

SERVICE REPORT

SSPA-TMPL-9610 Rev.3



Kongsberg Maritime Spain S.L.U.

Kongsberg Maritime

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CUSTOMER:
Fishery Group DMCC
LOCATION:
Las Palmas
WORK ORDER / CUSTOMER PO :

VESSEL/FACTORY/SITE:
Fishing Force
ENGINEER:
David Lasso
PROJECT No.:
29531/420000265

PAGE:
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DATE:
2/25/2026
IMO No.:/ INST. No.:

1. MAIN PURPOSE OF VISIT

ST90,SN90 and TP90 hydrophones installation

2. TECHNICAL REPORT SUMMARY

Case	Description	Status
#1	ST90	Solved
#2	SN90	Solved
#3	ES80	Solved

3. SPARE PARTS USED

Qty	Item name	Item number	Serial number	Comment (Delivered by...)
25m	Data Cable	S001007		
5	Loctite 573	Misc10		ST90
1	O-lube	Misc10 654-077261		ST90
1	O-Ring 580.0X8.0	S540-078749		ST90
1	Roxtec R100	Misc10		SN90
0.5	Molikote	Misc10		TP90 hydrophones
1	Loctite 222			

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4. SYSTEM DETAILS

System	Equipment	Operating System	Version	Serial Number	Remarks
ST90	Processor Unit	W.10		30147	
	TRU MK2			220	TRB//Cisco Catalyst 1000
	Hull unit ST93			220	HUC 1094398//460512D
	MRU D			25048	Calibrated 2017.11.01
	Junction Box			3107	JB3
	Control Panel MK4			2025.39964.019	
SN90	TRU MK2			193	TRB//Cisco Catalyst 1000
	Processor Unit			30163	
	TU40			20181126002	220 VAC Version// Connected by net to SN90 processor unit.
	SN90 Transducer			539	SN92
ES80	Processor unit	W.10			Provide by customer
	WBT 120KHz			714633	
	WBT 70KHz			714632	
	GPT 38KHz			1802	
TV80	Processor unit				Provide by customer
	SR70			720604	
	PI50				
	Junction box			2016.4100003179	
FS70	TTM				
	Processor unit				Provide by customer
TP90	Hydrophones			2074	100-109380
	Hydrophones			2073	100-109380

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5. TECHNICAL REPORT

Case #1: ST90.

Status: Solved

Technical Details:

Sonar has been installed in sonar room. To proceed with the installation, it was necessary to cut some parts of the room because there was not enough space to proceed with the maneuver. The hull unit was installed through the frozen area to the sonar room.

TRU has been installed in upper deck of sonar room.

Processor unit was installed in server room. Control panel was installed on bridge.

MRU was installed in server room near main rack.

MRU was connected and software included to this processor. So, in case needed is possible to start MRU software and make any change or checking from ST90 computer.

Connections and setup was done and system tested.

All main parameters between normal values and system works correctly.

We keep this system in "stand Alone" mode due ES80 processor unit was not sending or receiving information from/to serial ports (see ES80 case)

Team Viewer software was installed too in case remote support is necessary.

A backup of the system was done before finishing the service.



Works done on sonar room to install the hull unit (upper deck)

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Works done on sonar room to install the hull unit (lower deck)



Flange adapter installed

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Maneuver to install system



Maneuver to install system

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Maneuver to install system



A protection for hull unit cable has to be installed

Unit Installed

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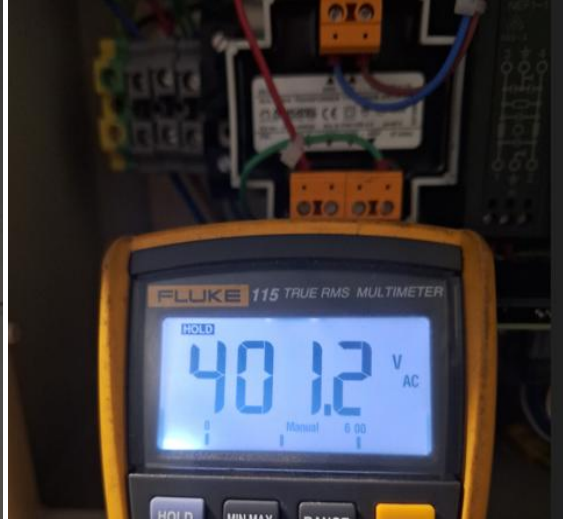
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Motor setup according to voltage input



System installed

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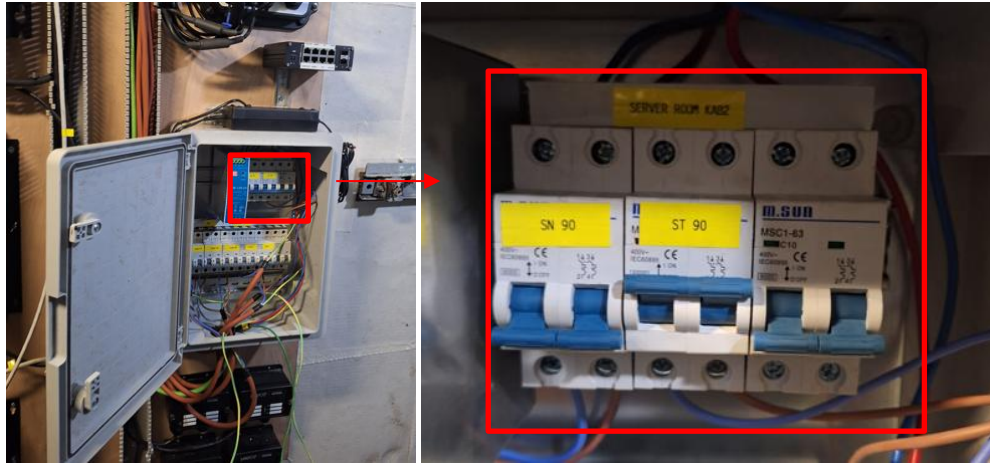
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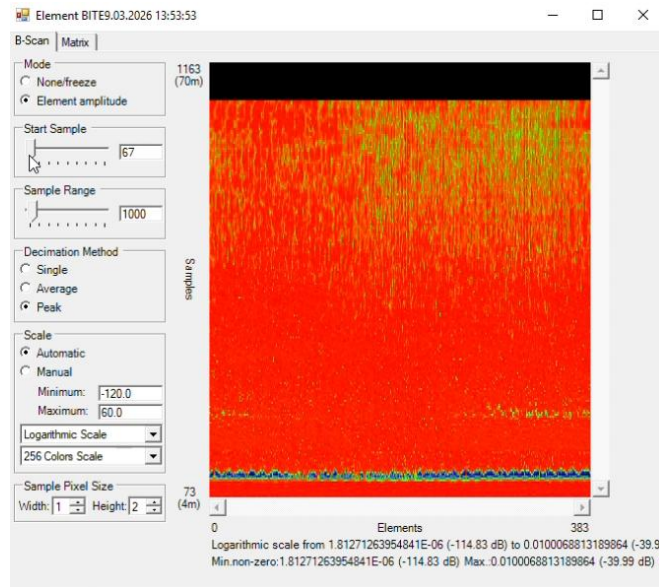
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Power box for TRU



Bite activator

Name	Source	Accepted Messages	Sensor State
GPS From Serial Port 1	Serial Port 1	1956	OK
Gyro From Serial Port 4	Serial Port 4	6517	OK

System setup

Hull Unit Information
Software Version: 2.0.10
Hull Unit Control board: Reg.Number: 460512 Revision: D Serial Number: 1094398

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Latest Reception Test: 2026.03.08 12:07:39 UTC

372	369	348	336	324	312	300	288	276	264	252	240	228	216	204	192	180	168	156	144	132	120	108	96	84	72	60	48	36	24	12	0
373	361	349	337	325	313	301	289	277	265	253	241	229	217	205	193	181	169	157	145	133	121	109	97	85	73	61	49	37	25	13	1
374	362	350	338	326	314	302	290	278	266	254	242	230	218	206	194	182	170	158	146	134	122	110	98	86	74	62	50	38	26	14	2
375	363	351	339	327	315	303	291	279	267	255	243	231	219	207	195	183	171	159	147	135	123	111	99	87	75	63	51	39	27	15	3
376	364	352	340	328	316	304	292	280	268	256	244	232	220	208	196	184	172	160	148	136	124	112	100	88	76	64	52	40	28	16	4
377	365	353	341	329	317	305	293	281	269	257	245	233	221	209	197	185	173	161	149	137	125	113	101	89	77	65	53	41	29	17	5
378	366	354	342	330	318	306	294	282	270	258	246	234	222	210	198	186	174	162	150	138	126	114	102	90	78	66	54	42	30	18	6
379	367	355	343	331	319	307	295	283	271	259	247	235	223	211	199	187	175	163	151	139	127	115	103	91	79	67	55	43	31	19	7
380	368	356	344	332	320	308	296	284	272	260	248	236	224	212	200	188	176	164	152	140	128	116	104	92	80	68	56	44	32	20	8
381	369	357	345	333	321	309	297	285	273	261	249	237	225	213	201	189	177	165	153	141	129	117	105	93	81	69	57	45	33	21	9
382	370	358	346	334	322	310	298	286	274	262	250	238	226	214	202	190	178	166	154	142	130	118	106	94	82	70	58	46	34	22	10
383	371	359	347	335	323	311	299	287	275	263	251	239	227	215	203	191	179	167	155	143	131	119	107	95	83	71	59	47	35	23	11

Reception test

Transducer

X Offset: 0.0 m Rotation Around X: 0.0 °
Y Offset: 0.0 m Rotation Around Y: 0.0 °
Z Offset: 0.0 m Rotation Around Z: 125.0 °

Motion Reference Unit

Source: External
Sensor: EM3000 Serial

EM3000 Serial

Protocol: EM3000
Interface: Serial
COM Port: COM2
Baud Rate: 19200

System setup

Ship Origin

X Offset: 0.0 m
Y Offset: 0.0 m
Z Offset: 0.0 m

Ship Dimensions

Length: 104.0 m Width: 16.0 m

Synchronization Port: Serial Port 3

Synchronization Delay: 0 [ms]

Synchronization Mode

Stand-alone
 Master
 Slave

System setup

About

ST ST90 Release v24.7.4
2025-05-28

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For more information about this and other Simrad products, visit www.kongsberg.com/st90

License Credits Close

Software version

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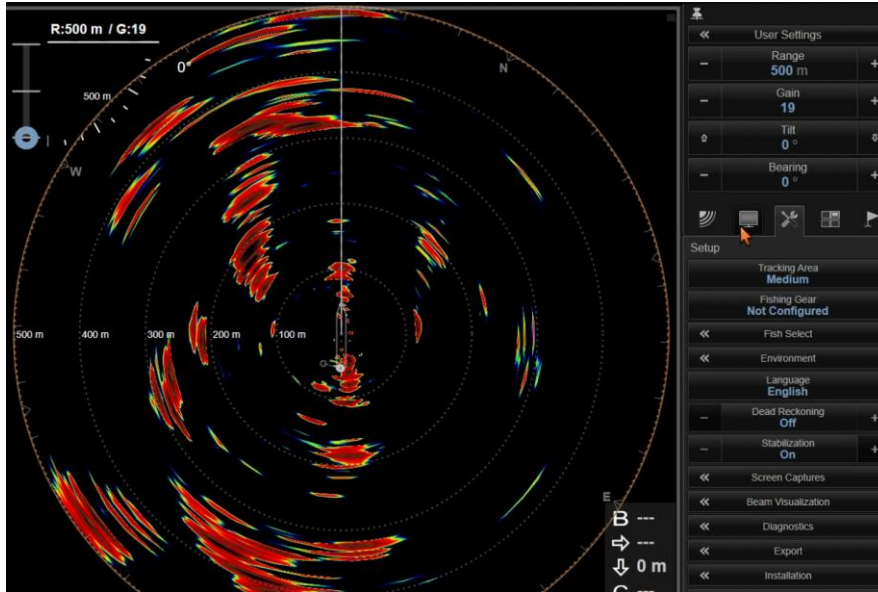
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System working

Spare Parts:

Qty	Item name	Item number	Serial number	Comment (Delivered by...)
25m	Data Cable	S001007		
5	Loctite 573	Misc10		ST90
1	O-lube	Misc10 654-077261		ST90
1	O-Ring 580.0X8.0	S540-078749		ST90

Work Due:

Crew has to check the following issues:

-TRU: Ground cable is without nut, has to be installed.

-Hull unit: Brackets not installed. Must be installed. One bracket installed from stdb to hull unit and second from Bow to Hull unit.

-Protection has to be installed in hull unit/transducer cable

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Case #2: SN90.

Status: Solved

Technical Details:

Sonar has been installed in sonar room. To proceed with the installation, it was necessary to cut some parts of the room because there was not enough space to proceed with the maneuver. The hull unit was installed through the frozen area to the sonar room.

TRU has been installed on the lower deck of sonar room.

Processor unit was installed in server room.

With SN90 transducer, 2 TP90 Hydrophones were installed. Receiver and computer will be installed in future. Cables were left into sonar room. We recommend to the crew to cover it in a proper way.

TU40 was connected and software included to this processor. So, in case needed is possible to start TU40 software and make any change or checking from SN90 computer.

Connections and setup was done and system tested.

All main parameters between normal values and system works correctly.

We keep this system in "stand Alone" mode due ES80 processor unit was not sending or receiving information from/to serial ports (see ES80 case)

Team Viewer software was installed too in case remote support is necessary.
A backup of the system was done before finishing the service.



Blister installation

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SN90 connector



Roxtec and main connector

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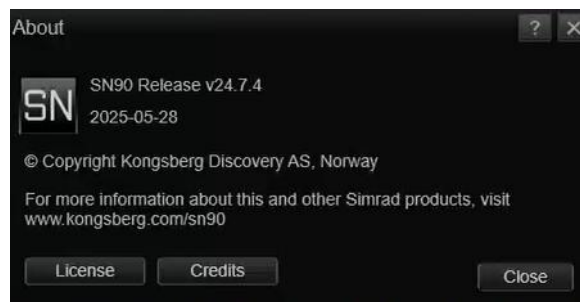
Cable layout



Molykote applied before connected



Hydrophone and cables



Software version

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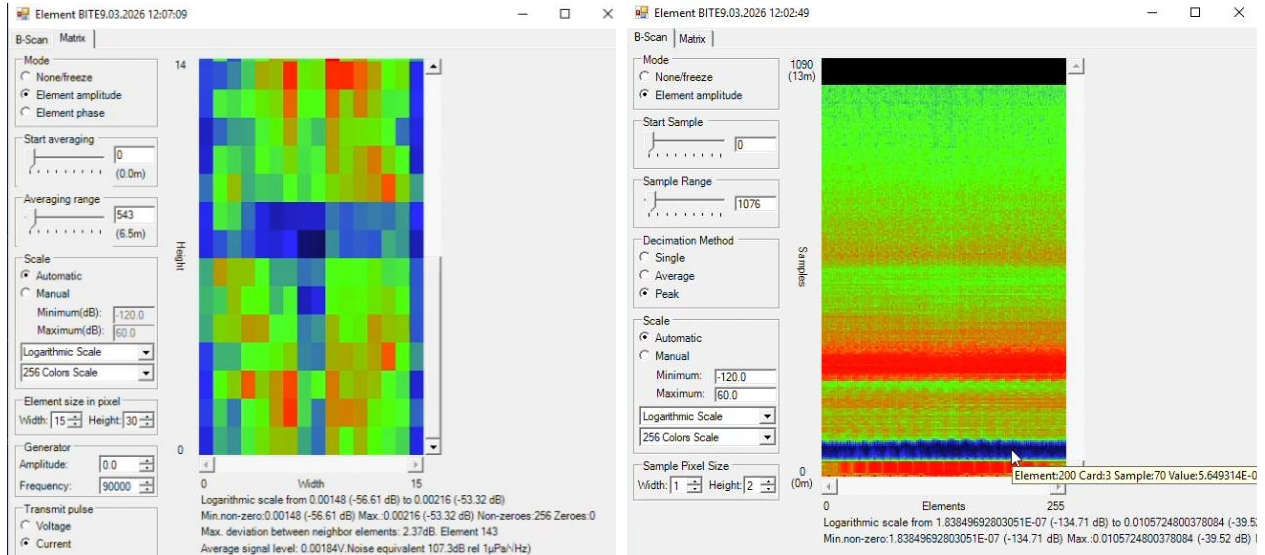
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Matrix and bite

Name	Resource	Baud Rate	Protocol
Serial Port 1	COM1	4800	Nmea
Serial Port 4	COM4	9600	
Serial Port 2	COM2	4800	Nmea
Serial Port 5	COM5	9600	

Main setup

Motion Reference Unit

Source: External
Sensor: EM3000 Serial

EM3000 Serial

Protocol: EM3000
Interface: Serial
COM Port: COM3
Baud Rate: 19200

Ship Origin

X Offset: 0.0 m
Y Offset: 0.0 m
Z Offset: 0.0 m

Ship Dimensions

Length: 104.0 m
Width: 16.0 m

Main setup

Synchronization Port: Serial Port 4
Synchronization Delay: 0 [ms]
Synchronization Mode:
 Stand-alone
 Master
 Slave

Main setup

Transducer

X Offset: 0.0 m
Y Offset: 0.0 m
Z Offset: 0.0 m

Rotation Around X: 0.0 °
Rotation Around Y: 40.0 °
Rotation Around Z: 0.0 °

Main setup

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MRU

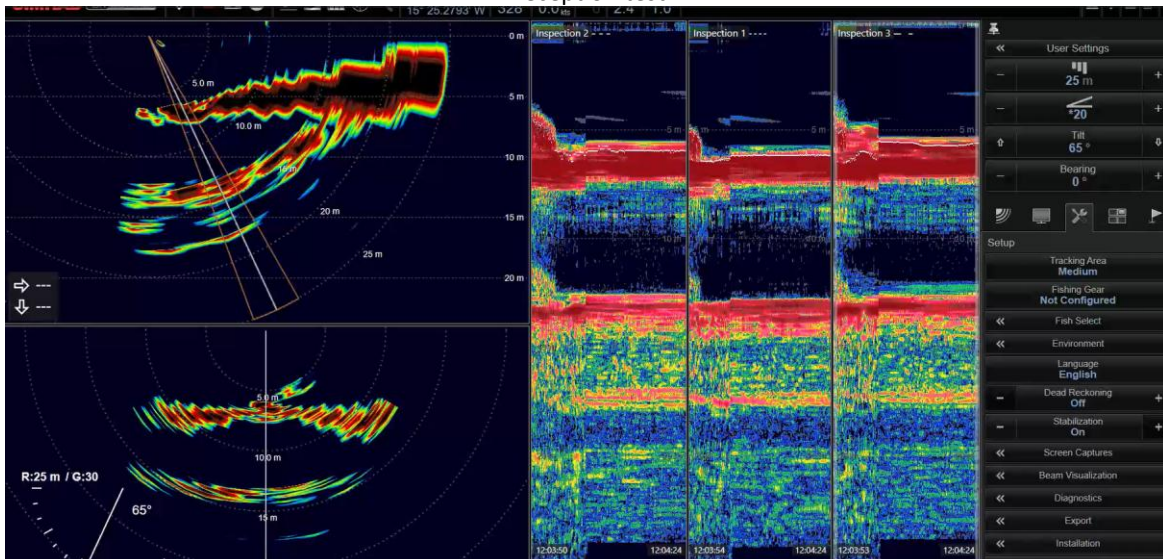
X Offset	0.0	m	Rotation Around X	0.00	°
Y Offset	0.0	m	Rotation Around Y	0.00	°
Z Offset	0.0	m	Rotation Around Z	0.00	°

Main setup

Latest Reception Test: 2026 03 09 12:04:00 UTC

15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255
14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240

Reception test



System working on port

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TU40 setup done.

Spare Parts:

Qty	Item name	Item number	Serial number	Comment (Delivered by...)
25m	Data Cable	S001007		
5	Loctite 573	Misc10		ST90
1	O-lube	Misc10 654-077261		ST90
1	O-Ring 580.0X8.0	S540-078749		ST90
1	Roxtec R100	Misc10		SN90

Work Due:

Crew has to check the following issue:

-TRU: Ground cable is without nut, has to be installed.

-Protect TP90 hydrophones cables.

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Case #3: ES80.

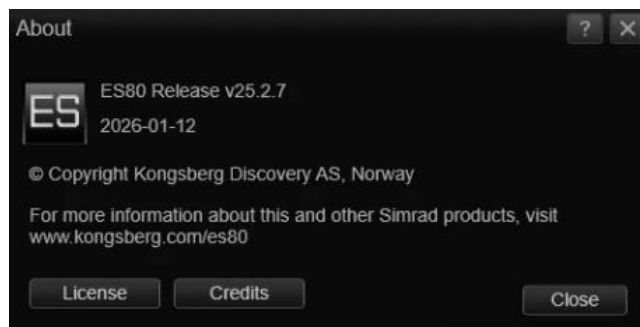
Status: Solved

Technical Details:

Processor unit was delivered by customer. This computer didn't work correctly with input/output from serial ports and USB/serial adapter. Main connections were made but it was not possible to check NMEA inputs/outputs. We tried to restart some drivers but still without work. Crew should check this issue due it not being a unit delivered by us.



Distribution of system in sonar room



Software version

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The image shows three screenshots of the main parameters configuration screen for different transducers. Each screen displays fields for Status, Transceiver, Serial Number, Software Version, and FPGA TX/RX Firmware Version. The first screenshot is for WBT 714633, the second for WBT 714632, and the third for GPT 009072057368.

Main parameters

The image shows two screenshots of the main parameters configuration screen for ES70-7C and ES120-7C transducers. Each screen displays fields for Frequency, Voltage, Current, Impedance, and Phase for four sectors. The first screenshot is for ES70-7C with a frequency of 70000 Hz, and the second is for ES120-7C with a frequency of 120000 Hz.

Main parameters

The image shows a screenshot of the Synchronization Port, Synchronization Delay, and Synchronization Mode configuration screen. The Synchronization Port is set to Serial Port 4, the Synchronization Delay is 0 ms, and the Synchronization Mode is Stand-alone.

Main parameters

Type	Serial Number	Channel Number	Transducer Name	Transducer Model	Status
WBT 714633	1	ES70-7C Serial No: 0	ES70-7C		Installed
WBT 714632	1	ES120-7C Serial No: 0	ES120-7C		Installed
GPT 0	1	ES38B Serial No: 0	ES38B		Installed

Main parameters

The image shows a screenshot of the License Details screen. The license string is 0F6EC-822E7-5CB62-7B713-331B0-628D7-8EF46. The WBT Serial No. is 714632, System is ES80, Market Segment is Fishery, Permanent License - No Expiry Date, Beam Type is Split4, WBT Type is WBT, Channel is 1, Start Frequency is 96 kHz, End Frequency is 144 kHz, Power is 2000 W, and GPT_Control is present.

License installed

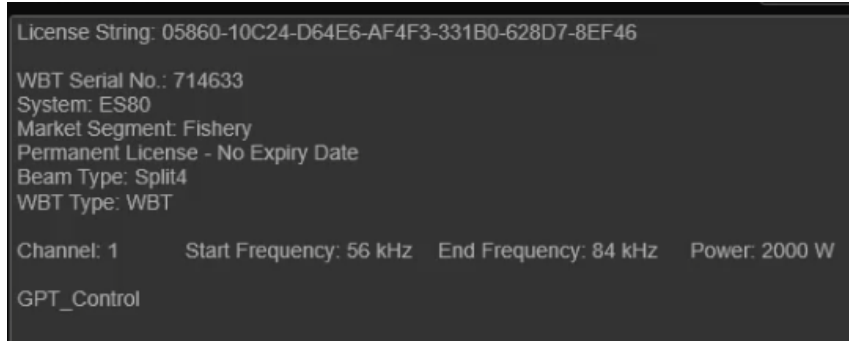
SERVICE REPORT

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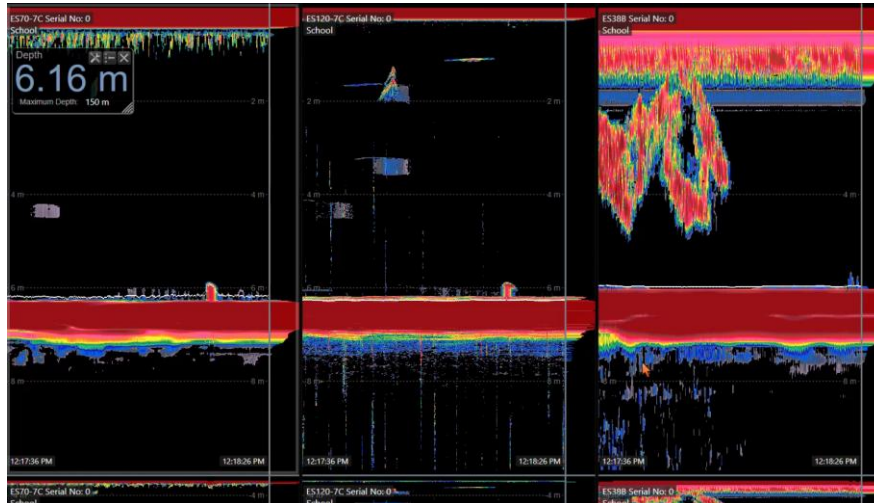
SIMRAD
By KONGSBERG

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CUSTOMER: Fishery Group DMCC	VESSEL/FACTORY/SITE: Fishing Force	PAGE: 19 of 22
LOCATION: Las Palmas	ENGINEER: David Lasso	DATE: 2/25/2026
WORK ORDER / CUSTOMER PO :	PROJECT No.: 29531/420000265	IMO No.:/ INST. No.:



License installed



System working on port

Spare Parts: None
Work Due:

Crew has to check the following issue:

-Serial ports not working.

Case #4: TV80 and FS70.

Status: Solved

Technical Details:

Both systems has been checked by customer. There does not complain with those systems or any request to be check by our side.

Spare Parts: None

Work Due: None

SERVICE REPORT

SSPA-TMPL-9610 Rev.3



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CUSTOMER: Fishery Group DMCC	VESSEL/FACTORY/SITE: Fishing Force	PAGE: 20 of 22
LOCATION: Las Palmas	ENGINEER: David Lasso	DATE: 2/25/2026
WORK ORDER / CUSTOMER PO :	PROJECT No.: 29531/420000265	IMO No.:/ INST. No.:

6. CHECKLIST

The service engineer must fill out the checklist.

Before leaving the office	Yes	No	N.A.
1 – Did you briefed by Project Manager/Team Leader/Coordinator to get scope of work?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2 – Is your passport valid for more than 6 months?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3 – Is your vaccination chart up to date?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4 – Do you have a valid VISA to get into the country?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5 – Do you have contact details from agent/ship/customer?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
6 – Do you have warranty letter?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7 – Do you have meet&greet?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8 – Are you bringing all extra stuff to successfully fulfil the installation? (Converters, switchers, connectors...)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9 – Are you bringing printed or digital documentation needed to deliver the new systems? (HAT, SAT and satisfaction survey)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
10 – Have you checked all cases and work orders opened in CRM regarding the installation are you going to assist?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
11 – Are you bringing all software versions you may need during the service?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Before leaving vessel	Yes	No	N.A.
1 - Did you check if performance and operability are suitable in all SIMRAD systems on board?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2 - Did you collect all data required to update CRM such as equipment, serial numbers... and it is filled in System Details (point 5)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3 - Did you collect raw data and screen dumps from all SIMRAD systems onboard?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4 - Did you collect all settings in all SIMRAD systems onboard?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
5 - Did you write down calibration/expiration date for systems that must be calibrated such as MRUs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
6 - Did you experienced any incident or accident that should be reported?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
7 - Did you take pictures before and after service visit?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
8 - Did you fulfilled all HAT, SAT and satisfaction survey for the project?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9 - Did you left a backup media for all SIMRAD computers on board?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
10 - Did you collect equipment information from other systems that are not SIMRAD?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

To be done at the office	Yes	No	N.A.
1 - Did you close your RB and WO (and case if appropriate) in CRM?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2 - Did you update CRM with system status onboard (equipment, serial numbers, equipment status...)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3 - If there are remaining cases or new cases, have you filled or created the cases according to the current status onboard?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4 - Did you had to create any P&I?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
5 - Do you have any important information to share in Sharepoint DB? Information profitable for CS, production or sales department?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
6 - Did you debrief with the assigned Project Manager, Technical Advisor or Service Manager?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
7 - Did you upload Service report to the WO?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

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CUSTOMER:
Fishery Group DMCC
LOCATION:
Las Palmas
WORK ORDER / CUSTOMER PO :

VESSEL/FACTORY/SITE:
Fishing Force
ENGINEER:
David Lasso
PROJECT No.:
29581 / 420000 785

PAGE:
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DATE:
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1. SATISFACTION SURVEY

To be filled out by client or his representative.

Please rate the service (1 = dissatisfied, 5 = excellent): 1: 2: 3: 4: 5:

Comments (if not 5, what would it take for us to reach 5):

Please rate the service engineer treatment (1 = dissatisfied, 5 = excellent): 1: 2: 3: 4: 5:

Comments (if not 5, what would it take for us to reach 5):

Please rate the systems performance (1 = dissatisfied, 5 = excellent): 1: 2: 3: 4: 5:

Comments (if not 5, what would it take for us to reach 5):

Please rate knowledge learned from engineer (1 = dissatisfied, 5 = excellent): 1: 2: 3: 4: 5:

Comments (if not 5, what would it take for us to reach 5):

KM representative signature:



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Work accepted on behalf of customer

Printed :

Signature :



SERVICE REPORT



By KONGSBERG

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SSPA-TMPL-9610 Rev.3

CUSTOMER:
Fishery Group DMCC

LOCATION:

Las Palmas

WORK ORDER / CUSTOMER PO :

VESSEL/FACTORY/SITE:

Fishing Force

ENGINEER:

David Lass

PROJECT No.:

29531 / 420000285

PAGE:

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DATE:

09/03/2026

IMO No.:/ INST. No.:

Date	Location	TIMESHEET	Time		Total hours
			From	To	
21-02-2026	On-shore	Assistance ST90 Installation P. 29531	10:00	12:00	2
24-02-2026	On-shore	Assistance SN90 Installation P. 420000585	13:00	14:00	1
27-02-2026	On-shore	ST90 Installation (Adrian Marrero) 29531	13:00	16:00	3,5
23-02-2026	On-shore	Checking Blister Position	13:00	14:00	1
26-02-2026	On-shore	Connection TU40 and update Saunden	10:00	13:30	3,5
04-03-2026	On-shore	SN90 Transducer Installation P. 420000285	11:00	15:00	4
05-03-2026	On-shore	SN90 Cable Installation P. 420000285	07:00	17:00	10
06-03-2026	On-shore	Cable connections P. 29531	07:00	18:00	11
08-03-2026	On-shore	Setup and start up of systems P. 29531	07:00	17:30	10,5
09-03-2026	On-shore	Testing systems 29531	08:00	14:00	6
10-03-2026	office	Report and closing Service 420000285	-	-	2

Please, fill according time and system. Systems on board might be under warranty. **Administration coordinator** will determine what is standard and what is under warranty or any other special condition.

Work Time:

Waiting Time:

Travel Time:

Note: Travel time and after work will be added

KM representative signature:

Work accepted on behalf of customer

Printed :

Signature :



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