

**FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS** E-652  
 As required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured and certified by CCI THERMAL TECHNOLOGIES INC., 2767 BRIGHTON RD., OAKVILLE, ONTARIO L6H 6J4  
(name and address of manufacturer)
2. Manufactured for D-COK, 3657 BRIARPARK DRIVE, HOUSTON, TX 77042-5205 U. S. A. # 105788  
(name and address of purchaser)
- Location of installation UNKNOWN  
(name and address)
4. Type: HORIZ. REGENERATOR AIR ELEC. HEATER W023875-01  
(Horiz., vert., or sphere) (Tank, separator, jkt. vessel, heat exh., etc.) Mfg's serial no.)
- N/A D16737, SHT. 3, REV.3 739 2007  
(CRN) (Drawing No.) (nat'l. BD. No.) (Year Built)
5. ASME Code, Section VIII, Division 1: 2004ED., 2005ADD. N/A N/A  
Edition and Addenda (date) Code Case No. Special Service per UG-120(d)

Items 6-11 incl. to be completed for single wall vessels, jackets of jacketed vessels, shell of heat exchangers, or chamber of multi-chamber vessels.

6. Shell (a) No. of course(s): 2 (b) Overall length (ft. & in.): 24' 1.750"

| Course(s) |               |                   | Material            | Thickness |       | Long.Joint(Cat.A) |                  |      | Circum. Joint(Cat. A, B, & C) |                  |      | Heat Treatment |            |
|-----------|---------------|-------------------|---------------------|-----------|-------|-------------------|------------------|------|-------------------------------|------------------|------|----------------|------------|
| No.       | Diameter, In. | Length (ft & In.) | Spec./Grade or Type | Nom.      | Corr. | Type              | Full, Spot, None | Eff. | Type                          | Full, Spot, None | Eff. | Temp.          | Time       |
| 1,2       | 18"           | 12' .825"         | SA335 GR. P11       | .500"     | .125" | SML               | NONE             | 100  | 1                             | FULL             | 100  | 1200° MIN.     | 30 M. MIN. |

7. Heads: (a) SA182 F11 CL 1 (b) SA234 WP11 CL.1  
(Mat'l Spec. No., Grade or Type) H.T. - Time & Temp. (Mat'l Spec. No., Grade or Type) H.T. - Time & Temp.

|       | Location (top, Bottom, Ends) | Thickness |       | Radius |         | Elliptical Ratio | Conical Apex Angle | Hemispherical Radius | Flat Diameter | Side To Pressure |         | Category (A) |                  |      |
|-------|------------------------------|-----------|-------|--------|---------|------------------|--------------------|----------------------|---------------|------------------|---------|--------------|------------------|------|
|       |                              | Min.      | Corr. | Crown  | Knuckle |                  |                    |                      |               | Convex           | Concave | Type         | Full, Spot, None | Eff. |
| * (a) | LBFT (2)                     | 300LB.    | .125" | ---    | ---     | ---              | ---                | ---                  | 18" W/N       | ---              | ---     | N/A          |                  |      |
| (b)   | RIGHT (2)                    | .500"     | .125" | ---    | ---     | 2:1              | ---                | ---                  | ---           | CONVEX           | ---     | N/A          |                  |      |

If removable, bolts used (describe other fastening) SA-193 B16.1 1/4"- 8UN X 7 3/4" LG., 48  
(Mat'l Spec. No., Grade, size, No.)

\* LEFT HEAD: 2X18" 300LB., 199KW ELEC. FLANGE HEATER, DOUBLE STACKER UNIT, TOTAL 398KW.  
 Type of jacket \_\_\_\_\_ Jacket closure \_\_\_\_\_  
(Describe as ogee & weld, bar, etc.)

If bar, give dimensions \_\_\_\_\_ If bolted, describe or sketch \_\_\_\_\_

9. MAWP 50 F.V. psi at max. temp. 1175° 366 °F Min. design metal temp. 0 °F at 50 psi.  
(internal) (external) (internal) (external)

10. Impact test EXEMPT PER UCS 66.  
(Indicate yes or no and the component(s) Impact tested)

11. Hydro., pneu., or comb. test press. HYDRO 717 P.S.I.G. Proof test ---

Items 12 and 13 to be completed for tube sections.

12. Tubesheet: \_\_\_\_\_  
Stationary (Mat'l Spec. No.) Dia., in. (subject to press.) Nom. Thk., in. Corr. Allow., in. Attachment (welded or bolted)

- \_\_\_\_\_ Floating (Mat'l Spec. No.) Dia., in. Nom. Thk., in. Corr. Allow., in. Attachment

13. Tubes: \_\_\_\_\_  
Mat'l Spec. No., Grade or Type O.D., in. Nom. Thk., in. or gauge Number Type (Straight or U)

Items 14-18 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers.

14. Shell (a) No. of course(s): \_\_\_\_\_ (b) Overall length (ft. & in.): \_\_\_\_\_

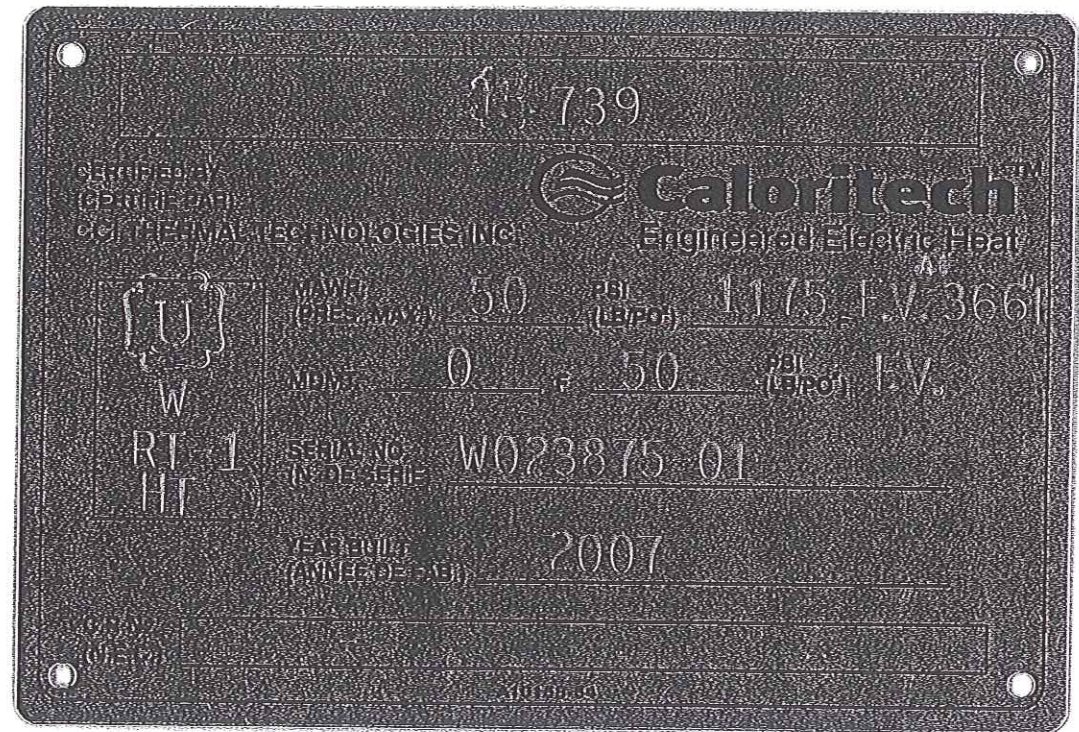
| Course(s) |               |                   | Material            | Thickness |       | Long.Joint(Cat.A) |                  |      | Circum. Joint(Cat. A, B, & C) |                  |      | Heat Treatment |      |
|-----------|---------------|-------------------|---------------------|-----------|-------|-------------------|------------------|------|-------------------------------|------------------|------|----------------|------|
| No.       | Diameter, In. | Length (ft & In.) | Spec./Grade or Type | Nom.      | Corr. | Type              | Full, Spot, None | Eff. | Type                          | Full, Spot, None | Eff. | Temp.          | Time |
|           |               |                   |                     |           |       |                   |                  |      |                               |                  |      |                |      |

15. Heads: (a) \_\_\_\_\_ (b) \_\_\_\_\_  
(Mat'l Spec. No., Grade or Type) H.T. - Time & Temp. (Mat'l Spec. No., Grade or Type) H.T. - Time & Temp.

|     | Location (top, Bottom, Ends) | Thickness |       | Radius |         | Elliptical Ratio | Conical Apex Angle | Hemispherical Radius | Flat Diameter | Side To Pressure |         | Category |                  |      |
|-----|------------------------------|-----------|-------|--------|---------|------------------|--------------------|----------------------|---------------|------------------|---------|----------|------------------|------|
|     |                              | Min.      | Corr. | Crown  | Knuckle |                  |                    |                      |               | Convex           | Concave | Type     | Full, Spot, None | Eff. |
| (a) |                              |           |       |        |         |                  |                    |                      |               |                  |         |          |                  |      |
| (b) |                              |           |       |        |         |                  |                    |                      |               |                  |         |          |                  |      |

If removable, bolts used (describe other fastening) \_\_\_\_\_  
(Mat'l Spec. No., Grade, size, No.)

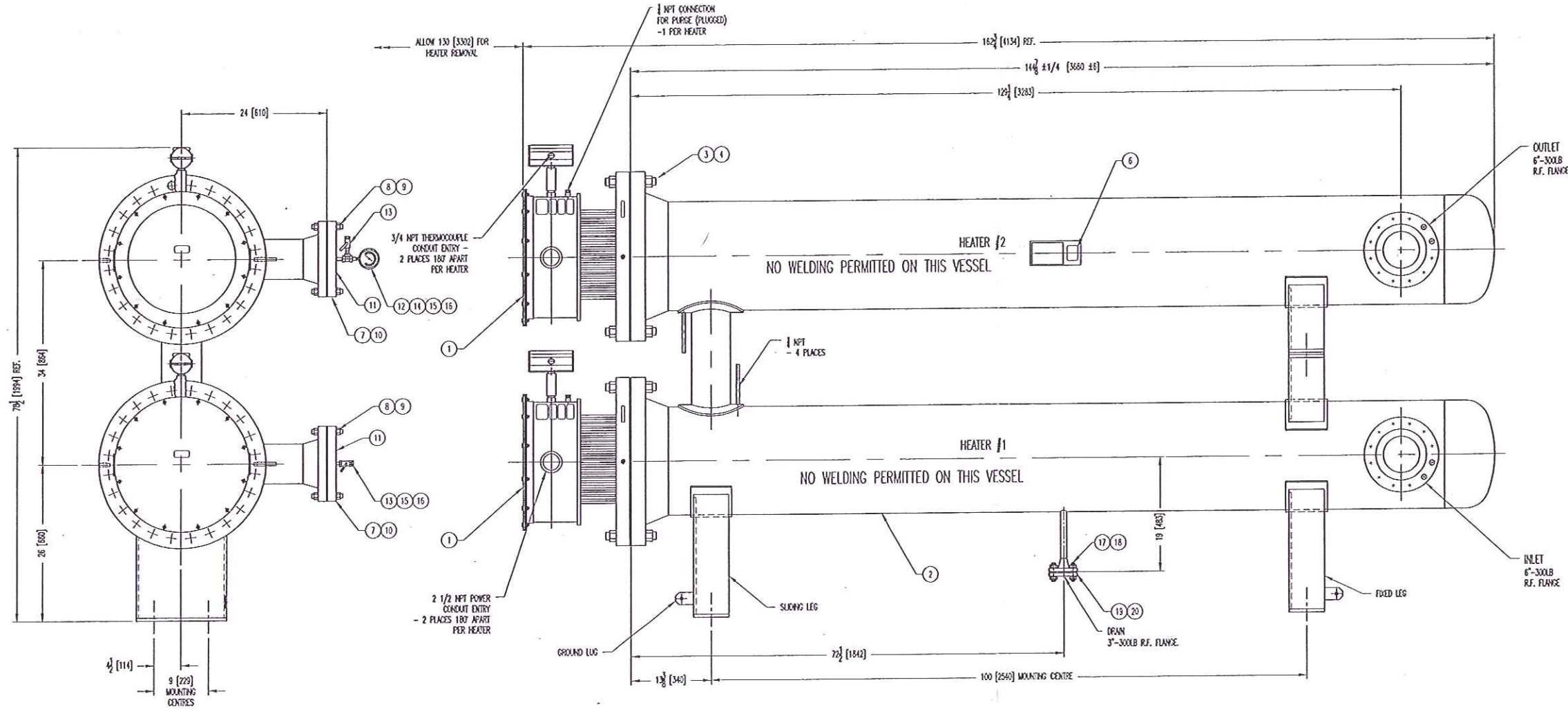
#105788



D-652, W023875-01

GDU

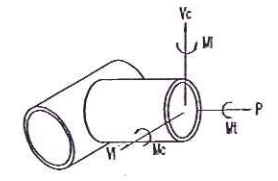
| NO. | REVISION   | DATE      | PAR/BY    |
|-----|--|-----------|-----------|
| 1   | GROUND LUGS ADDED.   | DEC 19/06 | M.K. E.D. |
| 2   | SUPPORT LEG REMOVED.                                       | DEC 22/06 | M.K. E.D. |
| 3   | DETS REVERSED, ESTIMATED SHELL TEMP. & DET. 17 TO 20 ADDED | FEB 15/07 | L.G. E.D. |
| 4   | NOTES 13 & 14 ADDED, DET. 9, & 18 REVERSED AS BUILT        | NOV 11/07 | L.G. E.D. |



#105787  
#105788

TML'S  
NOZZLES - 8  
SHELL - 3x9x2  
HEADS - 8

8  
24  
8  
---  
40



| 400 | 1779 | 1000 | 4448 | 1000 | 4448 | 300   | 407 | 1000  | 1136 | 1000  | 1356 |
|-----|------|------|------|------|------|-------|-----|-------|------|-------|------|
| LBS | N    | LBS  | N    | LBS  | N    | FT-LB | N-m | FT-LB | N-m  | FT-LB | N-m  |
| P   | Vc   | W    | Mc   | M    | M    |       |     |       |      |       |      |

NOZZLE LOADING

NOTES:

- ALL DIMENSIONS IN INCHES (MILLIMETRES IN BRACKETS).
- DESIGNED & BUILT IN ACCORDANCE WITH ASME CODE SECTION VIII, 2004 EDITION & 2005 ADDENDA. ASME U CODE STAMP & NATIONAL BOARD REGISTRATION.  
DESIGN CRITERIA:  
DESIGN PRESSURE: 50 PSIG [345 kPaG] & F.V. @ 366T [185°C]  
DESIGN TEMPERATURE: 1175F [635°C]  
HYDROSTATIC TEST PRESSURE: 717 PSIG [4944 kPaG]  
MINIMUM DESIGN METAL TEMP: 0F @ 50 PSIG [-18°C @ 345 kPaG]  
CORROSION ALLOWANCE: 1/8 [3]
- EXPLOSION PROOF TERMINAL BOX IS CSA C/US APPROVED FOR CLASS 1, DIV. 2, GROUP BCD HAZARDOUS LOCATION & CSA TYPE 4, TEMPERATURE CODE 1175F [635°C].
- HYDROSTATIC TEST PER EP-1004 USING DISTILLED WATER, MAXIMUM CHLORIDE CONTENT 25 PPM. CLEAN HEATER BLANKET AFTER TEST BY SPRAYING WITH COMPRESSED AIR AND PLACING IN OVEN AT 243F FOR COMPLETE DRYING. CLEAN VESSEL AFTER TEST PER GRWP 02SP, EXCEPT USE NO RUST BAK.
- FLANGE BOLT HOLES TO STRADDLE CENTRELINES.
- APPLY NICKEL BASED ANTI-SEIZE COMPOUND TO STUDS & NUTS (DET.3 & 4).
- FLANGE GASKET SURFACE FINISH 125 - 250 AINCH.
- PRINT EQUIPMENT TAG NO. ON INHERITANCE (DET.6).
- INSULATION SUPPLIED AND INSTALLED BY OTHERS.
- NITROGEN PURGE VESSEL ASSEMBLY TO 5 PSIG [34 kPaG] PRIOR TO SHIPMENT.
- DRAW & TAP 1/4 NPT HOLE IN CENTRE OF FLANGES (DET.7)
- SUPPLY INLET AND OUTLET GASKETS (DET.8) AND ONE DRAIN GASKETS (DET.15) LOOSE.
- WTR REQUIRED FOR ALL PRESSURE BOUNDARY MATERIALS INCLUDING FLANGE. MATERIAL ORIGIN TO BE USA, CANADA, WESTERN EUROPE OR JAPAN.
- PMI REQUIRED ON TWO UNITS PER LOT OF HEATER STUDS & NUTS (DET. 3 & 4) AND DRAIN STUDS & NUTS (DET. 17 & 18) PER EP-1037.

|   |  |  |  |
|---|--|--|--|
| Shaw Stone & Webster Inc.                         |  | Project Client: S Zorb                     |  |
| SRN: 120653/50003-R-12-15                         |  | Job No: 120653                             |  |
| EQUIP. NO: 50003-R-12-15 (1715-01)                |  | Issue:                                     |  |
| <input type="checkbox"/> FOR INFORMATION ACCEPTED | <input type="checkbox"/> ACCEPTED FOR CIVIL AND PIPING ETC | <input type="checkbox"/> ACCEPTED          | <input type="checkbox"/> ACCEPTED AS CERTIFIED |
| <input type="checkbox"/> ACCEPTED                 | <input type="checkbox"/> ACCEPTED AS NOTED                 | <input type="checkbox"/> REVISE & RESUBMIT |  |
| DATE: _____                                       |  |  |  |
| BY: _____   |  |  |  |
| CHECKED BY: _____                                 |  |  |  |
| APPROVED BY: _____                                |  |  |  |
| DATE: _____                                       |  |  |  |

| NO. | DESCRIPTION                               | QTY | UNIT | REMARKS     |
|-----|---|-----|------|-------------|
| 20  | FLANGE 3/4"-300LB R.F. BLIND              | 2   | EA   | A15400-231  |
| 13  | GASKET 3/4"-300LB                         | 2   | EA   | B10248-415  |
| 18  | HEX NUT 5/8-11UNC                         | 8   | EA   | SA-194 GR4  |
| 17  | STUD 5/8-11UNC x 3 LG.                    | 4   | EA   | SA-193 B16  |
| 15  | HEX HEAD PLUG 1/4 NPT WALLEABLE PGM       | 2   | EA   | A15416-02   |
| 11  | THREAD NIPPLE - 1/4 SCH40 x 2 LG. SA/SS3F | 3   | EA   | A15415-16   |
| 14  | REL-1/4 NPT 150LB                         | 1   | EA   | A11420-02   |
| 13  | BALL VALVE 1/4 NPT 150LB                  | 2   | EA   | FR-171M 02S |
| 12  | PRESSURE GAUGE 0-30PSI                    | 1   | EA   | E212        |
| 11  | LABEL - NITROGEN PURGE                    | 2   | EA   | TSX5138-08  |
| 9   | GASKET 6"-300LB COMPOSITE                 | 2   | EA   | B10248-16   |
| 10  | HEX NUT 3/4-10UN                          | 48  | EA   | SA-194 2H   |
| 8   | STUD 3/4-10UN x 4 3/4 LG.                 | 24  | EA   | SA-193 B7   |
| 7   | FLANGE 6"-300LB R.F. BLIND                | 2   | EA   | C10656-46   |
| 6   | INHERITANCE - ASSEMBLY                    | 1   | EA   | C12300-159  |
| 5   | GASKET 6"-300 LB                          | 2   | EA   | B10248-125  |
| 4   | HEX NUT 1 1/4-8UN                         | 96  | EA   | SA-194 GR4  |
| 3   | STUD 1 1/4-8UN x 7 3/4 LG.                | 48  | EA   | SA-193 B16  |
| 2   | VESSEL ASSEMBLY                           | 1   | EA   | D16737-01   |
| 1   | FLANGE HEATER 480N/34/150MM #5X           | 2   | EA   | C515737-01  |

BILL OF MATERIALS / LISTE DE MATERIEL

TITLE: REGENERATOR AIR ELECTRIC HEATER E-652  
D-COK LLC

NO: D16737 SHEET 1 4

|                                       |                                  |         |        |        |
|---------------------------------------|----------------------------------|---------|--------|--------|
| REF: D-COK LLC P.O. NO: 56603-P-12-15 | REV:                             |         |        |        |
| S.D:                                  | TOLERANCE UNLESS NOTED OTHERWISE |         |        |        |
| SCALE: NTS                            | * FT                             | * DECIM | * 1/8  | * 3    |
| ED: ELL                               | ANGULAR                          | DECIM   | FRACT. | METRIC |
| DRAWN BY: M.K.                        | DATE: OCT 27/06                  |         |        |        |
| CHECKED BY: E.D.                      | DATE: OCT 27/06                  |         |        |        |
| APPROVED BY: L.G.                     | DATE: OCT 27/06                  |         |        |        |
| DIST: 6                               | DATE:                            |         |        |        |



| ITEM NO. | QTY | DESCRIPTION                           | UNIT | REMARKS |
|----------|-----|---------------------------------------|------|---------|
| 01       | 1   | REGENERATOR AIR ELECTRIC HEATER E-652 | EA   |         |