CITY OF AUSTIN, TEXAS

Purchasing Office

INVITATION FOR BID (IFB)

OFFER SHEET

SOLICITATION NO: NST0023REBID

DATE ISSUED: Jan 26, 2015

REQUISITION NO.: RQM 14100800011

COMMODITY CODE: 91013

FOR CONTRACTUAL AND TECHNICAL ISSUES CONTACT THE FOLLOWING AUTHORIZED CONTACT PERSON:

NICOLE TURNER
SENIOR BUYER

Phone: (512) 322-6586
E-Mail: Nicole.turner@austinenergy.com

COMMODITY/SERVICE DESCRIPTION: ALIMAK ELEVATOR PREVENTATIVE & CORRECTIVE MAINTENANCE

PRE-BID CONFERENCE TIME AND DATE: 1:30PM ON February 6, 2015

LOCATION: SANDHILL ENERGY CENTER, 1101 FALLWELL LANE, AUSTIN, TX 78617

BID DUE PRIOR TO: 2:00PM ON FEB 17, 2015

BID OPENING TIME AND DATE: 2:15PM ON FEB 17, 2015

LOCATION: MUNICIPAL BUILDING, 124 W 8th STREET RM 308, AUSTIN, TEXAS 78701

LIVE BID OPENING ONLINE:

For information on how to attend the Bid Opening online, please select this link:

http://www.austintexas.gov/department/bid-opening-webinars

When submitting a sealed Offer and/or Compliance Plan, use the proper address for the type of service desired, as shown below:

P.O. Address for US Mail	Street Address for Hand Delivery or Courier Service
City of Austin	City of Austin, Municipal Building
Purchasing Office-Response Enclosed	Purchasing Office-Response Enclosed
P.O. Box 1088	124 W 8th Street, Rm 310
Austin, Texas 78767-8845	Austin, Texas 78701
	Reception Phone: (512) 974-2500

To ensure prompt delivery, all packages SHALL BE CLEARLY MARKED ON THE OUTSIDE "Purchasing Office-Response Enclosed" along with the offeror's name & address, solicitation number and due date and time. See Section 0200 Solicitation Instructions for more details.

All Offers (including Compliance Plans) that are not submitted in a sealed envelope or container will not be considered.

The Vendor agrees, if this Offer is accepted within 120 calendar days after the Due Date, to fully comply in strict accordance with the Solicitation, specifications and provisions attached thereto for the amounts shown on the accompanying Offer.

SUBMIT 1 ORIGINAL, 4 COPIES, AND 1 ELECTRONIC COPY OF YOUR RESPONSE

*****SIGNATURE FOR SUBMITTAL REQUIRED ON PAGE 4 OF THIS DOCUMENT*****

This solicitation is comprised of the following required sections. Please ensure to carefully read each section including those incorporated by reference. By signing this document, you are agreeing to all the items contained herein and will be bound to all terms.

SECTION NO.	TITLE	PAGES
0100	STANDARD PURCHASE DEFINITIONS	*
0200	STANDARD SOLICITATION INSTRUCTIONS	*
0300	STANDARD PURCHASE TERMS AND CONDITIONS	*
0400	SUPPLEMENTAL PURCHASE PROVISIONS	7
0500	SPECIFICATION	6
ATT1	ATTACHMENT A	71
ATT2	ATTACHMENT B	2
ATT3	ATTACHMENT C	6
0600	BID SHEET – Must be completed and returned with Offer	1
0605	LOCAL BUSINESS PRESENCE IDENTIFICATION FORM – Complete & return	1
0700	REFERENCE SHEET – Complete and return if required	2
0800	NON-DISCRIMINATION CERTIFICATION	*
0805	NON-SUSPENSION OR DEBARMENT CERTIFICATION	*
0810	NON-COLLUSION, NON-CONFLICT OF INTEREST, AND ANTI-LOBBYING CERTIFICATION	*
0835	NONRESIDENT BIDDER PROVISIONS – Complete and return	1

*** Documents are hereby incorporated into this Solicitation by reference, with the same force and effect as if they were incorporated in full text. The full text versions of these Sections are available, on the Internet at the following online address:**

http://www.austintexas.gov/financeonline/vendor_connection/index.cfm#STANDARDBIDDOCUMENTS

If you do not have access to the Internet, you may obtain a copy of these Sections from the City of Austin Purchasing Office located in the Municipal Building, 124 West 8th Street, Room #308 Austin, Texas 78701; phone (512) 974-2500. Please have the Solicitation number available so that the staff can select the proper documents. These documents can be mailed, expressed mailed, or faxed to you.

I agree to abide by the City's MBE/WBE Procurement Program Ordinance and Rules. In cases where the City has established that there are no M/WBE subcontracting goals for a solicitation, I agree that by submitting this offer my firm is completing all the work for the project and not subcontracting any portion. If any service is needed to perform the contract that my firm does not perform with its own workforce or supplies, I agree to contact the Small and Minority Business Resources Department (SMBR) at (512) 974-7600 to obtain a list of MBE and WBE firms available to perform the service and am

including the completed No Goals Utilization Plan with my submittal. This form can be found Under the Standard Bid Document Tab on the Vendor Connection Website:

http://www.austintexas.gov/financeonline/vendor_connection/index.cfm#STANDARDBIDDOCUMENTS

If I am awarded the contract I agree to continue complying with the City's MBE/WBE Procurement Program Ordinance and Rules including contacting SMBR if any subcontracting is later identified.

The undersigned, by his/her signature, represents that he/she is submitting a binding offer and is authorized to bind the respondent to fully comply with the solicitation document contained herein. The Respondent, by submitting and signing below, acknowledges that he/she has received and read the entire document packet sections defined above including all documents incorporated by reference, and agrees to be bound by the terms therein.

Company Name: _____

Company Address: _____

City, State, Zip: _____

Federal Tax ID No. _____

Printed Name of Officer or Authorized Representative: _____

Title: _____

Signature of Officer or Authorized Representative: _____

Date: _____

Email Address: _____

Phone Number: _____

*** Completed Bid Sheet, section 0600 must be submitted with this Offer Sheet to be considered for award**

Section 0605: Local Business Presence Identification

A firm (Offeror or Subcontractor) is considered to have a Local Business Presence if the firm is headquartered in the Austin Corporate City Limits, or has a branch office located in the Austin Corporate City Limits in operation for the last five (5) years. The City defines headquarters as the administrative center where most of the important functions and full responsibility for managing and coordinating the business activities of the firm are located. The City defines branch office as a smaller, remotely located office that is separate from a firm's headquarters that offers the services requested and required under this solicitation.

OFFEROR MUST SUBMIT THE FOLLOWING INFORMATION FOR EACH LOCAL BUSINESS (INCLUDING THE OFFEROR, IF APPLICABLE) TO BE CONSIDERED FOR LOCAL PRESENCE.

NOTE: ALL FIRMS MUST BE IDENTIFIED ON THE MBE/WBE COMPLIANCE PLAN OR NO GOALS UTILIZATION PLAN.

USE ADDITIONAL PAGES AS NECESSARY

OFFEROR:

Name of Local Firm						
Physical Address						
Is Firm located in the Corporate City Limits? (circle one)	Yes		No			
In business at this location for past 5 yrs?	Yes		No			
Location Type:	Headquarters	Yes	No	Branch	Yes	No

SUBCONTRACTOR(S):

Name of Local Firm						
Physical Address						
Is Firm located in the Corporate City Limits? (circle one)	Yes		No			
In business at this location for past 5 yrs?	Yes		No			
Location Type:	Headquarters	Yes	No	Branch	Yes	No

SUBCONTRACTOR(S):

Name of Local Firm						
Physical Address						
Is Firm located in the Corporate City Limits? (circle one)	Yes		No			
In business at this location for past 5 yrs.?	Yes		No			
Location Type:	Headquarters	Yes	No	Branch	Yes	No

Section 0700: Reference Sheet

Please include the following information if required in solicitation:

Responding Company Name _____

1. Company's Name _____

   Name and Title of Contact _____

   Present Address _____

   City, State, Zip Code _____

   Telephone Number (_____)_____ Fax Number (_____)_____

   Email Address _____

2. Company's Name _____

   Name and Title of Contact _____

   Present Address _____

   City, State, Zip Code _____

   Telephone Number (_____)_____ Fax Number (_____)_____

   Email Address _____

3. Company's Name _____

   Name and Title of Contact _____

   Present Address _____

   City, State, Zip Code _____

   Telephone Number (_____)_____ Fax Number (_____)_____

   Email Address _____

4. Company's Name _____

   Name and Title of Contact _____

   Present Address _____

   City, State, Zip Code _____

   Telephone Number (_____)_____ Fax Number (_____)_____

   Email Address _____

5. Company's Name _____

   Name and Title of Contact _____

   Present Address _____

   City, State, Zip Code _____

   Telephone Number (_____)_____ Fax Number (_____)_____

   Email Address _____

Section 0835: Non-Resident Bidder Provisions

Company Name _____

A. Bidder must answer the following questions in accordance with Vernon's Texas Statues and Codes Annotated Government Code 2252.002, as amended:

   Is the Bidder that is making and submitting this Bid a "Resident Bidder" or a "non-resident Bidder"?

   Answer: _____

   (1) Texas Resident Bidder- A Bidder whose principle place of business is in Texas and includes a Contractor whose ultimate parent company or majority owner has its principal place of business in Texas.
   (2) Nonresident Bidder- A Bidder who is not a Texas Resident Bidder.

B. If the Bidder id a "Nonresident Bidder" does the state, in which the Nonresident Bidder's principal place of business is located, have a law requiring a Nonresident Bidder of that state to bid a certain amount or percentage under the Bid of a Resident Bidder of that state in order for the nonresident Bidder of that state to be awarded a Contract on such bid in said state?

   Answer: _____ Which State: _____

C. If the answer to Question B is "yes", then what amount or percentage must a Texas Resident Bidder bid under the bid price of a Resident Bidder of that state in order to be awarded a Contract on such bid in said state?

   Answer: _____

CITY OF AUSTIN
PURCHASING OFFICE
SUPPLEMENTAL PURCHASE PROVISIONS
IFB NST0023REBID

The following Supplemental Purchasing Provisions apply to this solicitation:

1. **EXPLANATIONS OR CLARIFICATIONS:** (reference paragraph 5 in Section 0200)

   All requests for explanations or clarifications must be submitted in writing to the Purchasing Office by 8:00 a.m. on February 9, 2015. Submissions may be made via email to Nicole.turner@austinenergy.com

2. **PRE-BID CONFERENCE:** There will be a Pre-Bid Conference to be held at 1:30 p.m. on February 6, 2015 at the Sand Hill Energy Center, 1101 FallWell Lane, Austin, TX 78617. All prospective bidders are encouraged to attend.

3. **INSURANCE:** Insurance is required for this solicitation.

   A. **General Requirements:** See Section 0300, Standard Purchase Terms and Conditions, paragraph 32, entitled Insurance, for general insurance requirements.

      i. The Contractor shall provide a Certificate of Insurance as verification of coverages required below to the City at the below address prior to contract execution and within 14 calendar days after written request from the City. Failure to provide the required Certificate of Insurance may subject the Offer to disqualification from consideration for award
      ii. The Contractor shall not commence work until the required insurance is obtained and until such insurance has been reviewed by the City. Approval of insurance by the City shall not relieve or decrease the liability of the Contractor hereunder and shall not be construed to be a limitation of liability on the part of the Contractor.
      iii. The Contractor must also forward a Certificate of Insurance to the City whenever a previously identified policy period has expired, or an extension option or holdover period is exercised, as verification of continuing coverage.
      iv. The Certificate of Insurance, and updates, shall be mailed to the following address:

         City of Austin Purchasing Office
         P. O. Box 1088
         Austin, Texas 78767

   B. **Specific Coverage Requirements:** The Contractor shall at a minimum carry insurance in the types and amounts indicated below for the duration of the Contract, including extension options and hold over periods, and during any warranty period. These insurance coverages are required minimums and are not intended to limit the responsibility or liability of the Contractor.

      i. **Worker's Compensation and Employers' Liability Insurance:** Coverage shall be consistent with statutory benefits outlined in the Texas Worker's Compensation Act (Section 401). The minimum policy limits for Employer's Liability are $100,000 bodily injury each accident, $500,000 bodily injury by disease policy limit and $100,000 bodily injury by disease each employee.
         (1) The Contractor's policy shall apply to the State of Texas and include these endorsements in favor of the City of Austin:
            (a) Waiver of Subrogation, Form WC420304, or equivalent coverage
            (b) Thirty (30) days Notice of Cancellation, Form WC420601, or equivalent coverage
      ii. **Commercial General Liability Insurance:** The minimum bodily injury and property damage per occurrence are $500,000 for coverages A (Bodily Injury and Property Damage) and B (Personal and Advertising Injury).
         (1) The policy shall contain the following provisions:
            (a) Contractual liability coverage for liability assumed under the Contract and all other Contracts related to the project.
            (b) Contractor/Subcontracted Work.
            (c) Products/Completed Operations Liability for the duration of the warranty period.

(d) If the project involves digging or drilling provisions must be included that provide Explosion, Collapse, and/or Underground Coverage.

(2) The policy shall also include these endorsements in favor of the City of Austin:
(a) Waiver of Subrogation, Endorsement CG 2404, or equivalent coverage
(b) Thirty (30) days Notice of Cancellation, Endorsement CG 0205, or equivalent coverage
(c) The City of Austin listed as an additional insured, Endorsement CG 2010, or equivalent coverage

iii. **Business Automobile Liability Insurance:** The Contractor shall provide coverage for all owned, non-owned and hired vehicles with a minimum combined single limit of $500,000 per occurrence for bodily injury and property damage. Alternate acceptable limits are $250,000 bodily injury per person, $500,000 bodily injury per occurrence and at least $100,000 property damage liability per accident.

(1) The policy shall include these endorsements in favor of the City of Austin:
(a) Waiver of Subrogation, Endorsement CA0444, or equivalent coverage
(b) Thirty (30) days Notice of Cancellation, Endorsement CA0244, or equivalent coverage
(c) The City of Austin listed as an additional insured, Endorsement CA2048, or equivalent coverage.

C. **Endorsements:** The specific insurance coverage endorsements specified above, or their equivalents must be provided. In the event that endorsements, which are the equivalent of the required coverage, are proposed to be substituted for the required coverage, copies of the equivalent endorsements must be provided for the City's review and approval.

4. **TERM OF CONTRACT:**

A. The Contract shall be in effect for an initial term of 24 months and may be extended thereafter for up to 3 additional 12 month periods, subject to the approval of the Contractor and the City Purchasing Officer or his designee.

B. Upon expiration of the initial term or period of extension, the Contractor agrees to hold over under the terms and conditions of this agreement for such a period of time as is reasonably necessary to re-solicit and/or complete the project (not to exceed 120 days unless mutually agreed on in writing).

C. Upon written notice to the Contractor from the City's Purchasing Officer or his designee and acceptance of the Contractor, the term of this contract shall be extended on the same terms and conditions for an additional period as indicated in paragraph A above.

D. Prices are firm and fixed for the first 24 months. Thereafter, price changes are subject to the Economic Price Adjustment provisions of this Contract.

5. **QUANTITIES:** The quantities listed herein are annual estimates for the period of the Contract. The City reserves the right to purchase more or less of these quantities as may be required during the Contract term. Quantities will be as needed and specified by the City for each order. Unless specified in the solicitation, there are no minimum order quantities.

6. **INVOICES and PAYMENT:** (reference paragraphs 12 and 13 in Section 0300)

A. Invoices shall contain a unique invoice number and the information required in Section 0300, paragraph 12, entitled "Invoices." Invoices received without all required information cannot be processed and will be returned to the vendor.

Invoices shall be mailed to the contact at the address listed below:

	City of Austin
Department	Austin Energy
Attn:	Lee Lewis, Power Plant Superintendent
Address	Sand Hill Energy Center (SHEC) 13005 Fallwell Lane
City, State Zip Code	Del Valle, TX 78617

B. The Contractor agrees to accept payment by either credit card, check or Electronic Funds Transfer (EFT) for all goods and/or services provided under the Contract. The Contractor shall factor the cost of processing credit card payments into the Offer. There shall be no additional charges, surcharges, or penalties to the City for payments made by credit card.

7. **HAZARDOUS MATERIALS:**

A. If this Solicitation involves hazardous materials, the Offeror shall furnish with the Offer Material Safety Data Sheets (MSDS), (OSHA Form 20), on all chemicals and hazardous materials specifying the generic and trade name of product, product specification, and full hazard information including receiving and storage hazards. Instructions, special equipment needed for handling, information on approved containers, and instructions for the disposal of the material are also required.

B. Failure to submit the MSDS as part of the Offer may subject the Offer to disqualification from consideration for award.

C. The MSDS, instructions and information required in paragraph "A" must be included with each shipment under the contract.

8. **NON-COLLUSION, NON-CONFLICT OF INTEREST, AND ANTI-LOBBYING:**

A. On November 10, 2011, the Austin City Council adopted Ordinance No. 20111110-052 amending Chapter 2.7, Article 6 of the City Code relating to Anti-Lobbying and Procurement. The policy defined in this Code applies to Solicitations for goods and/or services requiring City Council approval under City Charter Article VII, Section 15 (Purchase Procedures). During the No-Contact Period, Offerors or potential Offerors are prohibited from making a representation to anyone other than the Authorized Contact Person in the Solicitation as the contact for questions and comments regarding the Solicitation.

B. If during the No-Contact Period an Offeror makes a representation to anyone other than the Authorized Contact Person for the Solicitation, the Offeror's Offer is disqualified from further consideration except as permitted in the Ordinance.

C. If an Offeror has been disqualified under this article more than two times in a sixty (60) month period, the Purchasing Officer shall debar the Offeror from doing business with the City for a period not to exceed three (3) years, provided the Offeror is given written notice and a hearing in advance of the debarment.

D. The City requires Offerors submitting Offers on this Solicitation to provide a signed Section 0810, Non-Collusion, Non-Conflict of Interest, and Anti-Lobbying Affidavit, certifying that the Offeror has not in any way directly or indirectly made representations to anyone other than the Authorized Contact Person during the No-Contact Period as defined in the Ordinance. The text of the City Ordinance is posted on the Internet at: http://www.ci.austin.tx.us/edims/document.cfm?id=161145

9. **NON-SOLICITATION:**

A. During the term of the Contract, and for a period of six (6) months following termination of the Contract, the Contractor, its affiliate, or its agent shall not hire, employ, or solicit for employment or consulting services, a City employee employed in a technical job classification in a City department that engages or uses the services of a Contractor employee.

B. During the term of the Contract, and for a period of six (6) months following termination of the Contract, a department that engages the services of the Contractor or uses the services of a Contractor employee will not hire a Contractor employee while the employee is performing work under a Contract with the City unless the City first obtains the Contractor's approval.

10. **WORKFORCE SECURITY CLEARANCE AND IDENTIFICATION (ID):**

A. Contractors are required to obtain a certified criminal background report with fingerprinting (referred to as the "report") for all persons performing on the contract, including all Contractor, Subcontractor, and Supplier personnel (for convenience referred to as "Contractor's personnel").

B. The report may be obtained by reporting to one of the below governmental entities, submitting to fingerprinting and requesting the report [requestors may anticipate a two-week delay for State reports and up to a four to six week delay for receipt of a Federal report.].

i. Texas Department of Public Safety for any person currently residing in the State of Texas and having a valid Texas driver's license or photo ID card;
ii. The appropriate governmental agency from either the U.S. state or foreign nation in which the person resides and holds either a valid U.S. state-issued or foreign national driver's license or photo ID card; or
iii. A Federal Agency. A current Federal security clearance obtained from and certified by a Federal agency may be substituted.

C. Contractor shall obtain the reports at least 30 days prior to any onsite work commencement. Contractor also shall attach to each report the project name, Contractor's personnel name(s), current address(es), and a copy of the U.S. state-issued or foreign national driver's license or photo ID card.

D. Contractor shall provide the City a Certified Criminal Background Report affirming that Contractor has conducted required security screening of Contractor's personnel to determine those appropriate for execution of the work and for presence on the City's property. A list of all Contractor Personnel requiring access to the City's site shall be attached to the affidavit.

E. Upon receipt by the City of Contractor's affidavit described in (D) above and the list of the Contractor's personnel, the City will provide each of Contractor's personnel a contractor ID badge that is required for access to City property that shall be worn at all times by Contractor's personnel during the execution of the work.

F. The City reserves the right to deny an ID badge to any Contractor personnel for reasonable cause, including failure of a Criminal History background check. The City will notify the Contractor of any such denial no more than twenty (20) days after receipt of the Contractor's reports. Where denial of access by a particular person may cause the Contractor to be unable to perform any portion of the work of the contract, the Contractor shall so notify the City's Contract Manager, in writing, within ten (10) calendar days of the receipt of notification of denial.

G. Contractor's personnel will be required to wear the ID badge at all times while on the work site. Failure to wear or produce the ID badge may be cause for removal of an individual from the work site,

without regard to Contractor's schedule. Lost ID badges shall be reported to the City's Contract Manager. Contractor shall reimburse the City for all costs incurred in providing additional ID badges to Contractor Personnel.

H. ID badges to enter and/or work on the City property may be revoked by the City at any time. ID badges must be returned to the City at the time of project completion and acceptance or upon removal of an individual from the work site.

I. Contractor is not required to obtain reports for delivery personnel, including but not limited to FedEx, UPS, Roadway, or other materials delivery persons, however all delivery personnel must present company/employer-issued photo ID and be accompanied by at least one of Contractor's personnel at all times while at the work site.

J. The Contractor shall retain the reports and make them available for audit by the City during regular business hours (reference paragraph 17 in Section 0300, entitled Right to Audit).

11. **ECONOMIC PRICE ADJUSTMENT:**

A. **Price Adjustments:** Prices shown in this Contract shall remain firm for the first 24 months of the Contract. After that, in recognition of the potential for fluctuation of the Contractor's cost, a price adjustment (increase or decrease) may be requested by either the City or the Contractor on the anniversary date of the Contract or as may otherwise be specified herein. The percentage change between the contract price and the requested price shall not exceed the percentage change between the specified index in effect on the date the solicitation closed and the most recent, non-preliminary data at the time the price adjustment is requested. The requested price adjustment shall not exceed twenty percent (20%) for any single line item and in no event shall the total amount of the contract be automatically adjusted as a result of the change in one or more line items made pursuant to this provision. Prices for products or services unaffected by verifiable cost trends shall not be subject to adjustment.

B. **Effective Date:** Approved price adjustments will go into effect on the first day of the upcoming renewal period or anniversary date of contract award and remain in effect until contract expiration unless changed by subsequent amendment.

C. **Adjustments:** A request for price adjustment must be made in writing and submitted to the other Party prior to the yearly anniversary date of the Contract; adjustments may only be considered at that time unless otherwise specified herein. Requested adjustments must be solely for the purpose of accommodating changes in the Contractor's direct costs. Contractor shall provide an updated price listing once agreed to adjustment(s) have been approved by the parties.

D. **Indexes:** In most cases an index from the Bureau of Labor Statistics (www.BLS.gov) will be utilized; however, if there is more appropriate, industry recognized standard then that index may be selected.

i. The following definitions apply:
   (1) **Base Period:** Month and year of the original contracted price (the solicitation close date).
   (2) **Base Price:** Initial price quoted, proposed and/or contracted per unit of measure.
   (3) **Adjusted Price:** Base Price after it has been adjusted in accordance with the applicable index change and instructions provided.
   (4) **Change Factor:** The multiplier utilized to adjust the Base Price to the Adjusted Price.
   (5) **Weight %:** The percent of the Base Price subject to adjustment based on an index change.

ii. **Adjustment-Request Review:** Each adjustment-request received will be reviewed and compared to changes in the index(es) identified below. Where applicable:
   (1) Utilize final Compilation data instead of Preliminary data

(2) If the referenced index is no longer available shift up to the next higher category index.

iii. **Index Identification:** Complete table as they may apply.

Weight % or $ of Base Price: 100	
Database Name: Wages and Salaries for Private Industry Workers	
Series ID: CIU2020000430000A	
☒ Not Seasonally Adjusted	☐ Seasonally Adjusted
Geographical Area: n/a	
Description of Series ID: Occupation – Installation, maintenance, and repair	
This Index shall apply to the following items of the Bid Sheet / Cost Proposal: All	

E. **Calculation:** Price adjustment will be calculated as follows:

Single Index: Adjust the Base Price by the same factor calculated for the index change.

Index at time of calculation
Divided by index on solicitation close date
Equals Change Factor
Multiplied by the Base Rate
Equals the Adjusted Price

F. If the requested adjustment is not supported by the referenced index, the City, as its sole discretion, may consider approving an adjustment on fully documented market increases.

12. **WORKING ON OR NEAR ENGERGIZED EQUIPMENT – ARC FLASH PROTECTION (reference Section 0300 Paragraph 11. Compliance With Health, Safety, and Environmental Regulations):** Contractor's employees shall wear at all times the proper personal protective equipment and clothing required for the head, face, torso, arms, hands, and lower body that provides a minimum Arc Thermal Protection Value (ATPV) of 12 calories per square centimeter (cal/cm^2) when working on or near energized electrical equipment, or greater, if required by the NFPA Standard 70E and/or Article 410 of the NESC for the work being performed.

13. **CONTRACT AWARD:** This Contract shall be awarded in an annual amount not to exceed the Total Bid plus a contingency amount not to exceed $3,500.

14. **CONTRACT ADMINISTRATOR:** The following person is designated as the Contract Administrator and will act as the contact point between the City and the Contractor during the term of the Contract:

Michelle Casanova, MBA, Austin Energy

Office Phone: 512/505-3747, Email: michelle.casanova@austinenergy.com

*Note: The above listed Contract Administrator is NOT the authorized Contact Person for purposes of the **NON-COLLUSION, NON-CONFLICT OF INTEREST, AND ANTI-LOBBYING Provision** of this Section; and therefore, contact with the Contract Manager is prohibited during the no contact period.

CITY OF AUSTIN
PURCHASING OFFICE
SCOPE OF WORK
SOLICITATION NUMBER NST0023REBID

SCOPE OF WORK
FOR
AUSTIN ENERGY SERVICE SPECIFICATIONS
FOR PREVENTATIVE MAINTENANCE AND CORRECTIVE REPAIR
OF THE SHEC ALIMAK RACK AND PINION ELEVATOR

1.0 PURPOSE

The City of Austin, dba Austin Energy (AE), seeks to establish a service agreement through this Invitation for Bid (IFB) with a Contractor to conduct preventative maintenance and corrective repair services on an Alimak Hek rack and pinion hoist elevator SE – 400 DOL. This external elevator provides access to the upper level of Unit 5A Heat Recovery Steam Generator (HRSG) at AE's Sand Hill Energy Center (SHEC).

2.0 BACKGROUND

Austin Energy is a department within the City of Austin and is the nation's 8th largest publicly owned electric utility. AE's service area covers over 437 Square miles, and includes all of Austin and Travis County, as well as 15 square miles of Williamson County. AE's mission is to deliver clean, affordable, reliable energy and excellent customer service.

Sand Hill Energy Center (SHEC) is AE's newest and most efficient power plant. Its thoughtful design and construction methods ensure that every aspect of the plant contributes to the City of Austin's environmental goals. The SHEC consists of 270 MW of peaking units. Units 1-4 came online in 2001, generating 180 MW. Two additional units totaling 90 MW were added in 2010. A 300 MW combined cycle unit was completed in 2004; it is expandable to 500 MW with the addition of a second gas turbine.

3.0 CONTRACTOR QUALIFICATIONS

3.1 Contractor shall be a registered Vendor with the Texas Department of Licensing and Regulation (TDLR) in accordance with the Texas Health & Safety Code, chapter 754, Subchapter B, Section 754.0171, and should provide documentation of all suspensions, violations, or investigations by the TDLR within the last five years as an attachment in response to this solicitation.

3.2 Contractor shall be a commercial elevator business engaged in providing elevator maintenance and repair services for a minimum of five continuous years.

3.3 Contractor shall have a minimum of five (5) years continuous experience in providing elevator maintenance service for construction site rack and pinion elevators and shall provide five (5) commercial references for similar work and types of systems as outlined in these specifications.

4.0 PERSONNEL QUALIFICATIONS

4.1 Contractor shall ensure that all personnel assigned to work under this contract has a minimum of three (3) years' experience in all critical mechanical, electrical, electronic, and microprocessor elements of elevators.

4.2 AE reserves the right to ask the Contractor to furnish certification papers and documentation of the assigned personnel's qualifications. Contractor may replace personnel assigned under this contract only with equally classified and qualified personnel.

4.3 Contractor's employees and representatives shall wear a standard company uniform, safety shoes, and have company issued photo identification clearly displayed while conducting services on any AE worksite. Uniforms shall be clean, consistent in appearance, and have the Contractor's name or logo clearly displayed

4.4 Contractor shall ensure that all employees and representatives accessing any AE worksite undergoes a workforce security clearance check, as outlined in (Section 0400, part 10).

5.0 SINGLE POINT OF CONTACT (SPOC)

5.1 Contractor shall provide a Single Point of Contact (SPOC), who is skilled, knowledgeable, and has experience with providing maintenance services to construction site rack and pinion elevators as listed in this specification. The SPOC shall serve as the main point of contact for all services.

5.2 The SPOC shall have full responsibility for the obligations to be performed under this Contract. If a designee is utilized, the designee shall be equally as qualified as the SPOC.

5.3 The SPOC shall not be a working technician or mechanic.

6.0 SCOPE OF WORK

6.1 The selected Contractor shall provide preventative maintenance and corrective repair on the Alimak Hek rack and pinion elevator SE – 400 DOL per the OEM requirements and guidelines (See Attachment A), City of Austin/AE requirements, and all applicable state regulations. The Contractor shall provide the specified unit bid prices to include all services, labor, material, travel expenses, and replacement parts necessary to complete required services in the attached Bid Sheet under Section 0600.

6.1.1 The Contractor shall perform all steps necessary to protect persons and property from risk of harm due to a problem with an elevator.

6.1.2 The Contractor shall maintain the Alimak Hek elevator as in accordance with all federal, state, and local codes. These include, but are not limited to:

6.1.2.1 American National Standards Institute (ANSI) Safety Code A17.1 , or the latest ANSI revision referring to elevator and escalator equipment maintenance and inspection,

6.1.2.2 ADA,

6.1.2.3 American Society of Mechanical Engineers (ASME) A17.1 - Safety Code For Elevators and Escalators,

6.1.2.4 ASME A17.3 - Safety Code For Existing Elevators and Escalators,

6.1.2.5 National Fire Protection Association (NFPA) Supplement 4- Life Safety Code Handbook,

6.1.2.6 Underwriters Laboratories (UL) Standard 1 04 - Elevator Door Locking Devices and Contacts,

6.1.2.7 UL Standard 1084 - Outline of Investigation for Hoistway Cables.

6.1.3 In the event of conflict between this Scope of Work, the Manufacturer's Literature (Attachment B) or any applicable codes, the more stringent terms or revisions shall apply unless otherwise notified in writing by the City.

6.1.4 The Contractor shall perform all preventative maintenance listed in the Alimak Hek Maintenance Manual at the frequencies identified and prescribed.

6.1.5 The price for all preventative maintenance services shall include labor, parts, and consumables, including oil and grease.

6.1.5.1 Any parts, which a preventative maintenance inspection determines must be replaced, (outside of parts required for preventative maintenance), shall be quoted to Austin Energy in writing, and submitted separately as corrective repair issues, on an as needed basis.

6.1.5.2 Materials mark-up shall be capped at 20% of Contractor cost and shall include freight, shipping, and handling costs.

6.1.6 The Contractor shall perform corrective repair services on the Alimak Hek elevator when specifically requested by Austin Energy SHEC staff. All corrective repair services NOT considered an emergency situation or entrapment shall be conducted during scheduled standard working hours.

6.1.7 Contractor shall provide prices for preventive maintenance services, corrective repair service labor rates, and cost for inspection services on the Bid Sheet included as Section 0600 of this solicitation.

1.1 PREVENTATIVE MAINTENANCE

1.1.1 Standard work hours under this contract shall be defined as the hours from 6:00 a.m. to 6:00 p.m., Monday through Friday, with the exception of City-observed holidays. All preventative maintenance services shall be scheduled with SHEC designated staff and shall be completed within, standard work hours.

1.1.2 Contractor shall provide preventative maintenance to the Alimak Hek elevator per the OEM instruction manual and shall replace parts, change oil, or conduct other preventative maintenance service as required.

1.1.3 Contractor shall replace all worn, failed, or broken parts. All replacement parts shall be identical, of equal quality and design, or superior to the parts replaced. Replacement parts may be new or reconditioned.

1.1.4 Contractor shall be responsible for all replacement parts, including OEM and proprietary parts, as required by this Contract. If during the term of the Contract, certain elevator or escalator components become obsolete and new OEM parts may not be available, the Contractor may provide rebuilt OEM parts or use new parts of another manufacturer with prior written approval from the Contract Manager. In all cases, rebuilt or reconditioned parts must be equal in quality, operation, and performance to original parts and free from defects.

1.1.5 Service technicians shall, upon arrival and departure from the premises must sign in at the security desk and report to the SHEC Power Plant Superintendent or their designee.

1.1.5.1 Upon completion of all routine maintenance under this Contract, the service mechanic shall certify that the work was done by reporting findings to the SHEC Power Plant Superintendent or department designee.

1.1.5.2 Payment may be withheld on any unit if scheduled maintenance is not performed, logged incorrectly, illegible, or certification is not submitted as specified.

1.1.6 Contractor shall maintain and keep current the State required Maintenance Control Plan book for the Alimak Hek elevator. This book will be kept and maintained at (administrative assistant's desk).

1.1.6.1 Contractor shall provide a detailed list of services and replaced parts/components that were applied at each preventative maintenance service call with the invoice for payment. Invoices without the required information will be sent back to the Contractor for revision.

1.1.6.2 The Contractor shall dispose of all worn or defective parts, oils, and solvents in accordance with all applicable laws, rules, and regulations. Contractor shall handle, transport, and dispose of worn or defective parts, oils, solvents, waste, or hazardous materials in such a manner as to ensure the highest level of safety to the environment and public health at no additional cost to the City. The Contractor shall not store worn or defective parts on City premises. The Contractor shall remove all materials from City premises as soon as each job is completed.

1.1.6.3 Only repairs due to misuse, vandalism, or requests for by the City in writing for equipment modernization will be eligible for billing outside of the monthly preventative maintenance service.

1.1.6.4 Failure of the Contractor to perform all of the service obligations required under this Contract may result in contract termination by the City.

1.2 CORRECTIVE REPAIR

1.2.1 Corrective repair services shall occur when specifically requested by the SHEC Power Plant Superintendent or their designee, and shall be completed within the standard work hours of 6:00 a.m. to 6:00 p.m., Monday through Friday, with the exception of City-observed holidays, unless the corrective repair required involves an emergency situation as identified by AE/SHEC staff.

1.2.2 The Contractor shall respond to corrective repair, emergency service and entrapment service calls from the AE/SHEC Project Manager or designee within the time frames listed in the table below. If a call is not answered or returned, within the allotted times listed below, the City may choose to engage other parties to answer the call. The Contractor shall absorb any differences in cost if the City engages another party to respond to a call.

Contractor Maximum Response Times	
Non-Emergency Corrective Repair Service Calls	Within 2 hours
Emergency Service Calls	Within 1 hour
Entrapment Service Calls	Within 30 minutes

1.2.3 Contractor shall make every effort to complete corrective repairs within 48 hours of identifying the problem(s). If corrective repairs cannot be made within this designated time frame, the Contractor shall notify the SHEC Power Plant Superintendent or his designee in writing with the schedule for completing the repairs.

1.2.4 Contractor shall provide a written quote for the repair service(s) to be performed to the AE SHEC Project Manager or his designee. All corrective repair work must be approved by the SHEC Power Plant Superintendent or their designee in writing before any work begins.

1.2.5 Emergency corrective repair service will be only be required, when, determined by the AE SHEC POC, the elevator must be returned to working condition within **72 hours**, unless otherwise specified by the SHEC Power Plant Superintendent or their designee. Any emergency corrective repair services performed outside of standard work hours shall be billed at a labor rate per the attached Bid Sheet under Section 0600.

1.2.6 In case of an entrapment, the Contractor shall be on the job site with manpower and materials within thirty (30) minutes of notification. "Entrapment" is defined as anytime a person is stranded in an elevator. If a call for entrapment service is not answered within thirty (30) minutes, AE may choose to engage other parties to answer the call.

1.3 INSPECTIONS

1.3.1 Inspections include required State inspections; weighted, un-weighted, annual, or periodic inspections; those inspections requiring coordination with third parties; and any other inspect ions required to operate elevators and escalators in a safe and lawful manner.

1.3.2 The Contractor shall, at no additional expense to the City, identify, schedule, and ensure completion of all inspections, tests, and operating permits required for compliance. The Contractor shall obtain the necessary information required to determine when inspections, tests, and operating permits are required and shall conduct the five-year full load tests as needed.

1.3.3 The Contractor shall develop a plan within 30 days of the start date of this Contract outlining procedures, requirements, deadlines, and approximate dates for all inspections and tests for approval by the SHEC Power Plant Superintendent or their designee.

1.3.4 The Contractor shall keep a log of all inspections and tests and submit a copy of the log, as well as any corrective measures made in response to scheduled inspections and tests, to the SHEC Power Plant Superintendent or their designee in a quarterly report.

1.3.5 The SHEC Power Plant Superintendent shall have the right of inspection during or after any of this work and shall notify the Contractor within seven (7} calendar days of receipt of the Contractor s certified statement of any noted discrepancies. The Contractor shall correct any discrepancies within ten (10) working days.

1.3.6 Annual Safety Tests shall be performed in the first quarter of each year, or at a time acceptable by the SHEC Power Plant Superintendent on all hydraulic elevators under Contract as per ANSI A17.1, or the latest edition, and furnish a copy of the report to the SHEC Power Plant Superintendent. If an oil leak develops in the buried piping or jack cylinder, the Contractor shall make all necessary efforts to test and determine the location of the leak and advise the SHEC Power Plant Superintendent in writing.

1.4 QUALITY CONTROL/QUALITY ASSURANCE

1.4.1 The Contractor shall implement and maintain a written Quality Control Plan to ensure proper preventative maintenance and inspections scheduled for all equipment covered under a resulting contract. The intent of the Quality Control Plan is to ensure that the maintenance of covered equipment adheres to the scope of work and all subsequent clarifications. The Contractor shall submit the Quality Control Plan to the SHEC Power Plant Superintendent or their designee within 30 days of the contract start date.

1.5 CONTRACT CLOSE-OUT

1.5.1 Thirty (30) days prior to the expiration of any agreement awarded from this solicitation, the Contractor shall inspect and test the Alimak Hek elevator in accordance with accepted inspection and test procedures, and provide Austin Energy SHEC staff with a detailed report of the elevators disposition and repair needs.

ATTACHMENT A

Read and understand this Operation & Maintenance Manual before operating or servicing this equipment.

Operation & Maintenance
SCANDO 450 & 650
Construction Hoist

This manual is only applicable if the manufacturing number indicated below corresponds to the manufacturing number stamped on the identification sign of the equipment. Where there is a conflict contact your ALIMAK representative.

YOUR HOIST HAS:

Manufacturing No.:	**Year:**	Part No. 9100273 - 1 10 2012 - 11 - 01

FOREWORD

This product is designed and manufactured to meet strict quality and safety standards. This manual is intended to provide advice and instructions to the operator and qualified service personnel so that they can safely control the situations which can occur when the product is used, and can carry out the required service and maintenance on the product.

This manual shall always be available in the box on the machine intended for this purpose.

Potential risk for user or equipment is indicated in the following way in this book:

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

IMPORTANT: Information with these headings indicates the possibility of damage to the equipment.

WARNING!

The equipment should not be operated if Operation and Maintenance Manual is missing.

Misuse of this equipment could result in personal injury or property damage.

CONTENTS

Appendix:

ATTACHMENT A

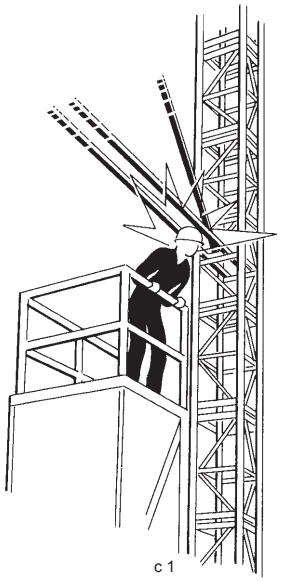
IMPORTANT SAFETY INSTRUCTIONS C 0

ATTACHMENT A

Important Safety Instructions

Over the years serious accidents have occurred during the erection and dismantling of rack and pinion hoists. Common to these accidents has been the ”human factor”, i.e. non adherence to proper safety procedures and common sense.

This document affects the personnel involved in the erection, dismantling and servicing of such equipment.



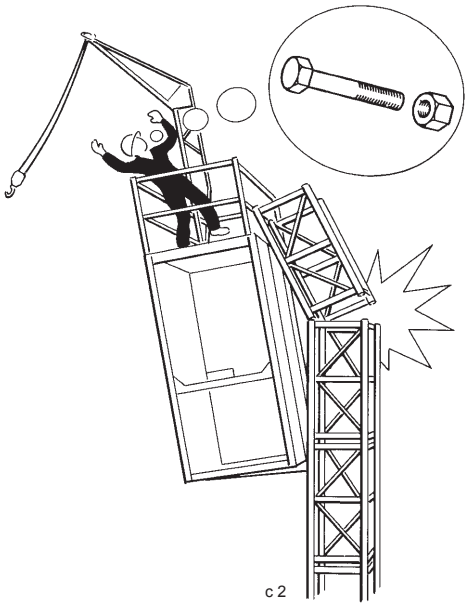
c 1

Some examples:

Leaning over the safety railing on the car roof while the hoist is moving upwards can cause you to be struck by a tie, counter-weight or a cable guide.

Incomplete installation of mast bolts can cause separation of the mast sections, leading to the fall of the car with subsequent loss of life or serious injuries.

Avoid the risk of accidents by carefully studying these instructions regularly. Think clearly! Do not rush the work and always check to make certain that the work is being done properly. SAFETY FIRST!



c 2

Safety instructions

Local safety regulations

– All local regulations shall apply.

Weather conditions – Installation outdoors

– Do not erect or dismantle hoists if wind speed exceeds 12.5 m/s. **(28 mph)** or as governed by local regulations where more stringent.

Preparation

– Read and understand the Instruction Manual before the work begins.

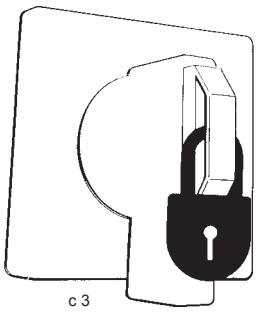
– Barricade or rope off the area before erecting or dismantling.

– No admittance to the hoist car by unauthorized personnel during erection or dismantling by unauthorized personnel.

Safety equipment and protective clothing

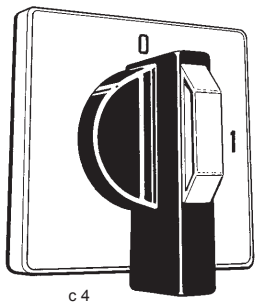
– Prescribed safety equipment and clothing such as hard hat, safety shoes, safety belt, etc. shall be used.

– Loose fitting clothes such as scarves must not be used as they might become entangled in moving parts.



c 3

Always lock the main ”ON/OFF” switch with a padlock to prevent unintentional operation while service/inspection work is carried out.



c 4

The main ”ON/OFF” switch must be in the ”OFF” position before the panel door can be opened.

General

- Read all Warning and Instruction Signs.
- Keep the work area clean. Any oil spillage must be removed immediately to avoid the risk of slipping.
- Never climb on the mast.
- During erection, dismantling or hoistway inspection, the hoist must always be operated from the car roof. When working from the car roof take precautions to avoid being struck by mast ties, cable guides, landings, counterweight, structure openings, etc. while hoist is moving.
- During mast erection/dismantling and when servicing a hoist with dual cars, the main switch at the ground landing, as well as the main switch in the car which is not being serviced, must be switched off and locked. This in order to ensure no accidental moving of the car.
- Before carrying out any service work, the ”Normal/Inspection” switch in the control panel on hoist car must be placed in the ”Inspection” position. This is of greatest importance especially for hoists with ”Auto return” or similar remote control function.
- When the control equipment on the car roof is to be left on temporarily during installation/dismantling or service, the main switch in the control panel of the hoist car must be switched off and locked in order to ensure no accidental moving of the car.
- Under no circumstances the hoist, single or dual, shall be driven if there is a person within the ground enclosure, on the mast or tie.
- ***Complete each item of work before starting a new one or taking a break. This is especially important when bolting mast sections and installing ties.***

Mast and mast ties

- The maximum tie distance, prescribed in the manual or on Installation drawing, must not be exceeded.
- Bolted joints shall always be tightened to the required torque as prescribed by the Instruction Manual.
- If any structural damage or severe corrosion is seen on such items as mast sections or mast ties, the hoist must be immediately taken out of service and the extent of the damage be determined and corrective action taken before the hoist is put into service again.
- All mast accessories required to be installed on the mast must be secured properly during installation in order to avoid the object falling and thereby possibly causing personal injury and/or property damage.

Electrical power

Work performed on electrical equipment must be carried out by competent personnel, trained for such work. The power supply must be switched off and locked before work is performed.

Sound level in hoist car

Sound level in the hoist car during travel was measured at: ≤ 85 db(A).

Spare parts

Unauthorized spare parts are not to be used. Only ”Alimak Genuine Spare Parts” are to be installed.

The user’s own protective measures

Authorization of hoist personnel

A routine that guarantees continuous product training (Authorization), that was done during the hoist installation, must be set and maintained by a responsible person. Contact Alimak or an Alimak representative, if this training is required.

Protection at the landings

It is recommended that overhead protection is furnished at landing entrances to protect against falling objects.

Accessible areas adjacent to hoistway

Scaffolding, platforms and other accessible areas located closer than 0.5 m **(1 ft. 8 in.)** must be provided with 2.0 m **(6 ft. 7 in.)** high enclosures or in accordance with applicable local regulations.
With safety distance 0.5 m **(1 ft. 8 in.)** or more a 1.1 m **(3 ft. 7 in.)** high two row safety railing with toe boards is sufficient – ***if the hoist speed is 0.7 m/sec (135 fpm) or less***.
For speed more than 0.7 m/sec. ***(135 fpm)*** the safety distance must be increased to 0.85 m **(2 ft. 9 in.)** according to SS - EN 12159 # 7.1.2.2.

Illumination of landings

The adequate site lighting shall be provided to illuminate the landings over the full height of travel of the hoist.

Landings erected at site

Each landing shall be dimensioned for the maximum load of the hoist and fulfil the above stated criterias regarding safety distances.

C 4

Inspection after major modifications or accidents

Inspection and testing should be carried out after major modifications or after an accident to make certain that the hoist operates properly.

Working under the hoist car

When working under the hoist car, always secure the car mechanically, by safe means, i.e. the car to mast lock device. Or other suitable certified object.
The hoist's main disconnect switch must always be turned off and padlocked during the operation.

Stop blocks of rubber
Part. No. 9115148-000

Transportation of pallet truck or other wheeled equipment in the hoist car

To prevent such equipment due to malfunction or negligence, may run out of car, stop blocks of rubber or similar mechanical stop on the car floor to be constructed to prevents this.

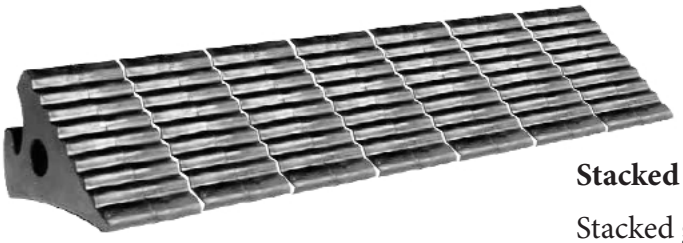
Pallet truck/ equipment including load must not exceed max. load acc. to load sign in the car.

Maximum allowable point load on the car floor from a 100 mm **(4")** wide roller of dia. 100 mm **(4")**:

Plywood floor = 500 kg **(1100 lbs.)** / roller

Aluminium type sandwich floor = 1000 kg **(2200 lbs.)** / roller

Loading/ unloading of the above mentioned equipment must be performed with lowest possible speed.



Assemble several blocks using a rope, chain or threaded rod to suit the equipment in question to be transported

Stacked goods

Stacked goods on pallet or similar that may slide or collapse shall always be properly secured in a safe manner with respect to the risk of crushing.

At the end of the shift

ALWAYS drive down and park the hoist at the base landing, where the machine's best possible location is, if extreme high wind speeds should occur.

Also switch off and lock the main switch with a padlock to prevent unauthorized use.

OPERATING INSTRUCTIONS D 0

ATTACHMENT A

Instructions for use

Instructions to the user/operator on how the equipment is to be handled are presented below. These instructions will also be found on a plate in the hoist car.

Illegible and missing signs must be replaced.

SAFETY INSTRUCTIONS

Prior to any use of this hoist perform daily safety procedures below, as well as any required maintenance and lubrication specified in the Operator's Manual.

DAILY PRE-OPERATION CHECKS

1. Check that all emergency stop switches and the final limit switch are working.

   Make test runs with each one of the switches in "Off"-position.

2. Check all electrical interlocks by making test runs with:

   a) Ground enclosure gate open.
   b) Car entrance gate open.
   c) Car exit gate open.
   d) With car trap door open.
   e) Each landing gate open.
   f) Wire equalizer switch in "Off" -position – if supplied.

   The hoist must not start. Be sure to check only one switch at a time.

3. Check all mechanical interlocks by making test runs and at the same time try to open the gates.

   Car and landing gates must remain locked until the car stops at the landing.

4. Check the condition and function of all springs on all cable guids.

5. Check function of limit switches by making test runs.

   Also check fastening of all limit ramps and switches.

6. Equipment and materials not associated with the hoist shall not be attached to the hoist in any manner.

SPECIAL WEATHER CONDITIONS

1. In case of storms, tornados, hurricanes or earthquakes, all vital parts of the hoist must be inspected and tested by an expert or authorized local inspector prior to use of the hoist.

2. Hoist installed outdoors must not be used when wind velocities exceed 20 m/sec. ***(For USA and Canada 40 mph).***

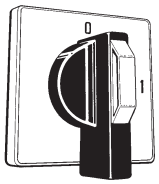
3. Always park the hoist at the bottom landing at the completition of work to prevent collapse of the equipment, should extreme high wind speeds occur. Where icing can take place, remove ice from mast and hoist cables before using hoist.

Note that the user/operator is responsible for ensuring that the daily "Safety Inspection" has been carried out BEFORE the hoist is put into service.

D 2

Operating instructions

Control equipment, relay control with joystick



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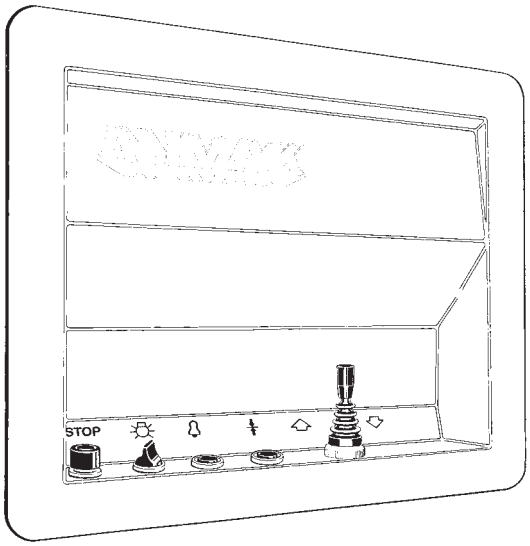


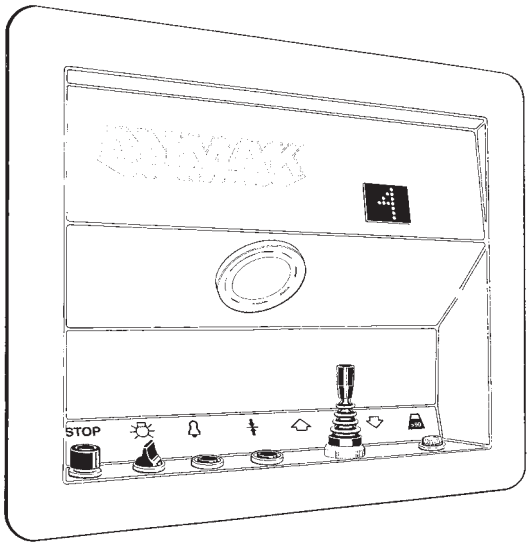
1. Check that there is nothing which can constitute an obstacle in the path of the hoist.
   Keep this constantly under observation.
2. Switch on the main ON/OFF switch at the ground landing.
3. Make sure that the maximum permissible load, according to the information on the load plates in the hoist, is not exceeded.
4. Close the landing gates and the hoist car gates fully.
5. Move the joystick towards the symbol for the desired direction of travel. The hoist will now start.
   The joystick will automatically return to the mid position and the hoist will stop as soon as the joystick is released – if the control circuit is wired ***WITHOUT*** self-holding contactors.

   The Stop button must be depressed if the control circuit is wired ***WITH*** self-holding contactors.

   If the hoist mast is provided with cams for ”Stop Next Landing”; Depress the button with the symbol for this function ***just before you have reached the desired landing.*** The hoist car will then stop automatically at the level at the landing.

   At top and bottom landings the hoist car will stop automatically due to the limit cams in the mast.

Control equipment, ALC with joystick



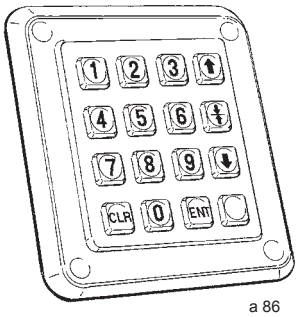
1. Check that there is nothing which can constitute an obstacle in the path of the hoist.
   Keep this constantly under observation.
2. Switch on the main ON/OFF switch at the ground landing.
3. Make sure that the maximum permissible load, according to the information on the load plates in the hoist, is not exceeded.
4. Close the landing gates and the hoist car gates fully.
5. Move the joystick towards the symbol for the desired direction of travel. The hoist will now start. (Control circuit wired ***with*** self-holding contactors.)
6. Depress the ”Stop Next Landing” button, ***just before you have reached the desired landing.*** The hoist car will then stop automatically at the level at the landing.

   At top and bottom landings the hoist car will stop automatically due to the limit cams in the mast.

Control equipment, ALC with keypad

Press the button(s) for required landing. The hoist will automatically stop at the selected landing.

Example:
If you want to stop at the 12th landing;
Push button 1 + 2 and end finish by pushing the ENT. button



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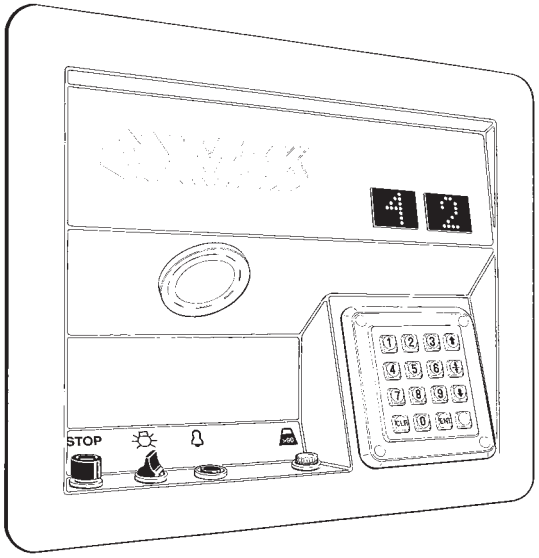
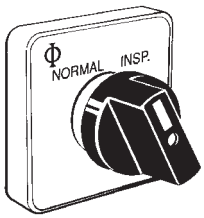


When carrying out service and inspection work

When it is necessary to operate the hoist from the car roof, in order to carry out service and inspection work, the switch in the electric cabinet in the hoist car shall be set in the ”Inspection” position. The switch then breaks the self-holding function of the control system and the landing control circuits. This means that the hoist will stop as soon as the push button / joystick is released and that the hoist can ***only*** be operated from the roof of the car.

Note: This switch is located outside the car roof electrical panel for hoists delivered to Australia.

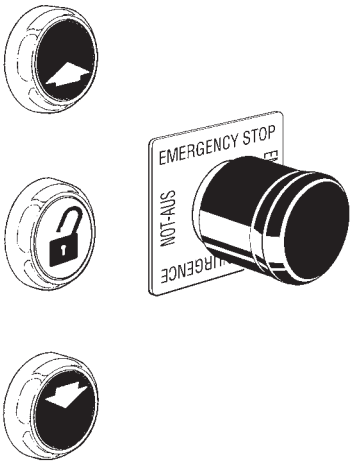


Additional functions ”Run enable” and ”Soft-stop”

Frequency converter operated hoists have both feature ”Run enable” and ”Soft-stop” working together on the same push-button.

The features are used according to the following but in Inspection mode, only:

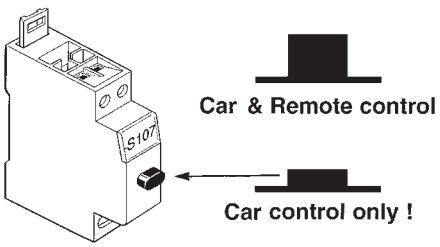
- First push the ”Run enable” push-button marked with an opened up padlock.
- Choose direction and push the ”Up” or ”Down” push-button.
- Release the ”Up”/”Down” push-button at the intended level – but keep the ”Run enable” push-button depressed until the hoist stops.



Selector switch ”Car only”

The selector switch ”Car only” (marked -S 107) inside the B-panel disconnects all signals from the landings, which means that the hoist can only be operated from inside the car.

Ensure that this switch is actuated when intended to run the car in operator control mode only.

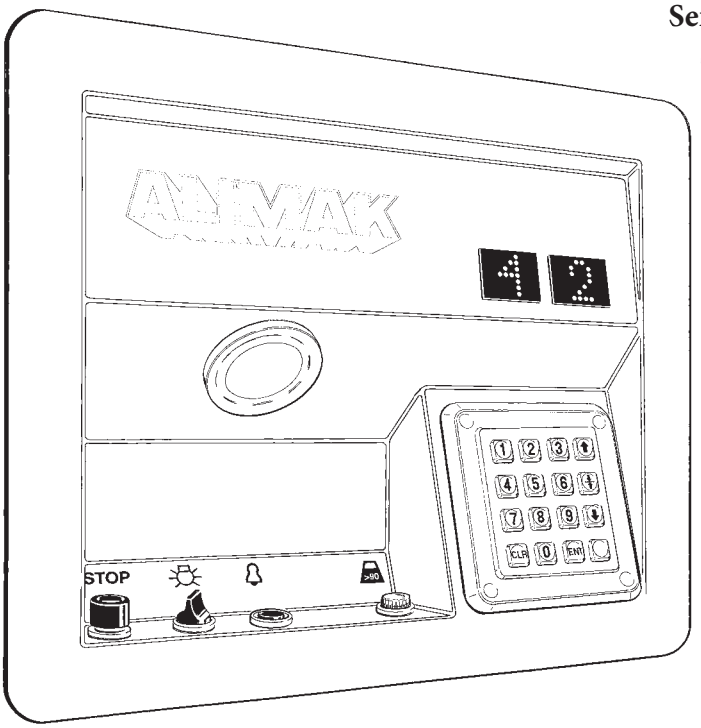


Alimak Lift Control ALC

Two different control systems

In the main software there are two different control systems available:

Semi-Automatic (or Stop Next Landing) and ***Collective.***



Semi-Automatic control system

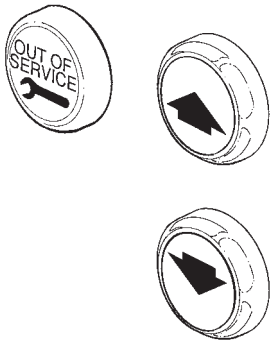
This is the most common control system available in the ALC controller and operates without any landing cams. The position of the hoist is determined by counting impulses generated by the pulse encoder attached to the car.

The hoist can be operated from inside the car and if chosen, also from the landings by using Up, Down and Stop Next Landing push-buttons.

By pressing a button for Up or Down, the hoist starts travelling in the chosen direction. When the hoist approaches the desired landing, the button Stop Next Landing is pressed. The car will then stop automatically at the landing.

Calls/destinations from the landing box unit with Up, Down and Stop Next Landing push-buttons operate on 230 VAC control wires between the car and the landings via the base-panel.

A destination order from the car has three seconds priority over landing calls.

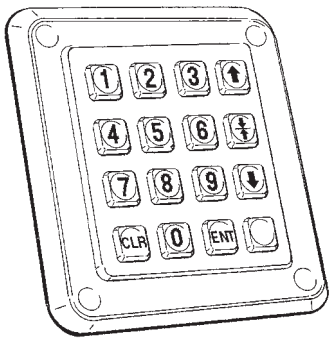


Collective control system

This is the most advanced control system available in the ALC controller. The hoist can be operated from inside the car by destination push-buttons and if chosen, also from the landings. Each landing is provided with two call buttons, one for each direction of travel.

This system receives all destination orders from inside the car, as well as calls from the landings. The information is memorized and processed within the system. During the travel the hoist will automatically stop at all floors which have been addressed.

If operation from inside the car is done by means of the keypad, access to the Stop Next Landing control system is automatic. The keypad is consisting of 15 push-buttons. 12 of them are for the collective system: 0 – 9, ENT and CLR. The other three push-buttons are for the Stop Next Landing system: Up, Down and Stop Next Landing, which operate in parallel with the collective system.



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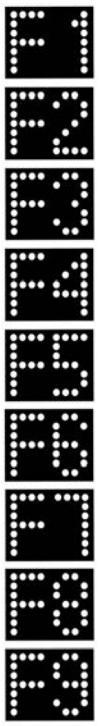
On every landing there is one I/O-card with two external illuminated call buttons; one for each direction of travel. The I/O-cards are connected to a six wire communication circuit that terminates in a base CPU (Central Processor Unit) inside the base panel. The information is transmitted from the base CPU to the hoist CPU (main unit) on a two wire communication circuit in the trailing cable.

Information and fault indications on displays

A hoist equipped with the ALIMAK ALC control system and landing level display on the hoist electrical panel has access to a fault indication system. Faults indicated at the display are the following:



 Safety circuit broken

 Door circuit open with hoist between landings

 Fault in door closing sequence

 Overload

 Hoist in Inspection or in Programming mode

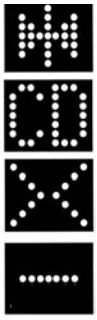
 Hoist does not start within start time/ fault on pulse encoder

 Pushed in emergency stop button at base landing

 Speed fault / Config. fault / Calib. fault / Over heat

 Fault in control circuit

Information



 Door(s) open

 Calibration drive

 Inside car; Closed landing
At the base landing; connection to the car CPU broken

 Landing circuits disconnected at the base level
(Operation from car only)

See separate manual P/N 9081 541- sub. for detailed ALC programming instructions.

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If the hoist does not start – check:

- that the main ON/OFF switch at the ground landing is in the ”ON” position and that the hoist is supplied with electric power.
- that no ”Emergency Stop Button” is in its depressed position.
- that the final limit switch is not activated. If the final limit switch is activated – see heading ”Manual cranking”.
- that the roof trapdoor and car gates are fully closed.
- that all the landing bars or gates are fully closed.
- that the ”Normal/Inspection” switch in the electric cabinet in the car is in the ”Normal” position.
- that no circuit breaker for control power has tripped out.

If the hoist still does not start, see the instructions in the section ”Electric troubleshooting”.

If the hoist suddenly stops

If the hoist stops between landings due to a power failure or any other electric failure, such as blown fuses, tripped motor, overload protector, etc., it can be manually lowered to the next lower landing for unloading.

Only slide the hoist short distances at very low speed in order not to exceed the normal operating speed of the hoist. If excess speed occurs, the hoist's safety device will automatically trip and stop the hoist.

If the safety device trips during sliding

There is NO power to the drive motor

1. Crank the hoist approximately 20 cm **(8 in.)** upwards according to the instructions ”Cranking” to release the mechanism of the safety device.
2. Try to slide the hoist again.

The safety device can be allowed to trip 2 to 3 times – before it MUST be reset to neutral position

The reason why the safety device must be reset is that the brake cone after each tripping will be forced harder against the brake lining, stopping distance will be decreased and braking more abrupt.

Note that the safety device MUST be reset as soon as the hoist reaches the ground!

Sliding

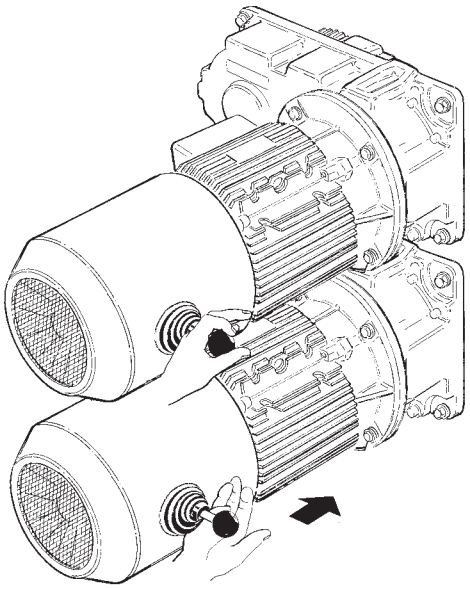
1. First check applicable items on previous page.
2. Switch off the main ON/OFF switch on the electrical cabinet.

Manual sliding with the motor brake lever

– Open the trap door and climb to the car roof.

– Lift the brake lifter/-s on the motor to allow the car to slide down to the next lower landing.

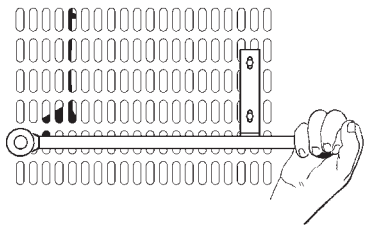
IMPORTANT: Only slide short distances with maximum 1/3 of normal operating speed. Stop at least 5 (five) minutes every 20 meters (65 ft.) so that the brakes have time to cool off. Overheating can cause the brake function to deteriorate.



The 3rd el motor brake can be disengaged with an ratcheted tie down, where applicable.

Sliding by means of optional centrifugal brake

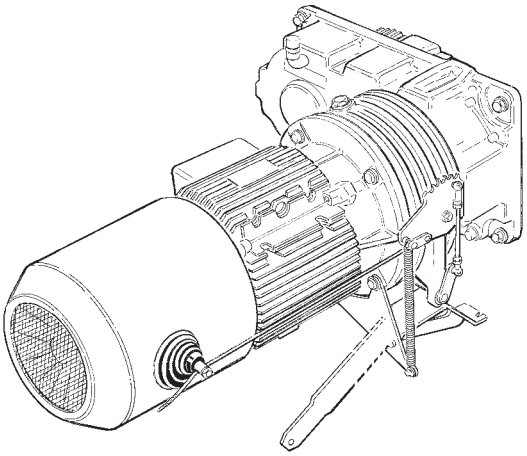
– Pull the brake release handle downwards and keep it down to allow the car to slide down to the next lower landing.



Brake release handle inside the car

IMPORTANT: Always lower handle to its most bottom position to prevent overheating of motor brake. Release the handle immidiately if power suddenly comes back and the lift starts.

If sliding of the car is not possible – stay in the car and call for assistance.



It is possible to manually slide the machinery with the lever on the centrifugal brake too

Construction hoist with electrohydraulic load ramp

Construction hoists with foldable electrohydraulic load ramp must be lowered gradually, in steps to the bottom landing to offer passengers to leave the car in a safe manner – via the entrance door.

Reason for this is that the electrohydraulic load ramp cannot be operated without electrical power.

DANGER!

Falling hazard.

Take no risks exiting the car – wait for assistance.

Will cause severe personal injury or death.

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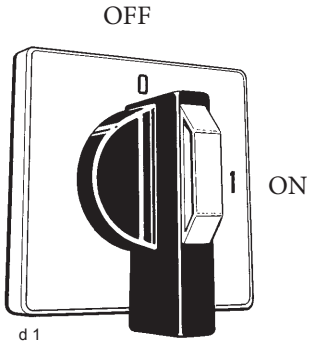
If the hoist has been driven against the lower final limit cam

If, due to heavy load and poor brake function, the hoist has been driven against the final limit cam at the bottom landing so that the power to the drive unit has been cut off, the hoist can be cranked back manually to the normal landing level.

The motor brake should be checked by trained/authorized personnel, before the hoist is put back into service.



WARNING!

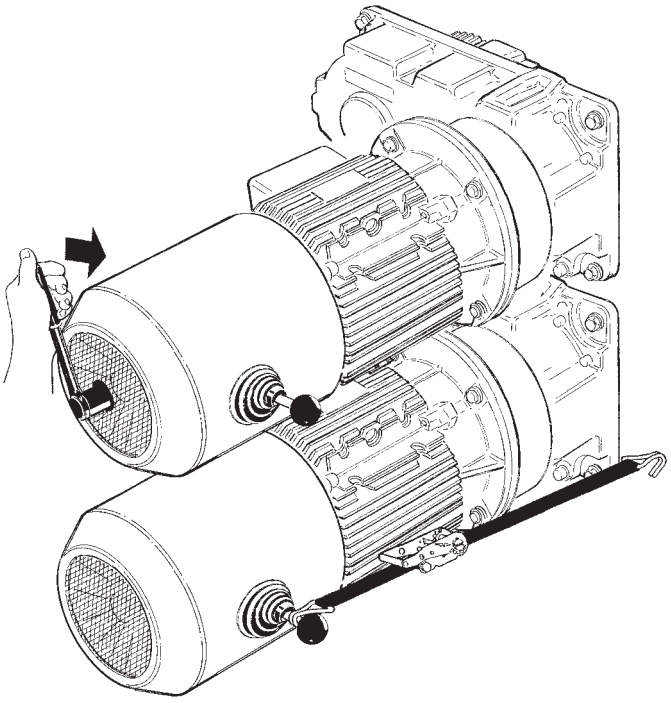
Crushing hazard.

Always disconnect the power by means of the main switch on the electrical panel before working on the machinery.

Can cause severe personal injury.

Cranking

1. Release the lower brake (or both lower brakes on 3 motor machinery) with one / two ratcheted tie down.
2. Apply a ratchet spanner with socket dia. 19 mm on the hexagon shaft end of the brake motor.
3. Pull the ratchet spanner on the applied motor brake in clockwise direction.



WARNING!

Violent stroke of the ratchet spanner.

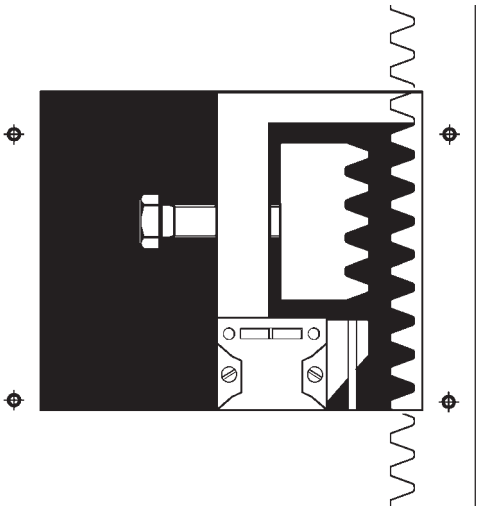
Do not release ALL brakes at the same time when the ratchet spanner is applied on the shaft end of the brake motor.

Can cause severe personal injury.

Note. The hoist can be driven off the final limit cam by using the equipment intended for drop test. See headline **”Drop test”** in chapter Service and Maintenance for instructions.

Securing the hoist car on the mast

A car locking device is located behind a cover panel in the car wall – intended to be used during transport of the hoist base unit, or when service work is to be carried out on the mast under the car. The car locking device can be applied anywhere on the mast's rack.



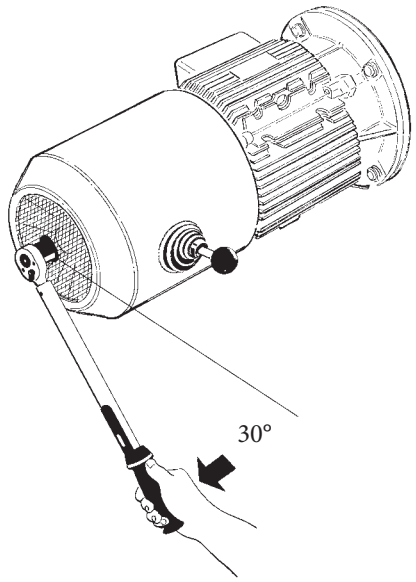
Function

Remove the cover panel.

Push the cog segment in proper location and tighten it fully against the mast's rack with the M-16 bolt provided.

AFTER use – reset the cog segment to its outermost position. The locking device is mechanically interlocked and electrically supervised in such way that the covering panel cannot be reinstalled if the cog segment is not fully reset. A cam, rear on the cover panel closes an electrical contact in the hoist's safety circuit when properly reinstalled.

The hoist cannot be started if the cover panel is missing.



IMPORTANT

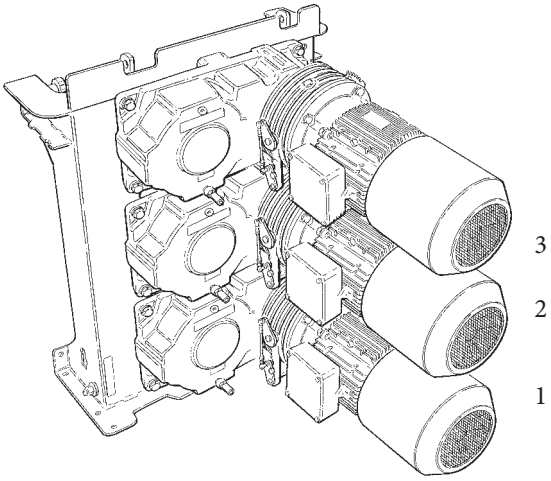
In conjunction with disassembling the drive unit from car ...

... the motor brakes must be lifted and the drive unit lowered by gravity so that the car's own weight and possible load are transferred from the drive unit's pull rods – ***to the car locking device cog segment and the mast's rack.***

Before resetting the cog lock segment ...

... in conjunction with assembling the drive unit, the electric motors must be cranked in upwards direction with a ratchet spanner (approx. 30°) one by one in sequence 1st, 2nd and 3rd, as noted below.

Repeating the procedure – ***until the car's own weight is placed on the machinery's pull rods.***



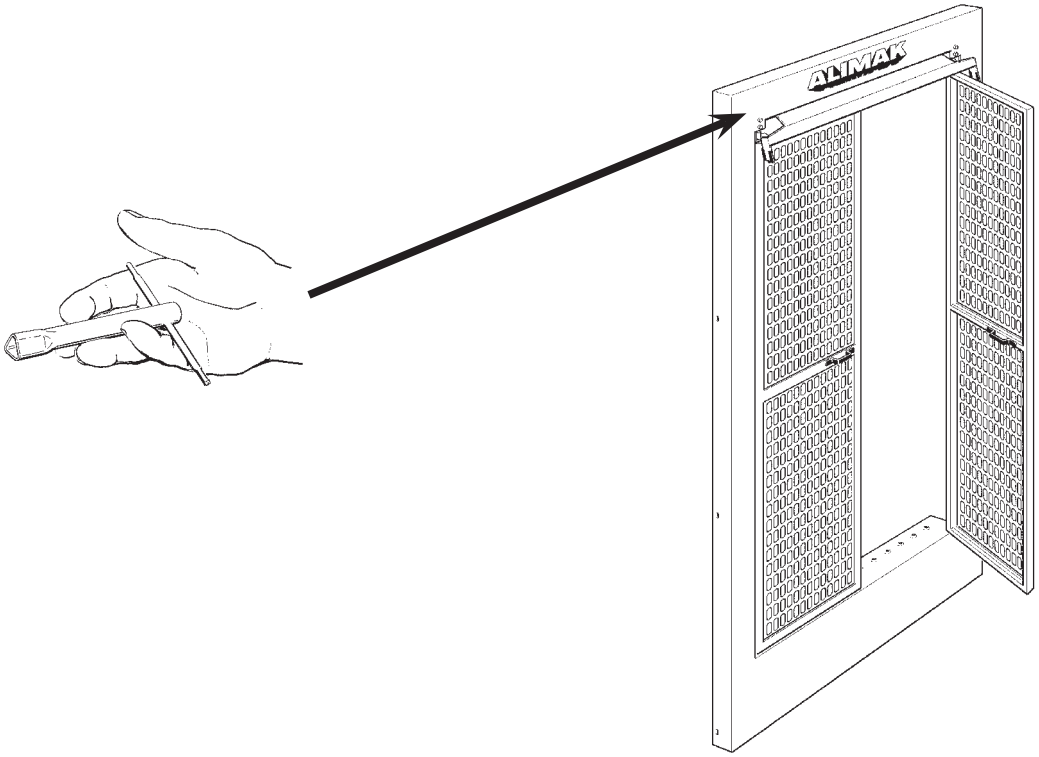
During the operation described above the car must be located at the base landing and the main power switch turned and locked with a padlock in Off-position to prevent accidental starting in downwards direction.

The ratchet spanner must NOT be replaced with a fixed wrench due to the ratchet spanner's free rotating in opposite direction.

Emergency access to car and enclosure

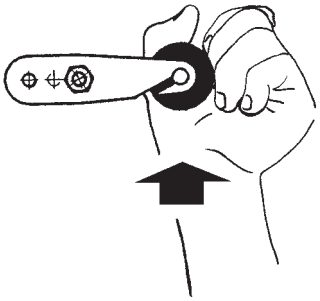
Door in ground enclosure

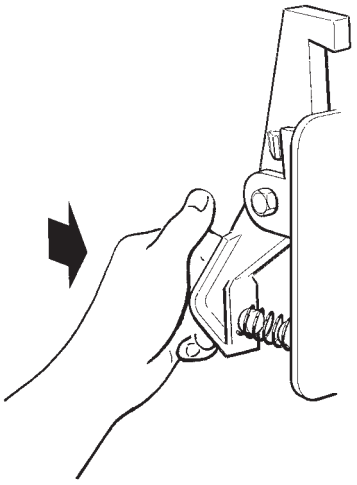
– Use the triangular key from the hoist tool kit to release the ground enclosure interlock and enable the door to be opened from the outside.



Door lock of mechanical type with integrated electric switch or with separate electric switch

– From the inside of the ground enclosure the door interlock is released by pushing the actuator on the door interlock.

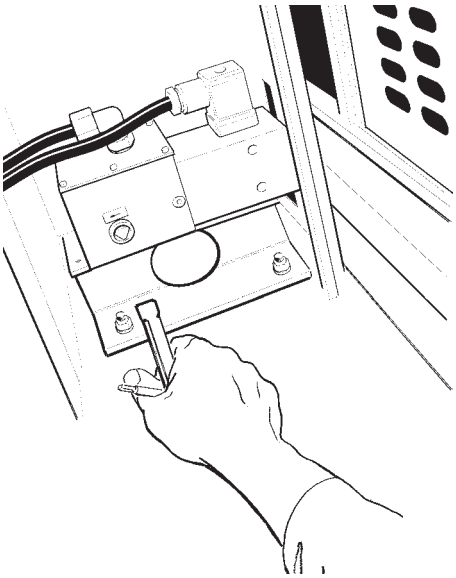


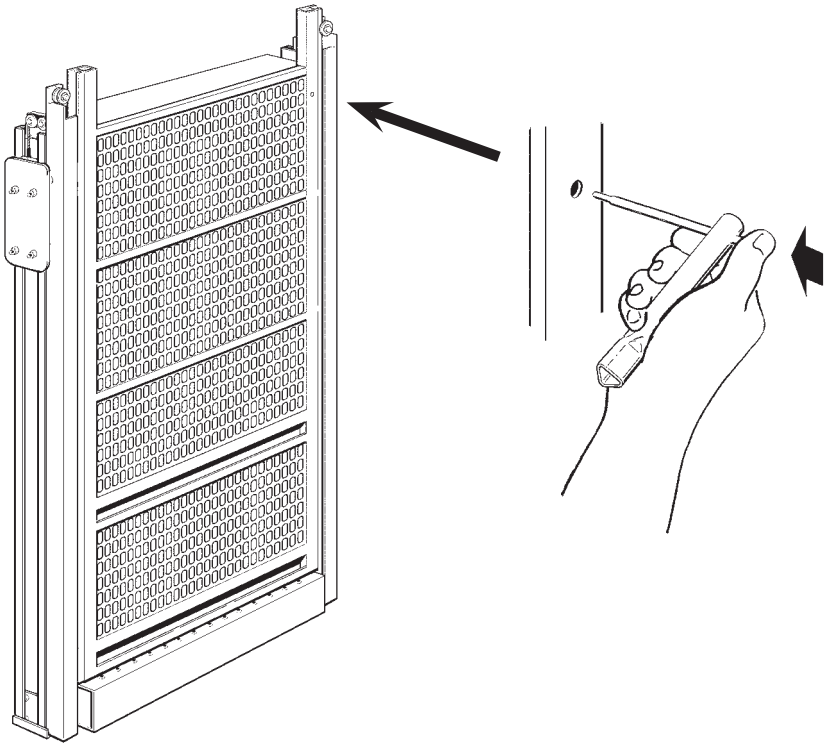


Doors on car

Door lock of solenoid type with integrated electric switch

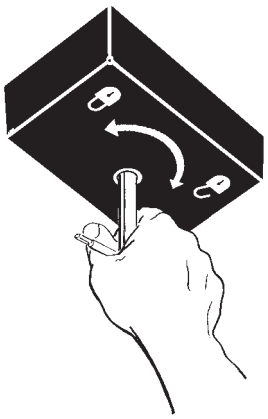
- From the inside of the car the door interlock is released by turning the solenoid's lock shaft to unlocked position.
- Use the key to manually push the lock solenoid in unlocked position to enable the door to be opened from the outside.



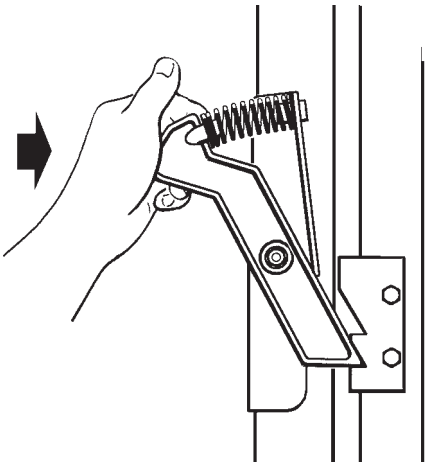


Door lock of mechanical type with separate electric switch

- Use the triangular key to open the trap door and climb up on the roof.



- From the outside of the car the interlock of the door is released by pushing the interlock hook to released position.



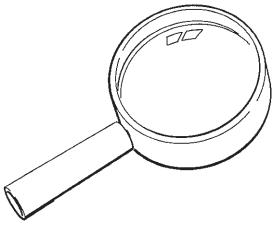
ATTACHMENT A

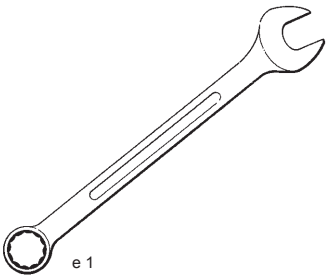
SERVICE AND MAINTENANCE

ATTACHMENT A

Service and maintenance

In order to avoid unnecessary breakdowns, those responsible for the service and maintenance of this equipment must regularly ensure that all scheduled maintenance work is carried out at the recommended intervals according to the maintenance program below.
Adjustments and replacement as a result of inspection, must be carried out by trained/authorized service personnel.
Only ALIMAK Genuine Spare Parts must be used.





WARNING!

Unintended operation.

Always put the hoist's "Normal/Inspection" switch in Inspection position before carrying out any service work.
When leaving the car without having completed the service work or to carry out service, the main switch must be switched off, locked and tagged.
Failure to follow this warning can cause death or personal injury.

Service intervals

Intervals based on operating time shall be followed in the first instance. If the hoist is used only periodically, the first applicable interval to be reached shall be followed.

Frequent starts and stops!

Service interval 60 hours is based on operation on low rise buildings, with 4 storeys (approx. 12 m) or less, common in Sweden and northern Europe.

For 6 storeys (approx. 18 m) or more, corresponding service intervals can be increased to 120 hours but never exceeding once a month.

Checklist (log book)

Checklist, with room for notes on maintenance executed, will be found at the end of this manual. Use it!

Service and maintenance schedule

See the **appendix** at the end of this manual for bolt tightening torques.

Interval		Part	Instructions
60 operating hours or at least once every month	2.	Sign plates/ instruction manuals	Check that all signs are in position according to the spare parts manual, and that they are legible. Check also that the documentation according to the documentation box is available.
	3.	Safety device	Check with the user/users if the safety device has been tripping without cause or if noise can be heard from the device during operation. For further details, see the instructions for checking wear on the safety device under the heading "Adjustment and wear limits"

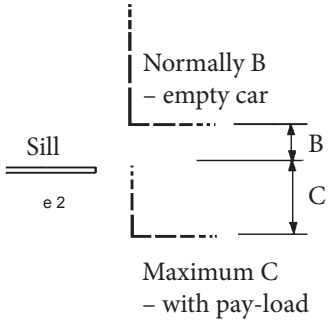
Interval		Part	Instructions
	4.	Gear box	Check the oil level and refill, if necessary. Leaking seals shall be replaced by trained/authorized personnel.
	5.	Counter roller(s) at the rear of the machinery plate and safety hooks, guide rollers on the hoist car frame.	Check that all bolt joints are properly tightened.
	6.	Attachment of machinery and safety device	Check that all screw joints are properly tightened.
	7.	Electric motor brakes	Check that the car stops within acceptable limits, specified later in this chapter. See the special instruction for checking the brake torque with a spring balance – if car stopping positions exceeds stated values. Check the play between the electromagnet armature and the rotating brake disc according to instructions later in this chapter.
	8.	Hoist cable(s)	Check the cable for wear and to ensure that no kinks occur. Check also the attachment of the cable in the cable support arm on the hoist car and the fixture in the hoist mast – where a cable guiding device and trolley are furnished.
	9.	Cable basket, where applicable	Clean the cable basket. If the cable guiding device is of a type for power and control cables, which has been taped together, check the tape and, if necessary, reinforce it along the entire length of the cable.
	10.	Interlocks	Check the function of all mechanical and electrical interlocks on all landings and on the hoist car. See the instructions under ”Safety Instructions”.
	11.	Car floor and roof	Clean the car floor and roof.
	12.	Scaffolding adjacent to hoist	Check that the distance from the hoist car to landings, scaffolding, balconies windows or any other location where persons may find themselves, are not less than regulations dictate. Point out any infringements and risks of injuries to the site manager.
	13.	Lubricating	See the instructions in the ”Lubrication diagram”. Also check the rack and counterweight guide rail for possible damages, misalignment and attachment, when lubricating.
	14.	Optional hydr. load ramp	See the instructions ”Maintenance instructions for optional el./hydraulic load ramp” later in this chapter.
120 operating hours or at least 6 times a year	20.		
	21.	Hoist mast	Check visually that all screw joints of all racks and mast joints are properly tightened. Also check the screw joints for attaching the mast to the base frame.
	22.	Mast ties	Check that all screw joints in all mast ties are properly tightened. Also check attachment to structure.
	23.	Final- and normal limit switches with associated cams	Check attachment and function.
	24.	Cable guides	Check the cable guides with regard to attachment, function and installation in the mast in relation to the cable support arm on the hoist car.
	25.	Cable trolley, where applicable	Check that the cable trolley does not come in contact with the buffer frame at the ground landing and that the trolley is parallel to the mast tubes. Check also the function, attachment and wear on the guide and cable rollers and that the cable wheel on the trolley runs smoothly.

Interval		Part	Instructions
	26.	Base slab/pit	Remove all debris (or trash), which may have fallen on/into the base (or pit).
	27.	Gates on hoist car and enclosures	Check the function, attachment and wear on rollers and wire ropes. Check to ensure that rubber absorbers are in place. Also check that the rubber cover for the biparting gate is in place. Contact Alimak or representative if an oil leakage occurs on el./hydraulic load ramp – where applicable.
	28.	Buffers for hoist car	Check that the buffers are in position and in a proper condition.
	29.	Signal equipment and lighting	Check the function of the control device, alarm signal, lighting, automatic stop at landings and, where applicable, voice communication system.
	30.	Emergency lighting	Switch off the main ON/OFF switch in the hoist car and check to ensure that the emergency light functions. Switch on the main ON/OFF switch and check that the LED on the battery charger is illuminated. Applicable for battery charger to DOL driven hoists without floor call selecting system, type ALC – only.
	31.	Rack and pinion	Check the wear on the rack and pinion according to the instructions under the heading ”Adjustment and wear limits”.
	32.	Enclosures	Check that there is nothing in the vicinity of the landings, which can be used as a ladder, or can reduce the correct height of the enclosure in any way. Point out any infringements and risks of injuries to the site manager.
	33.	Lubricating	See the instructions in the ”Lubrication diagram”.
	34.	Emergency lowering device – where appl.	Check by test that the emergency lowering device works properly and that the handle is fully reset after operation. See the instructions in the under heading ”Optional centrifugal brake”.
400 operating hours or at least 4 times a year	40.	Guide rollers	Check wear and bearing play of the hoist car rollers. Also check that the rollers can move axially. Adjustment and replacement, when required shall be carried out by trained/authorized service personnel.
	41.	Electric motor	If necessary, clean the cooling flanges of the electric motor. Have the electric motor’s permanently greased ball bearings replaced after 20.000 hours of operation by appropriately qualified personnel. Please contact Alimak Service department to schedule replacement.
	42.	Lubricating	See the instructions in the ”Lubrication diagram”.
	43.	Overload sensing system – where applicable	Overload test to probe overload sensing system.
	44.	Optional erection crane hoists – where appl.	See separate documentation regarding maintenance of optional erection crane hoists.
600 operating hours or at least 2 times a year	48.	Safety device	Test the safety device according to the instructions under the heading ”Drop test”.
	49.	Motor brakes	Test motor brakes according to the instructions under the heading ”Static test of motor brakes”.
1000 operating hours or at least once a year	50.	Shaft coupling	Check vibrations and listen for noise from shaft couplings between motors and gear boxes. If play occurs, service must be carried out by trained authorized personnel.
	51.	Electric wiring	Check all wires, sealing glands and connections.
	52.	Motor overload protector	Check that the motor overload protector is set to the rated current on the data plate for the electric motor.

E 4

Interval		Part	Instructions
	53.	Deformations/ mechanical damage	Inspect the equipment visually in its entirety for deformation/mechanical damage to mast tubes, diagonal members of the mast sections, mast ties, gates, protective rails, floors, etc. This inspection and any actions, which may be necessary after the inspection must be performed by trained/authorized service personnel.
	54.	Corrosion, damage and wear	Inspect the equipment in its entirety for corrosion and wear on loadbearing and force-absorbing components by the aid of an ultrasonic thickness mea--suring instrument. This inspection and any actions which may need to be taken after the inspection must be performed by trained/authorized service personnel. A method for internal corrosion protection of the mast tubes is available, please contact your ALIMAK representative.
	55.	Hoist mast	Check that all screw joints of all racks and mast joints are properly tightened. Also check the screw joints for attaching the mast in the base.
	56.	Lubricating	See the instructions in the ”Lubrication diagram”.
	57.	Centrifugal brake – where applicable	Dismantle the brake motor from the centrifugal brake and inspect the brake hub with linings. See the instructions in the under heading ”Optional centrifugal brake”.
	58.	El./hydraulic operated load ramp – where applicable	Check the hydraulic system’s chock load valve. The load ramp must be able to close with a 20 kg weight placed farthest out on ramp. But NOT be able to closed if the weight exceeds 25 kg or more. For further details, see end of this chapter.
	59.	Hydraulic oil buffers – where applicable	Check the hydraulic oil level on the buffer’s dip stick and refill, if necessary. Make a test run with the hydraulic buffer’s limit switch in ”Off”-position The hoist must NOT start. Put suitable object between the hydraulic buffer’s push rod and the limit switch’s actuator during the test.
Annually	60.	Complete hoist	Have the complete hoist checked by a qualified technician.
	61.	Corrosion protection devices	Replace the corrosion protection devices which are located inside the elec-trical panels according to the following: Main panel (M-panel) 2 pcs. P/N 3002 301-105 Car top control panel (VFC) 2 pcs. P/N 3002 301-105 Car top control panel (DOL) 1 pcs. P/N 3002 301-101 Base panel (B-panel) 1 pcs. P/N 3002 301-105 Landing control stations 1 pcs. P/N 3002 301-101
Every 4th year or ***latest*** according to sign on the safety device	62.	Safety device	Replace the complete safety device by returning the device to the Alimak Factory. Only Alimak factory tested devices are to be used. The safety device is sealed and unsealing the device is prohibited.

E 6



Adjustment and wear limits

Car stopping positions

If the distance between actual stopping positions empty/ fully loaded car exceeds value A stated below, the brakes must be checked by trained/authorized service personnel.

Note: Parking brakes for VFC operated hoists must ALSO be checked for proper function by testing with rated load or by torque wrench.

Hoist type	A	B	C
with direct started el. motors	110 mm **(4.3 in.)**	40 mm **(1.6 in.)**	70 mm **(2.7 in.)**
ALC II controlled direct on line started electric motors	60 mm (2.4 in.)	30 mm (1.2 in.)	30 mm (1.2 in.)
with VFC operated el. motors	10 mm **(.4 in.)**	5 mm **(.2 in.)**	5 mm **(.2 in.)**

Static test of brake torque

A static motor brake test shall be carried out at least 2 times a year – preferable in conjunction with the safety device drop test.

Single motor machineries

Single motor machineries are tested statically with rated load and additionally 25% overload loaded in the car.

Dual or triple motor machineries

Dual or triple motor machineries are tested statically with rated load and one motor brake disengaged, ascertaining that the car does not start to move during the test.

Checking brake torque with torque wrench

To be carried out periodically by trained service personnel ONLY!

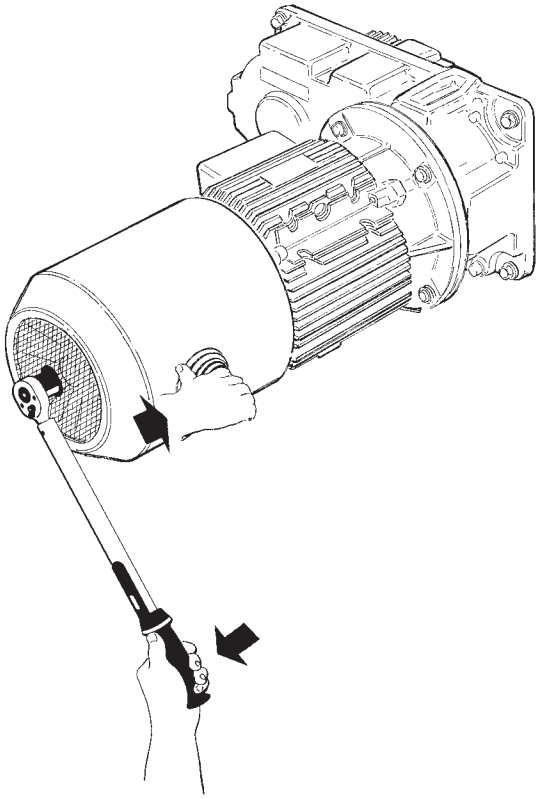
If the machinery is of single motor design the hoist car must be lowered and resting on the buffer springs before checking is allowed to take place.

WARNING!

Violent stroke by the wrench

Switch off and lock out power supply before checking brake torque.

Can cause severe personal injury.



This test is carried out by means of a 19 mm socket and a torque wrench applied on the motor shaft according to the following:

- Release the brake and turn the lever up and down to determine the total cog play.
- Then turn the wrench upwards, within the determined cog play.

  Alternative: The car to mast lock device can be used to ease this procedure.
- Reapply the brake and pull the torque wrench downwards until the brake starts to slide.

If the brake starts to slide before the torque wrench does – adjust the torque wrench to a lower torque and repeat the procedure until the actual brake torque is determined.

The electromagnetic disc brake shall have indicated torque ±15%.

If indicated brake torques are not achieved, call for trained authorized personnel.

Motor power	Brake torque
7,5 / 8,8 kW	170 Nm
11 / 13 kW	170 Nm
22 / 27,6 kW	170 Nm
	(125 lbf. x ft)

E 8

Inspection of friction disc and electromagnet Motor brake type Binder

WARNING!

Unintended operation

Bring the car down to rest on the buffer springs. Switch off, lock and tag the main switch before inspection can take place.

Can cause severe bodily injury or death.

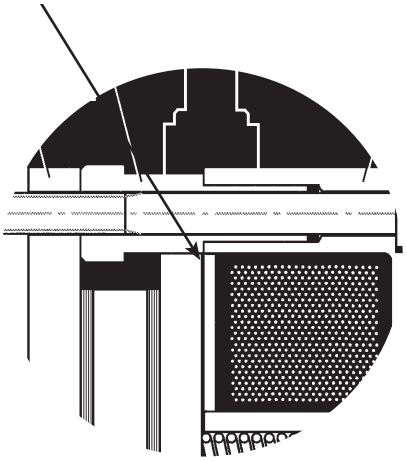
Check air gap by means of a feeler gauge.

Replace the friction disc

The friction disc must be replaced before the air-gap exceeds maximum (B) mm. Nominal value (A) mm.

Fixing bolts (6 pcs) tightening torque: 25 Nm

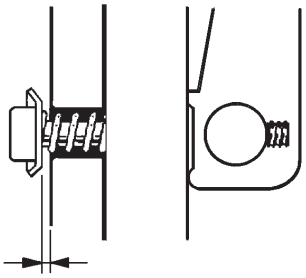
Air gap A / B between magnet housing and armature



Motor size	Nominal air gap A	Maximum air gap B	Air gap C	Nominal coil resistance D
8.8 kW	0.35 mm	1.5 mm	1.7 mm	≈ 130 Ohm
13 kW	0.35 mm	1.5 mm	1.7 mm	≈ 130 Ohm

Hand release mechanism

Check air gap (C) for manual release device according to sketch.



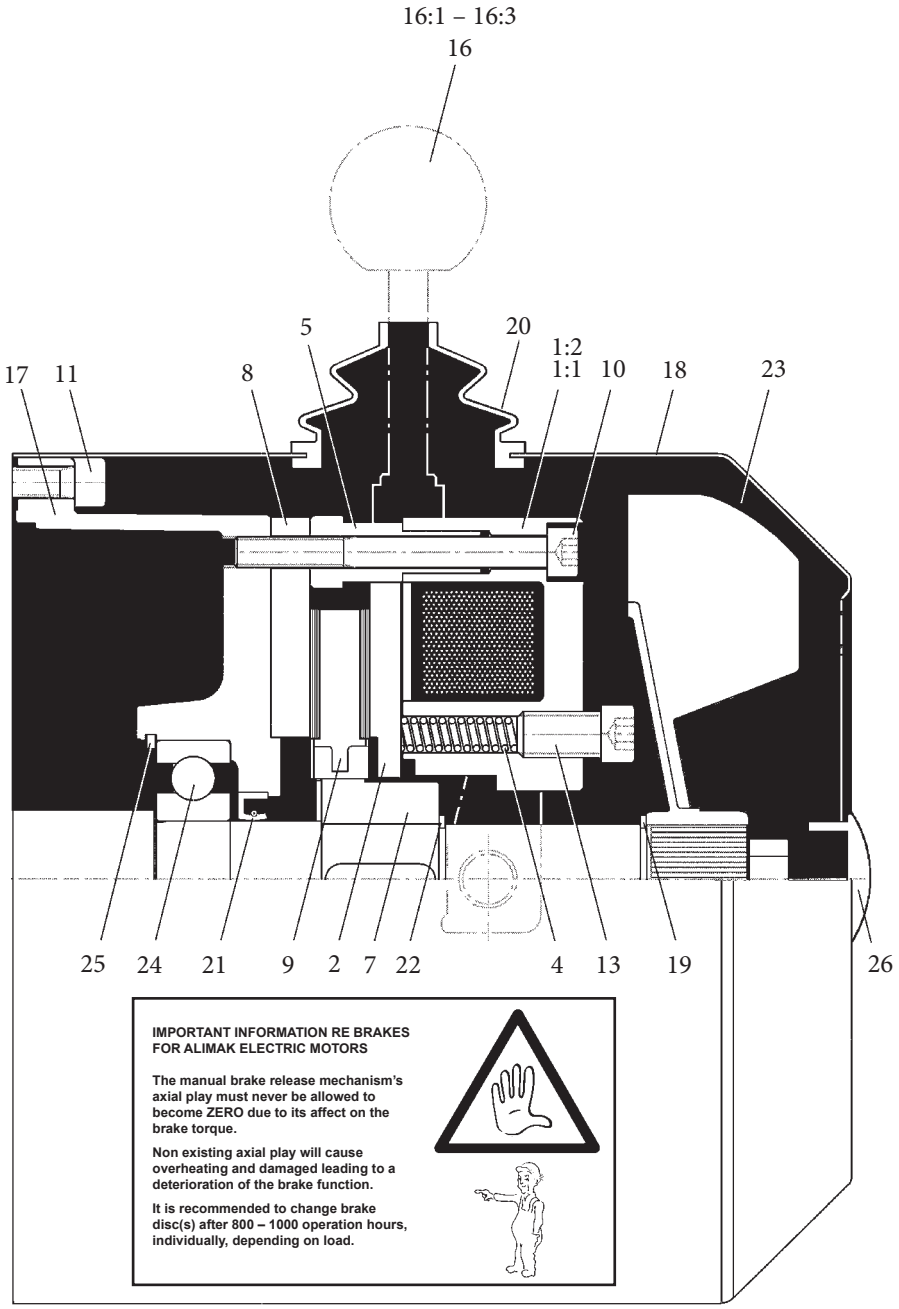
Air gap C
Manual release device

If the brake cannot be electrically released, check:

- that the rectifier is in order and energized.
- that the brake contactor is in order.
- the voltage to the magnet coil (nominal 102V DC).
- the resistance of the coil (nom. approximately D Ohm, see table).

Replace electromagnet housing with coil if the coil is defective.

IMPORTANT: Do NOT replace the brake's rectifier of the type with booster function with a common rectifier type.



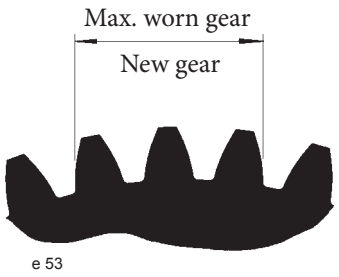
1:1	Magnet housing	10	Fixing bolt	17	Flange
1:2	Coil	11	Cap head bolt	18	Fan cover
2	Armature	12		19	Circlip
3		13	Set screw	20	Rubber bellows
4	Compression spring	14		21	Sealing ring
5	Sleeve	15		22	Circlip
6	Flange	16	Manual release device	23	Fan
7	Hub	16:1	Lever	24	Ball bearing
8	Brake disc	16:2	Disc	25	Circlip
9	Friction disc	16:3	Cap head bolt	26	Plug

IMPORTANT:

Wearing of armature and fixed brake disc (added together) must not exceed the maximum allowable air gap reduced with the indicated nominal air gap, A (= 1.15 mm).

If so, the whole brake must be exchanged.

Pinion



Gauge Part No. 9098411-000

Check the wear with the aid of sliding caliper.

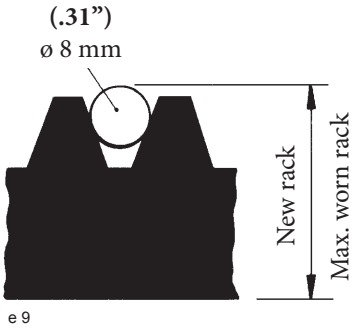
New gear = 38.5 mm **(1.51 in.)**

Max worn gear = 37.1 mm **(1.46 in.)**

The counter roller for the pinion must be changed when the pinion is replaced.

It is recommended to use Gadus S3 A1300C 2 to prevent crevice corrosion between shaft and pinion.

Rack

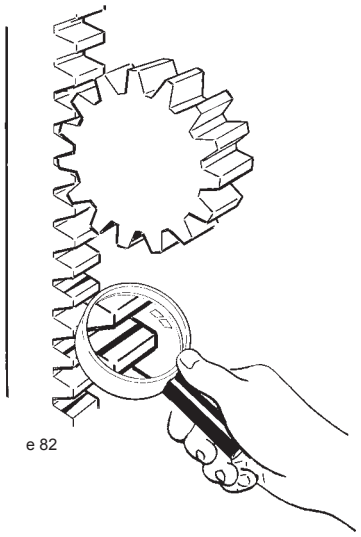


Gauge Part No. 9103819-000

Measure with a dia. 8 mm **(.31 in.)** gauge rod and sliding caliper.

New rack = 39.9 mm **(1.57 in.)**

Max worn rack = 38.2 mm **(1.50 in.)**



Check the wear of the rack and adjust the drive unit guide rollers according to the following:

Wearing on the rack

Mast side

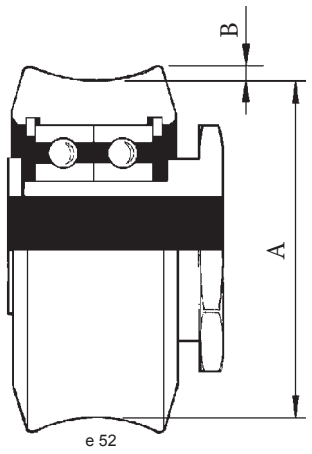
Drive unit inclined away from the mast. (Bad)

Drive unit running correct on the mast. (Good)

Drive unit inclined towards the mast.
(Acceptable – but higher noise level.)

Guide roller

Measure with sliding caliper.



Dimensions	New roller (mm)	Worn-out roller (mm)
A	Ø 74 **(Ø 2.91 in.)**	minimum Ø 68 **(min. Ø 2.68 in.)**
B		minimum 2 **(min. .08 in.)**

Guide rollers for mast tube dia. 76 mm are zinc plated ***(yellow roller face).***
Guide rollers for mast tube dia. 60 mm are iron-zinc plated ***(black roller face).***

Note that the "wear" on the roller face must be equal – ALL around.

Mast tubes

Checking of wear and corrosion on mast sections is carried out by means of an Alimak ultrasonic tester Part No. 3002546-000. The bottom mast section must be thoroughly checked.

650 x 650 square mast section with tube dia. 76 mm (3 in.)

New mast tubes t mm (inches)	Max. worn out mast tubes t mm (inches)
4.2 **(.165 in.)**	3.1 **(.122 in.)**
6.3 **(.248 in.)**	4.7 **(.185 in.)**
8.0 **(.315 in.)**	6.0 **(.236 in.)**
	approx. 25% reduction of wall thickness

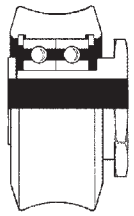
450 x 450 square mast section with tube dia. 60 mm (2 3/4 in.)

New mast tubes t mm (inches)	Max. worn-out mast tubes t mm (inches)
3.6 **(.141 in.)**	2.7 **(.106 in.)**
3.2 **(.126 in.)**	2.4 **(.095 in.)**
	approx. 25% reduction of wall thickness

Note that wear/corrosion on the mast sections have an effect on maximum overhang (free top) and maximum allowed mast height as follows:

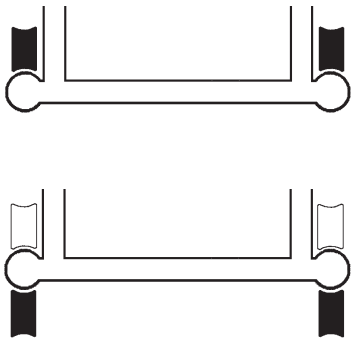
Reduction of original wall thickness in %	Reduction of overhang of the hoist mast in %	Reduction of mast height in %
10%	15%	20%
15%	20%	30%
20%	20%	40%
25%	25%	50%
more than 25%	Mast section should be scrapped	

Adjustment of guide rollers



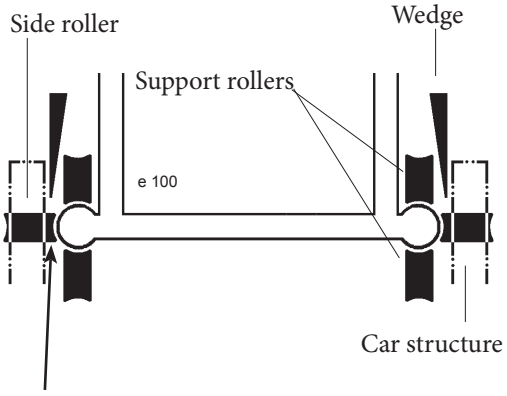
NOTE: Guide rollers must only be adjusted when there is NO load in the car

The following adjustments are carried out by freeing the attaching bolt/nut of the roller and rotating the eccentric shaft with the tool provided until the correct setting is attained. Then retighten the bolt.



Car support rollers

1. Adjust the upper support rollers so that the car structure is parallel to the front edge of the mast frame.
2. Continue adjust the lower support rollers so that the car structure is parallel to the mast tubes in the vertical plane.



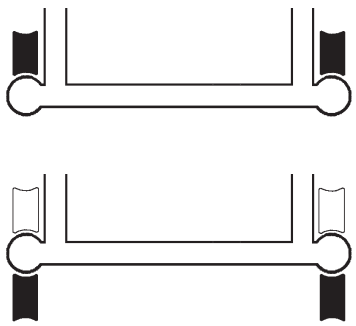
Air gap 0.7 mm **(.027")** must be done on both side rollers **AT THE SAME TIME** and be adjusted with the side rollers in level with one horizontal mast frame.

Car side rollers

The side rollers must be adjusted when they are level with a horizontal frame of the mast and always adjusted in pairs.

3. Loosen the side rollers and center the car structre on the mast tubes using wedges or similar as shown.
4. **Single roller:**
   – Adjust both side rollers with air gap 0.7 mm **(.027")** and lock them in this position.

   With a roller assembly:
   – Push bottom roller of the assembly against the mast tubes and adjust the air gap between the top roller and mast tube to 1.4 mm **(.055")** or 0.7 + 0.7 mm and lock the assembly in this position.



Drive unit support rollers

1. Adjust the upper support rollers so that the drive unit is parallel to the front edge of the mast frame.
2. Continue adjust the lower support rollers so that the drive unit is parallel to the mast tubes in the vertical plane.

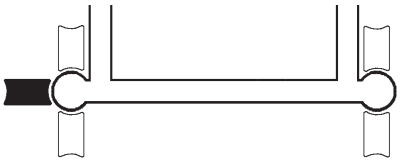
Guide roller nominal setting:
Refer to drwg. at the end of this manual.

IMPORTANT: The side rollers must NOT be adjusted closer than 0.7 mm (.027"). Only occasional contact between roller and mast tube is allowed during operation.

Do not forget to retighten to correct torque after adjustment.

Side roller for single motor drive unit

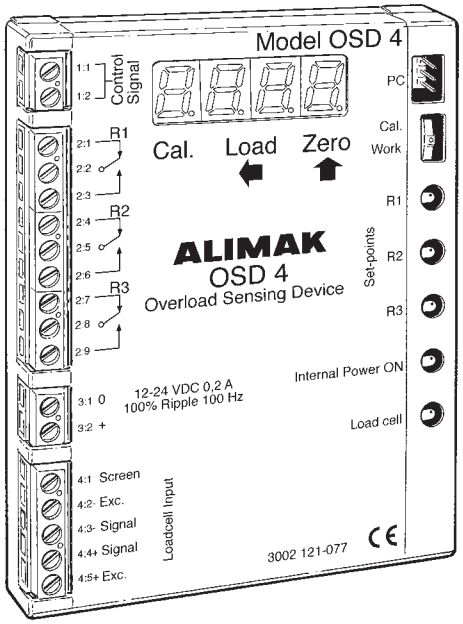
The side roller must be adjusted when it is level with a horizontal frame of the mast.

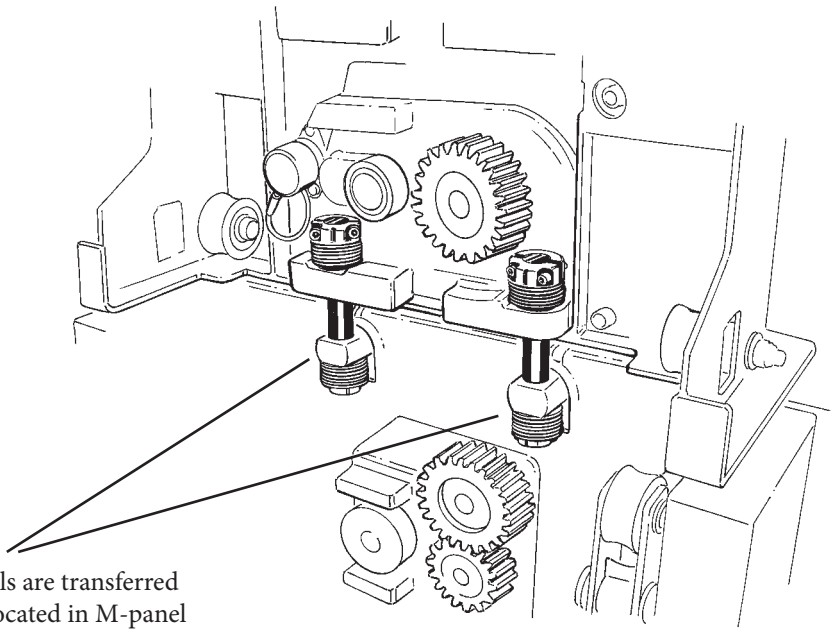


3. Loosen the side roller and center the drive unit parallel on the mast tubes with the ***upper left*** side roller.

Setting of overload sensing system

Set the overload sensing system to trip at full load and additional 10% overload.





Signals from the load cells are transferred to the OSD 4 amplifier located in M-panel

For more detailed information refer to separate manual P/N 9081 539 - sub.

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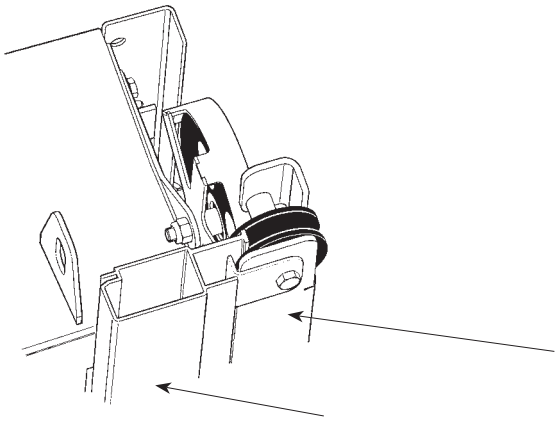
Gate rollers and gate interlockings



Extensive wearing and damages on gate rollers or guide rails can cause improper function of the interlocking's safety circuits.

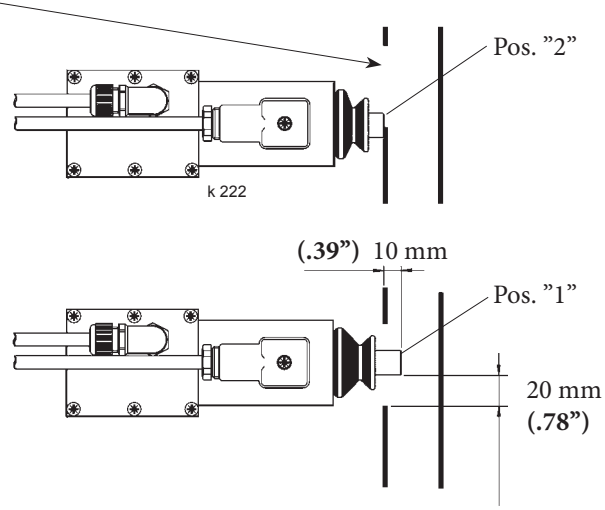
Avoid accidents by daily try to start the hoist with gate opened. ***The hoist must not start.***

If so – the cause of the failure must be determined and rectified. ***Be sure to check only one switch at a time.***

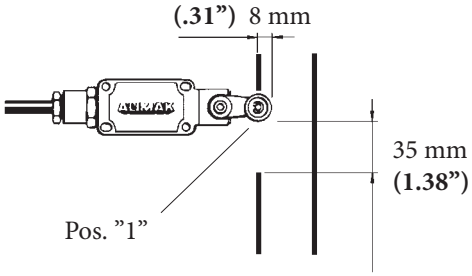
New gate rollers for replacement are now accomplished with securing plates which visually indicate and mechanically prevent more than maximum allowable play.

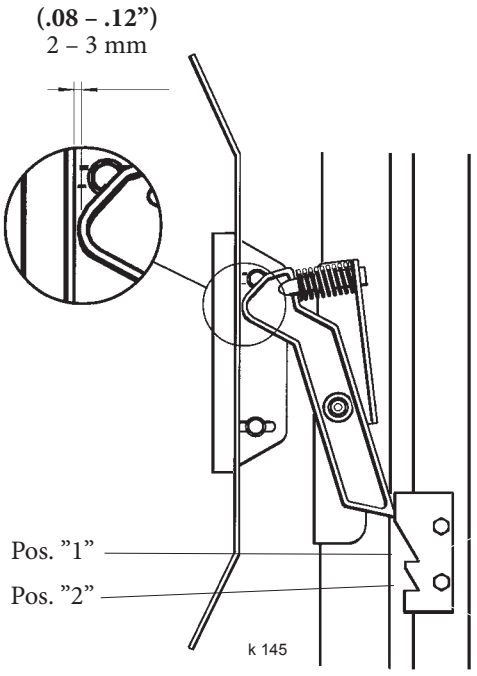
Vertical gate profile

Interlock type solenoid lock



Interlock type mechanical hook with compression spring and monitoring electrical switch





Check the adjustment of the N C el. switch:

Position ”1” = electric switch NOT activated.
Position ”2” = electric switch activated.

ATTENTION! Adjust the position of the NC electric switch to be activated AFTER the hook is operated.

Note that the NC switch MUST NOT be activated when a closed and locked door is pushed and pulled.

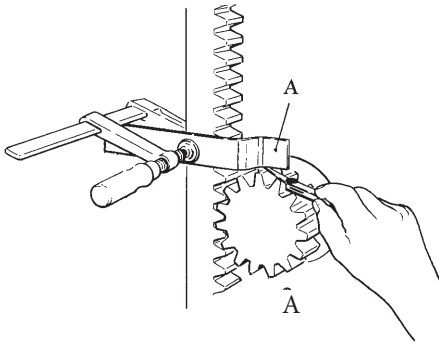
WARNING!

Unintended operation

Perform safety check daily.

Failure to follow this warning can cause death or personal injury.

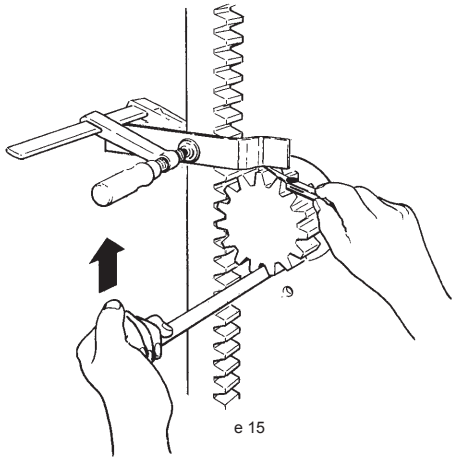
Measuring the radial play of the rotating shaft on the safety device



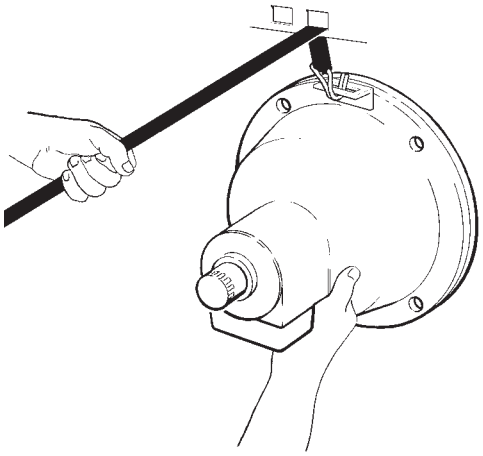
1. Clamp a support (A) on the rack with the aid of a C-clamp – approximately 1 mm **(.039")** above the safety device pinion.
2. Measure the play with a feeler gauge.
3. Lift the pinion with the aid of the cranking lever from the hoist tool kit or some other suitable tool and measure the play again.

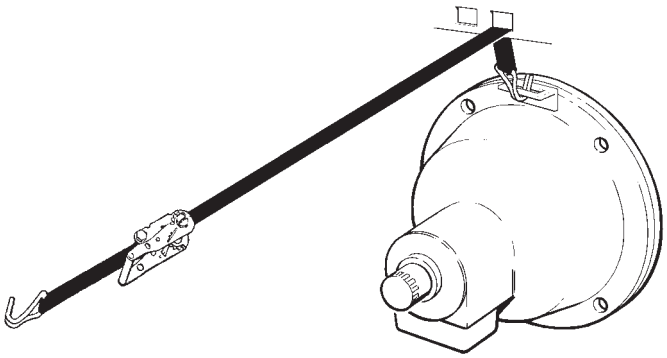
   Note that the pinion may not be turned, but must remain in precisely the same position during both measurements.
4. The difference between the two measured values is the radial play in the safety device shaft.
5. If the radial play is greater than 0.6 mm **(.024")**, the safety device must be replaced.

   IMPORTANT! Test has to be done before lubrication.



The rectangular holes in the car roof profile are intended to ease the replacement of the safety device with a common ratcheted tie down for instance.





Optional centrifugal brake

WARNING!

Unintended operation

Bring the car down to rest on the buffer springs. Switch off, lock and tag the main switch before inspection can take place.

Can cause severe bodily injury or death.

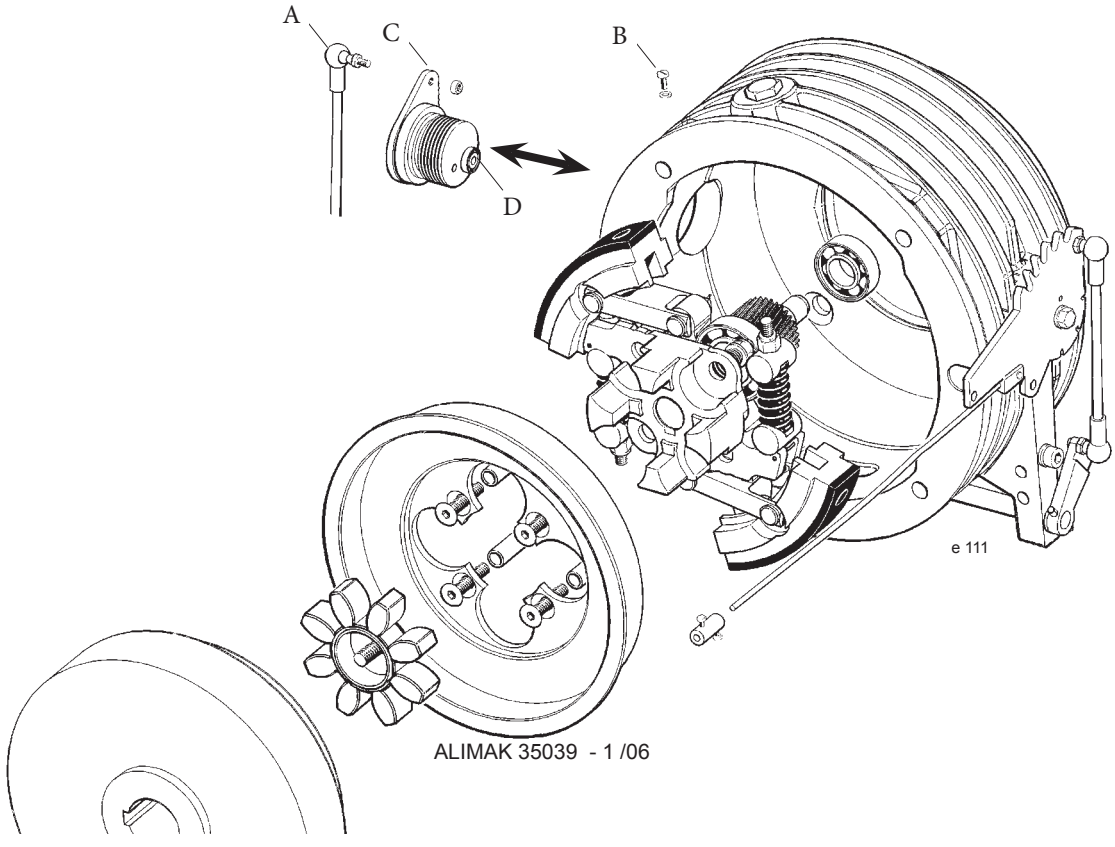
Inspection of brake and brake lining

1. Disconnect the flexible ball joint (A) from the control device on the side where the Teleflex wire from the car release lever is located.
2. Loosen the vertical bolt (B) on the brake housing, which locks the control device axially.
3. Remove (pull out) the whole control device (C).
4. Inspect the brake lining through the seat (hole) for the control device.

   Replace the brake linings when they are worn down to 3 mm (.12") thickness.
5. Turn the control device on the opposite (right) side to check that the lock ring disengages from the brake hub.
6. Lubricate the control device with Aeroshell Grease 6 when reassembling.

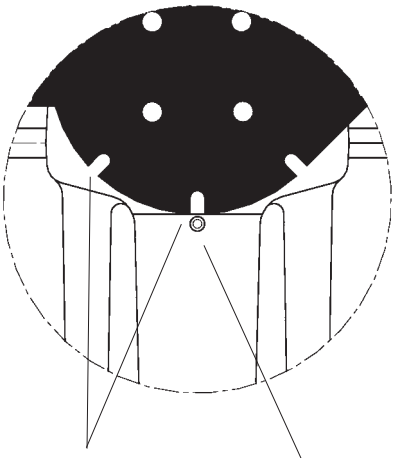
Every 2nd month

1. Lubricate linkage and control cable with multipurpose oil in a spray can, type WD-40 or equivalent.
   Use the spray can's additional extension tube to apply the oil inside the control cable's external hose.



Every 2nd year

1. Dismantle the brake motor from the centrifugal brake on the gearbox.
2. Clean and grease the brake hub with Aeroshell Grease 6, avoiding any contamination of the brake lining.
   Also check and replace the brake shoes when the brake linings are worn down to 3 mm **(.12").** Reinstall and check that the brake hub is free to move.
3. Replace the control devices' ball bearings (D) after 800 operating hours, or every 2nd year.



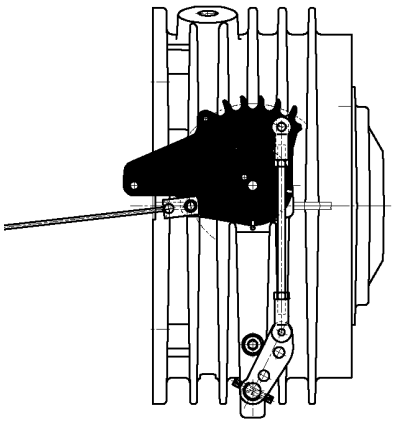
Marks on control disc and the corresponding pin on brake housing

Synchronizing of centrifugal brake and motor brake

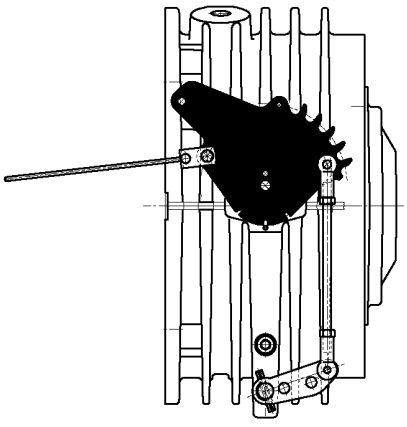
1. Disassemble the Teleflex wire from the control device on the centrifugal brake.
2. Turn the control device into position "3" in clockwise direction and leave it in this position.
3. Push the motor brake release lever into "fully released position" and tighten the motor brake release wire.
4. Reset the control device to position "1" and reassemble the Teleflex wire.

   The pull wire is now slack between the centrifugal- and motor brake.

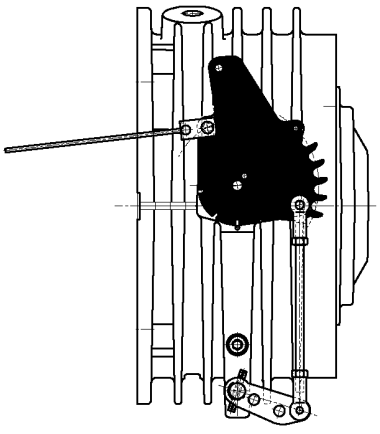
Position "1"
Locked centrifugal brake



Position "2"
Engaged centrifugal brake.



Position "3"
Engaged centrifugal brake and motor brake released.



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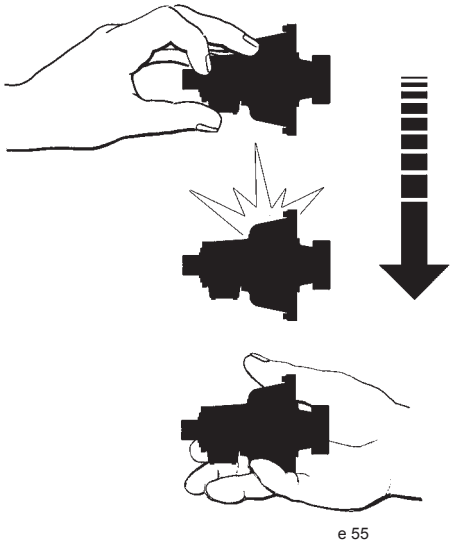
Drop test

To be carried out by trained service personnel.

A drop test with full load shall be carried out for each new installation and then at least twice a year – or in accordance with local safety regulations.



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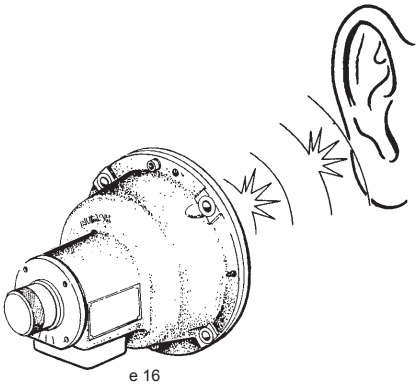
DANGER!

Brake malfunction hazard

No one is allowed in the hoist during a drop test.

Will cause severe bodily injury or death.

If the safety device begins to trip, or if noise occurs in the safety device during operation, the hoist must be taken out of service immediately and the local ALIMAK representative be notified for action.



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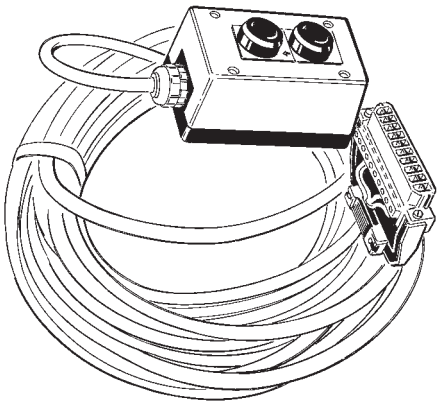

Remote drop test equipment at ground landing connected on terminal inside the car electrical panel

Drop test instruction

1. Test run the hoist in upward and downward direction to ensure that the brakes have sufficient brake torque.
2. Set the ”Normal/Inspection” switch in the electric cabinet in the hoist car into the ”Inspection” position.
3. Connect the ALIMAK drop test cable to the terminal block marked ”Drop test” in the electric cabinet in the car.
4. Attach the cable to the car adjacent to the electric cabinet and lower the push-button box to the bottom landing via the roof trap door. At the same time, check that the cable is suspended in such a way that it cannot be crushed or be obstructed when the drop test is carried out.
5. Load the car with prescribed load. Switch on the main ON/OFF switch and run the car from the ground level up minimum 6 meters **(20 ft.)** or 4 pcs. mast sections, by means of the ”Up” button on the push-button box on the testing cable.
6. Press the button on the drop test push-button box marked with an arrow symbol and maintain it in the depressed position. This releases the motor brake(s) and the hoist car will drop until it reaches the tripping speed and the safety device is actuated.

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Release the push-button immediately if the safety device does not function and stop the hoist – at least 3 meters (10 feet) above the ground level. The brake(s) are applied when the push-button is released.
If so, start the test from item 4 again.

7. Run the car upwards minimum 0.2 m **(8 in.)** with the drop test push-button box to release the mechanism of the safety device.

   Then take the car down to the normal lower landing by inching little by little with the drop test device.

   Be careful so that the safety device is not activated again.

8. Remove the test cable and ***then*** try to start the car in the upward direction.

   The microswitch in the safety device shall, when the safety device has been actuated, prevent the hoist from starting when the test cable has been removed. In other words, it must ***not*** be possible to start the hoist.

9. Reset the safety device according to instructions later in this chapter.

10. Reset the ”Normal/Inspection” switch in the electric cabinet to the ”Normal” position.

    If you don’t succeed with the drop test, contact nearest ALIMAK representative.

Calculating the safety device stopping distance

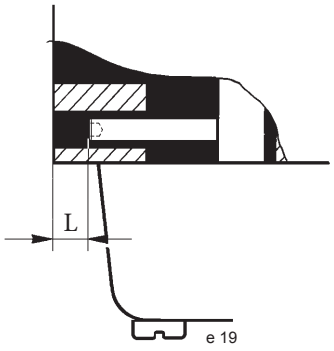
The safety device stopping distance can be measured between the end face of the safety device and the end of the indicating pin – measure ”L”, see figure.

Multiply measure ”L” with factor acc. to the table for the safety device in question.

Note: the indicating pin (6) is made of a stop screw with internal hexagon grip. Pay attention to this when using a sliding caliper for measuring.

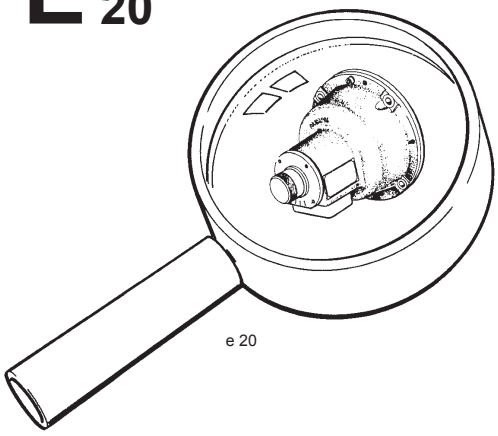
Safety device type	P/N	factor (x L)
GF	9067360-sub.	188.5
	9095340-sub.	– ” –
	0183144-sub.	– ” –
GFD	9094320-sub.	314.2
	0196784-sub.	301.6

Safety device type	P/N	factor (x L)
GFD mk II	9101991-sub.	267.0
	9099255-sub.	– ” –
GFD mk III	9107880-sub.	333,8



IMPORTANT! The safety device must be exchanged if measure ”L” exceeds the value stated on the safety’s sign.

E 20



e 20

Resetting the safety device

If the safety device trips during normal operation, a careful check must be made of the motor brake(s), transmissions, pinion, rack and all guide and counter rollers by trained/ authorized service personnel, before the safety device can be reset. The cause of the tripping must be determined and rectified.

The safety device may be reset after a drop test, without having to carry out the checks listed above.

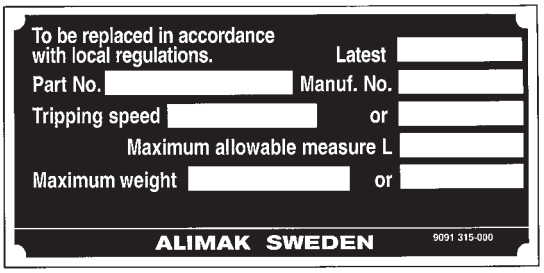
WARNING!

Falling hazard

Never reset the safety device above ground landing.

Can cause severe injury or death.

Exchange intervals, see sign on safety device!

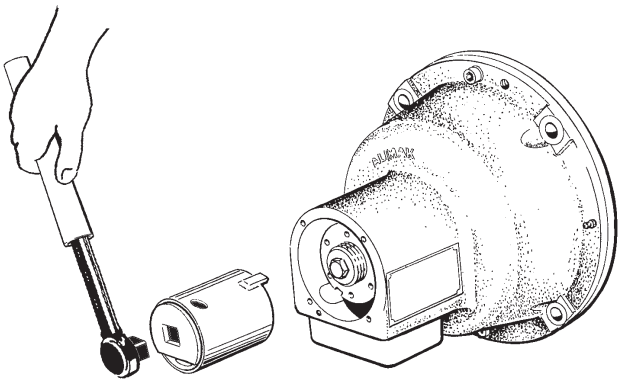


Rating plate on the safety device

A socket intended for a 3/4" drive ratchet comes with the Scando 650 hoist delivery to simplefy the safety device's resetting procedure.

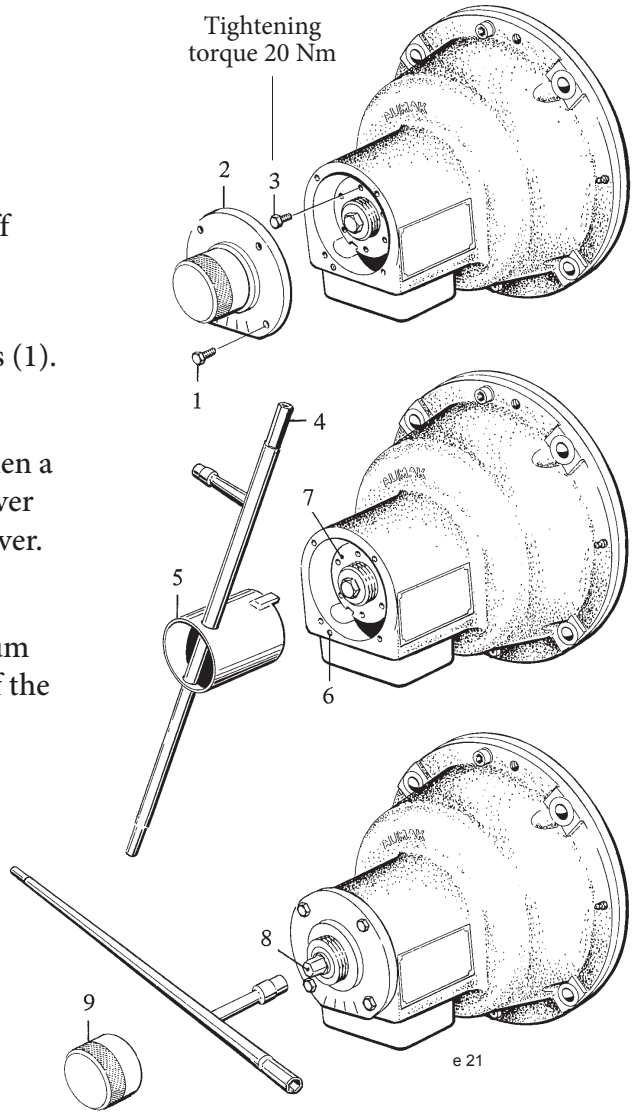
An drive extension tube further simplify the procedure.

(The 3/4" drive ratchet is NOT a part of the hoist delivery).



Resetting

1. Switch off the car main switch.
2. Unscrew the screws (1) and remove the cover (2).
3. Unscrew the screws (3).
4. Use the sleeve (5) and the cranking lever (4) to back off the nut (7) until the end of the pin (6) is on a level with the end surface of the safety device.
5. Install the screws (3) and the cover (2) with the screws (1).
6. Remove the protective cover (9).
7 Tighten the screw (8) by hand as far as possible and then a further 30° by means of the sleeve and the cranking lever (4) – in the direction indicated by the arrow on the cover.
8. Reinstall the protective cover (9).
9. Switch on the main switch and run the car up minimum 20 cm (**8 in.**) upward to reset the centrifugal weight of the safety device in its neutral position.
10. Make a test run.



From a safety point of view the safety device must never be dismantled more than is necessary to reset it as described above. For this reason the safety device is sealed.

Lubrication diagram

INTERVAL	ITEM	LUBRICATING POINT	LUBRICANT	INSTRUCTIONS
60 operating hours or at least once a month	1	Gear box/-es		Check the oil level.
	2	Safety device, and idle gear on the rear of the plate where applicable	Shell Gadus S3 V100 C or equivalent Part No. 3001 396-250	Grease nipple.
	3	Rack Also use spray to corrosion on the machinery pull rod´s cup springs where applicable	Alimak spec. grease Part No. 3001396-108 Alternative: Cog spray for open gear	We recommend use of a hand held battery operated grease pump. Refer to product sheet No. 1291. Lubricate during lowering. Take lift out of operation for 2 – 3 hours to permit the spray to congeal.
	4	Cable support arm, guides and trolley, where applicable.	Ali-low-fric compound Part No. 9052 045-000	Grease slide surfaces. Do not grease mast tubes – the cable trolley may get stuck
120 operating hours or at least 6 times a year	9	Door interlocks and ramps	Shell Gadus S3 V220 C Part. No. 3001 369-107	Grease bearings and slide surfaces.
	11	Landing doors	Shell Gadus S3 V220 C or equivalent	Grease bearings and slide surfaces.
	–	Roof trapdoor and electric cabinet hinges	Spray can with multipurpose oil type WD 40 or equivalent	
	–	Electric / hydraulical load ramp – where applicable	Hydraulic oil according to ISO VG32 or Q8 Hindemith LT P/N. 3001 225-020	Check oil level. Also see page E23.
1000 operating hours or at least once a year	–	Hydraulic oil buffers – where applicable	Hydraulic oil according to ISO VG68 or Shell Tellus 68 P/N. 3001 225-102	Check oil level. stroke 435 mm = 3.3 lit. **(1'- 5 1/4" = 0.87 US gal.)** stroke 173 mm = 1.45 lit. **(6 3/4" = 0.38 US gal.)**
2000 operating hours or at least every 2 years	20	Gear box/-es	Alioil VN Part No. 9041 980-000	Change oil, 2.9 lit. **(0.76 US.gallon)**

The lubricating oil grades indicated above have been used when the equipment is delivered from the factory. Only oil recommended by ALIMAK shall be used. If, for some reason, this is not possible, please contact ALIMAK or ALIMAK Representative for advice.

WARNING!

Lubricant harmful in contact with skin and lungs

Always use protective gloves and dust mask.

Possible risks of irreversible effects.

See applicable MSDS (Material Safety Data Sheet). Web site: www.alimak.com

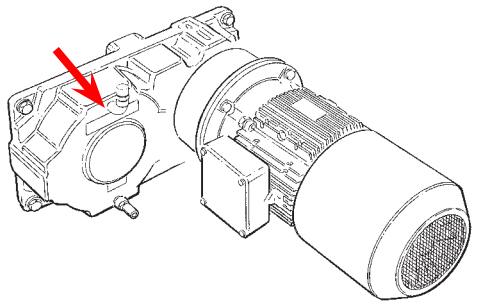
WARNING!

Falling hazard.

Always use a fall arresting device if there is a need to climb above the safety railing to reach the rack or items to grease or inspect.

Can cause severe injury or death.

1



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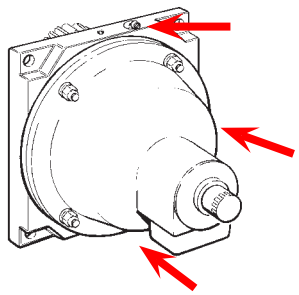

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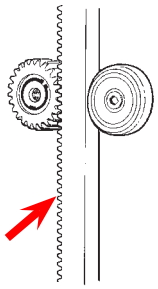
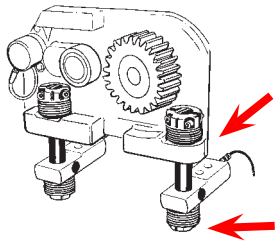


3:2



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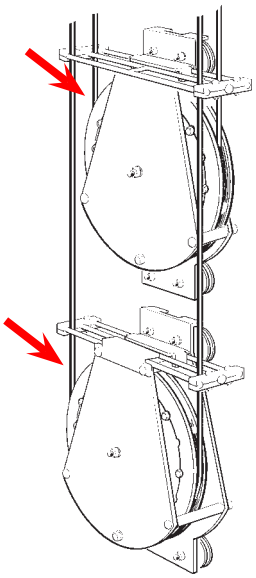

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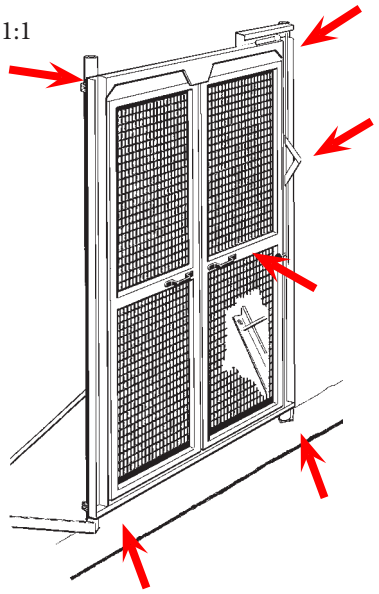
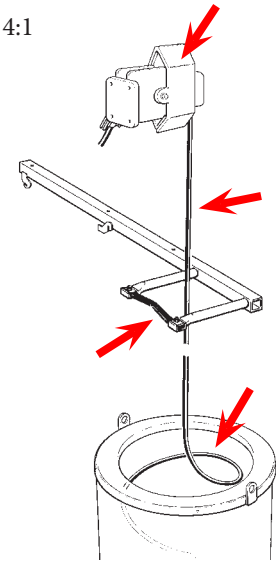
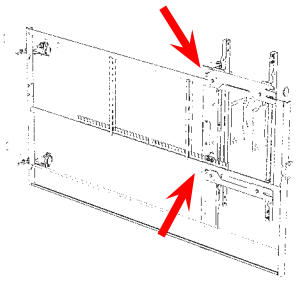


4:1



11:2



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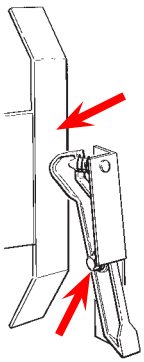

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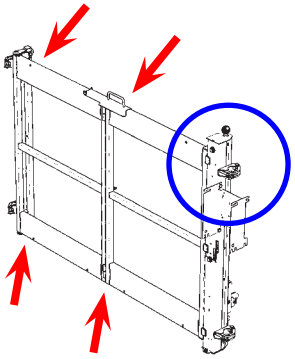

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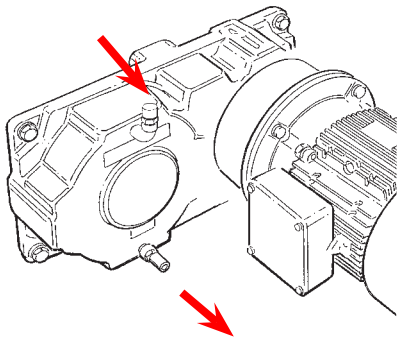
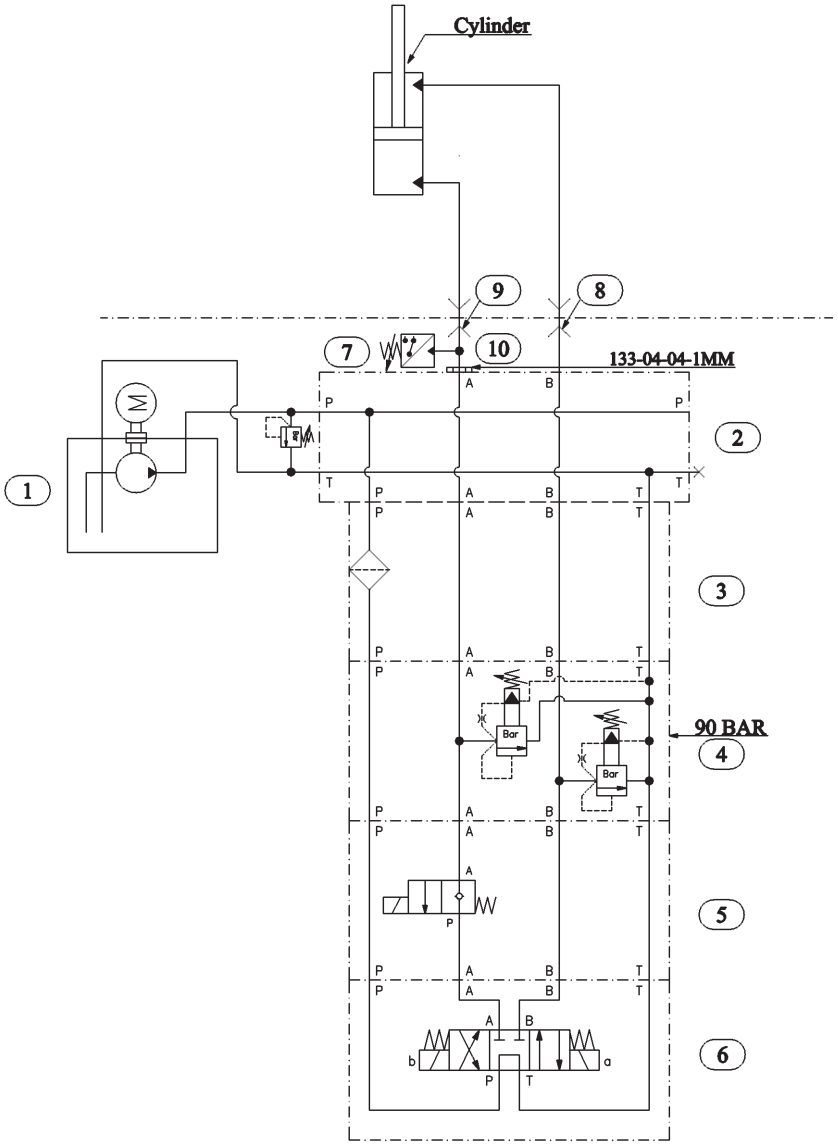


ATTACHMENT A



Pressure:	100 bar
Flow:	1.5 l/min.
Displacement:	1 cm ^{2}
Speed:	1500 rpm
Power:	0.75 kW
Voltage:	400 Volt

Maintenance instructions for optional el./hydraulic load ramp

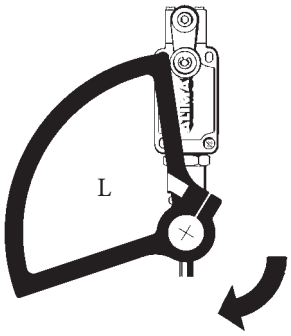
Exchange hydraulic oil every 1000 operating hours or at least once a year.

Hydraulic oil according to ISOVG32 or Q8 Hindemith LT
P/N. 3001225-020

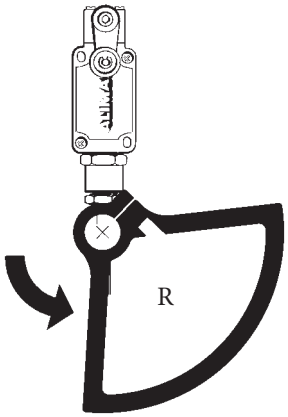
Volume: 3 lit.

Filler cap Part No. 3002302-703

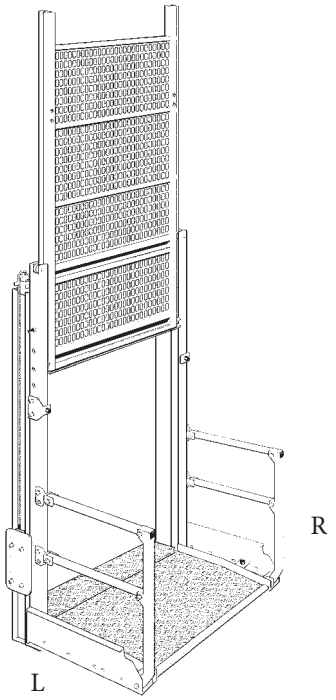
Filter insertion Part No. 3002302-702

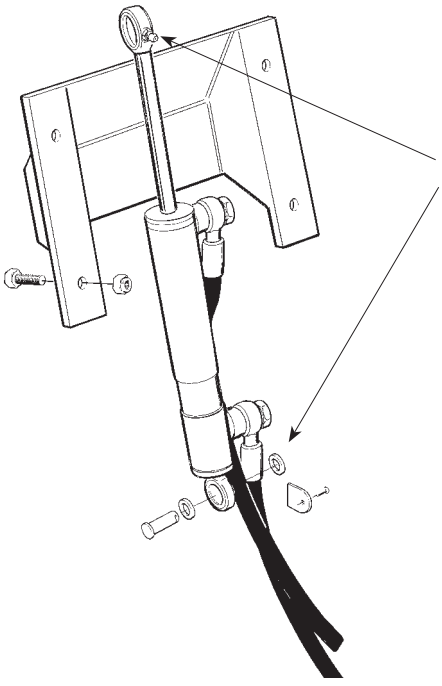


Left limit switch (shown) for the load ramp must be adjusted so that the car stop circuit will cut off immediately when the ramp starts moving.



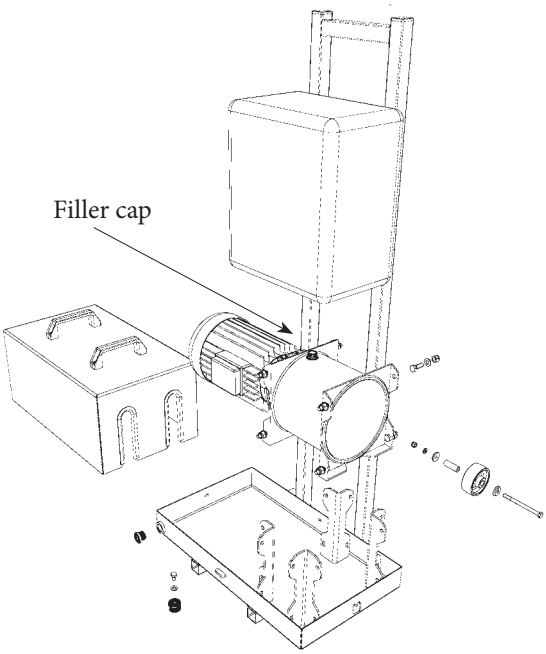
Right limit switch shall be affected when the ramp is opened 75%





Grease bearing bushings and nipples regularly.

Hydraulic power pack located on car roof

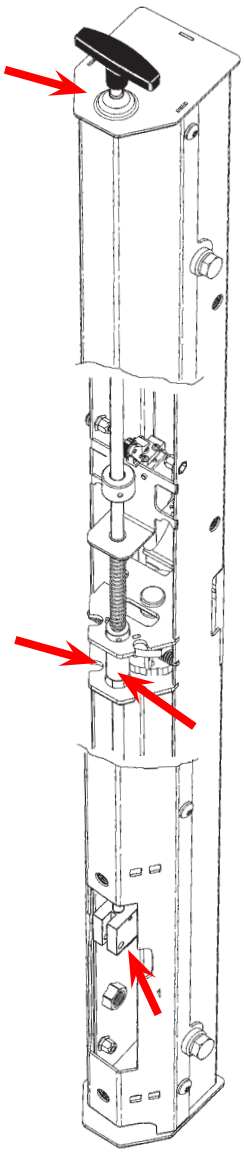


IMPORTANT:

A particle as small as 10 µm (1/100 mm or **.000394”)** can cause a pump breakdown in the hydraulic system. Consider the fact that the smallest particle which can be detected by the naked eye is about 40 µm and you can imagine the requirements for cleanliness which apply when working in a hydraulic system.

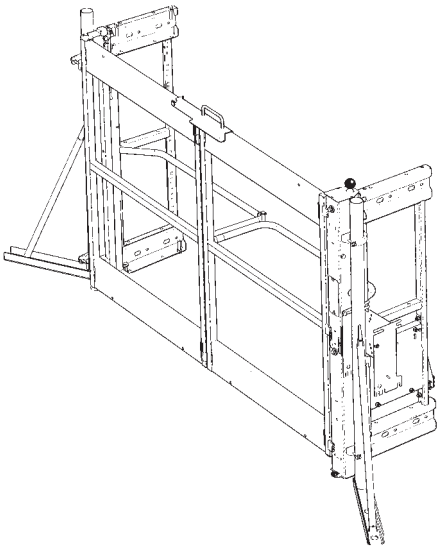
ATTACHMENT A

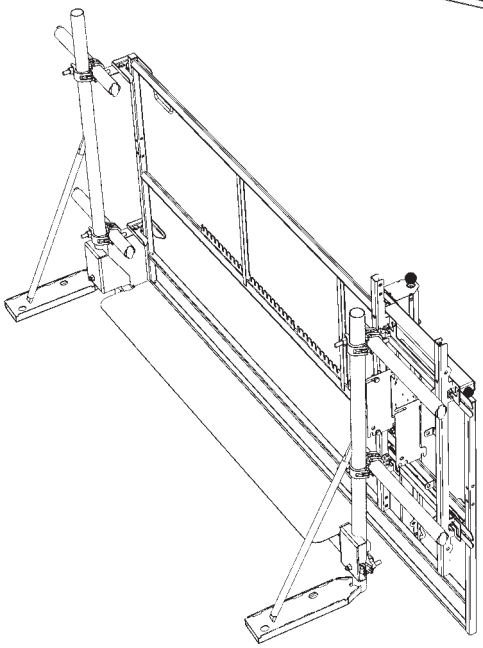
Lubrication instructions for optional EN approved low built gates



Regularly grease the sliding surfaces inside the interlock post
The greasing points in the middle of the interlock post can be reached through holes on the cover sheeting.

Use a spray can with multipurpose oil type WD 40 or equivalent.





Preservation for long time storage

The following precautions must be taken when storing equipment outside for more than 6 months. The interval 6 months must be reduced to 3 months for places with temperatures constantly below freezing or where high atmospheric humidity constantly occurs.

Mechanical equipment

1. For the ultimate corrosion protection – fill the gear boxes full, with type of lubricant prescribed in the lubrication chart.

   Alternatively add VCI additive (Volatile Corrosion Inhibitor) to the oil in the gear box according to the manufacturer's recommendation. Dismantle the air filter/s and seal the pipe fitting elbow after the VCI additive has been mixed.

3. Apply Tectyl 506 Multi Purpose Rust Preventive (part No. 5402101-540) to all springs, shafts, rollers and pinions of metal.
4. Dismantle machinery and safety device and place them in a temperature controlled store. The machinery and the safety device must always be located in their normal operating positions.
5. Examine the surface treatment and touch-up any damage.

Electrical equipment

1. Ensure that the VCI anti corrosion protection devices for use in electrical cabinets and junction boxes are properly replaced according to the recommendations in the maintenance manual so that expected corrosion protection is achieved (storage time included).
   If electrical cabinet is to be dismantled – always store them upright like they are installed on the hoist.

   External electrical equipment such as limit switches must be opened and sprayed inside with WD-40 ***silicone free*** contact aerosol part No. 5402101-535.

2. Charge battery where applicable.

General

All equipment must be sheltered from the rain and not exposed to the sun. Total covering by means of plastic sheeting or tarpaulins must be avoided as this will result in moisture accumulation due to condensation.

Re-commissioning after storage

1. Change the oil in the gear box/-es. Refill to normal operating level. Do not reuse old oil – no matter how clean it may appear, as it may contain condensed water.
2. Re-install machinery and safety device.
3. Remove all rust protective coatings and lubricate according to the lubrication chart.

Sprays containing silicone

Used in the right place, silicone is a very efficient lubricant. However, when it contaminates electrical apparatus the effect is disastrous. The molecules of silicone are converted into glass by the heat of the contact arc. Glass is a very good insulator.
Just a small amount of silicone can ruin the whole content of any electrical cabinet. Exchange of components offers only a short term repair as once silicone has contaminated the cabinet the only effective solution is a complete replacement of the cabinet and all of its components.

From a sample of four (4) different makes of contact cleaner available in the USA for instance, only one (1) was found to be silicone free.

Our advice therefore is to avoid sprays of any type where electrical cabinets are concerned.

Silicone free contact aerosol WD-40 part. No. 5402101-535 is recommended for external electrical equipment such as plugs, receptacles and limit switches.

TROUBLESHOOTING

ATTACHMENT A

Electrical troubleshooting

Advice concerning procedures for troubleshooting

All forms of troubleshooting require adapting the procedure to the function and structure of the equipment and to other conditions which may be local in nature. For example, the erection site, maintenance, previous operational problems, etc. The main principles of all forms of troubleshooting in electric systems are presented below. Troubleshooting is carried out with the aid of a test lamp or voltmeter. We recommend a voltmeter, preferably a universal instrument, for rapid and reliable troubleshooting.

WARNING!

Hazardous voltage

Only authorized electricians or authorized service personnel can carry out work on the electrical equipment.

Can cause severe injury or death.

1. Use the circuit diagram. This diagram is located in a box in the car. The diagram indicates how the electrical equipment should function, how it is built and connected.

1a. Check that the stopping circuit is not open, in other words that thermal relays and phase failure relays have not been actuated and that the limit switches for the safety device, final limit switch and other limit switches have closed contacts. Make sure that stop buttons, including buttons on landings, are not in the depressed position. When the stop circuit is closed, the main contactor, if any, will be in the ”On” position.

1b. Check that the normal and final terminal switches for ”Up” and ”Down” function respectively are as intended.

2. Connect the voltmeter/test lamp between the zero terminal and the terminal as indicated on the circuit diagram, and check that power is supplied where it should be supplied. Go through each terminal, one by one, and work methodically so that the circuits which function correctly can be eliminated and the fault can be localized.

3. Begin at the button landing by checking that power is supplied on all three phases of the incoming main voltage.

4. Check that the outgoing hoist cable receives power when the main switch is switched on.

5. Now begin troubleshooting in the hoist car by checking that the power reaches the car.

6. Check in the car M-panel that power occurs on all three phases of the incoming cable from the ground landing.
7. Check that the ”Up” and ”Down” pulses from the pushbuttons and control devices reach the electric cabinet in the car in the intended manner.
8. Make a trial run and check that the coil on the relevant contactor (Up, Down) receives power and that it is actuated.
   Check that the brake contactor is actuated and that the brake coil is energized so that the brake releases.
9. If the fault does not occur in the hoist operating system,but in its lighting or signal system, carry out fault-tracing in a manner similar to that described above. Check the circuits methodically one by one until you have narrowed down the fault and localized it.

Experience shows that certain faults have symptoms which, may indicate the cause and the probable location of the fault:

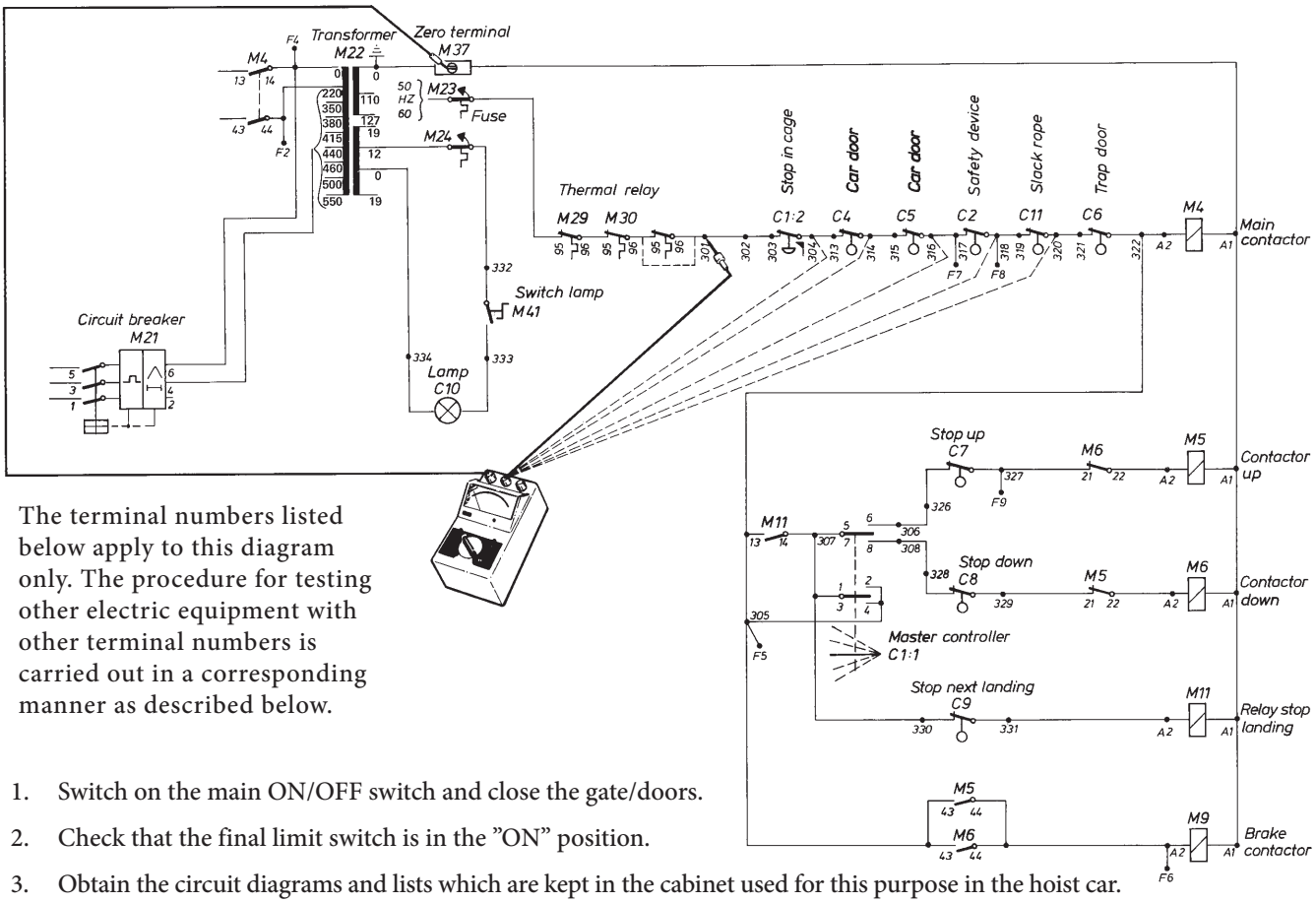
Example:

Symptom	**Probable cause**	**Probable fault location**
a) Control fuses blow immediately.	Short-circuit, equipment grounded.	Damaged control cable, damaged push-button, limit switch etc. located ”externally ”, usually on landing.
b) Fuse blows after a short period of time	Equipment partially grounded, overload.	Dampness or water in limit switch, junction box, door lock, etc due to damaged electrical components. Improperly connected new equipment.
c) Hoist stops or cannot be started.	Limit switch in stop circuit has tripped/been actuated, blown fuse.	Stop push-button depressed, gate open, thermal relay actuated due to overload or careless operation, open trapdoor, *switch in safety device actuated, power failure from supply. See also a) and b) above.
d) Hoist does not come when called for.	Broken stopping circuit.	Door/gate not fully closed, emerg. stop button depressed.
e) Hoist stops and can be restarted, but then stops again.	Switch actuated in the stop circuit.	Slack rope switch, gate switch too close to the cam.

* The switch is set at the factory and may not be adjusted.

Example:

Main principles for electric troubleshooting in stop circuit
– control voltage 110V/50Hz or 127V/60Hz.



The terminal numbers listed below apply to this diagram only. The procedure for testing other electric equipment with other terminal numbers is carried out in a corresponding manner as described below.

1. Switch on the main ON/OFF switch and close the gate/doors.
2. Check that the final limit switch is in the ”ON” position.
3. Obtain the circuit diagrams and lists which are kept in the cabinet used for this purpose in the hoist car.
4. Then test with a voltmeter or test lamp between the zero terminal and the terminals in the electric cabinet as described below:

Test	**Result**	**Conclusion**
Between the zero terminal and last terminal in stopping circuit. Terminal 322 according to diagram in example above.	no reaction	fault located in stopping circuit

Then test each terminal in the stopping circuit systematically, beginning from the transformer.

between zero terminal and terminal 301	reaction	the circuit is intact to and incl. terminal 301
between zero terminal and terminal 304	reaction	the circuit is intact to and incl. terminal 304
between zero terminal and terminal 314	reaction	the circuit is intact to and incl. terminal 314
between zero terminal and terminal 316	reaction	the circuit is intact to and incl. terminal 316
between zero terminal and terminal 318	reaction	the circuit is intact to and incl. terminal 318
between zero terminal and terminal 320	no reaction	the circuit is not intact to and incl. terminal 320

Reason

The switch may have been actuated because of:
- a foreign object between the switch and the cam.
- unbalanced counterweight wire ropes.
- a loosened wire rope.

Action

Check the mechanical function and connection of the switch. Adjust the counterweight wire ropes, if necessary.

Probable fault location: element C11. The diagram indicates that C11 is a slack rope switch, located on the car roof.

Use the following pages for the Hoist's periodic service intervals.

Make additional copies as required.

ATTACHMENT A

ALIMAK

Check List

Items refer to the Service and Maintenance Instructions in the manual.

Name of company	Machine type		Serial No.
Site	Inspector	Month	Year

Inspection	Item	Date / / / / / / / /	Remark ..... date	Taken care of
	1			
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			
	11			
	12			
	13			
	14			
	15			
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	21			
	22			
	23			
	24			
	25			
	26			
	27			
	28			
	29			
	30			
	31			

ATTACHMENT A

Inspection	Item	Date / /	/	/	/	/	/	/	/	Remark ..... date	Taken care of
	32										
	33										
	34										
	35										
	36										
	37										
	38										
	39										
	40										
	41										
	42										
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	51										
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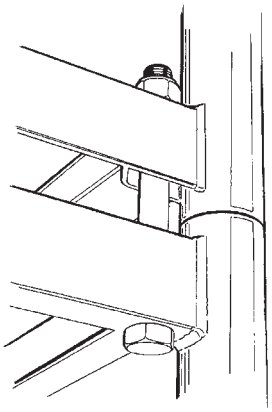
	54										
	55										
	56										
	57										
	58										
	59										
	60										
	61										
	62										
	63										

Place	Date /	Year 20	Signature

Appendix

Tightening torque

Recommendations according to the chart on the following page apply in general except for:

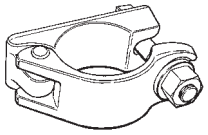


ALIMAK Mast bolt, dim. 1" UNC

– Torque : 300 Nm **(220 lbf x ft)**
– Spanner size : 1 1/2"

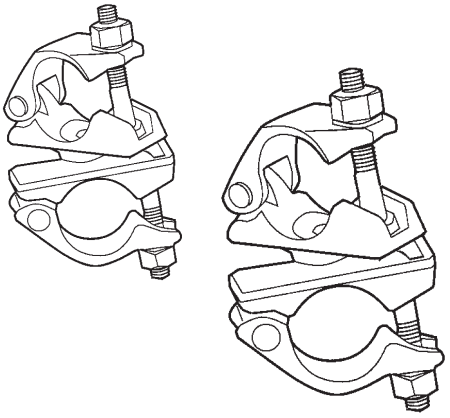
ALIMAK Mast bolt, dim. M16

– Torque : 125 Nm **(92 lbf x ft)**
– Spanner size : 24 mm



Tube coupler for tube dia. 48 mm

– Torque : 80 Nm **(60 lbf x ft)**
– Spanner size : 23 mm

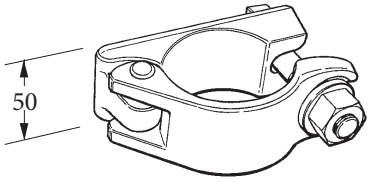


Pivoted tube coupler for for tube dia. 48 mm

– Torque : 50 Nm **(37 lbf x ft)**
– Spanner size : 24 mm

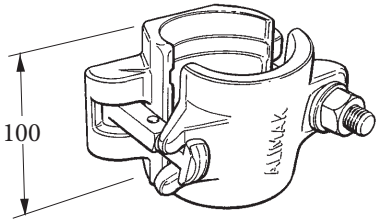
Pivoted tube coupler for for tube dia. 60 mm

– Torque : 50 Nm **(37 lbf x ft)**
– Spanner size : 1"



Tube coupler for tube dia. 76 mm

– Torque : 150 Nm **(110 lbf x ft)**
– Spanner size : 28 mm



ALIMAK tube coupler (pivoted / fixed) for tube dia. 76 mm

– Torque : 220 Nm **(163 lbf x ft)**
– Spanner size : 24 or 27 mm

Recommended torques

The chart applies to galvanized bolts and nuts of strength class 8.8 – dry surface.

Dimension	Spanner size	Torque	
		Nm	lbf x ft
M 6	10 mm	10	(7)
M 8	13 mm	24	(18)
M 10	17 mm	47	(35)
M 12	19 mm	81	(60)
M 14	22 mm	128	(95)
M 16	24 mm	198	(146)
M 20	30 mm	386	(285)
M 24	36 mm	668	(493)

Additional copies...

...can be ordered using the ordering form below.

ALIMAK AB
Technical Document Dept.
P.O. Box 720
SE-931 27 Skellefteå
SWEDEN

ATTACHMENT A

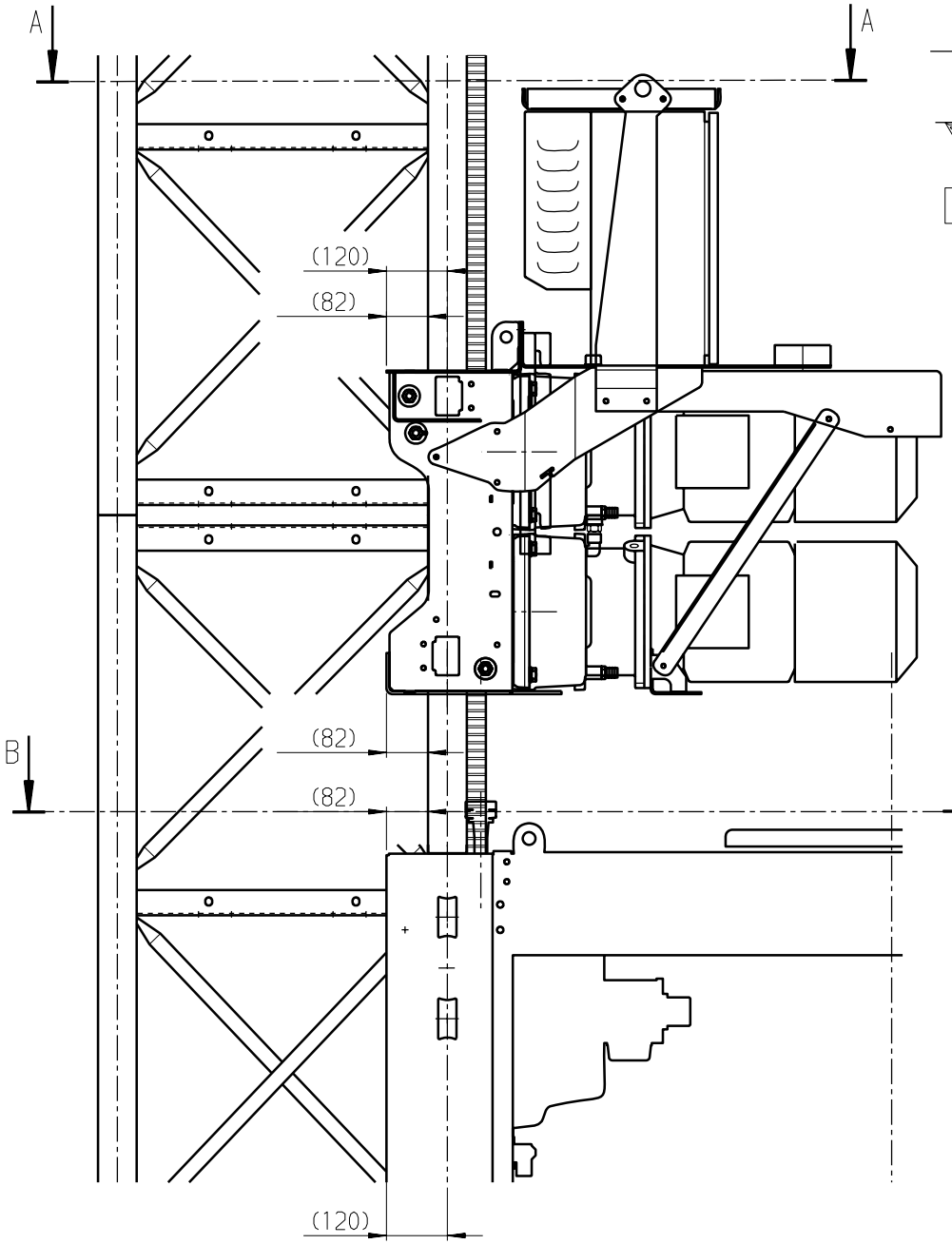
Send

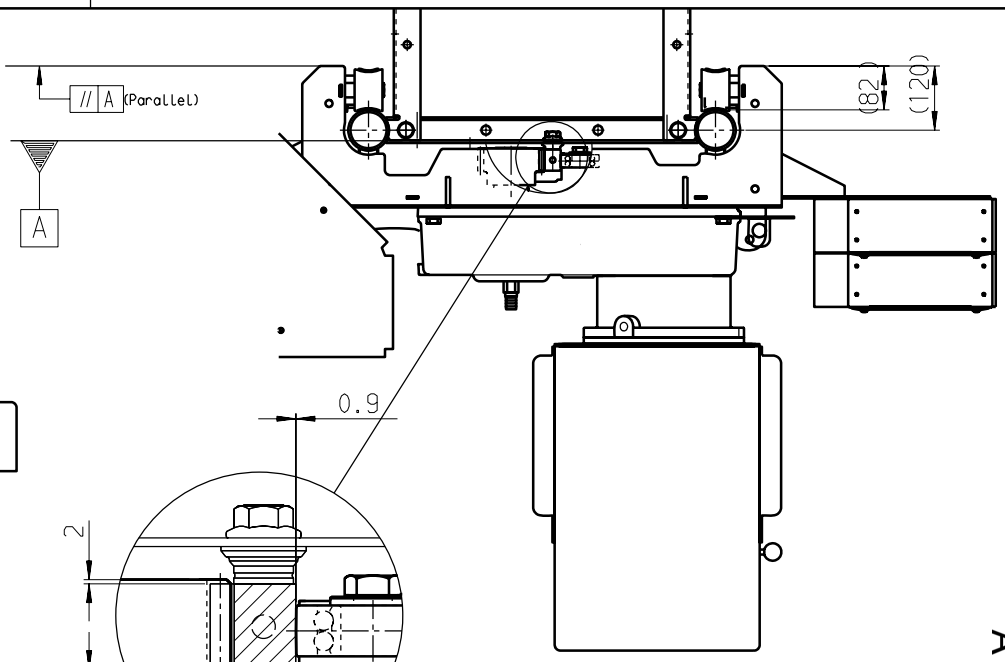
..... pcs Technical Description Part No. .....
..... pcs Data sheet No. .....
..... pcs Operator's Manual Part No. .....
..... pcs Installation Manual Part No. .....
..... pcs Spare Parts Manual Part No. .....

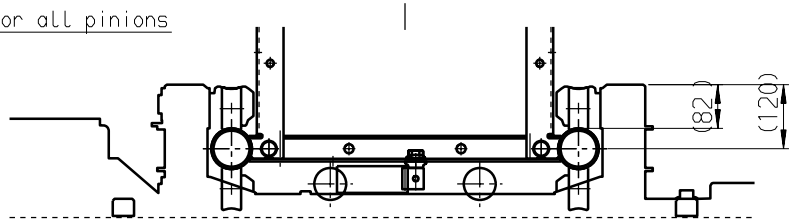
*** To**

Company: .....
Dept./Name: .....
Address: .....
.....
Country: .....

* Kindly state the invoicing address if other than customer.





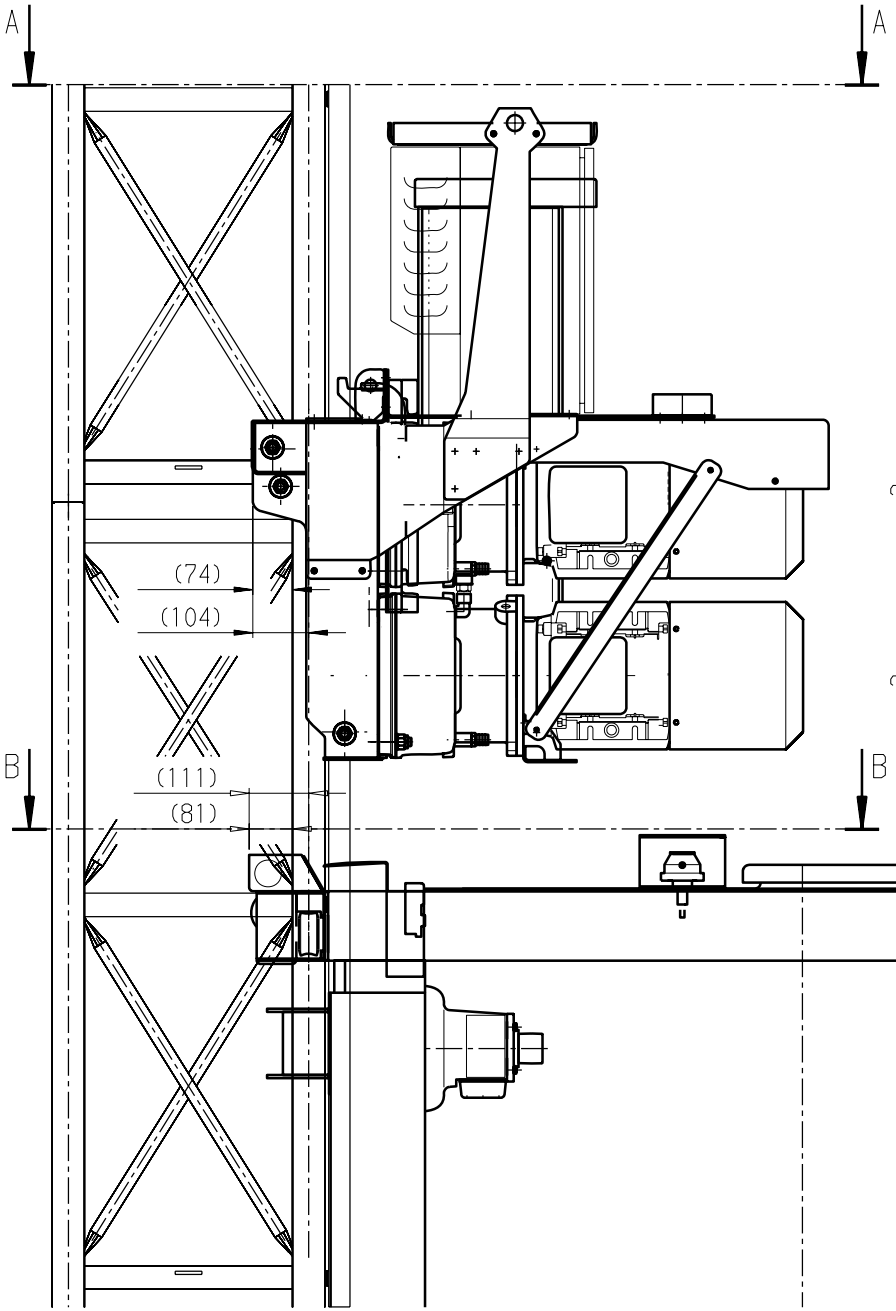


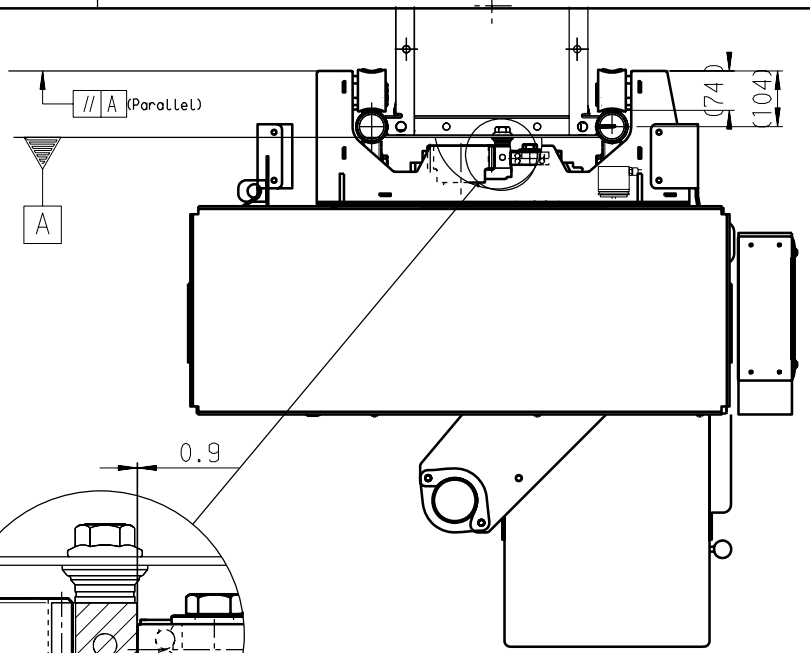
ATTACHMENT A

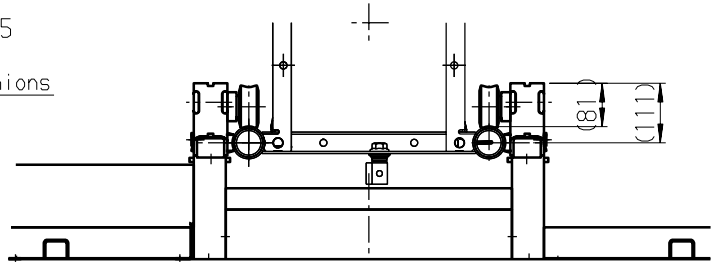
Dwg release state: RELEASED	Ben/Name swe / Ben/Name eng: Uppställningsritning/Arrangement drawing	Scale: 1:10	Doc type: Medusa
General tolerances acc.to: 9092102-000	Dwg descr1: Nominal roller settings	Rev created by: leba	Rev created date: 2009-02-11
Compare: -	Dwg descr2: Scando 650	Updated by: tojo	Updated date: 2009-12-10
ALIMAK		Dwg No.: 9101800-083	Page: 1/1 — Rev Iter: - 10

A3

ATTACHMENT A







ATTACHMENT A

Dwg release state: RELEASED	Ben/Name swe / Ben/Name eng: Uppställningsritning/Arrangement drawing	Scale: 1:10	Doc type: Medusa
General tolerances acc.to: 9092102-000	Dwg descr1: Nominal roller settings	Rev created by: leba	Rev created date: 2009-02-12
Compare: -	Dwg descr2: Scando 450	Updated by: tojo	Updated date: 2009-12-10
	ALIMAK	Dwg No.: 9105250-028	Page: 1/1 — Rev Iter: - 7

A3

Mast section bundle unit handling instructions

1. Always apply the lifting fork from the mast section's short end in the mast section bundle unit, if possible.

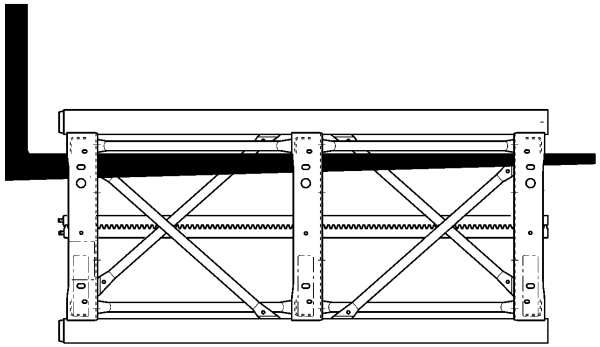
2. If not, the bundle unit must be lifted with utmost care, on the racks in the center of the mast section.
   The rack's machined surface must be turned away from the lifting fork.

   Take care not to damage the diagonal braces during applying / removing the lifting forks.
   Maximum allowed deformation less than < 3 mm **(1/8 in.). (Ref. MS 2/08).**
   Mast section with damaged diagonal members must be scrapped. Or maximum 1 piece, used in the top of the mast, painted in a different color.

3. Only lift one (1) piece mast section bundle unit at the same time.

4. Use a hook arrangement and a lift sling to lift each individual mast section into vertical position.
   Take care not to damage the mast section's guiding cones and the tension pin, in the lower end of the mast section during the lift.

ALIMAK



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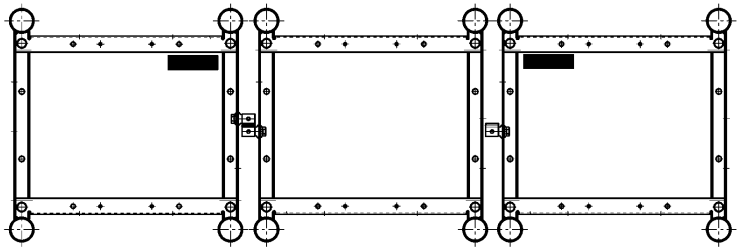

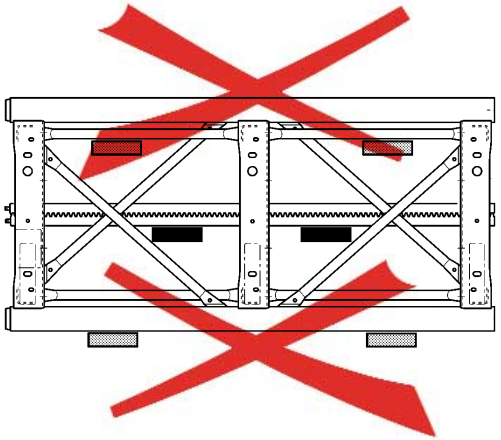

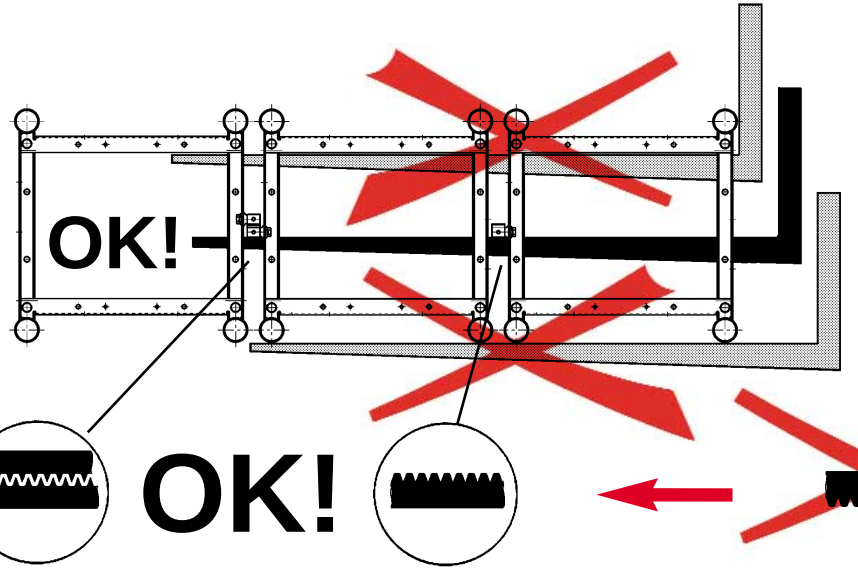

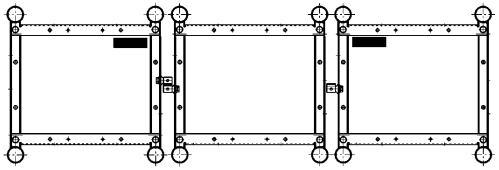

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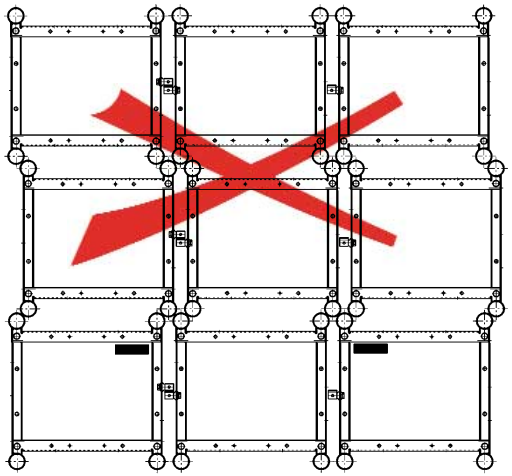


ATTACHMENT A

9110340-000

ATTACHMENT B

NEW Alimak Elevator Maintenance and Service Solicitation – Service and Maintenance Schedule of Tasks to Be Performed

Service and maintenance
In order to avoid unnecessary breakdowns, those responsible for the service and maintenance of this equipment must regularly ensure that all scheduled maintenance work is carried out at the recommended intervals according to the maintenance program below.

Adjustments and replacement as a result of inspection, must be carried out by trained/authorized service personnel. Only ALIMAK Genuine Spare Parts must be used.

WARNING!

Unintended operation.
Always put the hoist's "Normal/Inspection" switch in Inspection position before carrying out any service work.

When leaving the car without having completed the service work or to carry out service, the main switch must be switched off, locked and tagged. Failure to follow this warning can cause death or personal injury.

Service intervals
Intervals based on operating time shall be followed in the first instance. If the hoist is used only periodically, the first applicable interval to be reached shall be followed.

Frequent starts and stops!
Service interval 60 hours is based on operation on low rise buildings, with 4 storeys (approx. 12 m) or less, common in Sweden and northern Europe.

For 6 storeys (approx. 18 m) or more, corresponding service intervals can be increased to 120 hours but never exceeding once a month.

ATTACHMENT B

NOTE: The information contained in this document is to serve as a directive on frequency and duration of service/maintenance to the Sand Hill Alimak Hek elevator ONLY, and not as a substitute to the manufacturer-specific service and maintenance instructions contained in the Operation and Maintenance Manual located at: ENTER LINK/INFO HERE.

The Sand Hill Alimak Hek rack and pinion hoist elevator SE – 400 DOL provides access to the upper level of Unit 5A Heat Recovery Steam Generator (HRSG).

Interval	Part	Instructions	
60 operating hours or at least once every month	2. Sign plates/ instruction manuals	Check that all signs are in position according to the spare parts manual, and that they are legible. Check also that the documentation according to the documentation box is available.	
	3. Safety device	Check with the user/users if the safety device has been tripping without cause or if noise can be heard from the device during operation. For further details, see the instructions for checking wear on the safety device under the heading ”Adjustment and wear limits”	
	4. Gear box	Check the oil level and refill, if necessary. Leaking seals shall be replaced by trained/authorized personnel.	
	5. Counter roller(s) at the rear of the machinery plate and safety hooks, guide rollers on the hoist car frame.	Check that all bolt joints are properly tightened.	
	6. Attachment of machinery and safety device	Check that all screw joints are properly tightened.	
	7. Electric motor brakes	Check that the car stops within acceptable limits, specified later in this chapter. See the special instruction for checking the brake torque with a spring balance – if car stopping positions exceeds stated values. Check the play between the electromagnet armature and the rotating brake disc according to instructions later in this chapter.	
	8. Hoist cable(s)	Check the cable for wear and to ensure that no kinks occur. Check also the attachment of the cable in the cable support arm on the hoist car and the fixture in the hoist mast – where a cable guiding device and trolley are furnished.	
	9. Cable basket, where applicable	Clean the cable basket. If the cable guiding device is of a type for power and control cables, which has been taped together, check the tape and, if necessary, reinforce it along the entire length of the cable.	
	10. Interlocks	Check the function of all mechanical and electrical interlocks on all landings and on the hoist car. See the instructions under ”Safety Instructions”.	

	11. Car floor and roof	Clean the car floor and roof.	
	12. Scaffolding adjacent to hoist	Check that the distance from the hoist car to landings, scaffolding, balconies windows or any other location where persons may find themselves, are not less than regulations dictate. Point out any infringements and risks of injuries to the site manager.	
	13. Lubricating	See the instructions in the ”Lubrication diagram”. Also check the rack and counterweight guide rail for possible damages, misalignment and attachment, when lubricating.	
	14. Optional hydr. load ramp	See the instructions ”Maintenance instructions for optional el./hydraulic load ramp” later in this chapter.	

Interval	**Part**	**Instructions**	
At 120 operating hours or every two months	21. Hoist mast	Check visually that all screw joints of all racks and mast joints are properly tightened. Also check the screw joints for attaching the mast to the base frame.	
	22. Mast ties	Check that all screw joints in all mast ties are properly tightened. Also check attachment to structure.	
	23. Final- and normal limit switches with associated cams	Check attachment and function.	
	24. Cable guides	Check the cable guides with regard to attachment, function and installation in the mast in relation to the cable support arm on the hoist car.	
	25. Cable trolley, where applicable	Check that the cable trolley does not come in contact with the buffer frame at the ground landing and that the trolley is parallel to the mast tubes. Check also the function, attachment and wear on the guide and cable rollers and that the cable wheel on the trolley runs smoothly.	
	26. Base slab/pit	Remove all debris (or trash), which may have fallen on/into the base (or pit).	
	27. Gates on hoist car	Check the function, attachment and wear on rollers and wire ropes. Check to and ensure that rubber absorbers are in place. enclosures Also check that the rubber cover for the biparting gate is in place. Contact Alimak or representative if an oil leakage occurs on el./hydraulic load ramp – where applicable.	
	28. Buffers for hoist car	Check that the buffers are in position and in a proper condition.	
	29. Signal equipment and lighting	Check the function of the control device, alarm signal, lighting, automatic stop at landings and, where applicable, voice communication system.	
	30. Emergency	Switch off the main ON/OFF switch in the hoist car and check to ensure that the	

	lighting	emergency light functions. Switch on the main ON/OFF switch and check that the LED on the battery charger is illuminated. Applicable for battery charger to DOL driven hoists without floor call selecting system, type ALC – only.	
	31. Rack and pinion	Check the wear on the rack and pinion according to the instructions under the heading ”Adjustment and wear limits”.	
	32. Enclosures	Check that there is nothing in the vicinity of the landings, which can be used as a ladder, or can reduce the correct height of the enclosure in any way. Point out any infringements and risks of injuries to the site manager.	
	33. Lubricating	See the instructions in the ”Lubrication diagram”.	
	34. Emergency lowering device – where appl.	Check by test that the emergency lowering device works properly and that the handle is fully reset after operation. See the instructions in the under heading ”Optional centrifugal brake”.	

Interval	**Part**	**Instructions**	
400 operating hours or at least 4 times a year	40. Guide rollers	Check wear and bearing play of the hoist car rollers. Also check that the rollers can move axially. Adjustment and replacement, when required shall be carried out by trained/authorized service personnel.	
	41. Electric motor	If necessary, clean the cooling flanges of the electric motor. Have the electric motor’s permanently greased ball bearings replaced after 20.000 hours of operation by appropriately qualified personnel. Please contact Alimak Service department to schedule replacement.	
	42. Lubricating	See the instructions in the ”Lubrication diagram”.	
	43. Overload sensing system – where applicable	Overload test to probe overload sensing system.	
	44. Optional erection crane hoists – where appl.	See separate documentation regarding maintenance of optional erection crane hoists.	

Interval	**Part**	**Instructions**	
600 operating hours or at least 2 times a year	48. Safety device	Test the safety device according to the instructions under the heading ”Drop test”.	
	49. Motor brakes	Test motor brakes according to the instructions under the heading ”Static test of motor brakes”.	

ATTACHMENT B

Interval	Part	Instructions	
1000 operating hours or at least once a year	50. Shaft coupling	Check vibrations and listen for noise from shaft couplings between motors and gear boxes. If play occurs, service must be carried out by trained authorized personnel.	
	51. Electric wiring	Check all wires, sealing glands and connections.	
	52. Motor overload protector	Check that the motor overload protector is set to the rated current on the data plate for the electric motor.	
	53. Deformations/ mechanical damage	Inspect the equipment visually in its entirety for deformation/mechanical to mast tubes, diagonal members of the mast sections, mast ties, damage gates, protective rails, floors, etc. This inspection and any actions, which may be necessary after the inspection must be performed by trained/authorized service personnel.	
	54. Corrosion, damage and wear	Inspect the equipment in its entirety for corrosion and wear on loadbearing force-absorbing components by the aid of an ultrasonic thickness measuring instrument. This inspection and any actions which may need to be taken after the inspection must be performed by trained/authorized service personnel. A method for internal corrosion protection of the mast tubes is available, please contact your ALIMAK representative.	
	55. Hoist mast	Check that all screw joints of all racks and mast joints are properly tightened. Also check the screw joints for attaching the mast in the base.	
	56. Lubricating	See the instructions in the ”Lubrication diagram”.	
	57. Centrifugal brake – where applicable	Dismantle the brake motor from the centrifugal brake and inspect the brake hub with linings. See the instructions in the under heading ”Optional centrifugal brake”.	
	58. El./hydraulic operated load ramp – where applicable	Check the hydraulic system’s chock load valve. The load ramp must be able to close with a 20 kg weight placed farthest out on ramp. But NOT be able to closed if the weight exceeds 25 kg or more. For further details, see end of this chapter.	
	59. Hydraulic oil buffers – where applicable	Check the hydraulic oil level on the buffer’s dip stick and refill, if necessary. Make a test run with the hydraulic buffer’s limit switch in ’’Off ’’-position The hoist must NOT start. Put suitable object between the hydraulic buffer’s push rod and the limit switch’s actuator during the test.	
Interval	**Part**	**Instructions**	
Annually	60. Complete hoist	Have the complete hoist checked by a qualified technician.	
	61. Corrosion protection devices	Replace the corrosion protection devices which are located inside the electrical panels according to the following: Main panel (M-panel) 2 pcs. P/N 3002 301-105 Car top control panel (VFC) 2 pcs. P/N 3002 301-105 Car top control panel (DOL) 1 pcs. P/N 3002 301-101 Base panel (B-panel) 1 pcs. P/N 3002 301-105 Landing control stations 1 pcs. P/N 3002 301-101	

Interval	Part	Instructions	
Every 4th year or ***latest*** according to sign on the safety device	62. Safety device	Replace the complete safety device by returning the device to the Alimak Factory. Only Alimak factory tested devices are to be used. The safety device is sealed and unsealing the device is prohibited.	

LUBRICATION DIAGRAM

Interval	Item	Lubricating Point	Lubricant	Instructions
60 operating hours or at least once a month	1	Gear box/-es		Check the oil level.
	2	Safety device, and idle gear on the rear of the plate where applicable	Shell Gadus S3 V100 C or equivalent Part No. 3001 396-250	Grease nipple.
	3	Rack Also use spray corrosion on the machinery pull rod´s cup springs where applicable	Alimak spec. grease Part No. 3001396-108 Alternative: Cog spray for open gear	We recommend use of a to hand held battery operated grease pump. Refer to product sheet No. 1291. Lubricate during lowering. Take lift out of operation for 2 – 3 hours to permit the spray to congeal.
	4	Cable support arm, guides and trolley, where applicable.	Ali-low-fric compound Part No. 9052 045-000	Grease slide surfaces. Do not grease mast tubes – the cable trolley may get stuck
120 operating hours or at least 6 times a year	9	Door interlocks and ramps	Shell Gadus S3 V220 C Part. No. 3001 369-107	Grease bearings and slide surfaces.
	11	Landing doors	Shell Gadus S3 V220 C or equivalent	Grease bearings and slide surfaces.
	–	Roof trapdoor and electric cabinet hinges	Spray can with multipurpose oil type WD 40 or equivalent	
	–	Electric / hydraulical load ramp – where applicable	Hydraulic oil according to ISO VG32 or Q8 Hindemith LT P/N. 3001 225-020	Check oil level. Also see page E23.
1000 operating hours or at least once a year	–	Hydraulic oil buffers– where applicable	Hydraulic oil according to ISO VG68 or Shell Tellus 68 P/N. 3001 225-102	Check oil level. stroke 435 mm = 3.3 lit. (**1'- 5 1/4'' = 0.87 US gal.)** stroke 173 mm = 1.45 lit. (**6 3/4'' = 0.38 US gal.)**
2000 operating hours or at least every 2 years	20	Gear box/-es	Alioil VN Part No. 9041 980-000	Change oil, 2.9 lit. **(0.76 US.gallon)**

ATTACHMENT C

No. 1178 E Febr. -05

ALIMAK®

Service Elevator 400L / DOL

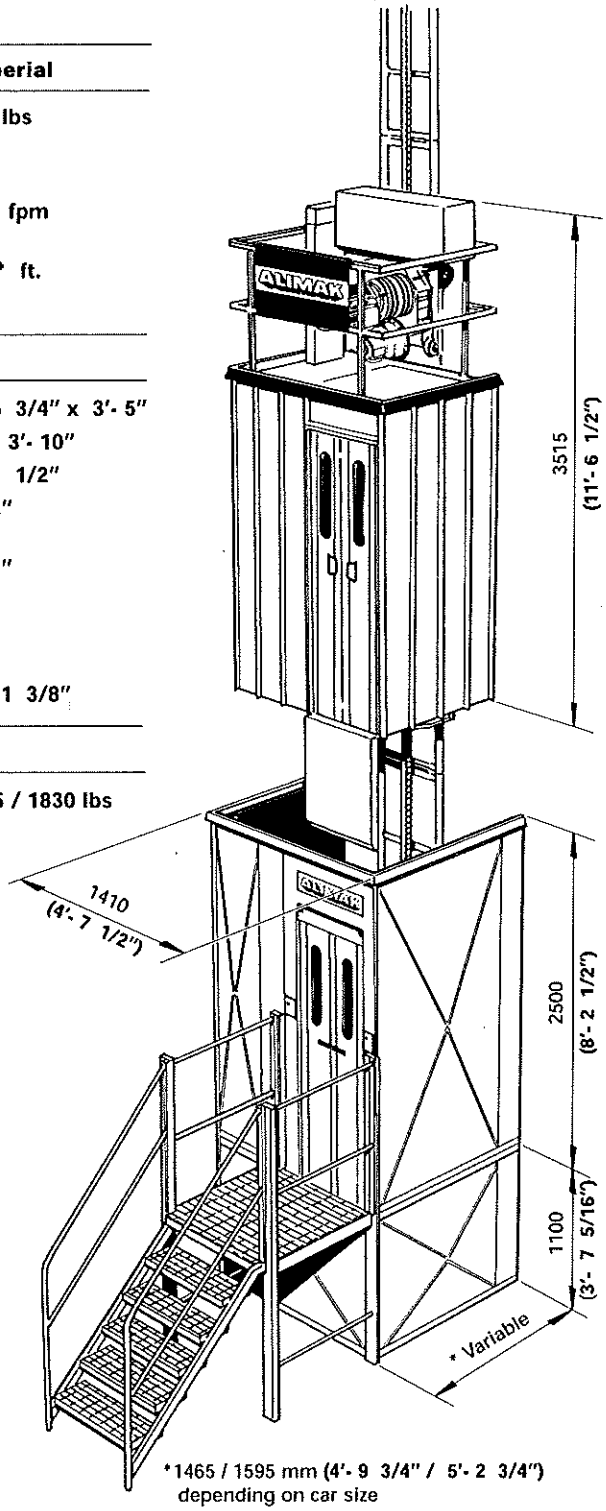
CAPACITY	Metric	Imperial
Pay load capacities:	400 kg	880 lbs
Average speed up/down at rated pay-load:		
Direct on line (DOL) 50 Hz:	0.63 m/s	
Direct on line (DOL) 60 Hz:	0.76 m/s	150 fpm
Max. lifting height with std. accessories:	250* m	825* ft.

***Depending on the optional equipment chosen**

DIMENSIONS		
Internal width x depth (alt. 1):	780 x 1040 mm	2'- 6 3/4" x 3'- 5"
Internal width x depth (alt. 2):	910 x 1170 mm	3' x 3'- 10"
Internal height:	2170 mm	7'- 1 1/2"
Bi-folding door opening width:	660 mm	2'- 2"
Door opening height;	2015 mm	6'- 8"
Headroom required above the landing approx.:	4000 mm	13'
Min. required shaft dimension = Landing enclosure outside dimension		
Mast section length:	1.508 m	4'- 11 3/8"

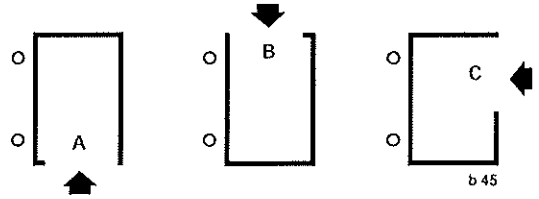
CAR WEIGHT		
Car weight	750 / 830 kg	1655 / 1830 lbs

CONTROLS	
Operation:	Single automatic 2 – 3 landings
	Semi-automatic 3 – n landings
Separate power voltage:	230V AC / 110V AC
Control circuit voltage:	230V AC
Motor control:	direct on line (DOL)



*1465 / 1595 mm (4'- 9 3/4" / 5'- 2 3/4") depending on car size

Car door configuration



Service elevator adapted for applications such as container cranes according to the EU, Machine Directives

ATTACHMENT C

Tube guide rail type A
for lifting heights up
to 50 meter **(165 ft.)**

Modified tube guide rail type A
for lifting heights above
50 up to 200 meter **(650 ft.)**

GUIDE RAILS / MASTS

Type: Tubular steel with integrated rack
Section length 1.508 m **(4'- 11 3/8")**

Alternative:	**Type**	**Weight**	**Tie-distance**
	A	53 kg **(117 lbs)**	each 1.5 m (**5 ft.)**
	modified A	58 kg **(128 lbs)**	each 1.5 m (**5 ft.)**

ELECTRICAL DATA

Power supply

Voltage: DOL 380 – 420 V, 50 Hz or
440 – 480 V, 60 Hz

Electrical motor

Type: AC squirrel cage motor

(kW at 100% / 25 % intermittent duty) **DOL 1 x 7.5/8.8 kW at 50Hz**
(DOL 1 x 8.6/10 kW at 60 Hz)

Electrical brake

Type spring applied electromagnetic disc brake:
8.8 kW:s motor brake torque 170 Nm **(125 lbf x ft)**

Electrical ingress protection class: min. IP 55

Data on other voltages on request.

Measured noice level in car less than ≤ 80 db(A)
(measured at factory)

SURFACE TREATMENT

Structual parts (mast, car frame):
- Hot dip galvanized

Car panels:
- Anodized aluminium

Enclosure panels:
- Galvanized steel sheeting

OPTIONAL FEATURES

- Platforms and stairs
- Telephone by wire or GSM
- Automatic rack lubricator
- Ventilation fan
- Extra ventilation
- Overload detection
- Automatic return to base, automatic alarm etc
- Windows in car
- PTC-detection in motor windings
- Heater in motor windings
- Bolts and nuts of stainless steel
- Enclosure panels of anodized aluminium

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BID SHEET
CITY OF AUSTIN
ELEVATOR MAINTENANCE FOR AUSTIN ENERGY
SOLICITATION: IFB NST0023REBID BUYER: NICOLE TURNER

Copies of Bid: Vendor must submit two copies of its signed bid - one original, one copy, and one CD/Flash Drive

Special Instructions: All prices submitted must be inclusive of all required services, replacement parts, and labor necessary to complete the specified manufacturer scheduled maintenance requirements per the attached Operation and Maintenance Manual and specified maintenance schedule (Ref. Attachment A & B). Contractor cost shall include freight, shipping, and handling costs
Note: Be advised that exceptions taken to any portion of the solicitation may jeopardize acceptance of the bid.

ITEM	ITEM DESCRIPTION	ESTIMATED ANNUAL QUANTITY	UNIT OF MEASURE	UNIT PRICE	EXTENDED PRICE
1	Monthly Service Check (at 60 operating hours or once per month) in accordance with Specification (Ref. Attachment A & B)	12	EACH		
2	Bi-Monthly Service Check (at 120 operating hours or once per month) in accordance with Specification (Ref. Attachment A & B)	6	EACH		
3	Quarterly Service Check in accordance with Specification (Ref. Attachment A & B) (at 400 operating hours or at least four times a year)	4	EACH		
4	Bi-Monthly Service Check (at 600 operating hours or at least four times a year) in accordance with Specification (Ref. Attachment A & B)	2	EACH		
5	Annual Service Check in accordance with Specification (at 1000 operating hours pr at least once a year)(Ref. Attachment A & B)	1	EACH		
6	Annual Hoist and Corrosion Protection Check in accordance with Specification (Ref. Attachment A & B)	1	EACH		
7	Safety Device check (every fourth year or latest according to sign on the safety device) in accordance with Specification (Ref. Attachment A & B)	1	EACH		
8	Full load test (as part of Inspections, to be conducted every five years) in accordance with Specification (Ref. Attachment A & B)	1	EACH		
9	**Corrective Repair Services/ Labor rate per standard Work Hr.**	10	HOUR		
10	**Corrective Repair Services/ Labor rate per non-standard Work Hr.**	10	HOUR		
			TOTAL BID		

The following information should be submitted with the Offer. Please check the boxes below as confirmation.

COMPANY NAME:	
SIGNATURE OF AUTHORIZED REPRESENTATIVE:	
PRINTED NAME:	
EMAIL ADDRESS:	