

Major Crane Inspections

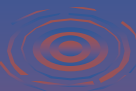
- Presentation to the Brian Miller
Construction Safety Forum

John Gillespie, President, CICA



Summary

1. Australian Standards for Major Inspections
2. CraneSafe
3. CICA Guide to Major Inspections
4. Example of a Major Inspection
5. Cost & Time of a Major Inspection
6. Future for Major Inspections
7. CICA Products
8. Questions

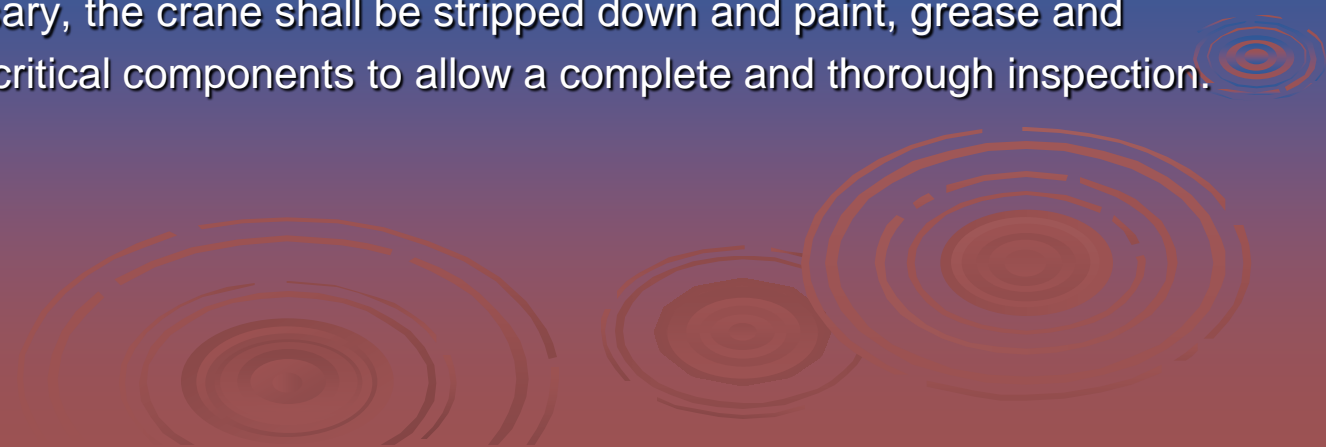


Australian Standards for Major Inspections

Cranes shall be subjected to a major inspection to assess their suitability for continued safe operation as follows:

- (a) Unless assessed in accordance with Section 9 to determine when a major inspection is due, after two-thirds of the design life specified by the manufacturer or the original design Standard or, where this is unknown after 7 years of use.
- (b) When an old crane is to be recommissioned and previous operating records do not exist or the Standard to which it was designed and built is unknown.

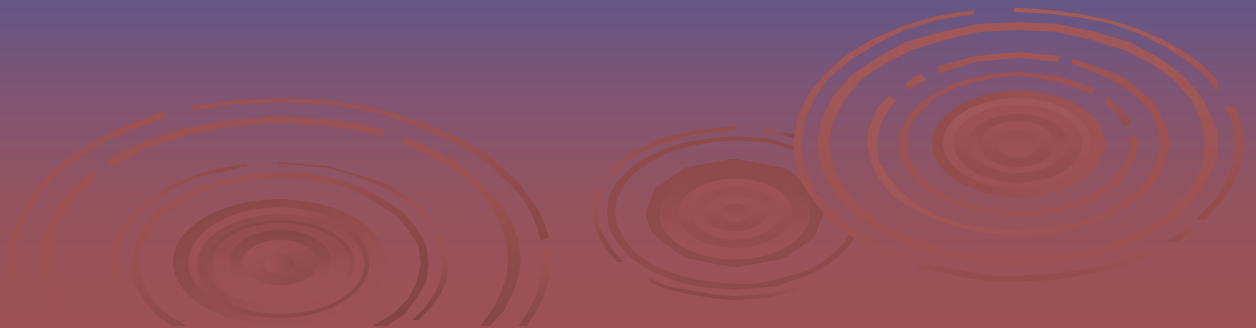
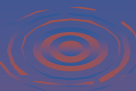
The major inspection shall involve examination of those critical components identified by the manufacturer, competent person or the assessment conducted in accordance with Section 9. Where necessary, the crane shall be stripped down and paint, grease and corrosion removed from critical components to allow a complete and thorough inspection.



Particular attention shall be given to the following:

- (i) Structural, mechanical, electrical, instrumentation, control and operational anomalies.
- (ii) Non-destructive testing of all nominated critical areas for evidence of cracking due to fatigue or excessive stress.
- (iii) Components whose maintenance records indicate repeated failures.
- (iv) Braking systems.
- (v) Adequacy of safety instructions and manuals for operation and maintenance.
- (vi) Manufacturer's safety upgrades.

A written report shall be furnished on completion of the inspection. A competent person shall assess the results with regard to risks and hazards associated with the crane's current operation.



The following apply:

- (A) The competent person shall specify the maintenance necessary to ensure its continued safe operation.
- (B) The competent person shall identify components that require particular attention in subsequent periodic inspections.
- (C) The competent person shall determine the reasonable practicability of applying the current requirements of the AS 1418 series, in particular the following:
 - (1) Rated capacity limiter and/or indicator.
 - (2) The indicating and motion limiting devices.
 - (3) Emergency retrieval system.
 - (4) Platform, handrails and gate.
 - (5) Controls and emergency stop (e.g., ability to unintentionally engage free fall).

Cranes assessed to be unsafe shall not be returned to service until rectified and reassessed as safe to return to service.

NOTE: Persons carrying out such inspections should be supervised by a professional engineer.

2. CraneSafe

CraneSafe

Cheap Insurance for Crane Compliance

- ☑ Complies with Australian Standards recommendations
- ☑ Accepted by all State OH&S Departments
- ☑ Accepted by all Major Contractors
- ☑ Third Party independent inspection service
- ☑ A legally defendable case for Owners "duty of care"
- ☑ Audit of existing service supplier/s
- ☑ Accepted by Major Insurers
- ☑ A guide to the condition of the crane and whether it should be sold
- ☑ An assistance in determining whether a Major Inspection is due
- ☑ Recognized by CFMEU nationally
- ☑ Accepted by Major Mining companies
- ☑ Surplus earnings plowed back into new safety initiatives
- ☑ Useful tool when buying used equipment
- ☑ 15 different Assessments covering most crane needs
- ☑ Confirmation all required information is supplied with new cranes
- ☑ Ensures imported cranes comply with State OH&S requirements
- ☑ Green Sticker shows the owner is meeting his statutory obligations
- ☑ Free initial safety CDs for members
- ☑ Green Sticker discounts for CICA and State Association members
- ☑ Minimizes unexpected breakdowns
- ☑ Roadworthy Inspection



CraneSafe is a division of CICA – Australia's not-for-profit Crane Association

www.cranesafe.com.au

Respective Age of Cranes as Assessed in NSW at 30th June, 2011.

Crane Type	Average Age	Oldest	Number less than 5 years old	Number older than 5 but less than 10 years old	Number older than 10 but less than 25 years old	Number that are 25 years old or older	Total Number of Cranes
All Terrain Crane	8	23	98	58	93	0	242
Articulated Mobile Crane	7	36	185	74	97	4	353
Hydraulic Boom Crawler Crane	9	36	34	20	48	1	100
Hydraulic Truck Crane	15	40	40	17	130	20	202
Lattice Boom Crawler Crane	11	42	18	0	11	3	31
Lattice Boom Truck Crane	47	47	0	0	0	1	1
Overhead Travelling Bridge Crane	15	15	0	0	1	0	1
Rough Terrain Crane	13	29	28	12	78	4	120
Telescopic Handlers - Rigid	6	11	2	1	2	0	5
Vehicle Loading Cranes	10	26	14	16	20	3	53
Report Summary:	10	47	419	198	480	36	1,108

3. CICA Guide to Major Inspections



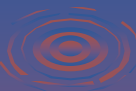
The Crane Industry Council of Australia ANZ IS 201110-110
PO Box 136, Mount Waverley, Victoria 3148 • J 50 05 19 21 (austr. Hong Kong) M 0401 1420
Telephone: 03 9501 0878 • Facsimile: 03 9501 0883
E-mail: info@cica.com.au • www.cica.com.au
Lifting Industry Standards

GUIDE TO MAJOR INSPECTIONS

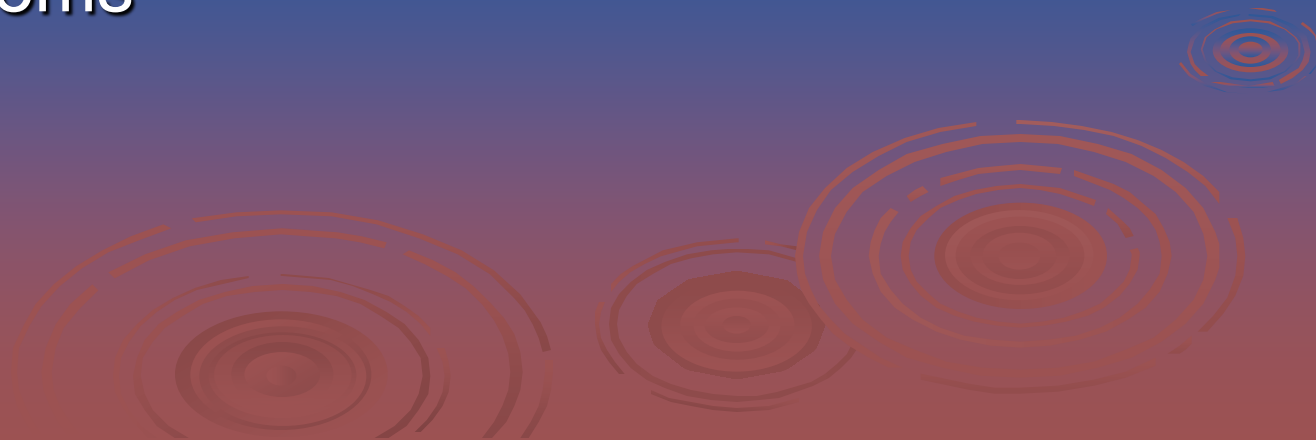
Revised July 2011

*Prepared by:
The Crane Industry Council of Australia*

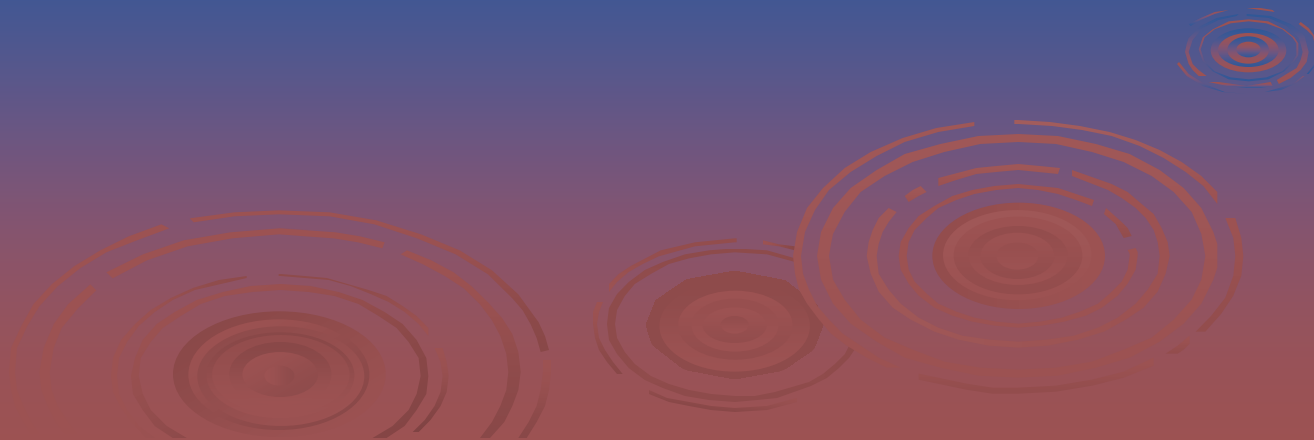
- Selection of a Component Person
- Records of the Crane
- Crack Testing
- Crane Maintenance
- Crane Inspection
- Winches
- Hydraulic Systems:
 - hydraulic pump
 - cylinders
 - hoses
 - swivel



- Slew System:
 - slew bearing
 - bolts
 - motor
 - Brake
- Boom:
 - hydraulic boom
 - fly jibs
 - lattice booms



- Revolving Frame
- Outriggers
- Operator aids
- Wire Ropes
- Hook Blocks



4. Completed Major Inspection

Ben Baden Services Pty Ltd

Unit 24, 33 Holbeche Road Arndell Park NSW 2148
Phone (02) 9679 8333, Fax (02) 9679 8355
ABN 66 129 061 838

Specialising in mobile crane structural repair and service

10 Year Inspection Report

Customer: Gillespie Cranes Pty/Ltd
Make: Liebherr
Model: LTM 1060/2
Serial Number: 57162
Engineer: R.K. Findlay
Date of Inspection: January 2011
Reference number: 0259

R. K. FINDLAY PTY LTD

ABN 74 003 142 854
CONSULTING ENGINEERS

UNIT 2/17 PEMBURY RD, MINDAR NSW 2566
(PO Box 1052, Campbelltown NSW 2560)
Telephone: 02 9624 5140
Facsimile: 02 9624 5142
EMAIL: rkass@findlay.net.au



CONSULTANT TO THE TRANSPORT INDUSTRY

Date...27th January 2011

Report # 270111

Ben Baden Pty Ltd.
Unit 24 /33 Holbeche Road.
Arndell Park. 2148

Crane Details Gillespie's Crane Services

Make Liebherr
Model LTM 1060 - 2
Serial # 057162
Build date 2000
Hour meter
Chassis details Liebherr
Rego # GCS 060
Inspection date 27th January 2011

Statement.

I have personally inspected the test reports associated with the 10 year inspection overhaul of mobile crane detailed above which is the subject of a 10 yearly inspection and recertification and have tested the crane in accordance with instructions detailed in AS 1418 part 5 and AS 2550 part 5.

ENGINEERING

DRIFTING

CERTIFICATION

LEGAL

Carrier Details.

Chassis frame	NDT and visually Inspected no cracks
Axes Housings	NDT and Visually inspected Passed.
Axe stubs.	NDT and Visually Inspected Cracks found in the stub axle Trailing steer axle Replaced with new units Passed
Wheel Rims	Visually Inspected Passed.
Tyres	tyres fitted to all wheels. In excellent condition.
Drive gears	Visual Inspection no damage
Brake drums /linings	Visually inspected passed
Slew ring mounting	NDT tested and visually inspected. OK.
Slew bolts	Ultrasonically Inspected OK.
Slew ring	Tested to manufactures spec Passed.
Outrigger boxes	Stripped and NDT inspected re assembled.
Outriggers	Stripped NDT inspected and re assembled
Front	Stripped, NDT inspected checked and re assembled
Rear	Stripped NDT inspected checked and re assembled..
Hydraulic cylinder	
Extension	load tested, recertified No leakage or creepage Passed.
Lift	Load tested, recertified No Leakage or creepage Passed
Footplates	In good condition OK
Body work	Clean and tidy

Main frame	NDT and Visually Inspected no damage
Winch Mountings	NDT Inspected Passed.
Winch Main	Stripped New bearings and Seals Reassembled and tested
Winch Brake	tested during crane safe test passed.
Cable guide wheels	Stripped inspected and reassembled.
Hydraulic Cylinder mounts	NDT inspected repaired where necessary passed.
Cylinder pins and bushes	Ultrasonically inspected for cracks and damage bushes checked and replaced where necessary
Operators Cabin	Cleaned and all decals checked for legibility replaced. where necessary
Controls	A function checked all operated correctly.
Control signage	all clean and legible.
Boom Assembly	Stripped to basic elements NDT inspected Replace wear and guide pads.
Number of elements	5.
Base element	NDT boom pivots and structure. replace wear pads and check boom hydraulic systems
NDT report	See attached report
Second stage	NDT inspected all in good condition OK
NDT report	See attached report
Third Stage	NDT inspected, in good condition OK
NDT report	See attached report.
Forth stage	NDT inspected in good condition reassembled
NDT report	See attached report.

Boom head	Stripped, serviced all guide wheels and rollers reassembled and tested.
NDT report	See attached report.
Pivot pins	All pins ultrasonically inspected for cracks and replaced as necessary
Cables	
Lift cables	Inspected and tested
Main	New Cable fitted
Hook Block / s	NDT inspected and load tested see Nobles Reports
Boom indicator	Visual inspected and checked calibrated
Lighting	All visible and working..
Signage	Clean and legible.
Load charts	Clean and legible.
Stability test	Conducted during crane safe test . Test load at 19m radius 6600 kgs rated load 5200 kgs
Line pull	6600kgs rated at 5700 kgs.

4

ENGINEERING

DRAFTING

CERTIFICATION

LEGAL

The crane has been overhauled and serviced in accordance with As 1418 part 5 and As 1418 part 1 and As 2550 part 5.

Attached are copies of all the associated test reports .

The crane is safe to return to work and will be subject to routine servicing in accordance with the manufactures instructions.

A further major inspection will be identified, subject to an inspection by a competent person to determine the due date

Signed



Russell K Findlay
Consulting Engineer.
M SOE M IRTE
M MTA M CVIA
Om IE Aust.
142 1085.

Attachments.

Copies of NDT report.
Copies of cable test report
Copies of hook block tests.
Load test reports.

7

ENGINEERING

DRAFTING

CERTIFICATION

LEGAL

Ben Baden Services Pty Ltd

Unit 24, 33 Holbeche Road Arndell Park NSW 2148
Phone (02) 9679 8333, Fax (02) 9679 8355
ABN 66 129 061 838

Specialising in mobile crane structural repair and service

16th February 2011

Ref: BBS 1032/2011

R K Findlay Pty Ltd
Consulting Engineers
P O Box 1052
Campbelltown NSW 2560

Attention: Russell Findlay

Re: 10 Year Inspection on Gillespie Cranes and Rigging Liebherr LTM 1060/2 Serial Number: 57182

Dear Russell,

The above crane has undergone a 10 year inspection as per the Australian Standard at our Arndell Park workshop.

The following work was carried out:

Initial Inspection

- Carry out slewing bearing play test (see slew ring test report)
- Set up machine and test all cylinders for internal leakage or creep
 - o Luffing cylinder - OK
 - o Telescope cylinder - OK
 - o Front R/H strut cylinder OK
 - o Front L/H strut cylinder OK
 - o Rear R/H strut cylinder OK
 - o Rear L/H strut cylinder OK
 - o R/H counterweight cylinder - drooping slightly
 - o L/H counterweight cylinder OK
- Carry out operation functionality test, all in working condition

Ref: BBS1032/2011
Page 1

Telescopic Boom

- Remove telescope sections and dismantle
- Clean and inspect all boom wear pads
- Remove all telematic boom locking pins and crack test
- Remove covers and crack test locking hole positions on all boom sections
- Remove boom base and clean all pins
- Remove telescope cylinder
- Remove and clean boom pivot pins and luff cylinder pin
- Independent crack test all of the above boom section and locking components (see report from I.S.A no. 01101/SI1)
- Carry out section alignment check (see section alignment check report)
- Grease and reassemble boom complete

Head Sheaves and Lead Sheaves

- Inspect head and lead sheaves for damage or cracking, replace rooster load sheave.
- Inspect sheave bearings for smooth function

Main Winch

- Remove main winch from crane
- Strip winch and clean all components
- Replace all seals, bearings and bolts as necessary
- Independent crack test of all gears, shafts, splines and changes of section (see report from I.S.A no. 01101/SI1)
- Reassemble winch and refit to machine
- Fill with correct oil

Superstructure and counterweights

- After boom base removal, clean all weld stress areas
- Carry out independent crack test of superstructure frame (see report from I.S.A no. 01101/SI1)
- Reseat R/H counterweight cylinder holding valve - OK
- Ensure correct mounting counterweight

Luffing Cylinder

- Crack test luff cylinder pins (see report from I.S.A no. 01101/SI1)

Slew Ring

- Carry out tilt play test at initial inspection (see slew ring test report)
- Carry out ultrasound testing on slew ring bolts (see report from I.S.A no. 01101/SI1)

Ref: BBS1032/2011
Page 2

Main Hoist Rope

- Remove hoist rope and send for inspection (see report from A. Noble NSI 553)
- Replace hoist rope and refit to machine and check for correct spooling (see new rope certificate, customer supplied, Y51D9034)

Safe Load Indicator

- Check on correct reading of S.L.I
- Check for appropriate
 - Length - OK
 - Angle - OK
 - Radius - OK
 - Weight reading - OK

Hydraulic function test

- Carry out full function and speed test to ascertain serviceability of hydraulic components
- Match speeds (flow) against manufacturers specifications (see technical data sheet and hydraulic function test sheet)
- Match pressures against hydraulic schematic for specific crane model (see hydraulic function test sheet)

Outriggers

- Remove all front and rear outriggers
- Independent crack test all outrigger beams and boxes (see report from I.S.A no. 01101/SI1)
- Check all outrigger pads and replace sliders
- Ensure all outrigger pins present and adjusted to fit
- Reassemble beams to boxes

Suspension/Axles and Chassis

- Remove all wheels and strip planetary gears, clean and reassemble
- Crack test all stub axle load bearing members (see report from I.S.A no. 01101/SI1)
- Replace both axle 2 stub axles found cracked
- Reassemble all planetary and refill with oil
- Check suspension for leaking and good mounting
- Crack test chassis (see report from I.S.A no. 01101/SI1)
- Check on condition of all brakes and drums - all in good condition
- Inspect for good mounting king pins and other undercarriage components

Hook Blocks

- Send 3 sheave hook for independent testing (see report from A. Noble NSS 233)
- Send load hook for independent testing (see report from A. Noble NSS 234)

Fly jib

- Crack test fly jib (see report from I.S.A no. 01101/SI1)
- Replace damaged sheave on apex bracket

Overload Test

- Carry out overload test to 125% maximum boom extended (witnessed by engineer)
- Carry out overload test on line pull of main winch (witnessed by engineer)
- General Crane functionality test carried out on conclusion of all work
- Compile 10yr inspection information with engineers report (see report from R.K.Findlay)

The above work was completed with the aim of fulfilling the requirements of a ten year inspection. Questions can be forwarded to the writer or this office

Best Regards



Ben Baden
MANAGING DIRECTOR

APPENDIX – Test technical details

Visual & Magnetic Particle Testing

Method Code:	AS 1171 – 98 AS2550.5	Surface Condition:	As in service (painted)	Equipment Used:	ACM #1
Acceptance Code:	Evaluation	I.S.A. Procedure:	MT 001	Magnetisation Method:	Magnetic flow
Consumables:	Ardrox 800/3 & 8901W	Batch No:	7030104, 262916	Demagnetisation required:	No
Deviation from procedure / standard:	NIL				
Additional information required:	Surface in painted condition, with coating removed in suspect areas for testing				
Technician:	Jamie Fibbens				

Ultrasonic Testing

Method Code:	AS 1065 (ref. only) AS2550.5	Surface Condition:	As in service	Equipment Used:	UT #1 KK USK 7B
Acceptance Code:	Evaluation	I.S.A. Procedure:	UT 001	Probe:	10mm S/W
Calibration:	BWE + 20dB	Couplant:	Grease	Calibration block:	100mm bar
Deviation from procedure / standard:	NIL				
Additional information required:	0 deg. Probe from one end (both ends where permitted and required)				
Technician:	Jamie Fibbens				

LIMITATIONS / RESTRICTIONS

Equipment was inspected in condition as given at time of inspection.

The following areas, components, sections were restricted for viewing / testing:-

- Visual inspection through protective coating reduces sensitivity
- Only those areas / components detailed in this report have been inspected by I.S.A at the time.

REFERENCES

This report has been prepared using details outlined in the following reference documents / guidelines:-

- Workplace Health and Safety Queensland – Mobile Crane Code of Practice 2006
- Crane safe publication – guidelines for NCSR CT 003
- AS 2550, part 1 & 5

Boom Sections

Main Component	Sub part - location	Inspection Method and coverage	Findings
Butt Section	All structural beam, tail house, collar & strengthening plate welding	Visual inspection	No cracking detected
	Lifting connection	Visual inspection	No cracking detected
	Fly beam mounts	Visual inspection	No cracking detected
	Suspect areas	Magnetic particle testing	No cracking detected
	Boom general surfaces	Visual inspection	No cracking detected



Photo No. 2 – Butt boom section



Photo No. 3 – Fly beam connections



Photo No. 4 – Lifting connection

Findings details:

No cracking, damage or significant corrosion detected.



Boom Sections

Main Component	Sub part - location	Inspection Method and coverage	Findings
Telescopic Boom Sections			
	All structural seams, transverse, collar & strengthening plate welding	Visual inspection	Nil cracking detected
	Telematic pins / bushings	Magnetic particle testing	Nil cracking detected
	Head connector	Visual inspection	Nil cracking detected
	Suspect areas	Magnetic particle testing	Nil cracking detected
	Boom, personal surfaces	Visual inspection	Nil cracking detected



Photo No. 5 - Typical telescopic boom section



Photo No. 6 - Typical condition



Photo No. 7 - Typical condition

Findings details:

Nil cracking, damage or significant corrosion detected.



Boom Sections

Main Component	Sub part - location	Inspection Method and coverage	Findings
Fly / Needle sections			
	Fly - end corner, pins, clamps, lashing, struts, attachments, pin bosses, pins and sleeves	Visual inspection	Nil cracking detected
	Needle - end connections, structural welding, head connection	Visual inspection	Nil cracking detected
	Fly & needle - suspect areas	Magnetic particle testing	Nil cracking detected



Photo No. 8 - Fly boom section

Findings details:

Nil cracking, damage or significant corrosion detected.



Outriggers

Main Component	Sub part - location	Inspection Method and coverage	Findings
Outrigger Assemblies			
	Beam structural welding	Visual inspection	Nil cracking detected
	Cylinder attachment points	Visual inspection	Nil cracking detected
	Jacking legs	Visual inspection	Nil cracking detected
	Fuel assemblies	Visual inspection	Nil cracking detected
	Support areas	Magnetic particle testing	Nil cracking detected
	General surfaces	Visual inspection	Nil cracking detected



Photo No. 9 - Typical condition



Photo No. 10 - Typical outrigger box connections

Findings details:

Nil cracking, damage or significant corrosion detected.

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Superstructure

Main Component	Sub part - location	Inspection Method and coverage	Findings
Super structure			
	Slab base structural webs	Visual inspection external welding only. Internal ends N/A	Nil cracking detected
	Lifting & support pin base welding	Visual inspection	Nil cracking detected
	Counterweight & winch mounts	Visual inspection	Nil cracking detected
	Cable mounts	Visual inspection	Nil cracking detected
	Support areas	Magnetic particle testing	Nil cracking detected
	General surfaces	Visual inspection	Nil cracking detected



Photo No. 11 - Superstructure condition

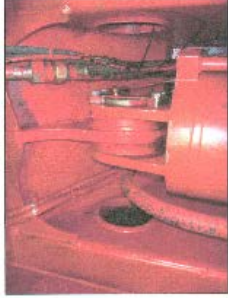


Photo No. 12 - Counterweight connections

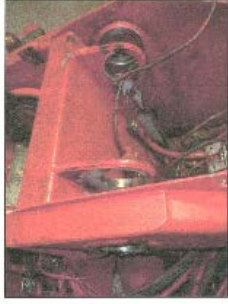


Photo No. 13 - Pin and pin connections

Findings details:

Nil cracking, damage or significant corrosion detected.

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Winch Components

Main Component	Sub part - location	Inspection Method and coverage	Findings
Winch components			
	Drum assembly	Magnetic particle testing	Nil cracking detected
	Gearbox components: gears, shafts & components	Magnetic particle testing	Nil cracking detected



Photo No. 14 - Rope drum assembly



Photo No. 15 - Winch gearbox components

Findings details:

Nil cracking, damage or significant corrosion detected.

Page 7 of 11



Pins / Bolts

Main Component	Sub part - location	Inspection Method and coverage	Findings
Pins			
	Bottom sheet pins LHS & RHS	Magnetic particle testing	Nil cracking detected
	Bottom section lateral pins	Magnetic particle testing	Nil cracking detected
	Upper and lower lifting pins	Magnetic particle testing	Nil cracking detected
	Five sec. lifting bolts	Ultrasonic testing 100%	Nil cracking detected
	Rolling blow ring bolts	Ultrasonic testing Approx. 15%	Nil cracking detected



Photo No. 16 - 17 - Inspected pins



Findings details:

Nil cracking, damage or significant corrosion detected.

Page 8 of 11



Sub Axles

Main Component	Sub part - location	Inspection Method and coverage	Findings
1 st Axle	2 nd leading sub axle sections	Magnetic particle testing	Nil cracking detected
2 nd Axle		Magnetic particle testing	Cracking detected. See Note below
3 rd Axle		Magnetic particle testing	Nil cracking detected
4 th Axle		Magnetic particle testing	Nil cracking detected



Photo No. 18 & 19 - Inspected sub axles



Photo No. 20 - Cracked sub axle (typical)



Findings details:

Note 1 - Both LH & RH 2nd axle sub shafts cracked circumferentially around change of section radius. Top and bottom diametrically opposed approx. 80mm in length each.

Page 6 of 11



Chassis

Main Component	Sub part - location	Inspection Method and coverage	Findings
Chassis components			
	Quill/tyre box or trailing	Visual inspection	Nil cracking detected
	Suspension & steering components	Visual inspection	Nil cracking detected
	Suspent axles	Magnetic particle testing	Nil cracking detected
	General surfaces	Visual inspection	Nil cracking detected



Photo No. 21 - Inspected chassis components



Photo No. 22 - Typical underside condition

Findings details:

Nil cracking, damage or significant corrosion detected.

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APPENDIX – Test technical details

Visual & Magnetic Particle Testing

Method Code:	AS 1171 – 90 AS2550.5	Surface Condition:	As in service (painted)	Equipment Used:	ACM #1
Acceptance Code:	Evaluation	I.S.A. Procedure:	MT 001	Magnetisation Method:	Magnetic flow
Consumables:	Ardrox 800'S & 8901W	Batch No:	7030104, 262918	Demagnetisation required:	No
Deviation from procedure / standard:	NIL				
Additional information required:	Surface in painted condition, with coating removed in suspect areas for testing				
Technician:	Jamie Fibbens				

Ultrasonic Testing

Method Code:	AS 1065 (ref. only) AS2550.5	Surface Condition:	As in service	Equipment Used:	UT #1 KK USK 7B
Acceptance Code:	Evaluation	I.S.A. Procedure:	UT 001	Probes:	10mm S/W
Calibration:	BWE + 20dB	Couplant:	Grease	Calibration block:	100mm bar
Deviation from procedure / standard:	NIL				
Additional information required:	0 deg. Probe from one end (both ends where permitted and required)				
Technician:	Jamie Fibbens				

LIMITATIONS / RESTRICTIONS

Equipment was inspected in condition as given at time of inspection.

The following areas, components, sections were restricted for viewing / testing:

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- Only those areas / components detailed in this report have been inspected by I.S.A at the time.

REFERENCES

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- Workplace Health and Safety Queensland - Mobile Crane Code of Practice 2006
- Crane safe publication – guidelines for NCSR CT 003
- AS 2550, part 1 & 5



CERTIFICATE NUMBER NS S234

A. Noble & Son Limited

ABN 18 007 513 395

16 Fariola Street,

Silverwater, New South Wales 2128

P.O. BOX 6244, SILVERWATER N.S.W. 2128

PHONE: (02) 9748 1166 FAX: (02) 9647 2958 WEBSITE: www.nobles.com.au

CERTIFICATE OF TENSILE TEST AND EXAMINATION

QUANTITY	DISTINGUISHING MARKS	DESCRIPTION	MINIMUM LOAD APPLIED	WORK LOAD LIMIT
1	NSS234	Customers Own Goods WEIGHTED HOOK BLOCK	73.6 kN	6 Tonnes
	WLL 6.0 Tonnes	Make LIEBHERR		
		WLL 6t		
	01/11	Tare 100 kg		
		Serial No 57162		
		Hook Type SWIVEL		
		Crane Model LTM1060/2		
		Hook Opening Before Test: 110 mm Hook Opening After Test: 110 mm		
<p>* Where A Noble & Son Ltd carry out proof tests on goods which are not their manufacture they are not responsible for the final integrity of the product if a proof test and careful visual inspection by a competent person does not identify any short comings in design or manufacture.</p> <p>The goods covered by this Certificate have been examined and tested in accordance with the specific requirements.</p>				

DATE OF TEST: 20/01/11

TEST SPECIFICATION: AS2318-2006 Sect 9

OUR REFERENCE: 772087

CUSTOMERS ORDER No.: 00001578

A LOAD OF 73.6 kN WAS APPLIED WHICH REPRESENTS 1.25 times THE W.L.L. AFTER REMOVAL OF THE LOAD, EACH ITEM WAS EXAMINED BY A COMPETENT OFFICER AND FOUND TO BE FREE FROM PERMANENT SET, FLAW OR OTHER VISUAL DEFECT AND COMPLIES WITH THE REQUIREMENTS OF THIS TEST.

TO BEN BADEN SERVICES PTY.LTD.

UNIT 24, 33 HOLBECHE ROAD
ARNDLELL PARK
NSW 2148NATA Accredited Laboratory
Number: 1594

This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025.

Approved NATA Signatory

D ATKINSON

Date 31/1/11

NT/7



CERTIFICATE NUMBER NS S233

A. Noble & Son Limited

ABN 18 007 513 395

16 Fariola Street,

Silverwater, New South Wales 2128

P.O. BOX 6244, SILVERWATER N.S.W. 2128

PHONE: (02) 9748 1166 FAX: (02) 9647 2958 WEBSITE: www.nobles.com.au

CERTIFICATE OF TENSILE TEST AND EXAMINATION

QUANTITY	DISTINGUISHING MARKS	DESCRIPTION	MINIMUM LOAD APPLIED	WORK LOAD LIMIT
1	NSS233	Customers Own Goods THREE SHEAVE HOOK BLOCK	490.5 kN	40 Tonnes
	WLL 40 Tonnes	Sheave Diam 430 mm No Of Sheaves 3		
		Rope Diam 18mm		
	01/11	Becket Yes		
		Hook Type: Swivel		
		Hook Opening before test 180 mm Hook Opening after test 180 mm		
		Serial No.: 57162		
		Crane Model LIEBHERR		
		Crane Number LTM1060/2		
<p>* Where A Noble & Son Ltd carry out proof tests on goods which are not their manufacture they are not responsible for the final integrity of the product if a proof test and careful visual inspection by a competent person does not identify any short comings in design or manufacture.</p> <p>The goods covered by this Certificate have been examined and tested in accordance with the specific requirements.</p>				

DATE OF TEST: 20/01/11

TEST SPECIFICATION: AS2089-2008/AS2318-2006 Sect 9

OUR REFERENCE: 772087

CUSTOMERS ORDER No.: 00001578

A LOAD OF 490.5 kN WAS APPLIED WHICH REPRESENTS 1.25 times THE W.L.L. AFTER REMOVAL OF THE LOAD, EACH ITEM WAS EXAMINED BY A COMPETENT OFFICER AND FOUND TO BE FREE FROM PERMANENT SET, FLAW OR OTHER VISUAL DEFECT AND COMPLIES WITH THE REQUIREMENTS OF THIS TEST.

TO BEN BADEN SERVICES PTY.LTD.

UNIT 24, 33 HOLBECHE ROAD
ARNDLELL PARK
NSW 2148NATA Accredited Laboratory
Number: 1594

This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025.

Approved NATA Signatory

D ATKINSON

Date 27/1/11

NT/7

**A.NOBLE & SON LTD**

16 FARIOLA ST

SILVERWATER

Phone (02) 9748-1166

NSW 2128

Fax (02)9647-2958

Wire Rope Inspection Report NSI553

Date 07/01/2011

Customer Code BAD202

Customer Name

BEN BADEN SERVICES PTY.LTD.

Order No 1578

S/Order No 772087

Contact IAN CRAFT

UNIT 24, 33 HOLBECH ROAD

ARNDILL PARK NSW 2146

Phone No 02 9679 8333

Fax No

02 9679 8355

Crane Type LIEBHERR

Model

LTM 1060/2

Crane Serial 57162

Crane Plant No

Site NOBLES SILVERWATER

Rope Position -

HOIST-CONDEMNED

Rope Details	Diam-mm	17mm		EUROLIFT		Core	
	Lay	RHLL					
	Length	200m					
			Endfitting 1	PLAIN			
			Endfitting 2	STOPPER			

Manufacturer UNKNOWN

Original Test No

Date Installed UNKNOWN

Hrs/Days Operated

UNKNOWN

Wire Rope Inspection Report NSI553

Visual Overlook:

DRY

Inspection Details

Measured Diam Max

17.6mm

Min

17.2mm

Broken Wires	Position	Total	No in 6D	No in 30D
NIL				

Corrosion SOME MINOR CORROSION ALONG LENGTH OF ROPE.

Distortion SOME WAVINESS FROM 75 METRES ALONG REMAINDER OF ROPE.

End Fittings 1 OK

End Fittings 2 OK

Rework Done NIL

Wire Rope Inspection Report NSI553

Visual Overview:

DRY

Inspection Details

Measured Diar

Max

17.6mm

Min

17.2mm

[illegible]

Corrosion	SOME MINOR CORROSSION ALONG LENGTH OF ROPE.
-----------	---

Distortion	SOME WAVINESS FROM 75 METRES ALONG REMAINDER OF ROPE.
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End Fittings 1	OK
----------------	----

End Fittings 2	OK
----------------	----

Rework Done	NTL
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Ben Baden Services Pty Ltd

Unit 24, 33 Holbeche Road Arndell Park NSW 2148
Phone (02) 9679 8333, Fax (02) 9679 8355
ABN 66 129 061 838

Specialising in mobile crane structural repair and service

BOOM SECTION ALIGNMENT CHECK

Make Liebherr Model LTM1060/2 Serial # 57162

Initial Check After correction if required

BOOM			
Base	Camber	2.0mm	
	Lateral Sweep	2.0mm	
	Deformities	NIL	
Section 1	Camber	2.0mm	
	Lateral Sweep	2.0mm	
	Deformities	NIL	
Section 2	Camber	2.0mm	
	Lateral Sweep	2.0mm	
	Deformities	NIL	
Section 3	Camber	2.0mm	
	Lateral Sweep	2.0mm	
	Deformities	NIL	
Section 4	Camber	2.0mm	
	Lateral Sweep	2.0mm	
	Deformities	NIL	
Section 5	Camber	2.0mm	
	Lateral Sweep	2.0mm	
	Deformities	NIL	
FLY			
Pivot	Camber	2.0mm	
	Lateral Sweep	2.0mm	
	Deformities	NIL	
Section 1	Camber	2.0mm	
	Lateral Sweep	2.0mm	
	Deformities	NIL	
Section 2	Camber	2.0mm	
	Lateral Sweep	2.0mm	
	Deformities	NIL	

Comments

Checked by

Date

B. Brown

5-1-2011

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Specialising in mobile crane structural repair and service

Slew Ring Inspection Report

Make: LIEBHERR Model: LTM1060/2 Serial Number: 57162

Operation:

COG Forward LH Good
RH Good

COG Rearward LH Good
RH Good

Tilt Play:

	Specification:	Actual:
Our Rear:	2.0mm	0.73
RH Side:	2.0mm	0.85
Front	2.0mm	0.68
LH Side	2.0mm	0.83

Teeth:

Ring Gear OK
Pinion OK
Rock Lash OK

Lube Sample Attached (if necessary)

Report Attached:

Comments:

Inspection By: SHAWN Date: 23-12-10 Ref: 0759

Ben Baden Services Pty Ltd

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Hydraulic Function Test Report

Make: Liebherr Model: LTM1060/2 Serial Number: 57162

Pump Number	Function	Spec. pressure	Spec. Flow / Speed	Actual Pressure	Actual Speed	Correct / Adjust	Final Pressure	Final Speed
1	hoist up	305	7077 rpm	305	72 rpm			
	hoist down	120		125				
	lift up	300		295				
	telescopic locked	135		135				
	telescopic unlocked	80		79				
	boom in locked	310		305				

Comments: Page 1 of 2

Initial Inspection By: S. Holdsworth Date: 23-12-10 Ref: 0259

Final Inspection By: _____ Date: _____ Ref: _____

Ben Baden Services Pty Ltd

Unit 24, 33 Holbeche Road Arndell Park NSW 2148
Phone (02) 9679 8333, Fax (02) 9679 8355
ABN 66 129 061 838

Specialising in mobile crane structural repair and service

Hydraulic Function Test Report

Make: Liebherr Model: LTM 1060/2 Serial Number: 57162

Pump Number	Function	Spec. pressure	Spec. Flow / Speed	Actual Pressure	Actual Speed	Correct / Adjust	Final Pressure	Final Speed
	Telescopic Unlocked			121				
2	Swing Left	200	1.7 rpm	192	1.7 rpm			
	Swing Right	200	1.7 rpm	190	1.7 rpm			
	CW up	210		190				
	CW down	80		78				
3	Control	45		47				

Intake 100 100
Comments: Page 2 of 2

Initial Inspection By: S. Holdsworth Date: 23-12-10 Ref: 0259

Final Inspection By: _____ Date: _____ Ref: _____

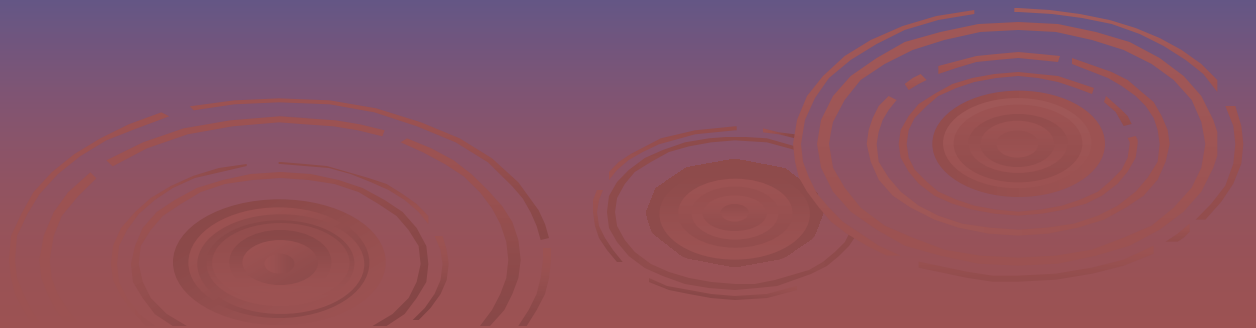
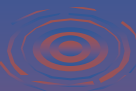
5. Cost & Time of a Major Inspection

20 tonne Franna	\$30,000	4-6 weeks
20 tonne Kobelco Rough Terrain	\$35,000	4-6 weeks
50 tonne Tadano Truck Crane	\$45, 000	4-6 weeks
80 tonne Demag All Terrain	\$55,000	4-6 weeks
130 tonne Liebherr All Terrain	\$70,000	4-6 weeks

(Estimated Costs)

6. Future for Major Inspections

- Manufacturer's Recommendations
- Data Loggers
- Winch hour meters
- Lift Cycle Meters
- CICA Engineers
- CICA Major Inspection Verification





The Crane Industry Council of Australia

Major Inspection Verification

Next Major Inspection Due:

Verification No.

Crane Make:

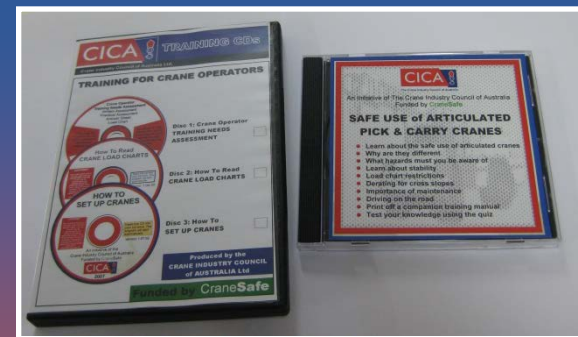
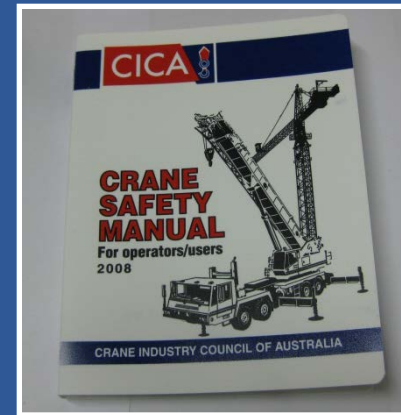
Model:

Serial No.

This Verification document confirms that the crane detailed above has had its Major Inspection Report audited by The Crane Industry Council of Australia (CICA) and all of the details in the Report conform with Australian Standards, Codes of Practice, proper engineering principles and provided the duties remain constant, the crane should be capable of meeting its next Major Inspection date.

7. CICA Products

- Crane Safety Manual
- Log Books
- Training CDs



www.cica.com.au

+ www.cranesafe.com.au



CraneSafe[®]