# NEC3 Term Service Contract (TSC3)

**Between** **ESKOM HOLDINGS SOC Ltd**
**(Reg No. 2002/015527/30)**

**and** **[Insert at award stage]**
**(Reg No. _____)**

**for** **Total Refurbishment, Testing & Delivery of Medium Voltage Motors for a Period of 48 Months at Arnot Power Station**

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**CONTRACT No.** **[Insert at award stage]**

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# PART C1: AGREEMENTS & CONTRACT DATA

**Contents:**

# C1.1 Form of Offer & Acceptance

## Offer

The Employer, identified in the Acceptance signature block, has solicited offers to enter into a contract for the procurement of:

**Total Refurbishment, Testing & Delivery of Medium Voltage Motors for a Period of 48 Months at Arnot Power Station**

The tenderer, identified in the Offer signature block, has examined the documents listed in the Tender Data and addenda thereto and by submitting this Offer has accepted the Conditions of Tender.

By the representative of the tenderer, deemed to be duly authorised, signing this part of this Form of Offer and Acceptance the tenderer offers to perform all of the obligations and liabilities of the *Contractor* under the contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the *conditions of contract* identified in the Contract Data.

| | | |
|---|---|---|
| Options A or C | The offered total of the Prices exclusive of VAT is | **R [●]** |
| | Value Added Tax @ 15% is | **R [●]** |
| | The offered total of the amount due inclusive of VAT is[1] | **R [●]** |
| | (in words) **[●]** | |

This Offer may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document including the Schedule of Deviations (if any) to the tenderer before the end of the period of validity stated in the Tender Data, or other period as agreed, whereupon the tenderer becomes the party named as the *Contractor* in the *conditions of contract* identified in the Contract Data.

Signature(s) .....

Name(s) .....

Capacity .....

**For the tenderer:** .....

*(Insert name and address of organisation)*

Name & signature of witness ..... Date .....

Tenderer's CIDB registration number: .....

[1] This total is required by the *Employer* for budgeting purposes only. Actual amounts due will be assessed in terms of the *conditions of contract*.

## Acceptance

By signing this part of this Form of Offer and Acceptance, the Employer identified below accepts the tenderer's Offer. In consideration thereof, the Employer shall pay the Contractor the amount due in accordance with the *conditions of contract* identified in the Contract Data. Acceptance of the tenderer's Offer shall form an agreement between the Employer and the tenderer upon the terms and conditions contained in this agreement and in the contract that is the subject of this agreement.

The terms of the contract, are contained in:

| | |
|---|---|
| Part C1 | Agreements and Contract Data, (which includes this Form of Offer and Acceptance) |
| Part C2 | Pricing Data |
| Part C3 | Scope of Work: Service Information including supply requirements |

and drawings and documents (or parts thereof), which may be incorporated by reference into the above listed Parts.

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Returnable Schedules as well as any changes to the terms of the Offer agreed by the tenderer and the Employer during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Form of Offer and Acceptance. No amendments to or deviations from said documents are valid unless contained in this Schedule.

The tenderer shall within two weeks of receiving a completed copy of this agreement, including the Schedule of Deviations (if any), contact the Employer's agent (whose details are given in the Contract Data) to arrange the delivery of any securities, bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the *conditions of contract* identified in the Contract Data at, or just after, the date this agreement comes into effect. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this agreement.

Notwithstanding anything contained herein, this agreement comes into effect on the date when the tenderer receives one fully completed and signed original copy of this document, including the Schedule of Deviations (if any).

| | | |
|---|---|---|
| Signature(s) | | |
| Name(s) | | |
| Capacity | | |
| **for the Employer** | **Eskom Holdings SOC Ltd, Megawatt Park, Maxwell Drive, Sandton, Johannesburg, 2199** | |
| | *(Insert name and address of organisation)* | |
| Name & signature of witness | | Date |

Note: If a tenderer wishes to submit alternative tenders, use another copy of this Form of Offer and Acceptance.

## Schedule of Deviations to be completed by the *Employer* prior to contract award

Note:

1. This part of the Offer & Acceptance would not be required if the contract has been developed by negotiation between the Parties and is not the result of a process of competitive tendering.
2. The extent of deviations from the tender documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender.
3. A tenderer's covering letter must not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid be the subject of agreement reached during the process of Offer and Acceptance, the outcome of such agreement shall be recorded here and the final draft of the contract documents shall be revised to incorporate the effect of it.

| No. | Subject | Details |
|---|---|---|
| 1 | **[●]** | **[●]** |
| 2 | **[●]** | **[●]** |
| 3 | **[●]** | **[●]** |
| 4 | **[●]** | **[●]** |
| 5 | **[●]** | **[●]** |
| 6 | **[●]** | **[●]** |
| 7 | **[●]** | **[●]** |
| | | |

By the duly authorised representatives signing this Schedule of Deviations below, the Employer and the tenderer agree to and accept this Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Tender Schedules, as well as any confirmation, clarification or changes to the terms of the Offer agreed by the tenderer and the Employer during this process of Offer and Acceptance.

It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the tender documents and the receipt by the tenderer of a completed signed copy of this Form shall have any meaning or effect in the contract between the parties arising from this Agreement.

| | **For the tenderer:** | **For the Employer** |
|---|---|---|
| Signature | ..... | ..... |
| Name | ..... | ..... |
| Capacity | ..... | ..... |
| On behalf of | ..... *(Insert name and address of organisation)* | ..... *(Insert name and address of organisation)* |
| Name & signature of witness | ..... | ..... |
| Date | ..... | ..... |

# C1.2 TSC3 Contract Data

## Part one - Data provided by the *Employer*

Completion of this data in full, according to the Options chosen, is essential to create a complete contract.

| Clause | Statement | Data |
|---|---|---|
| 1 | **General** | |
| | The *conditions of contract* are the core clauses and the clauses for main Option: | |
| | | **A: Priced contract with price list** |
| | dispute resolution Option | **W1: Dispute resolution procedure** |
| | and secondary Options | |
| | | **X1: Price adjustment for inflation** |
| | | **X2: Changes in the law** |
| | | **X17: Low service damages** |
| | | **X18: Limitation of liability** |
| | | **X19: Task Order** |
| | | **Z: *Additional conditions of contract*** |
| | of the NEC3 Term Service Contract April 2013[1] (TSC3) | |
| 10.1 | The *Employer* is (name): | **Eskom Holdings SOC Ltd (reg no: 2002/015527/30), a state-owned company incorporated in terms of the company laws of the Republic of South Africa** |
| | Address | **Registered office at Megawatt Park, Maxwell Drive, Sandton, Johannesburg** |
| | Tel No. | **[●]** |
| | Fax No. | **[●]** |
| 10.1 | The *Service Manager* is (name): | **[●]** |
| | Address | **[●]** |
| | Tel | **[●]** |
| | Fax | **[●]** |
| | e-mail | **[●]** |
| 11.2(2) | The Affected Property is | **Arnot Power Station** |

[1] Available from Engineering Contract Strategies Tel 011 803 3008 Fax 086 539 1902 www.ecs.co.za

| | | |
|---|---|---|
| 11.2(13) | The *service* is | **MV Motors Refurbishment** |
| 11.2(14) | The following matters will be included in the Risk Register | **All matters notified on Early warnings Failure to deliver and lead time** |
| 11.2(15) | The Service Information is in | **Part 3: Scope of Work and all documents and drawings to which it makes reference.** |
| 12.2 | The *law of the contract* is the law of | **the Republic of South Africa** |
| 13.1 | The *language of this contract* is | **English** |
| 13.3 | The *period for reply* is | **24 hours during emergencies, Three working days for other requests during the normal operations in execution of the contract** |
| 2 | **The *Contractor*'s main responsibilities** | **Data required by this section of the core clauses is also provided by the *Contractor* in Part 2 and terms in italics used in this section are identified elsewhere in this Contract Data** |
| 21.1 | The *Contractor* submits a first plan for acceptance within | **Two (2) weeks of the Contract Date or as per the Task Order requirements** |
| 3 | **Time** | |
| 30.1 | The *starting date* is. | **TBA** |
| 30.1 | The *service period* is | **48 months** |
| 4 | **Testing and defects** | |
| 41.1 | Testing and Inspection | Testing and defect on suppliers' site before being delivered to Arnot Power Station. Final quality inspection will be done at main stores at Arnot Power Station for exception of goods and services. If a test or inspection shows that any work has a defect, the *Contractor* corrects the defect, and the test or inspection is repeated |
| 42.1 | Notifying and correction of defects | The *Contractor* corrects a Defect whether or not the *Service Manager* notifies him of it |
| 42.2 | The *defect correction period* is | Defect Correction Period is 52 weeks after the respective Task Order Completion Date |
| 42.3 | Access to site to correct defects | The *Service Manager* arranges for the *Employer* to allow the *Contractor* access if it is needed for correcting a Defect |
| 5 | **Payment** | |
| 50.1 | The *assessment interval* is | **Within 25th days of Task Order Completion or upon safe delivery and having met all the required standard and signed off** |
| 51.1 | The *currency of this contract* is the | **South African Rand** |
| 51.2 | The period within which payments are made is | Thirty (30) Calendar days after the signed assessment by both Parties and a valid Tax Invoice**.**<br><br>**ATTENTION:** Eskom's standard policy on payment |

| | | |
|---|---|---|
| | | term for all contracts valued above R50 000 0000 (Fifty Million Rand), including VAT, is 60 days. Bidders are requested to bear this payment term in mind when submitting bids and concluding contracts. |
| 51.4 | The *interest rate* is | **the publicly quoted prime rate of interest (calculated on a 365-day year) charged by from time to time by the Standard Bank of South Africa Limited (as certified, in the event of any dispute, by any manager of such bank, whose appointment it shall not be necessary to prove) for amounts due in Rands.** |
| 6 | **Compensation events** | **All Compensation Events are to be managed as per Core clause 6 of the NEC3 TSC** |
| 7 | **Use of Equipment Plant and Materials** | **To be managed as per Core clause 7 of the NEC3 TSC** |
| 8 | **Risks and insurance** | |
| 80.1 | These are additional *Employer*'s risks | **1. Natural disaster**<br>**2. Industrial action**<br>**3. Community Unrest** |
| **9** | **Termination** | **To be managed as per core clause 9 of the NEC3 TSC** |
| **10** | **Data for main Option clause** | |
| **A** | **Priced contract with price list** | |
| 20.5 | The *Contractor* prepares forecasts of the final total of the Prices for the whole of the *service* at intervals no longer than | **Two (2) weeks after receipt of the approved Task Order** |
| **11** | **Data for Option W1** | |
| W1.1 | The *Adjudicator* | **the person selected from the ICE-SA Division (or its successor body) of the South African Institution of Civil Engineering Panel of Adjudicators by the Party intending to refer a dispute to him. (see www.ice-sa.org.za). If the Parties do not agree on an Adjudicator the Adjudicator will be appointed by the Arbitration Foundation of Southern Africa (AFSA).** |
| | Address | **[●]** |
| | Tel No. | **[●]** |
| | Fax No. | **[●]** |
| | e-mail | **[●]** |
| W1.2(3) | The *Adjudicator nominating body* is: | **the Chairman of ICE-SA a joint Division of the South African Institution of Civil Engineering and the Institution of Civil Engineers (London)** |

| | | |
|---|---|---|
| | | **(see www.ice-sa.org.za ) or its successor body.** |
| W1.4(2) | The *tribunal* is: | **Arbitration** |
| W1.4(5) | The *arbitration procedure* is | **the latest edition of Rules for the Conduct of Arbitrations published by The Association of Arbitrators (Southern Africa) or its successor body.** |
| | The place where arbitration is to be held is | **Johannesburg, South Africa** |
| | The person or organisation who will choose an arbitrator<br>- if the Parties cannot agree a choice or<br>- if the arbitration procedure does not state who selects an arbitrator, is | **the Chairman for the time being or his nominee of the Association of Arbitrators (Southern Africa) or its successor body.** |

## 12 Data for secondary Option clauses

**X1 Price adjustment for inflation**

X1.1 The *base date* for indices is: **One month before ITT/RFQ closing or to be agreed upon**

The proportions used to calculate the Price Adjustment Factor are:

| Proportion | linked to index for | Index prepared by |
|---|---|---|
| **15%** | **Fixed** | **Fixed Portion** |
| **4%** | **Water and Electricity** | **SEIFSA Table D4** |
| **22%** | **Labour** | **SEIFSA Table C3a** |
| **14%** | **Material** | **SEIFSA Table J-4** (Copper RCP - Long Ton (Rand/Long Ton) |
| **14%** | **Material** | **SEIFSA Table J-4** (Non Grain Oriented Electrical Steel) |
| **14%** | **Material** | **SEIFSA Table J-4** (Plates HR Grade S355JR (Carbon Steel) |
| **14%** | **Material** | **SEIFSA Table J-4** Casting (Grey Iron Casting) |
| **3%** | **Transport** | **SEIFSA Table O-2 Transport of machinery** |
| **100%** | | |

**X2 Changes in the law**: Becomes a Compensation Event only if the changes in the Law of the Republic of South Africa took place after the Contract Date.

| | | |
|---|---|---|
| **X17** | **Low service damages** | |
| X17.1 | The *service level table* is in | **Table C** |
| **X18** | **Limitation of liability** | |
| X18.1 | The *Contractor*'s liability to the *Employer* for indirect or consequential loss is limited to | **R0.0 (zero Rand)** |
| X18.2 | For any one event, the *Contractor*'s liability to the *Employer* for loss of or damage to the *Employer*'s property is limited to | **the amount of the deductibles relevant to the event** |
| X18.3 | The *Contractor*'s liability for Defects due to his design of an item of Equipment is limited to | **The greater of**<br>• **the total of the Prices at the Contract Date and**<br>• **the amounts excluded and unrecoverable from the *Employer*'s insurance (other than the resulting physical damage to the *Employer*'s property which is not excluded) plus the applicable deductibles** |
| X18.4 | The *Contractor*'s total liability to the *Employer*, for all matters arising under or in connection with this contract, other than the excluded matters, is limited to | **the total of the Prices other than for the additional excluded matters.**<br><br>**The *Contractor's* total liability for the additional excluded matters is not limited.**<br><br>**The additional excluded matters are amounts for which the *Contractor* is liable under this contract for**<br><br>• **Defects due to his design, plan and specification,**<br>• **Defects due to manufacture and fabrication outside the Affected Property,**<br>• **loss of or damage to property (other than the *Employer*'s property, Plant and Materials),**<br>• **death of or injury to a person and**<br>• **infringement of an intellectual property right.** |
| X18.5 | The *end of liability date* is | **Five (5) years after the end of the *service period*.** |
| **X19** | **Task Order** | |
| X19.3 | Delay Damages are | **Five percent (5%) of the Task Order Value per day from the day of delayed completion until the actual completion of the services, to be capped at the maximum of Ten percent (10%) of the Total Task Order Values** |
| X19.5 | The *Contractor* submits a Task Order programme to the *Service Manager* within | **Five (5) days of receiving the Task Order** |
| **Z** | **The *additional conditions of contract* are** | **Z1 to Z14 always apply.** |

**Z1 Cession delegation and assignment**

Z1.1 The *Contractor* does not cede, delegate or assign any of its rights or obligations to any person without the written consent of the *Employer.*

Z1.2 Notwithstanding the above, the *Employer* may on written notice to the *Contractor* cede and delegate its rights and obligations under this contract to any of its subsidiaries or any of its present divisions or operations which may be converted into separate legal entities as a result of the restructuring of the Electricity Supply Industry.

**Z2 Joint ventures**

Z2.1 If the *Contractor* constitutes a joint venture, consortium or other unincorporated grouping of two or more persons or organisations then these persons or organisations are deemed to be jointly and severally liable to the *Employer* for the performance of this contract.

Z2.2 Unless already notified to the *Employer*, the persons or organisations notify the *Service Manager* within two weeks of the Contract Date of the key person who has the authority to bind the *Contractor* on their behalf.

Z2.3 The *Contractor* does not alter the composition of the joint venture, consortium or other unincorporated grouping of two or more persons without the consent of the *Employer* having been given to the *Contractor* in writing.

**Z3 Change of Broad Based Black Economic Empowerment (B-BBEE) status**

Z3.1 Where a change in the *Contractor's* legal status, ownership or any other change to his business composition or business dealings results in a change to the *Contractor*'s B-BBEE status, the *Contractor* notifies the *Employer* within seven days of the change.

Z3.2 The *Contractor* is required to submit an updated verification certificate and necessary supporting documentation confirming the change in his B-BBEE status to the *Service Manager* within thirty days of the notification or as otherwise instructed by the *Service Manager*.

Z3.3 Where, as a result, the *Contractor's* B-BBEE status has decreased since the Contract Date the *Employer* may either re-negotiate this contract or alternatively, terminate the *Contractor*'s obligation to Provide the Service.

Z3.4 Failure by the *Contractor* to notify the *Employer* of a change in its B-BBEE status may constitute a reason for termination. If the *Employer* terminates in terms of this clause, the procedures on termination are P1, P2 and P4 as stated in clause 92, and the amount due is A1 and A3 as stated in clause 93.

**Z4 Confidentiality**

Z4.1 The *Contractor* does not disclose or make any information arising from or in connection with this contract available to Others. This undertaking does not, however, apply to information which at the time of disclosure or thereafter, without default on the part of the *Contractor*, enters the public domain or to information which was already in the possession of the *Contractor* at the time of disclosure (evidenced by written records in existence at that time). Should the *Contractor* disclose information to Others in terms of clause 25.1, the *Contractor* ensures that the provisions of this clause are complied with by the recipient.

Z4.2 If the *Contractor* is uncertain about whether any such information is confidential, it is to be regarded as such until notified otherwise by the *Service Manager*.

Z4.3 In the event that the *Contractor* is, at any time, required by law to disclose any such information

which is required to be kept confidential, the *Contractor*, to the extent permitted by law prior to disclosure, notifies the *Employer* so that an appropriate protection order and/or any other action can be taken if possible, prior to any disclosure. In the event that such protective order is not, or cannot, be obtained, then the *Contractor* may disclose that portion of the information which it is required to be disclosed by law and uses reasonable efforts to obtain assurances that confidential treatment will be afforded to the information so disclosed.

Z4.4 The taking of images (whether photographs, video footage or otherwise) of the Affected Property or any portion thereof, in the course of Providing the Service and after the end of the *service period*, requires the prior written consent of the *Service Manager*. All rights in and to all such images vests exclusively in the *Employer*.

Z4.5 The *Contractor* ensures that all his subcontractors abide by the undertakings in this clause.

**Z5 Waiver and estoppel: Add to core clause 12.3:**

Z5.1 Any extension, concession, waiver or relaxation of any action stated in this contract by the Parties*,* the *Service Manager* or the *Adjudicator* does not constitute a waiver of rights, and does not give rise to an estoppel unless the Parties agree otherwise and confirm such agreement in writing.

**Z6 Health, safety and the environment: Add to core clause 27.4**

Z6.1 The *Contractor* undertakes to take all reasonable precautions to maintain the health and safety of persons in and about the execution of the *service*. Without limitation the *Contractor*:

- accepts that the *Employer* may appoint him as the “Principal Contractor” (as defined and provided for under the Construction Regulations 2014 (promulgated under the Occupational Health & Safety Act 85 of 1993) (“the Construction Regulations”) for the Affected Property;
- warrants that the total of the Prices as at the Contract Date includes a sufficient amount for proper compliance with the Construction Regulations, all applicable health & safety laws and regulations and the health and safety rules, guidelines and procedures provided for in this contract and generally for the proper maintenance of health & safety in and about the execution of the *service*; and
- undertakes, in and about the execution of the *service*, to comply with the Construction Regulations and with all applicable health & safety laws and regulations and rules, guidelines and procedures otherwise provided for under this contract and ensures that his Subcontractors, employees and others under the *Contractor’s* direction and control, likewise observe and comply with the foregoing.

Z6.2 The *Contractor*, in and about the execution of the *service*, complies with all applicable environmental laws and regulations and rules, guidelines and procedures otherwise provided for under this contract and ensures that his Subcontractors, employees and others under the *Contractor’s* direction and control, likewise observe and comply with the foregoing.

**Z7 Provision of a Tax Invoice and interest. Add to core clause 51**

Z7.1 Within one week of receiving a payment certificate from the *Service Manager* in terms of core clause 51.1, the *Contractor* provides the *Employer* with a tax invoice in accordance with the *Employer*'s procedures stated in the Service Information, showing the amount due for payment equal to that stated in the payment certificate.

Z7.2 If the *Contractor* does not provide a tax invoice in the form and by the time required by this contract, the time by when the *Employer* is to make a payment is extended by a period equal in time to the delayed submission of the correct tax invoice. Interest due by the *Employer* in terms of core clause 51.2 is then calculated from the delayed date by when payment is to be made.

Z7.3 The *Contractor* (if registered in South Africa in terms of the companies Act) is required to

comply with the requirements of the Value Added Tax Act, no 89 of 1991 (as amended) and to include the *Employer*'s VAT number 4740101508 on each invoice he submits for payment.

**Z8 Notifying compensation events**

Z8.1 Delete the last paragraph of core clause 61.3 and replace with:

If the *Contractor* does not notify a compensation event within eight weeks of becoming aware of the event, he is not entitled to a change in the Prices.

**Z9 *Employer's* limitation of liability**

Z9.1 The *Employer's* liability to the *Contractor* for the *Contractor's* indirect or consequential loss is limited to R0.00 (zero Rand)

Z9.2 The *Contractor*'s entitlement under the indemnity in 82.1 is provided for in 60.1(12) and the *Employer*'s liability under the indemnity is limited to compensation as provided for in core clause 63 and X19.11 if Option X19 Task Order applies to this contract.

**Z10 Termination: Add to core clause 91.1, at the second main bullet point, fourth sub-bullet point, after the words "against it":**

Z10.1 or had a business rescue order granted against it.

**Z11 Ethics**

For the purposes of this Z-clause, the following definitions apply:

| | |
|---|---|
| **Affected Party** | means, as the context requires, any party, irrespective of whether it is the *Contractor* or a third party, such party's employees, agents, or Subcontractors or Subcontractor's employees, or any one or more of all of these parties' relatives or friends, |
| **Coercive Action** | means to harm or threaten to harm, directly or indirectly, an Affected Party or the property of an Affected Party, or to otherwise influence or attempt to influence an Affected Party to act unlawfully or illegally, |
| **Collusive Action** | means where two or more parties co-operate to achieve an unlawful or illegal purpose, including to influence an Affected Party to act unlawfully or illegally, |
| **Committing Party** | means, as the context requires, the *Contractor*, or any member thereof in the case of a joint venture, or its employees, agents, or Subcontractors or the Subcontractor's employees, |
| **Corrupt Action** | means the offering, giving, taking, or soliciting, directly or indirectly, of a good or service to unlawfully or illegally influence the actions of an Affected Party, |
| **Fraudulent Action** | means any unlawfully or illegally intentional act or omission that misleads, or attempts to mislead, an Affected Party, in order to obtain a financial or other benefit or to avoid an obligation or incurring an obligation, |
| **Obstructive Action** | means a Committing Party unlawfully or illegally destroying, falsifying, altering or concealing information or making false statements to materially impede an investigation into allegations of Prohibited Action, and |
| **Prohibited Action** | means any one or more of a Coercive Action, Collusive Action Corrupt Action, Fraudulent Action or Obstructive Action. |

Z11.1 A Committing Party may not take any Prohibited Action during the course of the procurement of this contract or in execution thereof.

Z11.2 The *Employer* may terminate the *Contractor*'s obligation to Provide the Services if a Committing Party has taken such Prohibited Action and the *Contractor* did not take timely and appropriate action to prevent or remedy the situation, without limiting any other rights or remedies the *Employer* has. It is not required that the Committing Party had to have been found guilty, in court or in any other similar process, of such Prohibited Action before the *Employer* can terminate the *Contractor*'s obligation to Provide the Services for this reason.

Z11.3 If the *Employer* terminates the *Contractor*'s obligation to Provide the Services for this reason, the amounts due on termination are those intended in core clauses 92.1 and 92.2.

Z11.4 A Committing Party co-operates fully with any investigation pursuant to alleged Prohibited Action. Where the *Employer* does not have a contractual bond with the Committing Party, the *Contractor* ensures that the Committing Party co-operates fully with an investigation.

## Z12 Insurance

**Z_12_.1 Replace core clause 83 with the following:**

**Insurance cover** 83

83.1 When requested by a Party, the other Party provides certificates from his insurer or broker stating that the insurances required by this contract are in force.

83.2 The *Contractor* provides the insurances stated in the Insurance Table A from the *starting date* until the earlier of Completion and the date of the termination certificate.

INSURANCE TABLE A

| Insurance against | Minimum amount of cover or minimum limit of indemnity |
|---|---|
| Loss of or damage caused by the *Contractor* to the *Employer*'s property | The replacement cost where not covered by the *Employer*'s insurance.<br><br>The *Employer*'s policy deductible as at Contract Date, where covered by the *Employer*'s insurance. |
| Loss of or damage to Plant and Materials | The replacement cost where not covered by the *Employer*'s insurance.<br><br>The *Employer*'s policy deductible as at Contract Date, where covered by the *Employer*'s insurance. |
| Loss of or damage to Equipment | The replacement cost where not covered by the *Employer*'s insurance.<br><br>The *Employer*'s policy deductible as at Contract Date, where covered by the *Employer*'s insurance. |
| The *Contractor*'s liability for loss of or damage to property (except the *Employer*'s property, Plant and Materials and Equipment) and liability for bodily injury to or death of a | Loss of or damage to property<br>The replacement cost<br><br>Bodily injury to or death of a person |

| | |
|---|---|
| person (not an employee of the *Contractor*) arising from or in connection with the *Contractor*'s Providing the Service | The amount required by the applicable law. |
| Liability for death of or bodily injury to employees of the *Contractor* arising out of and in the course of their employment in connection with this contract | The amount required by the applicable law |

**Z 12.2 Replace core clause 86 with the following:**

**Insurance by the *Employer***

86

86.1 The *Employer* provides the insurances stated in the Insurance Table B

**INSURANCE TABLE B**

| **Insurance against or name of policy** | **Minimum amount of cover or minimum lir of indemnity** |
|---|---|
| Assets All Risk | Per the insurance policy document |
| Contract Works insurance | Per the insurance policy document |
| Environmental Liability | Per the insurance policy document |
| General and Public Liability | Per the insurance policy document |
| Transportation (Marine) | Per the insurance policy document |
| Motor Fleet and Mobile Plant | Per the insurance policy document |
| Terrorism | Per the insurance policy document |
| Cyber Liability | Per the insurance policy document |
| Nuclear Material Damage and Business Interruption | Per the insurance policy document |
| Nuclear Material Damage Terrorism | Per the insurance policy document |

**Z13 Nuclear Liability**

Z13.1 The *Employer* is the operator of the Koeberg Nuclear Power Station (KNPS), a nuclear installation, as designated by the National Nuclear Regulator of the Republic of South Africa, and is the holder of a nuclear licence in respect of the KNPS.

Z13.2 The *Employer* is solely responsible for and indemnifies the *Contractor* or any other person against any and all liabilities which the *Contractor* or any person may incur arising out of or resulting from nuclear damage, as defined in Act 47 of 1999, save to the extent that any liabilities are incurred due to the unlawful intent of the *Contractor* or any other person or the presence of the *Contractor* or that person or any property of the *Contractor* or such person at or in the KNPS or on the KNPS site, without the permission of the *Employer* or of a person acting on behalf of the *Employer*.

Z13.3 Subject to clause Z13.4 below, the *Employer* waives all rights of recourse, arising from the aforesaid, save to the extent that any claims arise or liability is incurred due or attributable to the

unlawful intent of the *Contractor* or any other person, or the presence of the *Contractor* or that person or any property of the *Contractor* or such person at or in the KNPS or on the KNPS site, without the permission of the *Employer* or of a person acting on behalf of the *Employer*.

Z13.4 The *Employer* does not waive its rights provided for in section 30 (7) of Act 47 of 1999, or any replacement section dealing with the same subject matter.

Z13.5 The protection afforded by the provisions hereof shall be in effect until the KNPS is decommissioned.

## Z14 Asbestos

For the purposes of this Z-clause, the following definitions apply:

**AAIA** means approved asbestos inspection authority.

**ACM** means asbestos containing materials.

**AL** means action level, i.e. a level of 50% of the OEL, i.e. 0.1 regulated asbestos fibres per ml of air measured over a 4-hour period. The value at which proactive actions is required in order to control asbestos exposure to prevent exceeding the OEL.

**Ambient Air** means breathable air in area of work with specific reference to breathing zone, which is defined to be a virtual area within a radius of approximately 30cm from the nose inlet.

**Compliance Monitoring** means compliance sampling used to assess whether or not the personal exposure of workers to regulated asbestos fibres is in compliance with the Standard's requirements for safe processing, handling, storing, disposal and phase-out of asbestos and asbestos containing material, equipment and articles.

**OEL** means occupational exposure limit.

**Parallel Measurements** means measurements performed in parallel, yet separately, to existing measurements to verify validity of results.

**Safe Levels** means airborne asbestos exposure levels conforming to the Standard's requirements for safe processing, handling, storing, disposal and phase-out of asbestos and asbestos containing material, equipment and articles.

**Standard** means the *Employer*'s Asbestos Standard 32-303: Requirements for Safe Processing, Handling, Storing, Disposal and Phase-out of Asbestos and Asbestos Containing Material, Equipment and Articles.

**SANAS** means the South African National Accreditation System.

**TWA** means the average exposure, within a given workplace, to airborne asbestos fibres, normalised to the baseline of a 4-hour continuous period, also applicable to short term exposures, i.e. 10-minute TWA.

Z14.1 The *Employer* ensures that the Ambient Air in the area where the *Contractor* will Provide the Services conforms to the acceptable prescribed South African standard for asbestos, as per the regulations published in GNR 155 of 10 February 2002, under the Occupational Health and Safety Act, 1993 (Act 85 of 1993) ("Asbestos Regulations"). The OEL for asbestos is 0.2 regulated asbestos fibres per millilitre of air as a 4-hour TWA, averaged over any continuous period of four hours, and the short-term exposure limit of 0.6 regulated asbestos fibres per millilitre of air as a 10-minute TWA, averaged over any 10 minutes, measured in accordance with HSG248 and monitored according to HSG173 and OESSM.

Z14.2 Upon written request by the *Contractor*, the *Employer* certifies that these conditions prevail. All

measurements and reporting are affected by an independent, competent, and certified occupational hygiene inspection body, i.e. a SANAS accredited and Department of Employment and Labour approved AAIA. The *Contractor* may perform Parallel Measurements and related control measures at the *Contractor*'s expense. For the purposes of compliance the results generated from Parallel Measurements are evaluated only against South African statutory limits as detailed in clause Z14.1. Control measures conform to the requirements stipulated in the AAIA-approved asbestos work plan.

Z14.3 The *Employer* manages asbestos and ACM according to the Standard.

Z14.4 In the event that any asbestos is identified while Providing the Services, a risk assessment is conducted and if so required, with reference to possible exposure to an airborne concentration of above the AL for asbestos, immediate control measures are implemented and relevant air monitoring conducted in order to declare the area safe.

Z14.5 The *Contractor*'s personnel are entitled to stop working and leave the contaminated area forthwith until such time that the area of concern is declared safe by either Compliance Monitoring or an AAIA approved control measure intervention, for example, per the emergency asbestos work plan, if applicable.

Z14.6 The *Contractor* continues to Provide the Services, without additional control measures presented, on presentation of Safe Levels. The contractually agreed dates to Provide the Services, including the Completion Date, are adjusted accordingly. The contractually agreed dates are extended by the notification periods required by regulations 3 and 21 of the Asbestos Regulations, 2001.

Z14.7 Any removal and disposal of asbestos, asbestos containing materials and waste, is done by a registered asbestos contractor, instructed by the *Employer* at the *Employer*'s expense, and conducted in line with South African legislation.

# Table C: Low Services Damages

| Criteria | Weight | Unit | Target | Penalty 3% | Penalty 5% | Penalty 10% |
|---|---|---|---|---|---|---|
| Non-conformance reports (NCR) issued to Contractor/ NCR Response overdue. | 30% | Number | 0 | 5 | 10 | 15 & above |
| SHEQ audit findings | 20% | Number | 0 | 1 | 2 | 3 & more |
| Overdue Audit close outs | 20% | Days | 0 | 1 | 2 | 3 and more |
| Failure to maintain LTIR target. | 30% | Number | 0 | 2 | 3 | 4 and more |

# C1.2 Contract Data

## Part two - Data provided by the *Contractor*

**Notes to a tendering contractor:**

1. Please read both the both the NEC3 Term Service Contract April 2013 and the relevant parts of its Guidance Notes (TSC3-GN)[1] in order to understand the implications of this Data which the tenderer is required to complete.
2. The number of the clause which requires the data is shown in the left hand column for each statement however other clauses may also use the same data.
3. Where a form field like this [ ] appears, data is required to be inserted relevant to the option selected. Click on the form field ***once*** and type in the data. Otherwise complete by hand and in ink.

Completion of the data in full, according to Options chosen, is essential to create a complete contract.

| Clause | Statement | Data |
|---|---|---|
| 10.1 | The *Contractor* is (Name):<br>Address<br>Tel No.<br>Fax No. | |
| 11.2(8) | The *direct fee percentage* is<br>The *subcontracted fee percentage* is | **%**<br>**%** |
| 11.2(14) | The following matters will be included in the Risk Register | |
| 11.2(15) | The Service Information for the *Contractor*'s plan is in: | |
| 21.1 | The plan identified in the Contract Data is contained in: | |
| 24.1 | The key people are:<br>1 Name:<br>Job:<br>Responsibilities:<br>Qualifications:<br>Experience:<br>2 Name:<br>Job<br>Responsibilities:<br>Qualifications: | |

[1] Available from Engineering Contract Strategies Tel 011 803 3008 Fax 086 5391902 or www.ecs.co.za

Experience:

| | | **CV's (and further key person's data including CVs) are in .** |
|---|---|---|
| **A** | **Priced contract with price list** | |
| 11.2(12) | The *price list* is in | |
| 11.2(19) | The tendered total of the Prices is | **R** |

# PART 2: PRICING DATA

## TSC3 Option A

| Document reference | Title | No of pages |
|---|---|---|
| C2.1 | Pricing assumptions: Option A | 2 |
| C2.2 | The *price list* | 70 |

# C2.1 Pricing assumptions: Option A

## 1. How work is priced and assessed for payment

Clause 11 in NEC3 Term Service Contract (TSC3) core clauses and Option A states:

| | | |
|---|---|---|
| **Identified and defined terms** | 11<br>11.2 | (12) The Price List is the *price list* unless later changed in accordance with this contract.<br><br>(17) The Price for Services Provided to Date is the total of<br><br>• the Price for each lump sum item in the Price List which the *Contractor* has completed and<br>• where a quantity is stated for an item in the Price List, an amount calculated by multiplying the quantity which the *Contractor* has completed by the rate.<br><br>(19) The Prices are the amounts stated in the Price column of the Price List. Where a quantity is stated for an item in the Price List, the Price is calculated by multiplying the quantity by the rate. |

This confirms that Option A is a priced contract where the Prices are derived from a list of items of service which can be priced as lump sums or as expected quantities of service multiplied by a rate or a mix of both.

## 2. Function of the Price List

Clause 54.1 in Option A states: “Information in the Price List is not Service Information”. This confirms that instructions to do work or how it is to be done are not included in the Price List but in the Service Information. This is further confirmed by Clause 20.1 which states, “The *Contractor* Provides the Service in accordance with the Service Information”. Hence the *Contractor* does **not** Provide the Service in accordance with the Price List. The Price List is only a pricing document.

## 3. Link to the *Contractor*’s plan

Clause 21.4 states “The *Contractor* provides information which shows how each item description on the Price List relates to the operations on each plan which he submits for acceptance”. Hence when compiling the *price list*, the tendering contractor needs to develop his first clause 21.2 plan in such a way that operations shown on it can be priced in the *price list* and result in a satisfactory cash flow in terms of clause 11.2(17).

## 4. Preparing the *price list*

Before preparing the *price list*, both the *Employer* and tendering contractors should read the TSC3 Guidance Notes pages 14 and 15. In an Option A contract, either Party may have entered items into the *price list* either as a process of offer and acceptance (tendering) or by negotiation depending on the nature of the *service* to be provided. Alternatively the *Employer*, in his Instructions to Tenderers or in a Tender Schedule, may have listed some items that he requires the *Contractor* to include in the *price list* to be prepared and priced by him.

It is assumed that in preparing or finalising the *price list* the *Contractor:*

- Has taken account of the guidance given in the TSC3 Guidance Notes relevant to Option A;
- Understands the function of the Price List and how work is priced and paid for;
- Is aware of the need to link operations shown in his plan to items shown in the Price List;
- Has listed and priced items in the *price list* which are inclusive of everything necessary and incidental to Providing the Service in accordance with the Service Information, as it was at the time of tender, as well as correct any Defects not caused by an *Employer's* risk;
- Has priced work he decides not to show as a separate item within the Prices or rates of other listed items in order to fulfil the obligation to complete the *service* for the tendered total of the Prices.
- Understands there is no adjustment to items priced as lump sums if the amount, or quantity, of work within that item later turns out to be different to that which the *Contractor* estimated at time of tender. The only basis for a change to the (lump sum) Prices is as a result of a compensation event.

## 4.1. Format of the *price list*

(From the example given in an Appendix within the TSC3 Guidance Notes)

Entries in the first four columns in the *price list* in section C2.2 are made either by the *Employer* or the tendering contractor.

If the *Contractor* is to be paid an amount for the item which is not adjusted if the quantity of work in the item changes, the tendering contractor enters the amount in the Price column only, the Unit, Estimated Quantities and Rate columns being left blank.

If the *Contractor* is to be paid an amount for an item of work which is the rate for the work multiplied by the quantity completed, the tendering contractor enters the rate which is then multiplied by the Estimated Quantities to produce the Price, which is also entered.

If the *Contractor* is to be paid a Price for an item proportional to the length of time for which a service is provided, a unit of time is stated in the Unit column and the expected length of time (as a quantity of the stated units of time) is stated in the Estimated Quantities column.

# C2.2 the *price list*

| ITEM NO. | MATERIAL NO. | DESCRIPTION | UNIT | QUANTITIES | RATE | AMOUNT |
|---|---|---|---|---|---|---|
| | | Safety file (first year) | Sum | 1 | | |
| | | Safety file (years 2-4) | Annually | 3 | | |
| **01** | | **TRANSPORTATION** | | | | |
| | | Collection of motors from the stripping & assessment workshop | KM | 9 000 | | |
| | | Delivery to Arnot power station main stores<br><br>NB: Motors with White Metal Bearings are to be delivered with shaft locking devices in place | KM | 24000 | | |
| **02** | | **ELECTRICAL TESTING** | | | | |
| | | Test Bay Solo Run with Vibration Analysis | EA | 40 | | |
| | | Insulation Resistance Tests | EA | 20 | | |
| | | AC / DC High Potential Tests | EA | 20 | | |
| | | Impulse/Interturn testing | EA | 20 | | |
| | | Tan-Delta Tests | EA | 20 | | |
| | | Core Flux Test | EA | 20 | | |
| | | Space heater & temperature detector insulation testing | EA | 20 | | |
| **03** | | **MOTOR LIST** | | | | |
| | **0251115** | U2-U6 PA Fan Motors (520 kW) | EA | 40 | | |
| | **0179083** | U1 PA Fan / AWR Motors (425 kW) | EA | 15 | | |
| | **0585144** | Sluice Pump Motors (290 kW) | EA | 15 | | |
| | **0248222** | Condensate Extraction Pump Motors (750 kW) | EA | 10 | | |
| | **0212134** | Condensate Extraction Pump Motors (635 kW) | EA | 10 | | |
| | **0624808** | Ash Water Return Pump Motors (350 kW) | EA | 15 | | |
| | **0139633** | Ash Water Return Motors (280 kW) | EA | 15 | | |
| | **0237716** | U2-U6 Mill Motors (400 kW) | EA | 15 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | **0179084** | U1 Mill Motors (1450 kW) | EA | 3 | | |
| | **0237313** | North Electric Feed Pump Motors (5800 kW) | EA | 12 | | |
| | **0225941** | South Electric Feed Pump Motors (5800 kW) | EA | 12 | | |
| | **0140649** | Ash Pump Motors (625 kW) | EA | 20 | | |
| | **0140780** | Induced Draught Fan Motors (2750 kW) | EA | 4 | | |
| | **0179076** | CPP Booster Pump Motors (185 kW) | EA | 3 | | |
| | **0178893** | Forced Draught Fan Motors (1212 kW) | EA | 8 | | |
| | **0624808** | North Cooling Water Pump Motors (2800 HP) | EA | 3 | | |
| | **0602735** | South Cooling Water Pump Motors (2165 kW) | EA | 3 | | |

**Total Price**

| **1. MACHINE DETAILS** | | | |
|---|---|---|---|
| Make & Weight | Alstom & 2 600 kg | Voltage | 3 300 V |
| Material No. | 0251115 | Stator Current | 109 A |
| Power | 520 kW | Frame Size/Type | 1LA1404-4 |
| Application | Units 2-6 PA Fan Motor | Speed | 1485 Rpm |
| Bearing Sizes DE & NDE | NU 222 C3 & 6222 C3 | Shaft Diameter & Length | 110 & 60mm |

| **DESCRIPTION** | **UNIT** | **QUANTITIES** | **RATE** | **AMOUNT** |
|---|---|---|---|---|
| **TERMINAL BOX & TERMINALS** | | | | |
| Re-gasket 2 terminal boxes | EA | 1 | | |
| Re-gasket 2 auxiliary boxes | EA | 1 | | |
| Replace desiccators | EA | 1 | | |
| Replace leads line side and star point side | EA | 1 | | |
| Replace star point side | EA | 1 | | |
| Supply and fit one terminal box | EA | 1 | | |
| Supply and fit one Auxiliary box | EA | 1 | | |
| **STATOR HOUSING CORE & WINDINGS** | | | | |
| Skim foot mountings & conduct concentricity checks | EA | 1 | | |
| Manufacture new coil & insulation kit | EA | 1 | | |
| Overhaul stator and spray with insulation varnish | EA | 1 | | |
| Replace with new stator core | EA | 1 | | |
| Rewind stator, VPI & bake | EA | 1 | | |
| Fit new PT100’s & stator leads | EA | 1 | | |
| Burn out old winding, replace with new stator winding, clean & prepare core for rewind | EA | 1 | | |
| Re-tap all mounting holes | EA | 1 | | |
| Re-tap holes and fit jacking bolts | EA | 1 | | |
| **ROTOR CORE & WINDINGS** | | | | |
| Manufacture and fit new rotor core | EA | 1 | | |
| Remove old rotor core and fit a new core | EA | 1 | | |
| Machine off rotor short circuiting rings & remove rotor bars | EA | 1 | | |
| Manufacture and fit new rotor bars and short-circuiting rings | EA | 1 | | |
| Final machine rotor | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Rebar rotor completely | EA | 1 | | |
| Overhaul rotor and spray with insulating varnish | EA | 1 | | |
| Micro weld coupling landing, all sizes DE & NDE | EA | 1 | | |
| Polish journal and seal landings | EA | 1 | | |
| Replace external cooling fan (PVC) | EA | 1 | | |
| Replace internal cooling fan | EA | 1 | | |
| Replace fan cowl | EA | 1 | | |
| Balance rotor at operating speed, maximum run out of 0.03mm | EA | 1 | | |
| **DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Re-sleeve bearing housing bore 200mm diameter | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Supply and replace bearing NU 222 | EA | 1 | | |
| **NON-DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation (467MP) | EA | 1 | | |
| Re-sleeve bearing housing bore 200mm diameter | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearing 6222 C3 | EA | 1 | | |

| **SPARES, GENERAL & ASSEMBLY** | | | | |
|---|---|---|---|---|
| Supply and fit new grease pipes & nipples | EA | 1 | | |
| Supply and fit new bearing probes | EA | 1 | | |
| Supply and fit new PT connectors + rails | EA | 1 | | |
| Supply and fit new element heaters 4 off | EA | 1 | | |
| Polish all caps, flingers and flanges | EA | 1 | | |
| Overhaul grease catchers/ relievers | EA | 1 | | |
| Repair terminal box handle | EA | 1 | | |
| Manufacture new flingers | EA | 1 | | |
| Overhaul screen & cowl | EA | 1 | | |
| Manufacture new cowl screen | EA | 1 | | |
| Manufacture & fit new thrust springs | EA | 1 | | |
| Overhaul fan and refit | EA | 1 | | |
| Replace bolts, spring & washers (new) | EA | 1 | | |
| Fit new earth lug | EA | 1 | | |
| Overhaul lifting lugs<br>(Re-tap holes) | EA | 1 | | |
| Clean and polish spigots | EA | 1 | | |
| Replace rubber seals & gaskets | EA | 1 | | |
| Assemble motor complete | EA | 1 | | |
| Clean, paint motor & prepare for delivery<br><br>Battle grey – Refurbished motor<br>Red - Terminal boxes<br>Orange - Fan cowl | EA | 1 | | |
| Motor FAT with Vibration Analysis (FAT) | EA | 1 | | |
| Supply data pack | EA | 1 | | |
| Plastic wrap unit if Motor has Coolers<br>(Heat shrink wrap) | EA | 1 | | |
| **TOTAL FOR UNITS (2-6) PRIMARY AIR FAN MOTORS** | | | | |

| **2. MACHINE DETAILS** | | | |
|---|---|---|---|
| Make & Weight | Toshiba & 2 000 kg | Voltage | 3 300 V |
| Material No. | 0179083 | Stator Current | 88 A |
| Power | 425 kW | Frame Size/Type | JKD 355/400 |
| Application | U1 PA Fan / AWR Recovery Motor | Speed | 1484 Rpm |
| Bearings DE & NDE | NU 324 C3 & 6324 C3 | Shaft Diameter & Length | 120 & 50 |

| **DESCRIPTION** | **UNIT** | **QUANTITIES** | **RATE** | **AMOUNT** |
|---|---|---|---|---|
| **TERMINAL BOX AND TERMINALS** | | | | |
| Re-gasket 2 terminal boxes | EA | 1 | | |
| Re-gasket 2 auxiliary boxes | EA | 1 | | |
| Replace desiccators | EA | 1 | | |
| Replace leads line side and star point side | EA | 1 | | |
| Replace star point side | EA | 1 | | |
| Supply and fit one terminal box | EA | 1 | | |
| Supply and fit one auxiliary box | EA | 1 | | |
| **STATOR HOUSING CORE & WINDINGS** | | | | |
| Skim foot mountings & conduct concentricity checks | EA | 1 | | |
| Manufacture new coil & insulation kit | EA | 1 | | |
| Overhaul stator and spray with insulation varnish | EA | 1 | | |
| Replace with new stator core | EA | 1 | | |
| Rewind stator, VPI & bake | EA | 1 | | |
| Fit new PT100’s & stator leads | EA | 1 | | |
| Burn out old winding, replace with new stator winding, clean & prepare core for rewind | EA | 1 | | |
| Re-tap all mounting holes | EA | 1 | | |
| Re-tap holes and fit jacking bolts | EA | 1 | | |
| **ROTOR CORE & WINDINGS** | | | | |
| Manufacture and fit new rotor core | EA | 1 | | |
| Remove old rotor core and fit a new core | EA | 1 | | |
| Machine off rotor short circuiting rings & remove rotor bars | EA | 1 | | |
| Manufacture and fit new rotor bars and short-circuiting rings | EA | 1 | | |
| Final machine rotor | EA | 1 | | |
| Rebar rotor completely | EA | 1 | | |
| Overhaul rotor and spray with insulating varnish | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Micro weld coupling landing, all sizes | EA | 1 | | |
| Micro weld and machine DE bearing journal, DE & NDE all sizes | EA | 1 | | |
| Micro weld and machine DE & NDE seals, all sizes | EA | 1 | | |
| Micro weld and machine fan side coupling landing, all sizes | EA | 1 | | |
| Polish journal and seal landings | EA | 1 | | |
| Replace external cooling fan (PVC) | EA | 1 | | |
| Replace internal cooling fan | EA | 1 | | |
| Replace fan cowl | EA | 1 | | |
| Balance rotor at operating speed, maximum run out of 0.03mm | EA | 1 | | |
| **DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Re-sleeve bearing housing bore 260mm diameter | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearing NU 324 C3 | EA | 1 | | |
| **NON-DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Re-sleeve bearing housing bore 260mm diameter | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearing 6324 C3 | EA | 1 | | |

| **SPARES, GENERAL & ASSEMBLY** | | | | |
|---|---|---|---|---|
| Supply and fit new grease pipes & nipples | EA | 1 | | |
| Supply and fit new bearing probes | EA | 1 | | |
| Supply and fit new PT connectors & rails | EA | 1 | | |
| Supply and fit new element heaters 4 off | EA | 1 | | |
| Supply and fit desiccator | EA | 1 | | |
| Polish all caps, flingers and flanges | EA | 1 | | |
| Manufacture NDE flingers | EA | 1 | | |
| Clean cooling tubes & cooler | EA | 1 | | |
| Panel beat cooler | EA | 1 | | |
| Overhaul screen & cowl | EA | 1 | | |
| Overhaul grease catchers/relievers | EA | 1 | | |
| Repair terminal box handles | EA | 1 | | |
| Manufacture new cowl screen | EA | 1 | | |
| Manufacture & fit new thrust springs | EA | 1 | | |
| Overhaul fan and refit | EA | 1 | | |
| Overhaul base and refit | EA | 1 | | |
| Replace bolts, spring & washers (new) | EA | 1 | | |
| Fit new earth lug | EA | 1 | | |
| Overhaul lifting lugs<br>(Re- tap holes) | EA | 1 | | |
| Clean and polish spigots | EA | 1 | | |
| Replace rubber seals & gaskets | EA | 1 | | |
| Assemble motor complete | EA | 1 | | |
| Clean, paint motor & prepare for delivery<br><br>Battle grey – motor<br>Red- Terminal boxes<br>Orange – fan cowl | EA | 1 | | |
| Motor FAT with Vibration Analysis | EA | 1 | | |
| Supply data pack | EA | 1 | | |
| Plastic wrap unit<br>(heat shrink wrap) | EA | 1 | | |
| **TOTAL FOR U1 PRIMARY AIR FAN / ASH WATER RECOVERY PUMP MOTOR** | | | | |

| **3. MACHINE DETAILS** | | | |
|---|---|---|---|
| Make & Weight | Actom & AEI<br>1700 kg & 2 000 kg | Voltage | 3 300 V |
| Material No. | 0585144 | Stator Current | 61 A |
| Power | 290 kW | Frame Size/Type | 1LA1 352 & JKD 355 |
| Application | Sluice Pump Motor | Speed | 1474 / 1484 Rpm |
| Bearings DE & NDE | NU 322 MC3 & NU 322 MC3<br>6219 C3 6318 Z3 | Shaft Diameter | 95mm<br>110 & 40 mm |

| **DESCRIPTION** | **UNIT** | **QUANTITIES** | **RATE** | **AMOUNT** |
|---|---|---|---|---|
| **TERMINAL BOX AND TERMINALS** | | | | |
| Re-gasket 2 terminal boxes | EA | 1 | | |
| Re-gasket 2 auxiliary boxes | EA | 1 | | |
| Replace desiccators | EA | 1 | | |
| Replace leads line side and star point side | EA | 1 | | |
| Replace star point side | EA | 1 | | |
| Supply and fit one terminal box | EA | 1 | | |
| Supply and fit one auxiliary box | EA | 1 | | |
| **STATOR HOUSING CORE & WINDINGS** | | | | |
| Skim foot mountings & conduct concentricity checks | EA | 1 | | |
| Manufacture new coil & insulation kit | EA | 1 | | |
| Overhaul stator and spray with insulation varnish | EA | 1 | | |
| Replace with new stator core | EA | 1 | | |
| Rewind stator, VPI & bake | EA | 1 | | |
| Fit new PT100’s & stator leads | EA | 1 | | |
| Burn out old winding, replace with new stator winding, clean & prepare core for rewind | EA | 1 | | |
| Re-tap all mounting holes | EA | 1 | | |
| Re-tap holes and fit jacking bolts | EA | 1 | | |
| **ROTOR CORE & WINDINGS** | | | | |
| Manufacture and fit new rotor core | EA | 1 | | |
| Remove old rotor core and fit a new core | EA | 1 | | |
| Machine off rotor short circuiting rings & remove rotor bars | EA | 1 | | |
| Manufacture and fit new rotor bars and short-circuiting rings | EA | 1 | | |
| Final machine rotor | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Rebar rotor completely | EA | 1 | | |
| Overhaul rotor and spray with insulating varnish | EA | 1 | | |
| Micro weld coupling landing, all sizes | EA | 1 | | |
| Micro weld and machine DE bearing journal, DE & NDE all sizes | EA | 1 | | |
| Micro weld and machine DE & NDE seals, all sizes | EA | 1 | | |
| Micro weld and machine fan side coupling landing, all sizes | EA | 1 | | |
| Polish journal and seal landings | EA | 1 | | |
| Replace external cooling fan (PVC) | EA | 1 | | |
| Replace internal cooling fan | EA | 1 | | |
| Replace fan cowl | EA | 1 | | |
| Balance rotor at operating speed, maximum run out of 0.03mm | EA | 1 | | |
| **DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Re-sleeve bearing housing bore 200mm diameter | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearing NU222 | EA | 1 | | |
| Replace bearing 6222 C3 | EA | 1 | | |
| **NON-DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Re-sleeve bearing housing bore 200mm diameter | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearing NU219 C3 | EA | 1 | | |
| **SPARES, GENERAL & ASSEMBLY** | | | | |
| Supply and fit new grease pipes & nipples | EA | 1 | | |
| Supply and fit new bearing probes | EA | 1 | | |
| Supply and fit new PT connectors, rails & LED light | EA | 1 | | |
| Supply and fit new element heaters 4 off | EA | 1 | | |
| Supply and fit desiccator | EA | 1 | | |
| Polish all caps, flingers and flanges | EA | 1 | | |
| Manufacture NDE flingers | EA | 1 | | |
| Clean cooling tubes & cooler | EA | 1 | | |
| Panel beat cooler | EA | 1 | | |
| Overhaul screen & cowl | EA | 1 | | |
| Overhaul grease catchers/ relievers | EA | 1 | | |
| Repair terminal box handles | EA | 1 | | |
| Manufacture new cowl screen | EA | 1 | | |
| Manufacture & fit new thrust springs | EA | 1 | | |
| Overhaul fan and refit | EA | 1 | | |
| Fit new taper lock bushing for coupling | | | | |
| Overhaul base and refit | EA | 1 | | |
| Replace bolts, spring & washers (new) | EA | 1 | | |
| Fit new earth lug | EA | 1 | | |
| Overhaul lifting lugs<br>(Re-tap holes) | EA | 1 | | |
| Clean and polish spigots | EA | 1 | | |
| Replace rubber seals & gaskets | EA | 1 | | |
| Assemble motor complete | EA | 1 | | |
| Clean, paint motor & prepare for delivery<br>Battle grey – motor<br>Red- Terminal boxes<br>Orange – fan cowl | EA | 1 | | |
| Motor FAT with Vibration Analysis | EA | 1 | | |
| Supply data pack | EA | 1 | | |
| Plastic wrap unit (heat shrink wrap) | EA | 1 | | |
| **TOTAL FOR SLUICE PUMP MOTOR** | | | | |

| **4. MACHINE DETAILS** | | | |
|---|---|---|---|
| Make & Weight | ACTOM & 2 900 kg (3.7T) | Voltage | 3 300 V |
| Material No. | 0248222 | Stator Current | 158 A |
| Power | 750 kW | Frame Size/Type | 1LA1454 |
| Application | Condensate Extraction Pump A Motor | Speed | 1484 Rpm |
| Bearings DE & NDE | WM – 127mm<br>7224B & 6224 C3 | Shaft Diameter & Length | 126 & 145 mm |

| **DESCRIPTION** | **UNIT** | **QUANTITIES** | **RATE** | **AMOUNT** |
|---|---|---|---|---|
| **TERMINAL BOX AND TERMINALS** | | | | |
| Re-gasket 2 terminal boxes | EA | 1 | | |
| Re-gasket 2 auxiliary boxes | EA | 1 | | |
| Replace desiccators | EA | 1 | | |
| Replace leads line side and star point side | EA | 1 | | |
| Replace star point side | EA | 1 | | |
| Supply and fit one terminal box | EA | 1 | | |
| Supply and fit one auxiliary box | EA | 1 | | |
| **HEAT EXCHANGER** | | | | |
| Re-gasket heat exchanger | EA | 1 | | |
| Replace 4 hold down bolts | EA | 1 | | |
| Re-tube 20 tubes on heat exchanger | EA | 1 | | |
| Weld 4 Fastening brackets | EA | 1 | | |
| **STATOR HOUSING CORE & WINDINGS** | | | | |
| Skim foot mountings & conduct concentricity checks | EA | 1 | | |
| Manufacture new coil & insulation kit | EA | 1 | | |
| Overhaul stator and spray with insulation varnish | EA | 1 | | |
| Replace with new stator core | EA | 1 | | |
| Rewind stator, VPI & bake | EA | 1 | | |
| Fit new PT100’s & stator leads | EA | 1 | | |
| Burn out old winding, replace with new stator winding, clean & prepare core for rewind | EA | 1 | | |
| Re-tap all mounting holes | EA | 1 | | |
| Re-tap holes and fit jacking bolts | EA | 1 | | |
| **ROTOR CORE & WINDINGS** | | | | |
| Manufacture and fit new rotor core | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Remove old rotor core and fit a new core | EA | 1 | | |
| Machine off rotor short circuiting rings & remove rotor bars | EA | 1 | | |
| Manufacture and fit new rotor bars and short-circuiting rings | EA | 1 | | |
| Final machine rotor | EA | 1 | | |
| Rebar rotor completely | EA | 1 | | |
| Overhaul rotor and spray with insulating varnish | EA | 1 | | |
| Micro weld coupling landing, all sizes | EA | 1 | | |
| Micro weld and machine DE bearing journal, DE & NDE all sizes | EA | 1 | | |
| Micro weld and machine DE & NDE seals, all sizes | EA | 1 | | |
| Micro weld and machine fan side coupling landing, all sizes | EA | 1 | | |
| Polish journal and seal landings | EA | 1 | | |
| Replace external cooling fan(PVC) | EA | 1 | | |
| Replace internal cooling fan | EA | 1 | | |
| Replace fan cowl | EA | 1 | | |
| Balance rotor at operating speed, maximum run out of 0.03mm | EA | 1 | | |
| **DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Re-sleeve bearing housing bore 215mm diameter | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearings 7224 BMP | EA | 1 | | |
| **NON-DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Re-sleeve bearing housing bore 215mm diameter | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearings 6224 C3 | EA | 1 | | |
| **SPARES, GENERAL & ASSEMBLY** | | | | |
| Supply and fit new grease pipes & nipples | EA | 1 | | |
| Supply and fit new bearing probes | EA | 1 | | |
| Supply and fit new PT connectors, rails & LED light | EA | 1 | | |
| Supply and fit new element heaters 4 off | EA | 1 | | |
| Supply and fit desiccator | EA | 1 | | |
| Replace wedges | EA | 1 | | |
| Polish all caps, flingers and flanges | EA | 1 | | |
| Manufacture NDE flingers | EA | 1 | | |
| Clean cooling tubes & cooler | EA | 1 | | |
| Panel beat screen | EA | 1 | | |
| Overhaul screen & cowl | EA | 1 | | |
| Overhaul grease catchers/ relievers | EA | 1 | | |
| Repair terminal box handles | EA | 1 | | |
| Manufacture new cowl screen | EA | 1 | | |
| Manufacture & fit new thrust springs | EA | 1 | | |
| Overhaul fan and refit | EA | 1 | | |
| Fit new taper lock bushing for coupling | | | | |
| Overhaul base and refit | EA | 1 | | |
| Replace bolts, spring & washers (new) | EA | 1 | | |
| Fit new earth lug | EA | 1 | | |
| Overhaul lifting lugs<br>(Re-tap holes) | EA | 1 | | |
| Clean and polish spigots | EA | 1 | | |
| Replace rubber seals & gaskets | EA | 1 | | |
| Assemble motor complete | EA | 1 | | |
| Clean, paint motor & prepare for delivery<br><br>Battle grey – motor<br>Red- Terminal boxes<br>Orange – fan cowl | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Motor FAT with Vibration Analysis | EA | 1 | | |
| Supply data pack | EA | 1 | | |
| Plastic wrap unit (heat shrink wrap) | EA | 1 | | |
| **TOTAL FOR CONDENSATE EXTRACTION PUMP A MOTOR** | | | | |

| **5. MACHINE DETAILS** | | | |
|---|---|---|---|
| Make & Weight | GEC & 2 300 kg (3T) | Voltage | 3 300 V |
| Material No. | 0212134 | Stator Current | 142 A |
| Power | 637 kW | Frame Size/Type | MB450 |
| Application | Condensate Extraction Pump B Motor | Speed | 988 Rpm |
| Bearings DE & NDE | WM 127 mm | Shaft Diameter & Length | 126 & 145 mm |

| **DESCRIPTION** | **UNIT** | **QUANTITIES** | **RATE** | **AMOUNT** |
|---|---|---|---|---|
| **TERMINAL BOX AND TERMINALS** | | | | |
| Re-gasket 2 terminal boxes | EA | 1 | | |
| Re-gasket 2 auxiliary boxes | EA | 1 | | |
| Replace desiccators | EA | 1 | | |
| Replace leads line side and star point side | EA | 1 | | |
| Replace star point side | EA | 1 | | |
| Supply and fit one terminal box | EA | 1 | | |
| Supply and fit one auxiliary box | EA | 1 | | |
| **HEAT EXCHANGER** | | | | |
| Re-gasket heat exchanger | EA | 1 | | |
| Replace 4 hold down bolts | EA | 1 | | |
| Re-tube 20 tubes on heat exchanger | EA | 1 | | |
| Weld 4 fastening brackets | EA | 1 | | |
| **STATOR HOUSING CORE & WINDINGS** | | | | |
| Skim foot mountings & conduct concentricity checks | EA | 1 | | |
| Manufacture new coil & insulation kit | EA | 1 | | |
| Overhaul stator and spray with insulation varnish | EA | 1 | | |
| Replace with new stator core | EA | 1 | | |
| Rewind stator, VPI & bake | EA | 1 | | |
| Fit new PT100’s & stator leads | EA | 1 | | |
| Burn out old winding, replace with new stator winding, clean & prepare core for rewind | EA | 1 | | |
| Re-tap all mounting holes | EA | 1 | | |
| Re-tap holes and fit jacking bolts | EA | 1 | | |
| **ROTOR CORE & WINDINGS** | | | | |
| Manufacture and fit new rotor core | EA | 1 | | |
| Remove old rotor core and fit a new core | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Machine off rotor short circuiting rings & remove rotor bars | EA | 1 | | |
| Manufacture and fit new rotor bars and short-circuiting rings | EA | 1 | | |
| Final machine rotor | EA | 1 | | |
| Rebar rotor completely | EA | 1 | | |
| Overhaul rotor and spray with insulating varnish | EA | 1 | | |
| Micro weld coupling landing, all sizes | EA | 1 | | |
| Micro weld and machine DE bearing journal, DE & NDE all sizes | EA | 1 | | |
| Micro weld and machine DE & NDE seals, all sizes | EA | 1 | | |
| Micro weld and machine fan side coupling landing, all sizes | EA | 1 | | |
| Polish journal and seal landings | EA | 1 | | |
| Replace external cooling fan (PVC) | EA | 1 | | |
| Replace internal cooling fan | EA | 1 | | |
| Replace fan cowl | EA | 1 | | |
| Balance rotor at operating speed, maximum run out of 0.03mm | EA | 1 | | |
| **DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Replace with new bearing housing and all internal parts | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| **NON-DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Replace with new bearing housing and all internal parts | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Replace 4 off fixing bolts | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearing 6222 C3 | EA | 1 | | |
| **SPARES, GENERAL & ASSEMBLY** | | | | |
| Supply and fit new grease pipes & nipples | EA | 1 | | |
| Supply and fit new bearing probes | EA | 1 | | |
| Supply and fit new PT connectors, rails & LED light | EA | 1 | | |
| Supply and fit new element heaters 4 off | EA | 1 | | |
| Supply and fit desiccator | EA | 1 | | |
| Replace wedges (700mm) | EA | 1 | | |
| Polish all caps, flingers and flanges | EA | 1 | | |
| Manufacture NDE flingers | EA | 1 | | |
| Clean cooling tubes & cooler | EA | 1 | | |
| Panel beat screen | EA | 1 | | |
| Overhaul screen & cowl | EA | 1 | | |
| Overhaul grease catchers/relievers | EA | 1 | | |
| Repair terminal box handles | EA | 1 | | |
| Manufacture new cowl screen | EA | 1 | | |
| Manufacture & fit new thrust springs | EA | 1 | | |
| Overhaul fan and refit | EA | 1 | | |
| Fit new taper lock bushing for coupling | | | | |
| Overhaul base and refit | EA | 1 | | |
| Replace bolts, spring & washers (new) | EA | 1 | | |
| Fit new earth lug | EA | 1 | | |
| Overhaul lifting lugs<br>(Re-tap holes) | EA | 1 | | |
| Clean and polish spigots | EA | 1 | | |
| Replace rubber seals & gaskets | EA | 1 | | |
| Assemble motor complete | EA | 1 | | |
| Clean, paint motor & prepare for delivery<br><br>Battle grey – motor<br>Red- Terminal boxes<br>Orange – fan cowl | EA | 1 | | |
| Motor FAT with Vibration Analysis | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Supply data pack | EA | 1 | | |
| Plastic wrap unit (heat shrink wrap) | EA | 1 | | |
| **TOTAL FOR CONDENSATE EXTRACTION PUMP B MOTOR** | | | | |

| **6. MACHINE DETAILS** | | | |
|---|---|---|---|
| Make & Weight | GEC/ACTOM & 2 275 kg (2.2T) | Voltage | 3 300 V |
| Material No. | 0624808 | Stator Current | 75 A |
| Power | 350 kW | Frame Size/Type | MS4 254-4/ D355L |
| Application | Ash Water Return Pump Motor | Speed | 1484 Rpm |
| Bearings DE & NDE | NU 324 M C3 & 6324 C3 | Shaft Diameter & Length | 120 & 80 mm |

| **DESCRIPTION** | **UNIT** | **QUANTITIES** | **RATE** | **AMOUNT** |
|---|---|---|---|---|
| **TERMINAL BOX AND TERMINALS** | | | | |
| Re-gasket 2 terminal boxes | EA | 1 | | |
| Re-gasket 2 auxiliary boxes | EA | 1 | | |
| Replace desiccators | EA | 1 | | |
| Replace leads line side and star point side | EA | 1 | | |
| Replace star point side | EA | 1 | | |
| Supply and fit one terminal box | EA | 1 | | |
| Supply and fit one auxiliary box | EA | 1 | | |
| **HEAT EXCHANGER** | | | | |
| Re-gasket heat exchanger | EA | 1 | | |
| Replace 4 hold down bolts | EA | 1 | | |
| Re-tube 20 tubes on heat exchanger | EA | 1 | | |
| Weld 4 fastening brackets | EA | 1 | | |
| **STATOR HOUSING CORE & WINDINGS** | | | | |
| Skim foot mountings & conduct concentricity checks | EA | 1 | | |
| Manufacture new coil & insulation kit | EA | 1 | | |
| Overhaul stator and spray with insulation varnish | EA | 1 | | |
| Replace with new stator core | EA | 1 | | |
| Rewind stator, VPI & bake | EA | 1 | | |
| Fit new PT100’s & stator leads | EA | 1 | | |
| Burn out old winding, replace with new stator winding, clean & prepare core for rewind | EA | 1 | | |
| Re-tap all mounting holes | EA | 1 | | |
| Re-tap holes and fit jacking bolts | EA | 1 | | |
| **ROTOR CORE & WINDINGS** | | | | |
| Manufacture and fit new rotor core | EA | 1 | | |
| Remove old rotor core and fit a new core | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Machine off rotor short circuiting rings & remove rotor bars | EA | 1 | | |
| Manufacture and fit new rotor bars and short-circuiting rings | EA | 1 | | |
| Final machine rotor | EA | 1 | | |
| Rebar rotor completely | EA | 1 | | |
| Overhaul rotor and spray with insulating varnish | EA | 1 | | |
| Micro weld coupling landing, all sizes | EA | 1 | | |
| Micro weld and machine DE bearing journal, DE & NDE all sizes | EA | 1 | | |
| Micro weld and machine DE & NDE seals, all sizes | EA | 1 | | |
| Micro weld and machine fan side coupling landing, all sizes | EA | 1 | | |
| Polish journal and seal landings | EA | 1 | | |
| Replace external cooling fan (PVC) | EA | 1 | | |
| Replace internal cooling fan | EA | 1 | | |
| Replace fan cowl | EA | 1 | | |
| Balance rotor at operating speed, maximum run out of 0.03mm | EA | 1 | | |
| **DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Re-sleeve bearing housing bore 240mm diameter | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearing NU 324 M C3 | EA | 1 | | |
| **NON-DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Re-sleeve bearing housing bore 170mm diameter | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Replace 4 off fixing bolts | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearing 6324 C3 | EA | 1 | | |
| **SPARES, GENERAL & ASSEMBLY** | | | | |
| Supply and fit new grease pipes & nipples | EA | 1 | | |
| Supply and fit new bearing probes | EA | 1 | | |
| Supply and fit new PT connectors, rails & LED light | EA | 1 | | |
| Supply and fit new element heaters 4 off | EA | 1 | | |
| Supply and fit desiccator | EA | 1 | | |
| Replace wedges | EA | 1 | | |
| Polish all caps, flingers and flanges | EA | 1 | | |
| Manufacture NDE flingers | EA | 1 | | |
| Clean cooling tubes & cooler | EA | 1 | | |
| Panel beat screen | EA | 1 | | |
| Overhaul screen & cowl | EA | 1 | | |
| Overhaul grease catchers/relievers | EA | 1 | | |
| Repair terminal box handles | EA | 1 | | |
| Manufacture new cowl screen | EA | 1 | | |
| Manufacture & fit new thrust springs | EA | 1 | | |
| Overhaul fan and refit | EA | 1 | | |
| Fit new taper lock bushing for coupling | | | | |
| Overhaul base and refit | EA | 1 | | |
| Replace bolts, spring & washers (new) | EA | 1 | | |
| Fit new earth lug | EA | 1 | | |
| Overhaul lifting lugs<br>(Re-tap holes) | EA | 1 | | |
| Clean and polish spigots | EA | 1 | | |
| Replace rubber seals & gaskets | EA | 1 | | |
| Assemble motor complete | EA | 1 | | |
| Clean, paint motor & prepare for delivery<br><br>Battle grey – motor<br>Red- Terminal boxes<br>Orange – fan cowl | EA | 1 | | |
| Motor FAT with Vibration Analysis | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Supply data pack | EA | 1 | | |
| Plastic wrap unit (heat shrink wrap) | EA | 1 | | |
| **TOTAL FOR ASH WATER RETURN PUMP MOTOR** | | | | |

| **7. MACHINE DETAILS** | | | |
|---|---|---|---|
| Make & Weight | GEC / ABB & 2275 kg (2.6T) | Voltage | 3 300 V |
| Material No. | 0139633 | Stator Current | 61 A |
| Power | 280 kW | Frame Size / Type | GKD355/400 HXR335 LD4 |
| Application | Ash Water Return Motor | Speed | 1485 Rpm |
| Bearings DE & NDE | LRJ 4 ½ C3 & LI 4 ½ C3 | Shaft Diameter & Length | 114 & 65 mm |

| **DESCRIPTION** | **UNIT** | **QUANTITIES** | **RATE** | **AMOUNT** |
|---|---|---|---|---|
| **TERMINAL BOX AND TERMINALS** | | | | |
| Re-gasket 2 terminal boxes | EA | 1 | | |
| Re-gasket 2 auxiliary boxes | EA | 1 | | |
| Replace desiccators | EA | 1 | | |
| Replace leads line side and star point side | EA | 1 | | |
| Replace star point side | EA | 1 | | |
| Supply and fit one terminal box | EA | 1 | | |
| Supply and fit one auxiliary box | EA | 1 | | |
| **HEAT EXCHANGER** | | | | |
| Re-gasket heat exchanger | EA | 1 | | |
| Replace 4 hold down bolts | EA | 1 | | |
| Re-tube 20 tubes on heat exchanger | EA | 1 | | |
| Weld 4 fastening brackets | EA | 1 | | |
| **STATOR HOUSING CORE & WINDINGS** | | | | |
| Skim foot mountings & conduct concentricity checks | EA | 1 | | |
| Manufacture new coil & insulation kit | EA | 1 | | |
| Overhaul stator and spray with insulation varnish | EA | 1 | | |
| Replace with new stator core | EA | 1 | | |
| Rewind stator, VPI & bake | EA | 1 | | |
| Fit new PT100’s & stator leads | EA | 1 | | |
| Burn out old winding, replace with new stator winding, clean & prepare core for rewind | EA | 1 | | |
| Re-tap all mounting holes | EA | 1 | | |
| Re-tap holes and fit jacking bolts | EA | 1 | | |
| **ROTOR CORE & WINDINGS** | | | | |
| Manufacture and fit new rotor core | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Remove old rotor core and fit a new core | EA | 1 | | |
| Machine off rotor short circuiting rings & remove rotor bars | EA | 1 | | |
| Manufacture and fit new rotor bars and short-circuiting rings | EA | 1 | | |
| Final machine rotor | EA | 1 | | |
| Rebar rotor completely | EA | 1 | | |
| Overhaul rotor and spray with insulating varnish | EA | 1 | | |
| Micro weld coupling landing, all sizes | EA | 1 | | |
| Micro weld and machine DE bearing journal, DE & NDE all sizes | EA | 1 | | |
| Micro weld and machine DE & NDE seals, all sizes | EA | 1 | | |
| Micro weld and machine fan side coupling landing, all sizes | EA | 1 | | |
| Polish journal and seal landings | EA | 1 | | |
| Replace external cooling fan (PVC) | EA | 1 | | |
| Replace internal cooling fan | EA | 1 | | |
| Replace fan cowl | EA | 1 | | |
| Balance rotor at operating speed, maximum run out of 0.03mm | EA | 1 | | |
| **DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Re-sleeve bearing housing bore 240mm diameter | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearing LRJ 4 ½ C3 | EA | 1 | | |
| **NON-DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Re-sleeve bearing housing bore 200mm diameter | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearing LI 4 ½ C3 | EA | 1 | | |
| **SPARES, GENERAL & ASSEMBLY** | | | | |
| Supply and fit new grease pipes & nipples | EA | 1 | | |
| Supply and fit new bearing probes | EA | 1 | | |
| Supply and fit new PT connectors, rails & LED light | EA | 1 | | |
| Supply and fit new element heaters 4 off | EA | 1 | | |
| Supply and fit desiccator | EA | 1 | | |
| Replace wedges | EA | 1 | | |
| Polish all caps, flingers and flanges | EA | 1 | | |
| Manufacture NDE flingers | EA | 1 | | |
| Clean cooling tubes & cooler | EA | 1 | | |
| Panel beat screen | EA | 1 | | |
| Overhaul screen & cowl | EA | 1 | | |
| Overhaul grease catchers/ relievers | EA | 1 | | |
| Repair terminal box handles | EA | 1 | | |
| Manufacture new cowl screen | EA | 1 | | |
| Manufacture & fit new thrust springs | EA | 1 | | |
| Overhaul fan and refit | EA | 1 | | |
| Fit new taper lock bushing for coupling | EA | 1 | | |
| Overhaul base and refit | EA | 1 | | |
| Replace bolts, spring & washers (new) | EA | 1 | | |
| Fit new earth lug<br>(Re-tap holes) | EA | 1 | | |
| Overhaul lifting lugs | EA | 1 | | |
| Clean and polish spigots | EA | 1 | | |
| Replace rubber seals & gaskets | EA | 1 | | |
| Assemble motor complete | EA | 1 | | |
| Clean, paint motor & prepare for delivery<br><br>Battle grey – motor<br>Red- Terminal boxes<br>Orange – fan cowl | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Motor FAT with Vibration Analysis | EA | 1 | | |
| Supply data pack | EA | 1 | | |
| Plastic wrap unit (heat shrink wrap) | EA | 1 | | |
| **TOTAL FOR ASH WATER RETURN MOTOR** | | | | |

| **8. MACHINE DETAILS** | | | |
|---|---|---|---|
| Make & Weight | ACTOM & 3600 kg (3.6T) | Voltage | 3 300 V |
| Material No. | 0237716 | Stator Current | 88 A |
| Power | 400 kW | Frame Size/Type | 1LA1452-6 |
| Application | Mill Motor | Speed | 986 Rpm |
| Bearings DE & NDE | 6322 C3 & 6319 C3 | Shaft Diameter & Length | 130 & 110 mm |

| **DESCRIPTION** | **UNIT** | **QUANTITIES** | **RATE** | **AMOUNT** |
|---|---|---|---|---|
| **TERMINAL BOX AND TERMINALS** | | | | |
| Re-gasket 2 terminal boxes | EA | 1 | | |
| Re-gasket 2 auxiliary boxes | EA | 1 | | |
| Replace desiccators | EA | 1 | | |
| Replace leads line side and star point side | EA | 1 | | |
| Replace star point side | EA | 1 | | |
| Supply one and fit terminal box | EA | 1 | | |
| Supply and fit one auxiliary box | EA | 1 | | |
| **STATOR HOUSING CORE & WINDINGS** | | | | |
| Skim foot mountings & conduct concentricity checks | EA | 1 | | |
| Manufacture new coil & insulation kit | EA | 1 | | |
| Overhaul stator and spray with insulation varnish | EA | 1 | | |
| Replace with new stator core | EA | 1 | | |
| Rewind stator, VPI & bake | EA | 1 | | |
| Fit new PT100’s & stator leads | EA | 1 | | |
| Burn out old winding, replace with new stator winding, clean & prepare core for rewind | EA | 1 | | |
| Re-tap all mounting holes | EA | 1 | | |
| Re-tap holes and fit jacking bolts | EA | 1 | | |
| **ROTOR CORE & WINDINGS** | | | | |
| Manufacture and fit new rotor core | EA | 1 | | |
| Remove old rotor core and fit a new core | EA | 1 | | |
| Machine off rotor short circuiting rings & remove rotor bars | EA | 1 | | |
| Manufacture and fit new rotor bars and short-circuiting rings | EA | 1 | | |
| Final machine rotor | EA | 1 | | |
| Rebar rotor completely | EA | 1 | | |
| Overhaul rotor and spray with insulating varnish | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Micro weld coupling landing, all sizes | EA | 1 | | |
| Micro weld and machine DE bearing journal, DE & NDE all sizes | EA | 1 | | |
| Micro weld and machine DE & NDE seals, all sizes | EA | 1 | | |
| Micro weld and machine fan side coupling landing, all sizes | EA | 1 | | |
| Polish journal and seal landings | EA | 1 | | |
| Replace external cooling fan (PVC) | EA | 1 | | |
| Replace internal cooling fan | EA | 1 | | |
| Replace fan cowl | EA | 1 | | |
| Balance rotor at operating speed, maximum run out of 0.03mm | EA | 1 | | |
| **DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Re-sleeve bearing housing bore 230mm diameter | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearing NU 6319 C3 | EA | 1 | | |
| **NON-DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Re-sleeve bearing housing bore 230mm diameter | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearing 6319 C3 | EA | 1 | | |

| **SPARES, GENERAL & ASSEMBLY** | | | | |
|---|---|---|---|---|
| Supply and fit new grease pipes & nipples | EA | 1 | | |
| Supply and fit new bearing probes | EA | 1 | | |
| Supply and fit new PT connectors, rails & LED light | EA | 1 | | |
| Supply and fit new element heaters 4 off | EA | 1 | | |
| Supply and fit desiccator | EA | 1 | | |
| Replace wedges | EA | 1 | | |
| Polish all caps, flingers and flanges | EA | 1 | | |
| Manufacture NDE flingers | EA | 1 | | |
| Clean cooling tubes & cooler | EA | 1 | | |
| Panel beat screen | EA | 1 | | |
| Overhaul screen & cowl | EA | 1 | | |
| Overhaul grease catchers/relievers | EA | 1 | | |
| Repair terminal box handles | EA | 1 | | |
| Manufacture new cowl screen | EA | 1 | | |
| Manufacture & fit new thrust springs | EA | 1 | | |
| Overhaul fan and refit | EA | 1 | | |
| Supply new top covers 2 off | EA | 1 | | |
| Fit new taper lock bushing for coupling | EA | 1 | | |
| Overhaul base and refit | EA | 1 | | |
| Replace bolts, spring & washers (new) | EA | 1 | | |
| Fit new earth lug | EA | 1 | | |
| Overhaul lifting lugs<br>(Re-tap holes) | EA | 1 | | |
| Clean and polish spigots | EA | 1 | | |
| Replace rubber seals & gaskets | EA | 1 | | |
| Assemble motor complete | EA | 1 | | |
| Clean, paint motor & prepare for delivery<br><br>Battle grey – motor<br>Red- Terminal boxes<br>Orange – fan cowl | EA | 1 | | |
| Motor FAT with Vibration Analysis | EA | 1 | | |
| Supply data pack | EA | 1 | | |
| Plastic wrap unit<br>(heat shrink wrap) | EA | 1 | | |
| | | | **TOTAL FOR MILL MOTOR** | |

| **9. MACHINE DETAILS** | | | |
|---|---|---|---|
| Make & Weight | GEC & 8000 kg | Voltage | 3 300 V |
| Material No. | 0179084 | Stator Current | 324 A |
| Power | 1450 kW | Frame Size / Type | 1KK 5605 |
| Application | Unit 1 Mill Motor | Speed | 991 Rpm |
| Bearings DE & NDE | WM 160mm | Shaft Diameter & Length | 159.8 & 234 mm |

| **DESCRIPTION** | **UNIT** | **QUANTITIES** | **RATE** | **AMOUNT** |
|---|---|---|---|---|
| **TERMINAL BOX AND TERMINALS** | | | | |
| Re-gasket 2 terminal boxes | EA | 1 | | |
| Re-gasket 2 auxiliary boxes | EA | 1 | | |
| Replace desiccators | EA | 1 | | |
| Replace leads line side and star point side | EA | 1 | | |
| Replace star point side | EA | 1 | | |
| Supply and fit one terminal box | EA | 1 | | |
| Supply and fit one auxiliary box | EA | 1 | | |
| **HEAT EXCHANGER** | | | | |
| Re-gasket heat exchanger | EA | 1 | | |
| Replace 4 hold down bolts | EA | 1 | | |
| Re-tube 20 tubes on heat exchanger | EA | 1 | | |
| Weld 4 fastening brackets | EA | 1 | | |
| **STATOR HOUSING CORE & WINDINGS** | | | | |
| Skim foot mountings & conduct concentricity checks | EA | 1 | | |
| Manufacture new coil & insulation kit | EA | 1 | | |
| Overhaul stator and spray with insulation varnish | EA | 1 | | |
| Replace with new stator core | EA | 1 | | |
| **ROTOR CORE & WINDINGS** | | | | |
| Manufacture and fit new rotor core | EA | 1 | | |
| Remove old rotor core and fit a new core | EA | 1 | | |
| Machine off rotor short circuiting rings & remove rotor bars | EA | 1 | | |
| Manufacture and fit new rotor bars and short-circuiting rings | EA | 1 | | |
| Final machine rotor | EA | 1 | | |
| Rebar rotor completely | EA | 1 | | |
| Overhaul rotor and spray with insulating varnish | EA | 1 | | |
| Micro weld coupling landing, all sizes | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Micro weld and machine DE bearing journal, DE & NDE all sizes | EA | 1 | | |
| Micro weld and machine DE & NDE seals, all sizes | EA | 1 | | |
| Micro weld and machine fan side coupling landing, all sizes | EA | 1 | | |
| Polish journal and seal landings | EA | 1 | | |
| Replace external cooling fan (PVC) | EA | 1 | | |
| Replace internal cooling fan | EA | 1 | | |
| Replace internal cooling fan | EA | 1 | | |
| Replace fan cowl | EA | 1 | | |
| 160mm Michell bearings re-metal & machine | EA | 1 | | |
| Oil thrower ring clean & polish | EA | 1 | | |
| Replace bearing stops & counter sink cap screws | EA | 1 | | |
| Replace oil deflectors | EA | 1 | | |
| Replace Perspex oil level gauges | EA | 1 | | |
| Balance rotor at operating speed, maximum run out of 0.03mm | EA | 1 | | |
| **DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Replace with new bearing housing and all internal parts | EA | 1 | | |
| Machine bottom end bores on housing | EA | 1 | | |
| Replace bore on housing | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearing 160mm BS970 | EA | 1 | | |
| **NON-DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Replace with new bearing housing and all internal parts | EA | 1 | | |
| Machine bottom end bores on housing | EA | 1 | | |
| Replace bore on housing | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| **SPARES, GENERAL & ASSEMBLY** | | | | |
| Supply and fit new grease pipes & nipples | EA | 1 | | |
| Supply and fit new bearing probes | EA | 1 | | |
| Supply and fit new PT connectors, rails & LED light | EA | 1 | | |
| Supply and fit new element heaters 4 off | EA | 1 | | |
| Supply and fit desiccator | EA | 1 | | |
| Replace wedges | EA | 1 | | |
| Polish all caps, flingers and flanges | EA | 1 | | |
| Manufacture NDE flingers | EA | 1 | | |
| Clean cooling tubes & cooler | EA | 1 | | |
| Panel beat screen | EA | 1 | | |
| Overhaul screen & cowl | EA | 1 | | |
| Overhaul grease catchers/relievers | EA | 1 | | |
| Repair terminal box handles | EA | 1 | | |
| Manufacture new cowl screen | EA | 1 | | |
| Manufacture & fit new thrust springs | EA | 1 | | |
| Overhaul fan and refit | EA | 1 | | |
| Fit new taper lock bushing for coupling | EA | 1 | | |
| Replace bearing stops & counter sink cap screws | EA | 1 | | |
| Overhaul base and refit | EA | 1 | | |
| Replace bolts, spring & washers (new) | EA | 1 | | |
| Fit new earth lug | EA | 1 | | |
| Overhaul lifting lugs (Re-tap holes) | EA | 1 | | |
| Clean and polish spigots | EA | 1 | | |
| Replace plugs (7 off ½" & 2 off ¼") | EA | 1 | | |
| Replace 950mm x 18mm OD hydraulic pipe | EA | 1 | | |
| 2.5m off felt seal | EA | 1 | | |
| Rectify bearing nipples | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Replace rubber seals & gaskets | EA | 1 | | |
| Assemble motor complete | EA | 1 | | |
| Clean, paint motor & prepare for delivery<br>Battle grey – motor<br>Red- Terminal boxes<br>Orange – fan cowl | EA | 1 | | |
| Motor FAT with Vibration Analysis | EA | 1 | | |
| Supply data pack | EA | 1 | | |
| Plastic wrap unit<br>(heat shrink wrap) | EA | 1 | | |
| **TOTAL FOR UNIT 1 MILL MOTOR** | | | | |

| **10. MACHINE DETAILS** | | | |
|---|---|---|---|
| Make & Weight | ACTOM & 7 460 kg (17.5T) | Voltage | 11 000 V |
| Material No. | 0237313 | Stator Current | 361 A |
| Power | 5800 kW | Frame Size/Type | UC710/224 |
| Application | North Electric Feed Pump Motor | Speed | 1491 Rpm |
| Bearings DE & NDE | WM 200mm | Shaft Diameter & Length | 199.72 & 234 mm |

| **DESCRIPTION** | **UNIT** | **QUANTITIES** | **RATE** | **AMOUNT** |
|---|---|---|---|---|
| **TERMINAL BOX AND TERMINALS** | | | | |
| Re-gasket 2 terminal boxes | EA | 1 | | |
| Re-gasket 2 auxiliary boxes | EA | 1 | | |
| Replace desiccators | EA | 1 | | |
| Replace leads line side and star point side | EA | 1 | | |
| Replace star point side | EA | 1 | | |
| Supply and fit one terminal box | EA | 1 | | |
| Supply and fit one auxiliary box | EA | 1 | | |
| **HEAT EXCHANGER** | | | | |
| Re-gasket heat exchanger | EA | 1 | | |
| Replace 4 hold down bolts | EA | 1 | | |
| Re-tube 20 tubes on heat exchanger | EA | 1 | | |
| Supply and fit filters on the cooler (600mmx600mmx25mm) | EA | 1 | | |
| Weld 4 fastening brackets | EA | 1 | | |
| **STATOR HOUSING CORE & WINDINGS** | | | | |
| Skim foot mountings & conduct concentricity checks | EA | 1 | | |
| Manufacture new coil & insulation kit | EA | 1 | | |
| Overhaul stator and spray with insulation varnish | EA | 1 | | |
| Replace with new stator core | EA | 1 | | |
| Rewind stator, VPI & bake | EA | 1 | | |
| Fit new PT100’s & stator leads | EA | 1 | | |
| Burn out old winding, replace with new stator winding, clean & prepare core for rewind | EA | 1 | | |
| Re-tap all mounting holes | EA | 1 | | |
| Re-tap holes and fit jacking bolts | EA | 1 | | |
| **ROTOR CORE & WINDINGS** | | | | |

| | | | | |
|---|---|---|---|---|
| Manufacture and fit new rotor core | EA | 1 | | |
| Remove old rotor core and fit a new core | EA | 1 | | |
| Machine off rotor short circuiting rings & remove rotor bars | EA | 1 | | |
| Manufacture and fit new rotor bars and short-circuiting rings | EA | 1 | | |
| Final machine rotor | EA | 1 | | |
| Rebar rotor completely | EA | 1 | | |
| Overhaul rotor and spray with insulating varnish | EA | 1 | | |
| Micro weld coupling landing, all sizes | EA | 1 | | |
| Micro weld and machine DE bearing journal, DE & NDE all sizes | EA | 1 | | |
| Micro weld and machine DE & NDE seals, all sizes | EA | 1 | | |
| Micro weld and machine fan side coupling landing, all sizes | EA | 1 | | |
| Polish journal and seal landings | EA | 1 | | |
| Replace external cooling fan (PVC) | EA | 1 | | |
| Replace internal cooling fan | EA | 1 | | |
| Replace fan cowl | EA | 1 | | |
| Balance rotor at operating speed, maximum run out of 0.03mm | EA | 1 | | |
| **DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Replace with new bearing housing and all internal parts | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| **NON-DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Replace with new bearing housing and all internal parts | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| **SPARES, GENERAL & ASSEMBLY** | | | | |
| Supply and fit new grease pipes & nipples | EA | 1 | | |
| Supply and fit new bearing probes | EA | 1 | | |
| Supply and fit new PT connectors, rails & LED light | EA | 1 | | |
| Supply and fit new element heaters 4 off | EA | 1 | | |
| Supply and fit desiccator | EA | 1 | | |
| Replace wedges | EA | 1 | | |
| Polish all caps, flingers and flanges | EA | 1 | | |
| Polish & clean oil rings | EA | 1 | | |
| Replace ½" plug | EA | 1 | | |
| Replace M16 x 1.5mm pvc fitting | EA | 1 | | |
| Replace earth wire & plug | EA | 1 | | |
| Replace and fit M20 eye bolts | EA | 1 | | |
| Replace and fit M8 x 20mm cap screws | EA | 1 | | |
| Replace and fit M6 x 15mm cap screws | EA | 1 | | |
| Manufacture NDE flingers | EA | 1 | | |
| Clean cooling tubes & cooler | EA | 1 | | |
| Panel beat screen | EA | 1 | | |
| Overhaul screen & cowl | EA | 1 | | |
| Overhaul grease catchers/relievers | EA | 1 | | |
| Repair terminal box handles | EA | 1 | | |
| Manufacture new cowl screen | EA | 1 | | |
| Manufacture & fit new thrust springs | EA | 1 | | |
| 200mm Gladier bearings re-metal & machine | EA | 1 | | |
| Replace 1 ½ aluminium oil sight | EA | 1 | | |
| 200mm lab seals manufacture | EA | 1 | | |
| 225mm lab seals manufacture | EA | 1 | | |
| Overhaul fan and refit | EA | 1 | | |
| Supply new top covers 2 off | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Fit new taper lock bushing for coupling | EA | 1 | | |
| Overhaul base and refit | EA | 1 | | |
| Replace bolts, spring & washers (new) | EA | 1 | | |
| Fit new earth lug | EA | 1 | | |
| Overhaul lifting lugs<br>(Re-tap holes) | EA | 1 | | |
| Supply and fit new filtered terminal box 2 off | EA | 1 | | |
| Remove, clean & re-fit coupling off 2 | EA | 1 | | |
| Clean and polish spigots | EA | 1 | | |
| Replace rubber seals & gaskets | EA | 1 | | |
| Assemble motor complete | EA | 1 | | |
| Clean, paint motor & prepare for delivery<br><br>Battle grey – motor<br>Red- Terminal boxes<br>Orange – fan cowl | EA | 1 | | |
| Motor FAT with Vibration Analysis | EA | 1 | | |
| Supply data pack | EA | 1 | | |
| Plastic wrap unit<br>(heat shrink wrap) | EA | 1 | | |
| **TOTAL FOR NORTH ELECTRIC FEED PUMP MOTOR** | | | | |

| **11. MACHINE DETAILS** | | | |
|---|---|---|---|
| Make & Weight | ACTOM & 16 550 kg (17.5T) | Voltage | 11 000 V |
| Material No. | 0225941 | Stator Current | 355 A |
| Power | 5800 kW | Frame Size / Type | UN710/200<br>UC710/225 |
| Application | South Electric Feed Pump Motor | Speed | 1491 Rpm |
| Bearings DE & NDE | WM 177.8mm | Shaft Diameter & Length | 177.65 & 190 mm |

| **DESCRIPTION** | **UNIT** | **QUANTITIES** | **RATE** | **AMOUNT** |
|---|---|---|---|---|
| **TERMINAL BOX AND TERMINALS** | | | | |
| Re-gasket 2 terminal boxes | EA | 1 | | |
| Re-gasket 2 auxiliary boxes | EA | 1 | | |
| Replace desiccators | EA | 1 | | |
| Replace leads line side and star point side | EA | 1 | | |
| Replace star point side | EA | 1 | | |
| Supply and fit one terminal box | EA | 1 | | |
| Supply and fit one auxiliary box | EA | 1 | | |
| **HEAT EXCHANGER** | | | | |
| Re-gasket heat exchanger | EA | 1 | | |
| Replace 4 hold down bolts | EA | 1 | | |
| Re-tube 20 tubes on heat exchanger | EA | 1 | | |
| Supply and fit filters on the cooler (600mmx600mmx25mm) | EA | 1 | | |
| Weld 4 fastening brackets | EA | 1 | | |
| **STATOR HOUSING CORE & WINDINGS** | | | | |
| Skim foot mountings & conduct concentricity checks | EA | 1 | | |
| Manufacture new coil & insulation kit | EA | 1 | | |
| Overhaul stator and spray with insulation varnish | EA | 1 | | |
| Replace with new stator core | EA | 1 | | |
| Rewind stator, VPI & bake | EA | 1 | | |
| Fit new PT100’s & stator leads | EA | 1 | | |
| Burn out old winding, replace with new stator winding, clean & prepare core for rewind | EA | 1 | | |
| Re-tap all mounting holes | EA | 1 | | |
| Re-tap holes and fit jacking bolts | EA | 1 | | |
| Skim foot mountings & conduct concentricity checks | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| **ROTOR CORE & WINDINGS** | | | | |
| Manufacture and fit new rotor core | EA | 1 | | |
| Remove old rotor core and fit a new core | EA | 1 | | |
| Machine off rotor short circuiting rings & remove rotor bars | EA | 1 | | |
| Manufacture and fit new rotor bars and short-circuiting rings | EA | 1 | | |
| Final machine rotor | EA | 1 | | |
| Rebar rotor completely | EA | 1 | | |
| Overhaul rotor and spray with insulating varnish | EA | 1 | | |
| Micro weld coupling landing, all sizes | EA | 1 | | |
| Micro weld and machine DE bearing journal, DE & NDE all sizes | EA | 1 | | |
| Micro weld and machine DE & NDE seals, all sizes | EA | 1 | | |
| Micro weld and machine fan side coupling landing, all sizes | EA | 1 | | |
| Polish journal and seal landings | EA | 1 | | |
| Replace external cooling fan (PVC) | EA | 1 | | |
| Replace internal cooling fan | EA | 1 | | |
| Replace fan cowl | EA | 1 | | |
| Balance rotor at operating speed, maximum run out of 0.03mm | EA | 1 | | |
| **DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Replace with new bearing housing and all internal parts | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| **NON-DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Replace with new bearing housing and all internal parts | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| **SPARES, GENERAL & ASSEMBLY** | | | | |
| Supply and fit new grease pipes & nipples | EA | 1 | | |
| Supply and fit new bearing probes | EA | 1 | | |
| Supply and fit new PT connectors, rails & LED light | EA | 1 | | |
| Supply and fit new element heaters 4 off | EA | 1 | | |
| Supply and fit desiccator | EA | 1 | | |
| Replace wedges | EA | 1 | | |
| Polish all caps, flingers and flanges | EA | 1 | | |
| Polish & clean oil rings | EA | 1 | | |
| Replace ½" plug | EA | 1 | | |
| Replace M16 x 1.5mm PVC fitting | EA | 1 | | |
| Replace earth wire & plug | EA | 1 | | |
| Replace and fit M20 eye bolts | EA | 1 | | |
| Replace and fit M8 x 20mm cap screws | EA | 1 | | |
| Replace and fit M6 x 15mm cap screws | EA | 1 | | |
| Manufacture NDE flingers | EA | 1 | | |
| Clean cooling tubes & cooler | EA | 1 | | |
| Panel beat screen | EA | 1 | | |
| Overhaul screen & cowl | EA | 1 | | |
| Overhaul grease catchers/relievers | EA | 1 | | |
| Repair terminal box handles | EA | 1 | | |
| Manufacture new cowl screen | EA | 1 | | |
| Manufacture & fit new thrust springs | EA | 1 | | |
| 200mm Gladier bearings re-metal & machine | EA | 1 | | |
| Replace 1 ½ aluminium oil sight | EA | 1 | | |
| 200mm lab seals manufacture | EA | 1 | | |
| 225mm lab seals manufacture | EA | 1 | | |
| Overhaul fan and refit | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Supply new top covers 2 off | EA | 1 | | |
| Fit new taper lock bushing for coupling | EA | 1 | | |
| Overhaul base and refit | EA | 1 | | |
| Replace bolts, spring & washers (new) | EA | 1 | | |
| Fit new earth lug | EA | 1 | | |
| Overhaul lifting lugs<br>(Re-tap holes) | EA | 1 | | |
| Supply and fit new filtered terminal box 2 off | EA | 1 | | |
| Remove, clean & re-fit coupling off 2 | EA | 1 | | |
| Clean and polish spigots | EA | 1 | | |
| Replace rubber seals & gaskets | EA | 1 | | |
| Assemble motor complete | EA | 1 | | |
| Clean, paint motor & prepare for delivery<br>Battle grey – motor<br>Red- Terminal boxes<br>Orange – fan cowl | EA | 1 | | |
| Motor FAT with Vibration Analysis | EA | 1 | | |
| Supply data pack | EA | 1 | | |
| Plastic wrap unit<br>(heat shrink wrap) | EA | 1 | | |
| **TOTAL FOR SOUTH ELECTRIC FEED PUMP MOTOR** | | | | |

| **12. MACHINE DETAILS** | | | |
|---|---|---|---|
| Make & Weight | GEC & 436 kg | Voltage | 3 300 V |
| Material No. | 0140649 | Stator Current | 133 A |
| Power | 625 kW | Frame Size / Type | UD/355/100 |
| Application | Ash Pump Motor | Speed | 1484 Rpm |
| Bearings DE & NDE | NU 324 MC3 & 6324 C3 | Shaft Diameter & Length | 120 & 75 mm |

| **DESCRIPTION** | **UNIT** | **QUANTITIES** | **RATE** | **AMOUNT** |
|---|---|---|---|---|
| **TERMINAL BOX AND TERMINALS** | | | | |
| Re-gasket 2 terminal boxes | EA | 1 | | |
| Re-gasket 2 auxiliary boxes | EA | 1 | | |
| Replace desiccators | EA | 1 | | |
| Replace leads line side and star point side | EA | 1 | | |
| Replace star point side | EA | 1 | | |
| Supply and fit one terminal box | EA | 1 | | |
| Supply and fit one auxiliary box | EA | 1 | | |
| **HEAT EXCHANGER** | | | | |
| Re-gasket heat exchanger | EA | 1 | | |
| Replace 4 hold down bolts | EA | 1 | | |
| Re-tube 20 tubes on heat exchanger | EA | 1 | | |
| Supply and fit filters on the cooler (600mmx600mmx25mm) | EA | 1 | | |
| Weld 4 fastening brackets | EA | 1 | | |
| **STATOR HOUSING CORE & WINDINGS** | | | | |
| Skim foot mountings & conduct concentricity checks | EA | 1 | | |
| Polish stator feet & conduct concentricity checks | EA | 1 | | |
| Manufacture new coil & insulation kit | EA | 1 | | |
| Overhaul stator and spray with insulation varnish | EA | 1 | | |
| Replace with new stator core | EA | 1 | | |
| Rewind stator, VPI & bake | EA | 1 | | |
| Fit new PT100’s & stator leads | EA | 1 | | |
| Burn out old winding, replace with new stator winding, clean & prepare core for rewind | EA | 1 | | |
| Re-tap all mounting holes | EA | 1 | | |
| Re-tap holes and fit jacking bolts | EA | 1 | | |
| **ROTOR CORE & WINDINGS** | | | | |
| Manufacture and fit new rotor core | EA | 1 | | |
| Remove old rotor core and fit a new core | EA | 1 | | |
| Machine off rotor short circuiting rings & remove rotor bars | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Manufacture and fit new rotor bars and short-circuiting rings | EA | 1 | | |
| Final machine rotor | EA | 1 | | |
| Rebar rotor completely | EA | 1 | | |
| Overhaul rotor and spray with insulating varnish | EA | 1 | | |
| Micro weld coupling landing, all sizes | EA | 1 | | |
| Micro weld and machine DE bearing journal, DE & NDE all sizes | EA | 1 | | |
| Micro weld and machine DE & NDE seals, all sizes | EA | 1 | | |
| Micro weld and machine fan side coupling landing, all sizes | EA | 1 | | |
| Polish journal and seal landings | EA | 1 | | |
| Replace external cooling fan (PVC) | EA | 1 | | |
| Replace internal cooling fan | EA | 1 | | |
| Replace fan cowl | EA | 1 | | |
| Balance rotor at operating speed, maximum run out of 0.03mm | EA | 1 | | |
| **DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Re-sleeve bearing housing bore 200mm diameter | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearing NU 324 MC3 | EA | 1 | | |
| **NON-DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Re-sleeve bearing housing bore 200mm diameter | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearing 6324 C3 | EA | 1 | | |
| **SPARES, GENERAL & ASSEMBLY** | | | | |

| | | | | |
|---|---|---|---|---|
| Supply and fit new grease pipes & nipples | EA | 1 | | |
| Supply and fit new bearing probes | EA | 1 | | |
| Supply and fit new PT connectors, rails & LED light | EA | 1 | | |
| Supply and fit new element heaters 4 off | EA | 1 | | |
| Supply and fit desiccator | EA | 1 | | |
| Replace wedges | EA | 1 | | |
| Polish all caps, flingers and flanges | EA | 1 | | |
| Polish & clean oil rings | EA | 1 | | |
| Replace ½" plug | EA | 1 | | |
| Replace M16 x 1.5mm PVC fitting | EA | 1 | | |
| Replace earth wire & plug | EA | 1 | | |
| Replace and fit M20 eye bolts | EA | 1 | | |
| Replace and fit M8 x 20mm cap screws | EA | 1 | | |
| Replace and fit M6 x 15mm cap screws | EA | 1 | | |
| Manufacture NDE flingers | EA | 1 | | |
| Clean cooling tubes & cooler | EA | 1 | | |
| Panel beat screen | EA | 1 | | |
| Overhaul screen & cowl | EA | 1 | | |
| Overhaul grease catchers/ relievers | EA | 1 | | |
| Repair terminal box handles | EA | 1 | | |
| Manufacture and fit new explosive vent | EA | 1 | | |
| Overhaul fan and refit | EA | 1 | | |
| Fit new taper lock bushing for coupling | EA | 1 | | |
| Overhaul base and refit | EA | 1 | | |
| Replace bolts, spring & washers (new) | EA | 1 | | |
| Fit new earth lug | EA | 1 | | |
| Overhaul lifting lugs<br>(Re-tap holes) | EA | 1 | | |
| Supply and fit new filtered terminal box 2 off | EA | 1 | | |
| Remove, clean & re-fit coupling off 2 | EA | 1 | | |
| Clean and polish spigots | EA | 1 | | |
| Replace rubber seals & gaskets | EA | 1 | | |
| Assemble motor complete | EA | 1 | | |
| Clean, paint motor & prepare for delivery<br>Battle grey – motor<br>Red- Terminal boxes<br>Orange – fan cowl | EA | 1 | | |
| Motor FAT with Vibration Analysis | EA | 1 | | |
| Supply data pack | EA | 1 | | |
| Plastic wrap unit (Heat shrink wrap) | EA | 1 | | |
| **TOTAL FOR ASH PUMP MOTOR** | | | | |

| **13. MACHINE DETAILS** | | | |
|---|---|---|---|
| Make & Weight | ALSTOM / ACTOM / ELMAC 17 500 kg (17.5T) | Voltage | 11 000 V |
| Material No. | 0140780 | Stator Current | 186 A |
| Power | 2750 kW | Frame Size / Type | UD/355/100 UD710/180 |
| Application | Induced Draught Fan Motor | Speed | 747 Rpm |
| Bearings DE & NDE | WM 200mm Glacier | Shaft Diameter & Length | 199.77 & 180mm |

| **DESCRIPTION** | **UNIT** | **QUANTITIES** | **RATE** | **AMOUNT** |
|---|---|---|---|---|
| **TERMINAL BOX AND TERMINALS** | | | | |
| Re-gasket 2 terminal boxes | EA | 1 | | |
| Re-gasket 2 auxiliary boxes | EA | 1 | | |
| Replace desiccators | EA | 1 | | |
| Replace leads line side and star point side | EA | 1 | | |
| Replace star point side | EA | 1 | | |
| Supply and fit one terminal box | EA | 1 | | |
| Supply and fit one auxiliary box | EA | 1 | | |
| **HEAT EXCHANGER** | | | | |
| Re-gasket heat exchanger | EA | 1 | | |
| Replace 4 hold down bolts | EA | 1 | | |
| Re-tube 20 tubes on heat exchanger | EA | 1 | | |
| Supply and fit filters on the cooler (600mmx600mmx25mm) | EA | 1 | | |
| Weld 4 fastening brackets | EA | 1 | | |
| **STATOR HOUSING CORE & WINDINGS** | | | | |
| Skim foot mountings & conduct concentricity checks | EA | 1 | | |
| Polish stator feet & conduct concentricity checks | EA | 1 | | |
| Manufacture new coil & insulation kit | EA | 1 | | |
| Overhaul stator and spray with insulation varnish | EA | 1 | | |
| Replace with new stator core | EA | 1 | | |
| Rewind stator, VPI & bake | EA | 1 | | |
| Fit new PT100’s & stator leads | EA | 1 | | |
| Burn out old winding, replace with new stator winding, clean & prepare core for rewind | EA | 1 | | |
| Re-tap all mounting holes | EA | 1 | | |
| Re-tap holes and fit jacking bolts | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| **ROTOR CORE & WINDINGS** | | | | |
| Manufacture and fit new rotor core | EA | 1 | | |
| Remove old rotor core and fit a new core | EA | 1 | | |
| Machine off rotor short circuiting rings & remove rotor bars | EA | 1 | | |
| Manufacture and fit new rotor bars and short-circuiting rings | EA | 1 | | |
| Final machine rotor | EA | 1 | | |
| Rebar rotor completely | EA | 1 | | |
| Overhaul rotor and spray with insulating varnish | EA | 1 | | |
| Micro weld coupling landing, all sizes | EA | 1 | | |
| Micro weld and machine DE bearing journal, DE & NDE all sizes | EA | 1 | | |
| Micro weld and machine DE & NDE seals, all sizes | EA | 1 | | |
| Micro weld and machine fan side coupling landing, all sizes | EA | 1 | | |
| Polish journal and seal landings | EA | 1 | | |
| Replace external cooling fan (PVC) | EA | 1 | | |
| Replace internal cooling fan | EA | 1 | | |
| Replace fan cowl | EA | 1 | | |
| Balance rotor at operating speed, maximum run out of 0.03mm | EA | 1 | | |
| **DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Replace with new bearing housing and all internal parts | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| **NON-DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Replace with new bearing housing and all internal parts | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| **SPARES, GENERAL & ASSEMBLY** | | | | |
| Supply and fit new grease pipes & nipples | EA | 1 | | |
| Supply and fit new bearing probes | EA | 1 | | |
| Supply and fit new PT connectors, rails & LED light | EA | 1 | | |
| Supply and fit new element heaters 4 off | EA | 1 | | |
| Supply and fit desiccator | EA | 1 | | |
| Replace wedges | EA | 1 | | |
| Polish all caps, flingers and flanges | EA | 1 | | |
| Polish & clean oil rings | EA | 1 | | |
| Replace ½" plug | EA | 1 | | |
| Replace M16 x 1.5mm PVC fitting | EA | 1 | | |
| Replace earth wire & plug | EA | 1 | | |
| Replace and fit M20 eye bolts | EA | 1 | | |
| Replace and fit M8 x 20mm cap screws | EA | 1 | | |
| Replace and fit M6 x 15mm cap screws | EA | 1 | | |
| Manufacture NDE flingers | EA | 1 | | |
| Clean cooling tubes & cooler | EA | 1 | | |
| Panel beat screen | EA | 1 | | |
| Overhaul screen & cowl | EA | 1 | | |
| Overhaul grease catchers/relievers | EA | 1 | | |
| Repair terminal box handles | EA | 1 | | |
| Manufacture and fit new explosive vent | EA | 1 | | |
| Overhaul fan and refit | EA | 1 | | |
| Fit new taper lock bushing for coupling | EA | 1 | | |
| Overhaul base and refit | EA | 1 | | |
| Replace bolts, spring & washers (new) | EA | 1 | | |
| Fit new earth lug | EA | 1 | | |
| Overhaul lifting lugs<br>(Re-tap holes) | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Supply and fit new filtered terminal box 2 off | EA | 1 | | |
| Remove, clean & re-fit coupling off 2 | EA | 1 | | |
| Clean and polish spigots | EA | 1 | | |
| Replace rubber seals & gaskets | EA | 1 | | |
| Assemble motor complete | EA | 1 | | |
| Clean, paint motor & prepare for delivery<br>Battle grey – motor<br>Red- Terminal boxes<br>Orange – fan cowl | EA | 1 | | |
| Motor FAT with Vibration Analysis | EA | 1 | | |
| Supply data pack | EA | 1 | | |
| Plastic wrap unit (Heat shrink wrap) | EA | 1 | | |
| **TOTAL FOR INDUCED DRAUGHT FAN MOTOR** | | | | |

| **14. MACHINE DETAILS** | | | |
|---|---|---|---|
| Make & Weight | BOYD BROWN<br>1400 kg (1.4T) | Voltage | 3 300 V |
| Material No. | 0179076 | Stator Current | 41 A |
| Power | 185 kW | Frame Size / Type | D 355<br>1LA1359 |
| Application | CPP Booster Pump Motor | Speed | 1475 Rpm |
| Bearings DE & NDE | NU 219 C3 & 6219 C3 | Shaft Diameter & Length | 110 & 70 mm |

| **DESCRIPTION** | **UNIT** | **QUANTITIES** | **RATE** | **AMOUNT** |
|---|---|---|---|---|
| **TERMINAL BOX AND TERMINALS** | | | | |
| Re-gasket 2 terminal boxes | EA | 1 | | |
| Re-gasket 2 auxiliary boxes | EA | 1 | | |
| Replace desiccators | EA | 1 | | |
| Replace leads line side and star point side | EA | 1 | | |
| Replace star point side | EA | 1 | | |
| Supply and fit one terminal box | EA | 1 | | |
| Supply and fit one auxiliary box | EA | 1 | | |
| **HEAT EXCHANGER** | | | | |
| Re-gasket heat exchanger | EA | 1 | | |
| Replace 4 hold down bolts | EA | 1 | | |
| Re-tube 20 tubes on heat exchanger | EA | 1 | | |
| Supply and fit filters on the cooler (600mmx600mmx25mm) | EA | 1 | | |
| Weld 4 fastening brackets | EA | 1 | | |
| **STATOR HOUSING CORE & WINDINGS** | | | | |
| Skim foot mountings & conduct concentricity checks | EA | 1 | | |
| Polish stator feet & conduct concentricity checks | EA | 1 | | |
| Manufacture new coil & insulation kit | EA | 1 | | |
| Overhaul stator and spray with insulation varnish | EA | 1 | | |
| Replace with new stator core | EA | 1 | | |
| Rewind stator, VPI & bake | EA | 1 | | |
| Fit new PT100’s & stator leads | EA | 1 | | |
| Burn out old winding, replace with new stator winding, clean & prepare core for rewind | EA | 1 | | |
| Re-tap all mounting holes | EA | 1 | | |
| Re-tap holes and fit jacking bolts | EA | 1 | | |
| **ROTOR CORE & WINDINGS** | | | | |

| | | | | |
|---|---|---|---|---|
| Manufacture and fit new rotor core | EA | 1 | | |
| Remove old rotor core and fit a new core | EA | 1 | | |
| Machine off rotor short circuiting rings & remove rotor bars | EA | 1 | | |
| Manufacture and fit new rotor bars and short-circuiting rings | EA | 1 | | |
| Final machine rotor | EA | 1 | | |
| Rebar rotor completely | EA | 1 | | |
| Overhaul rotor and spray with insulating varnish | EA | 1 | | |
| Micro weld coupling landing, all sizes | EA | 1 | | |
| Micro weld and machine DE bearing journal, DE & NDE all sizes | EA | 1 | | |
| Micro weld and machine DE & NDE seals, all sizes | EA | 1 | | |
| Micro weld and machine fan side coupling landing, all sizes | EA | 1 | | |
| Polish journal and seal landings | EA | 1 | | |
| Replace external cooling fan (PVC) | EA | 1 | | |
| Replace internal cooling fan | EA | 1 | | |
| Replace fan cowl | EA | 1 | | |
| Balance rotor at operating speed, maximum run out of 0.03mm | EA | 1 | | |
| **DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Re-sleeve bearing housing bore 170mm diameter | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearing NU 219 C3 | EA | 1 | | |
| **NON-DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Re-sleeve bearing housing bore 170mm diameter | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearing 6219 C3 | EA | 1 | | |
| **SPARES, GENERAL & ASSEMBLY** | | | | |
| Supply and fit new grease pipes & nipples | EA | 1 | | |
| Supply and fit new bearing probes | EA | 1 | | |
| Supply and fit new PT connectors, rails & LED light | EA | 1 | | |
| Supply and fit new element heaters 4 off | EA | 1 | | |
| Supply and fit desiccator | EA | 1 | | |
| Replace wedges | EA | 1 | | |
| Polish all caps, flingers and flanges | EA | 1 | | |
| Polish & clean oil rings | EA | 1 | | |
| Replace ½" plug | EA | 1 | | |
| Replace M16 x 1.5mm PVC fitting | EA | 1 | | |
| Replace earth wire & plug | EA | 1 | | |
| Replace and fit M20 eye bolts | EA | 1 | | |
| Replace and fit M8 x 20mm cap screws | EA | 1 | | |
| Replace and fit M6 x 15mm cap screws | EA | 1 | | |
| Manufacture NDE flingers | EA | 1 | | |
| Clean cooling tubes & cooler | EA | 1 | | |
| Panel beat screen | EA | 1 | | |
| Overhaul screen & cowl | EA | 1 | | |
| Overhaul grease catchers | EA | 1 | | |
| Repair terminal box handles | EA | 1 | | |
| Manufacture and fit new explosive vent | EA | 1 | | |
| Overhaul fan and refit | EA | 1 | | |
| Fit new taper lock bushing for coupling | EA | 1 | | |
| Overhaul base and refit | EA | 1 | | |
| Replace bolts, spring & washers (new) | EA | 1 | | |
| Fit new earth lug | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Overhaul lifting lugs<br>(Re-tap holes) | EA | 1 | | |
| Supply and fit new filtered terminal box 2 off | EA | 1 | | |
| Remove, clean & re-fit coupling off 2 | EA | 1 | | |
| Clean and polish spigots | EA | 1 | | |
| Replace rubber seals & gaskets | EA | 1 | | |
| Assemble motor complete | EA | 1 | | |
| Clean, paint motor & prepare for delivery<br><br>Battle grey – motor<br>Red- Terminal boxes<br>Orange – fan cowl | EA | 1 | | |
| Motor FAT with Vibration Analysis | EA | 1 | | |
| Supply data pack | EA | 1 | | |
| Plastic wrap unit<br>(heat shrink wrap) | EA | 1 | | |
| **TOTAL FOR CONDENSATE POLISHING PLANT BOOSTER PUMP MOTOR** | | | | |

| **15. MACHINE DETAILS** | | | |
|---|---|---|---|
| Make & Weight | AEI / ACTOM<br>8 900 kg (10T) | Voltage | 3 300 V |
| Material No. | 0178893 | Stator Current | 75 A |
| Power | 1212 kW | Frame Size / Type | TIK42 / 60<br>UD500 / 140<br>IK7102 |
| Application | Forced Draught Fan Motor | Speed | 744 RPM |
| Bearings DE & NDE | WM 152.25mm | Shaft Diameter & Length | 152.25 & 167 mm |

| **DESCRIPTION** | **UNIT** | **QUANTITIES** | **RATE** | **AMOUNT** |
|---|---|---|---|---|
| **TERMINAL BOX AND TERMINALS** | | | | |
| Re-gasket 2 terminal boxes | EA | 1 | | |
| Re-gasket 2 auxiliary boxes | EA | 1 | | |
| Replace desiccators | EA | 1 | | |
| Replace leads line side and star point side | EA | 1 | | |
| Replace star point side | EA | 1 | | |
| Supply and fit terminal box | EA | 1 | | |
| Supply and fit one auxiliary box | EA | 1 | | |
| **HEAT EXCHANGER** | | | | |
| Re-gasket heat exchanger | EA | 1 | | |
| Replace 4 hold down bolts | EA | 1 | | |
| Re-tube 20 tubes on heat exchanger | EA | 1 | | |
| Supply and fit filters on the cooler (600mmx600mmx25mm) | EA | 1 | | |
| Weld 4 fastening brackets | EA | 1 | | |
| **STATOR HOUSING CORE & WINDINGS** | | | | |
| Skim foot mountings & conduct concentricity checks | EA | 1 | | |
| Polish stator feet & conduct concentricity checks | EA | 1 | | |
| Manufacture new coil & insulation kit | EA | 1 | | |
| Overhaul stator and spray with insulation varnish | EA | 1 | | |
| Replace with new stator core | EA | 1 | | |
| Rewind stator, VPI & bake | EA | 1 | | |
| Fit new PT100’s & stator leads | EA | 1 | | |
| Burn out old winding, replace with new stator winding, clean & prepare core for rewind | EA | 1 | | |
| Re-tap all mounting holes | EA | 1 | | |
| Re-tap holes and fit jacking bolts | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| **ROTOR CORE & WINDINGS** | | | | |
| Manufacture and fit new rotor core | EA | 1 | | |
| Remove old rotor core and fit a new core | EA | 1 | | |
| Machine off rotor short circuiting rings & remove rotor bars | EA | 1 | | |
| Manufacture and fit new rotor bars and short-circuiting rings | EA | 1 | | |
| Final machine rotor | EA | 1 | | |
| Rebar rotor completely | EA | 1 | | |
| Overhaul rotor and spray with insulating varnish | EA | 1 | | |
| Micro weld coupling landing, all sizes | EA | 1 | | |
| Micro weld and machine DE bearing journal, DE & NDE all sizes | EA | 1 | | |
| Micro weld and machine DE & NDE seals, all sizes | EA | 1 | | |
| Micro weld and machine fan side coupling landing, all sizes | EA | 1 | | |
| Micro weld and machine fan vacuum seals, all sizes | EA | 1 | | |
| Polish journal and seal landings | EA | 1 | | |
| Replace external cooling fan (PVC) | EA | 1 | | |
| Replace internal cooling fan | EA | 1 | | |
| Replace fan cowl | EA | 1 | | |
| Balance rotor at operating speed, maximum run out of 0.03mm | EA | 1 | | |
| **DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Re-sleeve bearing housing bore 200mm diameter | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearing 200mm GB | EA | 1 | | |
| **NON-DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Replace end shield insulation | EA | 1 | | |
| Replace with new bearing housing and all internal parts | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearing 200mm GB | EA | 1 | | |
| **SPARES, GENERAL & ASSEMBLY** | | | | |
| Supply and fit new grease pipes & nipples | EA | 1 | | |
| Supply and fit new bearing probes | EA | 1 | | |
| Supply and fit new PT connectors, rails & LED light | EA | 1 | | |
| Supply and fit new element heaters 4 off | EA | 1 | | |
| Supply and fit desiccator | EA | 1 | | |
| Replace wedges | EA | 1 | | |
| Polish all caps, flingers and flanges | EA | 1 | | |
| Polish & clean oil rings | EA | 1 | | |
| Replace ½" plug | EA | 1 | | |
| Replace M16 x 1.5mm PVC fitting | EA | 1 | | |
| Replace earth wire & plug | EA | 1 | | |
| Replace and fit M20 eye bolts | EA | 1 | | |
| Replace and fit M8 x 20mm cap screws | EA | 1 | | |
| Replace and fit M6 x 15mm cap screws | EA | 1 | | |
| Manufacture NDE flingers | EA | 1 | | |
| Clean cooling tubes & cooler | EA | 1 | | |
| Panel beat screen | EA | 1 | | |
| Overhaul screen & cowl | EA | 1 | | |
| Overhaul grease catchers/relievers | EA | 1 | | |
| Repair terminal box handles | EA | 1 | | |
| Manufacture and fit new explosive vent | EA | 1 | | |
| Overhaul fan and refit | EA | 1 | | |
| Fit new taper lock bushing for coupling | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Overhaul base and refit | EA | 1 | | |
| Replace bolts, spring & washers (new) | EA | 1 | | |
| Fit new earth lug | EA | 1 | | |
| Overhaul lifting lugs<br>(Re-tap holes) | EA | 1 | | |
| Supply and fit new filtered terminal box 2 off | EA | 1 | | |
| Remove, clean & re-fit coupling off 2 | EA | 1 | | |
| Clean and polish spigots | EA | 1 | | |
| Replace rubber seals & gaskets | EA | 1 | | |
| Assemble motor complete | EA | 1 | | |
| Clean, paint motor & prepare for delivery<br>Battle grey – motor<br>Red- Terminal boxes<br>Orange – fan cowl | EA | 1 | | |
| Motor FAT with Vibration Analysis | EA | 1 | | |
| Supply data pack | EA | 1 | | |
| Plastic wrap unit<br>(heat shrink wrap) | EA | 1 | | |
| **TOTAL FOR FD FAN MOTOR** | | | | |

| **16. MACHINE DETAILS** | | | |
|---|---|---|---|
| Make & Weight | Lawrence Scott<br>10 000 kg (10T) | Voltage | 11 000 V |
| Material No. | 0178893 | Stator Current | 254 A |
| Power | 1212 kW | Frame Size / Type | IK 7102 |
| Application | Forced Draught Fan Motor | Speed | 735 Rpm |
| Bearings DE & NDE | WM 125 mm | Shaft Diameter & Length | 127 & 130 mm |

| **DESCRIPTION** | **UNIT** | **QUANTITIES** | **RATE** | **AMOUNT** |
|---|---|---|---|---|
| **TERMINAL BOX AND TERMINALS** | | | | |
| Re-gasket 2 terminal boxes | EA | 1 | | |
| Re-gasket 2 auxiliary boxes | EA | 1 | | |
| Replace desiccators | EA | 1 | | |
| Replace leads line side and star point side | EA | 1 | | |
| Replace star point side | EA | 1 | | |
| Supply and fit one terminal box | EA | 1 | | |
| Supply and fit one auxiliary box | EA | 1 | | |
| **HEAT EXCHANGER** | | | | |
| Re-gasket heat exchanger | EA | 1 | | |
| Replace 4 hold down bolts | EA | 1 | | |
| Re-tube 20 tubes on heat exchanger | EA | 1 | | |
| Supply and fit filters on the cooler (600mmx600mmx25mm) | EA | 1 | | |
| Weld 4 fastening brackets | EA | 1 | | |
| **STATOR HOUSING CORE & WINDINGS** | | | | |
| Skim foot mountings & conduct concentricity checks | EA | 1 | | |
| Polish stator feet & conduct concentricity checks | EA | 1 | | |
| Manufacture new coil & insulation kit | EA | 1 | | |
| Overhaul stator and spray with insulation varnish | EA | 1 | | |
| Replace with new stator core | EA | 1 | | |
| Rewind stator, VPI & bake | EA | 1 | | |
| Fit new PT100’s & stator leads | EA | 1 | | |
| Burn out old winding, replace with new stator winding, clean & prepare core for rewind | EA | 1 | | |
| Re-tap all mounting holes | EA | 1 | | |
| Re-tap holes and fit jacking bolts | EA | 1 | | |
| **ROTOR CORE & WINDINGS** | | | | |

| | | | | |
|---|---|---|---|---|
| Manufacture and fit new rotor core | EA | 1 | | |
| Remove old rotor core and fit a new core | EA | 1 | | |
| Machine off rotor short circuiting rings & remove rotor bars | EA | 1 | | |
| Manufacture and fit new rotor bars and short-circuiting rings | EA | 1 | | |
| Final machine rotor | EA | 1 | | |
| Rebar rotor completely | EA | 1 | | |
| Overhaul rotor and spray with insulating varnish | EA | 1 | | |
| Micro weld coupling landing, all sizes | EA | 1 | | |
| Micro weld and machine DE bearing journal, DE & NDE all sizes | EA | 1 | | |
| Micro weld and machine DE & NDE seals, all sizes | EA | 1 | | |
| Micro weld and machine fan side coupling landing, all sizes | EA | 1 | | |
| Micro weld and machine fan vacuum seals, all sizes | EA | 1 | | |
| Polish journal and seal landings | EA | 1 | | |
| Replace external cooling fan (PVC) | EA | 1 | | |
| Replace internal cooling fan | EA | 1 | | |
| Replace fan cowl | EA | 1 | | |
| Balance rotor at operating speed, maximum run out of 0.03mm | EA | 1 | | |
| **DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Replace with new bearing housing and all internal parts | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearing 200mm GB | EA | 1 | | |
| **NON-DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Replace with new bearing housing and all internal parts | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearing 200mm GB | EA | 1 | | |
| **SPARES, GENERAL & ASSEMBLY** | | | | |
| Supply and fit new grease pipes & nipples | EA | 1 | | |
| Supply and fit new bearing probes | EA | 1 | | |
| Supply and fit new PT connectors, rails & LED light | EA | 1 | | |
| Supply and fit new element heaters 4 off | EA | 1 | | |
| Supply and fit desiccator | EA | 1 | | |
| Replace wedges | EA | 1 | | |
| Polish all caps, flingers and flanges | EA | 1 | | |
| Polish & clean oil rings | EA | 1 | | |
| Replace ½" plug | EA | 1 | | |
| Replace M16 x 1.5mm PVC fitting | EA | 1 | | |
| Replace earth wire & plug | EA | 1 | | |
| Replace and fit M20 eye bolts | EA | 1 | | |
| Replace and fit M8 x 20mm cap screws | EA | 1 | | |
| Replace and fit M6 x 15mm cap screws | EA | 1 | | |
| Manufacture NDE flingers | EA | 1 | | |
| Clean cooling tubes & cooler | EA | 1 | | |
| Panel beat screen | EA | 1 | | |
| Overhaul screen & cowl | EA | 1 | | |
| Overhaul grease catchers/relievers | EA | 1 | | |
| Repair terminal box handles | EA | 1 | | |
| Manufacture and fit new explosive vent | EA | 1 | | |
| Overhaul fan and refit | EA | 1 | | |
| Fit new taper lock bushing for coupling | EA | 1 | | |
| Overhaul base and refit | EA | 1 | | |
| Replace bolts, spring & washers (new) | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Fit new earth lug | EA | 1 | | |
| Overhaul lifting lugs<br>(Re-tap holes) | EA | 1 | | |
| Supply and fit new filtered terminal box 2 off | EA | 1 | | |
| Remove, clean & re-fit coupling off 2 | EA | 1 | | |
| Clean and polish spigots | EA | 1 | | |
| Replace rubber seals & gaskets | EA | 1 | | |
| Assemble motor complete | EA | 1 | | |
| Clean, paint motor & prepare for delivery<br>Battle grey – motor<br>Red- Terminal boxes<br>Orange – fan cowl | EA | 1 | | |
| Motor FAT with Vibration Analysis | EA | 1 | | |
| Supply data pack | EA | 1 | | |
| Plastic wrap unit<br>(heat shrink wrap) | EA | 1 | | |
| **TOTAL FOR FORCE DRAUGHT FAN MOTOR** | | | | |

| **17. MACHINE DETAILS** | | | |
|---|---|---|---|
| Make & Weight | LAURENCE SCOTT<br>42 000 kg (42T) | Voltage | 3 300 V |
| Material No. | 0624808 | Stator Current | 495 A |
| Power | 3200 kW / 2800 HP | Frame Size / Type | X452/14 SQVJ<br>IKV 254/50 |
| Application | North Cooling Water Pump Motors | Speed | 211 Rpm |
| Bearings DE & NDE | Glacier BP 1109/4<br>Glacier BP 1082/5 | Shaft Diameter & Length | 304 & 145mm |

| **DESCRIPTION** | **UNIT** | **QUANTITIES** | **RATE** | **AMOUNT** |
|---|---|---|---|---|
| **TERMINAL BOX AND TERMINALS** | | | | |
| Re-gasket 2 terminal boxes | EA | 1 | | |
| Re-gasket 2 auxiliary boxes | EA | 1 | | |
| Replace desiccators | EA | 1 | | |
| Replace leads line side and star point side | EA | 1 | | |
| Replace star point side | EA | 1 | | |
| Supply and fit one terminal box | EA | 1 | | |
| Supply and fit one auxiliary box | EA | 1 | | |
| Replace two damaged safety rails with bolts included | EA | 1 | | |
| Replace 2 off louvre & filters | EA | 1 | | |
| **STATOR HOUSING CORE & WINDINGS** | | | | |
| Skim foot mountings & conduct concentricity checks | EA | 1 | | |
| Polish stator feet & conduct concentricity checks | EA | 1 | | |
| Manufacture new coil & insulation kit | EA | 1 | | |
| Overhaul stator and spray with insulation varnish | EA | 1 | | |
| Replace with new stator core | EA | 1 | | |
| Rewind stator, VPI & bake | EA | 1 | | |
| Fit new PT100's & stator leads | EA | 1 | | |
| Burn out old winding, replace with new stator winding, clean & prepare core for rewind | EA | 1 | | |
| Re-tap all mounting holes | EA | 1 | | |
| Re-tap holes and fit jacking bolts | EA | 1 | | |
| **ROTOR CORE & WINDINGS** | | | | |
| Manufacture and fit new rotor core | EA | 1 | | |
| Remove old rotor core and fit a new core | EA | 1 | | |
| Machine off rotor short circuiting rings & remove rotor bars | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Manufacture and fit new rotor bars and short-circuiting rings | EA | 1 | | |
| Final machine rotor | EA | 1 | | |
| Rebar rotor completely | EA | 1 | | |
| Overhaul rotor and spray with insulating varnish | EA | 1 | | |
| Micro weld coupling landing, all sizes | EA | 1 | | |
| Micro weld and machine DE bearing journal, DE & NDE all sizes | EA | 1 | | |
| Micro weld and machine DE & NDE seals, all sizes | EA | 1 | | |
| Micro weld and machine fan side coupling landing, all sizes | EA | 1 | | |
| Micro weld and machine fan vacuum seals, all sizes | EA | 1 | | |
| Polish journal and seal landings | EA | 1 | | |
| Replace external cooling fan (PVC) | EA | 1 | | |
| Replace internal cooling fan | EA | 1 | | |
| Replace fan cowl | EA | 1 | | |
| Balance rotor at operating speed, maximum run out of 0.03mm | EA | 1 | | |
| **DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Replace with new bearing housing and all internal parts | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearing Glacier BP 1109/4 | EA | 1 | | |
| **NON-DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Replace with new bearing housing and all internal parts | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearing Glacier BP 1082/5 | EA | 1 | | |
| **SPARES, GENERAL & ASSEMBLY** | | | | |
| Supply and fit new grease pipes & nipples | EA | 1 | | |
| Supply and fit new bearing probes | EA | 1 | | |
| Supply and fit new PT connectors, rails & LED light | EA | 1 | | |
| Supply and fit new element heaters 4 off | EA | 1 | | |
| Supply and fit desiccator | EA | 1 | | |
| Replace wedges | EA | 1 | | |
| Polish all caps, flingers and flanges | EA | 1 | | |
| Polish & clean oil rings | EA | 1 | | |
| Replace ½" plug | EA | 1 | | |
| Replace M16 x 1.5mm PVC fitting | EA | 1 | | |
| Replace earth wire & plug | EA | 1 | | |
| Replace and fit M20 eye bolts | EA | 1 | | |
| Replace and fit M8 x 20mm cap screws | EA | 1 | | |
| Replace and fit M6 x 15mm cap screws | EA | 1 | | |
| Manufacture NDE flingers | EA | 1 | | |
| Clean cooling tubes & cooler | EA | 1 | | |
| Panel beat screen | EA | 1 | | |
| Overhaul screen & cowl | EA | 1 | | |
| Overhaul grease catchers/relievers | EA | 1 | | |
| Repair terminal box handles | EA | 1 | | |
| Manufacture and fit new explosive vent | EA | 1 | | |
| Overhaul fan and refit | EA | 1 | | |
| Fit new taper lock bushing for coupling | EA | 1 | | |
| Overhaul base and refit | EA | 1 | | |
| Replace bolts, spring & washers (new) | EA | 1 | | |
| Fit new earth lug | EA | 1 | | |
| Overhaul lifting lugs<br>(Re-tap holes) | EA | 1 | | |
| Supply and fit new filtered terminal box 2 off | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Remove, clean & re-fit coupling off 2 | EA | 1 | | |
| Clean and polish spigots | EA | 1 | | |
| Replace rubber seals & gaskets | EA | 1 | | |
| Assemble motor complete | EA | 1 | | |
| Clean, paint motor & prepare for delivery<br>Battle grey – motor<br>Red- Terminal boxes<br>Orange – fan cowl | EA | 1 | | |
| Motor FAT with Vibration Analysis | EA | 1 | | |
| Supply data pack | EA | 1 | | |
| Plastic wrap unit<br>(heat shrink wrap) | EA | 1 | | |
| **TOTAL FOR NORTH COOLING WATER PUMP MOTOR** | | | | |

| **18. MACHINE DETAILS** | | | |
|---|---|---|---|
| Make & Weight | GEC/ACTOM<br>32 000 kg | Voltage | 3 300 V |
| Material No. | 0602735 | Stator Current | 578 A |
| Power | 2 165 kW | Frame Size / Type | UVN254/575<br>X452/14 SQVJ |
| Application | South Cooling Water Pump Motor | Speed | 211 Rpm |
| Bearings DE & NDE | Glacier BP 1109/4<br>Glacier BP 1182/5 | Shaft Diameter & Length | 360 & 160 mm |

| **DESCRIPTION** | **UNIT** | **QUANTITIES** | **RATE** | **AMOUNT** |
|---|---|---|---|---|
| **TERMINAL BOX AND TERMINALS** | | | | |
| Re-gasket 2 terminal boxes | EA | 1 | | |
| Re-gasket 2 auxiliary boxes | EA | 1 | | |
| Replace desiccators | EA | 1 | | |
| Replace leads line side and star point side | EA | 1 | | |
| Replace star point side | EA | 1 | | |
| Supply and fit one terminal box | EA | 1 | | |
| Supply and fit one auxiliary box | EA | 1 | | |
| Replace two damaged safety rails with bolts included | EA | 1 | | |
| Replace 2 off louvre & filters | EA | 1 | | |
| **STATOR HOUSING CORE & WINDINGS** | | | | |
| Skim foot mountings & conduct concentricity checks | EA | 1 | | |
| Polish stator feet & conduct concentricity checks | EA | 1 | | |
| Manufacture new coil & insulation kit | EA | 1 | | |
| Overhaul stator and spray with insulation varnish | EA | 1 | | |
| Replace with new stator core | EA | 1 | | |
| Repair hot spots on core and wedge grooves | EA | 1 | | |
| Rewind stator, VPI & bake | EA | 1 | | |
| Fit new PT100’s & stator leads | EA | 1 | | |
| Burn out old winding, replace with new stator winding, clean & prepare core for rewind | EA | 1 | | |
| Re-tap all mounting holes | EA | 1 | | |
| Re-tap holes and fit jacking bolts | EA | 1 | | |
| **ROTOR CORE & WINDINGS** | | | | |
| Manufacture and fit new rotor core | EA | 1 | | |
| Remove old rotor core and fit a new core | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Machine off rotor short circuiting rings & remove rotor bars | EA | 1 | | |
| Manufacture and fit new rotor bars and short-circuiting rings | EA | 1 | | |
| Final machine rotor | EA | 1 | | |
| Rebar rotor completely | EA | 1 | | |
| Overhaul rotor and spray with insulating varnish | EA | 1 | | |
| Micro weld coupling landing, all sizes | EA | 1 | | |
| Micro weld and machine DE bearing journal, DE & NDE all sizes | EA | 1 | | |
| Micro weld and machine DE & NDE seals, all sizes | EA | 1 | | |
| Micro weld and machine fan side coupling landing, all sizes | EA | 1 | | |
| Micro weld and machine fan vacuum seals, all sizes | EA | 1 | | |
| Polish journal and seal landings | EA | 1 | | |
| Replace external cooling fan (PVC) | EA | 1 | | |
| Replace internal cooling fan | EA | 1 | | |
| Replace fan cowl | EA | 1 | | |
| Balance rotor at operating speed, maximum run out of 0.03mm | EA | 1 | | |
| **DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Re-sleeve bearing housing bore 200mm diameter | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearing 420 diameter journal pads | EA | 1 | | |
| **NON-DRIVE END SHIELD & BEARING HOUSING** | | | | |
| Replace end shield | EA | 1 | | |
| Replace end shield insulation | EA | 1 | | |
| Replace with new bearing housing and all internal parts | EA | 1 | | |
| Replace bearing cap inner & outer | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Replace bearing grease slinger | EA | 1 | | |
| Replace bearing insulation and test | EA | 1 | | |
| Replace 4 off fixing bolts, | EA | 1 | | |
| Replace 8 off thrust springs | EA | 1 | | |
| Replace seals with circlip | EA | 1 | | |
| Replace V ring & felt seals | EA | 1 | | |
| Replace bearing 304 diameter journal pads | EA | 1 | | |
| Replace 22mm Michell thrust springs | EA | 1 | | |
| Replace 12inch bronze tilt pads | EA | 1 | | |
| **SPARES, GENERAL & ASSEMBLY** | | | | |
| Supply and fit new grease pipes & nipples | EA | 1 | | |
| Supply and fit new bearing probes | EA | 1 | | |
| Supply and fit new PT connectors, rails & LED light | EA | 1 | | |
| Supply and fit new element heaters 4 off | EA | 1 | | |
| Supply and fit desiccator | EA | 1 | | |
| Replace wedges | EA | 1 | | |
| Polish all caps, flingers and flanges | EA | 1 | | |
| Polish & clean oil rings | EA | 1 | | |
| Replace ½" plug | EA | 1 | | |
| Replace M16 x 1.5mm PVC fitting | EA | 1 | | |
| Replace earth wire & plug | EA | 1 | | |
| Replace and fit M20 eye bolts | EA | 1 | | |
| Replace and fit M8 x 20mm cap screws | EA | 1 | | |
| Replace and fit M6 x 15mm cap screws | EA | 1 | | |
| Manufacture NDE flingers | EA | 1 | | |
| Clean cooling tubes & cooler | EA | 1 | | |
| Panel beat screen | EA | 1 | | |
| Overhaul screen & cowl | EA | 1 | | |
| Overhaul grease catchers | EA | 1 | | |
| Repair terminal box handles | EA | 1 | | |
| Manufacture and fit new explosive vent | EA | 1 | | |
| Overhaul fan and refit | EA | 1 | | |
| Fit new taper lock bushing for coupling | EA | 1 | | |
| Overhaul base and refit | EA | 1 | | |

| | | | | |
|---|---|---|---|---|
| Replace bolts, spring & washers (new) | EA | 1 | | |
| Fit new earth lug | EA | 1 | | |
| Overhaul lifting lugs<br>(Re-tap holes) | EA | 1 | | |
| Supply and fit new filtered terminal box 2 off | EA | 1 | | |
| Remove, clean & re-fit coupling off 2 | EA | 1 | | |
| Clean and polish spigots | EA | 1 | | |
| Replace rubber seals & gaskets | EA | 1 | | |
| Assemble motor complete | EA | 1 | | |
| Clean, paint motor & prepare for delivery<br>Battle grey – motor<br>Red- Terminal boxes<br>Orange – fan cowl | EA | 1 | | |
| Motor FAT with Vibration Analysis | EA | 1 | | |
| Supply data pack | EA | 1 | | |
| Plastic wrap unit<br>(heat shrink wrap) | EA | 1 | | |
| **TOTAL FOR SOUTH COOLING WATER PUMP MOTOR** | | | | |

# PART 3: SCOPE OF WORK

| Document reference | Title | No of pages |
|---|---|---|
| | This cover page | 1 |
| C3.1 | *Employer*'s Service Information | 13 |
| C3.2 | *Contractor*'s Service Information | N/A |
| | Total number of pages | 14 |

# C3.1: EMPLOYER'S SERVICE INFORMATION

## Contents

# 1 Description of the Service

## 1.1 Executive Overview

Arnot Power Station is planning to put in place the medium voltage motor refurbishment contract which will include testing and vibration analysis prior to delivery to site. The contract is critical to ensure the continuous and efficient operation of the power station equipment while minimising downtime due to motor failures in the plant.

The contract is to total refurbishment testing and delivery of medium voltage motors ranging from 185kW to 5800kW, for a period 48 months at Arnot Power Station.

## 1.2 Employer's Requirements for the Service

- The motors shall be collected from the stripping and assessment site to the repair's workshop
- All broken or rusty miscellaneous sundries such as nuts, bolts, and washers shall be replaced with new similar or better grade to that which was originally used
- Repair loose wedging and replace any loose end winding bracing components
- Repair any stator core defects
- Replace any cracked or broken core bolt insulation
- Rotor core defects shall be repaired as per the discussed repair strategy
- Any rotor fan and / or rotor bar defects shall be repaired
- Cracks in welds are to be repaired, defective bearing insulation shall be replaced
- Defective heater wiring and resistive elements shall be replaced
- All core repairs and testing are to be completed before installing the new winding
- Bent shafts that cannot be straightened, or broken shafts shall be replaced
- All tests and inspections conducted as part of the motor assembly shall be recorded on a motor build report
- All motors shall be Test run at no-load after being assembled
- Painting shall be done in accordance with the SOW
- Paint motors battle-ship grey (dark), terminal boxes with a red colour, fan cowl with an orange colour
- All motors shall be prepared for delivery as per the SOW
- All documentation regarding work performed on the motor shall be delivered with the motor & a soft copy emailed to the *Service Manager*
- Install explosion proof terminal boxes on MV motors on an as & when required basis
- All repaired EFP Motors to be Test run at no-load with couplings fitted on the shaft

**NB: The following will be on an as and when required basis:**

Should the motor be found to be beyond repair, and the motor is scrapped by the Eskom Representative, the *Contractor* will be required to re-assemble the motor as good as possible & deliver it to site.

### 1.3 Interpretation and terminology

The following abbreviations are used in this Service Information:

| Abbreviation | Meaning given to the abbreviation |
|---|---|
| EFP | Electric Feed Pump |
| OBL | Outside Battery Limits |
| NCR | Non-conformance Report |
| NEC | New Engineering Contract |
| TSC | Term Services Contract |
| IR | Insulation Resistance |
| kW | Kilowatt |
| QA | Quality Assurance |
| QAP | Quality Assurance Programme |
| QC | Quality Control |
| SANS | South African National Standards |
| SOW | Scope of Work |
| MV | Medium Voltage |

## 2 Management Strategy and Start Up

### 2.1 The *Contractor*'s Plan for the *Service*

The *Contractor* issues a monthly report to the *Service Manager* as agreed between both parties. This report shall include:

i. All work done by the *Contractor* to date, work in progress (including the status) and future work if an order is already in place during the preparation of the report and any other work that the *Contractor* is busy with

ii. Investigate, identify and report potential plant failures as per Task order

iii. Participate in investigations as required by the *Employer*

iv. When working near the live electrical boards or inside the substation where there is live board(s), adherence to Arc Flash Protective Clothing and Personal Protective Equipment (PPE) against the Thermal Hazard of an Electrical Arc Standard 240-700447362 to ensure the safety of personnel at all times

It is the Contractor's responsibility to familiarise themselves with the power station reticulation layout, all Eskom Standards mentioned on this contract, SANS and International Standards

### 2.2 Management Meetings

Regular meetings of a general nature may be convened and chaired by the *Service Manager* as follows:

| Title and purpose | Approximate time & interval | Location | Attendance by: |
|---|---|---|---|
| Overall contract progress and feedback | Quarterly on 2nd week at 10:00 | Contractor's boardroom | *Employer*, *Contractor* |

Meetings of a specialist nature may be convened as specified elsewhere in this Service Information or if not so specified by persons and at times and locations to suit the Parties, the nature and the progress of the service. Records of these meetings shall be submitted to the Service Manager by the person convening the meeting within five days of the meeting.

All meetings shall be recorded using minutes or a register prepared and circulated by the person who convened the meeting. Such minutes or register shall not be used for the purpose of confirming actions or instructions under the contract as these shall be done separately by the person identified in the conditions of contract to carry out such actions or instructions.

## 2.3 Contractor's management, supervision and key people

The *Contractor* is to submit its organogram to the *Service Manager* showing his people and their lines of authority / communication.

## 2.4 Documentation control

All contractual communication will be in a form of properly compiled letters or forms attached to email Any communication pertaining to the contract shall be between the *Contractor* and the *Service Manager* and/ or his/her delegate.

## 2.5 Invoicing and payment

Within one week of receiving a payment certificate from the *Service Manager* in terms of core clause 51.1, the *Contractor* provides the *Employer* with a tax invoice showing the amount due for payment equal to that stated in the *Service Manager's* payment certificate.

The *Contractor* shall address the tax invoice to _____ and include on each invoice the following information:

- Name and address of the *Contractor* and the *Service Manager;*
- The contract number and title;
- Contractor's VAT registration number;
- The Employer's VAT registration number 4740101508;
- Description of service provided for each item invoiced based on the Price List;
- Total amount invoiced excluding VAT, the VAT and the invoiced amount including VAT;
- (add other as required)

Add procedures for invoice submission and payment (e. g. electronic payment instructions)

## 2.6 Contract Change Management

Clause 6 Compensation events of the NEC3 Term Service Contract will apply to all changes in this contract

## 2.7 Records of Defined Cost to be kept by the Contractor

Option A is applicable to this contract

### 2.8 Training Workshops and Technology Transfer

Updated and new technology used by the *Contractor* must be shared with the *Employer* on an ad-hoc basis

### 2.9 Design and supply of Equipment

Not applicable

### 2.10 Things provided at the end of the service period for the Employer's use

#### 2.10.1 Equipment

Not applicable

#### 2.10.2 Information and other things

None

### 2.11 Management of Work Done by Task Order

A task order is work within the service which the Service manager may instruct the Contractor to carry out within a stated period of time.

The Service manager has the format and will complete all the required information.
Task order includes:
- A detailed description of the work
- A priced list of items of work in the Task in which items form the price List are identified
- The starting and completion dates for the Task
- The amount of delay damages for the late completion of the Task
- The total of the Prices for the Task

All works to be performed in Accordance with Task Order provided

## 3 Health and Safety, the Environment and Quality Assurance

### 3.1 Health and Safety Risk Management

The *Contractor* shall comply with the health and safety requirements contained in Annexure B to this Service Information.

### 3.2 Environmental Constraints and Management

The *Contractor* shall comply with the environmental criteria and constraints stated in Annexure B

### 3.3 Quality Assurance Requirements

The motor data pack contains all information pertaining to Quality Assurance

## 4 Procurement

Procurement of any material requirements, other than those as specified in the price list, will only be done by the contract supervisor upon approval by the *Service Manager*

## 4.1 People

### 4.1.1 Minimum requirements of people employed

All personnel employed by the contractor to provide the service required shall be suitably qualified in the relevant fields to produce such service.

### 4.1.2 BBBEE and preferencing scheme

| |
|---|
| Specify constraints which *Contractor* must comply with after contract award in regard to any Broad Based Black Economic Empowerment (B-BBEE) or preferencing scheme measures. |

### 4.1.3 Accelerated Shared Growth Initiative – South Africa (ASGI-SA)

Compliance not required.

## 4.2 Subcontracting

### 4.2.1 Preferred Subcontractors

Not Applicable

### 4.2.2 Subcontract Documentation, and Assessment of Subcontract Tenders

Not Applicable

### 4.2.3 Limitations on Subcontracting

Not Applicable

### 4.2.4 Attendance on Subcontractors

None

## 4.3 Plant and Materials

### 4.3.1 Specifications

*Employer* to provide spares and special tools for the service purpose

### 4.3.2 Correction of defects

Due to the different nature of defects, and the different risks associated with trips, the defects correction period as specified in the Contract Data varies per defect, as indicated by the *Employer*.

| | |
|---|---|
| Priority 1 (24 hours) | All modifications which may affect plant operations at the station |
| Priority 2 (2 days) | Investigations and feasibility studies |
| Priority 3 (1 week) | Repairs |

### 4.3.3 Contractor's Procurement of Plant and Materials

*Employer* to provide spares and special tools for service purpose

### 4.3.4 Tests and Inspections Before Delivery

Arnot technical team to witness testing of the repaired motors before delivery to site, vibration analysis at full operational voltage to be less than 1 mm/s.

#### 4.3.5 Plant & Materials provided "free issue" by the Employer

None

#### 4.3.6 Cataloguing requirements by the Contractor

Not applicable

# 5 Working on the Affected Property

Protective clothing must be worn at all times

## 5.1 Employer's Site Entry and Security Control, Permits, and Site Regulations

Sites such as Koeberg Nuclear Power Station have very strict entrance requirements which tendering contractors need to allow for in their prices, and the *Contractor* has to comply with. State these or similar requirements here.

In addition to the above there may be other restrictions once on the site, plus rules relating to roads, walkways and the provision of barricades

- No taking pictures allowed on Employer's premises without prior approval or consent
- Contractor to attend induction before entering site
- Contractor must make pre-arrangements before coming to Employer's site to allow Employer to make proper arrangements with Security. If no arrangements made, no access will be granted to the Contractor
- Contractor must have submitted their safety file with safety department and file passed evaluation before commencement of work

The *Contractor* must ensure that all his personnel attend a Health and Safety Induction presented by Arnot Power Station free of charge prior to commencement with the services. The induction is valid for the duration of one (1) year at the Power Station.

All Site access is controlled through the designated access gate.

The *Contractor* is informed of the access procedures through Site regulations and that such procedures may change depending on the prevailing security situation.

The *Contractor* shall provide and install barricades and warning devices to ensure that equipment and persons are not exposed to danger or to prevent access to dangerous areas.

All vehicles must be driven with due consideration for personnel and property. A maximum speed limit of 40 kilometres per hour will be always adhered to on the premises.

The *Employer* follows an accident prevention policy that includes the investigation of all accidents involving personnel and property. This is done with the intention of introducing control measures to prevent a recurrence of the same incidents. The *Contractor* is expected to 'co-operate fully to achieve this objective.

The *Service Manager* must be informed within 24 hours of any injuries or damage to property or equipment. This report does not relieve the *Contractor* of his legal obligation to report certain incidents to the Department of Labour, or to keep records in terms of the Occupational Health and Safety Act, and Compensation for Occupational Injuries and Diseases Act.

## 5.2 People restrictions, hours of work, conduct and records

The attendance register needs to be signed daily at the *Service Manager's* office and the working hours on the *Employer's* site is as follows:
**Monday to Thursday – 07h00 to 16h15**
**Fridays – 07h00 to 12h00**

## 5.3 Health and safety facilities on the Affected Property

Medical facilities are available on site for emergencies only.

The *Contractor* shall comply with the occupational health and safety Act 85 of 1993 requirements: all applicable procedures and standards in their recent revisions. Eskom Life Saving Rules and other Eskom safety rules and requirements not limited to:

- Driven Machinery Regulations
- Fossil Fire Fuel regulations
- Plant Safety Regulations
- Working At Heights Standard
- Regulation For Hazardous Chemical Agents
- Confined space standard
- Occupational Hygiene management
- Control of noise is through wearing hearing protection
- Dust, dust suppression or as the last resort issue dust mask
- Waste, put waste in the correct waste bin
- Water to be conserve, use as little as possible
- Adhere to all Eskom lifesaving rules
- Submission of monthly health and safety statistics is mandatory

**A. Road Safety**
a. Speed limit: 40km/h
b. By passing Speed humps not allowed
c. Transporting People at the back of the bakkie is not allowed
d. Buckle up always
e. Park only at demarcated areas

**B. Sanitation**
a. Toilets for both genders are available at the plant

**C. Emergency**
a. The emergency number for Arnot is 013 297 9222 Pax:5222
b. Emergency alarms are tested every Wednesday 10H00

**D. Access**

**Before access can be granted the following must be met:**

a. Safety file with all the requirements to be submitted and approved prior site establishment and access
b. SHE Induction attendance is compulsory
c. All applicable trainings, statutory requirements and guidelines to be strictly adhered to. Use safety file and OHS specification as reference

**COMPULSORY COMPLIANCE TO 5 IDENTIFIED LIFE SAVING RULES:**

**Rule1:** Open, Isolate, Test, Earth, Bond, and/or Insulate before touch
(That is, any plant operating above 1 000 V)

No person may work on any electrical network unless:

- He/she is trained and authorised as competent for the task to be done.
- A pre-task risk assessment to identify all risks and hazards has been conducted prior to any work commencing.
- An equipotential zone is created for each worker on the job site by earthing, bonding, and/or insulating according to approved procedures.
- All conducting material is connected, all staff on site wear electrical safety shoes, and insulating techniques are applied according to standards; and
- The authorised person (team leader) has certified and shown all team members that the apparatus is safe to work on.

**Rule 2: Hook up on heights**

Working at height is defined as any work performed above a stable work surface or where a person puts himself/herself in a position where he/she exposes himself/herself to a fall from or into.
No person may work at height where there is a risk of falling unless:

- A pre-task risk assessment to identify all risks and hazards has been conducted prior to commencing any work at height.
- He/she is appropriately trained.
- He/she is appropriately secured during ascending and descending and
- He/she is using an approved fall arrest system where applicable.

**Rule 3: Buckle up**

No person may drive any vehicle on Eskom business and/or on Eskom premises unless the driver and all passengers are wearing seat belts.

**Rule 4: Be Sober**

1 No person is allowed to work under the influence of drugs and alcohol.
2 “Under the influence" means the use of alcohol, drugs, and/or a controlled substance to the extent that
1 He individual's faculties are in any way impaired by the consumption or use of the substances; or
2 The individual is unable to perform in a safe, productive manner; or
3 The individual has a level of any such substance in his/her body that corresponds to or exceeds accepted medical/legal standards; or
4 The individual has a level of alcohol in his/her body that is greater than 0.02% blood alcohol concentration.

This includes any level of an illegal substance in the body, irrespective of when the substance was used.

**Rule 5: Ensure that you have a permit to work**

Where an authorisation limitation exists, no person shall work without the required Permit to Work (PTW), which is governed by the Plant Safety Regulations, Operating Regulations for High Voltage Systems (ORHVS) etc.
No plant is to be returned to service without the cancellation of all permits on that plant in accordance with procedure.

NB: In the case of live work, a "live work declaration form" is to be completed by the authorised person who is the person responsible for the safe execution of work according to relevant standards and procedures.
Please ensure that these rules are understood and communicated with the urgency that they deserve. If any of these rules are unclear or the consequences not understood, please do not hesitate to discuss it with Eskom.

We would like to continue our current partnership and therefore urge your support in the implementation and upholding of these rules.

## 5.4 Environmental Controls, Fauna & Flora

This sub-paragraph may not be required in a service contract or if these matters are dealt with in the general environmental requirements referred to in section 3 above.

## 5.5 Cooperating with and Obtaining Acceptance of Others

Not applicable

## 5.6 Records of *Contractor*'s Equipment

None

## 5.7 Equipment provided by the *Employer*

**The following equipment will be made available by the employer when site work is done: (deliveries)**

1. Crane
2. Lifting equipment,
3. Cleaning liquids,
4. Rags
5. Extra lighting & any other requirements not mentioned above, will be discussed between the *Employer* & the *Contractor.*

## 5.8 Site Services and Facilities

### 5.8.1 Provided by the *Employer*

Power, water, waste disposal, telecoms, ablutions, fire protection and small power

### 5.8.2 Provided by the *Contractor*

Transport & insurance

## 5.9 Control of Noise, Dust, Water and Waste

Always wear correct PPE

## 5.10 Hook Ups to Existing Works

None

## 5.11 Tests and Inspections

### 5.11.1 Description of tests and inspections

Test to be carried out as specified in the Service information.

### 5.11.2 Materials facilities and samples for tests and inspections

As specified in the Service information

# 6 List of drawings

## 6.1 Drawings issued by the Employer

This is the list of drawings issued by the *Employer* at or before the Contract Date and which apply to this contract.

| Drawing number | Revision | Title |
|---|---|---|
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