

# TÜV SÜD MIDDLE EAST LLC

Head Office: P.O Box: 45117, Abu Dhabi - U.A.E

Tel.: +971 2 6767 600 | Fax: +971 2 6762 224

Email: ad.report@tuvsud.com

Branch Office: P.O Box: 2834, Dubai - UAE

Tel.: +971 4 447 3113 | Fax: +971 4 447 3112

Email: info.me@tuvsud.com

Website: www.tuv-sud.ae



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المكتب الرئيسي: ص.ب ٤٥١١٧ أبو ظبي-أ.ع.م.

هاتف: +٩٧١٢٦٧٦٦٠٠ فاكس: +٩٧١٢٦٧٦٢٢٢٤

Certificate No.:

**AU-ECD-22-27209/27020/4-ABR**

Timesheet No.: 1066380

Time Sheet No.: AU 1066380

Asset No. / ID/No.: TO-2491

Asset Unit Name: Crawler Crane

DC6GHASHA-CC-22-01-TUVSUD-10-01-ECD

## REGISTERED CERTIFICATE OF THOROUGH EXAMINATION OF CRAWLER CRANE

The equipment detailed below was examined in accordance with UAE Law Decree 32 of 1982 Article 20 and ADNOC Offshore LIMS (Lifting Integrity Management System) "A0-IG-MS-001 (Rev.1)" and Standard BS EN 7121-2-3:2012.

Owner	M/s. Aertssen Machinery Services Ltd., P.O. Box 40196, Abu Dhabi U.A.E.		
Equipment Name	Crawler Crane	Date of Inspection	30 Jan 2022
Type of Inspection	Thorough Examination with SWL Load Test	Date of Last Inspection	TRE: NFT-CC-21-03-TRE-06-01-MN 02 Mar 2021
Place of Inspection	DC6 GHASHA Island Abu Dhabi	Date of Last Load Test	TRE: NFT-CC-21-03-TRE-06-01-MN 02 Mar 2021

### 1. Summary:

The Crawler Crane has been thoroughly examined, function tested with 100% SWL and was found to be suitable for further service under present operating conditions.

### 2. Equipment Details:

a) Manufacturer's Name	: TEREX DEMAG
b) Year of Manufacture	: 2010
c) Model Number	: CC2400-1
d) Serial Number / Chassis Number	: 43060
e) ID / No. (Asset No.)	: TO-2491
f) Registration Plate Number	: 17 / 62802 AD
g) Rated Safe Working Load	: Current: 93.4 t(Main), 30 t (Aux.)
h) Boom Type	: Lattice Boom
i) Boom Length	: 48.0 m
j) Height of Lift	: 52.0 m
k) Wire Rope Diameter (Main / Aux. / Boom)	: 26.0 mm Ø / 26.0 mm Ø / 26.0 mm Ø
l) Number of Fall(s)	: 07 Falls (Main) / 02 Falls (Aux)
m) Last Rope Change	: 09/2017 (Main & Aux)
n) Last Proof Load Test	: 02 Mar 2021 by TRE: NFT-CC-21-03-TRE-06-01-MN

### 3. Scope of Inspection: Thorough visual examination and verification of cut-off system at 100% SWL and functionally and operationally tested the power pack for emergency lowering.

I certify on behalf of the Third-Party Company named above that the items described herein were Thoroughly Examined by myself being a Competent Person and were found at the time of inspection free from cracks, flaws, or other defects, unless otherwise stated above and considered to be Safe for Further Use, subject to continuous maintenance being applied and qualified operator / user being employed.

Next Inspection Due On : 29 Jan 2023

Next Load Test Due On : 01 Mar 2026 or after any modification/ major repair/ alteration.



"Inspected and Reviewed By"

Mr. Erwin C. David

Mr. Basheer Abdul Salam

TUV SUD Middle East LLC, Abu Dhabi

DC6GHASHA-CC-22-01-TUVSUD-10-01-ECD

Note: This Certificate is Replacement of Original Certificate AU-ECD-22-27209.27020.1-ABR, Rev2 Date: 03-02-2022

The certificate is issued subject to the condition that it is understood and agreed that nothing in this certificate shall be deemed to relieve any designer, manufacturer, seller, supplier, repairer or operator of any warranty, expressed or implied, and TÜV SÜD Middle East, LLC shall be limited to the acts or omissions of its employees, agents and subcontractors. Under no circumstances whatsoever shall TÜV SÜD Middle East, LLC be liable for any injury or damage to any person, or occurring by reason of negligent operation or any defect in materials, machinery, equipment or other items other than such defects ascertainable by normally accepted testing standards and only those items inspected by TÜV SÜD Middle East, LLC and which are covered by this certificate

4. **Recommendations from Last Report:** None

5. **Documentation:**

Reviewed Previous Maintenance Record.  
Reviewed Last Proof load test certificate Ref. No.: TRE: NFT-CC-21-03-TRE-06-01-MN Dated: 02 Mar 2021  
Reviewed Main Hoist Wire Rope Cert. No.: 0007/2016, dated: 08-02-2016, by PFEIFER.  
Reviewed Aux Hoist Wire Rope Cert. No.: 6353/AB31309, dated: 09-09-2016, by VEROPE.  
Reviewed Boom Hoist Wire Rope Cert. No.: 0005/2016 & 0006/2016, dated: 08-02-2016, by PFEIFER.  
Reviewed Main Hook Block Proof Load Test Cert. Ref. 29755, Dated: 17-06-2009 by DE HAAN.  
Reviewed Aux Hook Block Proof Load Test Cert. Ref. R0002, Dated: 02/2010 by ROPEBLOCK  
Reviewed Slew Bearing Rocking Motion Doc. Ref. RMT\_2022-01-08, Dated: 08-01-2022 by Aertssen.  
Reviewed Last NDT Report for Hook Block (Main & Aux.) Ref. No.: 07519, Dated: 13-10-2020 by DNVGL.

6. **Condition Found:**

6.1 **General**

Crane file was reviewed. All documents and records pertaining to overhaul carried out were in file. Certificates for wire rope (supplied by VEROPE and PFEIFER) were available.

6.2 **Structure:**

The structure of Crawler Crane was examined visually and found free of any damage. Surface paint was checked and found to be satisfactory. Crawler crane tracks condition were examined and found free of any damage

6.3 **Lattice Boom:**

The Crawler Crane's lattice boom components (section, base, and head) were visually examined and found free of any damage. Surface paint was checked and found to be satisfactory.

6.4 **Wire Ropes:**

Both Main, Auxiliary and Boom Wire ropes were replaced and found in good condition; the lubrication was satisfactory.

Main Hoist Wire Rope, 26.0 mm, MBL: 681 kN, Cert. No. 0007/2016, fitted on 09/2017

Aux. Hoist Wire Rope, 26.0 mm, MBL: 691.3 kN, Cert. No. AB31309, fitted on 09/2017.

Boom Hoist wire rope: 26 mm, MBL:681 kN, Cert.No. 0005/2016 & 0006/2016 fitted on 09/2017.

6.5 **Main / Auxiliary Hoist and Boom Winches:**

The Main, Auxiliary and Boom Hoist Winches were operating satisfactorily during examination. The Wire Ropes Terminations were all in satisfactory condition with no visible defects, rope guides were in order, winch drums were in satisfactory condition, the Brakes and Clutches were functioning satisfactorily, and Lubrication found acceptable.

6.6 **Hook Blocks:**

The Main Hook Block SWL:160 t (3400 kg self-weight) was in good condition. The hook was free to swivel; the sheaves and sheave bearing were in order and lubrication was good. Safety latch was in order.

The Aux. Hook Block SWL: 50 t (1700 kg self-weight) was in good condition. The hook was free to swivel; well lubricated. Safety latch was in order.

6.7 **Limit Switches:**

The Limit Switches were functionally tested and examined as follows:

Boom-Up Limit : The Limit Switch cut out @ 85.0 Degrees.

Boom Lower Limit : The Limit Switch cut out @ 37.5 Degrees

Hoist Limit (Anti-Two-Block) : Was operating satisfactorily.

Overload Alarm and Cut-off Limit Switch : Was operating satisfactorily.

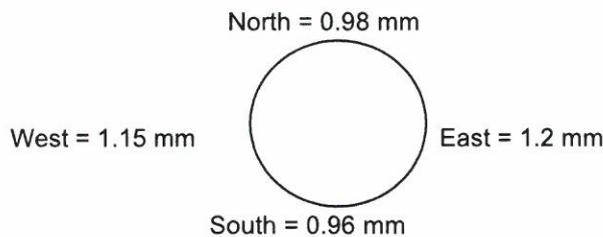
All Limit Switches were found lubricated and working satisfactorily.



**6.8 Slewing Ring:**

The Slewing mechanism in both directions were visually inspected and examined on each motion and found satisfactory. The slew bearing was well lubricated, greased and found externally free from any defect.

Noted Slew Bearing Rocking Motion Test done on 08-01 2022, by Aertssen and readings are as follows:



The Rejection Criteria as per manufacturer recommendation: 2.5 mm.

**6.9 Gear Boxes:**

The Gear Boxes were examined visually for any leakage and for any abnormal sound during functional test and found satisfactory.

**6.10 Brakes:**

The winches hoist brake band and the built-in disc brakes were visually examined and found to be functioning satisfactory during functional test and load test.

**6.11 Safe Load Indicator "SLI" / Rated Capacity Indicator "RCI":**

The SLI System was checked using calibrated weights and load cell ascending and descending and compared also with load chart readings and found to be satisfactory and within the standard limit. Radius indicator was checked using calibrated measuring tape and found to be satisfactory.

**6.12 Anti-Two-Block Device:**

The Anti-Two block device has been examined during functional test and found to be satisfactory.

**6.13 Electrical & Control:**

All electrical system and control including lights inside cabin, horn, warning devices and limit switches for engine speed and emergency stop switches located in the engine room and in cab were examined and found to be satisfactory.

Power Pack for emergency lowering was operationally and functionally tested.

**6.14 Operator's Cab:**

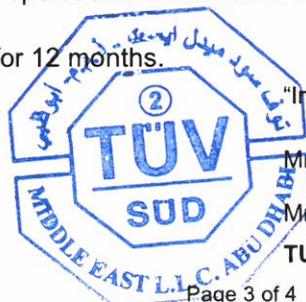
The operational levers, joysticks, keys, lights, load chart, air condition and radio were checked, and all found to be satisfactory.

**6.15 Conclusion:**

Crane was in satisfactory operational condition at the time of test and examination.

**7. Recommendations: NONE**

**8. Endorsement:** Endorsement is for 12 months.



"Inspected & Reviewed By"

Mr. Erwin C. David

Mr. Basheer Abdul Salam

TUV SUD Middle East LLC, Abu Dhabi

Certificate Number:		Place of Inspection:	DC6 GHASHA Island
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**REGISTERED CERTIFICATE OF THOROUGH EXAMINATION OF CRAWLER CRANE**

1.	Name and Address of Owner of Crane:	M/s. Aertssen Machinery Services Ltd., P.O. Box 40196, Abu Dhabi U.A.E.			
2.	Name and Address of Manufacturer of Crane	TEREX DEMAG			
3.	Type of Crane and Nature of Power: (e.g. Scotch Derrick, Manual, Electric, Tower, Rail Mounted etc.)	Diesel Engine Powered, Hydraulic Operated, Lattice Boom Crawler Crane			
4.	Date of Manufacture of Crane	2010			
5.	Identification Numbers	a) Makers Serial Number:	43060		
		b) Model:	CC2400-1		
		c) Owners distinguishing mark or number (if any)	TO-2491 / Registration No.: 17/62802 AD		
6.	Make and Type of Derrick Interlock If Required	Hydraulic Lock Valve			
7.	Date of Last Thorough Examination of Crane:	TRE: NFT-CC-21-03-TRE-06-01-MN, 02 Mar 2021			
8.	Date of Last Load Test of Crane:	TRE: NFT-CC-21-03-TRE-06-01-MN, 02 Mar 2021			
9.	Description of Examination: Inspected at present configurations below: <ul style="list-style-type: none"> <li>➤ Main Boom Length : 48.0 m</li> <li>➤ Main Hook Block Cap. : 160.0 t (3.4 t self-weight)</li> <li>➤ Main Hoist Wire Rope : 26.0 mm Ø, 7 falls</li> <li>➤ Aux. Hook Block Cap. : 50.0 t (1.7 t self-weight)</li> <li>➤ Aux. Hoist Wire Rope : 26.0 mm Ø, 2 falls</li> <li>➤ Single Line Pull Cap. : 15.0 t</li> <li>➤ Superstructure CW : 160.0 t</li> <li>➤ Central Ballast : 40.0 t</li> </ul> Note : SWL Load Test carried out as per available test weight in the Island. <b>Power Pack</b> for emergency lowering was operationally & functionally tested.	(i) Boom Length (Metres)	(ii) Radius (Metres)	(iii) Test Load (Tonnes)	(iv) SWL (Tonnes)
		<b>MAIN HOIST</b>			
		48.0 m Lattice Boom Length	18.0 m	NIL	93.4 t
			26.0 m	55.0 t	55.0 t
			30.0 m	44.7 t	44.7 t
			38.0 m	31.5 t	31.5 t
			40.0 m	NIL	27.1 t
		<b>AUXILIARY HOIST</b>			
		37.0 m	30.0 t	30.0 t	
10.	In the case of a crane with a derricking jib or jibs the maximum radius at which the jib or jibs may be worked	40.0 m			
11.	Defects or deficiencies noted, and alterations or repairs required before putting the crane into service (if none enter NONE):	NONE			

**THIS IS TO CERTIFY THAT** the undersigned a competent inspector did attend the mentioned owner's establishment or his designated site on **30 Jan 2022** and the item described in this report was thoroughly examined and tested and the above particulars were at the time of inspection.

Date of Inspection : **30 Jan 2022**  
 Date of Next Inspection : **29 Jan 2023**  
 Date of Next Proof Load Test : **01 Mar 2026** (or After major repair or Replacement of load bearing parts/structures)



Inspected & Reviewed By"  
 Mr. Erwin C. David  
 Mr. Basheer Abdul Salam  
 TUV SUD Middle East LLC, Abu Dhabi

DC6GHASHA-CC-22-01-TUVSUD-10-01-ECD

This Certificate is issued in Accordance with ADNOC Offshore LIMS & UAE Federal Ministry Law No: 10 Order 32, Article 20

**Note: This Certificate is Replacement of Original Certificate AU-ECD-22-27209.27020.1-ABR, Rev2 Date:03-02-2022**

The certificate is issued subject to the condition that it is understood and agreed that nothing in this certificate shall be deemed to relieve any designer, manufacturer, seller, supplier, repairer or operator of any warranty, expressed or implied, and TUV SUD Middle East, LLC shall be limited to the acts or omissions of its employees, agents and subcontractors. Under no circumstances whatsoever shall TUV SUD Middle East, LLC be liable for any injury or damage to any person, or occurring by reason of negligent operation or any defect in materials, machinery, equipment or other items other than such defects ascertainable by normally accepted testing standards and only those items inspected by TUV SUD Middle East, LLC and which are covered by this certificate.

# TÜV SÜD MIDDLE EAST LLC

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المكتب الرئيسي: ص.ب ٤٥١١٧ أبو ظبي-أ.ع.م.

هاتف: +٩٧١٢٦٧٦٧٦٠٠ فاكس: +٩٧١٢٦٧٦٢٢٢٤

Certificate No.:

**AU-ECD-22-27209/27020/3-ABR**

Timesheet No.: 1066380

## CERTIFICATE OF INSPECTION FOR DIESEL ENGINE USED IN HAZARDOUS AREAS (Zone II)

Time Sheet No.: **AU 1066380**

Reviewer: ABR

### PART 1

COMPANY NAME	Aertssen Machinery Services Ltd., P.O. Box 40196, Abu Dhabi U.A.E.
EQUIPMENT	Diesel Engine Powered, Crawler Crane
DATE OF LAST INSPECTION	TRE: 21201-02/21-03/MN/TRE06, 02-30-2021
IDENTIFICATION NUMBER (If Applicable)	TO-2491
MAKE	TEREX DEMAG
MODEL	CC2400-1
CHASSIS NUMBER / SERIAL NUMBER	43060
MOBILE OR SKID MOUNTED OR TOWED	Mobile
WILL BE USED FOR	Oil Field Services Operation
DAY OR NIGHT	Both if required
REGISTRATION NUMBER (If Applicable)	17 / 62802 AD

### ENGINE DETAILS

MAKE AND MODEL	MERCEDES / OM 501 LA E3A/3
SERIAL NUMBER	941-991-00-697114
COOLING SYSTEM (air or liquid)	Liquid Cooled
AIR SYSTEM (Naturally Aspirated or Turbo Charged)	Turbo Charged
FIRING SYSTEM	1-4-3-6-2-5
TWO OR FOUR STROKES	4 Stroke
HORSE POWER OR kW	260 kW
AT REVOLUTIONS PER MINUTE (Working RPM)	1800 RPM
NUMBER OF CYLINDERS	6 Cylinders

### PART 2 - SAFETY EQUIPMENT FITTED

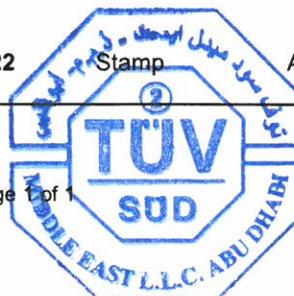
TYPE OF STARTER MOTOR AND SWITCHES	Electrical Starter Non-sparking
ARE ELECTRICAL SYSTEM, CONTROL BOXES, LIGHTING SYSTEMS EFFECTIVELY EARTHED AND BONDED TO MAIN ENGINE FRAME	Yes
IS SPARK ARRESTOR FITTED	Yes
IS ANTI STATIC BELTS FITTED	Yes
IS AUTOMATIC OVERSPEED SHUTDOWN VALVE FITTED	Yes; Operating at 2000
IS BATTERY ISOLATION SWITCH FITTED	Yes
IS DRY POWDER EXTINGUISHER FITTED	To be fitted at site location
EXHAUST GAS TEMPERATURE WHEN DISCHARGED TO ATMOSPHERE (SHALL NOT EXCEED 300 °C)	(Ambient Temp: 38°C) 175°C
SURFACE TEMPERATURE OF ENGINE & EXHAUST UNDER FULL LOAD CONDITIONS (SHALL NOT EXCEED 250 °C)	(Ambient Temp: 38°C) 132°C
NEXT INSPECTION DUE	29 Jan 2023

THE EQUIPMENT DESCRIBED HEREIN IS SUITABLE FOR ZONE II AREA ONLY - NO ACCESS TO ZONE I AREA WITHOUT AUTHORITY.

Certification Authority : TÜV SÜD Middle East LLC, Abu Dhabi Branch, UAE

Inspected By: Erwin C. David

Date: 30 Jan 2022



Approved By: Rafat S. Sahib