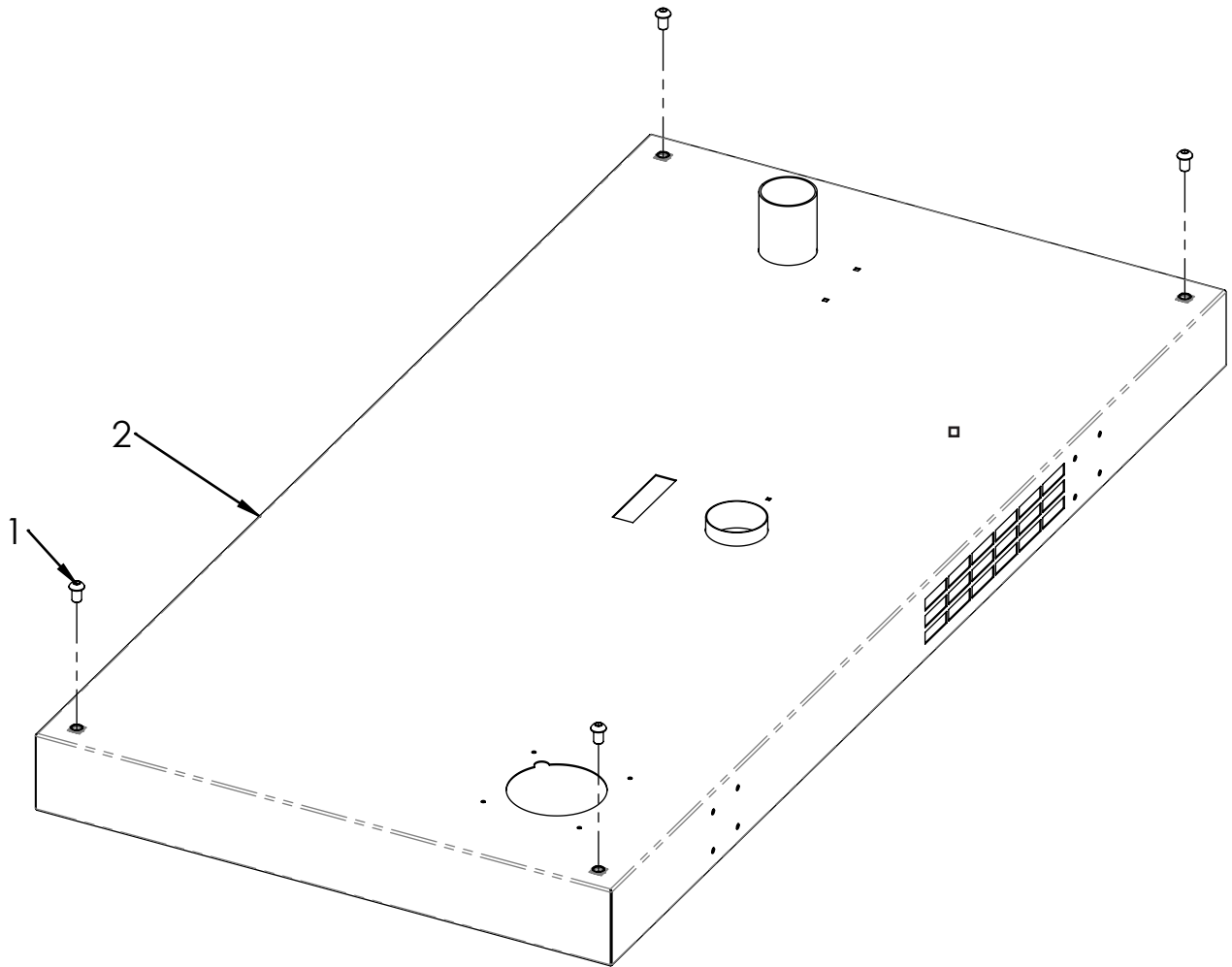
| Bom ID | Part No  | Description                | Qty | Remarks            |
|--------|----------|----------------------------|-----|--------------------|
| 1      | 933-4022 | PIPE, MUFFLER OUTLET       | 1   |                    |
| 2      | 933-0377 | RAIN CAP                   | 1   |                    |
| 3      | 933-0481 | HOSE CLAMP, 3.75"          | 3   | TORQUE TO 23 IN-LB |
| 4      | 933-0529 | HOSE, AIR INTAKE           | 1   |                    |
| 5      | 933-4023 | 4" MOUNTING CLAMP, EXHAUST | 1   |                    |

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Footnotes:

Notes:

# Plug Bolts HB4500XT



## Plug Bolts

HB4500XT

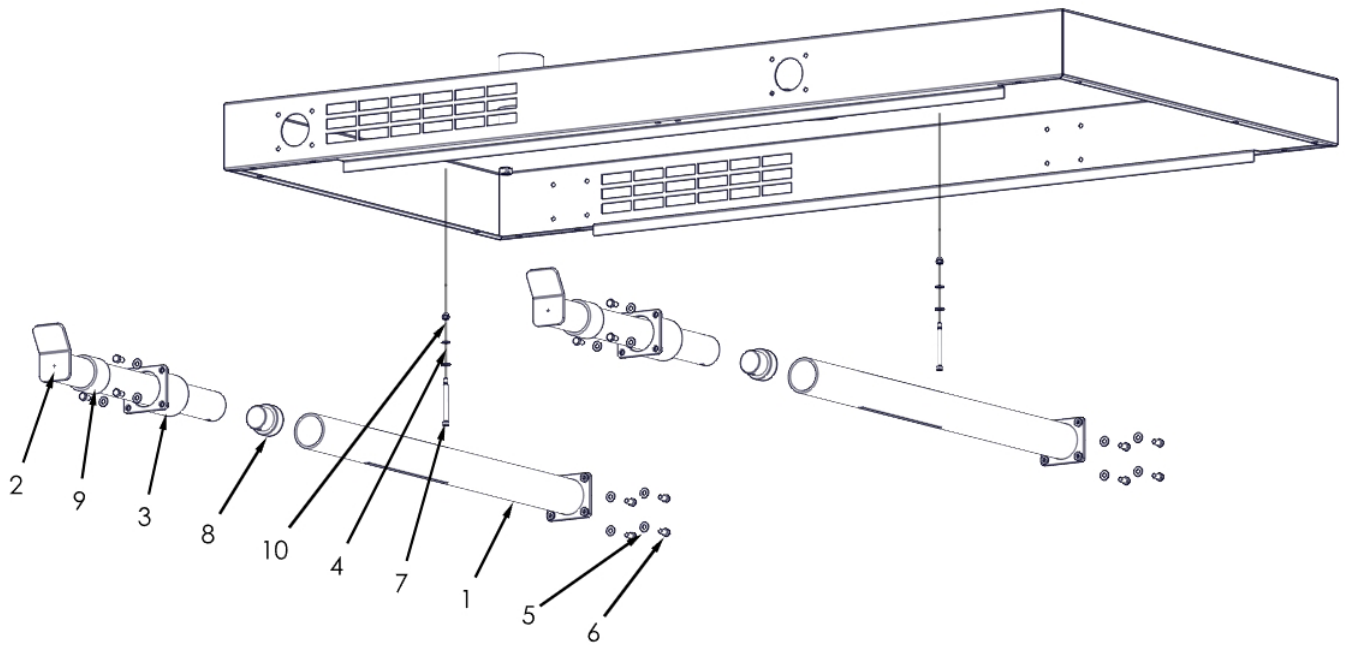
| Bom ID | Part No  | Description          | Qty | Remarks |
|--------|----------|----------------------|-----|---------|
| 1      | 10BH16   | SCREW, 5/8-11x1 BHSC | 4   |         |
| 2      | 933-0521 | PANEL, ROOF WELDMENT | 1   |         |

Not Shown:

Footnotes:

Notes:

# Hose Holder HB4500XT





## Hose Holder

HB4500XT

| Bom ID | Part No  | Description                   | Qty | Remarks |
|--------|----------|-------------------------------|-----|---------|
| 1      | 933-5501 | HOLDER, OUTSIDE HOSE          | 2   |         |
| 2      | 933-5517 | HOLDER, INSIDE HOSE           | 2   |         |
| 3      | 933-5519 | SOCKET, HOSE HOLDER           | 2   |         |
| 4      | 05FW-SAE | WASHER, 5/16"                 | 2   |         |
| 5      | 06FW-SAE | WASHER, 3/8"                  | 18  |         |
| 6      | 06HH12   | SCREW, 3/8-16 x .75 HHC - GR8 | 16  |         |
| 7      | 06SS52   | SCREW, 3/8 x 3.25 SHOULDER    | 2   |         |
| 8      | 933-0434 | GUIDE, INNER TUBE             | 2   |         |
| 9      | 933-0435 | GUIDE, OUTER TUBE             | 2   |         |
| 10     | 933-0517 | NUT, 5/16-18 ACORN LOCK       | 2   |         |

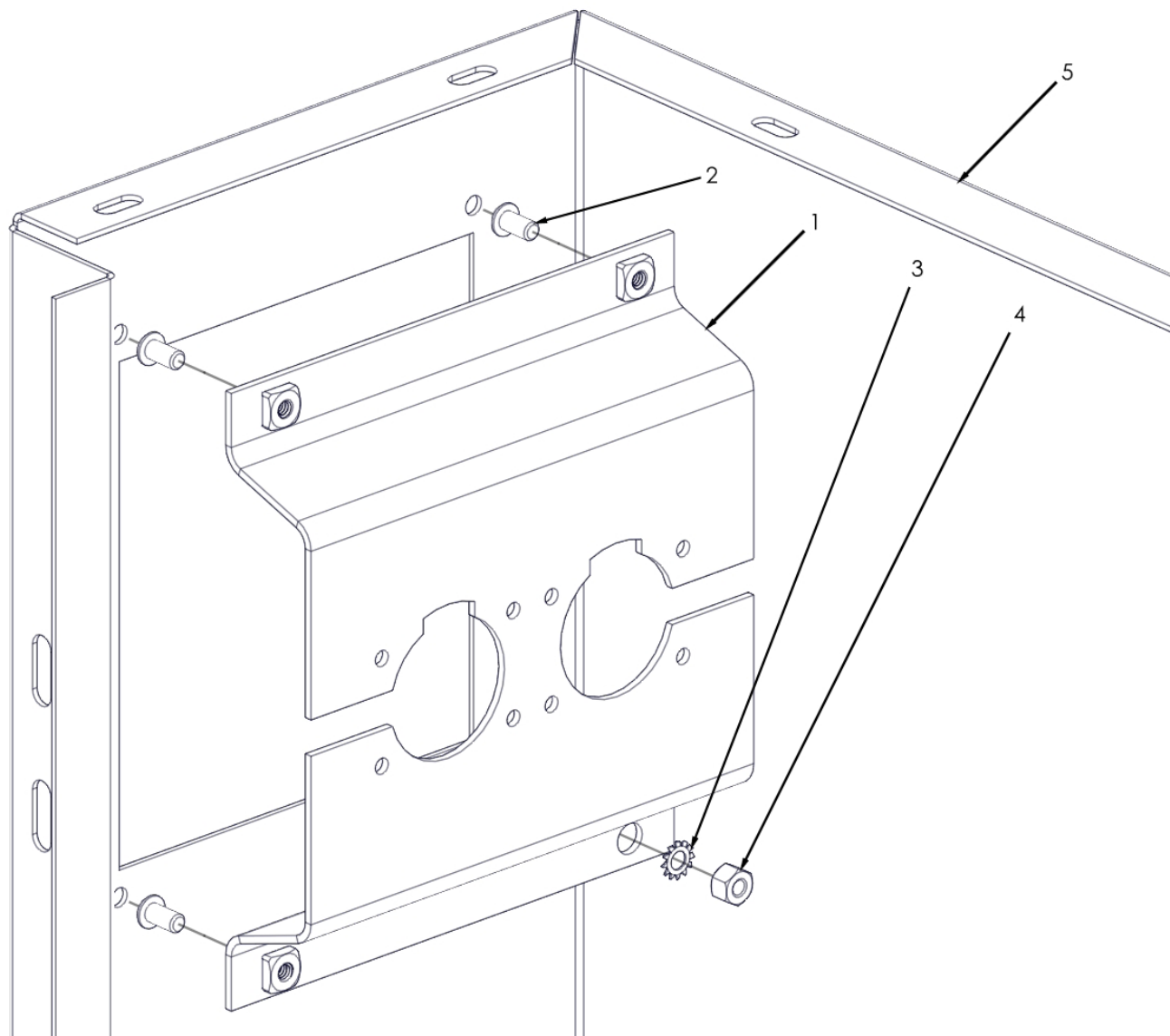
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Footnotes:

Notes:

# RV Connection Panel

HB4500XT



## RV Connection Panel

HB4500XT

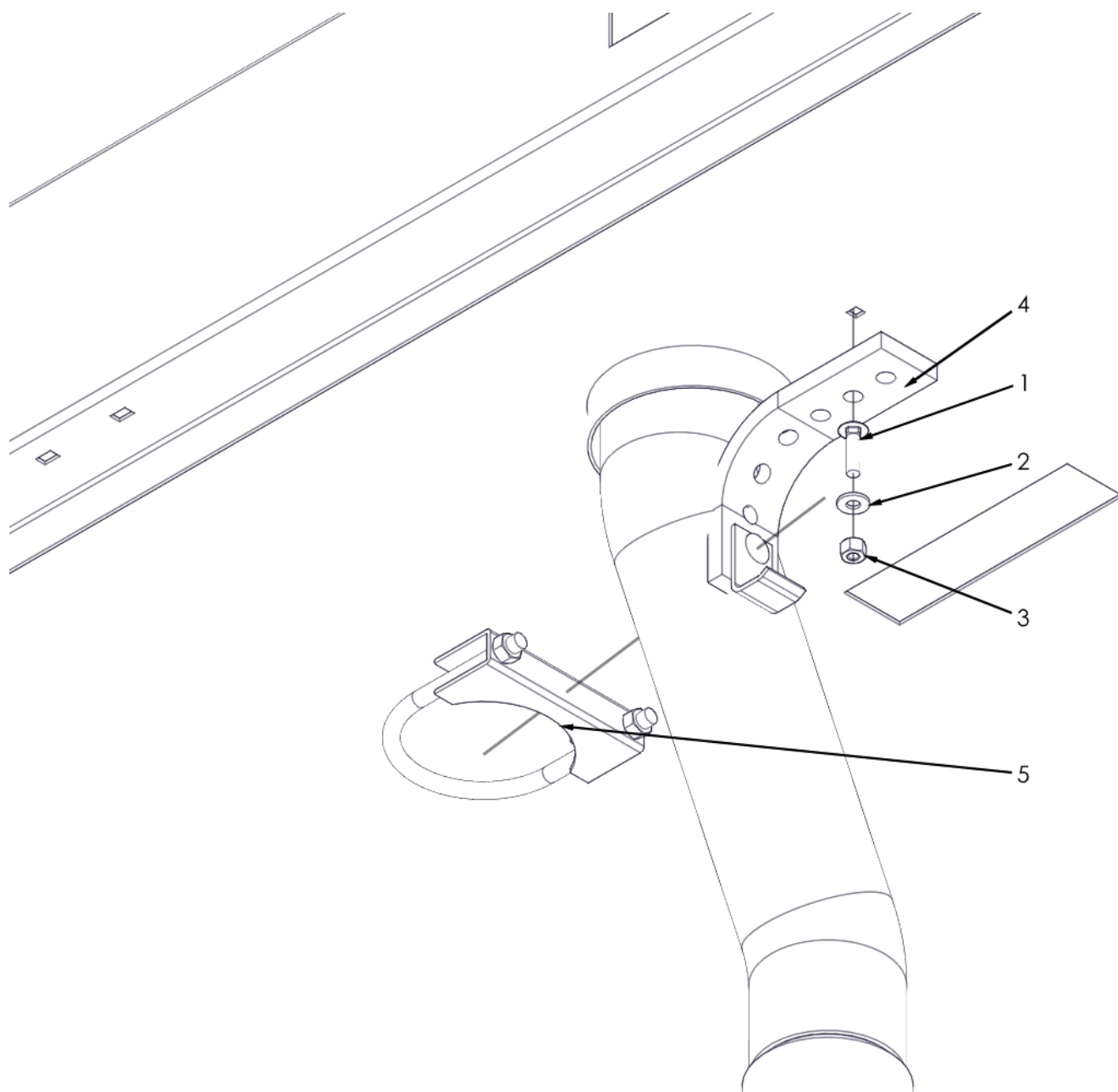
| Bom ID | Part No  | Description                  | Qty | Remarks |
|--------|----------|------------------------------|-----|---------|
| 1      | 933-0479 | WELDMENT, ELECTRICAL BRACKET | 1   |         |
| 2      | 04BH08   | SCREW, 1/4-20x0.5 BHSC       | 4   |         |
| 3      | 04ETLW   | WASHER, 1/4" ETL             | 1   |         |
| 4      | 04TLN    | NUT, 1/4-20 TOP LOCK         | 1   |         |
| 5      | 933-0381 | PANEL, FRONT RIGHT           | 1   |         |

Not Shown:

Footnotes:

Notes:

# Exhaust Clamp HB4500XT



## Exhaust Clamp

HB4500XT

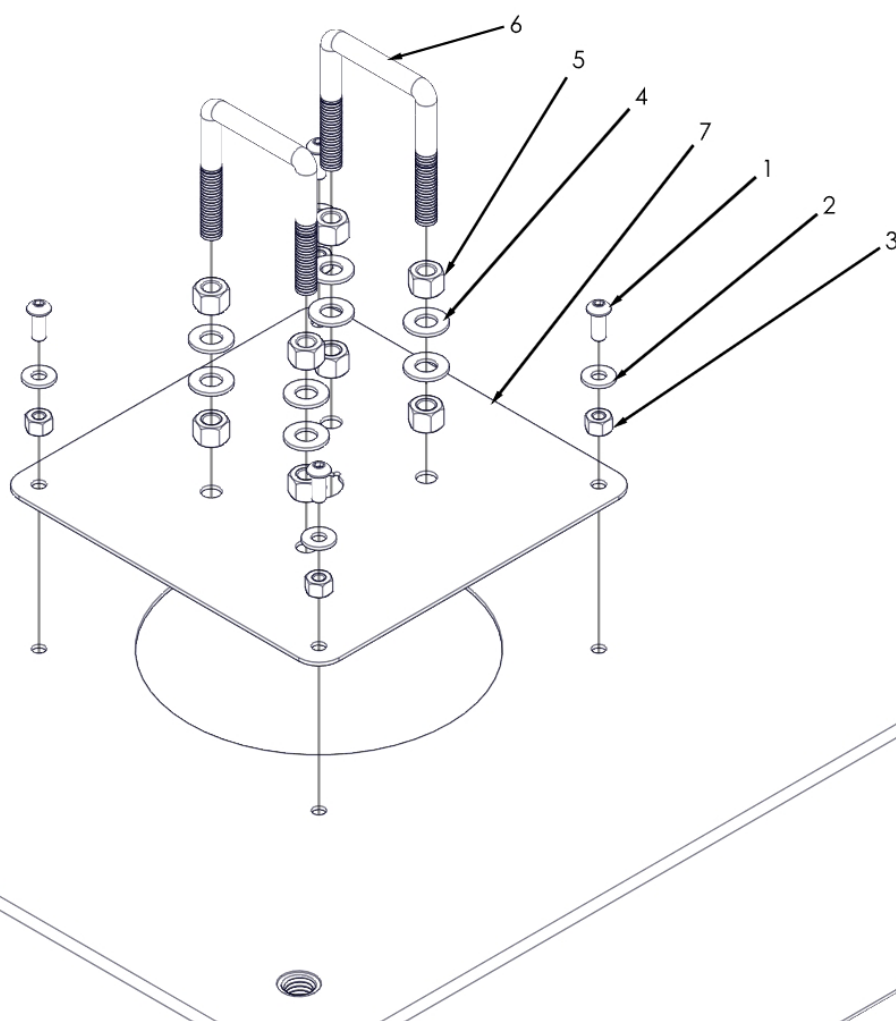
| Bom ID | Part No  | Description               | Qty | Remarks |
|--------|----------|---------------------------|-----|---------|
| 1      | 04CB16   | BOLT, 1/4-20 x 1 CARRIAGE | 1   |         |
| 2      | 04FW-SAE | WASHER, 1/4"              | 1   |         |
| 3      | 04TLN    | NUT, 1/4-20 TOP LOCK      | 1   |         |
| 4      | 912-6156 | HANGER, MUFFLER           | 1   |         |
| 5      | 933-0408 | CLAMP, EXHAUST Ø3.0       | 1   |         |

Not Shown:

Footnotes:

Notes:

# E-Stop Guard HB4500XT



## E-Stop Guard

HB4500XT

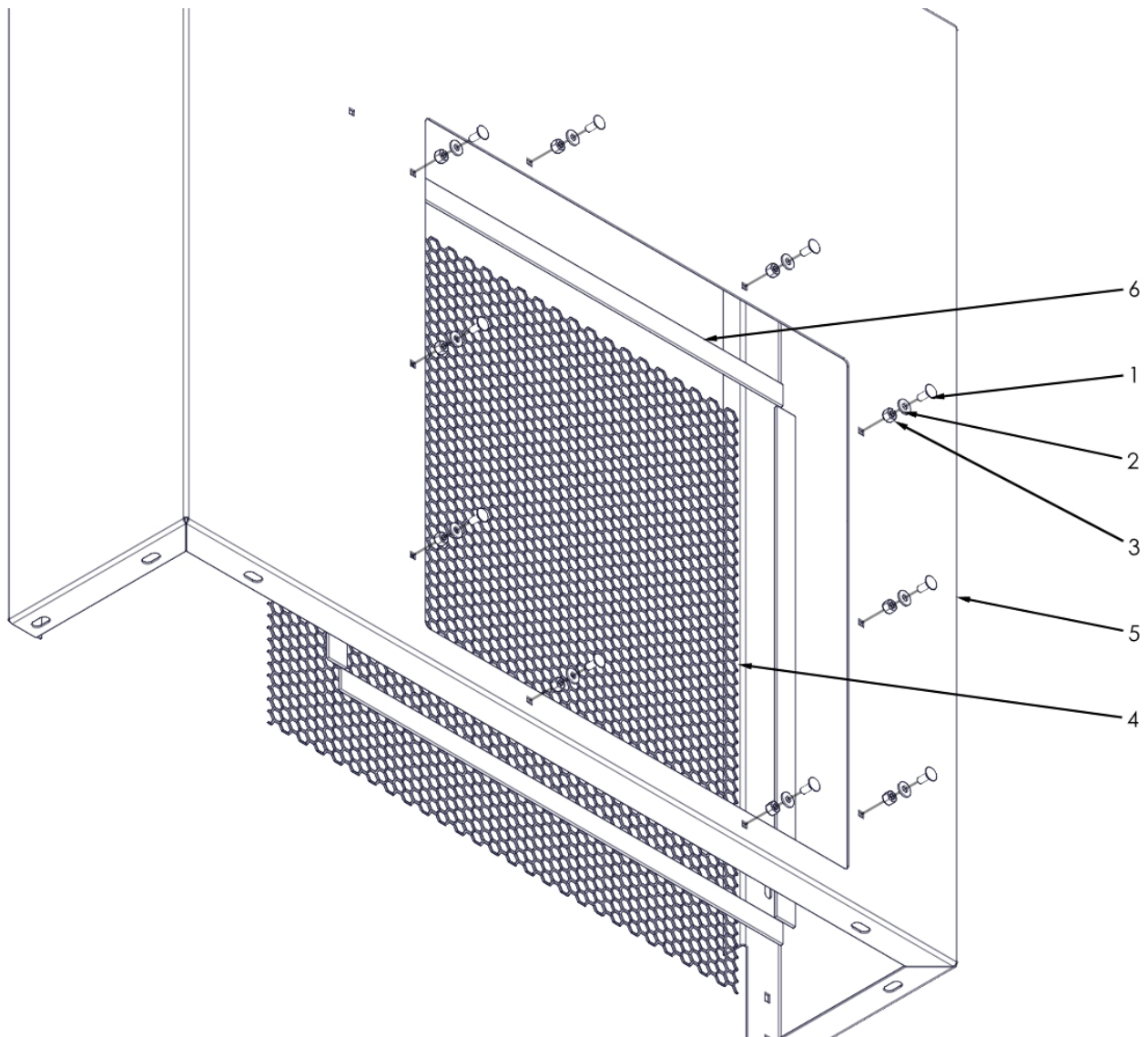
| Bom ID | Part No  | Description                    | Qty | Remarks |
|--------|----------|--------------------------------|-----|---------|
| 1      | 04BH10   | SCREW, 1/4-20x0.625 BHSC       | 4   |         |
| 2      | 04FW-SAE | WASHER, 1/4"                   | 4   |         |
| 3      | 04TLN    | NUT, 1/4-20 TOP LOCK           | 4   |         |
| 4      | 06FW-SAE | WASHER, 3/8"                   | 8   |         |
| 5      | 06TLN    | NUT, 3/8-16 TOP LOCK           | 8   |         |
| 6      | 914-0255 | U-BOLT, 3/8-16 x 2"W x 3"T SQ. | 2   |         |
| 7      | 933-5629 | PANEL, FILTER ACCESS           | 1   |         |

Not Shown:

Footnotes:

Notes:

Grill  
HB4500XT





# Grill

## HB4500XT

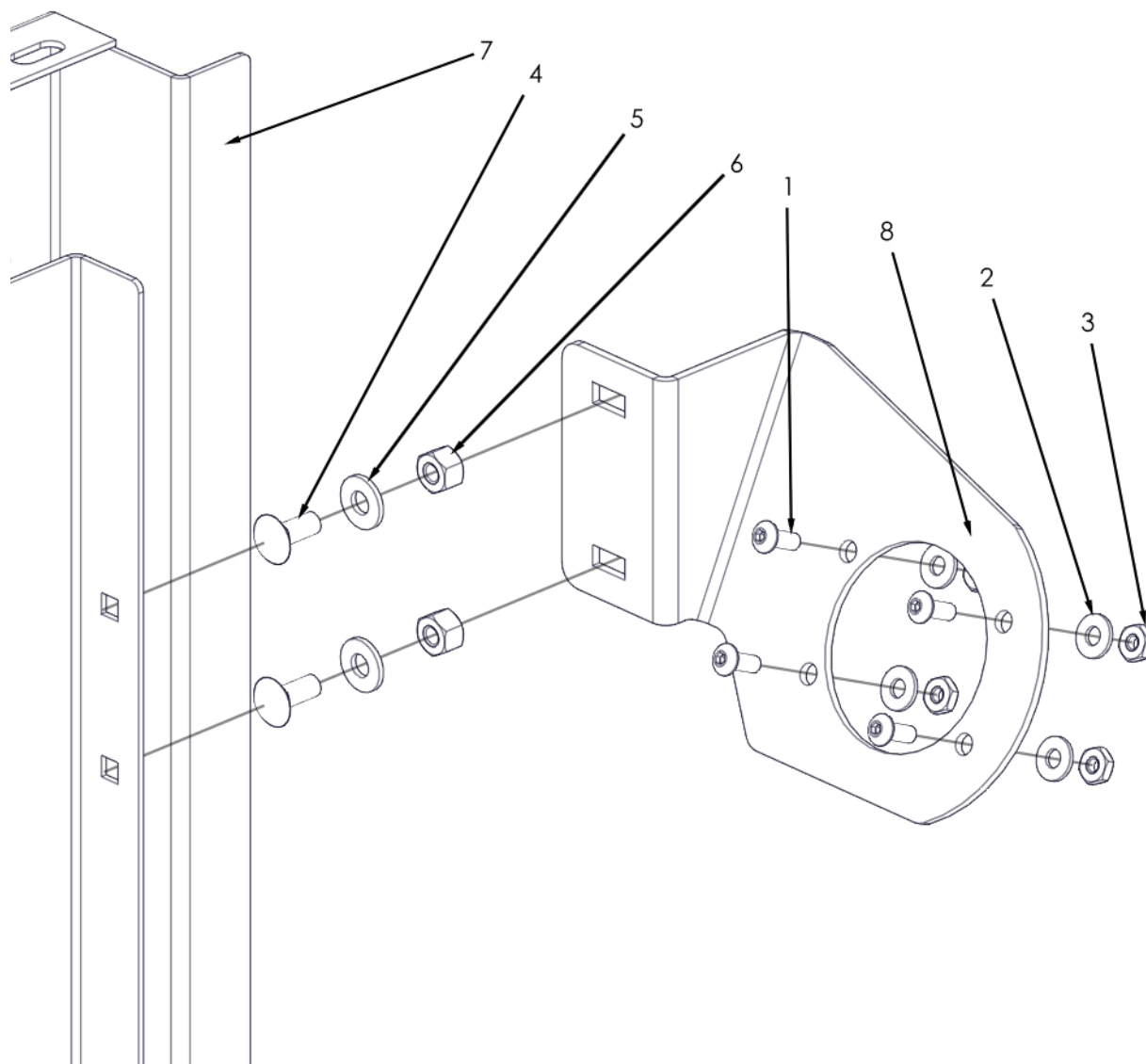
| Bom ID | Part No  | Description                  | Qty | Remarks |
|--------|----------|------------------------------|-----|---------|
| 1      | 04CB10   | BOLT, 1/4-20 x .625 CARRIAGE | 10  |         |
| 2      | 04FW-SAE | WASHER, 1/4"                 | 10  |         |
| 3      | 04TLN    | NUT, 1/4-20 TOP LOCK         | 10  |         |
| 4      | 933-0380 | GRILL PAINTED, 4500XT        | 1   |         |
| 5      | 933-0381 | PANEL, FRONT RIGHT           | 1   |         |
| 6      | 933-0515 | CUSHION STRAP, 24"           | 4   |         |

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Footnotes:

Notes:

# Fuel Fill Bracket HB4500XT



## Fuel Fill Bracket

HB4500XT

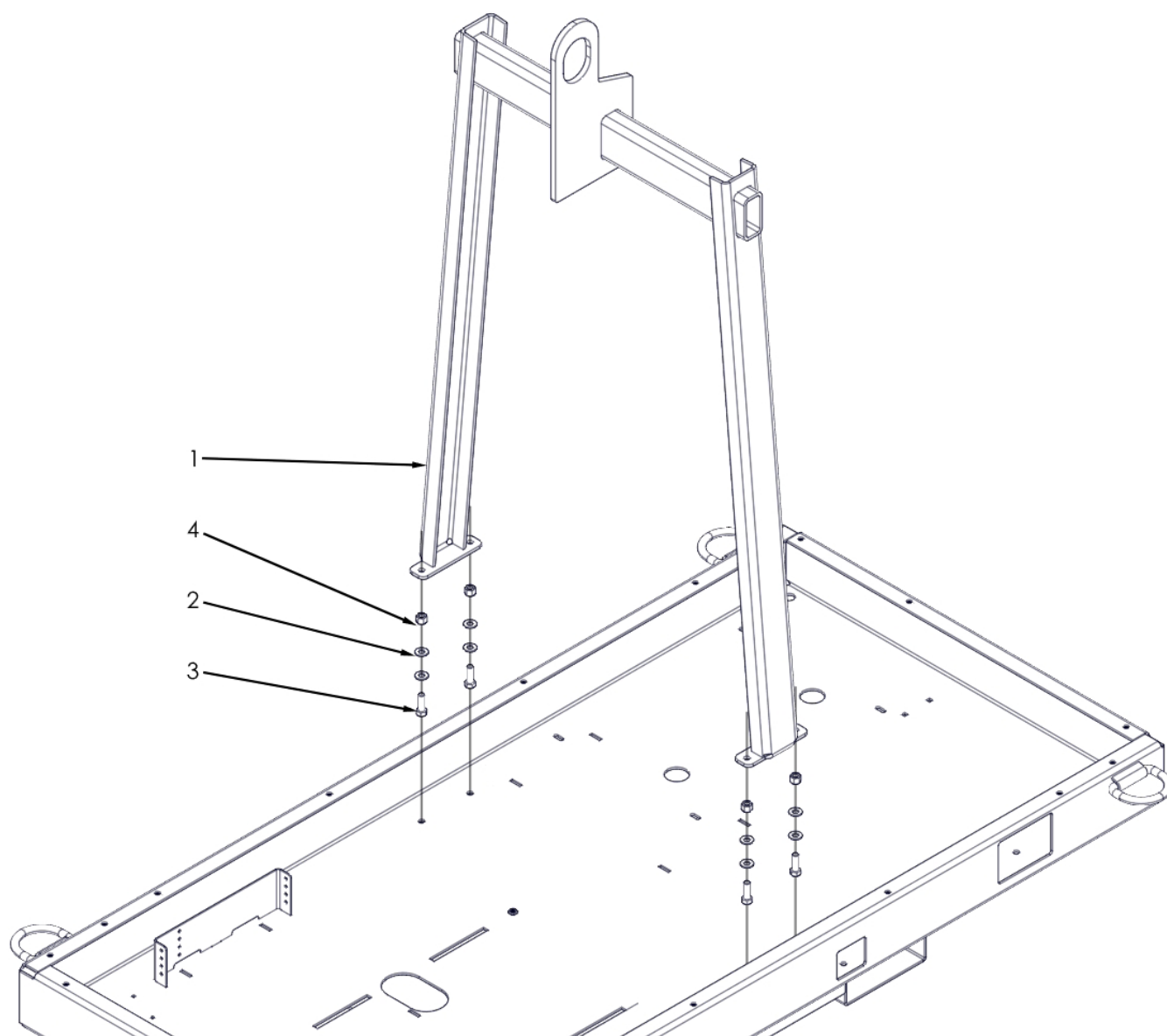
| Bom ID | Part No   | Description                  | Qty | Remarks |
|--------|-----------|------------------------------|-----|---------|
| 1      | #10BH08   | SCREW, #10-24x0.5 BHSC       | 4   |         |
| 2      | #10FW-SAE | WASHER, #10 - GR5            | 4   |         |
| 3      | #10TLN    | NUT, #10-24 TOP LOCK         | 4   |         |
| 4      | 04CB10    | BOLT, 1/4-20 x .625 CARRIAGE | 2   |         |
| 5      | 04FW-SAE  | WASHER, 1/4"                 | 2   |         |
| 6      | 04TLN     | NUT, 1/4-20 TOP LOCK         | 2   |         |
| 7      | 933-0322  | PANEL, REAR LEFT             | 1   |         |
| 8      | 933-0365  | BRACKET, FUEL FILL           | 1   |         |

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Footnotes:

Notes:

# Lift Eye HB4500XT



## Lift Eye

HB4500XT

| Bom ID | Part No  | Description                   | Qty | Remarks |
|--------|----------|-------------------------------|-----|---------|
| 1      | 933-0344 | LIFT EYE ASSEMBLY             | 1   |         |
| 2      | 08FW-SAE | WASHER, 1/2"                  | 8   |         |
| 3      | 08HH24   | SCREW, 1/2-13 x 1.5 HHC - GR8 | 4   |         |
| 4      | 08TLN    | NUT, 1/2-13 TOP LOCK          | 4   |         |

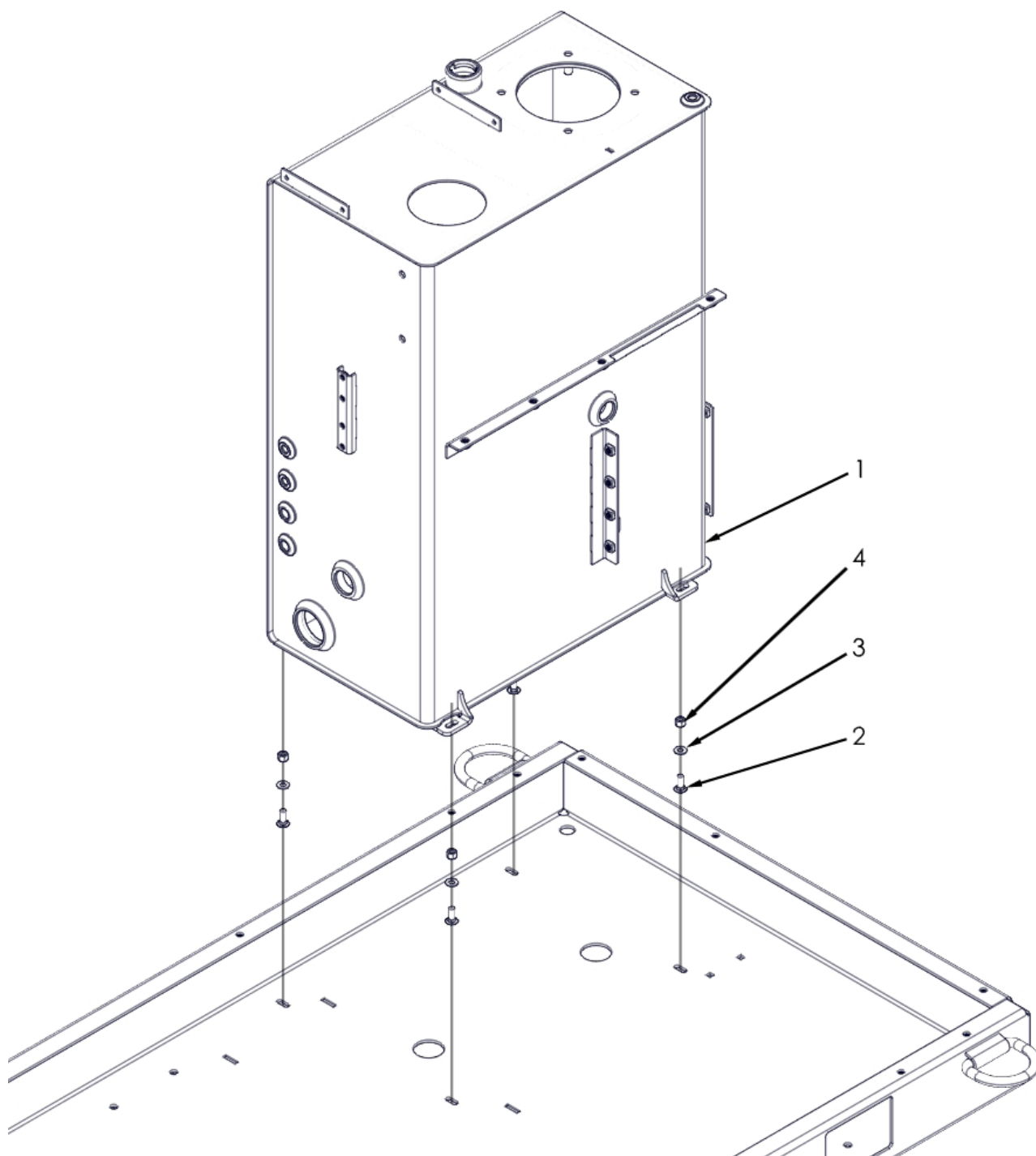
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Footnotes:

Notes:

# Hydraulic Tank to Tub

HB4500XT



## Hydraulic Tank to Tub

HB4500XT

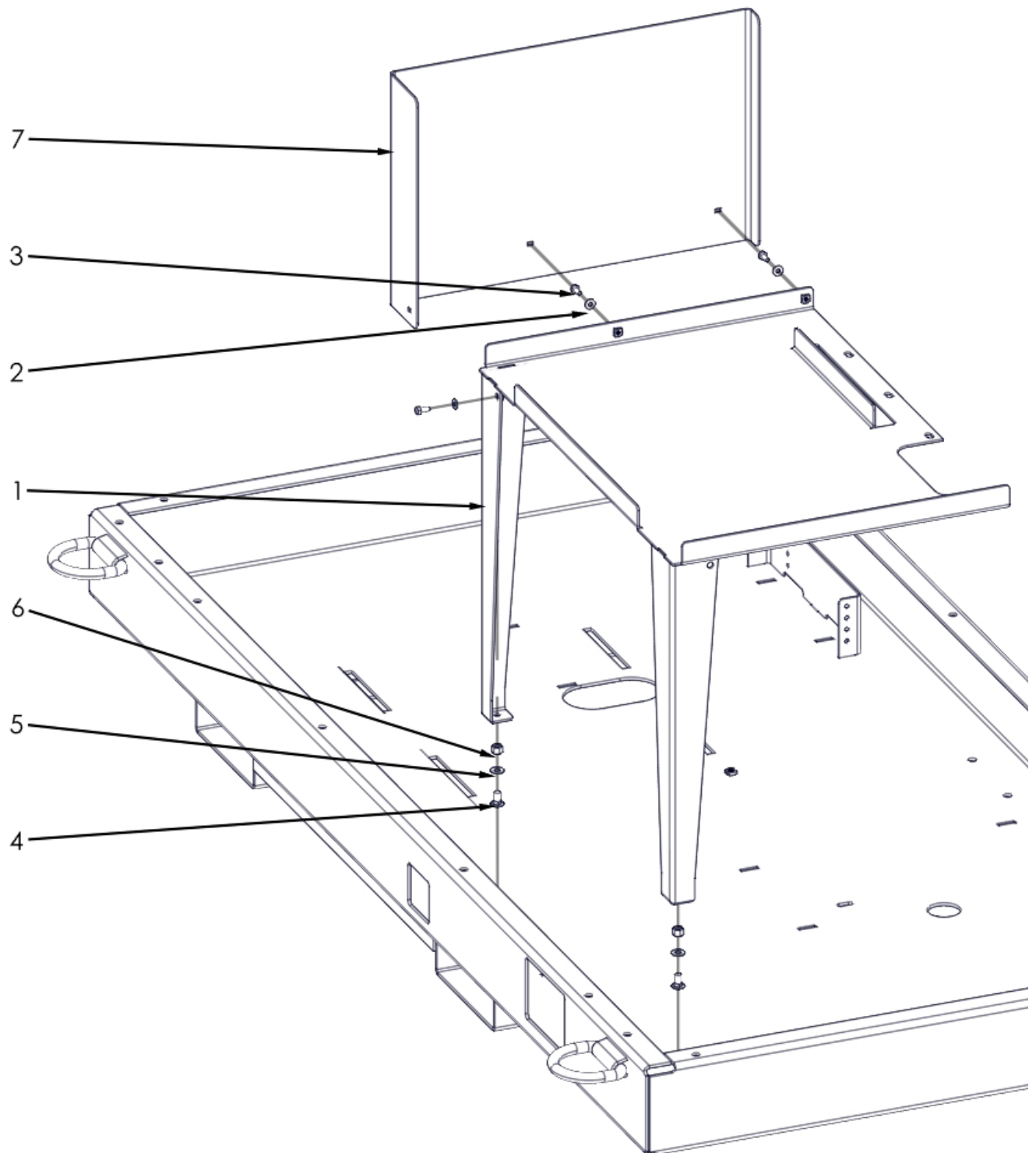
| Bom ID | Part No  | Description               | Qty | Remarks |
|--------|----------|---------------------------|-----|---------|
| 1      | 933-2066 | TANK WELDMENT ASSY        | 1   |         |
| 2      | 06CB16   | BOLT, 3/8-16 x 1 CARRIAGE | 4   |         |
| 3      | 06FW-SAE | WASHER, 3/8"              | 4   |         |
| 4      | 06TLN    | NUT, 3/8-16 TOP LOCK      | 4   |         |

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Footnotes:

Notes:

# Fuel Tank Stand HB4500XT





## Fuel Tank Stand

HB4500XT

| Bom ID | Part No  | Description                    | Qty | Remarks |
|--------|----------|--------------------------------|-----|---------|
| 1      | 933-6101 | STAND, FUEL TANK               | 1   |         |
| 2      | 04FW-SAE | WASHER, 1/4"                   | 3   |         |
| 3      | 04HH10   | SCREW, 1/4-20 x .625 HHC - GR8 | 3   |         |
| 4      | 06CB12   | BOLT, 3/8-16 x .75 CARRIAGE    | 2   |         |
| 5      | 06FW-SAE | WASHER, 3/8"                   | 2   |         |
| 6      | 06TLN    | NUT, 3/8-16 TOP LOCK           | 2   |         |
| 7      | 933-0384 | HEAT SHIELD, DIESEL            | 1   |         |

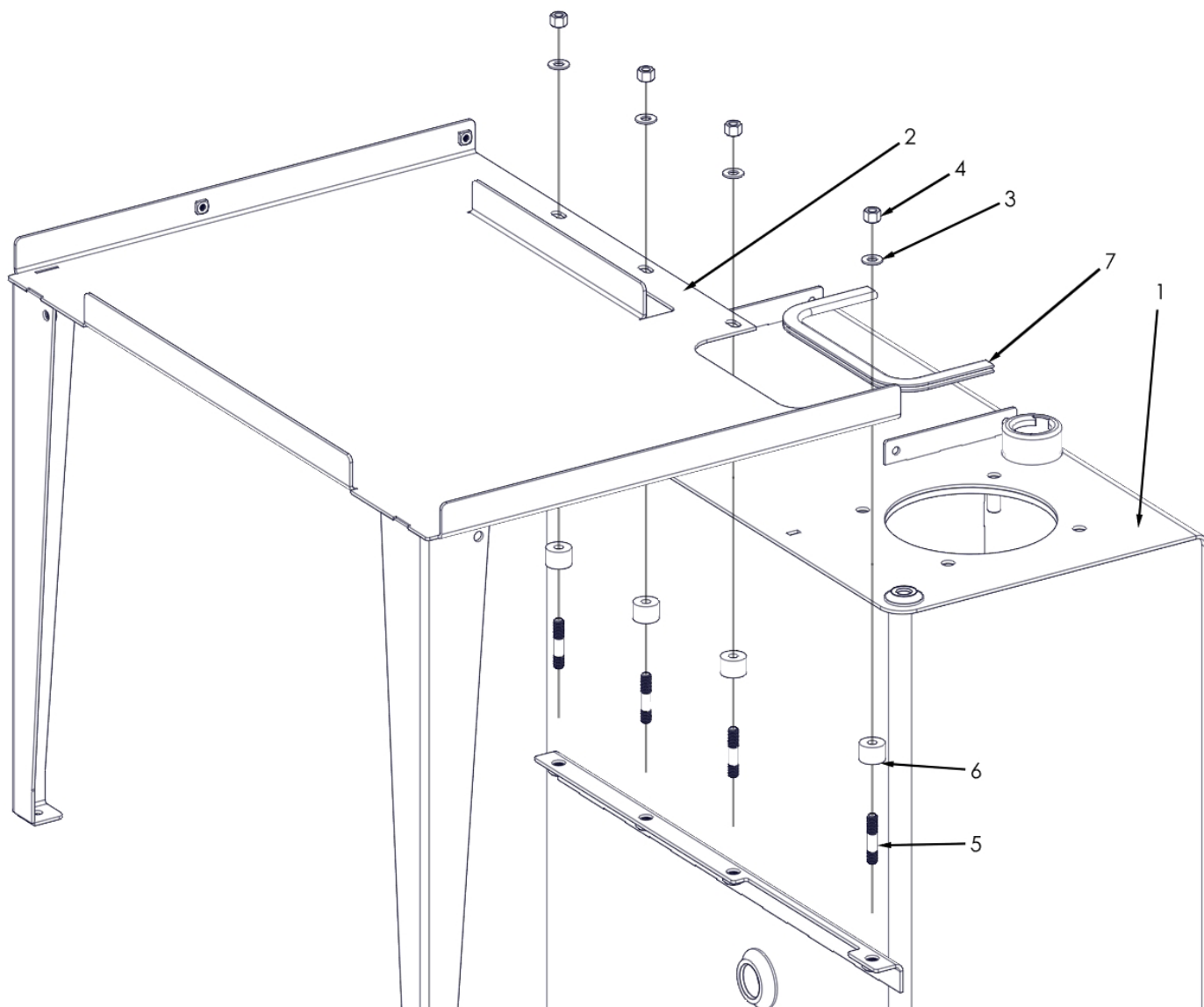
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Footnotes:

Notes:

# Fuel Tank Stand to Hydraulic Tank

HB4500XT



## Fuel Tank Stand to Hydraulic Tank

HB4500XT

| Bom ID | Part No  | Description              | Qty | Remarks           |
|--------|----------|--------------------------|-----|-------------------|
| 1      | 933-2066 | TANK WELDMENT ASSY       | 1   |                   |
| 2      | 933-6101 | STAND, FUEL TANK         | 1   |                   |
| 3      | 06FW-SAE | WASHER, 3/8"             | 4   |                   |
| 4      | 06TLN    | NUT, 3/8-16 TOP LOCK     | 4   | TORQUE TO 20IN-LB |
| 5      | 933-0482 | LOCKING STUD, 3/8-16 X 2 | 4   |                   |
| 6      | 933-0483 | ISOLATOR, FUEL TANK      | 4   |                   |
| 7      | 933-5549 | EDGE GUARD, 20.25"       | 1   |                   |

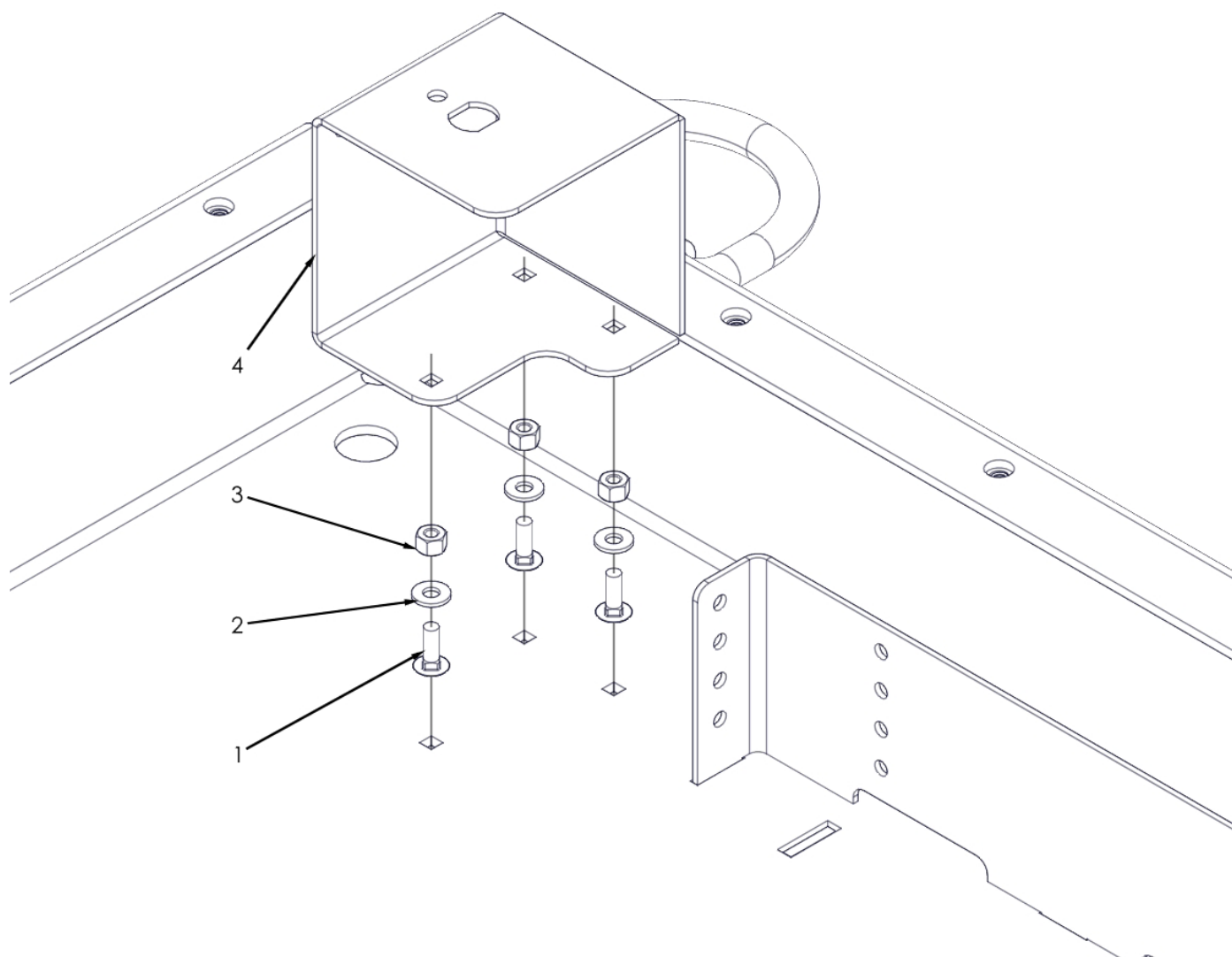
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Footnotes:

Notes:

# Battery Disconnect to Tub

HB4500XT



## Battery Disconnect to Tub

HB4500XT

| Bom ID | Part No  | Description                 | Qty | Remarks |
|--------|----------|-----------------------------|-----|---------|
| 1      | 04CB12   | BOLT, 1/4-20 x .75 CARRIAGE | 3   |         |
| 2      | 04FW-SAE | WASHER, 1/4"                | 3   |         |
| 3      | 04TLN    | NUT, 1/4-20 TOP LOCK        | 3   |         |
| 4      | 941-7496 | BATTERY DISCONNECT HOUSING  | 1   |         |

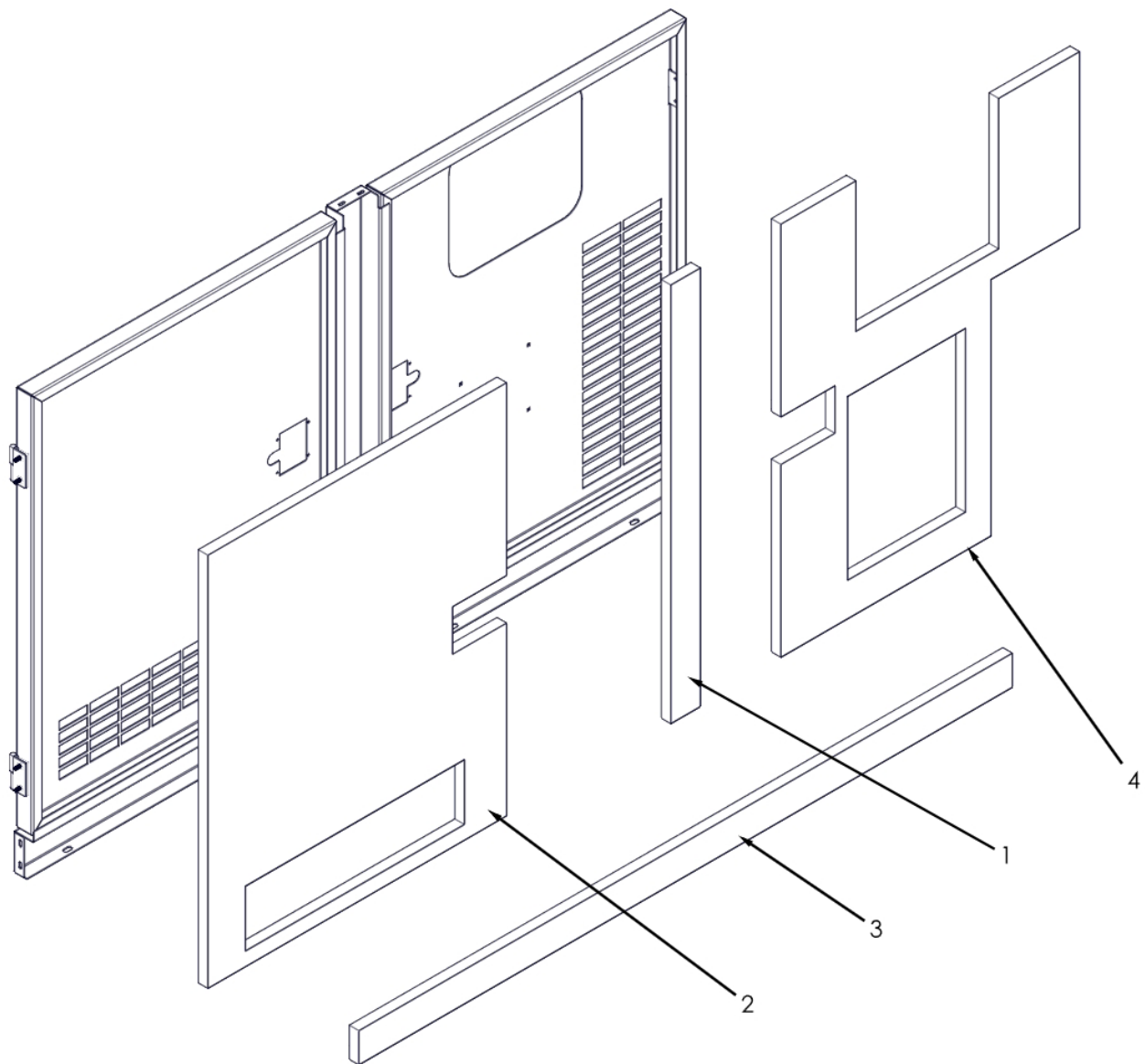
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Footnotes:

Notes:

# OP Side Foam

HB4500XT



## OP Side Foam

HB4500XT

| Bom ID | Part No  | Description       | Qty | Remarks |
|--------|----------|-------------------|-----|---------|
| 1      | 933-0505 | FOAM, DOOR CENTER | 1   |         |
| 2      | 933-0507 | FOAM, R DOOR      | 1   |         |
| 3      | 933-0508 | FOAM, DOOR LOWER  | 1   |         |
| 4      | 933-0509 | FOAM, OP DOOR     | 1   |         |

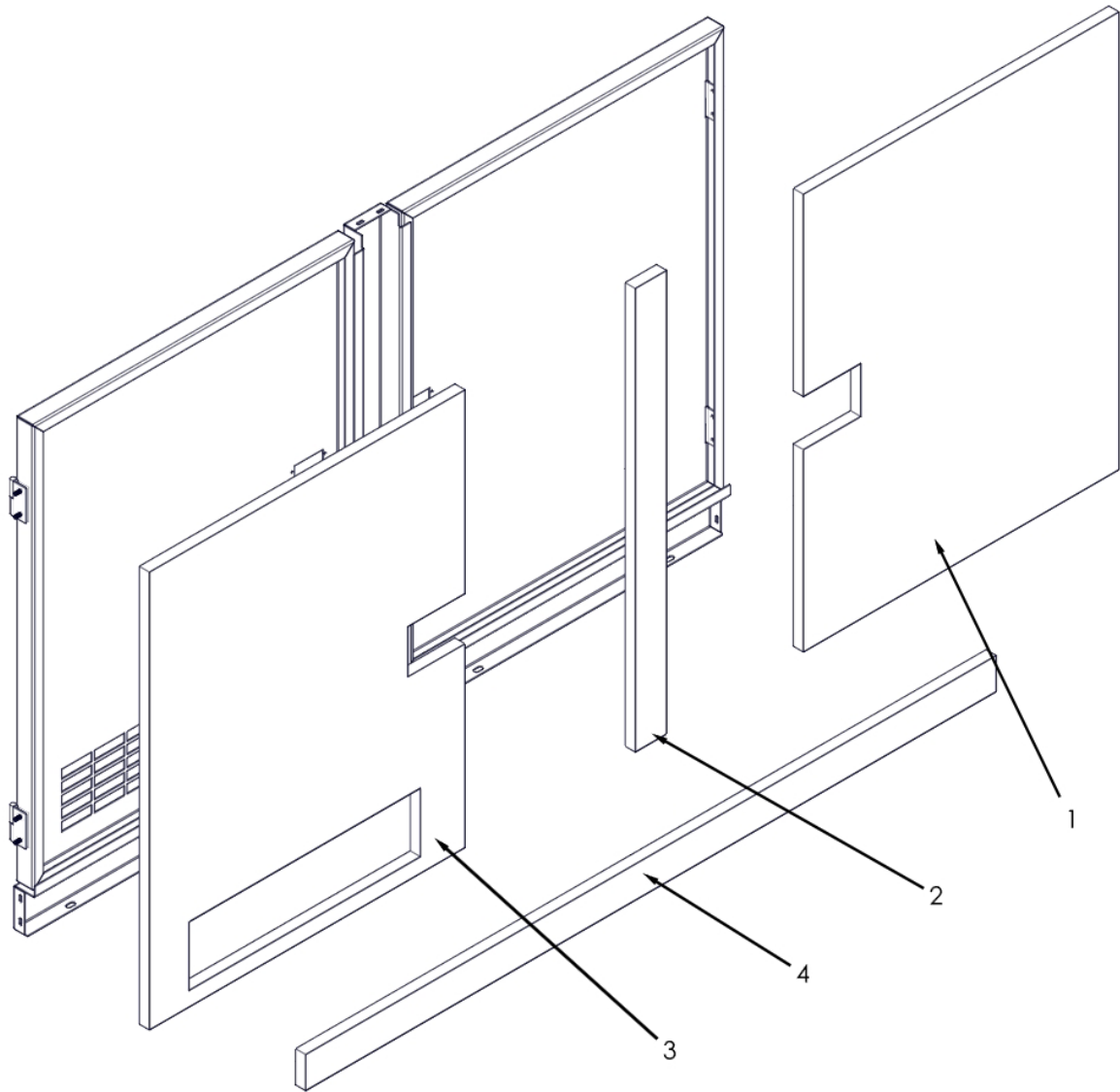
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Footnotes:

Notes:

SPRAY ADHESIVE WITH WINDEX TO EASE INSTALLATION. PLACE, LET DRY FOR 30 MINUTES, THEN PRESS TO ADHERE FOAM

# Non OP Side Foam HB4500XT





## Non OP Side Foam

HB4500XT

| Bom ID | Part No  | Description       | Qty | Remarks |
|--------|----------|-------------------|-----|---------|
| 1      | 933-0502 | FOAM, R/L DOOR    | 1   |         |
| 2      | 933-0505 | FOAM, DOOR CENTER | 1   |         |
| 3      | 933-0507 | FOAM, R DOOR      | 1   |         |
| 4      | 933-0508 | FOAM, DOOR LOWER  | 1   |         |

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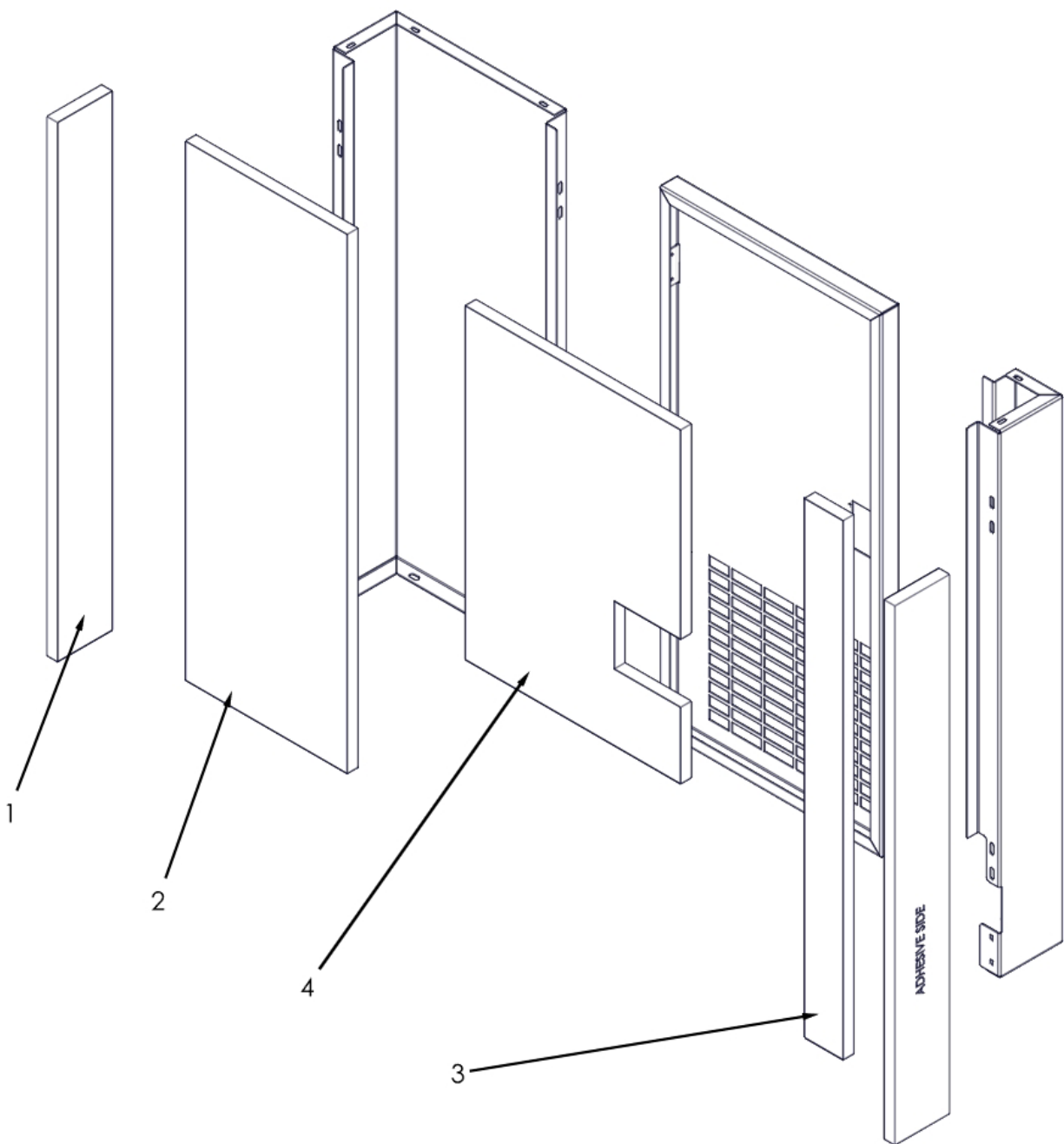
Footnotes:

Notes:

SPRAY ADHESIVE WITH WINDEX TO EASE INSTALLATION. PLACE, LET DRY FOR 30 MINUTES, THEN PRESS TO ADHERE FOAM

# Front Foam

HB4500XT



## Front Foam

HB4500XT

| Bom ID | Part No  | Description     | Qty | Remarks |
|--------|----------|-----------------|-----|---------|
| 1      | 933-0510 | FOAM, DOOR SIDE | 2   |         |
| 2      | 933-0511 | FOAM, FUEL SIDE | 1   |         |
| 3      | 933-0513 | FOAM, FUEL SIDE | 1   |         |
| 4      | 933-0514 | FOAM, FUEL DOOR | 1   |         |

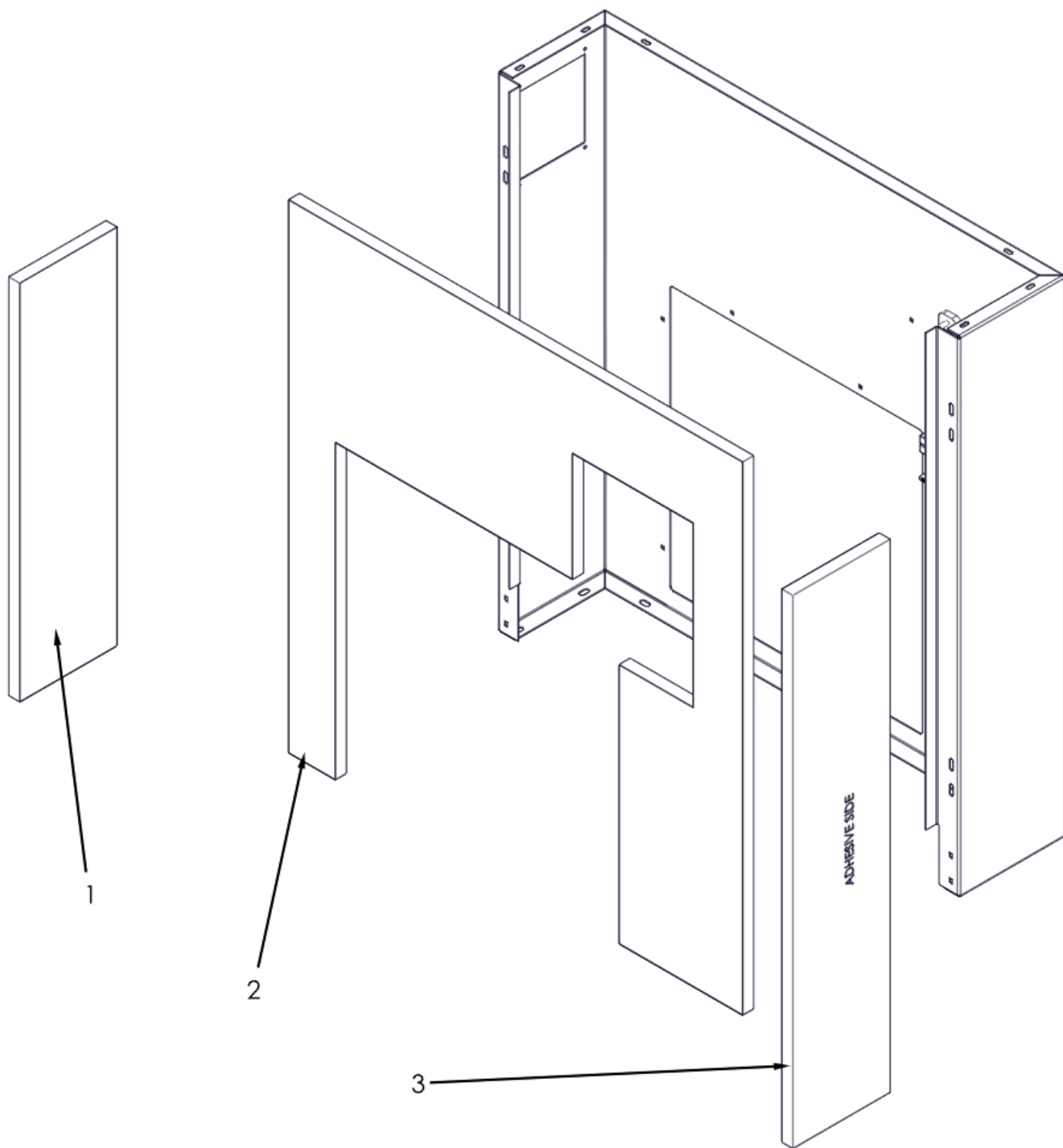
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Footnotes:

Notes:

SPRAY ADHESIVE WITH WINDEX TO EASE INSTALLATION. PLACE, LET DRY FOR 30 MINUTES, THEN PRESS TO ADHERE FOAM

# Back Foam HB4500XT



## Back Foam

HB4500XT

| Bom ID | Part No  | Description    | Qty | Remarks |
|--------|----------|----------------|-----|---------|
| 1      | 933-0503 | FOAM, R/L SIDE | 1   |         |
| 2      | 933-0504 | FOAM, RADIATOR | 1   |         |
| 3      | 933-0506 | FOAM, F/R SIDE | 1   |         |

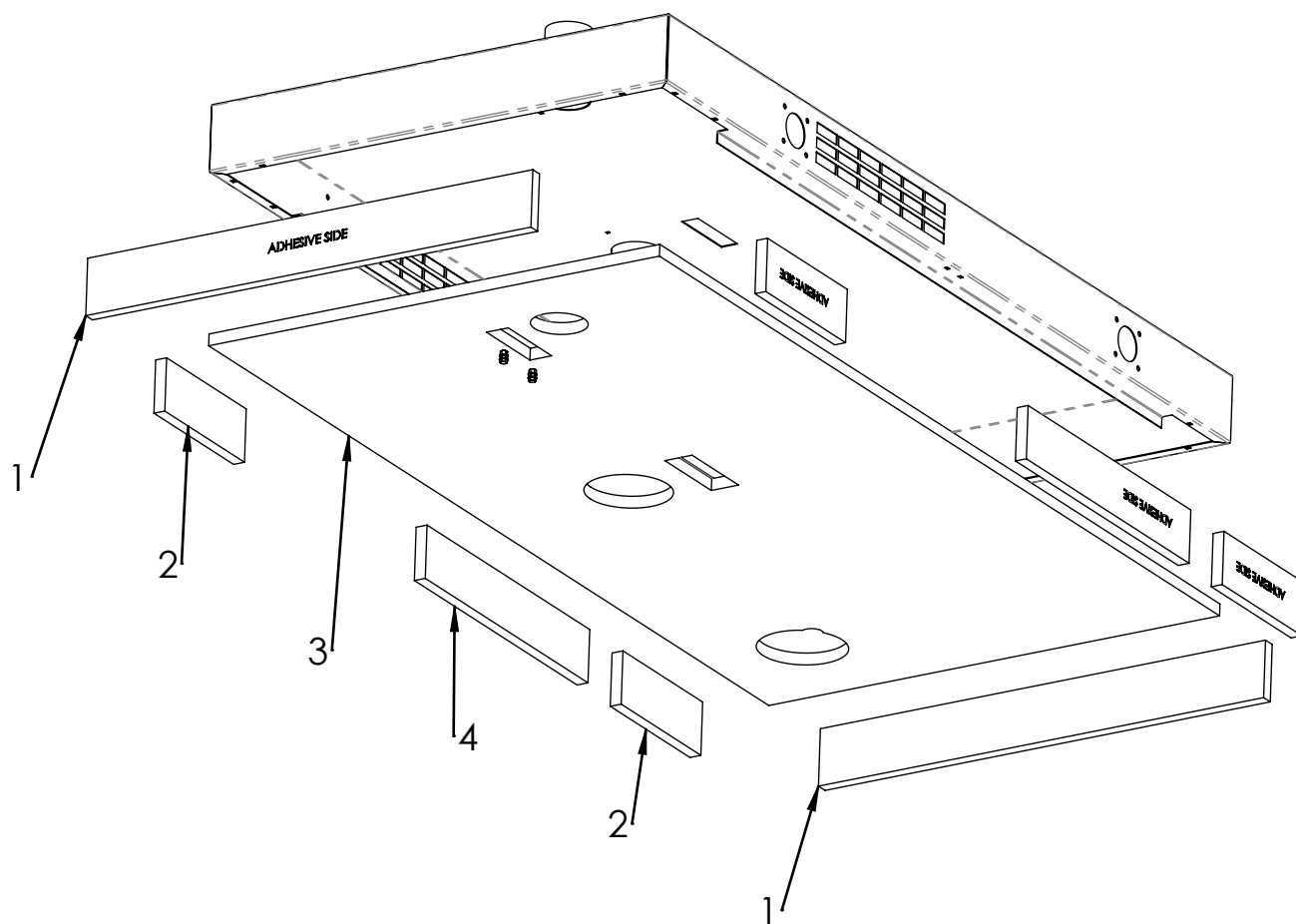
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Footnotes:

Notes:

SPRAY ADHESIVE WITH WINDEX TO EASE INSTALLATION. PLACE, LET DRY FOR 30 MINUTES, THEN PRESS TO ADHERE FOAM

# Top Foam HB4500XT



## Top Foam

HB4500XT

| Bom ID | Part No  | Description      | Qty | Remarks |
|--------|----------|------------------|-----|---------|
| 1      | 933-0512 | FOAM, UPPER SIDE | 2   |         |
| 2      | 933-0530 | FOAM, OVER DOOR  | 4   |         |
| 3      | 933-0531 | FOAM, ROOF       | 1   |         |
| 4      | 933-0501 | FOAM, OVER DOOR  | 2   |         |

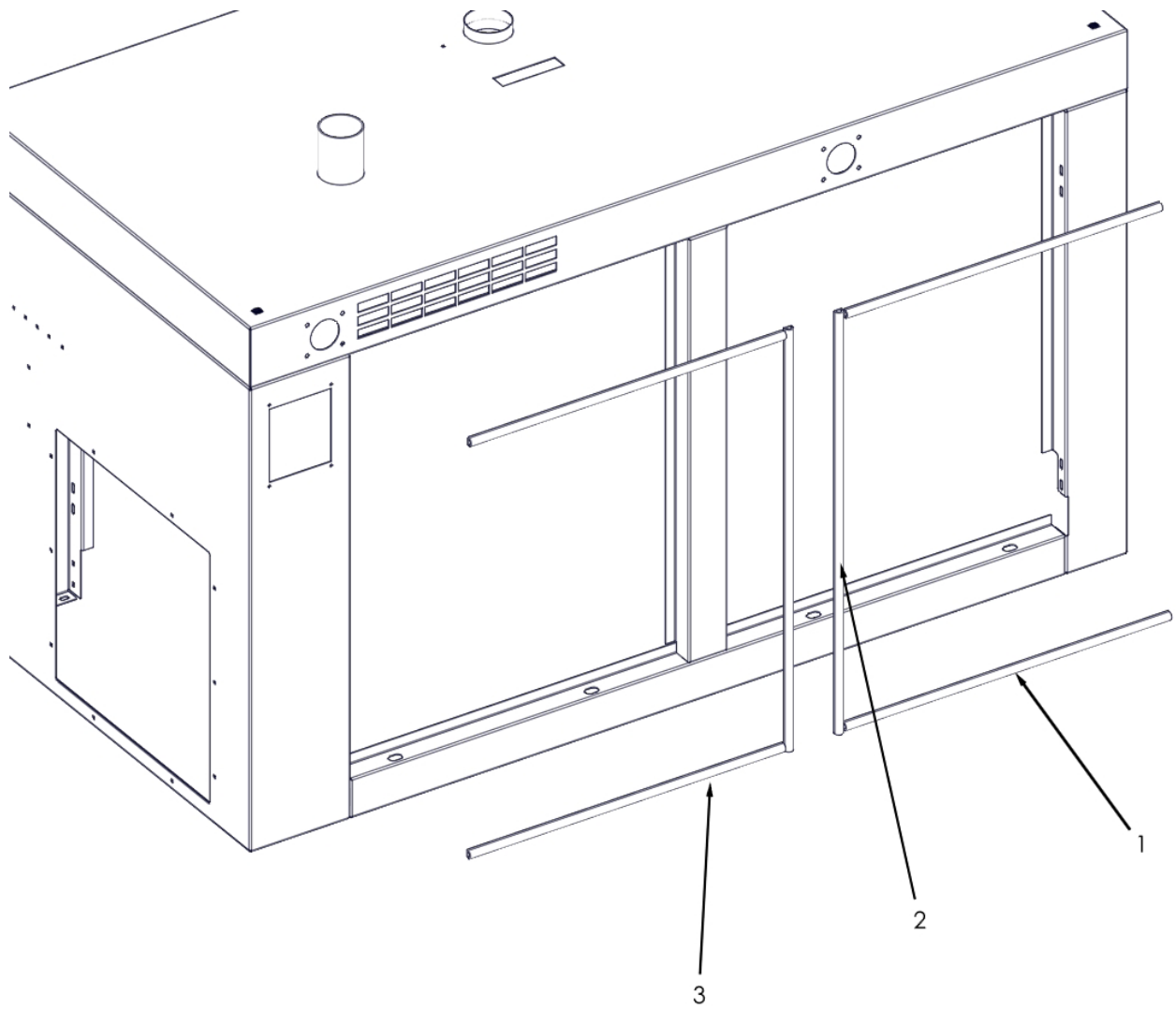
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Footnotes:

Notes:

SPRAY ADHESIVE WITH WINDEX TO EASE INSTALLATION. PLACE, LET DRY FOR 30 MINUTES, THEN PRESS TO ADHERE FOAM

# Door Insulation HB4500XT





## Door Insulation

HB4500XT

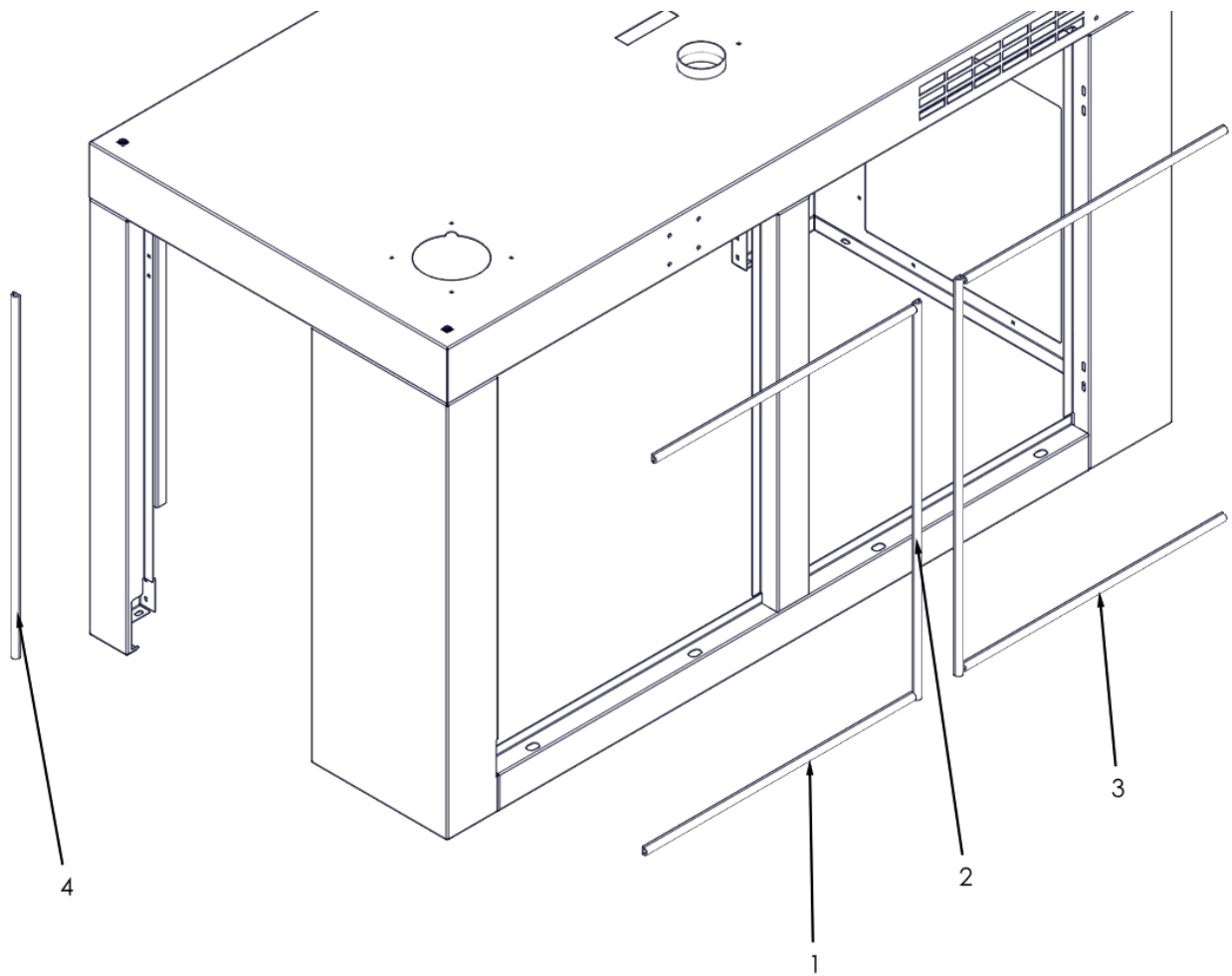
| Bom ID | Part No  | Description            | Qty | Remarks |
|--------|----------|------------------------|-----|---------|
| 1      | 933-0402 | BULB SEAL, 3/4 X 31.5  | 1   |         |
| 2      | 933-0403 | BULB SEAL, 3/4 X 40.25 | 2   |         |
| 3      | 933-0405 | BULB SEAL, 3/4 X 30.5  | 3   |         |

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Footnotes:

Notes:

# Door Insulation HB4500XT



## Door Insulation

HB4500XT

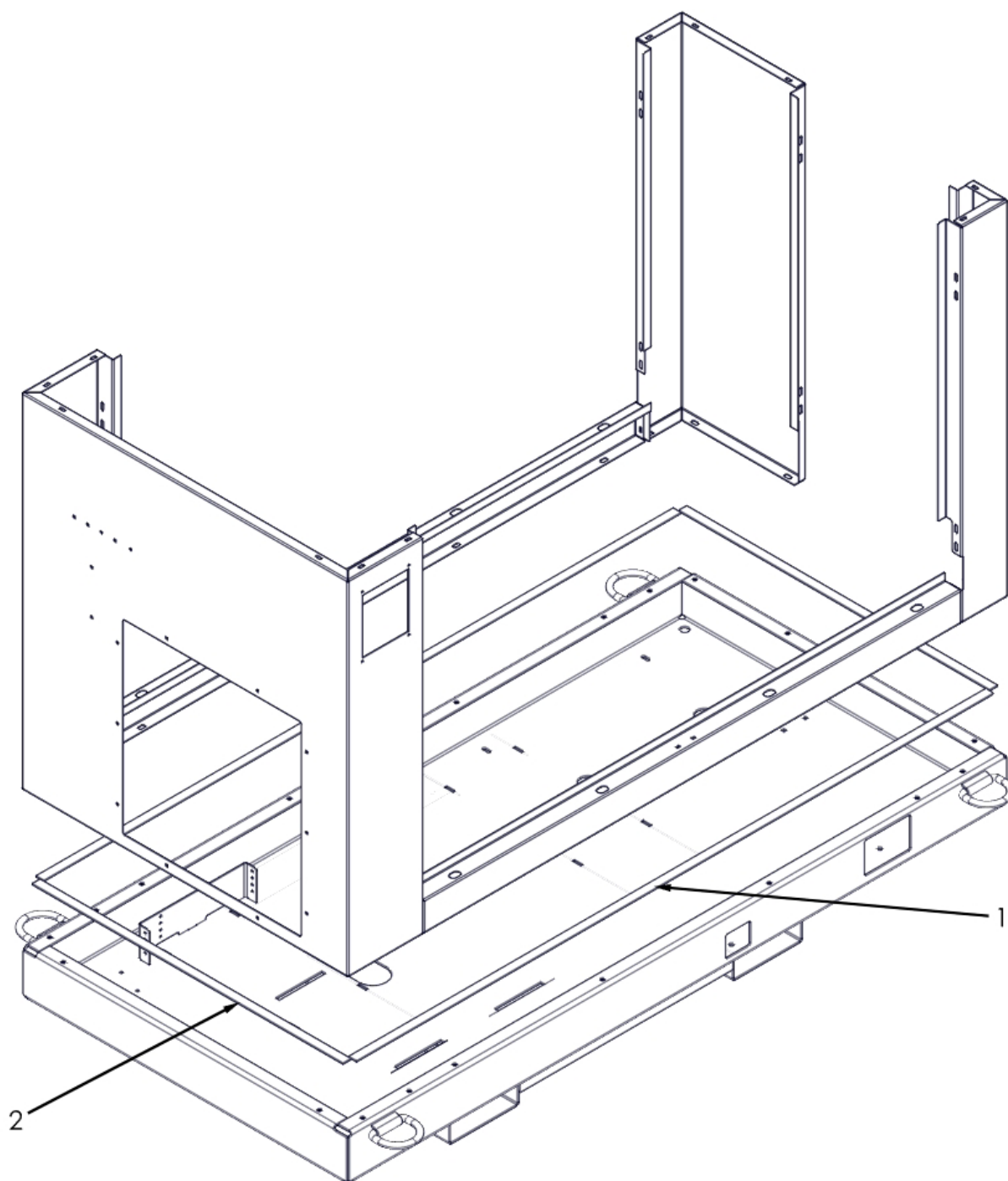
| Bom ID | Part No  | Description            | Qty | Remarks |
|--------|----------|------------------------|-----|---------|
| 1      | 933-0402 | BULB SEAL, 3/4 X 31.5  | 1   |         |
| 2      | 933-0403 | BULB SEAL, 3/4 X 40.25 | 2   |         |
| 3      | 933-0405 | BULB SEAL, 3/4 X 30.5  | 3   |         |
| 4      | 933-0406 | BULB SEAL, 3/4 X 36.75 | 1   |         |

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Footnotes:

Notes:

# Tub Insulation HB4500XT



## Tub Insulation

HB4500XT

| Bom ID | Part No  | Description  | Qty | Remarks |
|--------|----------|--------------|-----|---------|
| 1      | 933-5568 | CUSHION, 82" | 2   |         |
| 2      | 933-5569 | CUSHION, 40" | 2   |         |

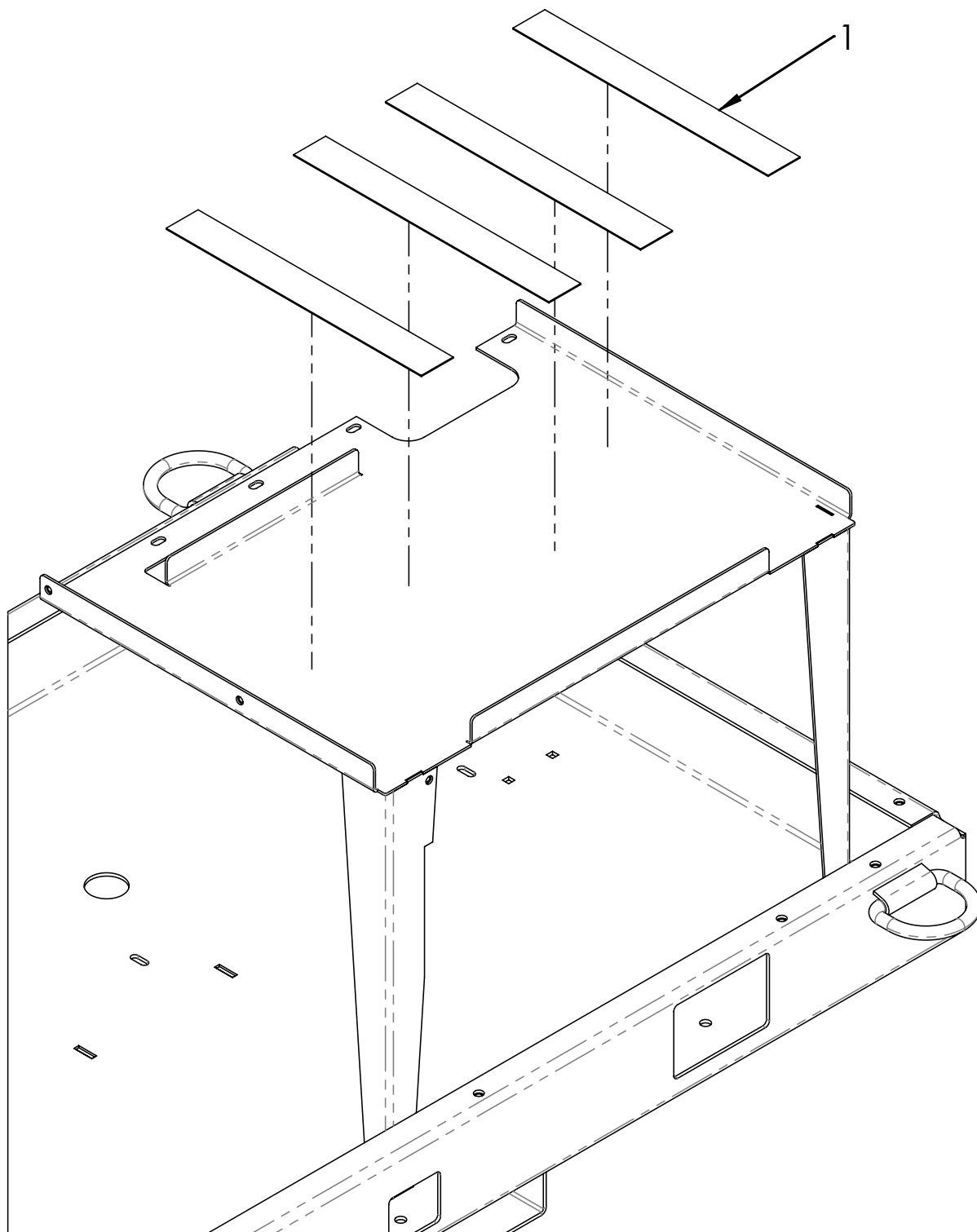
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Footnotes:

Notes:

# Fuel Tank Foam Tape

HB4500XT



## Fuel Tank Foam Tape

HB4500XT

| Bom ID | Part No  | Description             | Qty | Remarks |
|--------|----------|-------------------------|-----|---------|
| 1      | 933-0400 | FOAM TAPE, DOUBLE SIDED | 4   |         |

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Footnotes:

Notes:

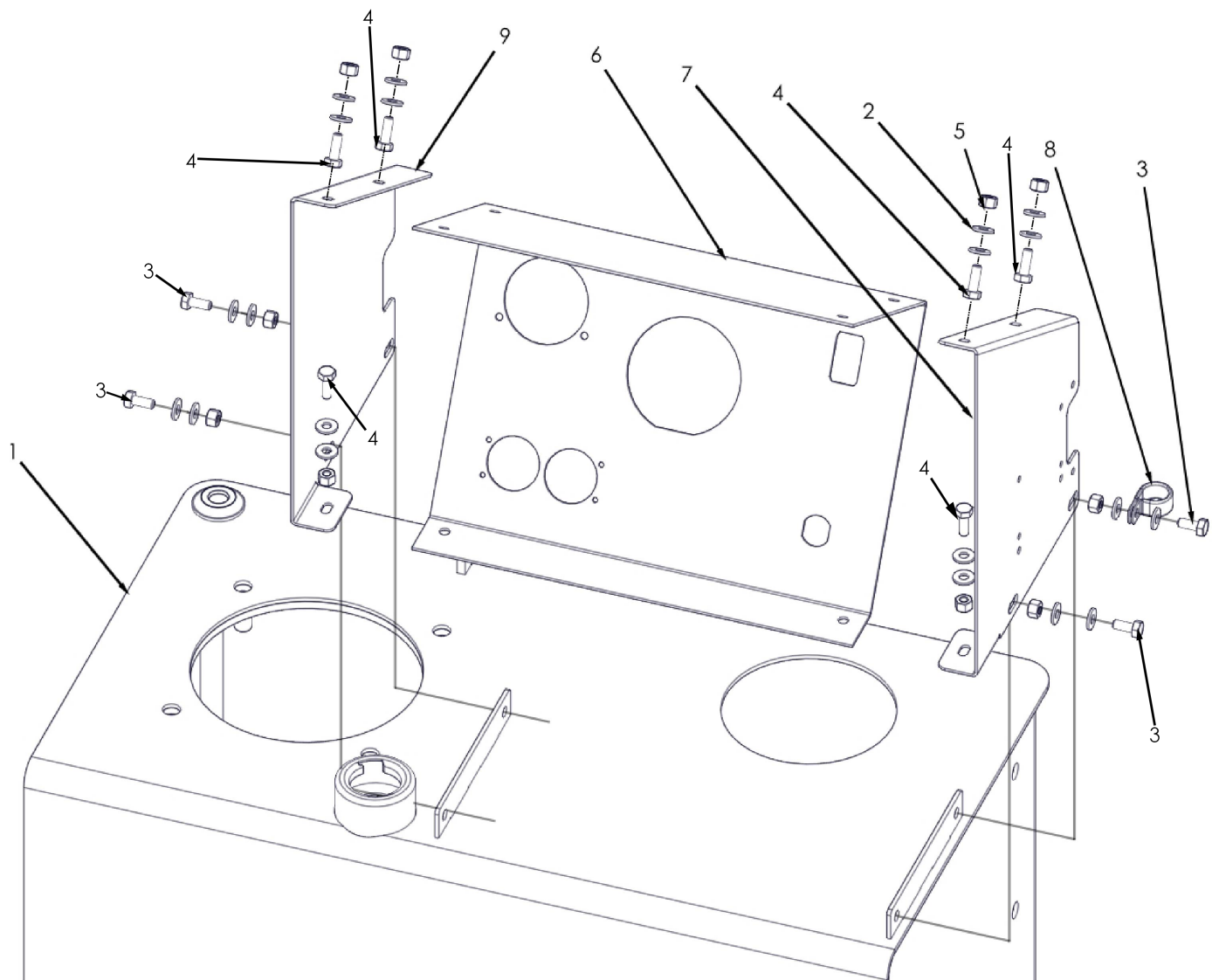
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# **CONTROL COMPONENTS**

# Control Panel Mounting

HB4500XT



## Control Panel Mounting

HB4500XT

| Bom ID | Part No  | Description                    | Qty | Remarks |
|--------|----------|--------------------------------|-----|---------|
| 1      | 933-2066 | TANK WELDMENT ASSY             | 1   |         |
| 2      | 04FW-SAE | WASHER, 1/4"                   | 20  |         |
| 3      | 04HH10   | SCREW, 1/4-20 x .625 HHC - GR8 | 4   |         |
| 4      | 04HH12   | SCREW, 1/4-20 x .75 HHC - GR8  | 6   |         |
| 5      | 04TLN    | NUT, 1/4-20 TOP LOCK           | 10  |         |
| 6      | 933-0334 | PANEL, CONTROL                 | 1   |         |
| 7      | 933-0385 | PANEL SIDE, RIGHT              | 1   |         |
| 8      | 933-4005 | CLAMP, 3/4" VINYL              | 1   |         |
| 9      | 933-5539 | PANEL SIDE, LEFT               | 1   |         |

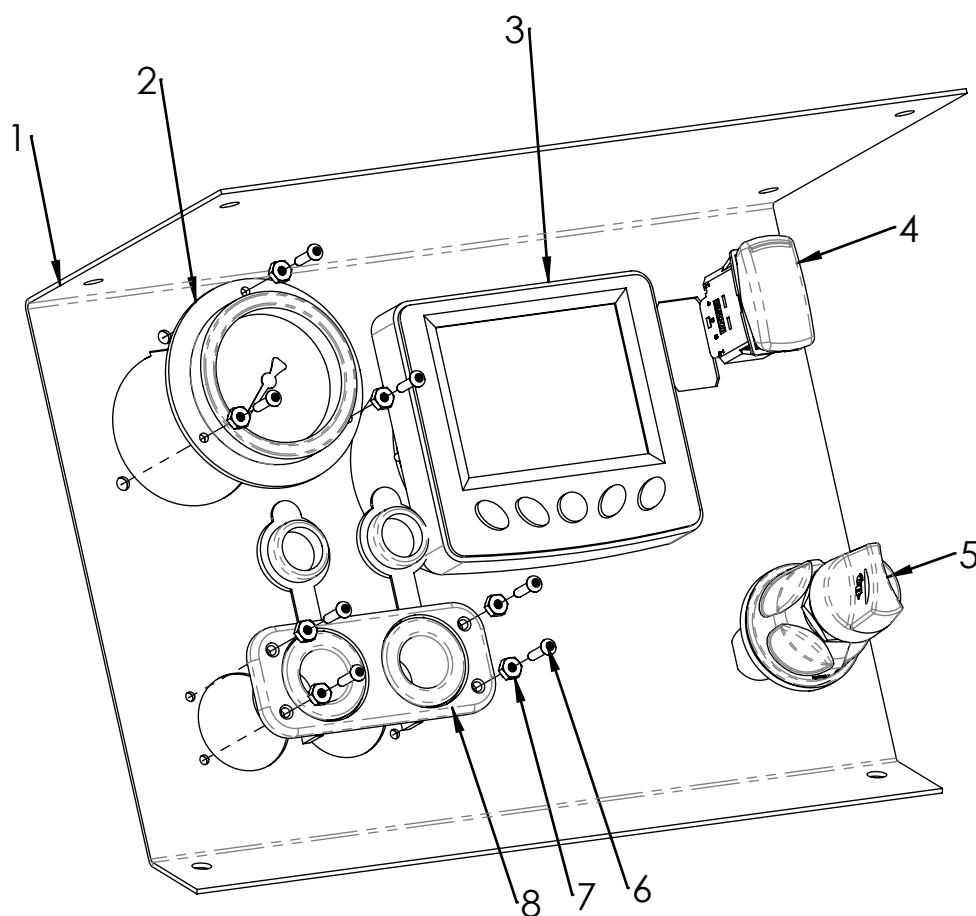
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Footnotes:

Notes:

# Control Panel

HB4500XT



## Control Panel

HB4500XT

| Bom ID | Part No  | Description                  | Qty | Remarks               |
|--------|----------|------------------------------|-----|-----------------------|
| 1      | 933-0334 | PANEL, CONTROL               | 1   |                       |
| 2      | 930-2059 | PRESSURE GAUGE, 5000 PSI     | 1   |                       |
| 3      | 220-2854 | ENGINE CONTROLLER, MURPHY    | 1   |                       |
| 4      | 215-1789 | ROCKER SWITCH (TC) ON-ON     | 1   |                       |
| 5      | 941-7380 | SWITCH, IGNITION, DEUTSCH    | 1   |                       |
| 6      | #6BH10   | SCREW, #6-32 X .625 BHSC     | 7   |                       |
| 7      | #6NLN    | NUT, #6-32 NYLON INSERT LOCK | 7   | HAND TIGHTEN REAR NUT |
| 8      | 933-0407 | OUTLET, DUAL USB/20A POWER   | 1   |                       |

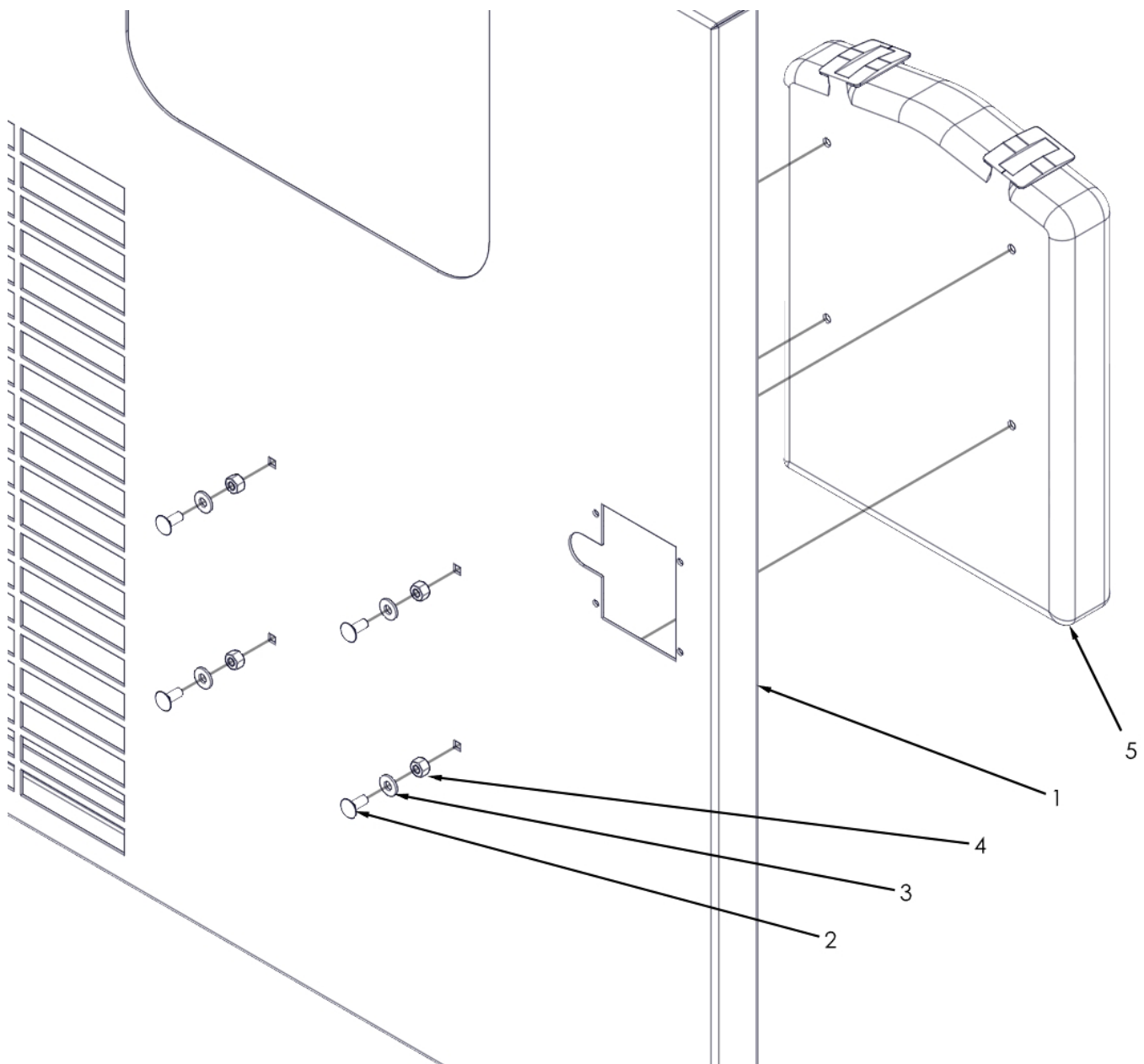
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Footnotes:

Notes:

# Operator's Manual Box

HB4500XT



## Operator's Manual Box

HB4500XT

| Bom ID | Part No  | Description                  | Qty | Remarks |
|--------|----------|------------------------------|-----|---------|
| 1      | 933-0393 | DOOR, OPERATOR CONTROLS ASSY | 1   |         |
| 2      | 04CB10   | BOLT, 1/4-20 x .625 CARRIAGE | 4   |         |
| 3      | 04FW-SAE | WASHER, 1/4"                 | 4   |         |
| 4      | 04TLN    | NUT, 1/4-20 TOP LOCK         | 4   |         |
| 5      | 318-588  | BOX, MANUAL                  | 1   |         |

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Footnotes:

Notes:

## Notes



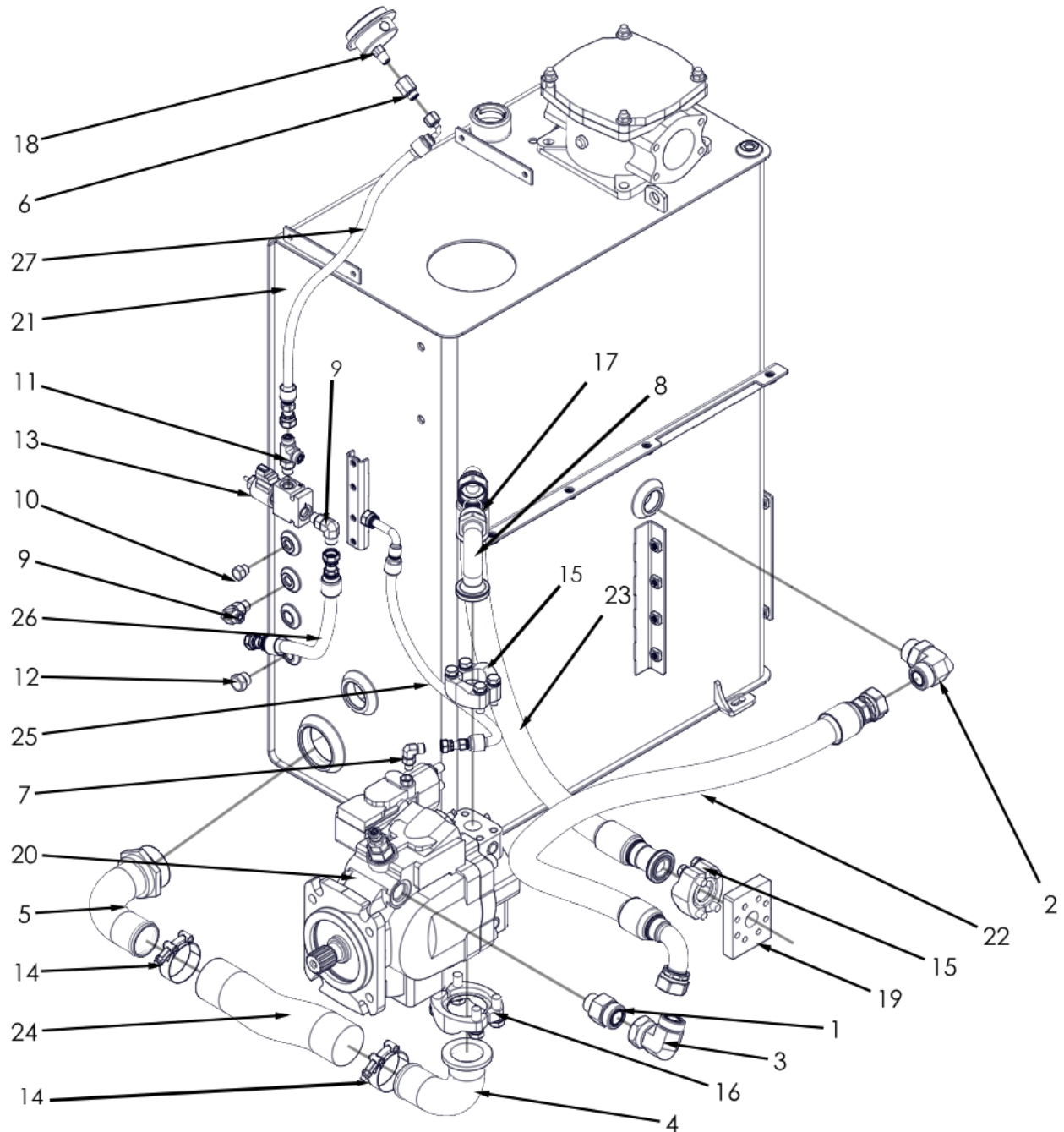
# HYDRAULICS



**PULL OUT HYDRAULIC SCHEMATIC GOES HERE**

# Hydraulic Hoses

## HB4500XT



## Hydraulic Hoses

HB4500XT

| Bom ID | Part No  | Description                  | Qty | Remarks |
|--------|----------|------------------------------|-----|---------|
| 1      | 926-2218 | ADAPTER, 16MO X 12MB         | 1   |         |
| 2      | 926-2315 | ELBOW, 16MO X 16MB 90°       | 1   |         |
| 3      | 926-5705 | ELBOW, 16MO X 16FO 90°       | 1   |         |
| 4      | 926-6547 | ELBOW, HS X FL 90°           | 1   |         |
| 5      | 926-6512 | ELBOW, MB X HS 90°           | 1   |         |
| 6      | 926-6300 | ADAPTER, 4MO X 4FP           | 1   |         |
| 7      | 926-2300 | ELBOW, 4MO X 4MB 90°         | 1   |         |
| 8      | 926-7123 | ELBOW, 16 CODE 62 X 16MO     | 1   |         |
| 9      | 926-2304 | ELBOW, 6MO X 6MB 90°         | 2   |         |
| 10     | 926-4101 | PLUG, 06MB                   | 1   |         |
| 11     | 926-3902 | TEE, 6MO X 6MB X 6MO RUN     | 1   |         |
| 12     | 926-4102 | PLUG, 8MB HEX HEAD           | 1   |         |
| 13     | 913-7037 | VALVE POPPET                 | 1   |         |
| 14     | 913-7280 | CLAMP, T-BOLT 2.5" OD        | 2   |         |
| 15     | 913-7286 | FLANGE KIT, SPLIT 1" CODE 62 | 2   |         |
| 16     | 913-7287 | FLANGE KIT, 2" CODE 61       | 1   |         |
| 17     | 926-6105 | O-RING, 16 ORFS              | 1   |         |
| 18     | 930-2059 | PRESSURE GAUGE, 5000 PSI     | 1   |         |
| 19     | 933-0439 | ADAPTER, 1" CODE 62          | 1   |         |
| 20     | 933-2501 | PUMP, HYDRAULIC P2-075       | 1   |         |
| 21     | 933-3002 | HYDRAULIC TANK - PP4000/4500 | 1   |         |
| 22     | H-02124  | HOSE, 16FO-16FO90S X 41      | 1   |         |
| 23     | H-02125  | HOSE, 16FL-16FO90S X 31      | 1   |         |
| 24     | H-02126  | HOSE, -32 SUCTION X 11.5     | 1   |         |
| 25     | H-02127  | HOSE, 4FO-6FO90L X 18"       | 1   |         |
| 26     | H-02128  | HOSE, 6FO-6FO X 13           | 1   |         |
| 27     | H-02129  | HOSE, 6FO-4FO90S X 25"       | 1   |         |

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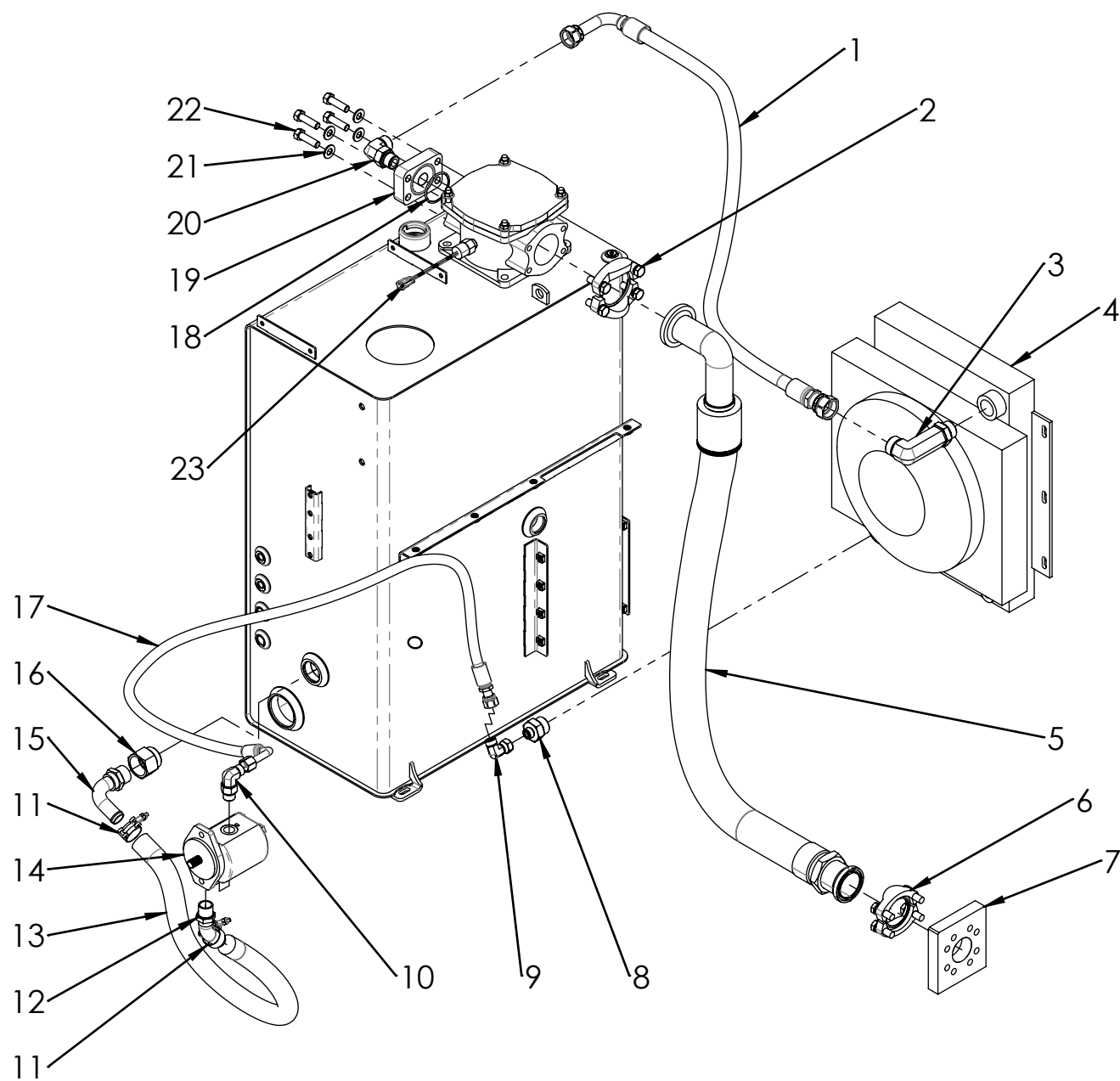
912-3158 HYDRAULIC OIL 55 GALLONS

Footnotes:

Notes:

# Hydraulic Hoses

HB4500XT



## Hydraulic Hoses

HB4500XT

| Bom ID | Part No  | Description                    | Qty | Remarks |
|--------|----------|--------------------------------|-----|---------|
| 1      | H-02120  | HOSE, 16FO-12FO90L X 46        | 1   |         |
| 2      | 913-7288 | FLANGE KIT, 2.5" CODE 61       | 1   |         |
| 3      | 926-2165 | ELBOW, 16MO X 16MB 90° LONG    | 1   |         |
| 4      | 933-3049 | OIL COOLER, ELD 4              | 1   |         |
| 5      | H-02131  | HOSE, 32FL-40FL90 X 50         | 1   |         |
| 6      | 913-7287 | FLANGE KIT, 2" CODE 61         | 1   |         |
| 7      | 933-0523 | BRACKET, FLANGE                | 1   |         |
| 8      | 926-2228 | ADAPTER, 8MO X 16MB            | 1   |         |
| 9      | 926-5702 | ELBOW, 8MO X 8FO 90°           | 1   |         |
| 10     | 926-2308 | ELBOW, 8MO X 10MB 90°          | 1   |         |
| 11     | 913-7279 | CLAMP, T-BOLT 1.38" OD         | 2   |         |
| 12     | 926-6522 | ELBOW, 12MB X 16HS 45°         | 1   |         |
| 13     | H-02122  | HOSE, -16 SUCTION X 34.5       | 1   |         |
| 14     | 933-3043 | GEAR PUMP, CASAPPA             | 1   |         |
| 15     | 926-6506 | ELBOW, 16MB X 16HS 90°         | 1   |         |
| 16     | 926-3822 | ADAPTER, 20MB X 16FB           | 1   |         |
| 17     | H-02121  | HOSE, 8FO-8FO90L X 64          | 1   |         |
| 18     | 913-7348 | O-RING -228                    | 1   |         |
| 19     | 913-7347 | AUX. FILTER FLANGE             | 1   |         |
| 20     | 926-2313 | ELBOW, 12MO X 12MB 90°         | 1   |         |
| 21     | 08FW-SAE | WASHER, 1/2"                   | 4   |         |
| 22     | 08HH28   | SCREW, 1/2-13 x 1.75 HHC - GR8 | 4   |         |
| 23     | 933-0518 | SWITCH, RETURN FILTER PRESSURE | 1   |         |

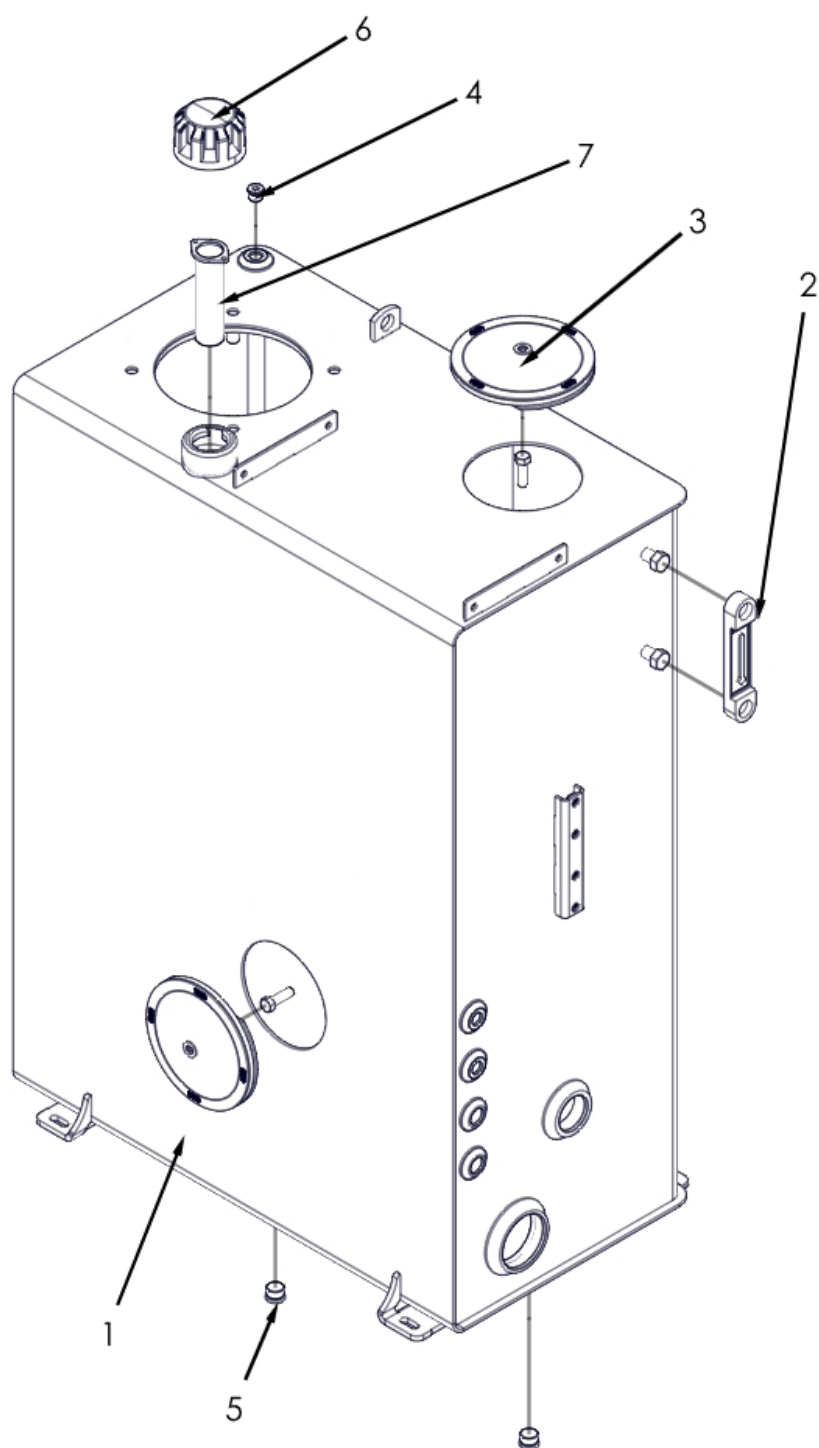
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Footnotes:

Notes:

# Hydraulic Tank Assembly

HB4500XT





## Hydraulic Tank Assembly

HB4500XT

| Bom ID | Part No  | Description                 | Qty | Remarks |
|--------|----------|-----------------------------|-----|---------|
| 1      | 933-2066 | TANK WELDMENT ASSY          | 1   |         |
| 2      | 933-2079 | GAUGE, OIL LEVEL W/ TEMP    | 1   |         |
| 3      | 912-6638 | COVER, HYDRAULIC CLEAN OUT  | 2   |         |
| 4      | 912-4536 | PLUG, ORB -6 HX SC          | 1   |         |
| 5      | 933-2064 | PLUG, ORB -8 HX SC MAGNETIC | 2   |         |
| 6      | 933-2098 | FILL CAP, MOBIL-GATE        | 1   |         |
| 7      | 933-2099 | STRAINER, OIL FILL          | 1   |         |

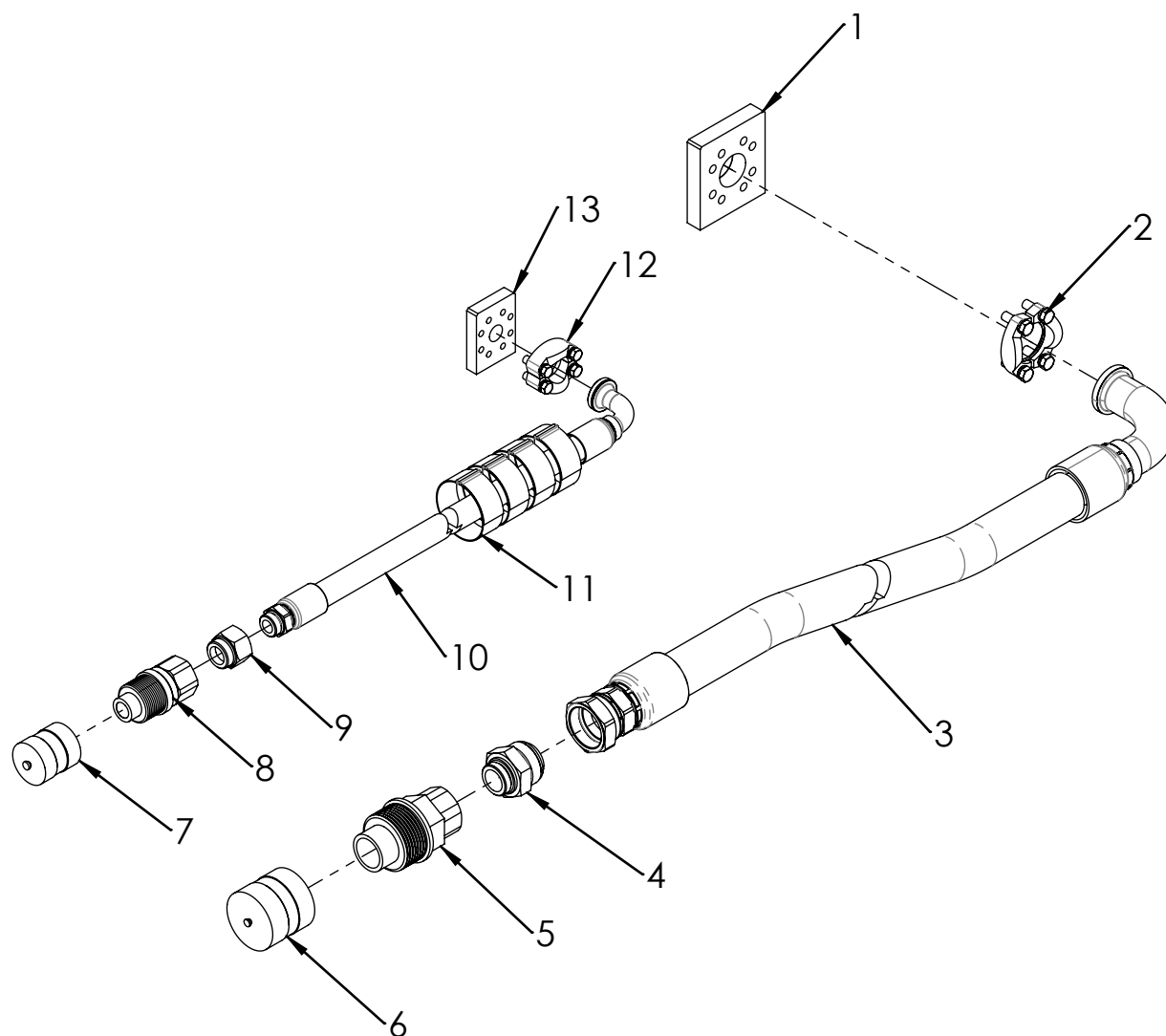
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Footnotes:

Notes:

# External Hoses

HB4500XT



## External Hoses

HB4500XT

| Bom ID | Part No  | Description                  | Qty | Remarks            |
|--------|----------|------------------------------|-----|--------------------|
| 1      | 933-0523 | BRACKET, FLANGE              | 1   |                    |
| 2      | 913-7287 | FLANGE KIT, 2" CODE 61       | 1   | TORQUE TO 38 FT-LB |
| 3      | H-02130  | HOSE, RETURN                 | 1   |                    |
| 4      | 926-4338 | ADAPTER, 32MJ X 24MB         | 1   |                    |
| 5      | 926-7503 | COUPLER, MALE, 24 SAE PORT   | 1   |                    |
| 6      | 932-2010 | CAP, MALE                    | 1   |                    |
| 7      | 913-8645 | CAP, MALE                    | 1   |                    |
| 8      | 930-2006 | COUPLER, MALE 1-1/4" ORB     | 1   |                    |
| 9      | 926-3822 | ADAPTER, 20MB X 16FB         | 1   |                    |
| 10     | H-02123  | HOSE, 16MB-16FL90 X 461      | 1   |                    |
| 11     | 933-0340 | STRAP                        | 4   |                    |
| 12     | 913-7286 | FLANGE KIT, SPLIT 1" CODE 62 | 1   |                    |
| 13     | 933-0439 | ADAPTER, 1" CODE 62          | 1   |                    |

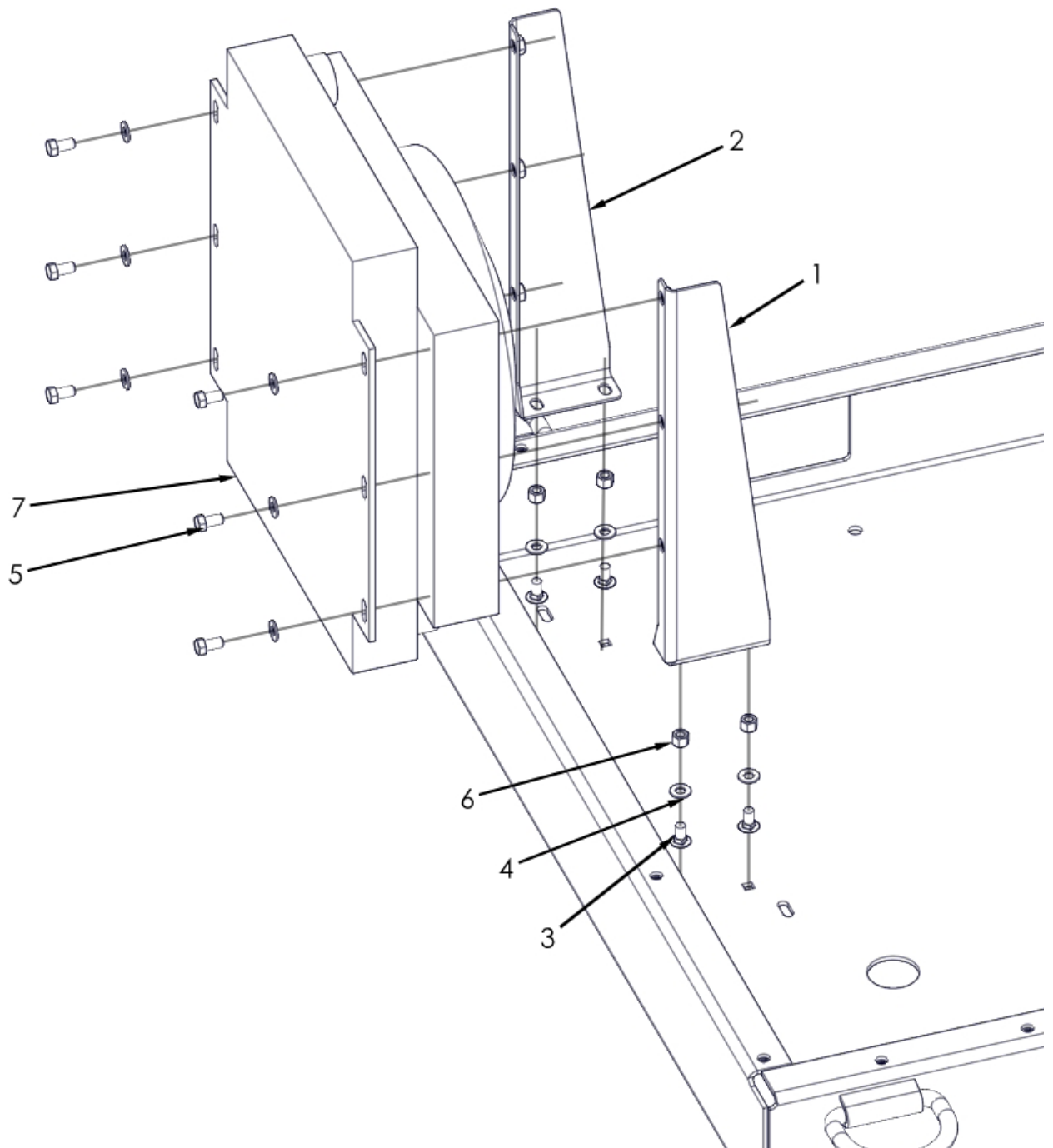
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Footnotes:

Notes:

# Oil Cooler to Tub

HB4500XT



## Oil Cooler to Tub

HB4500XT

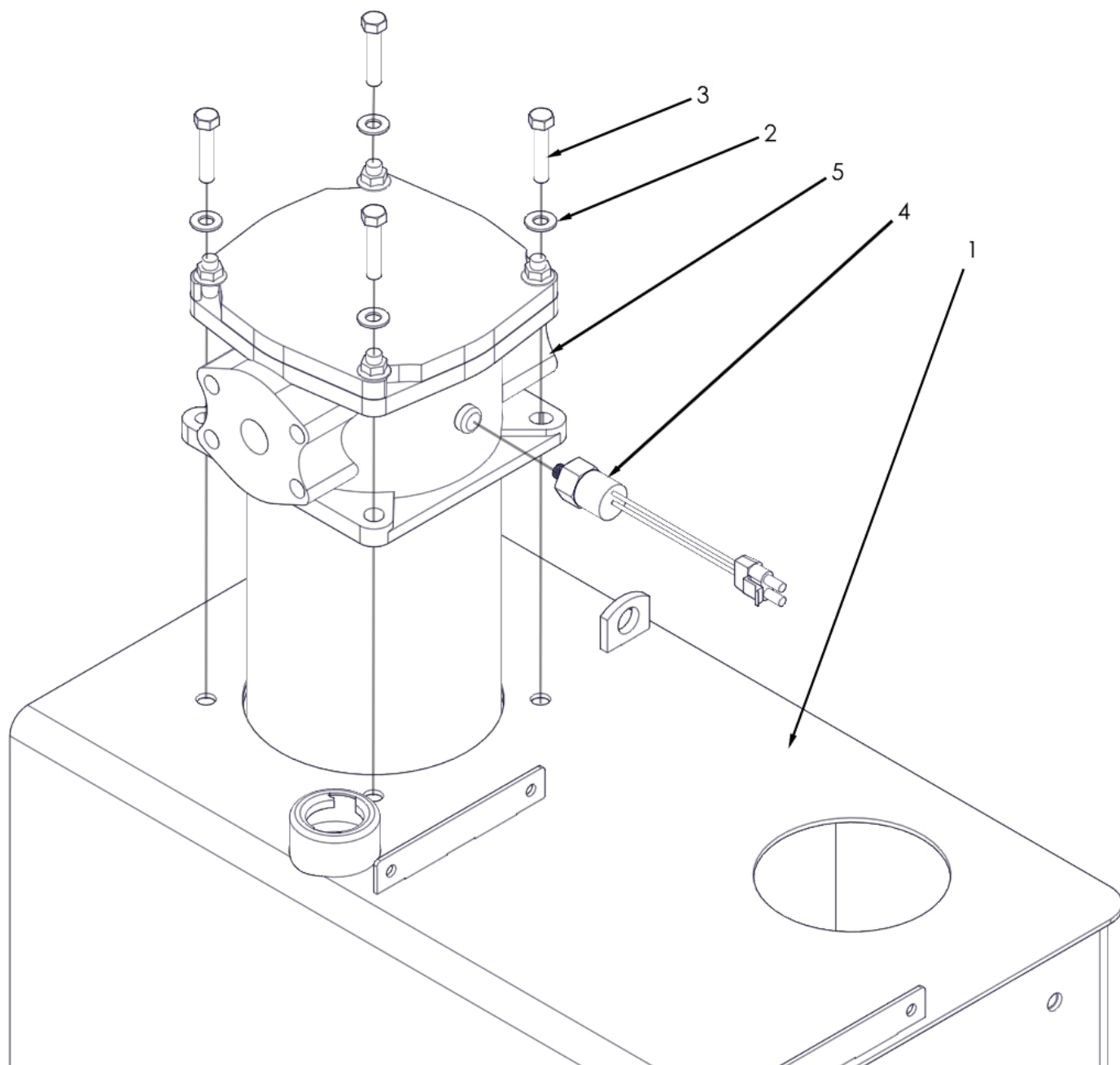
| Bom ID | Part No  | Description                   | Qty | Remarks |
|--------|----------|-------------------------------|-----|---------|
| 1      | 933-2508 | BRACKET WELDMENT, OP SIDE     | 1   |         |
| 2      | 933-2509 | BRACKET WELDMENT, RH SIDE     | 1   |         |
| 3      | 06CB12   | BOLT, 3/8-16 x .75 CARRIAGE   | 4   |         |
| 4      | 06FW-SAE | WASHER, 3/8"                  | 10  |         |
| 5      | 06HH12   | SCREW, 3/8-16 x .75 HHC - GR8 | 6   |         |
| 6      | 06TLN    | NUT, 3/8-16 TOP LOCK          | 4   |         |
| 7      | 933-3049 | OIL COOLER, ELD 4             | 1   |         |

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Footnotes:

Notes:

# Oil Filter HB4500XT



## Oil Filter

HB4500XT

| Bom ID | Part No  | Description                    | Qty | Remarks |
|--------|----------|--------------------------------|-----|---------|
| 1      | 933-2066 | TANK WELDMENT ASSY             | 1   |         |
| 2      | 06FW-SAE | WASHER, 3/8"                   | 4   |         |
| 3      | 06HH28   | SCREW, 3/8-16 x 1.75 HHC - GR8 | 4   |         |
| 4      | 933-0518 | SWITCH, RETURN FILTER PRESSURE | 1   |         |
| 5      | 913-7349 | FILTER HOUSING ASSY            | 1   |         |

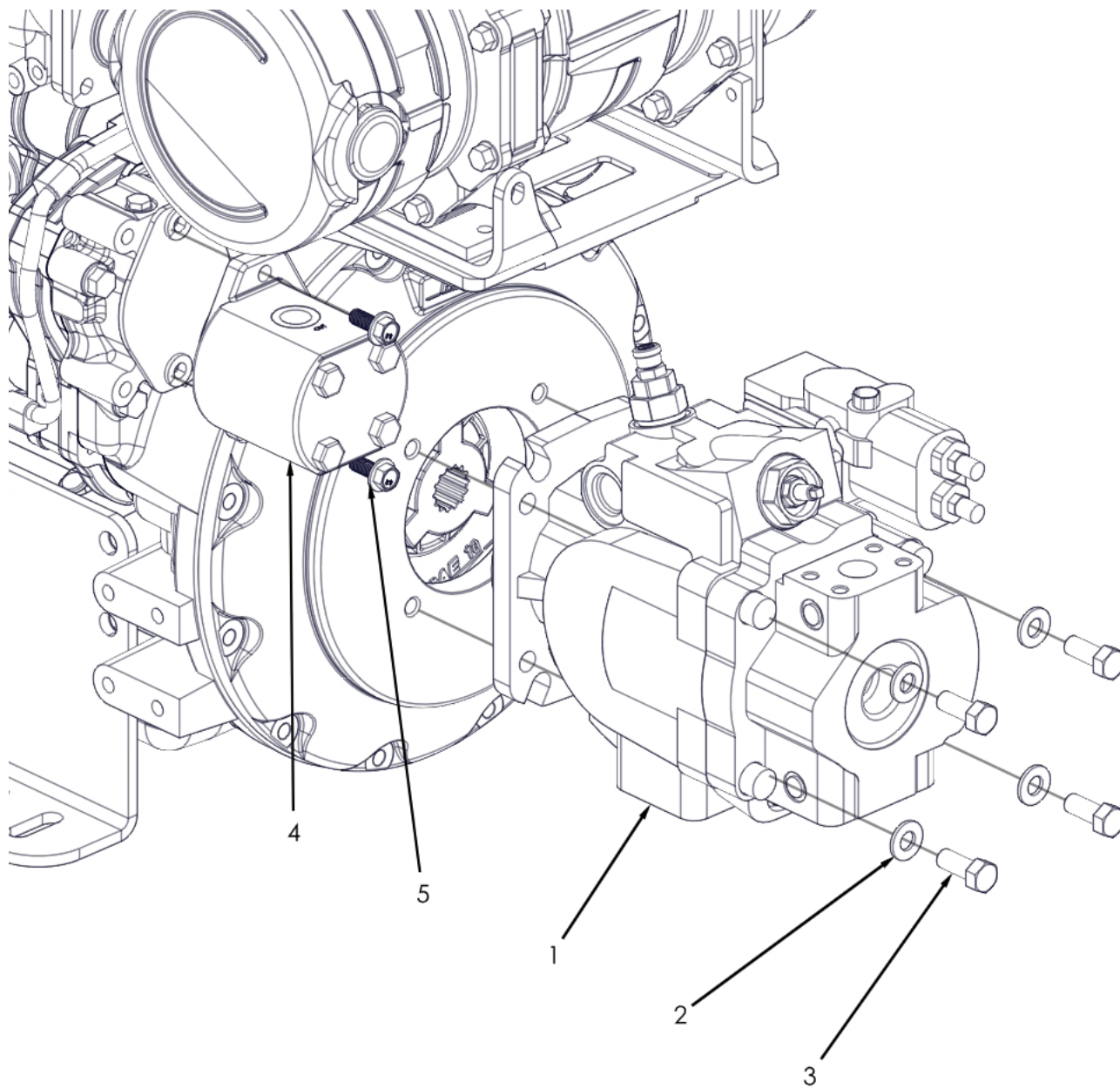
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Footnotes:

Notes:

# Pumps to Engine

HB4500XT





## Pumps to Engine

HB4500XT

| Bom ID | Part No  | Description                    | Qty | Remarks            |
|--------|----------|--------------------------------|-----|--------------------|
| 1      | 933-2501 | PUMP, HYDRAULIC P2-075         | 1   |                    |
| 2      | 08FW-SAE | WASHER, 1/2"                   | 4   |                    |
| 3      | 08HH20   | SCREW, 1/2-13 x 1.25 HHC - GR8 | 4   | TORQUE TO 68 FT-LB |
| 4      | 933-3043 | GEAR PUMP, CASAPPA             | 1   |                    |
| 5      | M10FLH25 | SCREW, M10-1.5 X 25MM FLANGE   | 2   | TORQUE TO 51 FT-LB |

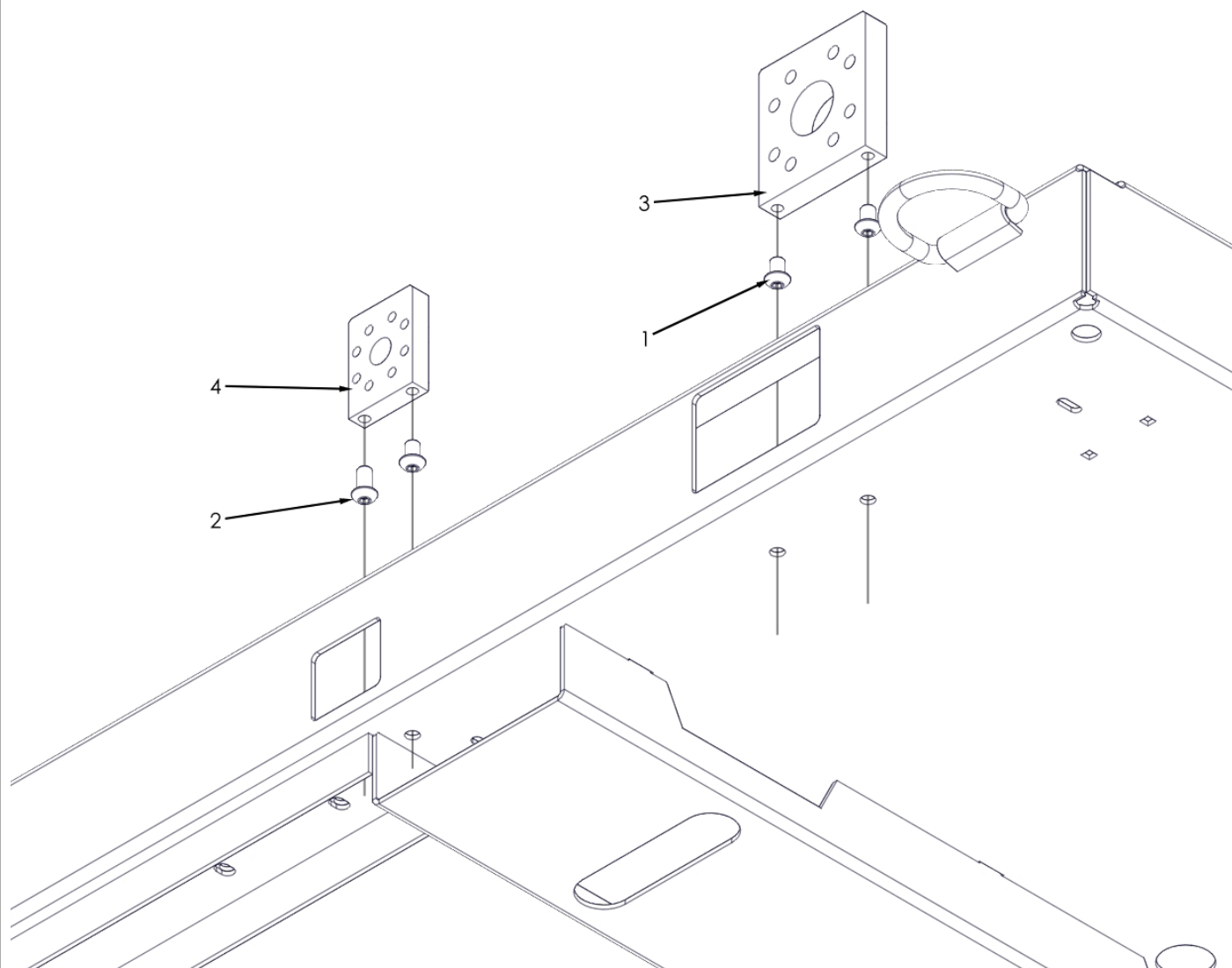
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Footnotes:

Notes:

# Hose Flange Brackets

HB4500XT



## Hose Flange Brackets

HB4500XT

| Bom ID | Part No  | Description             | Qty | Remarks              |
|--------|----------|-------------------------|-----|----------------------|
| 1      | 08BH12   | SCREW, 1/2-13x0.75 BHSC | 3   | TORQUE TO 52.6 FT-LB |
| 2      | 08BH16   | SCREW, 1/2-13x1 BHSC    | 1   |                      |
| 3      | 933-0523 | BRACKET, FLANGE         | 1   |                      |
| 4      | 933-0439 | ADAPTER, 1" CODE 62     | 1   |                      |

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Footnotes:

Notes:

## Notes

# **ELECTRICAL**



**PULL OUT ELECTRICAL SCHEMATIC GOES HERE**

# Electrical Schematic

HB4500XT

| Circuit | Wire Color | Function                                                    |
|---------|------------|-------------------------------------------------------------|
| 1       | red        | Battery Disconnect Terminal to Starter Post                 |
| 1A      | red        | Starter Post to Alternator Post                             |
| 1B      | red        | Starter Post to Starter Relay Post                          |
| 1C      | red        | Starter Relay Post to Downhole Relay Post                   |
| 1D      | red        | Battery Positive Terminal to Battery Disconnect Terminal    |
| 2       | red        | Battery Positive Terminal to Glow Plug Relay Input          |
| 3       | red        | Battery Positive Terminal to Main Relay Post                |
| 10      | red        | Downhole Relay Output - Pin A to Main Fuse Block - Pin AA-7 |
| 11      | orange     | Main Relay Output - Pin A to Main Fuse Block - Pin AA-2     |
| 11A     | orange     | Splice to Wire 11 to Main Relay Trigger - Pin B             |
| 11B     | orange     | Splice to Wire 11 to Dual Relay D - Pin D-1                 |
| 11C     | orange     | Splice to Wire 11 to Main Fuse Block - Pin C-10             |
| 12      | orange     | Starter Relay Output - Pin A to Main Fuse Block - Pin AA-5  |
| 14      | white      | Glow Plug Relay Output - Pin C to Glow Plug Stud            |
| 15      | white      | Main Relay Output - Pin C to Engine ECU Power - Pin 1       |
| 15A     | white      | Splice to Wire 15 to Main Fuse Block - Pin AA-10            |
| 16      | white      | Starter Relay Output - Pin C to Starter Solenoid            |
| 17      | white      | Downhole Relay Output - Pin C to 9-Pin RV Connector - Blue  |
| 17A     | white      | 9-Pin RV Connector - Blue to 9-Pin RV Connector - Green     |
| 17B     | white      | 9-Pin RV Connector - Green to 9-Pin RV Connector - Red      |
| 17C     | white      | 9-Pin RV Connector - Red to 7-Pin RV Connector - Red        |
| 17D     | white      | Splice to Wire 17 to Main Fuse Block - Pin AA-8             |
| 20      | orange     | Main Fuse Block - Pin A-7 to Key Switch - Pin 1             |
| 21      | white      | Key Switch - Pin 2 to E-Stop - Pin D                        |
| 23      | white      | Key Switch - Pin 4 to E-Stop - Pin A                        |
| 23A     | white      | E-Stop - Pin A to Downhole Relay Trigger - Pin B            |
| 24      | white      | Key Switch - Pin 5 to Murphy Controller - Pin 1-1           |
| 24A     | white      | Splice to Wire 24 to Soft Start Switch - Pin 2              |
| 25      | white      | Soft Start Switch - Pin 3 to Murphy Controller - Pin 2-6    |
| 25A     | white      | Splice to Wire 25 to Dual Relay B - Pin B-6                 |
| 25B     | white      | Splice to Wire 25A to Dual Relay C - Pin C-1                |
| 30      | yellow     | Murphy Controller - Pin 1-2 to Engine ECU Signal - Pin 3    |
| 31      | green      | Murphy Controller - Pin 1-3 to Engine ECU Signal - Pin 2    |



# Electrical Schematic

HB4500XT

| Circuit | Wire Color | Function                                                      |
|---------|------------|---------------------------------------------------------------|
| 32      | white      | Murphy Controller - Pin 1-4 to Dual Relay D - Pin D-3         |
| 33      | white      | Murphy Controller - Pin 1-5 to Fuel Sender - Pin 1            |
| 34      | white      | Murphy Controller - Pin 2-4 to 9-Pin RV Connector - Brown     |
| 34A     | white      | 9-Pin RV Connector - Brown to 7-Pin RV Connector - White      |
| 34B     | white      | Splice to Wire 34 to 10K Ohm Load Resistor                    |
| 35      | white      | Murphy Controller - Pin 2-5 to 9-Pin RV Connector - Yellow    |
| 35A     | white      | Splice to Wire 35 to Dual Relay B - Pin B-1                   |
| 35B     | white      | 9-Pin RV Connector - Yellow to 7-Pin RV Connector - Yellow    |
| 35C     | white      | Splice to Wire 35 to 10K Ohm Load Resistor                    |
| 36      | white      | Murphy Controller - Pin 2-7 to Tank Temp Switch - Pin A       |
| 37      | white      | Murphy Controller - Pin 2-9 to Filter Pressure Switch - Pin 1 |
| 40      | white      | Engine ECU Signal - Pin 1 to Main Relay Trigger - Pin A       |
| 40A     | white      | Splice to Wire 40 to Main Fuse Block - Pin B-10               |
| 41      | white      | Engine ECU Signal - Pin 4 to Main Fuse Block - Pin A-4        |
| 42      | white      | Engine ECU Signal - Pin 5 to Main Fuse Block - Pin D-2        |
| 42A     | white      | Splice to Wire 42 to Main Fuse Block - Pin AA-9               |
| 43      | white      | Engine ECU Signal - Pin 6 to Glow Plug Relay Trigger - Pin A  |
| 44      | white      | Engine ECU Signal - Pin 7 to Starter Relay Trigger - Pin A    |
| 50      | white      | Dual Relay A - Pin 1-5 to Dual Relay A - Pin 1-6              |
| 51      | white      | Dual Relay B - Pin B-4 to Soft Start Valve - Pin 1            |
| 52      | white      | Dual Relay C - Pin C-4 to Main Fuse Block - Pin AA-4          |
| 52A     | white      | Splice to Wire 52 to Main Fuse Block - Pin AA-3               |
| 53      | white      | Dual Relay C - Pin C-6 to E-Stop - Pin C                      |
| 54      | white      | Dual Relay - D-4 to E-Stop - Pin B                            |
| 55      | white      | Dual Relay - Pin D-6 to Main Fuse Block - Pin AA-6            |
| 55A     | white      | Splice to Wire 55 to Main Fuse Block - Pin AA-1               |
| 60      | white      | Main Fuse Block - Pin A-1 to Main Fuse Block - Pin D-1        |
| 61      | white      | Main Fuse Block - Pin A-2 to Main Fuse Block - Pin B-1        |
| 62      | white      | Main Fuse Block - Pin A-3 to Starter Relay Trigger - Pin B    |
| 63      | white      | Main Fuse Block - Pin A-5 to Main Fuse Block - Pin B-3        |
| 64      | white      | Main Fuse Block - Pin A-6 to Main Fuse Block - Pin D-3        |
| 65      | white      | Main Fuse Block - Pin A-8 to Aux Power Positive Terminal      |
| 65A     | white      | Splice to Wire 65 to 9-Pin RV Connector - Black               |

# Electrical Schematic

HB4500XT

| Circuit | Wire Color | Function                                                 |
|---------|------------|----------------------------------------------------------|
| 65B     | white      | 9-Pin RV Connector - Black to 7-Pin Connector - Green    |
| 65C     | white      | Splice to Wire 65 to USB Power Positive Terminal         |
| 66      | white      | Main Fuse Block - Pin A-9 to Alternator Ignition - Pin 2 |
| 67      | white      | Main Fuse Block - Pin A-10 to Fuel Pump - Pin 1          |
| 68      | white      | Main Fuse Block - Pin D-4 to Oil Cooler Fan - Pin 1      |
| 69      | white      | Main Fuse Block - B-4 to Oil Temp Switch - Pin 1         |
| 80      | black      | Battery Negative Terminal to Battery Disconnect Terminal |
| 81      | black      | Battery Negative Terminal to Murphy Controller - Pin 1-6 |
| 82      | black      | Battery Negative Terminal to Engine ECU Power - Pin 2    |
| 83      | black      | Engine ECU Frame to Engine Ground Eyelet                 |
| 84      | black      | Downhole Relay Trigger - Pin A to Engine Ground Eyelet   |
| 84A     | black      | Main Fuse Block - B-2 to Engine Ground Eyelet            |
| 84B     | black      | Fuel Pump - Pin 2 to Engine Ground Eyelet                |
| 84C     | black      | Oil Temp Switch - Pin 2 to Engine Ground Eyelet          |
| 84D     | black      | Oil Cooler Fan - Pin 2 to Engine Ground Eyelet           |
| 84E     | black      | Glow Plug Relay Trigger - Pin B to Engine Ground Eyelet  |
| 85      | black      | Dual Relay A - Pin B-3 to Engine Ground Eyelet           |
| 85A     | black      | Soft Start Valve - Pin 2 to Engine Ground Eyelet         |
| 85B     | black      | Dual Relay C - Pin C-3 to Engine Ground Eyelet           |
| 85C     | black      | Filter Pressure Switch - Pin 2 to Engine Ground Eyelet   |
| 85D     | black      | Aux Power Negative Terminal to Engine Ground Eyelet      |
| 85E     | black      | Fuel Sender - Pin 2 to Engine Ground Eyelet              |
| 85F     | black      | Tank Temp Switch - Pin B to Engine Ground Eyelet         |
| 85G     | black      | 10K Ohm Load Resistor to Engine Ground Eyelet            |
| 85H     | black      | 10K Ohm Load Resistor to Engine Ground Eyelet            |
| 85I     | black      | Splice to Wire 85D to USB Power Negative Terminal        |
| 86      | black      | 9-Pin RV Connector - White to Engine Ground Eyelet       |
| 86A     | black      | 9-Pin RV Connector - White to 7-Pin RV Connector - Black |

# Electrical Schematic

HB4500XT

| Ref # | P/N      | Component               | Notes                          |
|-------|----------|-------------------------|--------------------------------|
| A3    | N/A      | Glow Plugs              |                                |
| B7    | 933-0355 | Engine ECU              |                                |
| B8    | N/A      | 120 Ohm                 |                                |
| B8    | 933-5033 | Murphy Controller       |                                |
| B9    | 941-7370 | Soft Start Switch       |                                |
| B9    | 933-0470 | Fuel Sender             |                                |
| B11   | 912-3606 | Tank Temperature Switch |                                |
| B11   | 913-7037 | Soft Switch             |                                |
| C7    | 933-5049 | 10K Ohm Resistor        |                                |
| C11   | 912-3604 | Filter Pressure Switch  |                                |
| D1    | N/A      | Aux Quick Connect       |                                |
| D4    | 933-0449 | Glow Plug Relay         |                                |
| D7    | 933-5040 | Switched Relay          | 5A Fuse                        |
| D10   | 912-3610 | Dual Relay A            |                                |
| D12   | 912-3610 | Dual Relay C            |                                |
| E1    | 913-7303 | Battery                 |                                |
| E1    | 941-7497 | Battery Disconnect      |                                |
| E2    | N/A      | Ground Quick Connect    |                                |
| E7    | 933-5044 | Switched 12V Positive   | 10A Fuse                       |
| E8    | 941-7664 | Switched Power          | 35A Micro Relay                |
| E10   | 912-3610 | Dual Relay B            |                                |
| E12   | 912-3610 | Dual Relay D            |                                |
| E14   | 912-5085 | Oil Temperature         |                                |
| F1    | 933-0307 | Starter                 |                                |
| F3    | 941-7587 | Relay                   | Main - 20A JCASE/20A JCASE     |
| F7    | 933-5040 | Starter                 | 5A Fuse                        |
| F8    | 941-7664 | Hydraulic Oil Fan       | 35A Micro Relay                |
| G2    | 933-0306 | Alternator              |                                |
| G7    | 933-5040 | Engine ECU              | 5A Fuse                        |
| H3    | 941-7587 | Relay                   | Starter - 60A JACASE/30A JCASE |
| H7    | 933-5043 | Oil Cooler              | 30A Fuse                       |
| H10   | 933-5027 | 9 Pin RV Connector      |                                |

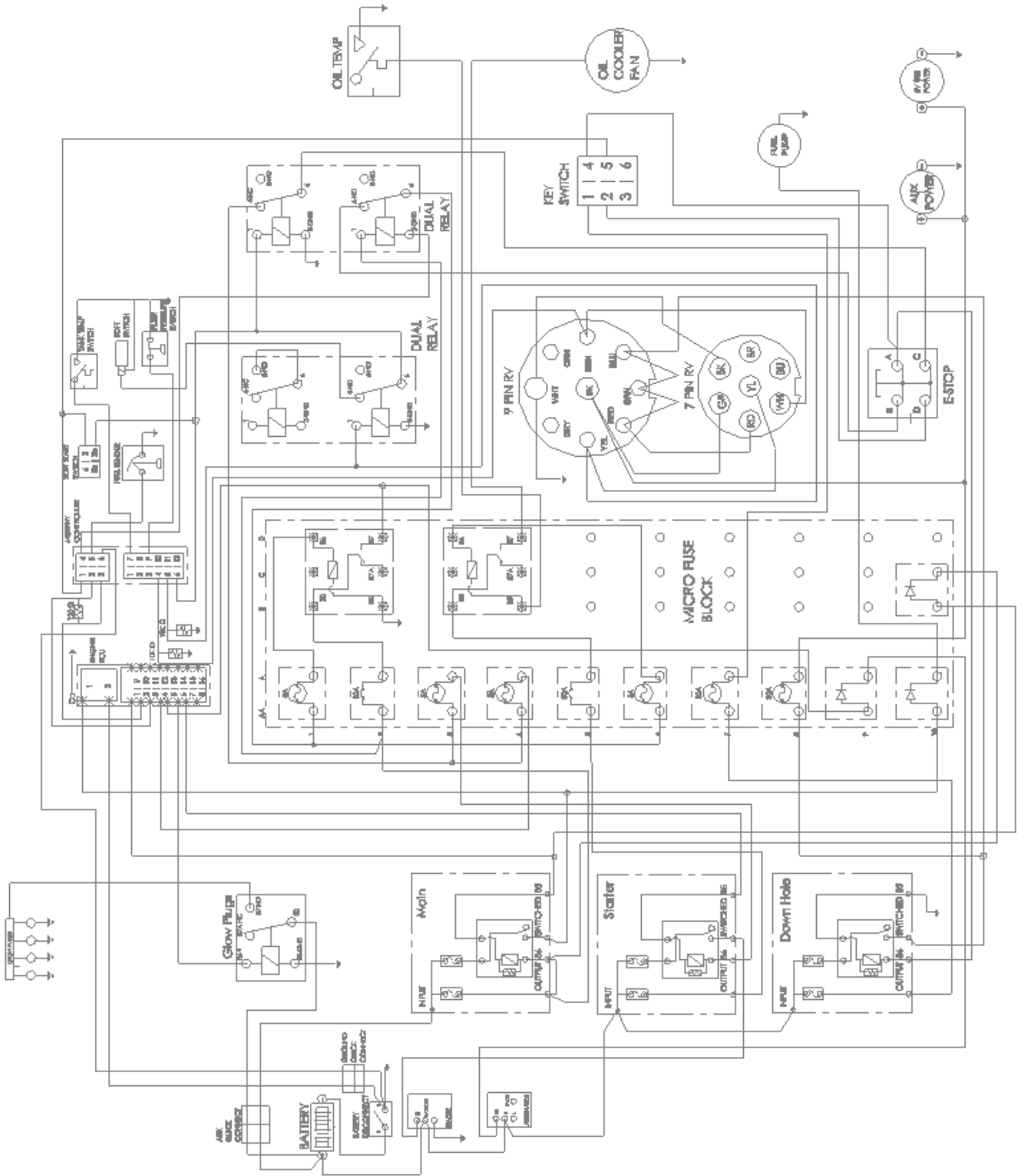
## Electrical Schematic

HB4500XT

| Ref # | P/N      | Component              | Notes                          |
|-------|----------|------------------------|--------------------------------|
| H13   | 941-7380 | Key Switch             |                                |
| H14   | 933-3049 | Oil Cooler Fan         |                                |
| I7    | 933-5040 | Oil Temperature Sensor | 5A Fuse                        |
| J7    | 933-5041 | Key Switch             | 10A Fuse                       |
| J7    | 933-5043 | 12V Postive AUX Power  | 30A Fuse                       |
| J10   | 933-5005 | 7 Pin RV Connector     |                                |
| J13   | 912-6159 | Fuel Pump              |                                |
| K3    | 941-7587 | Relay                  | Downhole - 60A JCASE/40A JCASE |
| K7    | 933-5042 | Alternator             | 3A Diode                       |
| L7    | 933-5042 | Fuel Pump              | 3A Diode                       |
| L8    | 933-5042 | ECU Diode              | 3A Diode                       |
| L10   | 912-3608 | E-Stop                 |                                |
| L13   | 933-0407 | Aux Power              |                                |
| L14   | 933-0407 | USB Power              |                                |

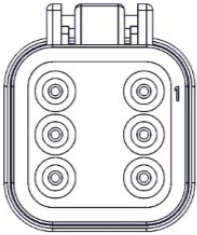
# Electrical Schematic

## HB4500XT

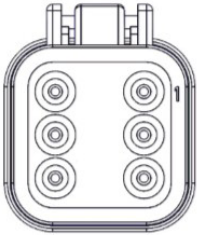


Wire Harness  
HB4500XT

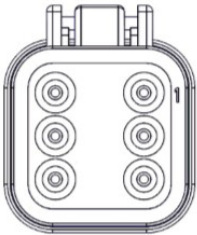
| DUAL RELAY A |      |       |
|--------------|------|-------|
| PIN          | WIRE | COLOR |
| A-1          | N/A  | PLUG  |
| A-2          | N/A  | PLUG  |
| A-3          | N/A  | PLUG  |
| A-4          | N/A  | PLUG  |
| A-5          | 50   | WHITE |
| A-6          | 50   | WHITE |



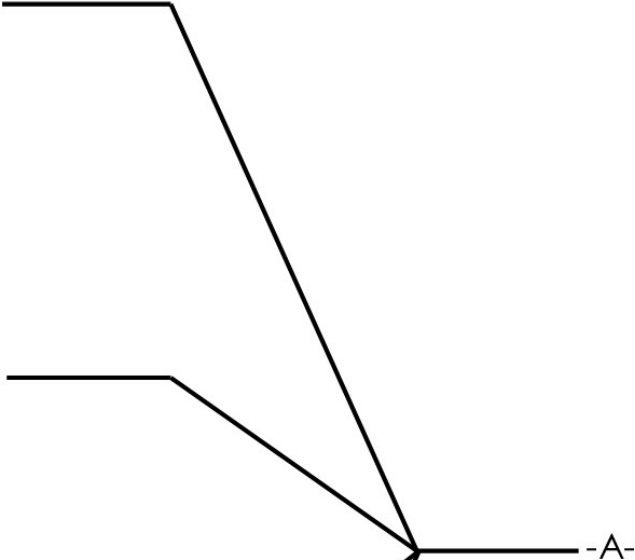
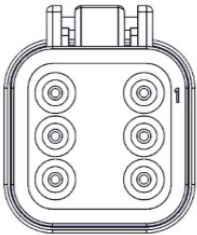
| DUAL RELAY B |      |       |
|--------------|------|-------|
| PIN          | WIRE | COLOR |
| B-1          | 35A  | WHITE |
| B-2          | N/A  | PLUG  |
| B-3          | 85   | BLACK |
| B-4          | 51   | WHITE |
| B-5          | N/A  | PLUG  |
| B-6          | 25A  | WHITE |



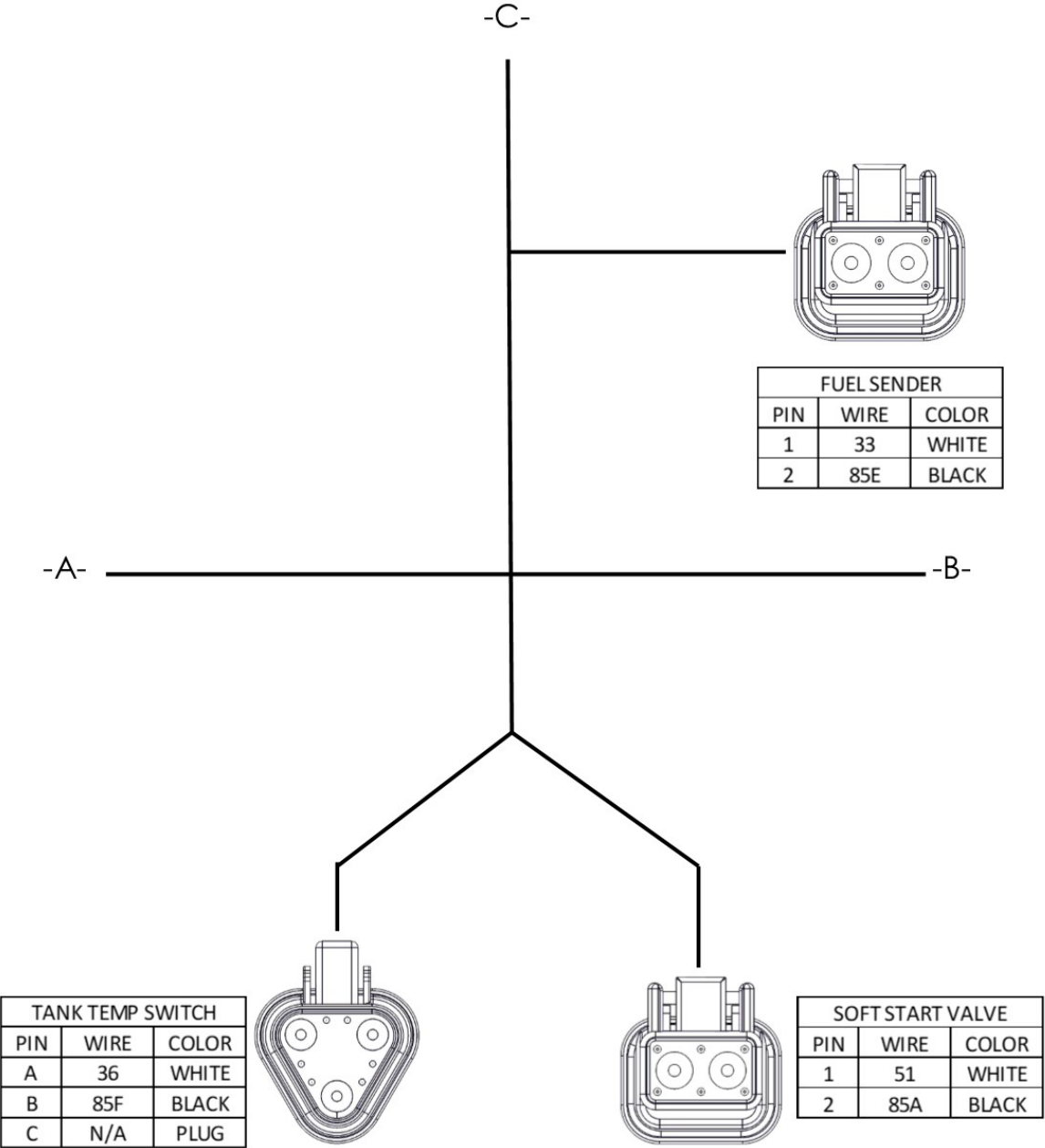
| DUAL RELAY C |      |       |
|--------------|------|-------|
| PIN          | WIRE | COLOR |
| C-1          | 25B  | WHITE |
| C-2          | N/A  | PLUG  |
| C-3          | 85B  | BLACK |
| C-4          | 52   | WHITE |
| C-5          | N/A  | PLUG  |
| C-6          | 53   | WHITE |



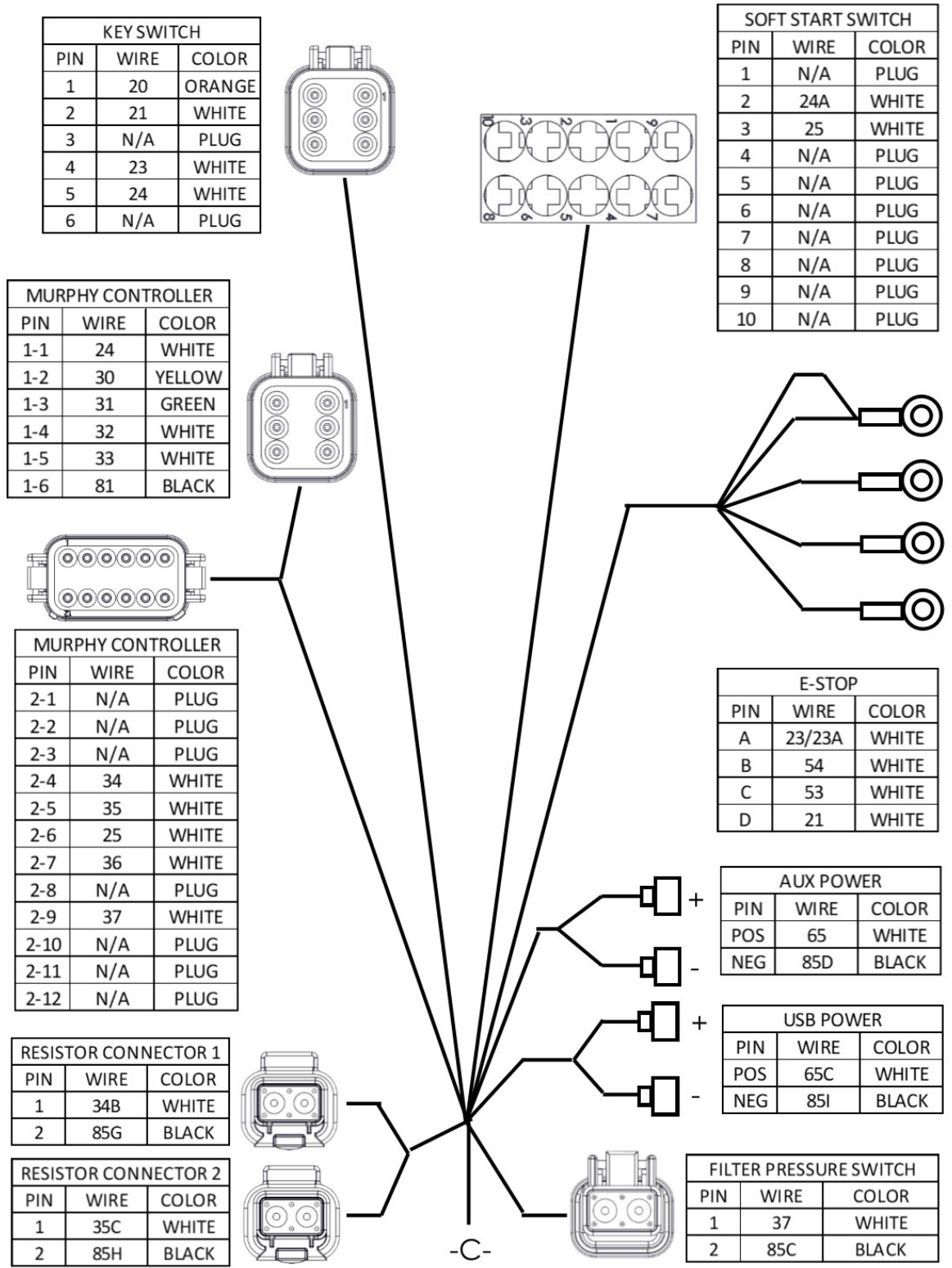
| DUAL RELAY D |      |        |
|--------------|------|--------|
| PIN          | WIRE | COLOR  |
| D-1          | 11B  | ORANGE |
| D-2          | N/A  | PLUG   |
| D-3          | 32   | WHITE  |
| D-4          | 54   | WHITE  |
| D-5          | N/A  | PLUG   |
| D-6          | 55   | WHITE  |



Wire Harness  
HB4500XT

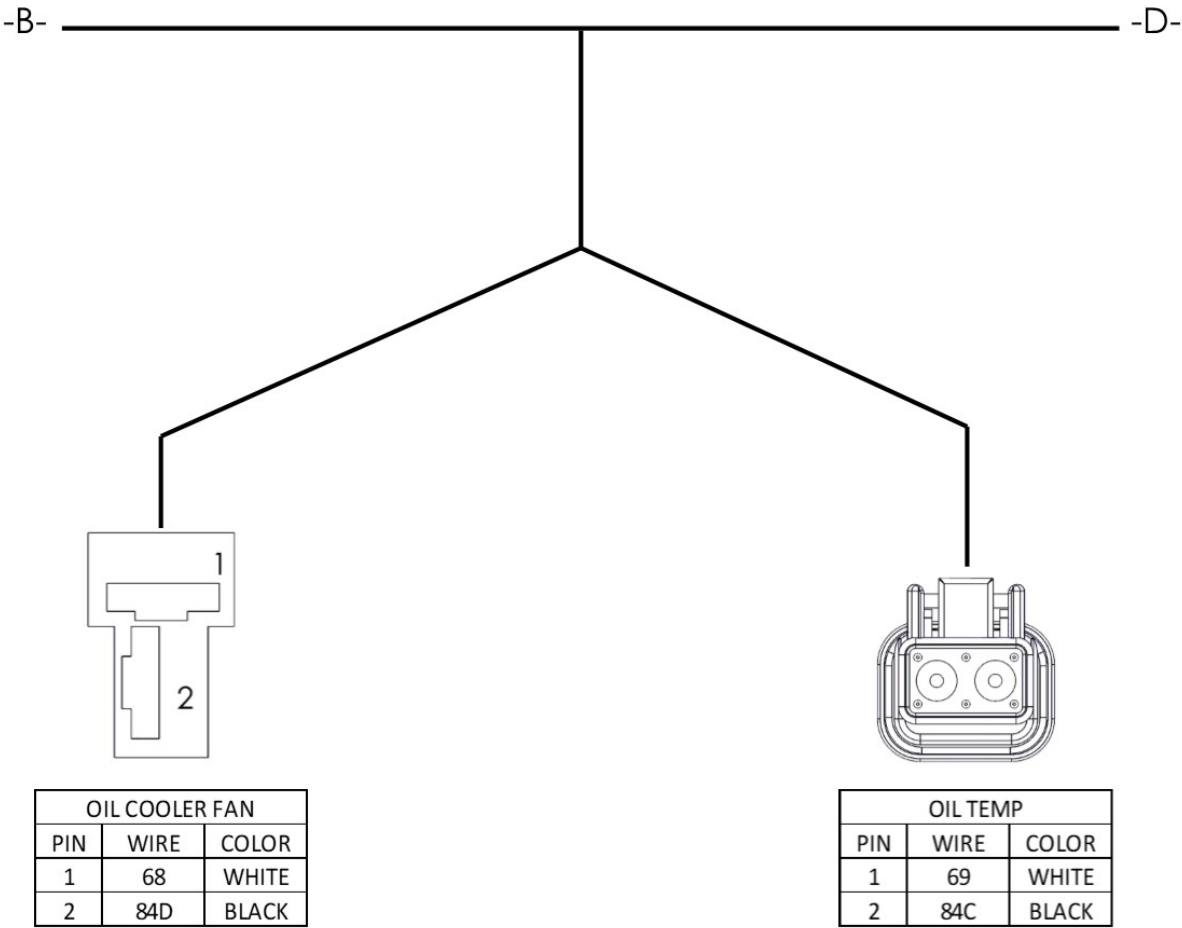


Wire Harness  
HB4500XT

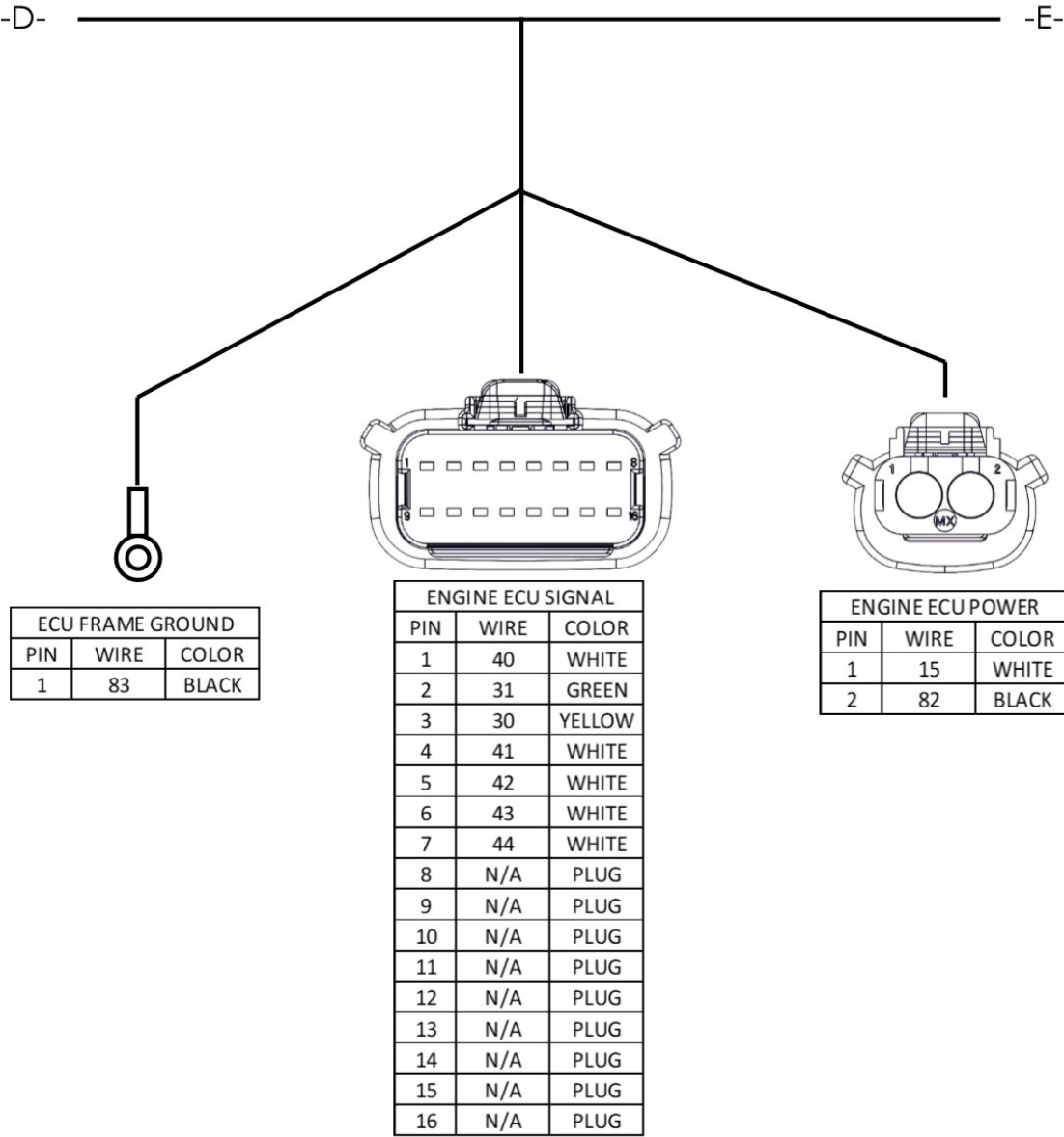




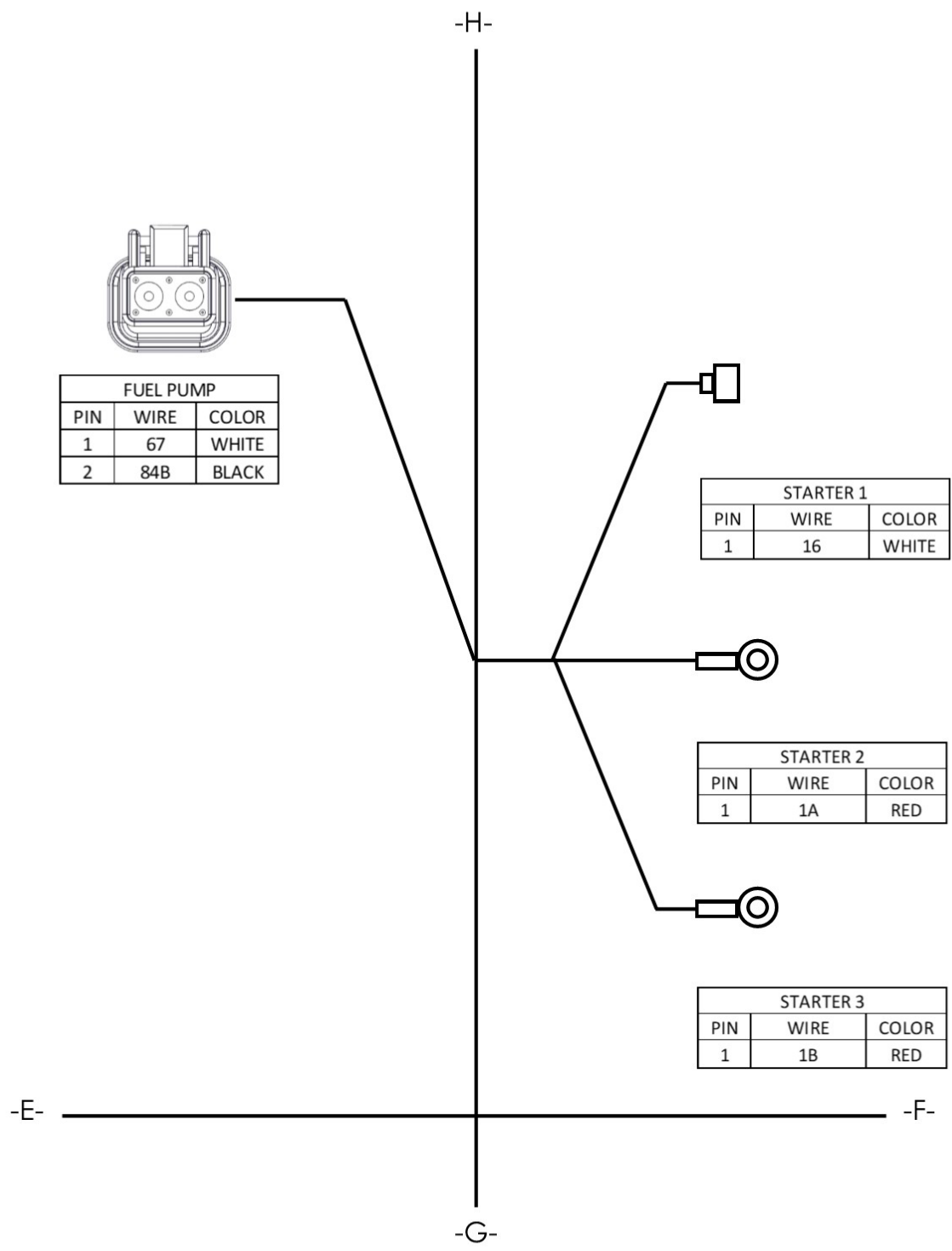
Wire Harness  
HB4500XT



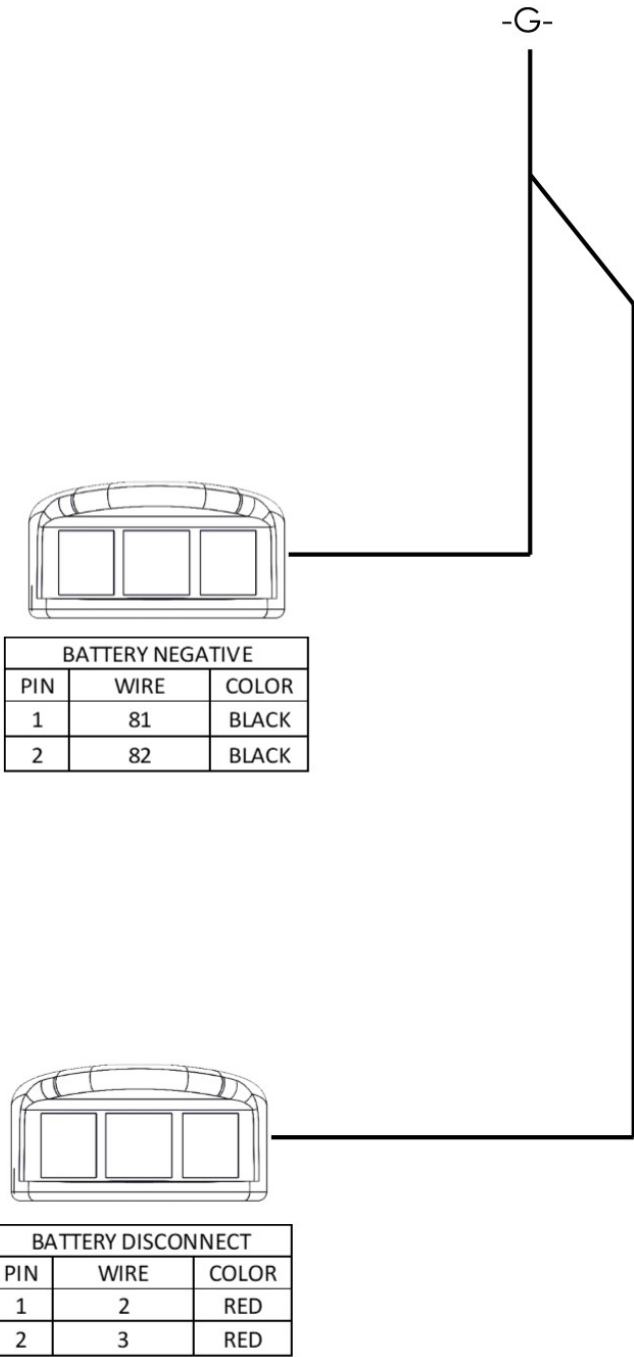
Wire Harness  
HB4500XT



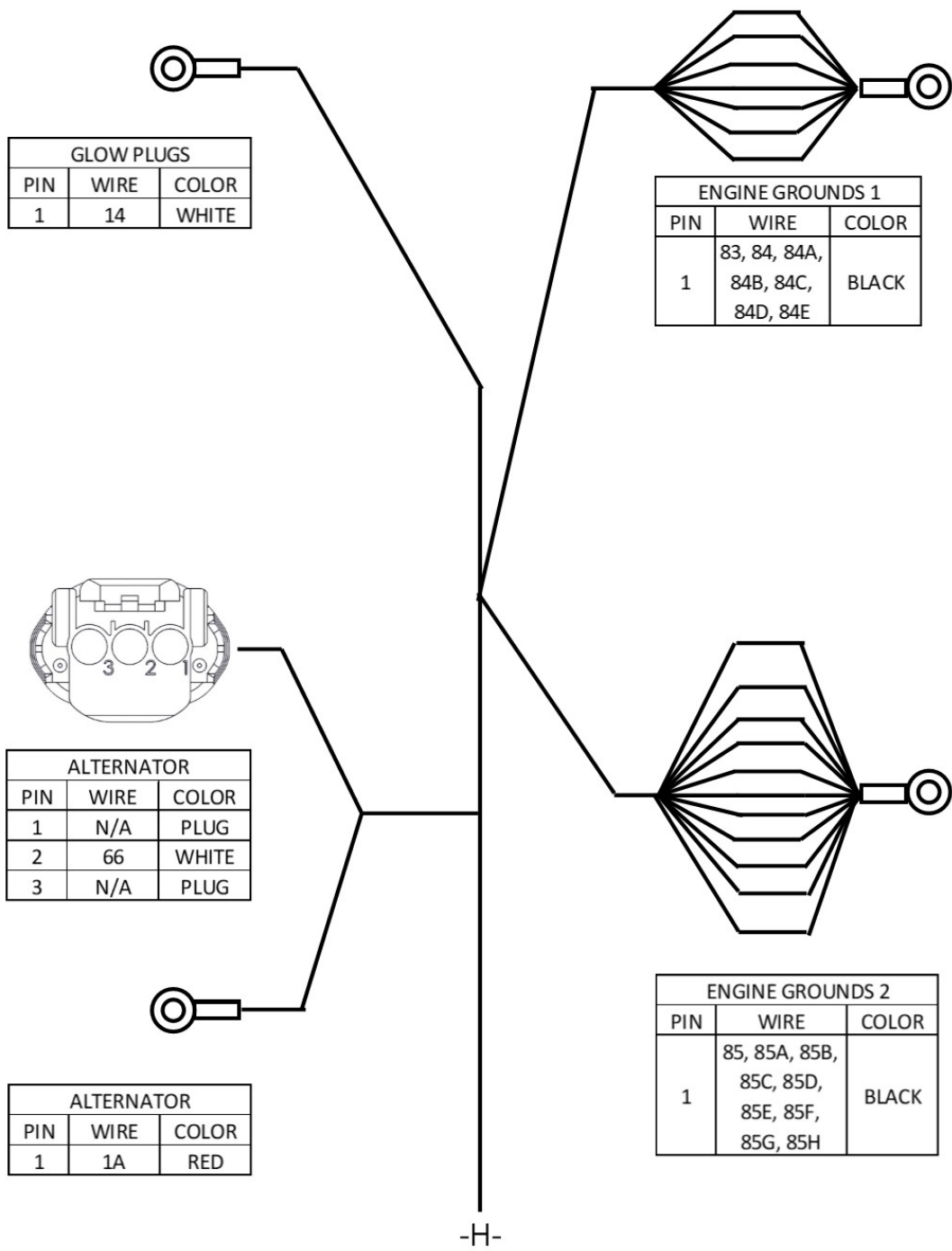
Wire Harness  
HB4500XT



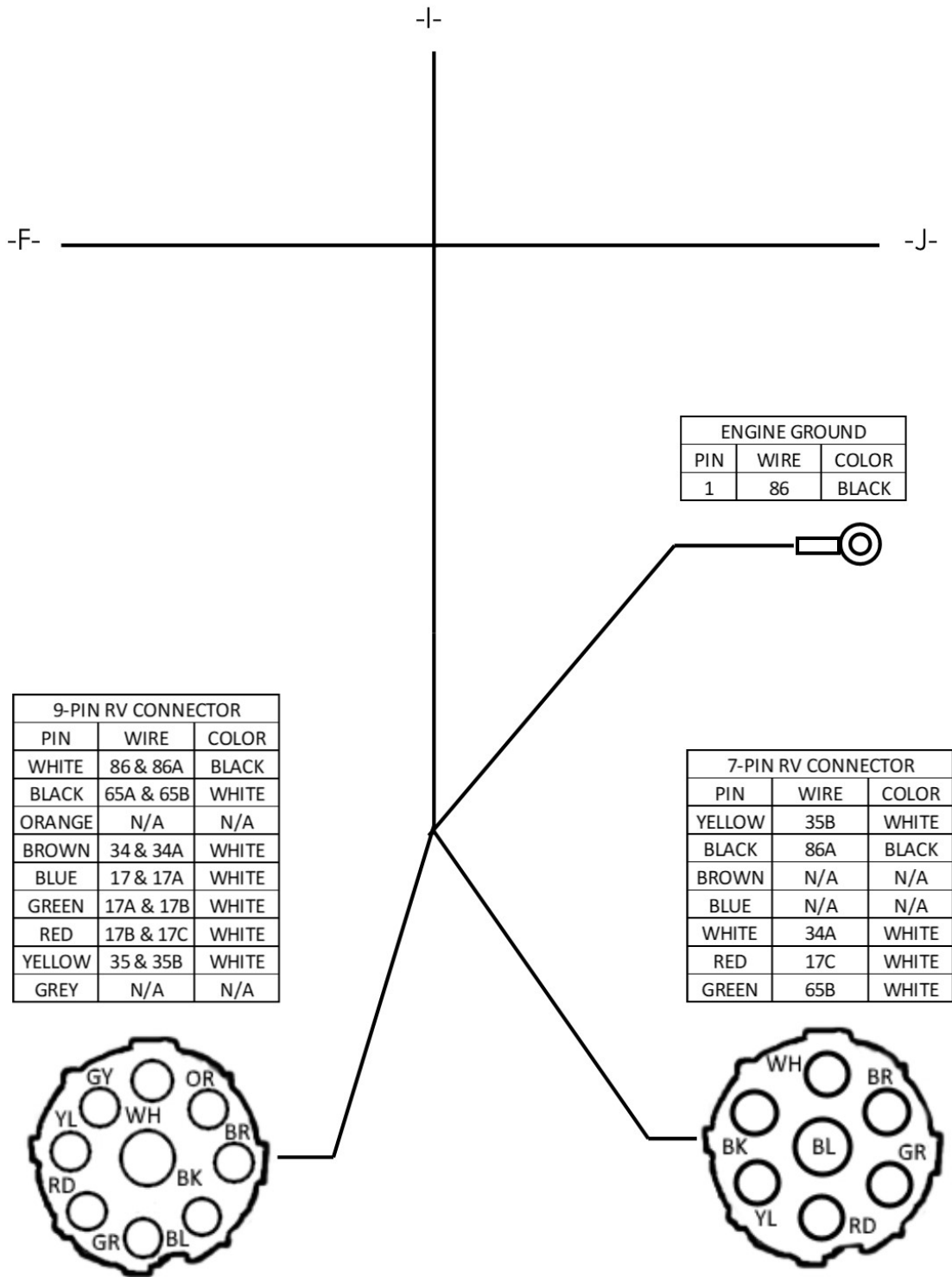
Wire Harness  
HB4500XT



Wire Harness  
HB4500XT

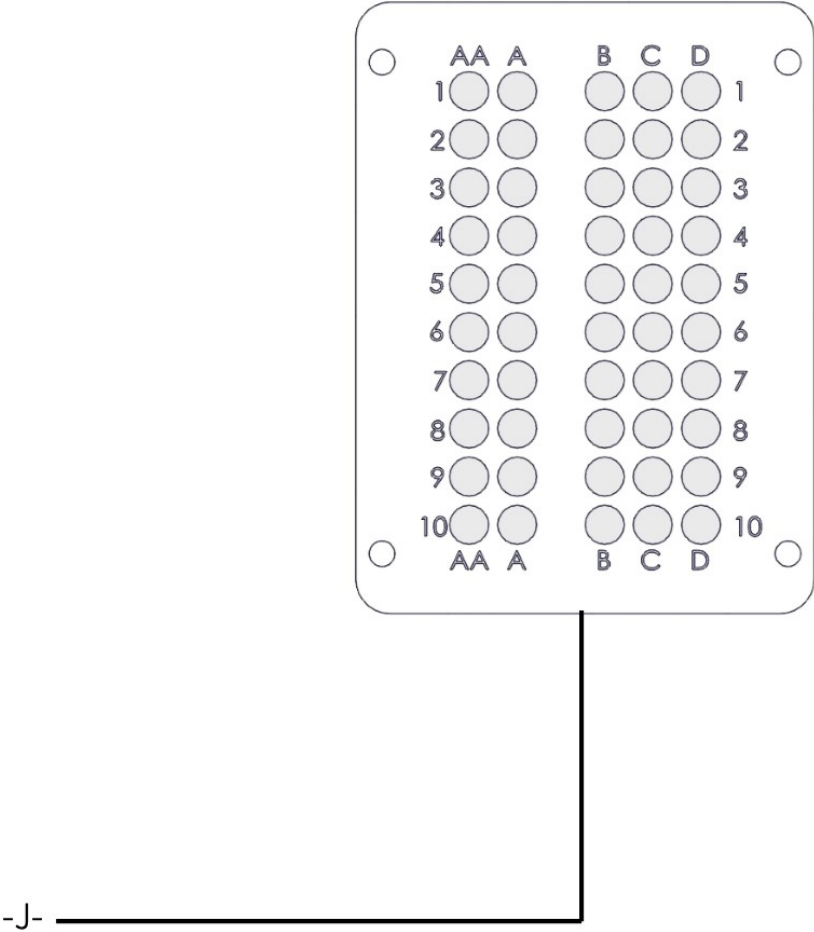


Wire Harness  
HB4500XT

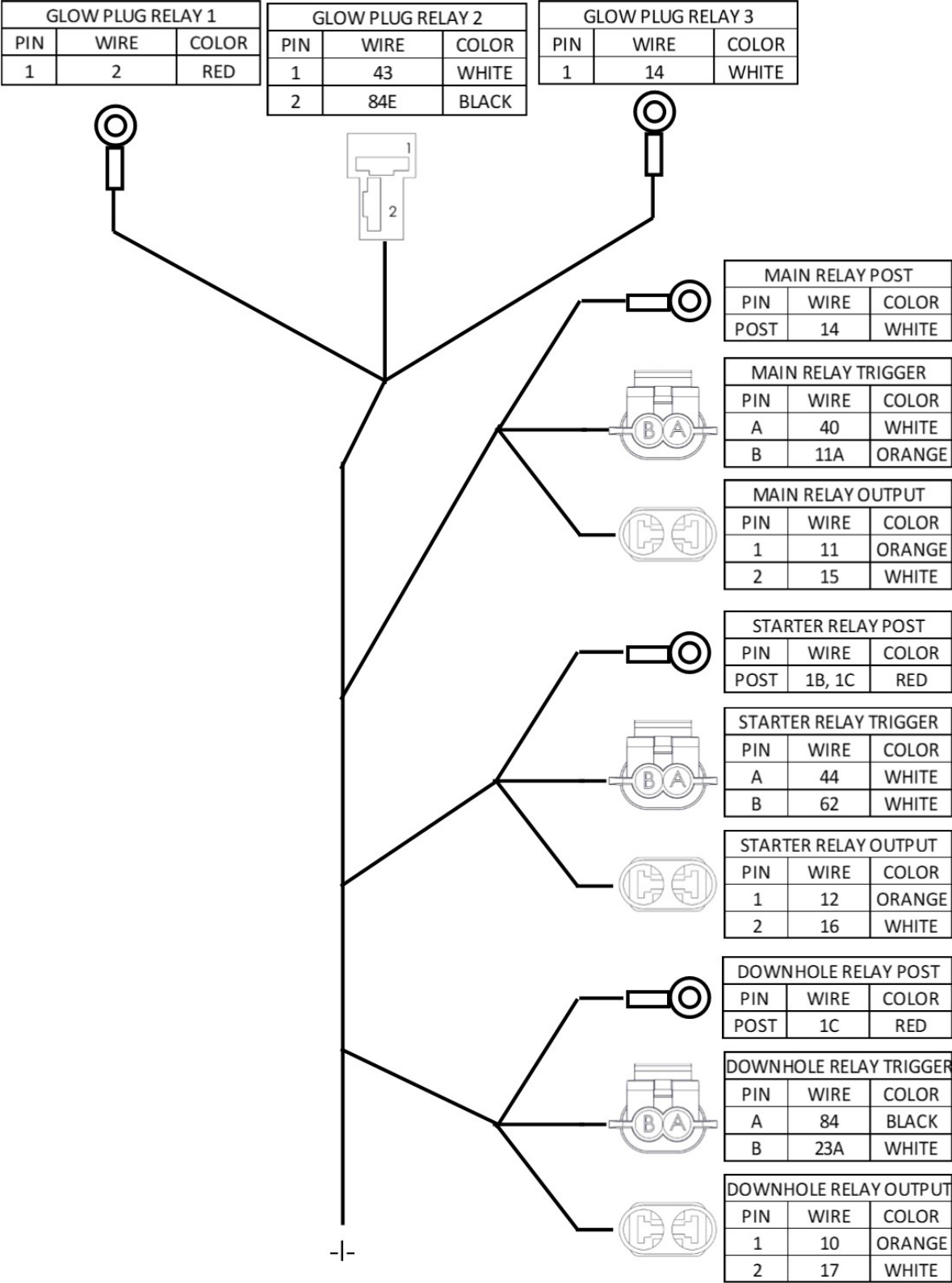


Wire Harness  
HB4500XT

| MAIN FUSE BLOCK |      |        |     |      |        |     |      |       |     |      |       |     |      |       |
|-----------------|------|--------|-----|------|--------|-----|------|-------|-----|------|-------|-----|------|-------|
| PIN             | WIRE | COLOR  | PIN | WIRE | COLOR  | PIN | WIRE | COLOR | PIN | WIRE | COLOR | PIN | WIRE | COLOR |
| AA-1            | 55A  | WHITE  | A-1 | 60   | WHITE  | B-1 | 61   | WHITE | C-1 | N/A  | PLUG  | D-1 | 60   | WHITE |
| AA-2            | 11   | ORANGE | A-2 | 61   | WHITE  | B-2 | 84A  | BLACK | C-2 | N/A  | PLUG  | D-2 | 42   | WHITE |
| AA-3            | 52A  | WHITE  | A-3 | 62   | WHITE  | B-3 | 63   | WHITE | C-3 | N/A  | PLUG  | D-3 | 64   | WHITE |
| AA-4            | 52   | WHITE  | A-4 | 41   | WHITE  | B-4 | 69   | WHITE | C-4 | N/A  | PLUG  | D-4 | 68   | WHITE |
| AA-5            | 12   | ORANGE | A-5 | 63   | WHITE  | B-5 | N/A  | PLUG  | C-5 | N/A  | PLUG  | D-5 | N/A  | PLUG  |
| AA-6            | 55   | WHITE  | A-6 | 64   | WHITE  | B-6 | N/A  | PLUG  | C-6 | N/A  | PLUG  | D-6 | N/A  | PLUG  |
| AA-7            | 10   | ORANGE | A-7 | 20   | ORANGE | B-7 | N/A  | PLUG  | C-7 | N/A  | PLUG  | D-7 | N/A  | PLUG  |

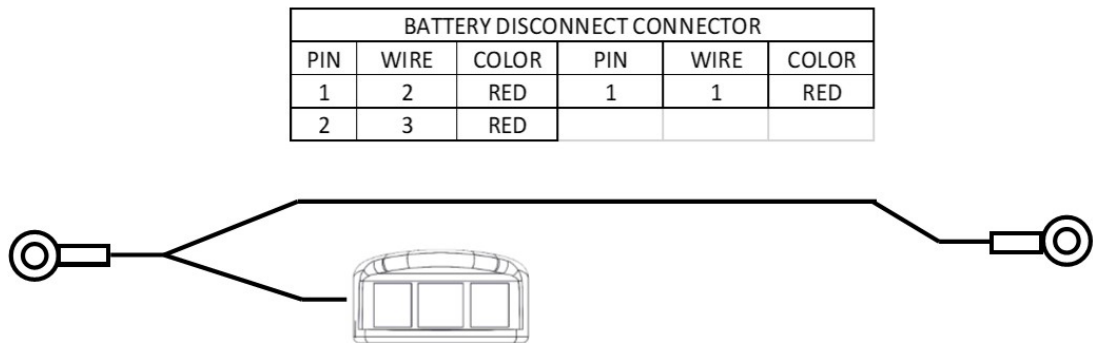
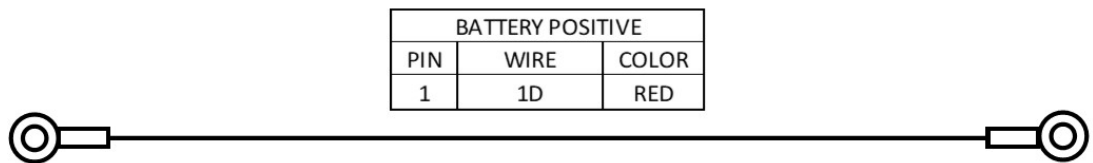
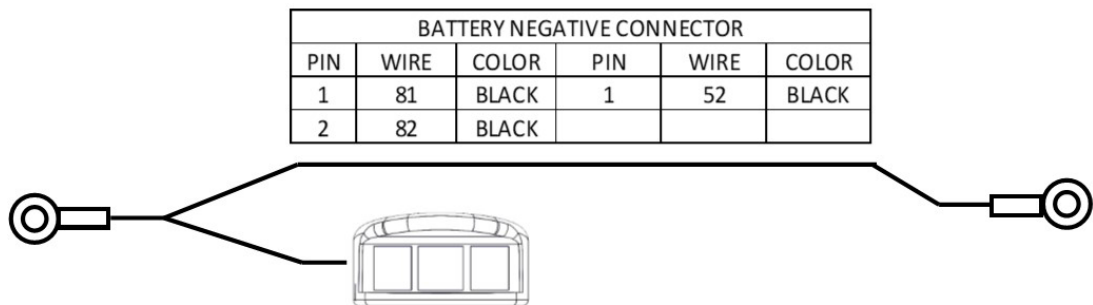
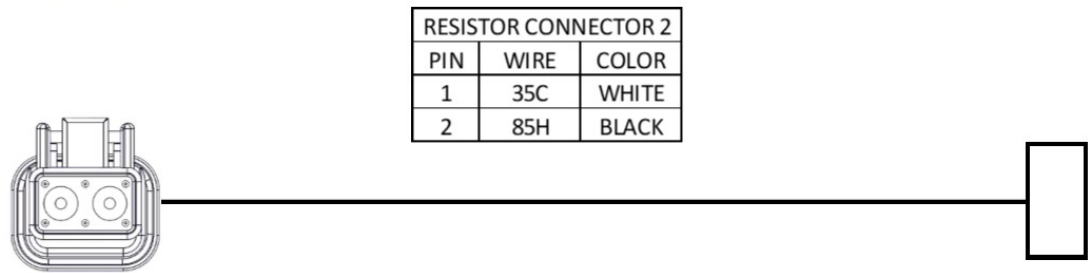
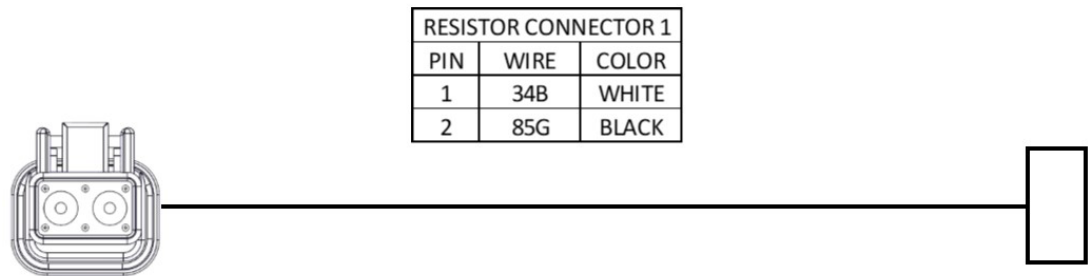


Wire Harness  
HB4500XT



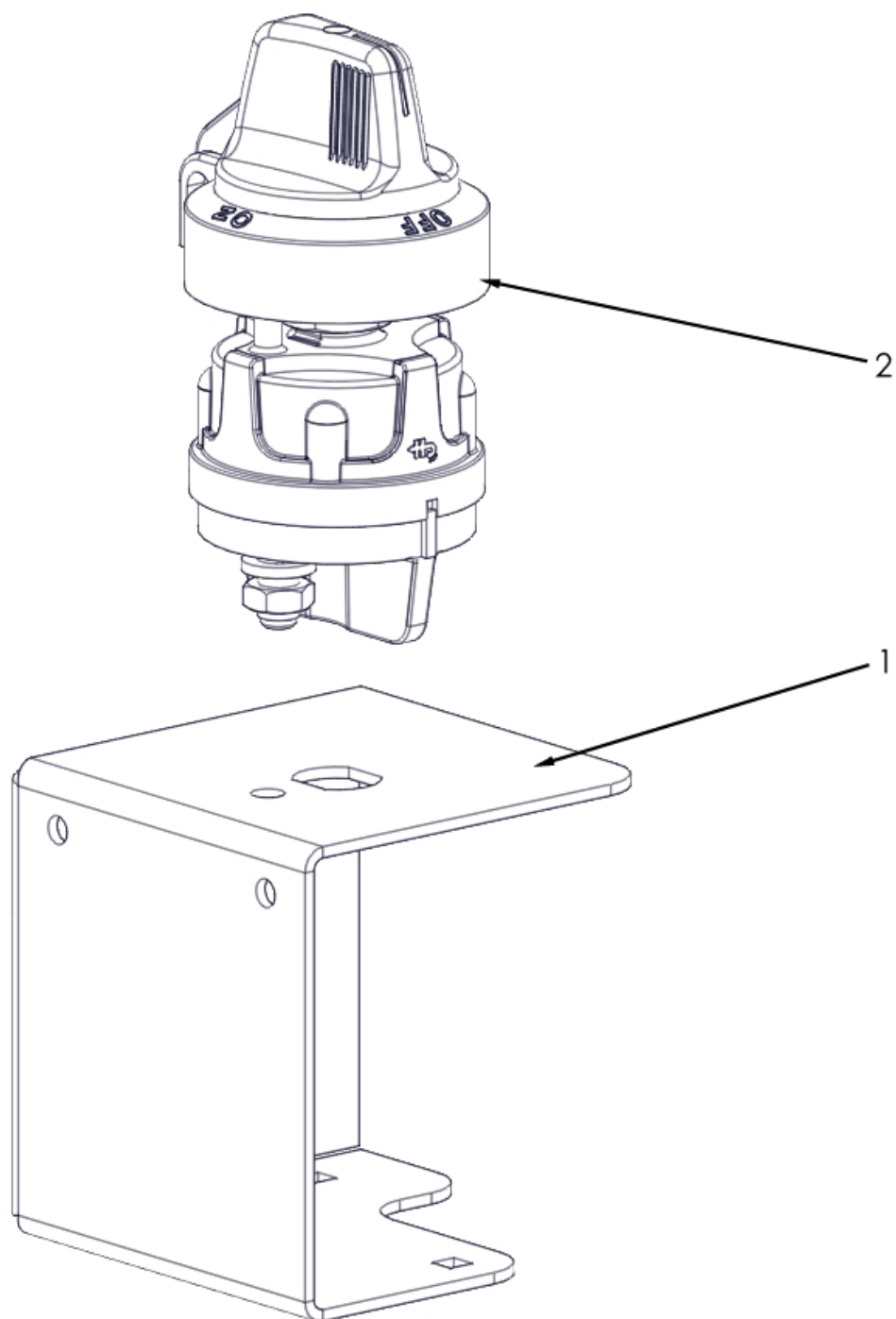


Wire Harness  
HB4500XT



# Battery Disconnect

HB4500XT



## Battery Disconnect

HB4500XT

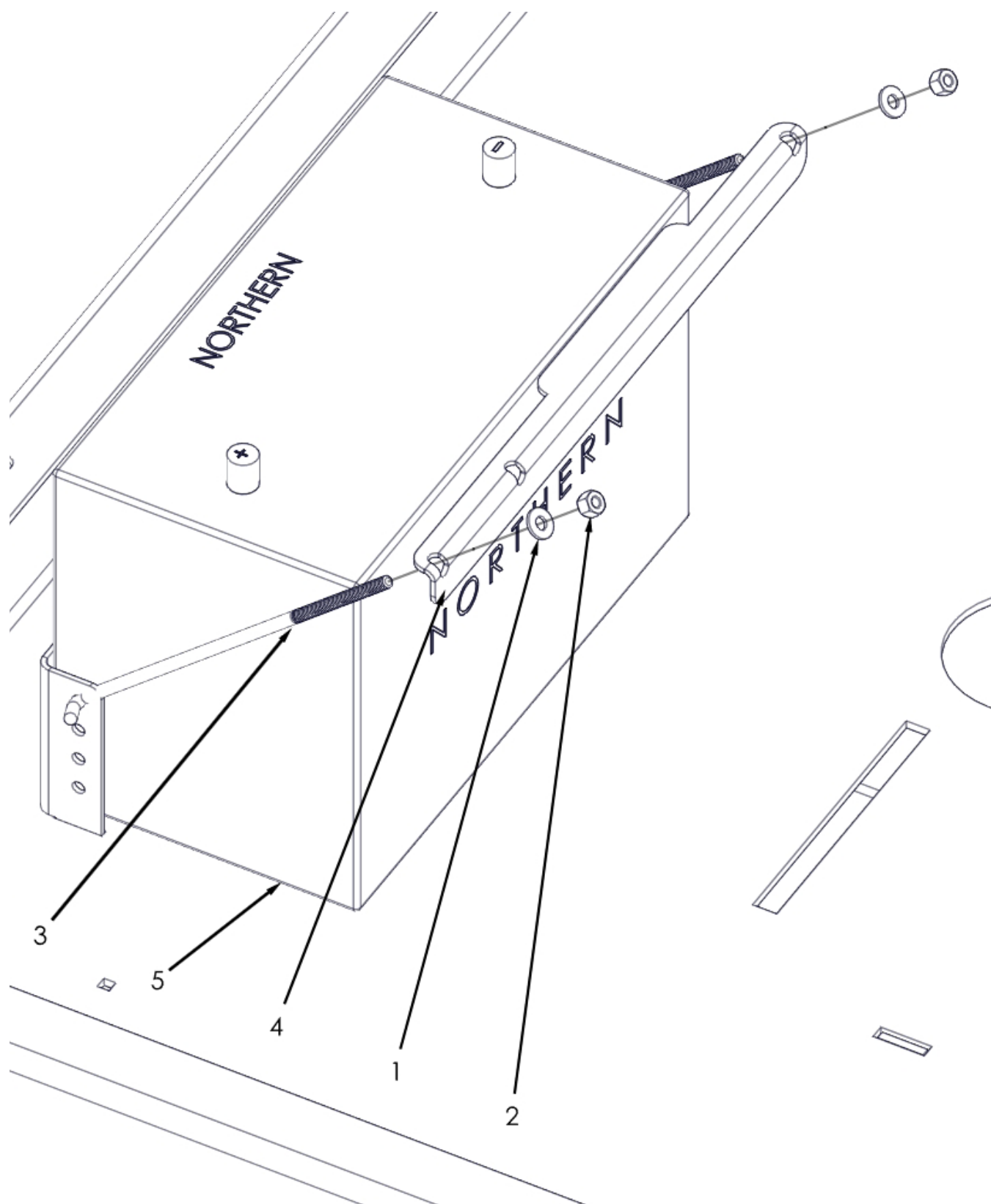
| Bom ID | Part No  | Description                | Qty | Remarks |
|--------|----------|----------------------------|-----|---------|
| 1      | 941-7496 | BATTERY DISCONNECT HOUSING | 1   |         |
| 2      | 215-0025 | SWITCH, BATTERY DISCONNECT | 1   |         |

Not Shown:

Footnotes:

Notes:

Battery  
HB4500XT



## Battery

HB4500XT

| Bom ID | Part No  | Description          | Qty | Remarks |
|--------|----------|----------------------|-----|---------|
| 1      | 04FW-SAE | WASHER, 1/4"         | 2   |         |
| 2      | 04TLN    | NUT, 1/4-20 TOP LOCK | 2   |         |
| 3      | 913-0045 | J-BOLT, 1/4-20 x 9.0 | 2   |         |
| 4      | 913-7057 | BRACKET, BATTERY     | 1   |         |
| 5      | 913-7303 | BATTERY              | 1   |         |

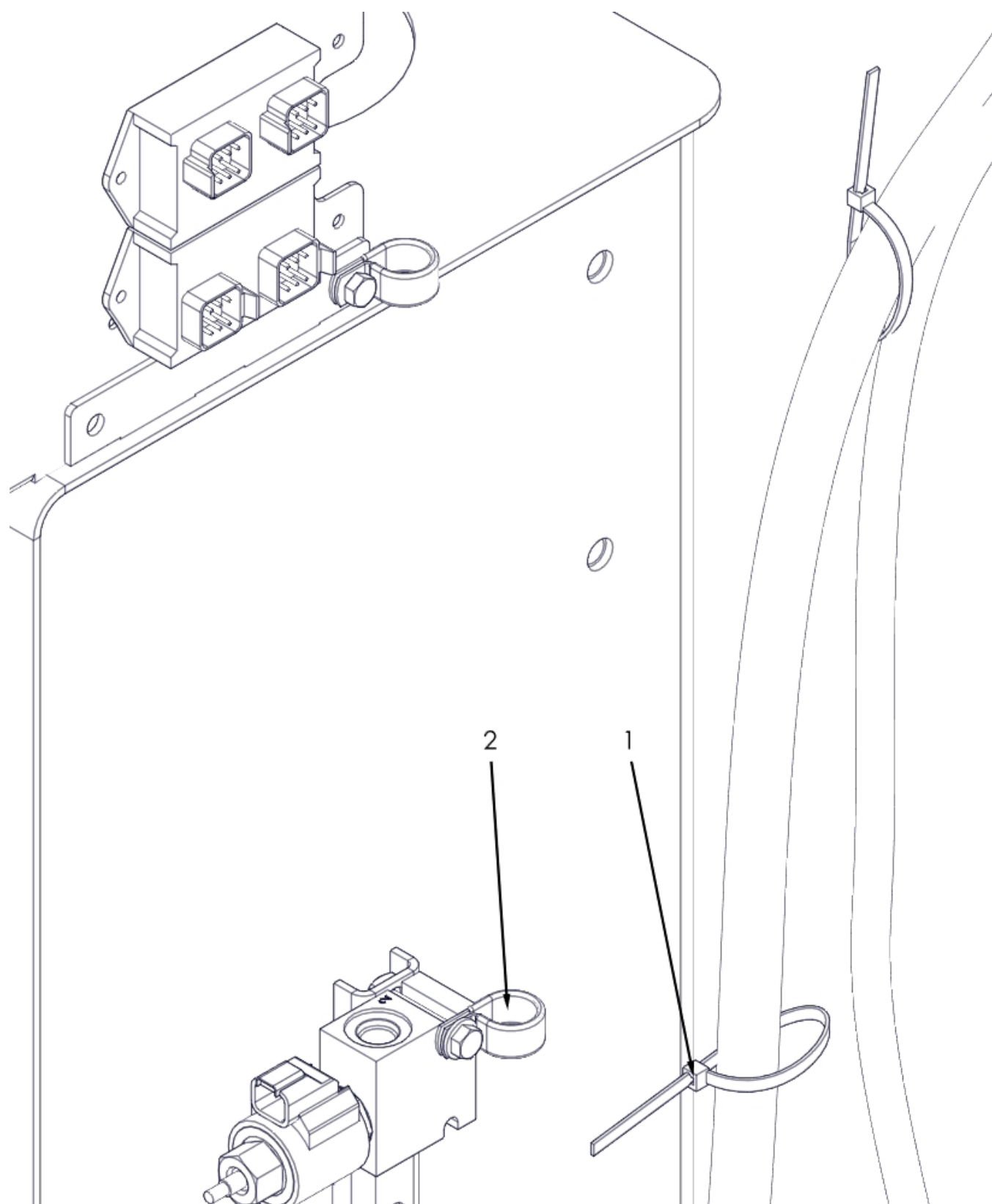
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Footnotes:

Notes:

# Clamps/Zip Ties

HB4500XT



## Clamps/Zip Ties

HB4500XT

| Bom ID | Part No  | Description       | Qty | Remarks |
|--------|----------|-------------------|-----|---------|
| 1      | 912-1039 | TIE STRAP, NYLON  | 2   |         |
| 2      | 933-4005 | CLAMP, 3/4" VINYL | 1   |         |

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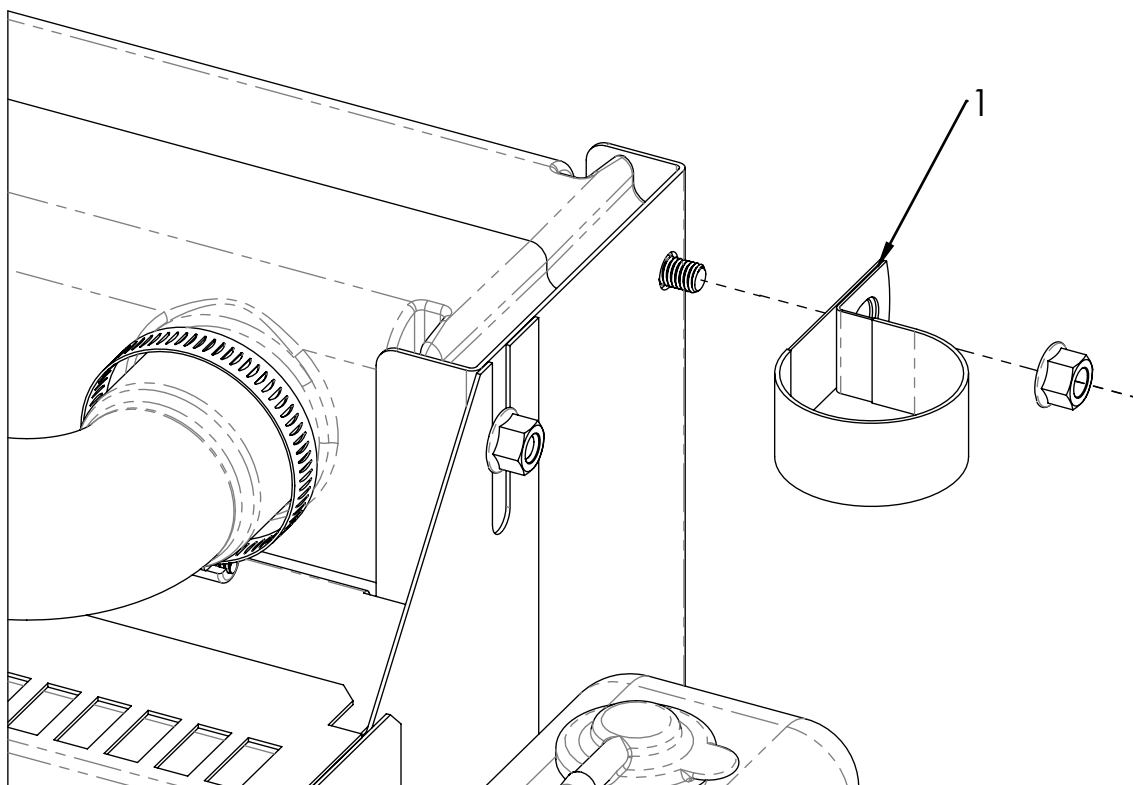
Footnotes:

Notes:

933-4005 & 912-3621 USED TO ROUTE WIRE HARNESS.

# Clamps/Zip Ties

HB4500XT





## Clamps/Zip Ties

HB4500XT

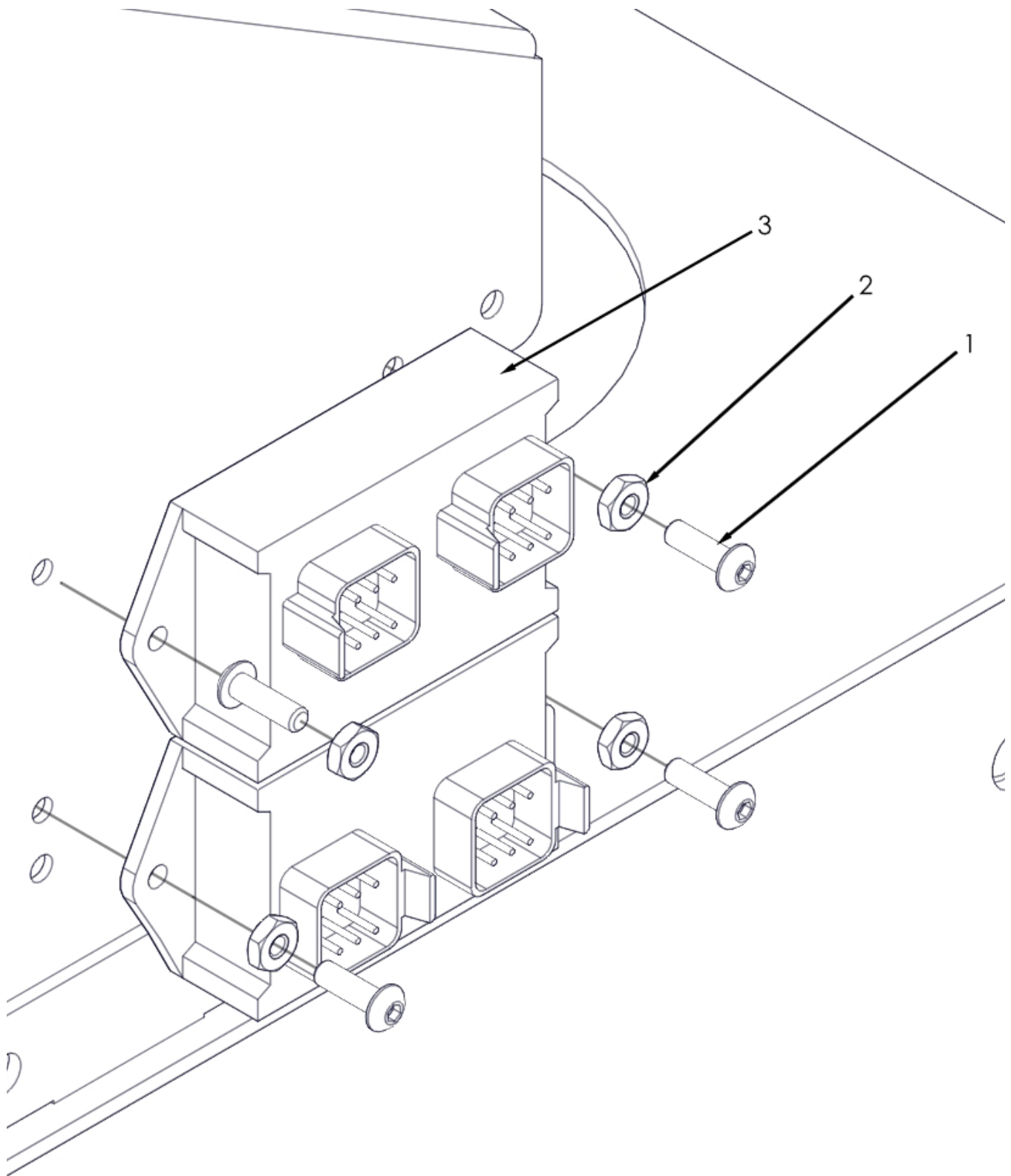
| Bom ID | Part No  | Description | Qty | Remarks |
|--------|----------|-------------|-----|---------|
| 1      | 912-3621 | Clamp 2"    | 1   |         |

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Footnotes:

Notes:

# Dual Relay Mount HB4500XT



## Dual Relay Mount

HB4500XT

| Bom ID | Part No  | Description              | Qty | Remarks |
|--------|----------|--------------------------|-----|---------|
| 1      | #10BH10  | SCREW, #10-24x0.625 BHSC | 4   |         |
| 2      | #10TLN   | NUT, #10-24 TOP LOCK     | 4   |         |
| 3      | 912-3610 | MODULE, DUAL RELAY       | 2   |         |

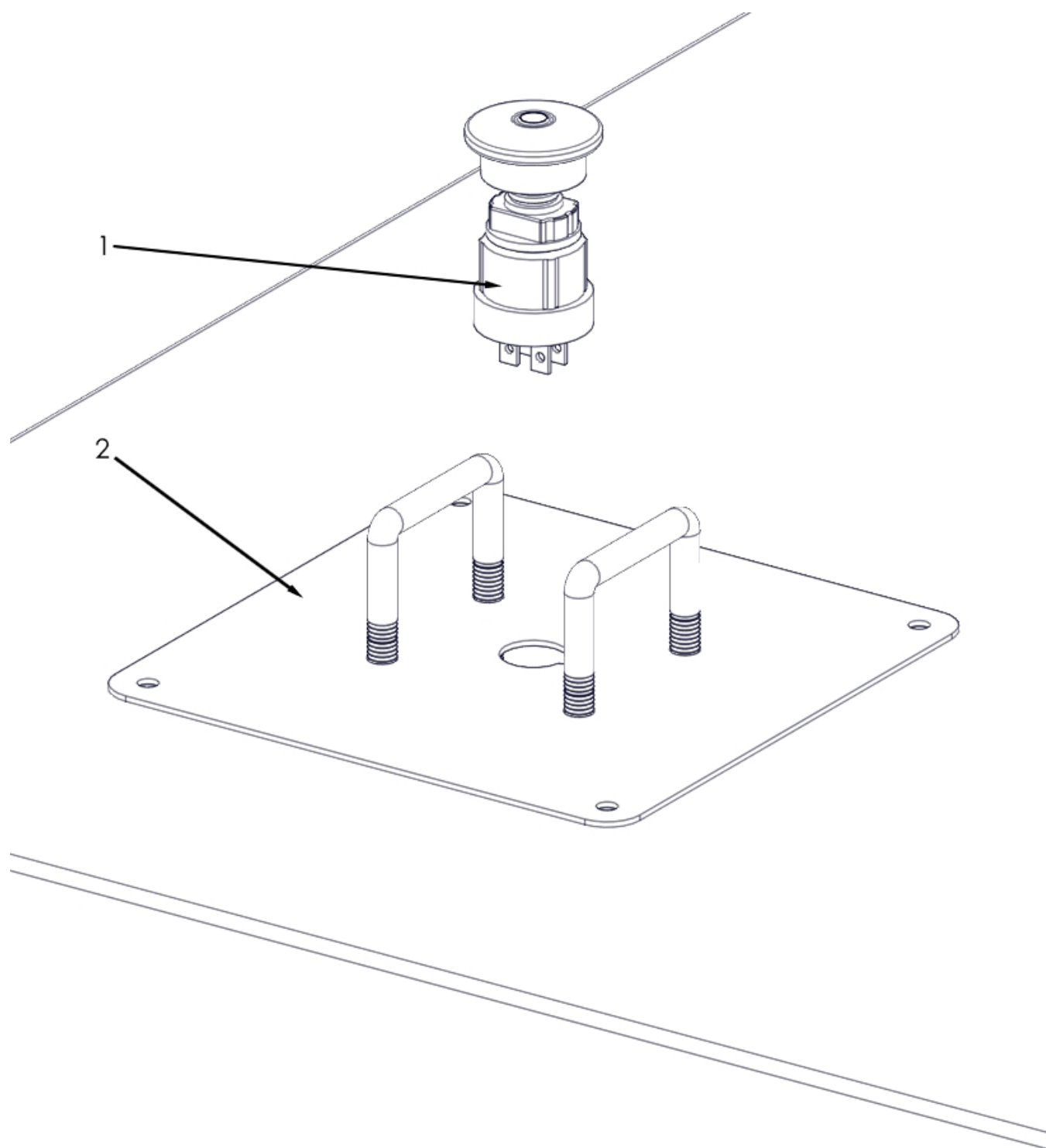
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Footnotes:

Notes:

# Emergency Stop

HB4500XT



## Emergency Stop

HB4500XT

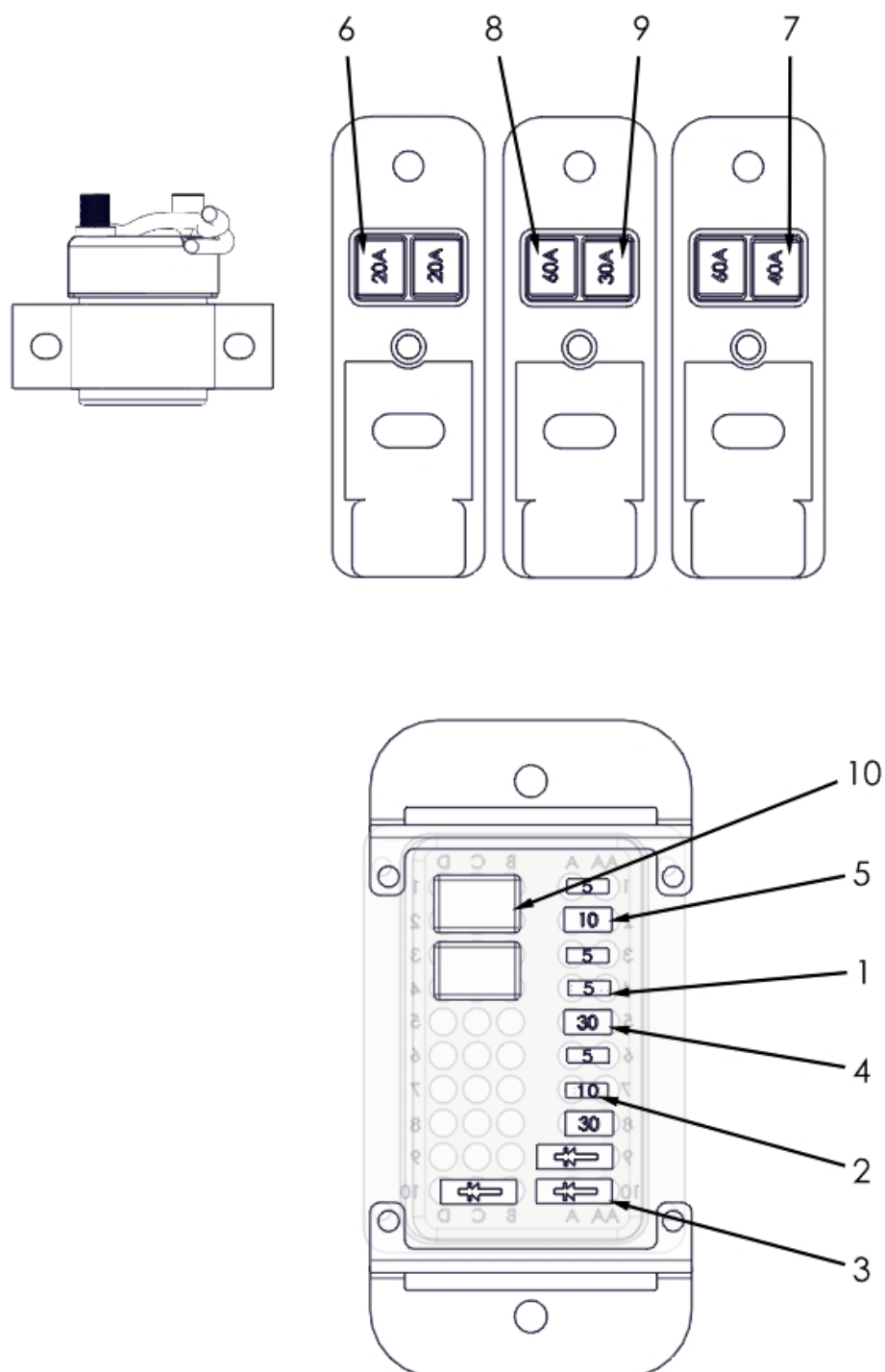
| Bom ID | Part No  | Description            | Qty | Remarks |
|--------|----------|------------------------|-----|---------|
| 1      | 912-3608 | SWITCH, EMERGENCY STOP | 1   |         |
| 2      | 933-5629 | PANEL, FILTER ACCESS   | 1   |         |

Not Shown:

Footnotes:

Notes:

# Fuses HB4500XT



## Fuses

HB4500XT

| Bom ID | Part No  | Description                    | Qty | Remarks |
|--------|----------|--------------------------------|-----|---------|
| 1      | 933-5040 | FUSE 5 AMP, LED                | 4   |         |
| 2      | 933-5041 | FUSE 10 AMP, LED               | 1   |         |
| 3      | 933-5042 | FUSE, DIODE, 3AMP              | 3   |         |
| 4      | 933-5043 | CIRCUIT BREAKER, TYPE III, 30A | 2   |         |
| 5      | 933-5044 | CIRCUIT BREAKER, TYPE III, 10A | 1   |         |
| 6      | 933-5045 | FUSE, JCASE, 20A               | 2   |         |
| 7      | 933-5046 | FUSE, JCASE, 40A               | 1   |         |
| 8      | 933-5047 | FUSE, JCASE, 60A               | 2   |         |
| 9      | 933-5048 | FUSE, JCASE, 30A               | 1   |         |
| 10     | 941-7664 | RELAY, 12V, 35A                | 2   |         |

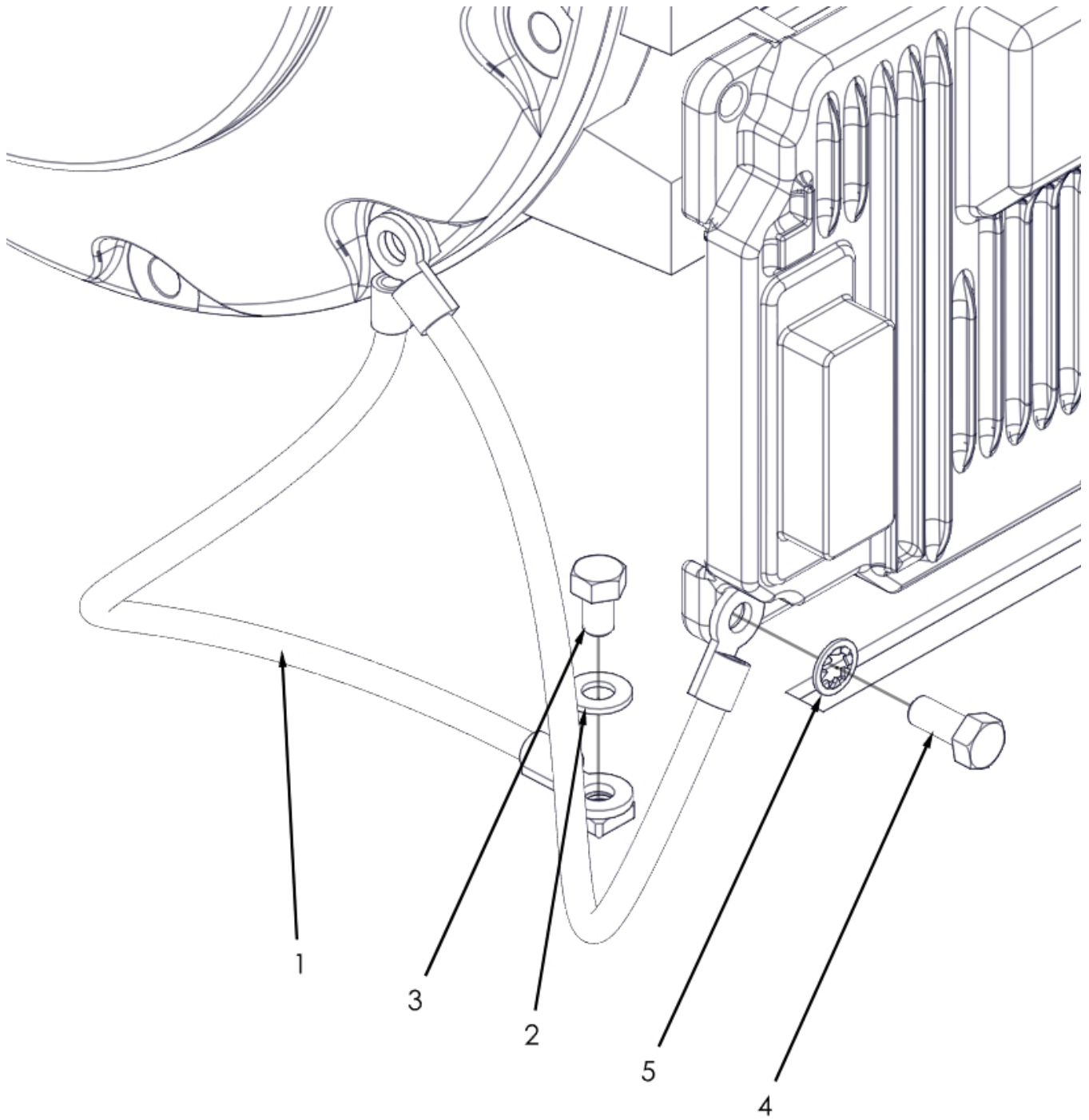
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Footnotes:

Notes:

# Ground Straps

HB4500XT





## Ground Straps

HB4500XT

| Bom ID | Part No  | Description                    | Qty | Remarks |
|--------|----------|--------------------------------|-----|---------|
| 1      | 933-0341 | GROUND STRAP, 12"              | 2   |         |
| 2      | 05FW-SAE | WASHER, 5/16"                  | 1   |         |
| 3      | 05HH08   | SCREW, 5/16-18 x .50 HHC - GR8 | 1   |         |
| 4      | 05HH12   | SCREW, 5/16-18 x .75 HHC - GR8 | 1   |         |
| 5      | 05ITLW   | WASHER, 5/16" ITLW             | 1   |         |

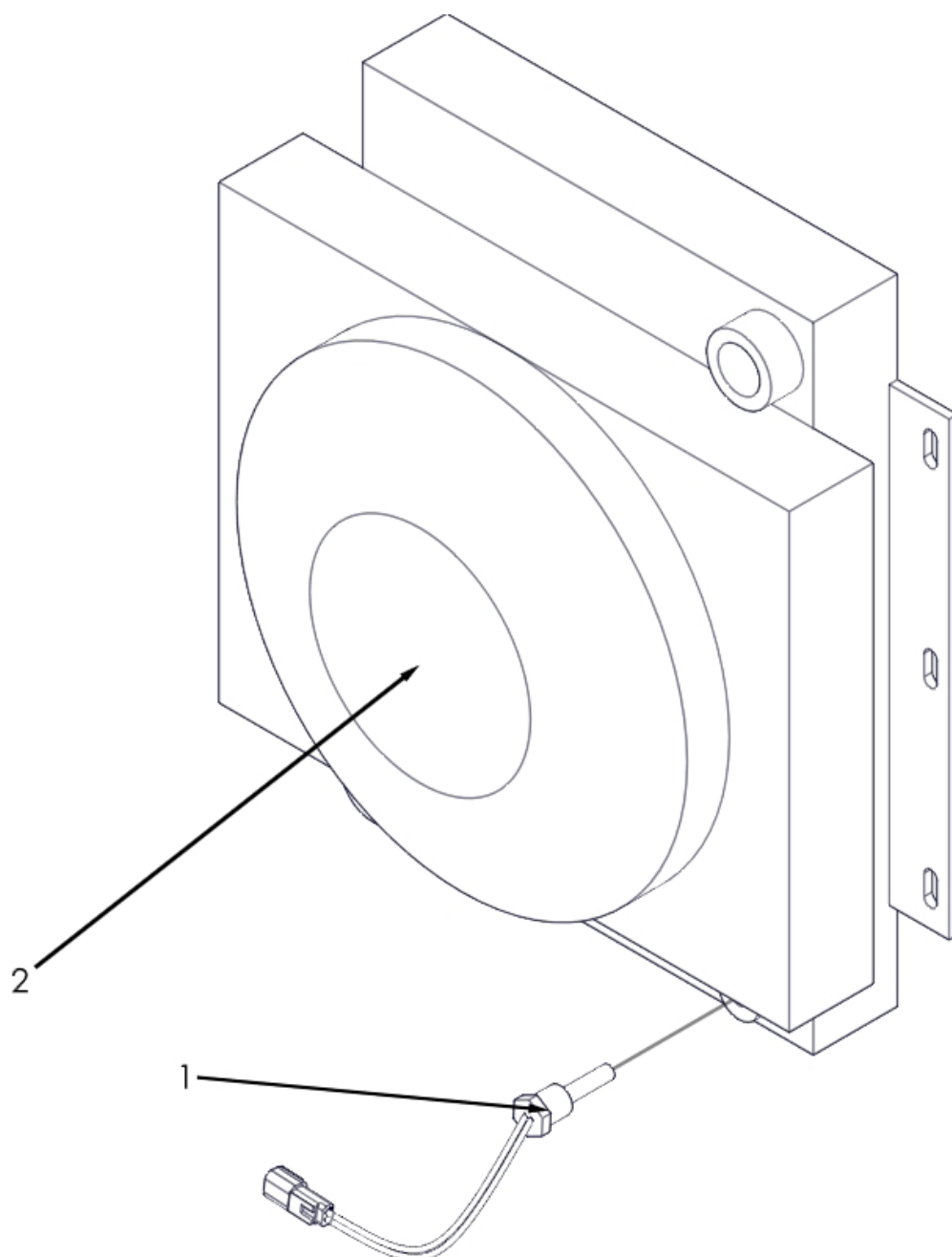
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Footnotes:

Notes:

# Oil Cooler Temperature Switch

HB4500XT



## Oil Cooler Temperature Switch

HB4500XT

| Bom ID | Part No  | Description              | Qty | Remarks |
|--------|----------|--------------------------|-----|---------|
| 1      | 912-5085 | SWITCH, TEMPERATURE 140° | 1   |         |
| 2      | 933-3049 | OIL COOLER, ELD 4        | 1   |         |

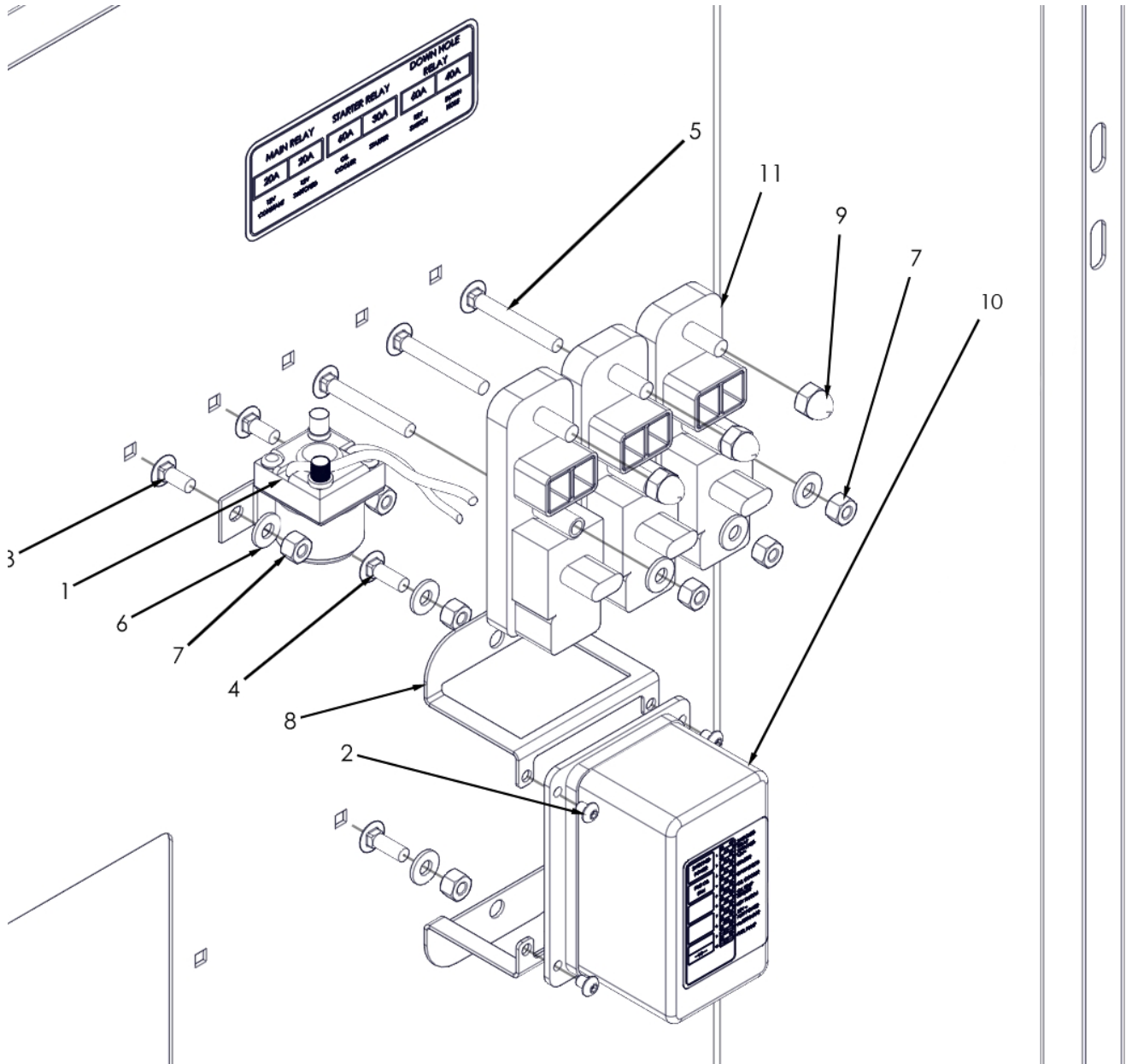
Not Shown:

Footnotes:

Notes:

# Relay & Glow Plugs

## HB4500XT



## Relay & Glow Plugs

HB4500XT

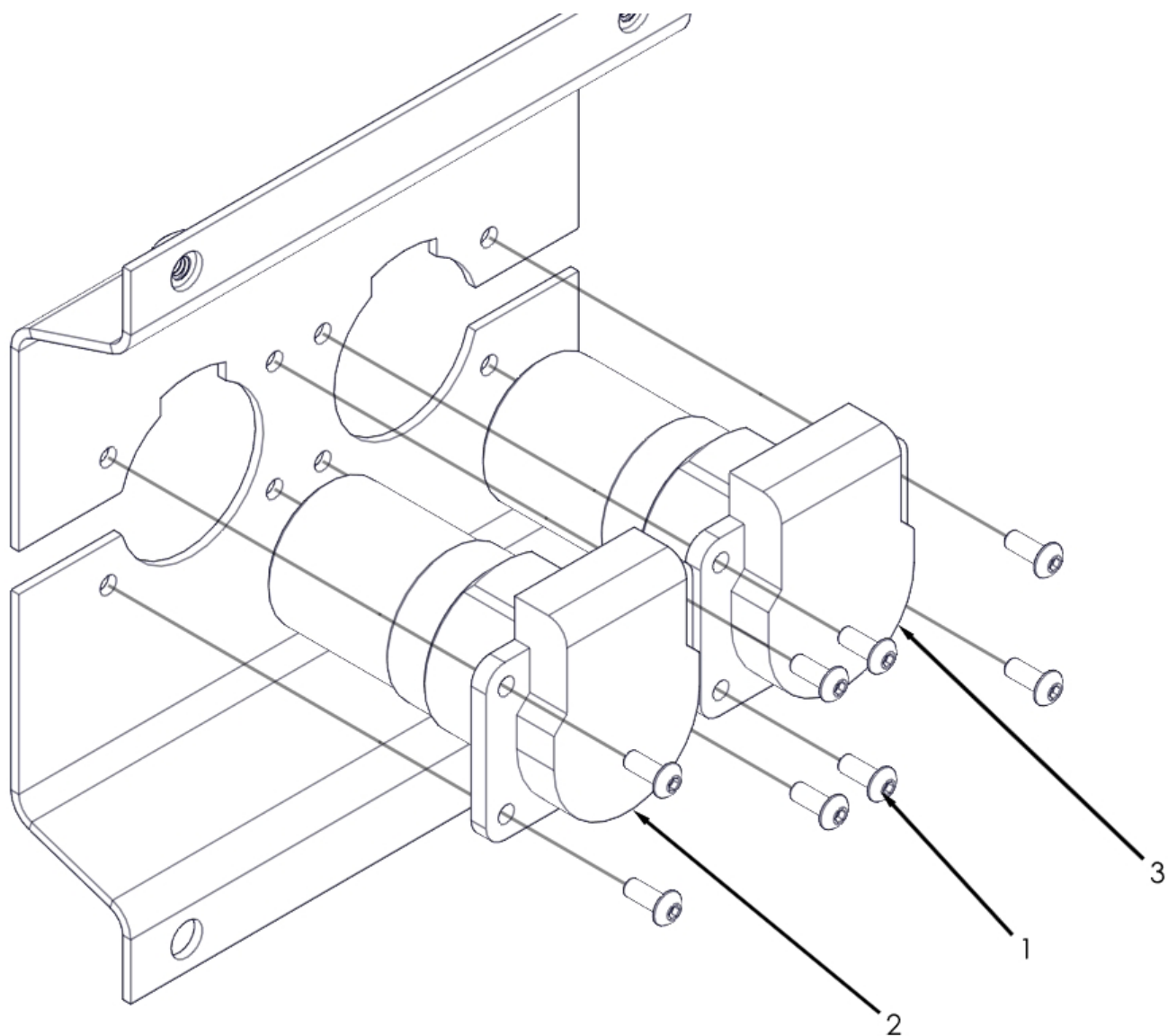
| Bom ID | Part No  | Description                  | Qty | Remarks |
|--------|----------|------------------------------|-----|---------|
| 1      | 933-0449 | GLOW PLUG RELAY              | 1   |         |
| 2      | #10BH04F | SCREW, #10-32x0.25 BHSC      | 4   |         |
| 3      | 04CB10   | BOLT, 1/4-20 x .625 CARRIAGE | 2   |         |
| 4      | 04CB12   | BOLT, 1/4-20 x .75 CARRIAGE  | 2   |         |
| 5      | 04CB32   | BOLT, 1/4-20 x 2 CARRIAGE    | 3   |         |
| 6      | 04FW-SAE | WASHER, 1/4"                 | 7   |         |
| 7      | 04TLN    | NUT, 1/4-20 TOP LOCK         | 7   |         |
| 8      | 933-0433 | BRACKET, FUSE PANEL          | 2   |         |
| 9      | 933-0485 | CAP NUT, M8-1.25, NYLON      | 3   |         |
| 10     | 941-7584 | MINI FUSE PANEL              | 1   |         |
| 11     | 941-7587 | POWER RELAY MODULE, 70A      | 3   |         |

Not Shown:

Footnotes:

Notes:

RV Panel  
HB4500XT



## RV Panel

HB4500XT

| Bom ID | Part No  | Description            | Qty | Remarks |
|--------|----------|------------------------|-----|---------|
| 1      | 10BH08   | SCREW, #10-24x0.5 BHSC | 8   |         |
| 2      | 933-5005 | SOCKET, RV 7-WAY       | 1   |         |
| 3      | 933-5027 | SOCKET, RV 9-WAY       | 1   |         |
| 4      | #10TLN   | NUT, #10-24 TOP LOCK   | 8   |         |

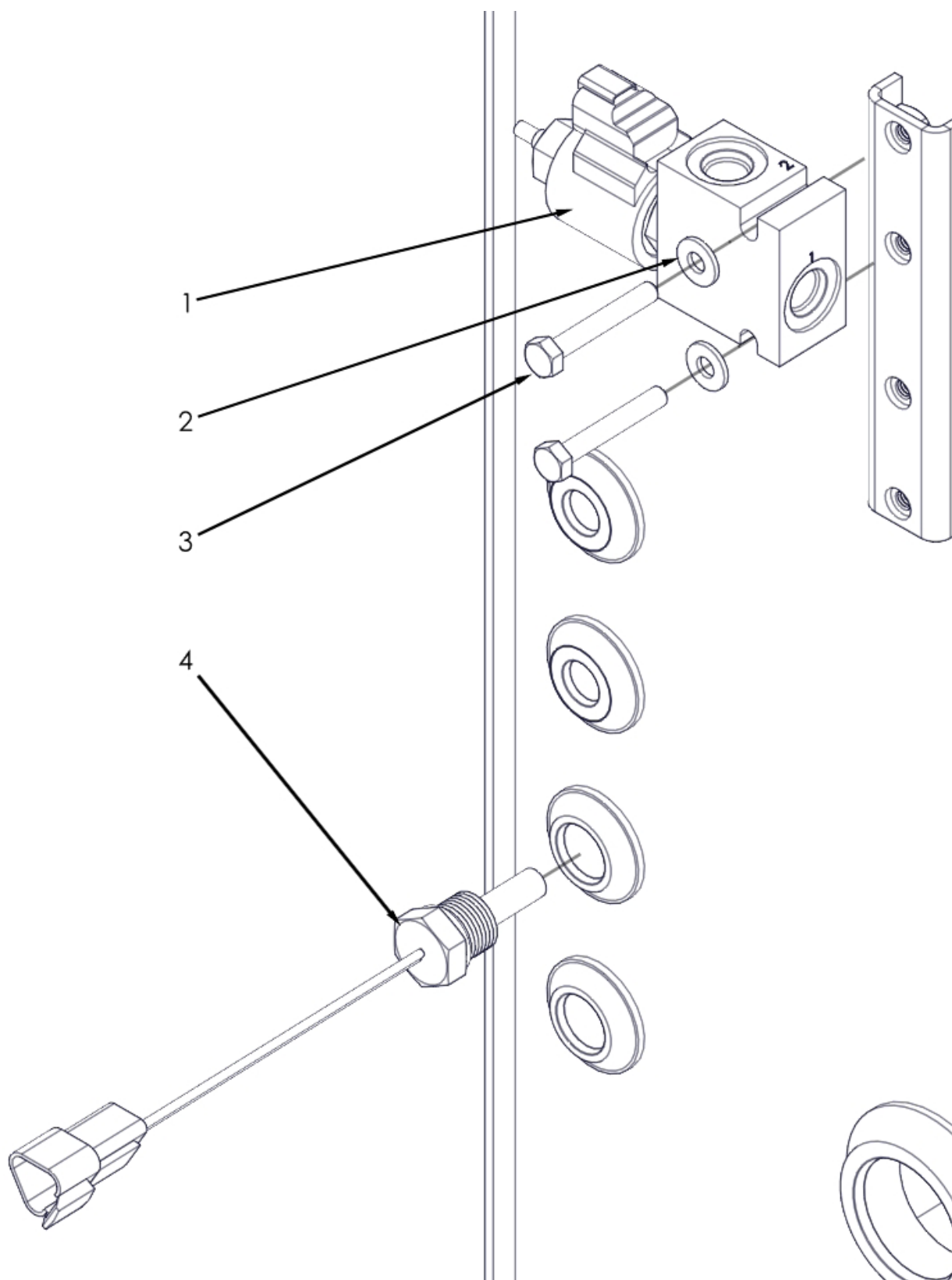
Not Shown:

ITEM 4: 10TLN, NUT, #10-24 TOP LOCK, QTY 8

Footnotes:

Notes:

# Soft Start/Temperature Switch HB4500XT





## Soft Start/Temperature Switch

HB4500XT

| Bom ID | Part No  | Description                    | Qty | Remarks |
|--------|----------|--------------------------------|-----|---------|
| 1      | 913-7037 | VALVE POPPET                   | 1   |         |
| 2      | 04FW-SAE | WASHER, 1/4"                   | 2   |         |
| 3      | 04HH28   | SCREW, 1/4-20 x 1.75 HHC - GR8 | 2   |         |
| 4      | 912-3606 | TEMP SWITCH                    | 1   |         |

Not Shown:

Footnotes:

Notes:

## Notes

# MISCELLANEOUS

# SAE Bolt and Nut Torque Value Chart

## Grade 5: UNC and UNF Thread

| Size  | Hex nut, or bolt tapped into hex nut, or d&t hole |      | Hex top deformed locknut |      | Flange nut, locknut, or bolt tapped into flange nut or d&t hole |      |
|-------|---------------------------------------------------|------|--------------------------|------|-----------------------------------------------------------------|------|
|       | ft-lb                                             | N-m  | ft-lb                    | N-m  | ft-lb                                                           | N-m  |
| 1/4   | 12                                                | 16   | 8                        | 11   | 20                                                              | 27   |
| 5/16  | 25                                                | 34   | 15                       | 20   | 45                                                              | 60   |
| 3/8   | 40                                                | 54   | 25                       | 34   | 75                                                              | 100  |
| 7/16  | 65                                                | 90   | 40                       | 55   | 125                                                             | 170  |
| 1/2   | 100                                               | 135  | 60                       | 80   | 190                                                             | 260  |
| 9/16  | 150                                               | 200  | 90                       | 125  | 270                                                             | 370  |
| 5/8   | 200                                               | 270  | 120                      | 165  | 370                                                             | 500  |
| 3/4   | 350                                               | 475  | 210                      | 285  | 650                                                             | 880  |
| 7/8   | 560                                               | 760  | 340                      | 460  | 1250                                                            | 1425 |
| 1     | 840                                               | 1140 | 500                      | 680  | 1580                                                            | 2145 |
| 1-1/8 | 1030                                              | 1400 | 620                      | 840  | 1950                                                            | 3645 |
| 1-1/4 | 1460                                              | 1980 | 880                      | 1195 | 2760                                                            | 3475 |

## Grade 8: UNC and UNF Thread

| Size  | Hex nut, or bolt tapped into hex nut, or d&t hole |      | Hex top deformed locknut |      | Flange nut, locknut, or bolt tapped into flange nut or d&t hole |      |
|-------|---------------------------------------------------|------|--------------------------|------|-----------------------------------------------------------------|------|
|       | ft-lb                                             | N-m  | ft-lb                    | N-m  | ft-lb                                                           | N-m  |
| 1/4   | 14                                                | 19   | 10                       | 14   | 24                                                              | 33   |
| 5/16  | 30                                                | 40   | 18                       | 25   | 50                                                              | 70   |
| 3/8   | 55                                                | 73   | 35                       | 50   | 90                                                              | 125  |
| 7/16  | 85                                                | 115  | 50                       | 70   | 140                                                             | 190  |
| 1/2   | 130                                               | 175  | 80                       | 110  | 220                                                             | 300  |
| 9/16  | 190                                               | 260  | 110                      | 150  | 310                                                             | 420  |
| 5/8   | 260                                               | 355  | 160                      | 245  | 430                                                             | 585  |
| 3/4   | 450                                               | 610  | 270                      | 365  | 750                                                             | 1015 |
| 7/8   | 730                                               | 990  | 440                      | 600  | 1210                                                            | 1640 |
| 1     | 1090                                              | 1480 | 650                      | 880  | 1320                                                            | 2465 |
| 1-1/8 | 1550                                              | 2100 | 930                      | 1260 | 2580                                                            | 3500 |
| 1-1/4 | 2180                                              | 2955 | 1310                     | 1780 | 3640                                                            | 4935 |

# 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    |
|-----------|-------------------|-------------|---------------|-------------|-------------------------------------------|-----|--------------------------------------------------------|-----------------|-----------|
|           |                   |             | I.D. (IN)     | O.D. (IN)   | ft-lb                                     | N-m | "TUBE NUTS"                                            | "SWIVEL & HOSE" | 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.



