

MACKAY OPERATIONS

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Improving quality, profitability and performance for our clients

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Attention - Ian Roduner, Simon Ross

Item - Hitachi EX5500 Boom

Order Number - PO181

Austin Job Number – 4199



Scope of Work

JOB NUMBER - 4199

**EX5500 EXCAVATOR BOOM
MINESPEC PARTS**



SCOPE OF WORK

Revised 01-09-16

ITEM	DESCRIPTION - EX5500 EXCAVATOR BOOM	COMMENTS	PARTS & MATERIAL REQUIREMENTS	SUPPLIER
1.0	DIMENSIONAL INSPECTIONS / REPORTING & NDT TESTING			
1.1	Dimensionally Inspect all bores and provide a detailed report to Minespec Parts	Includes main House to Boom Bores x 1, Top Ram Bores x 2 (Boom to Stick), Boom Cylinder Bores x 2 (Boom to House), Main Boom to Stick Bores x 2	3rd Party to Complete	Austin's
1.2	Dimensionally Inspect 2 x boom Cylinder Pins & provide a detailed report to Minespec Parts	Allowance to Inspect 2 x Pins only	3rd Party to Complete	Austin's
1.3	MPI and Visually Inspect all Weld Zones on External of Boom and Supply Report		3rd Party to Complete	Minespec
1.4	UT Test all Field Repairs in Windows and Supply Report to Minespec Parts		3rd Party to Complete	Minespec
1.5	UT & MPI Test Welds around new installed Boom Casting & Supply Report		3rd Party to Complete	Minespec
	Other			
2.0	CRACK REPAIRS			
2.1	Repair External Cracks as identified in NDT Report -	Not Required		
2.2	Repair all UT Non Conformances as identified in NDT Report - M16-1337	Total amount to be repaired - 1,100mm	Non Conforming Welds to be re-tested upon completion of the repairs	
2.3	Reweld all field Repair Areas in Existing Window Welds that have been ground back to provide similar weld profile with reinforcement around all existing window welds			
	Other			
3.0	BOOM CASTING REPLACEMENT			
3.1	Remove RHS Boom to House Casting and Grind Boom for Re-installation of new Cast Component	RHS Casting to be Replaced		
3.2	Remove 1 x 50mm RHS Window and Backing Bar in House end of Boom & Prep for new installation	Required for access to reweld New Casting onto Boom		
3.3	Install & Weld New Forged Boom Casting to Boom	Allowance included for Alignment Check during Assembly	New Forged Boom Casting	Minespec
3.4	Install & Weld New 50mm Window and Backing Bar to Boom	To be installed after all NDT Testing has been signed off	Qty 1 - 50mm Grade 350 - 650 x 650 Qty 1 - 12mm Grade 350 - 700 x 700	Austin's

JOB NUMBER - 4199

**EX5500 EXCAVATOR BOOM
MINESPEC PARTS**



SCOPE OF WORK

Revised 01-09-16

ITEM	DESCRIPTION - EX5500 EXCAVATOR BOOM	COMMENTS	PARTS & MATERIAL REQUIREMENTS	SUPPLIER
3.5	Remove LHS Boom to House Casting / Grind & prep Boom & Casting for Re-installation	LHS Casting to be Reclaimed		
3.6	Remove 1 x 50mm RHS Window and Backing Bar in House end of Boom & Prep for new installation	Required for access to reweld existing Casting onto Boom		
3.7	Install & Weld existing Boom Casting to Boom	Allowance included for Alignment Check during Assembly	Reclaimed Casting	
3.8	Install & Weld new 50mm Window and Backing Bar to Boom	To be installed after all NDT Testing has been signed off	Qty 1 - 50mm Grade 350 - 650 x 650 Qty 1 - 12mm Grade 350 - 700 x 700	Austin's
	Other			
4.0	RECLAMATION OF BORES & FACES			
4.1	Allowance to Build Up 1 x and Line Bore 2 x Boom to House Main Bores Approx Ø 300mm x 410mm Deep	RHS Casting to be Replaced Allowance to build up 1 run in 1 x existing bore only and Machining - No Face Reclamation Allowance	3rd Party to Complete	Austin's
4.2	Allowance to Build Up and Line Bore Boom to Stick Top Cylinder Bores x 4 Approx Ø 220mm x 150mm Deep	Allowance for 1 run of build up inside Bores only & Machining - No Face Reclamation Allowance	3rd Party to Complete	Austin's
4.3	Allowance to Build Up and Line Bore Boom to House Cylinder Bores x 4 Approx Ø 240mm x 150mm Deep	Allowance for 1 run of build up inside bores, build up on external clevis face & Machining - Allowance to Reclaim Outer Faces LH & RHS	3rd Party to Complete	Austin's
4.4	Allowance to Build Up and Line Bore Main Boom to Stick Bores Approx Ø 300mm x 410mm Deep	Allowance for 1 run of build up inside Bores only & Machining - No Face Reclamation Allowance	3rd Party to Complete	Austin's
	Other			
5.0	BRACKETS			

JOB NUMBER - 4199

**EX5500 EXCAVATOR BOOM
MINESPEC PARTS**

SCOPE OF WORK

Revised 01-09-16



ITEM	DESCRIPTION - EX5500 EXCAVATOR BOOM	COMMENTS	PARTS & MATERIAL REQUIREMENTS	SUPPLIER
5.1	Supply and Install Missing Weld on Brackets	Allowance to relace 1 x Missing Bracket on Window on RHS of Boom #3 From House end and 1 x Pipe Bracket inside Stick to Boom Cavity	Material Required with Drilling and Tapping Allowance	Austin's
5.2	Tap out all holes in existing Brackets Other			
6.0	BUSH SUPPLY & INSTALL			
6.1	Supply and Install New Bushes, Spacers and Seals in Boom to House Main Bores		Bushes, Spacers and Seals	Austin's
6.2	Supply and Install New Bushes, Spacers and Seals in Boom to Stick Main Bores Other		Bushes, Spacers and Seals	Austin's
7.0	GENERAL			
7.1	Craneage to Load and un-load Boom On-site	Minespec to organise		Minespec
7.2	Transportation of Boom to Site upon completion	Minespec to organise		Minespec
7.3	Craneage & Handling of Boom @ Austin's			Austin's
7.4	Mechanical sand / In-house paint Boom	Colour - Hitachi Orange	Enamel Paint	Minespec
7.5	Compile Repairer's QA Report	Required 2 weeks after delivery to site		Austin's
96	QA Checking			
98	Supervision			
	Other			

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Customer Purchase Order



ABN: 89 164 890 251

Tuesday, 07 Jun 2016

Purchase Order No P0181

Purchase From:

Austin Engineering Limited
PO Box 5719
Mackay Mail Centre
Mackay QLD 4741, Australia

Contact: Rick Drewes

Phone: 07 4952 4533

Fax: 07 4952 4687

Deliver To:

Minespec Parts
Braeside Road
Nebo QLD 4742

Contact: Ray McQuillan

Phone: (0438) 017 842

Email: admin@minespecparts.com.au



ABN: 89 164 890 251

Tuesday, 07 Jun 2016

Purchase Order No P0181

Purchase From:

Austin Engineering Limited
PO Box 5719
Mackay Mail Centre
Mackay QLD 4741, Australia

Contact: Rick Drewes

Phone: 07 4952 4533

Fax: 07 4952 4687

Deliver To:

Minespec Parts
Braeside Road
Nebo QLD 4742

Contact: Ray McQuillan

Phone: (0438) 017 842

Email: admin@minespecparts.com.au

Delivery Instructions

Please deliver as specified on Purchase Order

Special Instructions

This PO is issued per the Minespec Parts Terms of Trade available at www.minespecparts.com.au.

Freight _____

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Material Certificates

Customer: SOUTHERN QUEENSLAND STEEL PTY LTD DICK THORNTON ARCHERFIELD Q L D 4108	Supplier: BLUESCOPE STEEL (AIS) PTY LTD PORT KEMBLA, N.S.W., AUSTRALIA. A.B.N. 19 000 019 625
Cust Order No: FAX15161400407	Sales Order No: B5111 Printed At: Supplier MWS on: 28/06/2016

 Accredited for compliance with ISO/IEC 17025.	I certify that the original records of the company show that the item(s) referred to on this certificate conform to the specification as stated.
	K.BAZLEY - BLUESCOPE STEEL APPROVED SIGNATORY Mechanical LAB 0631 S.ANDREWS - BLUESCOPE STEEL APPROVED SIGNATORY Chemical LAB 0632

STEELMAKING: Basic Oxygen - Slab Cast
 SPECIFICATION: **AS/NZS 3678-350**
 PRODUCT: **XLERPLATE**

INSPECTION: Supplier
 CERTIFICATION: EN10204 3.1

CHEMICAL ANALYSIS

Percentage of element by mass (L=Cast, P=Product, -S=Soluble, -T=Total, CF=Chemical Formula, n=Min, x=Max)

Item No	Heat / Unit No	NATA Lab	L/P	C	P	Mn	Si	S	Ni	Cr	Mo	Cu	Al-T
2161C	7484969	0632	L	.099	.019	1.52	.34	.010	.014	.022	.004	.023	.036

Item No	Heat / Unit No	NATA Lab	L/P	Ti	B-T	Nb	V	CF1	CF2	CF3
2161C	7484969	0632	L	.019	<.0003	.024	.003	.36	.06	.05

CF1=C+ (MN/6) + ((CR+MO+V)/5) + ((CU+NI)/15) CF2=NI + CR + CU + MO CF3=NB + TI + V

MECHANICAL TESTING

Tensile AS 1391

Item No	Heat No	Tested Unit	NATA Lab	Cat	Loc	THICK mm	ReH MPa	Rm MPa	Lo	ELONGN %
2161C	7484969	SX608	0631	B	TQF	50.00	390	500	A	33
2161C	7484969	SY896	0631	B	TQF	50.00	395	510	A	30

ITEMS COVERED BY THIS CERTIFICATE

Item No	Heat No	Ordered Dimensions (mm)	No of Units	Mass (Tonnes)	Unit Identities
2161C	7484969	2400.0X50.00X7600	1	7.159	SY310A1

COMMENTS

This test certificate is issued subject to the Uncertainty of Results statement set out on BlueScope Steel's Website www.bluescopesteelconnect.com. In order to rely upon this certificate, you must read the Uncertainty of Results statement. THIS PRODUCT IS SUPPLIED IN ACCORDANCE WITH THE REQUIREMENTS OF AS/NZS 3678:2011 SAMPLING AND CHEMICAL ANALYSIS ARE PERFORMED IN ACCORDANCE WITH BLUESCOPE STEEL PROCEDURE DH-LABS-QS-00 S05.07C. MECHANICAL TESTING HAS BEEN PERFORMED ON SAMPLES SUPPLIED BY THE RELEVANT PRODUCTION DEPARTMENTS. HEAT TREATMENT - PRODUCT AS ROLLED.

MECHANICAL COMMENTS

TEST PIECE LOCATION (LOC) TQF=Transverse Quarter Front End

TEST CATEGORY (CAT) B=Batch

GAUGE LENGTH (Lo) A=5.65 * square root of the original cross-sectional area of the test piece.

Customer: SOUTHERN QUEENSLAND STEEL PTY LTD DICK THORNTON ARCHERFIELD Q L D 4108	Supplier: BLUESCOPE STEEL (AIS) PTY LTD PORT KEMBLA, N.S.W., AUSTRALIA. A.B.N. 19 000 019 625
Cust Order No: 400298	Sales Order No: B5111 Printed At: Supplier MWS on: 28/04/2016



Accredited for compliance with ISO/IEC 17025.

I certify that the original records of the company show that the item(s) referred to on this certificate conform to the specification as stated.

K.BAZLEY - BLUESCOPE STEEL APPROVED SIGNATORY
Mechanical LAB 0631
S.ANDREWS - BLUESCOPE STEEL APPROVED SIGNATORY
Chemical LAB 0632

STEELMAKING: Basic Oxygen - Slab Cast
SPECIFICATION: **AS/NZS 3678-350**
PRODUCT: **XLERPLATE**

INSPECTION: Supplier
CERTIFICATION: EN10204 3.1

CHEMICAL ANALYSIS

Percentage of element by mass (L=Cast, P=Product, -S=Soluble, -T=Total, CF=Chemical Formula, n=Min, x=Max)

Item No	Heat / Unit No	NATA Lab	L/P	C	P	Mn	Si	S	Ni	Cr	Mo	Cu	Al-T
1711	6426799	0632	L	.146	.017	1.19	.28	.011	.011	.019	.004	.017	.026
1711	7471839	0632	L	.149	.021	1.20	.29	.010	.013	.027	.003	.024	.028

Item No	Heat / Unit No	NATA Lab	L/P	Ti	B-T	Nb	V	CF1	CF2	CF3
1711	6426799	0632	L	.017	<.0003	.001	<.003	.35	.05	.02
1711	7471839	0632	L	.017	<.0003	.001	.003	.36	.07	.02

CF1=C+ (MN/6) + ((CR+MO+V)/5) + ((CU+NI)/15) CF2=NI + CR + CU + MO CF3=NB + TI + V

MECHANICAL TESTING**Tensile AS 1391**

Item No	Heat No	Tested Unit	NATA Lab	Cat	Loc	THICK mm	ReH MPa	Rm MPa	Lo	ELONGN %
1711	6426799	SR970	0631	B	TQM	10.00	380	500	A	34
1711	7471839	SR936	0631	P	TQM	10.00	400	520	A	32

ITEMS COVERED BY THIS CERTIFICATE

Item No	Heat No	Ordered Dimensions (mm)	No of Units	Mass (Tonnes)	Unit Identities
1711	6426799	2400.0X10.00X9600	2	3.618	SR970A2 SR970B1
1711	7471839	2400.0X10.00X9600	1	1.809	SR936B1

COMMENTS

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MECHANICAL COMMENTS

TEST PIECE LOCATION (LOC) TQM=Transverse Quarter Middle

TEST CATEGORY (CAT) P=Pattern B=Batch

GAUGE LENGTH (Lo) A=5.65 * square root of the original cross-sectional area of the test piece.



Customer: SOUTHERN QUEENSLAND STEEL PTY LTD DICK THORNTON ARCHERFIELD Q L D 4108	Supplier: BLUESCOPE STEEL (AIS) PTY LTD PORT KEMBLA, N.S.W., AUSTRALIA. A.B.N. 19 000 019 625
Cust Order No: 400298	Sales Order No: B5111 Printed At: Supplier MWS on: 06/04/2016



Accredited for compliance with ISO/IEC 17025.

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K.BAZLEY - BLUESCOPE STEEL APPROVED SIGNATORY
Mechanical LAB 0631
S.ANDREWS - BLUESCOPE STEEL APPROVED SIGNATORY
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STEELMAKING: Basic Oxygen - Slab Cast
SPECIFICATION: **AS/NZS 3678-350**
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INSPECTION: Supplier
CERTIFICATION: EN10204 3.1

CHEMICAL ANALYSIS

Percentage of element by mass (L=Cast, P=Product, -S=Soluble, -T=Total, CF=Chemical Formula, n=Min, x=Max)

Item No	Heat / Unit No	NATA Lab	L/P	C	P	Mn	Si	S	Ni	Cr	Mo	Cu	Al-T
1711	6426799	0632	L	.146	.017	1.19	.28	.011	.011	.019	.004	.017	.026
1711	7471839	0632	L	.149	.021	1.20	.29	.010	.013	.027	.003	.024	.028

Item No	Heat / Unit No	NATA Lab	L/P	Ti	B-T	Nb	V	CF1	CF2	CF3
1711	6426799	0632	L	.017	<.0003	.001	<.003	.35	.05	.02
1711	7471839	0632	L	.017	<.0003	.001	.003	.36	.07	.02

$$CF1=C+(MN/6) + ((CR+MO+V)/5) + ((CU+NI)/15) \quad CF2=NI + CR + CU + MO \quad CF3=NB + TI + V$$
MECHANICAL TESTING**Tensile AS 1391**

Item No	Heat No	Tested Unit	NATA Lab	Cat	Loc	THICK mm	ReH MPa	Rm MPa	Lo	ELONGN %
1711	6426799	SR970	0631	B	TQM	10.00	380	500	A	34
1711	7471839	SR936	0631	P	TQM	10.00	400	520	A	32

ITEMS COVERED BY THIS CERTIFICATE

Item No	Heat No	Ordered Dimensions (mm)	No of Units	Mass (Tonnes)	Unit Identities
1711	6426799	2400.0X10.00X9600	2	3.618	SR970A2 SR970B1
1711	7471839	2400.0X10.00X9600	1	1.809	SR936B1

COMMENTS

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MECHANICAL COMMENTS

TEST PIECE LOCATION (LOC) TQM=Transverse Quarter Middle

TEST CATEGORY (CAT) P=Pattern B=Batch

GAUGE LENGTH (Lo) A=5.65 * square root of the original cross-sectional area of the test piece.

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3rd Party Test Reports

Report No: M16-1337
Date: 21st and 25th July 2016
Client: Minespec Parts Pty Ltd
Contact: Ian Roduner
Subject: The Magnetic Particle, Ultrasonic and Visual examination of nominated areas about one [1] EX5500 Boom.
Test Location: Austin Engineering, 56 Len Shield Street, Paget QLD 4740.
Order No: P0216
Client Job No: TBA
Technician: Paul McNeill and Donald O'Hare

Results of Examination:

Results of examination are detailed in Table 1 of this report.
All measurements provided in millimetres unless stated otherwise.

Reported By:



Craig Birkett
AS3998 Level 3
Technician

Report Issue Date:

27th July 2016

TECHNICAL DATA

MAGNETIC PARTICLE EXAMINATION

Test Standard:	AS 1171-1998
Test Procedure:	MT01
Product Criteria:	To detect cracking
Technique:	Magnetic Flow
Current Type:	Sustained
Magnet:	AC yoke MT34
Media:	Ardrox 800/3 & 8901W
Material:	Carbon Steel NFS
Surface Condition:	Bare metal / painted
Demagnetized:	No
Test Restrictions:	Nil

ULTRASONIC EXAMINATION

Test Standard:	AS 2207-2007
Test Method:	UMB-2
Product Criteria:	AS/NZS 1554.1:2014 SP
Technique:	Contact Scanning
Sizing Method:	Last Significant Echo
Flaw Detector:	Epoch 600
Couplant:	UT-X
Material:	Carbon Steel NFS
Surface Condition:	Complies to 3.3
Transducers:	DL4R P78 and MWB 0270 P55
Test Restrictions:	Limited scanning area due to welded attachments and geometry

VISUAL SCANNING & EXAMINATION

Test Standard:	AS 3978-2003
Test Method:	Visual examination of all viewable areas
Product Criteria:	To detect cracking
Material:	Carbon Steel NFS
Lighting Condition:	Complies to AS 3978
Inspection Stage:	Welding completed
Surface Condition:	Painted
Inspection Aids:	Torch and Rule
Test Restrictions:	Paint

RESULTS OF EXAMINATION

The Magnetic Particle, Ultrasonic and Visual examination of nominated areas about one [1] EX5500 Boom.

TABLE 1
Magnetic Particle, Ultrasonic and Visual Examination

<u>Examined</u>	<u>Interpretation</u>	<u>Quality</u>
1.1 RHS W1 Internal Welds and Transitions Visual Supp MPI	No cracking detected	
1.2 RHS W4 Welds Visual Supp MPI	Cracking detected – <i>refer to photograph 1.2.</i>	
1.3 RHS W7 Welds Visual Supp MPI	Cracking detected – <i>refer to photograph 1.3.</i>	
1.4 RHS Boom Foot Welds Visual Supp MPI	Cross failure through casting – <i>refer to photograph</i>	
<i>Window numbers are from Boom Foot to Stick End</i>		
1.5 LHS W1 Welds UT	No recordable discontinuities detected	Complies
1.6 RHS W1 Welds UT	Window removed at time of inspection	
1.7 LHS W2 Welds UT	No recordable discontinuities detected	Complies
1.8 RHS W2 Welds UT	Inclusion detected – 28mm Deep, 40mm Long <i>Refer to photograph 1.1.</i>	Complies

TABLE 1 - continued
Magnetic Particle, Ultrasonic and Visual Examination

<u>Examined</u>	<u>Interpretation</u>	<u>Quality</u>
1.9 LHS W3 Welds UT	No recordable discontinuities detected	Complies
1.10 RHS W3 Welds UT	No recordable discontinuities detected	Complies
1.11 LHS W4 Welds UT	No recordable discontinuities detected	Complies
1.12 RHS W4 Welds UT	Discontinuities detected: - Crack 270mm Long, 24-26mm Deep, surface breaking 130mm x 1 <i>Refer to photograph 1.2.</i>	Does not comply
1.13 LHS W5 Welds UT	No recordable discontinuities detected	Complies
1.14 RHS W5 Welds UT	No recordable discontinuities detected	Complies
1.15 LHS W6 Welds UT	No recordable discontinuities detected	Complies
1.16 RHS W6 Welds UT	Discontinuities detected: - Crack 400mm Long, 24-36mm Deep <i>Refer to photograph 1.3.</i>	Does not comply

TABLE 1 - continued
Magnetic Particle, Ultrasonic and Visual Examination

<u>Examined</u>	<u>Interpretation</u>	<u>Quality</u>
1.17 LHS W7 Welds UT	No recordable discontinuities detected	Complies
1.18 RHS W7 Welds UT	Discontinuities detected: - Crack 200mm Long, 28mm Deep, surface breaking 140mm <i>Refer to photograph 1.3.</i>	Does not comply



Photograph 1.1.
General view of areas examined and inclusions detected about EX5500 Boom.



Photograph 1.2.
General view of areas examined and discontinuities detected about EX5500 Boom.



Photograph 1.3.
General view of areas examined and discontinuities detected about EX5500 Boom.

Report No: M16-1337-02
Date: 1st September 2016
Client: Minespec Parts Pty Ltd
Contact: Ian Roduner
Subject: The Magnetic Particle and Ultrasonic examination of window repairs about one [1] EX5500 Boom.
Test Location: Austin Engineering, 56 Len Shield Street, Paget QLD 4740.
Order No: P0216
Client Job No: TBA
Technician: Dale Chambers

Results of Examination:

Results of examination are detailed in Table 1 of this report.
All measurements provided in millimetres unless stated otherwise.



Accredited for compliance
with ISO/IEC 17025
Accreditation no. 15420

Reported By:

Craig Birkett
AS3998 Level 3
Technician

Report Issue Date:

6th September 2016

TECHNICAL DATA

MAGNETIC PARTICLE EXAMINATION

Test Standard: AS 1171-1998
Test Procedure: MT01
Product Criteria: AS/NZS 1554.1:2014 SP
Technique: Magnetic Flow
Current Type: Sustained
Magnet: AC yoke MT46
Media: Ardrox 800/3 & 8901W
Material: Carbon Steel NFS
Surface Condition: Bare metal / as welded
Demagnetized: No
Test Restrictions: Nil

ULTRASONIC EXAMINATION

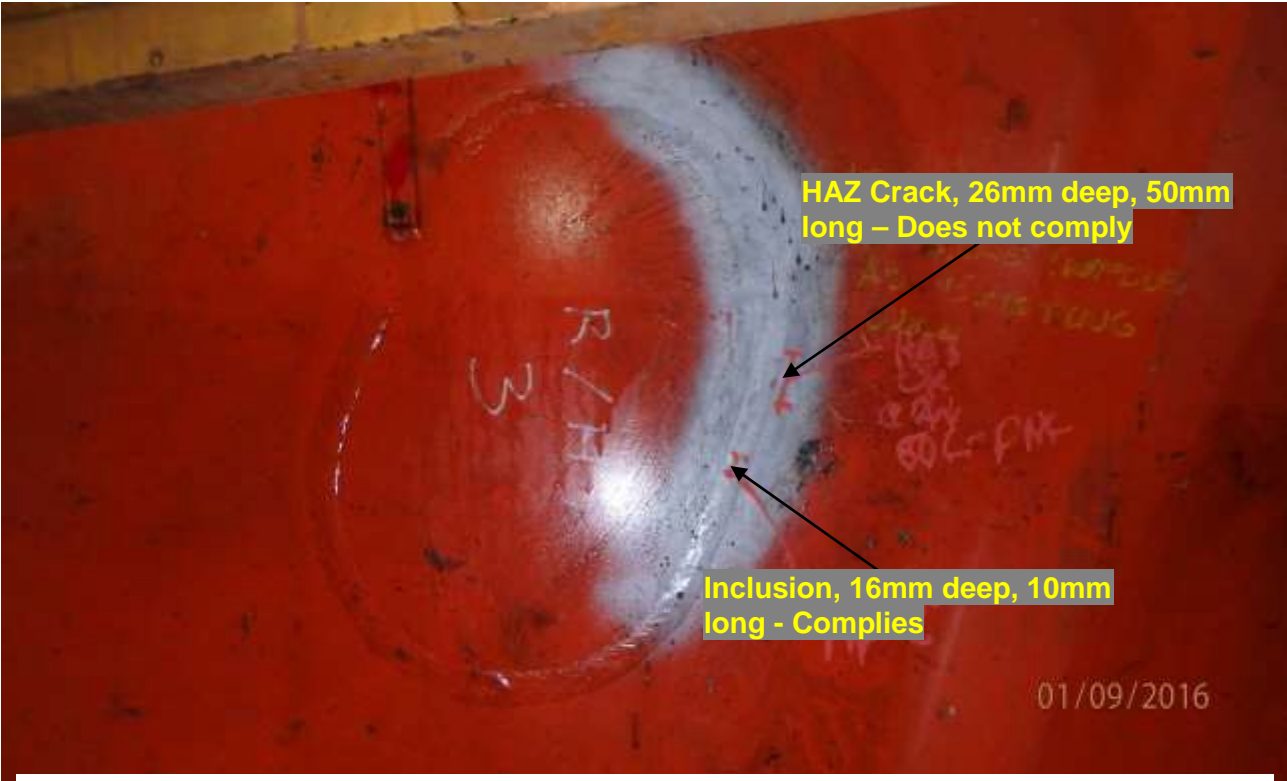
Test Standard: AS 2207-2007
Test Method: UMB-2
Product Criteria: AS/NZS 1554.1:2014 SP
Technique: Contact Scanning
Sizing Method: Last Significant Echo
Flaw Detector: Panametrics Epoch 600
Couplant: UT-X
Material: Carbon Steel NFS
Surface Condition: Complies to 3.3
Transducers: MESB4-0 P29 and TS-ABC-070-4 P68
Test Restrictions: Nil

RESULTS OF EXAMINATION

The Magnetic Particle and Ultrasonic examination of window repairs about one [1] EX5500 Boom.

TABLE 1
Magnetic Particle, Ultrasonic and Visual Examination

<u>Examined</u>	<u>Interpretation</u>	<u>Quality</u>
<i>Repairs as per INDT report M16-1337</i>		
1.1 RHS W4 Welds		
MPI Repairs	No discontinuities detected exceeding acceptance criteria	Complies
UT Repairs	No recordable discontinuities detected	Complies
1.2 RHS W3 Welds		
MPI Repairs	No discontinuities detected exceeding acceptance criteria	Complies
UT Repairs	Defects detected - HAZ Crack, 26mm deep, 50mm long - Inclusion @ 16mm deep, 10mm long <i>Refer to photograph 1.1.</i>	Does not comply Complies
1.3 RHS W6 Welds		
MPI Repairs	No discontinuities detected exceeding acceptance criteria	Complies
UT Repairs	Isolated inclusions detected <i>Refer to photograph 1.2.</i>	Complies
1.4 RHS W7 Welds		
MPI Repairs	No discontinuities detected exceeding acceptance criteria	Complies
UT Repairs	Defects detected - Lack of sidewall inclusion @ 14mm deep, 10mm long - Lack of interrun fusion @ 9mm deep, 25mm long - Isolated inclusion detected <i>Refer to photograph 1.2.</i>	Complies Complies Complies



Photograph 1.1.
General view of areas examined and defects detected about RHS W3, EX5500 Boom.



Photograph 1.2.
General view of areas examined about W6 and W7 Windows, EX5500 Boom.

Report No: M16-1337-03
Date: 22nd September 2016
Client: Minespec Parts Pty Ltd
Contact: Ian Roduner
Subject: The Magnetic Particle and Ultrasonic examination of window repairs about one [1] EX5500 Boom.
Test Location: Austin Engineering, 56 Len Shield Street, Paget QLD 4740.
Order No: P0216
Client Job No: TBA
Technician: Craig Birkett

Results of Examination:

Results of examination are detailed in Table 1 of this report.
All measurements provided in millimetres unless stated otherwise.



Accredited for compliance
with ISO/IEC 17025
Accreditation no. 15420

Reported By:

A handwritten signature in blue ink, appearing to read 'Craig Birkett', is written over a dotted line.

Craig Birkett
AS3998 Level 3
Technician

Report Issue Date:

27th September 2016

TECHNICAL DATA

MAGNETIC PARTICLE EXAMINATION

Test Standard:	AS 1171-1998
Test Procedure:	MT01
Product Criteria:	AS/NZS 1554.1:2014 SP
Technique:	Magnetic Flow
Current Type:	Sustained
Magnet:	AC yoke MT34
Media:	Ardrox 800/3 & 8901W
Material:	Carbon Steel NFS
Surface Condition:	Bare metal / as welded
Demagnetized:	No
Test Restrictions:	Nil

ULTRASONIC EXAMINATION

Test Standard:	AS 2207-2007
Test Method:	UMB-2
Product Criteria:	AS/NZS 1554.1:2014 SP
Technique:	Contact Scanning
Sizing Method:	Last Significant Echo
Flaw Detector:	Panametrics Epoch 600
Couplant:	UT-X
Material:	Carbon Steel NFS
Surface Condition:	Complies to 3.3
Transducers:	DL4R – 0° P97, AM4R – 70° P96 and AM4R – 45° P93
Test Restrictions:	Nil

RESULTS OF EXAMINATION

The Magnetic Particle and Ultrasonic examination of window repairs about one [1] EX5500 Boom.

TABLE 1
Magnetic Particle, Ultrasonic and Visual Examination

<u>Examined</u>	<u>Interpretation</u>	<u>Quality</u>
<i>Repairs as per INDT report M16-1337-02</i>		
1.1 RHS W3 Welds		
MPI Repairs	No discontinuities detected exceeding acceptance criteria	Complies
UT Repairs	No recordable discontinuities detected	Complies

MACKAY OPERATIONS

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austinengineering LTD

Improving quality, profitability and performance for our clients

◆ *manufacture* ◆ *machining* ◆ *fieldop'*



Pre-Heat Sheets

Pre-Heat & Welding Record

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Client Description: <i>pi;**</i>	EX5500 Excavator Boom	Recommended Pre-Heat <i>fjff,IASffl</i>	150°	Job No	4199
Date <i>f q. q. lb</i>	Welding Consumable	70 Ultra Plus	Gas	Wire Batch Number <i>tH.I:t</i>	F104A5H400
Joint Location <i>ti-€ffftfl: L-WS i,t.)'fl.Jl'lt.ocv</i>				Volts <i>Egffi .;J.7</i>	Amps <i>Eg)iE 2</i>
Welder Identification <i>mII %</i>	Pre-heat Temperature °C <i>fJitA5Nliff</i>	Time Taken <i>Bifa]</i>	Inspected By (Supervisor)		
		4.30	<p>?</p> <p>??L</p>		
		5.30			
<i>'JotJN</i>	<i>J i)('"</i>	6.30			
	<i>/, "V9oC</i>	7.30			
	<i>/2>....., -</i>	8.30			
	<i>/:x::, -</i>	9.30			
	<i>/01---</i>	10.30			
	<i>/5ot:</i>	11.30			
		12.30			
	<i>/::0c</i>	1.30			
		2.30			
		3.30			
		4.30			

Notes: Pre-Heat temperatures to be checked each hour and recorded by Welder ; 1 : :vt tm:tl!!'t-J1nI3/1fJJirA!'t-J5Niirt 1N1 *ic.*=-x . :.rgAm Y
 Supervision to carry out random spot checks at least every 3 hours and sign Pre-Heat Sheet 4ij.=/1--,1,s1mff=-xtlll # ':.f. ttPJ EB:≥1 1 !'t-Jisrrr mmff
 Independent Testers may be used to carry out random checks. Independent tester must sign Pre-Heat Sheet at time of check ff!!'fi'Jttm1':f Fo&:, .m tt t :;g.

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Pre-Heat & Welding Record

)SNf00114S:11.:i

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Client Description:		EX5500 Excavator Boom		Recommended Pre-Heat ffl 5. ffflll		15boc		Job No		4199	
Date	JJ/s(l/t,	Welding Consumable	ESAB, 70 U	Gas	CorGas25	Wire Batch Number m{ \$1.:J.tt-ij-		PIOl./A\$μ .:.)? .?			
Joint Location ti in:11		Weld New Forged Boom Casting to Boom -'-I-I-:S				Volts J:gffi	0	Amps l:g5lft	"Z- i 0		
Welder Identification .fxiII%			Pre-heat Temperature °C fflrA5!rtflf	Time Taken BtlaJ	Inspected By (Supervisor)						
				4.30	_____						
			(5'0,... C +	(!)JJ							
				6.30 ""							
				7.30							
				8.30	_____						
/,n A(cJI'				9.30							
I			f noc +								
			r .5i()°C t'	/							
			(5 o° C..f'	fu0	_____						
			l::JCfC..-4-	6>							
			, 5 c_+								
			l 5'0°C.-f-	L"i.-							
			150" C.--+								

Notes: Pre-Heat temperatures to be checked each hour and recorded by Welder ;±: fflJJi WfE.J!xiI:x 1fflrAIfE.J5JilN /Nt 11sf#ic -x .±. Afxi Y
 Supervision to carry out random spot checks at least every 3 hours and sign Pre-Heat Sheet 4i.=:t-11'BtJl!:fr--XtBt1sf#W:'.:J'. 11sf ttBJE3 il/iEJl'Rir. lxiJ!;fi
 ndeendent Testers may be used to carry out random checks. Independent tester must sign Pre-Heat Sheet at time of check ithf111:EJ!::fii1si'Fa&,@i1:E.r.W::g.

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Pre-Heat & Welding Record

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Client Description: f;p::gj	EX5500 Excavator Boom		Recommended Pre-Heat Jil'Slt	150°	Job No	4199
Date 9. 7' 45"	Welding Consumable	70 Ultra Plus	Gas		Wire Batch Number *f m	F104A5H400
Joint Location ti itlii! RH'S W"-p il2u l				Volts t:gffi	,2.C/	Amps l:gTlt .J_(/.2...
Welder Identification ixl.II%	Pre-heat Temperature °C ffrA5mitl	Time Taken H:-flaJ	Inspected By (Supervisor)			
		4.30				
		5.30				
	15er	6.30				
	/?Jt	7.30				
	l:x?t'	8.30				
	/50t:	9.30				
	/£1:'	10.30				
	11:c	11.30				
	/SoC	12.30				
	/c'7-I_-	1.30				
		2.30				
		3.30				
		4.30				

Notes: Pre-Heat temperatures to be checked each hour and recorded by Welder ;± D1Jff:m E8ixl.I:X1ffitAE85mitlWfl-t-1J\8-;f ili'#-ti::w:-=x . 1: Aixl .'.Ji'
 Supervision to carry out random spot checks at least every 3 hours and sign Pre-Heat Sheet ffi=1-,1,a1u1fi=-.xt!bili'#*. ili'-trcoJE131htB"1Jsutixl.ill,fi
 Independent Testers may be used to carry out random checks. Independent tester must sign Pre-Heat Sheet at time of check itBfrJ:l'.Eillfi ili'Fn ,@!wtEc&:mJ: ;g.

Pre-Heat & Welding Record

fVH: fD tftC



Client Description: P:;g	EX5500 Excavator Boom	Recommended Pre-Heat f:ff!3;JL81#	, 50 °C	Job No	4199
Date 14- t>t /6	Welding Consumable ESAB I70 UL;""JZA	Gas	CorGas25	Wire Batch Number mi*1\$1-ffl;	r::ltx/4-\$!-f<!0o
Joint Location ti in:W Weld New Forged Boom Casting to Boom			Volts Egffi j..°/	Amps Egjjf 2.-7?	
Welder Identification mII %	Pre-heat Temperature °C yjj5E!If	Time Taken Bilal	Inspected By (Supervisor)		
		4.30			
	150°C				
		6.30			
		7.30			
		8.30			
		9.30			
TONY	150°C				
	150°C	11.30			
	150°C	12.30			
	150°C	1.30			
	150°C	2.30			
	150°C	3.30			
	150°C	4.30			

Notes: Pre-Heat temperatures to be checked each hour and recorded by Welder. Supervision to carry out random spot checks at least every 3 hours and sign Pre-Heat Sheet. Independent Testers may be used to carry out random checks. Independent tester must sign Pre-Heat Sheet at time of check.

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Pre-Heat & Welding Record

mr-tomtf2



Client Description: f;p:g	EX5500 Excavator Boom	Recommended Pre-Heat ffi 51111.1	150°	Job No	4199
Date 14'-9...t;;	Welding Consumable	70 Ultra Plus	Gas	Wire Batch Number Jj fiffi:	F104A5H400
Joint Location tl itl.il	L.,/1\$ G<f.'ST ~,1V&n4 i-L,		Volts !:gffi	'27	Amps' l:g)lrt ::2-90
Welder Identification fx!II%	Pre-heat Temperature °C Tffi1Mfilr.l'.	Time Taken	Inspected By (Supervisor)		
		4.30	;?{:?-		
	-r Cf1/,+7'o-v	5.30			
:bt..lt..l D	!SC>o	6.30			
	' i:50'''	7.30			
	/S!;}o	8.30			
	!So'''	9.30			
	;So'''.	10.30			
	!So°	11.30			
	1So °	12.30			
	!Sc>'-'	1.30			
		2.30			
		3.30			
		4.30			

Notes: Pre-Heat temperatures to be checked each hour and recorded by Welder It# :BtrtrmW@J711:X1fffi @5 -t+B1 #ic. -=x .:l:ffAJ7J. Y
 Supervision to carry out random spot checks at least every 3 hours and sign Pre-Heat Sheet =-1-J,B littfi-*tm # ?,j,: tft fuoJfiEEB:9 i!@1k:rrtftviittfi
 Independent Testers may be used to carry out random checks. Independent tester must sign Pre-Heat Sheet at time of check flB{i'JtEittfi Fo&,@I tEti_t1 l t:ii .

Pre-Heat & Welding Record

IVIrwt tc :tz

P.SMOOOIiJ4(?)Uf!

Client Description: <i>g:P</i>	EX5500 Excavator Boom		Recommended Pre-Heat f1 5it!l	150°	Job No 4199
Date j:J:;), '1, ti:;	Welding Consumable 70 Ultra Plus	Gas		Wire Batch Number Jj*f\$1-ttt	F104A5H400
Joint Location ti iD:fl	L.11.5			Volts 1:\$.J±	Amps Z</6 1:\$.mt
Welder Identification wII %	Pre-heat Temperature °C fJiirMIIIUf	Time Taken B1isl	Inspected By (Supervisor)		
		4.30	%		
		5.30			
<i>.O</i>	<i>I</i>	6.30			
	<i>/5-,e_.</i>	7.30			
	<i>/</i>	8.30			
	<i>Jt</i>	9.30			
	<i>/::O</i>	10.30			
	<i>IS'''o</i>	11.30			
	<i>/So</i>	12.30			
	<i>/e>c_</i>	1.30			
		2.30			
		3.30			
		4.30			

Notes: Pre-Heat temperatures to be checked each hour and recorded by Welder ; 1: :ff!lifW@wI:x1fJiim@JN!Jjt4\$J:-t-iN1fit#ic-:x.1: ,A..w:¥:Y
 Supervision to carry out random spot checks at least every 3 hours and sign Pre-Heat Sheet .=1-,1,a1nfi'-:xtll # ':J=. fit t!foJJIBEE:>' if@J:arrfw mfr
 Independent Testers may be used to carry out random checks. Independent tester must sign Pre-Heat Sheet at time of check it!Hl1:f:Emfi'fitFa&:, {OI :f:E:&... tcoj .

Pre-Heat & Welding Record

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Client Description: gp		EX5500 Excavator Boom		Recommended Pre-Heat fin)		Job No 4199	
Date	12-9-16	Welding Consumable	ESAB 70 L,772.A	Gas	CorGas25	Wire Batch Number fflt III:Hlt-ij,	7045H400
Joint Location ti ifttl		Weld New Forged Boom Casting to Boom				Volts Egffi	Amps eg)JE ,IY(:::Ul,I

Welder Identification fiIII%	Pre-heat Temperature °C fli!M51ffi.Ji'	Time Taken BtiaJ	Inspected By (Supervisor)
		4.30	
	150°C	6.30	
		7.30	
		8.30	
		9.30	
	50(:).	10.30	
	150°C	1.30	
Chunhui Huang	150	@9>	
	150°C	2.30	
	150°C	3.30	
	150°C	4.30	

Notes: Pre-Heat temperatures to be checked each hour and recorded by Welder ;! ffl:llmi:!!/tBfill:x" fli!MtB51ffi.Ji'. INtt&i!f#it.3] <:-=Jz . ±. AITT Y
Supervision to carry out random spot checks at least every 3 hours and sign Pre-Heat Sheet •=-'1J,Bt:itf:fi- Mli!f# ':J'. t&i!ftifBJfIBEE:9H1rtBJ!RJit& fil:itf:fi
endent Testers ma be used to car out random checks. Inde endent tester must si n Pre-Heat Sheet at time of check it!!fi'J:f:E:itf:fit&i!fFo&i.m:f:EMJ: ;g.

Pre-Heat & Welding Record

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FF: 11 5VD 46 0 11*

Client Description: P	EX550 Excavator Boom		Recommended Pre-Heat 150°	Job No 4199
Date j, id.op; jb,	Welding Consumable 70 Ultra Plus	Gas	Wire Batch Number mi \$Hit	F104A5H400
Joint Location tift' Uittt	12/-15 1 > 110		Volts ft!. ffi	.2?, > Amps ft!. irrf. r7B
Welder Identification !xiII%	Pre-heat Temperature °C ffj'A51il.ffi'	Time Taken B1isJ	Inspected By (Supervisor)	
		4.30	?(£	
		5.30		
	8r	6.30		
	;zic	7.30		
	/;Jclt.	8.30		
	..	9.30		
	J;-r	10.30		
	/see.?	11.30		
	:: :	12.30		
		1.30		
		2.30		
		3.30		
		4.30		

Notes: Pre-Heat temperatures to be checked each hour and recorded by Welder 5± :6U!IJ tl'3!xiIX IffiJ'Ati'351il.Hi'. 11'81:Mz #tr. -:vz . ±H A/xi Y
 Supervision to carry out random spot checks at least every 3 hours and sign Pre-Heat Sheet =1, ij BlitHr= xMJ __# i'z':. :Mzi:t6JfIBEE:9HWH'3J:ILn.:Mz/xit!;fi
 Independent Testers may be used to carry out random checks. Independent tester must sign Pre-Heat Sheet at time of check ff!!1fjtEitl:fi:MzFo&.:a.J! tE=iz:ti...ti':z::g.

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Pre-Heat & Welding Record

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Client Description: P		EX5500 Excavator Boom		Recommended Pre-Heat ffl 51i!!t		150°		Job No 4199	
Date	12 9-16	Welding Consumable	70 Ultra Plus	Gas		Wire Batch Number mf*1\$\$.ffl:		F104A5H400	
Joint Location ti in:fl		LI-IS				Volts 1:\$.ffi	27		Amps ftl,5firt 2qo
Welder Identification mII %		Pre-heat Temperature °C rJJfA5_g)l'.		Time Taken B11sJ		Inspected By (Supervisor)			
				4.30		C-			
		U-MoAI		5.30					
:'.biJND		15!:>c,		6.30					
		l::O"		7.30					
		!Soo		8.30					
		/5'o °		9.30					
		/\$'e,7 (}		10.30					
		/S-e:;,"		11.30					
		/'S'o"		12.30					
		60"		1.30					
				2.30		%			
				3.30					
				4.30					

Notes: Pre-Heat temperatures to be checked each hour and recorded by Welder)± fflifmWtf;JmIX1rJJ!;J'Atf';)5_g)l'. 4 Vi"1j\B-;j"f: - .± AITTY
 Supervision to carry out random spot checks at least every 3 hours and sign Pre-Heat Sheet 4:ij;.:1-i,s1u:rfi- m #1£ . :r:& i±(oJfiErn:≥1ilift';JJ:f!1I::r:&mur;fi
 Independent Testers may be used to carry out random checks. Independent tester must siQn Pre-Heat Sheet at time of check flhflft:Eu:rfi:r:&Fo tt ..t1£:g .

Pre-Heat & Welding Record



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Welding Record

Client Description: gp	EX5500 Excavator Boom	Recommended Pre-Heat 150°C	150°C	Job No	4199
Date: 11/1/18	Welding Consumable ESAB 70 Vii"RA	Gas	CorGas25	Wire Batch Number Jm \$J.t.lt	FiO'(-;:tSl./1.fe:o
Joint Location: Weld New Forged Boom Casting to Boom - LI				Volts i:gff	Amps i:g5fit 300
Welder Identification in.1.1%	Pre-heat Temperature °C ffi5.ffil.N	Time Taken	Inspected By (Supervisor)		
		4.30			
	150°C	5.30			
		6.30			
		7.30			
		8.30			
		9.30			
	150°C	10.30			
	150°C	11.30			
	150°C	12.30			
Chunhui Huang	150°C	1.30			
	150°C	2.30			
	150°C	3.30			
	150°C	4.30			

Notes: Pre-Heat temperatures to be checked each hour and recorded by Welder. Supervision to carry out random spot checks at least every 3 hours and sign Pre-Heat Sheet. Independent Testers may be used to carry out random checks. Independent tester must sign Pre-Heat Sheet at time of check.

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Pre-Heat & Welding Record

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Client Description: P	EX5500 Excavator Boom	Recommended Pre-Heat fflmjBI!!	150°	Job No	4199
Date 113-q-/b	Welding Consumable	70 Ultra Plus	Gas	Wire Batch Number 1Jji*1*31-ffl:	F104A5H400
Joint Location titdtrfl	t-1-1.s CA-st .livSr;4-U-			Volts !:@.Eli	27
Welder Identification filII%	Pre-heat Temperature °C tm:l'A511!N	Time Taken B1isJ	Inspected By (Supervisor)		
		4.30	%-		
	C,,:i,.,wc,A)	5.30			
..!;i,iNKAD	;5Qo	6.30			
	150°	7.30			
	/\$00	8.30			
	1So°	9.30			
	;570	10.30			
	/Soc-	11.30			
	/S0°	12.30			
	/50°	1.30			
		2.30			
		3.30			
		4.30			

Notes: Pre-Heat temperatures to be checked each hour and recorded by Welder j± fflwm @v.1I:X1ffi:l'A@511!N¥4 fi'-1N1f& #ic -=j;: .:t Afil:¥:'.Y'
 Supervision to carry out random spot checks at least every 3 hours and sign Pre-Heat Sheet 4ij;=:t-J sl illfi -= Xim_# . f& ij(i:iJfIBEB:S'HI@ :11:rrf& filillfi
 Independent Testers may be used to carry out random checks. Independent tester must sign Pre-Heat Sheet at time of check 1if'l'Jttillfif&Fo&;i.m¥:tf :j:%. . . t .

Pre-Heat & Welding Record

*fv1t1W t/tC***



Client Description: fGp:g	EX5500 Excavator Boom	Recommended Pre-Heat ffim5!ll}t		Job No 4199
Date /J, -'-J-tb	Welding Consumable ESAB 70 ULTIV-1	Gas CorGas25	Wire Batch Number mt*1\$1.ffl;i!\$-	Amps Eg5frit
Joint Location ti-8-ftril	Weld New Forged Boom Casting to Boom		Volts Egff	Amps Eg5frit
Welder Identification lx!II%	Pre-heat Temperature °C finfA5jU!{	Time Taken BtlAJ	Inspected By (Supervisor)	
		4.30		
	50°C	5.30	 	
		6.30		
		7.30		
		8.30		
		9.30		
	150°C	10.30		
<u>Chunhui Huang</u>	150°C	11.30		
	150°C	12.30		
	150°C	1.30		
	150°C	2.30		
	150°C	3.30		
	150°C	4.30		

Notes: Pre-Heat temperatures to be checked each hour and recorded by Welder ;±a fff:l'ff @lx! finfA@5llll.N 1Ntf:& #tc - . 1:ff,A.m.¥:Y'
 Supervision to carry out random spot checks at least every 3 hours and sign Pre-Heat Sheet 4i=.1'11'Btillfi- :fm # . f:& t1?."6JfFbEB:9Hf833.9l.Jif:&lx!illfi,
 Independent Testers may be used to carry out random checks. Independent tester must sign Pre-Heat Sheet at time of check ffl!l.ffltEillf.ff:&J&§;,@ltE*ttiJ: :g.

MACKAY OPERATIONS

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austinengineering LTD

Improving quality, profitability and performance for our clients

◆ *manufacture* ◆ *machining* ◆ *fieldop'*



Bore Reports



An Austin Engineering Ltd Company

Bore and Alignment Inspection Report for EX5500 Boom

CLIENT: A_U-ST-IN _N_G" 1

PRODUCT ID/Serial Number: _____ Ex_s_s_oo_B_O_O_M _____ - 1

Final BORE CHECK BY: _____ El_m_e_r_Po_r_t_u...g_u_ez-/-R_i_ch_a_r_d_S_i_n_g= ----- 1

LINEBORE BY: _____ - t

GREASE FLOW Checked BY: _____

JOB NUMBER

J15613

SITE:

AUSTIN ENG WORKSHOP

DATE

24/09/2016

DATE

DATE

BORE and FACE DIMENSIONS (Make note of whether bushes are in or out)

Position	Bore Specification	Actual				Average Dimension after machining	Checked (Name)	Comments
		Left Inner	Left Outer	Right Inner	Right Outer			
A - Boom/ Main Frame	X 300.00 to 300.081 y			N/A	N/A	300.045 300.05	Elmer Portuguez	
B - Boom / Stick	X 320.00 to 320.089 y	320.13	320.14	320.07	320.08	320.06/07 319.98/99	Elmer Portuguez	
A - Boom Cylinder/ Main Frame	X 260.05 TO 260.08 y	260.25	260.35	260.29	260.22	260.03 260.03	Elmer Portuguez	
A - Boom Cylinder/ Stick	X 230.05 TO 230.08 y	230.15	230.10	230.25	230.12	230.05 230.04	Elmer Portuguez	
Boom Cylinder Pins	259.80 - 259.90	259.85	259.82	259.73	259.70		Elmer Portuguez	
Boom/Main frame end Internal face	1770					1771		
External Face	2590± 1.0					2590		
Boom/Stick end Internal face	660							

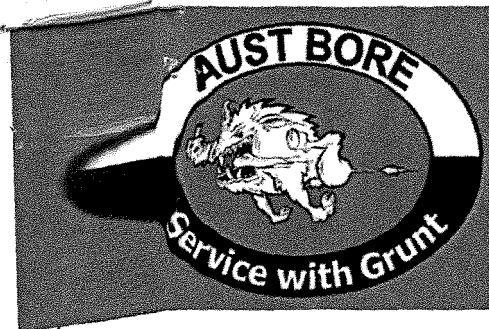
External Face		1540±0.S							
A - Boom Main Frame bores to Stick-end bores		10605± 10.				10608			
Stick-end bores to Cyl Bores		4719 ±4.0							
A- Boom Main Frame bores to Cyl inder bores		7248±5.							

GREASE GROOVES and PORTS

All Grease grooves/ports are cleaned prior to fitting bushes and are clear of old grease and contaminants. Ports are checked for alignment and flow after Bush fitment andwitnessed by Client Representative.

Position	Left	Right	Checked and Cleaned by	Checked (Name/ Company)	Date

c;tN RAfNOTESAND:coMMEN'I'S Nii ...<J; (-/),f:..>J, •.. >..)<f:..:f{C? \'.iif... (.\,.'!...c)itJ...tj;>/(%s...;)/i...i)J.f.z.f' / \I...i 1',.?:{'ff t,t \lilit) \/,;';#...I)>>I::!}.ffr(



Delivery Docket 05784
Office Copy

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ENTERED

F I4:> ,,-.....

Deliver to...

Aust Bore
12-16 Progress Drive
Paget
4740
BN 42 051 711 963
http://www.austbore.com.au
admin@austbore.com.au

Darrin Williams
Austin Engineering (Mackay)
Austin Engineering 56 Len Shield
Street Paget
Mackay
4740 Qld

our Jclo No: J15625

Delivery Date: 22/09/2016

cus1:CJ'111erOrderNo: AE-22691 line 2 of 2

Con Note: Richard Sing (Austbore)

Notes:

Item Description	Qty Ordered	Qty Pending	Qty in this delivery	Unit
67600 10816: EX5500 / EX5600 Boom; Stick ttact'll ffnt Bush:	4	0	4	Each
7600 .10817: EX5500 / EX5600 Boom; House ent Bush:	4	0	4	Each

Coura

Date 22.9.2016

Richard

AUSTREBSHCE TIFICATION

Part Number: A12>1Co()ti'2,0b\1

Serial Number: J15625-1

Inside Diameter (mm): 260.6

Outside Diameter (mm): 300.5

Within Tolerance: YES NO

Inspected By: XIC GUERRERO

Signature: 

Date: 3V-- 8- - 16

ALIST BORE .BIJS 1 CE TIFIC. T1

Part Number: AB76 0020817

Serial Number: J15625-2

Inside Diameter (mm): 260.59

Outside Diameter (mm): 300.54

withil"l"p:ie'r rlce.. (t1y s ..{JNo<

Inspected By: VIC GVERDEPO

Signature: _____

Date: 31 - f - /6

LIST OF CERTIFICATIONS

Part Number: *Afb-:Y&V0'2D1 i*

S Se - 1, Numl: >.er: *J15625-3*

Inspection: *311J: (i;1:mm):.. '2M'. 0.*

Item: *ft, 1t, if, aoi, ter (d1m):.. 'Seq. -)*

With: *f ES* **NO**

Inspected By: *VIC EVERETT*

Signature: 

Date: *r;f)- f- 1b*

A STORE BUSH CERTIFICATION

Part Number: A-f3';:/- bO?/U11

reset, 1, Num , r: ctttr'F2 5-4

Inside Diameter (mm): 260.64

Outside Diameter (mm): 300.51

Withl ift1 ;r&.ce: '(: S [] NO

In pected By: Vt{/ . ' Q) t:ei"V

Signature: _____

Date: ____ .y0"--- ... :c f, - :/...b. ____

AUSTB REBUS CERTIFICATE

Part Number: *ItP->1 to00/0''' | to*

Serial Number:

J15625-1

• Inid, i1Q, al'9 | u; ;mm): . . ::2 t-1'¼ . . 2. _loD

<'il - ;J' 1t/Jt, iarJ ter(dim): . 3-zo, 3 - 320.54*

Withl 'mt.ii :rilfice:

f JNO.!

. In pected By: *.V tu ft1- W*

Signature: _____

Date: *...?0 -tf -- 16*

AtJSTBO E.B. S ICERTIFICATIO

Part Number: Af6't (p 'VO to 1 L,

sf ,set(a1),j11mbi r: ...:flb:.b2 5-2

In i e)a... ('r':(mm): 2N. II 3.

);;:!:<'

320.50 - 320 . 2.

Within Tolerance: YES NO

In pected.By: Vt . \. Jct ..

Signature: 

Date: .30 . ,f" - Ib

:tJSTBO E. BU CIH' -i' r' 1=DT:-1; F {c... " T: Q' .

Part Number: *Aro, -(otJL) } Q-, .i,*

Serial Number: *J15625-4*

Insi /q { i'(mm):. . ", C, j

”

320.5

Within Tolerance: YES NO

In\$pected By: *Vru -GJe(Zf)\$(ZD*

Signature:c ->

Date: *ft> ., -1' - /b*

MACKAY OPERATIONS

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austinengineering LTD

Improving quality, profitability and performance for our clients

◆ *manufacture* ◆ *machining* ◆ *fieldop'*



Final Sign-Off

JOB NUMBER - 4199

**EX5500 EXCAVATOR BOOM
MINESPEC PARTS**



SCOPE OF WORK

Revised 01-09-16

ITEM	DESCRIPTION - EX5500 EXCAVATOR BOOM	COMMENTS	PARTS & MATERIAL REQUIREMENTS	SUPPLIER	To be signed off when Line items are complete	
					Sign	Date
1.0	DIMENSIONAL INSPECTIONS / REPORTING & NDT TESTING					
1.1	Dimensionally Inspect all bores and provide a detailed report to Minespec Parts	Includes main House to Boom Bores x 1, Top Ram Bores x 2 (Boom to Stick), Boom Cylinder Bores x 2 (Boom to House), Main Boom to Stick Bores x 2	3rd Party to Complete	Austin's	<i>MB</i>	2016
1.2	Dimensionally Inspect 2 x boom Cylinder Pins & provide a detailed report to Minespec Parts	Allowance to Inspect 2 x Pins only	3rd Party to Complete	Austin's	<i>MB</i>	5 SEP - 2016
1.3	MPI and Visually Inspect all Weld Zones on External of Boom and Supply Report		3rd Party to Complete	Minespec	<i>MB</i>	5 SEP - 2016
1.4	UT Test all Field Repairs in Windows and Supply Report to Minespec Parts		3rd Party to Complete	Minespec	<i>MB</i>	
1.5	UT & MPI Test Welds around new installed Boom Casting & Supply Report		3rd Party to Complete	Minespec	<i>MB</i>	
	Other					
2.0	CRACK REPAIRS					
2.1	Repair External Cracks as identified in NDT Report -	Not Required				NOT REQUIRED
2.2	Repair all UT Non Conformances as identified in NDT Report - M16-1337	Total amount to be repaired - 1,100mm	Non Conforming Welds to be re-tested upon completion of the repairs		<i>MB</i>	2016
2.3	Reweld all field Repair Areas in Existing Window Welds that have been ground back to provide similar weld profile with reinforcement around all existing window welds				<i>MB</i>	SEP-2016
	Other					
3.0	BOOM CASTING REPLACEMENT					
3.1	Remove RHS Boom to House Casting and Grind Boom for Re-installation of new Cast Component	RHS Casting to be Replaced			<i>MB</i>	
3.2	Remove 1 x 50mm RHS Window and Backing Bar in House end of Boom & Prep for new installation	Required for access to reweld New Casting onto Boom			<i>MB</i>	2016
3.3	Install & Weld New Forged Boom Casting to Boom	Allowance included for Alignment Check during Assembly	New For-ged-1300m Casting	Minespec	<i>MB</i>	2016
3.4	Install & Weld New 50mm Window and Backing Bar to Boom	To be installed after all NDT Testing has been signed off	Qty 1 - 50mm Grade 350 - 650 x 650 Qt 1 - 12mm Grade 350 - 700 x 700	Austin's	<i>MB</i>	2016
3.5	Remove LHS Boom to House Casting / Grind & prep Boom & Casting for Re-installation	LHS Casting to be Reclaimed			<i>MB</i>	SEP
3.6	Remove 1 x 50mm RHS Window and Backing Bar in House end of Boom & Prep for new installation	Required for access to reweld existing Casting onto Boom			<i>MB</i>	SEP
3.7	Install & Weld existing Boom Casting to Boom	Allowance included for Alignment Check during Assembly	Reclaimed Casting		<i>MB</i>	



SCOPE OF WORK

Revised 01-09-16

ITEM	DESCRIPTION - EX5500 EXCAVATOR BOOM	COMMENTS	PARTS & MATERIAL REQUIREMENTS	SUPPLIER	To be signed off when Line Items are complete	
3.8	Install & Weld new 50mm Window and Backing Bar to Boom	To be installed after all NDT Testing has been signed off	Qty 1 - 50mm Grade 350 - 650 x 650 Qty 1 - 12mm Grade 350 - 700 x 700	Austin's	<i>[Signature]</i>	SEP-2016
	Other					
4.0	RECLAMATION OF BORES & FACES				Sign	Date
4.1	Allowance to Build Up 1 x and Line Bore 2 x Boom to House Main Bores Approx 0 300mm x 410mm Deep	RHS Casting to be Replaced Allowance to build up 1 run in 1 x existing bore only and Machining - No Face Reclamation Allowance	3rd Party to Complete	Austin's		V()
4.2	Allowance to Build Up and Line Bore Boom to Stick Top Cylinder Bores x 4 Approx 0 220mm x 150mm Deep	Allowance for 1 run of build up inside Bores only & Machining - No Face Reclamation Allowance	3rd Party to Complete	Austin's		ny
4.3	Allowance to Build Up and Line Bore Boom to House Cylinder Bores x 4 Approx 0 240mm x 150mm Deep	Allowance for 1 run of build up inside bores, build up on external clevis face & Machining - Allowance to Reclaim Outer Faces LH & RHS	3rd Party to Complete	Austin's		0
4.4	Allowance to Build Up and Line Bore Main Boom to Stick Bores Approx 0 300mm x 410mm Deep	Allowance for 1 run of build up inside Bores only & Machining - No Face Reclamation Allowance	3rd Party to Complete	Austin's	<i>[Signature]</i>	
	Other					
5.0	BRACKETS				Sign	Date
5.1	Supply and Install Missing Weld on Brackets	Allowance to relace 1 x Missing Bracket on Window on RHS of Boom #3 From House end and 1 x Pipe Bracket inside Stick to Boom Cavity	Material Required with Drilling and Tapping Allowance	Austin's	<i>[Signature]</i>	SEP-2016
5.2	Tap out all holes in existing Brackets				<i>[Signature]</i>	
	Other					
6.0	BUSH SUPPLY & INSTALL				Sign	Date
6.1	Supply and Install New Bushes, Spacers and Seals in Boom to House Main Bores		Bushes, Spacers and Seals	Austin's	<i>[Signature]</i>	SEP-2016
6.2	Supply and Install New Bushes, Spacers and Seals in Boom to Stick Main Bores		Bushes, Spacers and Seals	Austin's	<i>[Signature]</i>	SEP-2016
	Other					
7.0	GENERAL				Sign	Date
7.1	Craneage to Load and un-load Boom On-site	Minespec to organise		Minespec	<i>[Signature]</i>	
7.2	Transportation of Boom to Site upon completion	Minespec to organise		Minespec	<i>[Signature]</i>	
7.3	Craneage & Handling of Boom @ Austin's			Austin's	<i>[Signature]</i>	

austinengineeringun

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SCOPE OF WORK

Revised 01-09-16



ITEM	DESCRIPTION - EX5500 EXCAVATOR BOOM	COMMENTS	PARTS & MATERIAL REQUIREMENTS	SUPPLIER	To be signed off when Line items are complete	
7.4	Mechanical sand / In-house paint Boom	Colour - Hitachi Orange	Enamel Paint	Minespec	<i>[Signature]</i>	SEP-2016
7.5	Compile Repairer's QA Report	Required 2 weeks after delivery to site		Austin's	<i>[Signature]</i>	OCT-2016
96	Supervision					
98	Other					

FINAL INSPECTION & RELEASE FORM

JOB: 4199

SERIAL NUMBER: _____

CLIENT: . Minepsec Parts _

DATE: 26/9/2016

PRODUCT DESCRIPTION: EX5500 Excavator Boom

Material Inspection -
completed by

[Signature]
Supervisor's Signature

M. SAMSON
Printed Name

Fabrication Inspection -
completed by

[Signature]
Supervisor's Signature

M. SAMSON
Printed Name

Dimensional Inspection -
completed by

[Signature]
Supervisor's Signature

M. SAMSON
Printed Name

Weld Inspection -
completed by

[Signature]
Supervisor's Signature

M. SAMSON
Printed Name

Scope Of Work Check -
completed by

[Signature]
Fabrication & Weld Supervisor's
Signature

M. SAMSON
Printed Name

Final Visual Inspection -
completed by

[Signature]
Fabrication & Weld Supervisor's
Signature

Michael Samson
Name

MANAGEMENT

Workshop Manager or
Co-Ordinator

[Signature]
Signature

Rick Drewes or Michael Samson
Name

