

Customer details: Kebe A/S
Sortevej 8
DK-8543 Hornslet
Denmark

SATRA reference: FUR0251479 / 1645

Your reference:

Date of report: 31 May 2017

Samples received: 9 November 2016

For the attention of: Remigiusz Wodzinski

Date(s) work carried out: 9 November 2016 –
16 March 2017

TECHNICAL REPORT

Subject: Testing of and electric reclining chair, described by the customer as the "Cowe-KEBE- electric chair", to BS 8474:2013, 110 kg test level.

Conditions of Issue:

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Results given in this report refer only to the samples submitted for analysis and tested by SATRA. Comments are for guidance only.

A satisfactory test report in no way implies that the product tested is approved by SATRA and no warranty is given as to the performance of the product tested. SATRA shall not be liable for any subsequent loss or damage incurred by the client as a result of information supplied in the report.

Please note uncertainty of measurement has not been applied to the results in this report. SATRA uncertainty of measurement values are available on request.

Report signed by: Andrew Munns
Position: Furniture Technologist
Department: Furniture and Floor Coverings



ASSESSMENT OF THE COWE-KEBE-ELECTRIC CHAIR

As requested by Kebe A/S, SATRA have assessed the sample submitted, as detailed below.

SAMPLE SUBMITTED

Sample reference: Cowe-Kebe-Electric Chair
 Date received: 9 November 2016
 Testing completed: 16 March 2017
 Testing conducted by: Peter Westley
 Reported by: Peter Westley

TESTS CARRIED OUT

BS 8474:2013 (*Furniture - Chairs with electrically operated support surfaces - Requirements*)
 The chair was tested at the 110Kg user weight level.

RESULTS

COWE-KEBE ELECTRIC CHAIR

Clause	Test Description	Result
4	General requirements	
4.1	Edges and corners	Pass (see Note 1)
4.2	Tubular components accessible during use	Pass
5	Strength and durability requirements	
5.1.2.3	Procedure (<i>Testing to EN 1728:2012 – see Table 1</i>)	Pass
5.2	Durability of chair surface adjustment mechanisms (Annex A , 20,000 cycles)	Fail (see Note 2)
6	Stability	
-	Testing to BS EN 1022:2005 – see Table 2	N/T (see Note 3)
-	Riser Chairs (Annex B)	N/A
7	Control system requirements	
7.1.1	Motion lockout control	N/A
7.1.2	Manual operation only	N/T (see Note 3)
7.1.3	Max' movement speed (loaded / unloaded)	N/T (see Note 3)
7.1.4	Min' stopping speed	N/T (see Note 3)
7.1.5	No movement when conflicting signals occur	N/T (see Note 3)
7.1.6	Chairs without battery back-up system - Min' stopping time when mains power lost	N/T (see Note 3)

Continued

7.1.7	Chairs with battery back-up system – Indication of charge level of battery (level to complete one cycle)	N/A
7.1.8	Chairs with battery operated reset system – Return to sitting position on loss of mains power	N/A
7.1.9	Chairs with battery back-up system – Min' stopping time and chair position when all power is lost	N/A
7.2	Control devices	
7.2.1	Marking to indicate movement direction	N/A
7.2.2	Minimum size of 10mm diameter (buttons etc)	N/T (see Note 3)
7.2.3	Operation force less than 6N	N/T (see Note 3)
7.2.4	Durability of control/indicator markings (Annex C)	N/T (see Note 3)
8	Marking	
a)	Reference to BS 8474:2013	Pass
b)	Name of manufacturer or supplier	Pass
9	Information to be supplied by the manufacturer	Pass
a)	Reference to BS 8474:2013	Pass
b)	Name and address of manufacturer or supplier	Pass
c)	Chair identification (model no, batch or date of m/f)	Pass
d)	Safety warnings (1-8)	Pass
e)	Assembly instructions (if applicable)	N/A
f)	Maximum safe load	Pass
g)	Instructions for safe operation	Pass
h)	Information for operation of the motion lockout control	N/A
i)	Statement as to chair being ready for use	Pass
j)	Statement as to when chair not in use	Pass
k)	Instructions for care and maintenance	Pass

Table 1 - Clause 5 - Strength and Durability Requirements 110Kg

Test	Test Description	Clause of BS EN 1728:2012	Result
1	Seat and back static load	6.4	Pass
2	Seat front edge static load	6.5	Pass
3	Arm rest sideways static load	6.10	Pass
4	Arm rest downwards static load	6.11	Pass
5	Leg forward static load	6.15	N/A
6	Leg sideways static load	6.16	N/A
7	Combined seat and back durability	6.17	Pass
8	Seat front edge durability	6.18	Pass
9	Arm rest durability	6.20	Pass
10	Seat impact	6.24	Pass
11	Back impact	6.25	Pass
12	Arm impact	6.26	Pass
13	Drop test (multi seating)	6.27.1	N/A

Table 2 – Clause 6 - Stability Requirements

Test	Test Description	Clause of BS EN 1022:2005	Result
1	Forwards overbalancing, all seating	6.2	N/T (see Note 3)
2	Sideways overbalancing, all seating without arms	6.4	N/A
3	Sideways overbalancing, all seating with arms	6.5	N/T (see Note 3)
4	Rearwards overbalancing, all seating with backs	6.6	N/T (see Note 3)
5	Rearwards stability test, reclining chairs with footrest	7.5	N/T (see Note 3)

N/A denotes clause 'Not Applicable'.

N/T denotes clause 'Not Tested'.

COMMENTS

Note 1: In the original sample supplied 9 November 2016, there was a sharp edge on a bolt thread at the base of the seat back which was exposed and accessible when the seat back was reclined. On 2 December 2016 the customer supplied 2 dome-headed nuts to be screwed onto the exposed threads, and when these were fitted a "pass" was awarded.

Note 2: A number of failures to component parts occurred. Except for the last failure (d), the relevant replacement parts were supplied by the customer and fitted by SATRA. On each occasion, testing was restarted from zero cycles. Details as follows:

- a) 4 January 2017 – After completing 6,876 cycles, of the 20,000 required, the leg rest/recliner actions would no longer function. Further investigation found that two of the ball bearings had come out of one of the runners under the leg rest, see Pictures 5, 6 and 7. The loss of bearings resulted in the whole leg rest assembly becoming out of alignment. The leg rest operation arm was also found to be catching on the leg rest cross-rail, see Picture 8. The overall consequence of this mechanism damage is that the power supply (transformer) overheats and shuts off the power to the motors;
- b) 17 February 2017 – parts that failed (see (a) above) were replaced by SATRA and the test was restarted;
- c) 27 February 2017 – both motors were replaced by SATRA and the test was restarted (motor faults suspected);
- d) 16 March 2017 – After completing 11,760 cycles, of the 20,000 required, it was found that both leg rest mechanism runners had detached from their front fixings at the underside of the leg rest. This resulted in a misaligned leg rest opening / closing action, see Pictures 9 to 13. It was also found that the back rest was not returning to its' original, upright position, shown by the black pen mark on the left in Picture 14.

Note 3: Not tested, due to the failures (see Note 2).

CONCLUSION

The 'Cowe-Kebe-Electric Chair', supplied for testing by Kebe A/S, has failed to satisfy the relevant requirements of BS 8474:2013 at the 110Kg user weight level.



Picture 1: Front view of the 'Cowe-Kebe-Electric Chair'



Picture 2: Side view of the 'Cowe-Kebe-Electric Chair'



Picture 3: Side (reclined) view of the 'Cowe-Kebe-Electric Chair'



Picture 4: Rear view of the 'Cowe-Kebe-Electric Chair'



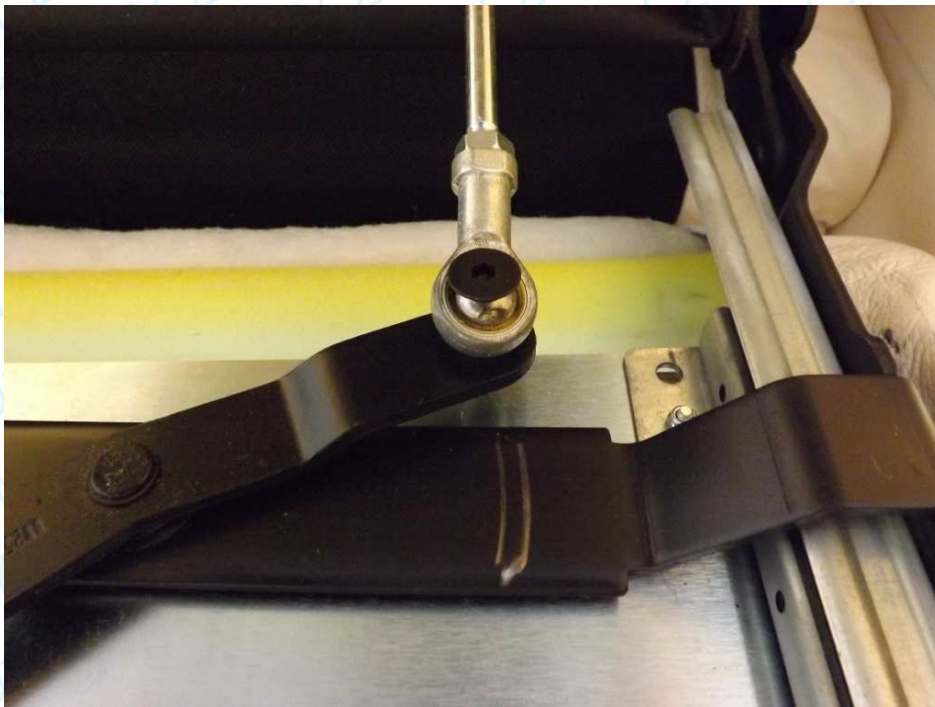
Picture 5: Leg rest runner damage of the 'Cowe-Kebe-Electric Chair'



Picture 6: Leg rest runner damage of the 'Cowe-Kebe-Electric Chair'



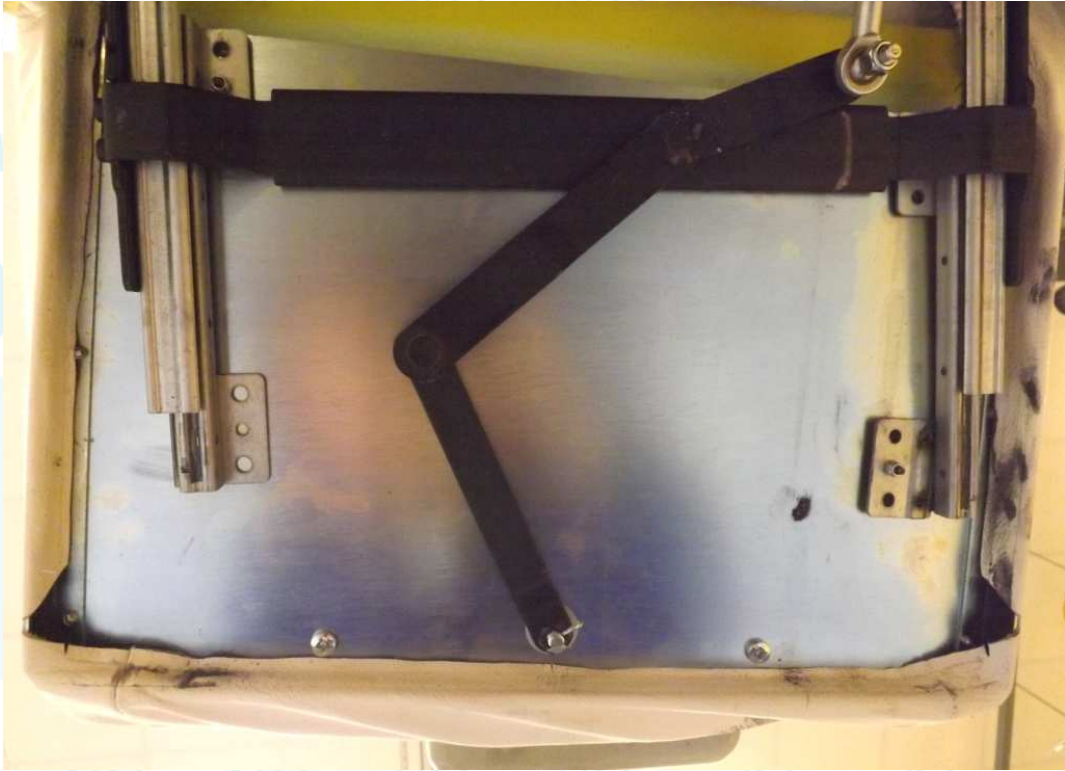
Picture 7: Leg rest misalignment of the 'Cowe-Kebe-Electric Chair'



Picture 8: Leg rest crossrail damage of the 'Cowe-Kebe-Electric Chair'



Picture 9: Leg rest misalignment of the 'Cowe-Kebe-Electric Chair'



Picture 10: Leg rest misalignment of the 'Cowe-Kebe-Electric Chair'



Picture 11: Leg rest runner fixing damage of the 'Cowe-Kebe-Electric Chair'



Picture 12: Leg rest runner fixing damage of the 'Cowe-Kebe-Electric Chair'



Picture 13: Leg rest crossrail damage of the 'Cowe-Kebe-Electric Chair'



Picture 14: Back rest wear of the 'Cowe-Kebe-Electric Chair'

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Issue Date: 1st October 2009