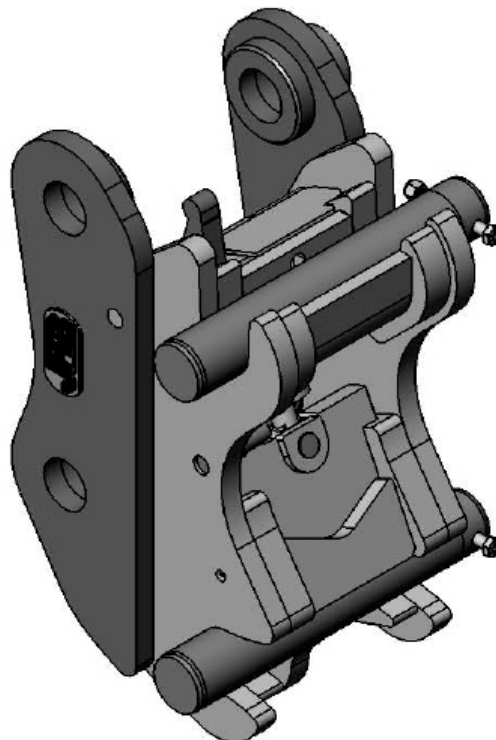




SMARTLOC REPAIR AND PREVENTATIVE MAINTENANCE GUIDE



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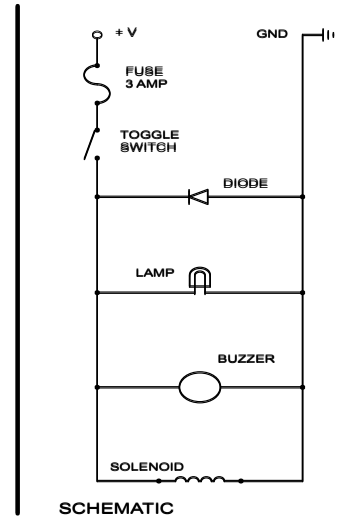
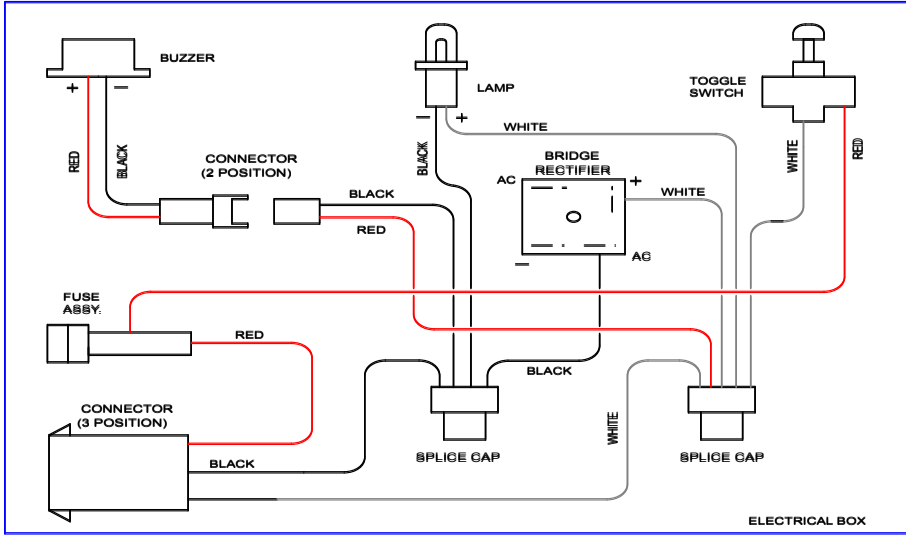
**MAINTENANCE INSTRUCTIONS - ELECTRICAL
PARTS LIST**

ITEM	QTY.	PART NUMBER	DESCRIPTION
●	1	A28827	ELECTRICAL BOX ASSEMBLY (Items 1-15)
1	1	●A28828	Front Cover, Electrical Box
2	1	●A28829	Rear Cover, Electrical Box
3	1	●A22113	Light Assembly, Red Indicator, 24V
4	1	●A18182	Toggle Switch
5	1	●A25945	Fuse Holder, Panel Mount, (46023)
6	1	●EM00003	Fuse, 5 AMP AGC 1/4" x 1-1/4"
7	1	●A25940	Buzzer, 24V-400Hz, (623-1904)
8	2	●106003480038	Screw, SHCS 3-48 x 3/8", (23033)
9	2	●162003000000	Lockwasher, #3, (33604)
10	2	●143003480000	Nut, 3-48, (36008)
11	1	●A28843	Bridge Rectifier, 15A, (646-775)
12	1	●148006320000	Locknut, 6-32, (37010)
13	8	●216060320038	Machine Screw, Metric, 6-32 x 3/8"L.g. (PanPhillips Type F)
14	1	●A22114	Decal, (Lock/Unlock)
15	1	●A28842	Wire Harness Assembly, Internal
16	4	120010240075	Screw, Hex Head Ctng. 10-24 x 3/4", (31951)
17a	*1	A29144-3	Mounting Bracket, Electrical Box, 3" x 8"
17b	*1	A29144-2	Mounting Bracket, Electrical Box, 3" x 6"
17c	*1	A29144-1	Mounting Bracket, Electrical Box, 3" x 4"
17d	*1	A29145	Mounting Bracket, Electrical Box
18	1	B21913	Cable Assembly
19	1	ET0048-02	Pin Housing, Female
20	2	ET0038-02	Pin, Female Connector
21	2	ET0044-02	Seals, Rubber Grommet

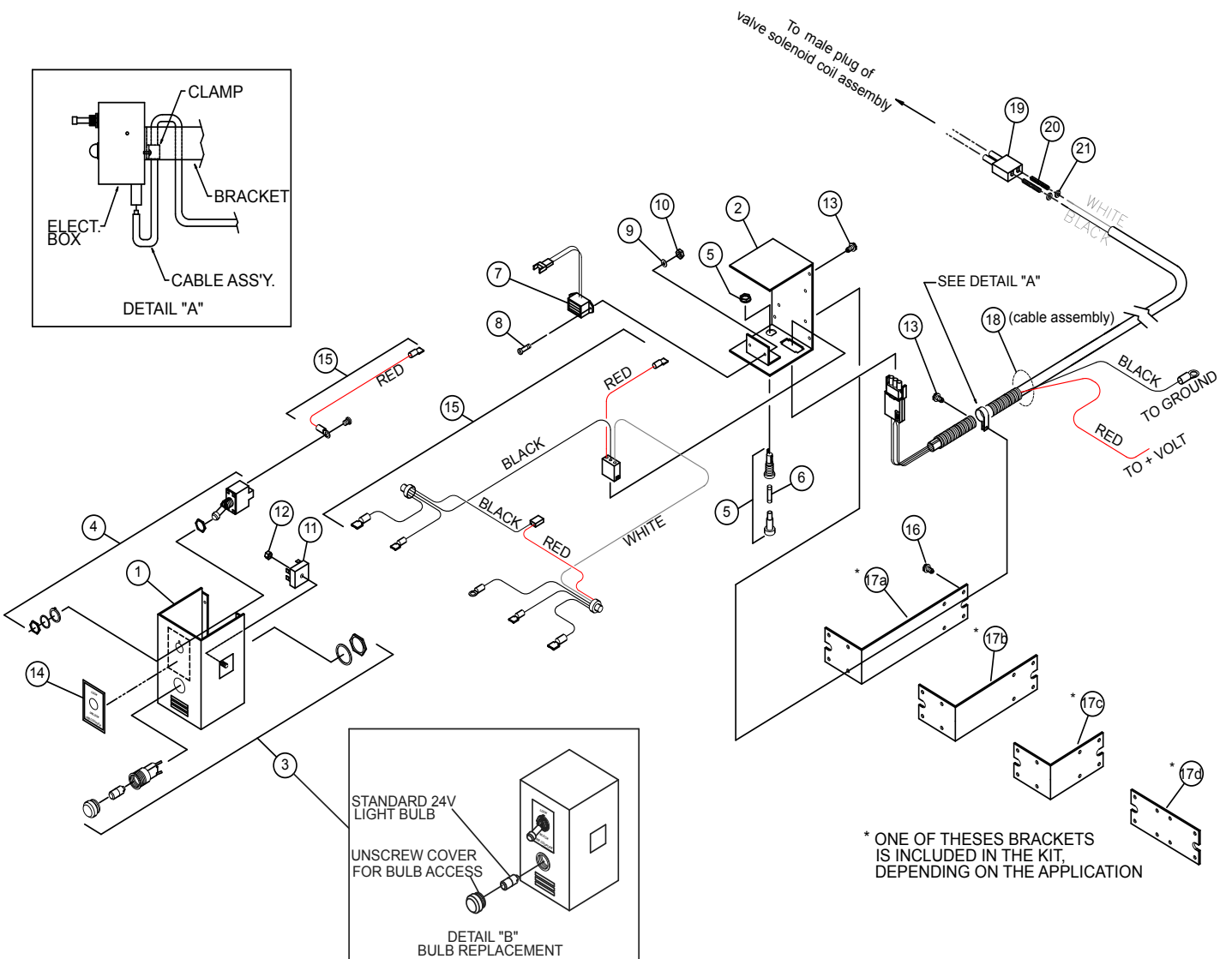
elect401

* For specific mounting bracket used, see your "Hydraulic Installation Kit" parts list in your manual.
• Denotes subassembly of a previous item.

ELECTRICAL SCHEMATIC

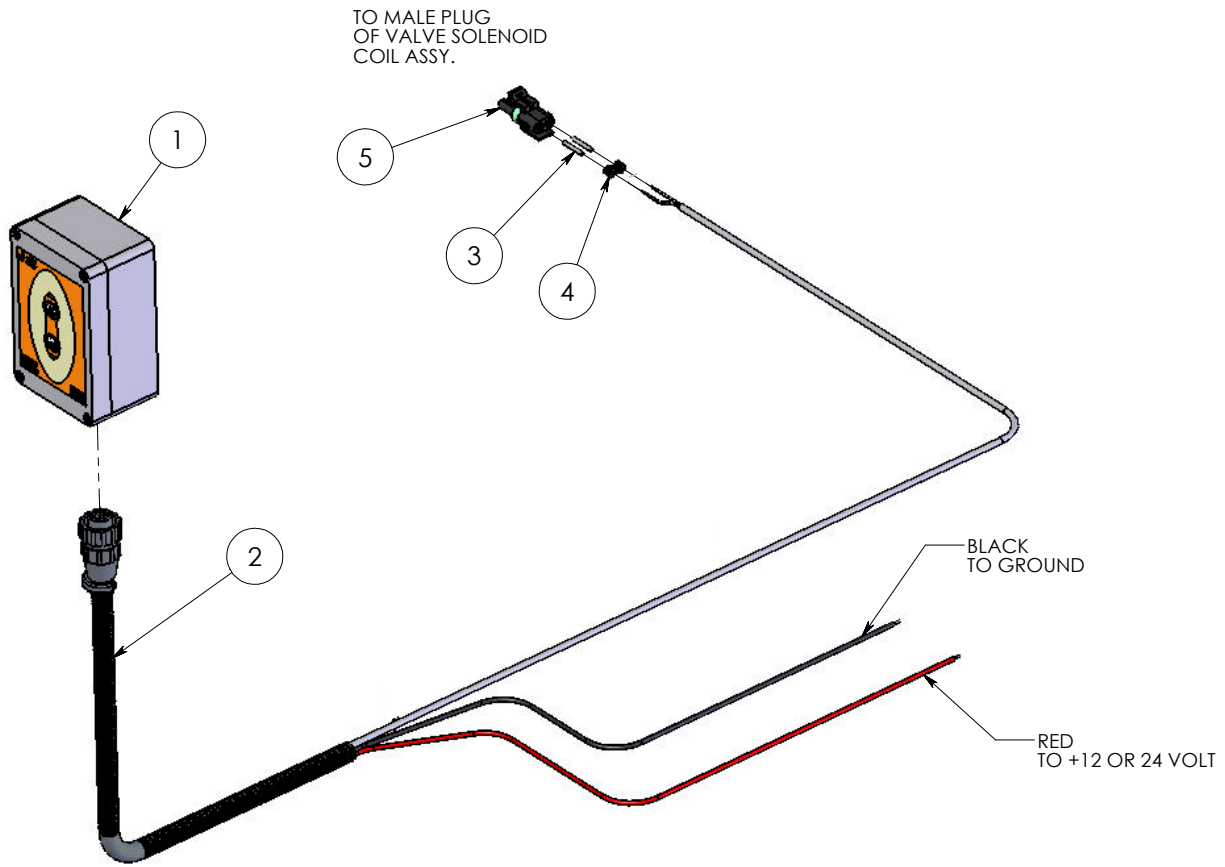


WIRING DIAGRAM



ELECTRICAL CONTROL BOX KIT 94B0001

This insert describes the new JRB control box kit 94B0001, which has replaced electrical box assembly A28827. The parts information below supercedes that found in your Hydraulic Kit Installation Manual. Follow the instructions in this insert for installation, operation and troubleshooting of this new control box. Contact JRB customer service at 1-800-428-2538 with any questions or problems.



ITEM	QTY	PART NUMBER	DESCRIPTION
•	1	94B0001	ELECTRICAL KIT, EXCAVATOR COUPLER CONTROL
1	1	A45645-3	JRB Coupler Control Box
2	1	B31583	Wire Harness Assembly
3	2	ET0038-02	Female Terminal, Packard #12089188
4	2	ET0044-02	Cable Seal
5	1	ET0048-02	Female Body, Packard #12015792



REPLACEMENT KIT 91V0963 SMARTLOC® COUPLER CONTROL BOX

This replacement kit contains parts needed to replace JRB electrical box A28827 with new control box A45645-3. The following pages contain instructions on installation, operation and troubleshooting. Please read these instructions in their entirety prior to installation. Contact JRB customer service at 1-800-428-2538 with any questions or problems.

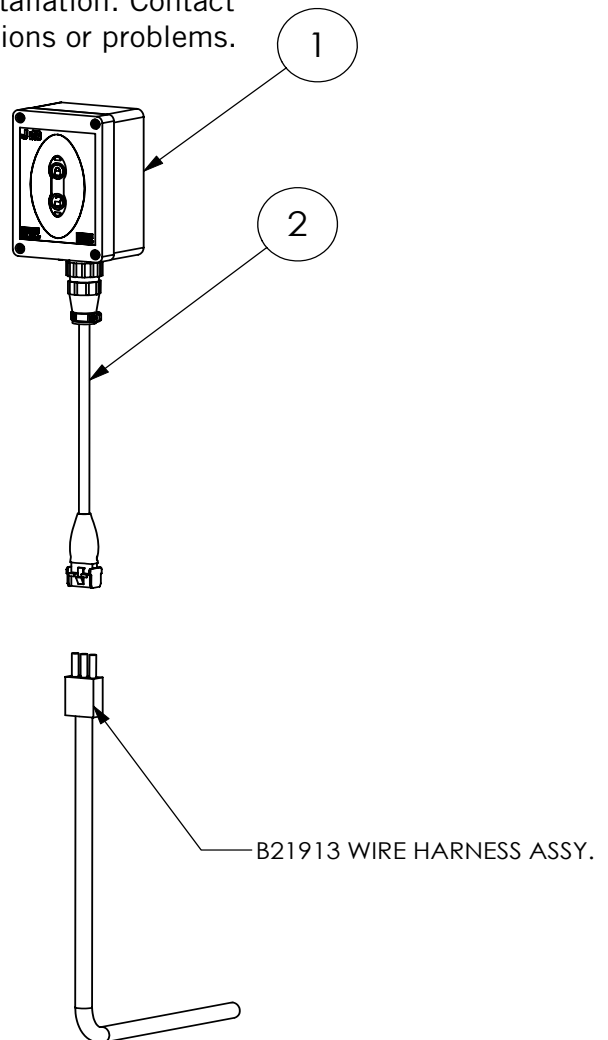
INSTALLATION

Disconnect the electrical box being replaced from existing wire harness B21913 and unbolt it from the mounting bracket (if applicable).

Using mounting bracket provided, install new control box inside the machine cab. Follow the instructions in your installation kit manual for proper placement of the control box in the machine cab.

Use the short wire harness provided (Item 2) to connect the new control box to the existing harness as shown.

NOTE: Included with this kit is a packet containing new safety decals and operator's handbook. Replace existing decals and handbook with these items at time of install. Reference page 3 of this insert for decal information.

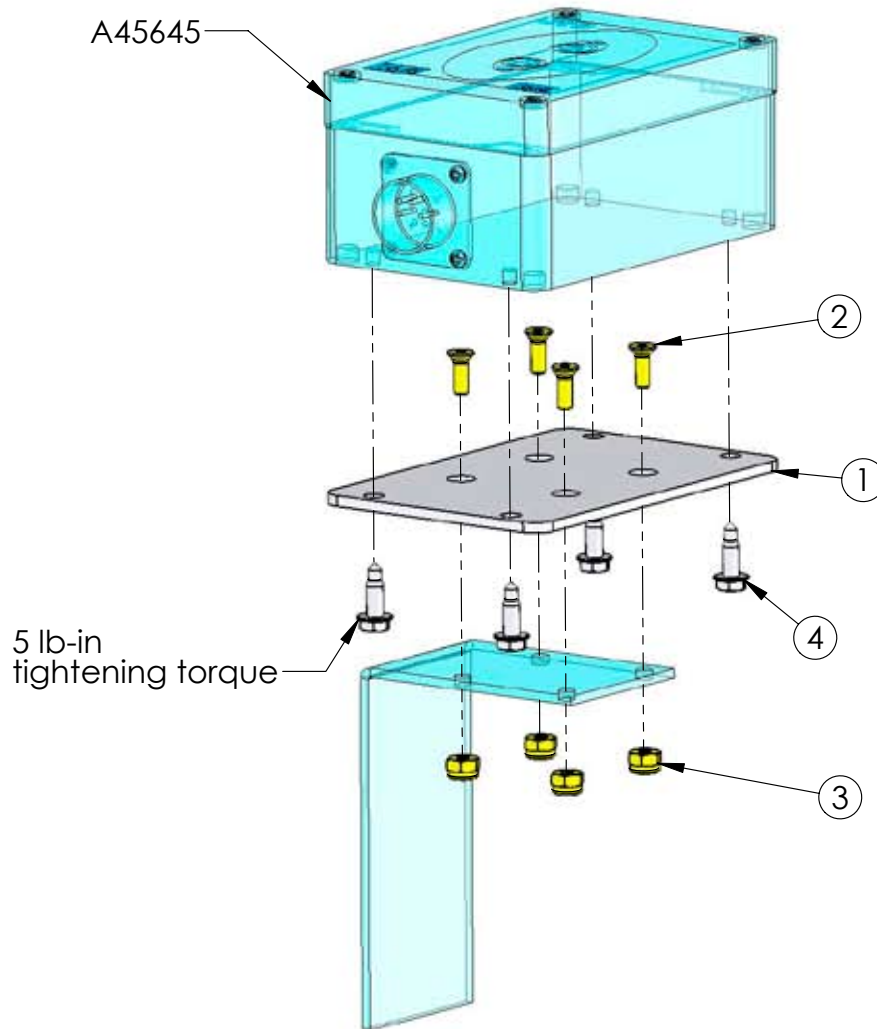


ITEM	QTY	PART NUMBER	DESCRIPTION
•	1	91V0963	SMARTLOC® COUPLER CONTROL BOX REPLACEMENT KIT
1	1	A45645-3	JRB Coupler Control Box
2	1	B31582	Control Box Connector Adapter
3	1	91V0966	Decal Kit, Machine Cab
4	1	91V0963.indd	Installation Instructions

INSTALLATION

If your installation kit provides a mounting bracket for the old electrical box A28827, the use of an adapter kit is needed to use that same bracket to mount this new control box. See the information below for adapter kit 91V0964. Follow the instructions in your installation kit manual for placement of the mounting bracket in the machine cab.

If your installation kit does not provide a mounting bracket or if you do not want to use the adapter kit, the new control box is provided with double sided tape on the back. Peel off the protective paper to adhere the control box in position. Follow the instructions in your installation kit manual for proper placement of the control box in the machine cab as well as connecting to machine wiring and solenoid valve.



ITEM	QTY	PART NUMBER	DESCRIPTION
•	1	91V0964	COUPLER CONTROL BOX BRACKET ADAPTER KIT
1	1	A59880	Bracket Adapter
2	4	107008320050	SHCS, Flat Head, 8-32 x 0.50 GR8 Zinc Plated
3	4	148008320000	Hex Nut, Nylon Insert, 8-32 GR8 Zinc Plated
4	4	131010320063	Screw, Thread Cutting, 10-32 x 0.63 Lg. Zinc Plated

OPERATION

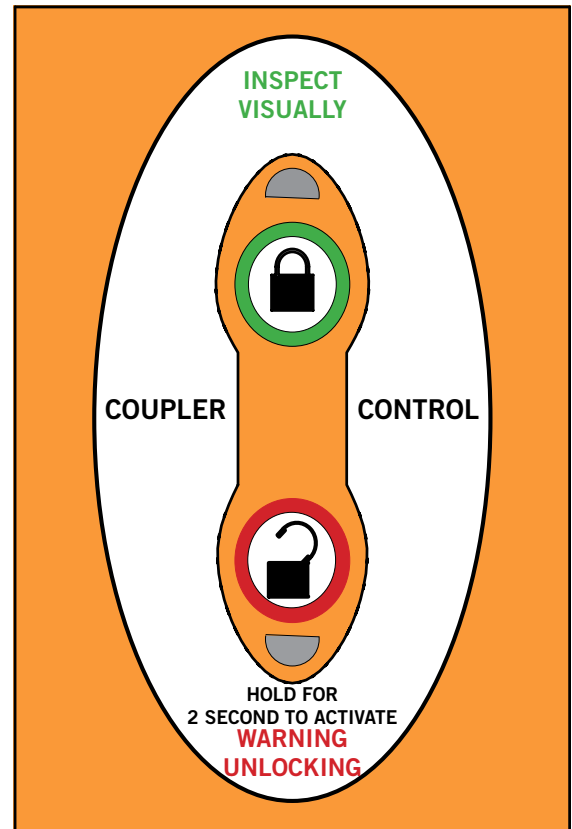
Unlocking Procedure:

The UNLOCK switch must be pressed for two (2) seconds to activate unlocking sequence. This will prevent accidental unlocking of the coupler if the switch is inadvertently pressed.

When the UNLOCK switch is pressed for two (2) seconds, the red UNLOCK LED will turn on and stay on and the solenoid will become energized. The solenoid will remain energized during the UNLOCK mode. An internal buzzer will sound and will remain on as long as the box is in the UNLOCK mode. A “WARNING UNLOCKING” statement, just below the UNLOCK button, will light up in red.

Locking Procedure:

When the LOCK switch is activated, the solenoid is de-energized and the green LOCK LED will blink for 5 seconds followed by an audio blip. The green LOCK LED will then remain on. Above the LOCK button, an “INSPECT VISUALLY” statement will light up during the 5 second lock process. The LOCK switch can be pressed at any time to trigger the lock sequence.



TROUBLESHOOTING

If an error occurs in the control box circuit, a continuous audible alarm will sound and signal lights will either flash or remain on. Perform the following steps to try to determine the cause of the error.

1. Check wiring harness for any damage. Physical damage to harness might cause shorted or open circuit.
2. Check the control box for any damage. If any part of the box is cracked or broken, the box will need replaced.

If the problem was with the wiring harness and it has been fixed, RESET the error condition by doing the following:

1. Switch the machine ignition OFF
2. While holding down the LOCK and UNLOCK buttons, switch the ignition ON.

If the alarm persists, call JRB customer service.

NOTICE

DO NOT try to override the control and connect the valve coils directly to voltage. Doing so could cause damage to the control box.

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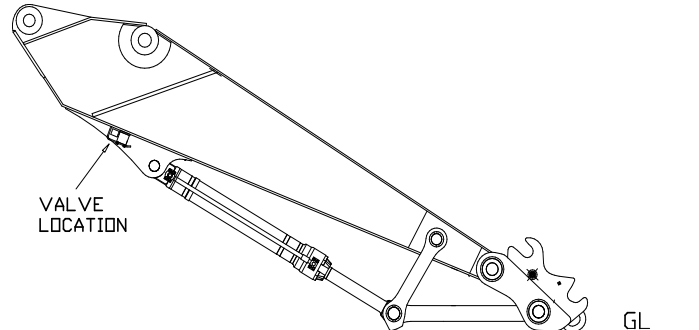
SOLENOID VALVE

Valve Assembly:

The valve is comprised of the manifold, spool, check valves, solenoid, shuttle valve, and electrical connector. If necessary, the electrical connector and the solenoid can be purchased separately as replacement items.

Valve Inspection:

Position stick as shown so the coupler is resting on ground with the valve mounting location at a height comfortable for working. With the machine off, move both hydraulic control levers in the cab in such a manner as to relieve pressure in the system. A relaxing of the arm and boom should be noticeable.



WARNING

HIGH PRESSURE HYDRAULIC FLUID CAN CAUSE SERIOUS INJURY OR DEATH IF NOT RELIEVED PRIOR TO DISCONNECTING HOSES OR FITTINGS.

Note: When handling any hydraulic component, it is important to maintain cleanliness of the component in order to prevent possible contamination of the hydraulic system.

TESTING THE SOLENOID WITH AN OHMMETER

STEP 1:

- Remove solenoid from valve assembly by using a small wrench on the retaining nut and inspect for damage.

STEP 2:

- Use an ohmmeter to check the resistance of the coil, set meter for low resistance.
- Connect positive lead to terminal #1 and negative lead to terminal #2.

The coils resistance should be approx. 30 ohms.

- If reading is zero, coil is shorted - replace solenoid.
- If reading is infinity, coil is open (broken) - replace solenoid. Tighten retaining nut a maximum of 5 foot pounds. This is slightly more than finger tight.



ALTERNATIVE METHOD FOR TESTING THE SOLENOID

STEP 1:

- Energize the coil by placing switch into the unlock position with the machine on.

STEP 2:

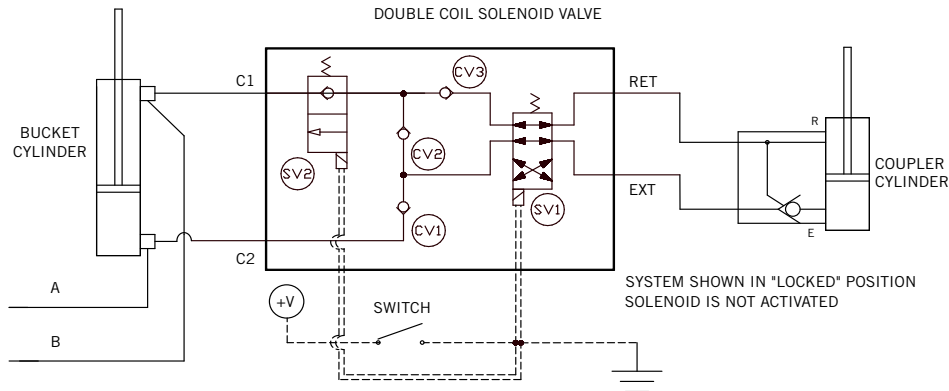
- Using a screwdriver or a pocketknife, check for magnetism on the end of the solenoid tube.
- An audible “click” may be heard when the solenoid is energized.
- If there is no magnetic pull, there is either a wiring problem or the coil is bad.

NOTICE

Tightening to 5 foot pounds is slightly more than finger tight. Overtightening will result in damage to the solenoid and coil.

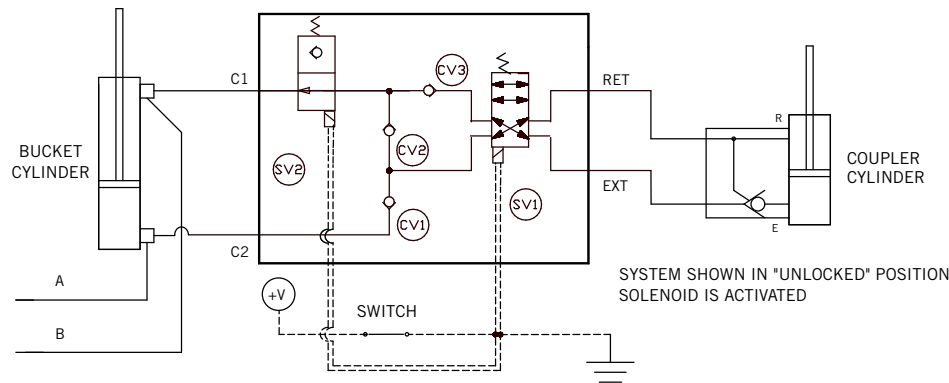
MAINTENANCE INSTRUCTIONS - HYDRAULIC

HYDRAULIC CIRCUIT



HYDRAULIC SCHEMATIC
SMARTLOC® COUPLER

PATENT PENDING



HYDRAULIC SCHEMATIC
SMARTLOC® COUPLER

PATENT PENDING

THEORY OF OPERATION

System pressure applied to bucket cylinder line "A" or "B" is transferred through valve port C2 or C1 respectively. The pressure is then sent through CV1 or SV2/CV2, through solenoid valve SV1 and charges the head end of the coupler cylinder. The system maintains a positive force on the locking plate at all times while the bucket cylinder is pressurized.

With the switch in the **UNLOCK** position (electrical power applied to both solenoids SV1 and SV2) and line A pressurized; pressure is transferred through CV1 and SV1 and energizes the rod-end of the coupler cylinder to retract the coupler locking plate. Hydraulic fluid from the head end of the coupler cylinder moves through the "EXT" port back through SV1, CV3, and SV2 and drains into line B. When line B is energized, the locking plate (wedge) can not be retracted.



The SmartLoc® coupler is designed to be locked when there is no electrical power. In other words, the coupler is locked by default. Electrical power is required to unlock the coupler. The slide may extend when power is turned off

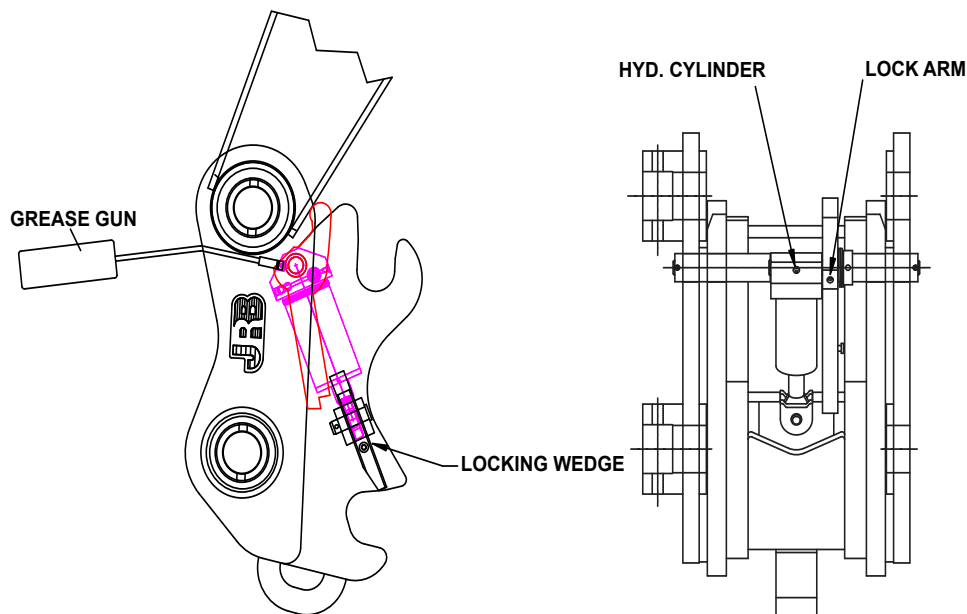
MAINTENANCE

The following maintenance procedure should be performed in order to maintain proper operation of the SmartLoc® Coupler.

PROCEDURE	INTERVAL	NOTES
Remove debris from coupler	at each interchange	Primarily in lock area prior to engaging attachment
Inspect locking	at each interchange	Both primary and supplemental
Inspect hoses for leaks	daily	
Grease zerk fittings	daily	
Unlock coupler mechanism	daily	To prevent binding of slide
Check tension of torsion spring	weekly	
Check the supplemental lock locking arm for wear	weekly	The locking arm "stem" operates against the stick of the machine which may cause excessive wear. Replace locking arm when required.
Tighten link and stick pin hardware	weekly	If the bolt is out, the pin can slide out of one side of the coupler and cause the pin-on-rib to break.
Replace seals in valve	1500 hours	mtnce1

COUPLER GREASING LOCATIONS

To keep the coupler in proper working condition it must be greased on a daily basis. Most JRB couplers are supplied with a grease zerk located on the head end of the cylinder or the cylinder barrel, the lock arm and on each side of the coupler for the locking wedge. **Note: Cylinders that are supplied without grease zerks do NOT need to be greased.**



OPERATING SYSTEM TEST PROCEDURE.

TEST #1

Turn ignition key to the on position. **(Do Not Start)**

Move control box switch to **UNLOCK** position.

The buzzer & light should be on .

If the buzzer & light are not on, **check the fuse in the box or wiring to the box.**

Disconnect the plug for the coils at the valve.

Using a volt meter check for proper voltage at the machine harness side of the plug. **(See Photo)**

Depending on machine model the reading could be 12VDC or 24VDC.

Check voltage reading in several stick positions.

If the voltage is low or no voltage in any position, **repair or replace harness from control box to valve.**

If voltage is OK, **proceed to Coil Testing Procedure:**

If coils are faulty, **replace coil assembly.**

If Coils test OK, **proceed to Test # 2**



TEST #2

Set up:

Set coupler level on the ground.

Turn ignition on **(Engine Not Running)**

Move control box switch from lock to unlock several times.

This will remove most of the pressure from the **EXT** and **RET** lines.

Remove the **EXT** and **RET** lines from the manifold block on the stick.(See: **high pressure oil warning**)

Install gauges in **EXT** and **RET** hoses. One gauge in each hose.(**See Photo**)

Make sure the gauges are rated above the machine pressure.

Cap fittings in manifold.

NOTE: EXT is for Extend and RET is Retract.

⚠ WARNING

Relieve pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject fluids under high pressure. Escaping fluid under pressure can penetrate the skin causing serious injury or death.

OPERATING SYSTEM TEST PROCEDURE.

PROCEDURE: 1

Start engine.

With machine at high idle, operate machine to full bucket curl position

Move control box switch to **LOCK** position.

Hold control lever over fully so that the machine is over relief.

Read gauges.

EXT. Gauge should read full machine pressure.

RET. Gauge should read 0.

PROCEDURE: 2

With machine at high idle, operate machine to full bucket curl position.

Move control box switch to **UNLOCK** position.

Hold control lever over fully so that the machine is over relief.

Read gauges

EXT. Gauge should read 0.

RET. Gauge should read full machine pressure

If your gauge readings do not correspond with the readings in PROCEDURES 1 and 2. (**SEE: Cleaning The Spool Assembly**)

After cleaning the spool assembly return to PROCEDURES 1 and 2 and retest.

Your gauge readings should now correspond with PROCEDURES 1 and 2



SPOOL ASSEMBLY

Most problems related to the valve are caused by contamination of the spool assembly. The spool assembly can be removed and cleaned.

CLEANING THE SPOOL ASSEMBLY

STEP 1:

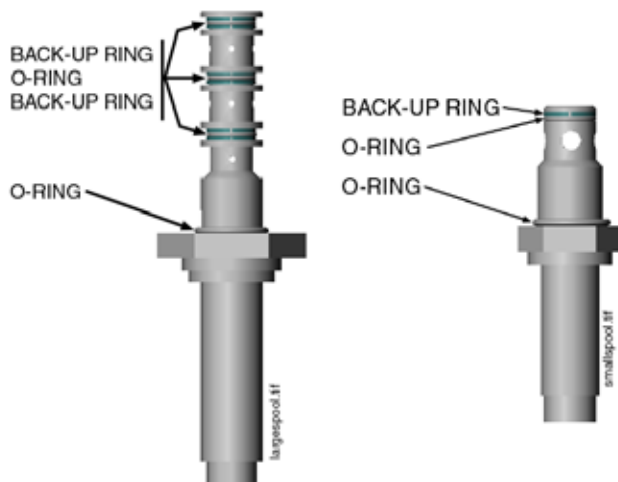
- Unplug the connector assembly from the solenoid and remove the solenoid from the spool.
- Unscrew the spool assembly from the manifold and inspect it for contamination and seal damage.

NOTE: Any time the valve is serviced, a new spool seal kit should be installed.

- Connect the coil to the spool and energize outside of the manifold. This should cause the internal spool to shift and is operating properly.

STEP 2:

- If the internal spool does not shift, use a small screwdriver to push against the internal spool and check for movement (approximately. 1/8”).
- Clean spool with a solvent such as brake clean and blow out with air and energize spool again.
- If spool still does not operate properly, replace the spool.



Manifold: With the spool and check valves removed, the manifold can be inspected for contamination. Flush out the manifold with a cleaning solvent such as brake clean, and blow out with air.

REMOVING THE CHECK VALVES

STEP 1:

- Relieve system pressure and position a bucket or other container under the valve to catch any escaping fluid.

STEP 2:

- Unscrew check valves slowly to relieve any trapped pressure.
- Inspect the check valves for contamination and seal damage. Make sure the internal springs are not broken by pushing against the ball or popet.

NOTE: Any time check valves are removed, seals should be replaced.

REPLACING CHECK VALVE O-RINGS

STEP 1:

- Using an o-ring pick or other similar instrument, remove and discard existing backup rings and o-ring (total of 3).

STEP 2:

- Slip large replacement main body o-ring (polyurethane) over valve body and seat above nut. Be careful not to damage when passing over threaded portion of valve.
- Slip replacement cartridge o-ring over stem and seat it into the groove closest to the threaded portion of valve.
- Slip backup ring over stem and seat it into the groove next to the o-ring.

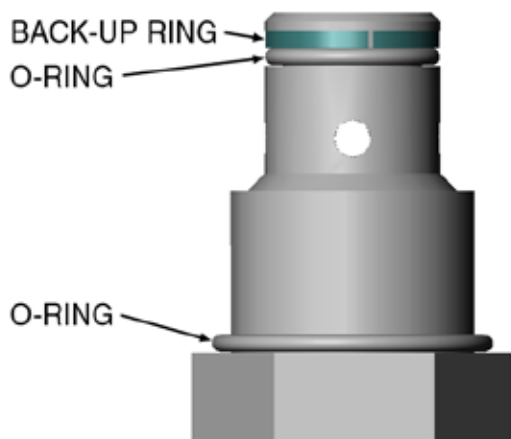
STEP 3:

- Clean check valves with solvent such as brake clean and blow out with air.

STEP 4:

- Screw check valve cartridges back into manifold and torque to 33 ft. lbs. Once completed, cycle circuit to check operation and for leaks.
- Lubricate all o-rings before installation.

Damaged seals or incorrect placement could allow valve to malfunction.



O-Ring Location on Check Valve

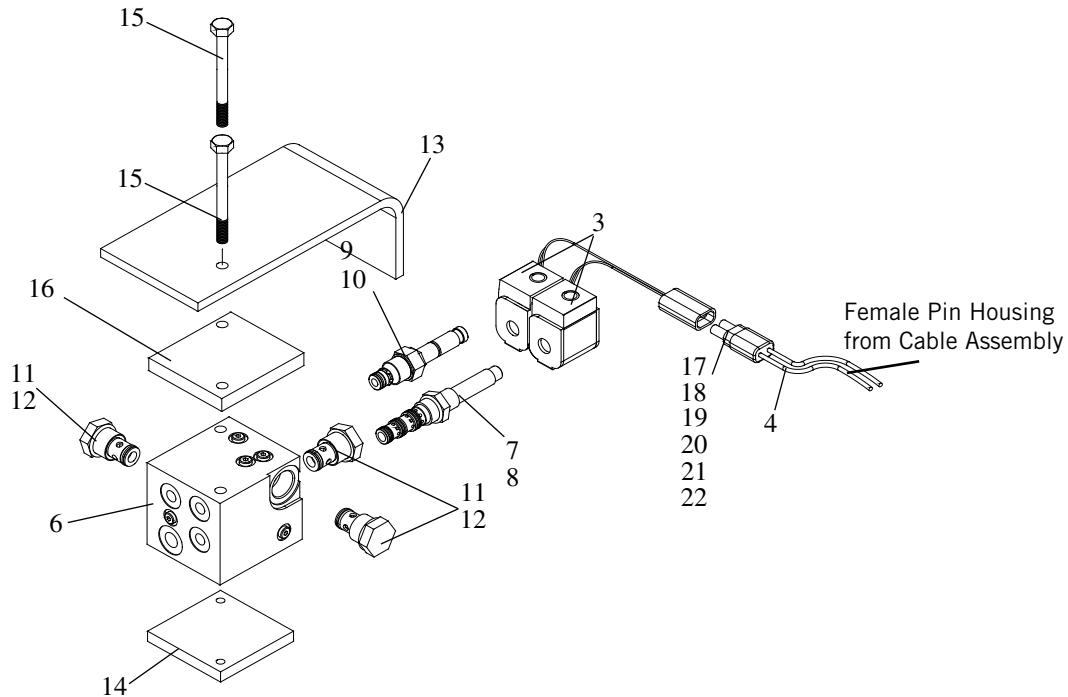
NOTICE

Do not over tighten spool assembly or cap when reinstalling. Torque to 25 ft. lbs. maximum.

checkvalve.tif

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VALVE ASSEMBLY AND PARTS LIST



ITEM	QTY.	PART NUMBER	DESCRIPTION
•	1	C30730-24	SOLENOID VALVE KIT, 24 VOLT (Includes all items)
1	1	C30351-24A	Solenoid Valve Assembly, (Includes Items 2, 5)
2	1	B30338-24	Wired Coils Assembly, 24 Volt (Includes Items 3 and 4)
3	2	A46787-24	Solenoid, 24 Volt
4	1	A45161	Weather Pack Wire Harness
5	1	B29799	Valve Body Assembly (Includes Items 6-12)
6	1	A45162	Manifold Block
7	1	A46786	4 Way, 2 Position Spool Valve
8	1	SK08-4	Seal Kit
9	1	A46797	2 Way, 2 Position Poppet Valve
10	1	SK08-2	Seal Kit
11	3	A45165	Ball Check Valve
12	3	SK30516N-1	Seal Kit
13	1	C24815	Valve Cover Plate
14	1	A17291	Valve Mount Plate
15	2	104031180400	Bolt, 5/16"-18UNC x 4.00" lg. HHCS Gr.8
16	1	A49648	Spacer Plate
17	1	ET0048-02	Female Connector, Housing
18	2	ET0044-02	Grommet
19	2	ET0038-02	Female End, Pin
20	1	EW7007-12	Black Wire 12"
21	1	EW7006-12	White Wire, 12"
22	2	ET0017-02	Butt Connector

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Recent models of machines have been introduced with the ability to increase the operating pressures to a much higher PSI than previous models. The results of the higher pressures can have an undesired effect on the spools for the valve that controls the JRB SmartLoc® Coupler. The increased pressure can cause the spools to swell and the valve will not function correctly. This swelling results in the coupler not releasing from the locked position. This is a problem when attempting to uncouple from an attachment. Of greater concern, is when the coupler is not engaged with an attachment and coupling is attempted, it can not lock onto the pin. If the operator or ground crew does not verify the attachment is securely coupled to the machine, the attachment may disengage from the coupler.

JRB recommends that the operating pressures do not exceed 6,000 PSI with the new kit. Previous kit was rated to 5,000 PSI.

JRB Company has developed a kit to adapt to these higher pressures. This kit is available by calling JRB Customer Service at 1-800-428-2438.

WARNING

Do not adjust the system pressure of your excavator upward as this action may exceed the pressure rating of the hydraulic components of your machine and equipment that operate by the machine system pressure. This may cause unintended consequences up to severe injury or death.

**SOLENOID VALVE REPLACEMENT KIT 91V0836-24
(USED WITH 24 VOLT HIGH PRESSURE VALVES C30351-24 AND A35352-24)**

NOTE: READ INSTRUCTIONS IN THEIR ENTIRETY PRIOR TO PERFORMING INSTALLATION OF EQUIPMENT.

⚠ WARNING

PROTECT AGAINST FLYING DEBRIS OR FLUID

Always guard against injury from flying pieces of debris or fluid: **WEAR GOGGLES OR SAFETY GLASSES.**

CHECK HYDRAULIC OIL TEMPERATURE PRIOR TO DISCONNECTING ANY HYDRAULIC COMPONENTS TO AVOID THE POSSIBILITY OF INJURY.

- If an attachment is installed on coupler, uninstall prior to continuing. Curl stick under fully and lower boom until coupler is resting on the ground.
- Shut off machine. With safety lock in running position and ignition key in the “on” position, toggle coupler electrical switch between “lock” and “unlock” positions several times to bleed pressure from coupler cylinder lines and valve.
- Carefully operate both control levers clockwise and counter-clockwise to relieve hydraulic cylinder pressure. Bleed any pressure from hydraulic reservoir.

⚠ WARNING

High pressure hydraulic fluid can cause serious injury if not relieved prior to disconnecting hydraulic components.

- Remove cover plate from valve assembly. Discard mounting bolts. Longer bolts are provided in this kit and are required for reinstallation.
- Unplug electrical connections and remove the coil assembly from the spool and poppet valves.
- Using a deep 7/8” socket, unscrew the spool and poppet valves from the manifold. If a deep socket is not available, remove the top shaft portion of the valves first and then remove the threaded portion, using a standard 7/8” socket.

NOTE: Prior to installing new components, make sure valve is cleaned and free of any debris, which could cause contamination of the hydraulic system.

- Install new spool and poppet valves into manifold block. To ensure proper seating of the straight thread o-ring on the new spool and poppet valves, lubricate the o-ring with a little hydraulic oil prior to installation.

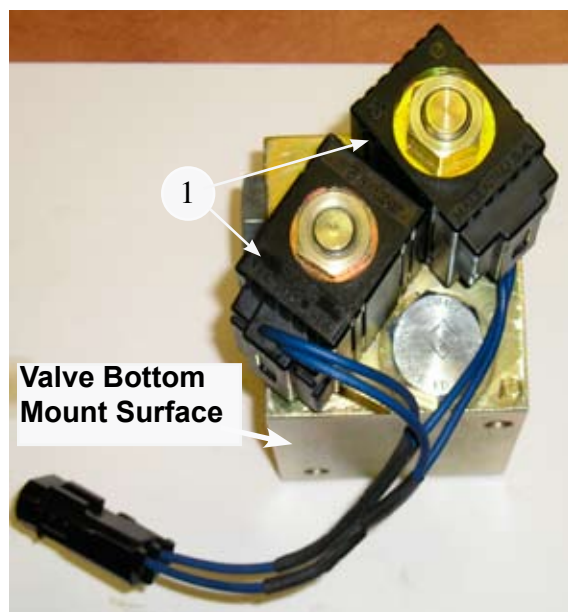
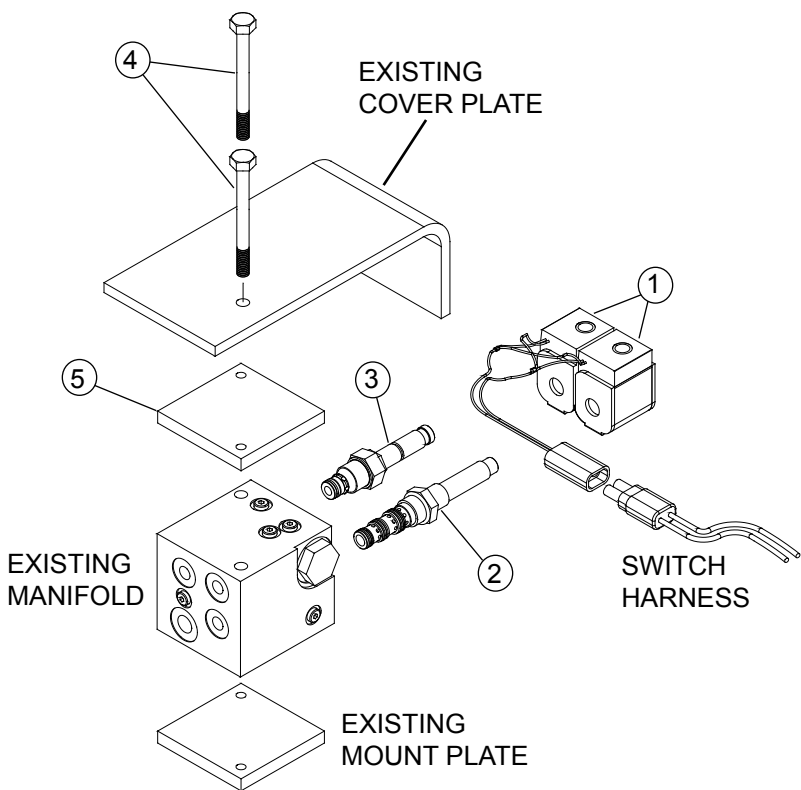
NOTICE

Do not over tighten spool and poppet valves when reinstalling. Torque to 275 in. Lbs. (23 Ft. Lbs.) Maximum.

SmartLoc®

91V0836-24

- Next, install new coils. It is important to arrange the coils on the valves in the fashion shown, in order to avoid potential interference with the cover plate.
- Tighten down the coil retaining jam nuts. **These nuts should only be tightened to a little more than finger tight, approx. 30 IN.LBS. (2.5 FT. LBS)**
- Once new components are installed into manifold, reinstall cover plate using spacer plate and (2) new bolts. Use the spacer plate in between the manifold and the cover plate to allow proper clearance for the coil assemblies.
- Plug coils into existing coupler switch harness. Cycle through coupler lock and unlock sequence approximately 12 times to bleed out any air in the system.



91V0836-24 Replacement Kit Components

New Coil Installation

ITEM	QTY	PART NUMBER	DESCRIPTION
•	1	91V0836-24	Solenoid Valve Replacement Kit, 24 Volt (Includes all Items)
1	1	B30338-24	Wired Solenoid Coil Assembly, 24 Volt
2	1	A46786	4-Way, 2-Position Spool Valve
3	1	A46797	2-Way, 2-Position Poppet Valve
4	2	104031180400	Bolt, 5/16 x 4.00 HHCS Gr 8
5	1	A49648	Spacer Plate

Table 1. Valve Replacement Kit

Due to the increased hydraulic pressures of some excavators, JRB® has designed a modification for the coupler hydraulic kits for these machines. The issues regarding the higher pressures include swivels leaking and “locking up” or “freezing up”. A Manifold Conversion Kit has been developed to correct this problem. If you have a problem with swivels on a customer's machine, call JRB® Customer Service at **1-800-428-2538**.

INSTALLATION INSTRUCTIONS MANIFOLD BLOCK A43950

Read all installation instructions before beginning actual installation. Any questions related to the installation of these parts should be directed to JRB Customer Service at **1-800-428-2538**.

NOTICE

Disconnect battery prior to welding, Failure to do so could result in damage to the machine's electronic system.

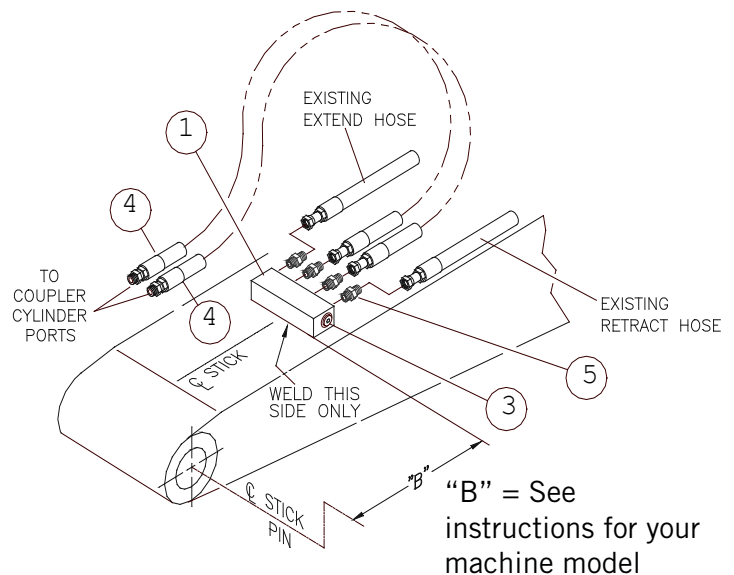
Protect hydraulic cylinder rod from weld spatter during welding operations.

Note: References to “right” and left” are with respect to the operator in the cab of the machine.

Measure up the distance specified for your machine from the centerline of the stick pin and make a mark. This mark will locate the back side of the manifold block (no ports).

Remove paint and weld the manifold block (Item 1), making sure it is centered on the top surface of the stick.

Note: Only weld on the backside of the manifold block (no ports). Welding anywhere else may cause damage to the ports of the block.

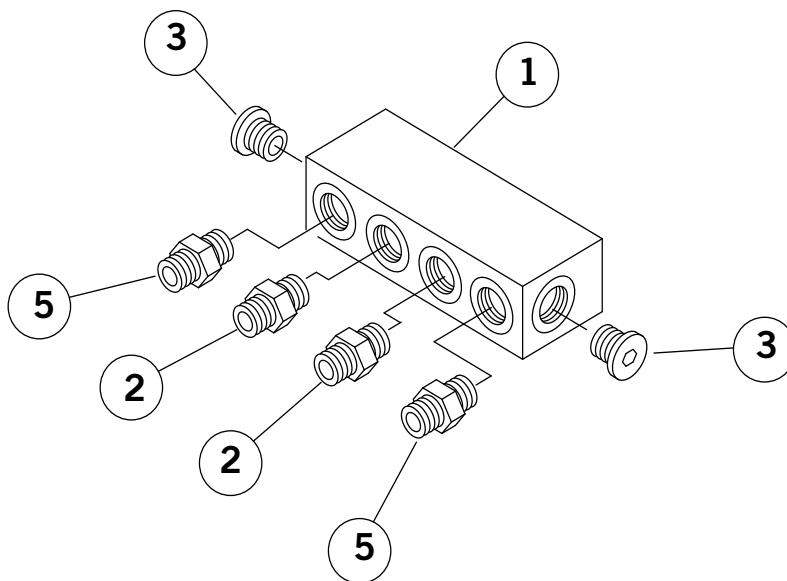


Install jump hoses (Item 4) into two ports of coupler cylinder. Make sure hoses are tight before proceeding.



INSTALLATION INSTRUCTIONS JRB MANIFOLD BLOCK A43950

Install fittings and plugs (Items 2, 3 and 5) into manifold block as shown.



Install jump hoses to two center fittings. Hold back nut secure with wrench and tighten down hoses as shown. This will keep the jump hoses from turning and allow them to stay in the correct upright position.

**Note: Cycle through coupler lock/unlock procedure approx. 12 times.
Re-check jump hoses and adjust to correct position if needed.**

Connect existing extend and retract hoses to outer two ports of manifold block and route up stick to solenoid valve. Use hose clamps to secure.

Connect extend hose (right side) to port “EXT” of valve, and retract hose (left side) to port “RET”.

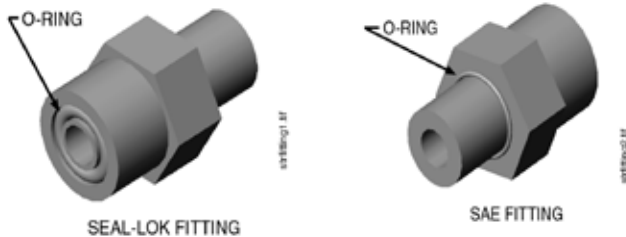
Slowly cycle coupler and check for any interference. If interference exists, contact JRB Customer Service immediately.

ITEM	QTY	PART NUMBER	DESCRIPTION
•	1	91T	Manifold Conversion Kit
1	1		Manifold Block
2	2		Str. Swivel Nut Male/O-ring,
3	2		Plug, -6 SAE
4	2		Hose Assembly, Jump, w/Fabric Wrap
5	2		Str. Swivel Nut, Male/O-Ring

SEE INSTALLATION
INSTRUCTIONS

SERVICEABLE PARTS

SEAL-LOK AND SAE FITTINGS



DASH SIZE	O-RING (SEAL-LOK)	O-RING (SAE)
-4	46161-01	46117-01
-6	46161-02	46117-03
-8	46161-03	46117-04
-10	46161-04	46117-05
-12	46161-05	46117-06
-16	46161-06	46117-07

SMARTLOC® LIFT EYE USAGE

WARNING

The JRB SmartLoc® Coupler is equipped with a lift eye for moving and placing material. It is designed for the convenience of the operator. It should not be used at the same time as an attachment. Consult your prime mover manufacturers specifications for lifting procedures and capacities. Incorrect applications and uses and failure to follow these instructions may result in severe injury or death.

The JRB SmartLoc® is designed with a lift eye that may be used to assist in the lifting and placing of material when properly and safely attached. **In order to use the lift eye correctly and safely the attachment must first be removed from the coupler.** Not only is this the safe method, it also increases the lifting capacity of the machine. When an attachment is in use with the coupler, the chain, cable or other lifting device can contact it and may cause interference, damage or potential for unexpected release.

The lifting device must always be removed when changing attachments. If the device is in the area of the coupler or attachment during coupling, it may cause an incomplete locking of the coupler to the attachment or damage to the coupler and/or the attachment.

SERVICEABLE PARTS

It may be necessary in some applications that use of a gauge port block is required for hydraulic "tie-in". This chart provides dimensions and JRB part numbers for ordering purposes if your kit requires such a component.

3000 SERIES PIPE (CODE 61)

PIPE SIZE	DASH NUMBER	JRB NUMBER	A	B	C	D	E	F	G	L	"O" RING
1/2	01	46107-01	1.50	2.12	1.00	1.50	.688	.50	.34	1.00	46117-11
3/4	02	46107-02	1.75	2.62	1.00	1.875	.875	.75	.41	1.25	46117-12
1	03	46107-03	2.00	2.82	1.00	2.062	1.031	1.00	.41	1.562	46117-13
1-1/4	04	46107-04	2.50	3.19	1.00	2.312	1.188	1.25	.47	1.75	46117-14
1-1/2	05	46107-05	2.75	3.75	1.00	2.75	1.406	1.50	.53	2.125	46117-15
2	06	46107-06	3.25	4.00	1.00	3.062	1.688	1.94	.53	2.50	46117-16

6000 SERIES PIPE (CODE 62)

PIPE SIZE	DASH NUMBER	JRB NUMBER	A	B	C	D	E	F	G	L	"O" RING
1/2	12	46107-12	1.75	2.22	1.00	1.594	.718	.50	.34	1.00	46117-11
3/4	13	46107-13	2.00	2.81	1.00	2.00	.937	.75	.41	1.25	46117-12
1	14	46107-14	2.25	3.19	1.00	2.25	1.093	1.00	.47	1.562	46117-13
1-1/4	15	46107-15	2.75	3.75	1.00	2.625	1.25	1.25	.53	1.75	46117-14
1-1/2	16	46107-16	3.25	4.50	1.00	3.125	1.437	1.50	.66	2.125	46117-15
2	17	46107-17	4.00	5.25	1.00	3.812	1.75	1.94	.78	2.50	46117-16

Note: All o-rings must have a 90 durometer hardness.

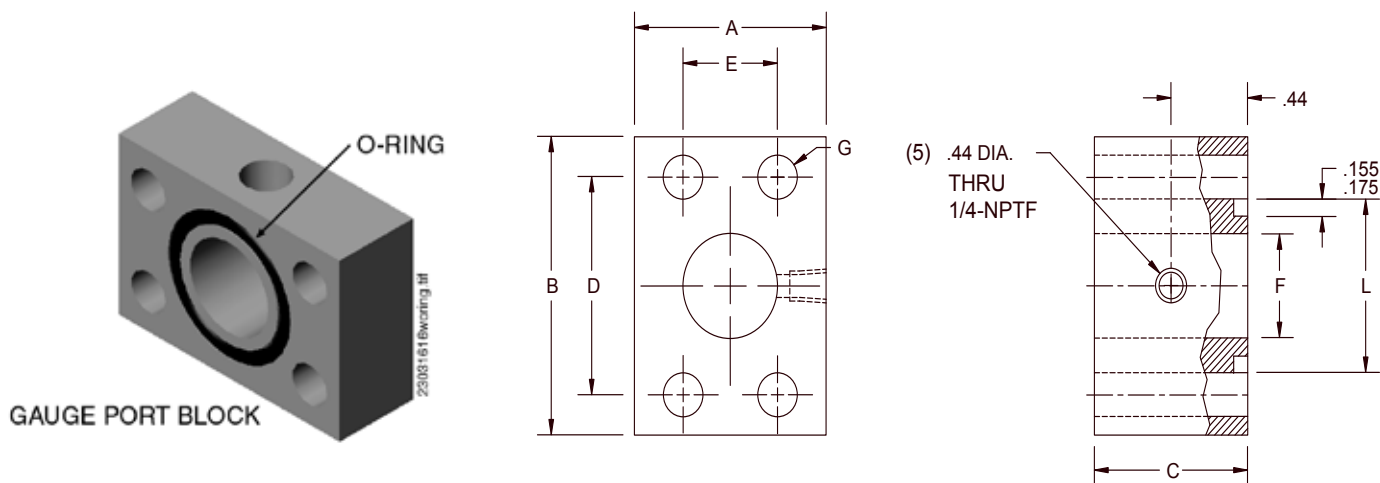


Figure 4. Gauge Port Dimensions

TROUBLESHOOTING

PROBLEM	CAUSES	SOLUTIONS
1. Coupler cylinder does not extend or retract properly.	Hoses or valve are plugged by dirt. Incorrect pressure. Locking plate is binding.	Remove hoses and valve and clean. Blow air through valve to check operation. Check pressure at C-1 and "EXT" port. Check pressure at C-2 and "RET" port. Check coupler cylinder check valve o-rings for damage. Make sure hoses are not pinched or fittings and/or coupler cylinder tubes are not damaged. Remove debris from coupler. Lubricate coupler grease points.
2. Coupler cylinder rod and slide do not retract.	Lack of hydraulic pressure to cylinder or valve. Loss of electrical current to solenoid valve. Low or not enough voltage to coils. Supplemental lock is engaged.	The bucket cylinder is not being taken over relief. Check electrical connections, primarily ground wire at solenoid. Check voltage, 12 volts to 12 volt coils and 24 volts to 24 volt coils. Disengage supplemental lock.
3. Coupler cylinder rod and slide will not extend	Lack of hydraulic pressure to C-2 and "EXT" ports. Supplemental lock is engaged.	Check pressure: Valve mounted on stick should have the same pressure as the bucket cylinder. Valve mounted in pump compartment should have a pressure of 2500 PSI. Disengage supplemental lock.
4. Supplemental lock does not engage at full curl.	Excessive wear on the locking arm "stem".	Replace locking arm.
		trblshg3

NOTICE

Inspect the coupler for any structural or weld cracks on a daily basis. If a crack is found in either the steel structure or the welds immediately remove the coupler and contact JRB Company, Inc.

The machine retaining hardware for the OEM link and stick pins must be inspected and tightened on a weekly basis where applicable. When retaining hardware has been removed or is missing, operation can cause damage to the machine and attachments.

SERVICE GUIDE

Estimated service time for listed service items

PREVENTATIVE MAINTENANCE OR REPAIR PROCEDURE	SERVICE TIME (HOURS)
SmartLoc® COUPLER REMOVE AND REINSTALL	
SmartLoc® Assembly	1.40
Hydraulic Cylinder	1.20
Slide	2.30
Lock Arm	0.80
Lock Arm Spring	0.80
Fittings in Cylinder	0.50
Cylinder Seal Kit	3.50
Check Valve in Cylinder	1.20
Cylinder Mounting Pin	1.00
Cylinder Rod Bearing	2.20
SmartLoc® HYDRAULICS	
Control Valve, R & R (Remove and Reinstall)	1.20
Control Valve, Disassemble Clean & Inspect	0.80
Control Valve, Install New Seals	1.60
Spool Valve(s) R & R	0.60
Spool Valve (s) Install New Seals	0.40
Spool Valve, Clean & inspect	0.30
Coil(s) R & R	0.50
Coil(s) Inspect & Test	0.30
Manifold Conversion Kit Installation	2.00
Solenoid Valve Replacement Kit Installation	0.50
	smartlocrepair