

# Richmond Conveyors

## Hydraulic Deluxe

### Installation Manual

### with Schematic Pages

January 2021



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# Operator's Manual

Thank you for choosing a Richmond Conveyor

## Pre-use Inspection

Before using the conveyor, check the conveyor over for any hydraulic leaks, loose bolts, loose drive chain, loose conveyor chain, bearing, etc.

### STEP 1

To operate the conveyor, first position your truck so the truck is level making sure the parking brake is set.

### STEP 2

Remove tie down strap from the bulkhead to the conveyor.

### STEP 3

Make sure the diverter valve is in the conveyor position.

### STEP 4

Engage the PTO and the pump valve lever if necessary

### STEP 5

Lift and swing the conveyor into position by using the control levers at the base of the conveyor. Only use one valve at a time.

### STEP 6

Once the conveyor is in place, the roof support arms need to be positioned.

### STEP 7

When the conveyor is in position and ready to operate, then engage the motor valve to the forward position to start the conveyor chain in motion.

### STEP 8

Adjust the flow control valve for the desired speed. Do not run the conveyor chain any faster than necessary.

#### STEP 9

When you are done putting shingles on the roof, shut off the conveyor chain by putting the conveyor chain valve in the neutral position.

#### STEP 10

Then move the conveyor back to the cradle position on the truck.

#### STEP 11

Disengage the pump and PTO on the truck.

#### STEP 12

Then strap the conveyor back down to the cradle.

**IMPORTANT:** Do not drive the truck with the conveyor unstrapped. Do not use the truck material straps to tie down the conveyor. Strapping the conveyor in the middle can cause damage. Do not drive the truck with the PTO engaged.

## Removing Conveyor from Truck

### STEP 1

Unstrap the conveyor from the bulkhead.

### STEP 2

Move the conveyor to the side of the truck so the conveyor is level with the ground.

### STEP 3

Loosen the two set screws on the pocket of the conveyor post. The set screws are located under the truck bed on the pipe below. One set screw is 6" from the top of the truck bed and the other set screw is 18" down from the truck bed.

### STEP 4

Discount the quick releases on the hydraulic lines below the truck bed.

### STEP 5

Insert forklift into the forklift pockets.

### STEP 6

Raise forklift very slowly, only a few inches at a time. Make sure the post is sliding out of the pocket. You may need to hand rock the conveyor a little to get it started.

**Note:** Reverse the steps to install. Always grease the pocket wall and the post before putting the conveyor on the truck.

**Warning:** When removing the conveyor in the winter, make sure the conveyor post is not frozen in the pocket.

## **Maintenance Checklist**

Grease conveyor hinge every two weeks

Spray chain lube on the conveyor chain every two weeks

Spray lube the power rotation chain every two weeks

Grease 1" bearings one pump every four month

Check for loose gears or sprockets

Check for stress cracks in the metal components

Check for loose bolts or paddles

Check for hydraulic leaks

Lubricate spool valve of the diverter valve and emergency shut off valve every two weeks, making sure the valves works in and out freely

## **Maintenance Kit Material List**

2-Hold down strap

2-1/2" male pipe to 1/2" male pipe JLC adapter

2-1/2" male pipe to 1/2" female pipe swivel 90 degree fitting

2-1/2" male pipe to 3/8" female pipe swivel 90 degree fitting

2-Chain lube

2-3/8" hydraulic restrictor

2-Stainless paddles with rubber grip material

2-Replacement paddle rubber trip material

15-3/8 x 1 spin lock nut and bolt

## **Safety Information**

The conveyor is equipped with an emergency stop valve. This valve is designed so the operator can push the valve in any time to shut down the conveyor chain. The valve only shuts down the conveyor chain, not any other parts of the conveyor.

The conveyor is equipped with many caution and warning labels for the protection of the operator. It is very important that the operator read all labels before operating the conveyor.

The conveyor post is equipped with a line up pin at the base of the post that inserts into the pocket on the truck. This is a safety pin to assure that the conveyor post cannot rotate in the pocket. However, it is still necessary to tighten set screws. Do not operate conveyor without set screws being tight.

Both power rotation and hydraulic lift are equipped with restrictors. These restrictions are not to be removed. Removal could cause serious damage to the conveyor or injury to the operator.

At all times the conveyor must be put in the cradle and tied down with the strap provided on the conveyor when truck is in motion.

Do not ever unload shingles without the roof stand in place supporting the end of the conveyor.



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STEP 2	Steel/ wood bed cutouts and supports
STEP 3	Pocket gussets and support brackets
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STEP 6	Installing hydraulic post
STEP 7	Attaching conveyor to post
STEP 8	Mounting bulkhead bracket
STEP 9	Mounting diverter valve
STEP 10	Installing hydraulic port in hydraulic tank
STEP 11	Installing hydraulic return line
STEP 12	Installing pump and hoist hoses
STEP 13	Installing diverter valve hoses
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STEP 15	Testing conveyor
STEP 16	Installing cargo strap
STEP 17	Prime and paint
STEP 18	Installing loom clamp

## **Installation Kit Material List**

Installation manual

Operator's manual

Post

Conveyor

Pocket

Gussets for pocket

¼" plate for miscellaneous support brackets

15" - 1/8 x ¾ flat

1-3/8 drill bit

14-3/8 x 1 bolts and nuts (includes 2 extra)

Bulkhead cradle bracket

Bulkhead side support pieces

Diverter valve

Adapters for diverter valve

Angle iron bracket for diverter valve

2-1/2" hoses 15 feet long (1-for pressure to diverter valve/1-for return to tank)

½" pipe elbow

1-Primer

2-Black paint

1-Loom clamp and bolt

## Shingle Conveyor Mounting Instructions

### Step 1

Decide on the location of the pocket, left, right or center mount. Make sure the truck bed can hoist to the full capacity with the pocket in the position you would like it. Measure the length of the pocket. Most are 24" unless the post has the telescoping option.

This partial pocket was moved back approximately 6" so the bottom of the pocket would miss a support member.

**Note:** Shingle conveyor over 28' should be center mount only unless you have stabilizers.



## STEP 2

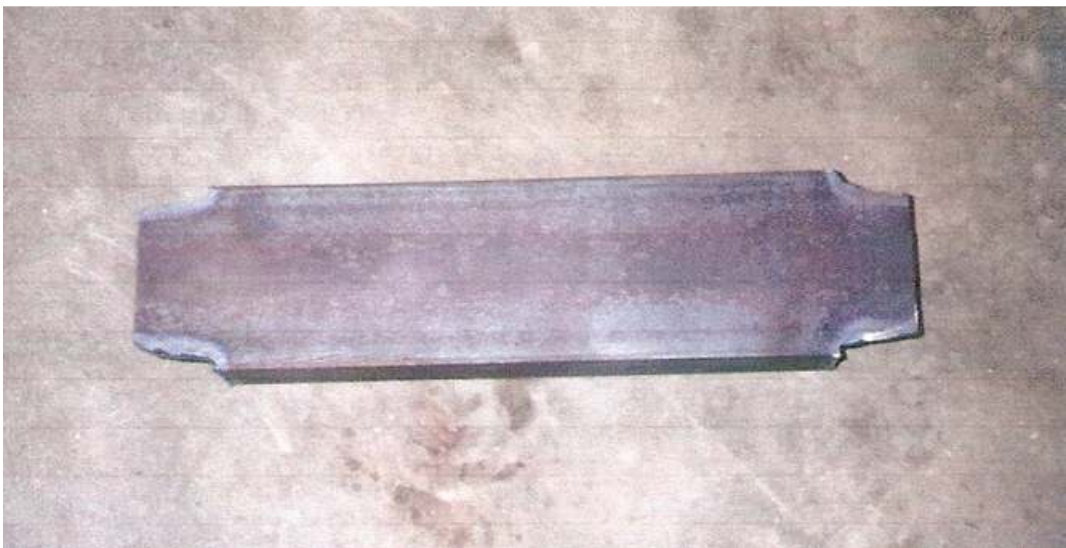
### **Steel bed floor**

If the truck bed is metal, cut a hole in the position of the post to insert the pocket. Weld channel iron supports between the truck bed cross members so that the  $\frac{1}{4}$ " pocket plate edges are over top supports all the way around. Before inserting the pocket, drill approximately 12 holes  $\frac{3}{4}$ " in diameter in various spots on the  $\frac{1}{4}$ " top plate. These holes are for plug welding the top plate to the truck bed floor.

### **Wood bed floor**

Cut out the wood to the size of the top plate plus  $\frac{3}{4}$ " to expose the truck bed cross members. Over-sizing this piece is so that when you weld down the top plate, you are welding on the top of the support tubes. Weld in heavy wall square tube or rectangle tube to frame in your pocket hole. This tube should be  $\frac{1}{4}$ " below the wood deck so when you insert the pocket plate, it is flush with the wood deck.

**Note:** If you need to cut down the  $\frac{1}{4}$ " top plate, do not cut any more than 6" away from the length or the width.







### STEP 3

Use the gusset provided to gusset the post to the floor plate.

**Note:** Please do not alter the gusset unless necessary

In the kit is a piece of  $\frac{1}{4}$ " plate 12" x 12". Use this to make pieces to support the post to any cross member passing through.







#### STEP 4

Once you make sure the pocket is level in both directions, you can solid weld the top plate to the truck bed, if it is metal, or to the support tubes. Also, weld the plug holes shut and solid weld the gussets to support pieces under the truck bed.



#### STEP 5

Cut a hole approximately 2" x 4" in the top plate on the valve side of the pocket to allow the hydraulic hoses to pass through. Line the edge of the hole with the 1/8 x 3/4 flat so no sharp edges protrude.



## STEP 6

Insert hydraulic post into the pocket. Make sure you grease the pocket wall and the conveyor post extremely well so the post slides in smoothly. Be sure to back out the pocket and screws. Then tighten them when the post is in place.



## STEP 7

Set the conveyor into the cradle. There are pre-drilled holes in the cradle. The distance between the end of the conveyor and the back of the cradle is 42". Drill through the predrilled holes into the conveyor section.

**Note:** this is where most operators prefer the conveyor to be set.

In the kit you will have 3/8" x 1 flange bolts and nuts to be used to bolt the conveyor to the cradle. There is a 3/8" drill bit provided in your kit. When drilling, run the drill slow and use lubrication.





## STEP 8

To mount the bulkhead bracket, attempt to get to a flat surface on the top of the bulkhead. Occasionally, you may need to cut a half round off the top of the bulkhead.

Clamp the bulkhead bracket to the conveyor to hold it in place. Set the conveyor down into the cradle. This will give you the angle you need to weld the bracket in place.

In your kit there are two pieces of  $\frac{1}{2}$  x 3 flat irons to support the conveyor bracket. Use these irons to support the end of the bracket back to the bulkhead.

**Note:** In some cases the pieces provided may not fit the application. You may need to make new ones or alter the existing pieces. The main purpose is that the bracket gets supported back to the bulkhead.



## STEP 9

In the kit you have a two way diverter valve, a 20" piece of 2 x 2 x 3/16 angle iron and a small piece of 1/4" plate. Use this to mount the diverter valve to the frame of the truck. Mount the valve to the frame on the driver side towards the front of the bed keeping in mind the hydraulic hose running from the conveyor to the diverter valve is 15 feet long so you may want to run that hose along the frame of the truck first.





#### STEP 10

Next you need to put a ½" return port into the hydraulic tank. On the top side of the tank locate the area that is away from any outlet ports. Drill ½" hole in the tank. Weld in place the ½" elbow provided in the kit.



#### STEP 11

Run the return line from the quick coupler on the conveyor to the elbow you welded into place.

**NOTE:** The hoses provided are Aeroquip hoses and fittings. DO NOT cut and crimp fittings on to the hoses. If the hose is too short, you can make an extension hose and add on to the hose. DO NOT alter the hoses provided.

STEP 12

Run a ½" hydraulic hose from the power side of the truck bed house to the "B" port of the diverter valve.

**NOTE:** This hose is not provided.

Hoist to diverter valve hose extensions (port "B" on diverter valve)



Pump to diverter valve. Hose connection to the pump (port "C" on diverter valve)



STEP 13

Run a ½" hydraulic hose from the hydraulic pump to the inlet side of the diverter valve-port "C".

**NOTE:** This hose is not provided.





#### STEP 14

You should be ready to test the conveyor.

On a PTO and external pump system, you will just have to engage the PTO. On a PTO and internal pump system, you will need to engage the PTO and the hoist valve. Make sure the diverter valve is in the conveyor position.

#### STEP 15

Test the conveyor's raise and lower feature and the chain motor. Work the raise and lower lever several times to get the air out of the system.

#### STEP 16

A cargo strap is provided in the kit. Weld the loops to each side of the bulkhead to strap the conveyor in place.



#### STEP 17

Prime the bare metal parts and welds. Paint after primer is dry.

**NOTE:** Some trucks may need a manual throttle control to increase the RPM of the motor while the conveyor is operating.

**NOTE:** Some trucks with larger hydraulic pumps may need a rotary 50/50 valve to cut down the amount of oil going to the conveyor's hydraulic system.

#### STEP 18

Install a loom clamp on the side of the conveyor to support the two hydraulic motor hoses.



## **Warranty**

30 days on parts and labor. One year on defective parts based on manufacturer's discretion. Also based only on defective parts and not on normal wear parts due to excessive use.



## Warranty Information Sheet

Please fill out in full and return upon completion of the installation process. This form must be filled out and returned for the warranty to be valid. Make a copy for your records and return original to Richmond Brothers Fabrication, 7911 Murdoch Rd., Bay Port, MI 48720

Conveyor purchased by: \_\_\_\_\_  
Company Name: \_\_\_\_\_  
Contact person: \_\_\_\_\_  
Address: \_\_\_\_\_  
PH: \_\_\_\_\_  
EM: \_\_\_\_\_

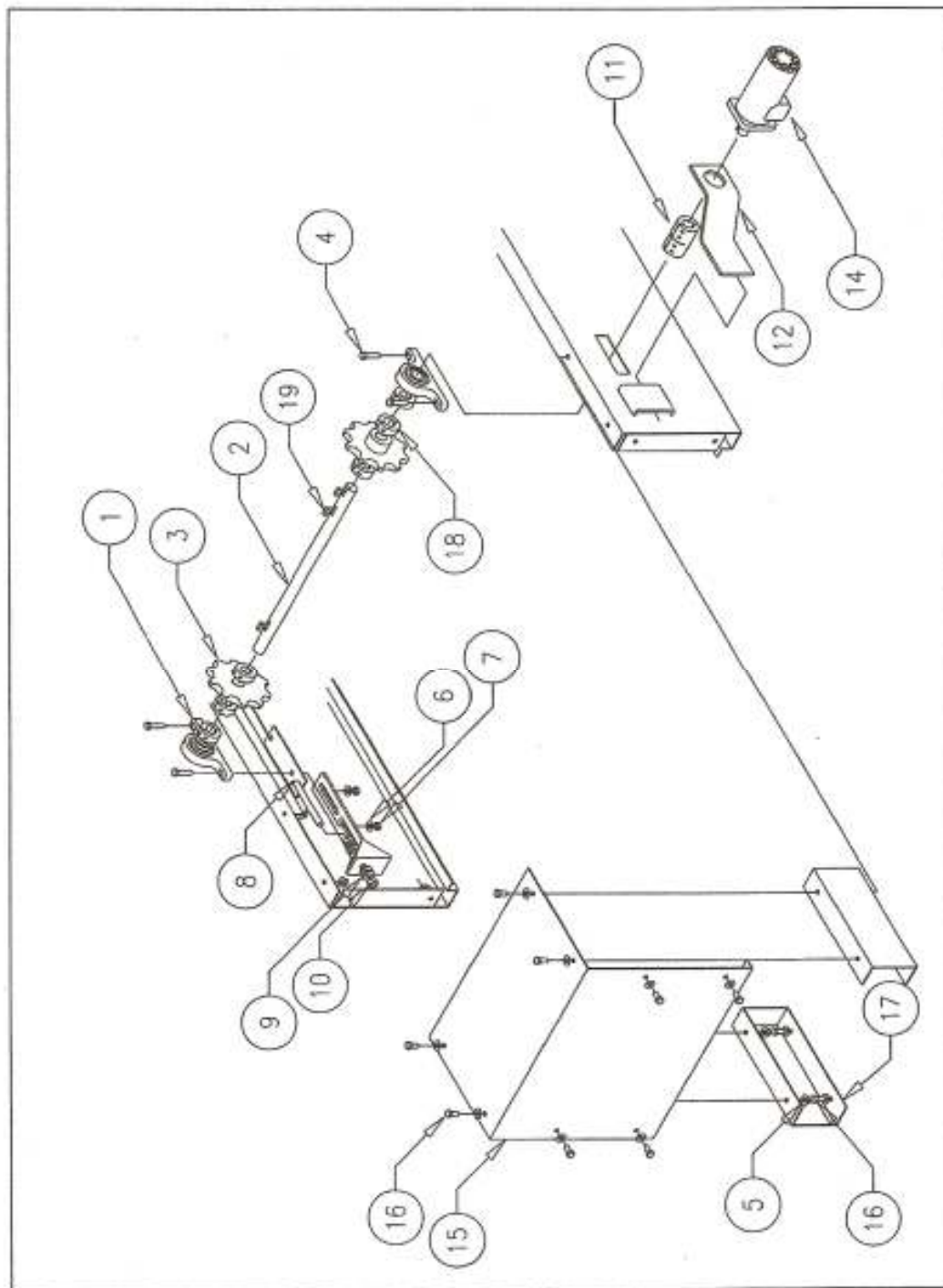
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Company Name: \_\_\_\_\_  
Contact person: \_\_\_\_\_  
Address: \_\_\_\_\_  
PH: \_\_\_\_\_  
EM: \_\_\_\_\_  
Date conveyor installed: \_\_\_\_\_

Conveyor Shipped to end user:  
Company Name: \_\_\_\_\_  
Contact person: \_\_\_\_\_  
Address: \_\_\_\_\_  
PH: \_\_\_\_\_  
EM: \_\_\_\_\_  
Date conveyor received by end user: \_\_\_\_\_

Post Serial No. \_\_\_\_\_  
Conveyor Serial No. \_\_\_\_\_

Signature of installer: \_\_\_\_\_

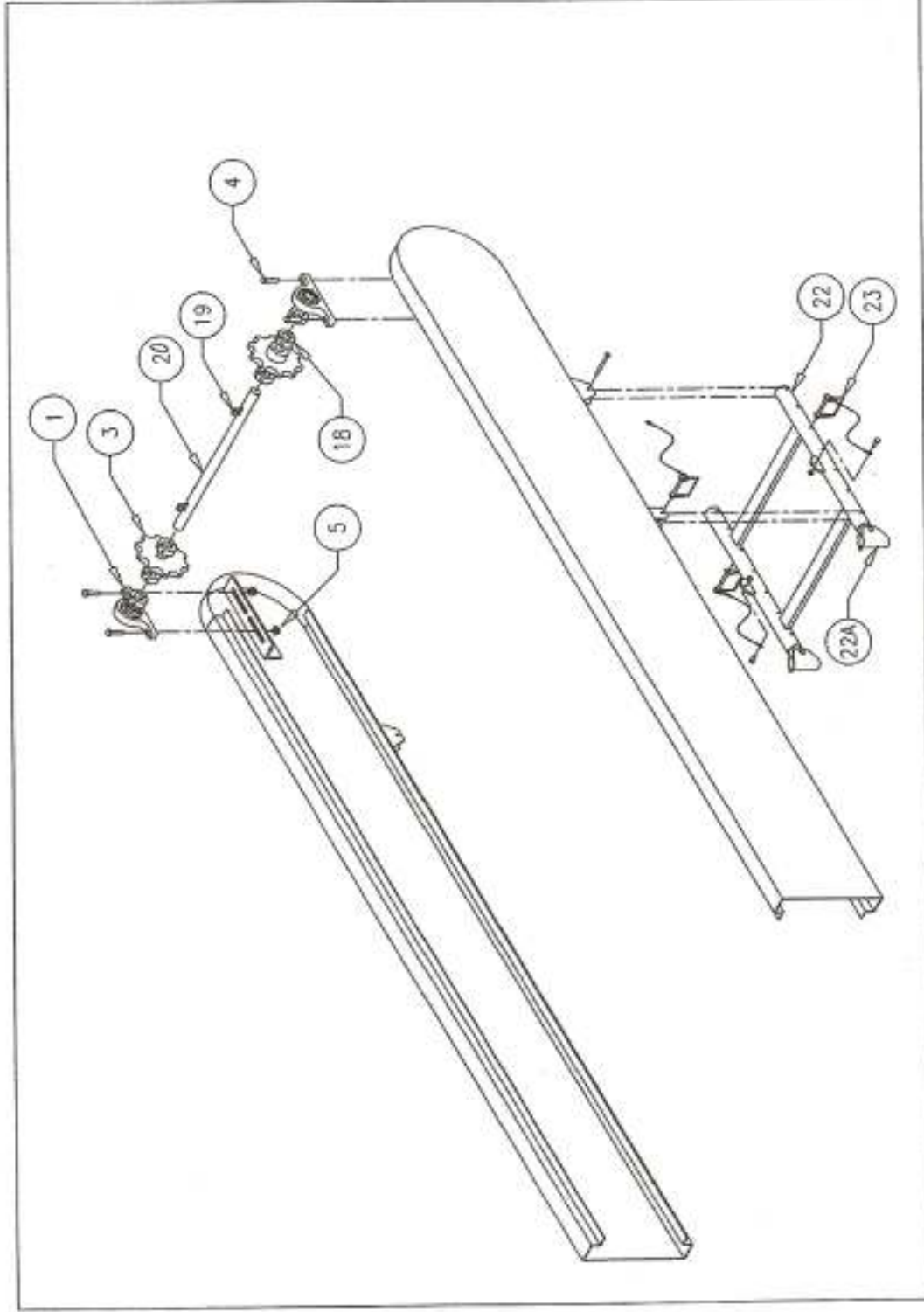
Signature of representative: \_\_\_\_\_  
( end user)



Richmond Conveyor - Charge End Exploded Parts Diagram

## Charge End Assembly Parts Listing

Item	Description	Qty
1	SAK1 Pillowblock Bearing	2
2	1" Drive Shaft – CRR w/ Keyways 21" (Tail Section)	1
3	CA550 10x1 Sprocket w/ 1/4" Keyway	2
4	3/8"-16 UNC x 1-3/4" Long	4
5	3/8"-16 UNC Whiznut	14
6	3/8" Flat Washer	8
7	3/8"-16 UNC Lock Nut	4
8	Chain Tension Adjuster Plate	2
9	1/2" Flat Washer	4
10	1/2-13 UNC Nut	4
11	1" Motor Coupler	1
12	Motor Bracket	1
14	Hydraulic Conveyor Motor	1
15	Charge End Cover	1
16	3/8"-16 UNC x 3/4" Long	14
17	Riser Blocks	2
18	1" Split Lock Collar	6
19	1/4 x 1" Half Moon Key	3



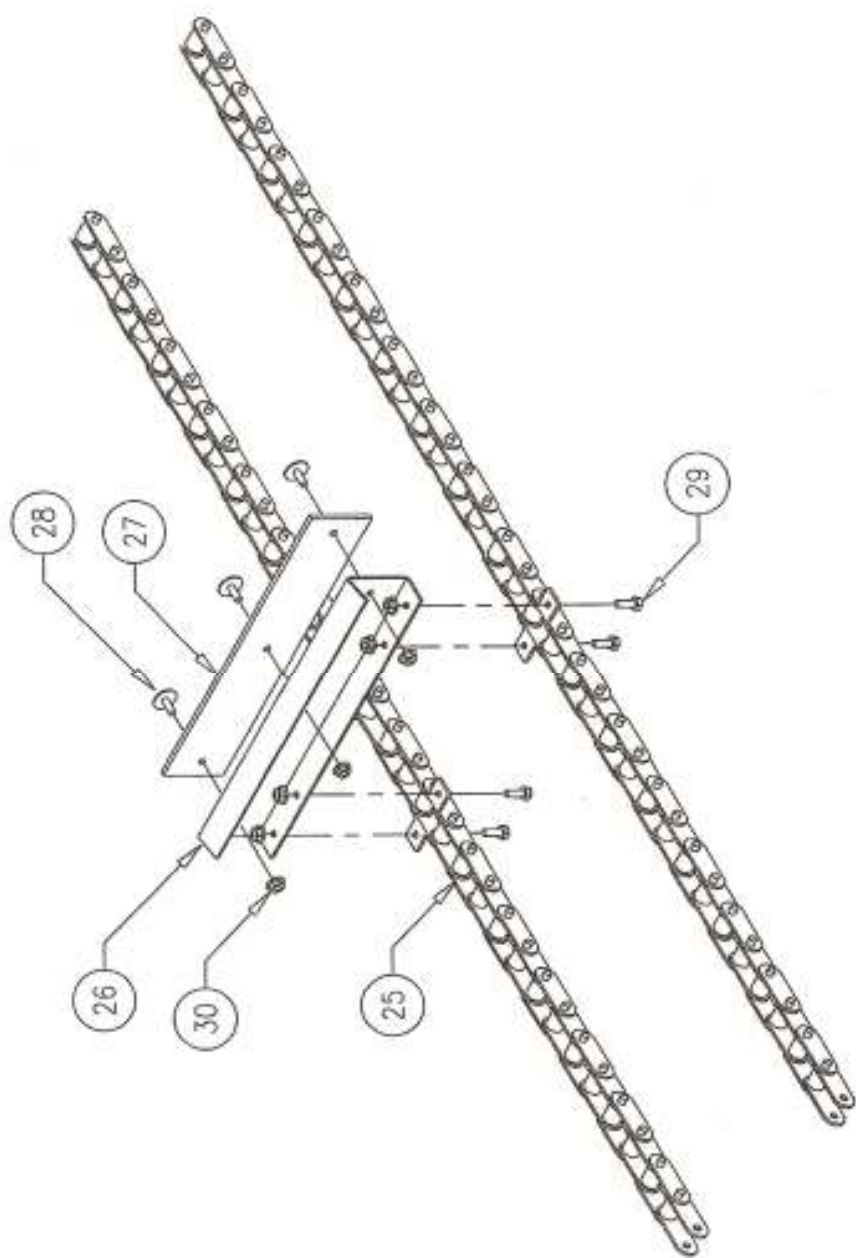
Richmond Conveyor - Discharge End Exploded Parts Diagram

## Discharge End Assembly Parts Listing

Item	Description	Qty
1	SAK1 Pillowblock Bearing	2
3	CA550 x 10 Sprocket, 1" Bore, 1/4" Keyway	2
5	3/8" -16 UNC Whiznut	16
18	1" Shaft Split Lock Collar	6
19	1/4 x 1" Half Moon Key	2
20	1" Idle Shaft - CRR w/ Keyways 19" (Head Section)	1
21	3/8"-UNC x 1 1/4" Long	4
22	Roof Stand Assembly	1
22A	Roof Stand Leg & Pad	2
23	Roof Stand Pin / Cable	3



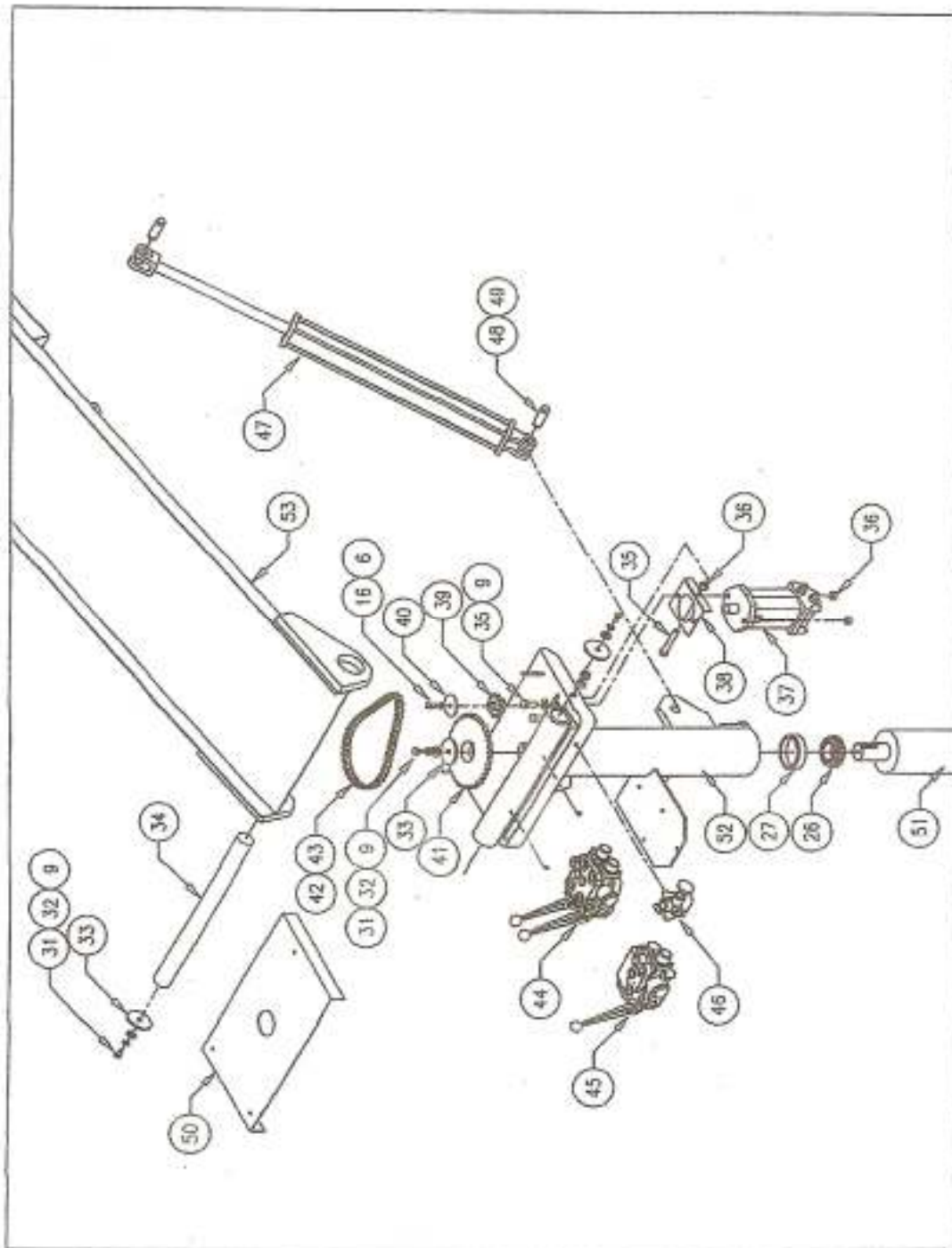




Richmond Conveyor – Chain and Slat Exploded Parts Diagram

## Chain and Slat Assembly Parts Listing

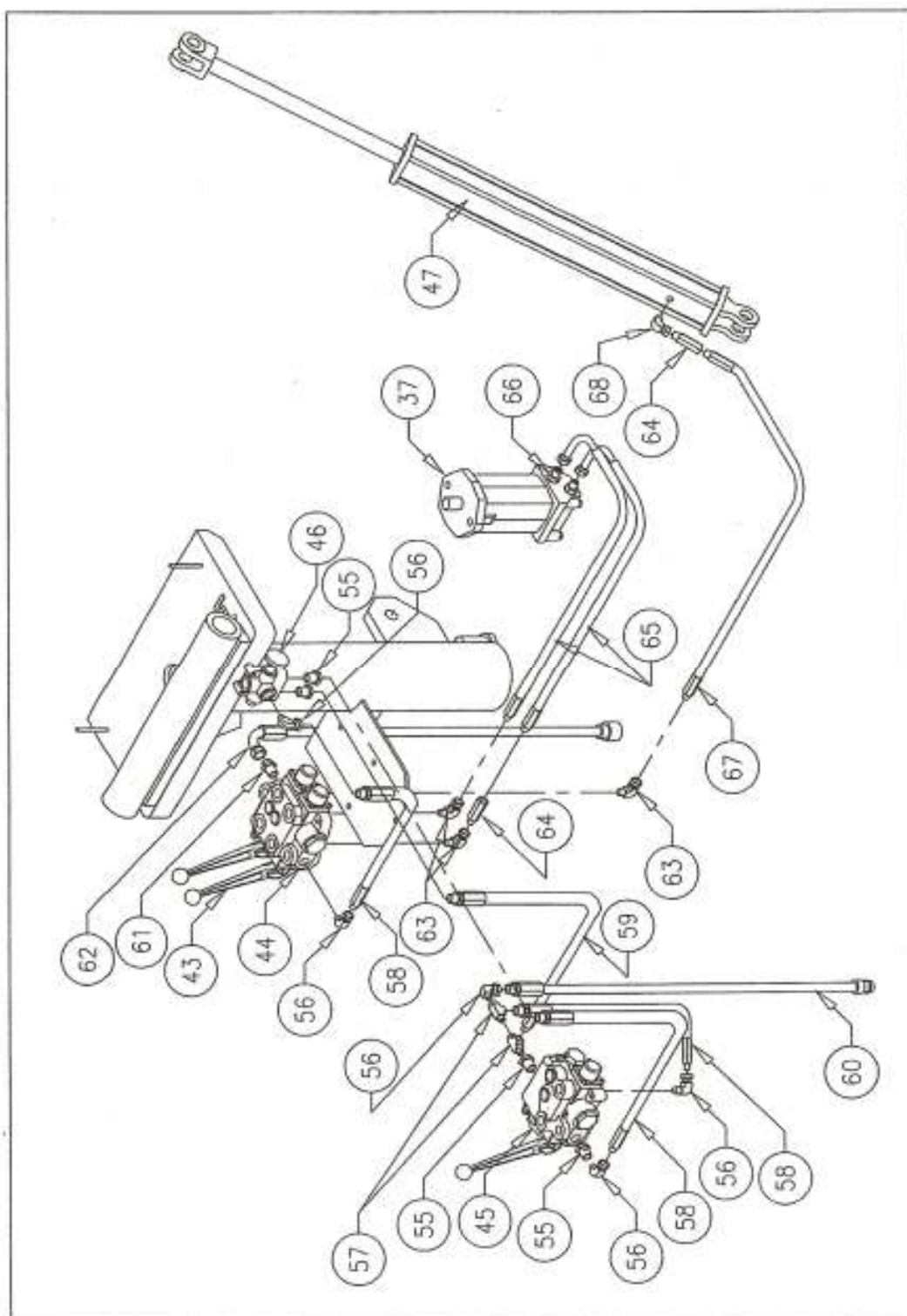
Item	Description	Qty
25	CA550 Chain with K1 Attachment	
26	Paddle w/ Rubber Assembly	
27	Rubber Pad	
28	1/4" -20 UNC x 3/4" Elevator Bolt	
29	1/4" -20 UNC x 3/4" Truss Bolt	
30	1/4" -20 UNC Whiznuts	



Richmond Conveyor – Pivot Assembly Exploded Parts Diagram

## Pivot Assembly Parts Listing

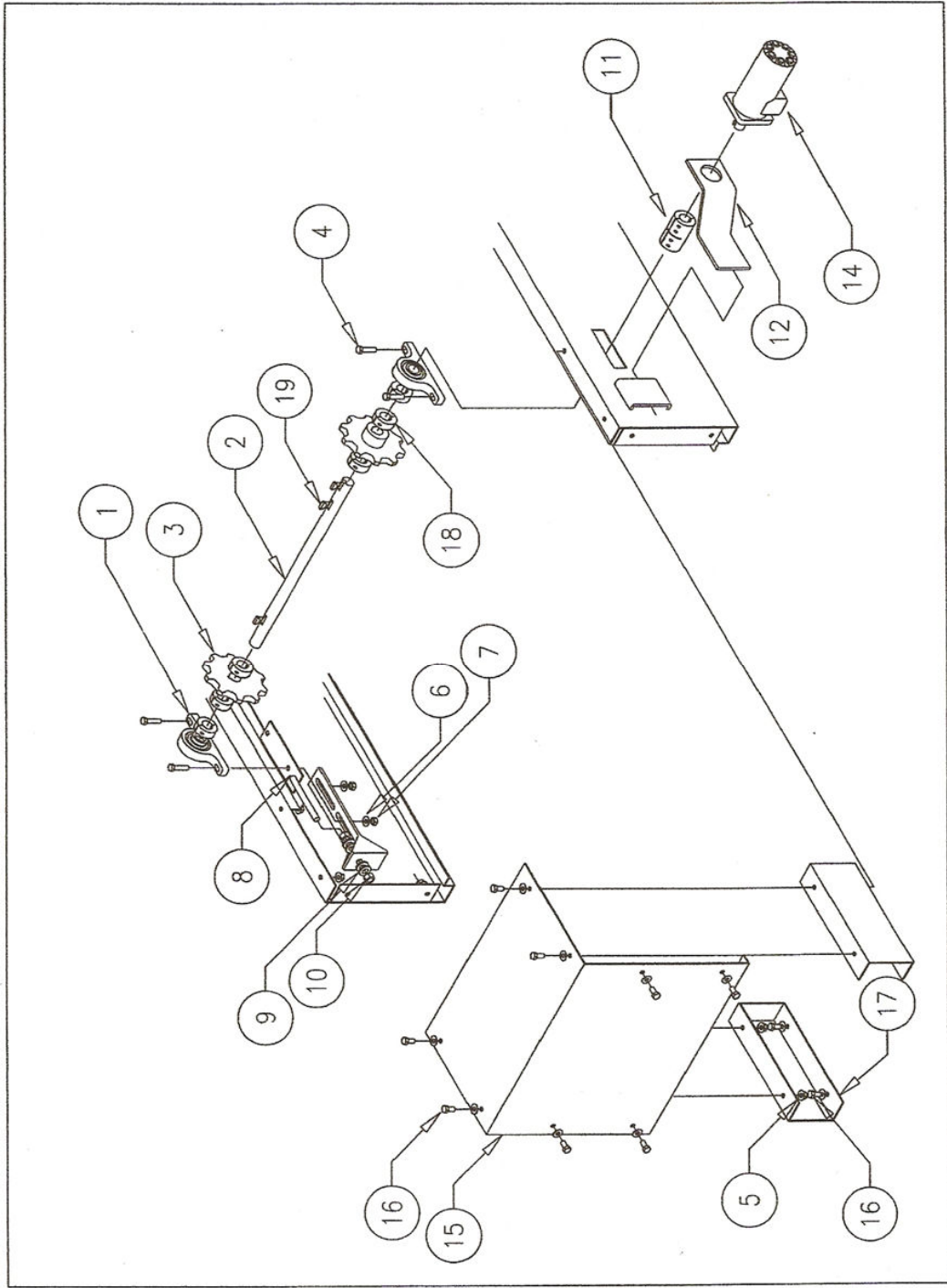
Item	Description	Qty
6	3/8" Flat Washer	1
9	1/2" Flat Washer	4
16	3/8"-16 UNC x 3/4" Hex Bolt	1
26	Post Rotation Pivot Bearing	1
27	Post Rotation Pivot Bearing Race	1
31	1/2" -13 UNC x 3/4" Hex Bolt	3
32	1/2" Lock Washer	3
33	Hinge Pin Washer	3
34	Hinge Pin	1
35	1/2" -13 UNC x 2' Hex Bolt	3
36	1/2" -13 UNC x 2' Lock Nut	3
37	Rotation Motor	1
38	Rotation Motor Adjustment Plate	1
39	60BS11 x 1 1/4 Motor Sprocket	1
40	Retaining Plate for 11 Tooth Sprocket	1
41	60BS52 x 2 Rotation Sprocket	1
42	RC-60 Rotation Chain	
42A	RC-60 Master Link for Rotation Chain	1
42B	RC-60 1/2 Link for Rotation Chain	1
44	Hydraulic Valve for Rotation & Boom Operation	1
45	Hydraulic Valve & Speed Control for Drive Chain	1
46	Emergency Stop Shutoff Valve	1
47	Hydraulic Lift Cylinder	1
48	Mounting Pin for Hydraulic Cylinder	2
49	Retaining Clips for Mounting Pins	2
50	Rotation Chain Guard Cover	1
51	Inner Rotational Post (Non-Telescoping)	1
52	Outer Post w/ Valve Plate & Hinge	1
53	Conveyor Cradle	1



**Richmond Conveyor – Hydraulic Components Exploded Parts Diagram**

## Hydraulic Components List

Item	Description	Qty
37	Rotation Motor	1
43	Handle for Hydraulic Valves	3
44	Hydraulic Valve for Rotation and Boom Operation	1
45	Hydraulic Valve and Speed Control for Drive Chain	1
46	Emergency Stop Valve	1
47	Hydraulic Cylinder	1
55	Hydraulic Bushing	4
56	1/2" – 1/2" 90 degree Hydraulic Elbow Fitting	5
57	1/2" Hydraulic Tee Fitting	2
58	Hydraulic Hose	3
59	Hydraulic Hose	1
60	Hydraulic Hose with Male Quick Coupler	1
61	JIC Adapter Bushing	1
62	Hydraulic Hose with Female Quick Couplet	1
63	1/2" - 3/8" 90 degree Hydraulic Elbow Fitting	3
64	3/8" Hydraulic Flow Restrictor	2
65	Hydraulic Hose to Pivot Motor	2
66	O-Ring to JIC Adaptor	2
67	Hydraulic Hose to Piston	1
68	3/8" - 3/8" 90 degree Hydraulic Elbow Fitting	1

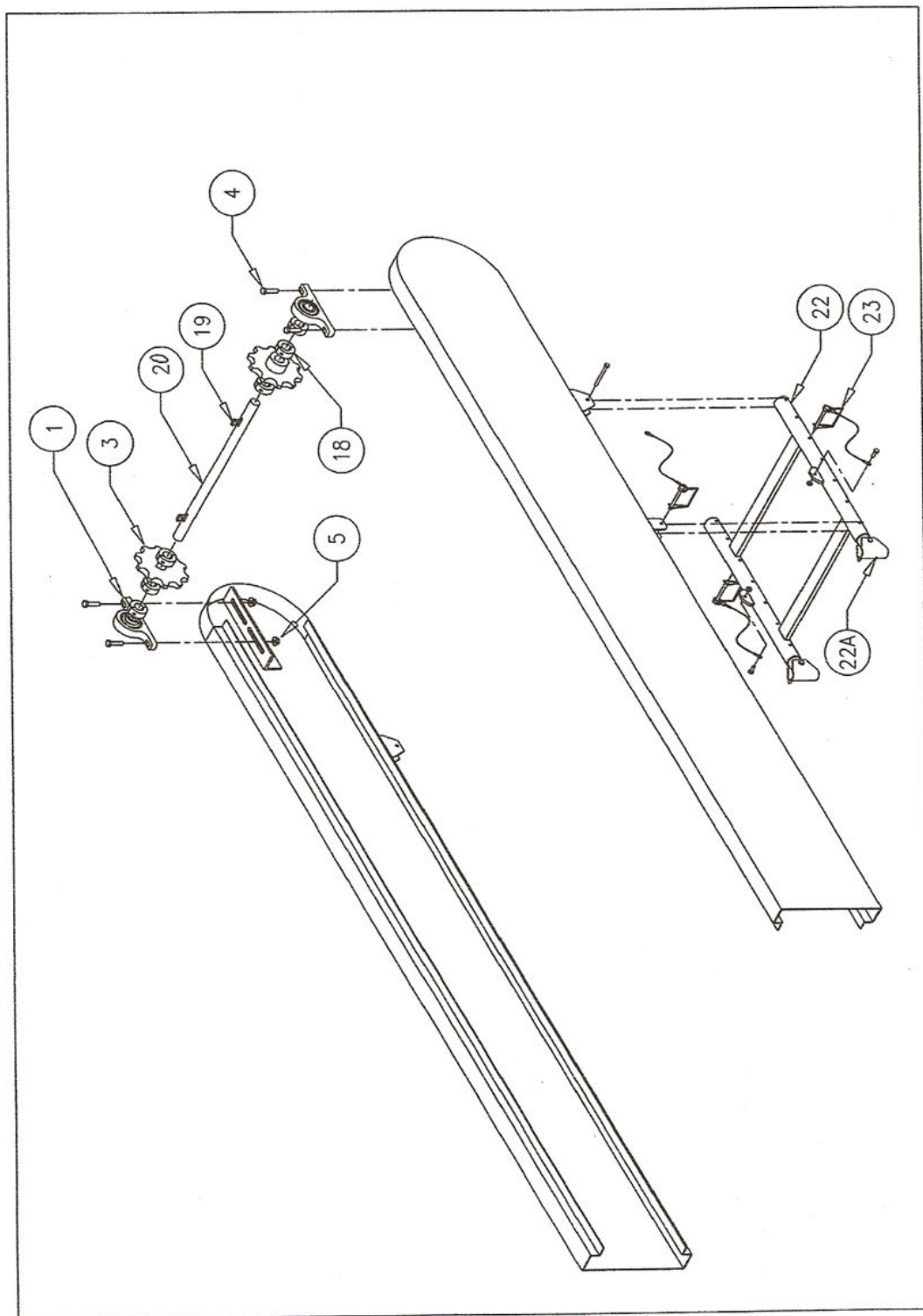


**Richmond Conveyor - Charge End Exploded Parts Diagram**



## Charge End Assembly Parts Listing

Item	Description	Qty
1	SAK1 Pillowblock Bearing	2
2	1" Drive Shaft – CRR w/ Keyways 21" (Tail Section)	1
3	CA550 10x1 Sprocket w/ 1/4" Keyway	2
4	3/8"-16 UNC x 1-3/4" Long	4
5	3/8"-16 UNC Whiznut	14
6	3/8" Flat Washer	8
7	3/8"-16 UNC Lock Nut	4
8	Chain Tension Adjuster Plate	2
9	1/2" Flat Washer	4
10	1/2-13 UNC Nut	4
11	1" Motor Coupler	1
12	Motor Bracket	1
14	Hydraulic Conveyor Motor	1
15	Charge End Cover	1
16	3/8"-16 UNC x 3/4" Long	14
17	Riser Blocks	2
18	1" Split Lock Collar	6
19	1/4 x 1" Half Moon Key	3

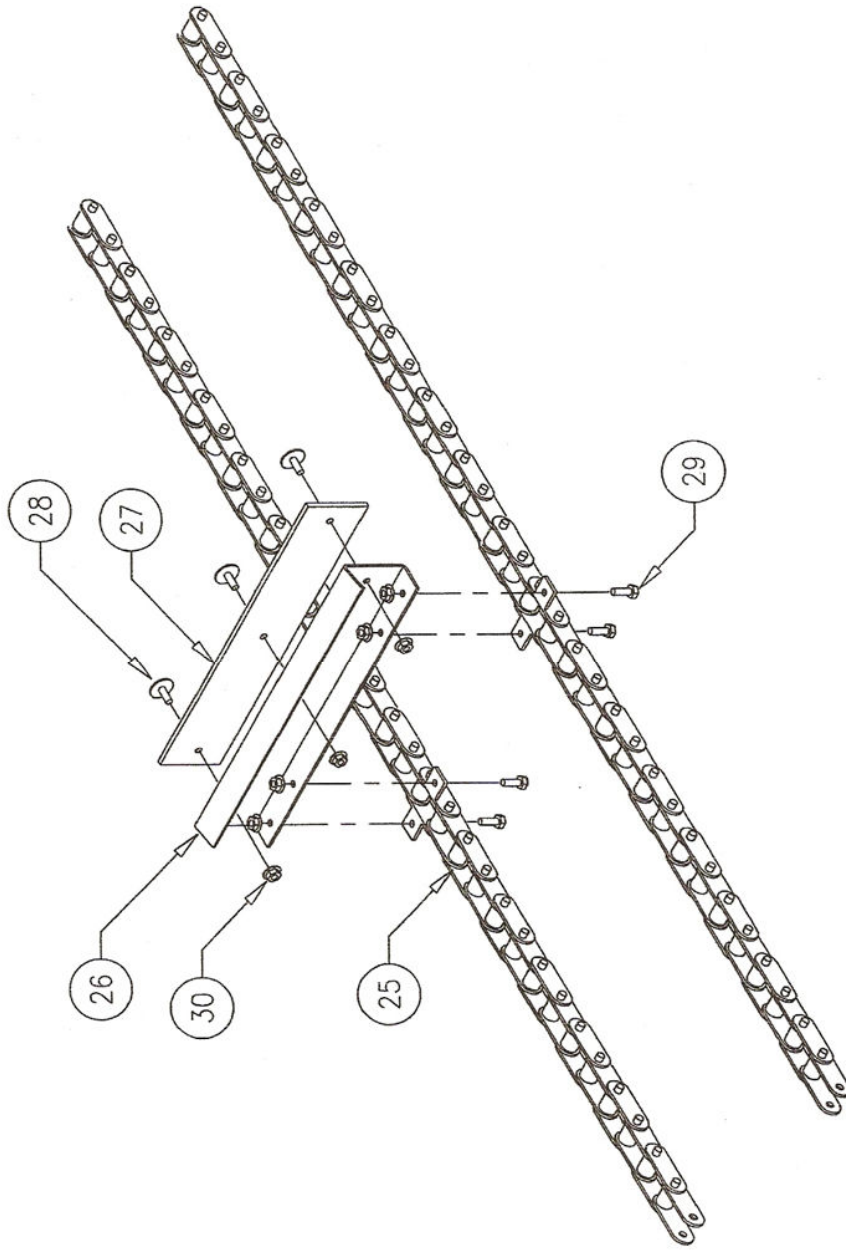


Richmond Conveyor - Discharge End Exploded Parts Diagram

## Discharge End Assembly Parts Listing

Item	Description	Qty
1	SAK1 Pillowblock Bearing	2
3	CA550 x 10 Sprocket, 1" Bore, 1/4" Keyway	2
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18	1" Shaft Split Lock Collar	6
19	1/4 x 1" Half Moon Key	2
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23	Roof Stand Pin / Cable	3

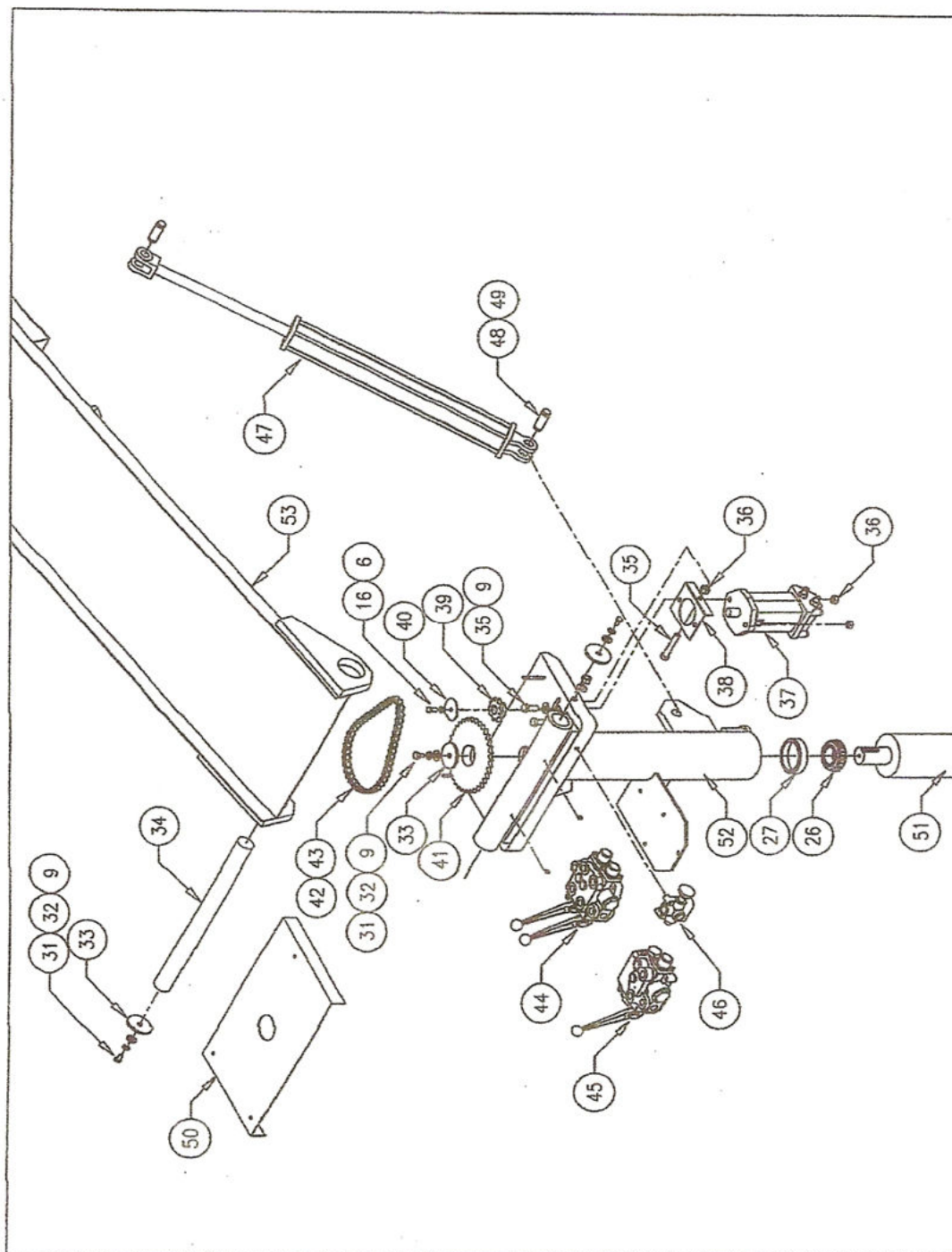




Richmond Conveyor – Chain and Slat Exploded Parts Diagram

## Chain and Slat Assembly Parts Listing

Item	Description	Qty
25	CA550 Chain with K1 Attachment	
26	Paddle w/ Rubber Assembly	
27	Rubber Pad	
28	1/4" -20 UNC x 3/4" Elevator Bolt	
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30	1/4" -20 UNC Whiznuts	

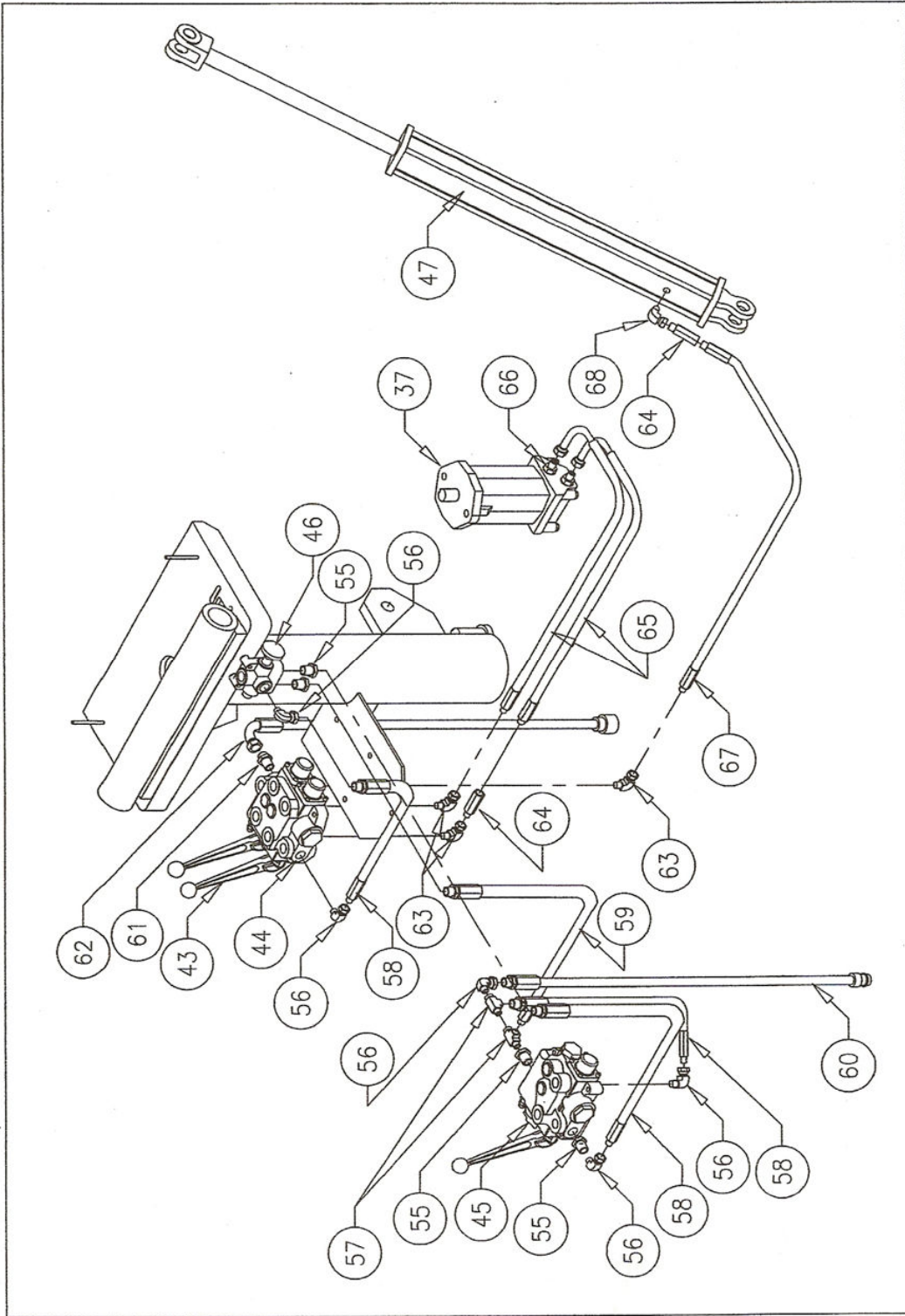


Richmond Conveyor - Pivot Assembly Exploded Parts Diagram

## Pivot Assembly Parts Listing

Item	Description	Qty
6	3/8" Flat Washer	1
9	1/2" Flat Washer	4
16	3/8"-16 UNC x 3/4" Hex Bolt	1
26	Post Rotation Pivot Bearing	1
27	Post Rotation Pivot Bearing Race	1
31	1/2" -13 UNC x 3/4" Hex Bolt	3
32	1/2" Lock Washer	3
33	Hinge Pin Washer	3
34	Hinge Pin	1
35	1/2" -13 UNC x 2' Hex Bolt	3
36	1/2" -13 UNC x 2' Lock Nut	3
37	Rotation Motor	1
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47	Hydraulic Lift Cylinder	1
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49	Retaining Clips for Mounting Pins	2
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51	Inner Rotational Post (Non-Telescoping)	1
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53	Conveyor Cradle	1





Richmond Conveyor – Hydraulic Components Exploded Parts Diagram

## Hydraulic Components List

Item	Description	Qty
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43	Handle for Hydraulic Valves	3
44	Hydraulic Valve for Rotation and Boom Operation	1
45	Hydraulic Valve and Speed Control for Drive Chain	1
46	Emergency Stop Valve	1
47	Hydraulic Cylinder	1
55	Hydraulic Bushing	4
56	1/2" – 1/2" 90 degree Hydraulic Elbow Fitting	5
57	1/2" Hydraulic Tee Fitting	2
58	Hydraulic Hose	3
59	Hydraulic Hose	1
60	Hydraulic Hose with Male Quick Coupler	1
61	JIC Adapter Bushing	1
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64	3/8" Hydraulic Flow Restrictor	2
65	Hydraulic Hose to Pivot Motor	2
66	O-Ring to JIC Adaptor	2
67	Hydraulic Hose to Piston	1
68	3/8" - 3/8" 90 degree Hydraulic Elbow Fitting	1