Air Compressor Inspection and Maintenance

Tank Farm Maintenance Procedure

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CHANGE HISTORY (LAST 5 REV-MODS)

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<td>Periodic Review</td>
<td>Reword Sections 1.1, 1.2, 5.3, 5.4. Steps 5.1.11, 5.1.12, 5.1.14, 5.1.23. Moved Step 5.1.6 to 5.1.2. Added Steps 5.1.16, 5.1.24, 5.1.25, 5.2.3, 5.2.4. Struck Steps 5.2.1, 5.2.5, 5.3.1.</td>
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<td>Engineering request</td>
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1.0 PURPOSE AND SCOPE

1.1 Purpose

The purpose of this procedure is to provide instructions for inspection and maintenance of the 272AW Shop air compressor, 277-A ATCO Fab Shop air compressor and other air compressors at various locations as identified on the Data Sheets.

1.2 Scope

This procedure applies to the inspection and maintenance of the 272AW Shop air compressor, 277-A ATCO Fab Shop air compressor and other air compressors at various locations as identified on the Data Sheets.

2.0 INFORMATION

NONE

3.0 PRECAUTIONS AND LIMITATIONS

3.1 Personnel Safety

**WARNING** - Compressor operations and/or the bleeding of its air have the potential to create noise levels above 85 dBA, which, without proper hearing protection may cause hearing loss.

3.1.1 If a lock and tag is required during the performance of this procedure, perform Lockout/Tagout in accordance with DOE-0336, Hanford Site Lockout/Tagout Procedure.

3.2 Radiation and Contamination Control

Work in radiological areas will be performed using a Radiological 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 supplies may be needed to perform this procedure:

- Mobil Rarus 427, MSDS # 019984.
- Air filter elements; see Data Sheet for model number and manufacturer of compressor.

4.2 Performance Documents

The following documents may be needed to perform this procedure:

- TO-100-052, Perform Waste Generation, Segregation, Accumulation and Clean-up.
- DOE-0336, Hanford Site Lockout/Tagout Procedure
- GHS MSD or MSDS # 019984.

4.3 Field Preparation

The following conditions must be met before this procedure may commence:

4.3.1 Air compressor to be inspected must initially be in operation.
5.0 PROCEDURE

5.1 Inspect Air Compressor

WARNING
Compressor operations and/or the bleeding of its air have the potential to create noise levels above 85 dBA, which, without proper hearing protection may cause hearing loss.

5.1.1 DON hearing protection (e.g., foam plugs and/or ear muffs).

5.1.2 OBSERVE compressor during Steps 5.1.3 thru 5.1.5 for the following:
   • Proper operation
   • Excessive vibration
   • Unusual noise.

5.1.3 DRAIN excess condensate from tank by opening drain valve.
   5.1.3.1 BLEED air until compressor starts.
   NOTE - Start up pressure is 85 psig (+/- 5 psig).
   5.1.3.2 RECORD compressor start up pressure on PM Data Sheet.

5.1.4 CLOSE tank drain valve.

5.1.5 ALLOW pressure to build until compressor shuts off.
   NOTE - Shut off pressure should read 120 psig (+/-5 psig).
   5.1.5.1 RECORD compressor shut off pressure on PM Data Sheet.
5.1 Inspect Air Compressor (Cont.)

NOTE - Steps 5.1.6 through 5.1.10 may be performed in any logical order or in parallel.

5.1.6 INSPECT relief valves for leaks.

5.1.7 INSPECT piping and supports for the following:
- Loose fasteners
- Air leaks
- Excessive vibration.

5.1.8 CHECK oil for the following:
- Milky appearance
- Proper level.

5.1.9 CHECK drive-belts (as applicable) by observing for the following:
- Proper tension
- Belt slap
- Slippage
- Squealing.

5.1.10 INSPECT air filter AND

IF dirty REPLACE it.

5.1.11 RECORD inspection results on PM Data Sheet AND

DESCRIBE unsatisfactory findings in Comments section of Data Sheet.

5.1.12 IF inspection was satisfactory, GO TO Step 5.1.26.

5.1.13 OBTAIN approval from the Shift Manager to have compressor(s) shut down.

5.1.14 INSTALL Lockout/Tagout or Authorized Worker Lockout/Tagout in accordance with DOE-0336 Hanford Site Lockout/Tagout Procedure.

5.1.15 ENSURE compressor is de-energized.

5.1.16 IF compressor still indicates a pressure, BLEED air from compressor.

5.1.17 MAINTAIN a clean area around compressor whenever system integrity is broken.

5.1.11 OBTAIN approval from the Shift Manager to have compressor(s) shut down.

5.1.14 INSTALL Lockout/Tagout or Authorized Worker Lockout/Tagout in accordance with DOE-0336 Hanford Site Lockout/Tagout Procedure.

5.1.15 ENSURE compressor is de-energized.

5.1.16 IF compressor still indicates a pressure, BLEED air from compressor.

5.1.17 MAINTAIN a clean area around compressor whenever system integrity is broken.
5.1 Inspect Air Compressor (Cont.)

NOTE - Steps 5.1.18 through 5.1.21.3 may be performed in any logical order or in parallel.

5.1.18 IF adding oil, ENSURE dirt and debris are not allowed into compressor internals.

5.1.19 IF the oil requires changing CHANGE it.

5.1.20 IF oil only needs to be added ADD it.

5.1.21 IF as a result of the checks performed in Step 5.1.9 either the belt or sheaves are considered to require replacement or adjustment REMOVE belt guard AND

PERFORM the following:

5.1.21.1 IF belt needs to be replaced REPLACE it.

5.1.21.2 IF belts and/or sheaves need alignment ADJUST them.

5.1.21.3 IF belt tension needs adjustment ADJUST it.

5.1.22 IF removed RE-INSTALL belt guard.

5.1.23 REMOVE Lockout/Tagout, or Authorized Worker Lockout/Tagout in accordance with DOE-0336 Hanford Site Lockout/Tagout Procedure.

5.1.24 OBSERVE the following as compressor comes up to speed:

- Drive for squealing
- Belt slap
- Slippage.

5.1.25 IF compressor is not running, ENERGIZE compressor AND ALLOW compressor to come up to normal system pressure.

5.1.25.1 RECORD results from Step 5.1.24 on Data Sheet.

5.1.26 RECORD the following on Comments/Remarks section of PM Data Sheet:

- All discrepancies
- Adjustments
- Parts replacement.
5.2 Restoration

5.2.1 IF any problems were encountered with Inspection, **INFORM** FWS.

5.2.2 **ENSURE** compressor is operating at normal system pressures.

5.2.3 **CHECK** equipment restoration by observing indications are consistent with expected conditions.

5.2.4 **NOTIFY** Operations that testing is complete and system may be returned to desired configuration.

5.3 Acceptance Criteria

Acceptance criteria are met by normal system pressures as specified in appropriate vendor/manufacturer or engineering documentation and all steps have been performed satisfactorily.

5.4 Review

5.4.1 **INFORM** FWS that testing is complete.

5.4.2 **FWS SHALL REVIEW AND ENSURE** the following:

- Completed PM Data Sheets meet the acceptance criteria and are forwarded to Engineering
- Comments sections are filled out appropriately
- Work requests needed as a result of this procedure are identified and generated
- Work request number(s) of any work documents generated as a result of this procedure, are recorded in the Comments/Remarks section of the PM Data Sheet, as applicable.
5.5 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.