



# Maintenance Management Order

**SUBJECT:** Preventive Maintenance (PM) Servicing Guidelines for  
Lockheed Martin (LM) Tray Management System (TMS)  
Tray Transport Power Roller (TT) Bi-Directional Conveyor  
**TO:** All Lockheed Martin TMS Sites

**DATE:** July 30, 2010  
**NO:** MMO-077-10  
**FILE CODE:** TM05  
rorn:mm09030ad

This Maintenance Management Order (MMO) provides PM Servicing Guidelines for LM TMS TT Bi-Directional Conveyor. Acronym used is TT. Class code used is BA.

The workhours represented in this MMO reflect the maximum workhours required to maintain the equipment. Given local conditions, management may modify task frequencies.

The minimum maintenance skill level required to perform each task is included in the Minimum Skill Level column of each checklist. This does not preclude higher level employees from performing any of this work.

Maintenance Managers are to use these preventive maintenance guidelines when preparing the route sheets for local maintenance personnel. It is the responsibility of each Maintenance Manager to ensure all WARNINGS, CAUTIONS, and NOTES are included with each applicable task as part of the preparation of any local route sheets.

## WARNING

Various products requiring Material Safety Data Sheets (MSDS) may be utilized during the performance of the procedures in this bulletin. Ensure the current MSDS for each product used is on file and available to all employees. When reordering such a product, it is suggested that current MSDS be requested. Refer to MSDS for appropriate personal protective equipment.

**WARNING**

**The use of compressed or blown air is prohibited. An alternative cleaning method such as a HEPA filtered vacuum cleaner, a damp rag, lint-free cloth, or brush must be used in place of compressed or blown air.**

For questions or comments concerning this bulletin contact the MTSC HelpDesk, either online at **MTSC>HELPDESK>Create/Update Tickets** or call (800) 366-4123.



Robert E. Albert

Manager

Maintenance Technical Support Center

Maintenance Policies and Programs

Attachments:

1. Summary of Workload Estimate
2. LM TMS TT Bi-Directional Conveyor: Master Checklist:03-TT-BA-201-M: Monthly
3. LM TMS TT Bi-Directional Conveyor: Master Checklist:03-TT-BA-202-M: Semi-Annual

**ATTACHMENT 1**

**SUMMARY**

**WORKLOAD ESTIMATE**

**FOR**

**LM TMS TT BI-DIRECTIONAL CONVEYOR**

### SUMMARY WORKLOAD ESTIMATE

#### 5-8 Zone Elevated Module

| Days  | Routine Servicing (hrs/yr) | Repair* (hrs/yr) | Total Servicing & Repair Time (hrs/yr) | Nonproductive Time ** (hrs/yr) | Total Servicing Per Machine (hrs/yr) |
|-------|----------------------------|------------------|--|--------------------------------|--------------------------------------|
| 5 Day | 2.33                       | 0.70             | 3.03                                   | 0.30                           | 3.34                                 |
| 6 day | 2.33                       | 0.70             | 3.03                                   | 0.30                           | 3.34                                 |
| 7 day | 2.33                       | 0.70             | 3.03                                   | 0.30                           | 3.34                                 |

#### Floor Level and 1-4 Zone Elevated Module

| Days  | Routine Servicing (hrs/yr) | Repair* (hrs/yr) | Total Servicing & Repair Time (hrs/yr) | Nonproductive Time ** (hrs/yr) | Total Servicing Per Machine (hrs/yr) |
|-------|----------------------------|------------------|--|--------------------------------|--------------------------------------|
| 5 Day | 2.30                       | 0.69             | 2.99                                   | 0.30                           | 3.29                                 |
| 6 day | 2.30                       | 0.69             | 2.99                                   | 0.30                           | 3.29                                 |
| 7 day | 2.30                       | 0.69             | 2.99                                   | 0.30                           | 3.29                                 |

**NOTES:**

\*Repair estimates based on 30% of servicing.

\*\*Based on 10% of total servicing and repair.

**ATTACHMENT 2**

**LM TMS TT BI-DIRECTIONAL CONVEYOR**

**MASTER CHECKLIST**

03-TT-BA-201-M

MONTHLY

Time Total: 10 Minutes per module

|  |                |   |  |   |  |  |  |                                |            |   |                       |   |   |      |  |
|--|----------------|---|--|---|--|--|--|--------------------------------|------------|---|-----------------------|---|---|------|--|
| U.S. Postal Service<br>Maintenance Checklist | IDENTIFICATION |   |  |   |  |  |  |                                |            |   |                       |   |   |      |  |
|  | WORK CODE      |   | EQUIPMENT ACRONYM                          |   |  |  |  |                                | CLASS CODE |   | NUMBER                |   |   | TYPE |  |
|  | 0              | 3 | T  | T |  |  |  |                                | B          | A | 2                     | 0 | 1 | M    |  |
| Equipment Nomenclature<br>LM TMS TT          |                |   | Equipment Model<br>Bi-Directional Conveyor |   |  |  |  | Bulletin Filename<br>MM09030AD |            |   | Occurrence<br>Monthly |   |   |      |  |

| Part or Component | Item No | Task Statement and Instruction<br>(Comply with all current safety precautions) | Est. Time Req (min) | Min. Skill Lev | Thresholds |                  |       |
|-------------------|---------|--|---------------------|----------------|------------|------------------|-------|
|                   |         |  |                     |                | Run Hours  | Pieces Fed (000) | Freq. |

SAFETY  
STATEMENT

- |    |                                     |   |     |
|----|-------------------------------------|---|-----|
| 1. | COMPLY WITH ALL SAFETY PRECAUTIONS. | 2 | All |
|----|-------------------------------------|---|-----|
- Disconnect power and apply lockouts when required by this instruction. Refer to current local lockout procedures to properly shut down and lock out this machine. Open equipment and inspect dust conditions. Check for suspicious dust or unusual debris. If any unusual substance is found notify supervisor prior to proceeding with any further action on the equipment.
- THE USE OF COMPRESSED OR BLOWN AIR IS PROHIBITED.**
- When cleaning is required, an alternative cleaning method such as a HEPA filtered vacuum cleaner, a damp cloth, lint-free cloth or brush, must be used in place of compressed or blown air. Report safety deficiencies to your supervisor immediately upon detection.

**WARNING**

Be cautious when working around or on equipment when power has been applied.

- |              |    |                                 |   |   |
|--------------|----|---------------------------------|---|---|
| IDLER ROLLER | 2. | Check idler rollers for debris. | 3 | 9 |
|--------------|----|---------------------------------|---|---|
1. On the cell control PC, enter login ID and password.
  2. On the TMS Main Menu, select Cell Controller.
  3. On the CELL STATUS screen, select the Cell Offline button.
  4. Select the Conveyor button.
  5. On the CONVEYOR MANAGEMENT screen, select the Device Id(s) (and select the zone(s) if applicable) for the conveyor being checked.
  6. Select Force Output button. The conveyor (zone(s)) selected should now be operating.
  7. Check drive and idler rollers for attached debris.

|  |                |   |  |   |  |  |  |                                |            |   |                       |   |   |      |  |
|--|----------------|---|--|---|--|--|--|--------------------------------|------------|---|-----------------------|---|---|------|--|
| U.S. Postal Service<br>Maintenance Checklist | IDENTIFICATION |   |  |   |  |  |  |                                |            |   |                       |   |   |      |  |
|  | WORK CODE      |   | EQUIPMENT ACRONYM                          |   |  |  |  |                                | CLASS CODE |   | NUMBER                |   |   | TYPE |  |
|  | 0              | 3 | T  | T |  |  |  |                                | B          | A | 2                     | 0 | 1 | M    |  |
| Equipment Nomenclature<br>LM TMS TT          |                |   | Equipment Model<br>Bi-Directional Conveyor |   |  |  |  | Bulletin Filename<br>MM09030AD |            |   | Occurrence<br>Monthly |   |   |      |  |

| Part or Component | Item No | Task Statement and Instruction<br>(Comply with all current safety precautions) | Est. Time Req (min) | Min. Skill Lev | Thresholds |                  |       |
|-------------------|---------|--|---------------------|----------------|------------|------------------|-------|
|                   |         |  |                     |                | Run Hours  | Pieces Fed (000) | Freq. |

8. Power down and lock out power as prescribed by the current local lockout/restore procedures.
9. Remove any dirt/debris found. If required, clean the roller with soap and water.

**WARNING**

**Be cautious when working around or on equipment when power has been applied.**

10. Restore equipment to service as prescribed by the current local lockout/restore procedures.

#### DRIVER ROLLERS

3. **Check drive rollers and O-rings.** 4      9
  1. On the cell control PC, enter login ID and password.
  2. On the TMS Main Menu, select Cell Controller.
  3. On the CELL STATUS screen, select the Cell Offline button.
  4. Select the Conveyor button.
  5. On the CONVEYOR MANAGEMENT screen, select the Device Id(s) (and select the zone(s) if applicable) for the conveyor being checked.
  6. Select Force Output button. The conveyor (zone(s)) selected should now be operating.
  7. Check for noise. If roller is excessively noisy, notify supervisor.
  8. Check fastening nuts for movement. If the fastening nuts rotate when the rollers start and stop, power down affected conveyor segment and lockout electrical power as prescribed by the current local lockout/restore procedures and retighten the nuts to 35 to 37 foot-pounds. After re-tightening the nuts, restore the equipment to service as prescribed by the current local

|  |  |  |   |                   |   |  |  |                                |  |            |   |                       |   |   |      |
|--|--|--|---|-------------------|---|--|--|--------------------------------|--|------------|---|-----------------------|---|---|------|
| U.S. Postal Service<br>Maintenance Checklist |  | IDENTIFICATION                             |   |                   |   |  |  |                                |  |            |   |                       |   |   |      |
|  |  | WORK CODE                                  |   | EQUIPMENT ACRONYM |   |  |  |                                |  | CLASS CODE |   | NUMBER                |   |   | TYPE |
|  |  | 0  | 3 | T                 | T |  |  |                                |  |            | B | A                     | 2 | 0 | 1    |
| Equipment Nomenclature<br>LM TMS TT          |  | Equipment Model<br>Bi-Directional Conveyor |   |                   |   |  |  | Bulletin Filename<br>MM09030AD |  |            |   | Occurrence<br>Monthly |   |   |      |

  

| Part or Component | Item No | Task Statement and Instruction<br>(Comply with all current safety precautions) | Est. Time Req (min) | Min. Skill Lev | Thresholds |                  |       |
|-------------------|---------|--|---------------------|----------------|------------|------------------|-------|
|                   |         |  |                     |                | Run Hours  | Pieces Fed (000) | Freq. |

lockout/restore procedures.

9. Check for sluggish movement of trays. If sluggish movement is present in the normal direction, check for broken or slipping O-rings and check for malfunctioning O-rings. If any of these conditions exist, notify supervisor.
10. After completing all checks, select OK to stop selected conveyor rollers.
11. On the CONVEYOR MANAGEMENT screen, select Cell Status button.
12. On the CELL STATUS screen, select Cell Online button.
13. Select Exit button.
14. On the TMS Main Menu, select Log Off button.

#### CLEAN UP

4. **Clean up.** Ensure all tools, lubricants, rags, etc., are removed from the work area. Notify supervisor of any deficiencies. 1 All



**ATTACHMENT 3**

**LM TMS TT BI-DIRECTIONAL CONVEYOR**

**MASTER CHECKLIST**

03-TT-BA-202-M

SEMI-ANNUAL

Time Totals:

9 Minutes per floor level module  
9 Minutes per 1-4 zone elevated module  
10 Minutes per 5-8 zone elevated module

| U.S. Postal Service<br>Maintenance Checklist | IDENTIFICATION |   |  |   |  |  |  |                                |            |   |                           |   |   |      |  |
|--|----------------|---|--|---|--|--|--|--------------------------------|------------|---|---------------------------|---|---|------|--|
|  | WORK CODE      |   | EQUIPMENT ACRONYM                          |   |  |  |  |                                | CLASS CODE |   | NUMBER                    |   |   | TYPE |  |
|  | 0              | 3 | T  | T |  |  |  |                                | B          | A | 2                         | 0 | 2 | M    |  |
| Equipment Nomenclature<br>LM TMS TT          |                |   | Equipment Model<br>Bi-Directional Conveyor |   |  |  |  | Bulletin Filename<br>MM09030AD |            |   | Occurrence<br>Semi-Annual |   |   |      |  |

| Part or Component | Item No | Task Statement and Instruction<br>(Comply with all current safety precautions) | Est. Time Req (min) | Min. Skill Lev | Thresholds |                  |       |
|-------------------|---------|--|---------------------|----------------|------------|------------------|-------|
|                   |         |  |                     |                | Run Hours  | Pieces Fed (000) | Freq. |

## SAFETY STATEMENT

1. **COMPLY WITH ALL SAFETY PRECAUTIONS.** Disconnect power and apply lockouts when required by this instruction. Refer to current local lockout procedures to properly shut down and lock out this machine. Open equipment and inspect dust conditions. Check for suspicious dust or unusual debris. If any unusual substance is found notify supervisor prior to proceeding with any further action on the equipment.
- 2 All

**THE USE OF COMPRESSED OR BLOWN AIR IS PROHIBITED.**

When cleaning is required, an alternative cleaning method such as a HEPA filtered vacuum cleaner, a damp cloth, lint-free cloth or brush, must be used in place of compressed or blown air. Report safety deficiencies to your supervisor immediately upon detection.

## POWER DOWN

2. **Power down and lockout power.** Power down the machine and lockout its power as prescribed by the current local lockout/restore procedures.
- 1 9

## PHOTOEYES

3. **Clean photoeyes and reflectors.** Using a clean, dry cloth, clean dust and dirt from the photo eyes and reflectors.
- \* 1 9  
\*\* 1  
\*\*\* 2
- \* 1 Min/floor level module  
\*\* 1 Min/1-4 zone elevated module  
\*\*\* 2 Min/5-8 zone elevated module

## RETURN TO SERVICE

4. **Restore equipment to service.** Restore equipment to service as prescribed by the current local lockout/restore procedures.
- 4 9

## CLEAN UP

5. **Clean up.** Ensure all tools, lubricants, rags, etc., are removed from the work area. Notify supervisor of any deficiencies.
- 1 All