

Bureau Veritas Asset Integrity
and Reliability Services Pty Ltd
ABN 86 000 928 816
7 Cockatoo Street
Singleton NSW 2330
Tel: 02 65711233 Fax: 02 65711234
Email: airs@au.bureauveritas.com

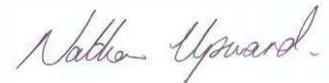
UNIT 390 HITACHI EX5500 LOADER

Walkthrough inspections

Job Number: 2687871-1

Inspection Date: 12th May 2012

Certified by:



Nathan Upward

Reviewed by:

Report Issue Date:

12th May 2012

Disclaimer: This report was prepared by Bureau Veritas Asset Integrity and Reliability Services Pty Ltd expressly for the customer as nominated on the front cover. Neither Bureau Veritas nor any person acting on its behalf (a) makes any warranty, either express or implied, with respect to the use of any information in this report or (b) assumes any liability with respect to the use of any information or methods discussed in this report.

Any recipient of this document, by their acceptance or use of this document, releases Bureau Veritas Asset Integrity and Reliability Services Pty Ltd and their affiliates from any liability for direct, indirect, consequential or special loss or damage whether arising in contract, warranty, express or implied, tort or otherwise, and irrespective of fault, negligence and strict liability.

Email copies of this report are not official unless authenticated and signed by Bureau Veritas Asset Integrity and Reliability Services Pty Ltd and are not to be modified in any way without Bureau Veritas Asset Integrity and Reliability Services Pty Ltd express written consent.



This document is issued in accordance with
NATA's accreditation requirements.

Accredited for compliance with ISO/IEC 17025

Accreditation No: 1267

Branch No.: 1557

Page 1 of 27

Copyright © 2012 Bureau Veritas Asset Integrity and Reliability Services.
All Rights Reserved.



VISUAL INSPECTION TEST REPORT

Job Details: Unit 390 Hitachi EX5500 Loader
Walkthrough inspections
Job Location: Hunter Valley Operations
Technician(s): Nathan Upward
Weld Process: Not stated
Method Code: AS3978(2003)
Test Procedure: P-3000-VI-0002, KO-228(L)-00

Inspection Date: 12th May 2012
Order No.: 3100761361
Work Order No.: 14203459
Product Code: Evaluation for defects
Material: Carbon Steel
Heat Treatment: Not Nominated
Surface Cond.: Painted/ Dirty

Results:

At the request of Hunter Valley Operations a visual inspection was carried out all accessible welds on the nominated components of Unit 390 Hitachi 5500 Loader. This inspection was carried prior to the machine being assembled.

Black and white magnetic particle consumables were used to aid the visual inspection where required.

Results

- **Track frame –** **Cracking detected**, See diagram 1A
- **Side Frames –** **No cracking detected**, See diagram 2A
- **Mainframe –** **No Cracking detected**, See diagram 3A-C
- **Boom –** **No cracking detected**, See diagram 4A-E
(Rams have damage see page 23 for details)
- **Stick –** **No cracking detected**, See diagram 5A-D

Additional area's inspected:-

- **Harness Attachment Points –** **No Cracking Detected**
20 points inspected
13 off mounted on the underside of the mainframe
7 off mounted on the boom
- **Escape shoot mounts –** **No cracking detected** See diagram 6A
- **Platforms, Walkways, Handrails, Ladders –** **Cracking detected**, See diagram 6A
- **Cab canopy structure –** **No Cracking detected**, See diagram 6A
- **Rear fire support frame –** **No Cracking detected**, See diagram 6A
- **Bucket – (Large cracks evident)** **Cracking detected**, See photos page 22-27

Key:

- K= crack
- MD= Mechanical damage
- INT = Intermittent cracking

Notes:

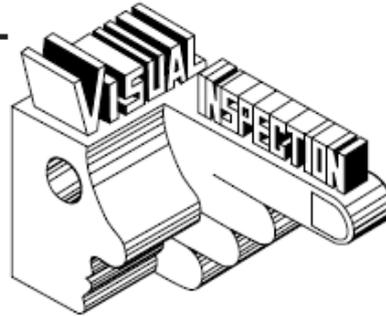
- Insitu components- grease lines, brackets etc limited the inspection
- All measurement are in millimetres unless stated otherwise
- Cracking may be undetectable due to the masking effect of painted or dirty surfaces



Results continued:

STRUCTURE VISUAL INSPECTION CHECK REPORT

EX5500 / EX5500-5



Inspected by  : Nathan Upward

SPECIFICATION		Mark the corresponding Sequence No.						
Front Att.		Front Att. S/No.	Capacity	Date of Delivery	Inspection No.	Sequence No.	Date of Inspection	Hour Meter Reading
<input type="checkbox"/> Loader Front	Boom		m	D M Y	1	● 13 25	3-3-12	34704
	Arm		m			● 17 29	D M Y	Hours
	Bucket		m ³			⑨ 21 33	' ' '	
(Hitachi use)					2	● 14 26 ● 18 30 ⑩ 22 34	12-5-12 D M Y ' ' '	35608 Hours
					3	● 15 27 ⑦ 19 31 ⑪ 23 35	6-1-12 D M Y ' ' '	34078 Hours
					4	● 16 28 ⑧ 20 32 ⑫ 24 36	1-2-12 D M Y ' ' '	34410 Hours

INDEX

Track Frame.....	Sheet 02
Side Frame.....	Sheet 03
Main Frame.....	Sheet 04-a ~ 04-c
Loader Boom.....	Sheet 05 ~ 08
Loader Arm.....	Sheet 09 ~ 13
Seat: Screw (Loader Boom).....	Sheet 14
Seat: Screw (Loader Arm).....	Sheet 15

COMMENTS		Mark the corresponding Sequence No.
Sequence Number	● 13 25	
	⑤ 17 29	
	⑨ 21 33	
	② 14 26	
	⑥ 18 30	
	⑩ 22 34	
	③ 15 27	
	⑦ 19 31	
	⑪ 23 35	
	④ 16 28	
	⑧ 20 32	
	⑫ 24 36	

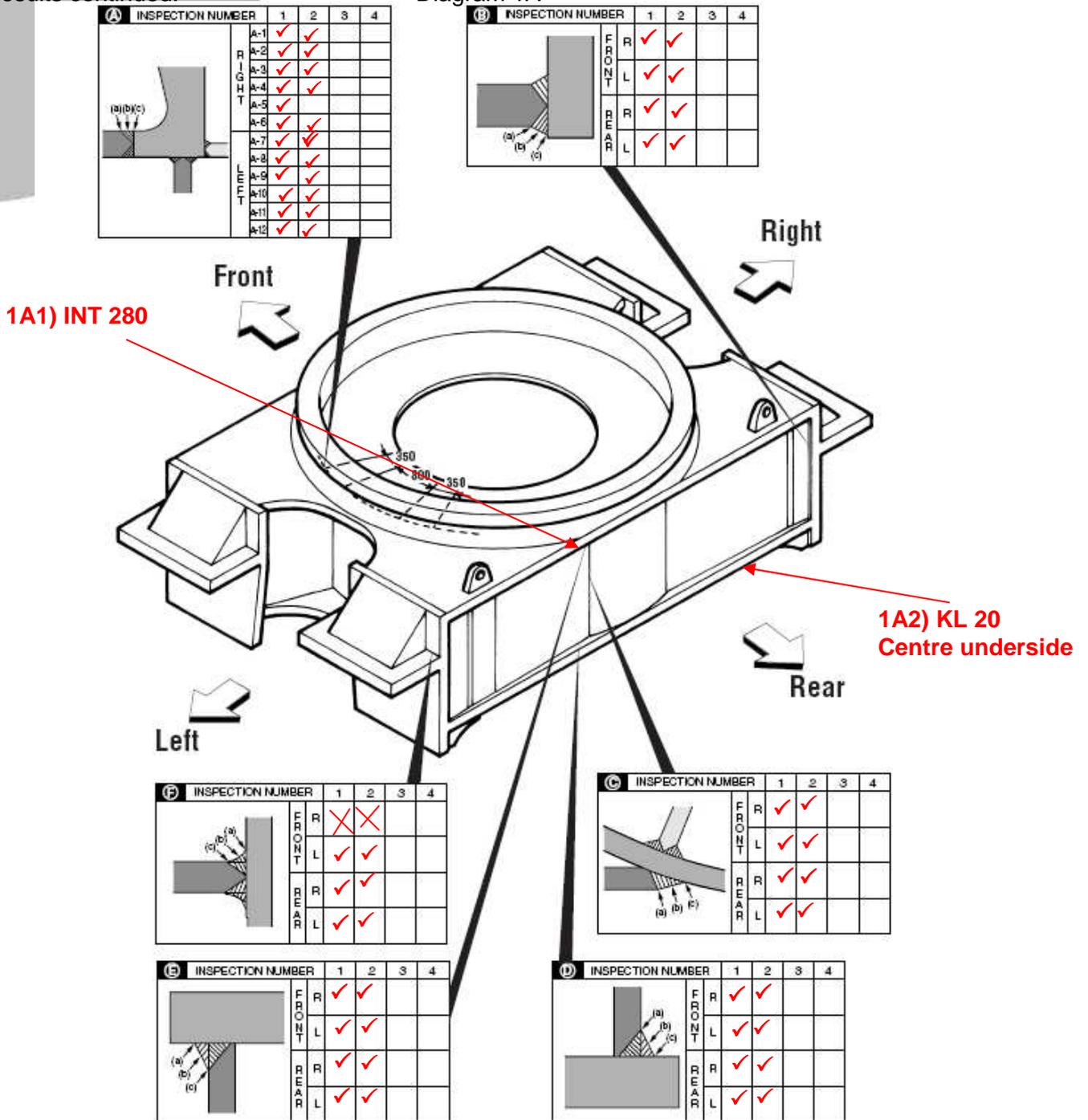
Sheet 01
 Original: Dealer Copy: HITACHI (L/O, Representative) Copy: Hitachi Tokyo  Inspection performed by dealer
 Original: Customer Copy: Dealer Copy: Hitachi Tokyo  Inspection performed by client



This document is issued in accordance with NATA's accreditation requirements.
 Accredited for compliance with ISO/IEC 17025
 Accreditation No: 1267
 Singleton - Site No.: 1557

Results continued:

Diagram 1A



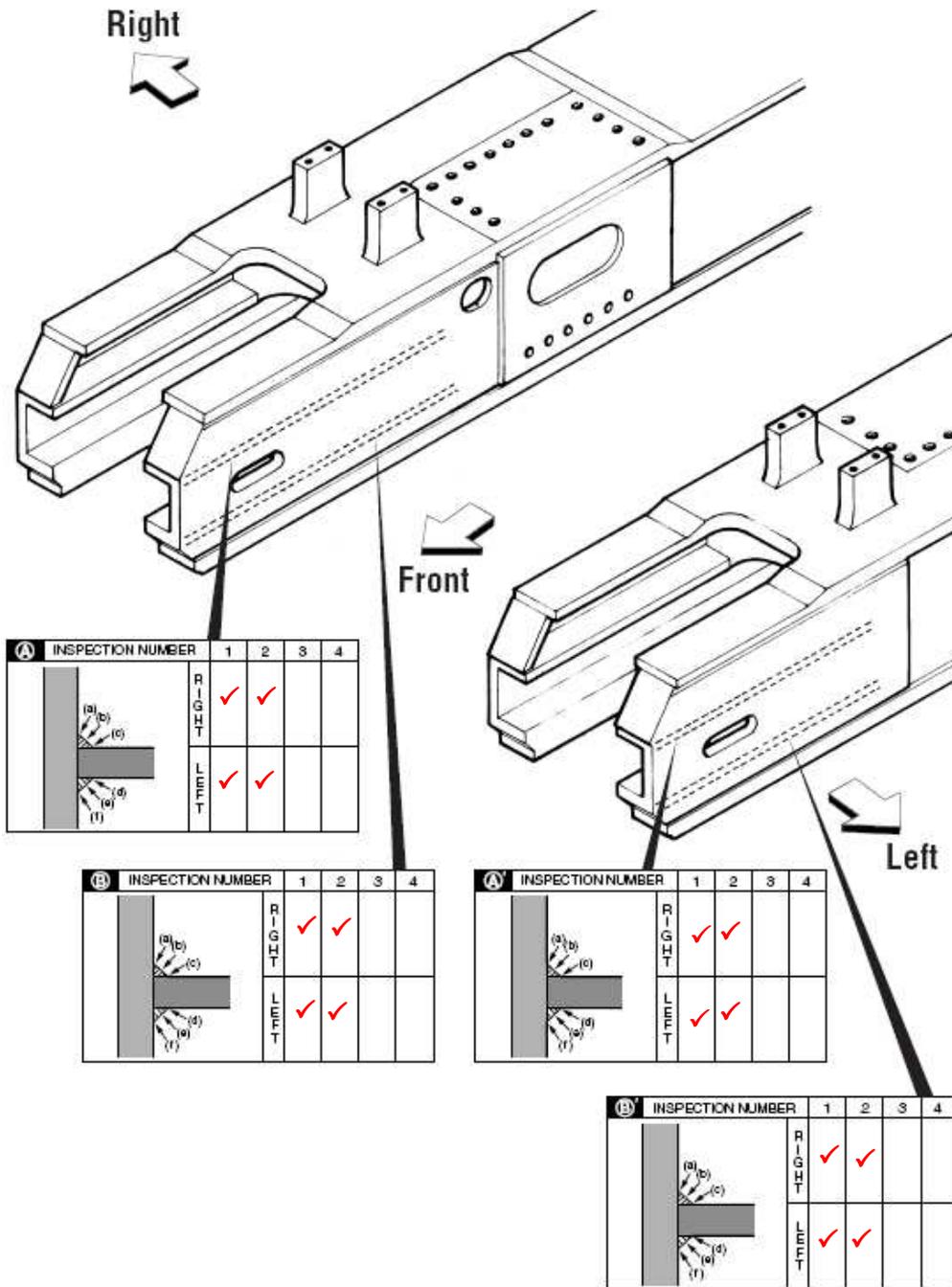
Crack Repair Table - for the above diagram 1A

Crack I.D.	Details	Severity	Date	Work order	notification	Comments
1A1	INT 280	Moderate				80mm growth
1A2	KL 20	Moderate				NEW

Results continued:

Diagram 2A

Side Frame 1/1



Sheet 03

Original: Dealer
Original: Customer

Copy: HITACHI (L/O, Representative)
Copy: Dealer

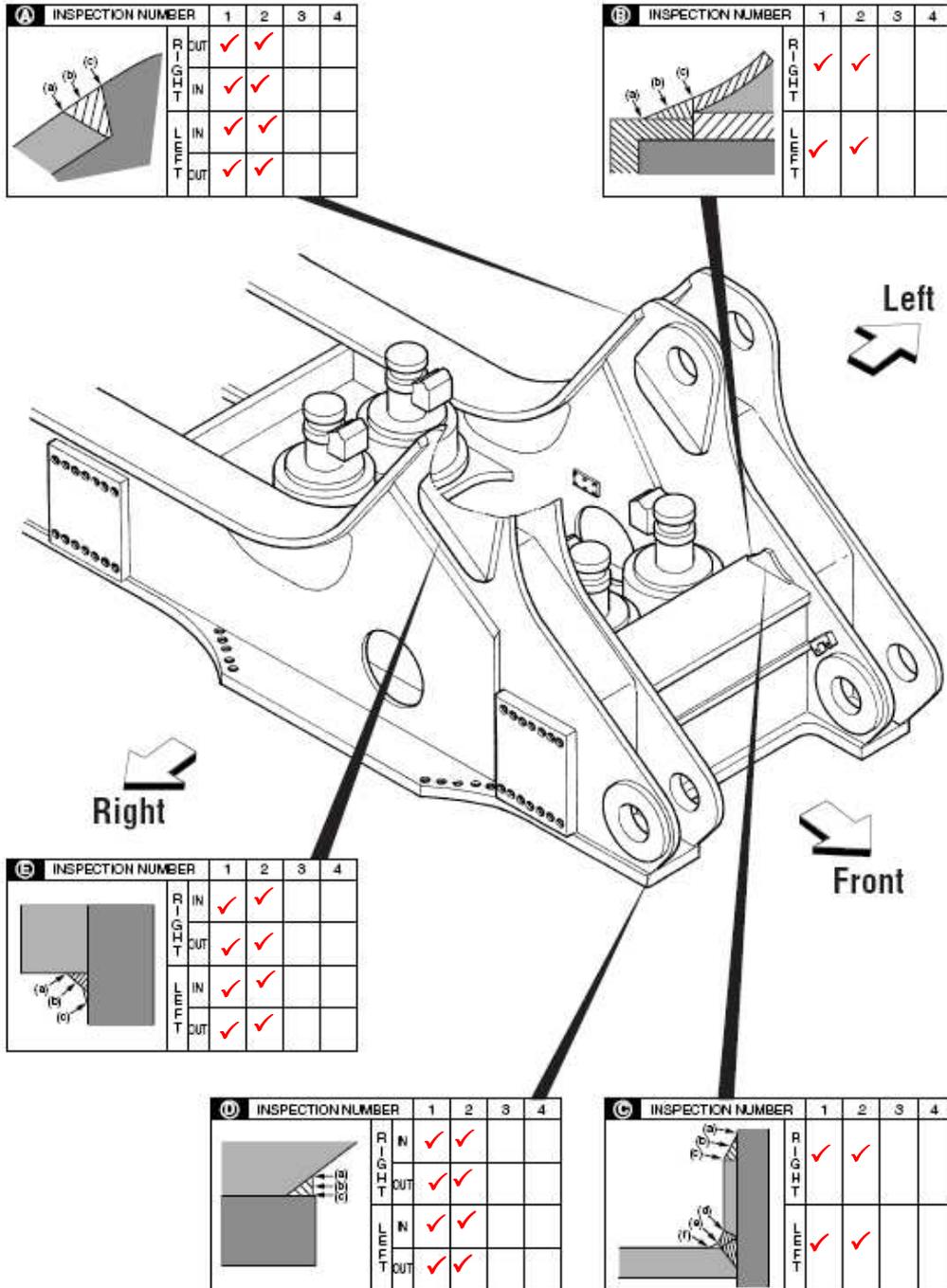
Copy: Hitachi Tokyo
Copy: Hitachi Tokyo

← Inspection performed by dealer
← Inspection performed by client

Results continued:

Diagram 3A

Main Frame 1/3

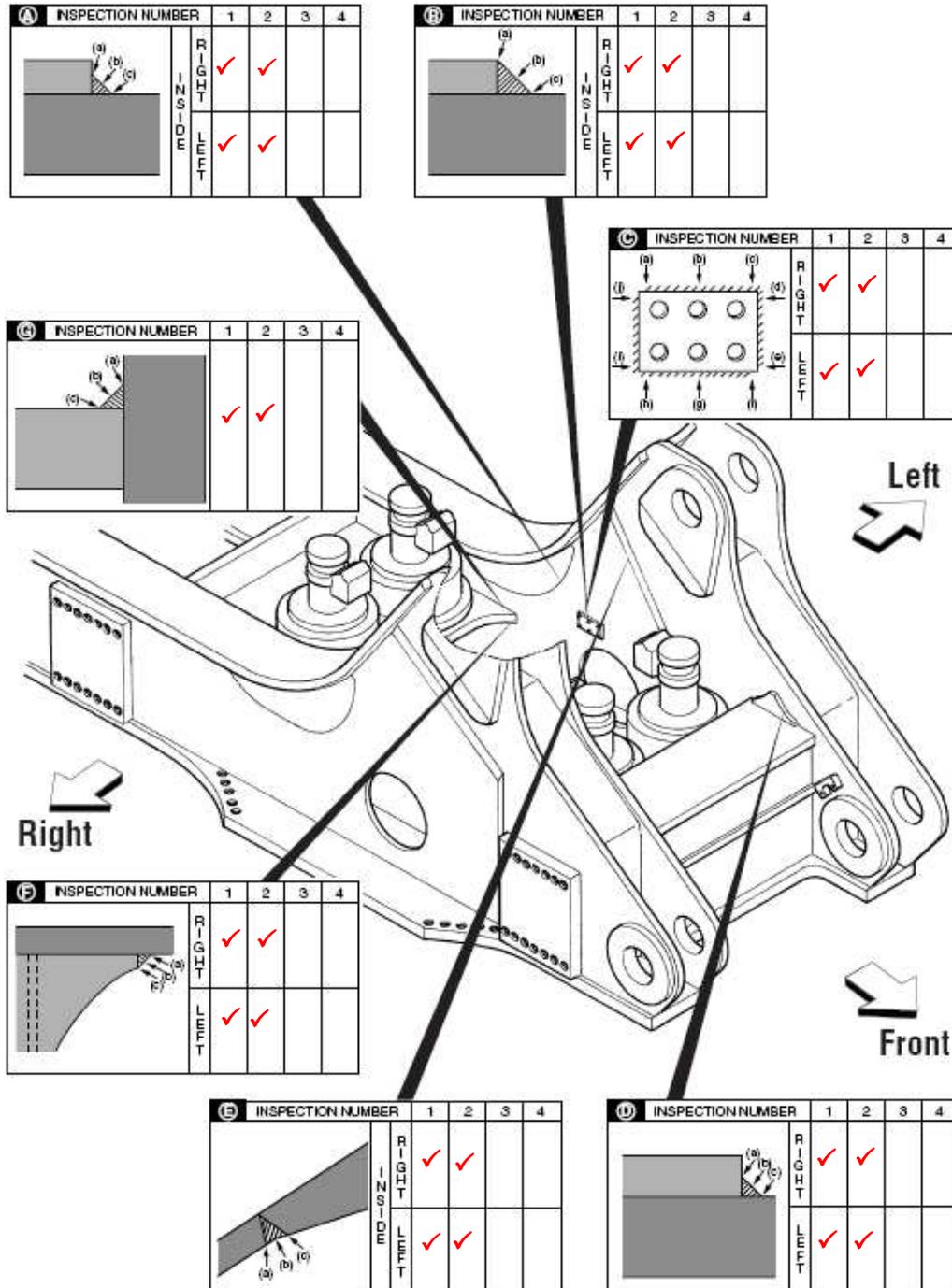


Sheet 04-a Original: Dealer Copy: HITACHI (L/O, Representative) Copy: Hitachi Tokyo Inspection performed by dealer
Original: Customer Copy: Dealer Copy: Hitachi Tokyo Inspection performed by client

Results continued:

Diagram 3B

Main Frame 2/3



Sheet 04-b

Original: Dealer
Original: Customer

Copy: HITACHI (L/O, Representative)
Copy: Dealer

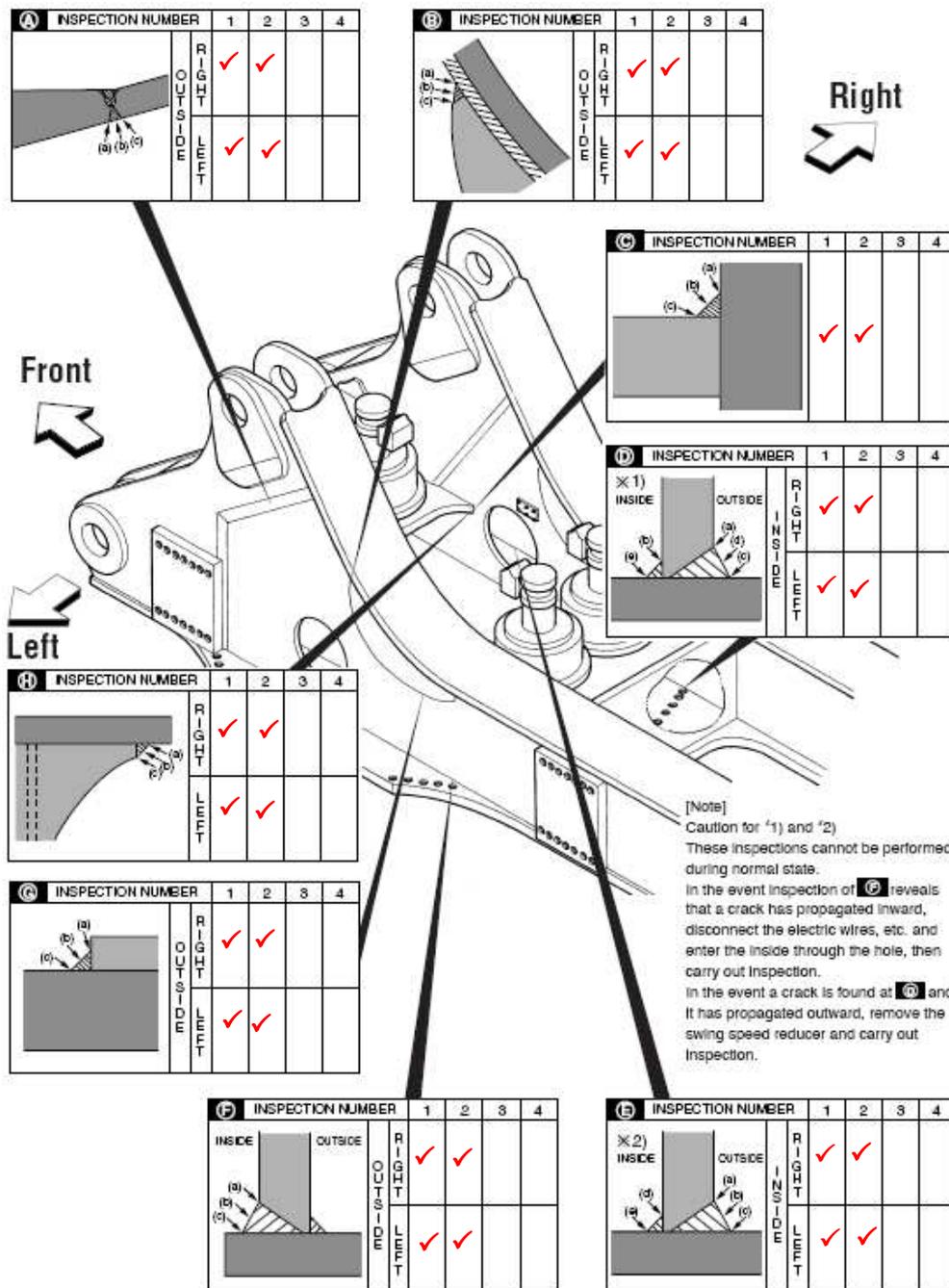
Copy: Hitachi Tokyo

← Inspection performed by dealer
← Inspection performed by client

Results continued:

Diagram 3C

Main Frame 3/3



Sheet 04-c

Original: Dealer
Original: Customer

Copy: HITACHI (L/O, Representative)
Copy: Dealer

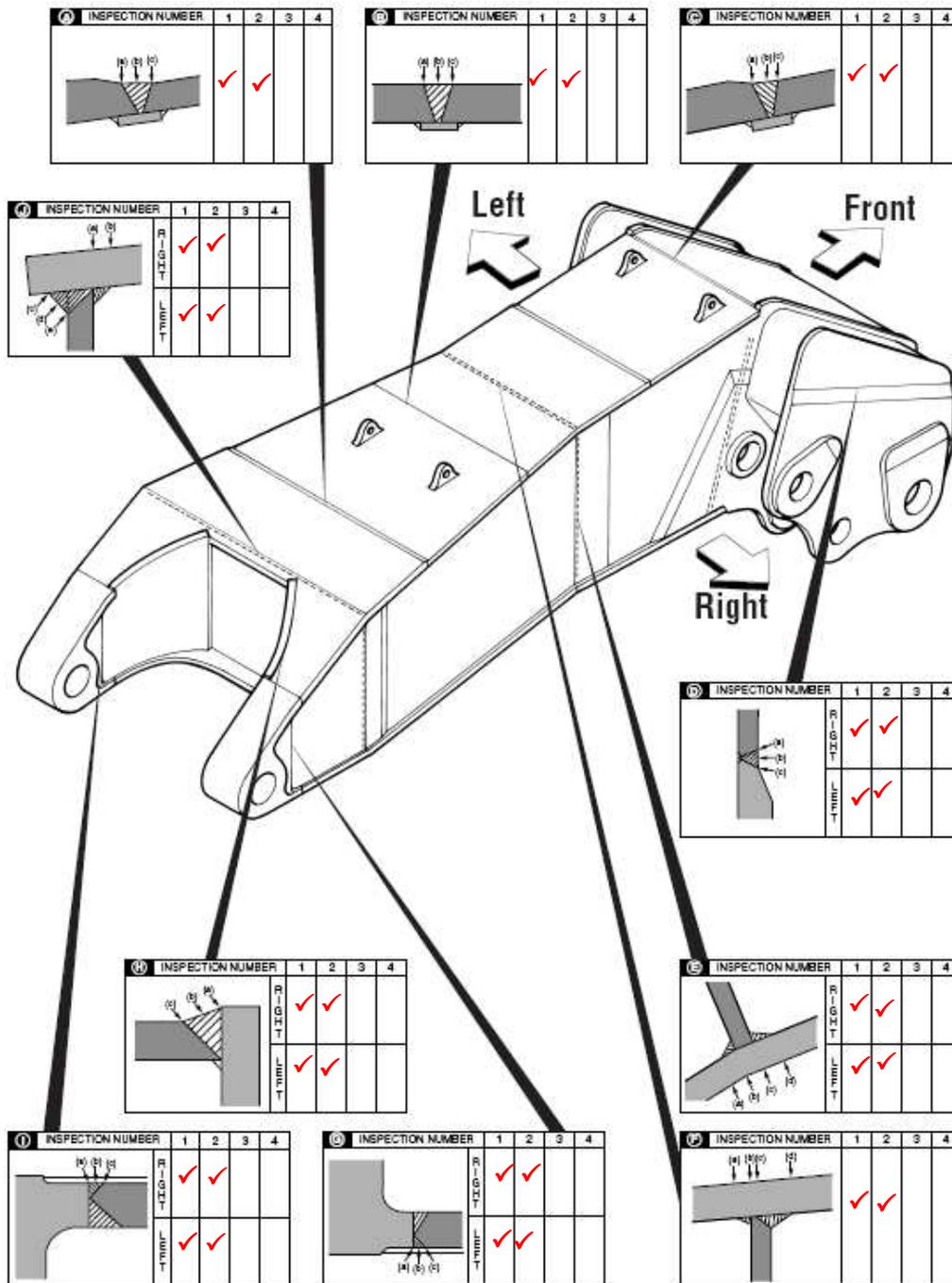
Copy: Hitachi Tokyo
Copy: Hitachi Tokyo

← Inspection performed by dealer
← Inspection performed by client

Results continued:

Diagram 4A

Loader Boom 1/4



Sheet 05 Original: Dealer Copy: HITACHI (L/O, Representative) Copy: Hitachi Tokyo Inspection performed by dealer
Original: Customer Copy: Dealer Copy: Hitachi Tokyo Inspection performed by client

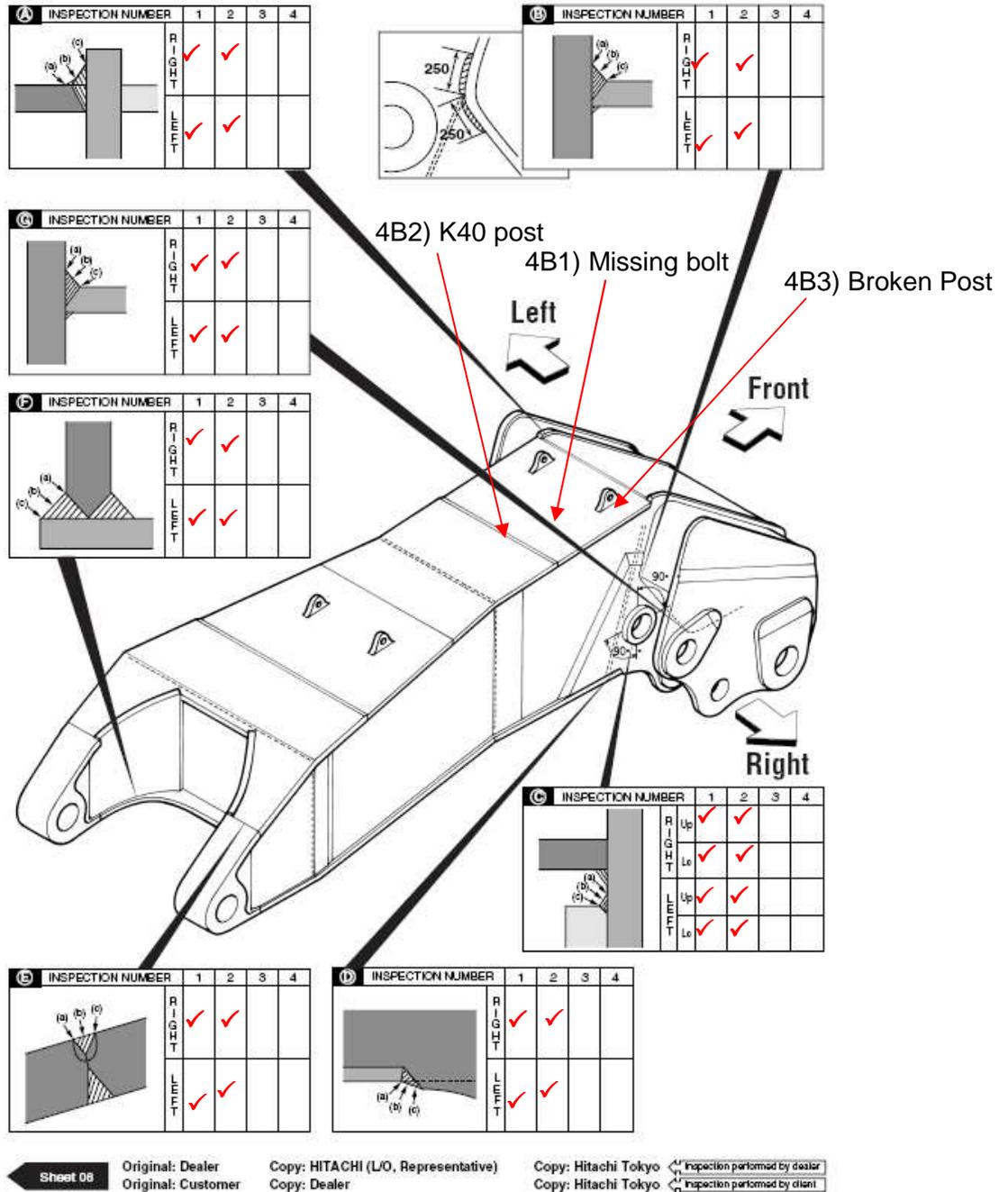


This document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025
Accreditation No: 1267
Singleton - Site No.: 1557

Results continued:

Diagram 4B

Loader Boom 2/4



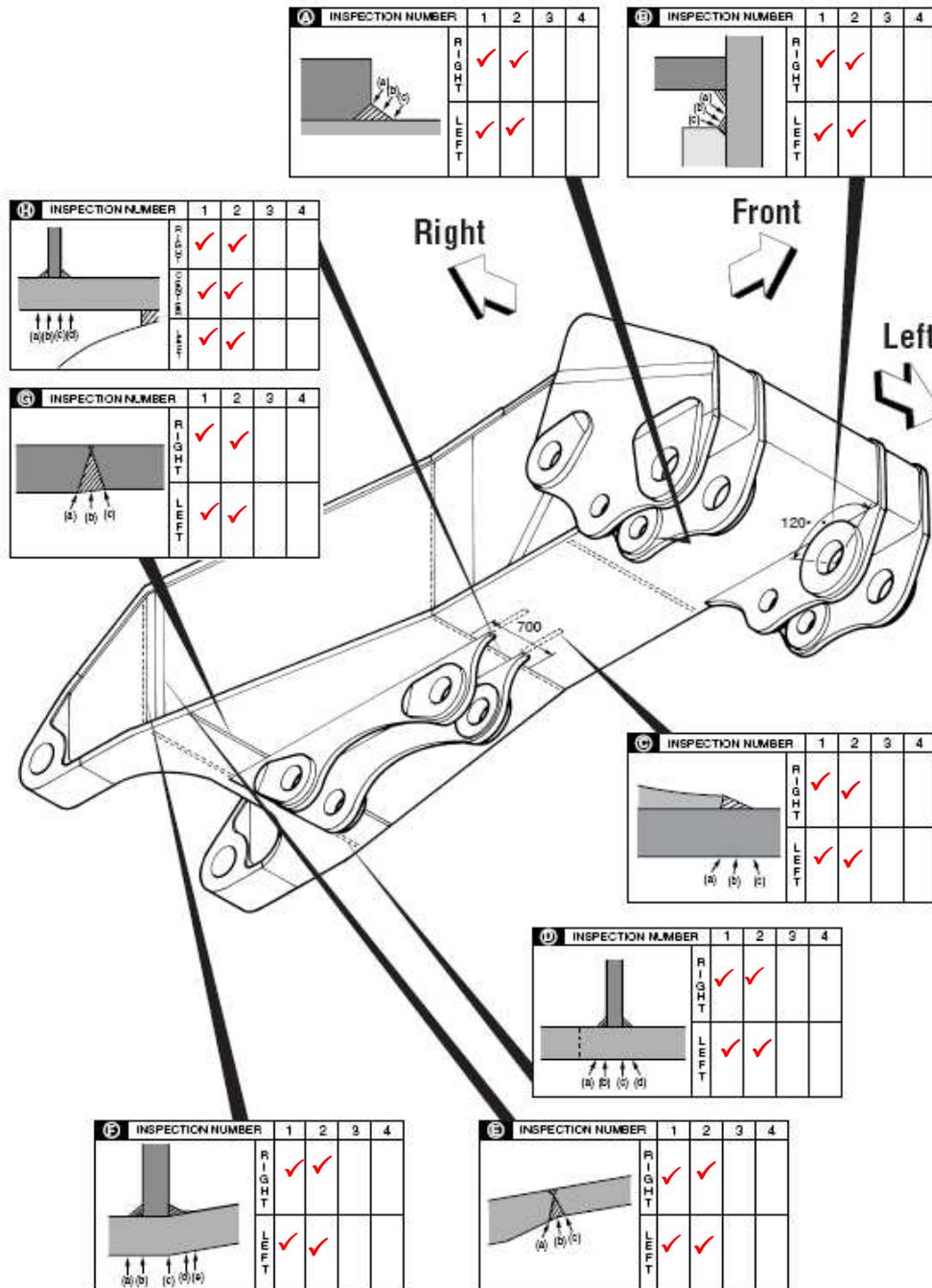
Crack Repair Table - for the above diagram

Crack I.D.	Details	Severity	Date	Work order	notification	Comments
4B1	Missing bolt	Moderate				
4B2	K 40 post	Moderate				
4B3	Broken post	Severe				

Results continued:

Diagram 4C

Loader Boom 3/4



Sheet 07

Original: Dealer
Original: Customer

Copy: HITACHI (L/O, Representative)
Copy: Dealer

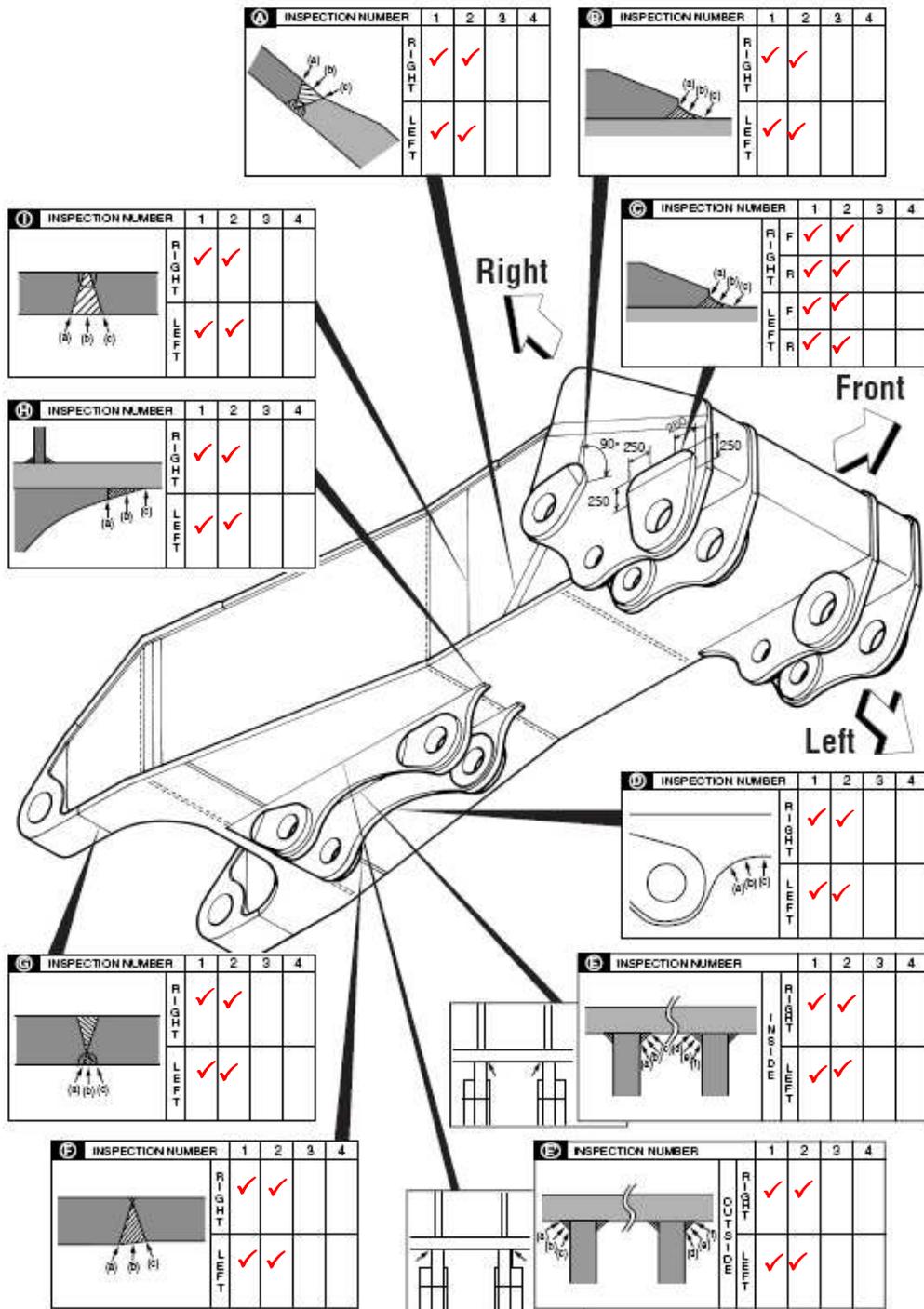
Copy: Hitachi Tokyo
Copy: Hitachi Tokyo

Inspection performed by dealer
Inspection performed by client

Results continued:

Diagram 4D

Loader Boom 4/4



Sheet 08

Original: Dealer
Original: Customer

Copy: HITACHI (L/O, Representative)
Copy: Dealer

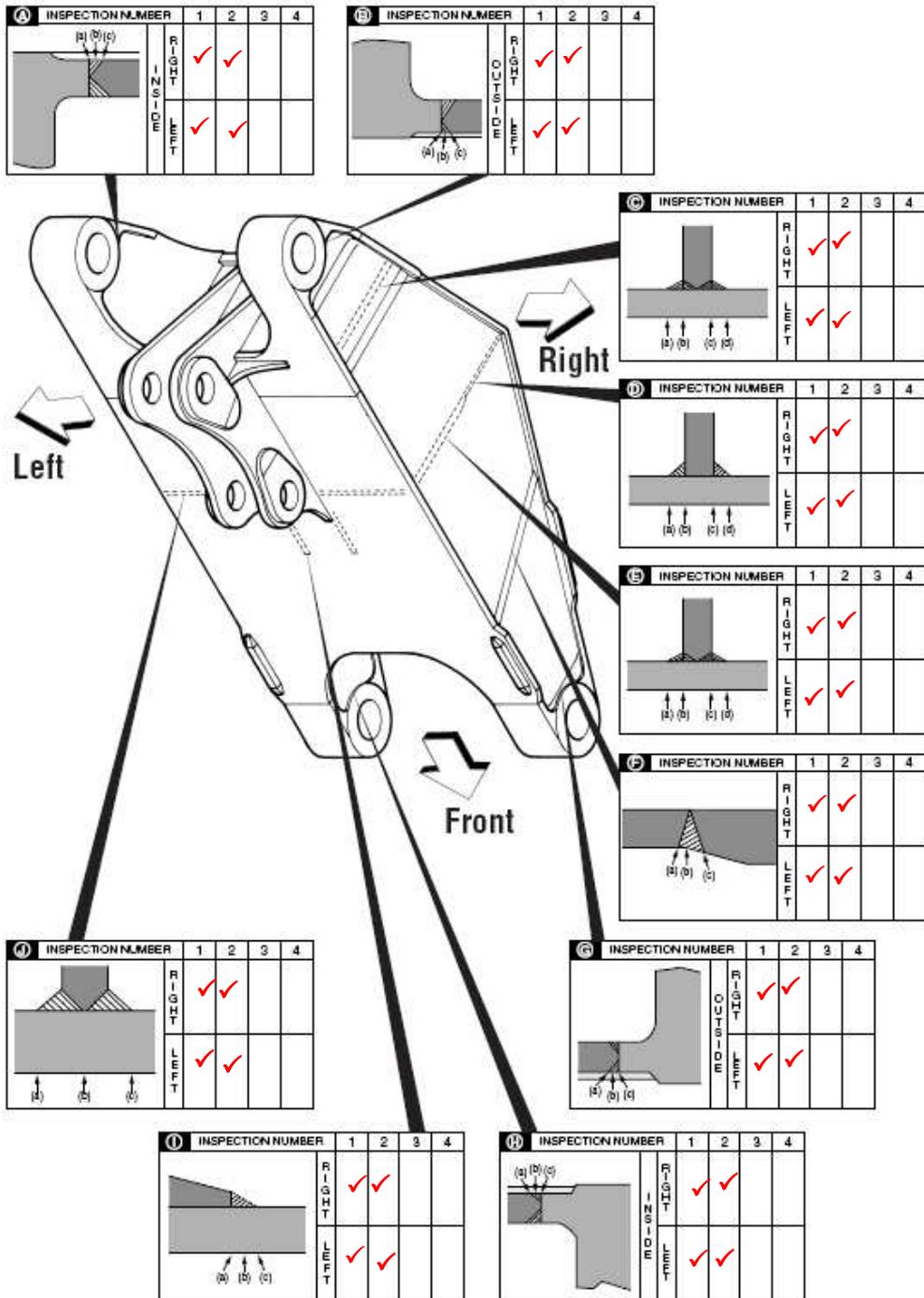
Copy: Hitachi Tokyo
Copy: Hitachi Tokyo

← Inspection performed by dealer
← Inspection performed by client

Results continued:

Diagram 5A

Loader Arm 1/5

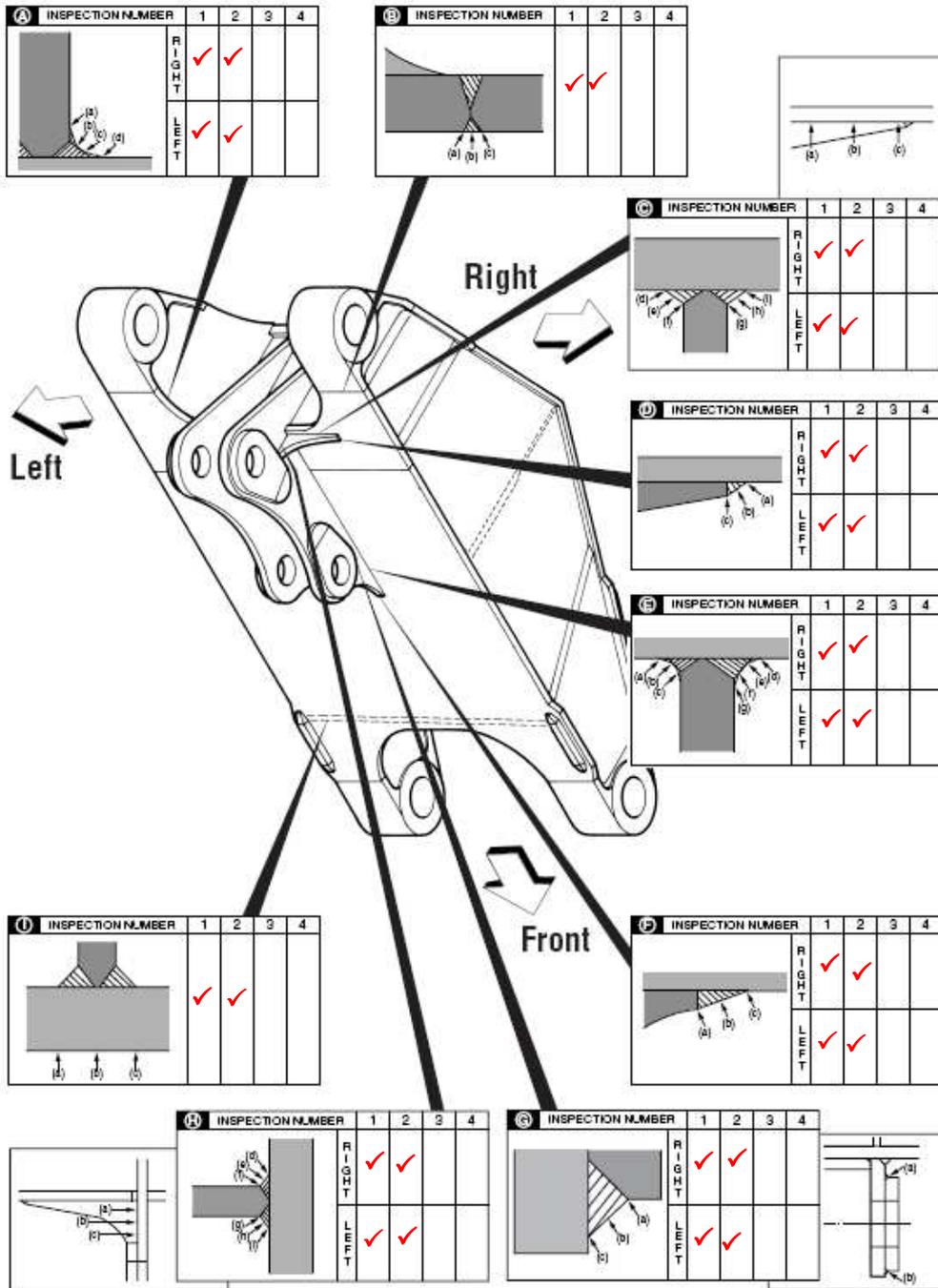


Sheet 09 Original: Dealer Copy: HITACHI (L/O, Representative) Copy: Hitachi Tokyo Inspection performed by dealer
Original: Customer Copy: Dealer Copy: Hitachi Tokyo Inspection performed by client

Results continued:

Diagram 5B

Loader Arm 2/5



Sheet 10

Original: Dealer
Original: Customer

Copy: HITACHI (L/O, Representative)
Copy: Dealer

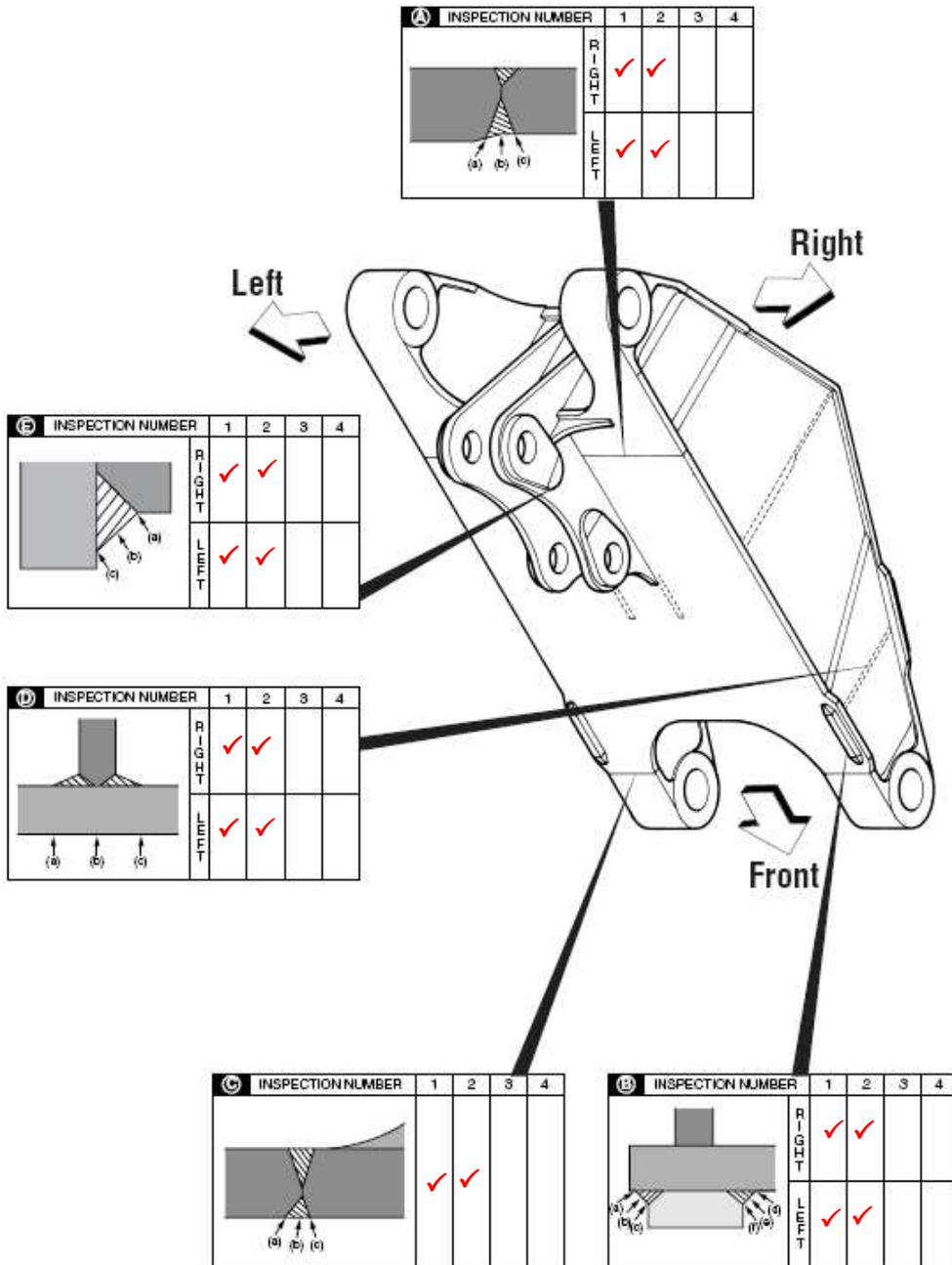
Copy: Hitachi Tokyo
Copy: Hitachi Tokyo

↳ Inspection performed by dealer
↳ Inspection performed by client

Results continued:

Diagram 5C

Loader Arm 3/5



Sheet 11

Original: Dealer
Original: Customer

Copy: HITACHI (L/O, Representative)
Copy: Dealer

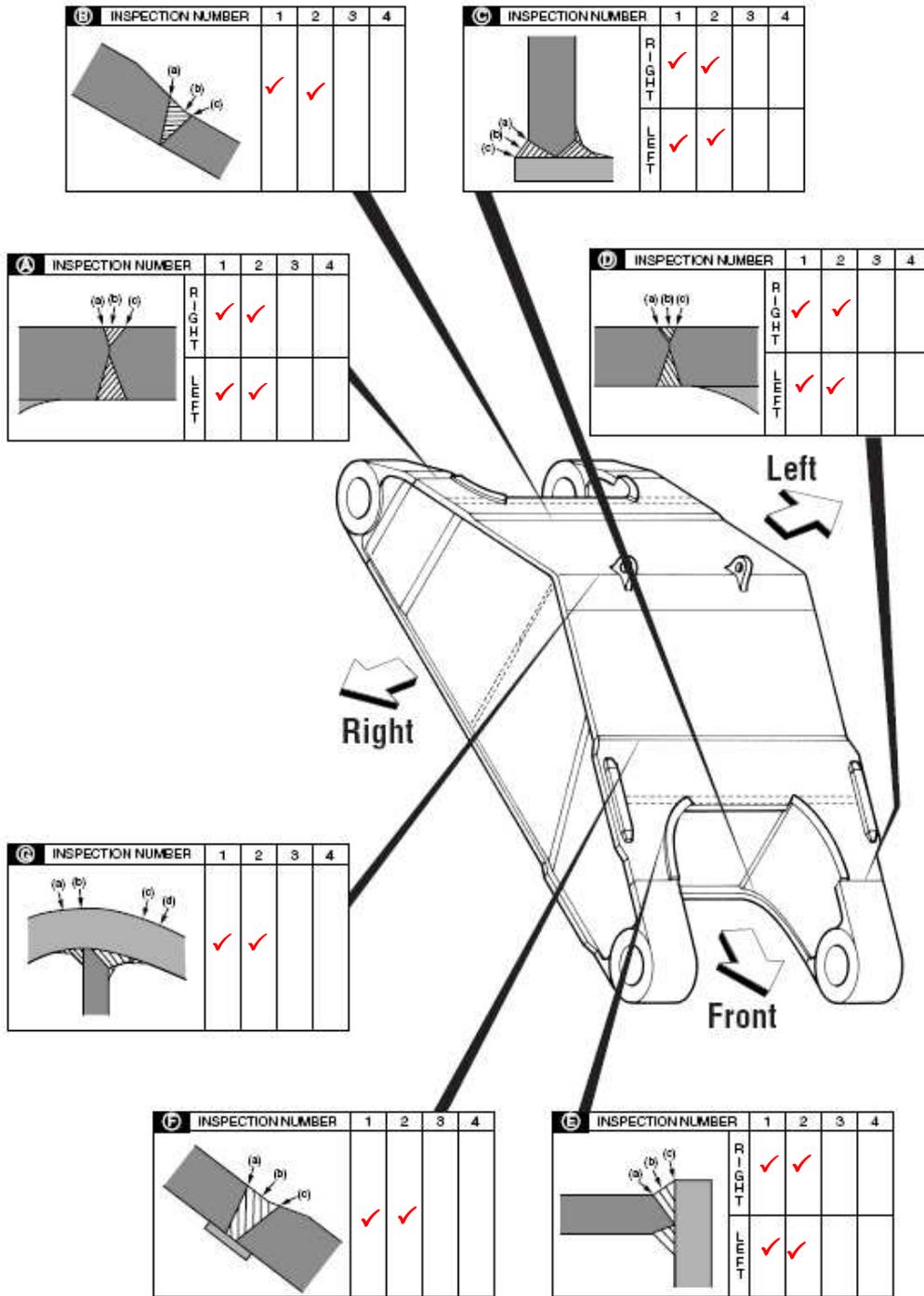
Copy: Hitachi Tokyo
Copy: Hitachi Tokyo

Inspection performed by dealer
Inspection performed by client

Results continued:

Diagram 5D

Loader Arm 4/5



Sheet 12

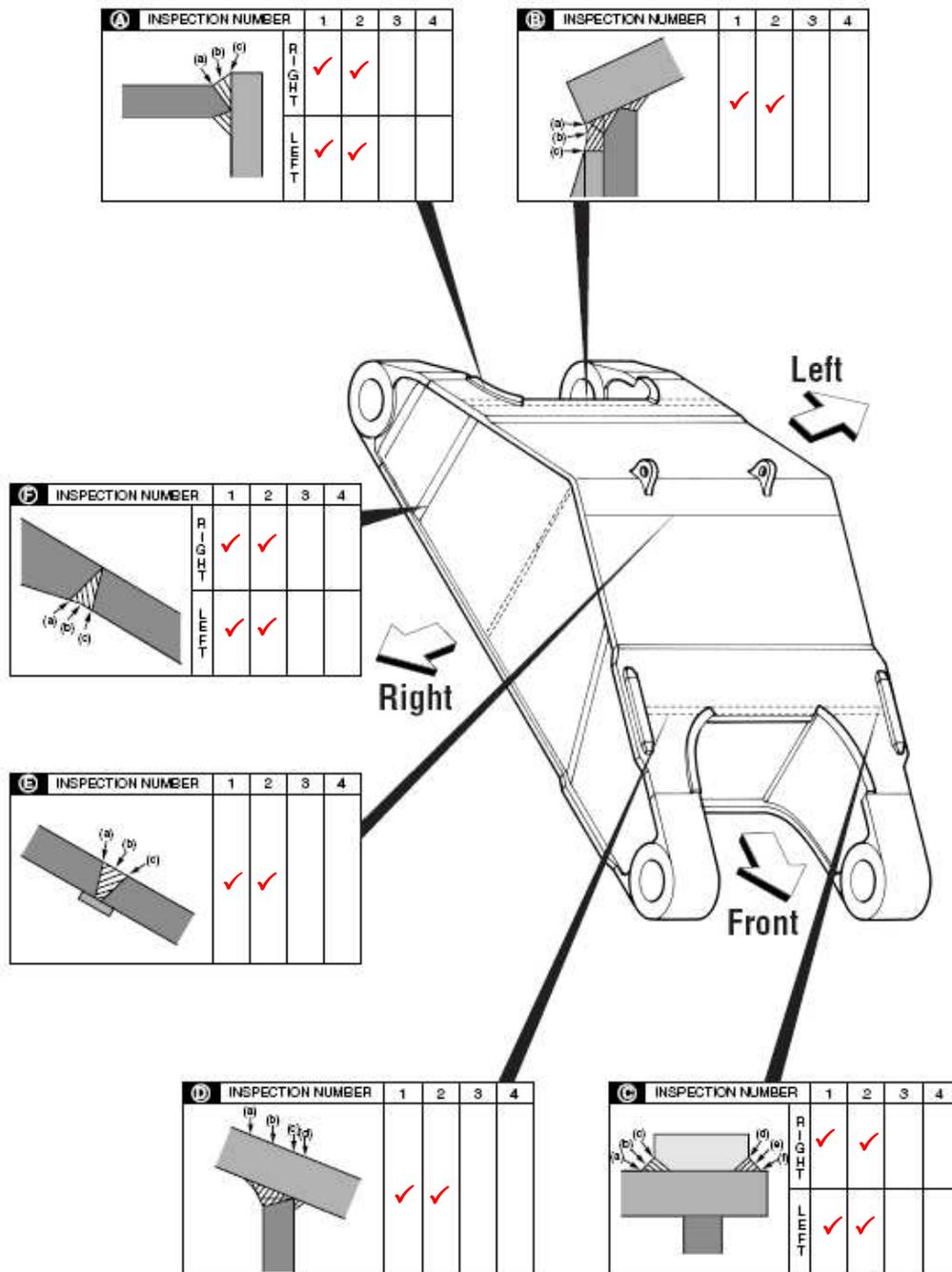
Original: Dealer
Original: Customer
Copy: HITACHI (L/O, Representative)
Copy: Dealer

Copy: Hitachi Tokyo
Copy: Hitachi Tokyo
 Inspection performed by dealer
 Inspection performed by client

Results continued:

Diagram 5E

Loader Arm 5/5



Sheet 13

Original: Dealer
Original: Customer

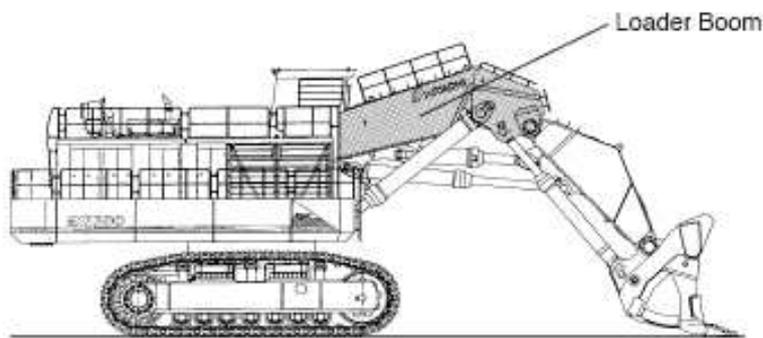
Copy: HITACHI (L/O, Representative)
Copy: Dealer

Copy: Hitachi Tokyo
Copy: Hitachi Tokyo

↔ Inspection performed by dealer
↔ Inspection performed by client

Results continued:

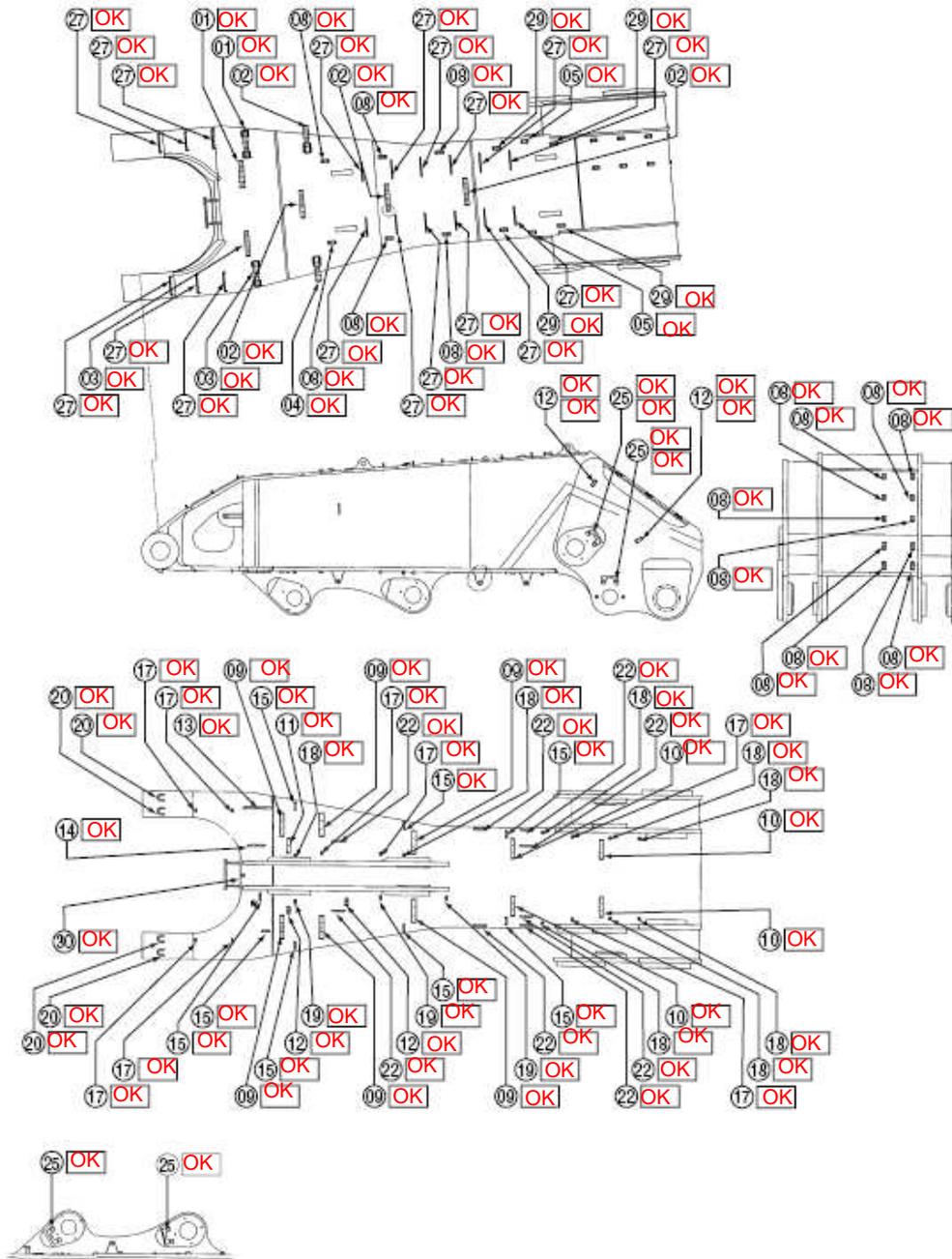
Seat: Screw (Loader Boom) 1/2



- ① When defect is not found
check mark OK
- ② When defect is found
check mark Crack

Results continued:

Seat: Screw (Loader Boom) 1/2



Sheet 14

Original: Dealer
Original: Customer

Copy: HITACHI (L/O, Representative)
Copy: Dealer

Copy: Hitachi Tokyo
Copy: Hitachi Tokyo

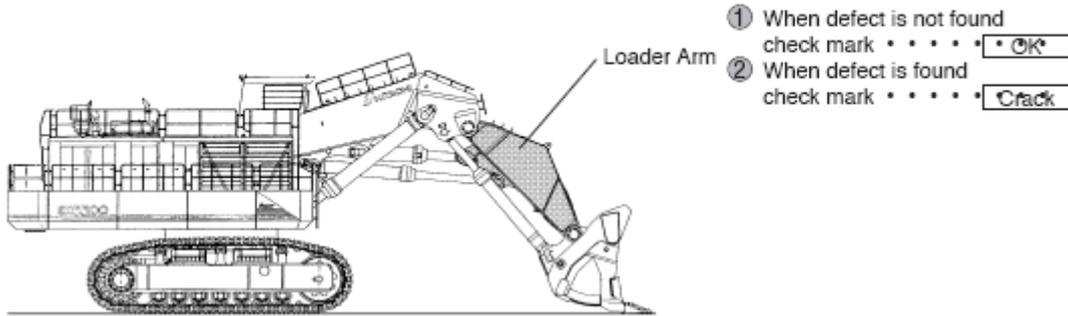
Inspection performed by dealer
Inspection performed by client



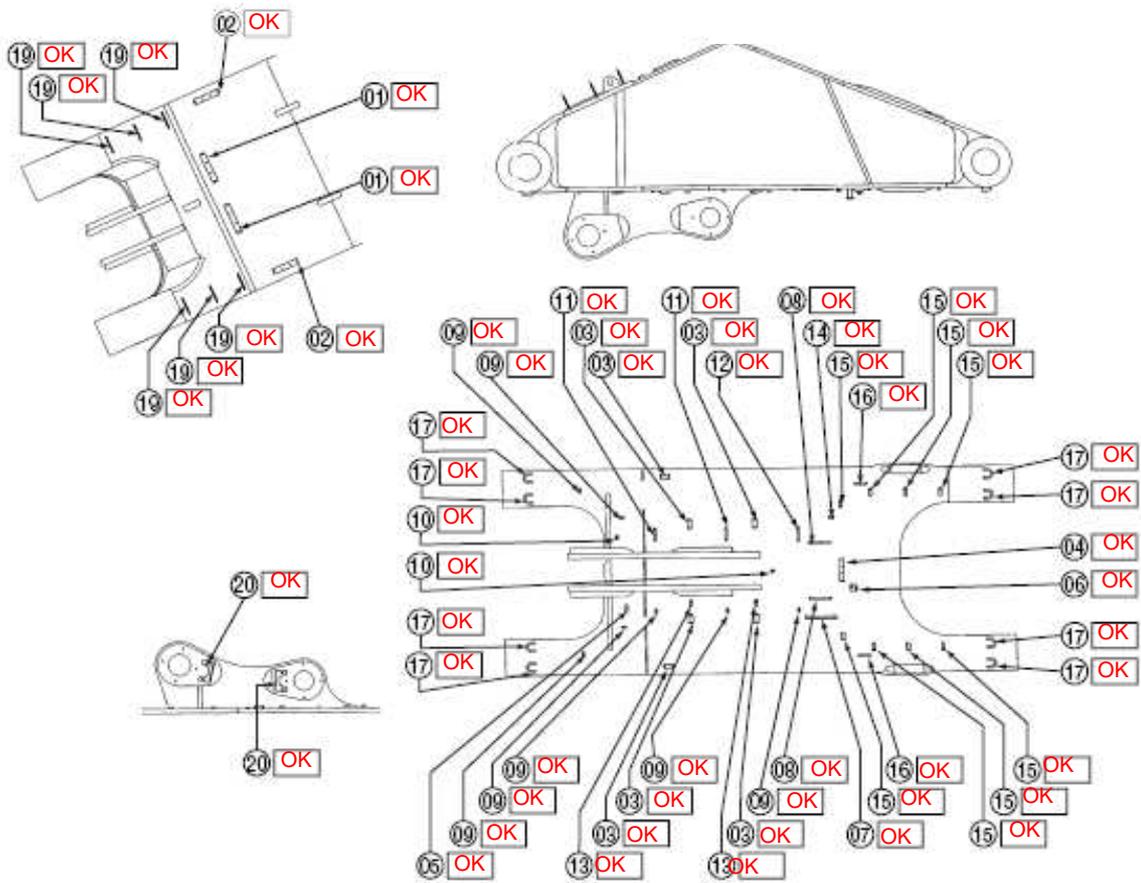
This document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025
Accreditation No: 1267
Singleton - Site No.: 1557

Results continued:

Seat: Screw (Loader Arm) 2/2

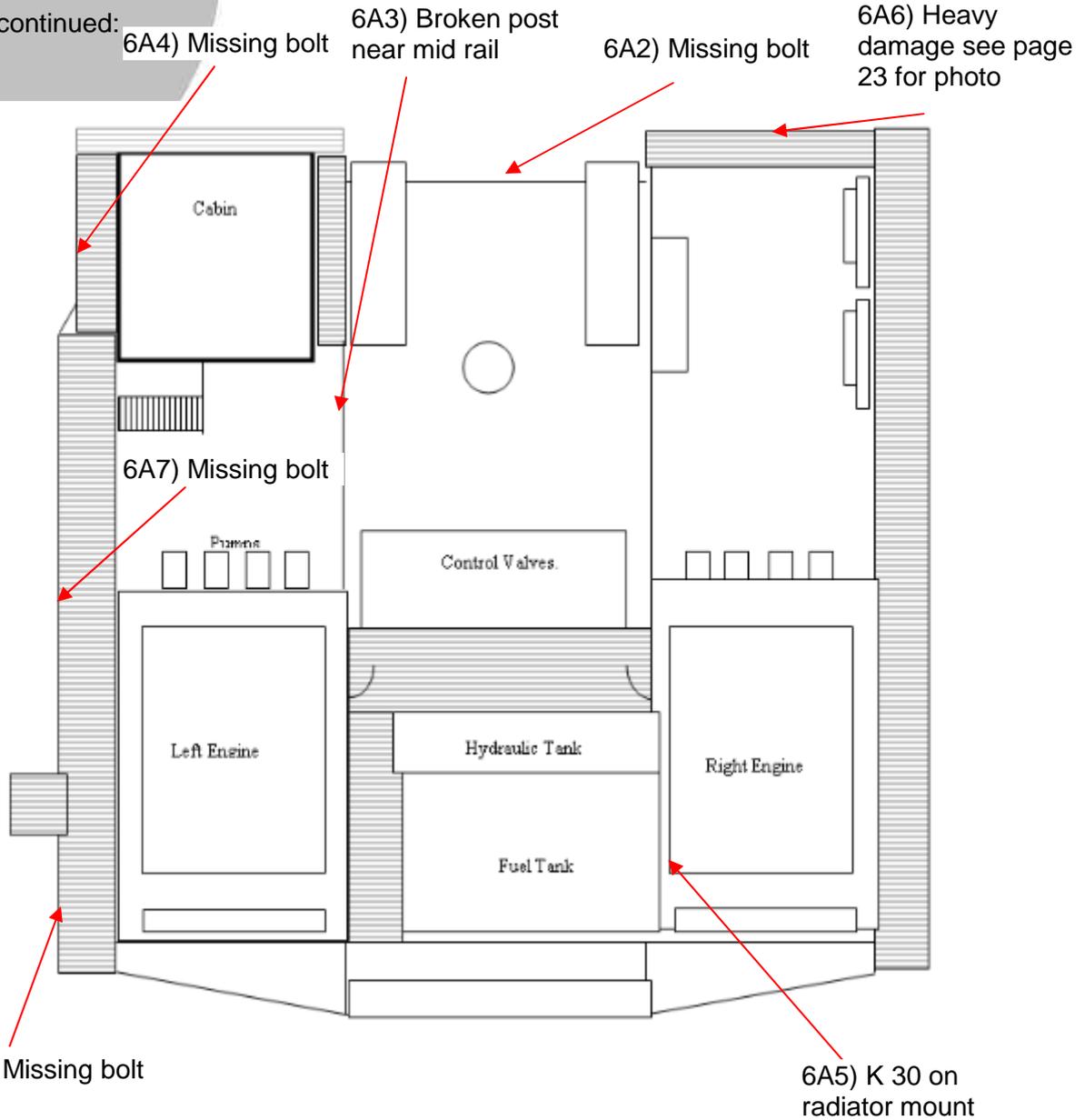


Seat: Screw (Loader Arm) 2/2



Sheet 15 Original: Dealer Copy: HITACHI (L/O, Representative) Copy: Hitachi Tokyo Inspection performed by dealer
Original: Customer Copy: Dealer Copy: Hitachi Tokyo Inspection performed by client

Results continued:



6A) Walkways

Crack Repair Table - for the above diagram

Crack I.D.	Details	Severity	Date	Work order	notification	Comments
6A1	Missing bolt	Moderate				
6A2	Missing bolt	Moderate				
6A3	Repaired					
6A4	Missing bolt on escape shoot	Moderate				
6A5	K 30 on mount	Moderate				
6A6	Heavy damage	Severe				Repair handrails
6A7	Missing bolt	Moderate				

Results continued:



Photo of area (Repaired) (Crack 1 on bucket)

Results continued:



Photo shows damage evident on the RHS front walkway



Photos above are of damage on two rams behind the bucket

Results continued:

**Bucket cracking
RHS**



**Cracking evident on RHS top area near door
Crack 2) KL 130**



**Cracking evident in floor outboard near door
Crack 3) KL 50+**



Cracking in back side of door Crack 4) KL 200



**Cracking evident in lip welds RHS outboard
Crack 5) KL 250, Crack 6) KL 280
Crack 7) KL 200 underside.**

Results continued:

**Bucket cracking
RHS**



Photo shows major crack 8) KT 480 in LIP
Crack 9) KL 200 in wear plate



Photo shows major crack 8) KT 480 in LIP



Photo shows major crack 8) KT 480 in LIP
Close up detail inboard side



Photo shows major crack 8) KT 480 in LIP
outboard side and crack 10) INT 70 adaptor

Results continued:

**Bucket cracking
LHS**



Photo shows crack 11) INT 100 Adaptor
Crack 12) INT 100 evident in wear plate weld
Inboard



Photo shows crack 13) KL 70 Adaptor
Crack 14) KL 50 in lip weld underside
outboard



Cracking evident on LHS top area near door
Crack 15) KL 100

Results continued:

**Bucket cracking
Door**



Cracking evident in the door jam area under wear plate Crack 16) KL 1400 Inboard



Cracking evident in the door jam area under Crack 17) KL 180 LHS top



Cracking evident in the door rear side Crack 18) KL 180 RHS top