

DOCKYARDS LIMITED

Test Certificate. No.: E170254

Date : 29-9-2017

Name of Ship: _____

TEST CERTIFICATE

This is to certify that the following tests and examinations were carried out under my supervision:-

DECK CARGO CRANE (TTS) LOAD TEST

The deck cargo crane (TTS) was carried out load test with 77.0 tons and found satisfactory.

Above test were carried out in the presence of the superintendent and chief Officer/chief engineer.



"PROVIDING WORLD-WIDE SERVICE"

ICGB FORM NO: 10/SHIPS (APRIL 26th 2011)
INTERNATIONAL CARGO GEAR BUREAU, INC.
321 WEST 44th STREET, SUITE 905
NEW YORK, NEW YORK 10036

**ACKNOWLEDGMENT OF ATTENDANCE AT THE COMPLETION OF TESTING and/or
EXAMINATION PROCEDURES of THE CARGO HANDLING GEAR ONBOARD THE HEREIN
RECORDED SHIP**

NAME of SHIP: _____, ICGB REGISTRATION NO: _____
OFFICIAL NO: _____, INSPECTION COMPLETED AT: PIRAEUS - GREECE

The undersigned Appointee/Inspector of the *INTERNATIONAL CARGO GEAR BUREAU, INC. (ICGB)*, hereby certifies that all tests and/or examinations were completed in accordance with the standards of *I.L.O. CONVENTION NO: 152*; and the recommendations of the *INTERNATIONAL LABOR OFFICE* concerning the procedures to be followed in testing, examining, and annealing cargo handling gear (if needed), have been satisfactorily completed for the issuance of the following usual international forms or notations in the Register Book as required by the UNITED STATES DEPARTMENT of LABOR Regulations, 29 CFR, PART 1919, the UNITED STATES COAST GUARD Regulations, 46 CFR, Ch I, and the Regulations of other Dock Authorities and Flag States which implement those ILO standards.

(CHECK THOSE APPLICABLE)

Form 2 (Quinquennial for Cranes/Derricks) at hatch nos:.....

Form 2(U) (Union Purchase Certification for Derricks).....

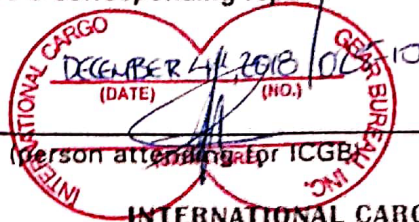
Form 3 (Loose Gear Certificate):.....

Form 4 (Wire Rope Certificate):.....

Form 7 (Annual for Cranes and/or Derricks) at hatch nos:.. ONE (1) 70 MT SWL DECK CRANE, PORT SIDE

This ICGB Form 10 acts as a temporary acknowledgment of procedures completed and is issued subject to the completion of favorable processing of the original ICGB Certificates and/or Documents and Register Book (if applicable) at the ICGB Headquarters Office - which will be processed on a timely basis upon the receipt of the attending ICGB Appointee's corresponding report.

Signature: _____, Date: DECEMBER 4, 2018



INTERNATIONAL CARGO GEAR BUREAU, INC.

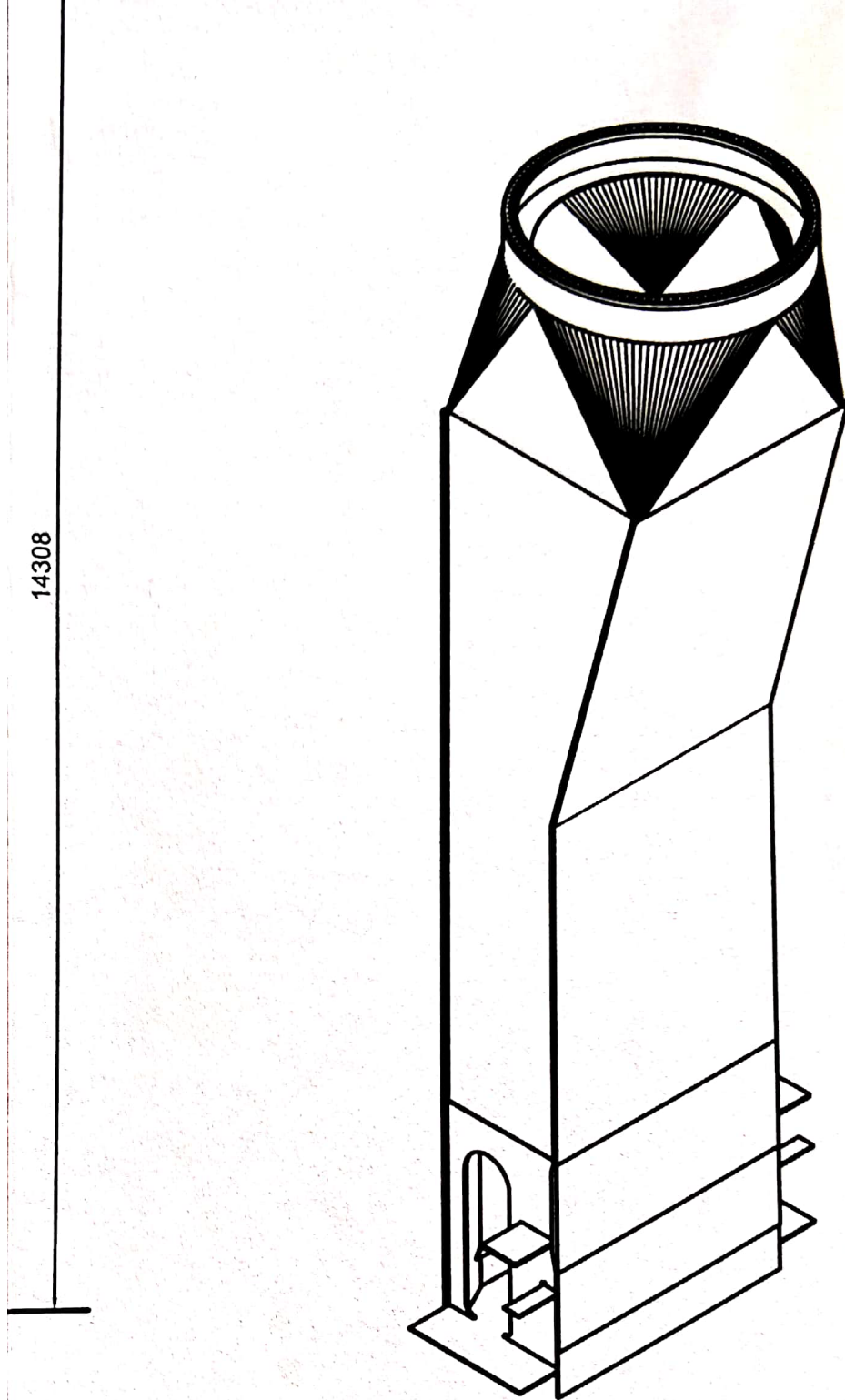
321 WEST 44TH STREET, SUITE 905, NEW YORK, N.Y. 10036

TEL: (212) 757-2011



FAX: (212) 757-2650

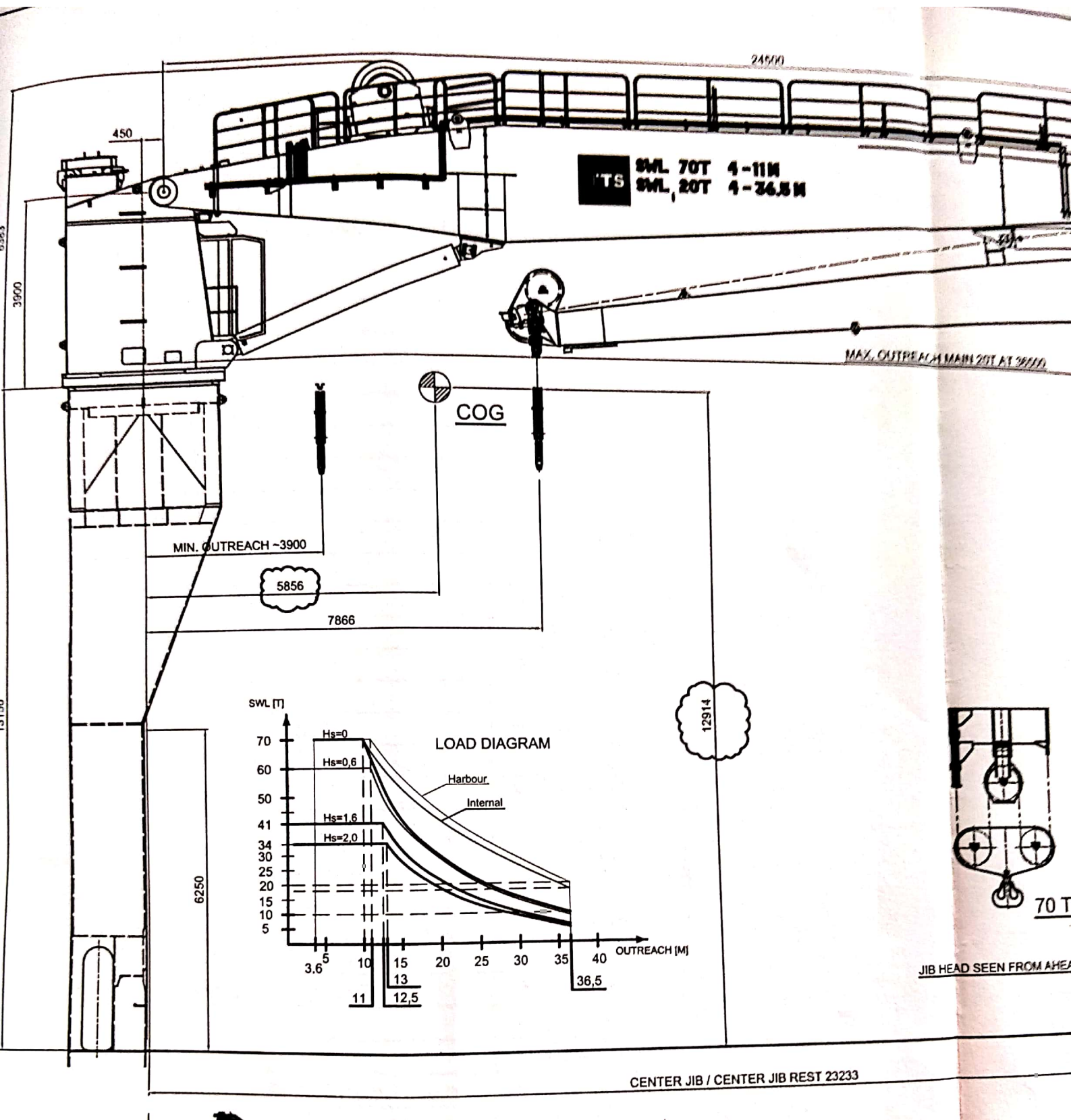
E-mail: Certs4U@incargear.org

TELEX: 233167 ICGB UR



HEIGHT OF BASE COLUMN (HOLE BASE COLUMN): 41T
 WEIGHT OF CRANE WITH OUT OIL: 90T
 TOTAL WEIGHT OF CRANE WITH OIL: 133T

DESIGN / DRAWING		FOR / REVIEW / CHECK / APPROVE	
THIS DRAWING AND THE DESIGN ARE THE PROPERTY OF TTS MARINE CRANES AS AND SHALL NOT BE USED AND REPRODUCED WITHOUT OUR WRITTEN C			
DRAWN	08.01.10 / FTU	CHECKED	08.01.10 / FTU
APPROVED	15.06.10	FOLDER	
PROJECT		 TTS TTS Marine Cranes AS	
DRWG NAME CCLK 2000-70-36,5 GENERAL ARRANGEMENT 20T WINCH		FORMAT A1	SCALE 1:50
DRWG NO 		REPLACES REPLACED BY	



Load Chart No.: 4

LOAD CONDITION:
Dyn. Factor 2,5
HS = 3,0M

TS

SEASTATE "H"

REV. 1
17.11.2011

N.O.F	DYN
Number of fall	Dynamic mode
4	H
Max. Swl 28T	$\approx 2,5 \sigma_{\psi}$

Curves describe
jib head position

8,5T

15T

28T

MAINDECK

HEIGHT ABOVE MAIN DECK

OUTREACH FROM CENTRE

Load Chart No.: 3

LOAD CONDITION:
Dyn. Factor 2,0
HS = 1.6M



SEASTATE "G"

REV. 1
17.11.2011

N.O.F	DYN
Number of fall	Dynamic mode
4	G
Max. Swl 40T	= 2,0 $\sigma\psi$

Curves describe
jib head position

9,5T

20T

40T

30T

MAINDECK

HEIGHT ABOVE MAIN DECK

OUTREACH FROM CENTRE

Load Chart No. 2

LOAD CONDITION:
Dyn. Factor 1,6
HS = 0.6M

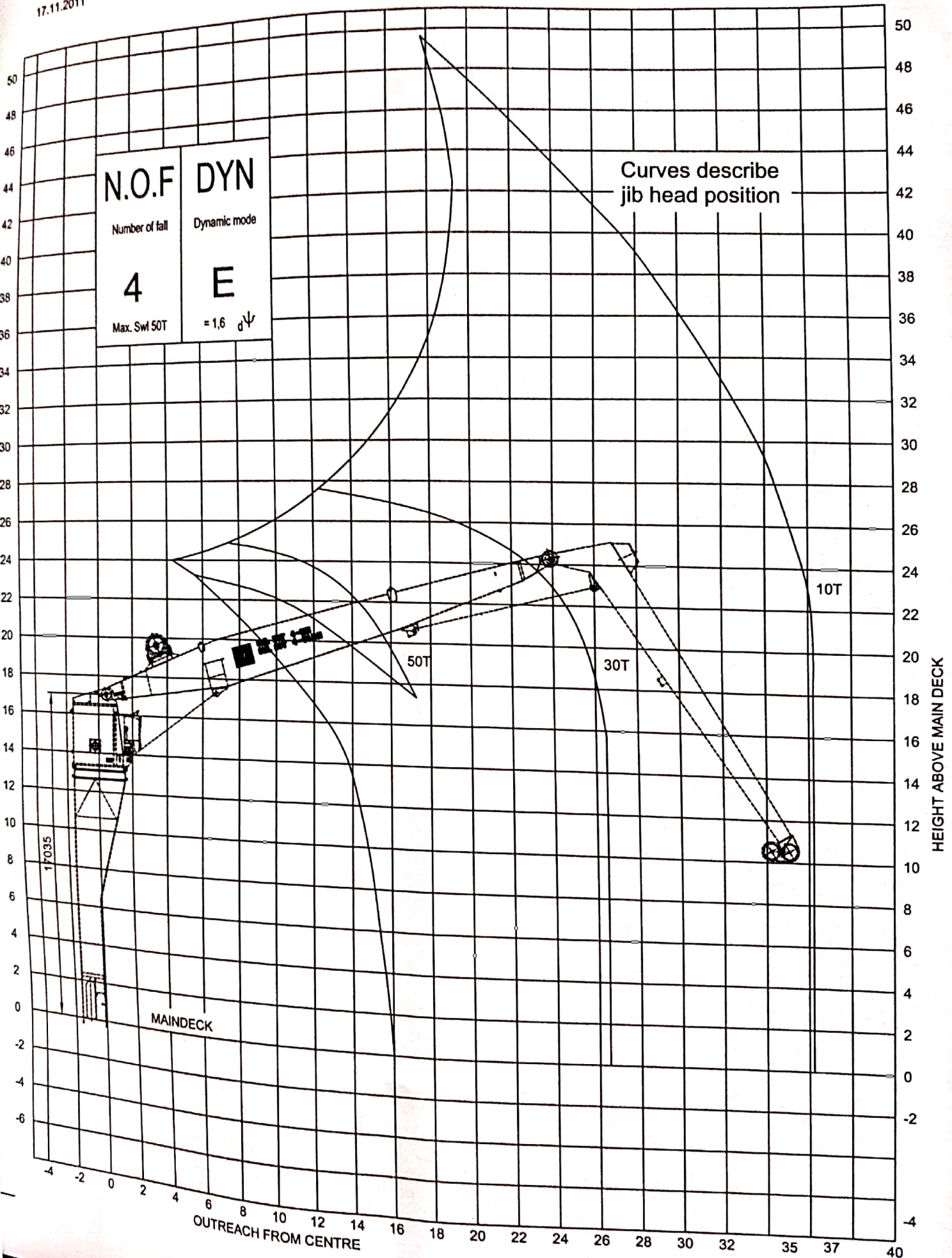


SEASTATE "E"

REV. 1
17.11.2011

N.O.F	DYN
Number of fall	Dynamic mode
4	E
Max. Swl 50T	= 1,6 σ_{ψ}

Curves describe
jib head position



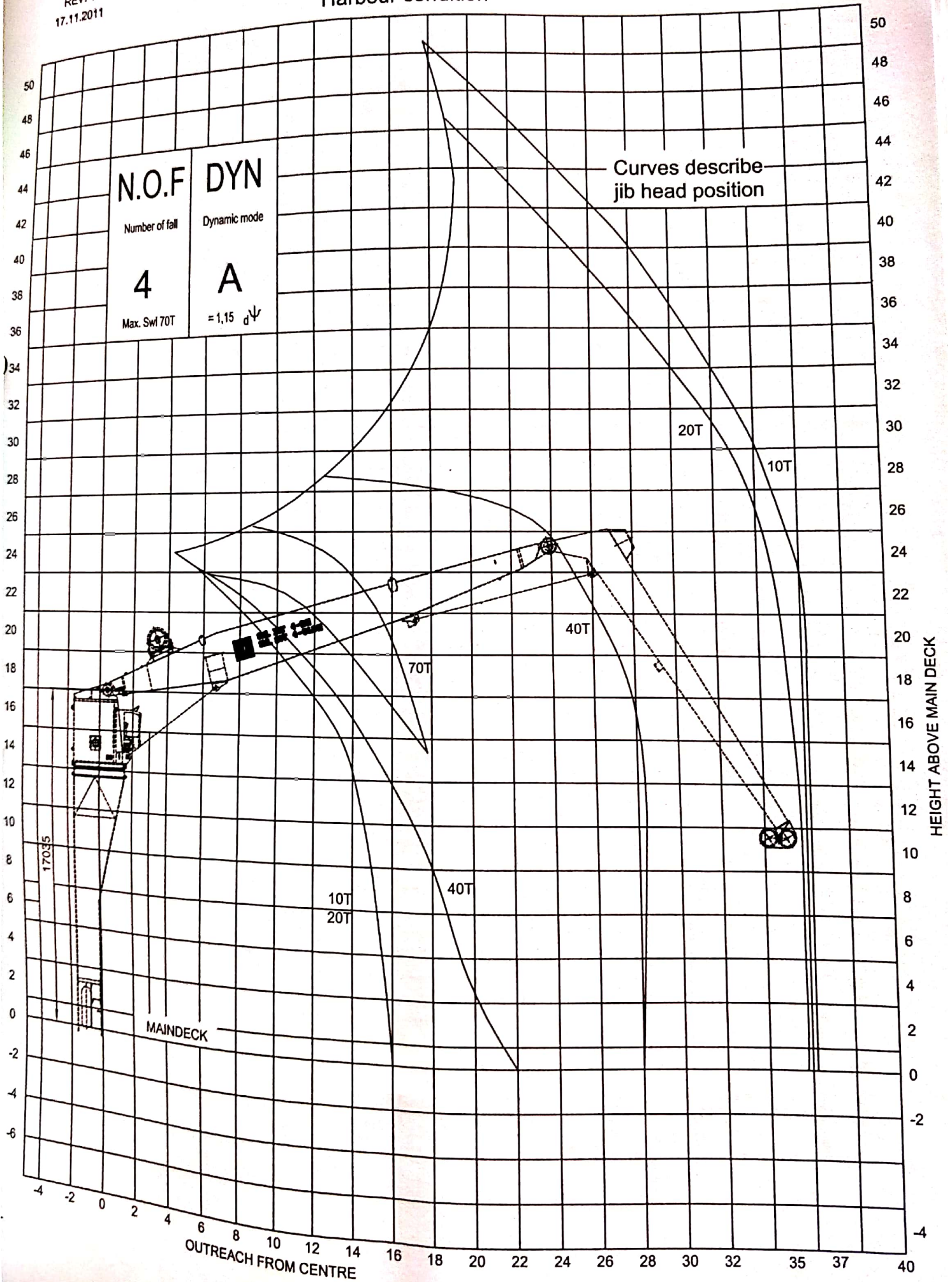
Load Chart No. 1

LOAD CONDITION:
Dyn. Factor 1,15
Harbour condition

TS

SEASTATE "A"

REV. 1
17.11.2011



INSTRUCTION MANUAL

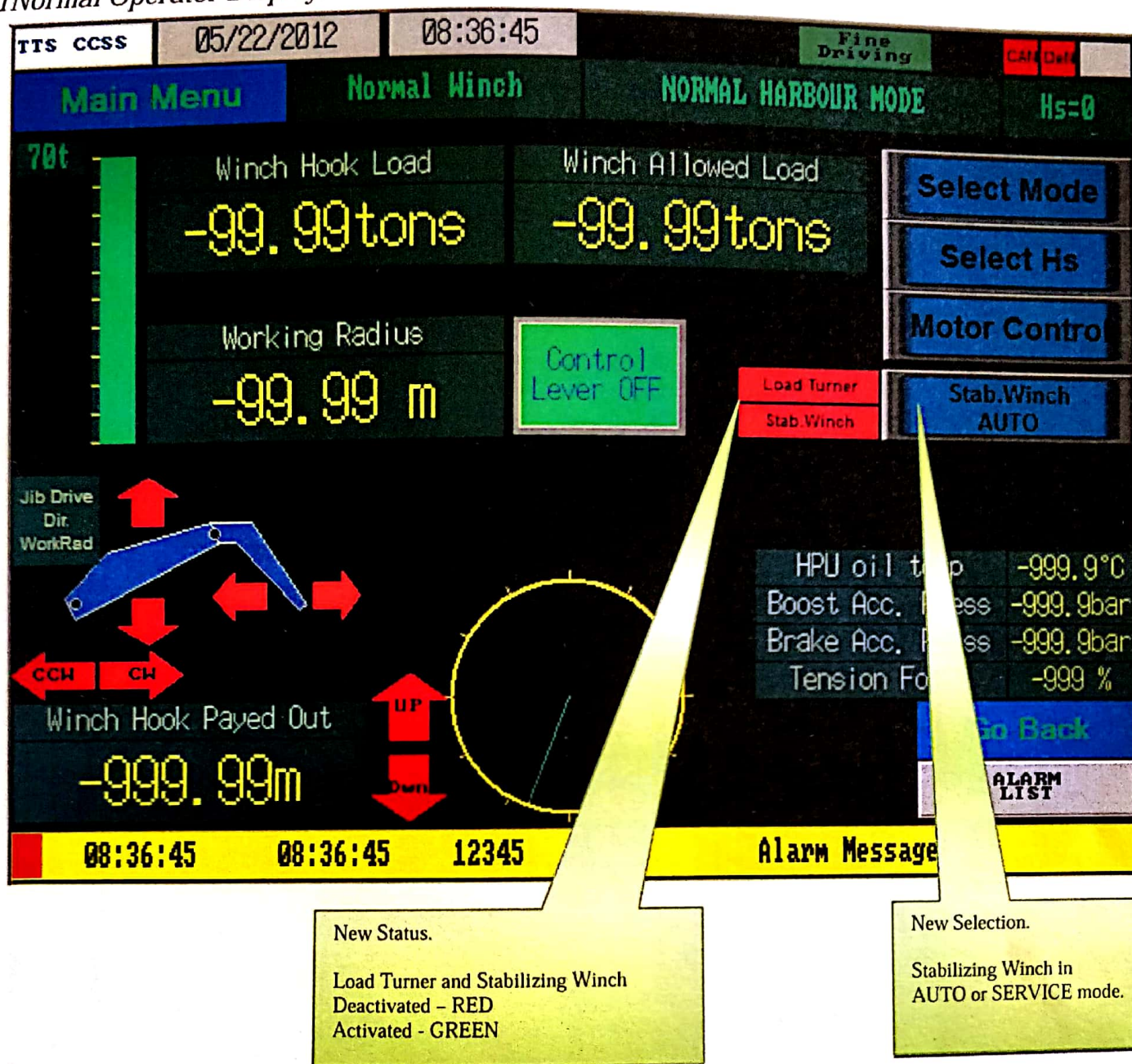
ROTATOR CT 70 SWL 70 T

SERIAL NO. [REDACTED]



5.12.10 Operator Display changes:

5.12.11 Normal Operator Display:



5.12.12 Additional Alarms.

- Cable Reel Motor Overload
- Load Turner Motor Overload



Project No: [REDACTED]

Modification: [REDACTED]

**Adding Cable reel drum, Load turner
and Stabilizing winch.**

Ship (Location) : [REDACTED]

Project History, Technical Modifications:

REVISION HISTORY:

Rev	Date	Sign.	Description
1	22-05-2012	JOB	Initial description of new [REDACTED] conversion.













CRANE OPERATION START

1. CONTROL SYSTEM ON
2. CONTROL LEVER ON
3. MOTOR 1 ON
4. MOTOR 2 ON

CRANE OPERATION STOP

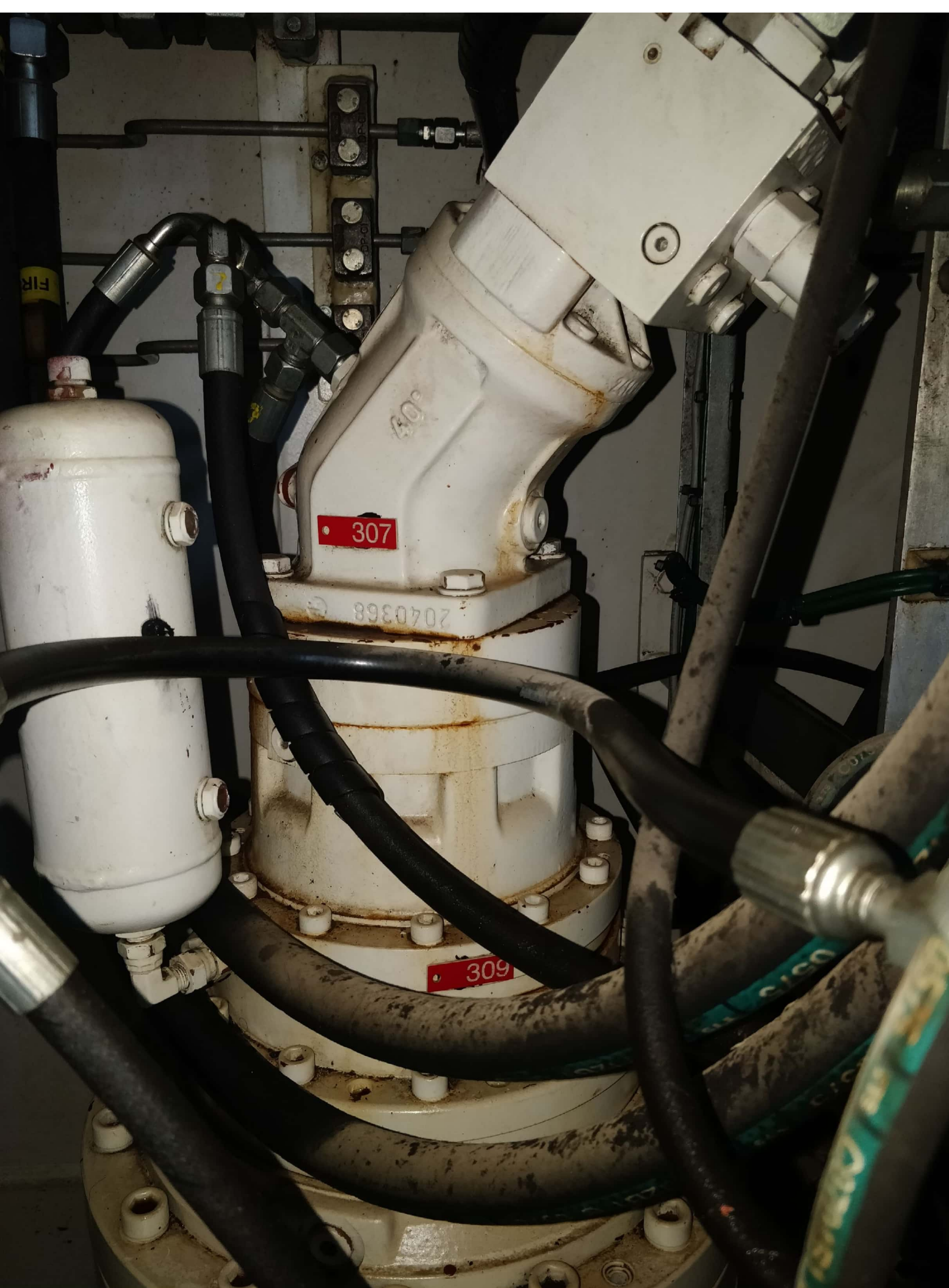
1. MOTOR 1 OFF
2. MOTOR 2 OFF
3. CONTROL LEVER OFF
4. CONTROL SYSTEM OFF

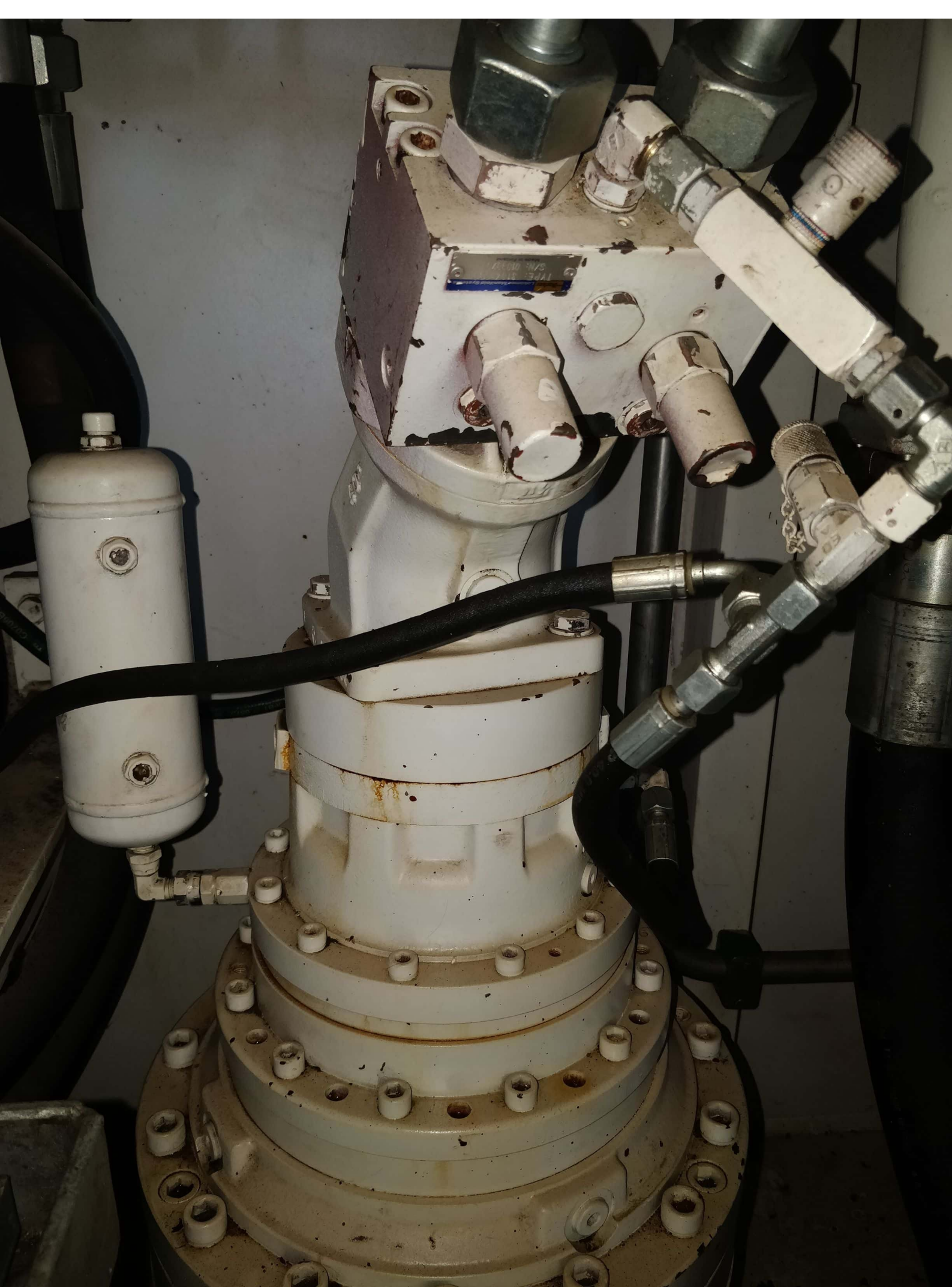
RIGHT JOYSTICK MENU

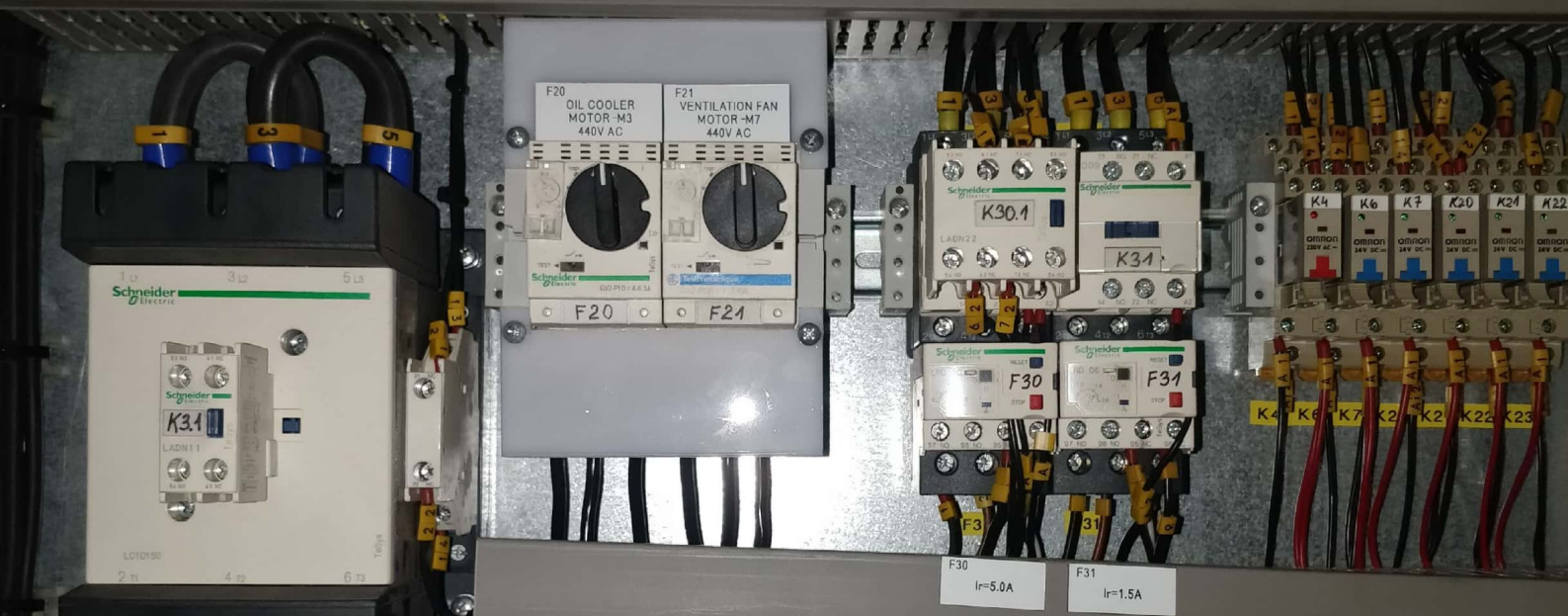
BLU: TENSION ACTIVATION

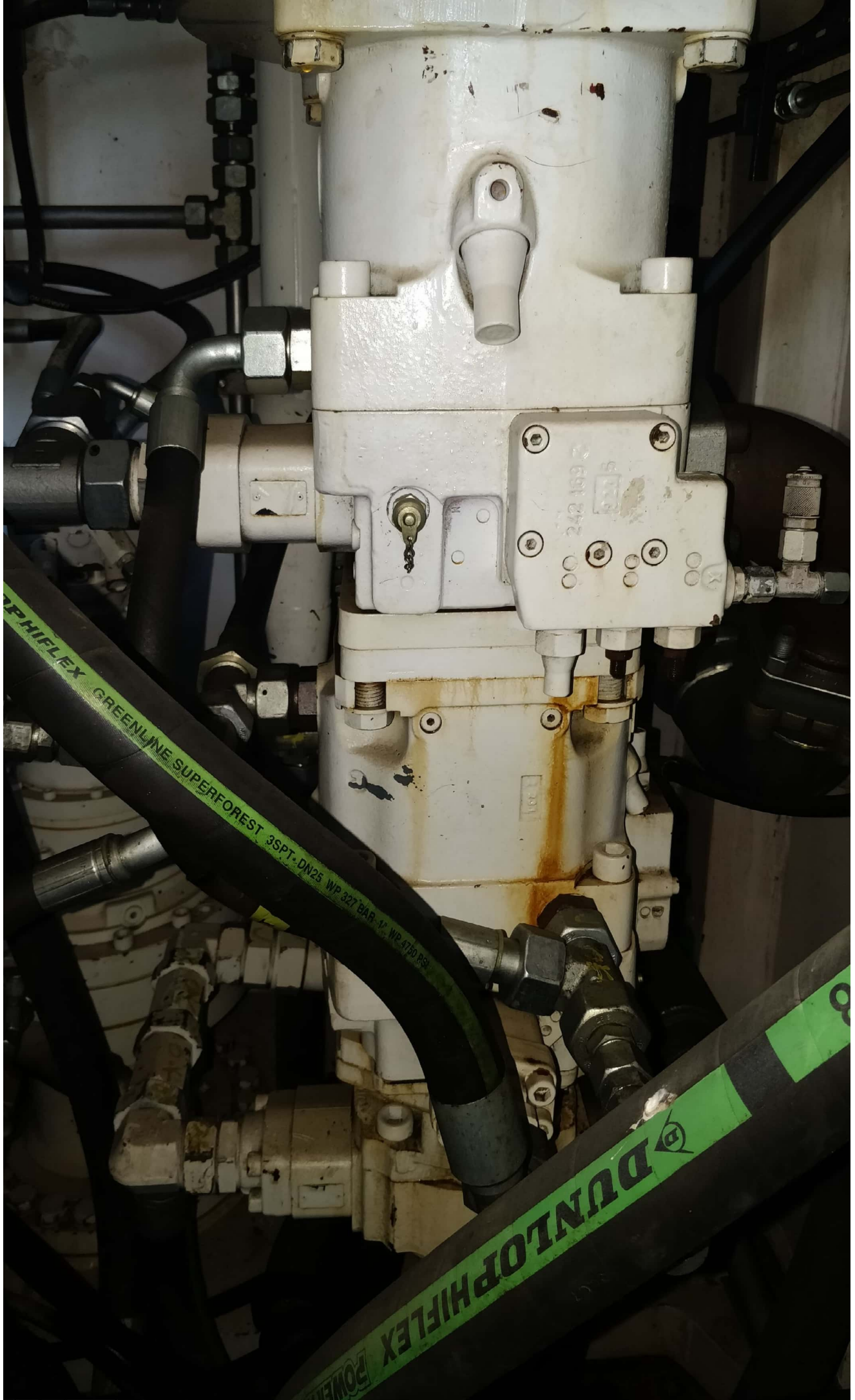
(CARGO TURNER)



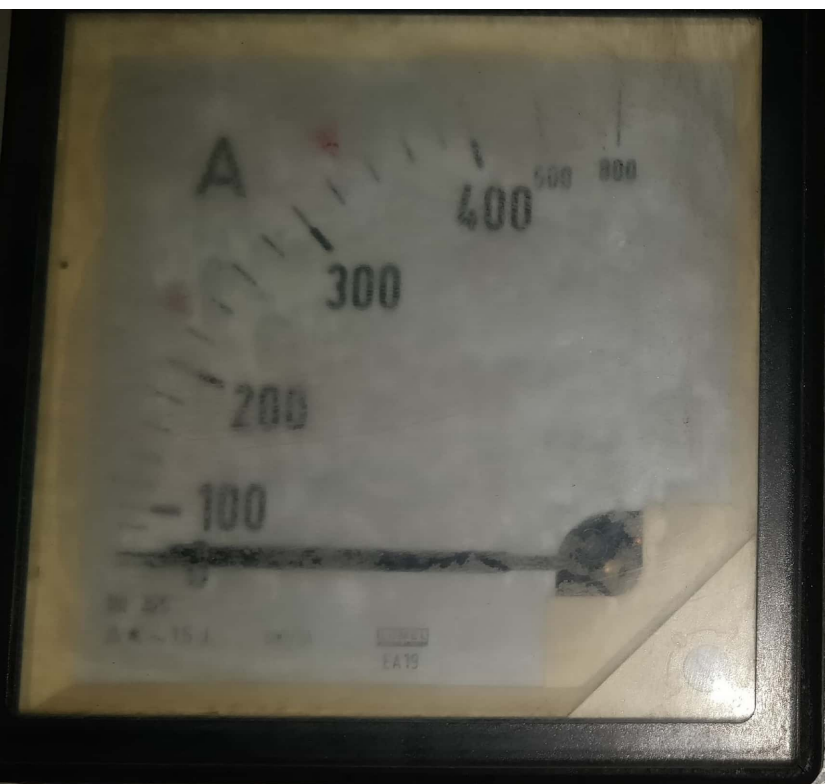








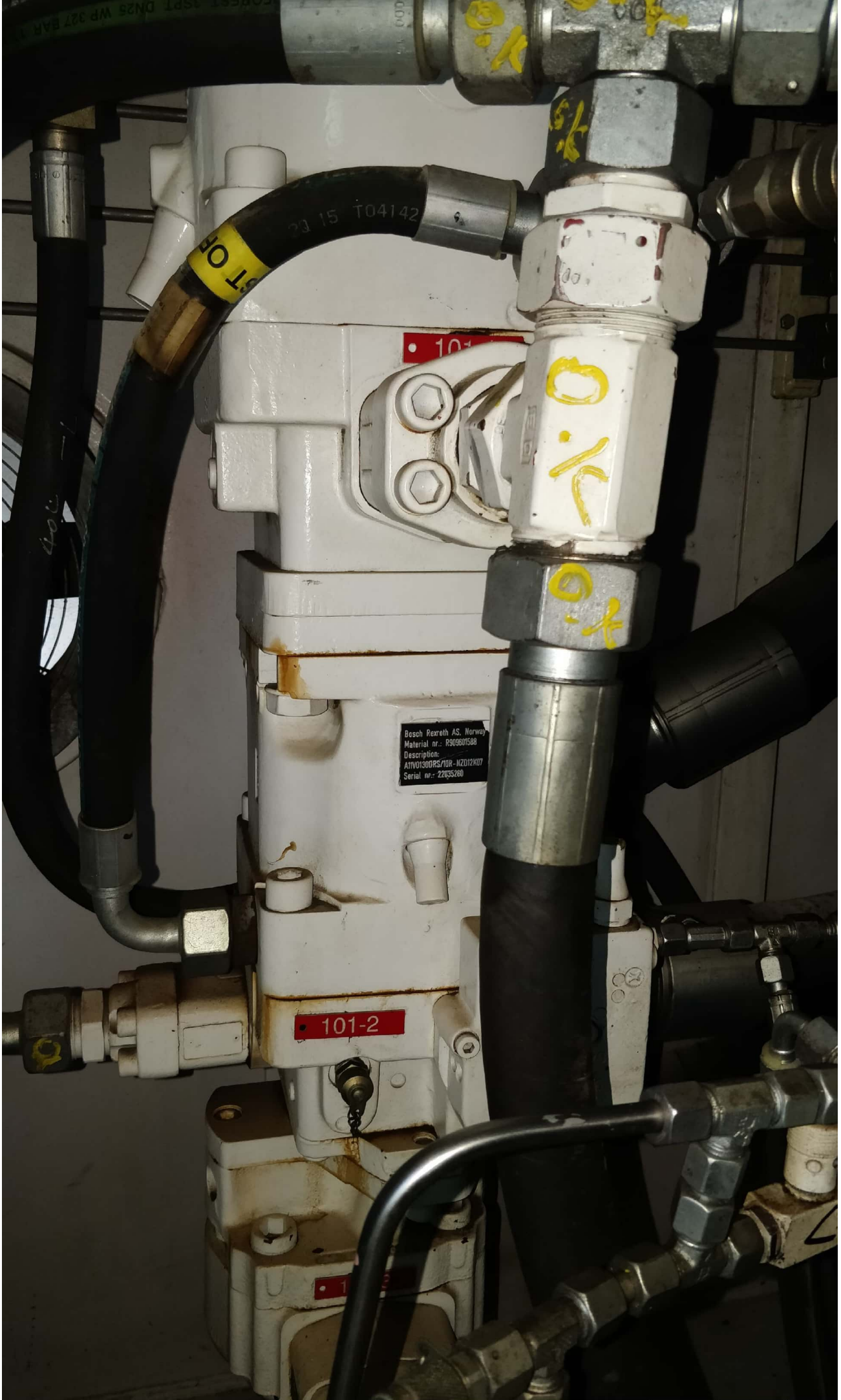




P11
MOTOR -M2
HOUR COUNTER









HØYER MOTORS





TEL +4586982111



TYPE Y2E2 315M-4			Serial no: [REDACTED]			3~Motor
D.E. 6319	N.D.E. 6319	40 °C	1040 kg	IP 55	Ins.cl.F	
B35/V15	YEAR 2007		EN 60034-1		PTC	
V. Δ / Y	Hz	kW	rpm	A. Δ / Y	COSØ	S
D 440V	60	158,4	1776	D 246,1	0.89	S1-100%
D 440V	60	229,4	1776	D 356,4	0.89	S6-40%
				IEC34-1		

TOTAL CRANE WEIGHT APPROX. [KG] : ~116480

	HYDRAULIC HOSES	23		-
	HYDRAULIC CIRCUIT DIAGRAM	22	11857H01	-
	ELECTRIC BLOCK DIAGRAM	21	11857ES1	-
1	REEVING ARRANGEMENT	20	11857-01	2062
1	FLOOD LIGHT ASSEMBLY	19	A3-13258	12
		18		
1	NAME PLATE	17	A4-1400	-
1		16		
1		15		
1	INNERHINGE / FOLDING HINGE	14	A3-13165	180
1	JIB HEAD ASSEMBLY	13	A2-9899	180
1	FOLDING JIB SUPPORT	12	127268	1145
1	JIB HINGE ASSEMBLY	11	A3-13167	290
1	OUTER CYLINDER HINGE ASEMBLY	10	A3-13159	5200
1	CYLINDER HINGE ASSEMBLY	9	A3-13158	10400
1	SLEWING DRIVE ARR.	8	21361M600	4700
1	OUTER JIB	7	127709	14514
1	INNER JIB	6	127464	31834
1	MAIN WINCH ARRANGEMENT 17.5T	5	A2-10126	2000
1	CABIN	4	A2-10000	900
1	BASE COLUMN ARRANGEMENT INSIDE	3	A2-10531	142
1	SLEWING COLUMN ASSEMBLY OUTSIDE	2	A1-14445	22650
1	BASE COLUMN	1	128698	20270
NOS	ITEM / DIMENSION	POS	MATR / DRWG / ART NO	WEIGHT

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DRAWN	FTU	09.09.10	CHECKED	09.09.10 / FTU
APPROVED	09.09.10 / FTU			
PROJECT			 TTS Marine ASA	
DRWG NAME	MAIN PART LIST		SCALE	1:1
			FORMAT	 E
			DRWG NO	
REV				
REPLACES	REPLACED BY		DRWG FOLDER	

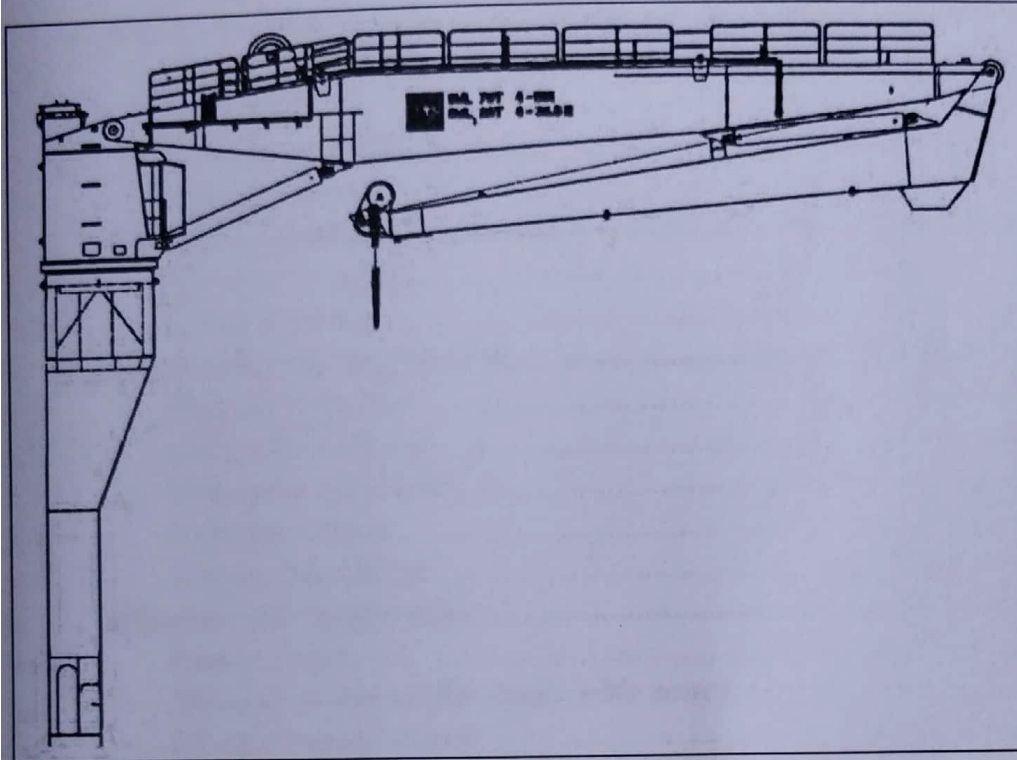




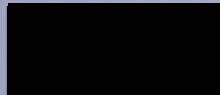


USER MANUAL

Technical Description



Cargo Crane
CCLKO 2000-70-36,5



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-5-
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Maintenance

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Data Sheets
Spare Parts

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Parts List
Drawings

2 MAIN DATA

The below stated speeds apply during maximum load and working radius against the stated heel plus trim conditions. A speed tolerance of +10% to -5% is within the accepted range and should be taken into consideration.

2.1 Technical Specification

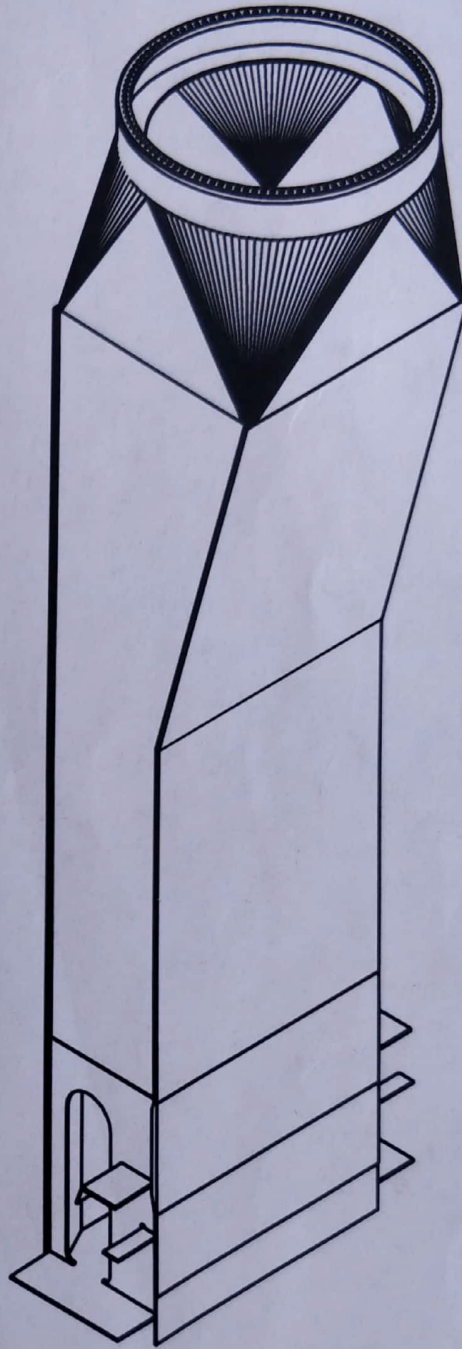
TTS Ships Equipment AS – Equipment Type

Type: CCLKO 2000-70-36,5

Machine number: XXXXXXXXXX

Lifting capacity (SWL):	70 T
Working radius - max:	36,5 m
Working radius - min:	3,9 m
Lifting speed at SWL:	0-15 m/min
Lifting speed at light load:	0-40 m/min
Number of fall:	4
Hoisting height:	40 m
Luffing time main jib:	120 sec
Luffing time knuckle jib:	60 sec
Slewing sector:	360° unlimited
Slewing speed:	0-0,9 rpm
Heel + trim conditions:	5°+ 2°
Weight of crane (without base column):	~90 T

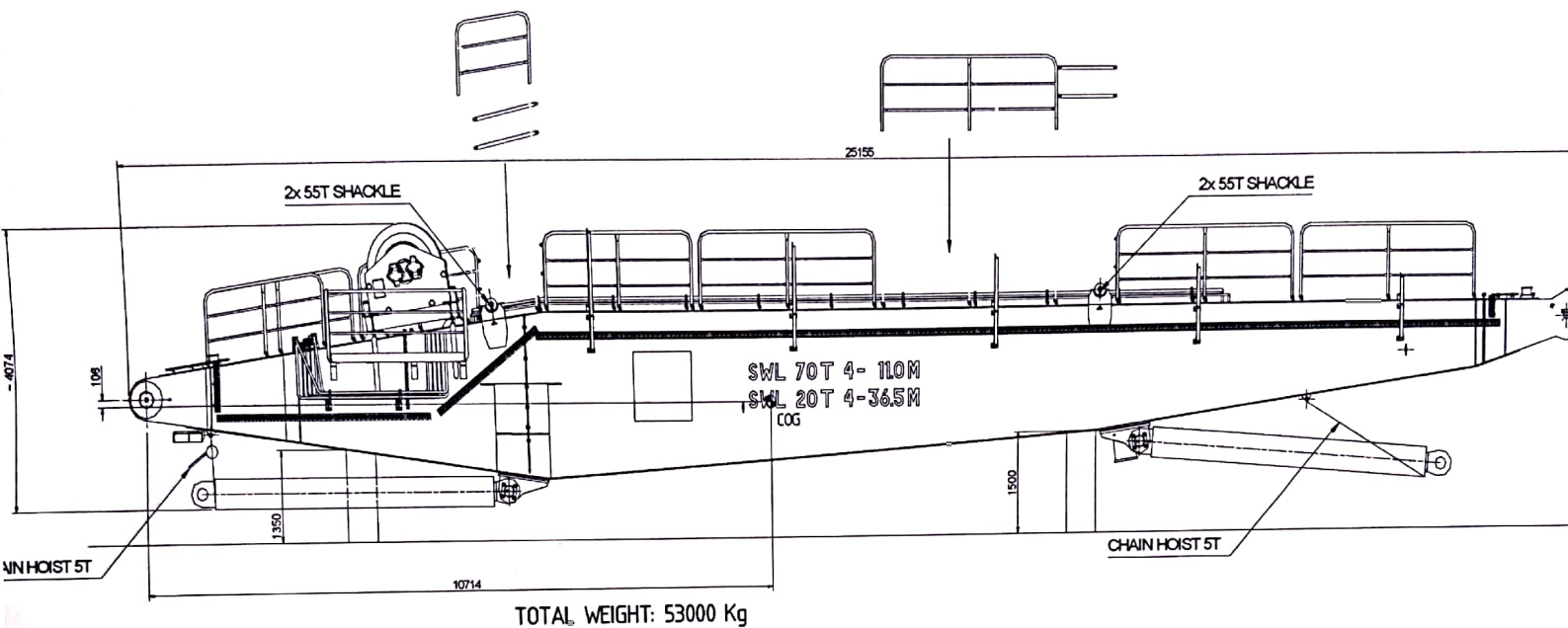
14308



WEIGHT OF BASE COLUMN (HOLE BASE COLUMN): 41T
 WEIGHT OF CRANE WITH OUT OIL: 90T
 TOTAL WEIGHT OF CRANE WITH OIL: 133T

} 222
 ...

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DRAWN 08.01.10 / FTU	CHECKED 08.01.10 / FTU	APPROVED 15.06.10	FOLDER	
PROJECT CCLK 2000-70-36,5		TTS TTS Marine Cranes AS FORMAT A1 SCALE 1:50 E DRWG NO. XXXXXXXXXX REV 2 REPLACES XXXXXXXXXX REPLACED BY XXXXXXXXXX		
GENERAL ARRANGEMENT 20T WINCH				

4. Preparation of Main jib, Weight ~53T**FIG. 3**

- 4.1** Remove jib hinge bolts from hinge eye on jib. Inspect and clean if necessary. Grease up well before fitting.
(Ref. drawing A3-13168)
- 4.2** Place the jib on supports 1-2 m. above ground (FIG. 3). The jibs will arrive yard complete assembled but with some details out of position to protect them during transport or during lifting operation at the yard. Relocate equipment in to its correct position, ref. drawings. 127464
- 4.3** Connect hoses from winch and cylinder to crane house.
Hoses and connection points on crane house has corresponding no.
- 4.4** Connect electric cables from crane house to jib.
Cables and connection points on crane house and jib units is marked according to electric diagram.

TTS Marine ASA KVALITETSPROSEDYRE - QUALITY PROCEDURE	Dato / Date: 24.12.03	Side / Page: 2 / 8
	Utført av / Made by: FTU	Godkjent / Approved: LAH
FACTORY ACCEPTANCE TEST	Ref. nr. / Ref. no.: 110-03-bE	Rev. nr. / Rev. no.: 1

1. SPECIFICATION (To be filled in by technical department)

1.1 CRANE CAPACITY

HOISTING CAPACITY MAIN HOIST	HOISTING SPEED	LUFFING TIME UP	LUFFING TIME DOWN	SLEWING SPEED	JIB RADIUS MAX. MIN.
50T (SWL)	0-12.5 m/min	60 sec.	60 sec.	0-0,9 rpm	22 / 3.9 m
25T (SWL)	0-12.5 m/min	60 sec.	60 sec.	0-0,9 rpm	35 / 3.9 m
7 T (LIGHT LOAD)	0-30 m/min	60 sec.	60 sec.	0-0,9 rpm	35 / 3.9 m
		Average Up / Down			

HOISTING CAPACITY AUX.WINCH	HOISTING SPEED	LUFFING TIME UP	LUFFING TIME DOWN	SLEWING SPEED	JIB RADIUS MAX. MIN.
12.5T (SWL)	0-50 m/min	60 sec.	60 sec.	0-0,9 rpm	39 / 3.9 m
1.5 T LIGHT LOAD	0-50 m/min	60 sec.	60 sec.	0-0,9 rpm	39 / 3.9 m
		Average Up / Down			

1.2 ELECTRIC MOTOR FOR PUMP

INPUT	POLE	VOLTAGE	CURRENT	CYCLE	REVOLUTION	RATING
	3	440V		60 HZ		229.4KW S6-40%

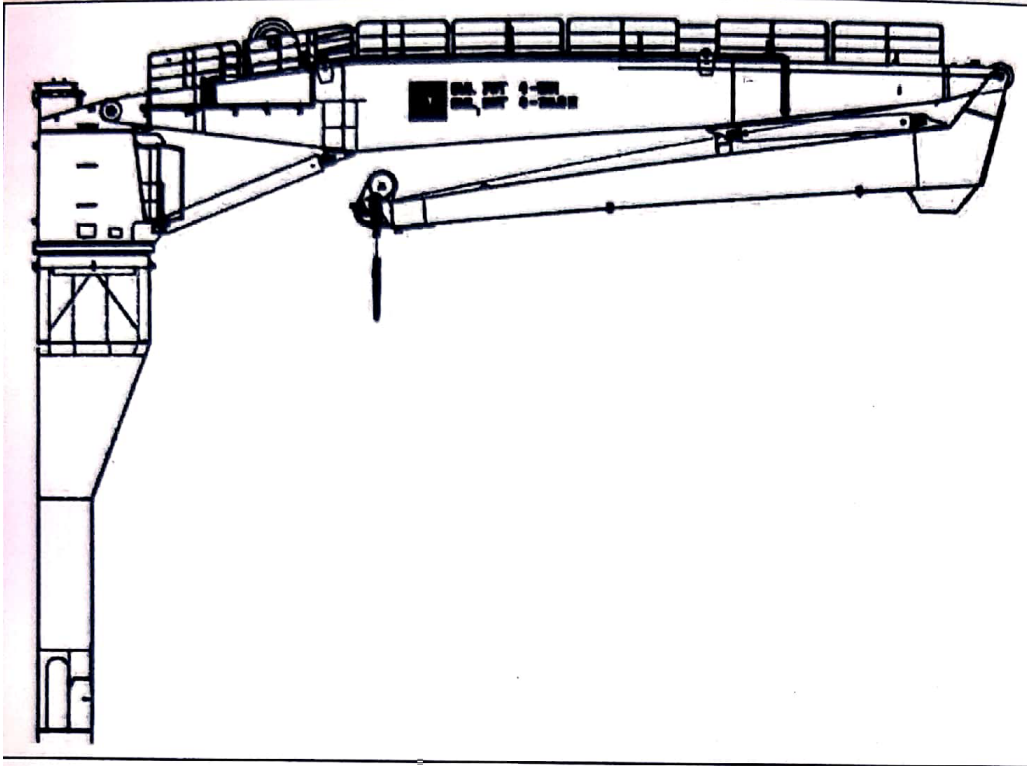
1.3 SET PRESSURE ON RELIEF VALVES = WORKING PRESSURE

HOISTING	LUFFING in	SLEWING	FOLDING CYL.	MAIN
265/245	300	290	310	280

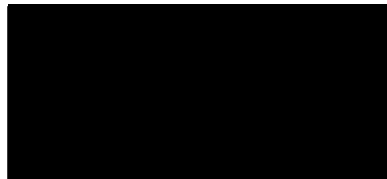
luffing out.
80 bar.
 Pump pressure 320 bar
 Feed pressure = 29 bar

USER MANUAL

Introduction



Cargo Crane CCLKO 2000-70-36,5



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2 MAIN DATA

The below stated speeds apply during maximum load and working radius against the stated heel plus trim conditions. A speed tolerance of +10% to -5% is within the accepted range and should be taken into consideration.

2.1 Technical Specification

TTS Ships Equipment AS – Equipment Type

Type: CCLKO 2000-70-36,5

Machine number:

Lifting capacity (SWL): 70 T

Working radius - max: 36,5 m

Working radius - min: 3,9 m

Lifting speed at SWL: 0-15 m/min

Lifting speed at light load: 0-40 m/min

Number of fall: 4

Hoisting height: 40 m

Luffing time main jib: 120 sec

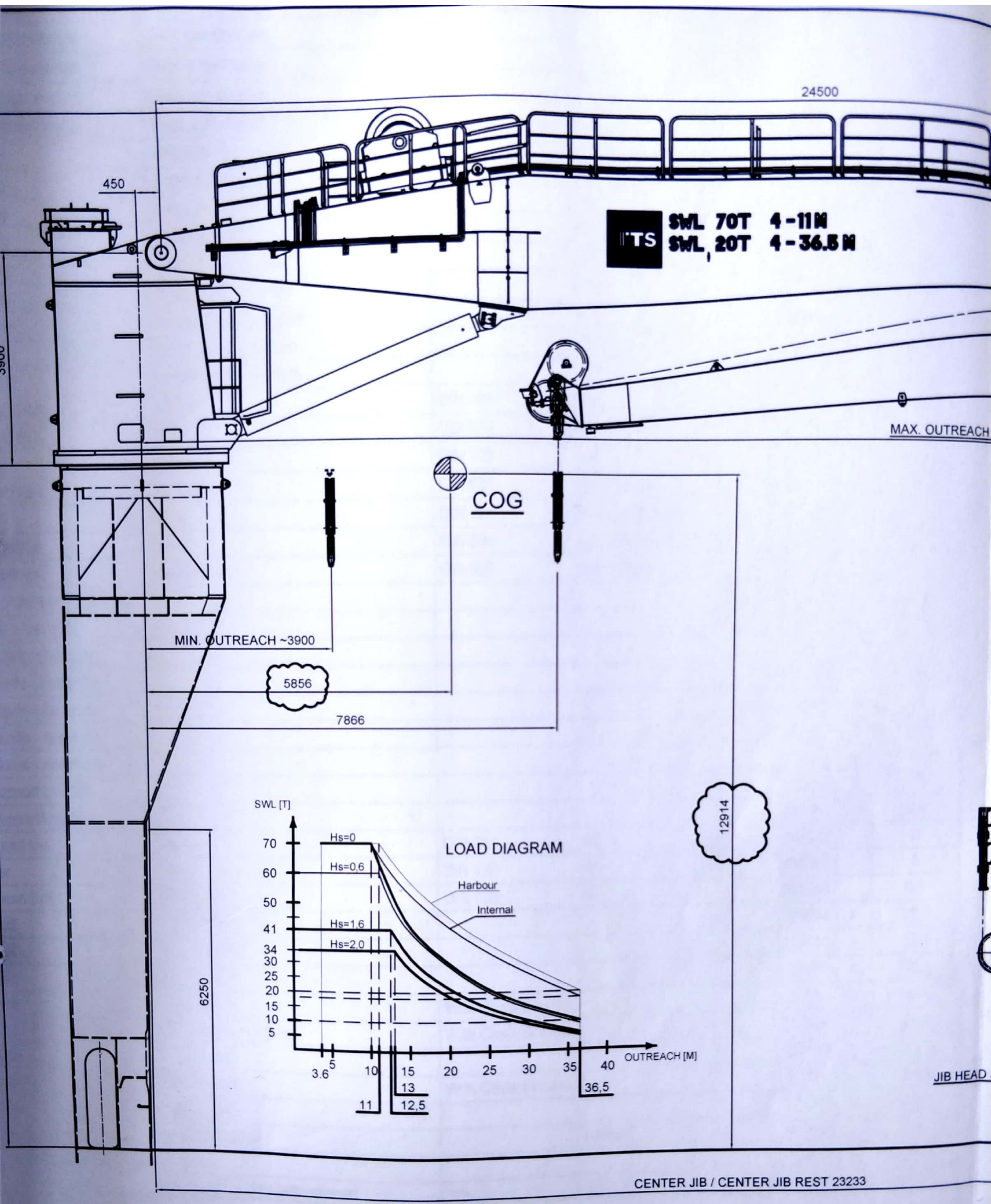
Luffing time knuckle jib: 60 sec

Slewing sector: 360° unlimited

Slewing speed: 0-0,9 rpm

Heel + trim conditions: 5° + 2°

Weight of crane
(without base column): ~90 T



6. Preparation of Knuckle jib, Weight ~14T

6.1 Place the knuckle jib on supports as shown on FIG. 6. This will ease mounting of main jib onto knuckle jib. If the knuckle jib is more horizontal the main jib must be tilted more to allow clearance during assembly. The jibs will arrive yard complete assembled, but some details maybe out of position to protect them during transport or during lifting operation at the yard.

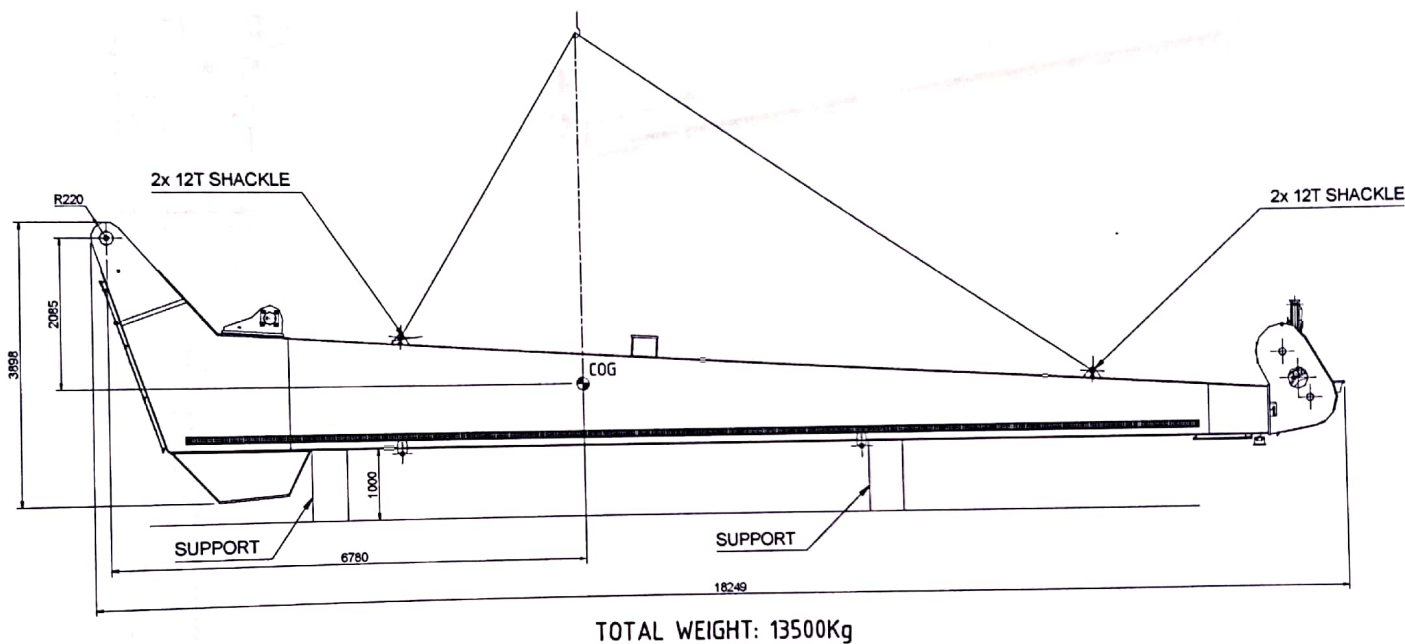


FIG. 6

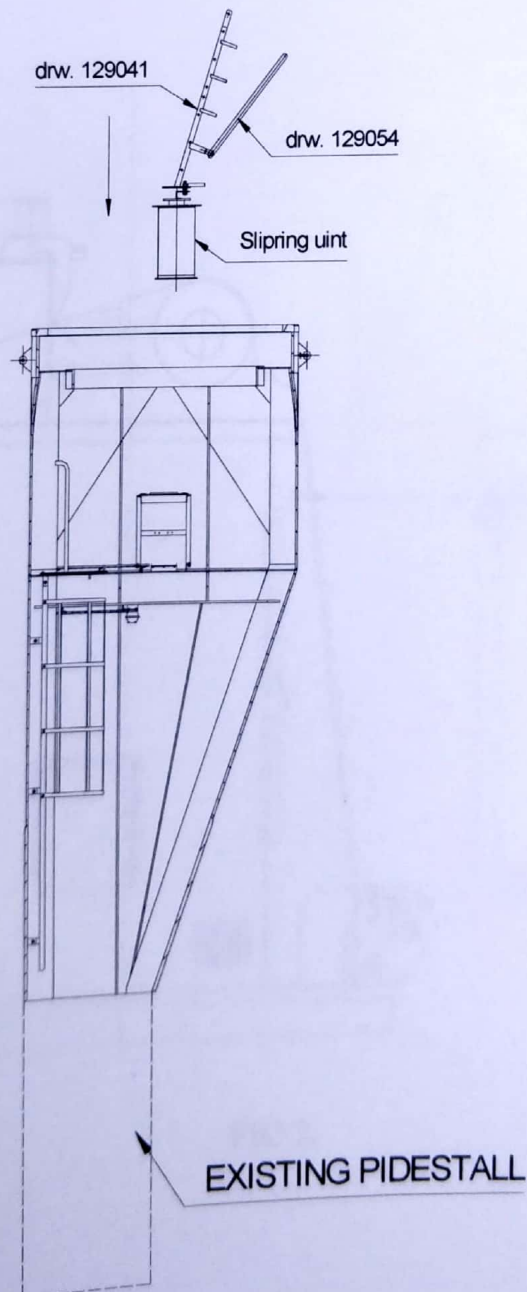
6.2 Remove jib hinge bolts from hinge eye on jib. Inspect and clean if necessary. Grease up well before fitting. (Ref. drawing A3-13168)

1. Welding of base column, weight 21T .

- 1.1** Welding of base column to ship structure must be performed in accordance with and after acceptance of class society. NDT inspection according to requirement from class. Avoid concentrated heating to avoid problem with top flange straightness.

2. Mounting of equipment inside base column.

- 2.1** Equipment to be bolted inside base column. See draw. A2-10057, 129054 and 129041. Store the ladder and ladder stay inside base column to slewing column are mounted.



TTS-Marine	MOUNTING OF CRANE AT YARD	montinst
11.08.06 / FTU		Page 1(16)

UNLOADING & MOUNTING INSTRUCTIONS.

NAME. : [REDACTED]
CRANE TYPE : CCLK 2000-50-36.5
SERIAL NO. : [REDACTED]
MAIN INSTALLATION DRAWING : A1-13390

INDEX

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5.	Assembly of Main jib on to slewing column.	7
6.	Preparation of Knuckle jib, Weight ~14T.....	10
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3 Mounting of slewing column. Weight ~ 24T.

Drawing for mounting driver cabin: A1-14445

Driver cabin have to be mounted on to slewing column before the slewing column are lift on to the ship, see fig 2.

Connection points on slewing column has corresponding no. on the slewing column for hoses.

Clean top of pedestal (base Colum) and apply Locktite 574 for sealing between top flange and slewing ring

Lift the slewing column on to the base column and fasten the slewing column after drawing A3-13155.

Use 3 of the bolts as guide pins. Be careful that the bolt not be damaged when assembly slewing column to base column.

NOTE! If possible decide in which direction jib should point and turn crane house accordingly!
Lower carefully.

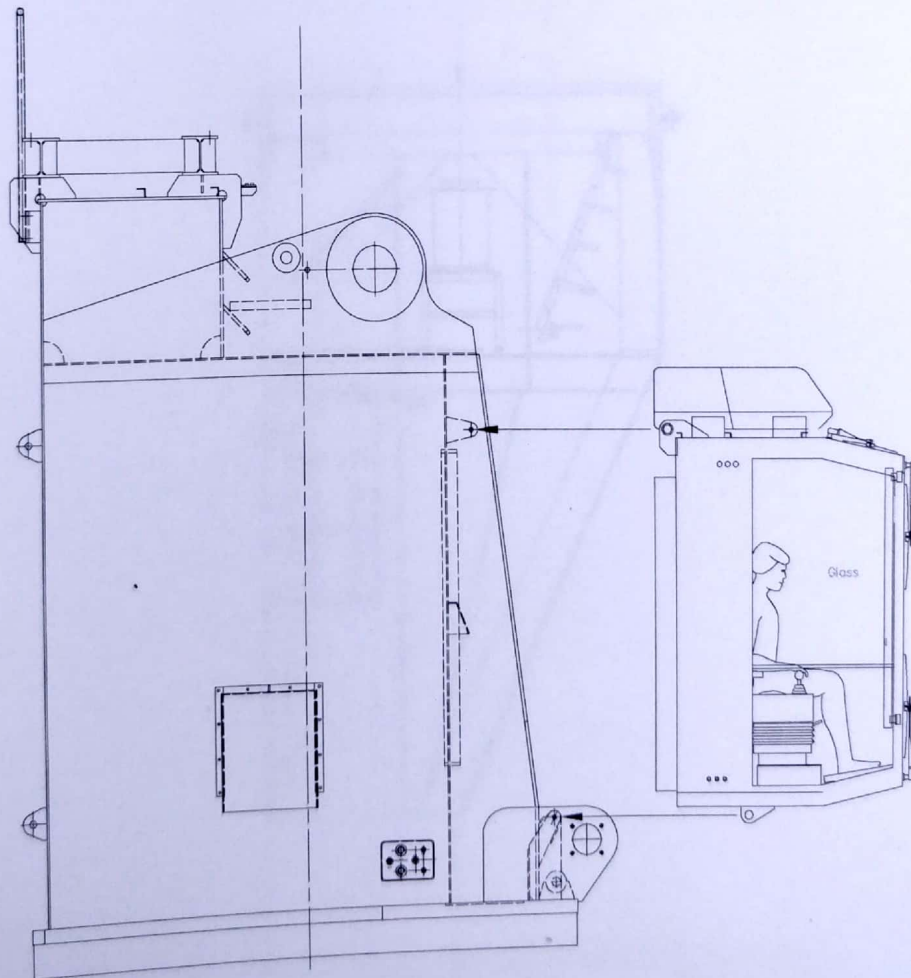


FIG 2.

2.2 Hydraulic Pressure

Main pressure:	~280 bar
Winch up:	~260 bar
Winch down:	~250 bar
Jib up:	~250 bar
Jib down:	~200 bar
Slew:	~280 bar

2.3 Pump Capacity

Ref. drawing: 11857H001

2.4 El. Motor Data

El. data:	440 V / 60 Hz / 3 ph	
Starter method:	Y/D	
Power rating continuous S1:	158 kW	226 A
Power rating S6-40% ID:	229 kW	328 A
Starting current (DOL)	1716 A	
Starting current (Y/D)	572 A	
Rotational speed (approx.):	1770 rpm	
Rotation seen from fan end:	CW (See arrow-sign on fan end)	
Enclosure:	IP 55	
Insulation class:	F	
Heating:	230 V	99 W

2.5 External Connections

Electric connection - see drawing: 11857EB1 - 11857EB4
11857ES1 - 11857ES4