Non-Destructive Testing and Examination Report

For reliability with integrity, there's only one choice .... and it's LIMITLESS

HITACHI EX3600-6BE EXCAVATOR EX43 (MSP5228) STICK (INITIAL)

Limitless Asset Assurance
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Hitachi EX3600-6BE Excavator EX43 (MSP5288) Stick (Initial) - NDT and Examination Report - 17611206

18 Jun 2024

Client and Examination Detail

Limitless Asset Assurance Job Number	9796190
Limitless Asset Assurance Report Number	Report Number is the Submission ID in the Header and Footer
Report Issued Date	19 Jun 2024
Report Issue Version	Version 1 (Original)
Report Status	Initial Report
Client Business Name	Minespec Parts
Client Contact Name	Dave Jurik
Client Contact Email	admin@minespecparts.com.au
Client Head Office Address	Braeside Road, Nebo Queensland, 4742 Australia
Purchase Order Number	PO2578
Work Order Number / Job Description	HITACHI EX3600-6BE EXCAVATOR EX43 (MSP5228) STICK (INITIAL)
Asset ID	EX43 (MSP5288)
Asset Serial Number	198
Examination Start Date	18 Jun 2024
Examination End Date	19 Jun 2024
Examination Location	Braeside Road, Nebo Queensland, 4742 Australia

The examination conditions of this test report do not meet the requirements or are outside the scope of accreditation for Limitless to issue an endorsement in accordance with ISO/IEC 17025 Testing for NATA.

Limitless Asset Assurance Accreditation Number 21283

Examination Conditions

Product and Acceptance Standard(s) / Code(s)

Product Standard(s)	Acceptance Standard(s)
Not Supplied	To Report All In-Service Findings

Test Standard(s) and Procedure(s)

Standard Number	Procedure Number
UTW - AS 2207-2007	PRO.UT.008 Ultrasonic Testing of Fusion Welded Joints in Carbon and Low Alloy Steel
MT - AS 1171-1998	PRO.MT.001 Magnetic Particle Testing of Ferromagnetic Products, Components and Structures
VT - AS 3978-2003	PRO.VT.001 Visual Inspection of Metal Products and Components

Testing Personnel and Certification(s) / Qualification(s)

Technician(s) Name	VT: Certification(s) / Qualification(s)	MT: Certification(s) / Qualification(s)	UTW: Certification(s) / Qualification(s)
Nick Van Moolenbroek	ISO 9712 Level 2	ISO 9712 Level 2	ISO 9712 Level 2
Ben Cook	SNT-TC-1A Level II	SNT-TC-1A Level II	SNT-TC-1A Level II
Matt Cook	ISO 9712 Level 2	ISO 9712 Level 2	SNT-TC-1A Level II
Moana Haslar	ISO 9712 Level 2	ISO 9712 Level 2	Nil

Abbreviations:

VT: Visual Testing (Examination), MT: Magnetic Particle Testing (Examination), PT: Penetrant Testing (Examination), UTT: Ultrasonic Thickness Testing (Examination), UTF: Ultrasonic Testing - Forgings (Examination), UTW: Ultrasonic Testing - Welds (Examination)

Surface Condition Under Examination	As In-Service
Preparation Prior To Examination	Cleaned / Washed
Service Status Under Examination	Midlife / Overhaul
Lighting Source Applied	Natural and Artificial
Material Specification	Steel Not Further Specified

Examination Extent

Examination Extent	100% Visual Examination of all accessible locations supplemented with Magnetic Particle Examination of suspect indications
Examination Extent	Ultrasonic Examination of welds as identified in the Hitachi UT Inspection Procedure

Test Restrictions

Test Restriction	Painted surfaces, dirt, dust and grease build up may mask indications. Component geometry and testing in-situ may limit access to some examination locations
Test Restriction	Restricted access to some scanning points due to the assets location (underside on ground)
Test Restriction	Scanning positions as per AS2207 were restricted on some welds due to component geometry and the installation of some components
Deviation from the Standard, Procedure or Code	Testing over painted or coated surfaces reduces the sensitivity of the test and therefor may mask indications when using surface test methods

Visual Examination Technical Data

Light Intensity	Visible Light >400 lux
Heat Treatment Detail	Not Supplied

Visual inspection Equipment

Asset ID	Make	Model	Type
L066	Lufkin	150mm	Steel Rule

Magnetic Particle Examination Technical Data

Light Intensity	Visible Light >1000 lux
Technique Applied	Magnetic Flow - Sustained Magnetism
Demagnetised	No

Contrast Medium Details

White Contrast Background Type	Batch Number	Expiry Date
Smartcheck MPI White	03225	02/27

Inidicating Medium Details

Magnetic Ink Type	Batch Number	Expiry Date

Smartcheck MPI Black	1023643	10/26

Magnetising Unit(s)

Asset ID	Make	Model	Type
L025	Cracktest	MA-PERM-AL	Permanent Magnet
L085	Cracktest	MA-PERM-AL	Permanent Magnet

Ultrasonic Welds Examination Technical Data

Surface Condition	Surface condition in some scanning locations did not comply with clause 3.2 of AS 2207
Surface Preparation	SP4 - Ground Flush
	SP2 - Dressed
Test Method / Joint Type	Butt Weld Single Preparation UMB-2
Couplant	Light Oil
Reference Sensitivity	Parent Material - Second Back Wall Echo @ 80% Full Screen Height
	Weld Material - 1.5mm Side Drilled Hole (22mm Long) to a Maximum Beam Path Length at 80% Full Screen Height
Scanning Sensitivity	Reference Sensitivity +6dB
Evaluation Sensitivity	Level 2 - Amplitude Equal to or Greater Than 40% of Reference Sensitivity
Sizing Method	Last Significant Echo

Parent Material Thickness (mm)

Flaw Detector(s)

Asset ID	Make	Model	Type
L069	Olympus	EPOCH 650	Flaw Detector (UT Set)

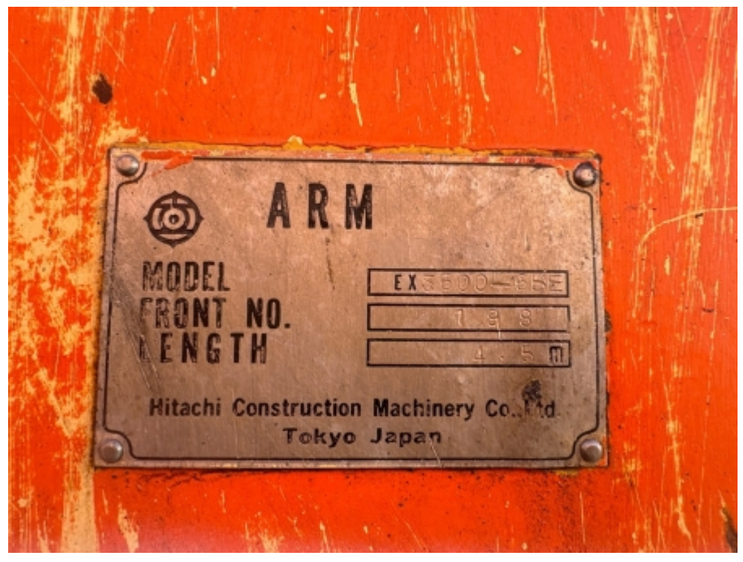
Calibration Block(s)

Asset ID	Make	Model	Type
L015	SIUI	NO.1 / IIW	Calibration Block

Probe(s)

Asset ID	Make	Model	Type
L070	Olympus	CN4R-10	Probe
L032	Olumpus	AM2R-14X14-45	Probe
L034	Olumpus	AM2R-14X14-70	Probe

Overview Photo


ARM
MODEL
FRONT NO.
LENGTH
EX3600-6BE
1 9 8
1 5 m
Hitachi Construction Machinery Co., Ltd.
Tokyo Japan

Area(s) of Examination and Results

Area of Examination

Area of Examination	Stick

Examination Location(s)

Examintation Location(s)	Left Hand Side
	Right Hand Side
	Top Side
	Bottom Side
	Rear
	Front
Examination Method Applied	Visual Examination
	Magnetic Particle Examination

Results of Examination	Findings As Described
Length of Indications for Area of Examination (mm)	3,170 mm

Finding Details

ID Number	Location / Description	Length (mm) / QTY (Ea)	Finding Type	Repairs and Compliance	Finding Photo
1	Top Side LHS	150	Crack (CK)	CNA	
2	Front RHS Inboard	40	Crack (CK)	CNA	
3	Top Side RHS	60	Crack (CK)	CNA	

ID Number	Location / Description	Length (mm) / QTY (Ea)	Finding Type	Repairs and Compliance	Finding Photo
4	Top Side RHS	25	Crack (CK)	CNA	
5	Top Side RHS	170	Crack (CK)	CNA	
6	Left Hand Side Front	450	Crack (CK)	CNA	
7	Rear LHS Inboard	30	Crack (CK)	CNA	
8	Bottom Side LHS Inboard	300	Crack (CK)	CNA	

ID Number	Location / Description	Length (mm) / QTY (Ea)	Finding Type	Repairs and Compliance	Finding Photo
9	Rear RHS Inboard	5	Crack (CK)	CNA	
10	Right Hand Side Rear	10	Crack (CK)	CNA	
11	Right Hand Side Rear	10	Crack (CK)	CNA	
12	Right Hand Side Front	200	Crack (CK)	CNA	
13	Rear RHS Inboard	130	Intermittent Cracking (Int CK)	CNA	
14	Top Side LHS	60	Intermittent Cracking (Int CK)	CNA	

ID Number	Location / Description	Length (mm) / QTY (Ea)	Finding Type	Repairs and Compliance	Finding Photo
15	Top Side LHS	100	Intermittent Cracking (Int CK)	CNA	
16	Top Side RHS	50	Intermittent Cracking (Int CK)	CNA	
17	Top Side RHS	40	Intermittent Cracking (Int CK)	CNA	
18	Top Side RHS	70	Intermittent Cracking (Int CK)	CNA	
19	Under Side Front	30	Multiple Cracks (MC)	CNA	

ID Number	Location / Description	Length (mm) / QTY (Ea)	Finding Type	Repairs and Compliance	Finding Photo
20	Under Side Front	30	Multiple Cracks (MC)	CNA	
21	Under Side Front	110	Crack (CK)	CNA	
22	Under Side Front	350	Multiple Cracks (MC)	CNA	
23	Under Side Front	100	Crack (CK)	CNA	
24	Under Side Front	150	Multiple Cracks (MC)	CNA	

ID Number	Location / Description	Length (mm) / QTY (Ea)	Finding Type	Repairs and Compliance	Finding Photo
25	Under Side Front	200	Multiple Cracks (MC)	CNA	
26	Under Side Front	150	Multiple Cracks (MC)	CNA	
27	Front Inboard	150	Multiple Cracks (MC)	CNA	

CNA - Compliance Not Applicable

Area of Examination	
Area of Examination	Stick
Examination Location(s)	
Examintation Location(s)	Hitachi EX3600 UT Document KO-235(B)-00 Point - A
	Hitachi EX3600 UT Document KO-235(B)-00 Point - B
	Hitachi EX3600 UT Document KO-235(B)-00 Point - C
	Hitachi EX3600 UT Document KO-235(B)-00 Point - D
	Hitachi EX3600 UT Document KO-235(B)-00 Point - E
	Hitachi EX3600 UT Document KO-235(B)-00 Point - F
Examination Method Applied	Ultrasonic Examination - Welds
Results of Examination	No Recordable Indications Detected
Length of Indications for Area of Examination (mm)	mm

Report Summary and Authorisation

Summary of Area(s) of Examination and Total Indication Lengths

Area of Examination	Total Length / Quantity of Indications (mm)
Stick (VT/MT)	3170
Stick (UT)	0

TOTAL LENGTH OF INDICATIONS FOR ASSET	3,170 mm

Report Approval

Report Authorisation

This Report is Approved By	Approver's Signature
Ben Cook	

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- Where a percentage of a product is examined, Limitless Asset Assurance cannot and will not guarantee the serviceability or compliance of the remaining areas, locations or items not examined.
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- When a deviation is acknowledged and the client instructs Limitless Asset Assurance to proceed with the examination, this may affect the validity of results.