



# General Maintenance Tables

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a TOYOTA ADVANCED LOGISTICS company

*Table 1: General Maintenance - Belted DC Conveyor*

| Type                      | Component                    | Action   | Maintenance Frequency | Reference                            | Notes                 |
|---------------------------|------------------------------|--|-----------------------|--------------------------------------|-----------------------|
| <b>BELTED DC CONVEYOR</b> |                              |  |                       |                                      |                       |
| General                   | Structural                   | Check all loose hardware (bolts, nuts, screws, etc.)                           | Annually              | N/A                                  |                       |
| General                   | Overview                     | Clear debris from conveying surface and electronics                            | Monthly               | N/A                                  |                       |
| General                   | Overview                     | Investigate any unusual wear spots (belt dust, wear etc.)                      | Monthly               | N/A                                  |                       |
| General                   | Overview                     | Investigate common jam points for issues                                       | Monthly               | N/A                                  |                       |
| General                   | Overview                     | Investigate unusual noises (squeaks, squeals, rubbing, whining, grinding etc.) | Monthly               | N/A                                  |                       |
| General                   | Overview                     | Clean Panda labels off belt after Panda  | Monthly               | N/A                                  |                       |
| General                   | E-Stop                       | Check that E-Stop is functional  | Monthly               | N/A                                  |                       |
| General                   | Supports                     | Check supports for integrity and connection to floor/mezzanine                 | Monthly               | N/A                                  |                       |
| Belt                      | Belt                         | Check Tracking   | Weekly                | BZPDC, BRBDC, BLVDC Manual Section 7 |                       |
| Belt                      | Belt                         | Check that belt is not slipping on rollers or pulleys                          | Monthly               | N/A                                  |                       |
| Drive/Rollers             | Bearings (Pulleys & Rollers) | Check Noise  | Monthly               | N/A                                  |                       |
| Drive/Rollers             | Bearings (Pulleys & Rollers) | Check Lubrication  | Quarterly             | Respective Bearing Manual            | Do not over-lubricate |

| Type                      | Component                    | Action  | Maintenance Frequency | Reference                            | Notes  |
|---------------------------|------------------------------|---|-----------------------|--------------------------------------|--|
| <b>BELTED DC CONVEYOR</b> |                              |   |                       |                                      |  |
| Drive/Rollers             | Bearings (Pulleys & Rollers) | Check for Wear  | Quarterly             | N/A                                  |  |
| Drive/Rollers             | Bands                        | Replace any loose or damaged bands  | Monthly               | BZPDC, BRBDC, BLVDC Manual Section 6 |  |
| Drive                     | Poly-V Belts                 | Check Tension   | Monthly               | BRBDC Manual Section 6               |  |
| Drive                     | Poly-V Belts                 | Check for Wear  | Monthly               | N/A                                  |  |
| Drive                     | Poly-V Belts                 | Check for Sheave Alignment  | Monthly               | N/A                                  |  |
| Drive                     | MDR                          | Check torque of MDR nuts  | Semi-Annually         | BZPDC, BLVDC Manual Section 6        |  |
| Electrical                | Sensor - PE (If applicable)  | Align Photoeyes (beam on reflector)   | Monthly               | N/A                                  | Align Photoeyes as needed- General Check monthly |
| Electrical                | Wiring                       | Check wires on conveyor for degradation, ensure I/O wires are still secured in cards when applicable. | Quarterly             | N/A                                  |  |

Table 2: General Maintenance - Roller DC Conveyor

| Type                      | Component                    | Action   | Maintenance Frequency | Reference  | Notes                 |
|---------------------------|------------------------------|--|-----------------------|--|-----------------------|
| <b>ROLLER DC CONVEYOR</b> |                              |  |                       |  |                       |
| General                   | Structural                   | Check all loose hardware (bolts, nuts, screws, etc.)                           | Annually              | N/A  |                       |
| General                   | Overview                     | Clear debris from conveying surface and electronic                             | Monthly               | N/A  |                       |
| General                   | Overview                     | Investigate any unusual wear spots (bands, rollers etc.)                       | Monthly               | N/A  |                       |
| General                   | Overview                     | Investigate common jam points for issues                                       | Monthly               | N/A  |                       |
| General                   | Overview                     | Investigate unusual noises (squeaks, squeals, rubbing, whining, grinding etc.) | Monthly               | N/A  |                       |
| General                   | Overview                     | Clean Panda labels off rollers after Panda                                     | Monthly               | N/A  |                       |
| General                   | E-Stop                       | Check that E-Stop is functional  | Monthly               | N/A  |                       |
| General                   | Supports                     | Check supports for integrity and connection to floor/mezzanine                 | Monthly               | N/A  |                       |
| Pneumatics                | Air System                   | Check Drains   | Weekly                | N/A  |                       |
| Pneumatics                | Air System                   | Check Compressor Oil Level   | Quarterly             | N/A  |                       |
| Drive/Rollers             | Bearings (Pulleys & Rollers) | Check Noise  | Monthly               | N/A  |                       |
| Drive/Rollers             | Bearings (Pulleys & Rollers) | Check Lubrication  | Quarterly             | Respective Bearing manual  | Do not over-lubricate |
| Drive/Rollers             | Bearings (Pulleys & Rollers) | Check for Wear   | Quarterly             | N/A  |                       |
| Drive/Rollers             | Bands/ Belts                 | Replace any loose or damaged bands/belts                                       | Monthly               | RLCDC, RLSDC, RLVDC, RLVDCG, RZCDC, RZPDC, SPIRAL Manual Section 6 |                       |

| Type                      | Component                   | Action   | Maintenance Frequency | Reference  | Notes  |
|---------------------------|-----------------------------|--|-----------------------|--|--|
| <b>ROLLER DC CONVEYOR</b> |                             |  |                       |  |  |
| Drive                     | Poly-V Belts                | Check for Wear   | Monthly               | N/A  |  |
| Drive                     | Poly-V Belts                | Check for Sheave Alignment   | Monthly               | N/A  |  |
| Drive                     | MDR                         | Check torque of MDR nuts   | Monthly               | RLCDC, RLSDC, RLVDC, RLVDCG, RZCDC, RZPDC, SPIRAL Manual Section 6 |  |
| Electrical                | Sensor - PE (If applicable) | Align Photoeyes (beam on reflector)  | Monthly               | N/A  | Align Photoeyes as needed- General Check monthly |
| Electrical                | Wiring                      | Check wires on conveyor for degradation, ensure I/O wires are still secured in cards when applicable | Quarterly             | N/A  |  |
| Mechanical                | Springs (Only Gates)        | Check that gate springs and latch spring are tensioned properly                                      | Monthly               | RLVDCG manual Section 5  |  |

*Table 3: General Maintenance - AC Conveyor*

| Type               | Component  | Action   | Maintenance Frequency | Reference  | Notes |
|--------------------|------------|--|-----------------------|--|-------|
| <b>AC CONVEYOR</b> |            |  |                       |  |       |
| General            | Structural | Check all loose hardware (bolts, nuts, screws, etc.)                           | Annually              | N/A  |       |
| General            | Overview   | Clear debris from conveying surface and electronics                            | Monthly               | N/A  |       |
| General            | Overview   | Investigate any unusual wear spots (belt dust, wear etc.)                      | Monthly               | N/A  |       |
| General            | Overview   | Investigate common jam points for issues                                       | Monthly               | N/A  |       |
| General            | Overview   | Investigate unusual noises (squeaks, squeals, rubbing, whining, grinding etc.) | Monthly               | N/A  |       |
| General            | Overview   | Clean Panda labels off rollers/belt after Panda                                | Monthly               | N/A  |       |
| General            | E-Stop     | Check that E-Stop is functional  | Monthly               | N/A  |       |
| General            | Supports   | Check supports for integrity and connection to floor/mezzanine                 | Monthly               | N/A  |       |
| Pneumatics         | Air System | Check Drains   | Weekly                | N/A  |       |
| Pneumatics         | Air System | Check Compressor Oil Level   | Quarterly             | N/A  |       |
| Belt               | Belt       | Check Tracking   | Weekly                | AC Merge, BRBAC, BSBAC, BSTAC Manual Section 7   |       |
| Belt               | Belt       | Check that belt is not slipping on rollers or pulleys                          | Monthly               | N/A  |       |
| Belt               | Belt       | Check Lacing   | Monthly               | AC Merge, BRBAC, BSBAC, BSTAC Manual Section 5.3 |       |
| Drive              | AC Motor   | Check Noise  | Monthly               | N/A  |       |

| Type               | Component                    | Action                           | Maintenance Frequency                               | Reference   | Notes                 |
|--------------------|------------------------------|----------------------------------|---|---|-----------------------|
| <b>AC CONVEYOR</b> |                              |                                  |   |   |                       |
| Drive              | AC Motor                     | Check Temperature                | Weekly  | Respective Motor Manual (in general do not exceed 72° above ambient temperature)  |                       |
| Drive              | AC Motor                     | Check Mounting Bolts are Torqued | Monthly   | N/A   |                       |
| Drive              | Reducer                      | Check Noise                      | Monthly   | N/A   |                       |
| Drive              | Reducer                      | Check Temperature                | Monthly   | Respective Motor Manual (in general do not exceed 100° above ambient temperature) |                       |
| Drive              | Reducer                      | Check Oil Level                  | Quarterly   | Respective Motor Manual   |                       |
| Drive              | Reducer                      | Change Oil                       | 10,000 hours run time or every 3 years of operation | N/A   |                       |
| Drive/Rollers      | Bearings (Pulleys & Rollers) | Check Noise                      | Monthly   | N/A   |                       |
| Drive/Rollers      | Bearings (Pulleys & Rollers) | Check Lubrication                | Quarterly   | Respective Bearing manual   | Do not over-lubricate |
| Drive/Rollers      | Bearings (Pulleys & Rollers) | Check for Wear                   | Quarterly   | N/A   |                       |

Table 4: General Maintenance - Sorters

| Type           | Component  | Action   | Maintenance Frequency | Reference  | Notes |
|----------------|------------|--|-----------------------|--|-------|
| <b>SORTERS</b> |            |  |                       |  |       |
| General        | Structural | Check all loose hardware (bolts, nuts, screws, etc.)                           | Annually              | N/A  |       |
| General        | Overview   | Clear debris from conveying surface and electronics                            | Monthly               | N/A  |       |
| General        | Overview   | Investigate any unusual wear spots (belt dust, wear etc.)                      | Monthly               | N/A  |       |
| General        | Overview   | Investigate common jam points for issues                                       | Monthly               | N/A  |       |
| General        | Overview   | Investigate unusual noises (squeaks, squeals, rubbing, whining, grinding etc.) | Monthly               | N/A  |       |
| General        | Overview   | Clean Panda labels off rollers/belt after Panda                                | Monthly               | N/A  |       |
| General        | E-Stop     | Check that E-Stop is functional  | Monthly               | N/A  |       |
| General        | Supports   | Check supports for integrity and connection to floor/mezzanine                 | Monthly               | N/A  |       |
| Pneumatics     | Air System | Check Drains   | Weekly                | N/A  |       |
| Pneumatics     | Air System | Check Compressor Oil Level   | Quarterly             | N/A  |       |
| Drive          | AC Motor   | Check Noise  | Monthly               | N/A  |       |
| Drive          | AC Motor   | Check Temperature  | Weekly                | Respective Motor Manual (in general do not exceed 72° above ambient temperature) |       |
| Drive          | AC Motor   | Check Mounting Bolts are Torqued   | Monthly               | N/A  |       |
| Drive          | Reducer    | Check Noise  | Monthly               | N/A  |       |



| Type           | Component                   | Action                                   | Maintenance Frequency  | Reference   | Notes |
|----------------|-----------------------------|--|--|---|-------|
| <b>SORTERS</b> |                             |  |  |   |       |
| Drive          | Reducer                     | Check Temperature                        | Monthly  | Respective Motor Manual (in general do not exceed 100° above ambient temperature) |       |
| Drive          | Reducer                     | Check Oil Level                          | Quarterly  | Respective Motor Manual   |       |
| Drive          | Reducer                     | Change Oil                               | 10,000 hours run time or every 3 years of operation                          | N/A   |       |
| Drive          | Drive Chain (if applicable) | Check Elongation                         | After first 100 hours or 2 weeks, and every 500 hours or 2 months thereafter | Shoe Sorter Installation and Maintenance Manual Section 7.4                       |       |
| Drive          | Drive Chain (if applicable) | Check Noise                              | Monthly  | N/A   |       |
| Drive          | Drive Chain (if applicable) | Check Lubrication                        | Monthly  | Shoe Sorter Installation and Maintenance Manual Section 5.1.12 & Section 7.4      |       |
| Drive          | Drive Chain (if applicable) | Check for Wear                           | Quarterly  | N/A   |       |
| Drive          | Sprockets (if applicable)   | Check for Wear                           | Quarterly  | N/A   |       |
| Drive          | Sprockets (if applicable)   | Check Set Screws & Keys                  | Quarterly  | HRT, GTPW Manual Section 6  |       |
| Drive          | Belts/Bands (if applicable) | Check Tension                            | Monthly  | HRT, GTPW Manual Section 6  |       |
| Drive          | Belts/Bands (if applicable) | Check for Wear                           | Monthly  | N/A   |       |
| Drive          | Belts/Bands (if applicable) | Check for Sheave Alignment               | Monthly  | N/A   |       |
| Drive/Rollers  | Bands/ Belts                | Replace any loose or damaged bands/belts | Monthly  | HRT, GTPW, PWD Manual Section 6   |       |

| Type           | Component                     | Action  | Maintenance Frequency | Reference                 | Notes  |
|----------------|-------------------------------|---|-----------------------|---------------------------|--|
| <b>SORTERS</b> |                               |   |                       |                           |  |
| Drive/Rollers  | Bearings (Pulleys & Rollers)  | Check Noise   | Monthly               | N/A                       |  |
| Drive/Rollers  | Bearings (Pulleys & Rollers)  | Check Lubrication   | Quarterly             | Respective Bearing manual | Do not over-lubricate                            |
| Drive/Rollers  | Bearings (Pulleys & Rollers)  | Check for Wear  | Quarterly             | N/A                       |  |
| Electrical     | Sensor - PE (If applicable)   | Align Photoeyes (beam on reflector)   | Monthly               | N/A                       | Align Photoeyes as needed- General Check monthly |
| Electrical     | Sensor - Prox (if applicable) | Clean Prox Sensors  | Quarterly             | N/A                       |  |
| Electrical     | Wiring                        | Check wires on conveyor for degradation, ensure I/O wires are still secured in cards when applicable. | Quarterly             | N/A                       |  |

Table 5: Manual Reference

| OEM/TYPE               | Doc Number            | URL<br>Conveyor   | NOTES                                      |
|------------------------|-----------------------|---|--|
| ZiPline                | N/A                   | <a href="https://www.bastiansolutions.com/about/media-library/downloads/product-manuals/zipline-manuals/">https://www.bastiansolutions.com/about/media-library/downloads/product-manuals/zipline-manuals/</a>   | Directory for all ZiPline Conveyor Manuals |
| <b>Bearings</b>        |                       |   |  |
| Dodge                  | MN3016                | <a href="https://www.baldor.com/mvc/DownloadCenter/Files/MN3016">https://www.baldor.com/mvc/DownloadCenter/Files/MN3016</a>   |  |
| Peer                   | N/A                   | <a href="http://www.peerbearing.com/pdf/peer_mounted_units_catalog.pdf">http://www.peerbearing.com/pdf/peer_mounted_units_catalog.pdf</a>   | Greasing data in Section 5.2               |
| <b>Motors</b>          |                       |   |  |
| Dodge                  | MN1698                | <a href="https://www.baldor.com/mvc/DownloadCenter/Files/MN1698">https://www.baldor.com/mvc/DownloadCenter/Files/MN1698</a>   |  |
| SEW                    | 11358912              | <a href="https://download.sew-eurodrive.com/download/pdf/11358912.pdf">https://download.sew-eurodrive.com/download/pdf/11358912.pdf</a>   | Lubrication data in Section 10.1           |
| Teknic                 | ClearPath User Manual | <a href="https://www.teknic.com/files/downloads/clearpath_user_manual.pdf">https://www.teknic.com/files/downloads/clearpath_user_manual.pdf</a>   |  |
| <b>Cards</b>           |                       |   |  |
| Interroll/9006         | N/A                   | <a href="https://www.interroll.us/fileadmin/user_upload/AMERICAS/User_Manuals/9006_Manual_20120402.pdf">https://www.interroll.us/fileadmin/user_upload/AMERICAS/User_Manuals/9006_Manual_20120402.pdf</a>   |  |
| Interroll/Zone Control | N/A                   | <a href="https://www.interroll.com/fileadmin/user_upload/Downloads__PDF_/User_Manuals/Controls/en_ZoneControl_V1_en_11-01-12.pdf">https://www.interroll.com/fileadmin/user_upload/Downloads__PDF_/User_Manuals/Controls/en_ZoneControl_V1_en_11-01-12.pdf</a>                                   |  |
| Itoh Denki/CB-016P7-UL | N/A                   | <a href="https://itohdenki.co.jp/english/support/manual.html">https://itohdenki.co.jp/english/support/manual.html</a>   |  |
| Itoh Denki/CBM-105FP   | N/A                   | <a href="https://itohdenki.co.jp/english/support/manual.html">https://itohdenki.co.jp/english/support/manual.html</a>   |  |
| Itoh Denki/HBM-604BP   | N/A                   | <a href="https://itohdenki.co.jp/english/support/manual.html">https://itohdenki.co.jp/english/support/manual.html</a>   |  |
| Itoh Denki/IB-E03      | N/A                   | <a href="https://itohdenki.co.jp/english/support/manual.html">https://itohdenki.co.jp/english/support/manual.html</a>   |  |
| Itoh Denki/HB-510P     | N/A                   | <a href="https://itohdenki.co.jp/english/support/manual.html">https://itohdenki.co.jp/english/support/manual.html</a>   |  |
| INSIGHT/EZ24           | N/A                   | <a href="https://www.pulseroller.com/files/NA/Control%20Literature%20&amp;%20Drawings/EZ-24/Users%20Manual%20and%20Specifications/Users_Guide.pdf">https://www.pulseroller.com/files/NA/Control%20Literature%20&amp;%20Drawings/EZ-24/Users%20Manual%20and%20Specifications/Users_Guide.pdf</a> |  |