



1/2 Ton V-Plow

Assembly Instructions

25015485

Model: V-753

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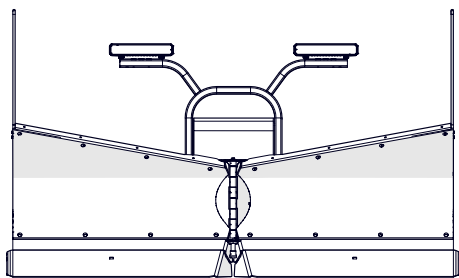
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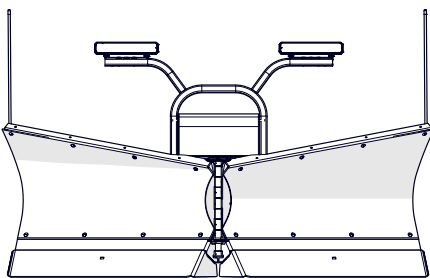
SPECIFICATIONS

MODEL		V-753
Blade width		7½'
Blade height		23-31"
Torison-trip springs		4
Cutting width	Straight	92"
	Vee position	83"
	Scoop position	78"
Weight*		525 lb
Recommended hydraulic fluid		Hiniker Cold Flow, MIL-H-5606 or equivalent
Hydraulic fluid capacity		3 Quarts
Motor solenoid		12 VDC Solenoid Continuous Duty, Sealed
Wiring harness fuse		10 AMP

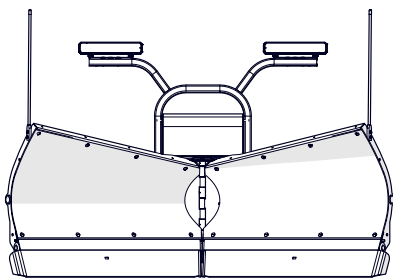
*Plow only
(does not include weight of
mount kit or snow deflector)



Straight



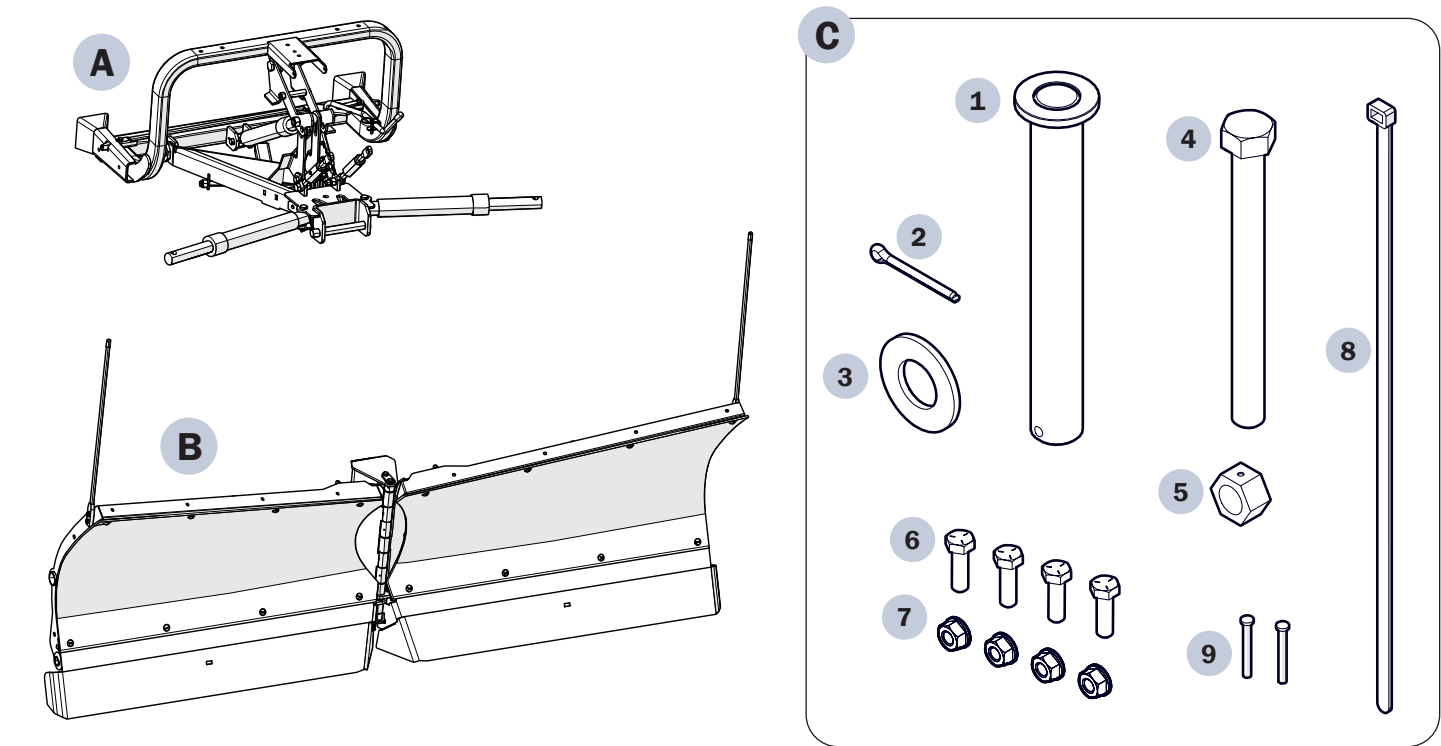
Vee



Scoop

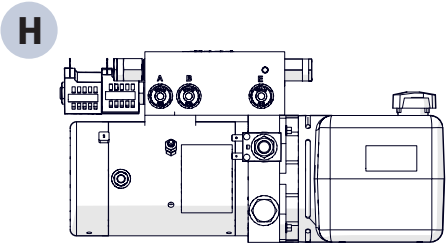
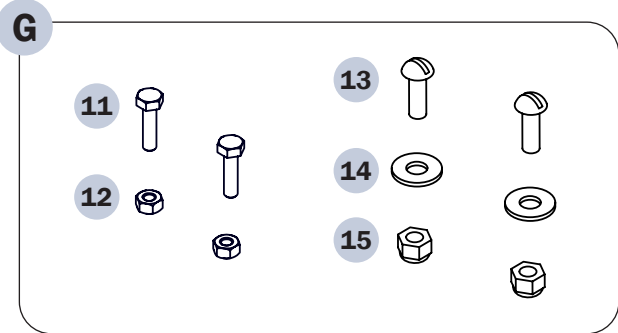
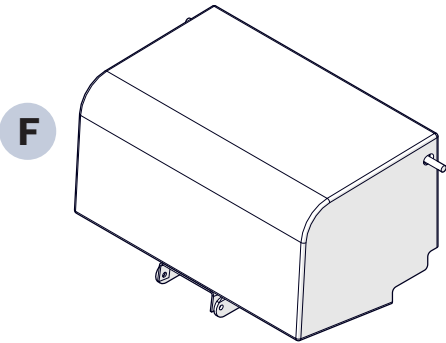
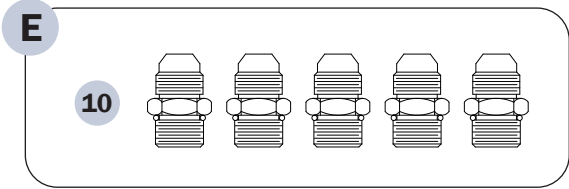
PARTS LIST

CRATE ASSEMBLY



Item	Part #	Description	Qty
A	25015397	FRAME ASSY HALF TON V-PLOW	1
B	25015299	MOLDBOARD ASSY 7.5' TRIP EDGE	1
C	25015469	HARDWARE BAG - HALF TON V-PLOW	1
1	25015386	1" LOCATING PIN	1
2	953-001-008	PIN-COTTER 3/16X1 3/4 EP SQ CU	1
3	952-003-005	WASHER-FLAT 1 SAE	1
4	950-001-027	HHCS 5/8-11NCX6 1/2 G#5 PLT	1
5	951-005-044	NUT-LK 2 WAY 5/8-11	1
6	950-001-110	HHCS 5/16-18NCX1 G#5 PLT	4
7	951-005-036	NUT-LK MAC 5/16-18	4
8	921-001-144	PLASTIC CABLE TIE .083X14	4
9	035-42033	COTTER PIN 5/32X1 1/4 PL	2
▲	25015476	HALF TON V-PLOW MANUAL BAG	1
▲	25015476	HALF TON V-PLOW MANUAL	1
▲	25015476	HALF TON V-PLOW ASSEMBLY INSTRUCTIONS	1

POWER UNIT PARTS BOX **D**



Item	Part Number	Description	Qty
D	25015166	PARTS BOX, POWER UNIT V-PLOW KTI	1
E	25014644	HDWE KIT, 6 FUNCTION POWER UNIT FITTINGS	1
10	206-01024	STR ADAPTER SAE 6X9/16 JIC	5
F	25014789	ASSY, POWER UNIT COVER	1
G	25014645	HDWE KIT, POWER UNIT MOUNTING	1
11	950-001-089	HHCS 3/8-16 UNC X 3/4 GR5 PLT	2
12	952-001-007	WASHER-LK 3/8 MED SPLIT SAE	2
13	031-10657	MCH-SCR 1/4-20X3/4 SL RD HD	2
14	952-002-011	WASHER-FLAT 1/4 WRT	2
15	060954	LOCK NUT 1/4-20 UNC NYLON INS	2
H	25014108	V-PLOW POWER UNIT DC-45274 RB	1

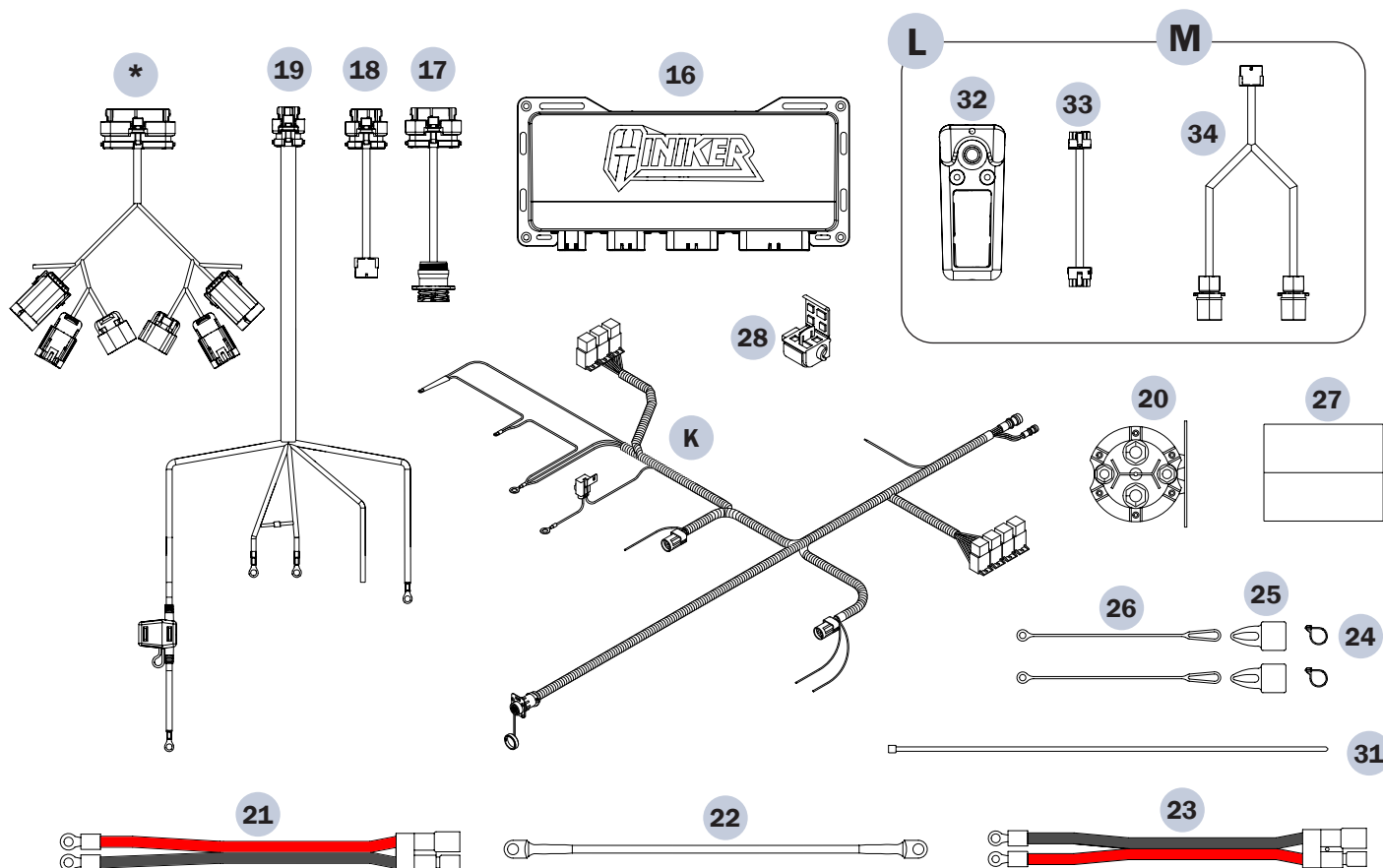
ELECTRONICS PARTS BOX

HTBX

I

CPC

J



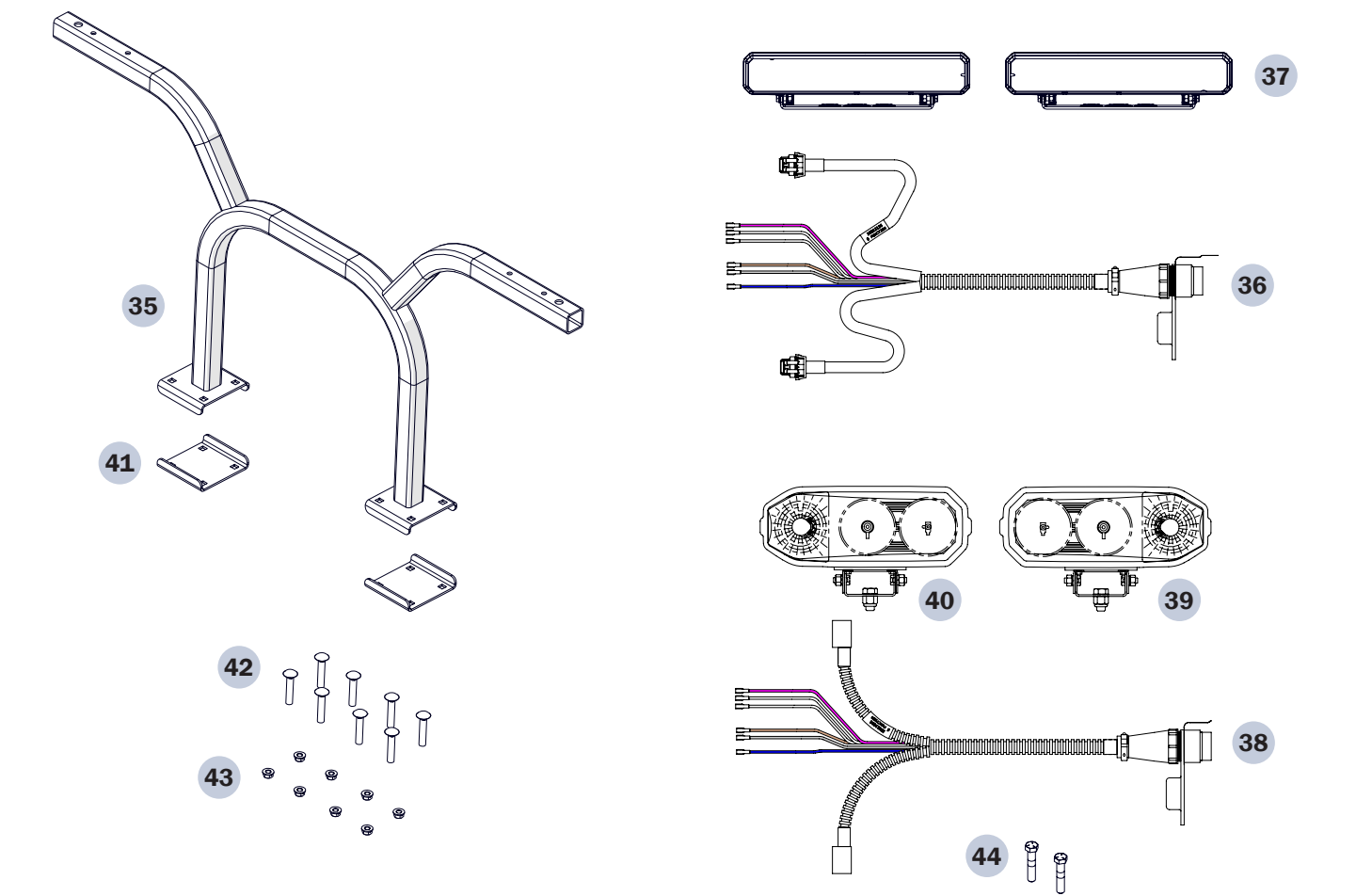
Item	Part #	Description	Notes	Qty
I	38828025	PARTS BOX, HTBX ELECTRONICS	HTBX	1
J	25015156	PARTS BOX, CPC ELECTRONICS	CPC	1
16	38828078	CONTROLLER, HTBX	HTBX	1
17	38828012	HARNESS, UNIVERSAL JUNCTION BOX PLOW	HTBX	1
18	38828011	HARNESS, UNIVERSAL JUNCTION BOX CONTROLLER	HTBX	1
19	38828016	HARNESS, UNIVERSAL JUNCTION BOX POWER	HTBX	1
K	38813097	UNDERHOOD HARNESS W/16 PIN CPC	CPC	1
20	38350015	MOTOR SOLENOID SEALED		1
21	38812008	CABLE, BATTERY POWER, 38"		1
22	38813012	CABLE, SOLENOID 4 GA 24"		1
23	38813066	CABLE BATTERY POWER 9'		1
24	367-001-014	PLASTIC CABLE TIE, 3/16X8 BLACK		2
25	36716002	DUST CAP		2
26	36716025	NYLON LANYARD 8"		2

Item	Part #	Description	Notes	Qty
27	39107001	FOAM GROMMET 4" LONG		1
28	38610104	CONNECTOR, SEALED WIRE TAP	CPC	3
29 ▲	950-005-004	S-TAP SCR 1/4-20X1/2 HEX W HD		2
30 ▲	031-30078	S-TAP SCR #8-18X1/2 SL HEX HD	CPC	4
31	367-001-011	ZIP TIE .15 X 14.5		15
L	38828042	PARTS BOX, HTBX CONTROLLER	HTBX	1
M	38828043	PARTS BOX, HTBX CONTROLLER RETROFIT	CPC	1
32	38828019	CONTROLLER, UNIVERSAL PLOW		1
33	38828030	HARNESS, UNIVERSAL JUNCTION BOX CAB SIDE		1
34	38828031	HARNESS, ADAPTER CPC UNDERHOOD TO UNIVERSAL CONTROLLER	CPC	1
▲	25015266	HTBX MOUNTING PROCEDURE	HTBX	1
▲	38828080	CHECKLIST-ELECTRONICS BOX	HTBX	1

LIGHTS PARTS BOX

LED **N**

HALOGEN **O**



Item	Part Number	Description	Notes	Qty
N	25014631	PARTS BOX, LED LIGHTS	LED	1
O	25014632	PARTS BOX, HALOGEN LIGHTS	HALOGEN	1
35	25014514	WELD - LIGHT BAR (CRATE)		1
36	38813155	6 FUNCTION PLOW HARNESS LED	LED	1
37	25014159	LED HEADLIGHT KIT 0559803	LED	1
38	38813098	6 FUNCTION PLOW HARNESS HALOGEN	HALOGEN	1
39	25013250	LH HEADLIGHT AY 81091/2/LHK	HALOGEN	1
40	25013251	RH HEADLIGHT AY 81091/2/RHK	HALOGEN	1
41	25014517	BENT - U BOLT PLATE (LIGHT BAR)		2
42	950-003-012	BOLT-CGE 3/8-16X2 1/4 GR 5		8
43	951-005-003	MAC LOCK NUT 3/8-16		8
44	950-001-159	HHCS 1/2-13NCX2 1/2 G#5 PLT	HALOGEN	2

INSTALLATION

Complete each section in order. When assembling the plow, consider the following:

- Make sure that hydraulic hoses and electrical wires are safely routed and allow full motion of moving parts. Validate all hydraulic connections are tight. Factory-installed connections may loosen during shipping. Secure loose wires with plastic tie straps.
- Some components are fastened at incorrect locations for shipping purposes. All hardware should be tightened only enough to ensure safety during assembly.

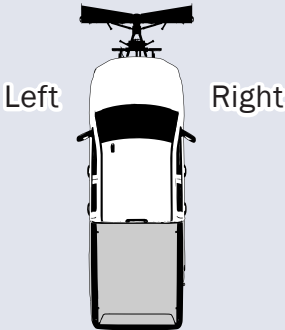
After assembly, torque hardware to the values specified in the chart.

NOTICE

New hydraulic cylinders will leak a small amount of oil until packings become saturated and produce a good seal. If leakage is excessive, or if leaking continues after initial cycling, tighten the packing nut in 1/8 turn increments until leaking stops.

NOTICE

References to the left and right are as viewed from the cab of the truck.



Grade 5 Type B & F Lock Nut
Torque Values

Size	Ft-lb	N-m
5/16"	13-18	17-25
3/8"	23-33	31-44
1/2"	58-82	79-112
5/8"	117-165	158-223

Grade 5 Bolt Torque Values*

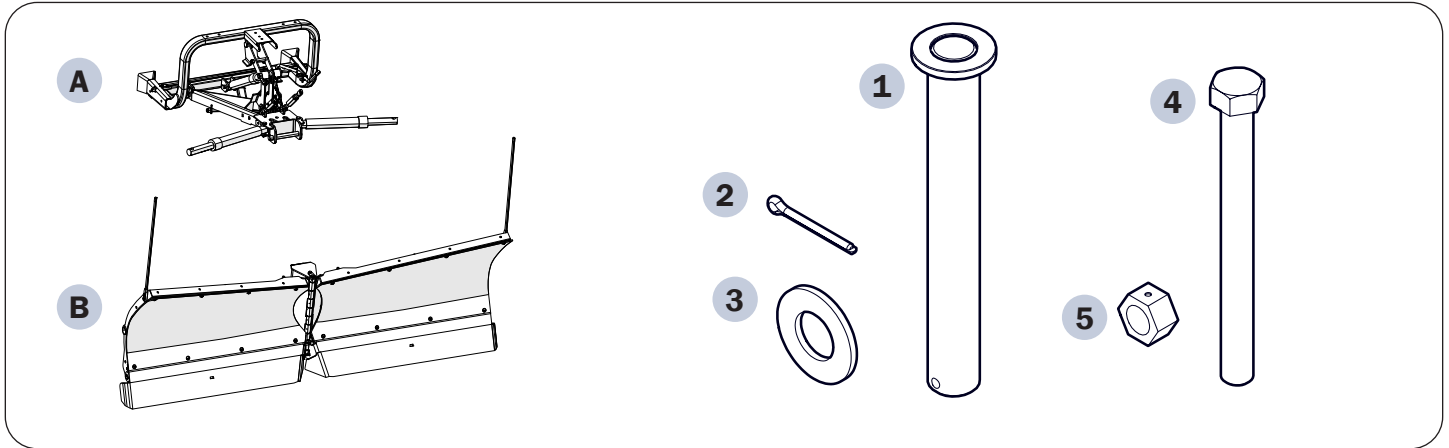
Size	Ft-lb	N-m
1/4"	8-12	11-16
3/8"	29-41	39-56
1/2"	73-103	99-140
5/8"	146-206	158-223

*applications without lock nuts

Type B lock nuts are plain hex; type F lock nuts are flanged hex. Replace worn bolts and lock nuts with grade 5 bolts and equivalent type B and type F lock nuts.

Installing Frame to Moldboard

ITEMS USED



Item	Part Number	Description	Qty
A	25015397	FRAME ASSY HALF TON V-PLOW	1
B	25015299	MOLDBOARD ASSY 7.5' TRIP EDGE	1
C	25015469	HARDWARE BAG - HALF TON V-PLOW	1
1	25015386	1" LOCATING PIN	1
2	953-001-008	PIN-COTTER 3/16X1 3/4 EP SQ CU	1
3	952-003-005	WASHER-FLAT 1 SAE	1
4	950-001-027	HHCS 5/8-11NCX6 1/2 G#5 PLT	1
5	951-005-044	NUT-LK 2 WAY 5/8-11	1

TOOLS REQUIRED

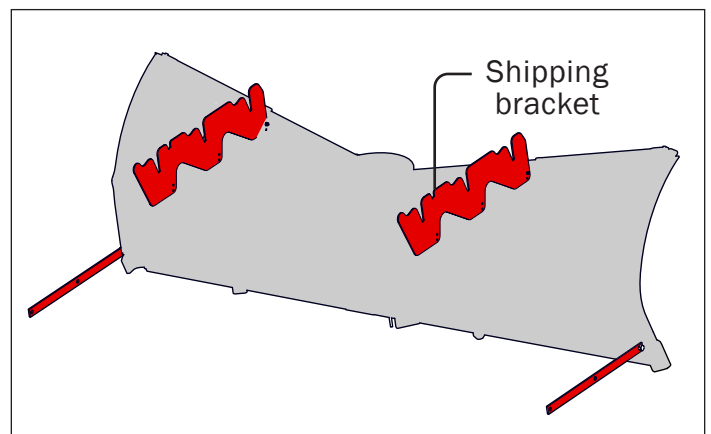
- Hoist with 1,000 lb load capacity
- 9/16" wrench
- 1/2" wrench
- Pliers
- Cardboard

INSTALLATION

CAUTION

Review all safety information in the Operator's Manual before installation.

- 1 The moldboard may have shipping brackets secured to the wings and centermast. If shipping brackets are attached, remove with a 9/16" wrench. Discard the shipping brackets and hardware.



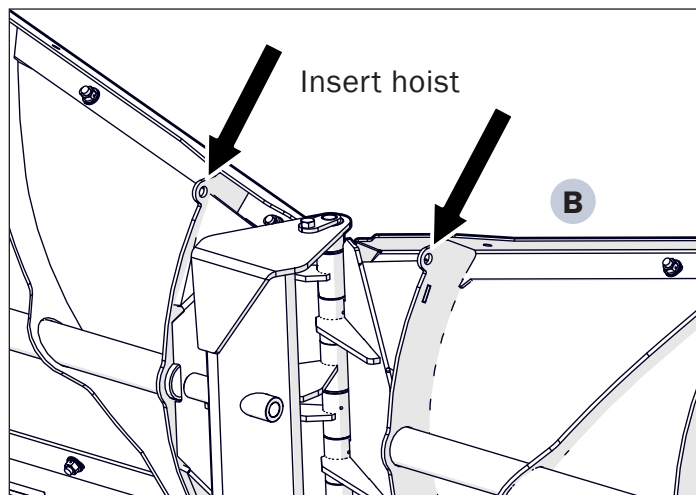
- 2** Using a hoist, lift the moldboard **B** to a clear, level working area. Hook the hoist chains through the two holes next to the centermast.

NOTICE

Lift only as directed. Attaching the hoist to other holes in the moldboard may damage the plow.

NOTICE

The hoist must be capable of lifting a 1,000 lb load.

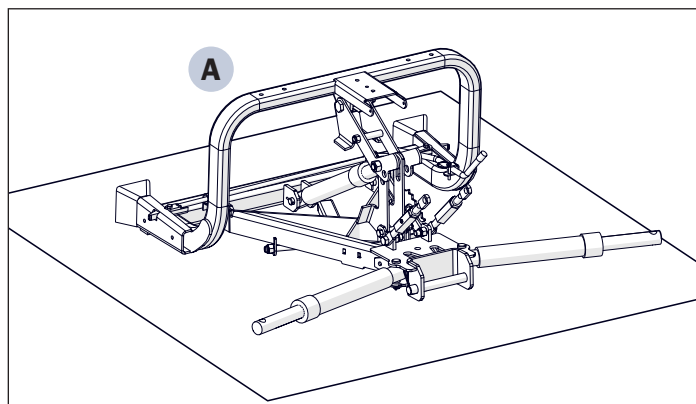


- 3** Remove the blade guides from the top of each moldboard wing with a 1/2" wrench. Set the blade guides aside for assembly later. Discard shipping hardware.

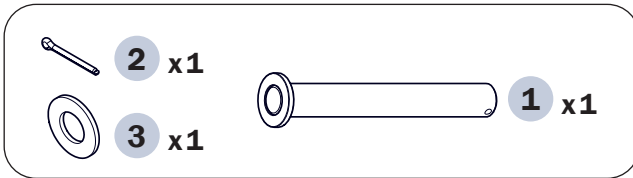


- 4** Open the frame crate. Remove the power unit box and parts box.

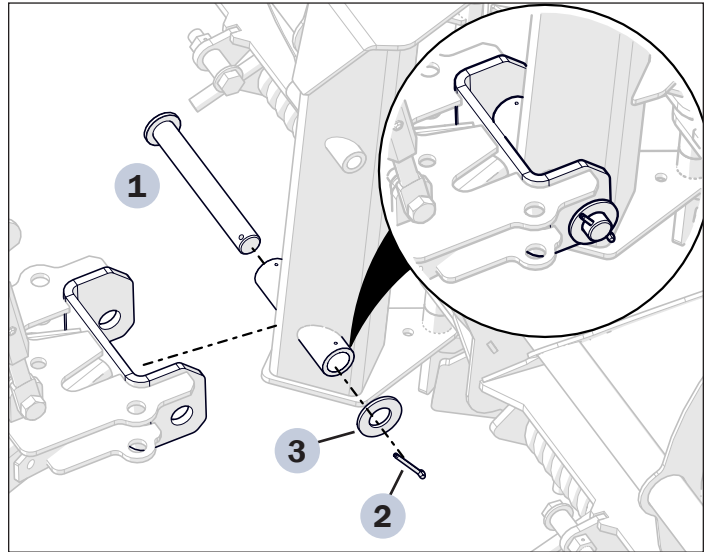
- 5** Remove the frame assembly **A** from the crate. Set on a piece of cardboard or other padding to protect the paint from scratches.



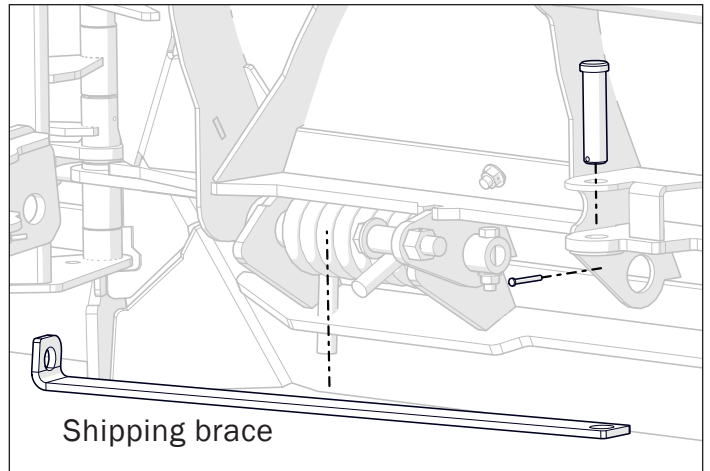
Items Used



- 6** Move the frame assembly to the back of the moldboard. Align the holes at the front of the frame assembly with the holes in the centermast.
- 7** Insert the locator pin **1** through the frame and centermast. Place the flat washer **3** on the end of the locator pin, then secure with the cotter pin **2**. Bend the legs of the cotter pin with pliers.



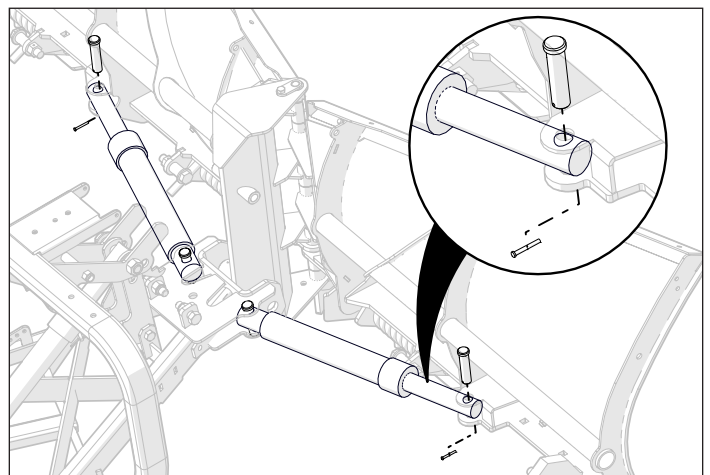
- 8** Remove the shipping brace between the moldboard centermast. Remove the two clevis pins and cotter pins from the moldboard lugs; save for reassembly.



- 9** Rotate the LH and RH cylinders in place by the moldboard wings. Using the clevis pins removed in the previous step, secure the ends of the lift cylinders to the lugs on the moldboard. Secure with the cotter pins.

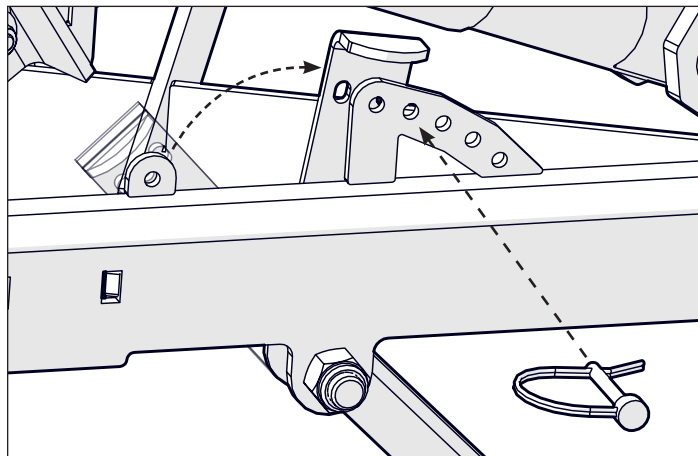
NOTICE

The hardware bag **(C)** also contains replacement cotter pins **9**.

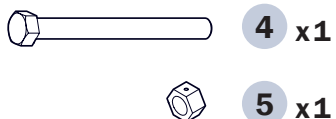


10 Unpin the index plate. Tilt the index plate to adjust the park stand so the square tubes of the push frame are parallel to the ground.

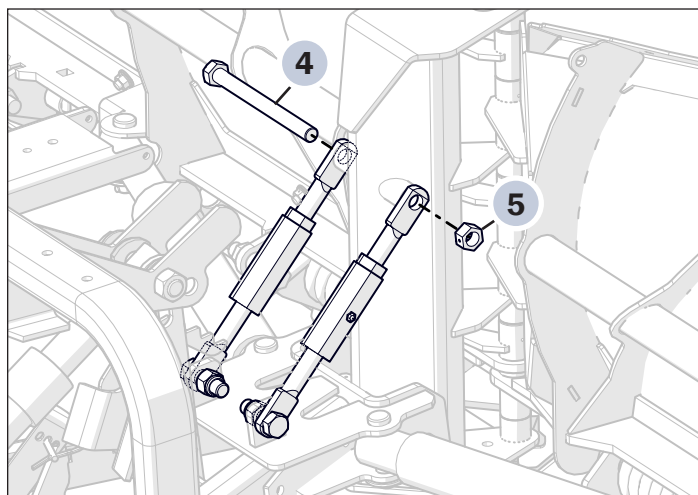
11 Pin the park stand to hold the position.



Items Used

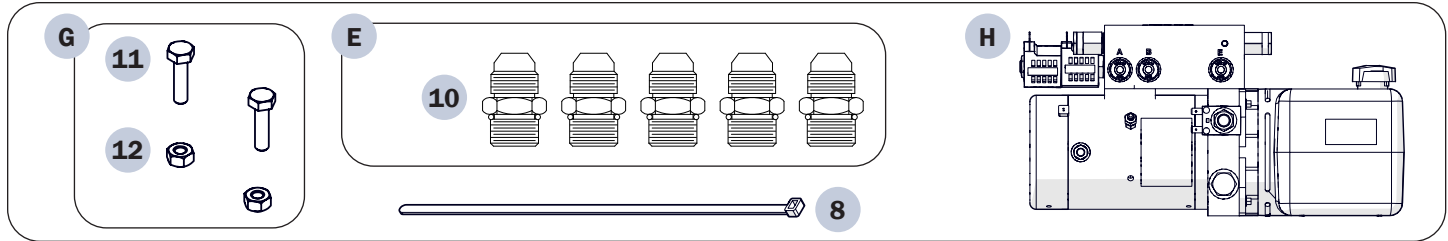


12 Fasten the top of the adjustable brace to the centermast using one 5/8" – 6½" bolt **4** and 5/8" lock nut **5** from the hardware bag **C**. Tighten hardware as specified in the torque chart (page 8).



Power Unit & Hydraulic Assembly

ITEMS USED



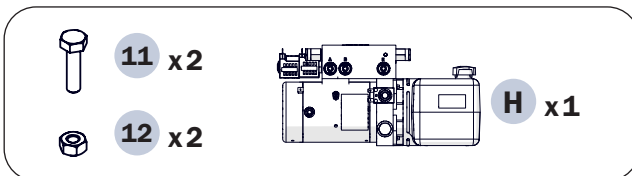
Item	Part Number	Description	Qty
8	921-001-144	PLASTIC CABLE TIE .083X14	4
D	25015166	PARTS BOX, POWER UNIT V-PLOW KTI	1
E	25014644	HDWE Kit, 6 function Power Unit Fittings	1
10	206-01024	STR ADAPTER SAE 6X9/16 JIC	5
G	25014645	HDWE KIT, POWER UNIT MOUNTING	1
11	950-001-089	HHCS 3/8-16 UNC X 3/4 GR5 PLT	2
12	952-001-007	WASHER-LK 3/8 MED SPLIT SAE	2
H	25014108	V-PLOW POWER UNIT DC-45274 RB	1

TOOLS REQUIRED

- 9/16" Wrench

INSTALLATION

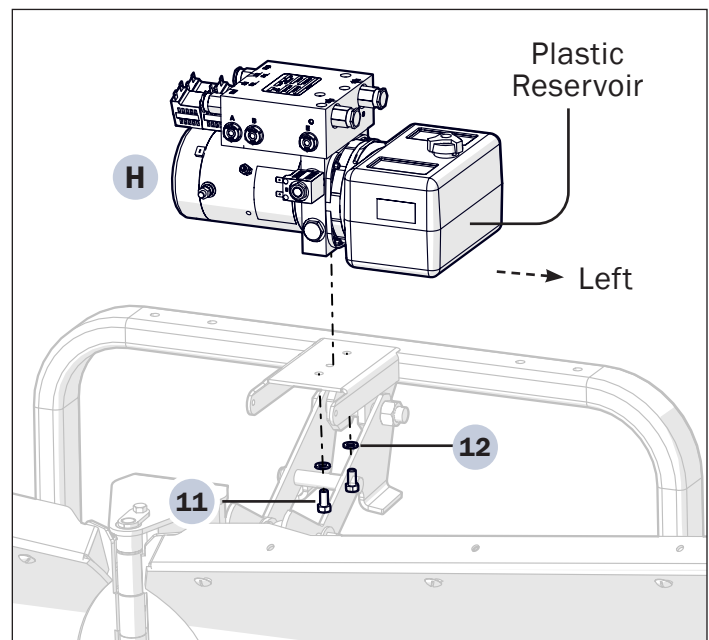
Items Used



- 1 Open the Power Unit box. Mount the power unit **H** onto the lift frame, positioned so the plastic reservoir is on the left side of the plow.

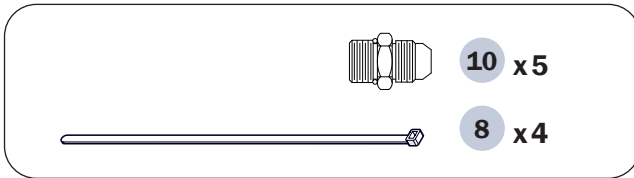
NOTICE

For Halogen lights only: Before mounting the power unit to the lift frame, scrape a small amount of paint from the two mount holes in the lift frame to provide a good electrical ground for the turn signals and parking lights.



- 2 Secure the power unit to the frame with two 3/8"x 3/4" hex bolts **11** and two 3/8" lock washers **12** from the power unit mounting kit **G**.

Items Used



- 3 Install five hose adapters 10 onto the power unit. Insert through ports A, B, C, D, E.
- 4 With a wrench, torque the adapters to 23-33 ft-lb.

⚠ WARNING

The plow has O-ring hydraulic fittings on the pump, hoses and hydraulic cylinders. **DO NOT** over-tighten or use pipe sealant during assembly.

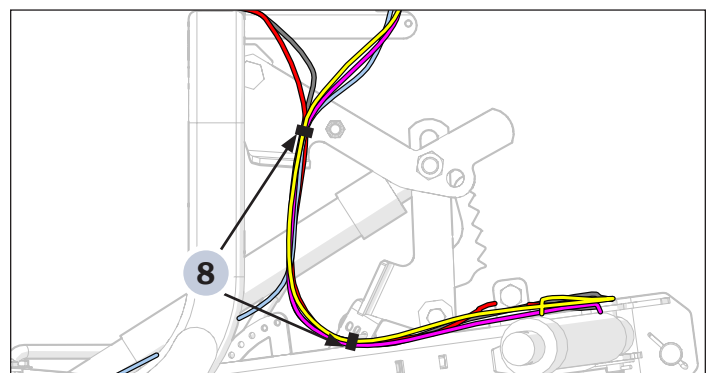
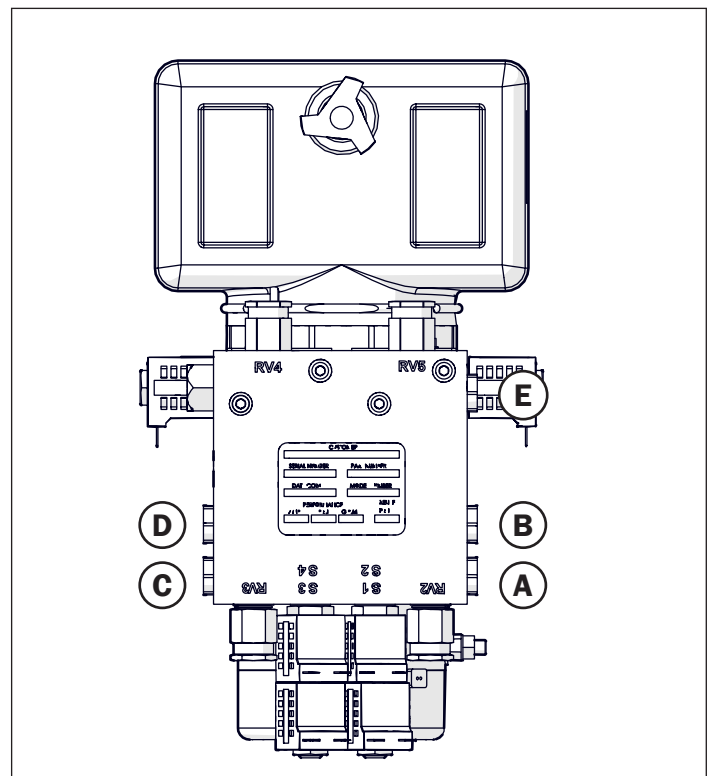
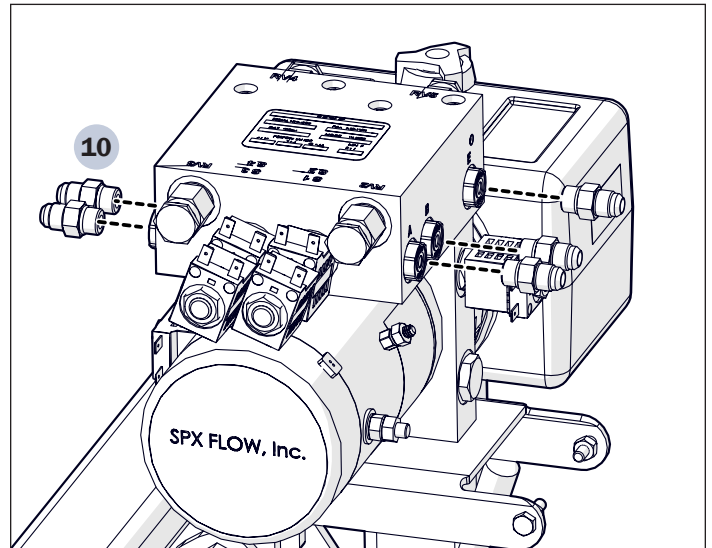
- 5 Cut the tie securing the hoses to the lift frame.
- 6 Fasten the hoses to the adapters, matching the letters on the hose ends to the letters on the manifold.
- 7 Ensure factory-installed fittings are tight.
- 8 Secure the hoses with tie straps 8. Do not overtighten.

NOTICE

Make sure that the hydraulic hoses are safely routed and allow full motion of moving parts.

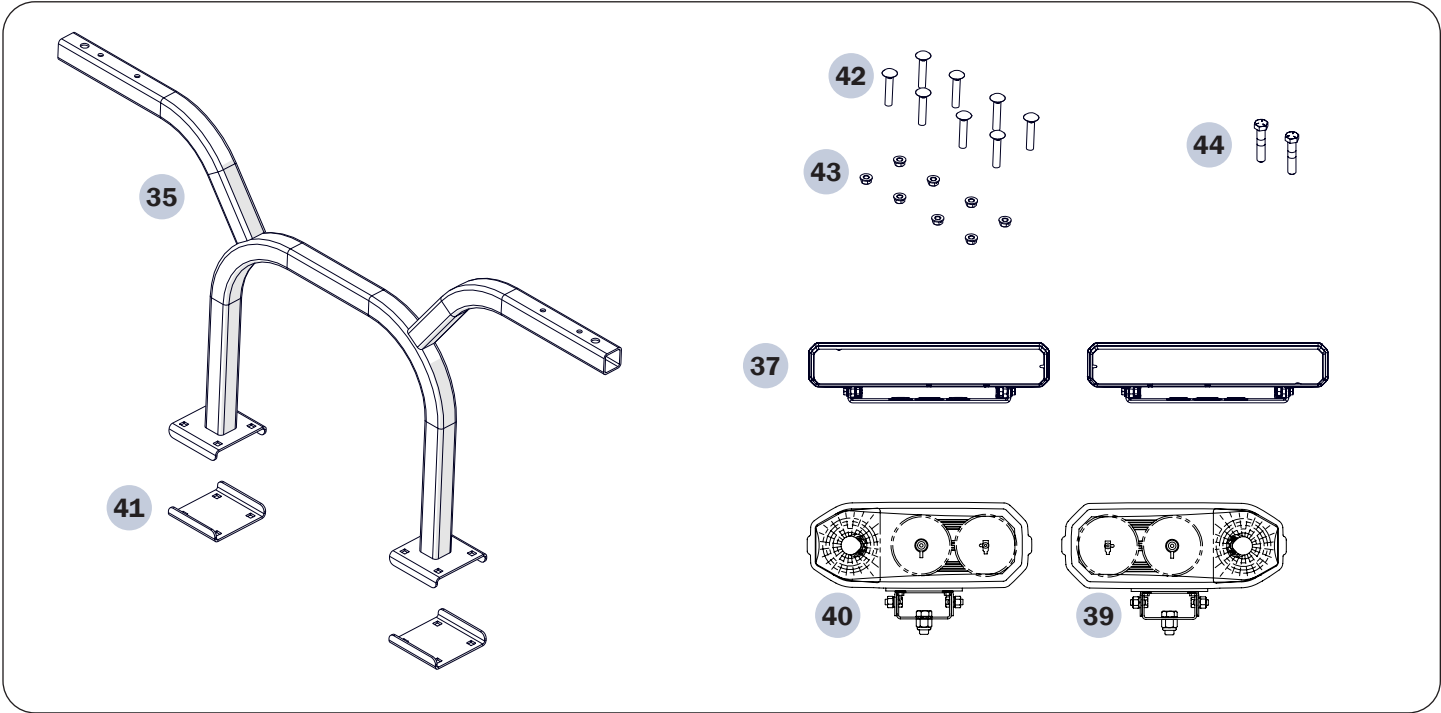
NOTICE

See page 30 for additional diagrams.



Plow Headlights Assembly

ITEMS USED



Item	Part Number	Description	Notes	Qty
N	25014631	PARTS BOX, LED LIGHTS	LED	1
O	25014632	PARTS BOX, HALOGEN LIGHTS	HALOGEN	1
35	25014514	WELD - LIGHT BAR (CRATE)		1
37	25014159	LED HEADLIGHT KIT 0559803	LED	1
39	25013250	LH HEADLIGHT AY 81091/2/LHK	HALOGEN	1
40	25013251	RH HEADLIGHT AY 81091/2/RHK	HALOGEN	1
41	25014517	BENT - U BOLT PLATE (LIGHT BAR)		2
42	950-003-012	BOLT-CGE 3/8-16X2 1/4 GR 5		8
43	951-005-003	MAC LOCK NUT 3/8-16		8
44	950-001-159	HHCS 1/2-13NCX2 1/2 G#5 PLT	HALOGEN	2

TOOLS REQUIRED

- 9/16” Wrench

NOTICE

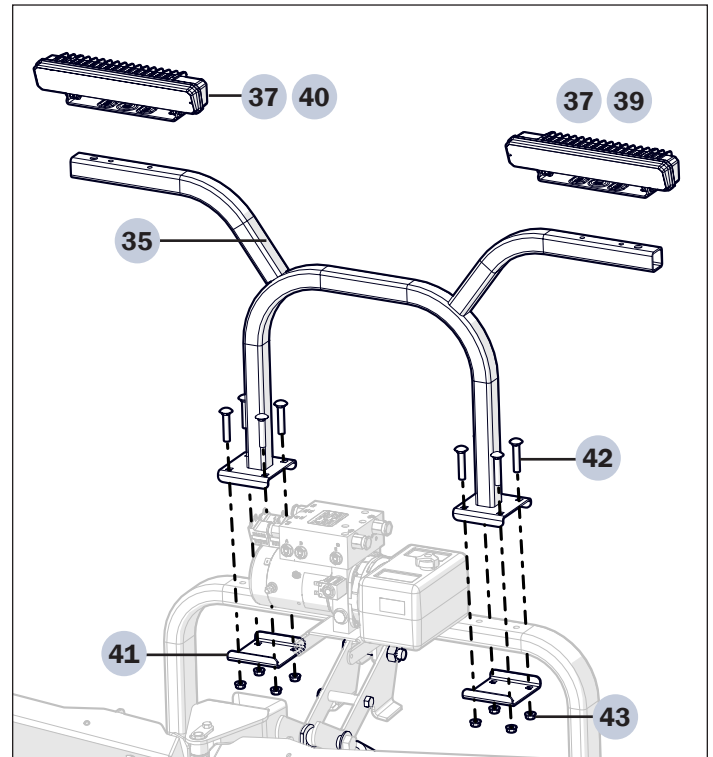
Check the 1/4” bolts provided in LED headlight box. If they do not have a pre-applied Loctite patch, apply anti-seize to the bolts to prevent galling.

NOTICE

Do not use an impact driver. Tighten hardware by hand to prevent galling and damage to headlight housing.

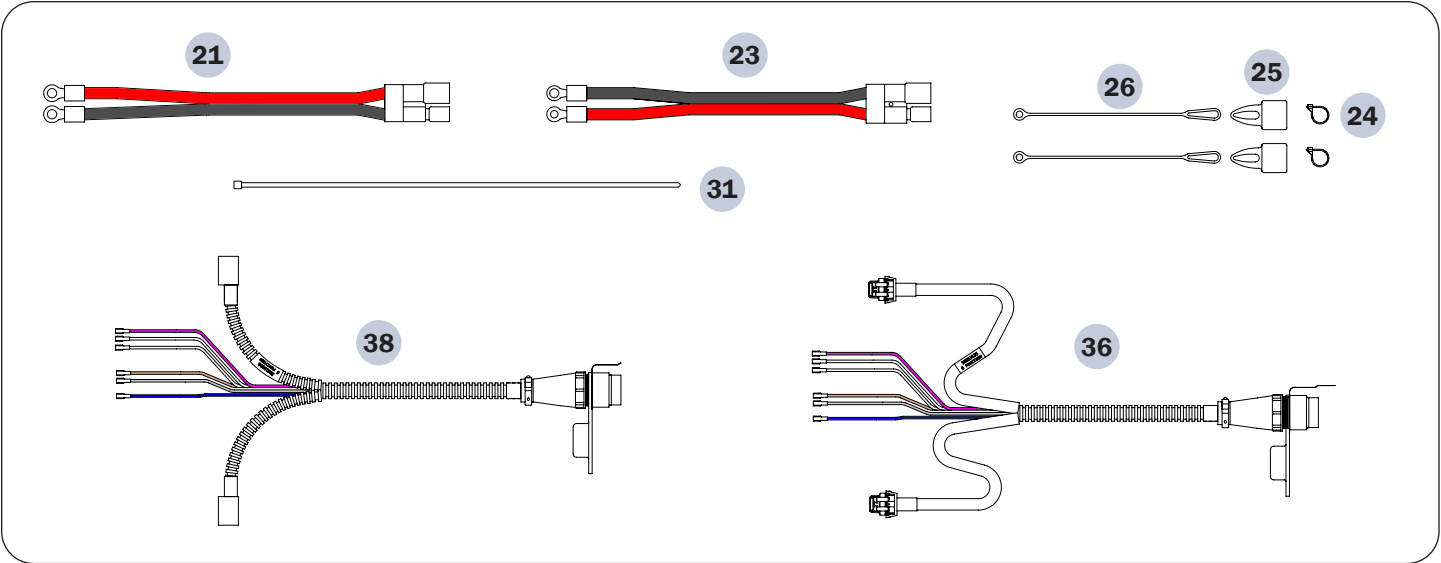
INSTALLATION

- 1** Open the light parts box. Mount the light bar **35** to the lift frame. Use eight 3/8" x 2" carriage bolts **42** and eight flanged 3/8"-16 lock nuts **43**.
- 2** Place the light bar on the lift frame and insert the bolts. Place the bolt brackets **41** below so the light bar straddles the lift frame. Secure with the lock nuts.
- 3** Remove the LH and RH headlamps from their boxes (LED **37** or Halogen **39 40**). Mount onto the bracket using the provided hardware.



Plow Electronics Assembly

ITEMS USED

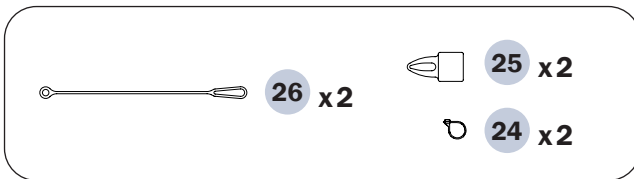


Item	Part Number	Description	Notes	Qty
I	38828025	PARTS BOX, HTBX ELECTRONICS	HTBX	1
J	25015156	PARTS BOX, CPC ELECTRONICS	CPC	1
21	38812008	CABLE, BATTERY POWER, 38"		1
23	38813066	CABLE BATTERY POWER 9'		1
24	367-001-014	PLASTIC CABLE TIE, 3/16X8 BLACK		2
25	36716002	DUST CAP		2
26	36716025	NYLON LANYARD 8"		2
31	367-001-011	ZIP TIE .15 X 14.5		15
36	38813155	6 FUNCTION PLOW HARNESS LED	LED	1
38	38813098	6 FUNCTION PLOW HARNESS HALOGEN	HALOGEN	1

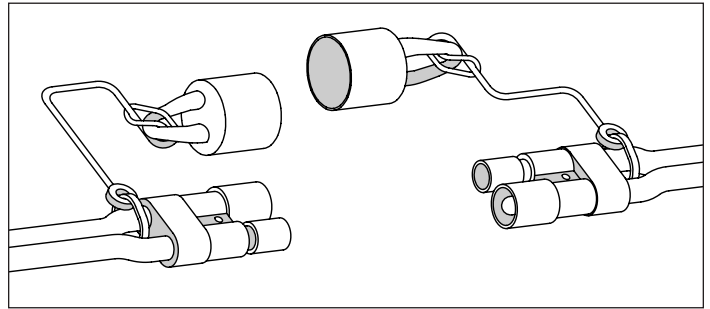
Open the electronics parts box and validate you have all components, harnesses, and hardware per the checklist inside the box. Prior to assembly, lightly coat all electrical connections, ring, and spade terminals with dielectric grease to prevent corrosion. Do not overapply.

INSTALLATION

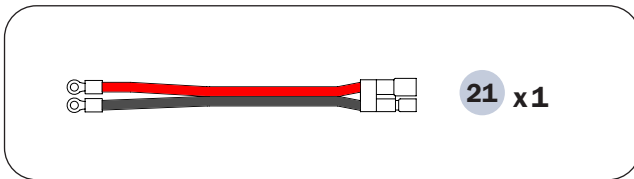
Items Used



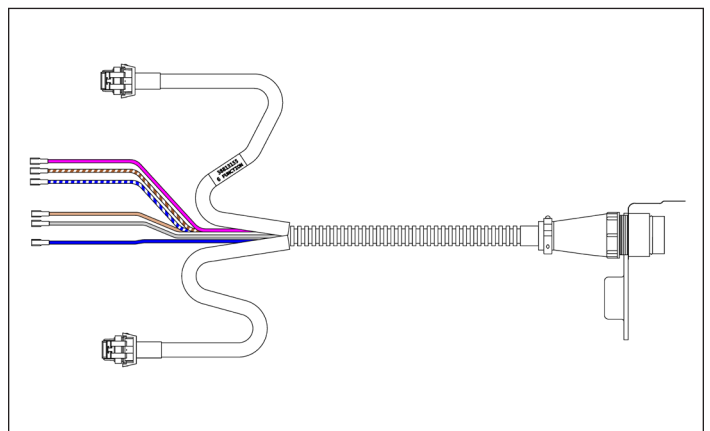
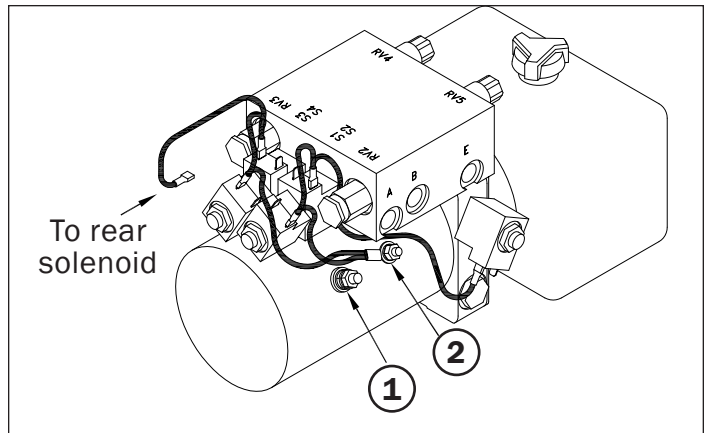
- 1** Secure a dust cap **25** onto the 38" power cable **21** and 9' power cable **23**. Use a cable tie **24** to connect the lanyard **26** and dust cap.



Items Used



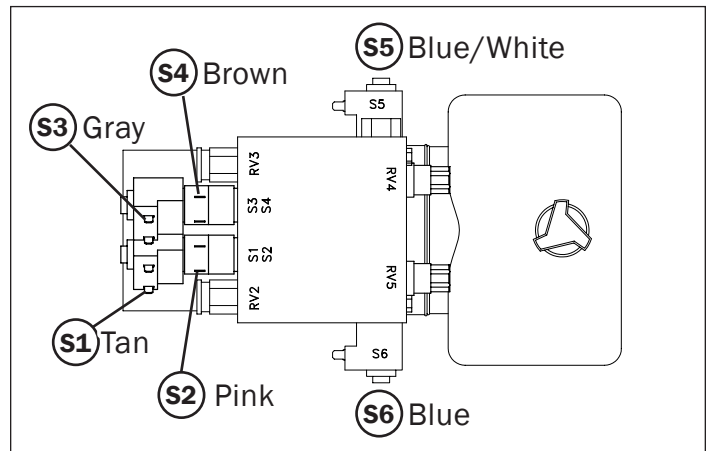
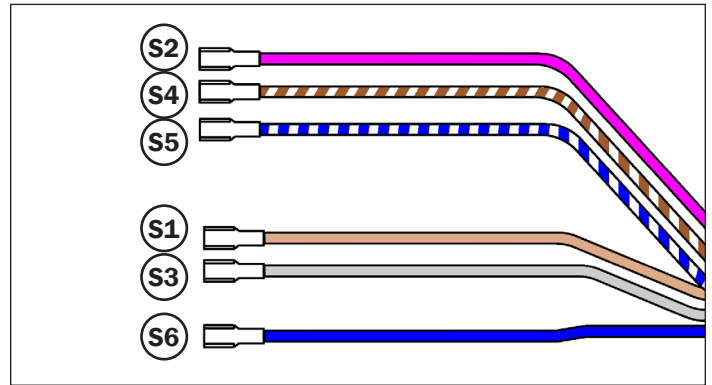
- 2** Take the 38" power cable **21** from the electronics parts box. The cable has ring terminals on one end and a 2-pin connector on the other end.
- 3** Attach the ring terminal of the solid red (or red striped) wire of the power cable to the terminal on the motor at location 1.
- 4** Fasten the ring terminal of the solid black wire of the power cable assembly, and the ring terminal of the ground wire harness of the motor, to the terminal on the motor at location 2.
- 5** Take the plow harness (LED **36**, Halogen **38**) from the headlight parts box that was opened on page 15. The wiring harness has a 16-pin connector and the other end has connectors labeled "DRIVER SIDE" and "PSNGR SIDE" for the headlamps, and six loose wires with spade receptacles.



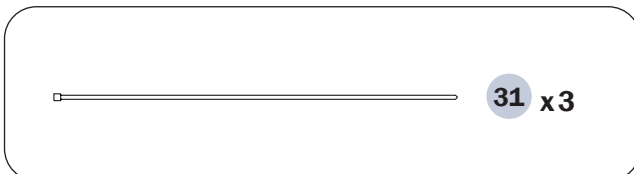
NOTICE

See page 45 for further reference.

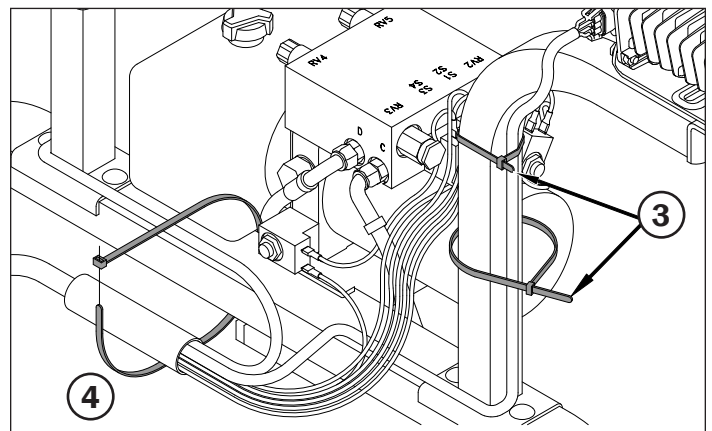
- 6** Connect the colored wires of the plow harness to the terminals on the motor:
 - i. tan wire to the spade terminal on solenoid S1.
 - ii. pink wire to solenoid S2.
 - iii. gray wire to solenoid S3.
 - iv. brown wire to solenoid S4.
 - v. blue/white stripe wire to solenoid S5.
 - vi. blue wire to solenoid S6.
- 7** Connect the RH headlamp to the harness end labeled “PSNGR SIDE” and the LH headlamp to the end labeled “DRIVER SIDE.”



Items Used



- 8** Use plastic tie straps **31** to band headlamp cables to the brackets at location 3 to provide clearance for the power unit cover rods later.
- 9** Use a plastic tie strap to band the plow wiring harness to the lift frame tube at location 4. Route wires to the power unit and headlamps, as shown.

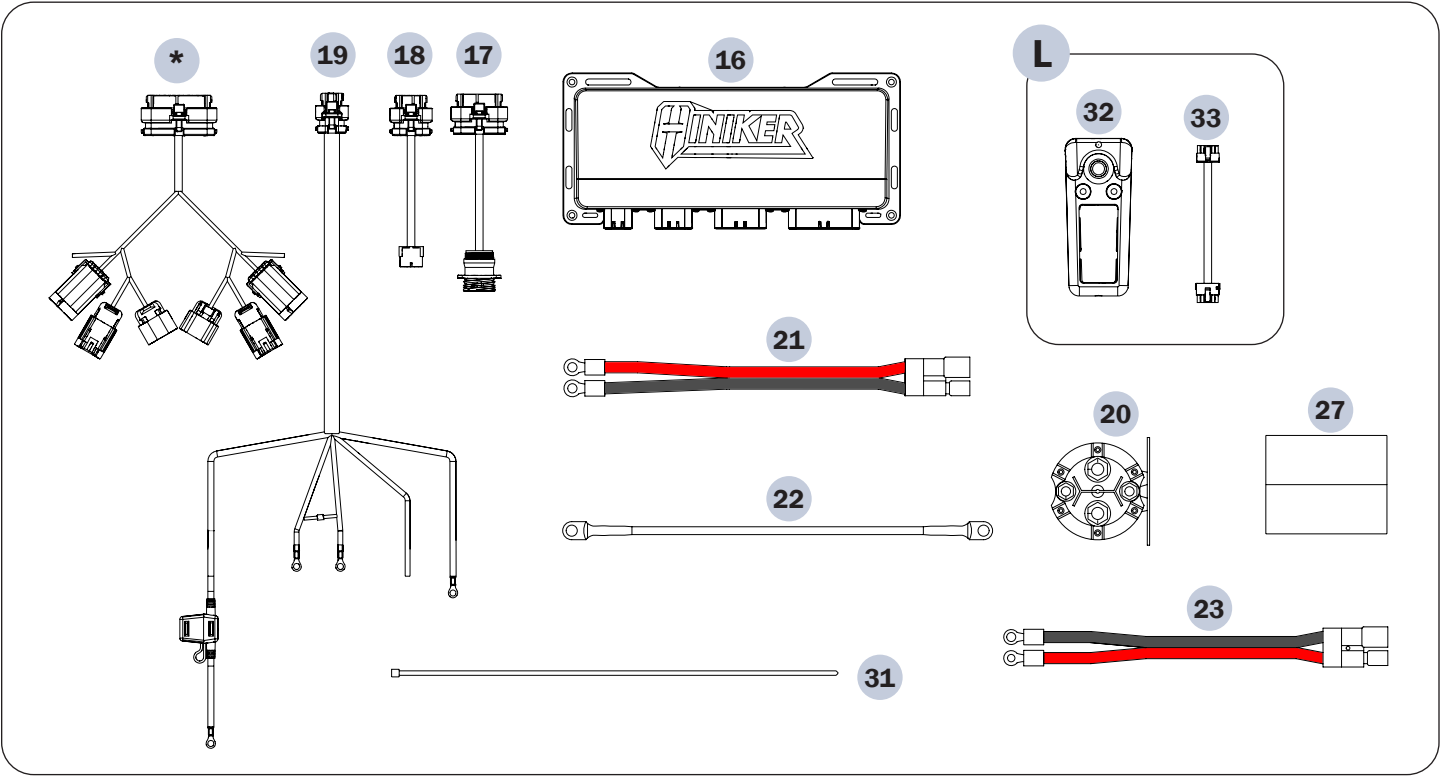


NOTICE

Install the plow harness so that water does not run down the wires and pool inside the “Y” connection. Position the harness so that any trapped water can easily drain away.

Truck Electronics Assembly - HTBX

ITEMS USED



Item	Part #	Description	Qty
I	38828025	PARTS BOX, HTBX ELECTRONICS	1
16	38828078	CONTROLLER, HTBX	1
17	38828012	HARNESS, UNIVERSAL JUNCTION BOX PLOW	1
18	38828011	HARNESS, UNIVERSAL JUNCTION BOX CONTROLLER	1
19	38828016	HARNESS, UNIVERSAL JUNCTION BOX POWER	1
20	38350015	MOTOR SOLENOID SEALED	1
21	38812008	CABLE, BATTERY POWER, 38"	1
22	38813012	CABLE, SOLENOID 4 GA 24"	1
23	38813066	CABLE BATTERY POWER 9'	1

Item	Part #	Description	Qty
27	39107001	FOAM GROMMET 4" LONG	1
29▲	950-005-004	S-TAP SCR 1/4-20X1/2 HEX W HD	2
31	367-001-011	ZIP TIE .15 X 14.5	15
L	38828042	PARTS BOX, HTBX CONTROLLER	1
32	38828019	CONTROLLER, UNIVERSAL PLOW	1
33	38828030	HARNESS, UNIVERSAL JUNCTION BOX CAB SIDE	1
▲	25015266	HTBX MOUNTING PROCEDURE	1
▲	38828080	CHECKLIST-ELECTRONICS BOX	1

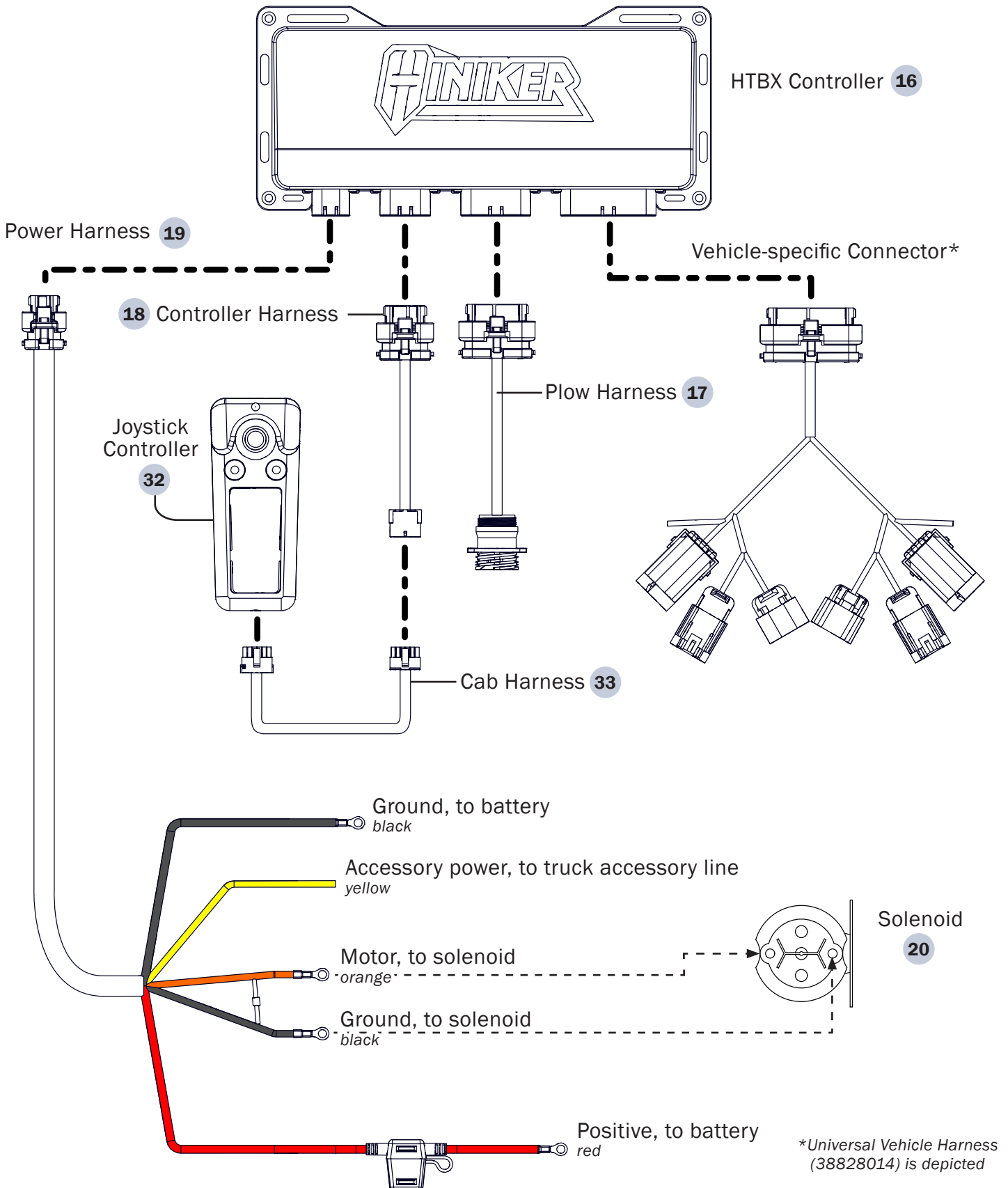
*Not included in Electronics Box. Universal Vehicle Harness (38828014) is depicted

▲ Not on parts diagram

 **WARNING**

Disconnect truck battery before beginning electrical installation to avoid shock hazard.

HTBX System Overview



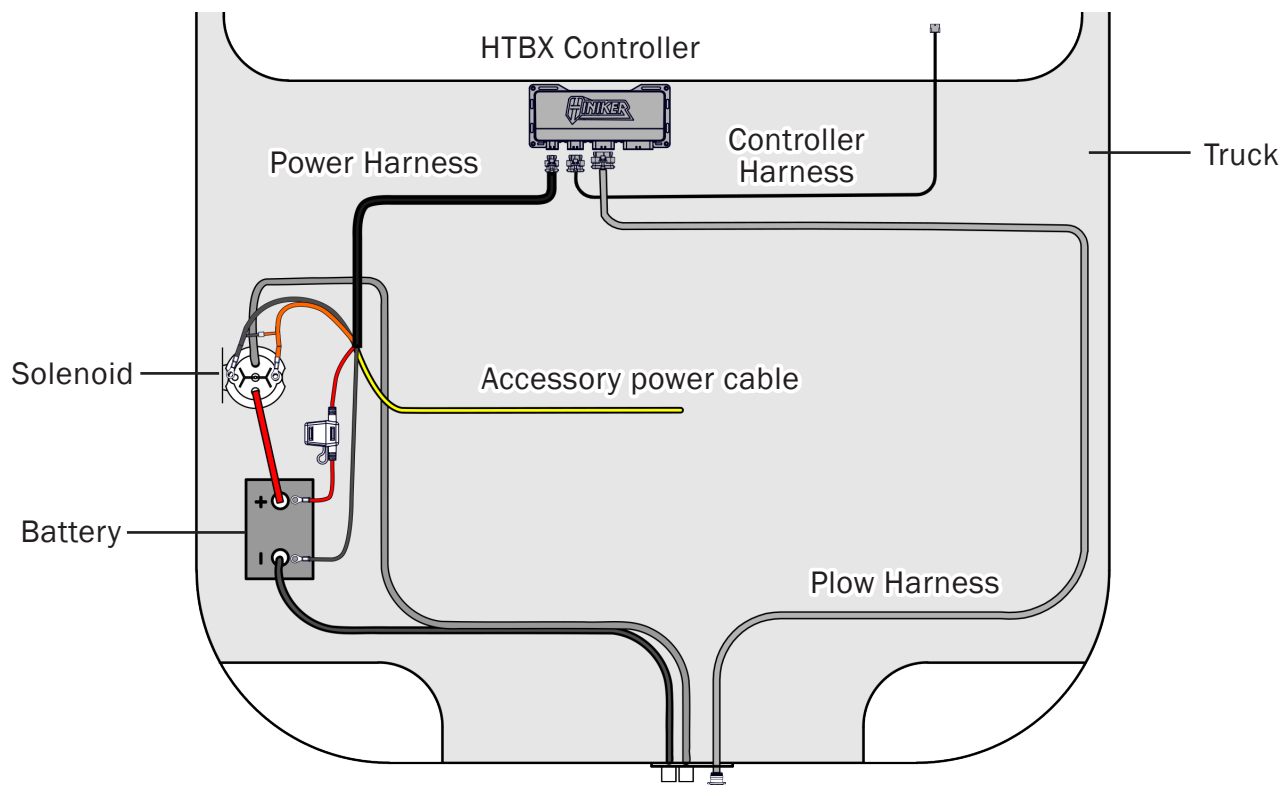
Refer to the diagram below for a general guide on routing the HTBX system harnesses. Not all engine compartments are compatible with the routing shown. Installers must use their best judgement to route the controller and harnesses, ensuring everything is secured from high-current, magnetic, hot, or moving components.

CAUTION

Ensure that the electrical system will clear any hood lift/spring mechanisms before installation.

INSTALLATION

- 1** If there is no access hole in the driver side firewall, drill a 1" diameter hole. Ensure the drilling location is free from obstructions to avoid damaging components. Route the 12-pin connector of the controller harness **18** from the HTBX controller **16**, through the firewall, and into the cab compartment. If needed, install the 4" grommet **27** in the hole.
- 2** Splice the yellow wire to the vehicle's 12-volt auxiliary electrical circuit. This will prevent the plow from operating without the vehicle's key being on.
- 3** Connect the controller harness **18** to the cab harness **33** inside the truck. Then connect the end of the cab harness with a white clip to the universal controller **32**.
- 4** Select an area within 16" of the vehicle battery for the motor solenoid **20** placement. Using the solenoid bracket as a template, mark and drill two 3/16" diameter holes. Fasten the solenoid with two 1/4" x 1/2" self-tapping screws **29**.



5 Safely route the 16-pin plow harness **17** from the HTBX controller through the grill of the vehicle to a location that will be easily accessible with the plow attached.

6 See instruction sheet provided with vehicle specific harness for hooking up the HTBX system to the vehicle's headlights.

7 Connect the power cable and harness:

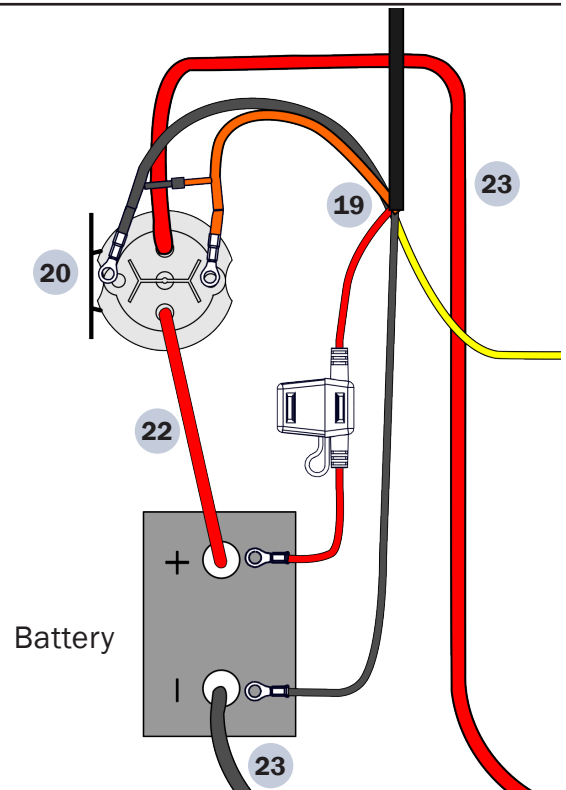
- Connect the black terminal from the 9' battery cable **23** and the black wire from the power harness **19** to the minus (-) post of the vehicle's battery or the vehicle's designated ground stud.
- Connect the red terminal from the 9' battery cable **23** to the motor solenoid **20**, then route the battery cable through the grill near the 16-pin plow connector.
- Connect the 24" solenoid cable **22** to the motor solenoid.
- Connect the red fused wire from the power harness **19** and the free end of the 24" solenoid cable **22** to the plus (+) terminal of the battery or battery access post.
- Connect the black wire and the orange wire from the power harness **19** to the small posts of the motor solenoid. Place the black wire nearest to the metal plate.

8 To complete the electrical installation, connect all harnesses to the HTBX controller. Using the provided cable ties **31**, secure all cables away from hot or moving components.

NOTICE

Do not over tighten nuts on the motor solenoid terminals. Over-tightening causes premature solenoid failure. Refer to torque specifications on the solenoid.

DETAIL OF SOLENOID

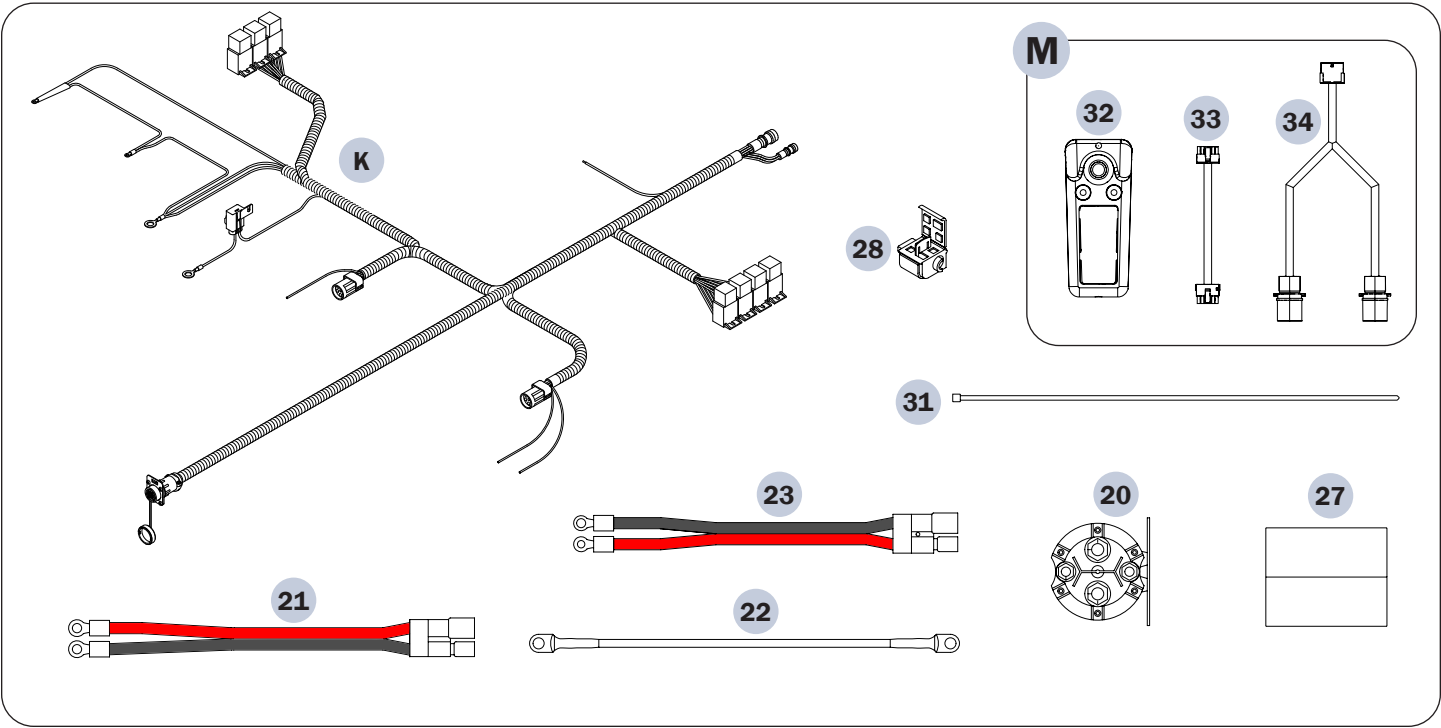


NOTICE

Face the connector side of the HTBX controller toward the ground. The controller plate must be held firmly against a metal surface.

Truck Electronics Assembly - CPC

ITEMS USED



Item	Part #	Description	Qty
J	25015156	PARTS BOX, CPC ELECTRONICS	1
K	38813097	UNDERHOOD HARNESS W/16 PIN CPC	1
20	38350015	MOTOR SOLENOID SEALED	1
21	38812008	CABLE, BATTERY POWER, 38"	1
22	38813012	CABLE, SOLENOID 4 GA 24"	1
23	38813066	CABLE BATTERY POWER 9'	1
27	39107001	FOAM GROMMET 4" LONG	1
28	38610104	CONNECTOR, SEALED WIRE TAP	3
29▲	950-005-004	S-TAP SCR 1/4-20X1/2 HEX W HD	2
30▲	031-30078	S-TAP SCR #8-18X1/2 SL HEX HD	4

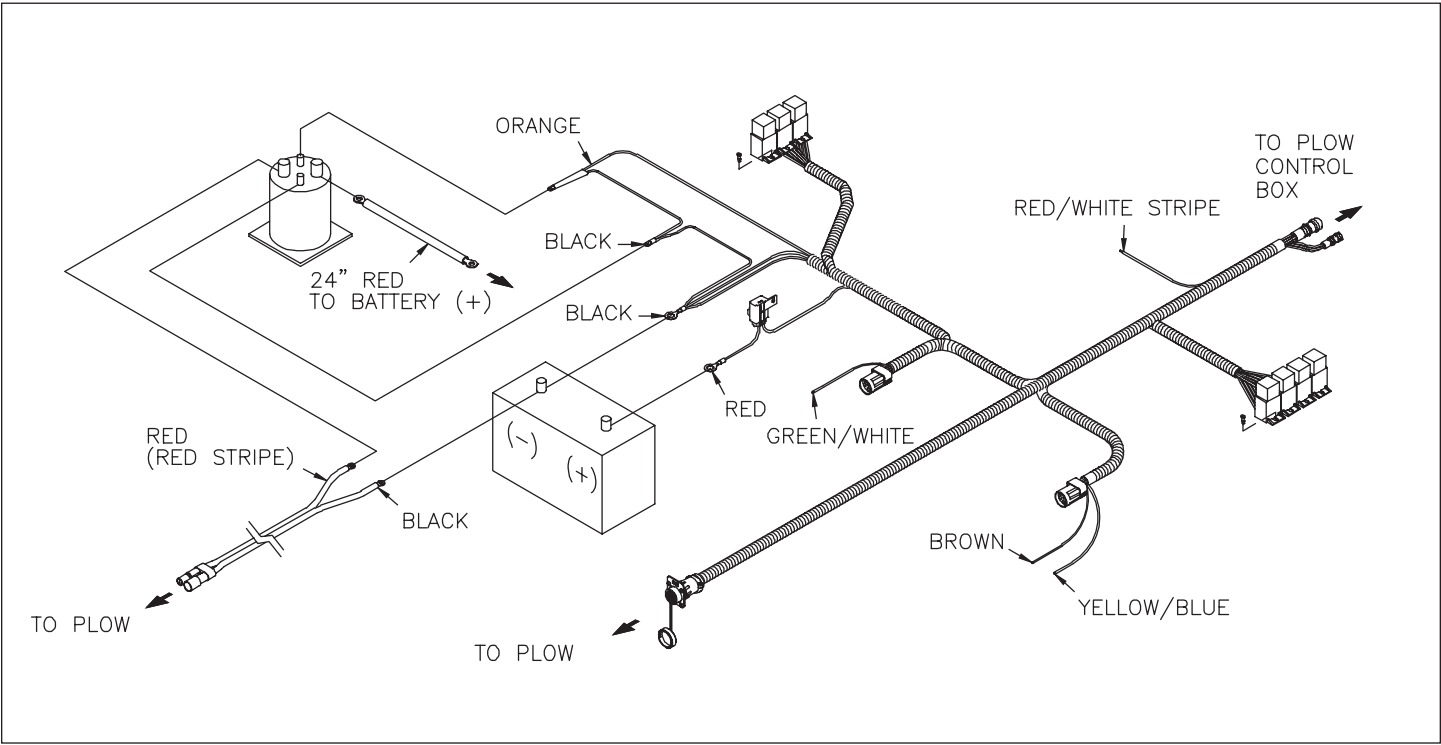
Item	Part #	Description	Qty
31	367-001-011	ZIP TIE .15 X 14.5	15
M	38828043	PARTS BOX, HTBX CONTROLLER RETROFIT	1
32	38828019	CONTROLLER, UNIVERSAL PLOW	1
33	38828030	HARNESS, UNIVERSAL JUNCTION BOX CAB SIDE	1
34	38828031	HARNESS, ADAPTER CPC UNDERHOOD TO UNIVERSAL CONTROLLER	1

▲ Not on parts diagram

 **WARNING**

Disconnect truck battery before beginning electrical installation to avoid shock hazard.

CPC System Overview



INSTALLATION

CAUTION

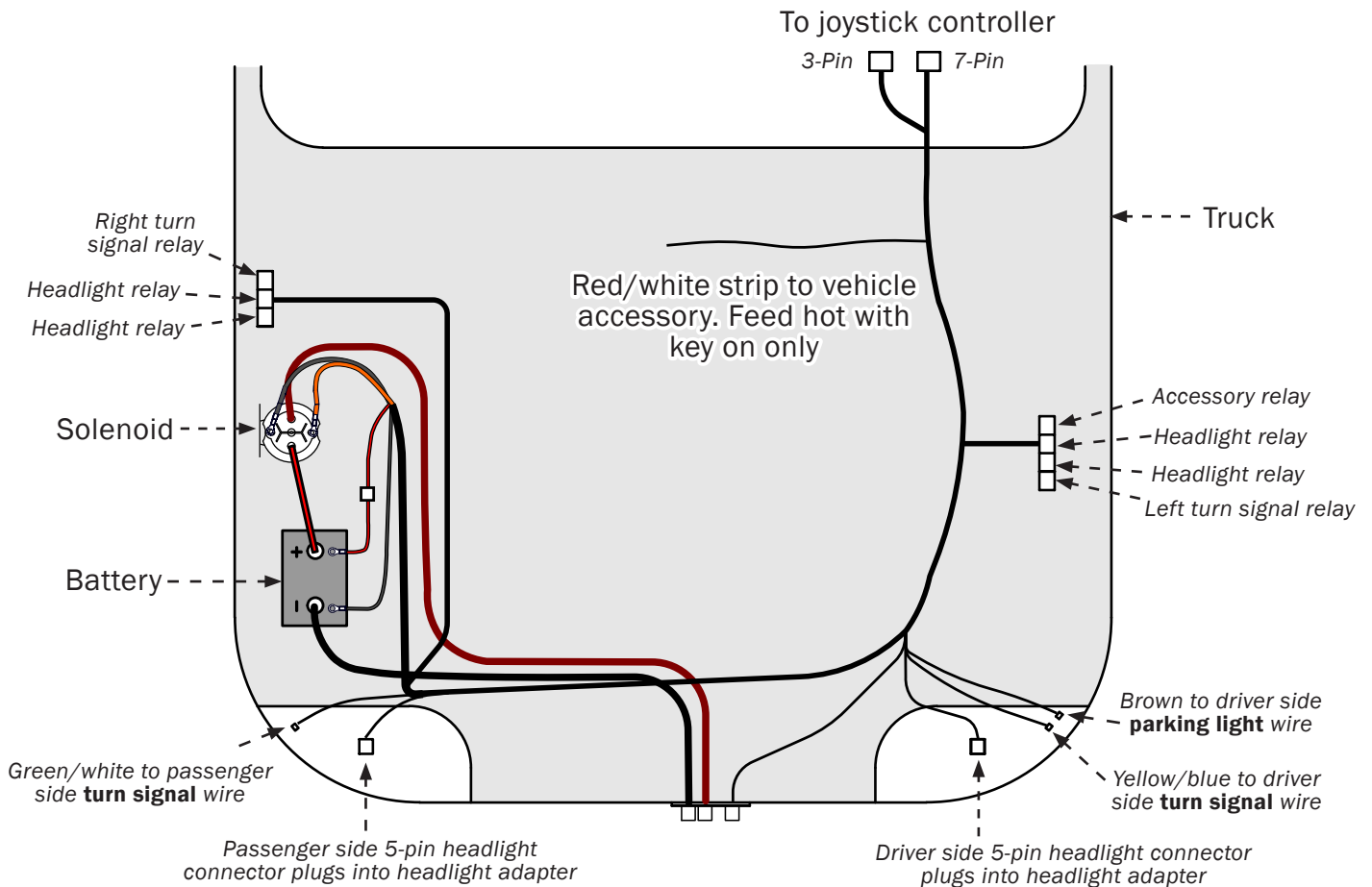
Ensure that the relays will clear any hood lift/spring mechanisms before installation.

NOTICE

To prevent corrosion, apply a light coat of dielectric grease on all connectors, relays, and terminals before installation.

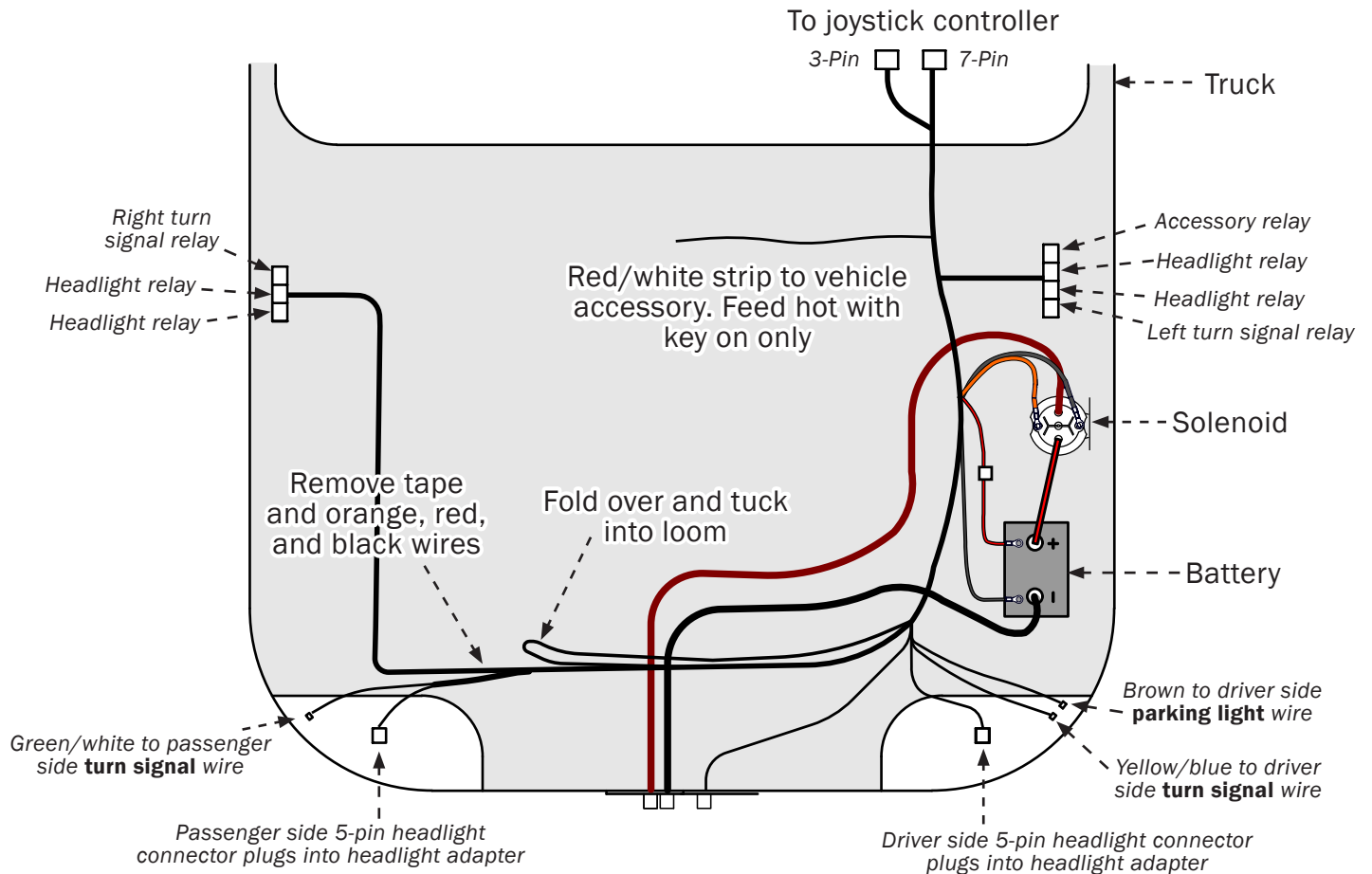
- 1** Refer to Diagram A. Lay the underhood harness **K** in its approximate position for final assembly, with the 7-pin and 3-pin circular connector near the driver side firewall. Place the 16-pin connector just left of center near the grill, the set of four relays near the driver side inner fender, and the other set near the passenger side inner fender. Place the 5-pin headlight connectors at the respective headlight.
- 2** Determine the location of the vehicle battery. If the battery is located on the passenger side, or if there are two batteries configured as a 12 volt system, then skip to step **4**. If the battery is located on the driver side of the vehicle, the wiring harness will need to be modified; proceed to step **3**.

DIAGRAM A



- 3 Refer to Diagram B. Remove the tape from the black corrugated loom at the points shown. Locate one orange, one red, and two black wires. These wires connect to the solenoid and truck battery. Remove the four wires from approximately 33 inches of the loom, making sure the red and black wires are long enough to connect to the battery. Tuck these wires back into the loom as shown in the drawing and retape the loom.

DIAGRAM B



- 4 If there is no access hole in the driver side firewall, drill a 1-1/8" diameter hole. Ensure the drilling location is free from obstructions to avoid damaging components. Route the 7-pin and 3-pin circular connector through the firewall into the cab compartment and install the 4" grommet 27 in the hole, if needed.
- 5 Select an area near the driver side inner fender to mount the four relay set. Drill two 1/8" diameter holes and secure the relays using the #8 x 1/2" self-tapping screws 30. Apply a light coat of dielectric grease on the relays before inserting into holders. Repeat this procedure and mount the three relay set on the passenger side inner fender.

- 6 Splice the red with white stripe wire to the vehicle's switched 12 volt auxiliary electrical circuit. This will prevent operation of the plow without the vehicle key being on. This wire controls the accessory relay that powers the control joystick and solenoids.

NOTICE

Always mount the relays with the wires pointing down. This prevents moisture from accumulating in the relays and protects against corrosion and oxidation.

- 7 Connect the CPC harness adapter 34 to the 7-pin and 3-pin connectors. Then connect the harness adapter to the cab harness 33, then to the joystick controller 32. **Do not over tighten nuts on the motor solenoid terminals. Over-tightening causes premature solenoid failure. Refer to torque specifications on the solenoid.**

CAUTION

To prevent injury or property damage caused by unintentional plow movement when the key is removed from the vehicle, the red/white striped wire must be connected to a switched power source on the vehicle. Connecting to a power source not controlled by the ignition switch will allow movement of the plow with the vehicle key removed.

- 8 Select an area within 16 inches of the vehicle battery for the motor solenoid 20. Using the solenoid as a template, mark and drill two 3/16" diameter holes. Fasten the solenoid with two 1/4" x 1/2" self-tapping screws 29.

CAUTION

Ensure that the motor solenoid and associated wiring will clear any hood lift/spring mechanisms before installation.

- 9 Connect the black wire to one of the small posts on the solenoid. Connect the orange wire to the remaining small post. Place the black wire nearest to the metal plate.

NOTICE

Do not over tighten nuts on the motor solenoid terminals. Over-tightening causes premature solenoid failure. Refer to torque specifications on the solenoid.

- 10 Safely route the 16-pin circular connectors through the grill of the vehicle to a location that will be easily accessible with the plow attached.

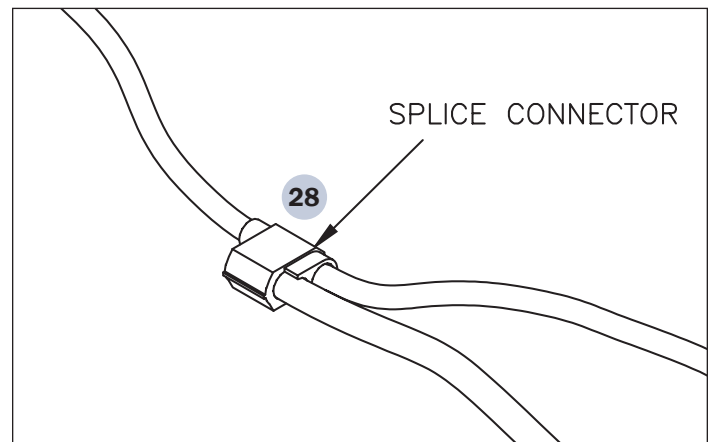
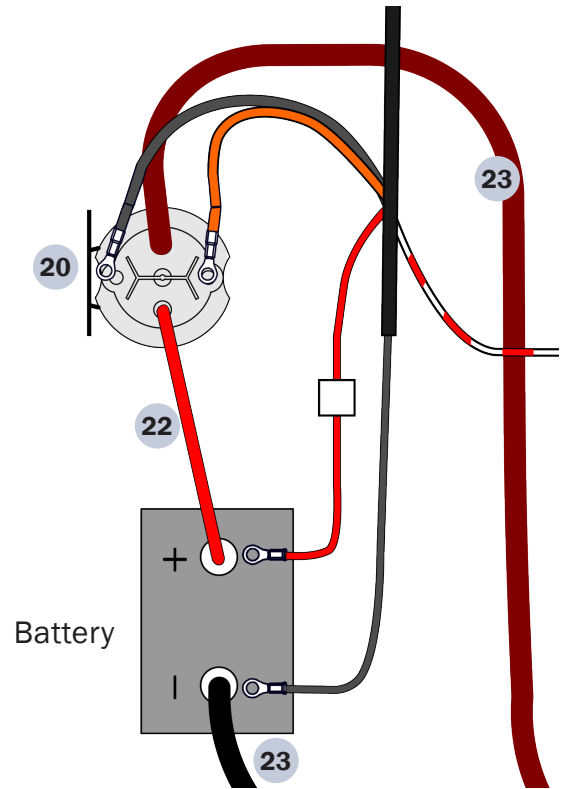
- 11 Install the underhood power cable by first connecting the black cable and the three black wires from the harness to the minus (-) post of the vehicle's battery. Connect the red (or red striped) cable to the motor solenoid. Route the power cable to the grill near the 16-pin connector. Connect the red fused wire from the harness and the 24" solenoid cable 22 to the plus (+) terminal of the battery or battery access post. Connect the other end of the 24" solenoid cable to the motor solenoid.

- 12 Locate three blue connector splices 28 in the hardware bag. Using a blue splice, crimp the single brown wire from the underhood harness into the driver side parking light wire. Using a blue splice, crimp the single yellow with blue stripe wire from the underhood harness into the vehicle's driver's side turn signal wire. Using a blue splice, crimp the single green wire with white stripe from the underhood harness into the vehicle's curbside turn signal wire.

- 13 Select the proper headlight adapter for your vehicle. Specific instructions are included with each kit. The headlight adapter kit consists of two identical adapters. Install the adapters according to the instructions included with the kit, then connect to the 5-pin connectors of the underhood wiring harness.

- 14 Secure all cables away from hot or moving components with cable ties 31.

DETAIL OF SOLENOID



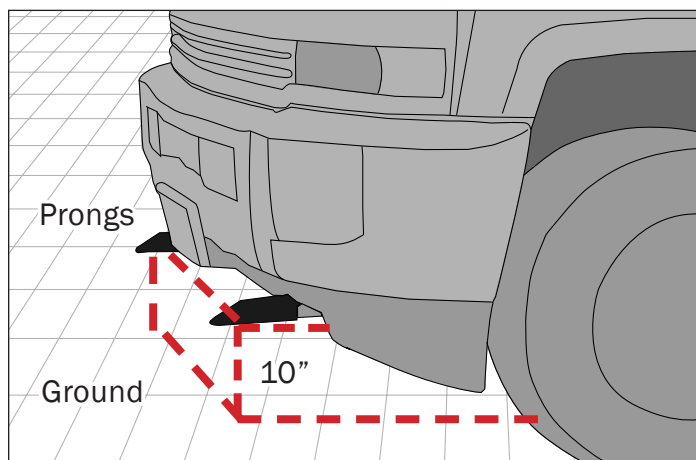
Attaching the Plow

- 1 Install the attachment prongs to the truck. The bottom edge of the prongs should be roughly 10 inches above the ground.

NOTICE

Use the instructions included with the mount kit to install the attachment prongs.

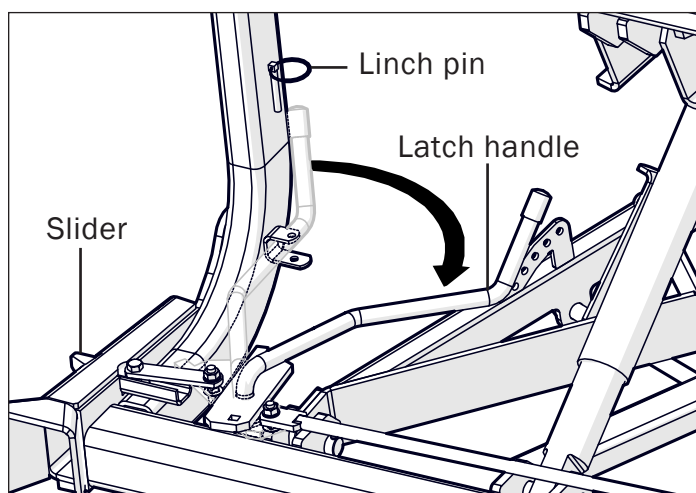
- 2 Engage the parking brake in the truck.
- 3 Position the plow in front of the truck so the attachment prongs are aligned and parallel with the receivers on the plow.



NOTICE

Receivers on the plow frame must be parallel to the ground before attaching the plow. Always follow the attaching and detaching instructions that are detailed on the rear side of the plow blade.

- 4 Remove the linch pin from the frame to release the latch handle.
- 5 Swing the latch handle open so the sliders fully disengage from the receivers.



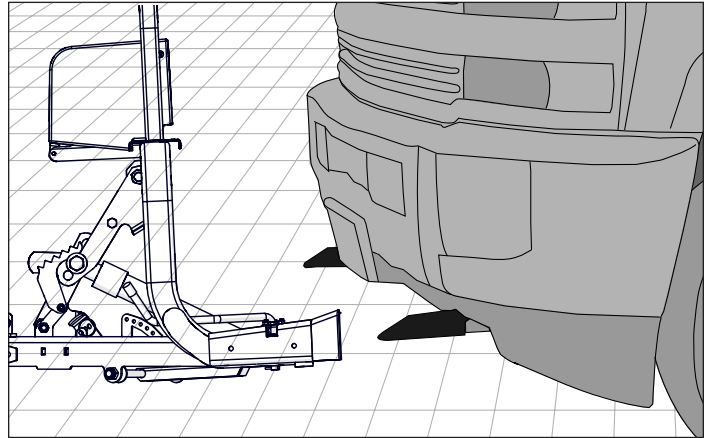
- 6 Slowly drive into the plow so the prongs enter the receivers.

⚠ CAUTION

Use the parking brake to prevent the truck from backing out.

NOTICE

(Optional) To help the plow slide on and off more easily, apply powdered graphite to the prongs.

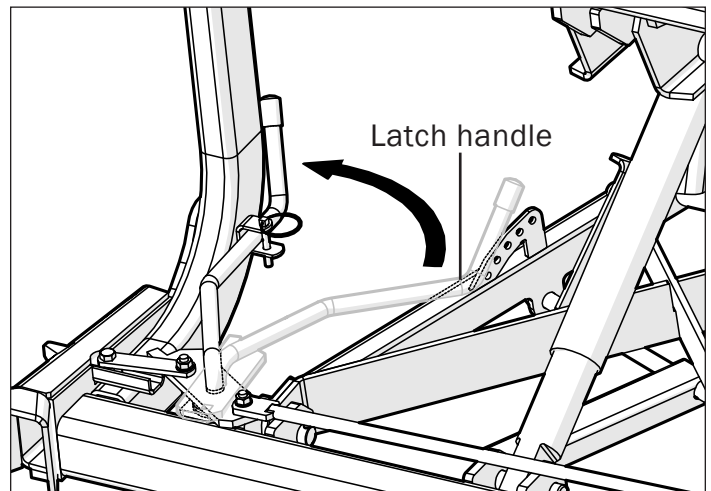


- 7 Pull the latch handle into the clevis on the lift frame to force the sliders through the notches in the receivers. Check that both the left and right sliders are fully engaged.

- 8 Pin the handle in the clevis with the linch pin.

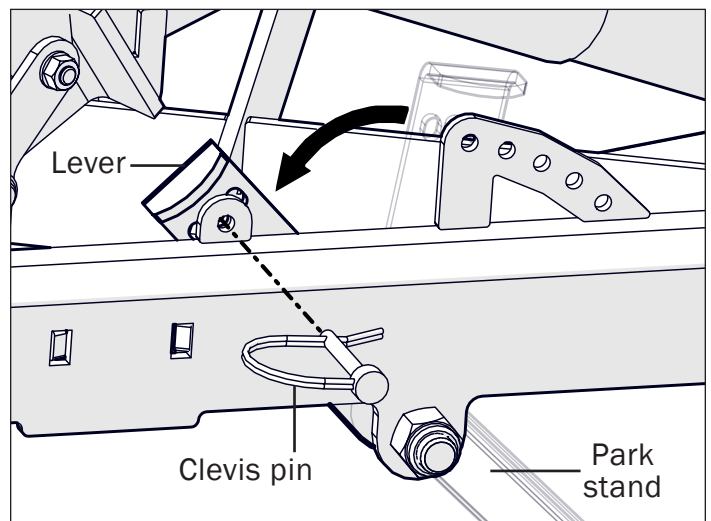
⚠ CAUTION

An unsecured plow may fall off the truck. Pin the latch handle to secure the plow.

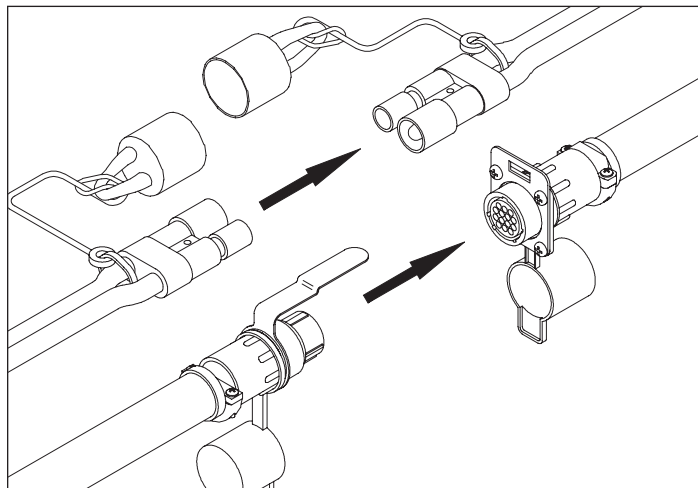


- 9 Raise the park stand to its highest position by removing the clevis pin from the lever and rotating the lever back.

- 10 Reinsert the clevis pin through the lever and frame to secure the park stand.



- 11** Plug in the two electrical connectors between the plow and the truck. The alignment tab on the 16-pin plug mates with the slot on the receptacle to ensure proper connection.
- 12** Check that the plow headlamps and turn signals are operational, and headlamps are aimed correctly.
- 13** Test the lift and angling cylinders in a safe area before using the plow.

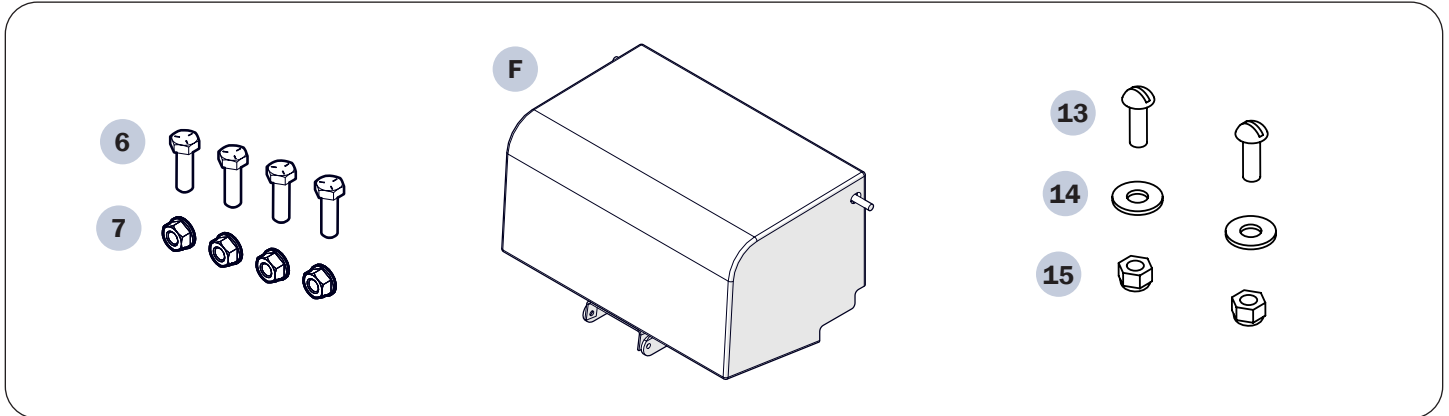


NOTICE

To make alignment of the plow easier in the future, mark a point on the back of the LH headlamp, a point on the hood near the front of the truck and a point on the windshield that are in line when you are seated behind the steering wheel. Line up these three points when driving into the plow.

System Checkout

ITEMS USED



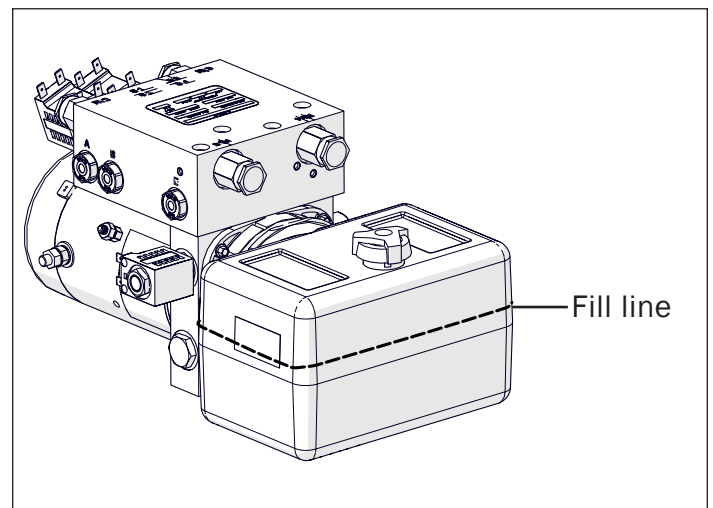
Item	Part Number	Description	Qty
C	25015469	HARDWARE BAG - HALF TON V-PLOW	1
6	950-001-110	HHCS 5/16-18NCX1 G#5 PLT	4
7	951-005-036	NUT-LK MAC 5/16-18	4
F	25014789	ASSY, POWER UNIT COVER	1
G	25014645	HDWE KIT, POWER UNIT MOUNTING	1
13	031-10657	MCH-SCR 1/4-20X3/4 SL RD HD	2
14	952-002-011	WASHER-FLAT 1/4 WRT	2
15	060954	LOCK NUT 1/4-20 UNC NYLON INS	2

TOOLS REQUIRED

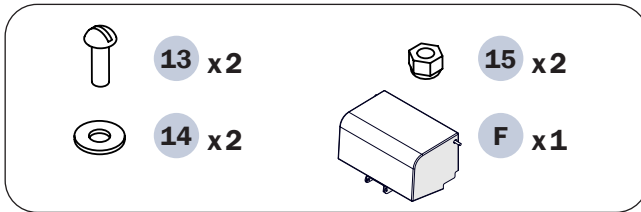
- 3/8" Wrench
- 1/2" Wrench
- Hiniker Cold Flow Hydraulic Oil
- Rubber-nipple grease gun
- NLGI #2 rated grease

INSTALLATION

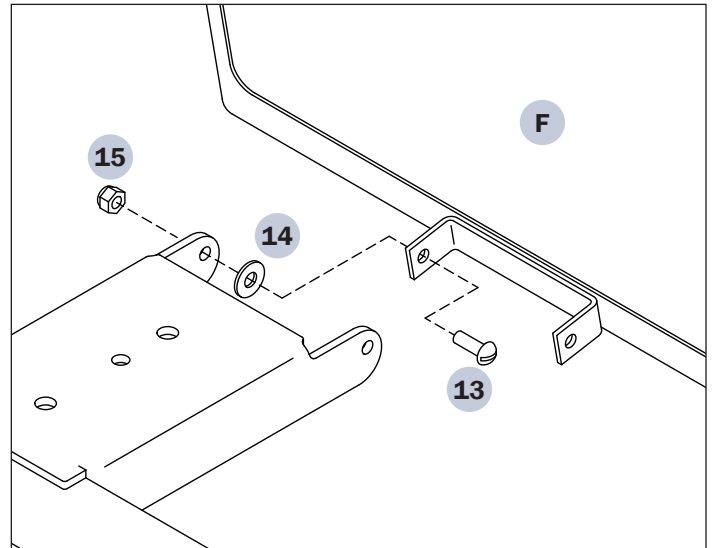
- 1 Select Hiniker Cold Flow Hydraulic Oil or an equivalent oil that meets military specification 5606, for plowing in extremely cold temperatures.
- 2 Pour hydraulic oil into the power unit reservoir until the oil level reaches the fill level.
- 3 Raise and lower the plow, and cycle the wings to purge any air trapped in the system. Check the oil level with the plow on the ground and the wings retracted.
- 4 Add oil to the fill line, if necessary, but do not overfill the reservoir.



Items Used

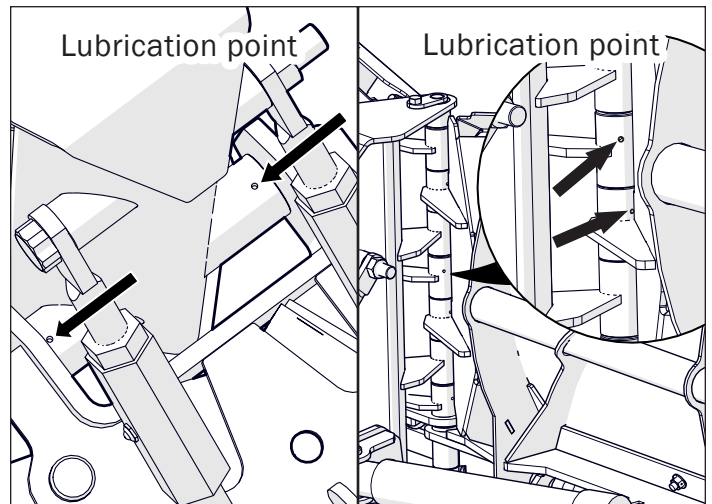


- 5** Fasten the power unit cover assembly **F** to the lift frame with two 1/4"x3/4" screws **13**, two 1/4" flat washers **14**, and two nylock nuts **15**. Tighten the nuts so the assembly is secure but the cover hinge moves freely.



- 6** Pinch the latch handles at the back of the cover to retract them. Rotate the cover over the power unit to close the cover, then release the latch handles. When the cover is closed, rods from the latch handles should extend behind the light brackets to hold the cover in place.

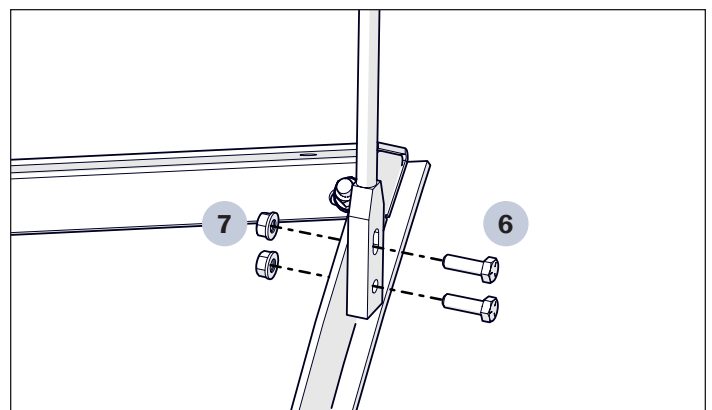
- 7** Grease the centermast. Using a rubber-nipple grease gun, grease the lubrication points on both sides of the centermast. Use a couple pumps per hole. Use any NLGI #2 rated grease (e.g. Mobil XHP 222 or equivalent).



Items Used



- 8** Take the blade guides that were removed from the moldboard on page 10. Attach the blade guides to the ends of the moldboard using four 5/16" bolts **6** and four 5/16" lock nuts **7**.



Controller Configuration

TOOLS REQUIRED

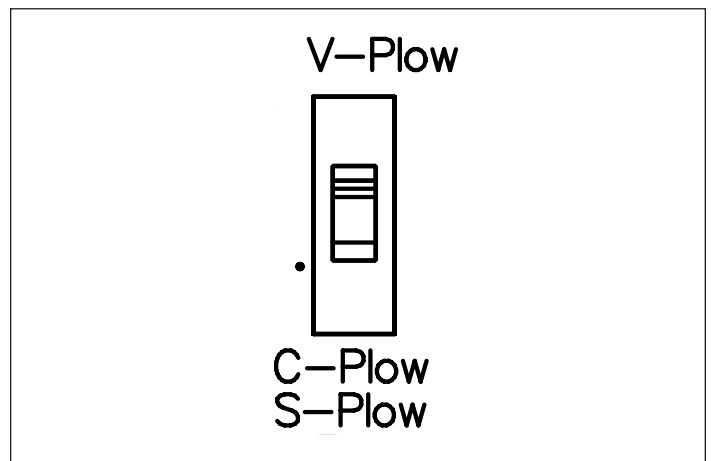
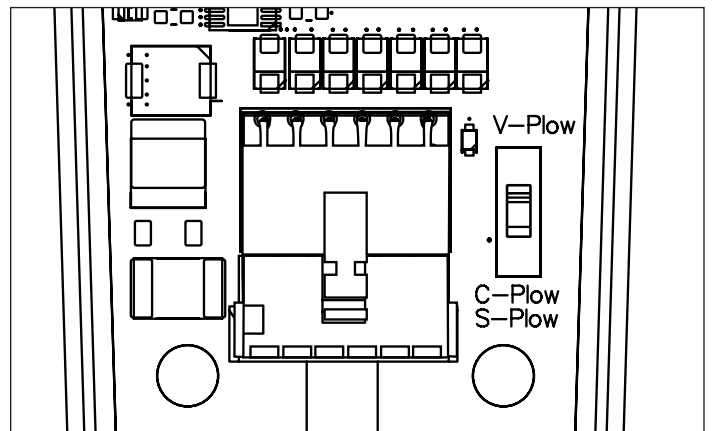
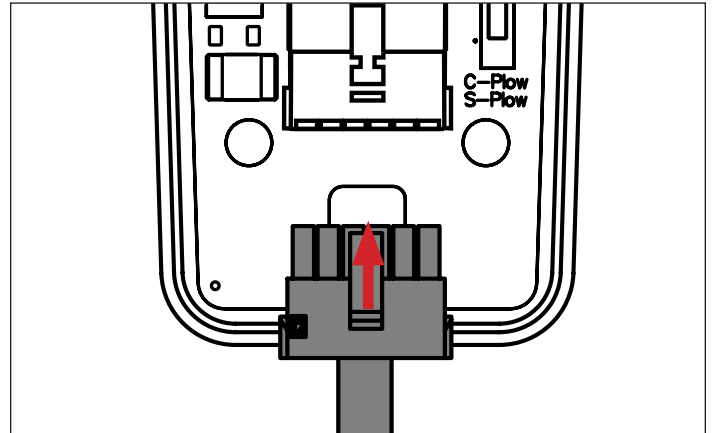
- #2 Phillips Screwdriver

PROCEDURE

- 1 Remove the back cover with a #2 Phillips screwdriver.
- 2 Take the end of the harness that has a white retainer clip. Fully insert the plug into the receptacle on the end of the controller.
- 3 Plug the other end of the harness into the controller harness or adapter.
- 4 Locate the Plow Selection switch on the PCB board, next to the 12-pin connector. This switch toggles the operation mode of the controller to match the snowplow.
- 5 Slide the Plow Selection Switch toward the desired plow setting, either V-Plow or C-Plow/S-Plow.

Plow Type	Position
Torsion V	Up
Compression V	
Steel Straight	Down
C	
Scoop	
Poly Straight	
Mid-size Straight	

- 6 Replace the back cover and screws.
- 7 Test the controller to verify that the plow raises and lowers as desired. By default, pressing the joystick forward lowers the plow, and pressing back raises the plow.



- 8** Move the headlight switch on the joystick controller to the “TRUCK” position and turn on the vehicle headlights. High and low beams should operate on the truck.
- 9** Turn the vehicles headlight switch to its off position then move the switch to the “PLOW” position. Plow lights should operate in both high and low beams. Vehicle headlights should be off.
- 10** Test the parking lights and turn signals. Lights on the plow and truck should operate at the same time.
- 11** In an area clear of bystanders, test joystick functions by raising and lowering the plow and angling side to side.
- 12** To reverse the angle functions, exchange the tan and gray wires on the power unit.

Leveling the Plow

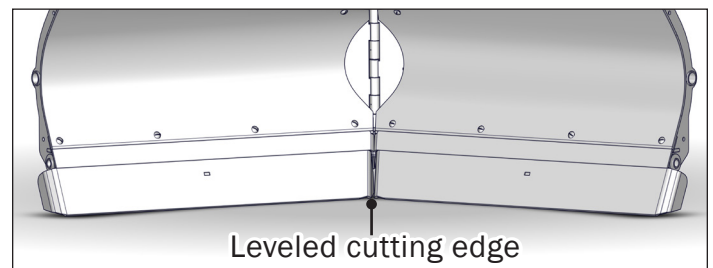
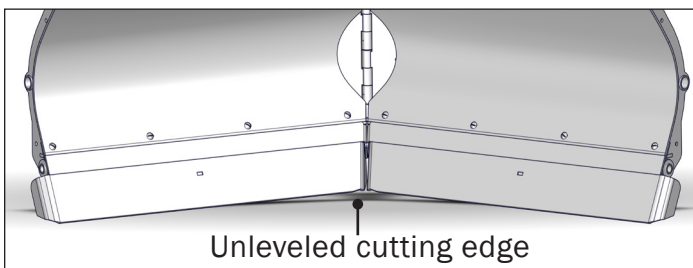
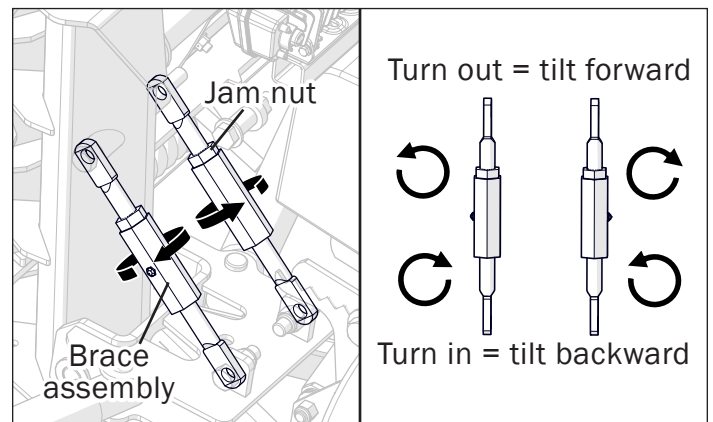
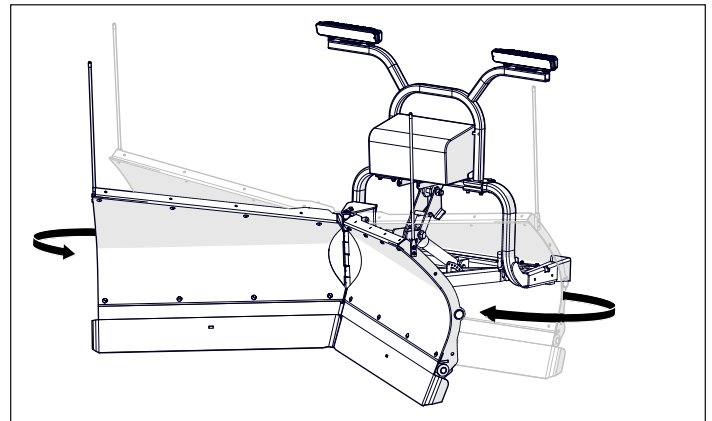
After attaching a plow to a vehicle, the cutting edge should be adjusted so it's level with the ground. A leveled cutting edge allows for cleaner snow plowing.

TOOLS REQUIRED

- 1-1/8" Open Wrench (x2)

PROCEDURE

- 1 Power on the snowplow. Swing both wings forward into the scoop position.
- 2 Lower the plow to the ground to place the controller in Float Mode. The indicator light on the controller should turn orange.
- 3 Loosen the jam nuts on both adjustable brace assemblies with a 1-1/8" wrench.
- 4 Turn the bodies of the braces to tilt the centermast. Turning out will tilt the centermast forward; turning in will tilt the centermast back. Adjust until the plow cutting edge fully contacts the ground.
- 5 Secure the position of the cutting edge by tightening the jam nuts.



Headlamp Aiming Procedure

This procedure should be done with no load on the vehicle other than the driver, snowplow, and rear ballast weight.

PREPARATION

- Inspect the vehicle for proper tire inflation.
- Check for broken or sagging suspension components.
- Stabilize the suspension by rocking the vehicle sideways.
- Check the function of any automatic vehicle leveling systems.
- Review the vehicle manufacturer's instructions about headlamp aiming preparation.

TOOLS REQUIRED

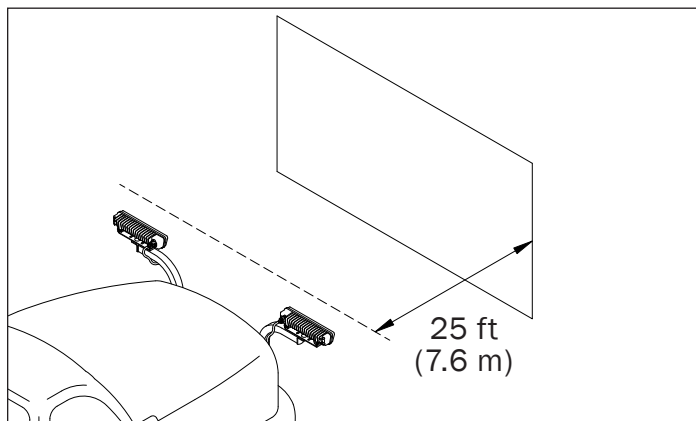
- Black tape
- Tool for torquing headlamp hardware

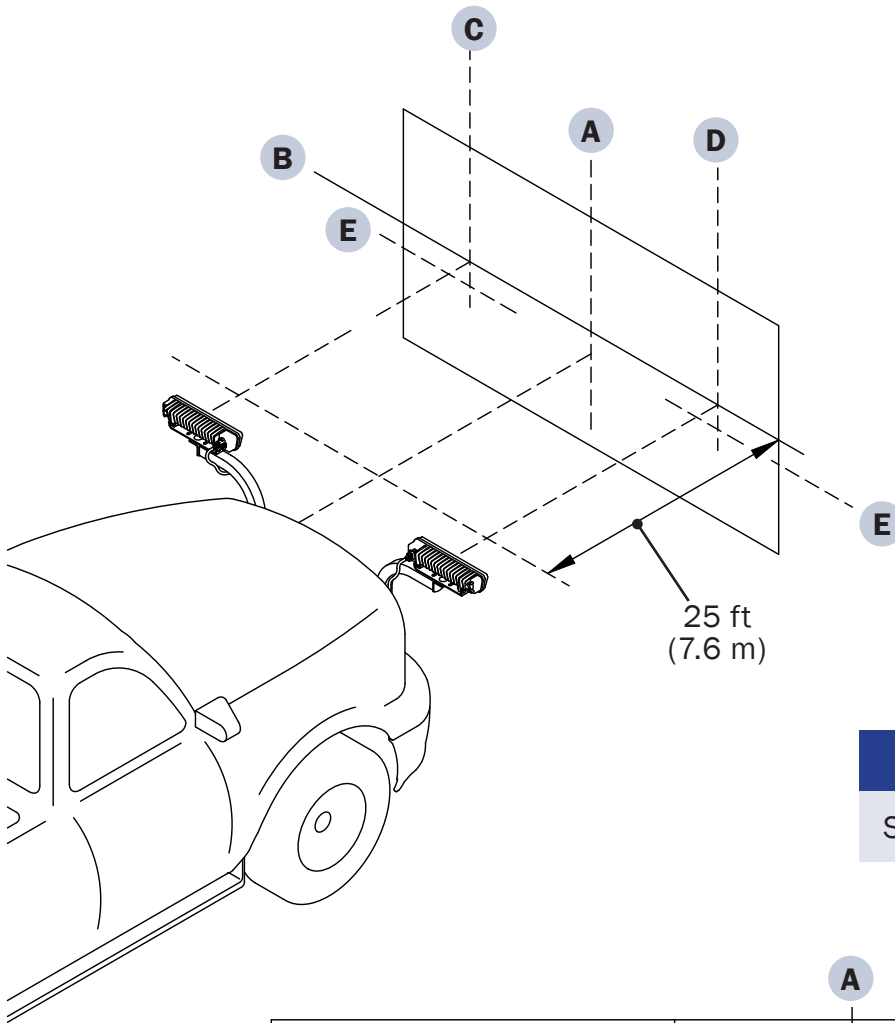
NOTICE

Headlamp aiming should be done while plow is in a raised position.

PROCEDURE

- 1** With the plow attached to the vehicle, park on a level surface that is 25 ft (7.6 m) from a flat, unobstructed, light-colored wall. Raise the plow to any height so it's off the ground.
- 2** Wipe the plow lamp lenses clean and check for proper switching and function. Make sure the light switch on the joystick controller is in the PLOW position.



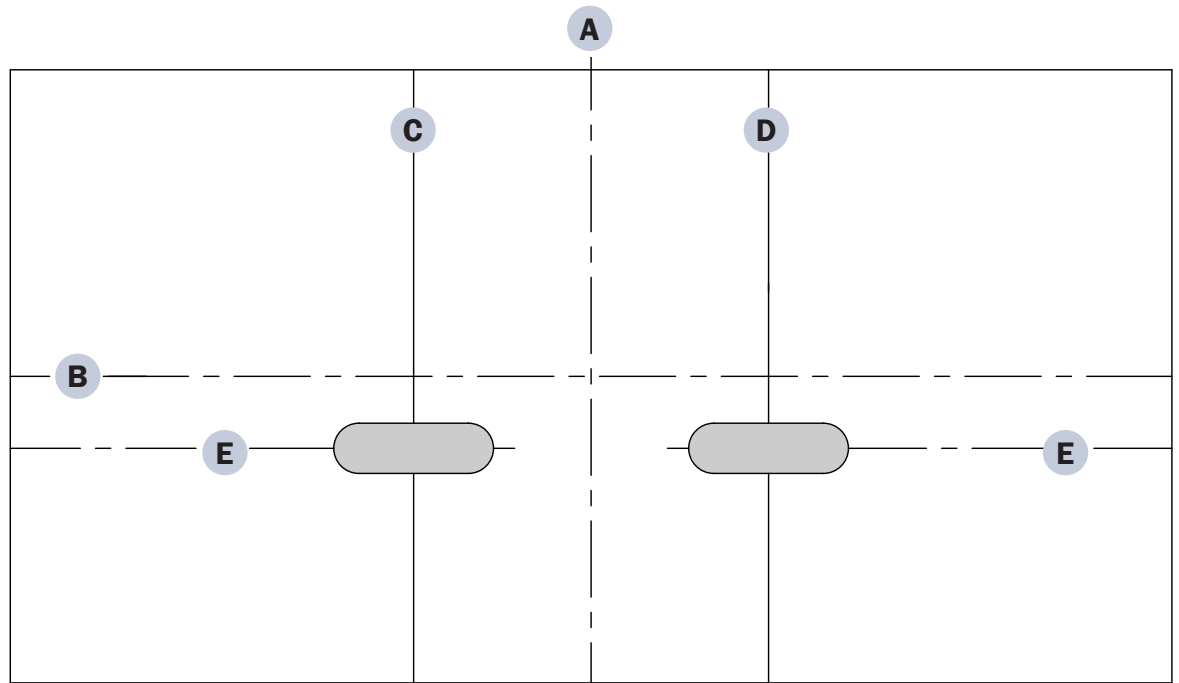


3 Using black tape, mark the following points on the wall:

- A** Centerline of vehicle.
- B** Height of Lamp Centers.
- C** LH Headlight Center (see Table 1 for dimensions).
- D** RH Headlight Center (see Table 1 for dimensions).
- E** Vertical Aim Down Height (see Table 2 for dimensions).

NOTICE

See page 40 for dimension tables.



Shaded areas represent the high-intensity zone of properly-aimed high beams.

TABLE 1: Headlight Center Dimensions

C	D	Type	Dimension
		LED	19 in (48 cm)
		Halogen	22 in (56 cm)

TABLE 2: Aim Down Dimensions

Height from Ground	Dimension
22 to 36 in (56 to 90 cm)	0
36 to 48 in (90 to 120 cm)	2 in (5 cm)
48 to 54 in (120 to 140 cm)	4 in (6.4 cm)

- 4
- Turn on the plow HIGH beams to light the wall.
- 5
- Center the LH light beam on the intersection of lines C and E.
- 6
- Center the RH light beam on the intersection of lines D and E.
- 7
- Tighten the headlamp hardware according to Table 3:

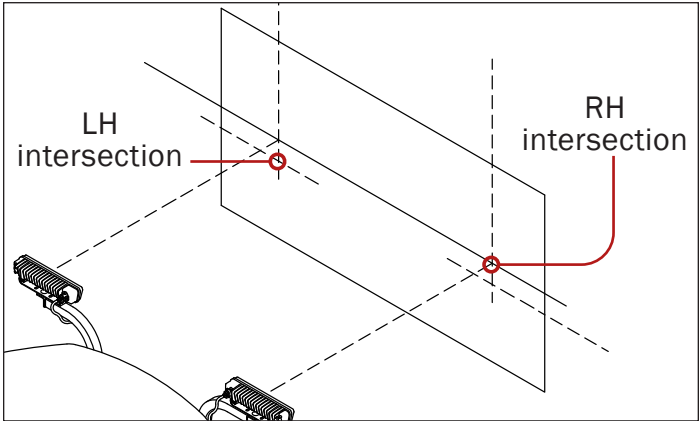
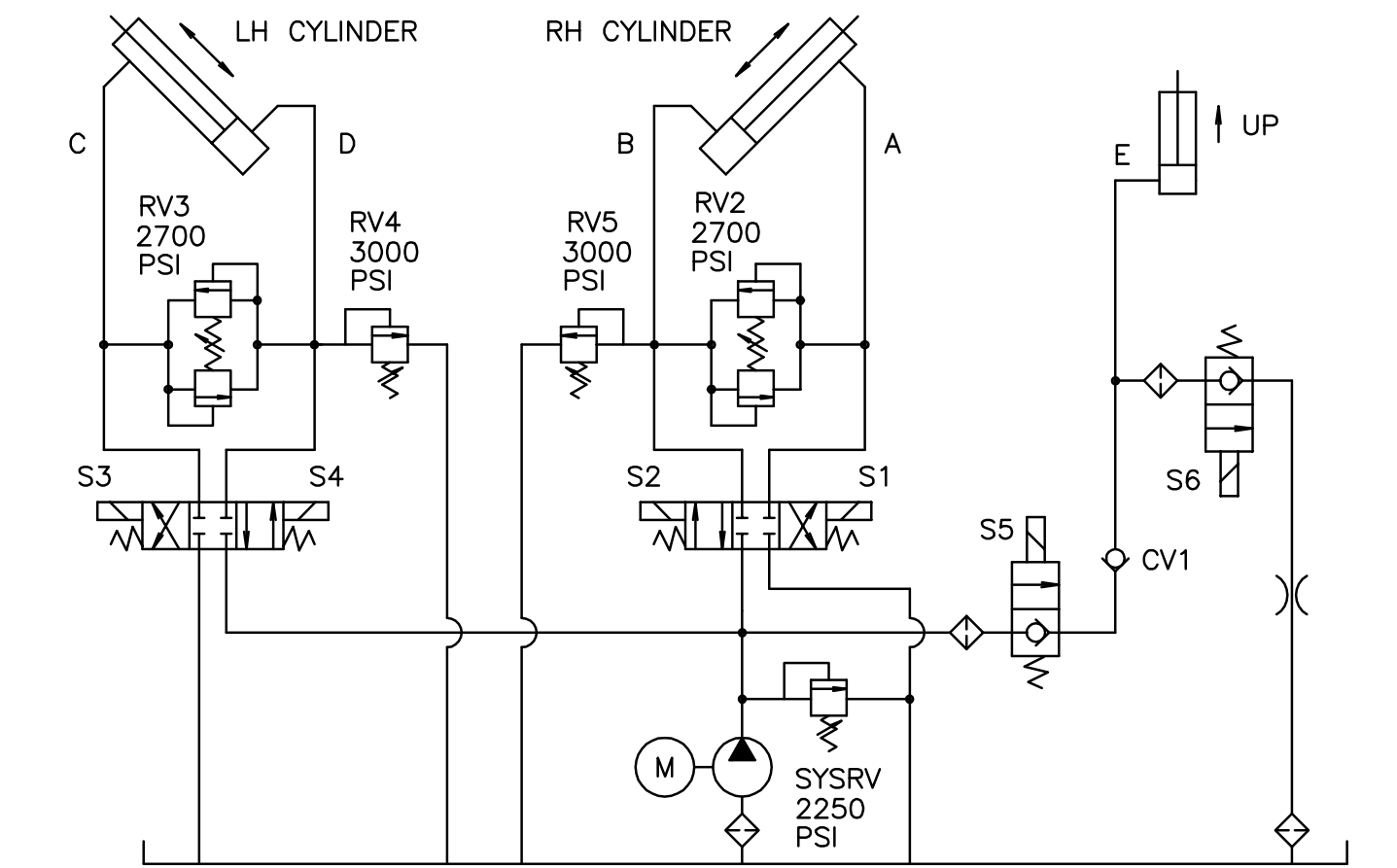


TABLE 3: HARDWARE TORQUE

Type	Size	Ft-lb	N-m
LED	1/2" (Bracket to bar)	58-82	79-112
	1/4" (Light to bracket)	6-7	8-10
Halogen	1/2" (Bracket to bar)	58-82	79-112
	3/8" (Light to bracket)	29-41	39-56

REFERENCE

Power Unit Hydraulic Circuit Diagram

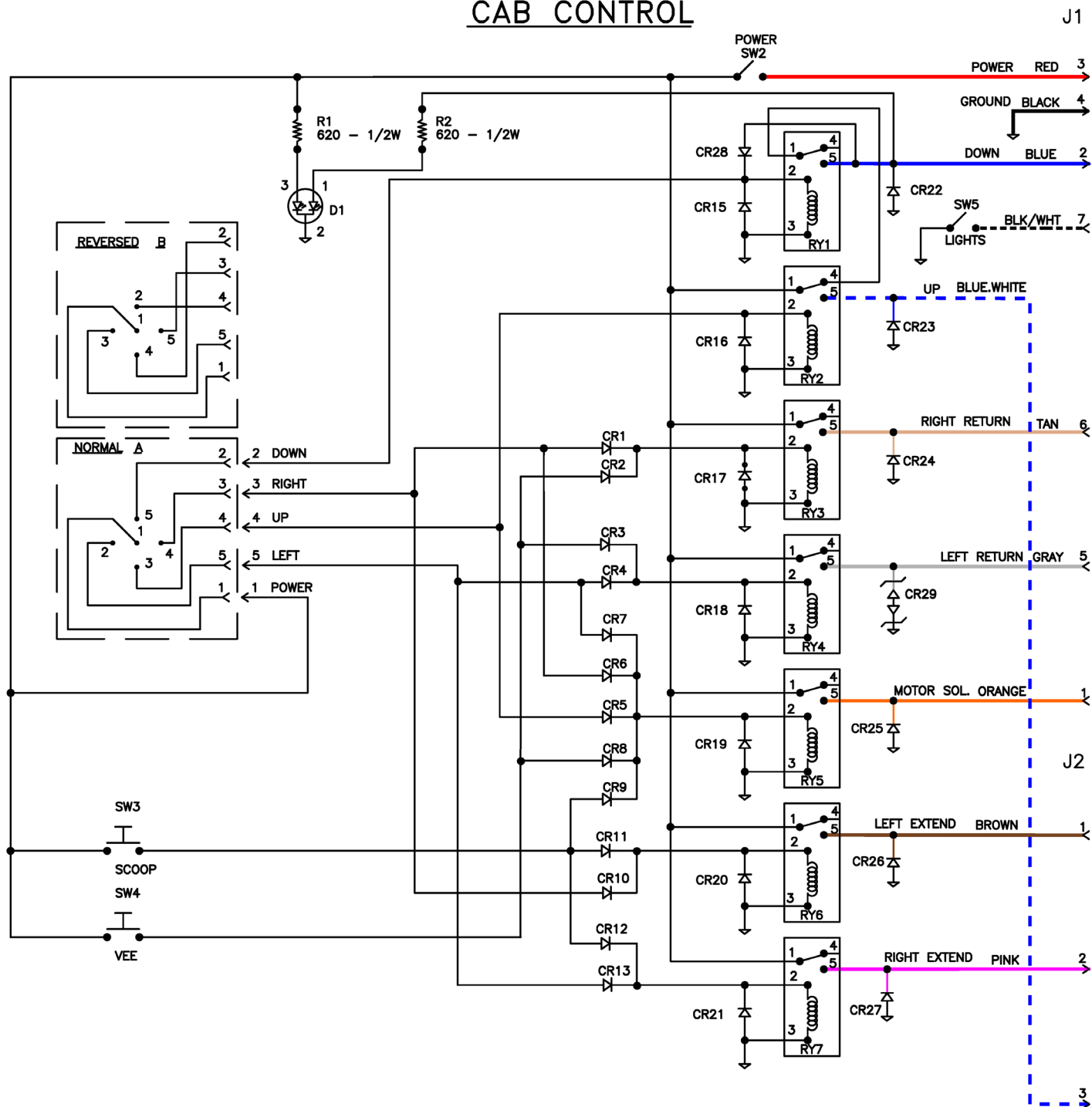


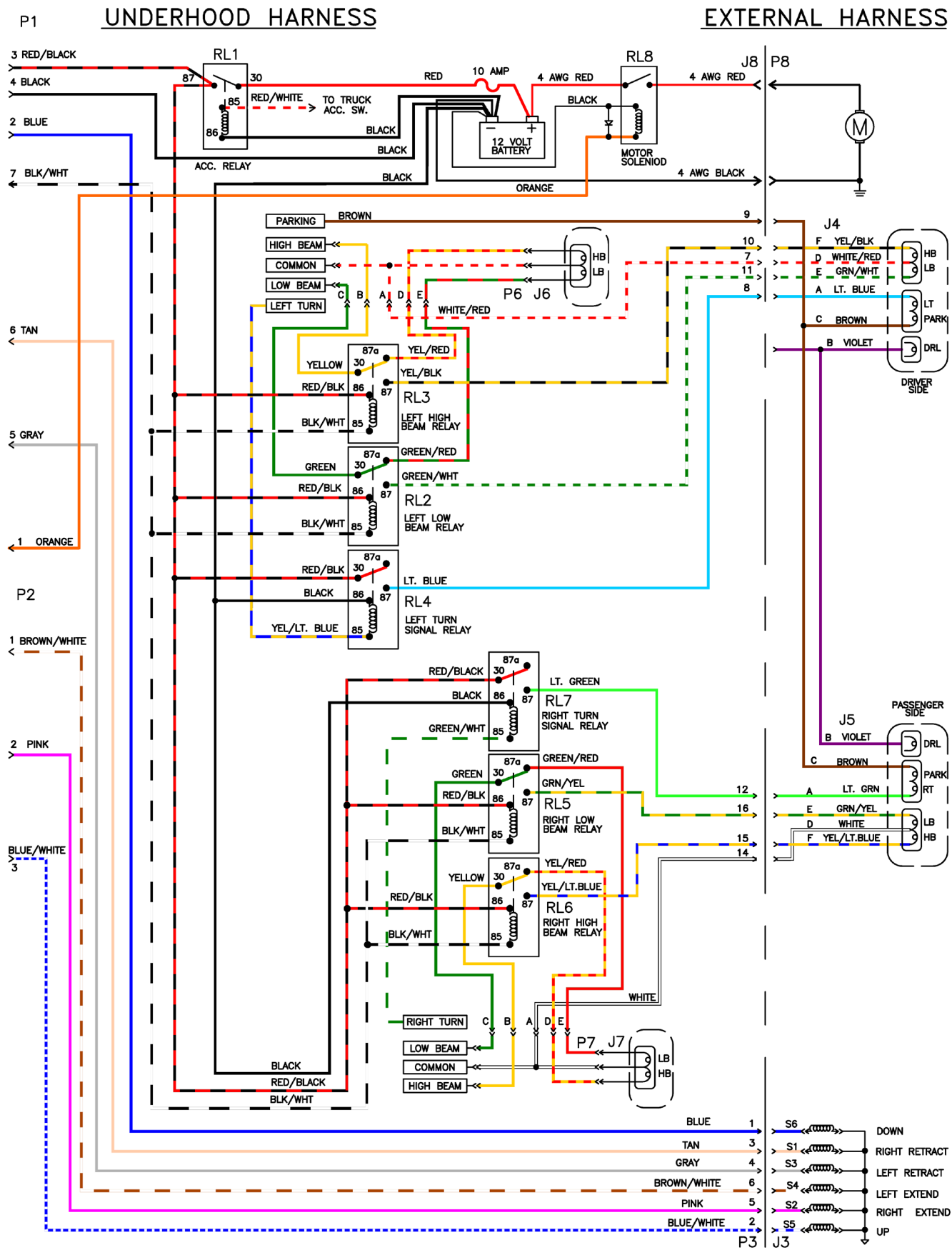
Function	S1	S2	S3	S4	S5	S6	MOTOR
Vee							
Scoop							
Angle Left							
Angle Right							
Lift							
Lower							

- SYSRV Relief Valve, System 2250 PSI
- RV2 Relief Valve, RH Cyl. Crossover 2700 PSI
- RV3 Relief Valve, LH Cyl. Crossover 2700 PSI
- RV4 Relief Valve, LH Cyl. Retraction 3000 PSI
- RV5 Relief Valve, RH Cyl. Retraction 3000 PSI

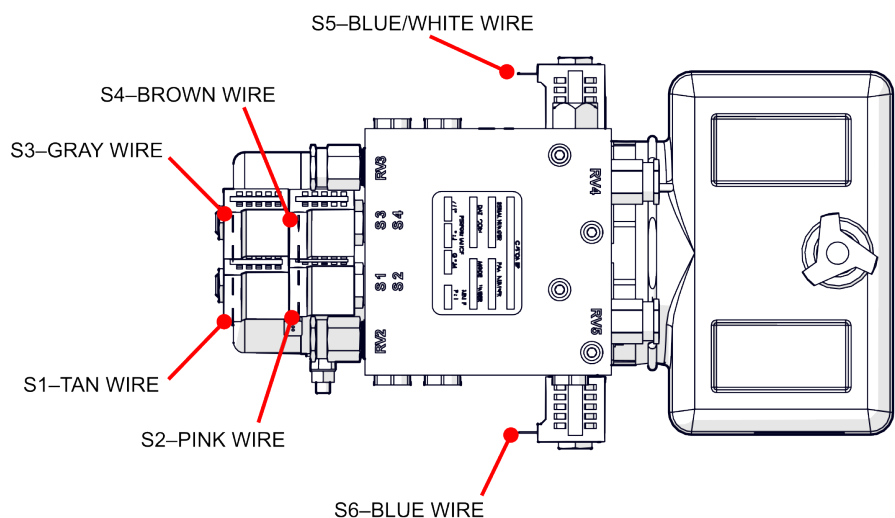
Wiring Harness

CAB CONTROL

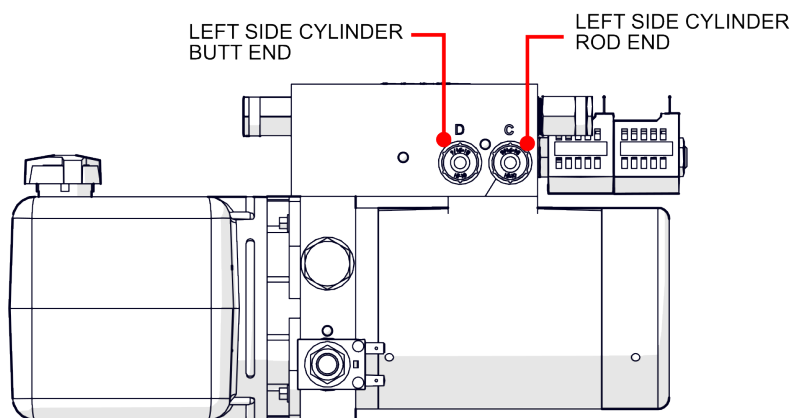
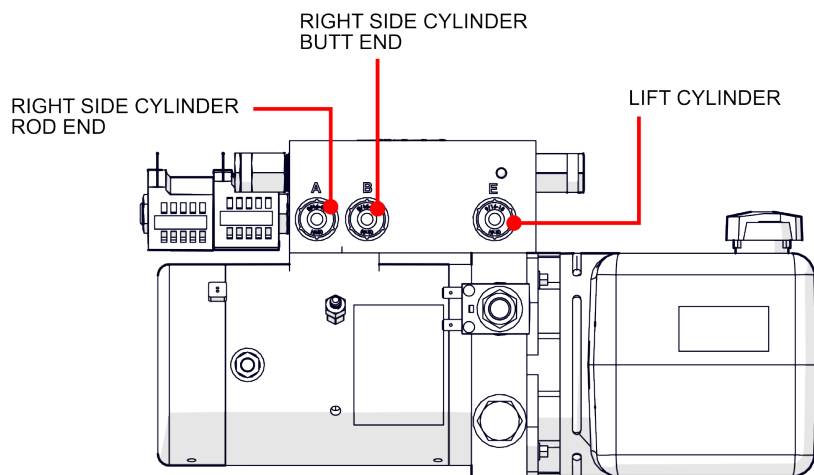


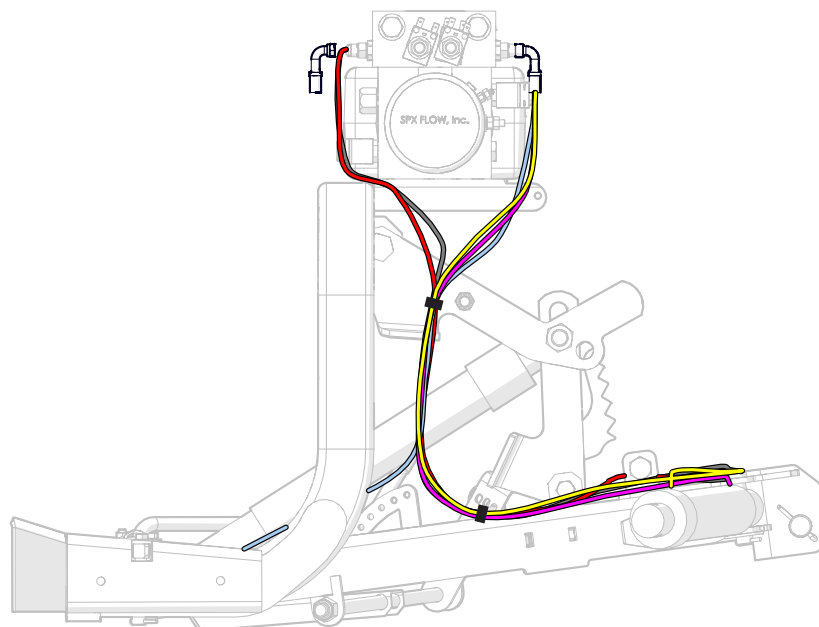
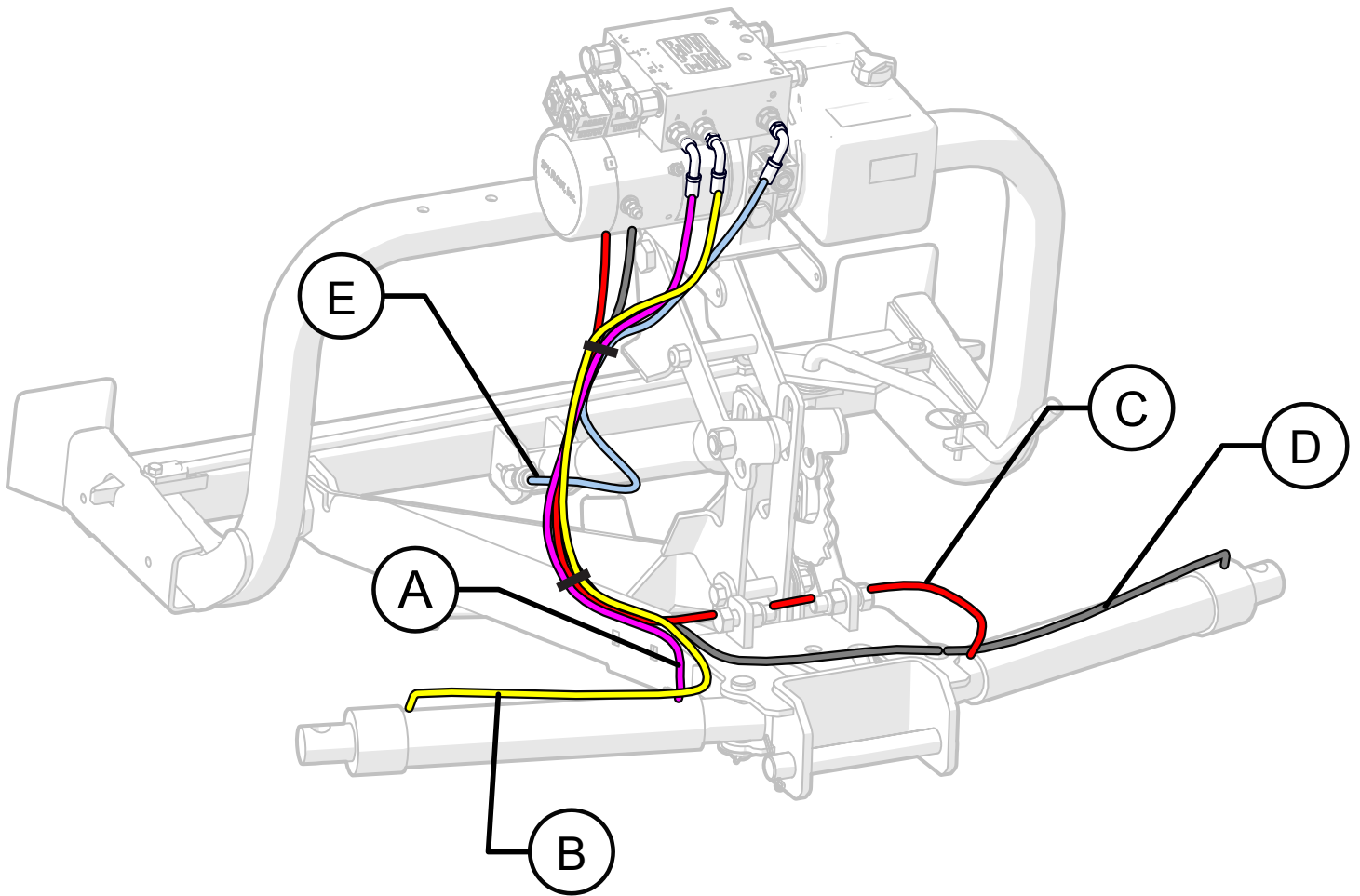


Motor & Hydraulic Connection



- S1 – RIGHT RETRACT – TAN WIRE
- S2 – RIGHT EXTEND – PINK WIRE
- S3 – LEFT RETRACT – GRAY WIRE
- S4 – LEFT EXTEND – BROWN WIRE
- S5 – LIFT – BLUE/WHITE WIRE
- S6 – LOWER – BLUE WIRE





TROUBLESHOOTING

General

1. Check to see that the motor is wired correctly with tight connections, for the proper voltage.
2. Check reservoir oil level.
3. Check that wiring harness relay connections are wired correctly
4. Check for external leakage at cylinders, hoses and power unit.

Problem	Possible Cause	Remedy
1. Plow does not attach to vehicle	a. Receivers are tipped forward	a. Fully collapse the lift cylinder and rotate stop plate up to brace the lift frame before removing plow from truck
	b. Prongs recoil out of receivers when attaching	b. Slowly drive into receivers and set parking brake
	c. Park stand pinned too low	c. Lower receivers by adjusting park stand.
2. Pump motor does not run	a. Defective solenoid	a. Replace solenoid
	b. Defective pump motor	b. Replace brushes or motor
	c. Weak or defective battery	c. Charge or replace battery
	d. Bad electrical connections	d. Clean and tighten connections
	e. Defective joystick control box	e. Replace control box
	f. Blown 10A fuse supplying power to control box	f. Replace fuse
3. Pump runs with joystick in neutral position	a. Defective solenoid	a. Replace solenoid
	b. Defective joystick control box	b. Replace control box
	c. Wiring short	c. Locate and repair
4. Plow will not lower	a. Reversed wiring on valve block	a. Correct wiring
	b. Defective joystick control box	b. Replace control box
	c. Defective lift return valve or coil	c. Replace valve or coil
5. Plow will not raise or raises slowly, motor runs	a. Weak or defective truck battery	a. Charge or replace battery
	b. Oil level low	b. Add oil (do not overfill)
	c. Hydraulic connection leak	c. Tighten or redo connection
	d. Lift valve not opening properly	d. Replace valve
6. Plow does not remain raised with joystick in "neutral" position	a. Leakage through pump check valve	a. Clean valve, or replace
	b. Leakage through solenoid lowering valve	b. Clean valve, or replace
	c. Internal leakage in cylinder	c. Repack or replace cylinder
	d. Defective joystick control box.	d. Replace control box

Problem	Possible Cause	Remedy
7. Angling cylinders relieve too easily or too difficultly while plowing	a. Relief pressure set too low or too high	a. Have relief pressure adjusted by Hiniker snowplow dealer
8. Oil leaks from lift cylinder.	a. Loose packing	a. Tighten packing 1/8 turn
	b. Defective cylinder	b. Repack or replace cylinder
9. Battery goes dead with power to the control box on and joystick in neutral position.	a. Short in wiring	a. Locate and repair
	b. Short in valve coil(s)	b. Replace coil(s)
	c. Defective joystick control box	c. Replace control box
10. Battery goes dead with power to the control box off.	a. Short in wiring	a. Locate and repair
11. Plow lights are dim	a. Bad connection(s)	a. Repair connection
	b. Lights not properly grounded	b. Properly ground
	c. Lights not properly powered	c. Wrong headlight adapter
12. Plow does not clean-up snow from low areas	a. Joystick controller in neutral	a. Controller should be in the down position (float)
13. In extremely cold temperatures, the oil in the hydraulic system is thickened, causing slow functioning of the plow	a. Cold temperatures	a. As the system warms, the oil will thin out and function normally.
		b. Select Hiniker Cold Flow Hydraulic Oil for plowing in extremely cold temperatures.
14. Pump chatters when raising plow	a. Hydraulic oil low	a. Add hydraulic oil until chattering stops. Do not overfill.
15. Oil running out of cap on hydraulic reservoir	a. Plowing on steeply inclined terrain	a. Avoid excessive inclines or change direction of plowing
	b. Too much oil	b. Remove excess oil
16. Vehicle overheats with the plow on	a. Vehicle coolant level is too low	a. Add coolant
	b. Ice and snow buildup in grill	b. Remove ice and snow
	c. Insufficient airflow to engine compartment	c. Transport plow at lower speeds
17. Plow lights do not operate with plow attached	a. The joystick controller's light switch is in the "truck" position	a. Move switch to "plow" position
	b. Defective relay	b. Replace relay
	c. Faulty light switch on joystick controller	c. Replace controller
	d. Blown 10A fuse on vehicle accessory feed	d. Replace 10A fuse
18. Truck headlights do not operate properly with plow removed	a. The joystick controller's light switch is in the "plow" position	a. Move switch to "truck" position
	b. Defective relay	b. Replace relay
	c. Defective vehicle harness	c. Replace vehicle harness

HINIKER WARRANTY

HINIKER SNOWPLOW LIMITED WARRANTY

The only warranty Hiniker Company (Hiniker) gives and the only warranty that any Hiniker dealer is authorized to give on behalf of Hiniker is as follows: **(NO EMPLOYEE OR REPRESENTATIVE IS AUTHORIZED TO CHANGE THIS WARRANTY IN ANY WAY OR GRANT ANY OTHER WARRANTY.)**

Hiniker warrants to the original purchaser of a Hiniker snowplow that Hiniker will repair or replace any defects in material and workmanship that occur within two years from date of retail delivery except the following items: Hiniker warrants that it will repair or replace any defects in materials or workmanship with respect to the paint finish, any accessories, and service parts and components for a period of one year from date of retail delivery.

Hiniker's obligation and liability under this warranty is expressly limited to repairing or replacing, at Hiniker's option, at an authorized Hiniker dealer location, the defective parts at no charge to the original purchaser. **HINIKER MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED AND MAKES NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR ANY PARTICULAR PURPOSE.**

HINIKER'S OBLIGATION UNDER THIS WARRANTY SHALL NOT INCLUDE ANY TRANSPORTATION CHARGES TO OR FROM THE AUTHORIZED HINIKER DEALER LOCATION OR ANY LIABILITY FOR INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGE OR DAMAGES OF ANY KIND FOR LOST PROFITS OR DELAY. If requested by Hiniker, products or parts for which a warranty claim is made are to be returned freight prepaid to our factory. Any improper use, operation beyond rated capacity, substitution of parts not approved by Hiniker Company, or any alteration or repair in such manner as in our judgment affects the product materially and adversely shall void this warranty.

Hiniker reserves the right to make improvements or changes to any of its products without notice. Such improvements or changes shall not trigger any obligation by Hiniker to update, modify or change any products previously sold by Hiniker.

HINIKER does not warrant the following:

1. Used products.
2. Any product that has been repaired, modified or altered in a way not approved by Hiniker Company.
3. Depreciation or damage caused by normal wear, lack of reasonable and proper maintenance, failure to follow Operators Manual Instructions, misuse, lack of proper protection during storage, or accident.
4. Parts replacement and service necessitated by normal wear or maintenance including, but not limited to, cutting edges, hoses, snowplow skid shoes, blade marker guides and hardware.
5. Paint finish damage caused by normal wear.

Hiniker does not assume any liability for any damage to a motor vehicle resulting from the attachment or use of a Hiniker snowplow. Compliance with applicable motor vehicle regulations is the responsibility of the installer. Attachment of a Hiniker snowplow to a motor vehicle is at the risk of the purchaser.

It is the responsibility of the original snowplow purchaser to verify the original date of purchase.

A DELIVERY REPORT FORM must be filled out and received by Hiniker with 30 days of retail delivery at the address below to initiate the warranty coverage.

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