



# Quick Sheet Instructions

## Ladder Cage

500971, 500972, 500973, 500974, 500975  
500976, 500977, 500978, 500979

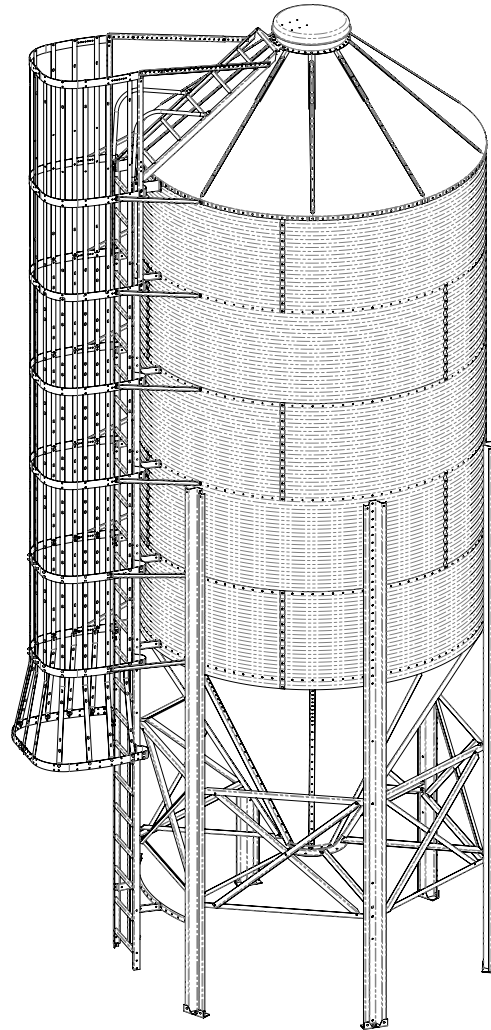
When properly installed, the VAL-CO feed bin ladder cage meets the requirements of the following safety standards:

- OSHA: 1926.1053
- OSHA/CAL: Article 4, §3277\*
- ANSI A14.3\*
- ISO 14122-4

### NOTES:

- \*OSHA/CAL: 12 ft, 7 ring feed bin ladder exceeds maximum single ladder height.
- \*ANSI: 12 ft, 7 ring feed bin ladder exceeds maximum single ladder height.
- Rung spacing, cage width, and spacing of verticals meet NZ/AUS 1657.

These standards cover areas of the world such as the United States, Canada, and Europe. The purchaser assumes the responsibility of verifying that the product meets desired safety standards, including local standards, and installing the ladder cage to meet those safety standards.



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## Assembly Overview

Before you begin...



It is **NOT** recommended that you fully assemble the ladder cage sections and install as one unit, due to weight and safety issues, unless you are using appropriate heavy equipment. **Each cage section should be attached by individual parts or as individual sections as you build the bin and attach to EACH bin ladder RAIL SET. This method will save you from unbolting the rails.**

### Ladder Cage (LC) Pre-Assembly

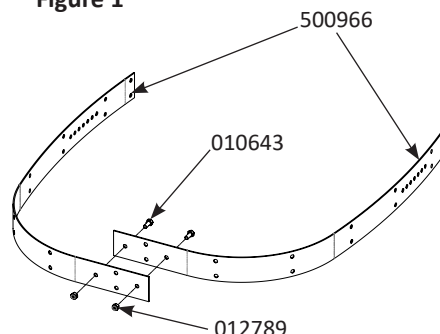


**NOTE:** If installing 500971, 6 ft. 1 ring ladder cage, refer to page 7.

All other models use the following assembly instructions.

1. Pre-assemble the 500966 LC half hoops using (2) 010643 hex bolts and (2) 012789 nylock nuts for each set of hoops, as shown in Figure 1.
2. Attach the assembled LC half hoops and 500907 LC support hoop rails to the (2) 500901 LC eave extensions using the 010643 hex bolts and 012789 nylock nuts at each set of holes, as shown in Figure 2.
3. Attach the (11) 500905 LC basic vertical supports to the top holes of the (3) pre-assembled half hoops, using (1) 010643 hex bolt and (1) 012789 nylock nut at each hole. *This will keep the bottom hole in the bottom hoop open to attach the next cage section.* Begin with the center LC vertical support and work toward the eave extensions.

Figure 1



- LC basic vertical supports **MUST** (for strength) be assembled to the inside of assembled half hoops.
- Use the TOP hole when attaching the LC basic vertical supports onto the assembled half hoops.

Figure 2

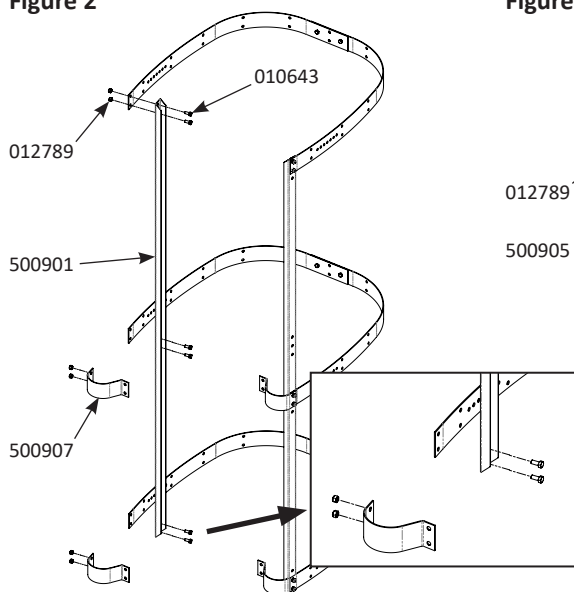


Figure 3

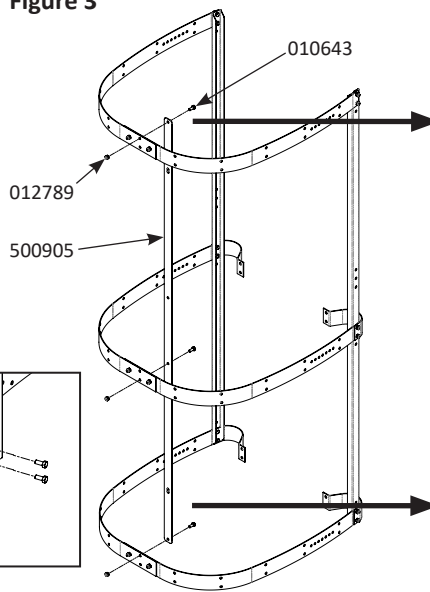


Figure 4

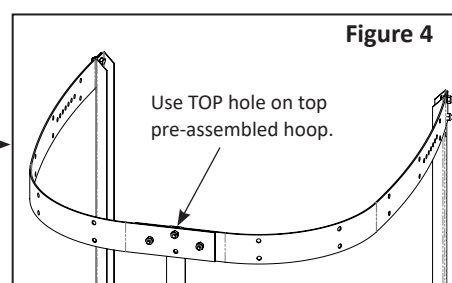
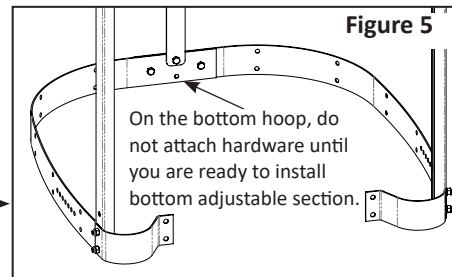


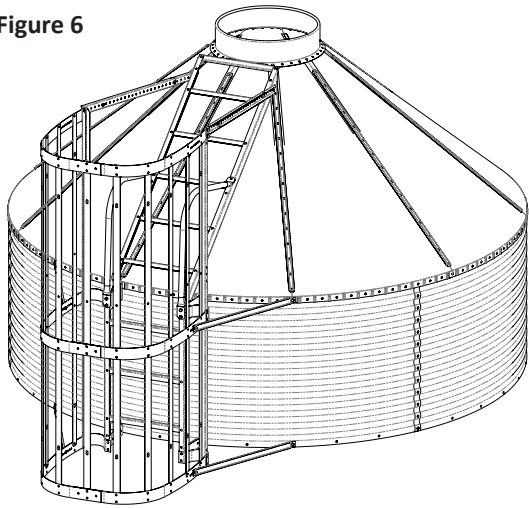
Figure 5



## Ladder Cage to Bin Ladder Assembly

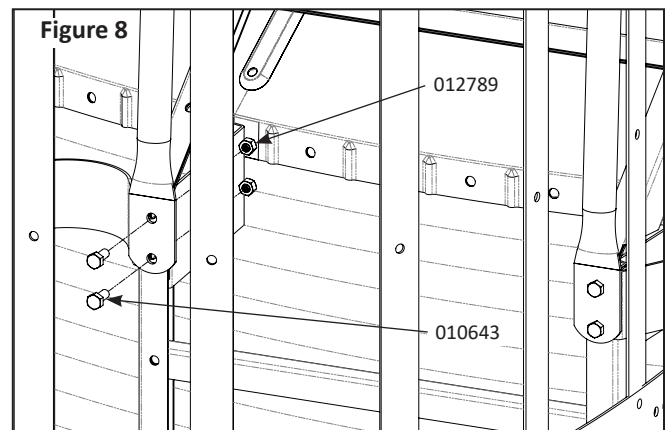
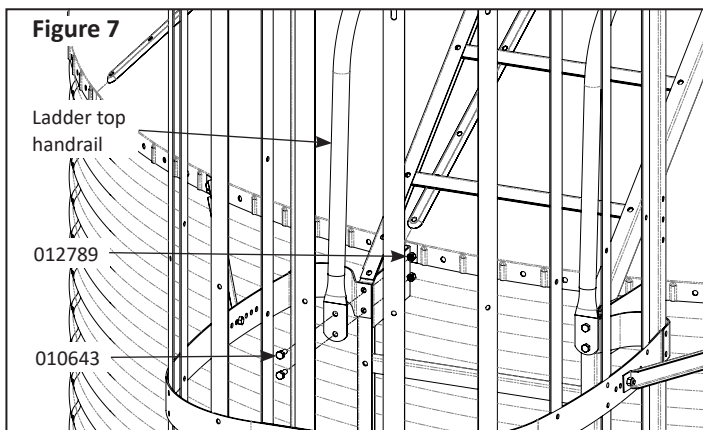
Before attaching the ladder cage, the first (1-2) rings and roof ladder of the feed bin should be assembled. *Refer to your Feed Bin Manual for instructions for attaching the bin ladder.*

Figure 6

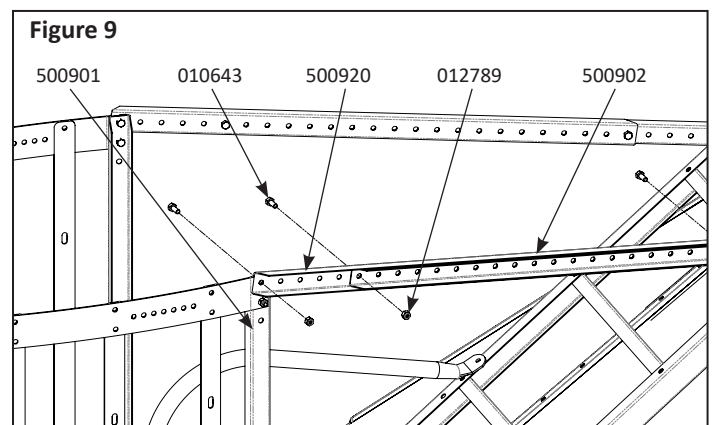


The drawing to the left shows a **9 Ft feed bin** with the 1st Ladder Cage section assembled to the first ring and roof ladder of the bin.

4. **Attach the 1st ladder cage section as you attach the ladder rail sections and ladder top handrails.** These will be bolted onto the ladder brackets together using the 010643 hex bolts and 012789 nylock nuts. Repeat this process with each bin ring as you attach the ladder to the bin, *shown in Figures 7 & 8.* **Ensure ladder top handrail is installed on top of ladder cage and rail as shown.**



5. Attach one end of the (2) 500920 LC roof supports to the top end of each (2) 500901 eave support. Then attach the other end of each 500920 LC roof supports to one end of the (2) 500902, using the 010643 bolts and the 012789 nylock nuts, *as shown in Figure 9.*



## Ladder Cage to Bin Ladder Assembly - continued

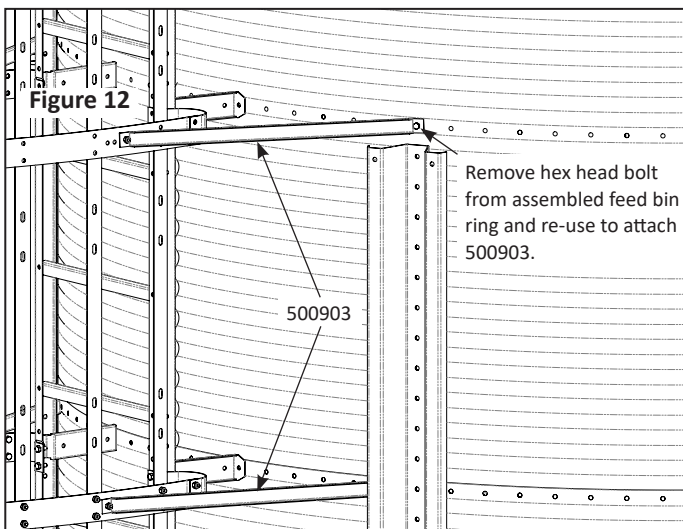
- To attach the assembled LC roof supports to the bin roof ladder you must drill a 5/16" hole into each roof ladder rail. Pull the LC supports into position onto the ladder rails and **use the (assembled) LC supports, with holes, to make sure you drill the holes in the best location.** Do this for both sides of the ladder, as shown in Figure 10.

Now attach the assembled LC roof supports to the roof ladder using (1) 010643 hex bolt and (1) 012789 nylock nut. Do this to both roof ladder rails and LC supports, as shown in Figure 10.

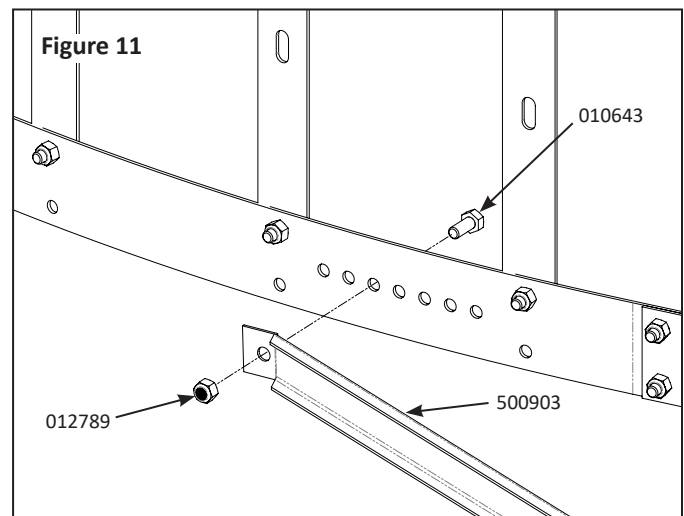
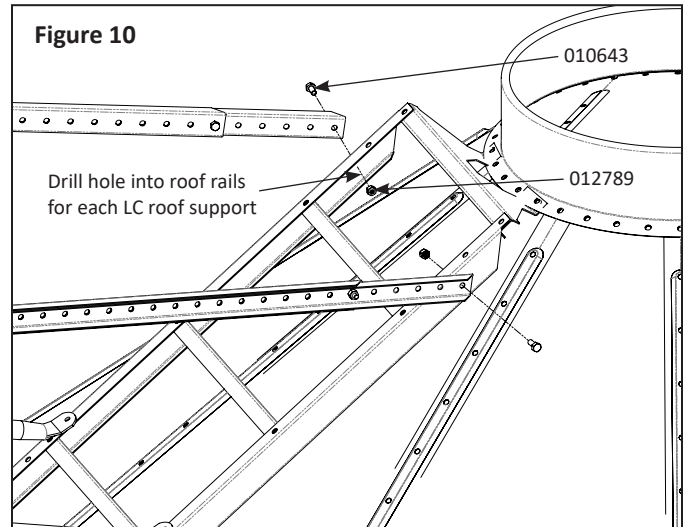


*You may attach the 2 roof supports together before you attach to the bin ladder but make sure you measure the distance between the ladder connections and adjust the overlap of the 2 supports first.*

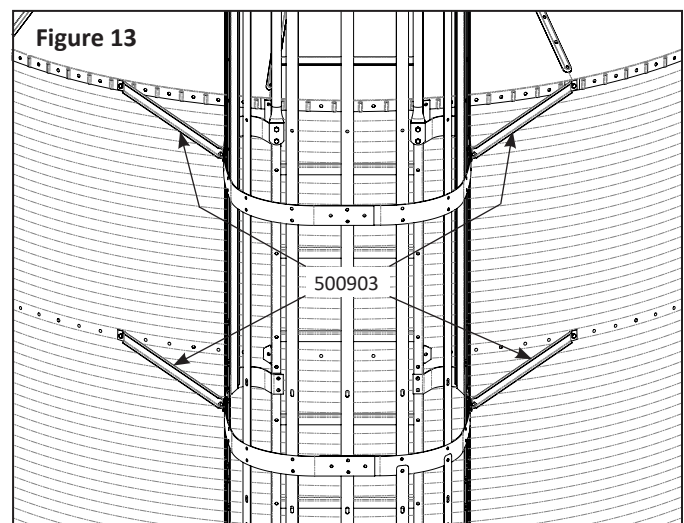
- Attach the (4) 500903 LC supports to bin to the assembled ladder cage as detailed in Figure 11 using (1) 010643 hex head bolt and (1) 012789 nylock nut for each. Now attach the other end directly to the feed bin using the 501442 bin bolt and 501441 flanged nut from the bin ring, as shown in Figure 12.



*Figure 13 shows a completed 500960 LC top section assembly.*

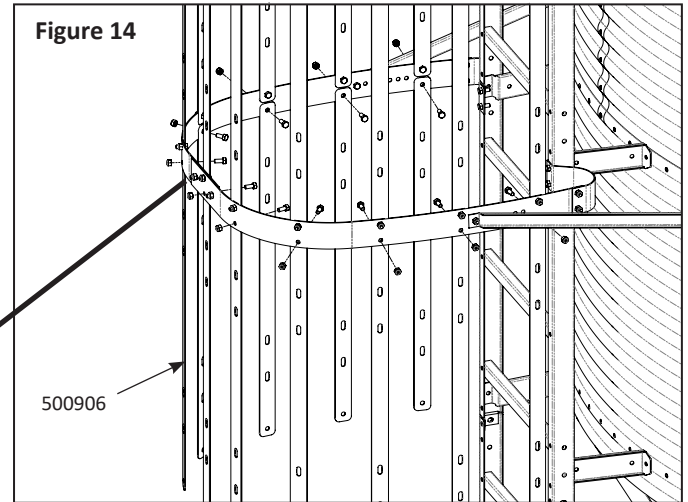
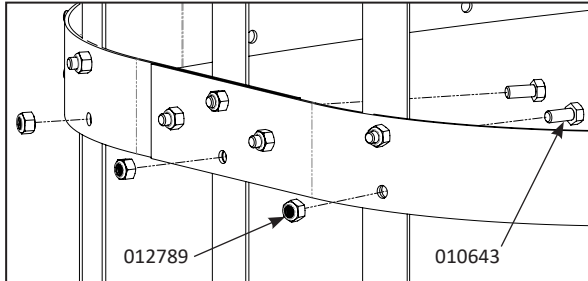


Pre-drilled holes are provided on the half hoops for adjustment. Additional holes can be drilled if necessary.

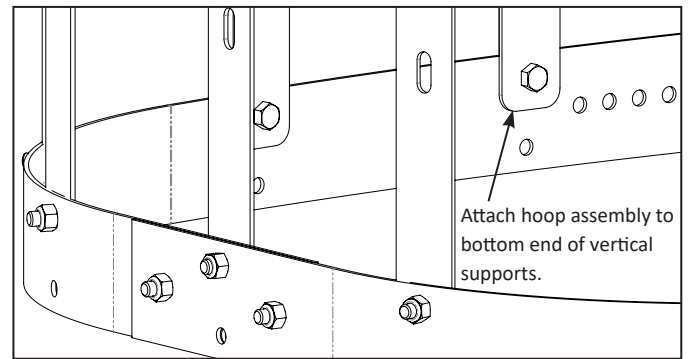


## Extension (Lower) Ladder Cage Assembly

8. Attach the (11) 500906 EXT vertical supports to the bottom holes of the hoop of the previous TOP LC section, using the 010643 hex bolts and 012789 nylock nuts on each EXT vertical support, as shown in Figure 14. (The holes are below the attachment of the previous cage section's basic vertical supports.)



9. Attach (2) half hoops (500966) to the bottom ends of the (11) EXT vertical supports using the 010643 hex bolts and the 012789 nylock nuts. Be sure to attach at the top hole of the hoop. Steps 8 and 9 are repeated for each cage extension until reaching the LC adjustable bottom assembly, shown next.



Be sure that ALL 500903 LC supports have been attached to the bin for each section as you go.

## Bottom Ladder Cage Assembly

Properly installed, our ladder cage meets the ladder cage requirements set forth by OSHA, Cal/OSHA, ISO, and the Ontario Ministry of Labour. You will need to follow the instructions below and use the proper adjustments. We recommend installing this adjustable section of the ladder cage after the bin has been erected.

10. To ensure proper cage height follow the guide laid out in Figure 15 closely. If installing a 6ft bin ladder cage install (2) bolts in the locations shown per every vertical. If installing a 7ft or 9ft bin ladder cage install (1) bolt in the location shown per every vertical. If installing on a 12ft bin ladder cage install (2) bolts in the location shown per every vertical. See Figure 16 for hardware orientation.

Figure 15

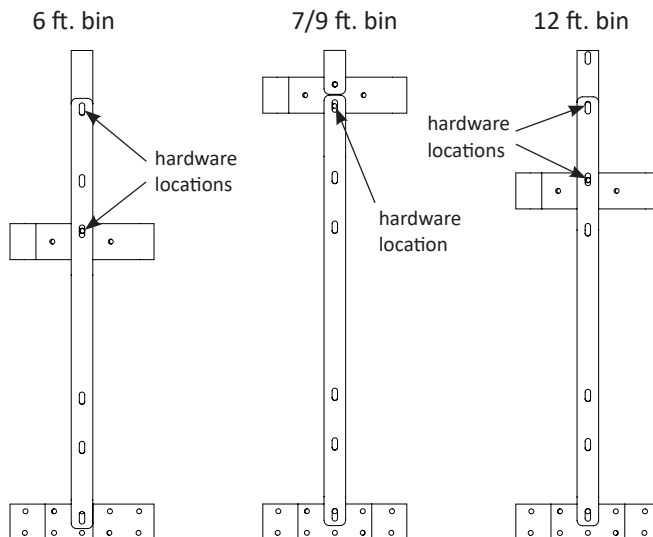


Figure 16

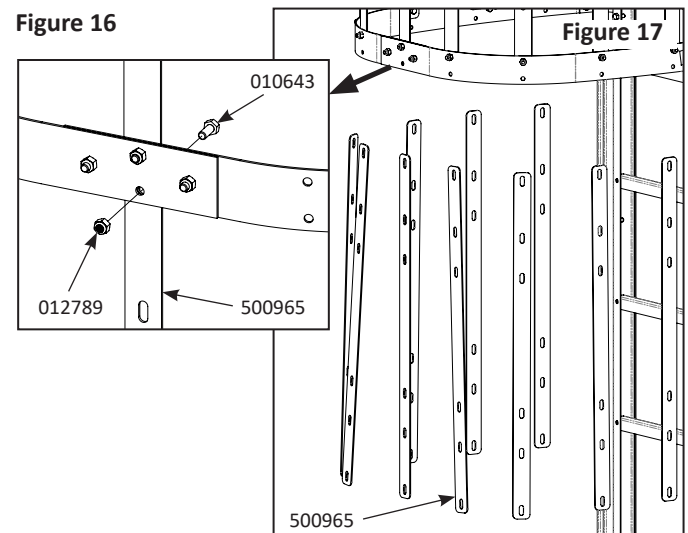


Figure 17

## Ladder Cage Assembly With Flare

11. To assemble adjustable hoop assembly: Attach (2) 500964 half hoops to the (5) 500963 adjustable extension plates and to the (2) 500907 hoop rail supports, as shown in Figures 18 and 19.

Figure 18

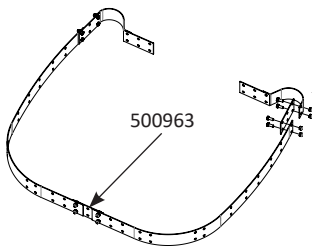
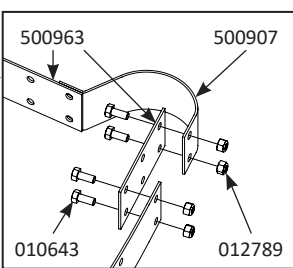
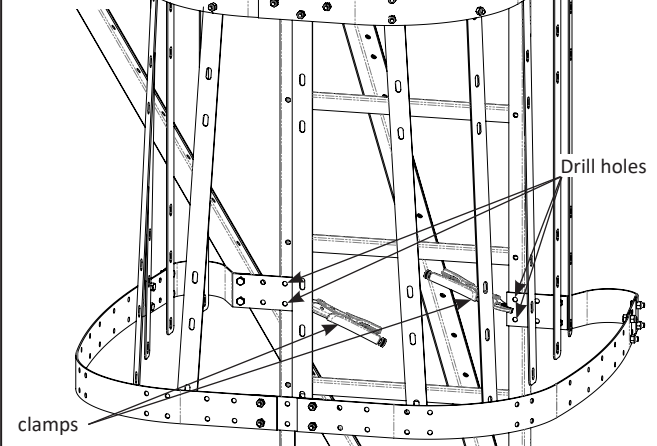


Figure 19



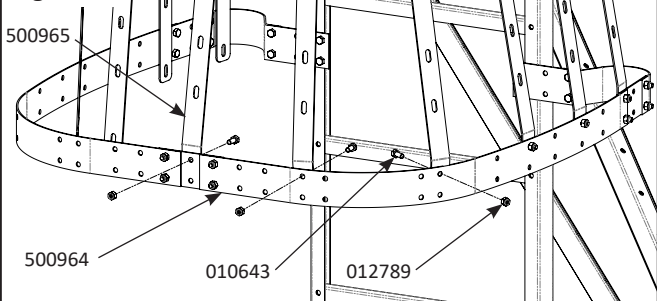
12. Clamp the hoop assembly to the ladder rails at the appropriate distance from the ground according to your local code. Make sure this location of the hoop assembly lines up with the 500965 supports when you pull them into place. Drill four 5/16" holes into the ladder rail and install hardware to attach the hoop assembly, as shown in Figure 20.

Figure 20



13. One at a time, pull 500965 supports into place and install hardware to connect bottom slot of 500965 supports to the respective holes in the hoop assembly, as shown in Figure 21.

Figure 21



## Ladder Cage Assembly Without Flare

11. To assemble non-flare hoop assembly: Attach (2) 500964 half hoops together to (2) 500907 hoop rail supports, as shown in Figures 22 and 23.

Figure 22

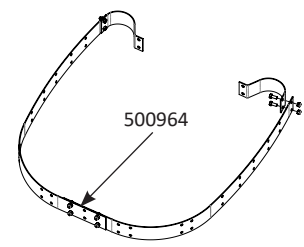
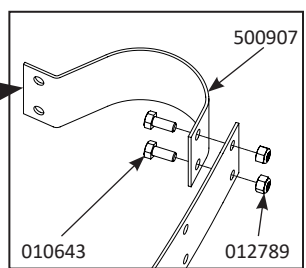
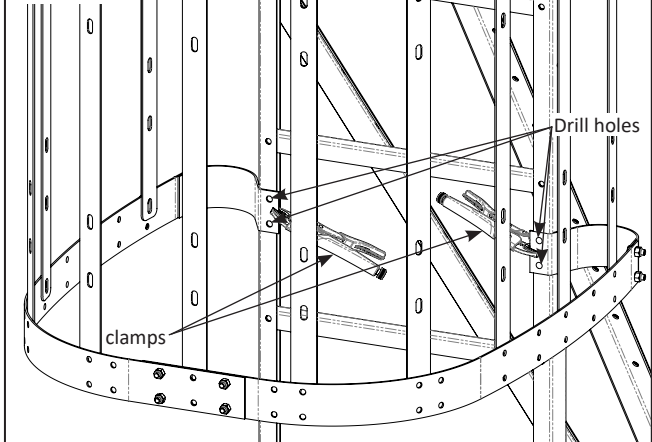


Figure 23



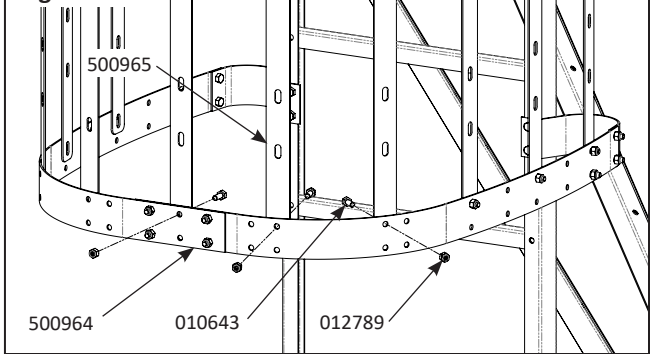
12. Clamp the hoop assembly to the ladder rails at the appropriate distance from the ground according to your local code. Make sure this location of the hoop assembly lines up with the 500965 supports. Drill four 5/16" holes into the ladder rail and install hardware to attach the hoop assembly, as shown in Figure 24.

Figure 24



13. One at a time, install hardware to connect bottom slots of 500965 supports to the respective holes in the hoop assembly, as shown in Figure 25.

Figure 25



14. The installation of the ladder cage is now complete. Check the dimensions of your cage to ensure it is adjusted properly to meet your local safety standards. Be sure all hardware has been tightened.

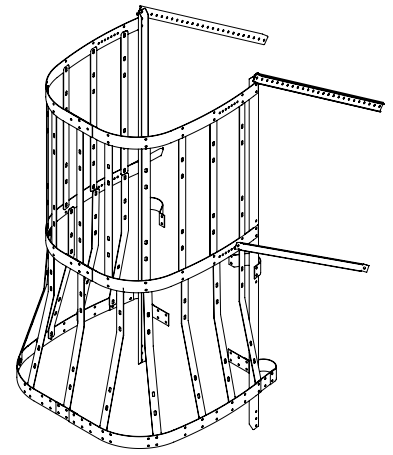
## 6 Foot 1 Ring Bin Ladder Cage Assembly (500971)



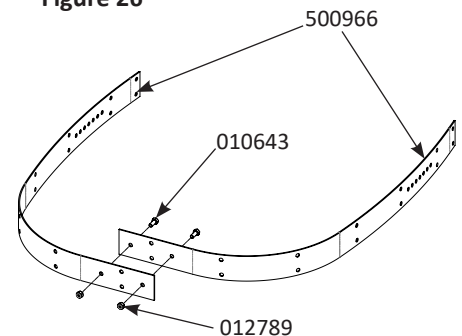
**NOTE:** If installing a 6 Foot 1 Ring Bin Ladder Cage (500971), follow the instructions on this page.

### Ladder Cage Pre-Assembly

1. Pre-assemble the 500966 LC half hoops using (2) 010643 hex bolts and (2) 012789 nylock nuts for each set of hoops, *as shown in Figure 26*.
2. Attach the assembled LC half hoops and 500907 LC support hoop rails to the (2) 500901 LC eave extensions using the 010643 hex bolts and 012789 nylock nuts at each set of holes, *as shown in Figure 27*. The top half hoops should be mounted on the bottom two of the top three holes in 500901. The bottom half hoop should be mounted on the bottom two of the next three holes down in 500901. The 500907 should be mounted on the top two of the next three holes down in 500901.
3. Attach (11) 500965 LC basic vertical supports to top and bottom hoops using (1) 010643 hex bolt and (1) 012789 nylock nut at each hole, *as shown in Figure 28*. For the top hoop, use the top slot of each 500965 and bottom hole of 500966, *as shown in Figure 29*. For the bottom hoop use the bottom slot of each 500965 and top hole of 500966, *as shown in Figure 30*. This will keep the bottom hole in the bottom hoop open for the attachment of the next cage section. Begin with the center LC vertical support and work toward the eave extensions.
4. Before attaching the bottom section, refer to steps 4-7 (pages 3-4) for instructions to install a top ladder section to the bin. Refer to steps 11-13 (page 6) for instructions to install either a flared bottom hoop or a non-flared bottom hoop to the bin.

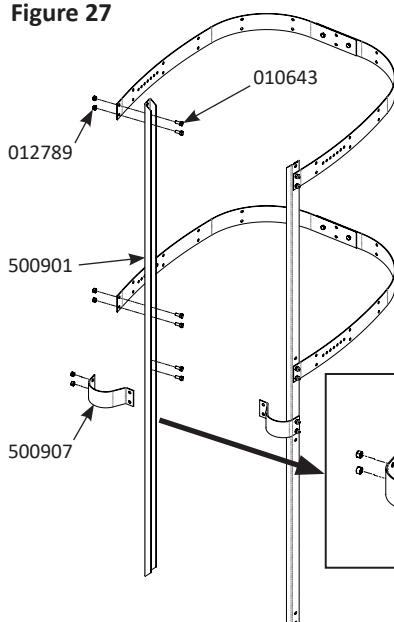


**Figure 26**

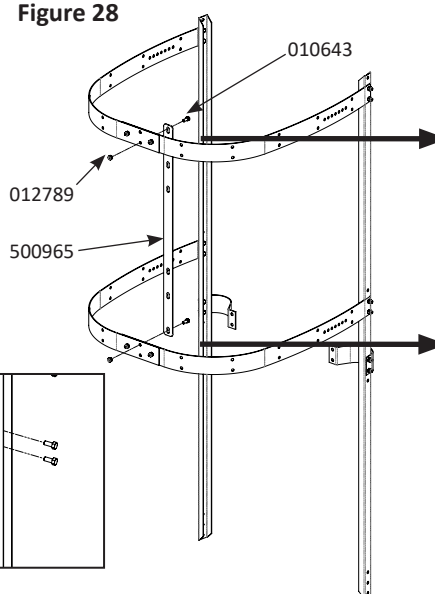


- **LC Basic vertical supports MUST (for strength) be assembled to the inside of assembled half hoops.**

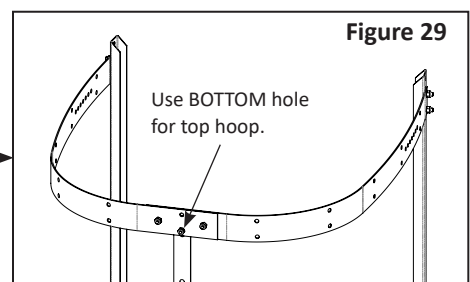
**Figure 27**



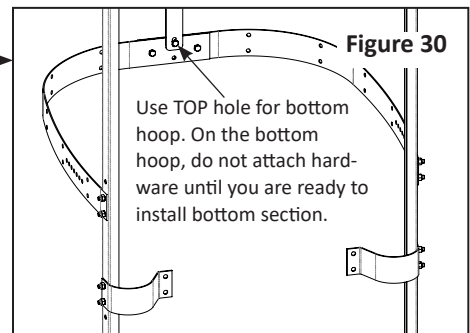
**Figure 28**



**Figure 29**



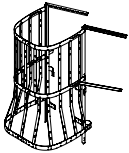
**Figure 30**



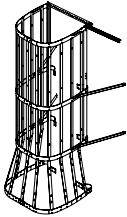
## Ladder Cage Assemblies and Parts List

| BIN SIZE | 500971 | 500972  | 500973  | 500974  | 500975  | 500976  | 500977  | 500978  | 500979  |
|----------|--------|---------|---------|---------|---------|---------|---------|---------|---------|
| 6'       | 1 RING | 2 RINGS | 3 RINGS | 4 RINGS | -       | -       | -       | -       | -       |
| 7'       | -      | 1 RING  | 2 RINGS | 3 RINGS | 4 RINGS | 5 RINGS | 6 RINGS | -       | -       |
| 9'       | -      | 1 RING  | 2 RINGS | 3 RINGS | 4 RINGS | 5 RINGS | 6 RINGS | -       | -       |
| 12'      | -      | -       | 1 RING  | 2 RINGS | 3 RINGS | 4 RINGS | 5 RINGS | 6 RINGS | 7 RINGS |

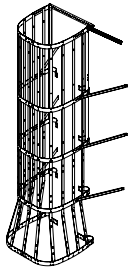
500971



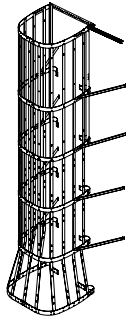
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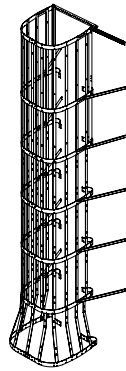
500973



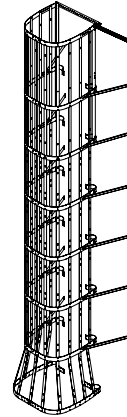
500974



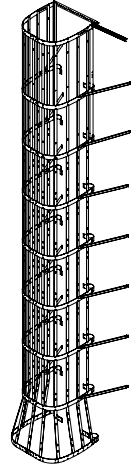
500975



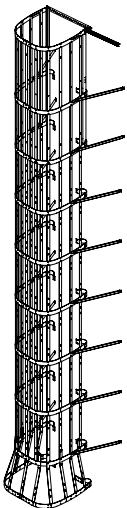
500976



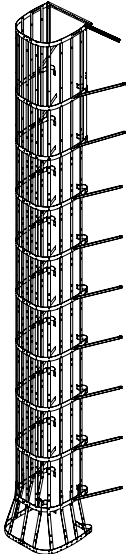
500977



500978

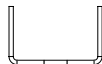


500979



### Part Detail

500901,  
500902 &  
500920  
End View



500903  
LC support  
to bin



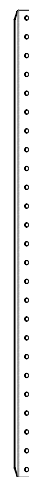
500901  
LC eave  
extension



500902  
LC roof support to  
roof ladder



500920  
LC roof support -  
outside roof ladder



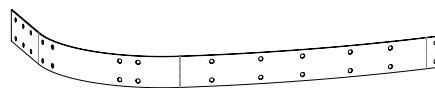
500905  
LC support  
basic vertical



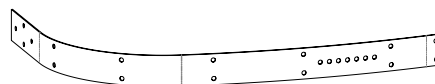
500906  
LC extension  
vertical



500964  
LC half hoop adjustable

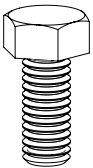


500966  
LC half hoop



### Hardware

010643  
5/16"-18 X  
3/4" hex bolt



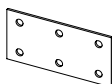
012789  
5/16"-18  
nylock nut



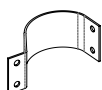
500965  
Vertical support  
adjustable bottom



500963  
LC adjustable bottom  
extension plate



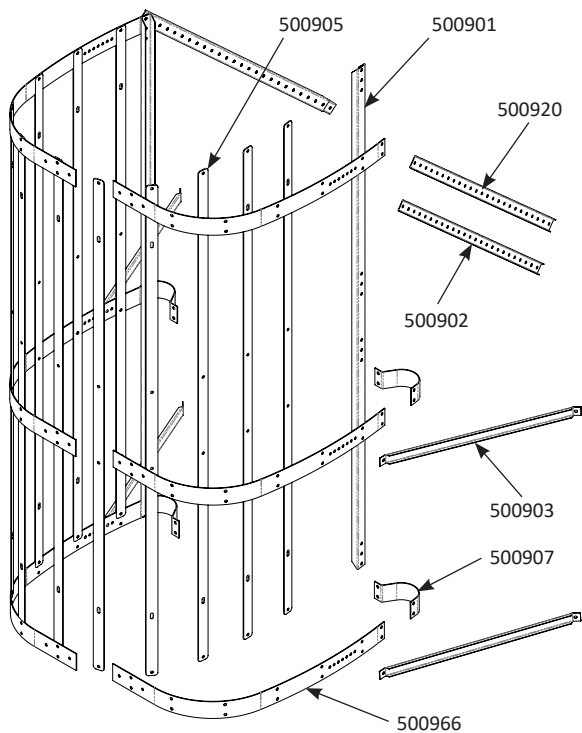
500907  
LC support  
hoop-rail



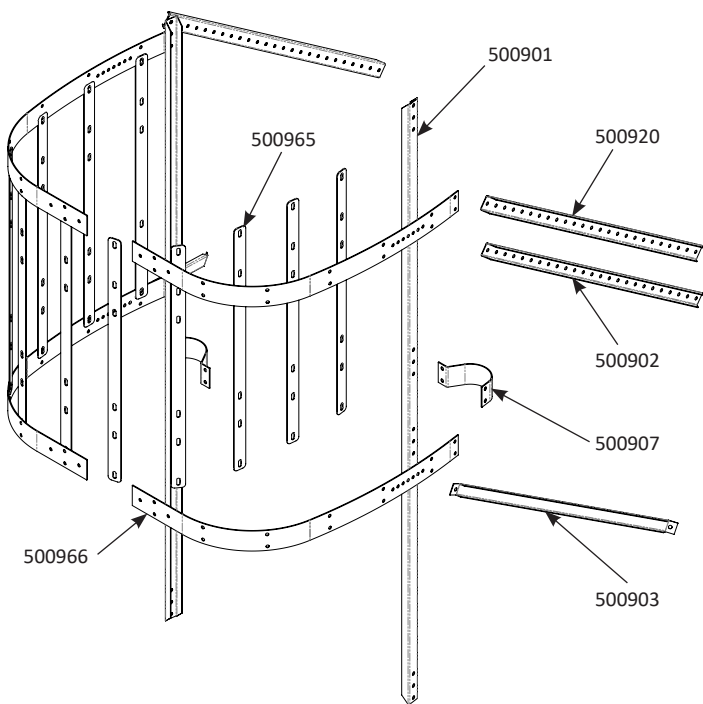
# Ladder Cage Exploded Drawing Parts Lists

(All parts detailed on previous page)

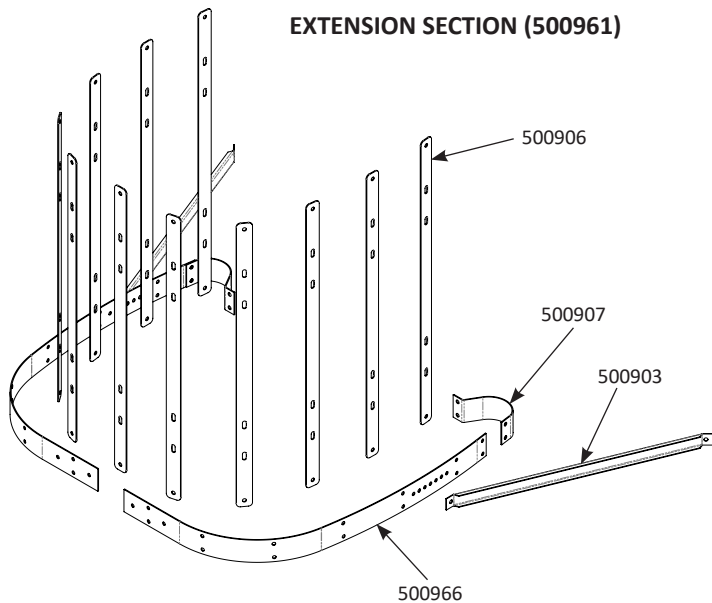
TOP SECTION (500960)



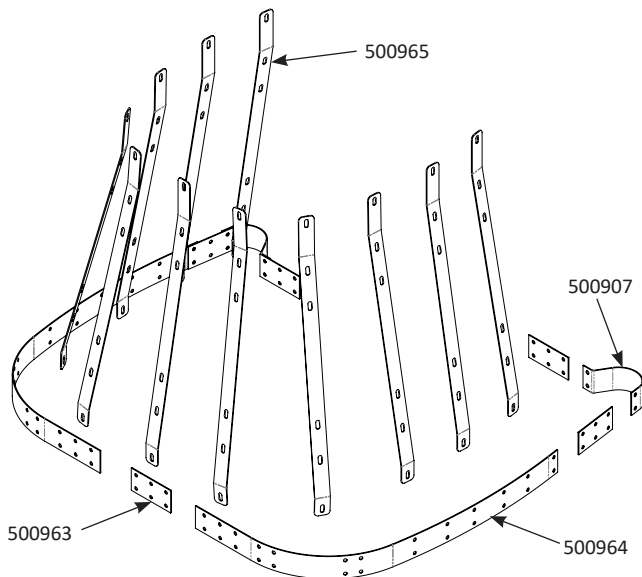
TOP SECTION (500968) For 6ft. 1 Ring Bin



EXTENSION SECTION (500961)



BOTTOM SECTION (500962)



## Ladder Cage Bill of Materials

| PART #                    | DESCRIPTION              | QUANTITIES |        |        |        |        |        |        |        |        |
|---------------------------|--------------------------|------------|--------|--------|--------|--------|--------|--------|--------|--------|
| LADDER CAGE ASSEMBLY KITS |                          | 500971     | 500972 | 500973 | 500974 | 500975 | 500976 | 500977 | 500978 | 500979 |
| 500960                    | LC TOP SECTION           | 0          | 1      | 1      | 1      | 1      | 1      | 1      | 1      | 1      |
| 500961                    | LC EXTENSION SECTION     | 0          | 0      | 1      | 2      | 3      | 4      | 5      | 6      | 7      |
| 500962                    | LC ADJUSTABLE BOTTOM     | 1          | 1      | 1      | 1      | 1      | 1      | 1      | 1      | 1      |
| 500968                    | LC TOP SECTION 6' 1 RING | 1          | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |

| PART #                     | DESCRIPTION                       | QUANTITIES |        |        |        |
|----------------------------|-----------------------------------|------------|--------|--------|--------|
| LADDER CAGE SUB-ASSEMBLIES |                                   | 500960     | 500961 | 500962 | 500968 |
| 500901                     | LC EAVE EXTENSION                 | 2          | 0      | 0      | 2      |
| 500902                     | LC SUPPORT TO ROOF LADDER         | 2          | 0      | 0      | 2      |
| 500903                     | LC SUPPORT TO BIN                 | 4          | 2      | 0      | 2      |
| 500905                     | LC SUPPORT - BASIC VERTICAL       | 11         | 0      | 0      | 0      |
| 500906                     | LC SUPPORT - EXTENSION VERTICAL   | 0          | 11     | 0      | 0      |
| 500907                     | LC SUPPORT - HOOP/RAIL            | 4          | 2      | 2      | 2      |
| 500920                     | LC SUPPORT - OUTSIDE ROOF LADDER  | 2          | 0      | 0      | 2      |
| 500963                     | LC ADJ BOTTOM EXTENSION PLATE     | 0          | 0      | 5      | 0      |
| 500964                     | LC HALF HOOP                      | 0          | 0      | 2      | 0      |
| 500965                     | LC SUPPORT FORMED VERTICAL        | 0          | 0      | 11     | 11     |
| 500966                     | LC HALF HOOP ADJUSTABLE           | 6          | 2      | 0      | 4      |
| 500980                     | LC TOP SECTION HARDWARE BAG       | 1          | 0      | 0      | 0      |
| 500981                     | LC EXTENSION HARDWARE BAG         | 0          | 1      | 0      | 0      |
| 500982                     | LC ADJUSTABLE BOTTOM HARDWARE BAG | 0          | 0      | 1      | 1      |

| PART #       | DESCRIPTION              | QUANTITIES |        |        |
|--------------|--------------------------|------------|--------|--------|
| HARDWARE BAG |                          | 500980     | 500981 | 500982 |
| 010643       | 5/16"-18 X 3/4" HEX BOLT | 77         | 33     | 55     |
| 012789       | 5/16"-18 NYLOCK NUT      | 77         | 33     | 55     |

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