

# Technical Bulletin

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## BULLETIN SUBJECT:

Actuator Operational Life Cycle - Issue 6

|                          |                 |                                   |                                       |
|--------------------------|-----------------|-----------------------------------|---------------------------------------|
| <b>Product Group:</b>    | Patient Lifters | <b>Model(s) Affected:</b>         | All Classic & Pro Series Lifts (Elec) |
| <b>Effectivity Date:</b> | Immediate       | <b>Serial No. Effective From:</b> | See below                             |

### Updated: 23<sup>rd</sup> January 2019

Joerns Healthcare has used Linak actuators on their Oxford range of electric mobile hoists for over 12 years. Linak, as an actuator supplier, have supplied in excess of 100,000 actuators across the UK since 1990. During this time, Linak UK have experienced only one failure (on an actuator that was 11 years old) that resulted in a collapsed hoist in the field of hoisting application. This equates to a failure rate of 0.001%.

Joerns Healthcare, in conjunction with Linak, are able to communicate that following extensive lifetime testing of Linak LA34 & LA44 actuators for hoists under BS EN ISO 10535: 2006 requirements, an average life cycle of over **40,000 cycles** was achieved. Therefore, where the total cycle count can be confirmed and the product passes LOLER regulations, it is essential that Linak LA34 & LA44 electric actuators fitted on Joerns Healthcare's Oxford Classic (Steel) range and Oxford 'Professional Series' lifts are replaced at **40,000 cycles**.

**NOTE:** The testing methodology used reflects the durability cycle set up and defined in BS EN ISO 10535: 2006 clause 4.10 and respects the 'duty cycle' identified by the manufacturer (Linak) for these types of actuators.

In addition, all actuators should be evaluated during each and every Periodic Service & Inspection (LOLER) by a competent person to assess if actuator replacement is necessary.

For lifts where the total cycle count cannot be confirmed, it is recommended the competent person uses appropriate means to determine the approximate actuator lift cycle count and assess if actuator replacement is necessary. The actuator usage indicator chart on page 4 of this communication may be useful in assessing the approximate actuator lift cycle count.

Joerns Healthcare also recommends that the actuator pivot pins and mounting brackets on the boom and mast of lifts are assessed for wear at each and every Periodic Service and Inspection (LOLER) - See 'Inspection Criteria for Actuator and Mounting Points on Oxford Electrical Lifts' detailed later in this communication.

The Mermaid bath lifter and the Voyager overhead range of lifts are of a completely different design and are therefore not affected by this communication.

If the user or service provider is not able or confident to determine either the number of cycles completed by the actuator or its age, Joerns Healthcare recommend that either the actuator or the lift be replaced and that the ongoing frequency of subsequent use be monitored and recorded on a daily basis from that point. This policy should also be followed for any lift that has an original actuator (a check should be carried out to establish this fact) on any Oxford mobile lift with a **serial number of up to 18600**, preceded by the prefix of the type of lift e.g. MD 18600

In the very unlikely event that an Oxford hoist actuator breaks down under normal wear and tear conditions, it will do so safely. This is due to a mechanical and electrical 'end-stop' feature with a safety-nut that is fitted as standard to Oxford hoist actuators.

Oxford hoists are designed to and comply with 'The Essential Requirements of the Medical Devices Directive' 93/42/EEC and ISO 9000 certification.

Joerns Healthcare has delivered over 100,000 mobile hoists on a worldwide basis.

Joerns Healthcare has not experienced incidents or accidents with actuators failing when the hoist is used correctly and regularly maintained by qualified and competent service and inspection personnel.

It is still a requirement that the operator/owner/maintenance contractor (on an individual case basis) makes an assessment on whether or not the actuator should be replaced. LOLER inspection and also compliance with the user manual and service manual for the product will assist in this assessment.

To ensure the safety of the user and the longevity and reliability of Oxford hoists, we again emphasise the essential need for regular maintenance under (LOLER) inspection and testing by competent qualified service engineers.

Oxford electric hoists are designed with a minimum life expectancy of 7 years within regular and normal usage, subject to regular and qualified service and inspections (LOLER).

\* **See Inspection Criteria for Actuator and Mounting Points on Oxford Electric hoists (below).**

### **Inspection Criteria for Actuator and Mounting Points on Oxford Electric Hoists**

- Examine the actuator mounting points on the boom and the mast (see Photo 1) on the attached pictorial guide.
- Without taking the mountings apart, check for signs of wear on the fulcrum pin (see Photo 6).
- Check for excessive vertical and horizontal movement in the mountings (see Photo 6).

**NOTE: The body of the LA44 actuator lifts by 2mm on the lower central mounting pivot. This is a normal characteristic and should not be interpreted as wear.**

- This will give a good indication of wear but if there is any doubt the assembly should be stripped down and inspected as follows:

**NOTE: Joerns healthcare recommends any circlips removed are renewed and not re-used.**

1. Remove the fulcrum pin from the actuator bracket.
2. Examine the pin for signs of wear (see Photo 2 on next page).
3. Reduction in diameter due to **wear must not exceed 1mm before replacement of the pin.**
4. Examine the actuator mounting brackets on the boom and mast for wear on the mounting holes. **These should not exceed a 2mm elongation in any direction before replacement of the mast or boom** (see Photo 3 on next page).
5. Examine the actuator top and bottom mounting points for wear. **It should not exceed 1mm before replacement of the actuator** (see Photos 4 & 5 on next page).

**NOTE: Prior to re-assembly, apply a small amount of light mineral-based grease or food grade spray lubricant to the fulcrum pins and holes in the mounting brackets.**

6. Examine the actuator piston tube for dents or marks. If any marks or dents are evident, the actuator must be replaced (see Photo 7).

## A Pictorial Guide to the Inspection of Actuator and Mast/Boom Mounting Brackets



Photo 1



Photo 2

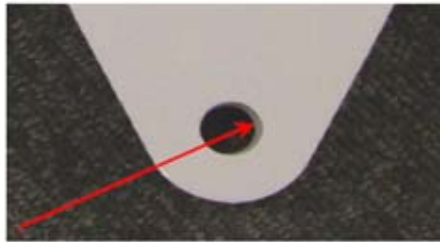


Photo 3

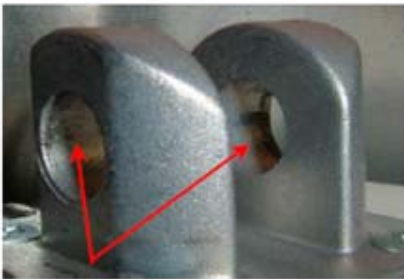


Photo 4

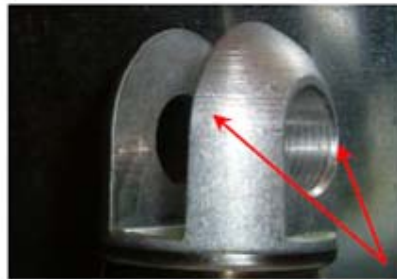


Photo 5



Photo 6



Photo 7

In addition to the above checks, a 'Noise Level Check' should be performed.

### **Noise Level Check:**

Run the actuator in both the upward and downward directions, with the maximum safe working load suspended from the spreader bar and also without load. If any unusual sounds such as ticking, grinding or screeching occurs the actuator must be replaced.

**NOTE 1:** The pictorial guide covers the range of Oxford hoists old and new and is not indicative of any particular type of Oxford hoist design.

**NOTE 2:** In some cases Joerns Healthcare may not be able to supply replacement parts due to the age of the products affected and availability of the required parts.

| Lifts<br>Per Day | Age of Actuator (Years) |        |        |        |         |         |         |         |         |         |
|------------------|-------------------------|--------|--------|--------|---------|---------|---------|---------|---------|---------|
|                  | 1                       | 2      | 3      | 4      | 5       | 6       | 7       | 8       | 9       | 10      |
| 1                | 365                     | 730    | 1,095  | 1,460  | 1,825   | 2,190   | 2,555   | 2,920   | 3,285   | 3,650   |
| 2                | 730                     | 1,460  | 2,190  | 2,920  | 3,650   | 4,380   | 5,110   | 5,840   | 6,570   | 7,300   |
| 3                | 1,095                   | 2,190  | 3,285  | 4,380  | 5,475   | 6,570   | 7,665   | 8,760   | 9,855   | 10,950  |
| 4                | 1,460                   | 2,920  | 4,380  | 5,840  | 7,300   | 8,760   | 10,220  | 11,680  | 13,140  | 14,600  |
| 5                | 1,825                   | 3,650  | 5,475  | 7,300  | 9,125   | 10,950  | 12,775  | 14,600  | 16,425  | 18,250  |
| 6                | 2,190                   | 4,380  | 6,570  | 8,760  | 10,950  | 13,140  | 15,330  | 17,520  | 19,710  | 21,900  |
| 7                | 2,555                   | 5,110  | 7,665  | 10,220 | 12,775  | 15,330  | 17,885  | 20,440  | 22,995  | 25,550  |
| 8                | 2,920                   | 5,840  | 8,760  | 11,680 | 14,600  | 17,520  | 20,440  | 23,360  | 26,280  | 29,200  |
| 9                | 3,285                   | 6,570  | 9,855  | 13,140 | 16,425  | 19,710  | 22,995  | 26,280  | 29,565  | 32,850  |
| 10               | 3,650                   | 7,300  | 10,950 | 14,600 | 18,250  | 21,900  | 25,550  | 29,200  | 32,850  | 36,500  |
| 11               | 4,015                   | 8,030  | 12,045 | 16,060 | 20,075  | 24,090  | 28,105  | 32,120  | 36,135  | 40,150  |
| 12               | 4,380                   | 8,760  | 13,140 | 17,520 | 21,900  | 26,280  | 30,660  | 35,040  | 39,420  | 43,800  |
| 13               | 4,745                   | 9,490  | 14,235 | 18,980 | 23,725  | 28,470  | 33,215  | 37,960  | 42,705  | 47,450  |
| 14               | 5,110                   | 10,220 | 15,330 | 20,440 | 25,550  | 30,660  | 35,770  | 40,880  | 45,990  | 51,100  |
| 15               | 5,475                   | 10,950 | 16,425 | 21,900 | 27,375  | 32,850  | 38,325  | 43,800  | 49,275  | 54,750  |
| 16               | 5,840                   | 11,680 | 17,520 | 23,360 | 29,200  | 35,040  | 40,880  | 46,720  | 52,560  | 58,400  |
| 17               | 6,205                   | 12,410 | 18,615 | 24,820 | 31,025  | 37,230  | 43,435  | 49,640  | 55,845  | 62,050  |
| 18               | 6,570                   | 13,140 | 19,710 | 26,280 | 32,850  | 39,420  | 45,990  | 52,560  | 59,130  | 65,700  |
| 19               | 6,935                   | 13,870 | 20,805 | 27,740 | 34,675  | 41,610  | 48,545  | 55,480  | 62,415  | 69,350  |
| 20               | 7,300                   | 14,600 | 21,900 | 29,200 | 36,500  | 43,800  | 51,100  | 58,400  | 65,700  | 73,000  |
| 21               | 7,665                   | 15,330 | 22,995 | 30,660 | 38,325  | 45,990  | 53,655  | 61,320  | 68,985  | 76,650  |
| 22               | 8,030                   | 16,060 | 24,090 | 32,120 | 40,150  | 48,180  | 56,210  | 64,240  | 72,270  | 80,300  |
| 23               | 8,395                   | 16,790 | 25,185 | 33,580 | 41,975  | 50,370  | 58,765  | 67,160  | 75,555  | 83,950  |
| 24               | 8,760                   | 17,520 | 26,280 | 35,040 | 43,800  | 52,560  | 61,320  | 70,080  | 78,840  | 87,600  |
| 25               | 9,125                   | 18,250 | 27,375 | 36,500 | 45,625  | 54,750  | 63,875  | 73,000  | 82,125  | 91,250  |
| 26               | 9,490                   | 18,980 | 28,470 | 37,960 | 47,450  | 56,940  | 66,430  | 75,920  | 85,410  | 94,900  |
| 27               | 9,855                   | 19,710 | 29,565 | 39,420 | 49,275  | 59,130  | 68,985  | 78,840  | 88,695  | 98,550  |
| 28               | 10,220                  | 20,440 | 30,660 | 40,880 | 51,100  | 61,320  | 71,540  | 81,760  | 91,980  | 102,200 |
| 29               | 10,585                  | 21,170 | 31,755 | 42,340 | 52,925  | 63,510  | 74,095  | 84,680  | 95,265  | 105,850 |
| 30               | 10,950                  | 21,900 | 32,850 | 43,800 | 54,750  | 65,700  | 76,650  | 87,600  | 98,550  | 109,500 |
| 31               | 11,315                  | 22,630 | 33,945 | 45,260 | 56,575  | 67,890  | 79,205  | 90,520  | 101,835 | 113,150 |
| 32               | 11,680                  | 23,360 | 35,040 | 46,720 | 58,400  | 70,080  | 81,760  | 93,440  | 105,120 | 116,800 |
| 33               | 12,045                  | 24,090 | 36,135 | 48,180 | 60,225  | 72,270  | 84,315  | 96,360  | 108,405 | 120,450 |
| 34               | 12,410                  | 24,820 | 37,230 | 49,640 | 62,050  | 74,460  | 86,870  | 99,280  | 111,690 | 124,100 |
| 35               | 12,775                  | 25,550 | 38,325 | 51,100 | 63,875  | 76,650  | 89,425  | 102,200 | 114,975 | 127,750 |
| 36               | 13,140                  | 26,280 | 39,312 | 52,416 | 65,520  | 78,264  | 91,728  | 104,832 | 117,936 | 131,040 |
| 37               | 13,505                  | 27,010 | 40,515 | 54,020 | 67,525  | 81,030  | 94,535  | 108,040 | 121,545 | 135,050 |
| 38               | 13,870                  | 27,740 | 41,610 | 55,480 | 69,350  | 83,220  | 97,090  | 110,960 | 124,830 | 138,700 |
| 39               | 14,235                  | 28,470 | 42,705 | 56,940 | 71,175  | 85,410  | 99,645  | 113,880 | 128,115 | 142,350 |
| 40               | 14,600                  | 29,200 | 43,800 | 58,400 | 73,000  | 87,600  | 102,200 | 116,800 | 131,400 | 146,000 |
| 41               | 14,965                  | 29,930 | 44,895 | 59,860 | 74,825  | 89,790  | 104,755 | 119,720 | 134,685 | 149,650 |
| 42               | 15,330                  | 30,660 | 45,990 | 61,320 | 76,650  | 91,980  | 107,310 | 122,640 | 137,970 | 153,300 |
| 43               | 15,695                  | 31,390 | 47,085 | 62,780 | 78,475  | 94,170  | 109,865 | 125,560 | 141,255 | 156,950 |
| 44               | 16,060                  | 32,120 | 48,180 | 64,240 | 80,300  | 96,360  | 112,420 | 128,480 | 144,540 | 160,600 |
| 45               | 16,425                  | 32,850 | 49,275 | 65,700 | 82,125  | 98,550  | 114,975 | 131,400 | 147,825 | 164,250 |
| 46               | 16,790                  | 33,580 | 50,370 | 67,160 | 83,950  | 100,740 | 117,530 | 134,320 | 151,110 | 167,900 |
| 47               | 17,155                  | 34,310 | 51,465 | 68,620 | 85,775  | 102,930 | 120,085 | 137,240 | 154,395 | 171,550 |
| 48               | 17,520                  | 35,040 | 52,560 | 70,080 | 87,600  | 105,120 | 122,640 | 140,160 | 157,680 | 175,200 |
| 49               | 17,885                  | 35,770 | 53,655 | 71,540 | 89,425  | 107,310 | 125,195 | 143,080 | 160,965 | 178,850 |
| 50               | 18,250                  | 36,500 | 54,750 | 73,000 | 91,250  | 109,500 | 127,750 | 146,000 | 164,250 | 182,500 |
| 51               | 18,615                  | 37,230 | 55,845 | 74,460 | 93,075  | 111,690 | 130,305 | 148,920 | 167,535 | 186,150 |
| 52               | 18,980                  | 37,960 | 56,940 | 75,920 | 94,900  | 113,880 | 132,860 | 151,840 | 170,820 | 189,800 |
| 53               | 19,345                  | 38,690 | 58,035 | 77,380 | 96,725  | 116,070 | 135,415 | 154,760 | 174,105 | 193,450 |
| 54               | 19,710                  | 39,420 | 59,130 | 78,840 | 98,550  | 118,260 | 137,970 | 157,680 | 177,390 | 197,100 |
| 55               | 20,075                  | 40,150 | 60,225 | 80,300 | 100,375 | 120,450 | 140,525 | 160,600 | 180,675 | 200,750 |
| 56               | 20,440                  | 40,880 | 61,320 | 81,760 | 102,200 | 122,640 | 143,080 | 163,520 | 183,960 | 204,400 |
| 57               | 20,805                  | 41,610 | 62,415 | 83,220 | 104,025 | 124,830 | 145,635 | 166,440 | 187,245 | 208,050 |
| 58               | 21,170                  | 42,340 | 63,510 | 84,680 | 105,850 | 127,020 | 148,190 | 169,360 | 190,530 | 211,700 |
| 59               | 21,535                  | 43,070 | 64,605 | 86,140 | 107,675 | 129,210 | 150,745 | 172,280 | 193,815 | 215,350 |
| 60               | 21,900                  | 43,800 | 65,700 | 87,600 | 109,500 | 131,400 | 153,300 | 175,200 | 197,100 | 219,000 |

Denotes an actuator cycle count of more than 40,000

If you have any questions or concerns regarding any of the above, please contact our Customer Services department on (T) 0844 811 1158 or send an email to [info@joerns.co.uk](mailto:info@joerns.co.uk).

### What does the Customer need to do next:

Inform all service engineers, technical based and any other relevant staff of these updated guidelines.