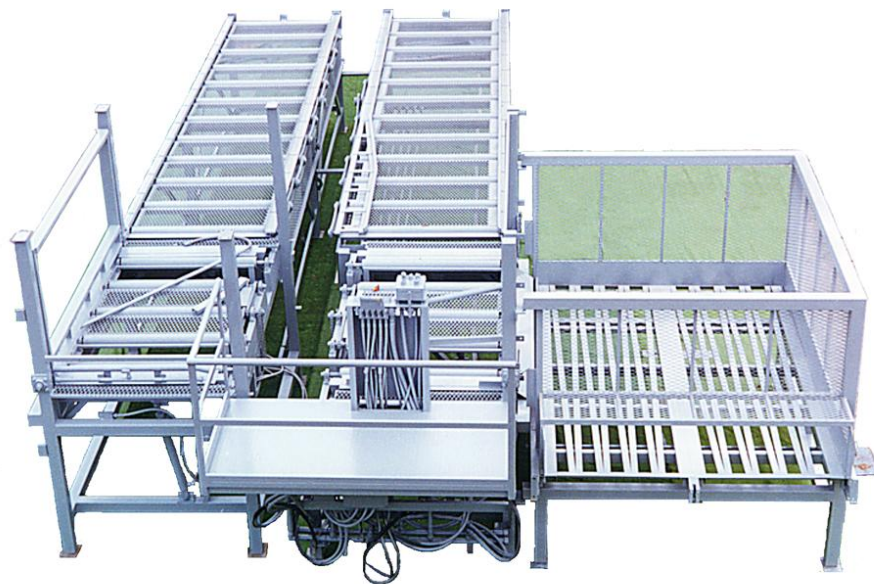


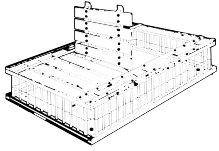
***Bright Coop, Inc.  
Cage Dump System***



**OPERATION AND  
MAINTENANCE  
MANUAL**

**D0-508.0**

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# BRIGHT COOP, INC

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Nacogdoches, TX 75964

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For Parts Orders Contact  
Bright Coop, Inc. Parts Dept.  
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## CAGE DUMP OPERATION AND MAINTENANCE CATALOG

**NOTE:**

If contacting us via email, include a telephone number where you can be contacted in case we have questions about your order.

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Company: \_\_\_\_\_ Plant Location: \_\_\_\_\_ Date: \_\_\_\_\_

### Cage Dump System Warranty

BRIGHT COOP INC. warrants to all original purchasers, subject to exceptions and upon the conditions below, the product shall be free from defects in material and workmanship, for a period of one year from delivery to purchaser.

Condition #1:

BRIGHT COOP INC. reserves the right to repair or replace any part or parts of the product at their discretion.

Condition #2:

This warranty shall be void if in judgment by BRIGHT COOP INC. the cause of the failure is due to alterations by the customer, misuse, negligence, or unapproved operating procedures by the operator.

Condition #3:

BRIGHT COOP INC. is not responsible for any failures due to negligence regarding the scheduled maintenance of the equipment.

Condition #4:

In no event shall BRIGHT COOP INC. be liable for bodily injury, incidental or consequential damages, or commercial losses.

I have read the following warranty and the warranty conditions.

I have been supplied with an Operator and Safety Manual by BRIGHT COOP INC.

\_\_\_\_\_ Date: \_\_\_\_\_

Signature

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## **ATTENTION!**

Before placing your new BRIGHT COOP INC. Dump System into service, read the following safety instructions. These instructions are for your safety. In the event the labels become unreadable or removed, contact BRIGHT COOP INC. for replacements. Failure to adhere to these instructions can result in the damage of property, personal injury and accidental death.

# **CAUTION**

**MOVING PARTS – SERVICE, CLEAN  
OR ADJUST ONLY IF POWER IS  
OFF!**

Never attempt to adjust, service or clean any part of the system unless the power is off. Accidental Start-up of equipment is one of the leading causes of personal injury accidents.

# **CAUTION**

**Stand Clear (6 feet minimum)  
While Machine Is Operating and  
In Motion**

Never stand closer than six feet to the system. Debris from the chickens can cause personal injury. A rupture in high pressure hydraulic line can cause burns and other injuries.

## **Safety Procedures for Maintenance and Operation of**

### **BRIGHT COOP INC. DUMPER SYSTEM**

It is our intention at BRIGHT COOP INC. to provide the safest, most cost effective products available. Ultimate responsibility rests solely on the operator. Take time, use caution, and follow safety recommendations. It could save time, money and lives!

**Operator** is responsible for making sure everyone is clear of the machine at all times.

**Make Sure** no unauthorized personnel are on the machine at any time.

**Operator** should always keep all body parts inside the operator's area.

**No Unauthorized** personnel should be allowed on the system beyond the operator's area.

**Under no circumstances should anyone be under the Dumper during operation!**

**Always use handrails** and make sure they are secure at all times.

**Do Not** operate the Dumper System unless all access doors are closed and guards are in place.

**Lift Drivers** should be instructed to always allow the cages to be moved forward toward the Dumper using the hydraulic rollers. Never allow them to shove the cages onto the hydraulic platform.

**Turn the system off if any malfunction occurs.**

**Every Operator** must be required to know the proper procedures to disconnect the power supply.

**Always** relieve pressure on the hydraulic system before performing maintenance.

**Never** attempt to service the system while it is in operation.

**Always** disconnect the power source before performing repairs or maintenance.

**Always** wear proper attire when performing maintenance or operating the system. Safety glasses, hard hats, dust mask, and ear protection are recommended. Loose Clothing should not be worn while maintaining or operating machinery.

# CAUTION

DO NOT ATTEMPT TO SERVICE  
WHILE MACHINE IS IN MOTION

Never attempt to adjust, service or clean the machine while it is in operation. The system is made up of several moving parts. Persons can become entangled or crushed by these parts, causing serious injury or death.

# CAUTION

ONLY ONE (1) PERSON ON  
CONTROL PLATFORM  
(OPERATOR ONLY)

Never allow more than one person on the operator's platform. The operator can not be responsible for that person and operate the system properly.

# "SAFETY FIRST"

## WATCH YOUR STEP

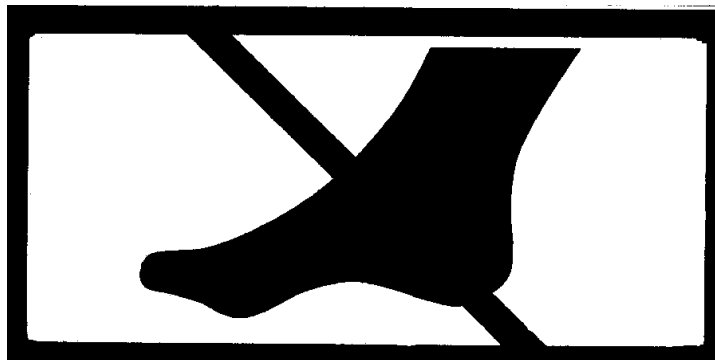
Poultry plants have wet and slippery environments. Careful attention should be exercised when attempting to walk and travel on and around the system when operating or servicing the unit.

## CAUTION

DO NOT ATTEMPT TO REMOVE GUARDS  
WHILE MACHINE IS IN MOTION  
(RUNNING)

CAUTION - REPLACE ALL GUARDS  
BEFORE STARTING MACHINE

The system is equipped with chains and sprockets. Unguarded they become a hazard to fingers and limbs. Never remove the guards during operation for this reason. This can result in the loss of fingers and limbs.



This system incorporates hydraulic tilts and chains, which become crush hazards or pinch points for the feet and hands when the system is in operation.

# ***CAGE DUMP PARTS CATALOG***

## ***GENERAL INFORMATION***

Please pay special attention to the General Maintenance Section. This Section provides lubricant recommendations, periodic check points, etc., that will prolong the life of replaceable parts.

Due to a continuous program of research and development, some procedures, specifications, and parts may be altered in a constant effort to improve our products. When such changes and improvements are made in our products, periodic revisions may be made to this catalog in order to keep it up to date.

## **MAINTENANCE**

### **FILTRATION**

The ultimate life of hydraulic componentry is contingent upon system cleanliness. Any restrictions in the suction line will decrease the allowable maximum viscosity. In general, pressure drop in the suction line between the tank and pump inlet should not exceed 6" mercury with vane pumps, when pumping full volume at sea level under start-up conditions.

## **HYDRAULIC PUMPING UNIT**

### **FILTERS**

230-00041	Location:	Inside tank suction filter on bottom
	Maintenance:	Clean when oil is changed
230-00020	Location:	Outside tank, set of two
	Maintenance:	Change both within 50 hours of operation from First start-up, then change every 250 hours.
230-00016	Location:	Outside tank, single unit
	Maintenance:	High pressure filter which has a red button which Will pop out when the filter needs changing (Older Models). New models have a tube with a white plunger inside with green strips and a red band painted on the outside. Filter needs changing when the plunger is in the red during normal operation.

## FLUID LEVEL

The reservoir has a sight gauge and a thermometer located on the outside of it. Fluid level should be kept between the low and high mark on the gauge. Make sure the gauge is not corroded and works properly. Check the level at least once a week if there are no leaks in the system and daily if the system is leaking. It is highly recommended to repair all leaks found immediately.

Hydraulic component will operate efficiently only within a specific viscosity range. A fluid which is too viscous may prompt cavitations. Conversely, a fluid which is too thin may allow accelerated rates of wear and additional slip losses.

Pump model no's. 1PV2V4 – It is recommended to operate with hydraulic fluid viscosity of 81 to 740 SSU, and temperature of oil range between 14 deg. F and 150 deg. F. We recommend a medium weight oil (see recommended oil chart in this manual for Vane Pumps).

Pump model no's. A10VO140 – It is recommended to operate with hydraulic fluid for optimum viscosity of 80 to 170 SUS (16 to 36 mm<sup>2</sup>/s), and a temperature range between 13 deg. F and 195 deg. F. (see recommended oil chart in this manual for Axial Piston Pumps).

Char-Lynn hydraulic motors are recommended to use fluid viscosity no less than 70 SSU, and filtration to 10 Microns. Maximum oil temperature is 150 deg. F.

### HYDRAULIC OIL RECOMMENDED: Viscosity Grade “B”

Petroleum oils of the high pressure anti-wear type industrial oils or the use of designation class “SC”, “SD”, or “SE” crankcase oils, (SAE Technical report V-183a). Vickers pumps are supplied as a standard, with Buna-N seals. These seals are suitable for use with petroleum base hydraulic oils.

### HEATING ELEMENT:

Mounted on the reservoir of the hydraulic pumping unit and will keep the oil at proper temperature in cold weather. We recommend a 70 deg F setting which is mid range. Note, It will take as long as 12 hours to bring this volume of oil up to that temperature in hydraulic unit reservoir, depending on the ambient temperature outside the tank.

### FLOAT VALVE: Bright Coop Part No. 190-00070

Check float in hydraulic pumping unit reservoir, in case of motor shut-down. When hydraulic fluid is low, float valve automatically shuts off pump system.

### WHEN TO CHANGE HYDRAULIC FLUID

Fluid should be changed once a year. Tank capacity is approximately 165 gallons.

### HYDRAULIC HOSES

Check hose connections for tightness and wear once a month.

### HYDRAULIC OIL

If oil is over-heating, remove or open lid on reservoir and check the relief valves to make certain they are not being by-passed (this only applies to old style pumping units as new ones are manufactured without the use of external relief valves).

### HEAT EXCHANGER, WATER TYPE

For protection against freezing in cold or freezing weather, turn water sources off and drain from the input end of system.

### CHAIN REPLACEMENT

The following schedule and instructions are suggested to prevent damage to sprocket teeth due to worn chain. Consider replacing a chain when it elongates more than the recommended limit, determined by the following method...

$\% \text{ elongation} = 200 / \text{Number of Teeth on a large sprocket}$ . If the number of teeth is less than 67, use 30% elongation as your limit.

Oil once every month or as needed.

### LUBRICATION GUIDE FOR BEARINGS

Re-lubricate with lithium base grease, No. 2 Consistency. Do not use ordinary cup grease.

#### LUBRICATION GUIDE SCHEDULE

Hours run per day	Suggested lubrication period in weeks 1 to 250 RPM
8	12 Weeks
16	12 Weeks
24	10 Weeks

Normal temperature and slight showing of grease at the seals indicates proper lubrication. High temperature accompanied by excessive leakage of grease indicates too much grease.

## INSTALLATION OF REPLACEMENT BEARINGS

1. Clean shaft. Shaft should be straight and free of burrs. If shaft is bent or badly worn, replace when replacing bearings.
2. Align the bearing in it's housing, then slip bearing into position. For tighter fits, tap the inner ring only with a soft driver. **DO NOT HAMMER ON HOUSING!**
3. Bolt the housing tightly to it's mounting support, then lock the bearing to shaft as follows:
  - A. Concentric Collar Units:  
Lock bearing to shaft by tightening each collar. Set screw to recommended torque listed by the shaft size. (1 7/16" shaft – 70 in. lbs.)(1 15/16" shaft – 140 in. lbs.) If torque wrench is not available, the proper torque can be approximated by using a socket key with sufficient force to "spring" the key without permanently deforming the key.
  - B. It may be necessary to rotate the shaft to provide easy access of the set screw wrench to the screws. To disassemble, loosen set screws.
  - C. Warning  
If Locking Collar is tightened too tight to a shaft which is worn down, the bearing raceway will be damaged and bearing failure will result. **DO NOT HIT WITH A HAMMER ON HOUSING** – Only tap lightly!
  - D. To Remove  
Loosen set screw(s) and tap collar in the direction opposite of shaft rotation.
  - E. When washing equipment, **DO NOT** hold pressurized water spray too close to bearings; 8" to 12" minimum distance.

## DUMPER CAGE DUMP SYSTEM AND CAGE WASHER PARTS TO CHECK FOR WEAR

1. Drive Shafts
2. Wing Pulley Shaft
3. Idler Shafts
4. Bearings (Grease every week, 3 pumps (shots) each
5. Sprockets
6. Hydraulic Drive Motor(s)
7. Sprocket on Motor

8. Bushings on Sprockets
9. Hinge Pin, Tilt Cradle Frame
10. Roller Chain(s)
11. Hydraulic Cylinder(s)
12. Cylinder Pins and Clevis' (2 each cylinder)
13. UHMW Bearing surface on top of washer and '05 Door Closers, check for wear every 6 months
14. UHMW Bearing in center of drive shaft on 88" Plastic Belts, check every time belt is replaced
15. Pins that connect Plastic belt modules, check to make sure they are locked in place. Check monthly
16. General Inspection of unit to make certain all parts are in place such as safety guards, floor lay-ins, etc.

# *Dumper Operating Procedures*

## ***VISUAL INSPECTION PRIOR TO OPERATION:***

1. The operator should visibly inspect the hanging belt to make certain the knee valve is not in the "ON" position and no foreign objects or obstructions are between the belts, and there is not any damage to cause the belt to be unsafe.
2. Operator should also visually check all other belts for foreign objects, obstructions, or damaged parts that would cause the system unsafe to operate.
3. The operator should visually check under and around the system to make certain no persons will be in danger when energizing the system.
4. During the inspection the operator should be aware of any oil puddles seen on the floor. If found, they should be reported immediately to your supervisor or the maintenance department so leaks can be repaired.
5. The operator should always be aware of all safety features, how they operate, and report to their supervisor anytime anything is found to be unsafe.

## ***FUNCTIONS AND CONTROLS:***

1. The operator control panel has up to 7 electric functions depending on the style machine and options purchased. Below is an outline of each of those functions.
  - A. CONTROL POWER – Energizes all other switches on the panel. Control Power must be turned "ON" for anything else to work.
  - B. HYDRAULIC PUMP 1 AND 2 – This is a 3 position switch to select "OFF", PUMP #1, or PUMP #2. We highly recommend the operator get in the habit of alternating the pumps on a daily or weekly basis to keep both pumps and motors exercised. If a pump and motor sets "idle" for an extended period of time it is more likely to malfunction.
  - C. DOOR CLOSER (If Installed) – The door closer switch is a 2 position selector and is used to turn the door closer operation "ON" or "OFF". If you do not want the closer to work or if there is a mechanical problem with it, leave the switch in the "OFF" position. If there is a mechanical problem, notify your supervisor or maintenance immediately.
  - D. WATER PUMP (If Installed) – This is also a 2 position selector that works similar to the door closer switch except it turns the water pump that supplies water to the cage washer "ON" or "OFF". As with any other control, if there is a malfunction in the water system, leave the switch in the "OFF" position and notify your Supervisor or maintenance department.
  - E. WASHER TILT (If Installed) – This is a "JOY STICK" control that is used to tilt the cage in the washer bay. Note: The cage must be tilted to the maximum position before the "WASHER START" will initiate the cycle.

## **OPERATING PROCEDURES**

- F. WASHER START (If Installed) – This is a push button that is depressed to start the wash cycle once the cage is in position and tilted fully.
  - G. SAFETY ARMING SWITCH – This switch is located on the side of the operator control panel. It operates and looks similar to an ignition switch. It has an “OFF” position, “ON” position, and a “START” position. Note: From the “ON” position, the key must be pushed in to rotate to the “START” position, energizing the control valve bank. Once energized, release the key and let it return to the “ON” position for normal running. All safety features will now be armed and ready for operation.
2. The operator valve bank controls the “manual” functions of the Cage dump System excluding the belts, however, there is one belt function that can be controlled from the dumper platform. See “STOP VALVE” below. The arrangement of the valve functions are dependant of the style unit you have, ie Left Hand or Right Hand Units. Left Hand or Right Hand Units are designated as viewing the unit as the fork lift operator would, if it dumps to the right, it is a Right Hand unit, if it dumps to the left, it is a Left Hand unit. With either style, the functions are arranged where the lever nearest the Live Receiving Cage will operator the incoming rolls and in step with the next function required, you would select the next lever away from the Live Receiving Cage. Below is a description of each of the functions in order of their usage starting with the one nearest the Live Receiving Cage. Note: All levers should be “pulled” toward the operator to perform the desired function and “pushed” away from the operator to perform the reverse function.
- A. INCOMING – Pull lever to transport cage toward operator, push to transport cage away from operator. This lever operates all rolls on the incoming section.
  - B. DUMPER ROLLS – Pull this lever to continue cage movement on the dumper section toward the operator until it “bumps” the cage stop on the cradle.
  - C. DUMPER – Pull this lever to “dump” (raise) the cage and push to lower it back to the normal position.
  - D. CROSSOVER – Pull this lever to move the cage from the dumper section to the first outgoing or washer section.
  - E. OUTGOING ROLLS – Pull this lever to move the cage from the first outgoing or washer section toward the fork-lift operator. This lever energizes all rolls on the first outgoing or washer section and the outgoing section.
3. STOP VALVE – The stop valve is located to the right or left of the main 5 sectional valve depending on whether you have a left hand or right hand unit. This is the only “belt” control the dumper operator has. This lever, if pushed or pulled, stops the live receiving belt while allowing all other belts to continue running. For the correct use of this function, see the operating procedure section.

## **OPERATING PROCEDURES:**

1. From the operator control panel, switch the control power "ON".
2. Select which hydraulic pump is to be used, Pump #1 or Pump #2.
3. Rotate the door closer selector to the "ON" position (If Installed).
4. Insert the key into the safety switch, turn to the "ON" position, push the key in and rotate to the "start" position. All safety features should be armed and hydraulic functions available at this point. To check, pull or push any lever on the 5 sectional valve to see if that function works. If it doesn't, turn key "OFF" and repeat step 4. If it still doesn't work, notify your supervisor or maintenance immediately.
5. After the lift driver has set a cage on the dumper (incoming side), pull the lever labeled "incoming rolls" to convey the cage toward you.
6. After the cage starts entering the dump section, also pull the lever labeled "dumper rolls" to continue a smooth transition from the incoming to the dumper section. After the cage is mostly on the dumper section the "incoming" lever can be released with a continued motion of the cage until it "bumps" the stop. Note: The dumper rolls should be adjusted slower than the incoming rolls to keep the cage from hitting the stop too hard and causing damage to the cradle arm. Keep in mind a loaded cage is going to weigh approximately 2,500 lbs. So it would be like a 2,500lb hammer hitting the stop. The faster it hits, the shorter the life for the cage and the cradle arm!
7. Once the cage is in position and the live receiving cage is clear of birds dumped earlier (if any), pull the lever labeled "dumper" to tilt the cage. We recommend to tilt the cage fully without stopping, thus preventing pile-ups in the cage causing premature death to birds. If the cage is allowed to remain in the full dumped position, most birds that didn't slide out will fatigue and let go, sliding into the live receiving cage. As long as the cage doors and floors are properly maintained, very seldom will a bird remain inside at the fully dumped position.
8. After the cage is empty, lower the cage by pushing the lever away from you until the cradle and cage return to the normal position.
9. Pull the lever labeled "crossover chains" until the cage is moved across the dumper and against the back portion of the first outgoing or washer section. Note: The speed of the crossover chains regulate how close to or how hard the cage hits the back portion. The proper adjustment for the crossover chains is just fast enough for the cage to quit moving at the instant it touches the back portion. They should not be allowed to "slam" against the back wall thus causing damage to the cages and washer cradle.
10. If a washer is not installed on your unit, skip this step, otherwise, pull the "JOYSTICK" toward you to tilt the cage for washing. Remember, the cage must be tilted fully in order for the wash cycle to be started.
11. Depress the "WASHER START" button to initiate the wash cycle. Once the sprayer carriage moves (should be almost instantly) you can release the button and go about other duties while the cycle is completed.
12. Once the cycle is complete, push the "JOYSTICK" away from you to lower the cage back to its normal position.
13. If you have a door closer, skip this step, if a door closer is not installed on your unit, the operator will need to go onto the dumper and manually close the doors at this point.
14. Pull the lever labeled "OUTGOING ROLLS" which conveys the cage toward the lift operator. When the cage reaches the door closer and contacts the stop, the outgoing rolls will automatically stop and the door closer will cycle, closing all the doors in one motion. When the doors are closed, the outgoing rolls will be re-activated automatically and will continue movement as long as the operator still has the lever pulled. Continue movement until the cage "bumps" the stop at the end of the outgoing section where the lift operator will remove the cage and place it back on the trailer.

This completes a cycle of 1 cage through the cage dump system. There are a few things that will be slightly different when running multiple cages and dumping in succession.

## **OPERATING PROCEDURES**

1. When conveying the cages in when one cage is already in the dumper section waiting to be dumped, always back the cage(s) up behind the one on the dumper to create a space between the one on the dumper and the next one back by about a foot. If you jamb them up, the next one back will be setting on the edge of the bottom cradle arm and that corner will go up with the cradle until it falls off. That is one of the reasons for separating the dumper rolls and the incoming rolls so the operator will have the opportunity to create a space.
2. The correct time to dump a cage of birds depends on several factors, production line speed, physical size of the live receiving cage, configuration of the belts taking the birds from the live receiving cage, and the temperament of the birds being slaughtered. A good rule of thumb is to let the area that usually fills with your first dump clear of birds before dumping the next batch. Simply, if you strike an imaginary line where the birds stop in the throat of the live receiving cage or where it spills onto the next belt, all the birds in the live receiving cage should reach that point before dumping again. If cages are dumped too soon, birds will be on top of other birds causing "D.O.A's". The term for this is "double dumping". On the other hand, if you should wait too long and the line of birds travel past your imaginary line, it causes a void on the hanging belt which in turn creates "skipped shackles".
3. The operator should always be aware of where the lugs are on the crossover chains. Some models have two lugs on each chain and it's critical to stop the crossover movement at the instant the cage touches the other side. By observing this, the second lug will be just below the foot walk panel on the dumper side. If you let the crossover run too long, that lug will be above roller level and if not noticed by the operator, will be broken off when the next cage is moved into position on the dumper section. On the other hand, if the crossover chains are stopped too quickly, the lug on the outgoing side will still be under the outgoing cage preventing it from moving toward the lift operator. Both lugs should be out of view (below roller level) before moving any cages.

## ***SAFETY EQUIPMENT:***

There have been several new safety features added to our system in 2004. Following is a description of what they do and how they should operate. We also have safety devices such as guards around moving objects (chain drives) that should never be removed except for maintenance and should always be replaced before starting the machine. A machine should never be allowed to run with any guards or safety features missing or damaged. The Bright Coop Cage Dump System is a safe piece of equipment if operated according to our guidelines. As with any type of machinery, if it is misused, it can be dangerous. Loss of life or limb could occur if used improperly. BE SAFE!

1. **RESTRICTED AREA FENCING** – Fencing has been installed around your entire cage dump system that has several access gates for use by maintenance or sanitation personnel. These fences are meant to keep bystanders from walking into unsafe areas. Each one of these access gates are connected to the cage dump system and if any are opened, it trips the safety mechanism and prevents any operation on the cage dump unit. In order to resume operation in the event of a shut down, the operator should first check all access gates to make certain no person has entered an unsafe area. After knowing for sure the unsafe areas are clear, the safety switch must be turned to the “OFF” position, then to the “ON” position, the key should be pushed in and rotated to the “START” position resuming operation of the cage dump system. **NEVER RESET THE SYSTEM IF ANYONE IS IN AN UNSAFE AREA.**
2. **SAFETY CROSSARM** – There has been a safety cross-arm and audible buzzer installed on your system to notify a lift operator that it is unsafe to load a cage on the dump system because someone may be in an unsafe area. Until the system is verified as clear and reset, the cross-arm will be across the incoming side and the audible buzzer will be sounding. **ONLY AFTER** the system has been deemed clear and reset, will the cross-arm return to the normal position and the buzzer will quit sounding, notifying the lift driver it is once again safe to place a cage on the dump system.
3. **OUTGOING CAGE STOP** – There has been a safety stop installed about the middle of the outgoing section to prevent a lift operator from “pushing” a cage backward and injuring someone that may be in the unsafe area on the top side of the dumper. This is a gravity operated device and should be checked periodically to insure proper operation.

## ***CLEAN UP AND WASHDOWN PROCEDURES:***

It is highly recommended to completely wash down the cage dump system including all belts, daily. This will extend the life of your unit considerably especially if you make it a practice to wash daily the “hard to get to” places where debris and manure are collected on structural members such as between the dumper section and live receiving cage on the under side. This is usually the most abused area of the cage dump system since all litter in the cages fall in this area when dumped. It is also recommended to brush down and paint your unit at least once or twice a year. Good hygiene is good for equipment too!

**MAINTENANCE SCHEDULE:**

	Daily	Weekly	250 Hours	12 Weeks	Monthly	6 Months	Yearly	When Belts Replaced	As Needed
Hyd. Unit Oil Level		X							
Hyd. Unit Oil Level or Leaking Unit	X								
Change Hyd. Fluid							X		
Check Hose Connections					X				
Lubricate Chains					X				X
Lubricate Bearings				X					
UHMW Brg. (Top of Washer)						X			
UHMW Brg. (Center of 88" Shaft)								X	
Belts Pins and Rods					X				
Check Outgoing Cage Stop		X							
Change Hyd. Filters - High Pressure									X
Change Hyd. Filters – Return			X						

## RECOMMENDED OILS FOR BRIGHT COOP HYDRAULIC UNIT

The following list of industrial hydraulic oils is recommended for use in our hydraulic componentry.

Oils sold by listed suppliers under other trade names, or oils, which are sold by unlisted suppliers, may not be considered to be a satisfactory hydraulic media. Many formulations are being offered which lack certain additives or are formulated for special reasons, such as lower cost, high detergency, leakage control, etc. Some of these specialty fluids can be used successfully; however, others may prompt malfunctions and high rates of wear.

We recommend Viscosity Grade B (medium) unless otherwise specified.

Manufacturer	Fluid Name	Viscosity Grade	Manufacturer	Fluid Name	Viscosity Grade
Argo	Duro AW S-150	A	Lubrication Engineers	Monolec 6110A	B
	Duro AW S-215	B		Monolec 6120A	C
	Duro AW S-315	C			
Ashland	Ultramax AW-15	A	Lubriplate	HO-0	A
	Ultramax AW-20	B		HO-1	B
	Ultramax AW-30	C		HO-2	C
Benz	Petraulic AZ	A	Mobil	DTE 24	A
	Petraulic BZ	B		DTE 25	B
	Petraulic CZ	C		DTE 26	C
Champlin	Hydrol 150	A	Phillips	Magnus A 150	A
	Hydrol 215	B		Magnus A 215	B
	Hydrol 315	C		Magnus A 315	C
Chevron	Chevron HYD 32	A	Shell	Tellus 25	A
	Chevron HYD 46	B		Tellus 29	B
	Chevron HYD 68	C		Tellus 33	C
Cities Service	Pace-maker XD-15	A	Southwest	9640	B
	Pace-maker XD-20	B			
	Pace-maker XD-30	C			
Continental	Super Hydraulic 15	A	Standard Oil Of Ohio	Industron 44	A
	Super Hydraulic 21	B		Industron 48	B
	Super Hydraulic 31	C		Industron 53	C
Exxon	Nuto H 46	B	Sun	Sunvis 816 WR	A
	Nuto H 68	C		Sunvis 821 WR	B
Filmite	Industrial 150	A	Texaco	Rando HD 46	B
	Industrial 200	B		Rando HD 68	C
	Industrial 300	C			
Fieke	HO-0	A	Tower	Hydroil AW-3	A
	HO-1	B		Hydroil AW-4	B
	HO-2	C		Hydroil AW-5	C
Gulf	Harmony 46 AW	B	Union	Unax AW 150	A
	Harmony 68 AW	C		Unax AW 215	B
				Unax AW 315	C
Houghton	Hydro-Drive HP150	A	Withrow	Withrolube 655	A
	Hydro-Drive HP200	B		Withrolube 656	B
	Hydro-Drive HP300	C		Withrolube 657	C

# BRIGHT COOP INC. DUMPER CRADLE ARMS

## Step 1

Mount shaft to the 2"x4" tube



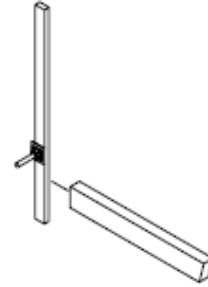
## Step 2

Mount the 2"x4" tube to the bearings and level



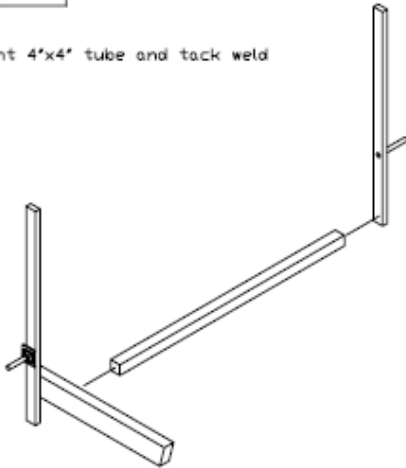
## Step 3

Mount 4"x8" tube to the 2"x4" tube 8" from center of shaft tack weld



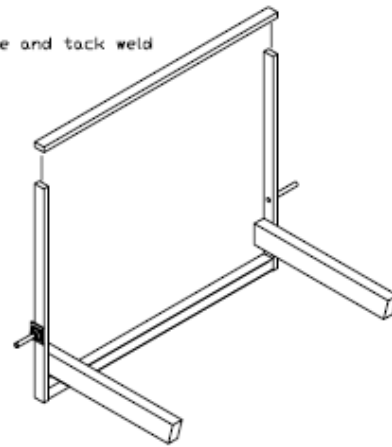
## Step 4

Mount 4"x4" tube and tack weld



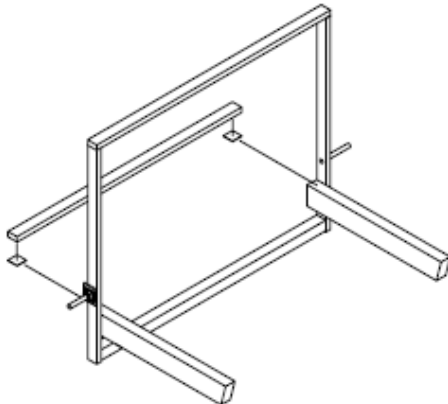
## Step 5

Mount 2"x4" tube and tack weld



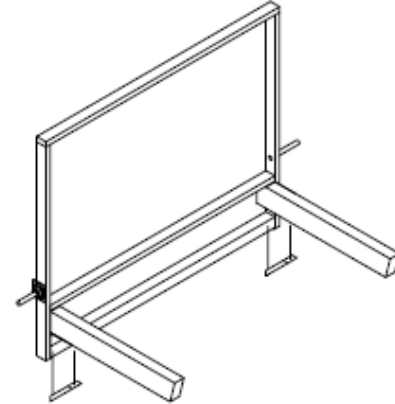
## Step 6

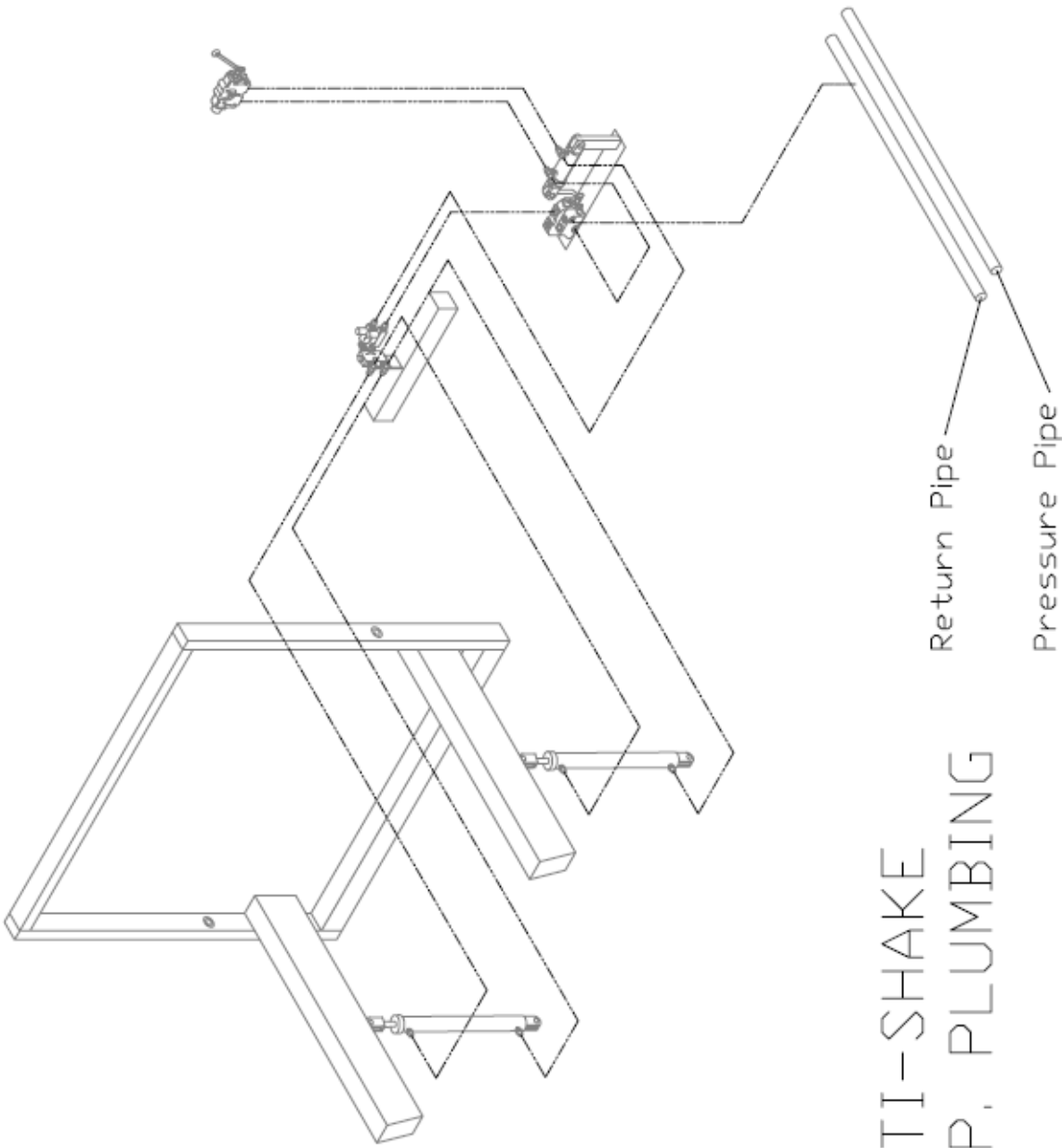
Mount 2"x4" tube and tack weld 1/4" spacer between 2"x4" and 4"x8" tube



## Step 7

Mount 2"x4"x13 1/2" tube and tack weld and then weld all parts to cradle





ANTI-SHAKE  
TYP. PLUMBING

Return Pipe  
Pressure Pipe