# Inspection of Overhead Doors

## Tank Farm Maintenance Procedure

### MAINTENANCE

#### USQ # Routine Maintenance

<table>
<thead>
<tr>
<th>Rev-Mod</th>
<th>Release Date</th>
<th>Justification</th>
<th>Summary of Changes</th>
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<tbody>
<tr>
<td>H-0</td>
<td>06/01/2016</td>
<td>Periodic Review</td>
<td>ADD steps 3.1.2, 5.1.1, 5.1.3, 5.1.8, Sub-step a. after 5.2.3.2. 5th &amp; 6th bullets at 4.1. Struck Note prior to 5.1.8. REWORD Notes prior to Steps 5.1.9, 5.3.3.1, 5.4.1 to Special Inst. Reword bullets @ Steps 5.1.13 &amp; 5.6.3.2. Reword Notes prior to Steps 5.2.1 &amp; 5.3.2. Retitled Figures 1 - 4</td>
</tr>
<tr>
<td>G-3</td>
<td>10/29/2015</td>
<td>Maintenance request to match field performance.</td>
<td>Added steps 5.1.2.1 and 5.1.2.2 to provide direction to align and lubricate rails if needed.</td>
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<tr>
<td>G-2</td>
<td>11/18/2014</td>
<td>CHAMPS Removal</td>
<td>Removed reference to CHAMPS, updated records statements and removed next periodic review date.</td>
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<tr>
<td>G-1</td>
<td>07/16/2013</td>
<td>Maintenance request to allow winding the springs during inspection.</td>
<td>Page 3: Added a new warning to the personnel safety section. Page 5: Added a new warning box and new step to wind garage door spring.</td>
</tr>
<tr>
<td>G-0</td>
<td>04/30/2013</td>
<td>Periodic review.</td>
<td>Removed vague phrases, added clarification and corrected a misspelling of a word per request.</td>
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## Inspection of Overhead Doors

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Figure 1 – Style #1 Brake Assembly

Figure 2 – Style #2 Brake Assembly

Figure 3 – Style #1 Limit Switch

Figure 4 – Style #2 Limit Switch
1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides a safe, uniform way to perform preventive maintenance/inspection and minor maintenance/adjustments of Overhead Doors.

1.2 Scope

This procedure applies to the Overhead Doors on buildings listed on the Data Sheet(s).

2.0 INFORMATION

NONE

3.0 PRECAUTIONS AND LIMITATIONS

3.1 Personnel Safety

WARNING - Failure to use caution when winding overhead door springs with stored energy could cause rotating/pinch points and potential personnel injury.

3.1.1 Comply with DOE-0336, Hanford Site Lockout/Tagout Procedure, as required.

3.1.2 To ensure un-authorized personnel are not exposed to stored energy; the Area below Overhead Door shall be barricaded.

3.2 Radiation and Contamination Control

Work in Radiological Areas will be performed using a Radiation Work Permit following review by Radiological Control per the ALARA Work Planning procedure TFC-ESHQ-RP_RWP-C-03.
4.0 PREREQUISITES

4.1 Special Tools, Equipment, and Supplies

The following may be required to perform this test:

- Lubricant
- Ladder
- Wiping towels
- Gear box oil as specified by engineering
- Leather Gloves
- Safety Glasses
- Other tools, equipment and supplies as identified by Shift Manager/OE/FWS/User.

4.2 Field Preparation

Obtain release from Operations management prior to beginning performance of this procedure.
5.0 PROCEDURE

5.1 General Inspection of Roll-Up Doors

5.1.1 BARRICADE work area below overhead door to prevent non-worker entry.

5.1.2 VISUALLY INSPECT for signs of damage all brackets, braces, bolts, etc.

5.1.3 DON leather gloves and safety glasses.

5.1.4 VISUALLY INSPECT rails to assure they are:
- In alignment
- Free from bends not in design
- Free from cracks.

5.1.4.1 IF rails require re-alignment ALIGN rails.

5.1.4.2 IF rail lubrication is required LUBRICATE the rails.

5.1.5 INSPECT hand chain, wheel and clutch/dog to ensure operability.

5.1.6 OPERATE door electrically to confirm operability of limit switches AND ENSURE both upper and lower limits are set correctly to prevent jamming door which may cause damage to both door and operator.

5.1.6.1 IF limit switch adjustment is required, RAISE door to approximately 6 inches below upper guide stop.

5.1.6.2 IF limit switch adjustment is not required, PLACE door in desired position.

5.1.7 INSTALL Lockout/Tagout in accordance with DOE-0336, Hanford Site Lockout/Tagout Procedure.

WARNING
Failure to use caution when winding overhead door springs with stored energy could cause rotating/pinch points and potential personnel injury.

5.1.8 IF overhead door spring needs tension increased, WIND overhead door spring using Extreme Caution, AND CAREFULLY ADJUST spring tension.
5.1 General Inspection of Roll-Up Doors (Cont.)

**Special Instructions**

Steps 5.1.9 through 5.5.2 can be performed in any sequence or at the same time per craft judgment.

Chain tension between drive and driven sprockets should have no more than \( \frac{1}{4} \) inch deflection (slack) from a straight line.

5.1.9 **CHECK** drive chain for wear AND

ADJUST drive chain keeping slack to minimum.

5.1.10 **LUBRICATE** drive chain using graphite spray lubricant.

5.1.11 **LUBRICATE** limit switch chain using graphite spray lubricant.

5.1.12 **CHECK** gear box oil level AND

IF gear box oil is not full, **FILL** gear box oil.

5.1.13 **GO TO** appropriate sections to perform Inspections and Adjustments of brakes and limit switches as follows:

**Brake Inspections and Adjustments**
- Style #1 brakes Section 5.2.
- Style #2 brakes Section 5.4.

**Limit Switch Inspections and Adjustments**
- Style #1 limit switches Section 5.3.
- Style #2 limit switches Section 5.5.
5.2 Inspect/Adjust Overhead Door Company Brakes

NOTE - To obtain best performance and maximum life, brake must be adjusted for proper clearance between brake shoes and brake drum when solenoid is energized, and for correct brake tension when solenoid is de-energized.

- Clearance between brake shoes and drum can be checked by manually holding solenoid plunger in. Brake shoes should move away from drum just far enough to allow drum to rotate freely without dragging.

5.2.1 VISUALLY INSPECT brakes for signs of damage.

5.2.2 VISUALLY INSPECT brake shoe to drum clearance and brake shoe condition.

5.2.3 IF adjustments for proper clearance between brake shoes and drum are required PERFORM the following. (See Figure 1.)

5.2.3.1 LOOSEN one or both locking nut(s) (A).

5.2.3.2 TURN one or both bolt(s) (B) clockwise to increase clearance or counterclockwise to decrease clearance.

  a. ENSURE Clearance between each brake shoe is the same.

5.2.3.3 AFTER adjustments have been made, TIGHTEN one or both locking nut(s) (A).

5.2.4 IF adjustments for brake spring tensioning are required, PERFORM the following. (See Figure 1.)

5.2.4.1 LOOSEN locking nut (C).

5.2.4.2 TURN adjustment nut (D) clockwise to increase spring tension or turn counterclockwise to decrease spring tension.

5.2.4.3 AFTER final adjustments have been made, TIGHTEN locking nut (C).
5.3 Inspect/Adjust Overhead Door Company Limit Switches

5.3.1 **LUBRICATE** limit switch spur and worm gear using graphite lubricant. (See Figure 3.)

**NOTE** - In order for limit switches to accurately stop door in a fully opened or closed position, limit switch cams must operate their respective limit switch by striking steep ramp on arm.

- The "Wiring Instruction" section of manual may be referred to when limit switches are being operated in opposite direction.

5.3.2 **IF** coarse adjustments of limit switches are required, **PERFORM** the following. (See Figure 3.)

5.3.2.1 **LOOSEN** Allen Head set-screws on limit switch cams.

5.3.2.2 **ROTATE** cams toward steep ramp on limit switch to decrease amount of door travel.

**OR**

**ROTATE** cams away from lever on limit switch to increase amount of door travel.

5.3.3 **IF** fine adjustments of limit switches are required, **PERFORM** the following. (See Figure 3.)

**Special Instructions**

Slotted head machine screws are to be used only when there is three (3) inches or less of final adjustment to be made. To ensure consistent limit switch action, spring gap should not exceed \( \frac{3}{8} \) inch.

5.3.3.1 **TURN** slotted head machine screws in cams clockwise to decrease gap between cams and increase amount of door travel,

**OR**

**TURN** slotted head machine screws in cams counterclockwise to increase gap between cams and decrease amount of door travel.

5.3.4 **IF** no further work is required on door or assemblies, **GO TO** Section 5.6.
5.4 Inspect/Adjust Kinnear Brake Assemblies

NOTE - Brake is factory adjusted for 3/8 inch operating stroke (full stroke, including pre-travel is 1 inch).

**Special Instructions**

When operating stroke has been increased to 7/8 of an inch (because of normal brake lining wear), brake must be re-adjusted.

5.4.1 **IF** adjustments for proper clearance between brake shoes and drum are required, **PERFORM** the following. (See Figure 2.)

5.4.1.1 **REMOVE** Pal-Nut.

5.4.1.2 **REMOVE** connecting link pin and two mounting screws (A).

5.4.1.3 **REMOVE** brake assembly from operator.

5.4.1.4 **LOosen** lock nut **AND**

**TURN** counterclockwise one full turn.

5.4.1.5 **TIGHTEN** lock nut **AND**

**REPLACE** brake assembly in operator.
5.5 Inspect/Adjust Kinnear Limit Switches

5.5.1 **IF** adjustments of the limit switches are required, **PERFORM** the following.

(See Figure 4.)

5.5.1.1 **REMOVE** limit switch cover and by opening door with hand chain, note direction adjusting nut travels. Travel will be to "open" limit switch.

5.5.1.2 **REMOVE** guide bar **AND**

**ROTATE** slotted "OPEN" adjusting nut toward "OPEN" limit switch (see Figure 4) until switch just actuates.

5.5.1.3 **REPLACE** guide bar and screws setting bar down to limit of slots.

5.5.1.4 **OPERATE** hand chains and close door to 6 inches above floor.

5.5.1.5 **REMOVE** guide bar in limit switch **AND**

**ROTATE** slotted "CLOSE" adjusting nut toward "CLOSE" limit switch until switch just actuates.

5.5.1.6 **REPLACE** guide bar and tighten screws.

5.5.2 **IF** finer limit switch adjustment is required, **PERFORM** the following.

5.5.2.1 **MOVE** bar up or down in slotted holes before tightening guide bar screws.

5.5.2.2 **AFTER** adjustments are completed, **REPLACE** limit switch cover **AND**

**TIGHTEN** screws.
5.6 Restoration

5.6.1 REMOVE Lock Out, in accordance with DOE-0336, Hanford Site Lockout/Tagout Procedure.

5.6.2 CYCLE several times (manually and electrically) to ENSURE door operates as designed.

5.6.3 IF further work is required, PERFORM the following:

5.6.3.1 PLACE door in the desired position AND INSTALL Lockout, in accordance with the DOE-0336, Hanford Site Lockout/Tagout Procedure.

5.6.3.2 GO TO appropriate sections to perform additional adjustments of brakes and limit switches as follows:

Brake Adjustments
- Style #1 brakes Section 5.2.
- Style#2 brakes Section 5.4.

Limit Switch Adjustments
- Style #1 limit switches Section 5.3.
- Style #2 limit switches Section 5.5.

5.6.3.3 IF no further adjustments are required, RE-PERFORM Steps 5.6.1 and 5.6.2 AND PROCEED to Step 5.6.4.

5.6.4 COMPLETE AND SIGN Data Sheet.

5.6.5 REPORT any deficiencies and/or potential cause of early failure to the FWS for corrective action.

5.6.6 RETURN Data Sheet to FWS.
5.7 Acceptance Criteria

Comparison and verification of data in applicable steps of the procedure with limits of Data Sheet steps satisfies Acceptance Criteria for this procedure.

5.8 Review

5.8.1 INFORM FWS test is complete.

5.8.2 FWS must REVIEW AND ENSURE the following:

- Completed Data Sheets meet acceptance criteria.
- Comments sections are filled out appropriately.
- Work requests needed as a result of this procedure are identified and generated.
- As applicable, work request number(s) of any work documents generated as a result of this procedure, are recorded in Comments/Remarks Section of Data Sheet.

5.9 Records

The performance of this procedure generates no records. However, PM Data Sheets associated with the procedure, are records and are maintained in the work package as record material.

The record custodian identified in the Company-level Records Inventory and Disposition Schedule (RIDS) is responsible for record retention in accordance with TFC-BSM-IRM_DC-C-02.
Figure 1 – Style #1 Brake Assembly
Figure 2 – Style #2 Brake Assembly

- Operating Stroke
- Pal-Nut
- Connecting Link Pin
- Mounting Screws "A"
- Lock Nut
- Brake Lining
- Adjustment Screw
Figure 3 – Style #1 Limit Switch

- Limit Switch Cam A
- Limit Switch Cam B
- Fine Adjustment Screws
- Coarse Adjustment Screws
- Limit Switch A
- Limit Switch B
Figure 4 – Style #2 Limit Switch

- Screw Shaft
- Slotted Adjusting Nut, Typical
- Guide Bar Screw, Typical