

**Bobcat®**

# INSTALLATION INSTRUCTION

**Instruction: 7393110enUS****Product: BOBCAT LOADER****Subject: 3RD AUXILIARY VALVE KIT**

<b>Kit Number</b>	7392994
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MODEL	SERIAL NUMBER
FL-7 Front End Loader	B4UZ00101 & Above
FL-8 Front End Loader	B4V100101 & Above

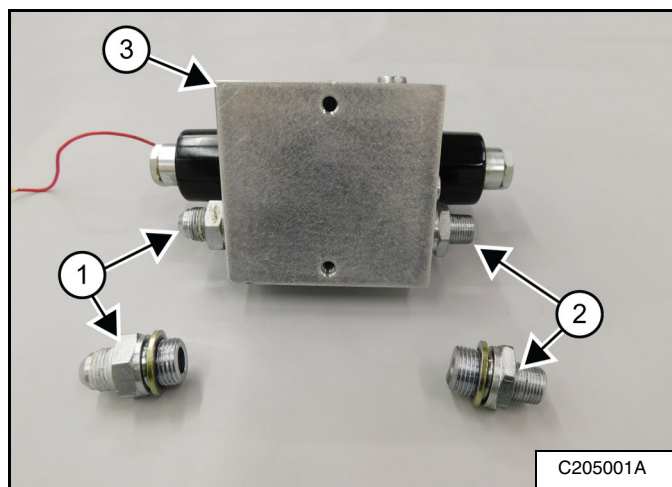
**ESTIMATED INSTALLATION TIME: 2 HOUR\*****\*Approximate time only; actual time may vary.**

**Kit Explanation:** This Installation Instruction will explain how to safely and correctly install the 3rd Function Valve Kit on the compact tractor front end loader.

To avoid duplication, instructions may refer you to the Operation & Maintenance Manual or the Service Manual for more detailed instructions.

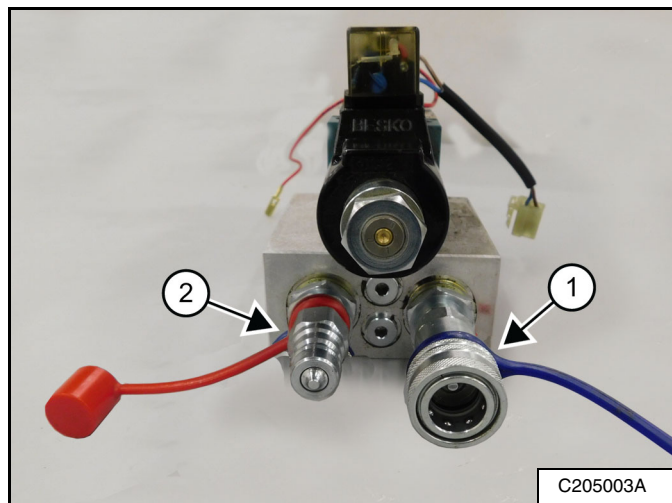
Read this instruction completely to become familiar with the procedures before beginning the installation.

**NOTE:** The loader will need to be disconnected from the compact tractor to install the diverter valve on the right loader upright. See the compact tractor Operation & Maintenance Manual for the correct procedure.

**Figure 1**

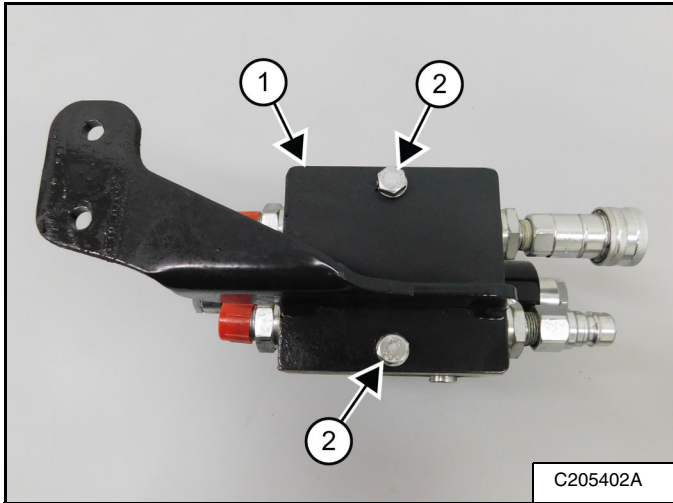
Install the two (3/4-37° flare) fittings (Item 1) and sealing washers into the P and T ports on the diverter valve (Item 3) [Figure 1].

Install the two (PT3/8) fittings (Item 2) and sealing washers into the A1 and B1 ports on the diverter valve (Item 3) [Figure 1].

**Figure 2**

Install the female coupler (Item 1) and the blue coupler plug on the fitting in the B port. Install the male coupler (Item 2) [Figure 2] and the red coupler cap on the fitting in the A port.

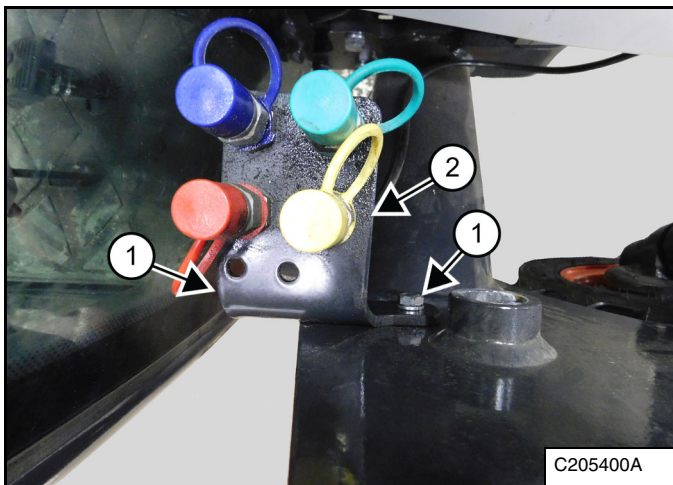
**Figure 3**



Install the bracket (Item 1) with the lock washers and bolts (Item 2) [Figure 3].

Tighten the screws to 24 - 26 N•m (18 - 19 ft-lb) torque.

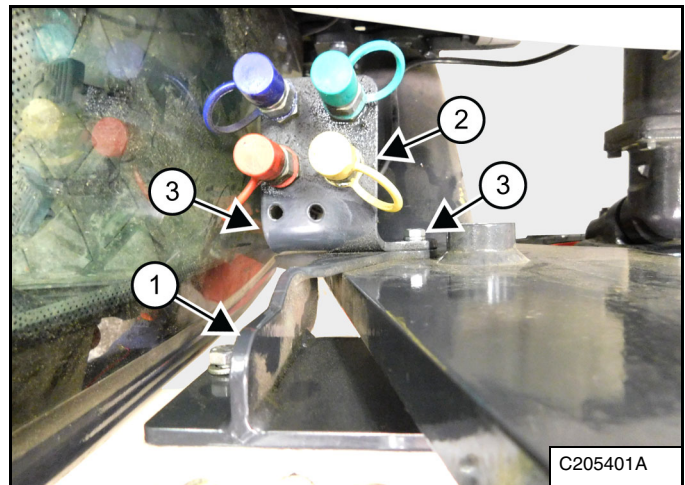
**Figure 4**



The new diverter valve assembly will be installed on the right loader upright.

Remove the two bolts (Item 1) from the loader coupler mount (Item 2) [Figure 4] and discard.

**Figure 5**

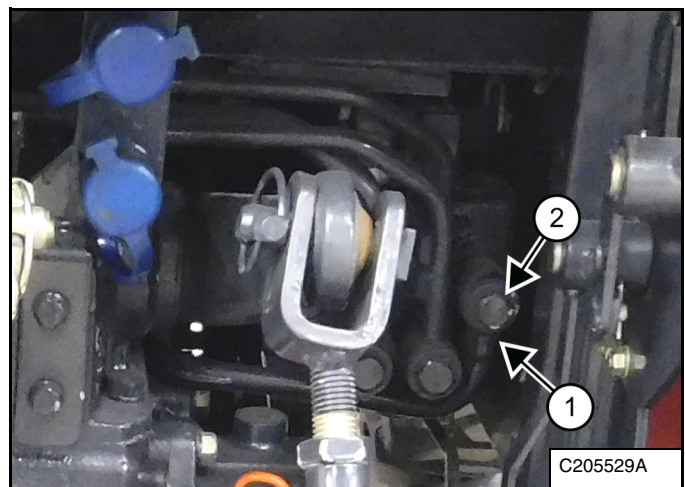


Position the diverter valve / bracket (Item 1) in between the loader coupler mount (Item 2) [Figure 5] and the right loader upright.

Install the two new bolts and lock washers (Item 3) [Figure 5].

Tighten the bolts to 24 - 26 N•m (18 - 19 ft-lb) torque.

**Figure 6**



**NOTE:** For compact tractors that are not equipped with the rear backhoe option, do the following five steps for connecting the hydraulic hoses. If equipped with the backhoe, go to [Figure 11].

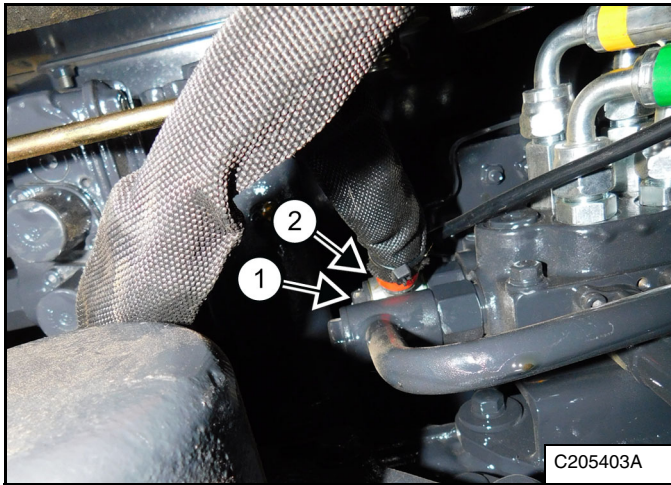
To install the new pressure and return hoses that connect to the diverter valve, the existing tube line (Item 1) [Figure 6] that connects between the rear auxiliary control valve (shown) and the joystick control valve, must be removed.

Remove the banjo fitting bolt (Item 2) [Figure 6] from both ends of this tube line. Save the banjo fitting bolts and O-rings for reuse.

Remove the tube line (Item 1) [Figure 6] and discard.



**Figure 7**

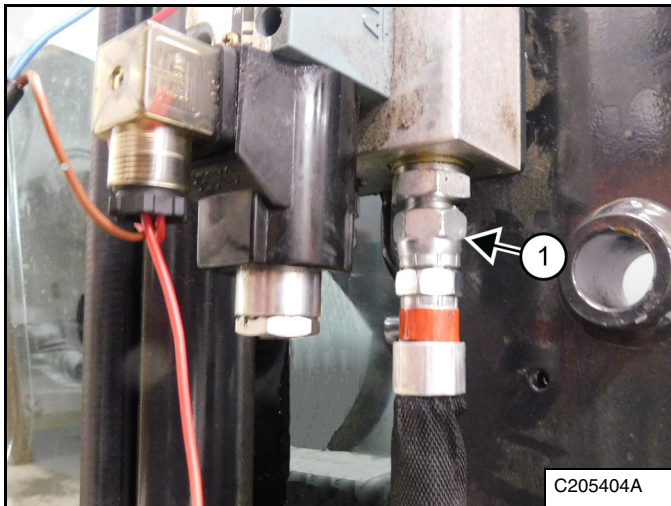


The new hydraulic pressure hose (with the banjo fitting end) will be installed on the top rear port on the joystick control valve (this is the location of tubeline (Item 1) [Figure 6] that was removed) and the hose will be routed forward to the diverter valve P port.

Install the existing O-rings into grooves on the hose banjo fitting and install the hose (Item 2) and the existing banjo fitting bolt (Item 1) [Figure 7]. Tighten the banjo bolt.

Route the hose forward, following the joystick hoses to the new diverter valve - P port.

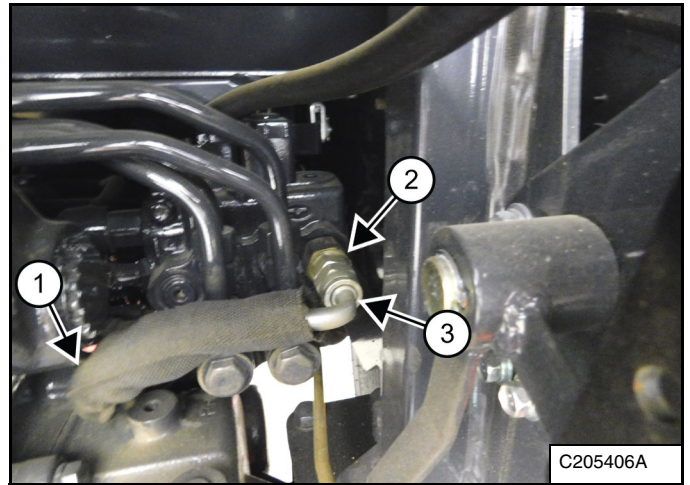
**Figure 8**



Install the opposite end of the hose (Item 1) [Figure 8] on the diverter valve P port.

Tighten the hose to the fittings.

**Figure 9**



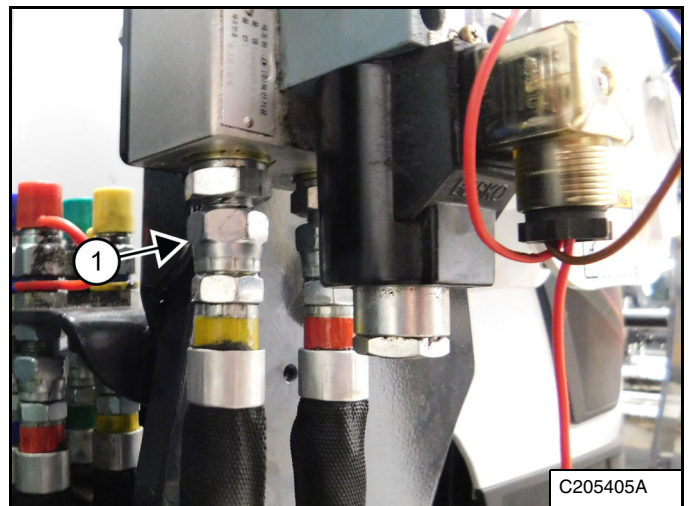
**NOTE: For compact tractors without a backhoe kit installed, use the hose that has one 90° end and a straight hose end.**

At the rear of the compact tractor, insert the straight end of the new hose between the rockershaft and the transmission and route the hose forward to the joystick control valve, and then follow the joystick hoses forward to the diverter valve.

Install the fitting (Item 2) [Figure 9] and the sealing washer and tighten the adapter.

Install the 90° hose end (Item 3) [Figure 9] and tighten the hose.

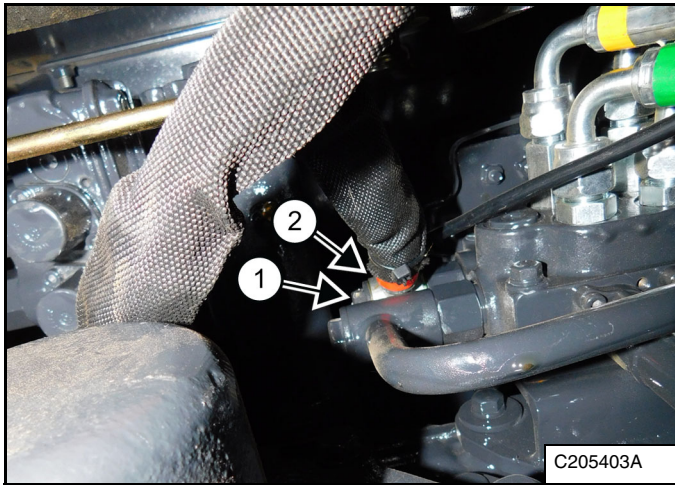
**Figure 10**



Install the opposite end of this hose (Item 1) [Figure 10] to the diverter valve T port. Tighten the hose.



Figure 11

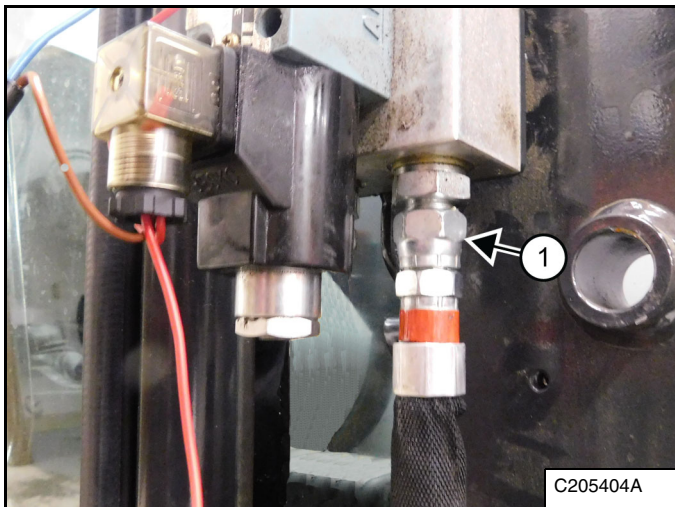


**NOTE:** For compact tractors that are equipped with the rear backhoe option, do the following 4 steps for connecting the hydraulic hoses.

Remove the existing hydraulic hose (Item 2) [Figure 11] and discarded. (This existing hose goes back to the backhoe female coupler with the RED coupler plug. This hose will be replaced by a new hose had connects to the T port on the diverter valve.) Save the banjo fitting bolt and the o-rings for reuse.

Install the existing O-rings into the grooves on the new hose banjo fitting and install the hose (Item 2) and the existing banjo fitting bolt (Item 1) [Figure 11]. Tighten the banjo bolt. Route this hose forward to the diverter valve P port.

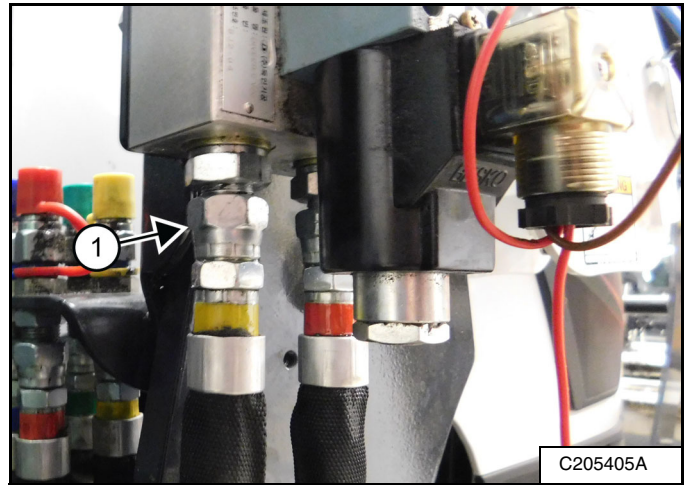
Figure 12



Install the opposite end of the new hose (Item 1) [Figure 12] on the diverter valve P port.

Tighten the hose to the fittings.

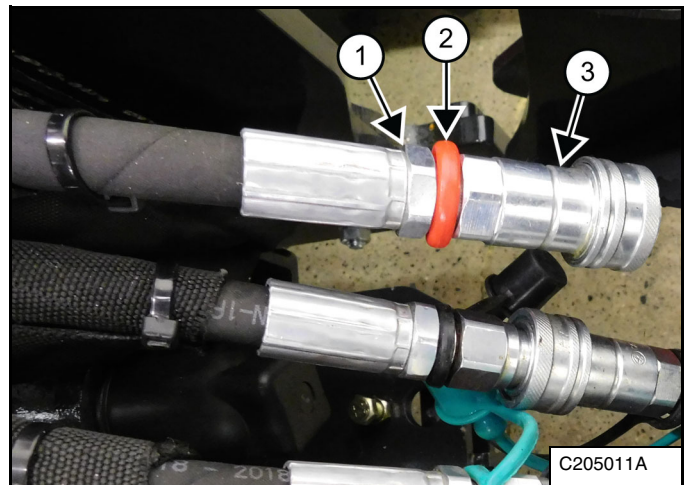
Figure 13



Install the new hose (Item 1) [Figure 13] (the hose with straight fittings on both ends from the kit that is 2600 mm (102 in) long) to the diverter valve T port. Tighten the hose.

Route the hose (Item 1) [Figure 13] following the joystick hoses towards the rear of the compact tractor and then out the back of the compact tractor following the backhoe hoses.

Figure 14



With the hose (Item 1) routed out the back of the rear of the machine, install the red coupler plug (Item 2) and the female coupler (Item 3) [Figure 14] on the hose.

Tighten the hose to the coupler and also to the diverter valve fitting. See [Figure 17] for installing tie-straps.

**NOTE:** The coupler (Item 3) [Figure 14] will be installed into the existing backhoe hose coupler (with the red coupler cap). Connect the two couplers together at the backhoe.

**FOR ALL MODELS:**

**Figure 15**



Remove the existing joystick handle and lock nut and discard.

Install the shaft adapter (Item 1) and new the lock nut (Item 2) **[Figure 15]**.

Install the new joystick handle (Item 3) and then tighten the lock nut (Item 2) **[Figure 15]** to secure the joystick handle in the position shown.

Route the handle harness along the joystick shaft and down to the rubber boot (Item 5) **[Figure 15]**. Insert the ends of the harness into the rubber boot.

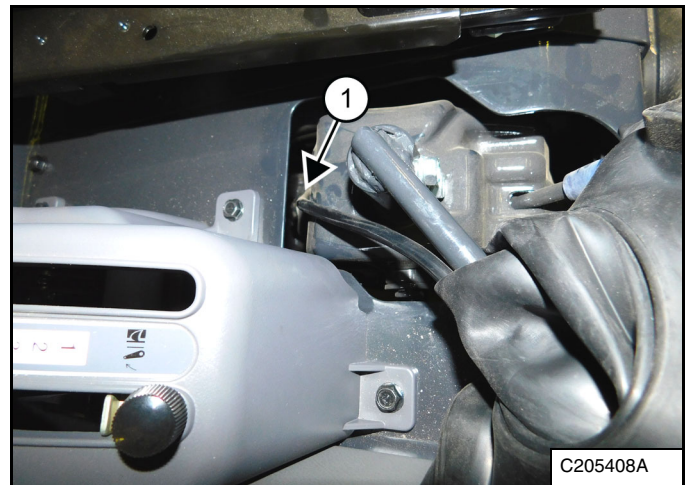
Install the conduit (Item 4) **[Figure 15]** over the harness and shaft.

Install the hose clamp (Item 6) **[Figure 15]** to secure the harness and conduit to the shaft.

Use electrical tape to secure the conduit at the top of the shaft (Item 7) **[Figure 15]**.

Pull the rubber boot away from the floor plate to continue routing the harness.

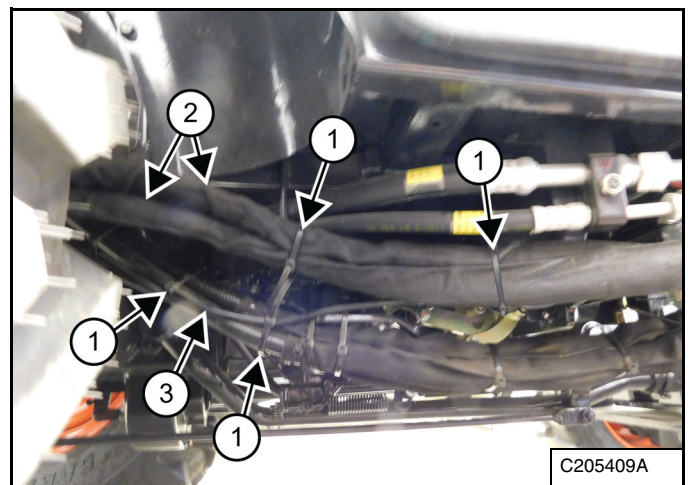
**Figure 16**



Continue to route the harness (Item 1) **[Figure 16]** down along the joystick control valve. The route the harness forward along the joystick hoses to the diverter valve.

Reinstall the rubber boot to the floorplate.

**Figure 17**



Use cable ties (Item 1) as necessary to secure the new hoses (Item 2) and the new harness (Item 3) **[Figure 17]** to existing hoses between the joystick control valve and the diverter valve.

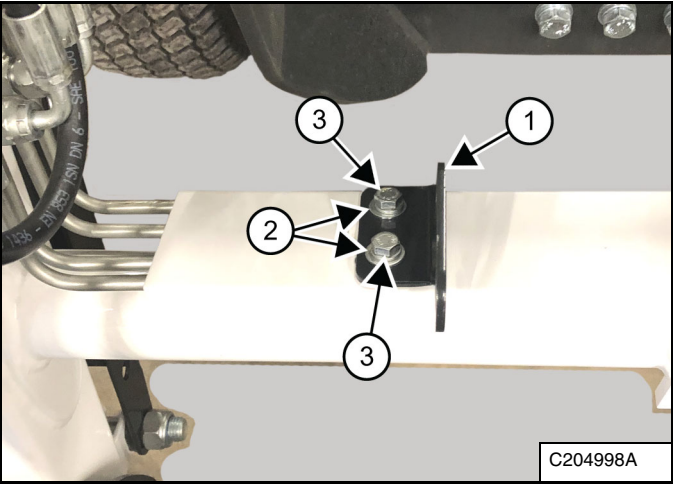
Do not let the new hoses contact hot or rotating parts when securing with the cable ties.

Make sure all hose connections are tightened.

Reinstall the loader onto the compact tractor now before continuing the installation of the kit. See the compact tractor Operation & Maintenance Manual for the correct procedure.

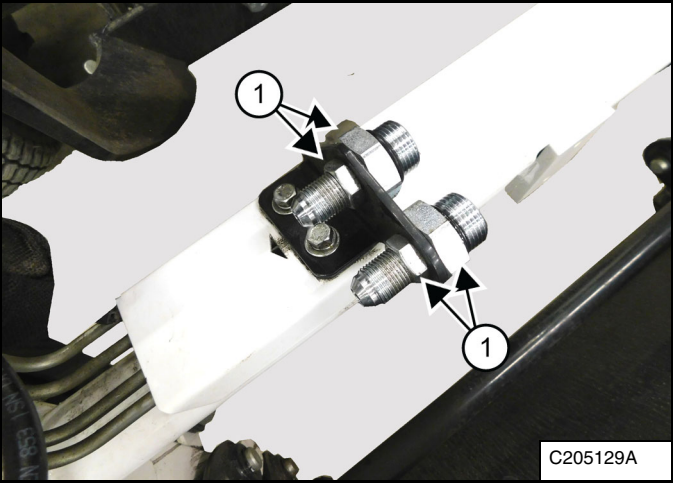


Figure 18



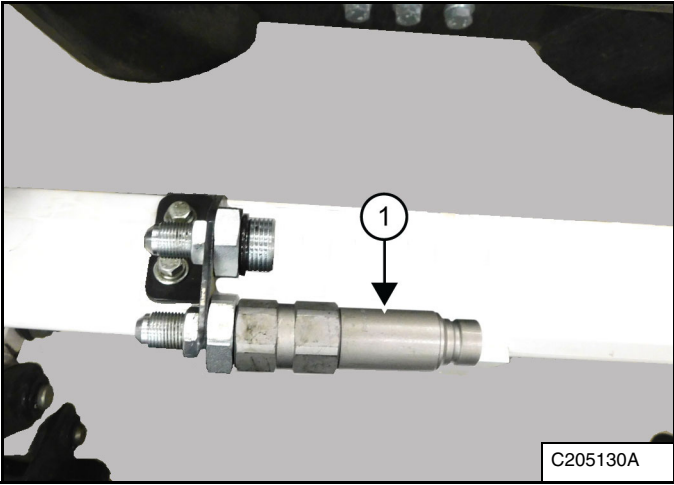
At the front loader cross member, install the bracket (Item 1) using the lock washers (Item 2) and bolts (Item 3) [Figure 18] to the front loader tubeline cover.

Figure 19



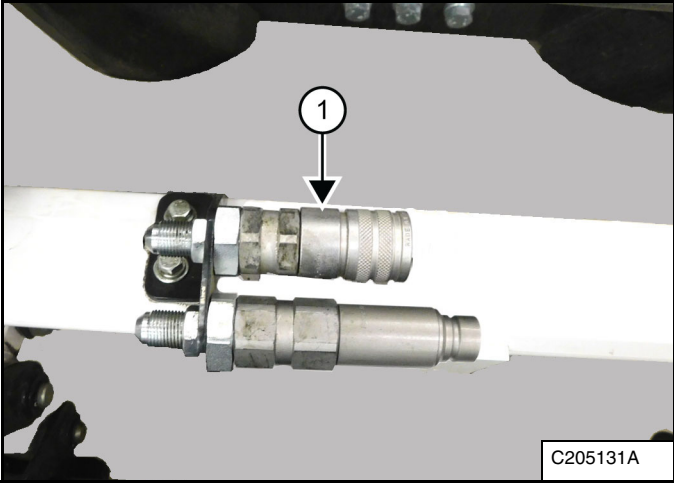
Install the two bulk head fittings (Item 1) [Figure 19] and jam nuts to the bracket.

Figure 20



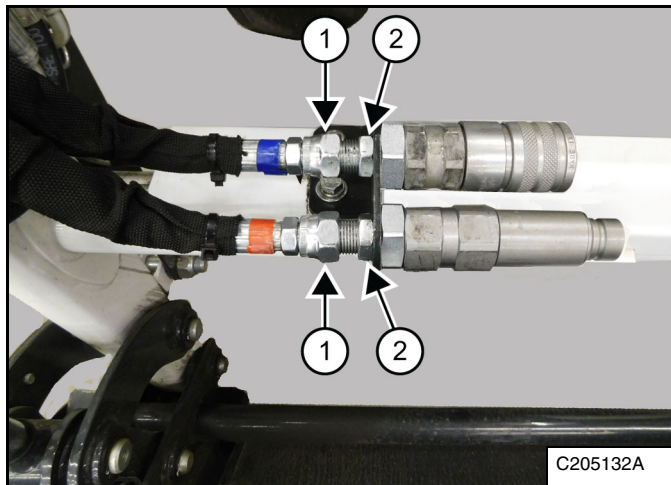
Install the male coupler (Item 1) [Figure 20] and tighten.

Figure 21



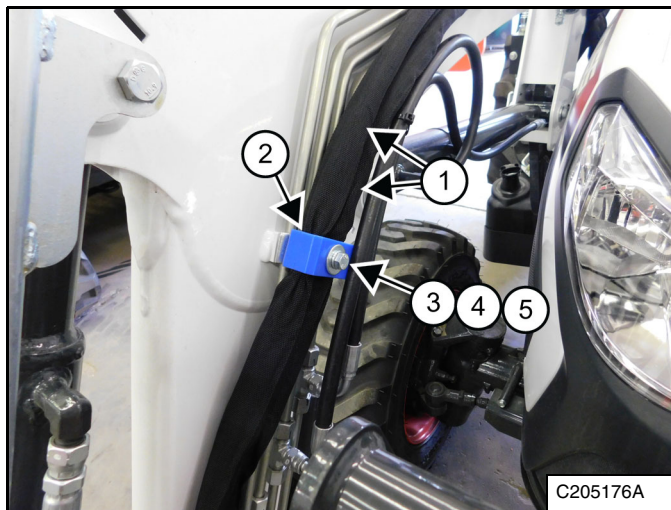
Install the female coupler (Item 2) [Figure 21] and tighten.

**Figure 22**



Install the two hoses (Item 1) to the bulk head fittings (Item 2) [Figure 22].

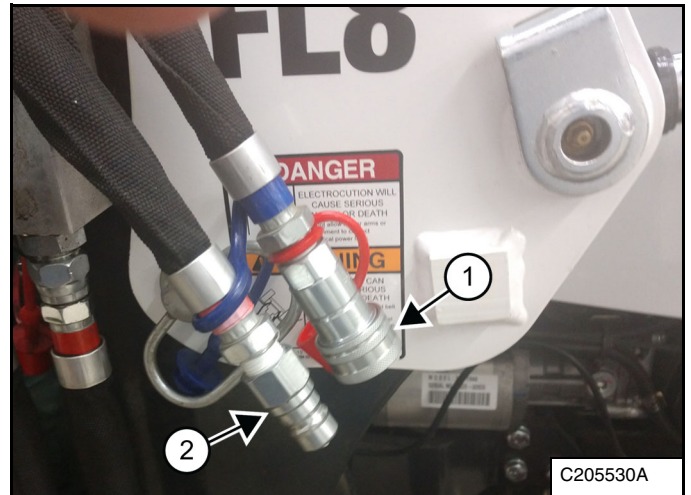
**Figure 23**



Route the two hoses (Item 1) [Figure 23] up the lift arm following the tubelines, through the existing hose retainer (at the right loader upright) and down to the diverter valve.

Remove the existing bolt (two places) and install the new clamps (Item 2), washer (Item 3), lock washer (Item 4) and bolt (Item 5) [Figure 23]. Do not tighten the bolt at this time. The hoses will need to be adjusted later.

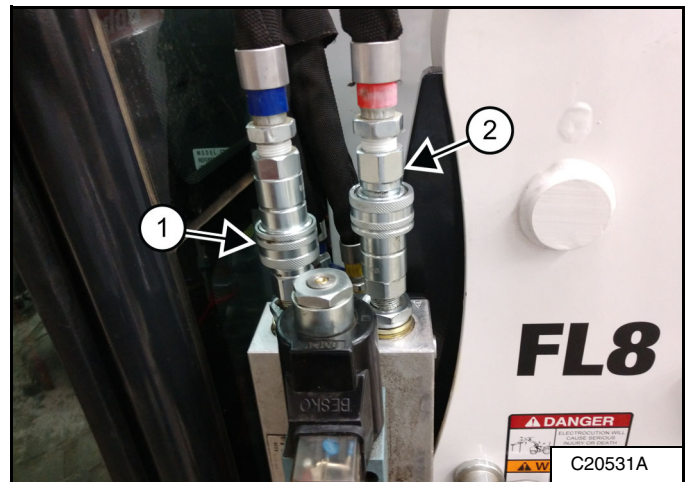
**Figure 24**



Install the female coupler (Item 1) [Figure 24] and the red coupler plug on the hose that connects to the male coupler on the opposite end of the hose.

Install the male coupler (Item 2) [Figure 24] and the blue coupler cap on the hose that connects to the female coupler on the opposite end of the hose.

**Figure 25**



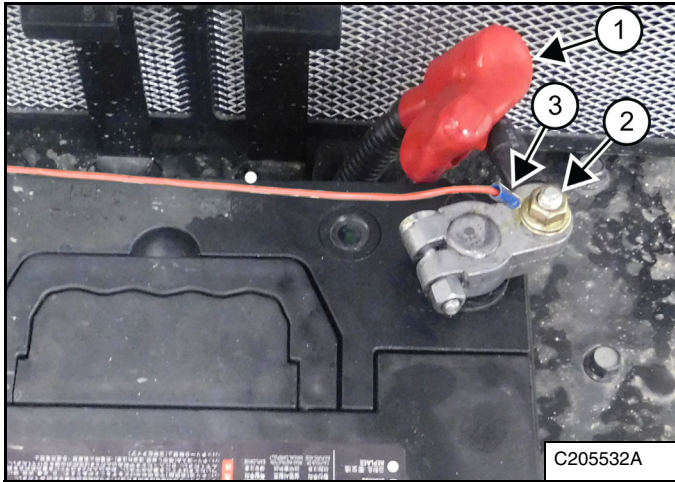
Connect the female coupler (Item 1) [Figure 25] to the diverter valve male coupler

Connect the male coupler (Item 2) [Figure 25] to the diverter valve female coupler

Adjust the two hoses (Item 1) [Figure 23] so they route smoothly through the hose retainer, along the loader arm, down to the front loader mounting bracket and so the hoses do not contact any moving parts. Tighten the two bolts (Item 5) [Figure 23] to secure the hoses.



**Figure 26**



Open the engine cover.

Reposition the air cleaner out of the way to access the battery cables.

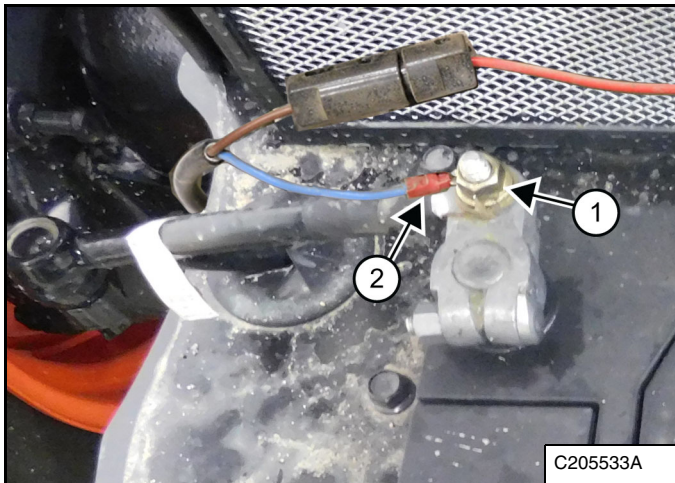
Pull back the red (+) battery cable cover (Item 1) [Figure 26].

Remove the nut (Item 2) [Figure 26] from the positive battery cable clamp.

Install the red wire eyelet (Item 3) (the wire with the fuse holder) and reinstall the nut (Item 2) [Figure 26] and tighten.

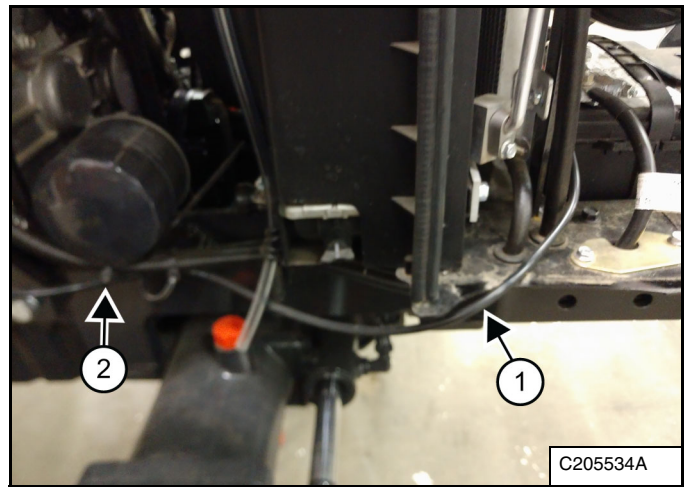
Reinstall the red cover (Item 1) [Figure 26].

**Figure 27**



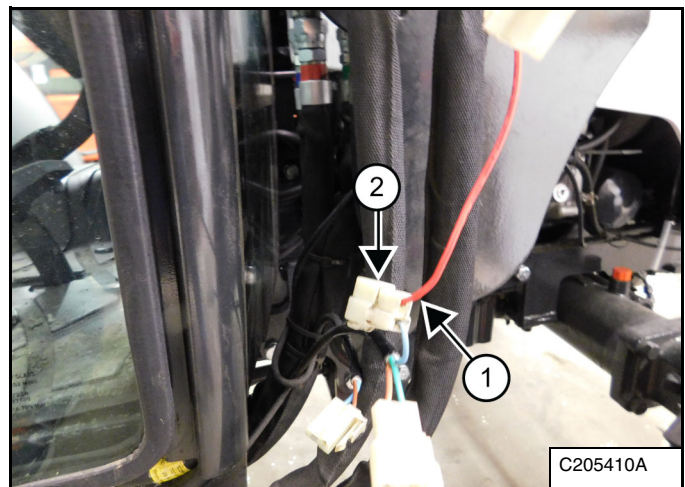
Remove the nut (Item 1) from the negative battery cable. Install the ground wire eyelet (Item 2) and reinstall the nut (Item 1) [Figure 27] and tighten.

**Figure 28**



Route the power harness (Item 1) around the radiator and back along the frame (Item 2) [Figure 28] to the diverter valve. Use tie-straps as necessary to secure the harness away from hot and moving components.

**Figure 29**

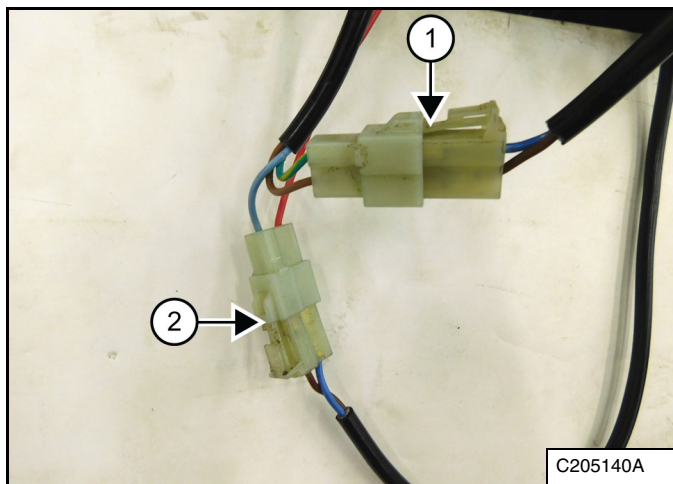


Insert the red wire (Item 1) from the diverter valve into the new harness connector (Item 2) [Figure 29].

**NOTE:** See wire harness schematic [Figure 33] for the correct wire to connector configurations.



**Figure 30**

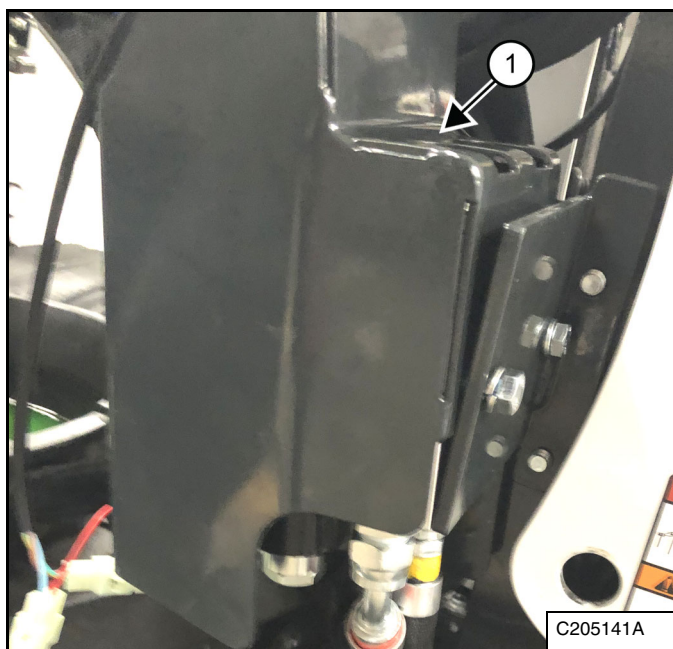


Connect the joystick harness (Item 1) **[Figure 30]** to the diverter valve solenoid harness.

Connect the harness (with the red wire from the diverter valve) connector (Item 2) **[Figure 30]** to the battery power harness.

Use additional tie-straps as needed to secure the harnesses at the diverter valve.

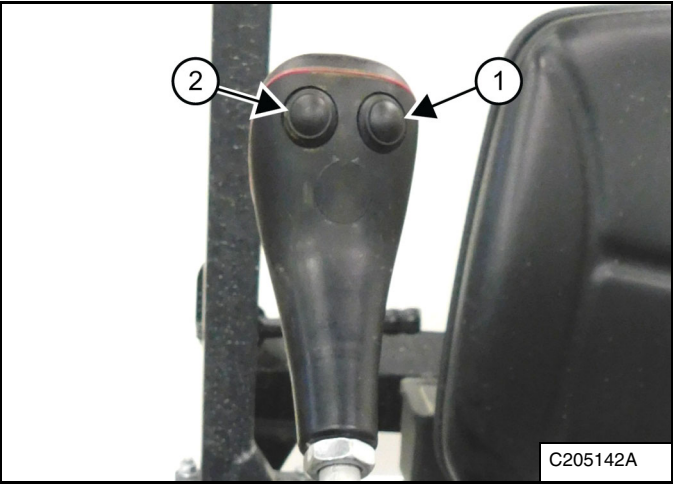
**Figure 31**



Install the cover (Item 1) **[Figure 31]** over the diverter valve.

Operation

Figure 32

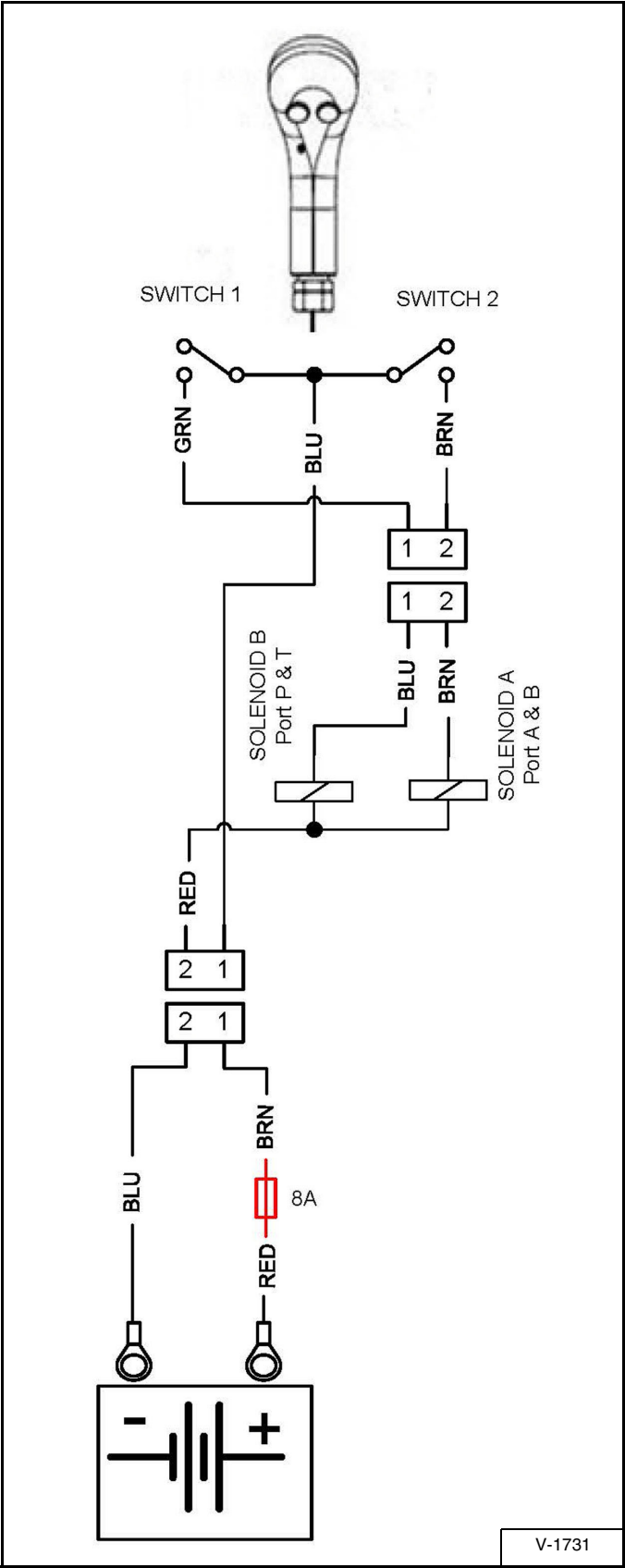


Pressing button (Item 1) [Figure 32] supplies pressure to the female coupler.

Pressing button (Item 2) [Figure 32] supplies pressure to the male coupler.

Electrical Schematic

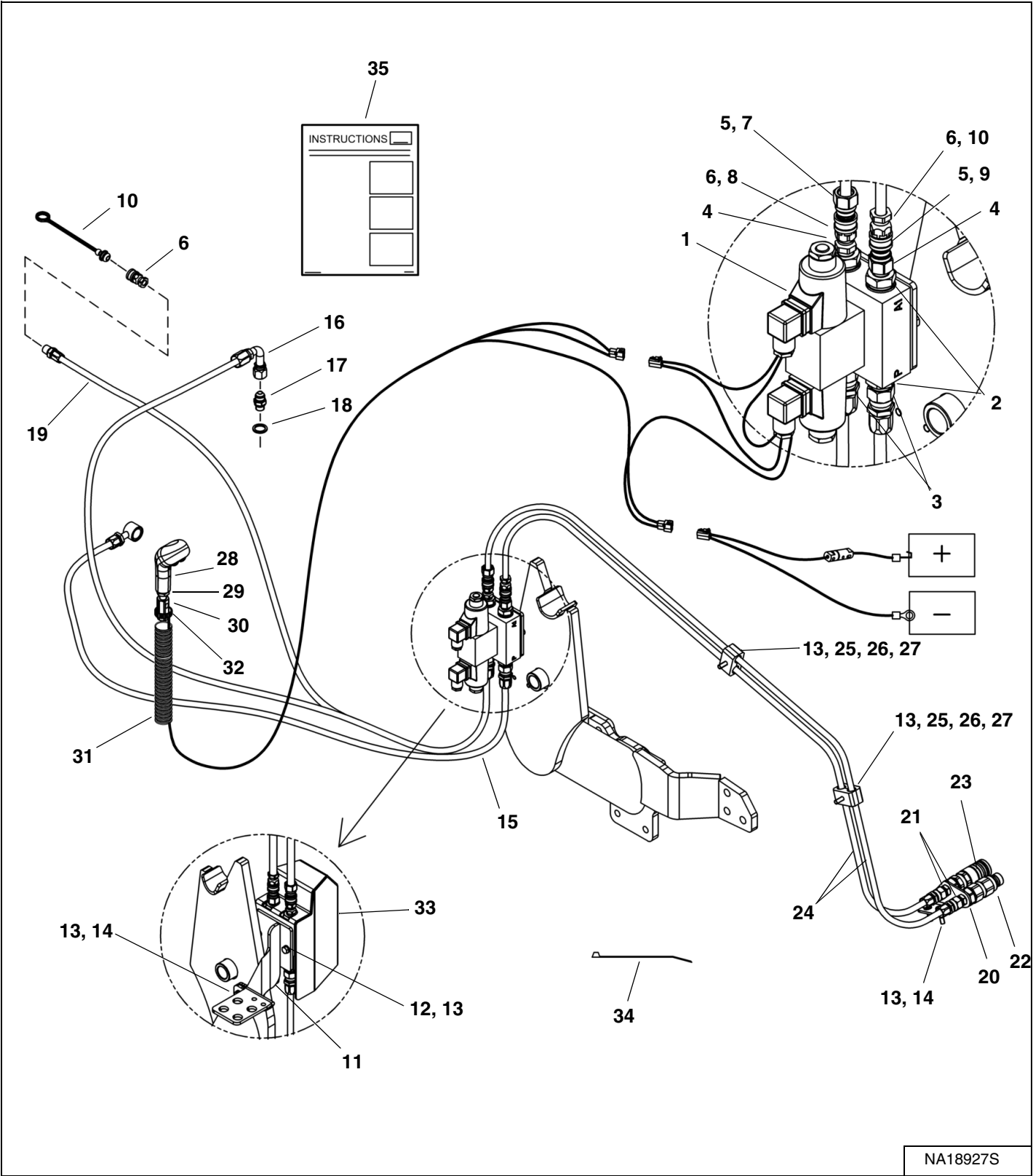
Figure 33





CUSTOMER PACKING LIST

(Kit #7392994) 3rd Auxiliary Valve Kit



NA18927S

## CUSTOMER PACKING LIST (CONT'D)

(Kit #7392994) 3Rd Auxiliary Valve Kit (Cont'd)

REF.	PART NO.	DESCRIPTION	QTY.
1		DIVERTER VALVE	1
2		SEALING WASHER	4
3		FITTING	2
4		FITTING	2
5		COUPLER, MALE	2
6		COUPLER, FEMALE	3
7		CAP, BLUE	1
8		PLUG, BLUE	1
9		CAP, RED	1
10		PLUG, RED	2
11		MOUNT, DIVERTER VALVE	1
12		BOLT, M8 X 25 MM	2
13		LOCK WASHER	8
14		BOLT, M8 X 30 MM	4
15		HOSE, 1600 MM	1
16		HOSE, 1800 MM (USE WITHOUT BACKHOE OPTION)	1
17		ADAPTER	1
18		SEALING WASHER	1
19		HOSE, 2600 MM (USE WITH BACKHOE OPTION)	1
20		MOUNT, COUPLER	1
21		FITTING, BULKHEAD	2
22		COUPLER, MALE	1
23		COUPLER, FEMALE	1
24		HOSE, 2100 MM	2
25		CLAMP, HOSE	4
26		BOLT, M8 X 60 MM	2
27		WASHER	2
28		HANDLE WITH HARNESS	1
29		NUT, LOCK	1
30		ADAPTER	1
31		CONDUIT	1
32		CLAMP	1
33		COVER	1
34		TIE-STRAP	20
35	7393110enUS	INSTRUCTIONS	1