


Daily Maintenance

Items you will need for daily maintenance:


- Laser Cleaner
- Clean soft cloths x2
- Soft brush
- Bleed Hole Needle
- Paper towels

Arrival

- **Take the robot out of operation**

1. Tap the right bottom corner  button

- Move the robot arm to the service position

- 
1. Tap
 2. Tap **Actions**
 3. Tap **Today's actions**
 4. Tap **Clean robot arm**
 5. Tap **Move robot arm to service position – start**
 6. The robot arm moves to service position, the teat cups are set straight and the cup cords are loosened
 7. Refer to figure 41 for the location of the Robot Arm

- **Clean under the mothership**

1. Spray with light pressure
2. Refer to figure 41 for the location of the Mothership

- **Spray the floor and the robot box floor clean**

- **Clean laser**

(Only clean the laser screen with lens cleaner and a soft moist cloth, use of other liquids and use of paper towel can cause damage to the laser screen.)

1. Use a soft moist towel with a small quantity of lens cleaner liquid to clean the laser screen
2. Refer to figure 7 for the location of the laser

- **Clean Cow Presence Sensor (Photocell) and ID Reader**

1. Slightly dampen the paper towel
2. Wipe the cow presence sensor and ID Reader clean
3. Refer to figure 4 for the location of the Cow Presence Sensor & ID Reader

- **Clean 3D Camera**

1. Go into the box
2. Remove all dust, cobwebs, and objects in the field of vision of the 3D camera
3. Use a soft, clean cloth to remove moisture, dust, and dirt from the 3D camera
4. Refer to figure 4 for the location of the 3D Camera

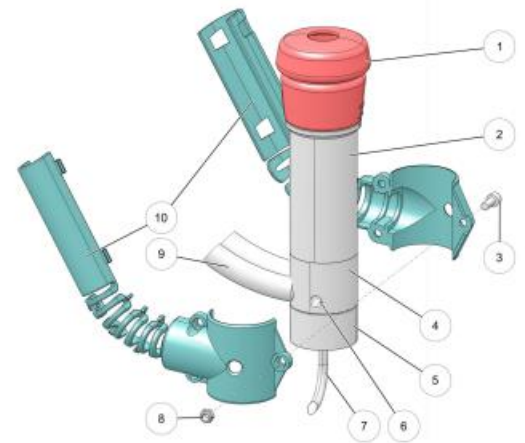


Figure 22. Teat cup

KEY: 1. Teat cup liner - 2. Teat cup shell - 3. Bolt - 4. Milk collection cup - 5. Centering cup - 6. Bleed hole - 7. Cup cord - 8. Nut - 9. Twin tube - 10. Twin tube cover

- **Clean the Robot Arm**
 1. Do not use high pressure to clean the robot arm and the box. The robot arm contains many electronic parts, high pressure can cause damage to these parts
 2. Spray the robot arm clean with water
 3. Refer to figure 41 for the location of the robot arm

- **Clean Box**
 1. Spray and scrub the box with a brush

- **Clean Mothership**
 1. Spray the mothership down lightly with water

- **Clean Twin tubes**
 1. Spray the twin tubes clean
 2. Refer to figure 7 for the location of the Twin Tubes

- **Clean Teat Cups**
 1. Spray and scrub the teat cups clean

- **Clean under Brush Hood**
 1. Spray & scrub it clean
 2. Refer to figure 47 for the location of the Brush Hood

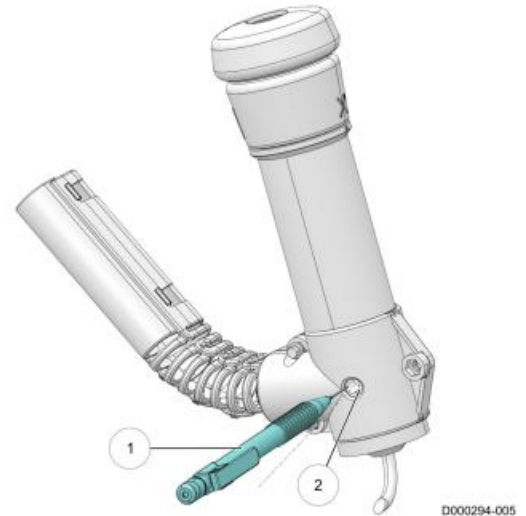


Figure 16. Clean the bleed holes

KEY: 1. Bleed hole needle - 2. Bleed hole

- **Clean Bleed Holes**
 1. Clean the bleed hole in each teat cup with the **bleed hole needle**
 2. Refer to figure 16 for the bleed hole needle and the location of the bleed hole

- **Check hoses for cracks and holes**
 1. Examine the hose for damage, cracks, and leaks

- **Check ropes**
 1. Loosen cord cups




2. Button
3. Tab **Tests**
4. Tab **Test Menu**
5. Tab **Mothership**
6. Tab **Cups**
7. At **Cord Cups** select:
 - LF **Loose**
 - LR **Loose**
 - RF **Loose**
 - RR **Loose**

8. Examine the cup ropes for dirt and damage



- **Ensure Teat Cups are tight**



1. Button
2. Tab **Tests**

3. Tab **Test Menu**
 4. Tab **Mothership**
 5. Tab **Cups**
 6. At **Tilt Cups** select:
 - **LF Straight**
 - **LR Straight**
 - **RF Straight**
 - **RR Straight**
 7. Wiggle teat cups and ensure they're tight
- **Empty all M4USE Buckets** (also clear on screen)
 1. Tab the **M4USE** beside the task menu
 2. Empty the buckets
 3. Tap **Empty All** once buckets are empty
 - **Clean and replace buckets**
 1. Wash buckets with soap, water, and a brush
 - **Check that chemical barrels are not empty**
 1. Its important to check the blue barrel because that one is for the brushes and there is no alarm if that one is empty
 1. Lift each barrel and ensure there is chemical still inside of the barrels
 - **Putting the robot back in operation**
 1. Tap the right bottom corner  button

Before Leaving For The Day

- **Take the robot out of operation**
 1. Tap the right bottom corner  button
- Move the robot arm to the service position
 2. Tap button 
 3. Tab **Actions**
 4. Tab **Today's actions**
 5. Tab **Clean robot arm**
 6. Tab **Move robot arm to service position – start**
 7. The robot arm moves to service position, the teat cups are set straight and the cup cords are loosened
- **Clean the Robot Arm**
 1. Do not use high pressure to clean the robot arm and the box. The robot arm contains many electronic parts, high pressure can cause damage to these parts
 2. Spray robot arm clean with water
 3. Refer to figure 41 for the location of the Robot Arm
- **Clean Box**
 1. Spray and scrub the box with a brush
- **Clean Mothership**

1. Lightly spray the mothership with water
2. Refer to figure 41 for the location of the Mothership

- **Clean Twin tubes**

1. Spray the twin tubes clean
2. Refer to figure 7 for the location of the Twin Tubes

- **Clean Teat Cups**

1. Spray and scrub the teat cups clean

- **Clean under Brush Hood**

1. Spray & scrub it clean

- **Clean Bleed Holes**

1. Clean the bleed hole in each teat cup with the **bleed hole needle**

- **Check hoses**

1. Examine the hose for damage, cracks, and leaks

- **Check ropes**

1. Loosen cord cups



2. Button
3. Tab **Tests**
4. Tab **Test Menu**
5. Tab **Mothership**
6. Tab **Cups**
7. At **Cord Cups** select:
 - LF **Loose**
 - LR **Loose**
 - RF **Loose**
 - RR **Loose**

8. Examine the cup ropes for dirt and damage

- **Ensure Teat Cups are tight**



1. Button
2. Tab **Tests**
3. Tab **Test Menu**
4. Tab **Mothership**
5. Tab **Cups**
6. At **Tilt Cups** select:
 - LF **Straight**
 - LR **Straight**
 - RF **Straight**
 - RR **Straight**

7. Wiggle teat cups and ensure they're tight

- **Clean laser**

(Only clean the laser screen with lens cleaner and a soft moist cloth, use of other liquids and use of paper towel can cause damage to the laser screen.)

1. Use a soft moist towel with a small quantity of lens cleaner liquid to clean the laser screen

- **Visual Check of Brush-Dis dispensing**



1. Button
2. Tab **Tests**
3. Tab **Test Menu**
4. Tab **Cleaning**
5. Tab **Pre Treatment**
6. In the field **Brush Cleaning**, select button **On**
7. Examine if Brush-Dis liquid is creating foam or bubbles on the concrete
 - If not, wipe your hands on the brushes and smell your hands for the chemical smell
8. Select button **Off**

- **Check ropes**

1. Loosen cord cups



2. Button
3. Tab **Tests**
4. Tab **Test Menu**
5. Tab **Mothership**
6. Tab **Cups**
7. At **Cord Cups** select:
 - **LF Loose**
 - **LR Loose**
 - **RF Loose**
 - **RR Loose**
8. Examine the cup ropes for dirt and damage

- **Ensure Teat Cups are tight**




1. Button
2. Tab **Tests**
3. Tab **Test Menu**
4. Tab **Mothership**
5. Tab **Cups**
6. At **Tilt Cups** select:
 - **LF Straight**
 - **LR Straight**
 - **RF Straight**
 - **RR Straight**
7. Wiggle teat cups, ensuring they're tight

- **Empty all M4USE Buckets** (also clear on screen)

1. Tab the **M4USE** beside the task menu
2. Empty the buckets
3. Tab **Empty All** once buckets are empty

- **Clean and replace buckets**
 1. Wash buckets with soap, water and a brush
- Check to ensure there were no cleaning or milk temperature alarms

- **Putting the robot back in operation**

1. Tap the right bottom corner  button

Report any issues to _____

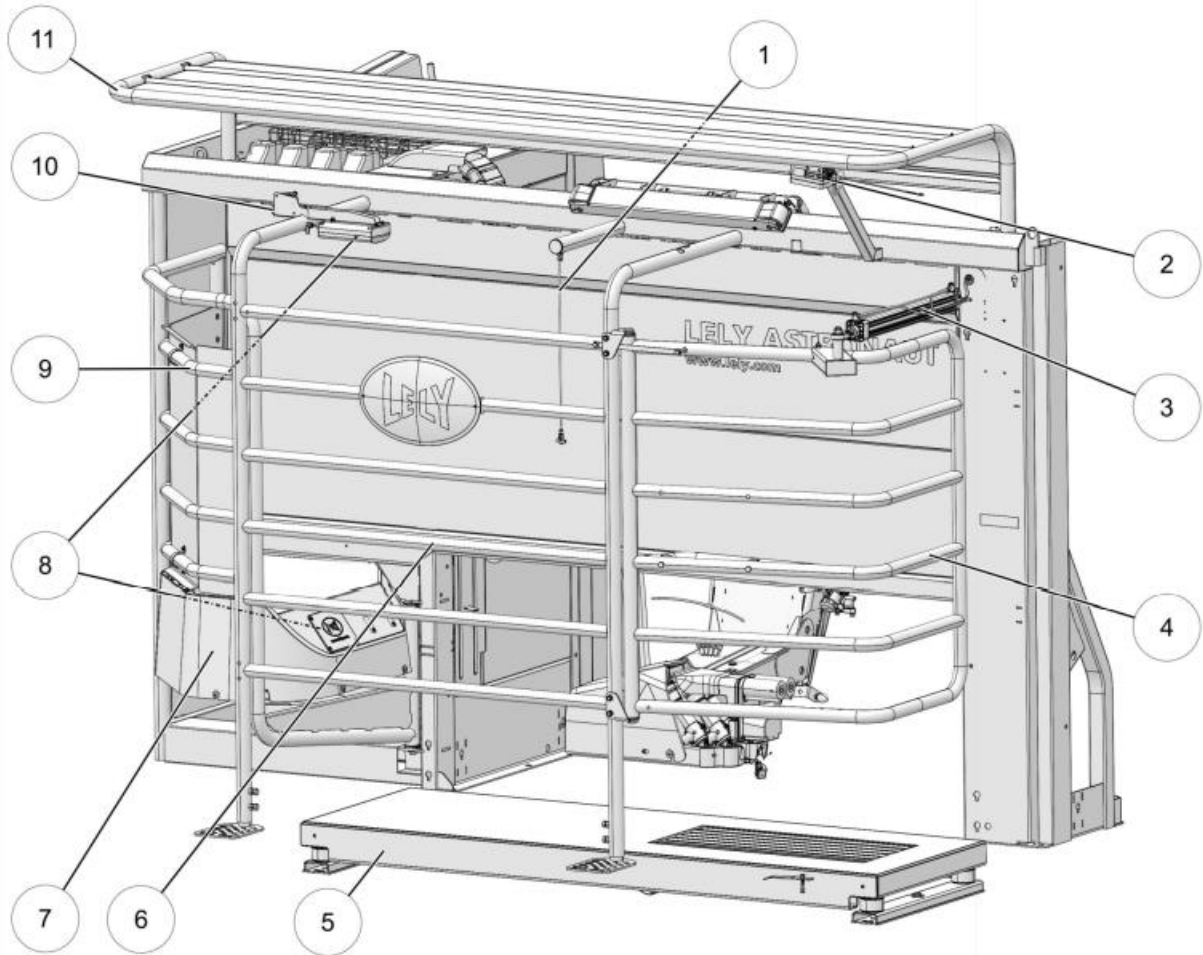


Figure 4. Robot unit cow side

KEY:

1. Movement inductor - 2. 3D Camera - 3. Entry gate cylinder - 4. Entry gate - 5. Gravitor (Optional) - 6. Side fence - 7. Feed bin - 8. Identification antenna - 9. Exit gate - 10. Photocell - 11. Cantilever roof

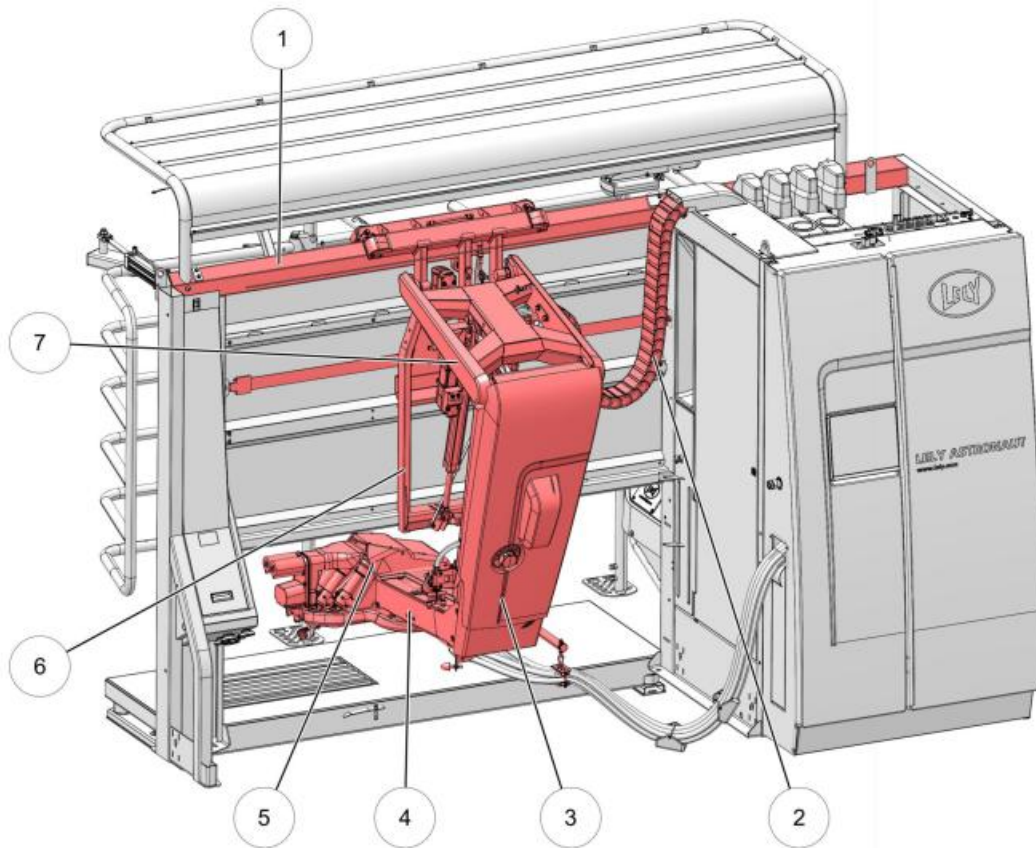
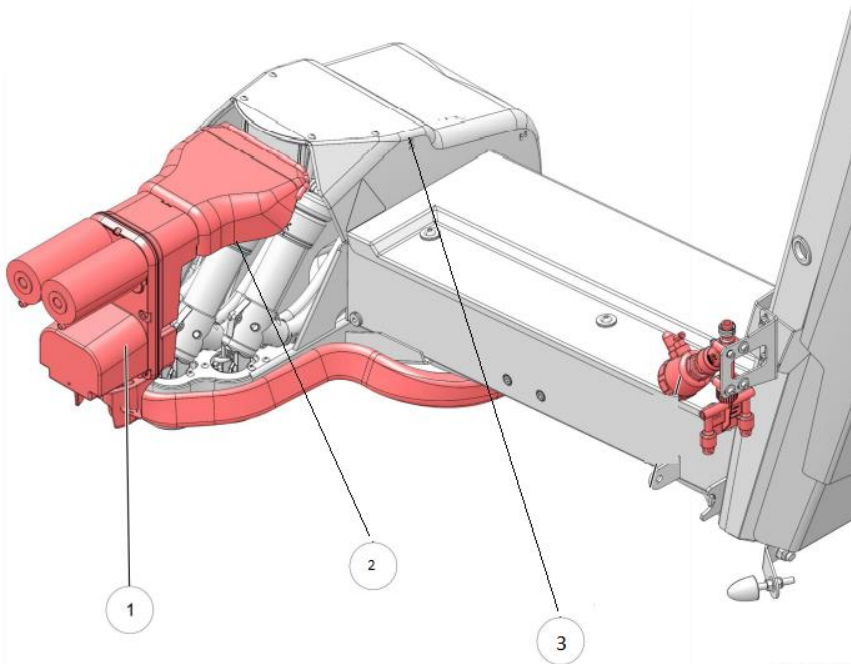


Figure 41. Overview Robot arm

KEY:

1. Wagon support - 2. Cable chain - 3. Middle arm - 4. Lower arm - 5. Mothership - 6. Wagon - 7. Upper arm

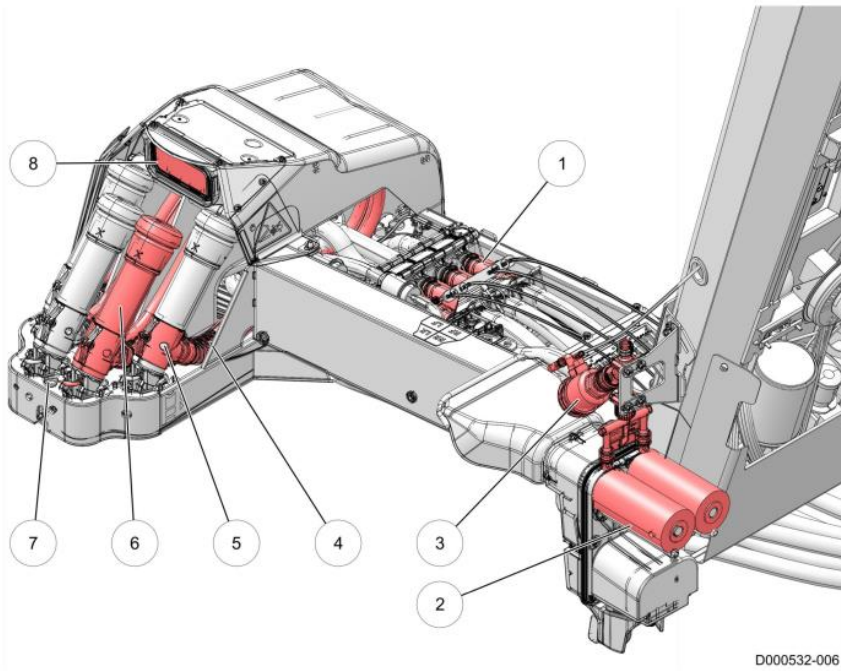


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Figure 47.

KEY:

1. Brush motor - 2. Brush hood - 3. Laser cover



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Figure 7. Lower arm

KEY:

1. Shut-off sleeves cartridge - 2. Brushes - 3. Brush disinfectant spray nozzle - 4. Twin tube - 5. Bleed hole - 6. Teat cup - 7. Teat disinfectant nozzle - 8. TDS II screen