

**Includes: Operator's Manual, Parts  
Catalogue and Installation Instructions**

August 2009

**Mahindra USA**  
**Model 1710A/1710B/1710C**  
**(1815/1816) (2415/2516) (2015/2216)**  
**Backhoe**



1503-1162  
Rev. C  
August 2009

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# SAFETY DECALS



## Safety Decal Locations

The safety of the operator was a prime consideration in the design of the backhoe. Proper shielding, convenient controls, simple adjustments, and other safety features have been built into this implement. The following decals are located on the backhoe. Keep decals clean and replace them immediately if they are missing. Contact your dealer or Mahindra for replacements.

## Care of Safety Decals

1. Keep safety decals clean and free of obstructing material.
2. Clean safety decals with soap and water and dry with a soft cloth.
3. Replace damaged or missing safety decals with new decals from your Mahindra Dealer.
4. If a component with a safety decal(s) affixed is replaced with a new part, make sure new safety decal(s) are attached in the same location(s) as the replaced components.
5. Mount new safety decals by applying on a clean dry surface and pressing air bubbles to outside edges.

**! WARNING**

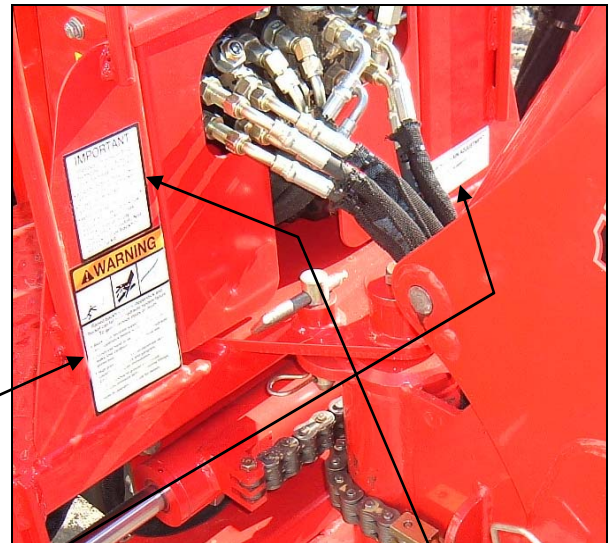




**Raised backhoe boom, dipperstick and bucket can fall from hydraulic system failure. To avoid serious injury or death:**

- Block up or securely support backhoe boom and dipperstick before working underneath.
- Do not use hand or skin to check for hydraulic leaks. Use cardboard or wood. Wear eye protection.
- High pressure oil leaks can penetrate skin causing serious injury and gangrene. Consult a physicaain immediately.
- Lower backhoe to ground and release hydraulic pressure before loosening fittings.
- Refer to operator's manual for details.

0595-3065



**SWING CHAIN ADJUSTMENT**

**See Backhoe operators' manual for adjustment & maintenance**

0595-3061

**IMPORTANT**

**Improper transporting methods can cause serious damage to tractor.**

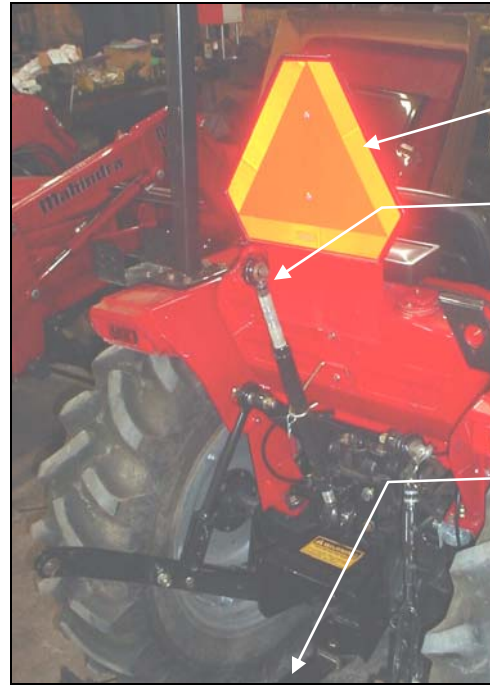
- Engage both safety locks when transporting backhoe.
- Travel slowly over rough terrain.
- When transporting on truck or trailer, Lower backhoe boom so bucket rests firmly on bed. Apply restraints to tractor, Not to backhoe or backhoe attaching kit.

0595-3064

**4.1. 1710A and 1710B on tractor models 1815/1816 and 2415/2516:** Remove the following equipment from tractor:

- Remove belly mower (if so equipped) to allow backhoe to be installed.
- Park front end loader (if so equipped) during backhoe installation.
- Remove Loader Rear Ballast.
- Remove Drawbar.
- Remove Slow Moving Vehicle Sign and bracket.
- Remove 3-Point upper link.
- Adjust tractor seat forward so there will be clearance between tractor seat and backhoe seat.

**Note:** When backhoe attachment is parked from tractor, reinstall loader rear ballast, drawbar, Slow Moving Vehicle Sign and bracket, and 3-point upper link to tractor before operating.

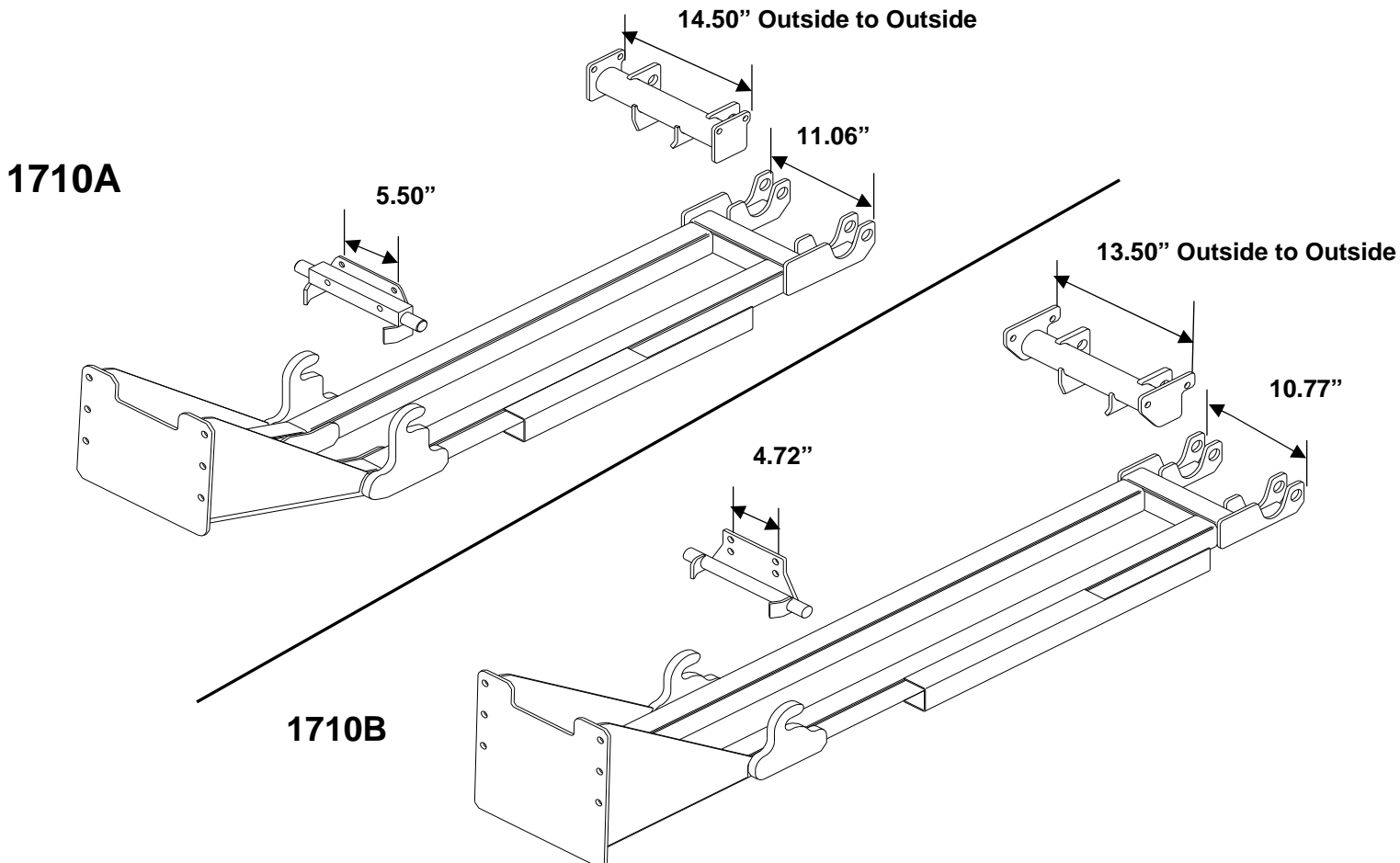


Remove Slow Moving Vehicle Sign and bracket,

3-Point Upper Link,

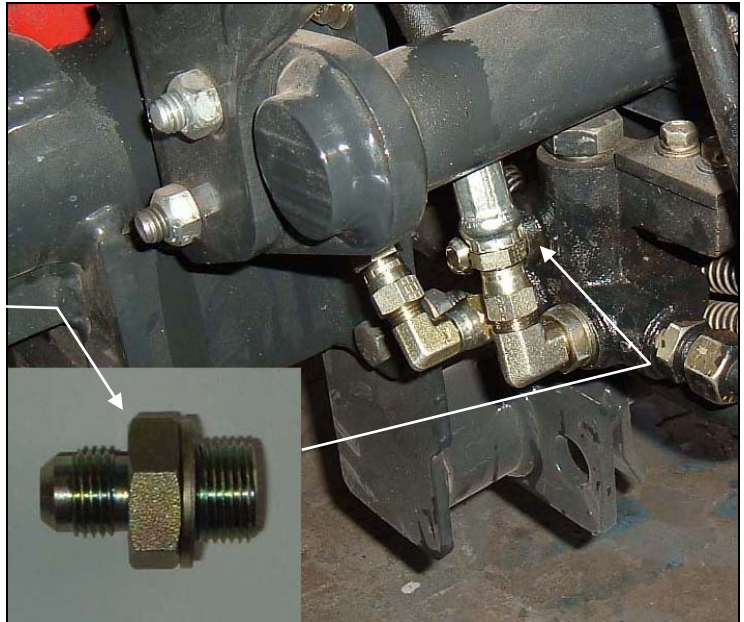
Drawbar,

**Identify Backhoe Subframe kit using illustration and measurements shown.**



4.4.3. **1710A (1815/1816)**: Install 3/8" BSPTM x 9/16" JICM straight fitting into return "T" port.

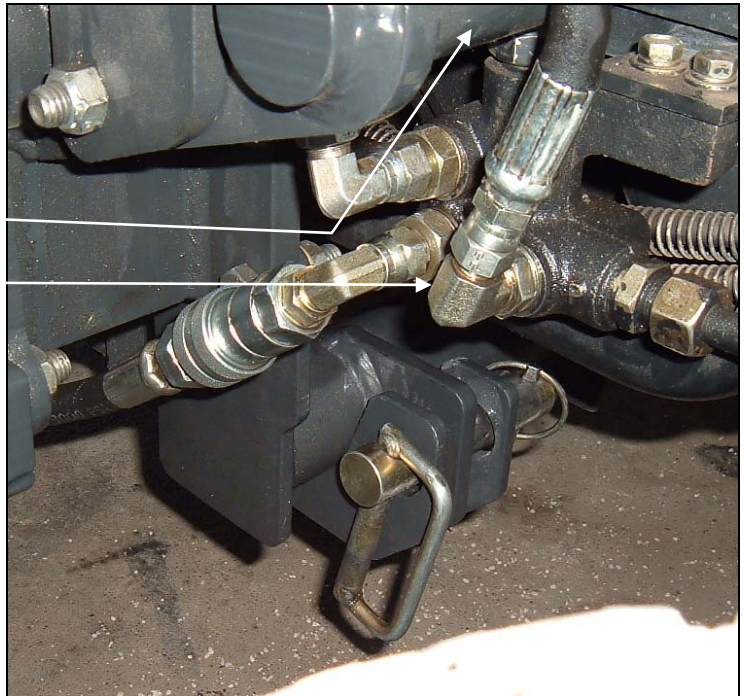
**3/8" BSPTM x 9/16" JICM Straight Fitting  
(Backhoe Supplied)**



4.4.4. **1710A (1815/1816)**: Remove pressure hose from 9/16" JICM x 9/16" JICF fitting installed in pressure "P" port of tractor hydraulic block. Rotate fitting as shown and route pressure hose around center bracket rod.

**Center Bracket Rod**

**Rotate fitting and route pressure hose as shown**



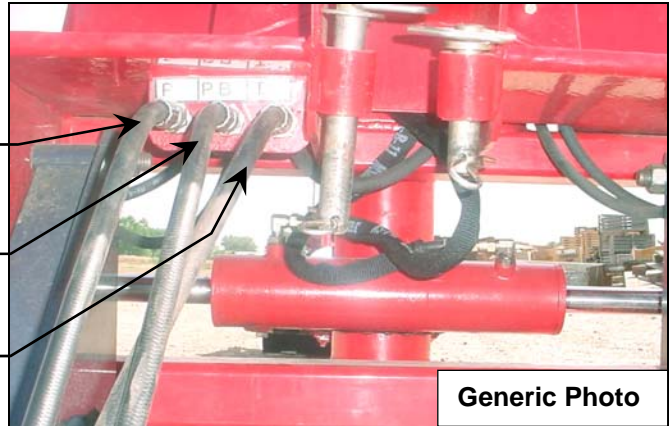
## INSTALLATION INSTRUCTIONS FOR BACKHOE MODEL 1710C (2015/2216)

4.4.35. Install these 3 hoses to backhoe as shown.

4.4.36. Mark both ends of Pressure "P" Hose 3/8" x 67" ORBM 3/4" x JICF 3/4" using red nylon ties.

4.4.37. Mark both ends of Power Beyond "PB" Hose 3/8" x 82" ORBM 3/4" x JICF 3/4" using yellow nylon ties.

4.4.38. Mark both ends of Tank/Out "T" Hose 3/8" x 107" ORBM 3/4" x JICF 3/4" using green nylon ties.



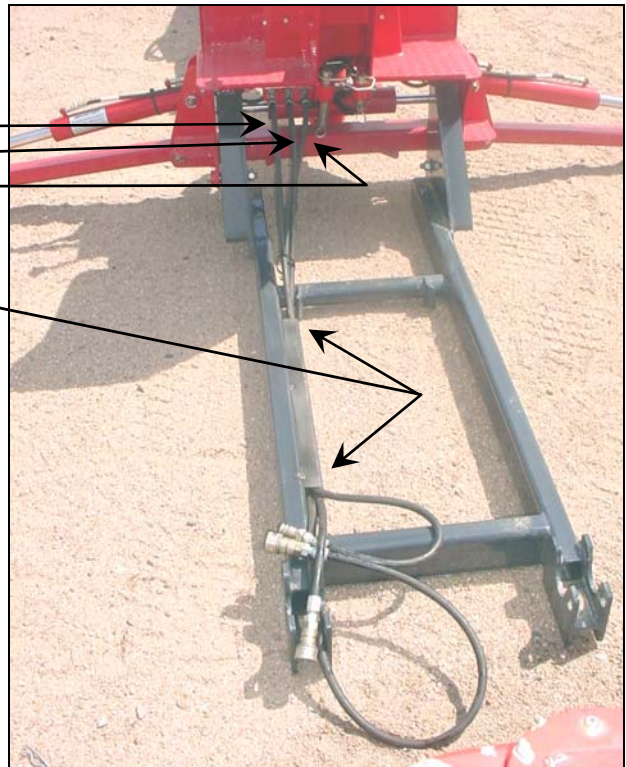
4.4.39. Route these 3 hoses through backhoe subframe channel.

**Pressure "P" Hose.**

**Power Beyond "PB" Hose.**

**Tank/Out "T" Hose.**

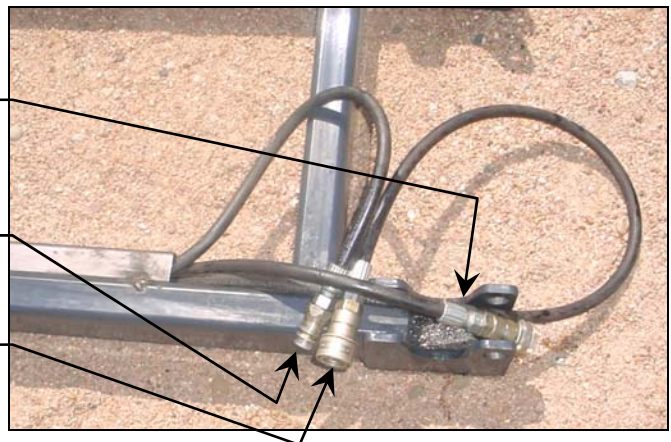
**Backhoe Subframe Channel.**



4.4.40. Install female quick coupler to Pressure "P" Hose 3/8" x 67" with red nylon ties. (Connects to Loader Power Beyond Hose.)

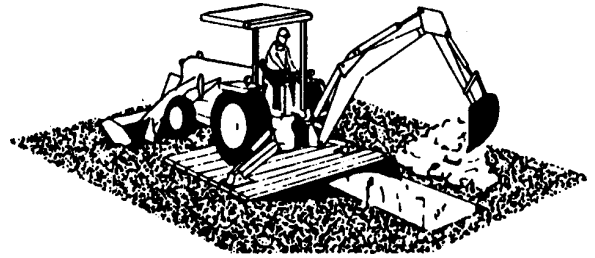
4.4.41. Install male quick coupler to Power Beyond "PB" Hose 3/8" x 82" with yellow nylon ties.

4.4.42. Install female quick coupler to Tank/Out "T" Hose 3/8" x 107" with green nylon ties.



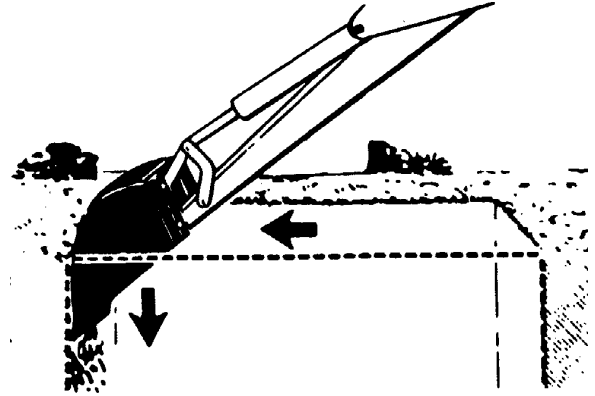
### 8.5. Miscellaneous

When finishing straight walls or bellholes in sandy soil, use a platform under the rear tires and the stabilizers. The platform distributes the load over a larger area and lessens the possibility of a cave-in. The platform also tends to keep the unit from creeping rearward if hard digging is encountered.

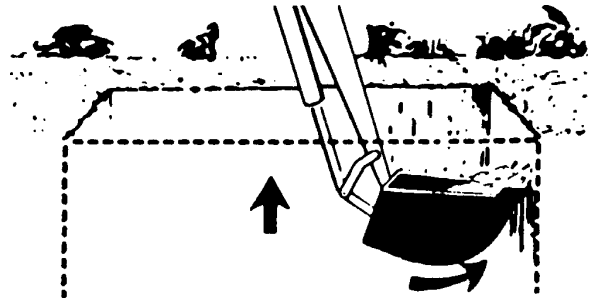


### 8.6. Finishing Straight Walls

Finish the far wall by crowding out while forcing the bucket down from the boom. Actuate the bucket (curl out) to keep the bottom of the bucket vertical.



To finish the near wall, lift up and crowd in. Keep the edges of the bucket horizontal



### 8.7. Backfilling

Backfill by lifting the bucket over the spoil pile and then crowding in. Pull both the crowd and boom controls for smooth, even backfilling.

**IMPORTANT: Do not backfill by using the swing circuit and dragging the bucket sideways. Doing so can cause damage to the bucket, dipper, boom, and swing cylinders or mainframe.**

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# 10. MOUNTING BACKHOE TO TRACTOR

## MOUNTING INSTRUCTIONS FOR BACKHOE MODEL 1710C (2015/2216):



**CAUTION:** Before leaving tractor seat, stop engine, lock brakes, relieve hydraulic pressure, and remove key.



**CAUTION:** Do not allow bystanders in area of backhoe when mounting, dismounting or when operating backhoe.



**CAUTION:** Do not stand, walk, or work under a raised backhoe component unless it is securely blocked or held in position. Accidental movement of valve handle/handles or leaks in the hydraulic system could cause backhoe component to drop, causing serious injury.

### ALL MODELS:

10.1. Position hoses forward so they can be connected to the tractor quick couplers and in a location where they will not be damaged as backhoe is mounted to tractor.

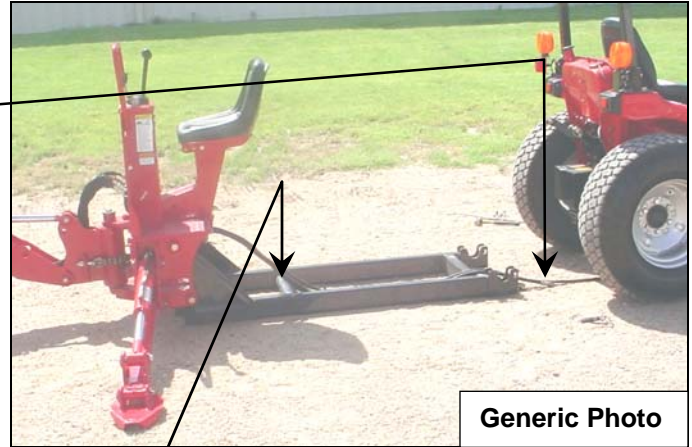
10.2. Center tractor on backhoe subframe.

**NOTE:** It is very important that the tractor is centered over the backhoe subframe to allow easy alignment and installation of the backhoe.

**NOTE:** Swing transport locking pin should be in the locked position during mounting.

### MODELS 1710C:

10.3. To aid in mounting and dismounting backhoe; apply a small amount of grease to backhoe subframe in areas of (A) subframe crosspipe and (B) subframe receivers.



(A) 1710C:  
Subframe  
Crosspipes



**CAUTION:** Mount and dismount backhoe from tractor seat only. The only time it is permissible to operate backhoe controls from a position not within the backhoe operators area is during these operations.

### ALL MODELS:

10.4. Rotate backhoe seat toward backhoe.

10.5. Back tractor over top of backhoe subframe until backhoe hoses can be connected to tractor hydraulic quick couplers. Shut off tractor engine. Connect backhoe hydraulics as follows.



## 13. SERVICE

### 13.1. Service Safety



**CAUTION:** To avoid possible injury, observe the following safety rules **WHEN SERVICING** the backhoe.

13.1.1. Engage transport locking pins before servicing the backhoe. Refer to Page 45-46.

13.1.2. Do not oil, grease, or adjust the backhoe while it is in motion.

13.1.3. Do not change any backhoe relief valve settings. They are factory set for best performance and safety.

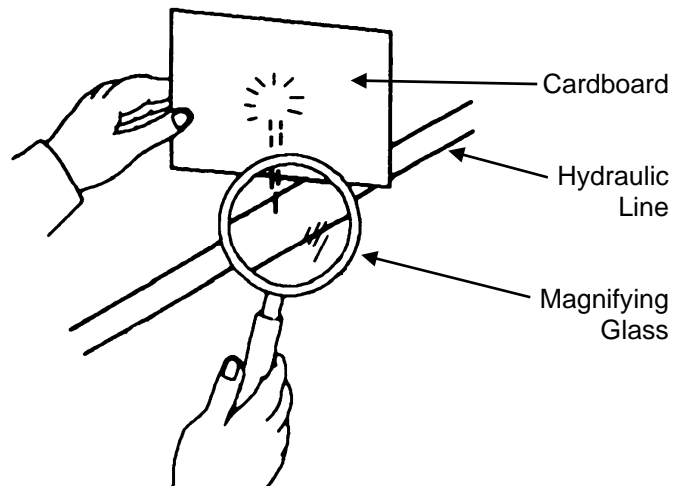
13.1.4. Protect your eyes - wear safety glasses. Guard against injury when driving connecting pins or performing any repair in which particles can chip from work piece or striking tool.

### 13.2. Hydraulic Fluid

13.2.1. With the engine off and the backhoe on the ground, inspect all hoses for cuts or wear. Check for signs of leaks and make sure all fittings are tight.



**CAUTION:** Escaping hydraulic fluid under pressure can have sufficient force to penetrate skin, causing serious personal injury. Before disconnecting lines, be sure to relieve all pressure. Before applying pressure to system, be sure all connections are tight and that lines, tubes, and hoses are not damaged. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands, to search for suspected leaks. If injured by escaping fluid, see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.



### 13.3. Beginning Of Season

13.3.1. Remove all protective covering.

13.3.2. Check hydraulic hoses for deterioration and replace, if necessary.

13.3.3. Lubricate all grease fittings and oil handle linkages.

13.3.4. Check hydraulic system for loss of fluid and, if necessary, fill to proper level.

13.3.5. Tighten all loose bolts, nuts and set screws.

13.3.6. Inspect bucket teeth and, if necessary, replace them.

13.3.7. Operate the backhoe slowly for a short time before placing the unit under full load.

13.3.8. Check to make sure Swing Chain is adjusted correctly. See pages 77 through 78.

### 13.4. Bleeding Backhoe Hydraulic System

13.4.1. If the hydraulic hoses have been disconnected from the backhoe or tractor, all trapped air must be removed after the hoses are connected. Start tractor engine and operate backhoe through all movements fully, several times, to purge the system of air.

### 13.5. Hydraulic System Hoses

13.5.1. Oil leaks in the pressure side of the system can be located by carefully inspecting the external area of the hoses and fittings.

13.5.2. When tightening connections, always use two wrenches.

**IMPORTANT:** Do not over-tighten fittings. Make them tight enough to eliminate leaks.

### 13.18. Replacing Swing Cylinder Tube Assembly

**NOTE: Replace Swing Tube as follows:**

13.18.1. Relieve all oil pressure in system. Refer to your Backhoe operator's manual and review all safety items. Clean swing cylinder and port connections. Disconnect hydraulic hoses from your swing cylinder.

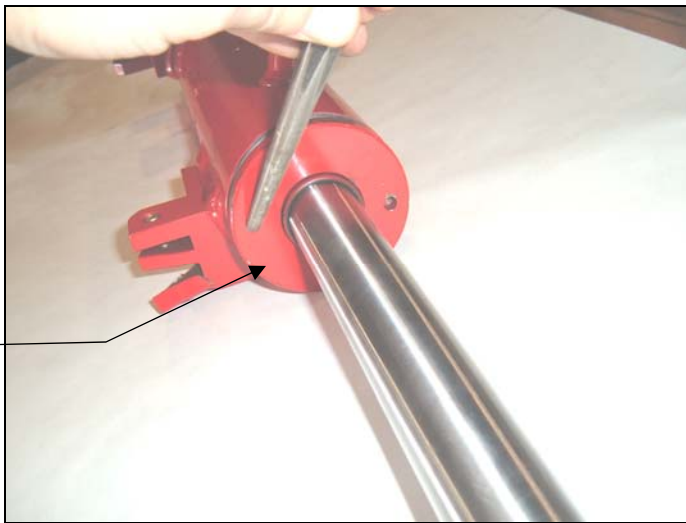
13.18.2. Remove Swing Cylinder from your Backhoe by removing the two mounting bolts. Remove fittings from your swing cylinder making sure you remove the orifice plates that are located in each port. Orifice plates are screw-in type.

**Remove Orifice Plates**



13.18.3. Loosen both swing cylinder head assemblies use an expander wrench or a small punch and hammer. If using a punch and hammer to loosen take care not to damage head assembly.

**Swing Cylinder Head Assembly**



# 17. PARTS MANUAL

## **Illustrations**

All parts are illustrated in "exploded views" which show the individual parts in their normal relationship to each other. Reference numbers are used in the illustrations. These numbers correspond to those in the "Reference Number" column and are followed by the quantity required and description.

## **Directional Reference**

Right hand (RH) and left hand (LH) sides are determined by sitting on the backhoe seat and facing towards the backhoe.

## **Parts Order**

Orders must give the complete description, correct part number, the total amount required, the product model, all the necessary serial numbers, the method of shipment and the shipping address.

## CONTROL HANDLE COMPONENTS

Reference	Description	Part No.	Qty.
1.....	Joystick Handle w/ Nut.....	1409-3134.....	1
2.....	Knob.....	1409-3129.....	1
3.....	Control Handle Boot.....	1409-3136.....	1
4.....	Rod Handle Cover.....	1409-3133.....	1
5.....	Pivot Pin.....	1409-3139.....	1
6.....	Lockwasher M8.....	1409-3137.....	3
7.....	Allen Head Screw M6 x 10.....	1409-3138.....	2
8.....	Pivot Pin.....	1409-3140.....	1
9.....	Handle Plate.....	1409-3141.....	1
10.....	Handle Coupler Nut.....	1409-3142.....	1
11.....	Nut M10.....	1409-3143.....	1
12.....	Zip Tie.....	1409-3144.....	1
13.....	Spring Clip (Located on ends of Pivot Pins).....	1409-3145.....	2
14.....	Flat Allen Head Screw M6 x 10.....	1409-3146.....	1
15.....	Connector.....	1409-3147.....	3
16.....	Pivot Pin.....	1409-3148.....	1
17.....	Nut M8.....	1409-3149.....	3
18.....	Base Plate.....	1409-3150.....	1
19.....	Flat Allen Head Screw M6 x 16.....	1409-3151.....	3
20.....	Spool Eye.....	1409-3152.....	1
21.....	Allen Head Bolt.....	1409-3089.....	4
22.....	Handle Assembly.....	1409-3090.....	2
23.....	Handle Kit.....	1409-3091.....	2
24.....	Outrigger Control Boot.....	1409-3119.....	2

## HYDRAULIC ADAPTER & HOSE KIT MODEL 1710B-2415/2516

Reference	Description	Part No.	Qty.
1	Hose Assembly, 3/8"x 57"	0582-2106508057	1
2	Hose Assembly, 3/8"x 93"	0582-2106508093	1
3	Hose Assembly, 3/8"x 112"	0582-2106508112	1
4	Hose Assembly, 3/8"x 35"	0582-2506508035	1
5	Nylon Tie, Red	0554-2002	2
6	Nylon Tie, Yellow	0554-2003	2
7	Nylon Tie, Green	0554-2004	2
8	Hydraulic Adapter, Tee	0586-3009	1
9	Hydraulic Adapter, Straight	0586-1506-508	1
10	Hydraulic Adapter, 45°	0586-2106-406	1
11	Male Quick-Coupler	0580-6202	3
12	Female Quick-Coupler	0580-6203	3
13	Hose Assembly, 3/8"x 65"	0582-2106108065	1
14	Hydraulic Adapter, 90°	0586-3106-506	1
15	Hydraulic Adapter, Straight	0586-1063-406	1
16	Power Beyond Plug w/O-ring	0584-2006	1

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