ABBREVIATED FINAL REPORT
FOR
DT II (DEVELOPMENT TEST II)
OF
LADDS (LAUNDRY AND DECONTAMINATION DRY CLEANING SYSTEM)
VOLUME II OF II
APPENDIX A. TEST DATA

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</tbody>
</table>
## Supportability Analysis Chart
### Instruction Sheet

<table>
<thead>
<tr>
<th>Column Title</th>
<th>Explanation/Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITEM ID:</td>
<td>Item identification numbers are as follows:</td>
</tr>
<tr>
<td>GENLAD:</td>
<td>Generator</td>
</tr>
<tr>
<td>LADD01:</td>
<td>The unit itself</td>
</tr>
<tr>
<td>SSPLAD:</td>
<td>System Support Package incidents</td>
</tr>
<tr>
<td>INC-DATE:</td>
<td>The date (YYMMDD) that this problem or incident occurred, began, or was detected.</td>
</tr>
<tr>
<td>TIR NO.:</td>
<td>The TIR number that was assigned by this test agency.</td>
</tr>
<tr>
<td>PART NAME:</td>
<td>The name of the part from the MAC being described as the incident subject.</td>
</tr>
<tr>
<td>ACTION TAKEN:</td>
<td>The word or phrase that best describes what was done to the part named, following the incident.</td>
</tr>
<tr>
<td>FGC:</td>
<td>The FGC (Functional Group Code) obtained from the MAC to which the part named belongs if identified within the DEP 10-3510-221-14 LADDS TM.</td>
</tr>
<tr>
<td>OPSHRS:</td>
<td>The OPSHRS accumulated from the time the circuit breaker is on after generator start-up to the time the circuit breaker is off at the end of the work day.</td>
</tr>
<tr>
<td>PRODHRS:</td>
<td>The PRODHRS accumulated from the start of the first wash cycle to the start of still boil-down at the end of the day.</td>
</tr>
<tr>
<td>GENHRS:</td>
<td>The GENHRS accumulated from the start of generator power to shutoff at the end of the day (Generator Hour Meter), identified in the SAC as GENLAD.</td>
</tr>
<tr>
<td>CYCLES:</td>
<td>The cycle is from the time the wash selection is activated until the finish of the drying cycle. This is included in the narrative.</td>
</tr>
<tr>
<td>MILES:</td>
<td>The miles accumulated from towing the LADDS over the various courses. This is included in the narrative.</td>
</tr>
<tr>
<td>Column Title</td>
<td>Explanation/Definition</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------------</td>
</tr>
<tr>
<td><strong>Maintenance Information</strong></td>
<td></td>
</tr>
<tr>
<td>TYPE:</td>
<td>The word that describes the type of maintenance that was performed therein (SCH or UNS).</td>
</tr>
<tr>
<td>CHAR:</td>
<td>The word that describes the chargeability of maintenance that was performed therein and is IAW the final scoring results. CHAR (chargeable) or nonchargeable.</td>
</tr>
<tr>
<td>USED:</td>
<td>Is the same as the LOM prescribed. The abbreviations for each LOM are: operator/crew (crew), ORG, DS, and GS.</td>
</tr>
<tr>
<td>PRESCRIBED:</td>
<td>The name of the lowest LOM that is prescribed in the MAC as being authorized to perform all of the maintenance tasks or actions described therein.</td>
</tr>
<tr>
<td>RECOMMENDED:</td>
<td>The name of the lowest LOM that this test agency recommends to perform all the maintenance tasks or actions described therein.</td>
</tr>
<tr>
<td>CLOCK HOURS:</td>
<td>The active clock hours that were required to perform all of the maintenance tasks or actions described therein.</td>
</tr>
<tr>
<td>MAN-HOURS:</td>
<td>The man-hours that were required to perform all the maintenance tasks or actions described therein.</td>
</tr>
<tr>
<td>DIAG-CLOCK:</td>
<td>The clock hours and man-hours required to perform the diagnostic or fault finding portion of the maintenance.</td>
</tr>
<tr>
<td>HR:MIN:</td>
<td>The LADDS operational hours and minutes when the problem or incident occurred, began, or was detected.</td>
</tr>
<tr>
<td>STEP:</td>
<td>The FD/SC (Failure Definition/Scoring Criteria) step number that was assigned by the Test Agency.</td>
</tr>
<tr>
<td>CLASS:</td>
<td>The FD/SC classification that was assigned by the Test Agency.</td>
</tr>
<tr>
<td>CHARGE:</td>
<td>The FD/SC chargeability that was assigned by the Test Agency.</td>
</tr>
<tr>
<td>DESCRIPTION:</td>
<td>The narrative description of the problem or incident and any resultant maintenance tasks.</td>
</tr>
</tbody>
</table>
**Table 1: Supportability Analysis Chart**

**Incident 1:**

- **Incident Date:** 900806
- **Time:** LS-8000006 01
- **Incident Class:** Information
- **Action Taken:** Inspected
- **Part Name:** Access Latch
- **FCC:** 1400
- **O&SHRS:** 0.0
- **PMRTM:** 0.0
- **Maintenance Information:**
  - **Description of Incident:** The generator battery access door, upper latch did not function properly. During the initial inspection, the generator battery access door, upper latch did not lift properly, making access to the battery difficult. The cause was undetermined.
  - **Corrective Maintenance:** Deferred until a later time.

**Revision 02/06/91 - Scoring Conference.

**Incident 2:**

- **Incident Date:** 900821
- **Time:** LS-8000006 01
- **Incident Class:** Minor
- **Action Taken:** Other, see BLK 90
- **Part Name:** Generator
- **FCC:** 1400
- **O&SHRS:** 32.5
- **PMRTM:** 19.5
- **Maintenance Information:**
  - **Description of Incident:** Generator gauges inoperable.
On 21 August 1990, at 0846 IST, (hours operating 32:32; hours production 19:35), the operator, after performing a B-PCS, initialized the generator for first time of the day. The generator appeared to be operating normally, with the exception of the gauges on the electrical panel. The cause was undetermined at this time.

The operator energized the fault/reset switch with no effect. The generator was powered down.

At 08:46 the operator performed a visual inspection of the generator, checked the oil level, and the reset switch. All of the indications appeared to be normal.

At 08:51, the generator has reinitialized with no adverse complications, the operations were continued.

On the following dates and times the above discrepancies were duplicated, and the same corrective actions were taken.

22 August 1990, 11:53 IST, (hours operating 34:08; hours production 20:19).
24 August 1990, 13:26 IST, (hours operating 37:00; hours production 22:32).
27 August 1990, 12:22 IST, (hours operating 42:34; hours production 26:17).

The cause was undetermined, and operations were continued.

Revision 02/06/91 - Scoring Conference.
TUE, MAR 12, 1991

SUPPORTABILITY ANALYSIS CHART

PROJECT NUMBER 0-ES-115-LAD-003

PROJECT NAME DT II LADD'S LAUNDRY/DRY CLEANER

ITEM ID GEMLA03

PROJECT IUNDIR PROJECT NAME 17111

ED-

LAD-003

DT II

LADM

LAWIDY/DRY

CLEANER

INDICATING THE SYSTEM HAS NOW CHARGING.

NO ACTION HAS TAKEN.

AT 2030 HOURS, OPSHRS - 94:27; PRODHRS - 71:27; GENHRS - 95.0; CYCLES 140, THE OPERATOR MONITORED THE GENERATOR AMPERE GAUGE MORE CLOSELY THROUGHOUT THE CYCLE.

THE FOLLOWING WAS OBSERVED:


NO CORRECTIVE ACTION WAS TAKEN.

OPERATIONS CONTINUED.

REVISION 22/06/91 - SCORING CONFERENCE.

INC-DATE: 901010

TARR: L5-0000112 03

INC CLASS: MAJOR

ACTION-TAKEN: INSPECTED

PART NAME: HOUSING ASSEMBLY

FCC: 0000

OPSRHS 283.3

PRODHRS 219.0

GENHRS 293.7

SCORING INFORMATION

STEP CLASS CHARGE

02- (C) CCRA HARDWARE/GCE

MAINTENANCE INFORMATION

ACTIVE

CMR TYPE USED PRESC RECOM

CHRS HOURS

CMR UMS CREW CREW CREW 00:01 00:01

DESCRIPTION OF INCIDENT

THE GENERATOR ACCESS DOORS WERE DISCOVERED OPEN AFTER COMPLETING TRAIL MILES.

AFTER COMPLETION OF 47 MILES OF CROSS COUNTRY (TRANSPORTABILITY) IT WAS DISCOVERED, BY THE OPERATOR THAT ALL OF THE GENERATOR HOUSING ACCESS PANELS...
HERE OPEN. THIS HAS CAUSED THE BOUNCING AND VIBRATION OF THE TRAILER WHILE ON THE TEST COURSE.

THE ACCESS PANELS WERE INSPECTED FOR ANY POSSIBLE DAMAGE CAUSED BY OPERATIONS ON THE COURSE. THE OPERATOR CLOSED AND LATCHED ALL THE ACCESS PANELS. NO MAINTENANCE ACTIONS WERE REQUIRED.

REVISION 01 DATE 11/08/90 MILES 447.0 HOURS 293.70 TIME 1000 HST

<table>
<thead>
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<th>BLOCK</th>
<th>FROM</th>
<th>TO</th>
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<tbody>
<tr>
<td>41</td>
<td>02-</td>
<td>03-</td>
</tr>
<tr>
<td>57</td>
<td>OTHER, SEE BLK 90</td>
<td>INSPECTED</td>
</tr>
<tr>
<td>60</td>
<td>0900</td>
<td>1400</td>
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REVISION 02 DATE 11/16/90 MILES 447.0 HOURS 293.70 TIME 1455 HST

<table>
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<tr>
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<tbody>
<tr>
<td>41</td>
<td>02-</td>
<td>03-</td>
</tr>
<tr>
<td>42</td>
<td>ORH</td>
<td>CCMA</td>
</tr>
<tr>
<td>60</td>
<td>1400</td>
<td>0000</td>
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</tbody>
</table>

REVISION 02/06/91 - SCORING CONFERENCE.

INC-DATE: 900915
INC: 15-A000123 01
INC CLASS: MINOR
ACTION-TAKEN: NO ACTION TAKEN
PART NAME: CUBICAL ASSEMBLY DOOR
FCC: 1400
OPNRS 283.3
PRODR 239.0
GENHRS 293.7

SCORING INFORMATION

<table>
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<tr>
<th>STEP</th>
<th>CLASS</th>
<th>CHARGE</th>
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<tbody>
<tr>
<td>02-</td>
<td>(C)</td>
<td>CCMA</td>
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<tr>
<td></td>
<td></td>
<td>HARDWARE/GEF</td>
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MAINTENANCE INFORMATION

<table>
<thead>
<tr>
<th>CHAR</th>
<th>USES</th>
<th>REC</th>
<th>CLOURS</th>
<th>RANKRS</th>
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<tbody>
<tr>
<td>CHAR</td>
<td>ORG</td>
<td>ORG</td>
<td>CREAT</td>
<td>00:01:00:01</td>
</tr>
</tbody>
</table>

DESCRIPTION OF INCIDENT

GENERATOR CUBICAL ASSEMBLY DOOR BRACE IS MISSING.

### Supportability Analysis Chart

<table>
<thead>
<tr>
<th>Project Number</th>
<th>Project Name</th>
<th>Item ID</th>
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</thead>
<tbody>
<tr>
<td>0-ES-115-LAB-003</td>
<td>U2 LADD'S LAUNDRY/DRY CLEANER</td>
<td>CMLDAD</td>
</tr>
</tbody>
</table>

Vibration and bouncing while on the courses. No corrective action was taken at this time.

Revision 02/06/91 - Scoring Conference.
TIE, UK 12, 111

SIMORTALITY ANALYSIS CHART PAGE: 6
PROJECT NUMBER 0-E9-115-LAD-003
PROJECT NAME DT II LAUNDRY/DRY CLEANER
ITEM ID LADD01

INC-DATE: 900806
TIR#: L5-A0000001 01
INC CLASS: INFORMATION
ACTION-TAKEN: INSPECTED
PART NAME: LADDS
FCC: 0000
OPSHRS 0.0
PRODHR 0.0
GENHRS 0.0

SCORING INFORMATION

<table>
<thead>
<tr>
<th>STEP</th>
<th>CLASS</th>
<th>CHARGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>01A (C)</td>
<td>PRE TEST</td>
<td>NA</td>
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</table>

MACHINERE INFORMATION

<table>
<thead>
<tr>
<th>PART</th>
<th>USED</th>
<th>REC</th>
<th>COMP</th>
<th>CHG</th>
<th>HOURS</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LADDS</td>
<td>SCTR</td>
<td>CREW</td>
<td>CREW</td>
<td>CREW</td>
<td>01:35</td>
<td>01:35</td>
</tr>
</tbody>
</table>

DESCRIPTION OF INCIDENT

THE INITIAL INSPECTION WAS PERFORMED.

THE INITIAL INSPECTION WAS PERFORMED, AND THE FOLLOWING DISCREPANCIES WERE REPORTED ON SEPARATE TIRs:

A) THE TRAILER, LEFT, FRONT HAND BRAKE ACTUATOR ARM WAS NOT FUNCTIONING PROPERLY.
B) THE RIGHT, FRONT, TRAILER LEVELING DEVICE WAS FOUND TO BE BROKEN.
C) THE GENERATOR BATTERY ACCESS DOOR, UPPER LATCH DID NOT FUNCTION PROPERLY.
D) THE LOWER ELECTRICAL PANEL FASTENER LATCH WAS DISCOVERED TO BE BENT.
E) A CRACK WAS FOUND IN THE SPOT WELD REPAIR PREVIOUSLY MADE TO THE NDC ABSORBER.
F) THE NDC KNOB ON THE DISTILL CONTROL ASSEMBLY WAS DISCOVERED TO BE MISSING.
G) NUMEROUS DENTS WERE FOUND IN THE RADIATOR CORE COOLING FENCE.
H) THE HEATER BLOWER HOSE RETAINER WAS FOUND TO BE BROKEN.
I) THE FLOAT LEVEL TUBE, UPPER MOUNTING BRACKET NUT WAS DISCOVERED MISSING.

THE RIGHT SIDE, FRONT TRAILER ACCESS STEP WAS DISCOVERED TO HAVE BROKEN LOOSE AT THE REAR HOLD, AND WAS NOT REPORTED ON A SEPARATE TIR.

REVISION 02/06/91 - SCORING CONFERENCE.

A-8
THE TRAILER LEVEL DEVICE WAS DISCOVERED TO BE BROKEN.

DURING THE INITIAL INSPECTION THE TRAILER LEVEL DEVICE WAS DISCOVERED TO BE BROKEN. THE TRAILER COULD NOT BE LEVELED, IMPAIRING THE OPERATION OF THE LAUNDRY AND DECONTAMINATION DRY CLEANING SYSTEM. THE CORRECTIVE MAINTENANCE WAS DEFERRED UNTIL A LATER TIME. THE TRAINING OPERATIONS WERE CONTINUED USING A CARPENTER'S LEVEL, UNTIL CORRECTIVE ACTION CAN BE TAKEN.

REVISION 02/06/91 - SCORING CONFERENCE.
The still control assembly NBC knob was discovered to be missing.

During the initial inspection, the still control assembly NBC knob was discovered to be missing by the operator. No corrective action taken while awaiting parts.

Revised 5 Oct 90 to update the data/narrative for deferred maintenance actions taken.

On 09-17-90, at 1143 (HST), with the OPNs 192:29, PRODHR 161:00, GENHRS 197.3, CYCLES 315, and 0 MILES, the H. R. B. E. C. representative removed the damaged NBC still control button. The new NBC button (P/N-UNKNOWN) was installed, and the electrical connections were tightened.

The discrepancy was corrected, and the operations were continued.

The data in sections I-I were changed as follows:

<table>
<thead>
<tr>
<th>BLOCK</th>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>DEFER MAINT</td>
<td>AS WAS</td>
</tr>
<tr>
<td>90</td>
<td></td>
<td>ADD NEW MAINTENANCE</td>
</tr>
<tr>
<td>PARTS</td>
<td></td>
<td>ADD NEW PARTS</td>
</tr>
</tbody>
</table>

Revised 05 Feb 91 to update PAPTS.

Revision 02/06/91 - Scoring Confidence.

----------------------------------------------------------------------------------
INC-DATE: 960806
INC-CLASS: INFORMATION
ACTION-TAKEN: OTHER, SEE BLK 90
PART NAME: LAUDS
FRC: 0000
OPSHRS 0.0
PRODHR 0.0
GENHRS 0.0
----------------------------------------------------------------------------------

SCORING INFORMATION

<table>
<thead>
<tr>
<th>STEP</th>
<th>CLASS</th>
<th>CHARGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>01A (C)</td>
<td>PRE TEST</td>
<td>NA</td>
</tr>
</tbody>
</table>

MAINTENANCE INFORMATION

<table>
<thead>
<tr>
<th>CHAR TYPE</th>
<th>USED PRESC RECON</th>
<th>CLKHSRS</th>
<th>HAMNHSR</th>
</tr>
</thead>
<tbody>
<tr>
<td>CREM</td>
<td>CREM CREM CREM</td>
<td>00:37</td>
<td>00:37</td>
</tr>
</tbody>
</table>

DESCRIPTION OF INCIDENT

A-10
THE RECEIPT INVENTORY WAS CONDUCTED.

THE RECEIPT INVENTORY WAS CONDUCTED, AND THE FOLLOWING SYSTEM SUPPORT
PACKAGE ITEMS WERE RECEIVED:

1) 1000 FILTER BAGS (QTY. 50).
2) TWO, 15 POUND CANS OF FREON 12 (LOT MAN9124B) 1-FULL, 1-USED.
3) 1 PIECE OF 3/4 INCH TUBING.
4) 1 PIECE 1 1/2 INCH TUBING (10 FEET).
5) COIL ASSEMBLY WITH JUNCTION BOX (QTY. 2) P/N 120/50-60.
6) COIL ASSEMBLY WITH JUNCTION BOX (QTY. 1) P/N 208-240/50-60.
7) FILTER DRYERS (QTY. 2) TYPE C-305.
8) VIBRATION ELIMINATOR - 1 1/8 INCH, QTY. 1.
9) VIBRATION ELIMINATOR - 7/8 INCH, QTY. 1.
10) VIBRATION ELIMINATOR - 3/8 INCH, QTY. 1.
11) TWO PAIRS OF GOGGLES.
12) ELECTRICAL PUMP, S/N 555291, MODEL 1303062111.
13) TWO, FIVE GALLON CONTAINERS OF VALCENE DRY-CLEANING FLUID - LOT
    R1-3542.
14) ONE 90 DEG., 1 1/2 INCH ELBOW.
15) COPPER GROUNDING RODS AND WIRING (QTY. 2 BOXES, 3 RODS EACH).
16) TWO SETS OF REGULATORS WITH GAUGES.
17) ONE WRENCH BUNG (HSN 5120-00-507-4866).
18) ONE VALUE OPERATOR - S/N E16156 MODEL 979-899.
19) ONE DRIVE BELT (P/N 2058969).
20) PIN SNUVEL ASSEMBLY (P/N 11603276) QTY. 2 BOXES.
21) ONE CARD READER ASSEMBLY MODEL 15-1050.
22) FOUR CYCLE PROGRAMS (P/N 2158469).
23) ONE BOX OF 2 INCH BALL VALUES (P/N 76-108-01).
24) ONE, 3/8 INCH BALL VALUE (P/N UNKNOWN).
25) FLOAT VALUES (QTY. 21).
26) ONE DRUM PUMP, MODEL P80 (P/N 101890).
27) ONE PUMP TUBE ASSEMBLY P/N 110390, MODEL P80H-40.

ALL ITEMS WERE RECEIVED IN SATISFACTORY CONDITION. NO SYSTEM SUPPORT
PACKAGE, OR BASIC INVENTORY ITEMS LISTS ACCOMPANIED THE EQUIPMENT UPON
RECEIPT.

REVISION 02/06/91 - SCORING CONFERENCE.
SCORING INFORMATION

INC-DATE: 900806
TINT: L5-1000000 01
INC CLASS: INFORMATION
ACTION-TAKEN: INSPECTED
PART NAME: COOLING FENCE
FCC: 0400

MAINTENANCE INFORMATION

CHAR TYPE USED PRESC RECON CHMRS SMNRS
NOM UNS GS ORG ORG 00:04 00:04

DESCRIPTION OF INCIDENT

MANY SENTS WERE FOUND IN THE REFRIGERATION UNIT COOLING FENCE.
DURING THE INITIAL INSPECTION, NUMEROUS DENTS WERE DISCOVERED IN THE REFRIGERATION UNIT COOLING VANS. THE CAUSE HAS UNDETERMINED.

THE DENTS DID NOT IMPAIR THE OPERATION OF THE UNIT, AND NO MAINTENANCE ACTION HAS TAKEN AT THIS TIME.

REVISION 02/06/91 - SCORING CONFERENCE.

| INC-DATE: | 900806 |
| TIME:     | L5-000007 01 |
| INC CLASS: | INFORMATION |
| ACTION-TAKEN: | INSPECTED |
| PART NAME: | RETAINER CLAMP |
| FCC:     | 0200 |
| GPSHRS  | 0.0 |
| PRODHRS | 0.0 |
| GENHRS  | 0.0 |

---

**SCORING INFORMATION**

<table>
<thead>
<tr>
<th>STEP</th>
<th>CLASS</th>
<th>CHARGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>01A (C)</td>
<td>PRE TEST</td>
<td>NA</td>
</tr>
</tbody>
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**MAINTENANCE INFORMATION**

<table>
<thead>
<tr>
<th>CHAR TYPE</th>
<th>USED PRESC RECON</th>
<th>CLMRS</th>
<th>HMRNS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NON UMS</td>
<td>CS</td>
<td>ORG</td>
<td>ORG</td>
</tr>
</tbody>
</table>

---

**DESCRIPTION OF INCIDENT**

THE STILL VENT HOSE RETAINER CLAMP WAS FOUND TO BE BROKEN.

DURING THE INITIAL INSPECTION, THE STILL VENT HOSE RETAINER CLAMP WAS FOUND TO BE BROKEN. THE CAUSE HAS UNDETERMINED.

THE CORRECTIVE MAINTENANCE WAS DEFERRED UNTIL A LATER TIME.

REVISION 02/06/91 - SCORING CONFERENCE.
A crack was found in the spot weld repair previously made to the absorber. During the initial inspection a crack was found in the spot weld repair previously made to the NBC absorber. The cause was undetermined. The crack was located on the left outer side of the absorber, approximately one foot from the bottom of the absorber. The corrective maintenance was deferred until a later time. The unit was operated without the NBC absorber at this time.

REVISION 02/06/91 - SCORING CONFERENCE.
THE FLOAT LEVEL TUBE, UPPER MOUNTING BRACKET NUT WAS MISSING.

DURING THE INITIAL INSPECTION, THE FLOAT LEVEL TUBE, UPPER MOUNTING BRACKET NUT WAS DISCOVERED TO BE MISSING.

ON 08-06-90, THE MRDEC REPRESENTATIVE INSTALLED THE REPLACEMENT NUT AND LOCKNUT, AND THE DISCREPANCY WAS CORRECTED.

REVISION 02/06/91 - SCORING CONFERENCE.

DESCRIPTION OF INCIDENT

THE PORTABLE, ELECTRIC FREON PUMP DID NOT OPERATE AS PER SPECIFICATIONS.

DURING THE SERVICING OF THE LADDS SYSTEM, THE MRDEC REPRESENTATIVE REPORTED THAT THE PORTABLE, ELECTRICAL FREON PUMP DID NOT PROCESS THE CAPABILITY REQUIRED TO PUMP THE SPECIFIED GALLONS PER MINUTE.

THE OPERATIONS WERE CONTINUED, AND THE MRDEC REPRESENTATIVE STATED THAT A REPLACEMENT PUMP WOULD BE RECEIVED AT A LATER TIME.

REVISION 02/06/91 - SCORING CONFERENCE.
**INC-DATE:** 900807  
**TIRN:** LO-90000013 01
**INC CLASS:** INFORMATION  
**ACTION-TAKEN:** OPERATED  
**PART NAME:** CONTROL TRAP ASSEMBLY  
**FCC:** 03  
**OPSHRS:** 0.0  
**PRODHR:** 0.0  
**GENHRS:** 0.0

<table>
<thead>
<tr>
<th>CHAR TYPE</th>
<th>USED PREC REC</th>
<th>CLKHRS</th>
<th>RMHRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>WN</td>
<td>ES</td>
<td>ES</td>
<td>04:15</td>
</tr>
</tbody>
</table>

**DESCRIPTION OF INCIDENT**

MODIFICATION OF THE BUTTON TRAP.

DURING TRAINING PICS THE IRDEC REPRESENTATIVE DISCOVERED THAT THE BUTTON TRAP COULD NOT BE INSERTED COMPLETLY, DUE TO THE INNER CONTROL TRAP RACK BEING BENT. IT WAS DISCOVERED DURING FURTHER TROUBLESHOOTING THAT A MODIFICATION WAS NEEDED TO THE CONTROL TRAP. THE PROJECT ENGINEER TOOK THE CONTROL TRAP TO THE MAINTENANCE SHOP TO HAVE THE BACK PART OF THE TRAP CUT DOWN 1". ONCE THIS WAS ACCOMPLISHED THE CONTROL TRAP WAS RETURNED TO THE SITE AND INSERTED WITH NO FURTHER PROBLEMS.

**REVISION 02/06/91 - SCORING CONFERENCE.**

| INC-DATE: 900807  
**TIME:** LO-90000013 01
**INC CLASS:** INFORMATION  
**ACTION-TAKEN:** TIGHTENED  
**PART NAME:** ABSORBER VALUE CLAMP  
**FCC:** 9600  
**OPSHRS:** 0.0  
**PRODHR:** 0.0  
**GENHRS:** 0.0

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<th>CLKHRS</th>
<th>RMHRS</th>
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<tr>
<td>WN</td>
<td>ES</td>
<td>ORG</td>
<td>ORG</td>
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DESCRIPTION OF INCIDENT

A CLASS III FREON LEAK WAS OBSERVED AT THE UPPER, LEFT ABSORBER VALVE.

UPON THE INITIALIZATION OF THE LADDS SYSTEM POWER, AT THE BEGINNING OF THE TRAINING OPERATIONS, A CLASS III FREON LEAK WAS OBSERVED AT THE UPPER, LEFT ABSORBER VALVE.

THE HRUDEC REPRESENTATIVE TIGHTENED THE VALVE BY HAND, CORRECTING THE DISCREPANCY.

REVISION 02/06/91 - SCORING CONFERENCE.

INC-DAY: 900807
TEN: L5-0000001 01
INC CLASS: INFORMATION
ACTION-TAKEN: OPERATED
PART NAME: GASKET
FG: 0700
OPS: 0.0
PREDH: 0.0
GEMHS: 0.0

MAINTENANCE INFORMATION

ACTIV
CHAR:
CHAR TYPE:
USER:
PRE:
REC:
UNI:
CS:
ORG:
OPS:
ORG:
OPS:

DESCRIPTION OF INCIDENT

A CLASS III FREON LEAK WAS OBSERVED AT THE DRUM DOOR ASSEMBLY GASKET.

DURING TRAINING OPERATIONS, A CLASS III FREON LEAK WAS OBSERVED AT THE DRUM DOOR GASKET. THE CAUSE WAS UNDETERMINED.

THE HRUDECE REPRESENTATIVE APPLIED DOW CORNING HIGH VACUUM GREASE SEALANT TO THE DOOR GASKET, CORRECTING THE DISCREPANCY.

THE OPERATIONS CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.
INC-DATE: 900808
TIRI: L5-A000016 01
INC CLASS: INFORMATION
ACTION-TAKEN: LUBRICATED
PART NAME: ELBOW
FCC: 0100
OPS HRS 0.0
PROD HRS 0.0
GEI HRS 0.0

SCORING INFORMATION

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<tr>
<td>UNS</td>
<td>CREW</td>
<td>CREW</td>
<td>CREW</td>
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DESCRIPTION OF INCIDENT

FREON HAS BEEN FOUND IN THE CONTROL TRAP ASSEMBLY.

DURING THE TRAINING PREP, FREON HAS BEEN FOUND IN THE CONTROL TRAP ASSEMBLY. THE CAUSE HAS BEEN DETERMINED.

THE MAINTENANCE REPRESENTATIVE TRANSFERRED FREON FROM THE WASH TANK TO THE DUMP TANK TO ALLOW THE FREON, RETAINED IN THE CONTROL TRAP, TO BE PUMPED TO THE WASH TANK.

THE DISCREPANCY HAS BEEN CORRECTED.

REVISION 02/06/91 - SCORING CONFERENCE.

A-18
DESCRIPTION OF INCIDENT

A CLASS 2 OIL LEAK WAS DISCOVERED ON THE DUMP TANK TO STILL HOSE ELBOW JOINT DURING THE TRAINING OPERATIONS, A CLASS II OIL LEAK WAS DISCOVERED ON THE DUMP TANK TO THE STILL FROM HOSE ELBOW JOINT. THE CAUSE WAS UNDETERMINED, AND THE MADEC REPRESENTATIVE STATED THAT THE OIL MAY HAVE BEEN USED AS A SEALANT FOR THE ELBOW THREADS.

NO CORRECTIVE MAINTENANCE ACTION HAS BEEN TAKEN AT THIS TIME.

REVISON 02/06/91 - SCORING CONFERENCE.

SCORING INFORMATION

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<tr>
<td>PART NAME: MANUAL OVERRIDE</td>
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<tr>
<td>FGC: 0100</td>
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<td>OPS HRS 0.0</td>
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<td>PRO HRS 0.0</td>
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<td>GEN HRS 0.0</td>
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<tr>
<td>IND/UNS</td>
<td>CREW CREW CREW</td>
<td>00:01</td>
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DESCRIPTION OF INCIDENT

THE SOLVENT TANK FLOW VALUE CONTROL MANUAL OVERRIDE WAS ACTIVATED.

DURING THE TRAINING OPERATIONS, THE SOLVENT TANK FLOW VALUE CONTROL MANUAL OVERRIDE WAS ACTIVATED AT THE BEGINNING OF THE MASH CYCLE.

THE VALVE DID NOT ACTIVATE INDEPENDENTLY TO DISCONTINUE THE REMOVAL OF THE SOLVENT FROM THE MASH TANK.

THE OPERATIONS WERE CONTINUED.

REVISON 02/06/91 - SCORING CONFERENCE.
**Supportability Analysis Chart**

**Project Number:** 0-ES-115-LAD-003  
**Project Name:**  
**Item ID:** LAD001  
**Inc-Date:** 900806

<table>
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**Maintenance Information**

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<td>GS ORG ORG</td>
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**Description of Incident**

During the initial inspection the left, front hand brake actuator arm did not function properly. On 08-06-90, the MRDEC representative removed the actuator arm (P/N 7392815). The MRDEC representative cleaned the undamaged actuator arm parts. The MRDEC representative installed the new arm (P/N 7392815), and the discrepancy was corrected.

**Revision 02/06/91 - Scoring Confrence.**

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<td>Gen Hrs</td>
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**Scoring Information**

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**Maintenance Information**

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<td>GS ORG ORG</td>
<td>00:04</td>
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A-20
TWO DRUM CAP SCREWS WERE DISCOVERED TO BE MISSING.

FOLLOWING THE SECOND CYCLE, DURING THE TRAINING OPERATIONS, THE 05 AND 06 (CLOCKWISE) DRUM CAP SCREWS WERE DISCOVERED TO BE MISSING. THE CAUSE WAS UNKNOWN.

THE NRDEC REPRESENTATIVE STATED THAT THE TWO SCREWS HAD BEEN PLACED ON ORDER AT AN EARLIER TIME.

LATER THE SAME DAY, ONE OF THE TWO SCREWS HAS BEEN RECOVERED AT THE OPERATION SITE, AND HAS BEEN INSTALLED IN THE 05 POSITION BY THE NRDEC REPRESENTATIVE.

THE 06 SCREW HAS BEEN RECOVERED FROM THE INSIDE OF THE DRUM, AND HAS BEEN REPLACED.

THE DISCREPANCY HAS BEEN CORRECTED, AND THE OPERATIONS CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.

<table>
<thead>
<tr>
<th>DESCRIPTION OF INCIDENT</th>
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THE P100 BAG FILTER HAS BEEN REPLACED.

DURING THE TRAINING OPERATIONS, THE NRDEC REPRESENTATIVE REPORTED THAT THE BAG FILTER WAS DUE FOR REPLACEMENT AND WAS NOT ALLOWING THE SOLVENT TO FLOW PROPERLY.

THE BAG FILTER ASSEMBLY WAS DRAINED, AND THE TWO FLANGE PLATE EYE BOLTS WERE REMOVED TO GAIN ACCESS TO THE BAG FILTER. THE NEW FILTER WAS INSTALLED (P/N UNKNOWN).

THE FLANGE PLATE EYE BOLTS WERE REINSTALLED, AND THE FLANGE PLATE COVER WAS SEALED WITH DOW CORNING HIGH VACUUM GREASE.

THE DISCREPANCY HAS BEEN CORRECTED, AND THE OPERATIONS WERE CONTINUED.
Preliminary noise survey has conducted.

Preliminary sound survey: A preliminary sound survey was conducted around the lads while in full operation. Sound level readings were obtained at the 1.5 meter range at four locations around the lads. Additionally, sound level readings were obtained from above the operating lads at the 1 meter level in the middle of the unit. All readings were measured using the dB(A) scale. The readings obtained from the various locations are as follows:

**Sound Levels Readings**

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<th>Location</th>
<th>Level (dB(A))</th>
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<tr>
<td>Front</td>
<td>92.1</td>
</tr>
<tr>
<td>Right</td>
<td>92.3</td>
</tr>
<tr>
<td>Rear*</td>
<td>87.8</td>
</tr>
<tr>
<td>Left**</td>
<td>92.0</td>
</tr>
<tr>
<td>Above</td>
<td>93.4</td>
</tr>
</tbody>
</table>

* Operator’s work area
** Adjacent to generator exhaust

All levels exceed 95 dB(A) and require operators wear hearing protection at all times when operating off generator power.

Revision 02/06/91 - Scoring Conference.
**SUPPORTABILITY ANALYSIS CHART**

**PROJECT NUMBER:** 9-1E-115-LAB-003  
**PROJECT NAME:** BT II LABS LAUNDRY/DRY CLEANER  
**ITEM ID:** LAB001

---

**INC-DATE:** 990508  
**TIME:** L3-A000022 01  
**INC CLASS:** INFORMATION  
**ACTION-TAKEN:** TIGHTENED  
**PART NAME:** BOLT  
**FSC:** 0700  
**OPSRS:** 0.0  
**PRODR:** 0.0  
**GNSRS:** 0.0  

---

**MAINTENANCE INFORMATION**

**CHAR TYPE** | **USED PRESC RECOM** | **CLNRS** | **NAMS**  
--- | --- | --- | ---  
NON UHS | GS ORG ORG | 00:03 | 00:05

---

**DESCRIPTION OF INCIDENT**

THE DRUM DOOR RETAINING PIN BOLT HAS FOUN TO BE LOOSE.

DURING THE TRAINING OPERATIONS, THE MIDC REPRESENTATIVE DISCOVERED THAT THE DRUM DOOR RETAINING PIN WAS FOUND TO BE LOOSE. THE BOLT HAS TIGHTENED WITH A WRENCH, AND THE DISCREPANCY WAS CORRECTED.

THE OPERATIONS WERE CONTINUED.

**REVISION 02/06/91 - SCORING CONFERENCE.**

---

**INC-DATE:** 990508  
**TIME:** L3-A000023 01  
**INC CLASS:** INFORMATION  
**ACTION-TAKEN:** TIGHTENED  
**PART NAME:** SCREW  
**FSC:** 0700  
**OPSRS:** 0.0  
**PRODR:** 0.0  
**GNSRS:** 0.0  

---

**MAINTENANCE INFORMATION**

**CHAR TYPE** | **USED PRESC RECOM** | **CLNRS** | **NAMS**  
--- | --- | --- | ---  
NON UHS | GS ORG ORG | 00:04 | 00:04

---

**DESCRIPTION OF INCIDENT**

---

A-23
FOUR DRUM CAP SCREWS WERE FOUND TO BE LOOSE.

DURING THE TRAINING OPERATIONS, THE HUMAN FACTORS REPRESENTATIVE DISCOVERED THAT THE DRUM CAP SCREWS, NUMBERS 1 THROUGH 4, WERE LOOSE. THE SCREWS WERE TIGHTENED WITH A PHILLIPS SCREW DRIVER, AND THE DISCREPANCY WAS CORRECTED. THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.

INC-DATE: 900808
TGRB: LS-4000024 01
INC CLASS: INFORMATION
ACTION-TAKEN: NO ACTION TAKEN
PART NAME: LABDS
FCC: 0000
OPSHRS 0.0
PRODR 0.0
CENHS 0.0

SCORING INFORMATION

DESCRIPTION OF INCIDENT

THE OPERATOR BECAME NAUSEATED FROM FREON FUMES.

DURING THE TRAINING OPERATIONS, THE OPERATOR OPENED THE DRUM DOOR TO REMOVE THE CLEANED CLOTHING FROM THE DRUM.


THE OPERATIONS WERE CONTINUED.


REVISION 02/06/91 - SCORING CONFERENCE.
A CLASS 2 SOLVENT LEAK WAS OBSERVED AT THE DRUM DOOR WINDOW GASKET.

DURING THE TRAINING OPERATIONS, THE OPERATOR OBSERVED A CLASS II SOLVENT LEAK AT THE DRUM DOOR WINDOW GASKET, WHICH CONTINUED FOR 20 SECONDS.

THE OPERATIONS WERE CONTINUED, AND NO CORRECTIVE MAINTENANCE ACTION HAS BEEN TAKEN AT THIS TIME.

REVISION 02/06/91 - SCORING CONFERENCE.
A CLASS 2 SOLVENT LEAK WAS OBSERVED AT THE DRUM DOOR WINDOW GASKET.

DURING THE TRAINING OPERATIONS, THE MEPIC REPRESENTATIVE OBSERVED A CLASS II SOLVENT LEAK AT THE DRUM DOOR WINDOW GASKET. THE LEAK CONTINUED FOR 15 SECONDS AND CEASED.

BON CORING HIGH VACUUM GREASE SEALANT WAS APPLIED TO THE GASKET, CORRECTING THE DISCREPANCY. THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.

---

INC-DATE: 900809
TIRN: L3-4000020 01
INC CLASS: INFORMATION
ACTION-TAKEN: OPERATIONS
PART NAME: MANUAL OVERRIDE SWITCH
FGC: 0100
OPSHRS 0.0
PRODHR 0.0
CHNHR 0.0

MAINTENANCE INFORMATION
CHAR TYPE USED PRESC RECON CHARS HOURS
Nhap UNS CREW CREW CREW 00:04 00:04

DESCRIPTION OF INCIDENT

THE VALUE CONTROL MANUAL OVERRIDE WAS ACTIVATED.

DURING THE OPERATIONS, THE SOLVENT TANK FLOW VALUE CONTROL MANUAL OVERRIDE WAS ACTIVATED AT THE BEGINNING OF THE WASHER CYCLE.

THE VALUE DID NOT ACTIVATE INDEPENDENTLY TO DISCONTINUE THE REMOVAL OF THE SOLVENT FROM THE WASHER TANK.

THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.
SYSTEM WAS DRAINED OF FREON AND REFILLED.

THE SYSTEM WAS DRAINED OF ALL FREON, AS PER THE PROJECT ENGINEER, TO ESTABLISH THE INITIAL AMOUNT OF FREON REQUIRED FOR OPERATIONS.

AFTER THE DRAINING WAS COMPLETED, THE SYSTEM WAS REFILLED WITH FREON TO PROPER LEVELS NEEDED TO BEGIN OPERATIONS.

ACCURATE MEASUREMENTS WERE TAKEN.

A TOTAL OF 2100 POUNDS OF FREON 113 HAS BEEN INSTALLED.

NO FURTHER ACTION WAS TAKEN.

REVISED 02/06/91 - SCORING CONFERENCE.

---

**SCORING INFORMATION**

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**DESCRIPTION OF INCIDENT**

**REVISED 02/06/91 - SCORING CONFERENCE.**

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<td>ORG</td>
<td>ORG</td>
<td>00:13</td>
<td>00:13</td>
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</table>
DESCRIPTION OF INCIDENT

OVERFILLING OF FUEL TO THE GENERATOR FUEL TANK CAUSING LEAK IN FILLER NECK.

THE FUEL TRUCK ARRIVED TO REFUEL THE GENERATOR FUEL TANK.

THE FUEL TANK DRIVER HAS TOLD THE OPERATOR NOT TO FILL THE FUEL TANK BEYOND THE POINT WHERE THE FUEL TANK JOINS THE FILLER NECK, AS PREVIOUSLY INSTRUCTED BY THE NRDEC REPRESENTATIVE BECAUSE OF PREVIOUS LEAKS.

THE AMOUNT OF FUEL ADDED TO THE GENERATOR FUEL TANK WAS 15.3 GALLONS.

AN OVERFLOW OCCURRED AT THE POINT WHERE THE FUEL TANK AND FILLER NECK JOIN.

THE OPERATORS CLEARED THE SPILLAGE WITH SHOP RAGS TO CORRECT THE PROBLEM.

NO FURTHER ACTION HAS BEEN TAKEN.

REVISION 02/06/91 - SCORING CONFERENCE.

---------------------------------------------------------------------------------------------------
INC-DATE: 900813
TIMB: L9-A00030 01
INC CLASS: INFORMATION
ACTION-TAKEN: 0
PART NAME: MANUAL OVERRIDE SWITCH
FSC: 0100
OPS HRS 0.0
PROP HRS 0.0
GENHRS 0.0

---------------------------------------------------------------------------------------------------
MAINTENANCE INFORMATION
ACTIVE
CHASSIS USED PRESC RECON CLJMRCS RMRCS
CHRM CHRM CHRM

---------------------------------------------------------------------------------------------------
DESCRIPTION OF INCIDENT

THE VALVE CONTROL MANUAL OVERRIDE HAS ACTIVATED.

DURING THE OPERATIONS, THE SOLVENT TANK FLOW VALVE CONTROL MANUAL OVERRIDE HAS ACTIVATED AT THE BEGINNING OF THE WASH CYCLE.

THE VALUE DID NOT ACTIVATE INDEPENDENTLY TO DISCONTINUE THE REMOVAL OF THE SOLVENT FROM THE WASH TANK.

THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.
THE DATA IN SECTIONS I-IV WERE CHANGED AS FOLLOWS:

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</tr>
<tr>
<td>41</td>
<td>O4U(P)</td>
<td>O3-(P)</td>
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<tr>
<td>42</td>
<td>UMF</td>
<td>OMF</td>
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REVISION 02/06/91 - SCORING CONFERENCE.
THE VALUE CONTROL MANUAL OVERRIDE WAS ACTIVATED.

DURING THE OPERATIONS, THE SOLVENT TANK FLOW VALUE CONTROL MANUAL OVERRIDE WAS ACTIVATED AT THE BEGINNING OF THE RINSE CYCLE.

THE VALUE DID NOT ACTIVATE INDEPENDENTLY TO DISCONTINUE THE REMOVAL OF THE SOLVENT FROM THE RINSE TANK.

THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.
THE VALUE CONTROL MANUAL OVERRIDE WAS ACTIVATED.

DURING THE OPERATIONS, THE SOLVENT TANK FLOW VALUE CONTROL MANUAL OVERRIDE WAS ACTIVATED AT THE BEGINNING OF THE MASH CYCLE.

THE VALUE DID NOT ACTIVATE INDEPENDENTLY TO DISCONTINUE THE REMOVAL OF THE SOLVENT FROM THE MASH TANK.

THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.

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<td>FGC: 0100</td>
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<td>OPSHRS 6.1</td>
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<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>THE RINSE TANK DID NOT REFILL.</td>
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</table>

FOLLOWING CYCLE #5, THE OPERATOR REPORTED THAT THE RINSE TANK DID NOT REFILL.

SOLVENT WAS TRANSFERRED FROM THE STILL THROUGH THE DRUM, TO THE RINSE TANK, CORRECTING THE DISCREPANCY.

THE OPERATIONS WERE CONTINUED.

REVISED 04 SEP 90 TO UPDATE THE DATA/NARRATIVE FOR DEFERRED MAINTENANCE ACTIONS TAKEN.

THE STILL THERMOSTAT TEMPERATURE WAS ADJUSTED.

ON 08-15-90, AT 1500 (NST), WITH THE OPHRS 09:50, PRODHRS 05:53, GENHRS 9.2, CYCLES 11, AND THE MILES AT 0, THE OPERATOR REPORTED THAT THE RINSE TANK DID NOT REFILL.

SOLVENT WAS TRANSFERRED FROM THE STILL, THROUGH THE DRUM, TO THE RINSE TANK. THIS ACTION PROVIDED THE PROPER SOLVENT LEVELS NECESSARY TO CONTINUE...
THE OPERATIONS.

ON 08-16-90, AT 0344 (HST), WITH THE OPHRS 19:39, PRODHRS 12:37, GENHRS 18.8, CYCLES 25, AND THE RILES AT 0, THE OPERATOR DISCOVERED THAT THE SOLVENT HAD BEEN RETAINED IN THE LOWER PORTION OF THE CONTROL TRAP ASSEMBLY. NO VARIANCE WAS OBSERVED ON ANY OF THE PRESSURE GAUGES.

NO CORRECTIVE MAINTENANCE ACTION WAS TAKEN AT THIS TIME, AND THE OPERATIONS WERE CONTINUED.

AT 0345, WITH THE SAME PRIOR READINGS, THE OPERATOR OBSERVED THAT THE SOLVENT LEVEL IN THE RINSE TANK WAS INSUFFICIENT FOR CONTINUING OPERATIONS.

THE NECESSARY AMOUNT OF SOLVENT WAS DRAINED FROM THE DUMP TANK TO THE SOLVENT STORAGE DRUM, AND WAS PURGED FROM THE DRUM TO THE RINSE TANK.

THE PROPER SOLVENT LEVELS WERE MAINTAINED, AND THE OPERATIONS WERE CONTINUED.

AT 0740 (HST), WITH THE OPHRS 23:37, PRODHRS 14:04, GENHRS 21.3, CYCLES 26, AND THE RILES AT 0, THE PREVIOUSLY REPORTED MEASURES WERE TAKEN TO TRANSFER THE SOLVENT. THE PROPER SOLVENT LEVELS WERE MAINTAINED, AND THE OPERATIONS WERE CONTINUED.

AT 0832 (HST), WITH THE OPHRS 24:36, PRODHRS 14:35, GENHRS 22.3, CYCLES 29, AND THE RILES AT 0, THE MAINTENANCE PERSONNEL ADJUSTED THE STILL THERMOSTAT TEMPERATURE FROM 195 DEG F TO 210 DEG F, AS PER A PHONE CONVERSATION WITH THE IRDEC REPRESENTATIVE.

THE IRDEC REPRESENTATIVE STATED THAT THE THERMOSTAT ADJUSTMENT SHOULD CORRECT THE PREVIOUSLY REPORTED DISCREPANCIES.

AT 0948 (HST), WITH THE OPHRS 25:52, PRODHRS 14:23, GENHRS 23.4, CYCLES 29, AND THE RILES AT 0, THE MAINTENANCE PERSONNEL MADE A FINAL ADJUSTMENT TO THE STILL THERMOSTAT, CORRECTING THE DISCREPANCY. NO FURTHER MAINTENANCE ACTION WAS TAKEN, AND THE OPERATIONS WERE CONTINUED.

THE DATA IN SECTIONS I-IO WERE CHANGED AS follows:

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<td>42</td>
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<td>63</td>
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A-32
THE VALUE CONTROL MANUAL OVERRIDE WAS ACTIVATED.

DURING THE OPERATIONS, THE SOLVENT TANK FLOW VALUE CONTROL MANUAL OVERRIDE WAS ACTIVATED AT THE BEGINNING OF THE WASH CYCLE. THE VALUE DID NOT ACTIVATE INDEPENDENTLY TO DISCONTINUE THE REMOVAL OF THE SOLVENT FROM THE WASHER TANK. THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.
SOLVENT WAS FOUND IN THE CONTROL TRAP.

FOLLOWING CYCLE 86, THE OPERATOR DISCOVERED SOLVENT IN THE CONTROL TRAP. THE CAUSE WAS UNDETERMINED.

APPROXIMATELY 1/2 GALLON OF SOLVENT HAS DRAINED FROM THE CONTROL TRAP.

NO VARIANCE IN THE PRESSURE GAUGES WAS OBSERVED.

NO FURTHER ACTION HAS BEEN TAKEN AT THIS TIME AND OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.
THE MANUAL VALUE CONTROL OVERRIDE HAS ACTIVATED.

DURING THE OPERATIONS, THE SOLVENT TANK MANUAL VALUE CONTROL OVERRIDE WAS ACTIVATED AT THE BEGINNING OF THE WAS CYCLE.

THE VALUE DID NOT ACTIVATE INDEPENDENTLY TO DISCONTINUE THE REMOVAL OF THE SOLVENT FROM THE WAS TANK.

THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.

**DESCRIPTION OF INCIDENT**

CRACKS WERE DISCOVERED IN THE CONTROL TRAP DUCT.


A CLASS III SOLVENT LEAK, AT EACH OF THE LOCATIONS, WAS A RESULT OF THE CRACKS.

THE LOCATIONS OF THE CRACKS HAD PREVIOUSLY BEEN REPAIRED BY SPOT WELDING, AND HAD BEEN MARKED IN ORANGE (LEAK). THE DUCT WAS REMOVED BY ORGANIZATIONAL MAINTENANCE PERSONNEL, TAKEN TO THE WELDING SHOP AND WELDED.

THE CONTROL TRAP DUCT HAS REPLACED ON THE SYSTEM WITHOUT REINSTALLING THE UPPER LINT CONTROL SCREEN AS PER THE TEST DIRECTOR.

**DESCRIPTION OF INCIDENT**

**DESCRIPTION OF INCIDENT**

A-35
A new gasket (P/N - unknown) was cut from rubber gasket material, and the new lint screen (P/N - unknown) was installed with the new gasket on the duct. The duct bolts were reinstalled, completing the necessary corrective maintenance action.

Block: from 90 as is to new narrative
Parts: new parts replaced
Maint breaker: new breaker

Revision 02/06/91 - Scoring Conference.

INC-DATE: 900813
TIMM: L5-A000039 02
INC CLASS: MINOR
ACTION-TAKEN: REPAIRED
PART NAME: CONTROL TRAP ASSEMBLY
FGC: 0300
OPHRS 7.4
PROHRS 3.2
GENHRS 6.6

SCORING INFORMATION

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<th>CHARGE</th>
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MAINTENANCE INFORMATION

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<tr>
<td>00:08</td>
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DESCRIPTION OF INCIDENT

Class 3 solvent leak from control trap gasket.

During cycle 90 the operator observed a class 2 solvent leak coming from the control trap duct.

Further investigation revealed the leak to be coming from the left rear corner of the seal of the duct. The seal connects the upper duct section of the control trap to the lower trap section.

The upper duct section was removed to repair a cracked weld (TIR 55-A00993).

Upon removal of the upper duct, it was revealed that the gasket was torn in the left rear corner.

Also, three of the corners of the lower control trap duct were bent upward (the left front, the left rear and the right rear corners).
ON 08/14/90, A NEW GASKET WAS MADE AND INSTALLED.
THE 3 BENT CORNERS WERE BEAT DOWN USING A RUBBER MALLET BY ORGANIZATIONAL MAINTENANCE.
THE UPPER DUCT SECTION OF THE CONTROL TRAP WAS REPOSITIONED AND SECURED.

REVISED 03 FEB 91 TO UPDATE PARTS.

REVISION 02/06/91 - SCORING CONFERENCE.

INC-DATE: 900814
RIN: L5-00000004 01
INC CLASS: MAJOR
ACTION-TAKEN: REPAIRED
Part NAME: CONTROL TRAP ASSEMBLY
FCC: 0300
OPSHRS 8.4
PROHRS 3.2
GEMHRS 7.9

SCORING INFORMATION
STEP  CLASS  CHARGE
03- (C)  ORF/UNA  HARDWARE

MAINTENANCE INFORMATION
CHAR TYPE  USH PRSC RECON  CLKHRS  RNMHRS
CH4 UMS  ORG  ORG  ORG  02:40  02:40

DESCRIPTION OF INCIDENT

CLASS 3 SOLVENT LEAK AT UPPER CONTROL TRAP DUCT.

DURING OPERATIONS, THE OPERATOR OBSERVED A CLASS III SOLVENT LEAK.
THE SOLVENT WAS SPRAYING FROM THE LOWER LEFT CORNER WHERE THE SOLVENT CH "X" TRAP DUCT CONNECTS TO THE BLOWER ASSEMBLY.
THE SYSTEM HAS SHUT DOWN.
THE OPERATOR ATTEMPTED TO RECTIFY THE LEAK BY TIGHTENING THE BOLTS AT THE LOWER LEFT CORNER.
THE BOLTS WERE TIGHTENED AND THE DRYING CYCLE WAS ALLOWED TO CONTINUE.
A NEW BASH CYCLE WAS INITIATED.
IMMEDIATELY SOLVENT BEGAN TO SPRAY FROM THE SAME LOCATION.
THE SYSTEM HAS AGAIN SHUT DOWN.
IT HAS DETERMINED THAT THE GASKET BETWEEN THE CONTROL TRAP DUCT AND THE BLOWER ASSEMBLY NEEDED TO BE REPLACED.
THE BOLTS SECURING THE CONTROL TRAP DUCT TO THE BLOWER ASSEMBLY WERE REMOVED AND THE GASKET WAS REVEALED.
08/15/90-A NEW GASKET WAS NOT AVAILABLE. A DECISION WAS MADE BY THE TEST DIRECTOR TO REINSTALL THE OLD GASKET, USING SILICONE RTU, AS A SEALANT.
AS A TEMPORARY FIX:
THE OLD GASKET WITH THE SILICONE RTV WAS REINSTALLED AND THE BOLTS WERE
REINSTALLED AND TIGHTENED.
THIS CORRECTED THE PROBLEM.
NO FURTHER ACTION HAS BEEN TAKEN AT THIS TIME.
OPERATIONS CONTINUED.
REVISION 02/06/91 - SCORING CONFERENCE.

INC-DATE: 900814
TIM: L5-6000041 01
INC CLASS: MINOR
ACTION-TAKEN: REINSTALLED
PART NAME: GASKET
FGC: 0300
OPSORS 54.0
PRORDR 3.2
GENHRS 8.1

CORROSION FOUND ON THE UPPER CONTROL TRAP DUCT GASKET.

DURING UNSCHEDULED MAINTENANCE, THE MAINTENANCE PERSONNEL DISCOVERED
CORROSION IN TWO LOCATIONS, ON THE UPPER CONTROL TRAP GASKET.
THE LOCATIONS OF THE CORROSION WERE ON THE UNDERSIDE, TOP RIGHT AND
CENTER OF THE GASKET.
THE CAUSE OF THE CORROSION WAS UNDETERMINED. THE MAINTENANCE PERSON-
NEL REMOVED THE CONTROL TRAP GASKET FOR FURTHER INSPECTION.
NO FURTHER ACTION HAS BEEN TAKEN AT THIS TIME.
REVISION 02/06/91 - SCORING CONFERENCE.
**Supportability Analysis Chart**

**Project Number:** 0-IS-115-LAD-003

**Produce Name:** DT II LADDS LAUNDRY/DRY CLEANER

**Item ID:** Ladd01

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**Action Taken:** No action taken

**Part Name:** LADDS

**FCC:** 0000

**OPSRHS:** 8.4

**PROMR:** 3.2

**GENRHS:** 7.9

**Maintenance Information**

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<td>NON</td>
<td>USA</td>
<td>CREW</td>
<td>CREW</td>
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</table>

**Description of Incident**

The operator became nauseated from Freon fumes.

During the training operations, the operator opened the drum door to remove the cleaned clothing from the drum. The operator stated that while leaning toward the drum, the Freon fumes caused him to become dizzy. As the operator stepped away from the unit to acquire fresh air, the operator reported nausea. The operator recovered from the dizziness and nausea after a short period of time.

However, the operator reported a headache, which continued for the remainder of the day.

The operations were continued.

The human factors engineer now requires that the operator open the drum door and step away from the unit for 30 seconds. The operator may then proceed to remove the cleaned clothing from the drum, while attempting to keep his head out of the inner area of the drum.

Revised 01 Oct 90 to reflect the scoring conference results/directions. The data in sections 1-10 were changed as follows:

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Revision 02/06/91 - Scoring Conference.
The manual value control override was activated.

During the operations, the solvent tank manual value control override was activated at the beginning of the wash cycle. 

The value did not activate independently to discontinue the removal of the solvent from the wash tank.

The operations were continued.

Revision 02/06/91 - Scoring conference.

REVISON 02/06/91 - SCORING CONFERENCE.

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<td>OPHRS  9.0</td>
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<td>CHAR TYPE</td>
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<table>
<thead>
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<th>DESCRIPTION OF INCIDENT</th>
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<tbody>
<tr>
<td>THE MANUAL VALUE CONTROL OVERRIDE WAS ACTIVATED.</td>
</tr>
<tr>
<td>REVISON 02/06/91 - SCORING CONFERENCE.</td>
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</table>
### Description of Incident

The manual value control override has activated.

**During the operations, the solvent tank manual value control override was activated at the beginning of the wash cycle. The value did not activate independently to discontinue the removal of the solvent from the wash tank. The operations were continued.**

**Revision 02/06/91 - Scoring Conference.**
DURING THE OPERATIONS, THE SOLVENT TANK FLOW VALVE CONTROL MANUAL OVERRIDE WAS ACTIVATED AT THE BEGINNING OF THE HASH CYCLE.
THE VALVE DID NOT ACTIVATE INDEPENDENTLY TO DISCONTINUE THE REMOVAL OF THE SOLVENT FROM THE HASH TANK.
THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.

**SCORING INFORMATION**

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<td>GMNRS 10.0</td>
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**MAINTENANCE INFORMATION**

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**DESCRIPTION OF INCIDENT**

FILTER BAG REPLACED.

DURING OPERATION OF CYCLE 14 THE OPERATOR OBSERVED A DIFFERENCE IN PRESSURE OF 8 PSI BETWEEN THE INLET AND OUTLET PRESSURE GAUGES OF THE BAG FILTER CHAMBER.
THE FILTER WAS DRAINED AND A VISUAL INSPECTION WAS CONDUCTED. THE VISUAL INSPECTION REVEALED THE BAG TO BE HEAVILY SOILED.
THE FILTER BAG WAS REMOVED AND A NEW FILTER BAG WAS INSTALLED.
THE COVER WAS REPLACED AND OPERATIONS WERE CONTINUED.

REVISED 01 OCT 90 TO REFLECT THE SCORING CONFERENCE RESULTS/DIRECTIONS.
THE DATA IN SECTIONS I-IV WERE CHANGED AS FOLLOWS:

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<td>43</td>
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REVISED 05 FEB 91 TO UPDATE PARTS.
DESCRIPTION OF INCIDENT

DRUM DOOR LEAKING, THEN STOPPED.

DURING OPERATIONS OF CYCLE #13, OPS 10:48, PROD 06:31, CYCLE 12 THE OPERATOR OBSERVED A CLASS III SOLVENT LEAK. THE SOLVENT Began SPRAYING FROM THE WASH DRUM DOOR APPROXIMATELY AT THE 8 O'CLOCK POSITION.

THE SPRAY CONTINUED FOR 15 SECONDS AND STOPPED BY ITSELF. NO CORRECTIVE ACTION HAS TAKEN.

15 AUG 1990, 1553 (OPS 12:25, PROD 07:45, CYCLE 15), THE DRUM AGAIN SPRAYED SOLVENT FOR SEVERAL SECONDS AND STOPPED. THIS TIME THE DRUM STOPPED AGITATING.

THE OPERATOR PUSHED THE CYCLE RUN BUTTON AND OPERATION RESUMED. NO FURTHER SOLVENT LEAKS WERE OBSERVED.

15 AUG 1990, 1755 (OPS 13:33, PROD 08:33, CYCLE 17), THE SOLVENT Began SPRAYING FROM THE SAME LOCATION. THIS TIME THE SPRAY LASTED SIX SECONDS AND STOPPED BY ITSELF. OPERATION CONTINUED.

EACH TIME THE SOLVENT LEAK OCCURRED AT THE VERY BEGINNING OF THE WASH CYCLE.

15 AUG 1990, 1908 (OPS 14:04, PROD 09:03, CYCLE 17), AFTER CYCLE #17 HAS COMPLETED, THE OPERATOR APPLIED THE VACUUM GREASE, SUPPLIED BY THE HRDEC REPRESENTATIVE, TO THE DRUM DOOR GASKET. OPERATIONS CONTINUED.

THIS TIME THE SOLVENT LEAK LASTED SIX SECONDS AND STOPPED.
NO FURTHER ACTION HAS BEEN TAKEN.
NO FURTHER LEAKAGE OCCURRED FOR THE REMAINDER OF THE MISSION.

**REVISION 02/06/91 - SCORING CONFERENCE.**

---

**INC-DATA: 900613**
**TIRN: L5-6000050 01**
**INC CLASS: INFORMATION**
**ACTION-TAKEN: REMOVED**
**PART NAME: LINT, SCREEN**
**FCG: 0300**
**OPSHRS 8.1**
**PRODHR 3.2**
**GENHRS 7.2**

---

**MAINTENANCE INFORMATION**
**CHAR TYPE** **USED** **PRESC** **RECON** **CLKHRS** **MANHRS**
**NON** **UNS** **ORG** **ORG** **ORG** **00:00** **00:00**

---

**DESCRIPTION OF INCIDENT**
THE LINT TRAP SCREEN WAS REMOVED FROM THE CONTROL TRAP ASSY.

DURING THE UNSCHEDULED MAINTENANCE TO THE SOLVENT CONTROL TRAP DUCT ASSEMBLY (REF TIR L5-6000038), THE MAINTENANCE PERSONNEL WAS INSTRUCTED, BY THE PROJECT ENGINEER, TO REMOVE THE LINT TRAP SCREEN. THE LINT SCREEN WAS REMOVED AS A MODIFICATION TO THE SYSTEM AS PER HRDEC REPRESENTATIVE'S APPROVAL.

**REVISION 02/06/91 - SCORING CONFERENCE.**
**TAUE, MAR 12, 1991**

**SUPPORTABILITY ANALYSIS CHART**

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**SCORING INFORMATION**

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**MAINTENANCE INFORMATION**

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**DESCRIPTION OF INCIDENT**

THE MANUAL VALVE CONTROL OVERRIDE WAS ACTIVATED.

DURING THE OPERATIONS, THE SOLVENT TANK MANUAL VALVE CONTROL OVERRIDE WAS ACTIVATED AT THE BEGINNING OF THE WAS CYCLE.

THE VALVE DID NOT ACTIVATE INDEPENDENTLY TO DISCONTINUE THE REMOVAL OF THE SOLVENT FROM THE WASH TANK.

THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.

---

**SCORING INFORMATION**

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**DESCRIPTION OF INCIDENT**

THE MANUAL VALVE CONTROL OVERRIDE WAS ACTIVATED.
DURING THE OPERATIONS, THE SOLVENT TANK MANUAL VALUE CONTROL OVERRIDE WAS ACTIVATED AT THE BEGINNING OF THE WAS CYCLE.

THE VALVE DID NOT ACTIVATE INDEPENDENTLY TO DISCONTINUE THE REMOVAL OF THE SOLVENT FROM THE WAS TANK.

THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.
THE MANUAL VALUE CONTROL OVERRIDE WAS ACTIVATED.


REVISION 02/06/91 - SCORING CONFERENCE.

THE MANUAL VALUE CONTROL OVERRIDE HAS ACTIVATED.


REVISION 02/06/91 - SCORING CONFERENCE.
TUE, MAR 12, 1991

SUPPORTABILITY ANALYSIS CHART

PROJECT NUMBER
9-15-115-LAD-003

PROJECT NAME
DT II LABS LAUNDRY/DRY CLEANER

ITEM ID
LADD01

DESCRIPTION OF INCIDENT

DRUM CAP SCREWS OBSERVED TO BE MISSING AND LOOSE.

DURING THE B-PACs THE OPERATOR DISCOVERED THAT THE 91 AND 96 (CLOCKWISE) DRUM CAP SCREWS WERE MISSING, AND 92, 93, 94 AND 95 DRUM CAP SCREWS WERE LOOSE. THE SCREWS THAT WERE MISSING WERE RECOVERED FROM THE CLOTHING INSIDE THE DRUM, AND THE MAINTENANCE PERSONNEL INSTALLED THE SCREWS. THE LOOSE SCREWS WERE TIGHTENED THREE TURNS EACH. THE DISCREPANCY WAS CORRECTED.

REVISION 02/06/91 - SCORING CONFERENCE.

INC-DATE: 900816
TIRB: L5-A000056 01
INC CLASS: MINOR
ACTION-TAKEN: REINSTALLED
PART NAME: DRUM CAP SCREW
FCC: 0700
OSHRS: 30.2
PRODHRS: 17.6
G chewing: 27.6

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SCORING INFORMATION

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DESCRIPTION OF INCIDENT

ONE OF THE DRUM CAP SCREWS HAS DISCOVERED TO BE MISSING.

DURING CYCLE 939 THE 93 DRUM CAP SCREW HAS DISCOVERED MISSING BY THE OPERATOR AND WAS LATER FOUND AT THE END OF THE CYCLE IN THE DRUM BASKET. AT THAT TIME THE ORGANIZATIONAL MAINTENANCE REINSTALLED THE SCREW AND AT THE SAME TIME TURNED EACH THE REMAINING SIX SCREWS ONE (1) FULL TURN CLOCKWISE SINCE THEY WERE ALL LOOSE.

THE DISCREPANCY WAS CORRECTED.

REVISION 02/06/91 - SCORING CONFERENCE.

A-49
### Incidents

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#### Description of Incident

**The Manual Control Value Override was activated.**

During the operations, the solvent tank manual value control override was activated at the beginning of the wash cycle. The valve did not activate independently to discontinue the removal of the solvent from the wash tank. The operations were continued. Revision 02/06/91 - Scoring Conference.

REVISION 02/06/91 - SCORING CONFERENCE.

INC-DATE: 900816
TIME: 15:0000:00 01
INC CLASS: INFORMATION
ACTION-TAKEN: NO ACTION TAKEN
PART NAME: BARREL PUMP HOSE
FGT: 0000
OPSRS 19.4
PRDMR 11.3
GENHRS 15.0

MAINTENANCE INFORMATION

CHAR TYPE USED PRESC RECON CHRS MCHRS
NON UHS CREW CREW CREW 00:02 00:02

DESCRIPTION OF INCIDENT

SOLVENT SPLASHED ON THE OPERATOR.


THE OPERATOR IMMEDIATELY RINSED THE RIGHT SIDE OF HER FACE AND SHOULDER WITH WATER.

NO INJURY WAS SUSTAINED AND THE OPERATOR CONTINUED WITH THE OPERATION.

REVISION 02/06/91 - SCORING CONFERENCE.
INC-DATE: 900816
TIRN: L5-A000060 02
INC CLASS: MAJOR
ACTION-TAKEN: NO ACTION TAKEN
PART NAME: GASKET, DRUM DOOR
FGC: 0700
OOPSRS 30.5
PRODHR 20.3
GENHRS 28.1

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DESCRIPTION OF INCIDENT

DRUM DOOR GASKET SPRAYING SOLVENT.

OPS-29:00, PROD-18:59, CYCLE-38. THE OPERATOR OBSERVED A CLASS II SOLVENT LEAK SPRAYING FROM THE DRUM DOOR. THE LEAK OCCURRED AT THE 8 O'CLOCK POSITION AND LASTED 15 SECONDS BEFORE STOPPING BY ITSELF. OPERATIONS CONTINUED.


THE TEST DIRECTOR WAS NOTIFIED. A DECISION WAS MADE BY THE TEST DIRECTOR TO HALT TESTING.

THE OPERATORS ATTEMPTED TO REPLACE THE DOOR GASKET WITH ONE SUPPLIED WITH THE UNIT. THE REPLACEMENT GASKET WAS DISCOVERED TO BE THE WRONG SIZE.

OPERATIONS ARE DOWN UNTIL A PROPER DOOR GASKET CAN BE OBTAINED.

REVISED 09 OCT 90 TO UPDATE THE DATA/NARRATIVE FOR DEFERRED MAINTENANCE ACTIONS TAKEN.

THE DRUM DOOR ASSEMBLY LEAKAGE WAS CORRECTED.
ON 08-17-90, AT 0703 (NST), WITH THE OPERHS 31.20, PRODHRS 19.14, GENHRS 28.6, CYCLES 39, AND THE RILES AT 0. WHILE CLEANING THE DAMAGED DRUM DOOR GASKET, MAINTENANCE PERSONNEL DISCOVERED AN 18 INCH SECTION OF GASKET MATERIAL THAT HAS ALSO DAMAGED. THE DAMAGE WAS LOCATED APPROXIMATELY 1/8 INCH IN DEPTH IN THE GROOVE OF THE DRUM DOOR. THE STRIP OF MATERIAL SPANNED FROM THE FIVE O’CLOCK POSITION TO THE SEVEN O’CLOCK POSITION ON THE DRUM DOOR.

PHOTOGRAPHS WERE TAKEN OF THE FOLLOWING ITEMS: 1) THE GASKET GROOVE AND THE ROUGHNESS ALONG THE EDGES OF THE DRUM; 2) THE 18 INCH STRIP OF MATERIAL. AT 0745 (NST), CYCLE #39 HAS COMPLETED WITH NO DISCREPANCIES.

AT 0845 (NST) WITH THE OPERHS 32:05, PRODHRS 19:42, GENHRS 29.8, CYCLES 39, AND THE RILES AT 0, THE OPERATOR INITIALIZED THE SYSTEM IN THE RINSE CYCLE. THE LEAKAGE WAS FOUND TO BE PRESENT IN THE SAME LOCATION AS PREVIOUSLY REPORTED.

THE MAINTENANCE PERSONNEL SEALED THE GASKET WITH DON CORKING GREASE, ATTEMPTING TO STOP THE LEAKAGE. ANOTHER ATTEMPT HAS MADE AT CYCLE #40 AND LEAKAGE OCCURRED AT THE SAME LOCATION. PHOTOGRAPHS WERE TAKEN OF THE LEAKAGE AS THE SYSTEM OPERATED.

THE SYSTEM HAS POWERED DOWN FOR THE REMAINDER OF THE DAY, AS PER THE PROJECT ENGINEER’S REQUEST.

ON 08-21-90, AT 0904 (NST), WITH THE OPERHS 33:09, PRODHRS 19:57, GENHRS 31.1, CYCLES 39, AND THE RILES AT 0, THE OPERATOR INITIALIZED THE SYSTEM IN THE RINSE CYCLE. THE LEAKAGE WAS FOUND TO BE PRESENT IN THE SAME LOCATION AS PREVIOUSLY REPORTED.

THE MAINTENANCE PERSONNEL REMOVED AND TURNED THE DAMAGED GASKET APPROXIMATELY 180 DEGREES, REINSTALLING THE GASKET ON THE DRUM DOOR. THE SYSTEM WAS INITIALIZED IN THE RINSE CYCLE, AND WAS OPERATED THROUGH THE DRY CYCLE. LEAKAGE WAS OBSERVED IN THE SAME LOCATION PREVIOUSLY REPORTED.

AT 1145 (NST), WITH THE OPERHS 34:09, PRODHRS 20:15, GENHRS 32.1, CYCLES 39, AND THE RILES AT 0, THE REPLACEMENT GASKET (P/N 4020-5596-01) WAS RECEIVED.

THE DAMAGED GASKET WAS REMOVED AND REPLACED.

THE OPERATOR OBSERVED THAT THE NEW GASKET RECESSED IN THE AREA OF THE GROOVE, AND PROTRUDED APPROXIMATELY 1/8 INCHES IN ALL OTHER AREAS.

THE OPERATOR APPLIED HIGH VACUUM GREASE TO THE NEW GASKET. AN ATTEMPT HAS MADE AT BEGINNING CYCLE #40. AT THE BEGINNING OF THE WASH CYCLE THE LEAKAGE WAS OBSERVED AT THE SAME LOCATION, AND AT THE SAME INTENSITY, AS PREVIOUSLY REPORTED. THE “EMERGENCY SHUT-OFF” BUTTON WAS ACTIVATED.

THE MAINTENANCE PERSONNEL REMOVED AND INSPECTED THE NEW GASKET. NO DISCREPANCY COULD BE FOUND, AND THE GASKET WAS REINSTALLED.

THE OPERATOR MADE ANOTHER ATTEMPT AT BEGINNING CYCLE #40, AND THE SAME LEAKAGE WAS OBSERVED.

AT 1239 (NST), THE SYSTEM WAS POWERED DOWN FOR THE REMAINDER OF THE
Day, as per the Project Engineer's request.

On 08-23-90, at 0841 (MST), with the OPHRs 34:33, PRODRRs 20:26, GENHRS 32.8, cycles 39, and the miles at 0, the maintenance personnel loosened the four drum door mounting bolts. The drum door was adjusted to align the gasket properly, and the bolts were tightened.

Cardboard inserts were installed in the drum door groove to rebuild the gasket, bringing the gasket forward to cause a seal.

At 0900 (MST), with the OPHRs 35:05, and the PRODRRs 20:26, the operator initialized the rinse cycle to inspect for further leakage. Leakage was observed at the twelve o'clock and the six o'clock positions on the drum door.

The maintenance personnel sealed the gasket with vacuum grease. A second attempt at the rinse cycle was made, and the operator observed leakage in the same location. Once again, the maintenance personnel sealed the gasket with vacuum grease.

The operator initialized the rinse cycle to inspect for leakage. The discrepancy appeared to be corrected, and the operations were continued.

On 08-24-90, at 1401 (MST), with the OPHRs 37:40, PRODRRs 23:04, the operator observed solvent spraying from the drum door at the eight o'clock position. The leakage occurred for a 20 second period, then ceased.

The MRDEC representative stated that the leakage occurred due to a pressure build up of approximately 5 pounds per square inch, which was caused by the heat of direct sunlight.

The MRDEC representative depressed the vent button to release pressure from the drum.

At 1433 (MST), with the OPHRs 37:40, and the PRODRRs 23:04, during the wash cycle, the operator observed solvent spraying from the drum door again. The leakage was observed at the eight o'clock position, and lasted approximately 30 seconds. The drum pressure was three pounds per square inch.

The MRDEC representative depressed the vent button, and the leakage ceased.

No further action was taken at this time.

On 08-27-90, at 1000 (MST), with the OPHRs 40:46, and PRODRRs 25:18, the operator observed leakage at the previously reported location. The drum pressure was 1.5 pounds per square inch (PSI). Once the drum pressure reached 1 PSI the leakage ceased.

The MRDEC representative modified the cycle card by adding 30 seconds to the cool down period. The purpose of the modification was to give the freon time to cool prior to the following cycle, and reduce the pressure in the drum.

The MRDEC representative, also, lowered the wash tank thermostat to 75 degrees F in attempts to lessen the drum pressure.

At 1035 (MST), with the OPHRs 41:01, and the PRODRRs 25:18, the operator observed solvent spraying from the drum door at the twelve o'clock position.
The leakage occurred toward the end of the mash cycle, and the drum pressure was observed to be 2 psi. The leakage continued for approximately 10 seconds, and then ceased. The mash cycle was completed.

At 11:04 (MST), the maintenance personnel removed the drum door gasket, and attached the felt strip, from the previous gasket, to the underside of the new gasket. The new gasket was reinstalled, and cycle #47 was performed with no discrepancies.

A rubber gasket was created from gasket material to replace the previous cork gasket, as per the project engineer's request.

At 1214 (MST), with the ophrs 42:34, and the prohrs 26:17, the maintenance personnel installed the new rubber gasket.

At 1329 (MST), with the ophrs 43:28, and the prohrs 28:16, the operator observed solvent leaking from the drum door at the previously reported location. The vent button was depressed, and the leakage ceased. The operations were continued.

On 08-29-90, at 0913 (MST), with the ophrs 64:31, and the prohrs 45:31, the maintenance personnel removed the rubber gasket and the gasket skins.

The rubber gasket was reinstalled and an attempt was made at cycle #96. At the beginning of the cycle, solvent was observed leaking from the area of where the gasket skins had been removed.

The skins were reinstalled, and the operations were continued with no further discrepancies at this time.

On 08-31-90, at 1506 (MST), with the ophrs 109:30, and the prohrs 07:06, the operator observed solvent spraying from the drum door at the eight o'clock position. The leakage was observed at the beginning of cycle #168, and lasted for approximately 15 seconds. The drum pressure was 3.0 psi, and the drum temperature was 92 degrees F. The ambient temperature was 111 degrees F.

The operations were continued.

At 1745 (MST), with the ophrs 111:36, and the prohrs 09:08, the operator observed solvent spraying from the previously reported location. The leakage was observed at the beginning of cycle #172, and lasted for approximately 15 seconds. The drum pressure was 2.5 psi, and the drum temperature was 100 degrees F. The ambient temperature was 109 degrees F.

No corrective maintenance action was taken, and the maintenance was deferred until a later time.

The operations were continued.

Revision 02/06/91 - Scoring conference.
THE MANUAL VALVE CONTROL OVERRIDE WAS ACTIVATED.

DURING THE OPERATIONS, THE SOLVENT TANK MANUAL VALVE CONTROL OVERRIDE WAS ACTIVATED AT THE BEGINNING OF THE WAS CYCLE.

THE VALVE DID NOT ACTIVATE INDEPENDENTLY TO DISCONTINUE THE REMOVAL OF THE SOLVENT FROM THE WAS TANK.

THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.

THE GENERATOR FUEL SUPPLY HAS DEPLETED.
DURING DRY CYCLE #27, THE LADD'S SYSTEM CEASED FUNCTIONING.
FURTHER INVESTIGATION REVEALED THAT THE GENERATOR FUEL SUPPLY HAD BEEN
DEPLETED.
FIFTEEN GALLONS OF DIESEL FUEL WERE ADDED TO THE GENERATOR FUEL TANK,
CORRECTING THE DISCREPANCY.
THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.

INC-DATE: 900816
TIME: L5-000063 01
INC CLASS: MINOR
ACTION-TAKEN: TIGHTENED
PART NAME: DRUM CAP SCREW
FCC: 0700
OPSHRS 23.0
PRODR 12.3
CHERS 20.7

ONE OF THE DRUM CAP SCREWS WAS DISCOVERED TO BE LOOSE.

FOLLOWING CYCLE #27, THE OPERATOR DISCOVERED THE #1 (TOP CENTER) DRUM
CAP SCREW WAS LOOSE.
THE MAINTENANCE PERSONNEL TIGHTENED THE SCREW ONE AND ONE HALF TURNS,
CORRECTING THE DISCREPANCY.
THE OPERATIONS WERE CONTINUED.
REVISION 02/06/91 - SCORING CONFERENCE.
ONE OF THE DRUM CAP SCREWS WAS DISCOVERED TO BE LOOSE.

FOLLOWING CYCLE 031, THE OPERATOR DISCOVERED THE #6 (CLOCKWISE) DRUM CAP SCREW WAS LOOSE.

THE MAINTENANCE PERSONNEL TIGHTENED THE SCREW, CORRECTING THE DISCREPANCY.

THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.
DESCRIPTION OF INCIDENT

FOUR OF THE DRUM CAP SCREWS WHERE DISCOVERED TO BE LOOSE.

FOLLOWING CYCLE 439, THE OPERATOR DISCOVERED THAT THE 32, 83, 84, 85 (CLOCKWISE) DRUM CAP SCREWS WERE LOOSE.

THE MAINTENANCE PERSONNEL TIGHTENED THE SCREWS, CORRECTING THE DISCREPANCY.

THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.

INC-DATE: 900816
TIM: 19-000066 01
INC CLASS: INFORMATION
ACTION-TAKEN: OPERATED
PART NAME: MANUAL OVERRIDE SWITCH
FCC: 0100
OPSRS 23.0
PRDRR 12.5
GERSRS 20.0

MAINTENANCE INFORMATION

CHAR TYPE USED PREC REC CLNRS RANKRS
NON UHS CREW CREW CREW 00:01 00:01

DESCRIPTION OF INCIDENT

THE MANUAL VALUE CONTROL OVERRIDE WAS ACTIVATED.

DURING THE OPERATIONS, THE SOLVENT TANK MANUAL VALUE CONTROL OVERRIDE WAS ACTIVATED AT THE BEGINNING OF THE WAS CYCLE.

THE VALUE DID NOT ACTIVATE INDEPENDENTLY TO DISCONTINUE THE REMOVAL OF THE SOLVENT FROM THE WAS TANK.

THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.
THE MANUAL VALVE CONTROL OVERRIDE HAS ACTIVATED.

DURING THE OPERATIONS, THE SOLVENT TANK MANUAL VALVE CONTROL OVERRIDE HAS ACTIVATED AT THE BEGINNING OF THE WAS CYCLE.

THE VALVE DID NOT ACTIVATE INDEPENDENTLY TO DISCONTINUE THE REMOVAL OF THE SOLVENT FROM THE WAS TANK.

THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.

THE STILL HAS NOT HEATING TO THE PROPER TEMPERATURE.
WHILE ATTEMPTING TO BEGIN CYCLE #40, THE OPERATOR OBSERVED THAT THE "STILL READY" LIGHT DID NOT ACTIVATE.

THE OPERATOR ACTIVATED THE EMERGENCY SHUT-OFF BUTTON, AND INSPECTED THE BREAKERS ON THE STILL CONTROL PANEL. THE "OFF" POSITION. THE CAUSE WAS UN-

DETERMINED.

THE BREAKER WAS SWITCHED TO THE "ON" POSITION, CORRECTING THE DISCREP-

ANCY.

THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.

INC-DATE: 900823
TIRN: L5-0000070 03
INC CLASS: MINOR
ACTION-TAKEN: REPLACED
PART NAME: DIAPHRAGM AND CAPILLAR
FCC: 0400
OPSahr 35.0
PRHR 20.3
GENHR 33.3

MAINTENANCE INFORMATION

CHAR TYPE USED PREC RECON CHAR UNH GS ORG ORG 03:02 03:29

DESCRIPTION OF INCIDENT

DISCOVERY OF CAPILLARY TUBE AND TX VALVE BROKEN.

DURING THE INSPECTION PERFORMED ON THE SYSTEM, BY THE NREDC REPRESENTATIVE, LOW PRESSURE READINGS WERE DISCOVERED IN THE REFRIGERATION UNIT GAUGES. THE LOW PRESSURE IN THE GAUGES INDICATED THAT THE SYSTEM WAS IN-

OPERATIVE.

THE NREDC REPRESENTATIVE SUSPECTED THAT THE REFRIGERATION UNIT MIGHT HAVE BEEN LOW ON FREON 12.

WHILE ADDING FREON 12, TO THE REFRIGERATION SYSTEM, THE NREDC REPRESENTATIVE DISCOVERED THAT THE SYSTEM WAS NOT GAINING PRESSURE.

THE NREDC REPRESENTATIVE BEGAN TROUBLESHOOTING THE SYSTEM, WITHOUT REFERRING TO A TECHNICAL MANUAL. THE TROUBLESHOOTING CONSISTED OF USING A VOLT METER TO TEST THE REFRIGERATION SYSTEM ELECTRICAL CIRCUITS LOCATED IN THE MAIN CIRCUIT BREAKER BOX. NO DISCREPANCY WAS FOUND IN THE ELECTRICAL SYSTEM.

THE NREDC REPRESENTATIVE BEGAN TROUBLESHOOTING THE MECHANICAL UNITS OF THE REFRIGERATION SYSTEM THAT CONSISTED OF THE VALUES AND THE SUCTION HOSE.
THE NRDEC REPRESENTATIVE DISCOVERED THAT THE CAPILLARY TUBING HAD BROKEN OFF AT THE CONNECTION POINT TO THE TX VALVE. THE CAUSE OF THIS BREAK WAS UNDETERMINED. THIS DISCREPANCY CAUSED LOW PRESSURE IN THE REFRIGERATION SYSTEM AND RESULTED IN THE REFRIGERATION SYSTEM BEING INOPERATIVE.

OPERATIONS WERE DELAYED UNTIL THE REPLACEMENT PART WAS RECEIVED.

ON 08-28-90 AT 0738 HST (OPSHRS 17:00, PRODBRS 17:32), REMOVAL OF THE TX VALVE AND CAPILLARY TUBE BEGAN.

THE SUCTION LINE MOUNTING CLAMPS AND THE SUCTION LINE WERE REMOVED. THE TX VALVE SENSING BOLT WAS REMOVED. THE NRDEC REPRESENTATIVE DEPRESSED THE REFRIGERATION SYSTEM BY BLEEDING OFF THE REFRIGERANT. PHOTOS WERE TAKEN OF THE LOCATION OF THE TX VALVE AND CAPILLARY TUBE. PHOTOS WERE ALSO TAKEN TO SHOW THE POSITION OF THE BREAK ON THE TX VALVE AND CAPILLARY TUBE CONNECTION POINT.

THE DAMAGED DIAPHRAGM ON THE TX VALVE AND CAPILLARY TUBE WERE REMOVED, AND THE NEW DIAPHRAGM WAS INSTALLED IN ACCORDANCE WITH THE INSTRUCTION Pamphlet THAT WAS ENCLOSED WITH THE THERMOSTATIC ELEMENT KIT.

THE TX VALVE AND CAPILLARY TUBE WERE REINSTALLED WITH THE NEW DIAPHRAGM. THE REFRIGERATION SYSTEM WAS PURGED OF AIR USING FREON 12 REFRIGERANT.

EVERY CLOTH WAS USED TO SAND DOWN THE SUCTION LINE IN PREPARATION FOR REINSTALLATION OF THE SENSING BULB. THE SENSING BULB WAS INSTALLED IN ACCORDANCE WITH THE PAMPHLET THAT WAS ENCLOSED WITH THE THERMOSTATIC ELEMENT KIT.

THE SUCTION LINE MOUNTING CLAMPS WERE THEN REINSTALLED AND TIGHTENED. TUBULAR REFRIGERATION INSULATION, 7/8 INCH THICK WAS USED TO COVER THE SENSING BULB AND SUCTION LINE.

THE DISCREPANCY WAS CORRECTED AND NO FURTHER ACTION WAS TAKEN.

THE OPERATIONS CONTINUED.

REVISED 01 OCT 90 TO REFLECT THE SCORING CONFERENCE RESULTS/DIRECTIONS.

THE DATA IN SECTIONS I-IV WERE CHANGED AS FOLLOWS:

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REVISED 05 FEB 91 TO UPDATE PARTS.

REVISION 02/06/91 - SCORING CONFERENCE.
OPERATOR BECAME NAUSEATED BY FREON FUMES


REVISION 02/06/91 - SCORING CONFERENCE.
TuE, MAR 12, 1991  SUPPORTABILITY ANALYSIS CHART  PAGE: 62

PROJECT NUMBER  PROJECT NAME  ITEM ID
O-115-LAD-003  NY II LADD'S LAUNDRY/DY CLEANER  LADD01

--------------------------------------------------------------------------
INC-DATE: 900824  SCORING INFORMATION
TIA#: L5-A000072 01  CLASS
INC CLASS: MINOR
ACTION-TAKEN: ADJUST
PART NAME: VIBRATION KILL SWITCH
FCC: 0700
SHOPRS 33.6
PRDRNR 22.4
GENHRS 35.4

--------------------------------------------------------------------------
MAINTENANCE INFORMATION

CHAR TYPE  USED PRESC RECON  CLOSED HOURS  HOURS
CHAR UNS  ORG ORG ORG  00:02  00:02

--------------------------------------------------------------------------
DESCRIPTION OF INCIDENT

DRUM VIBRATION KILL SWITCH HAS MOVED 1/8 INCH CLOSER TO CONTACT POINT.

DURING OPERATIONS, THE MRDEC REPRESENTATIVE OBSERVED EXCESSIVE
VIBRATION OF THE DRUM EXTRACTION CYCLE.
IT WAS DETERMINED BY THE MRDEC REPRESENTATIVE THAT THE VIBRATION KILL
SWITCH NEEDED TO BE ADJUSTED.
THE DRUM VIBRATION KILL SWITCH WAS ADJUSTED BY MOVING IT 1/8 INCH
CLOSER TO THE CONTACT POINT.
THE ADJUSTMENT OF THE KILL SWITCH ELIMINATED THE EXCESSIVE VIBRATION BY
SHUTTING THE SYSTEM DOWN WHEN THE VIBRATION EXCEEDED A CERTAIN LIMIT.
THE CLOTHES WERE THEN REPOSITIONED AND THE CYCLE WAS CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.

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**Supportability Analysis Chart**

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<td>O4U (C)</td>
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**Description of Incident**

**Class 3 Solvent Leak from Bolts on Evaporator Duct**

During the (3) PCSs, (cycle #50), the operator observed a Class III solvent leak.

The leak was observed coming from between the first and second bolts that secured the bottom front of the evaporator duct to the evaporator/cooling coil.

The NRDEC representative investigated the leak and concluded that it was coming from the gasket between the evaporator duct and the heating coil assembly.

The NRDEC representative attempted to correct the problem by tightening the bolts that secured the evaporator duct to the evaporator/cooling coil assembly.

The drum belt guard was removed to gain better access to the bolts.

The bolts were tightened and the leak was corrected.

The drum belt guard was reinstalled.

No further action was taken.

Operations continued.

Revised 01 Oct 90 to reflect the scoring conference results/directions.

The data in Sections I-IV were changed as follows:

<table>
<thead>
<tr>
<th>Block</th>
<th>From</th>
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<tr>
<td>31</td>
<td>Still Pallet Assy</td>
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<tr>
<td>40</td>
<td>EST</td>
<td>PST</td>
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</table>

Revision 02/06/91 - Scoring Conference.

---

A-65
THE BAG FILTER WAS FILLED.

DURING CYCLE 878 IT WAS DISCOVERED, BY THE OPERATOR THAT THE UPPER BAG FILTER PRESSURE GAUGE INDICATED 26 PSI AND THE LOWER PRESSURE GAUGE INDICATED 16 PSI. THE 10 PSI DIFFERENCE INDICATED THAT THE BAG FILTER NEEDS TO BE CHANGED.

AFTER CYCLE 878 MAINTENANCE PERSONNEL REMOVED THE COVER TO THE BAG FILTER COMPARTMENT. MAINTENANCE PERSONNEL DRAINED AND REMOVED THE BAG FILTER AND INSTALLED A NEW ONE. THE SOLVENT WAS REPLACED. THE "O" RING AND COVER WERE REPLACED AND TIGHTENED.

NO FURTHER ACTION WAS REQUIRED.

REVISED 01 OCT 90 TO REFLECT THE SCORING CONFERENCE RESULTS/DIRECTIONS.

THE DATA IN SECTIONS I-IV WERE CHANGED AS FOLLOWS:

<table>
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<tr>
<td>43</td>
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REVISED 05 FEB 91 TO UPDATE PARTS.

REVISION 02/06/91 - SCORING CONFERENCE.
During the extraction cycle, the drum stopped rotating. The cause was due to the rear trailer balancing extension legs digging into the mud. The mud had accumulated around the lauds system.

Because the system was not leveled, the extraction cycle kept switching off. The emergency shut off was pushed.

One operator lifted the two rear trailer balancing extension legs, while the other operator shoveled dirt into the holes that were made by the extension legs of the lauds trailer.

One operator filled the holes with enough dirt to make the lauds level. The other operator lowered the two rear trailer extension legs and used an 18-inch level to determine the accurate level of the trailer.

The system was turned back on and no further discrepancies were reported.

The mud that had accumulated around the lauds system was caused from a rain storm the night before.

Approx. 6 inches of water was pooled around the lauds system. Trenches were dug to drain the water and allow the ground to dry.

Operations continued.

Revision 02/06/91 - Scoring Conference.
### Supportability Analysis Chart

**Project Name**: BT II Lauds Laundry/Dry Cleaner  
**Project Number**: 0-E3-115-LAD-003  
**Item ID**: LAD001

---

**Scoring Information**

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<td>PART NAME: SOLENOID VALUE</td>
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<td>00:01</td>
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### Description of Incident

SOLENOID VALUE TIGHTENED 1/4 OF A TURN.

The maintenance representative observed solvent seeping from the solenoid valve located on the still. The maintenance representative tightened the cap on the solenoid valve about 1/4 of a turn. The seeping appeared to have stopped.

No further action was taken at this time and operations were continued.

**Revision 02/06/91 - Scoring Conference.**

---

**Scoring Information**

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<td>ACTION-TAKEN: REPAIRED</td>
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<td>PART NAME: O-RING,BAG FILTER ASSY</td>
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<td></td>
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<tr>
<td>FC: 1000</td>
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<tr>
<td>OPSHRS 113.4</td>
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**Maintenance Information**

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<td>ORG ORG ORG ORG</td>
<td>00:30</td>
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### Description of Incident
BAG FILTER O-RING SEAL STRETCHED AND TORN CAUSING CLASS 3 LEAK.

DURING OPERATIONS THE OPERATOR OBSERVED A CLASS III SOLVENT LEAK COMING FROM THE BAG FILTER ASSEMBLY.

THE SOLVENT LEAK WAS COMING FROM THE TOP, BACKSIDE OF THE BAG FILTER ASSEMBLY COLUMN.

UPON COMPLETION OF CYCLE #175, THE OPERATOR DRAINED THE BAG FILTER ASSEMBLY. THE LID CLAMPS WERE LOOSENED AND THE BAG FILTER LID HAS OPENED. THE BAG FILTER O-RING SEAL WAS OBSERVED TO BE IMPROPERLY PLACED IN THE GROOVE.

FURTHER INSPECTION REVEALED THAT THE O-RING SEAL WAS STRETCHED ABOUT 2 INCHES DUE TO REPEATED USE. A SMALL TEAR WAS OBSERVED ON THE O-RING SEAL APPROXIMATELY 1/4 INCH IN LENGTH.

IT WAS DETERMINED THAT THE O-RING SEAL COULD NOT BE RE-USED. THE SYSTEM WAS SHUT DOWN.

OPERATIONS WILL BE DISCONTINUED UNTIL A REPLACEMENT O-RING SEAL CAN BE OBTAINED.

REVISED 27 SEP 90 TO UPDATE/COMPLETE THE MAINTENANCE DATA AND NARRATIVE INFORMATION.

31 AUG 1990, 2006 MST (OPSHRS 113:40/PRODHRS 91:07/GENHRS 114:30)
DURING UNSCHEDULED MAINTENANCE OF THE BAG FILTER ASSEMBLY THE MAINTENANCE PERSONNEL REMOVED THE BAG FILTER AND INSTALLED A NEW ONE.
UNSCHEDULED MAINTENANCE OF THE BAG FILTER ASSEMBLY CONTINUED.

05 SEP 1990, 12:57 MST (OPSHRS 114:16/PRODHRS 91:08/GENHRS 114:9)
THE O-RING WAS THEN INSTALLED IN ITS RETENTION GROOVE. THE BAG FILTER ASSEMBLY COVER WAS SET IN PLACE AND THE THREE RETAINING SCREWS WERE TIGHTENED.
DURING CYCLE #176 THE BAG FILTER ASSEMBLY WAS INSPECTED AND THERE WAS NO INDICATION OF A LEAK.

THE DATA IN SECTIONS I-IV WERE CHANGED AS FOLLOWS:

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A-59
**SUPPORTABILITY ANALYSIS CHART**

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<th>ITER ID</th>
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<tr>
<td>0-E3-115-LAD-003</td>
<td>BT II LABDS LAUNDRY/DRY CLEANER</td>
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<td>91.08</td>
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<tr>
<td>64</td>
<td>0.0 (WHEN REPaired)</td>
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<td>AS IS, ADD NARRATIVE, MAINT. DATA, AND PARTS REPLACED DATA</td>
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*REVISED 02/06/91 - SCORING CONFERENCE.*

INC-DATE: 900831

**SCORING INFORMATION**

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**MAINTENANCE INFORMATION**

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**DESCRIPTION OF INCIDENT**

CONTROL TRAP DOOR GASKET COMING LOOSE.

AFTER CYCLE #155, WHILE CLEANING THE LINT FILTER OF THE CONTROL TRAP ASSEMBLY, THE OPERATOR NOTICED THAT THE SEAL GASKET ON THE HOUSING WAS COMING UNGLED ALONG THE BOTTOM PORTION. NO LEAKAGE WAS OBSERVED. OPERATIONS WERE CONTINUED.

*REVISED 01 OCT 90 TO REFLECT THE SCORING CONFERENCE RESULTS/DIRECTIONS.*

THE DATA IN SECTIONS I-IV WERE CHANGED AS FOLLOWS:

<table>
<thead>
<tr>
<th>BLOCK</th>
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*REVISED 02/06/91 - SCORING CONFERENCE.*

A-70
TUE, MAR 12, 1991
SUPPORTABILITY ANALYSIS CHART

PROJECT NUMBER
8-ES-115-LAB-003

PROJECT MAKE
B&I LABS LAUNDRY/DRY CLEANER

ITEM ID
LADD01

---

INC-DATA: 900629
TIRM: L5-A000079 01
INC CLASS: MINOR
ACTION-TAKEN: TIGHTENED
PART MAKE: CARD READER
FCC: 0900
OPSHRS 62.2
PRODHR 48.0
GAINRS 67.3

---

SJORING INFORMATION

STEP CLASS CHARGE
04U (C) UMA HARDWARE/STE

---

MAINTENANCE INFORMATION

CHAR TYPE USED PRESCH RECON CLHRS RNRHS
CHA UHS CREW CREW CREW 00:01 00:01
CHA UHS ORG ORG ORG 00:25 00:25

---

DESCRIPTION OF INCIDENT

CARD READER NOT TRACKING EVENLY.

29 AUG 90, 12:05 PST (OPSHRS 67:16; PRODHR 48:02)

THE OPERATOR OBSERVED THE TIMER CARD WAS NOT TRACKING EVENLY THROUGH THE CARD READER. THE RIGHT SIDE OF THE CARD APPEARED NOT TO BE ALIGNED WITH THE LEFT SIDE OF THE CARD. AT THE COMPLETION OF CYCLE #90, MAINTENANCE PERSONNEL OPENED THE CARD READER ASSEMBLY CONTROL PANEL TO VISUALLY INSPECT THE CARD READER FROM THE BACK SIDE. THE LEFT CARD ADVANCE WHEEL MECHANISM ON THE CARD READER APPEARED TO BE LOOSE ON ITS SHAFT. THE SET SCREW WAS TIGHTENED WITH AN ALLEN WRENCH AND THE NEXT CYCLE WAS CONTINUED.


REVISION 02/06/91 - SCORING CONFERENCE.

---
**INC-DATE:** 900829  
**INC: L5-4000000 01**  
**ACTION-TAKEN:** NO ACTION TAKEN  
**PART NAME:** CONTROL TRAP ASSEMBLY  
**FCC:** 0300  
**OPS HRS:** 62.9  
**DOD HRS:** 44.0  
**DOD HRS:** 63.1  

---

**MAINTENANCE INFORMATION**

**CHAR TYPE** | **USED PRESC RECON** | **CLK HRS** | **NAM HRS**
---|---|---|---
**CHA UHS** | **ORG ORG ORG** | **00:03** | **00:03**

---

**DESCRIPTION OF INCIDENT**

CLASS 2 LEAK ON RIGHT CORNER OF THE CONTROL TRAP DOOR.

The operator located a class 2 leak at the bottom right corner of the control trap door.

At the end of cycle 002, the operator greased the control trap door gasket with Dow Corning sealant grease during the normal cleaning of the lint filter and while checking the control trap. No further action has taken at this time and operations were continued.

REVISION 02/06/91 - SCORING CONFERENCE.

---

**INC-DATE:** 900906  
**INC: L5-4000002 01**  
**ACTION-TAKEN:** TIGHTENED  
**PART NAME:** DRUM DOOR HANDLE  
**FCC:** 0700  
**OPS HRS:** 127.4  
**PROD HRS:** 103.1  
**DOD HRS:** 129.1  

---

**MAINTENANCE INFORMATION**

**CHAR TYPE** | **USED PRESC RECON** | **CLK HRS** | **NAM HRS**
---|---|---|---
**CHA UHS** | **CREW CREW CREW** | **00:01** | **00:01**
**CHA UHS** | **ORG ORG ORG** | **00:05** | **00:05**

---

A-72
THE DRUM DOOR HANDLE RETAINING BOLT HAS DISCOVERED TO BE BACKED OFF.

FOLLOWING CYCLE #198, THE OPERATOR DISCOVERED THAT THE DRUM DOOR RETAINING BOLT HAD BACKED OUT APPROXIMATELY 1/2 INCHES CAUSING THE HANDLE TO BE LOOSE WHEN THE DOOR WAS OPENED.

MAINTENANCE PERSONNEL DETERMINED THAT THE VIBRATION DURING THE EXTRACTION CYCLES WAS THE CAUSE.

MAINTENANCE PERSONNEL TIGHTENED THE RETAINING BOLT FIVE TURNS WITH A PAIR OF CHANNEL LOCKS.

THE DISCREPANCY WAS CORRECTED, AND OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.

INCIDENT: 900906
TIME: 124000003 01
INC CLASS: MINOR
ACTION-TAKEN: TIGHTENED
PART NAME: REFRIGERATION UNIT
FCC: 0400
OPSHRS 128.1
BROHRS 103.3
GENHRS 129.7

REFRIGERATION EXPANSION VALVE LEAKING FREON 12.

DURING OPERATIONS, THE OPERATORS OBSERVED THE REFRIGERATION GAUGES CONNECTED BY THE MROIC REPRESENTATIVE, WERE NOT INDICATING ANY REFRIGERATION PRESSURE.

A REFRIGERATION TECHNICIAN WAS CALLED TO INVESTIGATE THE DISCREPANCY.

AT 12:56 HOURS, THE REFRIGERATION TECHNICIAN BEGAN TROUBLESHOOTING THE REFRIGERATION SYSTEM.

IT WAS DETERMINED THAT FREON 12 REFRIGERANT WAS LEAKING FROM THE EXPANSION VALVE, BEHIND THE POWER ELEMENT VALUE OF THE REFRIGERATION UNIT.

THE VALUE WAS TIGHTENED 1/4 TURN CORRECTING THE DISCREPANCY.

THE REFRIGERATION TECHNICIAN THEN ADDED 3 POUNDS OF FREON 12 REFRIGERATION COOLANT TO THE SYSTEM.
INC-DATI: 900907
TNR#: L5-AM000584 01
INC CLASS: MINOR
ACTION-TAKEN: TROUBLESHOOTING
PART NAME: STILL PALLET ASSEMBLY
FGC#: 0200
OPSRS 160.4
PRODR 133.5
GENRS 163.3

DESCRIPTION OF INCIDENT
STILL NOT FUNCTIONING PROPERLY.

DURING OPERATIONS, THE OPERATORS OBSERVED THAT THE SOLVENT RINSE TANK WAS EMPTY AND THE SOLVENT DUMP TANK WAS FULL.

THE OPERATORS OBSERVED THAT THE STILL DID NOT SEEM TO BE OPERATING. FURTHER INVESTIGATION REVEALED THAT BOTH THE "STILL READY" AND THE "STILL TRANSFER" LIGHT WERE NOT OPERATING.

AT THE COMPLETION OF CYCLE #263, THE OPERATORS MANUALLY SWITCHED THE TRANSFER SWITCH TO TRANSFER AND TRANSFERRED SOLVENT FROM THE STILL TO THE RINSE TANK.

THE SYSTEM WAS SHUT DOWN AND THE OPERATORS VISUALLY INSPECTED THE CIRCUIT BREAKERS IN ACCORDANCE WITH THE TROUBLESHOOTING PROCEDURES DIRECTED BY THE MANUAL.

NO TRIPPED CIRCUIT BREAKERS WERE OBSERVED.

THE SYSTEM WAS REINITIALIZED.

THE "STILL READY" LIGHT CAME ON, AND THEN WENT OFF APPROXIMATELY 2 SECONDS LATER.

THE SYSTEM WAS SHUT DOWN AND REINITIALIZED.

THE "STILL READY" LIGHT THEN CAME ON AND STAYED ON. THE STILL THEN BEGAN FUNCTIONING PROPERLY.

THE OPERATORS DRAINED THE SOLVENT FROM THE STILL AND TRANSFERRED IT TO THE RINSE TANK TO OBTAIN PROPER OPERATING LEVELS.
THE CAUSE OF THE DISCREPANCY COULD NOT BE DETERMINED.
OPERATIONS CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.

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**SCORING INFORMATION**

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<td>ORG</td>
<td>ORG</td>
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**DESCRIPTION OF INCIDENT**

OPERATOR KNOCKED DOWN WHILE OPENING LINT TRAP DOOR.

AS THE OPERATOR OPENED THE LINT TRAP DOOR ON THE SOLVENT CONTROL TRAP DUCT ASSEMBLY, HE WAS THROWN BACKWARDS AGAINST A BOX APPROXIMATELY 12 FEET AWAY.

THE OPERATOR WAS KNOCKED BACK BY THE FORCE OF PRESSURE BEING EXERTED ON THE LINT TRAP DOOR.

THE OPERATOR WAS ONLY SEMI-CONSCIOUS WHEN THE SECOND OPERATOR CAME TO HIS ASSISTANCE. THE OPERATOR LAID ON THE GROUND FOR APPROXIMATELY 5 MINUTES.

WHEN HE FINALLY WAS ABLE TO GET UP, HE APPEARED VERY SHAKY AND EXTREMELY PALE.

THE OPERATOR WAS ASSISTED TO THE VEHICLE. HE WAS TRANSPORTED BACK TO THE NAMDEX TRAILER, WHERE LATER, HE WAS TAKEN TO THE HOSPITAL FOR PRE-COCAUTIONARY TESTS.

NO CAUSE COULD BE DETERMINED FOR THE PRESSURE BUILD UP IN THE LINT TRAP DUCT. THE SYSTEM WAS VENTED AS REQUIRED AT THE END OF THE CYCLE.

NO PRESSURE BUILD UP HAD EVER BEEN OBSERVED AT THE LINT TRAP DOOR PRIOR TO THIS INCIDENT.

THE FOLLOWING CONDITIONS WERE OBSERVED PRIOR TO THE INCIDENT:

1) SOLVENT HAD ACCUMULATED BEHIND THE BUTTON TRAP DOOR.
2) THE BAG FILTER ASSEMBLY PRESSURE GAUGES INDICATED READINGS OF 26 PSI.
TULIBAR 1991 SUPPORTABILITY ANALYSIS CHART

PROJECT NUMBER
8-ES-115-LAD-003

PROJECT NAME
BY II LADDS LAUNDRY/DRY CLEANER

ITEM ID
LAND001

(TOP GAUGE) AND 13 PSI (BOTTOM GAUGE) DURING THE HAT
CYCLE AND 33 PSI (TOP GAUGE) AND 10 PSI (BOTTOM GAUGE) DURING
THE RINSE CYCLE. THE DIFFERENCES IN PRESSURE WOULD INDICATE A
FILTER CHANGE HAS REQUIRED. HOWEVER, A NEW FILTER BAG HAS INSTALLED
DURING THE MORNING SHIFT.

3) THE STILL "READY" LIGHT WAS NOT ON, INDICATING THE STILL WAS NOT
OPERATING PROPERLY.

4) AMBIENT TEMPERATURE HAS 117.7 DEGREES F.

5) DRUM TEMPERATURE HAS 120 DEGREES F.

NOTE - ITEMS #3, #4 & #5 WERE OBSERVED AFTER THE INCIDENT HAD OCCURRED.

IT SHOULD ALSO BE NOTED THAT WHEN THE SECOND OPERATOR APPROACHED THE
STIRREN OPERATOR THE LINT TRAP SCREEN WAS FOUND ON THE GROUND NEXT TO HIM
APPROXIMATELY 8 FEET FROM THE UNIT.

THE SECOND OPERATOR STATED THAT HE HEARD A LOUD "RUSHING" SOUND AS THE
FREON FORCED THE LINT TRAP DOOR OPEN. HE HEARD THIS SOUND OVER A 30KW
GENERATOR WHILE WEARING HIS HEARING PROTECTION.

OPERATIONS WERE SUSPENDED, PENDING AN INVESTIGATION INTO THE CAUSE OF
THE PRESSURE BUILD-UP.

11 SEP 1990, 0810 WST. (OPSHRS 176:12/PRODRS 148:66/GENHRS 179.7)
AN INSPECTION WAS CONDUCTED BY THE PROJECT ENGINEER, HUMAN FACTORS
ENGINEER, SAFETY REPRESENTATIVE, AND THE CREW COORDINATOR. THE INSPECTION
REVEALED NO OBVIOUS MECHANICAL CAUSE FOR THIS INCIDENT. THE SAFETY REPRE-
SENTATIVE WAS INSTRUCTED ON THE OPERATION OF THE LADDERS AND THE SAFETY
PROCEDURES UTILIZED WHILE OPERATING THE LADDERS.

THE BAG FILTER ASSEMBLY WAS DRAINED BY AN OPERATOR. THE BAG FILTER
ASSEMBLY COVER WAS REMOVED BY MAINTENANCE PERSONNEL AND THE INTERIOR WAS
INSPECTED. THE BAG FILTER HAD LINT LINING THE SIDES AND THE BOTTOM OF THE
BAG FILTER SHOWED NO EXCESSIVE BUILD-UP. THIS BAG FILTER HAD A PART LIFE OF
3:30 OPERATING HOURS. THE BAG FILTER WAS REPLACED WITH A NEW ONE. THE BAG
FILTER ASSEMBLY COVER WAS REPLACED AND TIGHTENED DOWN.

A B-PHCS WAS CONDUCTED AND 403 POUNDS OF SOLVENT WAS ADDED TO THE
SYSTEM.

CYCLE #292 WAS PERFORMED IN ORDER TO MONITOR THE PRESSURE AND TEMPERA-
TURE BUILD-UP IN THE SYSTEM. THE SAFETY REPRESENTATIVE MONITORED THE
OPERATIONAL AND SAFETY PROCEDURES UTILIZED BY THE OPERATORS. THE FOLLOWING
TEMPERATURE AND PRESSURE READINGS WERE RECORDED FOR CYCLE #292.

START OF CYCLE TEMP: 74 DEG F.
SYSTEM DRUM PRESSURE: 0.0
BAG FILTER PRESSURE DURING THE HAT: 18 PSI UPPER GAUGE/
18 PSI LOWER GAUGE
BAG FILTER PRESSURE DURING THE RINSE: 16 PSI UPPER GAUGE/
16 PSI LOWER GAUGE
MASH TANK TEMPERATURE: 91 DEGREES F

A-76

DURING CYCLE #279, A 15 DEGREE DROP IN TEMPERATURE WAS OBSERVED ON THE DRUM TEMPERATURE GAUGE, AND THE BOILING OF FREON 12 WAS NOT OBSERVED THROUGH THE HEATING UNIT SIGHT GLASSES.

DURING THE DRY CYCLE, FOR CYCLE #280, THE OPERATOR OBSERVED A 60 DEGREE INCREASE IN TEMPERATURE ON THE FRONT HEATING UNIT GAUGE, AND A 15 DEGREE INCREASE IN THE DRUM TEMPERATURE.

A-77
THE THREE CYCLES WERE PERFORMED CONSECUTIVELY WITHIN A 1.5 HOUR PERIOD.
THE CAUSE OF THE DISCREPANCY HAS NOT BEEN DETERMINED, AND THE OPERATIONS WERE
CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.

INC-DATE: 900907
TIME: L3-A000087 01
INC CLASS: INFORMATION
ACTION-TAKEN: OTHER, SEE BLK 90
PART NAME: DRUM BASKET DOOR
FHC: 0700
OPSHRS 148.6
PRODHR 123.3
GENHRS 0.0

MAINTENANCE INFORMATION

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<th>USED PREC RECON</th>
<th>CLOCKRS</th>
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<td>NON-UNG</td>
<td>CREW CREW CREW</td>
<td>00:00</td>
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</table>

DESCRIPTION OF INCIDENT

THE FEMALE OPERATOR COULD NOT CLOSE THE DRUM DOOR.

AT THE START OF CYCLE #238, THE FEMALE OPERATOR FAILED IN TWO
ATTEMPTS AT CLOSING THE DRUM DOOR DUE TO THE PHYSICAL STRENGTH REQUIRED. A
MALE OPERATOR ASSISTED HER IN CLOSING THE DOOR.

THE HUMAN FACTORS ENGINEER WAS PRESENT AT THE TIME OF THIS INCIDENT.

07 SEP 1990, 0706 RST (149:26 OPSHRS/124:06 PRODHRS/150.9 GENHRS)
AT THE BEGINNING OF CYCLE #239 THE FEMALE OPERATOR AGAIN MADE TWO
ATTEMPTS AT CLOSING THE DRUM DOOR. THIS EFFORT FAILED AND A MALE OPERATOR
ASSISTED HER IN CLOSING THE DOOR.

07 SEP 1990, 0740 RST (150:00 OPSHRS/124:40 PRODHRS/151.3 GENHRS)
AT THE BEGINNING OF CYCLE #240 TWO FEMALE OPERATORS ATTEMPTED TO CLOSE
THE DRUM DOOR. ON THEIR SECOND ATTEMPT THEY WERE ABLE TO CLOSE THE DRUM
DOOR.

REVISION 02/06/91 - SCORING CONFERENCE.
THE BDU'S WERE REMOVED FROM THE SYSTEM, HEIGHED AND INSPECTED.

AFTER CYCLE #279 THE BDU'S WERE REMOVED FROM THE SYSTEM AND REPLACED WITH ANOTHER LOAD WEIGHING 85 LBS. THE BDU'S THAT WERE REMOVED HAD BEEN USED FOR THE TRAINING PHASE AND FOR OPERATIONAL TESTING.

THE BDU'S THAT WERE REMOVED WERE INSPECTED AND HEIGHED. THE FOLLOWING DATA ARE PROVIDED:

1) THE BEGINNING WEIGHT WAS 85 LBS.
2) THE ENDING WEIGHT WAS 65 LBS (20 LBS LESS).
3) OF THE 44 PAIR OF TROUSERS UTILIZED FOR THIS PERIOD OF TRAINING/TESTING, ALL WERE MISSING THE LEFT AND RIGHT WAIST ADJUSTMENT STRAP AND BUCKLE.
4) THE LOAD OF BDU'S HAD A SLIGHT TINT OF PURPLE COLOR.

THE FOLLOWING TRAINING/OPERATIONAL DATA IS PROVIDED:

OPERATIONAL CYCLES 279
OPERATIONAL HOURS 169:59
PRODUCTION HOURS 143:35

REVISION 02/06/91 - SCORING CONFERENCE.
SOLVENT SPRAYING FROM THE SOLVENT INLET OPENING AFTER OPENING THE DRUM DOOR.

UPON COMPLETION OF CYCLE #298, THE OPERATOR OPENED THE DRUM DOOR TO REMOVE THE DRYER. SEVERAL SECONDS AFTER OPENING THE DRUM DOOR, SOLVENT BEGAN SPRAYING FROM THE SOLVENT INLET OPENING LOCATED AT THE 10 O'CLOCK POSITION AT THE ENTRANCE TO THE DRUM.

SOLVENT SPRAYED FOR APPROXIMATELY TWO SECONDS BEFORE STOPPING.

THE FOLLOWING DATA ARE THE TEMPERATURE AND THE PRESSURE GAUGE READINGS RECORDED DURING CYCLE #298:

START OF CYCLE DRUM TEMP 100 DEG F
SYSTEM DRUM PRESSURE 1.0 PSI
BAG FILTER PRESSURE DURING THE WASH 8 PSI UPPER GAUGE/ 6 PSI LOWER GAUGE
BAG FILTER PRESSURE DURING THE RINSE 14 PSI UPPER GAUGE/ 13 PSI LOWER GAUGE
AMBIENT TEMP 116 DEG F

WASH TANK TEMP 112 DEG F DUMP TANK TEMP 110 DEG F STILL TEMP 116 DEG F DRYING CYCLE TEMP 110 DEG F


SOLVENT SPRAYED FROM THE SOLVENT INLET OPENING FOR APPROXIMATELY SEVEN SECONDS. THE OPERATOR USED THE EMERGENCY SHUT-OFF SWITCH STOPPING THE
OPERATIONS OF THE SYSTEM (SPRAYING STOPPED).

The operator drained the bag filter assembly of solvent. This maintenance action was taken to remove solvent from the system and relieve any possible pressure accumulation between the bag filter and the drum and basket assembly.

The following data are the temperature and the pressure gauge readings recorded during cycle #300:

<table>
<thead>
<tr>
<th>Operation</th>
<th>Temperature</th>
<th>Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start of Cycle Drum Temp</td>
<td>90 Deg F</td>
<td></td>
</tr>
<tr>
<td>System Drum Pressure</td>
<td>2.0 PSI</td>
<td></td>
</tr>
<tr>
<td>Bag Filter Pressure During Wash</td>
<td>12 PSI Upper Gauge/10 PSI Lower Gauge</td>
<td></td>
</tr>
<tr>
<td>Bag Filter Pressure During Rinse</td>
<td>11 PSI Upper Gauge/10 PSI Lower Gauge</td>
<td></td>
</tr>
<tr>
<td>Ambient Temp</td>
<td>116 Deg F</td>
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</tbody>
</table>

| Tank Temp                  |             |          |          |          |
| Hash Tank Temp             | 112 Deg F   | 112 Deg F| Still Temp| Drying Cycle Temp|
| Dump Tank Temp             | 112 Deg F   | 114 Deg F| 116 Deg F| 114 Deg F |

11 Sep 1990, 1731 NST (CPSHRS 182:53/PRODHRS 153:58/GENHRS 186.4)

After completing cycle #301, the operator manually vented the system and then opened the drum door. Several seconds after opening the drum door, solvent sprayed from the solvent inlet opening for approximately 5 to 8 seconds.

The following data are the temperature and pressure gauge readings recorded during cycle #301:

<table>
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<tr>
<th>Operation</th>
<th>Temperature</th>
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<tr>
<td>Start of Cycle Drum Temp</td>
<td>106 Deg F</td>
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<tr>
<td>System Drum Pressure</td>
<td>2.0 PSI</td>
<td></td>
</tr>
<tr>
<td>Bag Filter Pressure During Wash</td>
<td>11 PSI Upper Gauge/10 PSI Lower Gauge</td>
<td></td>
</tr>
<tr>
<td>Bag Filter Pressure During Rinse</td>
<td>11 PSI Upper Gauge/9 PSI Lower Gauge</td>
<td></td>
</tr>
<tr>
<td>Ambient Temp</td>
<td>110 Deg F</td>
<td></td>
</tr>
</tbody>
</table>

| Tank Temp                  |             |          |          |          |
| Hash Tank Temp             | 112 Deg F   | 114 Deg F| Still Temp| Drying Cycle Temp|
| Dump Tank Temp             | 112 Deg F   | 114 Deg F| 116 Deg F| 112 Deg F |

12 Sep 1990, 0725 NST (CPHRS 153:15/PRODHRS 153:58/GENHRS 187.2)

The system was relocated to the opposite side of the shaded area in an attempt to avoid the direct afternoon sunlight. One hundred and twenty feet of shade material was hung in appropriate areas to further assist in blocking the direct afternoon sunlight.

This action was taken in order to prevent the excessive pressure accumulation caused by the high afternoon temperatures.

The operations were performed through the remainder of the day with no relative discrepancies, and no further maintenance action was taken.
REVISED 01 OCT 90 TO REFLECT THE SCORING CONFERENCE RESULTS/DIRECTIONS.
THE DATA IN SECTIONS I-IV WERE CHANGED AS FOLLOWS:

<table>
<thead>
<tr>
<th>BLOCK#</th>
<th>FROM</th>
<th>TO</th>
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<tbody>
<tr>
<td>41</td>
<td>04U</td>
<td>01F</td>
</tr>
<tr>
<td>42</td>
<td>UNA</td>
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REVISED 02/06/91 - SCORING CONFERENCE.

INC-DATE: 900911
TRN: L5-000090 02
INC CLASS: MINOR
ACTION-TAKEN: INSPECTED
PART NAME: LADD01
FCC: 0000
OPSHRS: 176.5
PRODRS: 149.1
GENHRS: 180.4

THE MONTHLY PMCS WAS PERFORMED.

THE MONTHLY PMCS WAS PERFORMED IAW DEP10-3510-221-14, WITH THE FOLLOWING ITEMS EXCLUDED:

1) SOLVENT TANK, ITEM #1, B, C AND F
2) ITEM #2; A AND D
3) ITEM #8; A AND B
4) ITEM #9; A
5) ITEM #10; C

THESE ITEMS WERE NOT PERFORMED DUE TO THE LACK OF REPLACEMENT PARTS THAT WERE NOT INCLUDED IN THE SYSTEM SUPPORT PACKAGE.

REVISED 01 OCT 90 TO UPDATE THE DATA/MARRATIVE FOR DEFERRED MAINTENANCE ACTIONS TAKEN.

ON 09-17-90 AT 1401 (EST) WITH THE OPER 192:29, PRODRS 161:00, GENHRS 198:7, CYCLES 315, AND 0 MILES, THE HEZEC REPRESENTATIVE PERFORMED THE CLEANING OF THE BUFFER FILTER PADS, IAW DEP 10-3510-221-14, AS FOLLOWS:

A-32
THE BUFFER PAD FILTERS WERE REMOVED, AND A SMALL AMOUNT OF SOLVENT WAS DRAINED TO GAIN ACCESS TO THE TWO PADS.

THE PADS WERE REMOVED, AND HERE CLEANED WITH WATER.

THE PADS WERE REINSTALLED, COMPLETING THE MAINTENANCE ACTION.

THE MAINTENANCE ACTION WAS DEFERRED UNTIL THIS TIME DUE TO TECHNICAL MANUAL SHORTCOMINGS. THE LOCATION OF THE PADS COULD NOT BE ESTABLISHED FROM THE MANUAL, AND COULD ONLY BE PERFORMED UNDER THE INSTRUCTION OF THE HRDEC REPRESENTATIVE.

THE DATA IN SECTIONS I-IV WERE CHANGED AS FOLLOWS:

<table>
<thead>
<tr>
<th>BLOCK #</th>
<th>FROM</th>
<th>TO</th>
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<tbody>
<tr>
<td>90</td>
<td>AS IS</td>
<td>ADD NEW NARRATIVE</td>
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</table>

REVISION 02/06/91 - SCORING CONFERENCE.

----------- SCORING INFORMATION -----------------------------

INC-DATE: 900911
TIM: L5-000091 01
INC CLASS: MINOR
ACTION-TAKEN: OPERATED
PART NAME: RINSE TANK, SOLVENT
FCC: 0100
OPS HRS 177.3
PRO HRS 149.3
GEN HRS 181.0

----------- MAINTENANCE INFORMATION -----------------------------

CHAR TYPE USED PREC REC/CHL
CHAR UMS CREH CREH CREH
CHAR UMS ORG ORG ORG
CHAR UMS 00:15 00:15
CHAR UMS 00:34 00:34

----------- DESCRIPTION OF INCIDENT -----------------------------

EXCESSIVE SOLVENT WAS PUMPED FROM THE RINSE TANK TO THE DRUM & BASKET.

DURING THE FIRST ATTEMPT AT CYCLE #293, THE OPERATOR FAILED TO DEPRESS THE MANUAL OVERRIDE SWITCH DURING THE RINSE CYCLE, RESULTING IN AN EXCESSIVE AMOUNT OF SOLVENT FLOWING TO THE DRUM & BASKET.

SOLVENT WAS PUMPED FROM THE WASH TANK TO THE DUMP TANK IN AN ATTEMPT TO CORRECT THE DISCREPANCY.

TWO ATTEMPTS WERE MADE DURING THE RINSE CYCLE TO DRAIN THE EXCESSIVE SOLVENT FROM THE DRUM & BASKET. THE ATTEMPTS WERE UNSUCCESSFUL.

MAINTENANCE PERSONNEL INSPECTED THE ELECTRICAL PANEL AND DISCOVERED
THAT THE CIRCUIT BREAKER, HP30, HAD BEEN DISSERGID DUE TO THE EXCESSIVE
HEIGHT OF THE SOLVENT IN THE DRUM.

A FINAL ATTEMPT WAS MADE DURING CYCLE #293, AND NO DISCREPANCIES WERE
OBSERVED.

THE OPERATIONS WERE CONTINUED.

---

THE DRUM DOOR HANDLE HAS LOOSE.

DURING CYCLE #302, THE OPERATOR DISCOVERED THAT THE HANDLE OF THE DRUM
DOOR WAS LOOSE. THE RETAINING BOLT HAS BACKED OUT APPROXIMATELY ONE EIGHTH
OF AN INCH.

MAINTENANCE PERSONNEL TIGHTENED THE LOOSE BOLT ONE FULL TURN (360 DEG)
USING A PAIR OF CHANNEL LOCKS.

NO FURTHER ACTION WAS TAKEN OR REQUIRED.

REVISION 02/06/91 - SCORING CONFERENCE.
TUE, MAR 12, 1991

SUPPORTABILITY ANALYSIS CHART

<table>
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<td>PART NAME: CIRCUIT BREAKER MP-30</td>
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<td>FCC: 0900</td>
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<td>OPSHRS 185.2</td>
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<td>PRODHRS 139.1</td>
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<tr>
<td>CHAR TYPE</td>
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</tr>
<tr>
<td>NOM UNS</td>
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</table>

<table>
<thead>
<tr>
<th>DESCRIPTION OF INCIDENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIRCUIT BREAKER MP-30 WAS TRIpped.</td>
</tr>
</tbody>
</table>


THE EMERGENCY SHUT-OFF BUTTON WAS PUSHED BY THE OPERATOR. THE SYSTEM WAS SHUT DOWN AND THE ELECTRICAL PANEL DOOR WAS OPENED. CIRCUIT BREAKER MP-30 WAS OBSERVED TO BE TRIpped. THE CIRCUIT BREAKER WAS RESET, CORRECTING THE DISCREPANCY.

NO CAUSE COULD BE DETERMINED, AS TO WHY THE CIRCUIT BREAKER WAS TRIpped.

OPERATIONS WERE CONTINUED.

NO FURTHER ACTION WAS TAKEN.

REVISION 02/06/91 - SCORING CONFERENCE.
STILL NOT TRANSFERRING SOLVENT.

DURING OPERATIONS, THE OPERATOR OBSERVED THAT THE STILL WAS NOT TRANSFERRING SOLVENT AS IT IS REQUIRED TO DO.


THE MASH TANK SHOULD HAVE BEEN FULL AND THE RINSE TANK SHOULD HAVE BEEN IN THE PROCESS OF REFILLING.

THE STILL "READY" LIGHT AND THE STILL "TRANSFER" LIGHT WERE BOTH ON, INDICATING THAT A SOLVENT TRANSFER SHOULD BE IN PROGRESS.

NO TRANSFER OF SOLVENT COULD BE OBSERVED BY THE OPERATOR.

THE UNIT WAS SHUT DOWN. SOLVENT THEN HAD TO BE MANUALLY DRAINED FROM THE STILL INTO A BUCKET AND THEN PUMPED FROM THE BUCKET INTO THE RINSE TANK. THIS ACTION CORRECTED THE DEFICIENT SOLVENT LEVELS IN THE RINSE AND MASH TANKS. OPERATIONS WERE THEN ABLE TO BE CONTINUED.

NO CAUSE COULD BE DETERMINED FOR THE DISCREPANCY.

OPS - 192:13; PROD - 160.44; GEN - 195.8; CYCLES - 315

OPERATORS AGAIN OBSERVED THAT THE STILL WAS NOT TRANSFERING SOLVENT.

THE MASH TANK WAS OBSERVED TO BE ONLY ONE-QUARTER FULL AND THE RINSE TANK WAS EMPTY.

THE STILL WAS OBSERVED TO HAVE BEEN WORKING CONTINUOUSLY FOR 2 HOURS AND WAS NOT TRANSFERRING SOLVENT.

OPERATIONS WERE HALTED AT 2143 HOURS DUE TO PROBLEMS WITH THE STILL.
13 SEP 1990, AT 0253 (NST), WITH THE OPSHRS AT 192:29, PRODHRS 161:00, GENHRS 197.3, CYCLES 315, AND 0 KILOMETERS AT 0, THE OPERATOR REPORTED THAT THE STILL WAS NOT PUMPING SOLVENT TO THE RINSE TANK AT THIS TIME. THE "STILL READY" AND THE "STILL TRANSFER" LIGHTS ACTIVATED.

THE OPERATOR PERFORMED A VISUAL INSPECTION OF THE SYSTEM. NO CAUSE COULD BE DETERMINED. THE OPERATOR REPORTED THAT THE PNEUMATIC SYSTEM WAS FUNCTIONAL.

THE OPERATOR ACTIVATED THE MANUAL TRANSFER SWITCH FOR 10 MINUTES IN ATTEMPTS TO TRANSFER SOLVENT FROM THE STILL TO THE RINSE TANK. THE ATTEMPT WAS UNSUCCESSFUL.

THE PROJECT ENGINEER MADE A VISUAL INSPECTION OF THE SYSTEM AND HALTED OPERATIONS, PENDING FURTHER INSTRUCTION.

REVISION #1 DATE 18 SEP

ON 09-17-90, AT 0731 (NST), WITH THE OPSHRS 192:29, PRODHRS 161:00, GENHRS 197.3, CYCLES 315, AND 0 KILOMETERS, THE M. R. D. E. C. REPRESENTATIVE PERFORMED A VISUAL INSPECTION, AND BEGAN TROUBLESHOOTING ON THE ELECTRICAL SYSTEM AND THE STILL TRANSFER PUMP.

THE STILL ASSEMBLY PNEUMATIC AND SOLVENT LINES WERE DISCONNECTED TO GAIN ACCESS TO THE TRANSFER PUMP.

THE STILL MOUNTING BOLTS AND THE DRUM BELT SAFETY COVER WERE REMOVED.

THE STILL ASSEMBLY WAS MOVED TO ONE SIDE WITH A FORKLIFT, AND THE TRANSFER PUMP ELECTRICAL WIRING WAS INSPECTED. THE TRANSFER PUMP WAS FOUND TO BE FUNCTIONING PROPERLY.

THE SOLVENT LINES WERE INSPECTED FOR BLOCKAGE, AND DEBRIS WAS DISCOVERED IN THE TRANSFER PUMP OUTPUT CHECK VALVE.

THE CHECK VALVE WAS CLEANED, AND THE OUTPUT LINE WAS PURGED.

THE CLEANED CHECK VALVE WAS REINSTALLED, AND THE SOLVENT LINES WERE RECONNECTED.

THE STILL ASSEMBLY WAS MOVED BACK INTO PLACE, AND THE STILL MOUNTING BOLTS WERE REINSTALLED.

THE STILL SERVICE LINES WERE RECONNECTED, AND THE ELECTRICAL PANEL WAS REINSTALLED.

THE DISCREPANCY HAS BEEN CORRECTED, AND THE OPERATIONS Began.

<table>
<thead>
<tr>
<th>BLOCK #</th>
<th>FROM</th>
<th>TO</th>
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<tbody>
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<td>65</td>
<td>0.00 GENHrs 0.00</td>
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</tr>
<tr>
<td>90</td>
<td>AS WAS</td>
<td>ADDED NEW NARRATIVE</td>
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</table>
**DESCRIPTION OF INCIDENT**

A CLASS 2 SOLVENT LEAK WAS OBSERVED AT THE LINT FILTER DUCT GASKET.

WHILE MOVING THE SYSTEM WITHIN THE SHADED AREA (LAUNDRY SITE), AN OPERATOR OBSERVED A CLASS II SOLVENT LEAK AT THE LINT FILTER DUCT GASKET. THE MAINTENANCE PERSONNEL TIGHTENED THE 10 CONTROL TRAP BOLTS ONE HALF TURN EACH, CORRECTING THE DISCREPANCY. THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.

---

**MAINTENANCE INFORMATION**

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<thead>
<tr>
<th>CHAR TYPE</th>
<th>USED</th>
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<td>ORG</td>
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</tbody>
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**DESCRIPTION OF INCIDENT**

A CLASS 2 SOLVENT LEAK WAS OBSERVED AT THE LINT FILTER DUCT GASKET.

WHILE MOVING THE SYSTEM WITHIN THE SHADED AREA (LAUNDRY SITE), AN OPERATOR OBSERVED A CLASS II SOLVENT LEAK AT THE LINT FILTER DUCT GASKET. THE MAINTENANCE PERSONNEL TIGHTENED THE 10 CONTROL TRAP BOLTS ONE HALF TURN EACH, CORRECTING THE DISCREPANCY. THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.

---

**MAINTENANCE INFORMATION**

<table>
<thead>
<tr>
<th>CHAR TYPE</th>
<th>USED</th>
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A-88
SUPPORTABILITY ANALYSIS CHART

PROJECT NUMBER: 0-13-115-LAD-003
PROJECT NAME: BI II LAUNDS LAUNDRY/DRY CLEANER
ITEM ID: LADD01

DESCRIPTION OF INCIDENT

BAG FILTER WAS REPLACED

DURING OPERATIONS OF CYCLE #305 THE OPERATOR OBSERVED THAT THE DIFERENCE BETWEEN THE UPPER AND LOWER BAG FILTER PRESSURE GAUGES HAS 11 POUNDS.
A DIFFERENCE OF 10 POUNDS OR MORE INDICATES THAT A REPLACEMENT OF THE BAG FILTER IS REQUIRED.
UPON COMPLETION OF CYCLE 305, THE OPERATORS REMOVED THE OLD BAG FILTER AND REPLACED IT WITH A NEW BAG FILTER.
NO FURTHER ACTION WAS REQUIRED.
OPERATION CONTINUED.

REVISED 05 FEB 91 TO UPDATE PARTS.

REVISION 02/06/91 - SCORING CONFERENCE.

SCORING INFORMATION

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<td>ACTION-TAKEN: NO ACTION TAKEN</td>
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DESCRIPTION OF INCIDENT

SOLVENT SPILL AT BUTTON TRAP DOOR

UPON COMPLETION OF CYCLE #313 THE OPERATOR OPENED THE BUTTON TRAP DOOR ON THE SOLVENT CONTROL DUCT, TO CLEAN THE SCREEN.
NO EXCESS SOLVENT WAS PRESENT IN THE SOLVENT CONTROL DUCT BUTTON TRAP.
AFTER SEVERAL SECONDS DELAY THE LEVEL OF SOLVENT IN THE TRAP BEGAN TO RISE, SPILLING OUT.
THE OPERATOR QUICKLY CLOSED THE BUTTON TRAP DOOR AND THE SOLVENT STOPPED SPILLING OUT.
NO CAUSE COULD BE DETERMINED FOR THE RISE IN THE SOLVENT LEVEL IN THE BUTTON TRAP.
THE TWO DRUM DOOR HINGE ALIGNMENT BOLTS WERE DISCOVERED TO BE MISSING.

DURING THE UNSCHEDULED MAINTENANCE, THE OPERATOR DISCOVERED THAT THE TWO DRUM DOOR HINGE ALIGNMENT BOLTS WERE MISSING.

THE CAUSE WAS UNDETERMINED, AND THE CORRECTIVE MAINTENANCE WAS DEFERRED UNTIL A LATER TIME.

THE OPERATIONS WERE NOT IMPAIRED, AND WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.
DESCRIPTION OF INCIDENT

THE STILL WAS TRANSFERRING SOLVENT SLOWLY TO THE RINSE TANK.

FOLLOWING CYCLE #28, THE OPERATOR REPORTED THAT THE STILL WAS TRANSFERRING SOLVENT TO THE RINSE TANK AT A SLOW RATE.

THE MAINTENANCE PERSONNEL ADJUSTED THE STILL THERMOSTAT FROM 204 DEGREES F TO 210 DEGREES F. THE THERMOSTAT HAD BEEN OFFSET DURING UNSCHEDULED MAINTENANCE THE PREVIOUS DAY. THE ADJUSTMENT WAS MADE AS PER THE PROJECT ENGINEER.

THE DISCREPANCY HAS BEEN CORRECTED AND THE OPERATIONS CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.
THE SAG FILTER HAS REPLACED DURING CYCLE #318, THE OPERATOR OBSERVED THAT THE UPPER SAG FILTER PRESSURE GAUGE INDICATED 28 PSI AND THE LOWER SAG FILTER PRESSURE GAUGE INDICATED 15 PSI. THE DIFFERENCE OF 13 PSI INDICATED THAT THE SAG FILTER NEEDED TO BE REPLACED.

AFTER CYCLE 318, MAINTENANCE PERSONNEL REMOVED THE COVER TO THE SAG FILTER COMPARTMENT. MAINTENANCE PERSONNEL DRAINED AND REMOVED THE SAG FILTER AND INSTALLED A NEW ONE. THE SOLVENT HAS REPLACED. THE O-RING AND COVER HERE REPLACED AND TIGHTENED.

NO FURTHER ACTION HAS REQUIRED.

OPERATIONS CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.
THE BAG FILTER WAS DISCOVERED TO BE CLOGGED AND WAS REPLACED.


FURTHER INVESTIGATION REVEALED THAT THE BAG FILTER REQUIRED REPLACEMENT DUE TO EXCESSIVE DEBRIS ALONG THE INSIDE OF THE FILTER.

THE OLD BAG FILTER WAS REMOVED AND THE NEW BAG FILTER (P/N P/100) WAS INSTALLED.

THE ORIGINAL O-RING WAS REINSTALLED AND THE DRAINED SOLVENT WAS PUMPED BACK INTO THE BAG FILTER ASSEMBLY.

THE COVER PLATE WAS REINSTALLED.


THE DISCREPANCY WAS CORRECTED AND THE OPERATIONS WERE CONTINUED.

REVISED 05 FEB 91 TO UPDATE PARTS.

REVISION 02/06/91 - SCORING CONFERENCE.
The bag filter was replaced.

During cycle #36, the operator observed that the upper bag filter pressure gauge indicated 32 PSI and the lower bag filter pressure gauge indicated 12 PSI. The 20 PSI difference indicated that the bag filter needed to be changed.

After cycle #36, maintenance personnel removed the cover to the bag filter compartment. Maintenance personnel drained and removed the bag filter and installed a new one. The solvent was replaced. The "O" ring and cover were replaced and tightened.

No further action was required.

Revision 02/06/91 - Scoring Conference.
**MAINTENANCE INFORMATION**

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**DESCRIPTION OF INCIDENT**

Bag filter and O-ring were replaced.

During cycle 0387, the operator observed that the upper bag filter pressure gauge indicated 26 PSI and the lower bag filter pressure gauge indicated 16 PSI. The difference of 10 PSI indicated that the bag filter needed to be replaced.

After cycle 0387, maintenance personnel drained the bag filter compartment and removed the cover. The old bag filter was removed and a new bag filter was installed. The bag filter assembly "O" ring seal was removed at this time and a new "O" ring seal was installed. The old "O" ring showed signs of wear. The solvent was replaced. The cover was then replaced and tightened down. No further action was required. Operations continued.

Revised 05 Feb 91 to update parts.

Revision 02/06/91 - Scoring Conference.
SOLVENT WAS DISCOVERED IN THE LOWER PORTION OF THE CONTROL TRAP.

FOLLOWING CYCLE 434, THE OPERATOR DISCOVERED SOLVENT IN THE LOWER PORTION OF THE CONTROL TRAP. THE CAUSE HAS UNDETERMINED.

NO CORRECTIVE MAINTENANCE ACTION HAS BEEN TAKEN AT THIS TIME, AND THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.
Refrigerant leak was discovered on the reciprocating compressor.

During cycle #39, the operator reported a low refrigeration gauge reading of 10/100. The mechanic representative performed troubleshooting on the refrigeration system with a leak detector. A pinhole size leak was discovered in the diaphragm on the thermostatic extension valve, located on the underside of the reciprocating compressor. The compressor flare fitting cap and the thermostatic extension valve diaphragm were tightened, correcting the discrepancy. The operations were continued.

Revision 01 Date 11/16/90 Miles 0.0 Hours 205.02 Time 1400 HST to correct data:

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Revision 02 Date 11/29/90 to correct an erroneous entry.

Revision 02/06/91 - Scoring Conference.

_________________________________________________________________________

INC-DATE: 900920
TIME: LS-0000106 01
INC CLASS: MINOR
ACTION-TAKEN: REPAIRED
PART NAME: ELMON
FSC: 0400
OPSNRS 229.0
PRODHR 194.1
GENHRS 234.8

_________________________________________________________________________

STIP | CLASS | CHARGE
03- (C) | ONF/URR | HARDWARE/GFE

_________________________________________________________________________

CHAR TYPE | USED PRESC | RECM | CLDKRS | HRRNRS
CREW | CREW | CREW | 00:01 | 00:01
CREW | GS | ORG | ORG | 04:41 | 05:13

A-97
A refrigerant leak was found in the compressor suction line elbow.

DURING CYCLE 0303, THE OPERATOR REPORTED A LOW REFRIGERATION GAUGE READING OF 14/53.

THE NRDEC REPRESENTATIVE BEGAN TROUBLESHOOTING ON THE SYSTEM.

THE STILL SERVICE LINES WERE DISCONNECTED, AND THE STILL WAS MOVED TO ONE SIDE WITH FORKLIFT.

THE TROUBLESHOOTING CONTINUED, AND A MAINLINE CRACK IN THE SOLDER JOINT OF THE COMPRESSOR SUCTION LINE ELBOW APPROXIMATELY 2 INCHES FROM THE COMPRESSOR WAS OBSERVED.

THE TROUBLESHOOTING WAS CONTINUED, AND THE SYSTEM WAS EVACUATED.

THE CRACK WAS SOLDERED, AND LEAKAGE HAS STILL DETECTED. THE CRACK HAS RESOLDERED, AND NO FURTHER LEAKAGE HAS DETECTED.

THE COMPRESSOR CAP WAS REPLACED AS PART OF PREVENTATIVE MAINTENANCE, AS PER THE NRDEC REPRESENTATIVE.

FURTHER INSPECTION OF THE SUCTION LINE ELBOW REVEALED LEAKAGE.

THE SYSTEM HAS EVACUATED AND THE CRACK WAS RESOLDERED. NO FURTHER LEAKAGE HAS DETECTED FOLLOWING THIS ACTION.

A VACUUM PUMP HAS BEEN USED TO REMOVE AIR FROM THE SYSTEM, AND THE SYSTEM WAS RECHARGED WITH FREON 12.

THE REFRIGERATION LINES WERE INSULATED WITH FOAM RUBBER AND GUNNER'S TAPE.

THE STILL HAS BEEN REINSTALLED, AND THE SERVICE LINES WERE RECONNECTED.

THE DISCREPANCY HAS BEEN CORRECTED, AND THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.

INC-DATE: 900920
TDRN: L5-000107 01
INC CLASS: INFORMATION
ACTION-TAKEN: NO ACTION TAKEN
PART NAME: UNUSUAL ROTATION OF DR
FCC: 0700
OPS NRS 231.4
PROD NRS 196.2
GEMS NRS 237.1

SCORING INFORMATION
STIP CLASS CHARGE
01F (C) NON-RAN HARDWARE/GT

MAINTENANCE INFORMATION
CHAR TYPE USED PRESS RECOMM CLASS NRS HOURS/HRS
NOM UMS CREW CREW CSHH 00:10 00:10

DESCRIPTION OF INCIDENT

A-98
UNUSUAL AMOUNT OF ROTATION OF DRUM DURING CYCLE #353.

DURING CYCLE #353, THE OPERATOR OBSERVED THAT THE DRUM CONTINUED TO SPIN FROM THE WASH EXTRACT CYCLE TO THE DRY CYCLE NON-STOP. ONCE IN THE DRY CYCLE, THE SYSTEM FUNCTIONED PROPERLY.

THE CAUSE OF THE DISCREPANCY HAS UNDETERMINED. NO CORRECTIVE MAINTENANCE ACTION, HAS BEEN TAKEN AT THIS TIME AND THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.

REFRIGERANT LEAKAGE WAS DISCOVERED IN THE CAPILLARY TUBING CONNECTOR FLARE.

DURING CYCLE #353, THE OPERATOR REPORTED A LOW REFRIGERATION GAUGE READING OF 10/100.

THE N.R.D.I.C. REPRESENTATIVE REMOVED THE DRUM BELT COVER, AND BEGAN TROUBLESHOOTING THE REFRIGERATION SYSTEM WITH A LEAK TEC DETECTOR.

THE DRUM ROTATION WAS BYPASSED BY DEACTIVATING THE ELECTRICAL PANEL DRUM BREAKER SWITCH. THE SYSTEM WAS PAUSED IN THE "DRY" MODE FOR TROUBLESHOOTING PURPOSES.

THE CONDENSER GUARD AND THE PRESSURE CONTROL COVER WERE REMOVED TO GAIN BETTER ACCESS TO THE SYSTEM.

THE SYSTEM WAS PRESSURIZED WITH NITROGEN REVEALING LEAKAGE IN THE CAPILLARY TUBING CONNECTOR FLARE AT THE HIGH HEAD PRESSURE CONTROLLER.

THE CONNECTION WAS REPLACED AND WAS CHECKED FOR LEAKAGE. ONCE AGAIN, LEAKAGE WAS OBSERVED AT THE SAME FLARE NUT.

THE FLARE NUT (P/N-UNKNOWN) WAS REPLACED, AND NO FURTHER LEAKAGE WAS DETECTED.
THE FREON 12 REFRIGERANT WAS EXTRACTED FROM THE SYSTEM WITH A VACUUM PUMP, AND THE SYSTEM WAS CHARGED WITH 20 POUNDS OF FREON 12 REFRIGERANT. THE DISCREPANCY WAS CORRECTED, AND THE OPERATIONS WERE CONTINUED.

---

INCIDENT REPORT

INCIDENCE DATE: 900921

TIME: 090000109 01

INC CLASS: MINOR

ACTION-TAKEN: OTHER, SEE BLK 90

PART NAME: CONTROL BOX


gener: 0100

DURS 247.0
PDRS 208.2

MOISTURE WAS DISCOVERED IN THE WASHER TANK CONTROL BOX.

DURING THE UNSCHEDULED MAINTENANCE, THE N.R.D.C. REPRESENTATIVE DISCOVERED MOISTURE IN THE WASHER TANK CONTROL BOX. THE CAUSE WAS UNDETERMINED.

THE BOX WAS SEALED WITH JOINT SEALANT, CORRECTING THE DISCREPANCY. THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.
TUE, MAR 12, 1991
SUPPORTABILITY ANALYSIS CHART

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<td>0-ES-115-LAD-003</td>
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| INC-DATE: | 900921 |
| TIRN: | L-9000110 02 |
| INC CLASS: | NIHOR |
| ACTION-TAKEN: | REPLACED |
| PART NAME: | BAG FILTER |
| FGC: | 1000 |
| OPSHRS | 258.6 |
| PRODHRS | 219.4 |
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**DESCRIPTION OF INCIDENT**

DURING CYCLE #429, THE OPERATOR OBSERVED THAT THE UPPER BAG FILTER PRESSURE GAUGE INDICATED 25 PSI AND THE LOWER BAG FILTER PRESSURE GAUGE INDICATED 15 PSI. THE 10 PSI DIFFERENCE INDICATED THAT THE BAG FILTER NEEDED TO BE CHANGED.

AFTER CYCLE #429, MAINTENANCE PERSONNEL DRAINED THE BAG FILTER COMPARTMENT AND REMOVED THE COVER. THE BAG FILTER WAS REMOVED AND A NEW BAG FILTER WAS INSTALLED.

A NEW BAG FILTER "O" RING SEAL WAS INSTALLED, DUE TO THE OLD "O" RING BEING STRETCHED.

THE SOLVENT WAS REPLACED.

THE COVER WAS REPLACED AND TIGHTENED.

NO FURTHER ACTION WAS REQUIRED.

REVISED 03 FEB 91 TO UPDATE PARTS.

REVISION 02/06/91 - SCORING CONFERENCE.
REFRIGERANT LEAKAGE WAS DISCOVERED IN THE COMPRESSOR UNION LINE COUPLING.


ON 09-21-90, 0735 (HST), WITH OPHRS 246:52, PRODHR 208:18, GEMS 252.3, CYCLES 408, AND 0 MILES, THE MRDC REPRESENTATIVE VISUALLY INSPECTED THE SYSTEM.

THE STILL SERVICE LINES WERE DISCONNECTED, AND THE STILL MOUNTING BOLTS WERE REMOVED.

REFRIGERANT LEAKAGE WAS DISCOVERED IN THE COMPRESSOR UNION LINE COUPLING.

AN ATTEMPT WAS MADE AT TIGHTENING THE COUPLING WITH A PAIR OF CHANNEL LOCKS.

LEAKAGE CONTINUED TO EXIST AT THE COUPLING, THE COUPLING WAS LOOSENED, AND WAS SEALED WITH JOINT SEALER.

THE UNION LINE COUPLING AND MOUNTING BRACKET WERE RETIGHTENED.

NO FURTHER LEAKAGE WAS DETECTED AT THIS TIME. THE DISCREPANCY HAS CORRECTED.

THE STILL SERVICE LINES WERE RECONNECTED, AND THE DUMP TANK THERMOSTAT WAS ADJUSTED TO 100 DEGREES F.

THE SYSTEM WAS PAUSED IN THE DRY CYCLE, AND WAS CHARGED WITH FREON 12.

THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.
NO SOLVENT WAS BEING PUMPED INTO THE MASH DRUM DURING MASH CYCLE.


REVISION 02/06/91 - SCORING CONFERENCE.
**PROJECT NUMBER**
6-15-115-LAD-003

**PROJECT NAME**
BT 115 LADDS LAUNDRY/DAY CLEANER

**ITEM ID**
LADD01

---

**INC-DATE:** 900925  
**TIRM:** L5-A000113 01  
**INC CLASS:** ERROR  
**ACTION-TAKEN:** NO ACTION TAKEN  
**PART NAME:** BOLT  
**FCC:** 1000  
**OPSRHS:** 267.2  
**PRODHNR:** 236.4  
**GEMHS:** 274.1

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**DESCRIPTION OF INCIDENT**

**BOLT MISSING**

While taking gauge readings during operations of the LADDS, the operator observed that the bolt that secures the right rear leg of the bag filter canister to the trailer was missing. No corrective action was taken and the reason for the bolt being missing was undetermined. The possibility exists that the bolt was missing, prior to the receiving inspection due to the paint not showing signs of scarring from the bolt being tightened.

**REVISION 02/09/91 - SCORING CONFERENCE.**

---

**INC-DATE:** 900918  
**TIRM:** L5-A000114 01  
**INC CLASS:** INFORMATION  
**ACTION-TAKEN:** INSPECTED  
**PART NAME:** LADDS  
**FCC:** 0000  
**OPSRHS:** 203.0  
**PRODHNR:** 170.5  
**GEMHS:** 212.7

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A-104
DESCRIPTION OF INCIDENT

TOXIC FUME MEASUREMENTS SURROUNDING THE LAUNDRY AND DRYCLEANING/DECONTAMINATION UNIT (LADD01).

The test was run with the washing machine stationary in the parking lot behind building #210. The machine was operating for the entire test running from power provided by its own generator. The machine was located under a shade that was designed so as not to restrict the wind or trap the fumes produced by the machine.

Toxic fumes levels consisting of carbon monoxide (CO), oxides of nitrogen (NOx), ammonia (NH3), sulphur dioxide (SO2) and Freon 113 were measured outside the machine. CO is analyzed with a Thermo-Electron Model 48 IR Analyzer (sensitivity 0.1 ppm). NOx and NH3 are analyzed with a Thermo-Electron Model 44 Chemiluminescent NO-NOx Analyzer (sensitivity 0.01 ppm). SO2 is analyzed with a Thermo-Electron Model 40 Pulsed Fluorescent SO2 Analyzer (sensitivity 0.01 ppm). Freon 113 is analyzed with a Micrononitor Universal Gas Analyzer model NS00 which uses the principle of miniature gas chromatography. All analyzers and data recorders are checked and calibrated at the test site before the test. The CO, NOx, NH3 and SO2 are calibrated using certified span gas from Airco Rare and Specialty Gases. The Freon 113 is calibrated by mixing a known amount of the Freon 113 in a closed container and using this mixture to calibrate the analyzer. For the Freon 113 the analyzer was calibrated at 1000 ppm and its linearity checked at 250 ppm. All values above 1000 ppm in the data are extrapolated values. The data is recorded digitally on an IBM portable data logger equipped with an analog to digital converter card. The analyzers are located inside a mobile van and are connected to the vehicle by means of 3/8" Teflon tubing to bring the air to the analyzers.

A sample has taken and analyzed once every 60 seconds. This allowed time for the lines running from the machine to the analyzers to be purged with the air from each new sampling location. The sampling line has been held by the project engineer who moved it once each 60 seconds to a new sampling location. The positions of each of these sampling locations was recorded by the project engineer. In the attached data each recorded reading taken 60 seconds apart represents a separate sample and location with its location in reference to the machine engineers report.

TOXIC FUMES DATA

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A-105
**SUPPORTABILITY ANALYSIS CHART**

**PROJECT NUMBER**
0-ES-119-LAD-003

**PROJECT NAME**
BY II LABS LAUNDRY/DRY CLEANER

**ITEM IN**
LAD001

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**ABBREVIATIONS**

- CO = CARBON MONOXIDE
- NOx = OXIDES OF NITROGEN
- NO3 = NITRITE
- SO2 = SULPHUR DIOXIDE
- COD = CARBONHYDROGLOBIN
- MIN = MINUTES
- % = PERCENT
- PPM = PARTS PER MILLION
- THA = TIME HEADED AVERAGE
- APU = AUXILIARY POWER UNIT
- LOF = LINE OF FIRE

**NOTES**

VALUES REPORTED AS ZERO ARE ACTUALLY VALUES BELOW THE READABILITY OF THE ANALYZER. SEE REPORT FOR THESE VALUES.

THE NUMBERS IN PARENTHESIS REPRESENT THE LOCATION FROM WHICH THE SAMPLES WERE OBTAINED. THE FOLLOWING LIST DESCRIBES THE LOCATION AND OPERATING DURING THE SAMPLE.

**LOCATION NUMBER 1:** BAG FILTER AREA, AND PIPING ASSOCIATED WITH THE BAG FILTER SYSTEM

**LOCATION NUMBER 2:** WASHER BASKET DOOR FOLLOWING COMPLETION OF WASH CYCLE

**LOCATION NUMBER 3:** BUTTON TRAP ACCESS DOOR IN THE OPEN POSITION

A-106
TUE, APR 12, 1991

SUPPORTABILITY ANALYSIS CHART

PROJECT NUMBER
0-ES-115-LAD-003

PROJECT NAME
BTII LADDS LAUNDRY/DRY CLEANER

ITEM ID
LAD001

LOCATION NUMBER 4: LINT FILTER ACCESS DOOR IN THE OPEN POSITION

LOCATION NUMBER 5: JOINT AT ELBOW OF DRYER SYSTEM BLOWER VENTS

LOCATION NUMBER 6: TUB FILLER PIPE CONNECTION AT TUB

LOCATION NUMBER 7: STILL BOTTOM (OPERATING)

LOCATION NUMBER 8: TOP OF STILL (OPERATING)

LOCATION NUMBER 9: SOLVENT TANKS SIGHT GLASSES, PIPING CONNECTIONS AND JOINTS

LOCATION NUMBER 10: HEPA FILTER VENTING DURING DRY AND DRY CYCLES

LOCATION NUMBER 11: ON TOP OF LAUNDRY UNIT OVER STILL AND CONDENSER AREA

LOCATION NUMBER 12: ON TOP OF UNIT ABOVE DRYER SYSTEM HEATER AND FREON COMPRESSOR

LOCATION NUMBER 13: HEPA FILTER VENTING DURING DRYING OPERATIONS

LOCATION NUMBER 14: TUB DOOR OPEN IMMEDIATELY FOLLOWING COMPLETION OF DRYING CYCLE PRIOR TO REMOVAL OF LAUNDRY ITEMS

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<td>59.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>0:30:18 (1)</td>
<td>0.0</td>
<td>37.0</td>
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<td>0.0</td>
</tr>
<tr>
<td>0:31:18 (1)</td>
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<td>34.0</td>
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<td>0.0</td>
</tr>
<tr>
<td>0:32:18 (2)</td>
<td>33.0</td>
<td>27340</td>
<td>0.0</td>
<td>0.4</td>
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</tr>
<tr>
<td>0:50:18 (2)</td>
<td>1.0</td>
<td>20760</td>
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<td>0.1</td>
<td>0.0</td>
</tr>
<tr>
<td>0:36:18 (3)</td>
<td>0.3</td>
<td>1360</td>
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<td>0.2</td>
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</tr>
<tr>
<td>0:37:18 (4)</td>
<td>0.0</td>
<td>714.0</td>
<td>0.0</td>
<td>0.3</td>
<td>0.0</td>
</tr>
<tr>
<td>0:38:18 (5)</td>
<td>10.9</td>
<td>946.0</td>
<td>0.0</td>
<td>0.3</td>
<td>0.0</td>
</tr>
<tr>
<td>0:39:18 (6)</td>
<td>4.7</td>
<td>7440</td>
<td>0.0</td>
<td>0.3</td>
<td>0.0</td>
</tr>
<tr>
<td>0:40:18 (6)</td>
<td>0.6</td>
<td>7340</td>
<td>0.0</td>
<td>0.2</td>
<td>0.0</td>
</tr>
<tr>
<td>0:41:18 (7)</td>
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<td>227.0</td>
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<td>0.0</td>
</tr>
<tr>
<td>0:42:18 (7)</td>
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<td>0.2</td>
<td>0.0</td>
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<tr>
<td>0:43:18 (8)</td>
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<td>0.0</td>
<td>0.2</td>
<td>0.0</td>
</tr>
<tr>
<td>0:47:18 (9)</td>
<td>0.4</td>
<td>926.0</td>
<td>0.0</td>
<td>0.1</td>
<td>0.0</td>
</tr>
<tr>
<td>0:58:18 (9)</td>
<td>0.2</td>
<td>1040.0</td>
<td>0.0</td>
<td>0.1</td>
<td>0.0</td>
</tr>
</tbody>
</table>
### Supportability Analysis Chart

**Project Number:** 0-E8-115-LAB-003  
**Project Name:** HY LABS LAUNDRY/DRYER CLEANER  
**Item ID:** LABD001

<table>
<thead>
<tr>
<th>Time</th>
<th>CO</th>
<th>Freon</th>
<th>SO2</th>
<th>NOx</th>
<th>NR3</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:59:18</td>
<td>0.0</td>
<td>316</td>
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</tr>
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<td>1320</td>
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<td>0.1</td>
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</tr>
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</tr>
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</tr>
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<td>5640</td>
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<td>323</td>
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<td>697</td>
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<td>9:12:10</td>
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<td>1530</td>
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<td>7540</td>
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<td>9:16:10</td>
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<td>243</td>
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</tr>
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<td>0.3</td>
<td>14550</td>
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<td>0.1</td>
<td>0.0</td>
</tr>
<tr>
<td>9:55:10</td>
<td>4.3</td>
<td>97720</td>
<td>0.0</td>
<td>0.1</td>
<td>0.0</td>
</tr>
</tbody>
</table>

The system was operated for a full cycle with the probes located at the vent from the HEPA filter for a period of 32 minutes to record the emissions from the vent. The data follows in 1 minute time blocks:

<table>
<thead>
<tr>
<th>Time</th>
<th>CO</th>
<th>Freon</th>
<th>SO2</th>
<th>NOx</th>
<th>NR3</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:37:10</td>
<td>0.3</td>
<td>274</td>
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<td>0.0</td>
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<tr>
<td>9:38:10</td>
<td>0.0</td>
<td>403</td>
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<td>0.0</td>
</tr>
<tr>
<td>9:39:10</td>
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<td>241</td>
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</tr>
<tr>
<td>10:00:10</td>
<td>0.0</td>
<td>35</td>
<td>0.0</td>
<td>0.1</td>
<td>0.0</td>
</tr>
<tr>
<td>10:01:10</td>
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<td>32</td>
<td>0.0</td>
<td>0.1</td>
<td>0.0</td>
</tr>
<tr>
<td>10:02:10</td>
<td>0.0</td>
<td>41</td>
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</tr>
<tr>
<td>10:03:10</td>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
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<td>18</td>
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<td>0.0</td>
</tr>
<tr>
<td>10:07:10</td>
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<td>17</td>
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</tr>
<tr>
<td>10:08:10</td>
<td>0.0</td>
<td>137</td>
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</tr>
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<td>3.3</td>
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</tr>
<tr>
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<tr>
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</tr>
<tr>
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</tr>
<tr>
<td>10:13:10</td>
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</tr>
<tr>
<td>10:14:10</td>
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</tr>
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<td>19</td>
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<td>0.1</td>
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</tr>
<tr>
<td>10:17:10</td>
<td>0.0</td>
<td>60</td>
<td>0.0</td>
<td>0.1</td>
<td>0.0</td>
</tr>
</tbody>
</table>

A-108
A sample was taken from the bung of an opened drum of Freon, from a base drum with a bung plug installed, and from a drum that had not been previously opened. The following data obtained:

<table>
<thead>
<tr>
<th>Time</th>
<th>Bung Opening</th>
<th>7640 PPM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bung Reinstalled</td>
<td>812 PPM</td>
</tr>
<tr>
<td></td>
<td>Unopened Drum</td>
<td>0 PPM</td>
</tr>
</tbody>
</table>

Readings were taken from 22 locations around the operating lads ranging from a distance of two feet to eight feet. The mean concentrations of Freon in parts per million over all locations was 43 parts per million. The readings ranged from 0 PPM at the front of the test area to 7540 at the solvent tank with the system venting. Those concentrations at the solvent tank area could produce nausea and dizziness if the exposure periods were sufficiently long; however, all operators are aware of the intense concentrations in this area and avoid undue exposure times.

The concentrations at the door exceed 97720 PPM during initial door opening, but very quickly dissipate and pose no hazard to the trained operator. If the lads was operated in a confined area without proper ventilation, the concentrations produced by the NPE filter vent could become hazardous to the human operator. Based upon the measurements obtained during this test, the lads poses no undue health hazard to the trained operator.

The concentrations of the byproducts of combustion of fossil fuels here of very low concentrations and pose no threat to soldiers operating
TUE, MAR 12, 1991

SUPPORTABILITY ANALYSIS CHART

PROJECT NUMBER
0-ES-115-LAB-003

PROJECT NAME
BY II LABS LAUNDRY/DRY CLEANER

ITEM ID
LAB001

THE LABS.

REVISION 02/06/91 - SCORING CONFERENCE.

SCORING INFORMATION

INC-DATE: 900923
TIRN: L5-8000115 02
INC CLASS: MINOR
ACTION-TAKEN: REPAIRED
PART NAME: ELBOW, REFRIGERATION LI
FCC: 0400
UPHSRS 260.3
PRODR 237.4
GENRS 275.8

MAINTENANCE INFORMATION

CHAR TYPE
CMR UNIS
CHARGES
ACTIVE
CLASS
REPAIR

09- (C)
04:33 04:44

DESCRIPTION OF INCIDENT

FROM 12 LEAKING FROM REFRIGERATION SUCTION LINE ELBOW.

DURING OPERATIONS THE OPERATOR OBSERVED A PUDDLE OF FLUID UNDER THE
DRYER REFRIGERATION UNIT.

FURTHER INVESTIGATION REVEALED THAT THE REFRIGERATION SUCTION LINE
ELBOW THAT HAS RECENTLY WELDED ON 09/20/90, HAS AGAIN LEAKING FROM 12.
THE PROJECT ENGINEER INVESTIGATED THE LEAK AND CLASSIFIED IT AS A CLASS
III LEAK. A DECISION HAS MADE BY THE PROJECT ENGINEER TO SHUT DOWN THE
SYSTEM.

REPAIRS WILL BE MADE ON 09/26/90.

ON 09/26/90, AT 0925 (HST), WITH THE OPHRS 268:42, PRODRS 237:45,
GENRS 276.0, CYCLES 444, AND 13.6 RILES, THE MAINTENANCE PERSONNEL VISUALLY
INSPECTED THE REFRIGERATION SYSTEM AND CONFIRMED THE LEAKAGE IN THE SUCTION
LINE ELBOW.

THE SUCTION LINE INSULATION HAS REMOVED TO GAIN ACCESS TO THE CRACKED
AREA.

NO FURTHER ACTION WAS TAKEN AT THIS TIME, DUE TO THE UNAVAILABILITY
OF PROPER PARTS.

ON 09/27/90, AT 0634 (HST), WITH THE OPHRS 270:45, PRODRS 238:31,
GENRS 278.1, CYCLES 445, AND 13.6 RILES, THE MAINTENANCE PERSONNEL
REMOVED THE STILL MOUNTING BOLTS AND DISCONNECTED THE STILL FLOW LINES.
THE STILL WAS MOVED TO ONE SIDE, WITH A FORCE "FT, TO GAIN ACCESS TO

A-110
THE SUCTION LINE.
THE UNION SUCTION LINE WAS DISCONNECTED TO VENT THE SYSTEM, AND THE REMAINDER OF THE SUCTION LINE WAS REMOVED.
THE DAMAGED AREA OF THE SUCTION LINE WAS CUT FROM THE UNIT WITH A PAIR OF PIPE CUTTERS.
THE COMPRESSOR OUTLET LINE WAS DISCONNECTED TO GAIN ACCESS TO THE REMAINDER OF THE SUCTION LINE, AND THE DAMAGE WAS VISUALLY INSPECTED.
AN ATTEMPT WAS MADE AT SOLDERING THE CRACKED ELBOW, AND WAS UNSUCCESSFUL.
THE NEW SECTION OF 1 1/8 INCH OD COPPER PIPING, AND THE NEW ELBOW (P/N UNKNOWN), WAS ASSEMBLED. A VIBRATION ELIMINATOR (P/N UNKNOWN) WAS INSTALLED ON THE NEW SECTION OF THE LINE TO ELIMINATE STRESS ON THE LINE.
THE NEW SECTION OF THE LINE WAS INSTALLED, AND THE SUCTION LINE UNION WAS RECONNECTED.
THE REFRIGERATION SYSTEM WAS EVACUATED, AND WAS INSPECTED FOR LEAKAGE WITH A LEAKTEC DEVICE. LEAKAGE WAS DETECTED AT THE NEW SUCTION LINE JOINTS.
ANOTHER FOUR ATTEMPTS WERE MADE AT CORRECTING THE LEAKAGE BY EVACUATING THE SYSTEM AND SOLDERING THE SUCTION LINE JOINTS. THE FOURTH ATTEMPT WAS SUCCESSFUL, AND NO FURTHER LEAKAGE COULD BE DETECTED.
THE STILL WAS RETURNED TO THE PROPER POSITION WITH A FORKLIFT, AND THE STILL MOUNTING BOLTS WERE REINSTALLED.
THE STILL FLOW LINES WERE RECONNECTED, AND THE SYSTEM WAS INSPECTED FOR FURTHER LEAKAGE WITH THE DRY CYCLE IN "PAUSE" MODE. NO LEAKAGE WAS DISCOVERED.
THE REFRIGERATION SYSTEM WAS CHARGED WITH FREON 12 AND THE REINSTALLATION OF THE STILL MOUNTING BOLTS WAS COMPLETED.
THE DISCREPANCY WAS CORRECTED, AND THE OPERATIONS WERE CONTINUED.

REVISION #1 DATE 11/16/90 HOURS 13.6 HOURS 268.29 TIME 1400 HST TO CORRECT DATA:

<table>
<thead>
<tr>
<th>BLOCK</th>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>57</td>
<td>NO ACTION TAKEN</td>
<td>REPAIRED</td>
</tr>
<tr>
<td>63</td>
<td>34.43 OSHRS 268.42</td>
<td>368.29 OSHRS 268.42</td>
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<tr>
<td>64</td>
<td>30.32 PROSHR 237.45</td>
<td>237.41 PROSHR 237.45</td>
</tr>
<tr>
<td>65</td>
<td>37.30 GEMHS 276.00</td>
<td>275.80 GEMHS 276.00</td>
</tr>
</tbody>
</table>

REVISION 02/06/91 - SCORING CONFERENCE.
The upper bag filter pressure gauge was indicating a low pressure.

The upper pressure gauge on the bag filter assembly does not appear to be working to DEP-10-3510-221-14 specifications. During the wash cycle the pressure gauge readings were 8 PSI, upper gauge and 20 PSI, lower gauge. The upper pressure should be equal to or higher than the lower pressure gauge. No maintenance action was taken.

The operator observed that during the rinse cycle, the upper pressure gauge was indicating 20 PSI and lower pressure gauge was still indicating 20 PSI. The cause of this incident was not determined and did not reoccur.

Revision 02/06/91 - Scoring Conference.
TRAILER CRACKS.

22 SEPT 1990, 0923 BST (OPHRS 261:17; PRODHRS 231:28; GENHRS 267.0)
DURING A B-PACS, THE MAINTENANCE PERSONNEL DISCOVERED A SIX INCH CRACK IN THE LEFT REAR CORNER OF THE TRAILER BED. THIS CRACK WAS EXTENDING OUT FROM UNDER THE NBC ABSORBER. AN INVESTIGATION OF THE CRACK WAS DELAYED DUE TO MAINTENANCE PERSONNEL TROUBLESHOOTING ANOTHER INCIDENT.

AT 1316 BST, THE NRDIC REPRESENTATIVE AND ORGANIZATIONAL MAINTENANCE PERSONNEL BEGAN TO REMOVE THE NBC ABSORBER, TO ALLOW FOR A CLOSER INSPECTION OF THE CRACK IN THE TRAILER BED. THE UPPER AND LOWER ABSORBER RETAINING COLLARS, AND FOUR BOLTS WERE REMOVED. THE LOWER CLAMP THAT CONNECTS A 2.5 INCH HOSE TO THE NBC ABSORBER WAS REMOVED. THE TWO REMAINING CLAMPS, ONE AT THE ABSORBER OUTLET PORT, AND THE OTHER AT THE NASH DRUM INLET PORT WAS REMOVED. THE NBC ABSORBER WAS REMOVED FROM THE TRAILER.


THE NRDIC REPRESENTATIVE DETERMINED THAT THE CRACKS COULD BE REPAIRED AND A ONE QUARTER INCH STEEL PLATE BE WELDED OVER THE CRACK STRENGTHENING THE LEFT REAR CORNER.

24 SEPT 1990, 0732 BST (OPHRS 261:17; PRODHRS 231:28; GENHRS 267.0)
THE OPERATORS DRAINED ALL THE TANKS AND THE STILL IN PREPARATION FOR
REPAIRS. THE TRAILER AND LADDS HAS TOWED 13.6 MILES TO STEAM CLEAN THE
SYSTEM, AND TRAILER IN ORDER TO CHECK FOR ANY OTHER CRACKS.

THE LADDS HAS PARKED AT THE WELDING SHOP. THE WELDER INSPECTED THE
DAMAGE AND DETERMINED THAT THE CRACKED WELD, OF THE LEG EXTENSION BRACKET
HAS THE PROBABLE CAUSE OF THE CRACKS IN THE TRAILER BED.

THE NOSE ASSEMBLY HAS REMOVED FOR BETTER ACCESS TO HELD THE TRAILER
BED. THIS HAS ACCOMPLISHED BY REMOVING ONE CLAMP TO THE LEFT, AT THE BASE
OF THE NBC ABSORBER AND TWO PNEUMATIC LINES CONNECTED TO THE SHUTOFF VALVE.

25 SEPT 1990, 0640 PST (OPSHRS 261:17; PRODHR 231:28; GEHRSHS 267.0)
THE WELD ON THE SUPPORT EXTENSION MOUNTING BRACKET AND THE CRACKS ON
THE TRAILER BED HAS REPAIRED. A QUARTER INCH PIECE OF STEEL APPROXIMATELY
NINETEEN INCHES SQUARE, HAS WELDED OVER THE REPAIRED CRACKS FOR EXTRA
SUPPORT. THIS ACTION HAS REQUESTED BY THE HNDEC REPRESENTATIVE.

THE LADDS HAS THEN TRANSPORTED TO THE LAUNDRY SITE AND PARKED THE
SYSTEM WAS SERVICED WITH SOLVENT. THE GENERATOR GROUNDING ROD WAS DRIVEN
INTO THE GROUND, AND THE GROUND STRAP ATTACHED.

THE NBC ABSORBER WAS REINSTALLED AND SECURED WITH THE TWO RETAINING
COLLARS. THE NOSE ASSEMBLY HAS REINSTALLED AND CONNECTED WITH THE FOUR
NOSE CLAMPS. THE TWO PNEUMATIC LINES WERE RECONNECTED.

A B-PHCS HAS CONDUCTED AND THE FIRST HASH CYCLE OF THE DAY HAS
CONDUCTED WITH NO FURTHER INCIDENTS.

REVISION 02/06/91 - SCORING CONFERENCE.

INC-DATE: 900927
INC: L5-A000118 01
INC CLASS: MINOR
ACTION-TAKEN: INSPECTED
PART MAKE: CIRCUIT BREAKER AZL-6
FCC: 0200
OPSHRS 271.3
PRODHR 238.3
GEMRS 279.8

MAINTENANCE INFORMATION

CHAR TYPE USED PESC RECM CLMBRS RMBRS
CHM UMS CREW CREW CREW 00:06 00:04
CHM UMS ORG ORG ORG 00:36 00:42

DESCRIPTION OF INCIDENT

THE STILL IS NOT OPERATING.

A-114
TUE, MAR 12, 1991

SUPPORTABILITY ANALYSIS CHART

PAGE: 113

PROJECT NUMBER
0-ES-115-LAD-003

PROJECT NAME
IT III LADDS LAUNDRY/DRY CLEANER

ITEM ID
LADD01


THE STILL AND THE DUMP TANK HAS COMPLETELY FILLED. THE SOLVENT WAS DRAINED FROM THE STILL AND PUMPED INTO THE RINSE TANK. THE TRANSFER OF SOLVENT DID NOT CAUSE THE STILL TO OPERATE. NO FURTHER ACTION WAS TAKEN.

28 SEP 1990, 645 IST (OPHS 272:27/PRODRS 239:01/GENRS 280.5)

THE MAINTENANCE PERSONNEL CONDUCTED TROUBLESHOOTING PROCEDURES, IAW DEP 10-3510-221-14 ON THE STILL ELECTRICAL CONTROL PANEL. MAINTENANCE PERSONNEL DISCOVERED THAT CIRCUIT BREAKER #62L-6 WAS DE-ENERGIZED. THE OPERATOR RESET THE CIRCUIT BREAKER. THE SYSTEM HAS OPERATED WITH NO FURTHER DISCREPANCIES.

THE DEP 10-3510-221-14 DOES NOT TELL THE MAINTENANCE PERSONNEL WHAT POSITION THESE SWITCHES ARE SUPPOSE TO BE IN. THERE IS NO FIGURE IN THE MANUAL THAT SHOW THESE SWITCHES.

REVISION 02/06/91 - SCORING CONFERENCE.

-------------------------------------------------------------------------------------------------

INC-DATE: 900928
TMR: L3-0001119 01
INC CLASS: MINOR
ACTION-TAKEN: NO ACTION TAKEN
PART NAME: REFRIGERATION UNIT (NO)

FCC: 0400
OPHRS 274.3
PRODRS 239.5
GENRS 282.5

STEP CLASS CHARGE
02- (C) CCHA HARDWARE/GFE

-------------------------------------------------------------------------------------------------

MAINTENANCE INFORMATION

CHAR TYPE USED PRESC RECON CLKHRS MANHRS
CHA UMS CREW CREW CREW 00:42 00:42

-------------------------------------------------------------------------------------------------

DESCRIPTION OF INCIDENT

THE REFRIGERATION UNIT DOES NOT APPEAR TO BE OPERATING.

DURING THE OPERATION OF CYCLE #446 THE OPERATOR DISCOVERED THE REFRIGERATION UNIT FOR THE DRYER WAS INDICATING 8 PSI OVER 110 PSI. NO MAINTENANCE ACTION WAS TAKEN. THE OPERATOR TURNED THE DRY HEATER ON IN ORDER TO DRY THE BUS AND CONTINUED TO OPERATE WHILE OBSERVING THE REFRIGERATION UNIT PRESSURE READINGS. THE PRESSURE INDICATIONS STAYED THE SAME DURING THE NEXT 2 CYCLES.

A-115
During cycle #450, the operator observed the refrigeration pressure rise to 20 PSI over 220 PSI, indicating that the refrigeration drying unit was working properly. No further action was taken.

Revision 02/06/91 - Scoring Conference.

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<th>DESCRIPTION OF INCIDENT</th>
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The 1903 pneumatic valve was discovered to be imperative.

Prior to the wash cycle, during cycle #452, the operator discovered that the 1903 pneumatic valve could not be activated by depressing the manual override switch. Four attempts to activate the valve were made, unsuccessfully. The cause of the discrepancy was unknown.

The system was shut down, pending further instruction from the project engineer.

On 16-01-90, with the test life figures remaining unchanged, the operator observed that the valve remained imperative.

The maintenance personnel began troubleshooting the electrical panel, and discovered that the NP60 (air compressor) breaker had been deactivated. The cause remained undetermined.

The breaker was reset, and a trial cycle was performed with the electrical panel door remaining open for observation. A voltmeter was used for troubleshooting purposes, and the power readings were real the maintenance manual schematics.

The wash/extract and the rinse/extract cycles were performed, as part of the troubleshooting, and the valve functioned properly. Cycle #452 was performed completely, and the valve remained functional.

An attempt at normal operations was made, and prior to the cycle #454.
HUSH CYCLE, THE OPERATOR OBSERVED THAT THE PV03 VALVE WAS INOPERATIVE. THE AIR COMPRESSOR GAUGE DISPLAYED 0 POUNDS PER SQUARE INCH, AND ALL ELECTRICAL PANEL CIRCUIT BREAKERS REMAINED ACTIVATED. TROUBLESHOOTING WAS PERFORMED ON THE ELECTRICAL PANEL WITH A VOLTMETER, AND THE CAUSE REMAINED UNDETERMINED.

THE SYSTEM WAS SHUT DOWN, AS PER THE PROJECT ENGINEER.
THE MAINTENANCE WAS DEFERRED, PENDING FURTHER INSTRUCTION FROM THE M. R. D. E. C. REPRESENTATIVE.
TROUBLESHOOTING PROCEDURES WERE PERFORMED JAN VERDAL (PHONE) INSTRUCTIONS FROM THE M. R. D. E. C. REPRESENTATIVE.
ON 10-02-90, AT 0714 (NST), WITH THE OPHRS 277:49, PRODhrs 232.55, GENHRS 287.0, CYCLES 453, AND 13.6 MILES, THE MAINTENANCE PERSONNEL INSPECTED THE PNEUMATIC PUMP AIR LINES FOR CRACKS OR HOLES CAUSING AIR LEAKAGE.

THE PNEUMATIC PUMP COVER PLATE AND THE TERMINAL COVER WERE REMOVED TO FURTHER INSPECT THE PNEUMATIC PUMP. THE PUMP HAS DISCOVERED TO NOT BE BUILDING THE PROPER AIR PRESSURE.

THE MULTIMETER DISPLAYED 206 VOLTS AC ON ALL THREE OF THE PRESSURE SWITCH WIRES. AT THIS TIME, THE MAINTENANCE PERSONNEL REPORTED THE PUMP, ITSELF, TO BE INOPERATIVE.

THE PUMP COVER PLATES WERE REINSTALLED.
M. R. D. E. C. WAS NOTIFIED BY TELEPHONE, AND FURTHER MAINTENANCE WAS DEFERRED PENDING THE ARRIVAL OF THE REQUIRED REPLACEMENT PARTS.

REVISION #1

ON 10-05-90, AT 0614 (NST), WITH THE OPHRS 277:30, PRODhrs 232:55, GENHRS 287.1, CYCLES 453, AND 13.6 MILES, THE MAINTENANCE PERSONNEL REMOVED THE OLD PNEUMATIC PUMP, MOUNTING DOLTS.
THE PUMP AIR LINES WERE DISCONNECTED, AND THE TERMINAL COVER WAS REMOVED.
THE PUMP COVER PLATE WAS REMOVED, AND THE PUMP WIRING WAS DISCONNECTED.
THE OLD PNEUMATIC PUMP (MODEL MGH-510, ID W260203P-0894) WAS REMOVED, AND THE NEW PUMP (MODEL MGH-510, ID W260255F) WAS INSTALLED.
THE ORIGINAL AIR LINES WERE REINSTALLED, AND THE WIRING WAS RECONNECTED.
THE PUMP COVER PLATE AND THE MOUNTING DOLTS WERE REINSTALLED.
THE SYSTEM WAS INITIALIZED AND THE NEW PUMP WAS INSPECTED.
THE PUMP FAILED TO FUNCTION, AND TROUBLESHOOTING ON THE ELECTRICAL PANEL WIRING WAS PERFORMED.
WIRE #7 WAS DISCOVERED TO HAVE BROKEN AT THE END OPPOSITE THE TERMINAL BOARD. THE CAUSE WAS UNDETERMINED.
M. R. D. E. C. WAS NOTIFIED BY TELEPHONE TO DETERMINE THE PROPER LOCATION AT WHICH TO CONNECT THE BROKEN WIRE.
M. R. D. E. C. DETERMINED THAT WIRE #7 CONNECTED WITH WIRE #3 AT THE
LEFT SIDE OF THE TERMINAL BOARD.

THE SYSTEM WAS INITIALIZED TO INSPECT FOR FURTHER DISCREPANCIES. THE
SYSTEM FUNCTIONED PROPERLY, AND NO FURTHER DISCREPANCIES WERE OBSERVED.
THE SYSTEM WAS POWERED DOWN, AND THE PNEUMATIC PUMP MOUNTING BOLTS WERE
REMOVED TO REINSTALL THE OLD PUMP.

THE OLD PUMP WAS FOUND TO BE FUNCTIONAL, THEREFORE, THE NEW PUMP WAS
NOT NEEDED.

THE PUMP AIR LINE WAS REMOVED, AND THE PUMP HOSE WAS DISCONNECTED.
THE NEW PUMP WAS REMOVED, AND THE OLD PUMP WAS REINSTALLED.
THE HOSE AND THE TERMINAL COVER WERE REINSTALLED.
THE AIR LINE AND THE MOUNTING BOLTS WERE REINSTALLED.
THE SYSTEM WAS INITIALIZED, AND THE OLD PUMP WAS INSPECTED.
NO DISCREPANCIES WERE OBSERVED, AND THE NEW PUMP WAS STORED IN THE SSP
BOX.

NO FURTHER ACTION WAS TAKEN, AND THE OPERATIONS WERE CONTINUED.

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MAINT BREAKDOWN AS WAS | ADD NEW HARR.

REVISION 02/06/91 - SCORING CONFERENCE.
The refrigeration pressure fell.

During the operation of cycle 9455 the operator discovered the refrigeration unit for the dryer was indicating 11 psi over 95 psi. No maintenance action was taken. The operator continued operations utilizing the dry heater. The refrigeration unit was inspected during the dry phase of the next three cycles.

Organizational maintenance personnel inspected the refrigeration system while operations were paused in the dry phase. A leak detector was used by maintenance personnel to troubleshoot the refrigeration system. The leak was not located. Maintenance personnel serviced the unit with Freon 12 correcting the low pressure drop. The cause of the low pressure was not determined.

Revision 02/06/91 - Scoring conference.
THE BOTTOM OF THE ELECTRICAL PANEL HOUSING BROKE AWAY FROM THE HOUSING WALLS.

DURING OPERATIONS START UP PROCEDURES THE OPERATOR OBSERVED THAT THE ELECTRICAL PANEL DID NOT ILLUMINATE WHEN THE SYSTEM CONTROL POWER SWITCH (MAIN CIRCUIT BREAKER) WAS TURNED TO THE ON POSITION.

MAINTENANCE PERSONNEL ATTEMPTED TO OPEN THE MAIN CONTROL PANEL DOOR AND DISCOVERED IT COULD ONLY OPEN APPROXIMATELY TWO INCHES. IT WAS OBSERVED, BY MAINTENANCE PERSONNEL THAT THE ELECTRICAL CIRCUIT BREAKER AND INDICATOR PANEL MOVED WHEN THE DOOR WAS OPENED FURTHER. THE METAL ROD CONNECTING THE MAIN CIRCUIT BREAKER TO THE 100-AMP CIRCUIT BREAKER WAS NOT LEVEL AND SEEMED TO BE BENDING.

AN INSPECTION OF THE ELECTRICAL PANEL HOUSING REVEALED THAT THE BOTTOM OF THE HOUSING HAD BROKEN AWAY FROM THE HOUSING WALLS. THE BOTTOM BROKE AND DROPPED APPROXIMATELY 1.5 INCHES. THIS BREAK WAS ALONG THE WHOLE BOTTOM OF THE HOUSING AND EXTENDED TOWARD THE FRONT APPROXIMATELY 5 INCHES ALONG BOTH SIDES.

IT HAS DETERMINED, BY MAINTENANCE PERSONNEL THAT THE EXCESSIVE VIBRATION AND BOUNCING WHILE CONDUCTING TRANSPORTABILITY TESTING CAUSED THE BOTTOM TO BREAK. THE CIRCUIT BREAKER AND INDICATOR PANEL DROPPED WITH THE HOUSING BOTTOM CAUSING THE MAIN CIRCUIT BREAKER CONNECTING ROD TO BEND STOPPING THE DOOR FROM BEING OPENED.

A MORE DETAILED INSPECTION WILL BE CONDUCTED ONCE THE ELECTRICAL PANEL DOOR IS OPENED.

13 SEP 1990, 1240 HST (OPSHRS 283.27/PRODHRS 239:04/CYCLES 459/MILES 735)
TUE, MAR 12, 1991  SUPPORTABILITY ANALYSIS CHART  PAGE: 119

PROJECT NUMBER  PROJECT NAME  ITEM ID
0-ES-115-LAD-003  DT II LAUNDS LAUNDRY/Dry CLEANER  LADDO1


THE INSPECTION OF THE ELECTRICAL CIRCUIT BOARD AND INDICATOR PANEL REVEALED THAT IT HAS COMPLETELY DETACHED FROM THE ELECTRICAL PANEL HOUSING. ALL BUT ONE RETAINING BOLT HAS MISSING. THIS ALLOWED THE ELECTRICAL CIRCUIT AND INDICATOR PANEL TO MOVE AROUND INSIDE THE PANEL HOUSING. THE VERTICAL MOVEMENT CAUSED THE BOTTOM OF THE PANEL HOUSING TO BREAK.

THE INSPECTION OF THE ELECTRICAL CIRCUIT BOARD AND INDICATOR PANEL REVEALED FOUR WIRES OF THE MAIN POWER CABLE WERE DETACHED. SEVENTEEN BLACK WIRES ON THE OUTPUT SIDE OF THE RELAYS WERE DETACHED. THERE WERE NO OBSERVATIONS OF ANY BROKEN WIRES. THE FOLLOWING IS A LISTING OF THE DETACHED WIRES:

MAIN POWER CABLE:
GREEN WIRE
ORANGE WIRE
BLACK WIRE
RED WIRE

RELAY WIRES:
210 235 244
222 236 245
230 237 246
231 238 247
233 239 248
234 243

IT HAS BEEN DISCOVERED BY MAINTENANCE PERSONNEL THAT ONE ALLEN HEAD SCREW FROM THE ROD RETAINING BRACKET AT THE 100-AMP CIRCUIT BREAKER WAS MISSING.

THE THREE REMAINING ALLEN HEAD SCREWS WERE LOOSENED ALLOWING THE CIRCUIT BREAKER CONNECTING ROD TO BE REMOVED IN ORDER TO CLOSE THE DOOR. NO FURTHER MAINTENANCE ACTION WAS TAKEN.

REVISION #1
DATE 11/01/90 HOURS 735.00 HOURS 293.27 TIME 0900 HST


THE CIRCUIT WIRING WAS REMOVED AND REMARKED.

THE WIRES CONNECTING THE HARNESS TO THE PANEL DOOR WERE CUT, AND THE PANEL DOOR WAS REMOVED.

THE INDICATOR PANEL WAS REMOVED, AND THE PANEL HOUSING WIRING HAS
SEPARATED.
The wiring harnesses were numbered, and disconnected from the electrical panel housing by the maintenance personnel.
The NDE representative disconnected the panel housing bolts.
The NDE representative and the maintenance personnel removed the main power box, and disconnected the broken bolts from the control panel.
The maintenance personnel welded along the base of the control box over the damaged area.
A boxification was made to the electrical control box by welding a one inch angle iron to the inside of the rear portion of the panel, approximately two feet wide and three feet in height.
The panel was placed inside the control box to check the fit of the panel following the modification. The panel did not fit properly, and the angle iron reinforcements were removed. The reinforcements were reinstalled, to correct the fit, by spot welding.
The electrical panel was bolted into place, and the cut ends of the wiring were prepared for soldering.
The wiring was soldered at the harnesses, and the harnesses were reinstalled in the control box.

On 10-19-90, 0724 (HST), with the OPMARS 233:27, PRODAMS 239:04, GENMARS 294:10, CYCLES 459, and the miles at 733.6, the NDE representative installed grounding wires in the electrical control box.
The maintenance personnel stripped control panel wires with a pair of wire strippers.
The wiring was soldered to the panel door and the electrical panel. Splices were installed at the ends of the panel door wiring.
The electrical circuitry wiring was installed inside of the control box.
The ON/OFF switch splice and the panel wiring were installed. The wire splices were connected to the panel door, and tie wraps were installed on the wiring.
The remainder of the wiring was soldered, and the four main wires were connected.
The electrical panel door was reinstalled, and the three main door wires were connected to the panel.
The panel wires were spliced, and the wire harnesses were connected to the panel door utilizing the tie wraps.
The panel door was aligned and adjusted.
The main power cables were connected to the circuit panel, and the refrigeration system was serviced with FREDM-12 in the DRY-PHASE mode.
The RP-32 breaker was discovered to be tripping causing the drum to stop turning. The breaker was reset.
Troubleshooting was performed on the solenoid, and the electrical panel A-10 RELAY was discovered to be inoperative. The A-10 Relay was reassembled and
FURTHER INVESTIGATION OF THE ELECTRICAL PANEL REVEALED THAT WIRE 8218, OF THE R-34 BREAKER, HAD BEEN INSTALLED INCORRECTLY. THE WIRE HAS REINSTALLED FROM THE T-1 POSITION TO THE T-4 POSITION.


AFTER THE PROPER TOOLS WERE ATTAINED, THE SPLINE WAS ALIGNED AND READJUSTED WITH A SOCKET AND AN ALLEN WRENCH.

THE ELECTRICAL PANEL MOUNTING BOLTS WERE LOOSENED, AND THE PANEL WAS ADJUSTED INTO THE PROPER POSITION.

THREE CUT-TO-FIT WASHERS WERE INSTALLED ON THE UPPER, RIGHT, REAR, CORNER OF THE ELECTRICAL PANEL.

THE SPLINE CASE MOUNTING BOLTS AND THE SPLINE SHAFT WERE TIGHTENED.

GASKET MATERIAL WAS PLACED BEHIND THE SPLINE IN ORDER TO ALIGN THE SPLINE WITH THE MAIN POWER SWITCH.


SOLVENT WAS TRANSFERRED FROM THE DRUM TO THE SOLVENT TANK ASSEMBLY, AND THE SYSTEM WAS POWERED DOWN. TROUBLESHOOTING BEGAN ON THE ELECTRICAL PANEL AND THE TRS TIMER.

THE TRS TIMER HAD NOT ENERGIZE, AND THE TIMER (P/N TPE1103LR) AND THE RELAY COIL (P/N DIL222) WERE REPLACED.

FURTHER TROUBLESHOOTING OF THE ELECTRICAL PANEL REVEALED THAT THE TRS TIMER WAS IMPERATIVE. CORRECTIVE MAINTENANCE WAS DEFERRED UNTIL A LATER TIME.

A TEST CYCLE WAS PERFORMED, REVEALING THE BAG FILTER TO BE AT 0 POUNDS PER SQUARE INCH.

FURTHER INVESTIGATION OF THE A-10 PHASE WIRE REVEALED THAT THE INPUT AND OUTPUT WIRES HAD BEEN INSTALLED BACKWARD. THE WIRES WERE REINSTALLED, CORRECTING THE BAG FILTER PRESSURE.

ANOTHER ATTEMPT WOULD HAVE AT A TEST CYCLE, AND THE DRUM STOPPED TURNING DURING THE DRY RODE. TROUBLESHOOTING WOULD HAVE BEEN PERFORMED WITH THE DRY RODE IN PAUSE.

THE MAPEC REPRESENTATIVE SUSPECTED THAT THE CARD READER'S ACCUMULATION OF DIRT MIGHT BE THE CAUSE OF THE DISCREPANCY. THE CARD READER WAS CLEANED WITH AN AIR HOSE.

TROUBLESHOOTING CONTINUED WITH THE SYSTEM IN THE DRY RODE. AT THIS
TIME, THE DRUM APPEARED TO FUNCTION PROPERLY, AND NO CAUSE COULD BE DETERMINED.
NO FURTHER MAINTENANCE ACTION WAS PERFORMED AT THIS TIME.


TROUBLESHOOTING WAS PERFORMED, AND THE TR-7 TIMER RELAY COIL WAS FOUND TO BE INOPERATIVE. THE RELAY COIL (P/N DILR22) WAS REMOVED AND REPLACED. ANOTHER ATTEMPT WAS MADE AT A TEST CYCLE AND THE DRUM WOULD NOT REVERSE IN THE WASH MODE.

TROUBLESHOOTING WAS PERFORMED ON THE CONTROL PANEL, AND THE TR-6 AND TR-3 TIMERS WERE DISCOVERED TO BE INOPERATIVE. THE TR-6 TIMER (P/N TPE110IL) WAS REMOVED AND REPLACED. A TEST CYCLE WAS PERFORMED IN THE DRY MODE, AND THE DRUM WAS OBSERVED AS REMAINING IN THE HIGH SPEED DURING THE RINSE MODE.

THE MAIN POWER BOX TIMER ASSEMBLY WAS REMOVED AND REPLACED.

THE TIMER WIRES WERE REINSTALLED, AND A TEST CYCLE WAS PERFORMED. THE CYCLE STOPPED IN THE EXTRACT MODE AND WOULD NOT RESTART.

TROUBLESHOOTING WAS PERFORMED ON THE CONTROL PANEL, AND THE TR-7 TIMER WAS DISCOVERED TO BE INOPERATIVE. THE CAUSE WAS UNDETERMINED.
THE CORRECTIVE MAINTENANCE ACTION ON THE TR-3 AND THE TR-7 TIMERS. NO FURTHER MAINTENANCE ACTION WAS TAKEN AT THIS TIME.

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REVISED 05 FEB 91 TO UPDATE PARTS.

REVISION 02/06/91 - SCORING CONFERENCE.
DURING AN INSPECTION OF THE LAUNDRY, MAINTENANCE PERSONNEL DISCOVERED THAT THE 90 DEGREE, 3/8 INCH COPPER ELBOW PIPING BETWEEN THE CONDENSER AND THE COMPRESSOR HAS COMPLETELY SEVERED.

THE PROBABLE CAUSE OF THE SEVERED COPPER ELBOW PIPING IS THE VIBRATION AND BOUNCING THE LADDS UNDERWENT DURING ROAD MILEAGE ON THE UNIMPROVED ROADS AND CROSS COUNTRY-PHASE OF TRANSPORTABILITY TESTING.

NO MAINTENANCE ACTION WAS TAKEN AT THIS TIME.

REVISION 01
DATE 11/01/90 MILES 733.00 HOURS 283.27 TIME 0900 HST

19 OCT 1990, 0913 HST (CPHRS 283.27/PRODHRS 239:04/GENHRS 297:1/ CYCLES 459/NMILES 733.0).

MAINTENANCE PERSONNEL REMOVED THE BROKEN 92 DEGREE ELBOW, LOCATED ON THE COPPER TUBING, BETWEEN THE COMPRESSOR AND CONDENSER, BY HEATING WITH A TORCH. THE AREA ON THE COPPER TUBING, WHERE THE ELBOW WAS REMOVED, WAS Sanded TO PREPARE THE AREA FOR SOLDERING. THE NEW ELBOW WAS PLACED ONTO THE COPPER TUBING AND SOLDERED IN PLACE USING A TORCH.

ICE FORMING ON THE LINES.

THE LADDS WAS PREPARED FOR TRANSPORTATION, CONNECTED TO A 5 TON TRUCK, AND TRANSPORTED TO A MAINTENANCE SITE, TO ALLOW OVERNIGHT, UNSUPERVISED OPERATION OF THE EVACUATION PUMP. THE PUMP REMAINED OPERATIONAL FOR APPROXIMATELY 15 HOURS.

20 OCT 1990, 0720 NST (OPHRS 283:27/PRODHRS 239:04/GENHRS 299.0/CYCLES 459/ENFLS 741.3). THE EVACUATION PUMP WAS DISCONNECTED AND SERVICING BEGAN. APPROXIMATELY 30 POUNDS OF FREON-12 WAS USED, WHILE IN THE DRY Mode OF OPERATION. NO FURTHER MAINTENANCE ACTION WAS TAKEN AT THIS TIME.

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REVISION 02/06/91 - SCORING CONFERENCE.

INC-DATE: 901019
TIRB: L5-M000126 01
INC CLASS: MINOR
ACTION-TAKEN: REPLACED
PART NAME: STILL CONTROL ASSEMBLY
FCC: 02
OPHRS 283:27
PRODHRS 239:04
GENHRS 297:96

MAINTENANCE INFORMATION
CHAR TYPE | USED | PRESC | RECON | CHARS | RANK HS
-----------|------|-------|-------|-------|-------
CHAR UHS | 63 | 63 | 63 | 03:46 | 03:46

DESCRIPTION OF INCIDENT

THE STILL CONTROL ASSEMBLY WAS DAMAGED DURING TRANSPORTABILITY TESTING.

DURING THE INSPECTION OF THE STILL CONTROL ASSEMBLY, IT WAS DISCOVERED
BY THE NRDEC REPRESENTATIVE THAT WIRE #21 HAS DISCONNECTED FROM THE STRIP TERMINAL. THE NRDEC REPRESENTATIVE CONNECTED THE WIRE TO THE STRIP TERMINAL AND IT WAS TIGHTENED. THE DOOR TO THE STILL CONTROL PANEL WAS SECURED.

22 OCT 1990, 0850 HST (OPSHRS 288:03/PRODHRS 240:09/GENHRS 305.7/ CYCLES 459/4.MILES 740.4)

DURING THE STILL WARM UP PERIOD, PRIOR TO FULL OPERATIONS, IT WAS DISCOVERED BY THE MAINTENANCE PERSONNEL THAT THE STILL PREHEATER INDICATOR LOCATED ON THE STILL CONTROL PANEL DOOR WAS FLICKERING ON AND OFF.

MAINTENANCE PERSONNEL BEGAN TROUBLESHOOTING PROCEDURES USING A VOLT-METER. IT WAS DETERMINED THAT THE HIGH TEMPERATURE THERMOSTAT, LOCATED IN THE LOWER RIGHT CORNER OF THE STILL ELECTRICAL CONTROL PANEL WAS INTERMITTENT. DURING TROUBLESHOOTING THE PREHEATER INDICATOR STARTED OPERATING AS DESIGNED. NO FURTHER ACTION WAS TAKEN.

23 OCT 1990, 0827 HST (OPSHRS 292:22/PRODHRS 247:31/GENHRS 309.4/ CYCLES 459/4.MILES 748.4)

THE NRDEC REPRESENTATIVE REMOVED THE INSULATION FROM THE SUCTION LINE, BEHIND THE STILL ELECTRICAL PANEL WITH A KNIFE. THE INSULATION WAS REMOVED TO ALLOW ACCESS TO THE HIGH THERMOSTAT SENSING BULB. THE SENSING BULB WAS REMOVED FROM THE SUCTION LINE.

IT WAS DETERMINED THAT THE STILL HIGH THERMOSTAT AND SENSING BULB WERE NOT THE CAUSE OF THE PREHEATER AND PREHEATER INDICATOR.

THE MAINTENANCE PERSONNEL TROUBLESHOOT THE STILL PREHEATER INDICATOR BY CHECKING THE ELECTRICAL CURRENT FROM THE STILL HIGH THERMOSTAT WITH A VOLTMETER.

THE STILL PREHEATER AND INDICATOR BEGAN OPERATING AS DESIGNED. TROUBLESHOOTING WAS DEFERRED. THERE WAS NO OBVIOUS REASON FOR THE PREHEATER AND INDICATOR TO BEGIN OPERATING.

23 OCT 1990, 1009 HST (OPSHRS 294:47/PRODHRS 249:43/GENHRS 311.4/ CYCLES 459/4.MILES 748.4)

AFTER THE STILL HAS SERVICED, IT WAS DISCOVERED THAT THE STILL PREHEATER INDICATOR LIGHT WAS OUT. MAINTENANCE PERSONNEL USED A VOLTMETER TO TROUBLESHOOT THE STILL ELECTRICAL PANEL.

DURING TROUBLESHOOTING THE PREHEATER AND INDICATOR PANEL BEGAN FUNCTIONING. THE MAINTENANCE PERSONNEL CONTINUED CHECKING FOR ANY LOOSE OR DISCONNECTED WIRES. WHEN THE MAINTENANCE PERSONNEL MOVED THE WIRING HARNESS THE PREHEATER STARTED FLICKERING. IT WAS DETERMINED THAT WIRE #8 AND WIRE #21 COULD HAVE A BREAK INSIDE THE RUBBER INSULATION.

THE MAINTENANCE PERSONNEL REPLACED WIRE #8 AND WIRE #21 INSIDE THE STILL CONTROL PANEL, FROM THE HIGH TEMPERATURE LIMIT CUTOFF TO THE STRIP TERMINAL. THE WIRES WERE THEN REPLACED BY RUNNING WIRES THROUGH THE CONDUIT, FROM THE HIGH TEMPERATURE LIMIT CUTOFF TO THE FLOW SWITCH #203, LOCATED NEXT TO THE STILL INLET VALVE.
LOW PRESSURE DURING DRY UNIT OPERATION.

WHILE OPERATING THE DRY UNIT IT WAS DISCOVERED BY THE NRDEC REPRESENTATIVE, THAT THE PRESSURE WAS LOW AND REQUIRED SERVICING. APPROXIMATELY TEN POUNDS OF FREON-12 WERE USED TO FULLY PRESSURIZE THE DRY UNIT. THE DRY UNIT WAS THEN INSPECTED WHILE OPERATING. NO LEAKS WERE DISCOVERED AT THIS TIME.

21 OCT 1990, 1057 HST (OP HRS. 286:38; PROD HRS. 239:04; GEN HRS. 305.3; CYCLES 459; MILES 748.41. THE NRDEC REPRESENTATIVE OBSERVED THE DRY UNIT SIGHT GAUGE WAS CLEAR. THE SIGHT GAUGE SHOULD APPEAR CLOUDY DURING THE DRYING CYCLE. THE NRDEC REPRESENTATIVE STARTED TROUBLESHOOTING THE DRY UNIT USING A LEAKTEC LEAK DETECTOR. THE NRDEC REPRESENTATIVE DISCOVERED A FREON-12 LEAK APPROXIMATELY ONE INCH FROM THE 90 DEGREE ELBOW AT THE BASE OF A CHECK Value. THE 90 DEGREE ELBOW WAS PREVIOUSLY REPLACED AND REPORTED IN A SEPARATE TIR. MAINTENANCE WAS DEFERRED AT THIS TIME.

22 OCT 1990, 1401 HST (OP HRS. 290:37; PROD HRS. 246:06; GEN HRS. 308.2; CYCLES 459; MILES 748.41. THE DRY UNIT WAS EVACUATED OF FREON-12, USING AN EVACUATION PUMP.

THE CHECK VALUE AND 90 DEGREE ELBOW WERE HEATED USING A TORCH, AND DISASSEMBLED AT THE SOLDER JOINTS, FROM THE DRY UNIT PLUMBING LINE. USING A TORCH, THE ORIGINAL 90 DEGREE ELBOW AND NEW CHECK VALUE WERE SOLDERED TOGETHER. THE 90 DEGREE ELBOW AND CHECK VALUE WERE SOLDERED INTO PLACE BETWEEN THE COMPRESSOR AND CONDENSER PLUMBING LINE.
THE DRY UNIT WAS THEN INSPECTED FOR ANY ADDITIONAL LEAKS. NO LEAKS WERE DISCOVERED. THE EVACUATION PUMP WAS CONNECTED TO THE DRY UNIT AND THE FREON-12 WAS EVACUATED. THE DRY UNIT WAS SERVICED WITH APPROXIMATELY 30 POUNDS OF FREON-12 TO REACH A FULLY PRESSURIZED REFRIGERATION SYSTEM. THE DRY UNIT OPERATED WITH NO FURTHER MAINTENANCE ACTIONS REQUIRED.

REVISED 02/06/91 - SCORING CONFERENCE.

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**DESCRIPTION OF INCIDENT**

THE VIBRATION LIMIT SWITCH FAILED.

DURING THE EXTRACT MODE, THE NRDEC REPRESENTATIVE OBSERVED THAT THE VIBRATION SWITCH ASSEMBLY DID NOT FUNCTION PROPERLY. FURTHER INVESTIGATION REVEALED THAT THE LIMIT SWITCH ARM WAS BROKEN AT THE BASE.

THE MAINTENANCE WAS DEFERRED UNTIL A LATER TIME.

23 OCT 1990, 1315 HST (DRHRS 286:56; PRODHRS 239:09; GENHRS 304.7; CYCLE 459; RILES 748.4)

THE MAINTENANCE PERSONNEL REMOVED THE REMAINING PORTION OF THE BROKEN LIMIT SWITCH BY REMOVING TWO REMAINING SCREWS THE LIMIT SWITCH WAS REPLACED AND THE TWO SCREWS WERE REINSTALLED.

THE MAINTENANCE PERSONNEL DISCOVERED THAT THE NEW LIMIT SWITCH HAD AN INCORRECT SIZE WHEEL. THE NRDEC REPRESENTATIVE REMOVED THE WHEEL AND ADJUSTED THE VIBRATION SWITCH ASSEMBLY TO ALLOW THE LIMIT SWITCH ARM TO BECOME THE ACTUATION POINT WITH THE DRUM.

A NEW LIMIT SWITCH WHEEL WAS ORDERED, AND FURTHER MAINTENANCE WAS DEFERRED UNTIL A LATER TIME.

REVISED 02/06/91 - SCORING CONFERENCE.
THE STILL DID NOT TRANSFER SOLVENT.

DURING THE UNSCHEDULED MAINTENANCE, THE NMDEC REPRESENTATIVE OBSERVED THAT THE STILL HAS NOT TRANSFERRING SOLVENT TO THE RINSE TANK. FURTHER INVESTIGATION REVEALED THAT THE STILL UPPER LEVEL SENSOR WAS INOPERATIVE. THE CAUSE WAS UNDETERMINED.

THE INOPERATIVE SENSOR HAS REMOVED, AND THE NEW SENSOR (P/N PL6-1-9836) HAS INSTALLED.

THE SYST[REAS] HAS OPERATED, AND THE SOLVENT HAS TRANSFERRED SUCCESSFULLY.

NO FURTHER MAINTENANCE ACTION HAS TAKEN AT THIS TIME.

22 OCT 1990, 1015 EST (CP HRS 290:00/PROD HRS 242:06/GEN HRS 307.6/ CYCLES 459/MILES 748.4)

WHILE PERFORMING UNSCHEDULED MAINTENANCE, ON THE STILL ASSEMBLY, IT WAS OBSERVED THAT THE STILL TRANSFER INDICATOR HAD NOT ILLUMINATED. APPROXIMATELY FORTY-FIVE MINUTES AFTER THE STILL READY INDICATOR ILLUMINATED, THE NMDEC REPRESENTATIVE DETERMINED THAT MORE THAN A SUFFICIENT AMOUNT OF TIME HAD PASSED TO ILLUMINATE THE TRANSFER INDICATOR, AND FOR SOLVENT TO TRANSFER.

THE NMDEC REPRESENTATIVE DETERMINED THAT THE CONTROLLING DEVICES FOR THE TRANSFER SYSTEM WERE TWO LEVEL SENSORS. THE LEVEL SENSORS ARE LOCATED ON THE RIGHT REAR CORNER OF THE STILL PALLET ASSEMBLY, ABOVE THE TRANSFER PUMP.

AN INSPECTION OF THE UPPER LEVEL SENSOR, REVEALED A BROKEN WIRE INSIDE THE ELECTRICAL CONDUIT INSPECTION PLATE. THE WIRE HAS RECONNECTED, USING THE EXISTING WIRE MUI. TROUBLESHOOTING CONTINUED ON THE TRANSFER ELECTRICAL...
CIRCUIT, using a volt meter. The NRDEC representative determined that both the upper and lower level sensors had failed.

The NRDEC representative and maintenance personnel removed the four mounting bolts, located at the left outside base of the still pallet assembly. The still was drained of solvent and the four remaining mounting bolts were removed from the right inside base of the still pallet assembly. The three solvent hoses were disconnected at the still pallet assembly and secured away from the still assembly. The NRDEC representative, operating the fork lift, moved the still pallet assembly approximately one foot forward on the trailer, to access the lower level sensor.

The NRDEC representative removed the electrical conduit from the lower level sensor and then removed the lower level sensor. A new sensor was installed and the electrical conduit was reinstalled.

The NRDEC representative, operating the fork lift, moved the still pallet assembly back into place, and the eight mounting bolts were reinstalled to the left and right base of the still pallet assembly. The three solvent hoses were reinstalled and maintenance was deferred due to the remaining parts required being ordered.

24 OCT 1990, 1324 HST (OP HRS 293:09/PROD HRS 248:10/GEN HRS 310.3/CYCLES 459/MILES 748.4)

The NRDEC representative removed the electrical conduit from the upper level sensor. The upper level sensor was removed and a new sensor was installed. The electrical conduit was reinstalled, completing the maintenance action.

The still assembly was powered up, and the transfer system monitored. The transfer system operated as designed. No further maintenance action was required at this time.

REVISION #1 DATE 11-20-90 MILES 748.40 HOURS 286.51

BLOCK
35
FROM
DEFEERED MAINT.
TO
MAINTAINED

REVISION 02/06/91 - SCORING CONFERENCE.
THE NBC INDICATOR BULB WAS BURNT OUT.

DURING UNSCHEDULED MAINTENANCE THE HRDEC REPRESENTATIVE DISCOVERED THAT THE BULB FOR THE NBC INDICATOR WAS BURNT OUT. THE HRDEC REPRESENTATIVE REMOVED THE FAILED BULB AND REPLACED IT WITH ONE FROM HIS MAINTENANCE CASE. THE PART NUMBER FOR THE BULB COULD NOT BE DETERMINED.

NO FURTHER MAINTENANCE ACTION HAS BEEN TAKEN OR REQUIRED.

REVISED 05 FEB 91 TO UPDATE PARTS.

REVISION 02/06/91 - SCORING CONFERENCE.

THE NBC INDICATOR BULB WAS BURNT OUT.

DURING UNSCHEDULED MAINTENANCE THE HRDEC REPRESENTATIVE DISCOVERED THAT THE BULB FOR THE NBC INDICATOR WAS BURNT OUT. THE HRDEC REPRESENTATIVE REMOVED THE FAILED BULB AND REPLACED IT WITH ONE FROM HIS MAINTENANCE CASE. THE PART NUMBER FOR THE BULB COULD NOT BE DETERMINED.

NO FURTHER MAINTENANCE ACTION HAS BEEN TAKEN OR REQUIRED.

REVISED 05 FEB 91 TO UPDATE PARTS.

REVISION 02/06/91 - SCORING CONFERENCE.
DESCRIPTION OF INCIDENT

THE STILL FILLED INDICATOR WAS NOT OPERABLE.

DURING UNSCHEDULED MAINTENANCE, THE MRDEC REPRESENTATIVE DISCOVERED THAT THE STILL FILLED INDICATOR LIGHT WAS INOPERABLE. THE STILL SIGHT TUBE INDICATED THAT THE STILL HAD ADEQUATE SOLVENT TO CAUSE THE INDICATOR LIGHT TO ACTIVATE.

THE MRDEC REPRESENTATIVE REMOVED THE STILL FILLED INDICATOR BULB, AND DISCOVERED THAT THE BULB HAD FAILED. A NEW BULB WAS INSTALLED AND THE DISCREPANCY WAS CORRECTED. NO FURTHER ACTION WAS TAKEN OR REQUIRED.

REVISION 02/06/91 - SCORING CONFERENCE.

---------------------------------------------------------------------------------

INC-DATE: 901023
TIRE: LS-A000103 02
INC CLASS: MINOR
ACTION-TAKEN: REMOVED
PART NAME: REFRIGERATION GAUGES
FGC: 04
OPSHS 292.2
PROBDH 247.4
GENHRS 309.3

---------------------------------------------------------------------------------

MAINTENANCE INFORMATION

CMR TYPE USED PREC RECON CLHRS RAMHRS
CMR UMS BS BS GS 00:37 00:37

---------------------------------------------------------------------------------

DESCRIPTION OF INCIDENT

THE REFRIGERATION PRESSURE WAS DISCOVERED TO BE LOW.

DURING AN INSPECTION OF THE REFRIGERATION DRY UNIT IT WAS DISCOVERED, BY THE MRDEC REPRESENTATIVE, THAT THE REFRIGERATION PRESSURE WAS LOW. THE GAUGES INDICATED A PRESSURE OF -12 PSI OVER 75 PSI.

THE MAINTENANCE PERSONNEL UTILIZED A "LEAKITEC" LEAK DETECTOR TO INSPECT THE COPPER TUBING OF THE REFRIGERATION DRY UNIT. THE INSPECTION REVEALED THAT THERE WERE NO LEAKS IN THE COPPER TUBING.


THE GAUGES WERE REMOVED CORRECTING THE PROBLEM, AND NO FURTHER MAINTENANCE ACTION WAS TAKEN.

A-133
DURING UNSCHEDULED MAINTENANCE THE MAINTENANCE REPRESENTATIVE DISCOVERED THAT ELECTRICAL POWER WIRE #81 WAS DISCONNECTED FROM ITS STILL CONTROL PANEL TERMINAL. THE MAINTENANCE REPRESENTATIVE CONNECTED WIRE #81 TO ITS TERMINAL AND TIGHTENED THE RETAINING SCREW WITH A STANDARD JEWELER'S SCREWDRIVER. NO FURTHER MAINTENANCE ACTION WAS TAKEN OR REQUIRED.

REVISION 02/06/91 - SCORING CONFERENCE.
INC-DATE: 901114
TICK: L5-9000134 02
INC CLASS: MINOR
ACTION-TAKEN: NO ACTION TAKEN
PART NAME: STILL RESERVOIR
FGC: 0200
OPSRLS 297.1
PRODHR 251.1
GENRLS 313.4

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DESCRIPTION OF INCIDENT

A CLASS II LEAK ABOVE THE STILL RESERVOIR SIGHT GLASS.


MAINTENANCE WAS REFERRED.

REVISION #1
DATE 11/29/90  HOURS 748.40 HOURS 297.00 TIME 1405 HST

TO UPDATE MAINTENANCE DATA AND NARRATIVE


MAINTENANCE PERSONNEL TIGHTENED THE COUPLING NUTS ON THE SERVICE LINE USING TWO 10-INCH OPEN END WRENCHES.
NO FURTHER ACTION WAS TAKEN.

REVISION 02/06/91 - SCORING CONFERENCE.

INC-DATE: 901114
TMRB: L5-8000137 01
INC CLASS: Minor
ACTION-TAKEN: OPERATED
PART NAME: Refrigeration Unit
FAC: 0400
OPSRS: 297.4
PRODR: 222.3
GENRS: 317.2

MAINTENANCE INFORMATION

CHART TYPE USED PRESC RECOM CLASS RECS FINS 00:36 00:36
CRN CRN CRN CRN

DESCRIPTION OF INCIDENT

THE REFRIGERATION UNIT SIGHT GAUGE INDICATED LOW PRESSURE.

WHILE IN THE DRY MODE OF OPERATIONS IT WAS DISCOVERED BY THE OPERATOR THAT THE REFRIGERATION UNIT SIGHT GAUGE WAS NOT CLOUDY. THE CLEAR GAUGE INDICATED THE REFRIGERATION UNIT WAS NOT WORKING DUE TO LOW REFRIGERANT PRESSURE.

OPERATIONS WERE CONTINUED USING THE DRY WEAVER.

ON 11-13-90, AT 0629 (HST), WITH THE OPEAS 104-34, PRODRS 229-10, GENRS 324.6, CYCLES 470, AND THE RIES AT 740.4, THE OPERATOR OBSERVED THAT THE DRY UNIT SIGHT GAUGE WAS CLOUDY FOR APPOXIMATELY TEN SECONDS AND THEN BECAME CLEAR. THE INCIDENT WAS OBSERVED DURING THE DRY MODE. THE ELECTRIC HEAT SWITCH WAS ACTIVATED AND THE OPERATIONS WERE CONTINUED.

AT 0729 (HST) THE DRY UNIT WAS SERVICED WITH FREON-12 WHILE IN DRY MODE ON PAUSE.

THE DISCREPANCY WAS CORRECTED AND THE OPERATIONS WERE CONTINUED.

REVISION 02/06/91 - SCORING CONFERENCE.
THE BAG FILTER WAS FILLED.

DURING A MAINTENANCE CHECK IT WAS DISCOVERED BY THE OPERATOR THAT THE UPPER BAG FILTER PRESSURE GAUGE INDICATED 25 PSI AND THE LOWER PRESSURE GAUGE INDICATED 15 PSI. THE 10 PSI DIFFERENCE INDICATED THAT THE BAG FILTER REQUIRED CHANGING.

AFTER CYCLE #462 MAINTENANCE PERSONNEL REMOVED THE COVER TO THE BAG FILTER COMPARTMENT. MAINTENANCE PERSONNEL DRAINED AND REMOVED THE BAG FILTER AND INSTALLED A NEW ONE. THE "O-RING" AND COVER WERE REPLACED. THE COVER WAS TIGHTENED DOWN COMPLETING THIS MAINTENANCE ACTION.

REVISION 03 FEB 91 TO UPDATE PARTS.

REVISION 02/06/91 - SCORING CONFERENCE.
THE BAG FILTER GAUGES DISPLAYED IRREGULAR READINGS.

DURING THE OPERATIONS, AS THE SYSTEM ENTERED THE RINSE MODE, THE OPERATOR OBSERVED THAT THE UPPER BAG FILTER GAUGE DISPLAYED 10 PSI, WHEREAS THE LOWER GAUGE DISPLAYED 20 PSI. UNDER NORMAL CONDITIONS, THE UPPER GAUGE SHOULD DISPLAY AN EQUAL OR GREATER PRESSURE THAN THE LOWER GAUGE.

THE CAUSE WAS UNDETERMINED AT THIS TIME, AND THE MAINTENANCE WAS REFERRED.

16 NOV 1990, 07:34 HST (OPHRS 315:48/PHRMS 267:48/GERHRS 333.9/CRYLED 467/VEILES 748.4)

THE BAG FILTER ASSEMBLY WAS INSPECTED BY MAINTENANCE PERSONNEL TO INSURE THE BAG FILTER AND THE BAG FILTER BASKET WAS SEATED WITHIN THE ASSEMBLY PROPERLY. THERE WERE NO OBSTRUCTIONS THAT COULD CAUSE THE GAUGE TO BE INOPERATIVE.

REVISION 02/06/91 - SCORING CONFERENCE.
POWER CABLE HORN IN TWO LOCATIONS.

DURING A B-MPGS IT WAS DISCOVERED BY THE OPERATOR THAT THE HORN POWER CABLE HORN IN TWO LOCATIONS. THE HORN WAS CAUSED BY A VERTICAL BRACE CONNECTING THE TRAILER TO THE BACK OF THE ELECTRICAL PANEL HOUSING FRAME. THE LOCATION OF THE FIRST HORN MARK IS 6 INCHES FROM THE POINT WHERE IT ENTERS THE ELECTRICAL PANEL AND IS HORN TO AN APPROXIMATE 1/8 INCH DEPTH. THE SECOND HORN MARK IS LOCATED APPROXIMATELY 3 INCHES ABOVE THE TRAILER AND IS HORN TO AN APPROXIMATE 1/8 INCH DEPTH. BOTH HORN MARKS WERE CAUSED BY THE VIBRATION AGAINST THE VERTICAL BRACE.

REVISION 02/06/91 - SCORING CONFERENCE.
### SUPPORTABILITY ANALYSIS CHART

**PROJECT NUMBER**
9-E5-115-LAO-003

**PROJECT NAME**
BT II LANDS LAUNDRY/DRY CLEANER

**ITEM ID**
LAUDO1

---

**INC-DATE:** 901115  
**TME:** 65A100000  
**INC CLASS:** MINOR  
**ACTION-TAKEN:** NO ACTION TAKEN  
**PART NAME:** SERVICE HOSE HORN  
**FCC:** 1200  
**PSR** 311.3  
**PRODR** 264.4  
**GENARS** 331.7

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**CHAR TYPE** | **USED PRESC RECON** | **CLSWRS** | **RANHRS** | **CRA UMS** | **CREW CREW CREW** | **00:01** | **00:01** |

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**DESCRIPTION OF INCIDENT**

SERVICE HOSE SHOWING SIGNS OF WEAR DUE TO VIBRATION.

During the O-PMCS of the LANDS the operator discovered that the 2 inch service hose that connects the bag filter assembly to the solvent holding tanks was rubbing against the metal bracket above the rear of the drum housing assembly. The service hose is beginning to show wear due to the vibration of the hose against the metal bracket. The rub mark on the service hose is oval in shape approximately 1 1/2 inches long and 1/2 inch wide.

NO FURTHER ACTION TAKEN.

REVISION 02/06/91 - SCORING CONFERENCE.
**DRUM BASKET NOT ROTATING IN THE PROPER DIRECTION.**

During Cycle 491, while in the dry mode, the drum basket stopped rotating. The operator turned the ladds off and opened the electrical panel door to inspect for broken insulation, bare wires, and loose or broken connectors. None were found. The operator closed the electrical panel door and powered up the ladds. The operator started the ladds in the dry mode and the drum basket rotated clockwise only.

During normal performance the drum basket should rotate clockwise, for approximately 48 seconds, pause, and then change directions for approximately 58 seconds as per TM-DEP-10-3510-221-14. Cycles 492 and 493 operated without incident.

During Cycle 494 the operator observed the drum basket turning clockwise only while in the wash mode. During the rinse mode the drum basket stopped rotating. The operator powered the ladds down and inspected inside of the electrical panel for broken or loose wiring. None were found. The operator reinitialized power (continued operations), and monitored the rotation of the drum basket. The drum basket continued to rotate only in the clockwise direction during, the rinse, extract, and dry modes. The ladds was shutdown to troubleshoot a separate maintenance problem.

Maintenance personnel reinitialized power to the ladds and began troubleshooting the electrical circuits in the electrical control panel with a multimeter. Maintenance personnel determined that the TR-1 timer is not timing out after approximately 35 seconds per TM-DEP-10-3510-221-14. The TR-1 timer only works when tapped on. Maintenance personnel shutdown the ladds, disconnected the wires from the TR-1 timer, and removed the TR-1 timer.
TIMER because, it was not working properly. Maintenance personnel reinstalled the original TR-1 timer (that was removed 10/25/90) and started the laudry, in the wash pause mode, to determine if the original TR-1 timer was functioning properly.

Maintenance personnel used a multimeter to troubleshoot the TR-1 timer. Additionally, they observed the functioning of the reinstalled original TR-1 timer. Maintenance personnel determined that the original TR-1 timer was not operating per TR-DP-10-3510-221-14.

Maintenance was deferred.

Revision #1
Date 11-28-90 Hrs 748.40 Hours 317.55

To update the narrative and maintenance data.

26 Nov 1990, 1226 HRS (Opshrs 320:20/Prodhrs 271:48/Genhrs 331.2/
Cycles 494/Hrs 748.4)

The TR-1 timer, located in the bottom left corner of the main electrical panel, was disconnected and removed by maintenance personnel.

A new TR-1 timer, supplied by NRDEC, was installed and the wires were reconnected.

No further action was required at this time.

29 Nov 1990, 0833 HRS (Opshrs 323:12/Prodhrs 273:43/Genhrs 334.2/
Cycles 494/Hrs 748.4)

During unscheduled maintenance smoke was observed emitting from the lower corner of the main electrical control box. Approximately 5 seconds later the system shut itself down. The maintenance personnel turned off the main circuit breaker and opened the main electrical control box for inspection.

Maintenance personnel inspected the electrical circuit and indicator panel in an attempt to locate any wiring that may have burned. Further investigation revealed that the smoke had come from the area around the TR-1 timer and relay. A circuit breaker at the top left corner was tripped. The circuit breaker was switched to the on position and the system was powered up. Maintenance personnel began troubleshooting the TR-1 timer and TR-1 relay using a multimeter. It was determined that the TR-1 relay had failed.

Maintenance personnel removed the TR-1 timer and wiring from the relay. The TR-1 relay was removed. A new TR-1 relay was installed and the wiring reconnected. The TR-1 timer was reinstalled.

The system was powered up and operated. No further action was taken or required.
### Supportability Analysis Chart

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**Revision 02** Date: 01/19/91 KMS: 748.40 HRS: 317.55 To correct when repaired Opshrs.

**Revision 02/06/91 - Scoring Conference.**

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**Description of Incident**

The refrigeration dry unit was discovered to be inoperative.

During Cycle #488 the operator observed that the compressor for the refrigeration dry unit did not activate at the beginning of the dry mode. The operator turned on the electric drying heater and continued operations. After completion of Cycle #494 maintenance personnel began troubleshooting the refrigeration unit. Maintenance personnel hooked up pressure gauges to the compressor and visually inspected the refrigeration dry unit. After troubleshooting (testing), it was the opinion of maintenance personnel that the probable cause for the refrigeration dry unit being inoperative was ...
LINT BUILDUP ON THE COILS OF THE CONDENSER. MAINTENANCE PERSONNEL RECOMMENDED THAT THE REFRIGERATION DRY UNIT NOT BE USED UNTIL FURTHER INSPECTION OF THE CONDENSER COILS HAS BEEN CONDUCTED. THE ELECTRIC DRYING HEATER COULD BE USED TO CONDUCT FURTHER OPERATIONS. MAINTENANCE WAS DEFERRED.

REVISION #1
DATED 1-6-91 MILES 748.40 HOURS 329.28 TIME 0801 HST

TO UPDATE MAINTENANCE DATA AND THE NARRATIVE

MAINTENANCE PERSONNEL DISCONNECTED THE DUCTWORK BY REMOVING THE 24 MOUNTING BOLTS AND 4 BRACKET RETAINING BOLTS. THE VENT LINES WERE DISCONNECTED AND THE DUCT WORK, UPPER AND LOWER GASKET WERE REMOVED.
THE CONDENSER COILS WERE INSPECTED BY THE PROJECT ENGINEER AND MAINTENANCE PERSONNEL. IT WAS DETERMINED THAT THE SMALL AMOUNT OF LINT THAT HAD COLLECTED ON THE FRONT COIL COULD NOT HAVE CAUSED THE REFRIGERATION DRY UNIT'S LOW BACK PRESSURE INDICATION. AS PER THE PROJECT ENGINEER'S INSTRUCTIONS, THE COILS WERE CLEANED WITH A DRY SHOP RAG.
MAINTENANCE PERSONNEL DETERMINED THAT A NEW UPPER GASKET WAS REQUIRED DUE TO A PREVIOUS REPAIR (REF TIR L5-A000040). A NEW GASKET WAS MADE FROM STOCK GASKET MATERIAL SUPPLIED BY NRDEC.
THE ENTRANCES TO THE CONDENSER AND THE LINT FILTER HOUSING WERE COVERED TO PREVENT ANY DIRT OR MOISTURE FROM ENTERING THE SYSTEM.

THE DUCT WORK WAS REINSTALLED WITH THE ORIGINAL LOWER GASKETS AND A NEW UPPER GASKET. TWENTY-FOUR NEW MOUNTING BOLTS AND NUTS WERE INSTALLED. THE FOUR BRACKET RETAINING BOLTS WERE INSTALLED. THE MOUNTING BOLTS AND RETAINING BOLTS WERE TIGHTENED.
MAINTENANCE WAS DEFERRED UNTIL THE REFRIGERATION MAINTENANCE PERSONNEL COULD TROUBLESHOOT THE REFRIGERATION SYSTEM.

29 NOV 1990, 0800 HST (OPSHRS 322:03/PRODHRS 273:31/GENHRS 341:0/ CYCLES 494/MILES 748:4)
MAINTENANCE PERSONNEL CONNECTED THE REFRIGERATION SERVICE GAUGES TO THE REFRIGERATION DRY UNIT. THE SYSTEM WAS OPERATED IN THE DRY MODE, ALLOWING THE MAINTENANCE PERSONNEL TO SERVICE AND TROUBLESHOOT THE REFRIGERATION DRY UNIT. A WASHER AND RINSE CYCLE WAS COMPLETED IN AN ATTEMPT TO EMPTY THE BUTTON TRAP OF SOLVENT. THE ELECTRIC DRY HEATER WOULD BE USED TO INCREASE THE
THE REFRIGERATION MAINTENANCE PERSONNEL REINSPECTED THE REFRIGERATION SYSTEM FOR LEAKS.

THE REFRIGERATION MAINTENANCE PERSONNEL COULD NOT DETERMINE THE CAUSE OF THE LOW PRESSURE INDICATIONS OF THE REFRIGERATION DRY UNIT. IT WAS SUGGESTED BY THE REFRIGERATION MAINTENANCE PERSONNEL THAT A HIGHER ECHelon OF MAINTENANCE BE UTILIZED TO CONTINUE TROUBLESHOOTING.

4 DEC 1990, 1018 HST (OPSHRS 327:04/PRODHRS 277:10/GENHRS 374.8/CYCLES 49/4/HILES 748.4)

THE Natick Research, Development and Evaluation Center (HRDEC) REPRESENTATIVE CONNECTED REFRIGERATION SERVICE GAUGES TO THE REFRIGERATION DRY UNIT. THE DRY SYSTEM WAS OPERATED IN THE DRY NODE OF OPERATION TO ALLOW THE HRDEC REPRESENTATIVE TO MONITOR THE REFRIGERATION PRESSURE DURING TROUBLESHOOTING.

THE HRDEC REPRESENTATIVE BEGAN TROUBLESHOOTING THE SYSTEM BY REMOVING THE EIGHT MOUNTING BOLTS, DUCT WORK AND BLOWER HOSE THAT CONNECTS THE BLOWER ASSEMBLY TO THE WASHER DRUM. APPROXIMATELY 1 GALLON OF SOLVENT WAS DRAINED FROM THE Control Trap Assembly, ENSURING THAT THE SOLVENT WAS NOT CAUSING AN AIR FLOW RESTRICTION. THE HRDEC REPRESENTATIVE CHECKED THE AIR FLOW FROM THE BLOWER BY PLACING HIS HAND IN FRONT OF THE BLOWER EXIT PORT. THERE WAS AIR EMITTING BUT IT COULD NOT BE DETERMINED IF THE AIR FLOW WAS SUFFICIENT. THE COVER TO THE WASHER DRUM DOOR LATCH WAS REMOVED TO BYPASS THE ELECTRIC LIMIT SWITCH ALLOWING THE SYSTEM TO OPERATE WHILE THE WASHER DRUM DOOR WAS OPEN. THE AIR FLOW ENTERING THE DRUM WAS CHECKED. THERE WAS AIR FLOW BUT IT COULD NOT BE DETERMINED IF THE AIR FLOW WAS SUFFICIENT. THE BOTTOM BLOWER HOSE WAS CHECKED ENSURING THAT THERE WAS AIR FLOW EMITTING FROM THE WASHER DRUM.

THE HRDEC REPRESENTATIVE SECURED CARDBOARD TO THE PROTECTIVE MESH SCREEN OF THE REFRIGERATION DRY UNIT'S COILS. THIS WAS DONE TO MONITOR THE EFFECTS OF THE MILD AND COOL TEMPERATURES ON STILL OPERATIONS.

THE BLOWER HOSE WAS REINSTALLED. THE AIR FLOW FROM THE BLOWER EXIT PORT WAS CHECKED WITH NO CHANGE FROM THE PREVIOUS CHECK. THE UPPER BLOWER HOSE AND BLOWER DUCT WORK WERE REINSTALLED. THE COVER TO THE DRUM DOOR LATCH WAS REINSTALLED.

THE MAINTENANCE PERSONNEL REPLACED THE THERMOSTATIC EXPANSION VALUE (TX VALUE).

THE FREON 12 WAS BLED FROM THE REFRIGERATION DRY UNIT TO PREPARE FOR THE TX VALUE REMOVAL. THE TWO MOUNTING BOLTS AND THE TX VALUE WERE REMOVED. A NEW TX VALUE WAS INSTALLED (P/N HFE-4-C). THE REFRIGERATION UNIT WAS SERVICED WITH FREON 12 TO ENSURE THAT THE SYSTEM WAS PRESSURIZED OVERNIGHT.

A DEC 1990, 0801 HST (OPSHRS 329:28/PRODHRS 279:33/GENHRS 350.2/CYCLES 494/HILES 748.4)

THE PRESSURE WITHIN THE REFRIGERATION DRY UNIT WAS RELEASED. THE UNIT WAS SERVICED THROUGH THE SERVICING GAUGES. AN EVACUATION PUMP WAS CONNECTED...

DURING OPERATIONS THE REFRIGERATION DRY UNIT WAS MONITORED BY MAINTENANCE PERSONNEL. AFTER 14 COMPLETE CYCLES IT WAS DETERMINED THAT THE PROBABLE CAUSE FOR THE REFRIGERATION DRY UNIT'S LOW PRESSURE INDICATION WAS DUE TO THE COLD MIND HITTING THE COILS OF THE REFRIGERATION DRY UNIT.

IT WAS DETERMINED BY THE PROJECT ENGINEER AND THE MRDEC REPRESENTATIVE THAT THE OPERATORS WOULD UTILIZE A SECTION OF CARDBOARD TO COVER THE COILS OF THE REFRIGERATION DRY UNIT ON COLD WINDY DAYS OF OPERATION.

REvised 05 Feb 91 to update parts.

REVISION 02/06/91 - SCORING CONFERENCE.

A CRACK WAS DISCOVERED AT THE CONNECTION BETWEEN THE VENT PIPE AND DUCT.
DURING UNSCHEDULED MAINTENANCE A CRACK WAS DISCOVERED BY MAINTENANCE PERSONNEL IN THE CONTROL TRAP DUCT. THE DUCT WORK HAD BEEN REMOVED PREVIOUSLY AND MAINTENANCE PERSONNEL BEGAN CLEANING IT WHEN THE CRACK WAS DISCOVERED. THE CRACK HAS LOCATED WHERE THE VENT PIPE WAS WELDED TO THE DUCT. THE CRACK IS APPROXIMATELY ONE INCH LONG ON THE TOP HALF OF THE CONNECTION. THE CONTROL TRAP DUCT WAS SENT TO THE WELDING SHOP FOR REPAIRS.

THE CONTROL TRAP DUCT WAS REPAIRED BY WELDING THE CRACK AT THE JOINT BETWEEN THE VENT PIPE AND THE DUCT WORK.  
THE INSTALLATION AND REMOVAL MAINTENANCE TIME HAS CHARGED TO A PREVIOUS MAINTENANCE ACTION.  
THE REPAIR WAS PERFORMED AT THE ORGANIZATIONAL LEVEL DUE TO THE AVAILABILITY OF THE ORGANIZATIONAL WELDING FACILITY AT YPG AS DIRECTED BY THE PROJECT ENGINEER.

REVISION 02/06/91 - SCORING CONFERENCE.

INC-DATE: 901127  
INC: L5-H000145 02  
INC CLASS: MAJOR  
ACTION-TAKEN: INSPECTED  
PART NAME: STILL READY INDICATOR  
FCC: 0200  
OPS/NSR 320.2  
PRODHR 271.5  
GENHRS 341.2

DESCRIPTION OF INCIDENT

THE STILL READY INDICATOR WOULD NOT LIGHT.

AFTER AN HOUR AND TEN MINUTES THE STILL READY INDICATOR LIGHT FAILED TO STAY ON. THE STILL TEMPERATURE NEVER PASSED 102 DEGREES. THE STILL TEMPERATURE DROPPED TO 90 DEGREES CAUSING THE STILL PREHEATER TO ACTIVATE THREE TIMES. THE FOLLOWING DATA WAS COLLECTED AFTER THE THIRD PREHEATER ACTIVATION.
The Still Ready Indicator would light and stay lit until the maximum pressure was reached. When the indicator went out the pressure would drop.

The RADD System is Setting in a North South Position with the Still Pallet Assembly on the North West Side. The following meteorological data was collected during this period of operation.

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**REVISION 1**

DATE 1-8-91  NILES 748.4  HOURS 332.02  TIME 0725 AST. TO UPDATE MAINTENANCE DATE AND THE NARRATIVE. BLOCK 90.

29 NOV 1990, 0810 RST (OPS/RS 322:03/PRODCS 273:31/GENRS 343.0/CYCLES 494/ NILES 748.4)

MAINTENANCE PERSONNEL CONNECTED SERVICING GAUGES TO THE STILL REFRIGERATION SYSTEM. THE STILL HAS SERVICED WITH FREON 12 FOR APPOXIMATELY 2 HOURS. AFTER THAT TIME IT WAS DETERMINED THAT THE STILL HAS NOT SERVICING PROPERLY. THE CAUSE FOR THE STILL ASSEMBLY NOT BEING FUNCTIONAL WAS NOT DETERMINED.

04 DEC 1990, 0816 RST (OPS/RS 328:01/PRODCS 273:26/GENRS 346.0/CYCLES 494/ NILES 748.4).

THE NATICK RESEARCH, DEVELOPMENT & EVALUATION CENTER REPRESENTATIVE BEGAN TROUBLESHOOTING THE STILL ASSEMBLY BY CONNECTING REFRIGERATION SERVICING GAUGES AND MONITORED THE STILL OPERATIONS. THE STILL COMPRESSOR WOULD OPERATE FOR APPROXIMATELY 10 SECONDS AND THEN SHUT DOWN. THE STILL.
TUE, MAR 12, 1991 SUPPORTABILITY ANALYSIS CHART PAGE: 147

PROJECT NUMBER 0-E5-115-LAB-003 PROJECT NAME DT II LABS LAUNDRY/DRY CLEANER

ITEM ID LAB001

WAS SERVICED WITH SOLVENT FROM THE DUMP TANK. THE MRDEC REPRESENTATIVE
OBSERVED THAT THE STILL FILL LIGHT WOULD NOT GO OUT. IT WAS SUSPECTED
THAT THE STILL FILL FLOAT SENSOR HAD FAILED.

THE STILL WAS DRAINED OF SOLVENT BY MAINTENANCE PERSONNEL. THE SER-
VICING LINES TO THE FLOW SWITCH HELL WERE DISCONNECTED TO DRAIN THE EXCESS
SOLVENT IN ORDER TO INSPECT THE FLOAT SENSOR. THE FILL FLOAT AND THE
BOILDOWN FLOAT SENSOR WERE DISCONNECTED. THE FILL FLOAT SENSOR WAS REMOVED
AND INSPECTED. THE FILL FLOAT SENSOR WAS CHECKED WITH A MULTIMETER AND
FIND TO BE FUNCTIONAL. THE FLOW SWITCH HOUSING WAS FLUSHED WITH WATER TO
CLEAN OUT ANY EXCESS LINT. THE FILL FLOAT SENSOR WAS REINSTALL D. THE
FILL FLOAT, BOILDOWN FLOAT SENSORS AND SERVICE LINES WERE RECONNECTED.

THE STILL WAS SERVICED WITH SOLVENT FROM THE DUMP TANK. THE STILL FILL
INDICATOR STAYED ILLUMINATED WHEN IT SHOULD HAVE GONE OUT. THE MRDEC REP-
RESENTATIVE INSPECTED THE STILL CONTROL PANEL. DURING THIS INSPECTION HE
FOUND HERE #23 WAS LOOSE (REF FIR LS-A000146).

THE MRDEC REPRESENTATIVE CONTINUED TROUBLESHOOTING THE STILL BY BYPASS-
ING THE SOLENOID VALUE AND CHECKING STILL OPERATIONS. THE SOLENOID VALUE
WAS FOUND TO BE FUNCTIONAL. THE MRDEC REPRESENTATIVE CONTINUED HIS IN-
SPECTION OF THE STILL ASSEMBLY.

THE STILL HAS BEEN PREVIOUSLY SERVICED WITH FREON 12. THE SERVICE GAUGES INDICATED
15/175 PSI AND THE STILL TEMPERATURE WAS AT 112 DEGREES. THE MRDEC REP-
RESENTATIVE CONTINUED TROUBLESHOOTING BY COVERING THE STILL CONDENSING COILS
WITH A SECTION OF CARDBOARD. THE PRESSURE AND TEMPERATURE STARTED TO RISE
BUT DID NOT RISE HIGH ENOUGH. THE CARDBOARD WAS REMOVED TO OBSERVE THE
RESULTS. THE PRESSURE AND TEMPERATURE WERE HOLDING AT 21/195 PSI.

05 DEC 1990, 0926 RST (OPSRS 331:25/PRODRS 279:33/GENRS 352.2/CYCLES 494/
FR11 748.4).

THE STILL HAS BEEN PREVIOUSLY SERVICED WITH SOLVENT FROM THE DUMP TANK BECAUSE THE
STILL HAD BOILED DOWN WELL BELOW THE FILL MARK. THE STILL READY INDICATOR
STAYED ILLUMINATED AND THE STILL FILL INDICATOR NEVER ILLUMINATED. OPERA-
TIONS CONTINUED FOR 35 MINUTES AND THE BOILDOWN WAS REPEATED. THE MRDEC
REPRESENTATIVE DISCONNECTED THE STILL FLOW SWITCH HOUSING FROM THE STILL.
THE STILL WAS DRAINED TO ACCESS THE LEVEL SENSORS. THE TOP AND BOTTOM
SOLVENT LINES WERE DISCONNECTED TO DRAIN THE FLOW SWITCH HOUSING. THE
STILL FILL SENSOR WAS REMOVED AND THE SOLVENT DRAINED FROM ITS PORT. THE
HOUSING SHOULD BE EMPTY WHEN THE STILL FILL INDICATOR IS NOT ILLUMINATED.
THE LOWER SOLVENT LINE ELBOW WAS INSPECTED AND FOUND TO BE CLOGGED WITH
LINT. THE LINT WAS CLEANED OUT WITH A 6 INCH PIECE OF SILVER SOLDER. THE
FLOW SWITCH HOUSING WAS FLUSHED USING SOLVENT AND BOTH UPPER AND LOWER
SOLVENT LINES WERE CLEANED.

THE STILL LEVEL INDICATOR WAS DISASSEMBLED AND INSPECTED DUE TO THE
LINT FOUND IN THE FLOW SWITCH HOUSING'S LOWER SOLVENT PORT. LINT WAS
DISCOVERED IN THE UPPER LEVEL INDICATOR CONNECTOR AT THE STILL. THE CON-
NECTION WAS CLEANED WITH A 6 INCH PIECE OF SILVER SOLDER AND REASSEMBLED.

A-149
THE LABOR SYSTEM HAS OPERATED FOR 9 CYCLES WITH NO DISCREPANCIES.

06 DEC 1990, 0723 PST (OPSERS 339:02/PRODIRS 294:58/GENERS 359.3/CYCLES 503/KMILES 740.9).

THE MRDEC REPRESENTATIVE REMOVED AND INSPECTED THE STILL FILTER TO ENSURE THAT IT WAS NOT CLOGGED WITH LINT. THE FILTER HAD NO LINT ACCUMULATION. THE FILTER WAS WASHED WITH WATER, DRIED WITH AIR PRESSURE AND REINSTALLED. THE STILL WAS SERVICED AND OPERATED WITH NO FURTHER INCIDENTS.

THE MRDEC REPRESENTATIVE DETERMINED THAT LINT BUILD UP AND THE COLD WATER BLOCKING ACROSS THE STILL CONDENSING COILS WERE THE PROBABLE CAUSE OF THIS INCIDENT. IT WAS DETERMINED BY THE PROJECT ENGINEER AND THE MRDEC REPRESENTATIVE THAT THE OPERATORS SHOULD KEEP THE STILL CONDENSING COILS COVERED WITH CARDBOARD ON COLD AND WARM PERIODS OF OPERATIONS.

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REVISION 02/06/91 - SCORING CONFERENCE.

----------------------------------------
INC-DATE: 901204
INC: L5-9000146 01
INC CLASS: MINOR
ACTION-TAKEN: TIGHTENED
PART NAME: ELECTRICAL WIRE #23
FCC: 9200
OPSERS 226.6
PRODIR 276.6
GENERS 247.6
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DESCRIPTION OF INCIDENT

THE ELECTRICAL WIRE #23 WAS DISCOVERED TO BE LOOSE.

DURING UMSCHEDULED MAINTENANCE THE MRDEC REPRESENTATIVE DISCOVERED THAT THE ELECTRICAL WIRE #23 WAS LOOSE AT THE TERMINAL STRIP LOACATED IN THE STILL CONTROL PANEL. THE MRDEC REPRESENTATIVE TIGHTENED WIRE #23 TO THE TERMINAL STRIP USING A JEWELER'S SCREWDRIVER.

NO FURTHER ACTION WAS TAKEN OR REQUIRED.
REVISION 02/06/91 - SCORING CONFERENCE.

INC-DT: 901204
TMD: L3-8000117 01
INC CLASS: LND
ACTION-TAKEN: OTHER, SEE BLK 90
PART NAME: DRUM CAP SCREX
FCC: 700
QRSK: 327.3
PRNBR: 277.4
GSNRS: 348.2

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DESCRIPTION OF INCIDENT

TWO DRUM CAP SCREWS WERE DISCOVERED TO BE MISSING AND FOUR WERE LOOSE.

DURING UNSCHEDULED MAINTENANCE, MAINTENANCE PERSONNEL DISCOVERED THE 02 AND 03 (CLOCKWISE) DRUM CAP SCREWS WERE MISSING. THE REMAINING FOUR SCREWS WERE LOOSE. THE FOUR SCREWS WERE TIGHTENED. THE TWO MISSING SCREWS WERE FOUND IN THE LAUNDRY LOAD. THE TWO MISSING SCREWS WERE NOT REINSTALLED.

9 DEC 1990, 1247 HST (OPS, NAS 332:52/PROCHRS 200:21/GSINRS 354.1)

MAINTENANCE PERSONNEL REINSTALLED THE TWO SCREWS IN THE DRUM CAP.
BEFORE REINSTALLATION, LOCTITE WAS APPLIED TO THE SCREW THREADS. THE FOUR REMAINING SCREWS WERE REMOVED AND HAD LOCTITE APPLIED TO THE THREADS. THE FOUR SCREWS WERE REINSTALLED. ALL SIX SCREWS WERE TIGHTENED UTILIZING AN IMPACT DRIVER AND A HAMMER.

NO FURTHER ACTION WAS TAKEN OR REQUIRED.

REVISION 02/06/91 - SCORING CONFERENCE.
A CRIMP WAS DISCOVERED IN THE LOWER BLOWER NOSE.

DURING UNSCHEDULED MAINTENANCE THE MAINTENANCE PERSONNEL DISCOVERED A CRIMP IN THE LOWER BLOWER HOSE THAT CONNECTS THE WASHER DRUM/BASKET ASSY. AND THE CONTROL TRAP ASSEMBLY. THE CRIMP IS LOCATED IN THE CENTER OF THE FOUR FOOT HOSE.

THE MAINTENANCE PERSONNEL REMOVED THE DRUM BELT GUARD TO ALLOW MAINTENANCE PERSONNEL TO ACCESS THE LOWER BLOWER HOSE RETAINING CLAMPS.

THE RETAINING CLAMPS OF THE LOWER BLOWER HOSE WERE LOOSENED AND THE LOWER BLOWER HOSE WAS REMOVED. MAINTENANCE PERSONNEL INSPECTED THE BLOWER HOSE FOR OTHER DAMAGE.

MAINTENANCE PERSONNEL STRAIGHTENED THE HOSE STRIKING THE CRIMP WITH A WOODEN BATON.

A 6-INCH wide SKEW METAL SLEEVE WAS MADE AND WRAPPED AROUND THE HOSE WHERE THE CRIMP WAS LOCATED. THE SKEW METAL SLEEVE WAS SECURED TO THE BLOWER HOSE BY 2 NONJUSTADJUSTABLE BANDS.

THE LOWER BLOWER HOSE WAS REINSTALLED BETWEEN THE DRUM ASSEMBLY AND THE CONTROL TRAP ASSEMBLY. TWO ADJUSTABLE RETAINING CLAMPS WERE REINSTALLED TO EACH END AND TIGHTENED.

NO FURTHER ACTION WAS TAKEN OR REQUIRED.

REVISION 02/06/91 - SCORING CONFERENCE.
During cycle 0503 it was observed, by the operator that the upper bag filter pressure gauge indicated 30 psi and the lower bag filter pressure gauge indicated 20 psi. The 10 psi difference indicated that the bag filter needed to be changed.

6 Dec 1990, 0716 AST (OPSHTS 338:02/PRODHS 284:58/GENHRS 359.3/CYCLES 503/HHHS 748.4).

Before operations maintenance personnel removed the cover and "O" ring to the bag filter compartment. The bag filter was drained and removed. A new filter was installed and the "O" ring and bag filter assembly cover was reinstalled. The bag filter was filled through normal operations. No further action was taken or required.

Revised 05 Feb 91 to update parts.

Revision 02/06/91 - Scoring Conference.
TUE, MAR 12, 1991  SUPPORTABILITY ANALYSIS CHART  PAGE: 152

PROJECT NUMBER 0-E5-115-LAD-003  PROJECT NAME DT II LABOR LAUNDRY/DRY CLEANER  ITEM ID LAU201

--- SCORING INFORMATION ---

INC-DATE: 901206
TIRI: L5-A00150 01
INC CLASS: MAJOR
ACTION-TAKEN: REMOVED
PART NAME: REFRIGERATION UNIT
FCC:  0400
OPSNRS 339.2
PRTNR 293.5
GENRS 360.6

--- MAINTENANCE INFORMATION ---

CHAR TYPE USED PRESCR RECON CLINR HS RMRHS
NON UNS CREW CREW CREW 00:01 00:01
NON UNS ORC ORC ORC 00:21 00:21

--- DESCRIPTION OF INCIDENT ---

REFRIGERATION DRY UNIT PRESSURE IS LOW.

DURING CYCLE #304 THE OPERATOR OBSERVED THAT THE REFRIGERATION DRY UNIT'S PRESSURE WAS LOW. THE REFRIGERATION GAUGES WERE CONNECTED TO THE SYSTEM BY THE MATTEK RESEARCH DEVELOPMENT AND EVALUATION CENTER (NRDEC). THE NRDEC REPRESENTATIVE OBSERVED A PRESSURE OF 10 OVER 75 PSI.

THE NRDEC REPRESENTATIVE INSPECTED THE REFRIGERATION DRY UNIT'S COMPRESSOR. THE COMPRESSOR OPERATED FOR APPROXIMATELY 3 SEC AND STOPPED WHEN THE LOW PRESSURE GAUGE DROPPED FROM 19 PSI TO 8 PSI.

THE NRDEC REPRESENTATIVE SERVICED THE REFRIGERATION DRY UNIT WITH FREON-12. DURING THE SERVICING IT WAS DISCOVERED THAT THE REFRIGERATION GAUGES WERE LEAKING. SERVICING WAS CONTINUED.

THE REFRIGERATION GAUGES WERE REMOVED AFTER SERVICING WAS COMPLETED. OPERATIONS CONTINUED WITH A FULLY OPERATIONAL REFRIGERATION DRY UNIT.

REVISION 02/06/91 - SCORING CONFERENCE.
THE BAG FILTER PRESSURE GAUGE INDICATED THE BAG FILTER REQUIRED CHANGING.

DURING A VISUAL INSPECTION IT WAS DISCOVERED, BY THE OPERATOR THAT THE UPPER BAG FILTER PRESSURE GAUGE INDICATED 40 PSI AND THE LOWER PRESSURE GAUGE INDICATED 30 PSI. THE 10 PSI DIFFERENCE INDICATED THAT THE BAG FILTER REQUIRED CHANGING.

AFTER CYCLE 560, MAINTENANCE PERSONNEL DRAINED THE BAG FILTER. MAINTENANCE PERSONNEL REMOVED THE COVER TO THE BAG FILTER COMPARTMENT, REMOVED THE BAG FILTER AND INSTALLED A NEW ONE. MAINTENANCE PERSONNEL ATTEMPTED TO REINSTALL THE O-RING, AND IT WAS DISCOVERED THAT THE O-RING WOULD NOT FIT PROPERLY. INSPECTION OF THE O-RING, BY MAINTENANCE PERSONNEL REVEALED THAT THE O-RING WAS STRETCHED APPROXIMATELY 1 INCH. IT HAS DETERMINED THAT THE PROBABLE CAUSE WAS REPEATED USE. MAINTENANCE PERSONNEL INSTALLED A NEW O-RING AND THE FILTER COMPARTMENT COVER WAS REINSTALLED COMPLETING THIS MAINTENANCE ACTION.

REVISED 05 FEB 91 TO UPDATE PARTS.

REVISION 02/06/91 - SCORING CONFERENCE.
A final inspection was conducted on the LADD system.

After completing 401.33 operation hours of operation the LADD system has drained of all solvent. The bag filter was replaced as a precautionary measure.

The following discrepancies were noted but were not repaired.

1) One screw (of six) was missing from the wash drum cap. The screw could not be found.

2) Rust was discovered on the left rear, left front and 3rd from the rear drum mounting bolts.

3) Rust was discovered on the 4 top and 4 bottom Allen head mounting screw that mounts the NBC absorber to the wash drum.

4) Paint chips on the outer edge of the wash drum door were discovered.

5) One bolt on the lint filter blower motor pulley wheel was rusted because it has never painted.

6) The duct work between the lint trap and the condenser had chips of paint missing.

7) The drum and basket flywheel had rust on the outer edge of the wheel.
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9) The solvent tank’s brackets that mount to the trailer had rust around the bolt mounting holes.

9) The still assembly had numerous paint chips due to the still being moved for maintenance.

10) The bag filter cover retaining bolts had rust on the bolt threads.

11) The compressor assy bolts located on the rear of the compressor are rusted.

12) The dry unit’s condensing coil safety guard’s upper mounting bolt was broken. The upper bolt was welded to the bag filter assy.

A monthly PICS was conducted in the DEP 10-3510-221-14 except for the following:

13) The solvent tanks were not cleaned because there are no sight glass seals.

27) The solvent pump was not inspected because the manual does not show where the solvent pump is located. There is no exploded illustration of the solvent pump.

31) It was determined by the project engineer that the coalescer pads did not require inspection, because they had been inspected at 338 operation hours.

Revised 09 Feb 91 to update parts.

Revision 02/06/91 - Scoring conference.
THE FOLLOWING ARE DISCREPANCIES NOTED WITH SUGGESTED CHANGES TO
CHAPTER ONE OF DEP-10-3510-221-14:

SECTION 3, PARA 1-10-C, PAGE 1-12

THE LAST SENTENCE OF THE TOP PARAGRAPH SHOULD READ: "WHEN THE LAUNDRY
CARD (CONVERSATIONAL OR NBC) DESIRED, IS INSERTED IN THE CARD READER AND THE
START BUTTON IS PRESSED, THE LAUNDRY UNIT WILL START CLEANING THE CLOTHES
AND CONTINUE UNTIL THE CYCLE RUN INDICATOR LIGHT GOES OUT.

THE REASON FOR THIS CORRECTION IS DUE TO THIS SENTENCE NOT STATING HOW
THE OPERATOR DETERMINES THAT THE SYSTEM IS ACTUALLY COMPLETE AND NOT IN
PAUSE BETWEEN CYCLE ROTATIONS.

SECTION 3, PARA 1-10-D, PAGE 1-16

THE LAST SENTENCE OF THE SECOND PARAGRAPH SHOULD READ:
"THE DRY CYCLE CONCLUDES WHEN THE COOL DOWN AND DRY CYCLE INDICATORS GO OUT.
THE REASON FOR THIS CORRECTION IS DUE TO THE LADD'S PAUSES BETWEEN
CYCLES AND COULD BE OBSERVED, BY THE OPERATOR AS BEING COMPLETE. THE
INDICATORS ARE THE FINAL INDICATION THAT THE CYCLE IS COMPLETE.

REVISION 02/06/91 - SCORING CONFERENCE.
THE FOLLOWING DISCREPANCIES WITH THE TECHNICAL MANUAL (TM) WERE NOTED
WITH SUGGESTED CHANGES TO CHAPTER TWO OF DEP-10-3510-221-14:

SECTION 1, PARA 2-2-C, FIG 2-1, ITEM 3, PAGE 2-3
ITEM #3 HAS THE ARROW POINTING TO THE LOWER LEFT CORNER OF THE CARD
READER AS SHOWN. THE ARROW POINTING TO THE TOP RIGHT CORNER SHOULD
BE DELETED.

THE REASON FOR THIS CHANGE IS DUE TO THE ITEM THAT THE TOP ARROW IS
POINTING TO IS THE "CYCLE HOLD" KNOB, WHICH HAS NOTHING TO DO WITH
THE ADVANCE OF THE CYCLE. THE "CYCLE HOLD" KNOB CAUSES THE CYCLE TO PAUSE WHEN
PULLED.

SECTION 1, PARA 2-2-C, FIG 2-1, ITEM 6, PAGE 2-3
THE EMERGENCY STOP SWITCH SHOULD BE ILLUSTRATED IN THE FIGURE. IT IS
LOCATED DIRECTLY BELOW THE COOL DOWN CYCLE INDICATOR AND DIRECTLY TO THE
LEFT OF THE SYSTEM CONTROL POWER SWITCH. ITEM #6 SHOULD HAVE AN ARROW
POINTING TO THE EMERGENCY STOP SWITCH.

THE REASON FOR THIS CHANGE IS DUE TO THE EMERGENCY STOP SWITCH NOT
BEING ILLUSTRATED IN FIGURE 2-1.

SECTION 1, PARA 2-2-C, FIG 2-1, PAGE 2-3
THE "CYCLE RUN" BUTTON SHOULD BE ILLUSTRATED AS A SEPARATE ITEM FROM
ITS INDICATOR AND BE GIVEN A SEPARATE NUMBER DESIGNATION.
THE "VENT" BUTTON SHOULD BE ILLUSTRATED AS A SEPARATE ITEM FROM ITS
INDICATOR, AND SHOULD BE GIVEN A SEPARATE NUMBER DESIGNATION.
The "Dry Heater" switch should be illustrated as a separate item from its indicator and be given a separate number designation.

The reason for these changes are that the illustration does not indicate which items are switches or buttons and which are indicators.

Section 1, para 2-2-C, Fig 2-1, page 2-3
The illustration for Figure 2-1 (Sheet 1 of 2) should be a separate figure from Figure 2-1 (Sheet 2 of 2).

The reason for this change is due to a need to divide the electrical panel assembly into two separate figures. The main control panel and indicators. Fig. 2-1 (Sheet 1 of 2) is the only control and indicator panel. Fig 2-1 (Sheet 2 of 2) is the electrical circuit and indicator panel.

Section 1, para 2-2-C, page 2-3
The function/use of Key #8 should read: "When pushed, will continue to release internal system pressure (in drum) to equalize with atmospheric pressure until the button is released.

The reason for this change is due to the operator's need to continue holding the button down until the pressure equalizes.

Section 1, para 2-2-C, page 2-6
The function/use of Key #16 should read: "Indicates the system is in the rinse mode during cycle run".

The reason for this change is the word "(mode)" is out of place in this sentence.

Section 1, para 2-2-C, page 2-8
Keys 43, 44 and 45 should have the "(not used)" removed from the function/use of TR8, TR9 and TR10.

The reason for the change of keys 43, 44 and 45 is due to the schematics indicating that TR8, TR9 and TR10 are electrically used (Ref. FO-01).

Section 1, para 2-2-C, Fig 2-2, page 2-9
Figure 2-2 should be separated from the key indicators of Figure 2-1. Figure 2-2 should be enlarged for clarity and have its own page.

The reason for this change is due to the confusion between Figure 2-1 keys, controls and indicators with Fig. 2-2's illustration and item numbers.

Section 1, para 2-2-C, Fig 2-3, page 2-11
The control or indicator for item #1, on this illustration should have the arrow pointing to the top right corner, indicating the location of the sight glass. The other arrow should be deleted.

The reason for this change is that the sight glass, for the drying loop and controls are illustrated in the wrong location. The sight glass is
LOCATED TO THE REAR OF THE REFRIGERATION UNIT’S COMPRESSOR.

SECTION 1, PARA 2-2-C, FIG 2-3, PAGE 2-11
THE ILLUSTRATION AND CONTROL OR INDICATOR SHOULD BE CHANGED TO REFLECT THE LOCATION AND FUNCTION/USE OF THE HIGH PRESSURE SWITCH CONTROL BOX AND THE LOW PRESSURE SWITCH CONTROL BOX. THESE CONTROL BOXES ARE LOCATED TO THE REAR OF THE REFRIGERATION UNIT’S COMPRESSOR.
THE REASON FOR CHANGE IS BECAUSE FIG. 2-3 FAILS TO ILLUSTRATE THE LOCATION OF THE HIGH AND LOW PRESSURE SWITCH CONTROL BOXES. BOTH BOXES ARE LOCATED NEXT TO EACH OTHER, BEHIND THE REFRIGERATION UNIT’S COMPRESSOR.

SECTION 1, PARA 2-2-C, FIG. 2-4, PAGE 2-12
THE ILLUSTRATION OF FIG. 2-4 SHOULD BE CHANGED TO REFLECT ITEM #6 AS THE TEMPERATURE CONTROL BOX WITH ARROWS POINTING TO BOTH OF THEM. THE ONE INDICATED AND ENLARGED IS IN THE CORRECT LOCATION. THE SECOND TEMPERATURE CONTROL BOX IS LOCATED IN THE BOTTOM RIGHT CORNER OF THE DUMP TANK. THESE TWO BOXES SHOULD BE NUMBERED 6A AND 6B.
THE TEMPERATURE CONTROL KNOB SHOULD BE ILLUSTRATED AS IT IS IN THE EXPLODED VIEW.
THE REASON FOR THIS CHANGE IS BECAUSE THE TEMPERATURE CONTROL BOXES ARE NOT IDENTIFIED. THERE ARE TWO CONTROL BOXES AND EACH HAS A TEMPERATURE CONTROL KNOB. FOR ITEM #6 FUNCTION/USE SHOULD READ THERMOSTAT CONTROL HOUSING.

SECTION 1, PARA 2-2-C, FIG 2-7, PAGE 2-15
THE FRONT VIEW AND THE LEFT SIDE VIEW NEED TO BE REVERSED.

SECTION 1, PARA 2-2-C, FIG. 2-8, PAGE 2-18
THIS ILLUSTRATION SHOULD BE REDRAWN INDICATING THE POSITION OF THE NEW PNEUMATIC PUMP AND THE NEW LOCATION OF THE RESERVOIR TANK.
THE REASON FOR THIS CHANGE IS THAT THE LOCATION OF THE NEW PNEUMATIC PUMP AND THE RESERVOIR TANK HAVE BEEN RELOCATED. THE RESERVOIR IS LOCATED NEXT TO THE PNEUMATIC PUMP DIRECTLY UNDER THE DRUM AND BASKET ASSEMBLY.

SECTION 2, PARA 2-3, TABLE 2-1, PAGE 2-27
THE "ITEM TO BE INSPECTED/PROCEDURE" FOR ITEM 1e(1) SHOULD READ "WASH TANK TEMPERATURE GAUGE NORMAL INDICATION, 90 DEGREES F (32 DEGREES C)."
THE REASON FOR THIS CHANGE IS PER THE M.A.D.E.C. REPRESENTATIVE'S INSTRUCTIONS THAT THE TEMPERATURE OF 60 DEGREES F IS INCORRECT, AND THAT 90 DEGREES F IS CORRECT.
SECTION 2, PARA 2-5, TABLE 2-1, PAGE 2-27
THE "EQUIPMENT IS NOT READY/AVAILABLE IF; 1e(1) SHOULD READ TEMPERATURE BELOW 90 DEGREES F (32 DEGREES C)".
THE REASON FOR THIS CHANGE IS PER THE H.R.D.E.C. REPRESENTATIVE'S INSTRUCTIONS THAT THE TEMPERATURE OF 60 DEGREES F IS INCORRECT AND THAT 90 DEGREES F IS CORRECT.

SECTION 2, PARA 2-5, TABLE 2-1, PAGE 2-27
THE "EQUIPMENT IS NOT READY/AVAILABLE IF; 1e(1) SHOULD READ "TEMPERATURE BELOW 90 DEGREES F (32 DEGREES C)".
THE REASON FOR THIS CHANGE IS PER THE H.R.D.E.C. REPRESENTATIVE'S INSTRUCTIONS THAT THE TEMPERATURE OF 60 DEGREES F IS INCORRECT AND THAT 90 DEGREES F IS CORRECT.

THE FOLLOWING ARE THE DISCREPANCIES NOTED WITH SUGGESTED CHANGES TO CHAPTER 2 OF DPR-10-3510-221-14. THIS TIR IS A CONTINUATION OF TIR LS-A000134:

SECTION 2, PARA 2-5, TABLE 2-1, PAGE 2-29
THE "ITEM TO BE INSPECTED/PROCEDURE" FOR ITEM 4-e SHOULD STATE "CHECK SIGHT GLASS FOR INDICATION OF REFRIGERATION CHARGE". THIS STATEMENT FOR THE "EQUIPMENT IS NOT READY/AVAILABLE IF" "NO INDICATION OF CHARGE". INSTEAD OF NO INDICATION OF CHARGE.
THE REASON FOR THIS CHANGE IS TO STAY CONSISTENT WITH THE SIGHT GLASS CHECK PROCEDURE OF ITEM 2-e.

SECTION 2, PARA 2-5, TABLE 2-1, PAGE 2-29
THE "ITEM TO BE INSPECTED/PROCEDURE" FOR THE DRUM AND BASKET ASSEMBLY, ITEM C-1(1) STATES "THAT THE TEMPERATURE GAUGE NORMAL INDICATION IS 140 DEGREES" SHOULD BE CORRECTED.
THE REASON FOR THIS CORRECTION IS THAT THE MAXIMUM TEMPERATURE OF THIS GAUGE IS 140 DEGREES F. THERE IS NO ESTABLISHED NORMAL DRUM AND BASKET TEMPERATURE.

SECTION 2, PARA 2-5, TABLE 2-1, PAGE 2-30
THE BAG FILTER ASSEMBLY "ITEM TO BE INSPECTED/PROCEDURE" NEEDS TO BE CHANGED TO "REPLACE THE BAG FILTER".
THE REASON FOR THIS CHANGE IS BECAUSE THERE ARE NO INSTRUCTIONS FOR CLEANING THE CONTAMINATED BAG FILTER. THE MANUAL, CHAPTER 2, PARA 2-83 PAGE 4-167 GIVES THE PROCEDURE FOR THE BAG FILTER REPLACEMENT.

SECTION 2, PARA 2-5, TABLE 2-1, PAGE 2-30
WITHIN ITEM 10 THERE SHOULD BE A PROCEDURE ESTABLISHED TO ALLOW THE OPERATOR TO DRAIN EXCESS MOISTURE FROM THE PNEUMATIC RESERVOIR. IT IS SUGGESTED THAT THE INSPECTION INTERVAL BE BEFORE, DURING, AND AFTER OPERA-
TIONS.

THE REASON FOR THIS CHANGE IS THAT THE PNEUMATIC SYSTEM REQUIRES THE EVACUATION OF MOISTURE TO PROLONG THE LIFE OF THE SYSTEM.

SECTION 3, PARA 2-6, PAGE 2-32

THIS CAUTION SHOULD HAVE THE WORDS "AND LOCKED IN PLACE" INSERTED AFTER THE WORD "LOWEED".

THE REASON FOR THIS IS BECAUSE THE LEGS SHING TOWARD THE REAR OF THE TRAILER AND RIGHT NOT HOLD THE HEIGHT IF THE TRAILER IS MOVED FORWARD. FORWARD MOVEMENT OF THE TRAILER COULD CAUSE THE UNLOCKED LEGS TO SHING BACKWARDS, CAUSING THE FRONT OF THE TRAILER TO FALL.

SECTION 3, PARA 2-6-A, PAGE 2-32

THE PROCEDURE FOR "LOCATING THE TRAILER" SHOULD READ "THE SYSTEM IS TONED TO A LEVEL LOCATION BY A 5-TON (OR GREATER) CARGO VEHICLE. BEFORE ATTEMPTING TO DISENGAGE THE TRAILER FROM THE VEHICLE, THE TRAILER'S HAND BRAKE MUST BE APPLIED, THE WHEELS CHALKED AND THE LEVELING JACKS LOWERED AND LOCKED INTO PLACE. THE AIR LINES ARE TO BE DISCONNECTED AND THE LUNETTE IS RAISED FROM THE VEHICLE AND THE VEHICLE IS REMOVED. THE REAR LEGS ARE THEN LOWERED AND LOCKED IN PLACE.

THE TRAILER IS LEVELED BY CHECKING THE LEVELING BUBBLES LOCATED ON EACH CORNER OF THE TRAILER.

THE REASON FOR THIS CHANGE IS BECAUSE GOOD SAFETY PROCEDURES SHOULD BE UTILIZED BY CHALKING THE WHEELS AND LOCKING THE LEVELING JACKS IN PLACE WHEN LOWERED.

SECTION 3, PARA 2-6-(3)-(C), PAGE 2-34

THE FIGURE REFERENCE, (FIGURE 2-10 BELOW) SHOULD READ (FIGURE 2-10). THE REASON FOR THIS CHANGE IS THAT THE FIGURE IS NOT BELOW, IT IS ON THE NEXT PAGE.

SECTION 3, PARA 2-6, TABLE 2-2, PAGE 2-36

THE TABLE 2-2 AND SCHEMATIC FO-01 SHOULD COINCIDE WITH EACH OTHER. IT IS SUGGESTED THAT THE TABLE AND SCHEMATIC FO-01 BE REEVALUATED.

THE REASON FOR THIS SUGGESTION IS THAT THE SETTING FOR T11, T12 AND T13 THROUGH T19 ARE AS PRINTED IN TABLE 2-2 AND DO NOT COINCIDE WITH THE SCHEMATIC FO-01.

SECTION 3, PARA 2-7-(2)-B-(3), PAGE 2-40

THIS OPERATION PROCEDURE SHOULD BE CHANGED TO "PULL THE EMERGENCY STOP SWITCH OUT" (MAIN ELECTRICAL PANEL, ITEM 6, FIG 2-11). THE REASON FOR THIS CHANGE IS THAT THE EMERGENCY STOP SWITCH OF FIG 2-1 IS ITEM 65.

SECTION 3, PARA 2-7-(2)-C-(C) PAGE 2-42

A-164
THE ITEM NUMBER OF THE REFERENCE SHOULD BE REMOVED. THE REFERENCE SHOULD READ (FIG. 2-11).

THE REASON FOR THIS CHANGE IS BECAUSE THERE ARE NO ITEMS INDICATED ON FIGURE 2-11.

SECTION 3, PARA 2-0-7, PAGE 2-48

THIS PROCEDURE SHOULD STATE "COVER THE LADDS WITH ITS PROTECTIVE COVER AND SECURE IT WITH TIE DOWN ROPES TO THE TRAILER".

THE REASON FOR THIS CHANGE IS TO REPLACE THE WORD "TARP" WITH "PROTECTIVE COVER". A PREFORMED PROTECTIVE COVER WAS PROVIDED WITH THE LADDS.

REVISION 02/06/91 - SCORING CONFERENCE.
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<td>PS66SOLVENT</td>
<td>184.0</td>
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A-168
<table>
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<tr>
<th>DATE</th>
<th>TIME</th>
<th>READING</th>
<th>SUBSYSTEM</th>
<th>ACT WHEN</th>
<th>COMMODITY TYPE</th>
<th>COM</th>
<th>QTY</th>
<th>UNITS</th>
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<td>748.4</td>
<td>SOLVENT TANK PA</td>
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<td>748.4</td>
<td>SOLVENT TANK PA</td>
<td>SER OPERA Drycleaning solvent PS66SOLVENT</td>
<td>108.0</td>
<td>POUNDS</td>
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**TOTAL** 14609.0
LADDS TIR Index of Operation Mission Failures

<table>
<thead>
<tr>
<th>TIR No.</th>
<th>Miles</th>
<th>OPHRS</th>
<th>FGC</th>
<th>Subsystem</th>
<th>Incident Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>2</td>
<td>1.2</td>
<td>0700</td>
<td>Washer drum</td>
<td>The drum/basket did not rotate.</td>
</tr>
<tr>
<td>38</td>
<td>7</td>
<td>2.5</td>
<td>0300</td>
<td>Control trap duct</td>
<td>Cracks in control trap duct</td>
</tr>
<tr>
<td>40</td>
<td>8</td>
<td>3.2</td>
<td>0300</td>
<td>Control trap duct</td>
<td>Control trap Class 3 leak</td>
</tr>
<tr>
<td>60</td>
<td>31</td>
<td>20.3</td>
<td>0700</td>
<td>Washer drum</td>
<td>Class 3 drum door leak</td>
</tr>
<tr>
<td>70</td>
<td>35</td>
<td>203.0</td>
<td>0400</td>
<td>Refrigeration</td>
<td>The sensing bulb capillary tube had broken on the TX valve.</td>
</tr>
<tr>
<td>77</td>
<td>113</td>
<td>91.0</td>
<td>1000</td>
<td>Bag filter</td>
<td>The bag filter O-ring failed</td>
</tr>
<tr>
<td>91</td>
<td>177</td>
<td>149.3</td>
<td>0100</td>
<td>Solvent</td>
<td>Excessive solvent was pumped from rinse tank to drum/basket.</td>
</tr>
<tr>
<td>94</td>
<td>190</td>
<td>159.4</td>
<td>0200</td>
<td>Still</td>
<td>The still was not transferring solvent.</td>
</tr>
<tr>
<td>106</td>
<td>229</td>
<td>194.1</td>
<td>0400</td>
<td>Refrigeration</td>
<td>A soldered joint failed on the compressor suction line causing a refrigeration leak.</td>
</tr>
<tr>
<td>108</td>
<td>215</td>
<td>181.5</td>
<td></td>
<td>Refrigeration</td>
<td>Refrigeration leak at capillary tub flare nut.</td>
</tr>
<tr>
<td>111</td>
<td>238</td>
<td>202.4</td>
<td></td>
<td>Refrigeration</td>
<td>Refrigeration leak in compressor union coupling line.</td>
</tr>
<tr>
<td>115</td>
<td>268</td>
<td>202.4</td>
<td>0400</td>
<td>Refrigeration</td>
<td>Freon 12 leaking from the compressor suction line.</td>
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<tr>
<td>120</td>
<td>275</td>
<td>231.4</td>
<td>0900</td>
<td>Pneumatic</td>
<td>The PV103 pneumatic valve was discovered to be inoperative.</td>
</tr>
</tbody>
</table>

A-170
<table>
<thead>
<tr>
<th>TIR No.</th>
<th>Miles</th>
<th>OPSHRS</th>
<th>FGC</th>
<th>Subsystem</th>
<th>Incident Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>123</td>
<td>283</td>
<td>239.0</td>
<td>0900</td>
<td>Electrical</td>
<td>The LADDS electrical panel housing broke away from main housing.</td>
</tr>
<tr>
<td>124</td>
<td>283</td>
<td>1200</td>
<td></td>
<td>Piping</td>
<td>A 90-degree, 5/8-inch copper piping was severed.</td>
</tr>
<tr>
<td>126</td>
<td>283</td>
<td>0200</td>
<td></td>
<td>Still</td>
<td>Still control assembly was damaged during transportability testing.</td>
</tr>
<tr>
<td>127</td>
<td>287</td>
<td>0400</td>
<td></td>
<td>Refrigeration</td>
<td>Low pressure during dry unit operation.</td>
</tr>
<tr>
<td>129</td>
<td>287</td>
<td>239.0</td>
<td>0200</td>
<td>Still</td>
<td>Still did not transfer solvent.</td>
</tr>
<tr>
<td>142</td>
<td>318</td>
<td>266.2</td>
<td>0700</td>
<td>Drum/basket</td>
<td>Drum/basket was rotating in the wrong direction.</td>
</tr>
<tr>
<td>143</td>
<td>334</td>
<td>285.5</td>
<td>0400</td>
<td>Refrigeration</td>
<td>Refrigeration dry unit was inoperative.</td>
</tr>
<tr>
<td>144</td>
<td>320</td>
<td>271.5</td>
<td>0300</td>
<td>Control trap duct</td>
<td>A crack was found in the control trap duct weld.</td>
</tr>
<tr>
<td>145</td>
<td>320</td>
<td>271.5</td>
<td>0200</td>
<td>Still</td>
<td>The still ready indicator would not light.</td>
</tr>
</tbody>
</table>
LADDS Technical Manual DEP 10-3510-221-14 Deficiencies

Problems that identified within DEP 10-3510-221-14 are summarized below.

1. Section 3, Paragraph 1-10-C, Chapters 1 and 2, Page 1-12

   The last sentence of the top paragraph should read: "When the laundry card (conventional or NBC) is inserted in the card reader and the start button is pressed, the laundry unit then starts cleaning the clothes and continues until the cycle run indicator light goes out".

   The reason for this correction is due to this sentence not stating how the operator determines that the cycle is actually completed and not paused between cycle rotations and inadvertently opening the door prematurely.

2. Section 3, Paragraph 1-10-D, Page 1-16

   The next to the last sentence of the second paragraph should read: "The dry cycle is completed when the cool down and dry cycle indicators go out".

   The reason for this correction is due to the LADDS pauses between cycles and could be observed by the operator as being completed. The indicators are the final indication that the cycle is complete.

3. Section 1, Paragraph 2-2-C, Figure 2-1, Item No. 3, Page 2-3

   Item No. 3 has the arrow pointing to the lower-left corner of the card reader as shown. The arrow pointing to the top-right corner should be deleted.

   The reason for this change is due to the item that the top arrow is pointing to is the "cycle hold" knob which has nothing to do with the advancement of the cycle. The "cycle hold" knob causes the cycle to pause when pulled.

4. Section 1, Paragraph 2-2-C, Figure 2-1, Item No. 6, Page 2-3

   The emergency stop switch should be illustrated in the figure. It is located directly below the cool down cycle indicator and to the left of the system control power switch. Item No. 6 should have an arrow pointing to the emergency stop switch.

   The reason for this change is due to the emergency stop switch not being illustrated in Figure 2-1.
5. Section 1, Paragraph 2-2-C, Figure 2-1, Page 2-3

The "cycle run" button should be illustrated as a separate item from its indicator and be given a separate number designation.

The "vent" button should be illustrated as a separate item from its indicator and should be given a separate number designation.

The "dry heater" switch should be illustrated as a separate item from its indicator and be given a separate number designation.

The reason for these changes are that the illustration does not indicate which items are switches or buttons and which are indicators.

6. Section 1, Paragraph 2-2-C, Figure 2-1, Page 2-3

The illustration for Figure 2-1 (Sheet 1 of 2) should be a separate figure from Figure 2-1 (Sheet 2 of 2).

The reason for this change is due to a need to divide the electrical panel assembly into two separate figures; the main control panel and indicators. Figure 2-1 (Sheet 1 of 2) is the only control and indicator panel. Figure 2-1 (Sheet 2 of 2) is the electrical circuit and indicator panel.

7. Section 1, Paragraph 2-2-C, Page 2-5

The function/use of key No. 8 should read: "When pushed", will continue to release the internal system pressure (in the drum) to equalize with atmospheric pressure until the button is released.

The reason for this change is due to the operator's need to continue holding the button down until the pressure equalizes.

8. Section 1, Paragraph 2-2-C, Page 2-6

The function/use of key No. 16 should read: "Indicates the system is in the rinse mode during cycle run".

The reason for this change is the word "(mode)" is out of place in this sentence.

9. Section 1, Paragraph 2-2-C, Pages 2-1 and 2-8

Keys No. 43, 44, and 45 should have the "(not used)" removed from the function/use of TR8, TR9, and TR10.
The reason for the change of keys No. 43, 44, and 45 is due to the schematics indicating that TR8, TR9, and TR10 are electrically used (ref FO-01).

10. Section 1, Paragraph 2-2-C, Pages 2-2 and 2-9

Figure 2-2 should be separated from the key indicators of Figure 2-1. Figure 2-2 should be enlarged for clarity and have its own page.

The reason for this change is due to the confusion between Figure 2-1 keys, controls, and indicators with Figure 2-2 illustration and item numbers.

11. Section 1, Paragraph 2-2-C, Figure 2-3, Page 2-11

The control or indicator for Item No. 1 on this illustration should have the arrow pointing to the top-right corner, indicating the location of the sight glass. The other arrow should be deleted.

The reason for this change is that the sight glass, for the drying loop and controls, is illustrated in the wrong location. The sight glass is located to the rear of the refrigeration unit's compressor.

12. Section 1, Paragraph 2-2-C, Figure 2-3, Page 2-11

The illustration and control or indicator should be changed to reflect the location and function/use of the high pressure switch control box and the low pressure switch control box. These control boxes are located to the rear of the refrigeration unit's compressor.

The reason for this change is that Figure 2-3 fails to mention or illustrate the location of the high and low pressure switch control boxes. Both boxes are located next to each other behind the refrigeration unit's compressor.

13. Section 1, Paragraph 2-2-C, Figure 2-4, Page 2-12

The illustration of Figure 2-4 should be changed to reflect Item No. 6 as the temperature control boxes with arrows pointing to both of them. The control box indicated and enlarged is in the correct location. The second temperature control box is located in the bottom right corner of the dump tank (solvent tank pallet assembly). These two boxes should be numbered 6A and 6B.

The temperature control knob should be illustrated as it is in the exploded view.
The reason for this change is because the temperature control boxes are not identified. There are two control boxes and each has a temperature control knob. For Item No. 6 function/use should read thermostat control housing.

14. Section 1, Paragraph 2-2-C, Figure 2-7, Page 2-15

The front view and the left side view need to be reversed.

The reason for this change is that the tongue of the trailer is considered the front of the system. The still electrical panel faces toward the tongue of the trailer.

15. Section 1, Paragraph 2-2-C, Figure 2-8, Page 2-18

This illustration should be redrawn, indicating the position of the new pneumatic pump and the new location of the reservoir tank.

The reason for this change is that the location of the new pneumatic pump and the reservoir tank have been relocated. The reservoir is located near to the pneumatic pump directly under the drum and basket assembly.

16. Section 2, Paragraph 2-5, Table 2-1, Page 2-27

The "item to be inspected/procedure" for Item No. 1E(1) should read "wash tank temperature gage normal indication is 90°F (32°C)".

The reason for this change is per the NRDEC representative's instructions that the temperature of 60°F is incorrect and that 90°F is correct.

17. Section 2, Paragraph 2-5, Table 2-1, Page 2-27

The "equipment is not ready/available if" for; Item No. 1E(1) should read "temperature below 90°F (32°C)".

The reason for this change is per the NRDEC representative's instructions that the temperature of 60°F is incorrect and that 90°F is correct.

18. Section 2, Paragraph 2-5, Table 2-1, Page 2-28

The "item to be inspected/procedure" for Item No. 4-C should state "check sight glass for indication of refrigeration charge". The statement for the "equipment is not ready/available if" "no indication of change". Instead of no indication of change.

The reason for the change is to stay consistent with the sight glass check procedure of Item No. 2-E.
19. Section 2, Paragraph 2-5, Table 2-1, Page 2-29

The "item to be inspected/procedure" for the drum and basket assembly, Item No. C-(1), states "the temperature gage normal indication is 140 degrees" should be corrected.

The reason for this correction is that the maximum temperature of this gage is 140°F. There is no established normal drum and basket temperature.

20. Section 2, Paragraph 2-5, Table 2-1, Page 2-30

The bag filter assembly "item to be inspected/procedure" needs to be changed to "replace the bag filter".

The reason for this change is because there are no instructions for cleaning the contaminated bag filter. The manual, Chapter 2, Paragraph 2-83, Page 4-167, gives the procedure for the bag filter replacement.

21. Section 3, Paragraph 2-6, Page 2-32

This caution should have the words "and locked in place" inserted after the word "lowered".

The reason for this is because the legs swing toward the rear of the trailer and might not hold the weight if the trailer is moved forward. Forward movement of the trailer could cause the unlocked legs to swing backwards, causing the front of the trailer to fall.

22. Section 3, Paragraph 2-6-A, Page 2-32

The procedure for "locating the trailer" should read "the system is towed to a level location by a 5-ton (or greater) cargo vehicle". Before attempting to disengage the trailer from the vehicle, the trailer's hand brake must be applied, the wheels charked, and the leveling jacks lowered and locked into place. The air lines are to be disconnected and the lunette is raised from the vehicle and the vehicle is removed. The rear legs are then lowered and locked in place.

The trailer is leveled by checking the leveling bubbles located on each corner of the trailer.

The reason for this change is because good safety procedures should be utilized by chalking the wheels and locking the leveling jacks in place when lowered.
23. Section 3, Paragraph 2-6.(5)-(D), Page 2-34

The figure reference (Fig. 2-10 below) should read (Fig. 2-10).

The reason for this change is that the figure is not below; it is on the next page.

24. Section 3, Paragraph 2-6, Table 2-2, Page 2-36

Table 2-2 and schematic FO-01 should coincide with each other. It is suggested that the table and schematic FO-01 be re-evaluated.

The reason for this suggestion is that the setting for TR1, TR3, and TR5 through 5410 are as printed in Table 2-2 and do not coincide with the schematic FO-01.

25. Section 3, Paragraph 2-7-A-(3), Page 2-40

This operating procedure should be changed to "pull the emergency stop switch out" (main electrical panel, Item No. 6, Fig. 2-1).

The reason for this change is that the emergency stop switch of Figure 2-1 is Item No. 6.

26. Section 3, Paragraph 2-7-A-(6)-(C), Page 2-42

The item number of the reference should be removed. The reference should read (Fig. 2-11).