Doc.No. SR165- 1005-2828

SAURA MARINE GEAR

APPROVAL RELATED DOCUMENTS

Description of Equipment: MAGNETIC COMPASS

Model Name: SR-165

CONTENTS PAGE

Name of Manufacture/Address Saura Keiki Seisakusho Co.,ltd.

Head Office 339-1 Ohkuboryoke Sakuraku Saitama City

Saitama Pref. 338-0826 Japan

Date of issue: 20,MAY,2010

MARINE DIVISION

Certificate number: SMS.MED.D/56325/B.1

Notified Body N° 0062

www.veristar.com

MED 96/98/EC QUALITY SYSTEM MODULE D CERTIFICATE

This certificate is issued under the French Maritime Authority, in compliance with the Council Directive 96/98/EC amended by Commission Directive 2008/67/EC as transposed in the French Regulations, to

SAURA KEIKI SEISAKUSHO CO., LTD.

Saitama - JAPAN

Summary of the range of the recognition which is detailed in the subsequent page(s):

MAGNETIC COMPASS

This certificate is issued to attest that BUREAU VERITAS, notified body number 0062, did undertake, at the above company's request, an assessment of the quality system for production quality assurance related to the equipment of the type described in EC type-examination (Module B) certificate(s) listed in the subsequent page(s). BUREAU VERITAS, notified body number 0062, has considered that the quality system operated was satisfying the applicable requirements of the Marine Equipment Directive 96/98/EC as amended.

This certificate will expire on: 31 Jan 2014

For BUREAU VERITAS,

At BV KOBE, on 08 Feb 2010,

Yasuo Hiramatsu

BUREAU VERITAS SURVEYORS AT PARIS 1828 KOBE INTERNATIONAL REGISTER

The electronic version is available at: http://www.veristarnb.com/veristarnb/jsp/viewPublicPdfRecognition.jsp?id=bzptks0ynh

ANNEX

1. SCOPE

Products

App. number	Date of issue	Validity date	Item designation	Trade name	Comment
13945/A0 EC	16 Jan 2006	12 Jan 2011	MAGNETIC COMPASS - A.1/4.1	Class A Magnetic Compass Type: SR - 165	

USCG marking as per US-EC MRA

App. number	Trade name	USCG marking as per MRA	Comment
13945/A0 EC	Class A Magnetic Compass Type: SR - 165	USCG 165.101/EC0062/13945 A.0 EC	

2. LIMITATIONS

The EC type-examination certificates listed in the scope are to be valid.

Bureau Veritas is to be informed immediately of any modification to the quality system in order to agree on appropriate actions.

SAURA KEIKI SEISAKUSHO CO., LTD. has to apply for the periodical audits as agreed with Bureau Veritas.

SAURA KEIKI SEISAKUSHO CO., LTD. must draw up a written EC declaration of conformity to type in compliance with the article 10 of the MED 96/98/EC.

SAURA KEIKI SEISAKUSHO CO., LTD. must affix the mark of conformity in compliance with the article 11 of the MED 96/98/EC taking into consideration the following example:

0062/xx *Where xx are the last two digits of the year in which the mark is affixed.*

3. REMARKS

Nil.

***** END OF CERTIFICATE *****

Quality Control Manual

Product name SR -165

2009/7/31 Revised

Saura Keiki Seisakusho co.,Ltd

Table of contents of the quality manual

Quality manual

DOC/010

1 Policy and objectives

Management policies

The company must continue for customer satisfaction.
We do not stop continuous improvement for the continuation of the company.

An aim

We perform customer satisfaction and maintenance improvement of the product quality.

Section target

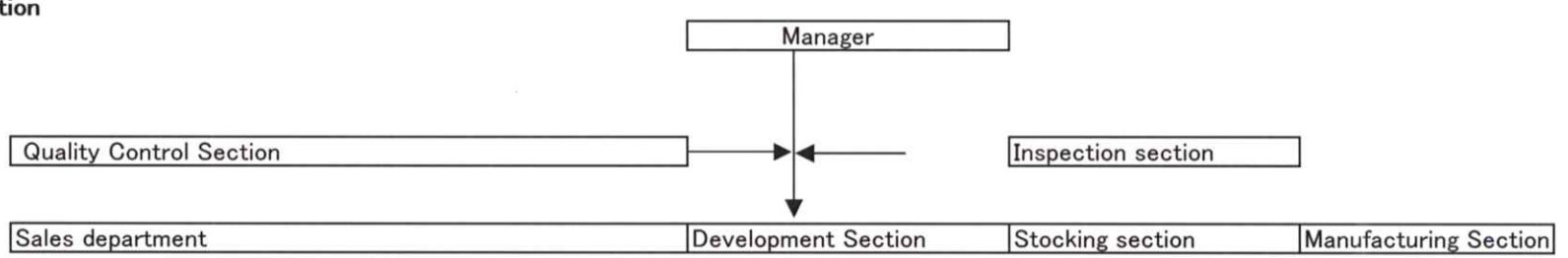
Sales department
We hear customer needs for quality maintenance improvement and inform the spot of information surely early.

Stocking section
We build the collaborative relationship with the supplier for quality maintenance improvement.

Development Section
We do quality maintenance of a drawing, the management of the process for improving.

Manufacturing Section
As for the next process, do not take out a defective article for the mind of the visitor for quality maintenance improvement; do not make it.

2 Organization



3 A quality management system general view

PLAN	We realize customer needs and plan whether I am beyond expectation
DO	We put a plan into practice in each section.
CHECK	We confirm a thing of the results and point out measures if there is a review.
ACT	We make measures and carry it out.

※We refer to the QMS conception diagram of the attached sheet

4 Settlement of complaints **DOC/010**

Bearing in mind that we can not survive without customers,
we make an effort to cope with the demand from customers
for customer's satisfaction, by cooperating with all the members
to solve problem or complaints from customers.

※QMS conception diagram as in the attached sheet refers.

5 Coverage

Reflection-type magnetic compass SR -165
※ But the surveying instrument section is based, too.

6 Application exclusion

Unavailable

7 A non-conformity product

The non-conformity product does not hold it out.
We examine and carry out recurrence preventive measures.
We refer to the inappropriate compound manual of the attached sheet.

8 List of documents

A document name	A document number	A revision day
A quality manual	DOC/010	2006/12/1
A QMS conception diagram	DOC/020	2006/12/1
Production quality control flow chart	DOC/030	2006/12/1
Stocking flow chart	DOC/040	2006/12/1
A step-up program	DOC/050	2006/12/1
Production flow chart	DOC/060	
A figure of QC process	DOC/070	2006/12/1
A non-conformity product manual	DOC/080	2006/12/1
A correction step, precautionary measures manual	DOC/090	2006/12/1
An internal auditor upbringing manual	DOC/100	2006/12/1
A domestic inspection manual	DOC/110	2006/12/1

9 List of records

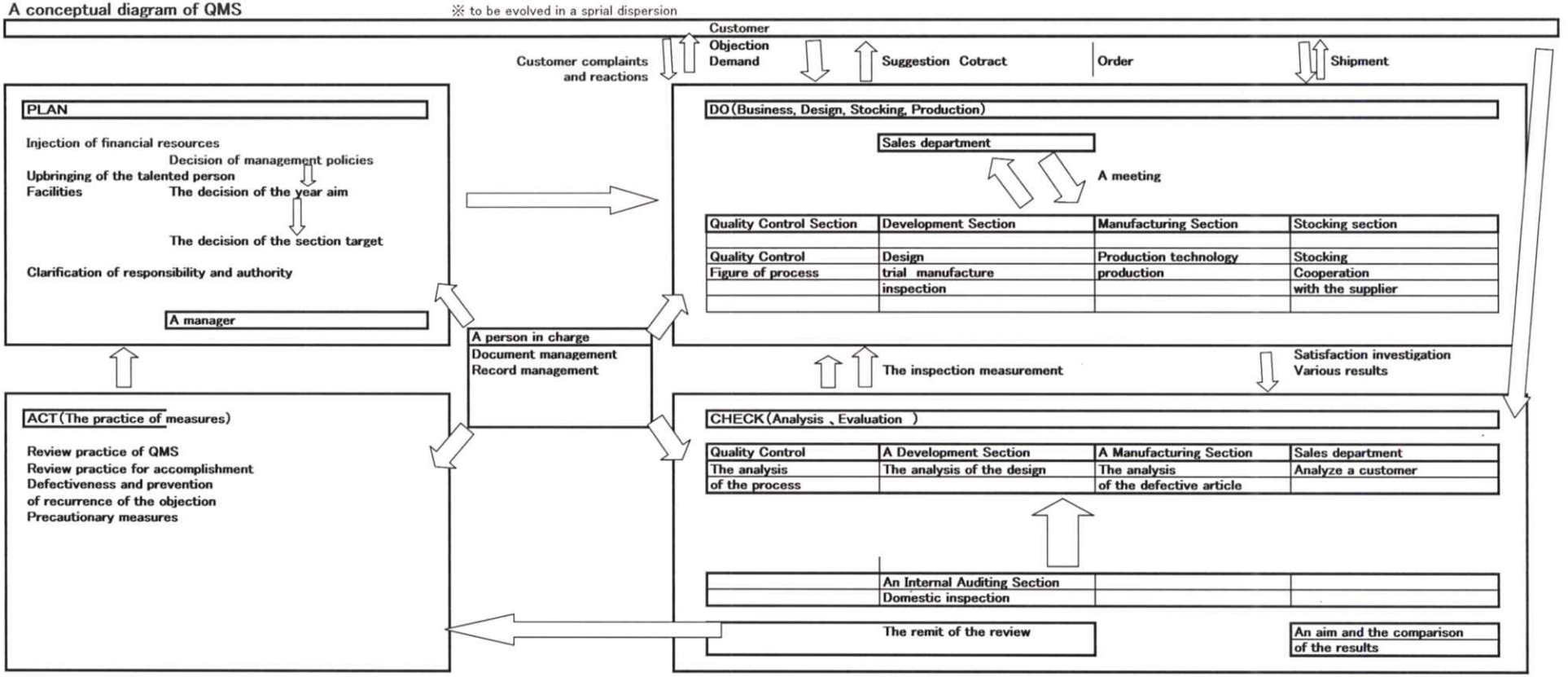
A record file name	A record number	Safekeeping and management section
Supplier check sheet	REC/010	The stocking section
A surveying instrument Proofreading table	REC/020	A Quality Control Section
A class record	REC/010	A Manufacturing Section
Step-up sheet	REC/020	A Manufacturing Section
A record of the prevention correction of the non-conformity	REC/010	A Quality Control Section
An internal auditor upbringing record	REC/020	An Internal Auditing Section
A domestic inspection record	REC/010	An Internal Auditing Section
A check sheet every product	REC/020	A Quality Control Section
↓ Three kinds		
Compass bowl inspection results book	REC/071	A Quality Control Section
A binnacle shipment inspection list	REC/072	A Quality Control Section
Packing list	REC/073	A Quality Control Section
Machine check book	REC/074	A Manufacturing Section

Plan of the quality management system

DOC020

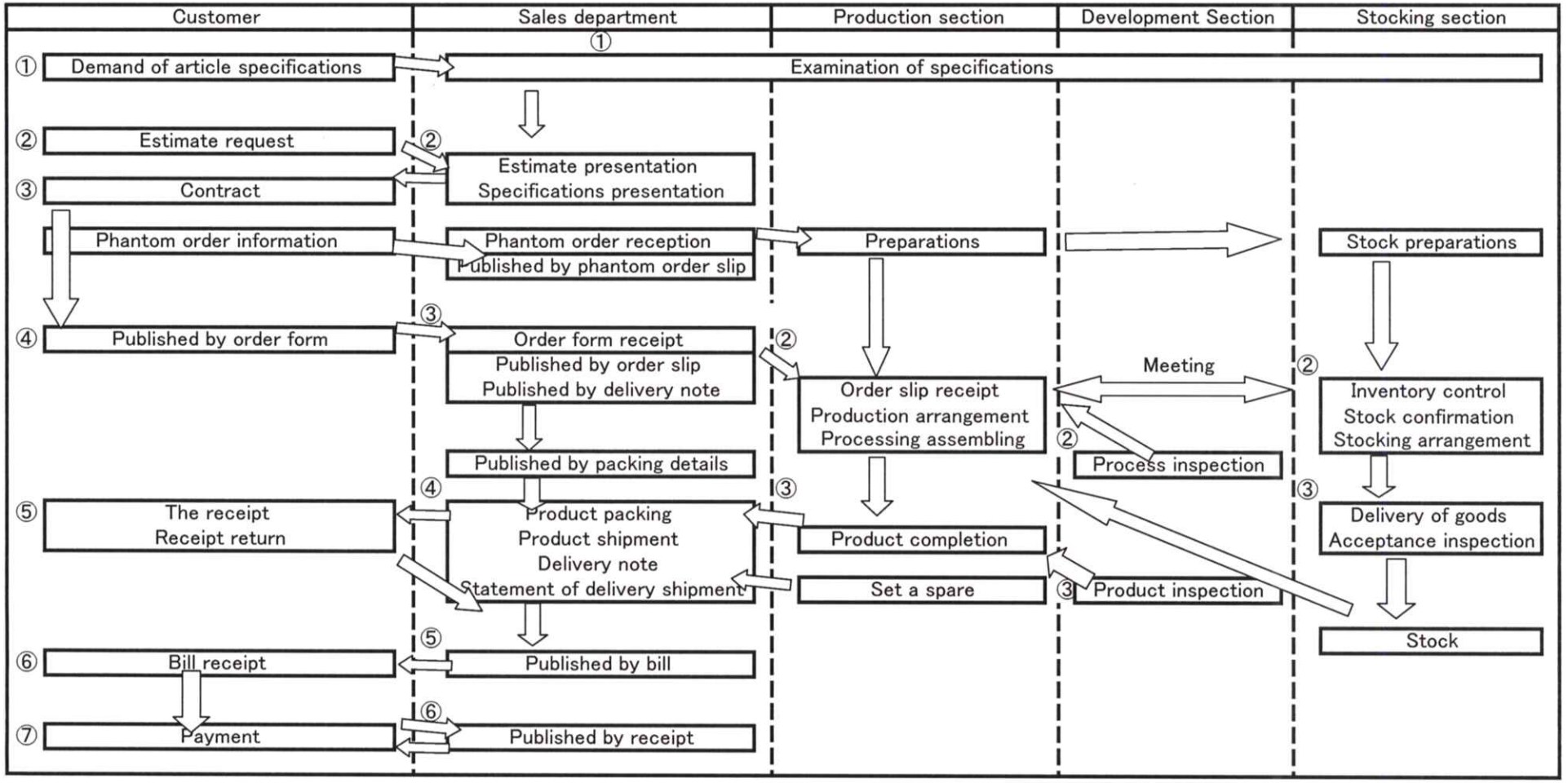
A conceptual diagram of QMS

※ to be evolved in a sprial dispersion



ISO9001 Flow chart H19.3.31

Production quality control flow chart **DOC030**



Production quality control flow chart **DOC030**
Instructions

Customer loses it
① The inquiries such as article specifications
② An estimate request
③ I make arrangements and contract with business
④ Ordering book can substitute for the contract.
⑤ The article receipt order slip does not always send it back.
⑥ The receipt and the collation of the bill
⑦ Payment according to terms of payment
If there is not the decision of terms of payment, I finish it immediately.

Have the sales department
① For the demand of the customer, I make arrangements by development of products altogether.
② I show an estimate in a user.
When I publicize it from this place, there is it.
③ It carries it and, after the order receipt, confirms it.
I raise a delivery of goods slip, a delivery note immediately, and it is arranged to shipment.
If there is not stock, after stock confirmation, it is arranged an order slip to each production section
I can assume the copy of the order slip the substitute for order slip.
④ Shipment I pack it while matching a slip with an article and ship it.
⑤ I put bills together on the total day of each user and publish it and dispatch it.
⑥ After receipt of money confirmation, it is published by receipt

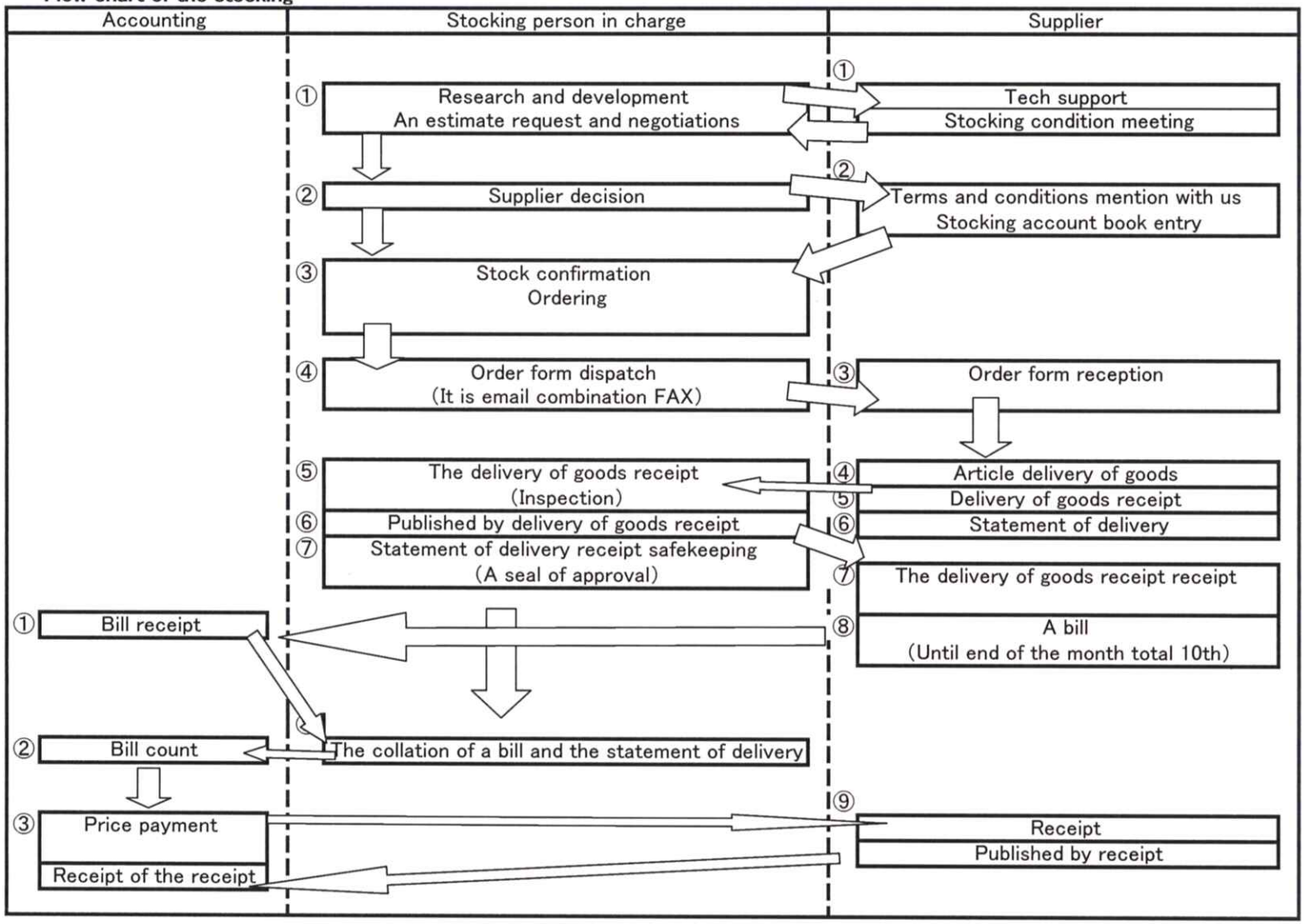
Have the Manufacturing Section
① For the demand of the article, I make arrangements by development of products altogether.
② Materials identify an order slip after confirmation,
Stocking arrangement production making arrangements arrangement
③ After product completion
I contact to appointed shipment ground or the safekeeping place or business.

Have the Development Section
① For the demand of the article, I make arrangements by development of products altogether.
② Inspection of the process of manufacture
③ The inspection of the product

Have the stocking section
① For the demand of the article, I make arrangements by development of products altogether.
② I do inventory control while making arrangements with sales department, a Manufacturing Section.
③ It is left a shed to reputation case check ⇒ stock safekeeping ⇒ production

ISO9001 flow chart **DOC040**

Flow chart of the stocking



Stocking flow chart **DOC040**

Instructions

Accounting

① Communication to the bill undelivered partner ahead.
② I file a bill and pass it to each stocking person in charge.
③ The 25th payment of the end total, the following day.
The collection of money. Transfer. It is bill 110 days more than mail 100,000 (in principle). (A principle)

Stocking person in charge

① The stocking person in charge does a product specification and the supplier, a stocking condition of investigation to investigating it.
I collect information by various methods and examine.
② I ask the supplier for supplier decision and the entry of the stocking account book.
The stocking person in charge does the business of the stocking as follows.
③ It carries it and confirms it and decides quantity of ordering, the appointed date of delivery.
There is the thing needing approval.
④ The order does FAX, an email in using it together.
⑤ The check may not be always the stocking person in charge
The confirmation at the time of the delivery of goods collates an article and ordering handwriting with a statement of delivery.
The check of the delivery of goods processes it in a delivery of goods hope day or late us on real delivery date.
It is really free to do the state of things of the supplier to deliver early.
The official inspection is not immediate, but process the defective articles immediately.
After reputation case, the person in charge inspects the quality.
The inspection standard is QC process figure reference.
When the figure does not have a mention, refer to the Development Section in a QC process.
⑥ Receipt sends it back in principle.
⑦
⑧ Collate a bill in total with a statement of delivery immediately.
⑨ Submit the bill to the accounting.

Supplier

① Tech support and a condition meeting
② I fill out a stocking account book and send it back.
③ When conditions such as the appointed date of delivery amount are difficult, I inform it of the effect immediately.
④ Delivery of goods.
⑤
⑥ I have a delivery note specify a person of our ordering.
⑦
⑧ I have you publish a bill and let you arrive at us by 10th at the latest.
⑨ The shipping and receiving of the receipt.

Supplier check sheet **REC010**

Compasses bowl-related inspection list

Company name

※ Evaluated in 5 phases 5 4 3 2 1 Circle a number.

Good ⇒ Not good

※ After a reputation case check, mention it.

①

DATE Name

Supplies

Appointed date of delivery	Quality	Price	Synthesis
5 4 3 2 1	5 4 3 2 1	5 4 3 2 1	5 4 3 2 1

Remarks

②

DATE Name

Supplies

Appointed date of delivery	Quality	Price	Synthesis
5 4 3 2 1	5 4 3 2 1	5 4 3 2 1	5 4 3 2 1

Remarks

③

DATE Name

Supplies

Appointed date of delivery	Quality	Price	Synthesis
5 4 3 2 1	5 4 3 2 1	5 4 3 2 1	5 4 3 2 1

Remarks

Step-up program **DOC050**

1 I classify the work.
acrotaxonomy
① Business ② Stocking ③ Design ④ Production ※ Human relations

acrotaxonomy	Small classification
① Business	Various slip documents making, new reclamation, a conventional customer business talk,
② Stocking	Inventory control, stock confirmation, ordering, reputation case check, supplier reclamation
③ Design	Standard understanding, specifications examination, product principle understanding, a design, inspection
④ Production	Machine work, assembling work, Handa work
※ Human relations	I do it without normal human relations and cannot plan the facilitation of the hall, the activation

2 I distribute work depending on a degree of difficulty.

3 I make a detailed manual depending on work.
I am for education of the safe confirmation.
The thing that a degree of difficulty is high.

4 I decide whether I master the work of the field by each person.
About upbringing of the part-time job
I do not enlarge too much the field of high work of the degree of difficulty.

About upbringing of employee
I challenge high work of a degree of difficulty.
I do a device with expert work as normal work.

5 It does not affect an employment form, the type of job
I recommend suggestion to the duties of the oneself and others.
The atmosphere of the workplace to be able to give its opinion to freely is important.

6 I record the following at the time of holding time of the class and private guidance
A date
A lecturer
Class contents(A title)
I get a signature from an attendant

7 I understand technical degree of achievement according to each person.
I circle step-up sheet by the step that each person mastered.

Class record

REC030

Date
Main contentsContents
Lecturer name
Student attending a lecture name

Date
Main contentsContents
Lecturer name
Student attending a lecture name

Date
Main contentsContents
Lecturer name
Student attending a lecture name

Measurement machinery proofreading table REC020

	The proofreading of vernier calipers Error ※1									
Name	Size	50mm	150mm	250mm	Safekeeping place	Management number	Proofreading organization	Validity	Measurement day	Time limit
Master compasses	—				Inspection room	INS1	Institute for geomagnetism	Five years		
Master compasses	—				Inspection room	INS2	Institute for geomagnetism	Five years		
Transit	—				Inspection room	INS3	Own company			
North pointing device for calibration					Production Section 2	INS4	Own company			
North pointing device for calibration					Production Section 2	INS5	Own company			
Gauge for proofreading					Manufacturing	MAN1	Industry institute of technology	Ten years		
Micrometer					Manufacturing	MAN2	Own company	One year		
Vernier calipers					Manufacturing	MAN3	Own company	One year		
Vernier calipers					Manufacturing	MAN4	Own company	One year		
Vernier calipers					Manufacturing	MAN5	Own company	One year		
Vernier calipers					Manufacturing	MAN6	Own company	One year		
Vernier calipers					Hand processing	HAN1	Own company	One year		
Vernier calipers					Hand processing	HAN2	Own company	One year		
Vernier calipers					Hand processing	HAN3	Own company	One year		
Vernier calipers					Hand processing	HAN4	Own company	One year		
Vernier calipers					Hand processing	HAN5	Own company	One year		
Vernier calipers					Surveying instrument	SUR1	Own company	One year		
Vernier calipers					Surveying instrument	SUR2	Own company	One year		
Vernier calipers					Surveying instrument	SUR3	Own company	One year		
Vernier calipers					Technology	TEC1	Own company	One year		
Vernier calipers					Technology	TEC2	Own company	One year		

※1 I do the proofreading of vernier calipers with two points.
As for the two points, the length of vernier calipers gets together.

Document rule

Name	I mention a name of the measurement machinery
Management number	I manage it by kanji 1 character of the initial of the management section and the consecutive numbers of the Arabic numeric with a number peculiar to machinery. The classification of the management post Production Section 1 Manufacturing Hand processing Production Section 2 Surveying instrument Development Section Technology Inspection room Inspection
Proofreading organization	When I proofread it outside, I mention the name of the engine When I proofread it in an office, I mention it with an office
Validity	I mention a lowest cycle to proofread it
Proofreading day	I record the day when I proofreaded it
Time limit	I mention the day that passed in validity from the day when I proofreaded it.
Indication	I mention a management number, expiration date in measurement machinery.

Check sheet every product **Rec070**

It is checked a main inspection item by every product

Item	Charge	The name of documents	A safekeeping period
Compasses bowl	Inspection charge	Compasses bowl inspection book	Three years
		Own company inspection certificate	Three years
		MED conformity manifesto	Three years
Binnacle	Development Section	Binnacle inspection book	Three years
	Manufacturing Section		
Shipment packing	Dispatcher	The packing details	Three years

7.5.2 The validity confirmation of the process about production and the service offer

1 A trained worker works.
2 Confirmation after the confirmation check after the work
3 The work that obeyed a work manual
4 Work by the jig

※ When I discovered non-conformity, report it to a QC manager immediately.
※ I record it to a check sheet every product
※ I record it for a prevention correction record (REC040) of the non-conformity product

Internal auditor upbringing manual

DOC100

The internal auditor do not neglect the understanding of the quality control.
I grind upbringing society of the internal auditor more than once between June.
When I carried out upbringing party, mention it in an internal auditor upbringing record.
※ Nonmanagement performs the domestic inspection, and it is proposed the situation, improvement by a manager

Internal auditor upbringing record

Date	Participant	Contents

Domestic inspection manual **DOC110**

I carry out domestic inspection appropriately between June, and mention it in a domestic inspection record.
Do not inspect oneself by oneself

Inspection item

1 I inspect whether a record in the list of records is recorded.
2 I check it for a domestic inspection record and mention the effect in the remarks column if there is an Important Notice.
3 If there is malfunction, I add an X to a check column and mention the effect in the remarks column
4 In addition, if there is the point that I noticed, I mention it in the blank.

Domestic inspection record

Person in charge

Check list	Inspection date	Check	Remarks
Surveying instrument proofreading table			
Check record before machine tool work			
Check sheet every product			Program of the consistency
Step-up sheet			
Prevention correction record of the non-conformity product			
Supplier check sheet			
Check record of the measuring instrument			
Maintenance record of the machine(Check before work)			

Important Notice

Correction step, precautionary measures manual **DOC090**

① It is called a correction step with the correction step to make measures after malfunction having occurred to a product.

② It is called precautionary measures with the precautionary measures to make measures before malfunction occurring to a product.

Manual

① Correction step

1 Malfunction occurs to a product.

2 It is a report, communication, consultation in the Development Section

3 I investigate a cause

4 I do considerable measures

5 I record it for a record (REC040) of the prevention correction of the non-conformity product

② Precautionary measures

1 The malfunction of the product may occur.

2 It is a report, communication, consultation in the Development Section

3 I investigate a cause

4 I do considerable measures

5 I record it for a record (REC040) of the prevention correction of the non-conformity product

Prevention correction record of the non-conformity product

REC040

It becomes clear to be improved by accumulating a record.
I have it as a record by all means.

Sample

Date	Name
Non-conformity point	
Non-conformity situation	
Non-conformity measures	

Date	Name
Non-conformity point	
Non-conformity situation	
Non-conformity measures	

Machine check book REC074

1. Check before work of the machine
   1 I check the machine before work.
   2 According to the check item, I confirm the state of the machine.
   3 When I found abnormality in a machine, it is made entry of a date and contents by a notebook.
   4 When I maintained the machine, it is made entry of a date and contents by a notebook.
   ※ Lubrication, the cleaning do not fill it out

2. Machine check item
   1 There not being allophone
   2 There not being core blurring
   3 The slack of the belt being reasonable
   4 There not being a gutter
   5 Pressure being reasonable

3. The peculiar number of the machine
   I acquire the number that is peculiar to each machine to be able to specify a machine.

   I display a number peculiar to a machine to each machine.

4. The location place of the machine

Hand processing section	HAN-Drill press1	HAN-Drill press2	～
Manufacturing section	MAN-Drill press1	MAN-Drill press2	～
	MAN-Tap 1	MAN-Tap 2	～
	MAN-Lathe 1	MAN-Lathe 2	～
Surveying instrument section	SUR-Drill press1	SUR-Drill press2	～
	SUR-Vacuum apparatus1		

ISO2269(1992), IEC60945
Testing and Certification.

SAURA

反映式磁気コンパス　SR－165

REFLECTOR TYPE MAGNETIC COMPASS SR-165

No. SR-165. ISO2269. 15. Sep 2005

Date. 15. Sep. 2005

Sign. T. Saura

BV Surveyor.

BUREAU VERITAS
SURVEYOR AT YOKOHAMA
PARIS
1828
INTERNATIONAL REGISTER

株式會社佐浦計器製作所

SAURA KEIKI SEISAKUSHO CO., LTD.

ISO2269

Section2: Testing and certification of class A compasses

Items	Testing and certification			Results	Test date	temp
2.1	**General**		☐	☐	☐	☐
2.1.1	Types of compasses to be tested		☐	☐	☐	☐
2.1.2	Manufacturer's Stateement	a	See AnnexA .	OK	18-Apr	21°C
		b	See AnnexA .	OK	18-Apr	21°C
		c	See AnnexA .	OK	18-Apr	21°C
		d	See AnnexA .	OK	18-Apr	21°C
		e	See AnnexA .	OK	18-Apr	21°C
		f	See AnnexA .	OK	18-Apr	21°C
		g	See AnnexA .	OK	18-Apr	21°C
		h	See AnnexA .	OK	18-Apr	21°C
		I	See AnnexA .	OK	18-Apr	21°C
		j	See AnnexA .	OK	18-Apr	21°C
2.1.3	Marking		☐	☐	☐	☐
2.1.3.1	verify that	a	to be verified by observation	OK	18-Apr	21°C
		b	to be verified by observation	OK	18-Apr	21°C
		c	to be verified by observation	OK	18-Apr	21°C
2.1.3.2			to be noted on Statement of manufacturer or importer	OK	18-Apr	21°C
2.1.3.3			not applicable (alcohol is used)	not applicable	☐	☐
2.2	**Compass and gimballing checks and tests**		☐	☐	☐	☐
2.2.1	Construction and material		☐	☐	☐	☐
2.2.1.1	Condition of compasses bowl		to be verified by observation	OK	18-Apr	21°C
2.2.1.2	Non-magnetic properties (type-test only)		refer to 2.2.7.4	OK	18-Apr	21°C
2.2.1.3	Condition at high temperature		to be verified by observation	See attached test report		
2.2.1.4	Condition at low temperature		to be verified by observation	See attached test report		
2.2.1.5	Thickness of top and bottom glass covers (type-test only)		non-toughened glass, thickness to be measured by micrometer	OK	18-Apr	21°C
2.2.1.6	Transmitting system		to be verified by observation	OK	18-Apr	21°C
2.2.2	Compass gimballing		☐	☐	☐	☐
2.2.2.1	Plane of ginbal axes (type-test only)		to be tested in accordance with the procedures set forth in the standard	OK	20-Apr	21°C
2.2.2.2	Angle of gimbals axes and intersection of vertical planes passing through them (type-test only)		to be tested in accordance with the procedures set forth in the standard	OK	20-Apr	21°C
2.2.2.3	Freedom of movement within gimbals ring		to be tested in accordance with the procedures set forth in the standard	OK	18-Apr	21°C
2.2.2.4	Horizontal position		to be tested in accordance with the procedures set forth in the standard	OK	18-Apr	21°C
2.2.2.5	Friction of inner gimbals axis		to be tested in accordance with the procedures set forth in the standard	OK	18-Apr	21°C
2.2.2.6	Inner and outer gimbals bearings (type-test only)		to be verified by observation	OK	20-Apr	21°C

Items	Testing and certification			Results	Test date	temp
2.2.3	Compass bowl		☐	☐	☐	☐
2.2.3.1	Relative bearing ring graduation (if any)		to be verified by observation	OK	18-Apr	21°C
2.2.3.2	Error due to eccentricity of bearing graduation		to be tested in accordance with the procedures set forth in the standard	OK	18-Apr	21°C
2.2.3.3	Accuracy of centring of azimuth reading device (type-test only)		to be tested in accordance with the procedures set forth in the standard	OK	18-Apr	21°C
2.2.4	Compass card bearing		☐	☐	☐	☐
2.2.4.1	Height of pivot baring (type-test only)		to be tested in accordance with the procedures set forth in the standard	OK	18-Apr	21°C
2.2.4.2	Protection of directional system against displacement		to be verified by observation	OK	18-Apr	21°C
2.2.4.3	Freedom of tilt directional system		to be tested in accordance with the procedures set forth in the standard	OK	18-Apr	21°C
2.2.5	Lubber marks		☐	☐	☐	☐
2.2.5.1	Number of lubber marks		to be tested in accordance with the procedures set forth in the standard	OK	18-Apr	21°C
			without prismatic magnifying glass	☐	☐	☐
2.2.5.2	Visibility of lubber mark(s)		to be tested in accordance with the procedures set forth in the standard	OK	20-Apr	21°C
2.2.5.3	Width of lubber mark(s)		to be verified by observation	OK	18-Apr	21°C
2.2.5.4	Distance between lubber mark(s) and card outer edge		to be verified by direct measurement when the compass is dismantled	OK	18-Apr	21°C
2.2.6	Directional system		☐	☐	☐	☐
2.2.6.1	Compass card		☐	☐	☐	☐
2.2.6.1.1	Graduation		to be verified by observation	OK	18-Apr	21°C
2.2.6.1.2	Readability		to be verified by observation	OK	20-Apr	21°C
2.2.6.1.3	Relationship of edge of compass card pivot bearing (type-test only)		to be tested in accordance with the procedures set forth in the standard	OK	18-Apr	21°C
2.2.6.2	Directional system magnets		☐	☐	☐	☐
2.2.6.2.1	Magnetic moment		to be tested in accordance with the procedures set forth in the standard	OK	20-Apr	21°C
2.2.6.2.2	Arrangement of magnets (type-test only)		to be tested in accordance with the procedures set forth in the standard	OK	20-Apr	21°C
2.2.6.2.3	Coercivity (type-test only)		to be examined by a certified test laboratory	OK	18-Apr	21°C
2.2.6.2.4	Change in tilt when vertical flux density has changed (type-test only)		to be tested in accordance with the procedures set forth in the standard	OK	18-Apr	21°C
2.2.6.3	Period		☐	☐	☐	☐
2.2.6.3.1	Test A (periodic compasses)		to be tested in accordance with the procedures set forth in the standard	OK	18-Apr	21°C
2.2.6.3.2	Test B (heavily damped or aperiodic compasses)		not applicable	not applicable	☐	☐
2.2.7	Accuracy		☐	☐	☐	☐
2.2.7.1	Directional error		to be tested in accordance with the procedures set forth in the standard	OK	18-Apr	21°C
2.2.7.2	Error of lubber marks		to be tested in accordance with the procedures set forth in the standard	OK	18-Apr	21°C
2.2.7.3	Error due to friction		to be tested in accordance with the procedures set forth in the standard	OK	18-Apr	21°C
2.2.7.4	Swirl error		to be tested in accordance with the procedures set forth in the standard	OK	18-Apr	21°C

Section3: Testing and certification of azimuth reading devices, class A

Items	Testing and certification			Results	Test date	temp
3.1	**General**		☐	☐	☐	☐
3.1.1	Groupe of azimuth devices to be tested		☐	☐	☐	☐
3.1.2	Manufacturer's Stateement		See AnnexB .	OK	20-Apr	21°C
3.2.	**Azimuth reading devices checks and tests**		☐	☐	☐	☐
3.2.1	Material		to be tested in accordance with the procedures set forth in the standard	OK	20-Apr	21°C
3.2.2	Mounting upon compass		to be tested in accordance with the procedures set forth in the standard	OK	20-Apr	21°C
3.2.3	Adjustment of spirit level		not applicable	not applicable	☐	☐
3.2.4	Field of view and range of altitude(type-test only)		☐	☐	☐	☐
3.2.4.1			to be tested in accordance with the procedures set forth in the standard	OK	20-Apr	21°C
3.2.4.2			to be tested in accordance with the procedures set forth in the standard	OK	20-Apr	21°C
3.2.5	Accuracy		☐	☐	☐	☐
3.2.5.1	Sights with or without prismatic magnifying glass(for card readings)		☐	☐	☐	☐
3.2.5.1.1	Parallelism of vanes		to be verified by observation	OK	20-Apr	21°C
3.2.5.1.2	Perpendicularity of vanes upon base		to be tested in accordance with the procedures set forth in the standard	OK	20-Apr	21°C
3.2.5.1.3	Attachment and adjustment of observation mirror		to be verified by observation	OK	20-Apr	21°C
3.2.5.1.4	Freedom of mirror and shades		to be verified by observation	OK	20-Apr	21°C
3.2.5.1.5	Prismaticgnifying glass(if any)		to be verified by observation. Prismatic magnifying glass not used.	OK	20-Apr	21°C
3.2.5.2	Groupe II		☐	not applicable	☐	☐
3.2.5.2.1			Group II azimuth device will not be fitted	not applicable	☐	☐
3.2.5.2.2			Group II azimuth device will not be fitted	not applicable	☐	☐
3.2.5.2.3			Group II azimuth device will not be fitted	not applicable	☐	☐
3.2.5.2.3.1			Group II azimuth device will not be fitted	not applicable	☐	☐
3.2.5.2.3.2			Group II azimuth device will not be fitted	not applicable	☐	☐
3.2.5.2.3.3			Group II azimuth device will not be fitted	not applicable	☐	☐
3.2.5.2.3.4			Group II azimuth device will not be fitted	not applicable	☐	☐
3.2.5.2.3.5			Group II azimuth device will not be fitted	not applicable	☐	☐
3.2.5.2.3.6			Group II azimuth device will not be fitted	not applicable	☐	☐
3.2.6	Shadow pin (if any)		to be verified by observation	OK	20-Apr	21°C
3.2.7	Pelorus		☐	☐	☐	☐
3.2.7.1			Group I azimuth will be fitted. Pelorus is not available	not applicable	☐	☐
3.2.7.2			Group I azimuth will be fitted. Pelorus is not available	not applicable	☐	☐
3.2.7.3			Group I azimuth will be fitted. Pelorus is not available	not applicable	☐	☐

Section4: Testing and certification of class A binacles

Items	Testing and certification			Results	Test date	temp
4.1	General			☐	☐	☐
4.1.1	Binnacles and correcting devices to be tested		☐	☐	☐	☐
4.1.2	Manufacturer's statement		☐	☐	☐	☐
		a	See Statement of manufacturer or importer.	OK	18-Apr	21°C
		b	See Statement of manufacturer or importer.	OK	18-Apr	21°C
		c	See Statement of manufacturer or importer.	OK	18-Apr	21°C
		d	See Statement of manufacturer or importer.	OK	18-Apr	21°C
		e	See Statement of manufacturer or importer.	OK	18-Apr	21°C
		f	See Statement of manufacturer or importer.	OK	18-Apr	21°C
		g	not applicable	not applicable	☐	☐
4.1.3	Marking		See Annex C.	OK	18-Apr	21°C
4.2	**Binnacles**		☐	☐	☐	☐
4.2.1	Construction and materials		☐	☐	☐	☐
4.2.1.1	Demensions (See a note marked ※ 4.2.1.1 below)		refer to 4.2.1.1	OK	18-Apr	21°C
4.2.1.2	Non-magnetic propeties		to be certified on the statement. Sample will be examined with magnetmeter	OK	20-Apr	21°C
4.2.2	Compass suspension		☐	☐	☐	☐
4.2.2.1	Outer gimbal axis		to be examined with feeler gauge	OK	18-Apr	21°C
4.2.2.2	TILT of suporting devices		to be tested in accordance with the procedures set forth in the standard	OK	18-Apr	21°C
			without a flexible suspension and springs	☐	☐	☐
4.2.2.3	orecautins against dislodging		to be verified by observation	OK	18-Apr	21°C
4.2.2.4	Friction of gimbal and compass axes		to be examined with inclinometer	OK	18-Apr	21°C
4.2.2.5	Play in outer gimbal axis bearing		to be examined with feeler gauge	OK	18-Apr	21°C
4.2.2.6	Compass suspensions provided with springs		not applicable	not applicable	☐	☐
4.2.2.6.1			not applicable	not applicable	☐	☐
4.2.2.6.2			not applicable	not applicable	☐	☐
4.2.3	Provisions to correct misalignment		☐	☐	☐	☐
4.2.3.1			to be tested in accordance with the procedures set forth in the standard	OK	18-Apr	21°C
4.2.3.2			to be verified by observation	OK	20-Apr	21°C
4.2.3.3			to be verified by observation	OK	20-Apr	21°C

Items	Testing and certification			Results	Test date	temp
4.2.4	Correctingdevices,marking,coercivity and securing		refer to 4.2.4	OK	18-Apr	21°C
4.2.4.1	Heeling error corrector magnets		to be tested in accordance with the procedures set forth in the standard	OK	18-Apr	21°C
4.2.4.2	Mounting of horizontal corrector magnets		□	□	□	□
4.2.4.2.1	Error of alignment		to be tested in accordance with the procedures set forth in NOTE 4 of 4.2.4.2.2	OK	18-Apr	21°C
4.2.4.2.2	Position error		to be tested in accordance with the procedures set forth in NOTE 4 of 4.2.4.2.2	OK	18-Apr	21°C
4.2.4.2.3	Minimum distance of horizontal correcting magnets fromssystem		to be tested in accordance with the procedures set forth in the standard	OK	18-Apr	21°C
	and their strength		□	□	□	□
4.2.4.3	Attachment of quadrantal correctors		to be tested in accordance with the procedures set forth in the standard	OK	18-Apr	21°C
4.2.4.4	Flindars's bar		□	□	□	□
4.2.4.4.1			to be measured with scale	OK	18-Apr	21°C
4.2.4.4.2			to be measured with scale	OK	18-Apr	21°C
4.2.4.4.3	Minimum distance from card centre		to be measured with scale	OK	18-Apr	21°C
4.2.5	Corrector coils		not applicable	not applicable	□	□
4.2.6	Ilumination		to be verified by observation	OK	20-Apr	21°C
4.2.6.1	Magnetic influence of lamps,plugs,sockets,switches,dimmers and wiring		to be verified by observation	OK	20-Apr	21°C
4.2.6.2	Readability of reflector and projector compasses		to be verified by observation	OK	20-Apr	21°C

※4.2.1.1 to be verified by direct measurements with scale when the compass is dismantled; distance from the binnacle bottom to compass bowl bottom surface, and distance from the compass bowl bottom to magnet bars of directional system.

IEC60945 (2002)

Items	Testing and certification			Results	Test date	temp
8.1	**General**		to be tested in accordance with the procedures set forth in the standard	☐	☐	☐
8.2	**Dry heat**		See attached test report	☐	☐	☐
8.2.1	Storage test			not applicable	☐	☐
8.2.1.1	Purpose			☐	☐	☐
8.2.1.2	Procedure and limits			☐	☐	☐
8.2.2	Functional test			☐	☐	☐
8.2.2.1	Purpose			☐	☐	☐
8.2.2.2	Procedure and limits			See attached test report		
8.3	**Damp heat**			☐	☐	☐
8.3.1	Functional test			☐	☐	☐
8.3.1.1	Purpose			☐	☐	☐
8.3.1.2	Procedure and limits			See attached test report		
8.4	**Low temperature**			☐	☐	☐
8.4.2	Functional test			☐	☐	☐
8.4.2.1	Purpose			☐	☐	☐
8.4.2.2	Procedure and limits			See attached test report		
8.7	**Vibration**			☐	☐	☐
8.7.1	Purpose			☐	☐	☐
8.7.2	Procedure and limits			See attached test report		
8.8	**Rain**			☐	☐	☐
8.8.1	Purpose			☐	☐	☐
8.8.2	Procedure and limits			See attached test report		
8.12	**Corrosion**			☐	☐	☐
8.12.1	Purpose			☐	☐	☐
8.12.2	Procedure and limits			See attached test report		

Test Report No.05-196(E)
Issued on August 9, 2005

TEST REPORT

ON

Corrosion

Reference Number: No.71034

Name of Specimen: ALUMINUM ALLOY CASTING
ALUMINUM
COPPER ALLOY

Name and Address of Applicant: Saura keiki Seisakusho CO., Ltd.
339-1, Ohkubo-Ryoke, Sakuraku, Saitama, Saitama, Japan

The test result described in this report is the result obtained only from the specimen submitted.
Cover 1 sheet, Text 2 sheets (Total 3 sheets) are included.

Tested and Reported by

S. Yamamoto

Shigeru Yamamoto
Researcher
Environmental Testing & Life-Saving Appliances Division

Approved by

Tsuneo Itagaki

Tsuneo Itagaki
Vice Director
Research & Development

JAPAN SHIP MACHINERY QUALITY CONTROL ASSOCIATION
RESEARCH INSTITUTE OF MARINE ENGINEERING
1-5-12 Fujimi-cho, Higashimurayama, Tokyo 189-0024 Japan
Tel: 81-42-394-3611 Fax: 81-42-394-1119

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1. Period of test　　May 27, 2005 to June 24, 2005

2. Specimen

2.1 Name of the specimen　　ALUMINUM ALLOY CASTING　Baking Finish
ALUMINUM　Baking Finish
COPPER ALLOY　Baking Finish

2.2 Name of the manufacturer　　Saura keiki Seisakusho CO., Ltd.

3. Test item and test method

Corrosion

Test piece of the specimen is placed in the salt mist chamber and sprayed with a salt solution (NaCl 5±1wt%) for a period of 2h at a temperature of 35℃.

At the end of the spraying period, the specimen is transferred to the humidity chamber and stored at a temperature of 40±2℃ and a relative humidity between 90% and 95% for a period of seven days.

One cycle of the test is constituted of above the spraying and the storage and four cycles are carried out.

Appearance of the specimen is inspected visually after the test.

4. Testing apparatus

4.1 Constant-humidity-temperature-test-chamber (PSL-2A, TABAI Espec)

4.2 Salt mist test chamber (Type: ST-J, SUGA TEST INSTRUMENTS Co., Ltd.)

5. Test result

5.1 No significant corrosion was noted.

5.2 The specimen showed no signs of damage such as shrinking, cracking, swelling, dissolution or change of mechanical qualities.

6. Record

The specimen before and after the test are shown in Photo 1～2.

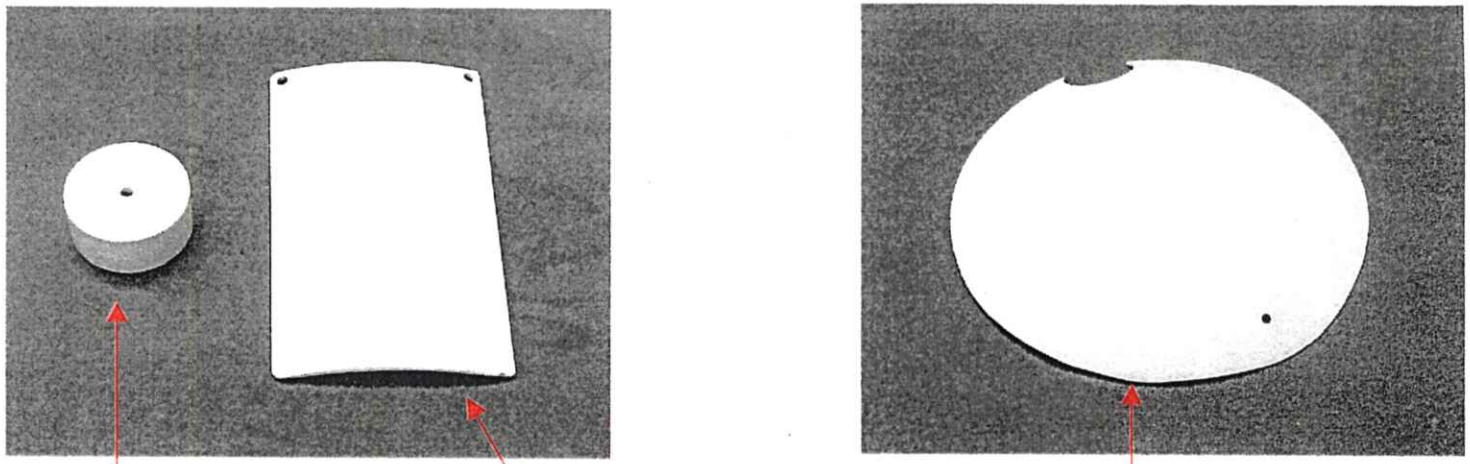

Photo 1 Before the test

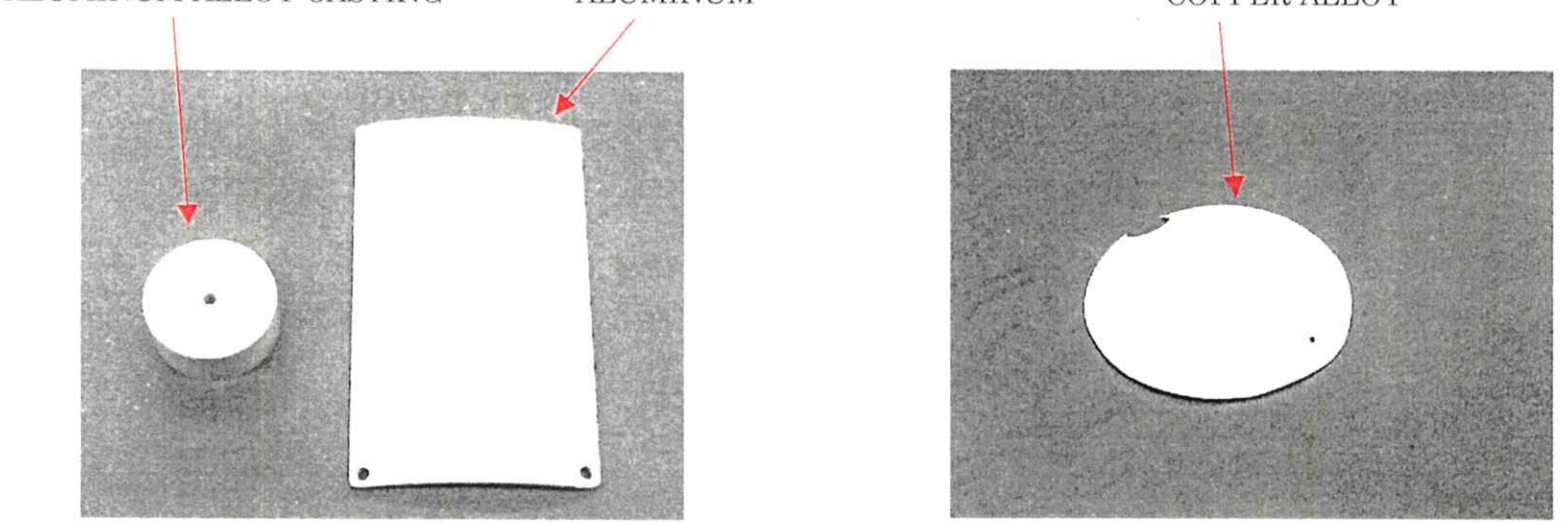

Photo 2 After the test

Test Report No.05-194(E)
Issued on August 31, 2005

TEST REPORT

ON

VIBRATION TEST

Reference Number: No.71032

Name of Specimen: REFLECTOR TYPE MAGNETIC COMPASS SR-165

Name and Address of Applicant: Saura keiki Seisakusho Co., Ltd.
339-1, Ohkubo-Ryoke, Sakuraku, Saitama,
Saitama, JAPAN

The test result described in this report is the result obtained only from the specimen submitted.
Cover 1 sheet, text 4 sheets and attachment 2 sheets (Total 7 sheets) are included.

Tested and Reported by

Masaki Ito
Researcher
Environmental Testing & Life-Saving Appliances Division

Approved by

Tsuneo Itagaki
Vice Director
Research & Development

JAPAN SHIP MACHINERY QUALITY CONTROL ASSOCIATION
RESEARCH INSTITUTE OF MARINE ENGINEERING
1-5-12 Fujimicho, Higashimurayama, Tokyo 189-0024 Japan
Tel: 81-42-394-3611 Fax: 81-42-394-1119

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1. Period of test : July 27, 2005

2. Specimen

2.1 Name and model	REFLECTOR TYPE MAGNETIC COMPASS Model: SR-165		
2.2 Composition	Compass Bowl	Type:SR-165M	S/N 0001
	Binnacle Stand	Type:SR-165S	S/N 0001
2.3 Manufacturer	Saura keiki Seisakusho Co., Ltd.		
2.4 Construction and dimensions	These are shown in attached drawings.		

3. Test item and test method

This test is carried out in accordance with the 5.6 Resistance to vibration in ISO449-1997.

3.1 Vibration test

The compass shall be subjected to the tests in its binnacle.

The compass bowl shall be substantially horizontal at the start of the test.

(1)Test 1

Apply vibrations successively in the fore-and-aft, athwartship and vertical directions of the compass with the following range of frequency and amplitude of acceleration:

Frequency range: 7Hz up to 11.2Hz
Displacement : ±1.0mm

Frequency range: 11.2Hz up to 40Hz
Acceleration ±0.5G

The rate of change of the frequency shall be slow enough to discern positively any deviation of the card or any resonance of the compass.

(2)Test 2

Submit the compass to the resonant frequency (or 40Hz if no pronounced resonance is observed) for a period of 2h.

Acceptance Criteria

During test 1, the card shall not deviate by more than $\pm(90/H)^\circ$,where H is the horizontal component of the magnetic flux density in microteslas(μ T) at the place of testing.

During test 1 and test 2, the card shall not lift off the pivot under the influence of the vibrations.

4. Testing apparatus

4.1 Electro dynamic vibration system	F-1000BM	EMIC CO., LTD.
4.2 Vibration measurement system		
(1) Multi vibration measuring meter	505-CA	EMIC CO., LTD.
(2) Recorder	D-73DG	RIKEN DENSHI CO., LTD.
(3) Accelerometer	113B	YAMAICHI ELECTRONICS CO., LTD.

5. Test results

The test results are shown in Table 1.

Table 1

Test items	Results
3.1 Vibration test (1) Test 1	Photo 1 to Photo 2 show the configuration of vibration test and position of the accelerometer. Resonance frequency of the specimen are shown in below table. Fig.1 shows the resonance characteristic curves.
(2) Test 2	Conditions of endurance vibration test are shown as follows. Fore-and-aft : 16.0Hz, ±05G, 2h Athwartship : 22.0Hz, ±05G, 2h Vertical : 23.6Hz, ±05G, 2h No sign of abnormality and mechanical damage was noted. The card did not deviate by more than $\pm(90/H)^{\circ}$. The card did not lift off the pivot under the influence of the vibrations. Horizontal component of the magnetic flux density(H) was 29.8(μT) at the place of testing.

Measuring point	Direction		
	Fore-and-aft	Athwartship	Vertical
Compass Bowl	16.0Hz	22.0Hz	23.6Hz

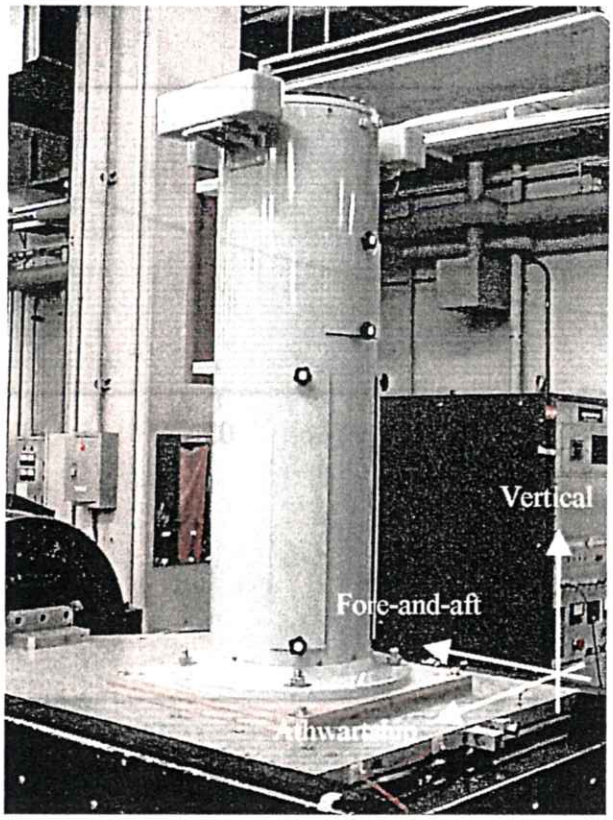


Photo 1 Configuration of Vibration test

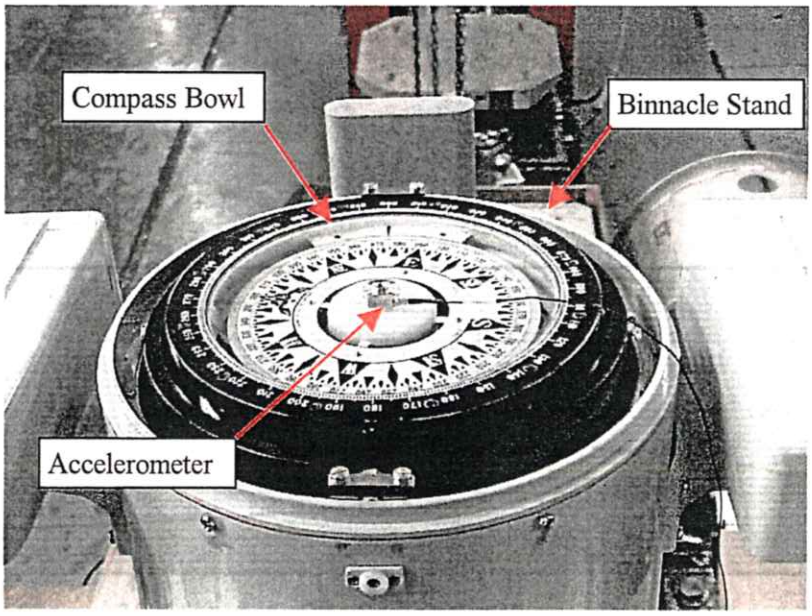


Photo 2 Position of the accelerometer

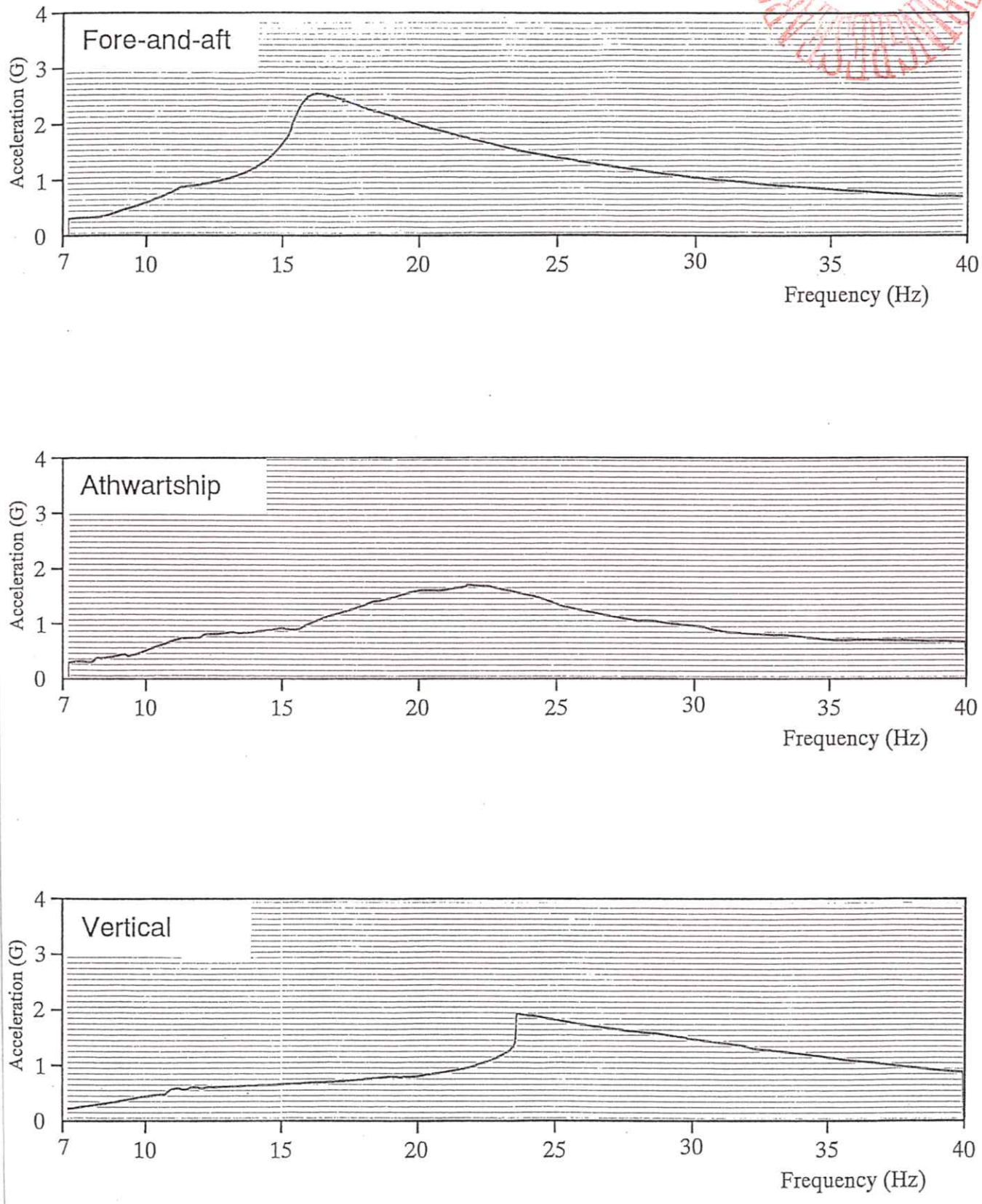
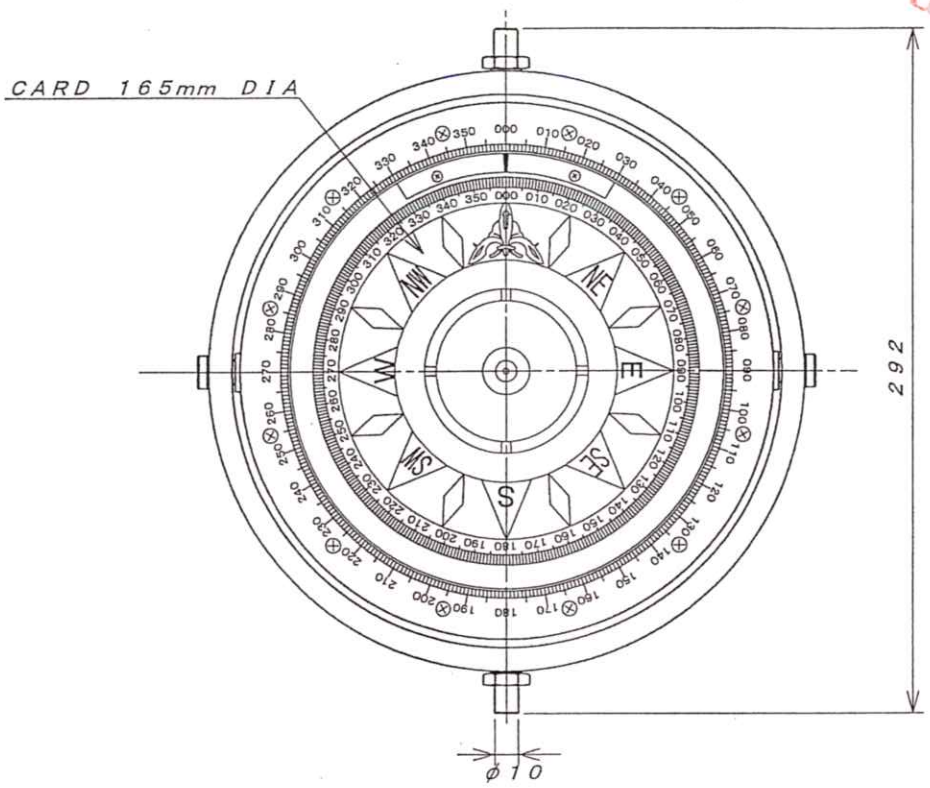
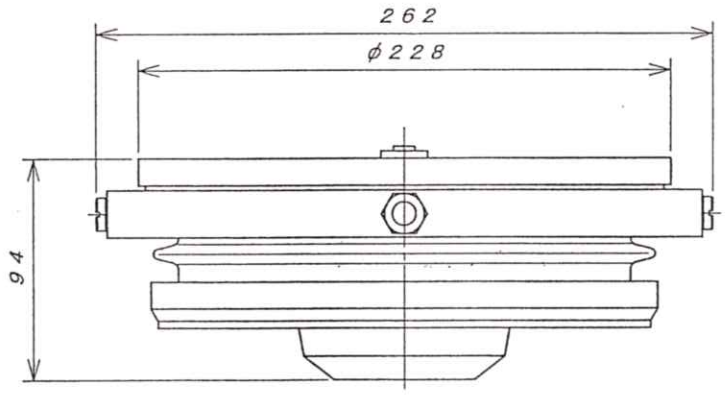
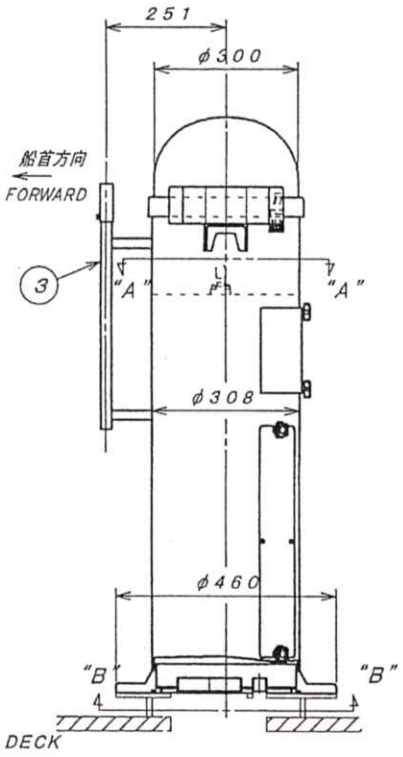


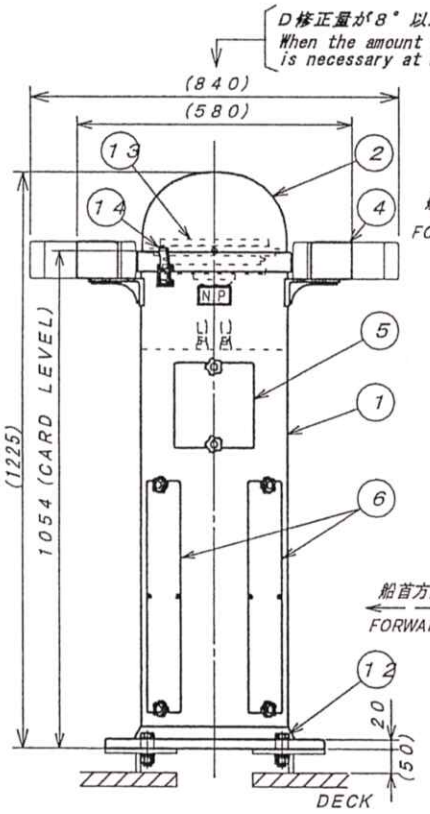
Fig.1 Resonance characteristic curves

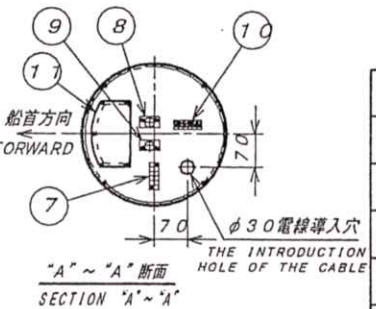




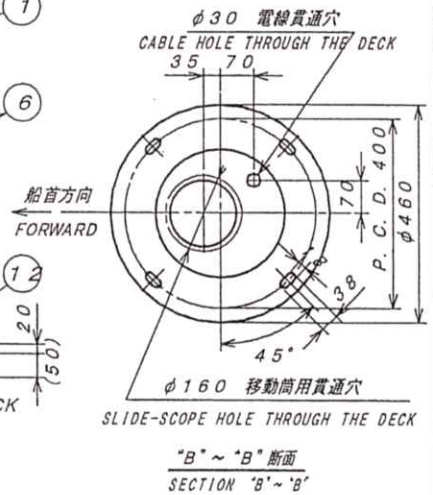
		名 称 NAME	磁気コンパスの羅盆 SR−165M COMPASS BOWL SR−165M				尺 度 SCALE NTS
質 量 MASS	制作番号 WORK NO	製 図 DRAWING	設 計 DESIGN	検 図 CHECK	単 位 UNIT	作図年月日 DATE OF DRAWING	28. Jun. 2004
6.8kg	S2146-1	M. SEKIGUCHI			m/m		
		株式会社 佐浦計器製作所 SAURA KEIKI SEISAKUSHO CO., LTD.				図 番 DRAWING NO	0406−1029−A







"A"～"A"断面
SECTION "A"～"A"



"B"～"B"断面
SECTION "B"～"B"

塗装色
COLOR MUNSELL No. 10B6. 5/2

符号 NO	部品名称 NAME OF PART	材質 MATERIAL	数量 QUANTITY	摘要 REMARKS
15				
14	ハッチクリップ HATCH CLIPS	PLASTIC	2	CP-297-A-5-2
13	コンパス羅盆 COMPASS BOWL		1	SR-165M
12	六角ボルト・ナット HEXAGON BOLTS&NUTS	SUS304	4	M16×65 (メーカー支給品) MAKER SUPPLIED
11	レンズ LENS	PLASTIC	1	
10	端子台 TERMINAL BLOCK		1	LK-4P
9	電球 LAMP		1	100or110or220V 10W By the main power supply.
8	電球 LAMP		1	24 or100V 10W By the emergency power supply.
7	端子台 TERMINAL BLOCK	NYLON	1	ML-150M-6P
6	"B" "C" 修正蓋 "BC" CORRECTOR COVER	A1050P CR	2	
5	傾船差修正蓋 "H" CORRECTOR COVER	A1050P CR	1	
4	"D" 修正箱 "D" CORRECTING BOX	ABS	2	"D" 修正用 FOR THE "D" CORRECTING
3	フリンダースバーケース FLINDERS BAR CASE	WOOD	1	
2	ヘルメット HELMET	A1050P	1	
1	ビナクル スタンド BINNACLE STAND	AC7A A1050P	1	SR-165S

名称 NAME	反映式磁気コンパス SR-165 REFLECTOR TYPE MAGNETIC COMPASS SR-165	尺度 SCALE NTS

質量 MASS	製作番号 WORK NO	製図 DRAWING	設計 DESIGN	検図 CHECK	単位 UNIT	作図年月日 DATE OF DRAWING
25kg	RS2356	M SEKIGUCHI			m/m	28. Jun. 2004

株式会社 佐浦計器製作所 SAURA KEIKI SEISAKUSHO CO., LTD.		図番 DRAWING NO	0404-952-B

Test Report No.05-139(E)
Issued on July 5, 2005

TEST REPORT

ON

Low temperature, Dry heat, Damp heat test

Reference Number: No.71033

Name of Specimen: Magnetic Compass
SR-165M

Name and Address of Applicant: Saura keiki Seisakusho CO., Ltd.
339-1, Ohkubo-Ryoke, Sakuraku, Saitama, Saitama, Japan

The test result described in this report is the result obtained only from the specimen submitted.
Cover 1 sheet, Text 5 sheets and Attachment 1 sheet (Total 7 sheets) are included.

Tested and Reported by
Shigeru Yamamoto
Researcher
Environmental Testing & Life-Saving Appliances Division

Approved by
Tsuneo Itagaki
Vice Director
Research & Development

JAPAN SHIP MACHINERY QUALITY CONTROL ASSOCIATION
RESEARCH INSTITUTE OF MARINE ENGINEERING
1-5-12 Fujimi-cho, Higashimurayama, Tokyo 189-0024 Japan
Tel: 81-42-394-3611 Fax: 81-42-394-1119

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1. Period of test May 30, 2005 to June 2, 2005

2. Specimen
   2.1 Name of the specimen Magnetic Compass
   2.2 Type of the specimen SR-165M
   2.3 Name of the manufacturer Saura keiki Seisakusho CO., Ltd.
   2.4 Construction and Dimensions These are shown in attached drawing.

3. Test item and test method
   3.1 Low temperature
   The specimen is placed in a chamber at normal room temperature and relative humidity. The temperature is lowered to and maintained at - 30℃±3℃, for a period of 10h.
   At the end of the test period, the chamber is brought to room temperature in not less than 1h.
   At the end of the test, appearance of the specimen is inspected visually.

   3.2 Dry heat
   The specimen is placed in a chamber at normal room temperature and relative humidity. The temperature is raised to and maintained at +60℃±3℃, for a period of 10h.
   At the end of the test period, the chamber is brought to room temperature in not less than 1h.
   At the end of the test, appearance of the specimen is inspected visually.

   3.3 Damp heat
   The specimen is placed in a chamber at normal room temperature and relative humidity. The temperature is raised to +40℃±2℃ and the relative humidity is raised to 93%±3% over a period of 3h. These conditions are maintained for a period of 10h.
   At the end of the test period, the chamber is brought to room temperature in not less than 1h.
   At the end of the test, appearance of the specimen is inspected visually.

4. Testing apparatus
   Constant-humidity-temperature-test-chamber (PL-4SP, TABAI Espec)

5. Test result
   Test results are shown in Table 1.

6. Record
   6.1 The scene of the specimen in the test chamber is shown in Photo 1.
   6.2 Chart of record of the low temperature test is shown in Fig. 1.
   6.3 Chart of record of the dry heat test is shown in Fig. 2.
   6.4 Chart of record of the damp heat test is shown in Fig. 3.

Table 1 Test result

Test Item	Test Result
3.1 Low temperature	The liquid in the compass bowl did not freeze at test temperature. No bubble in the compass bowl was noted. No blister of paint film was noted. No abnormality was noted.
3.2 Dry heat	No bubble in the compass bowl was noted. No blister of paint film was noted. No abnormality was noted.
3.3 Damp heat	No bubble in the compass bowl was noted. No blister of paint film was noted. No abnormality was noted.

Photo 1

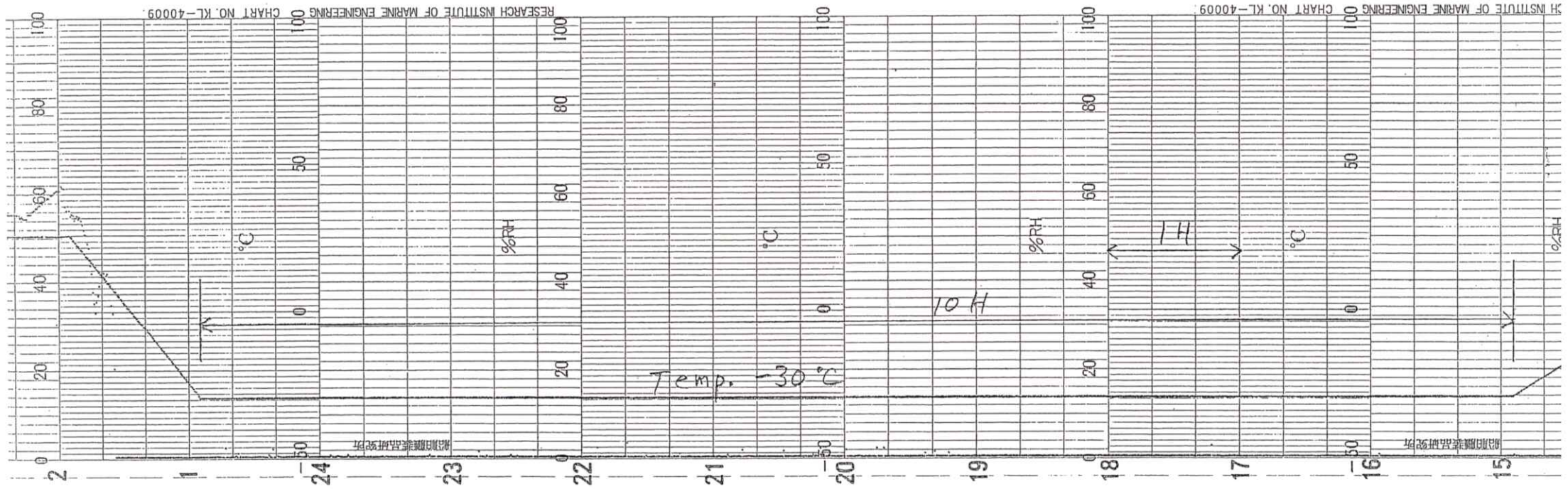

Fig.1 Low temperature test

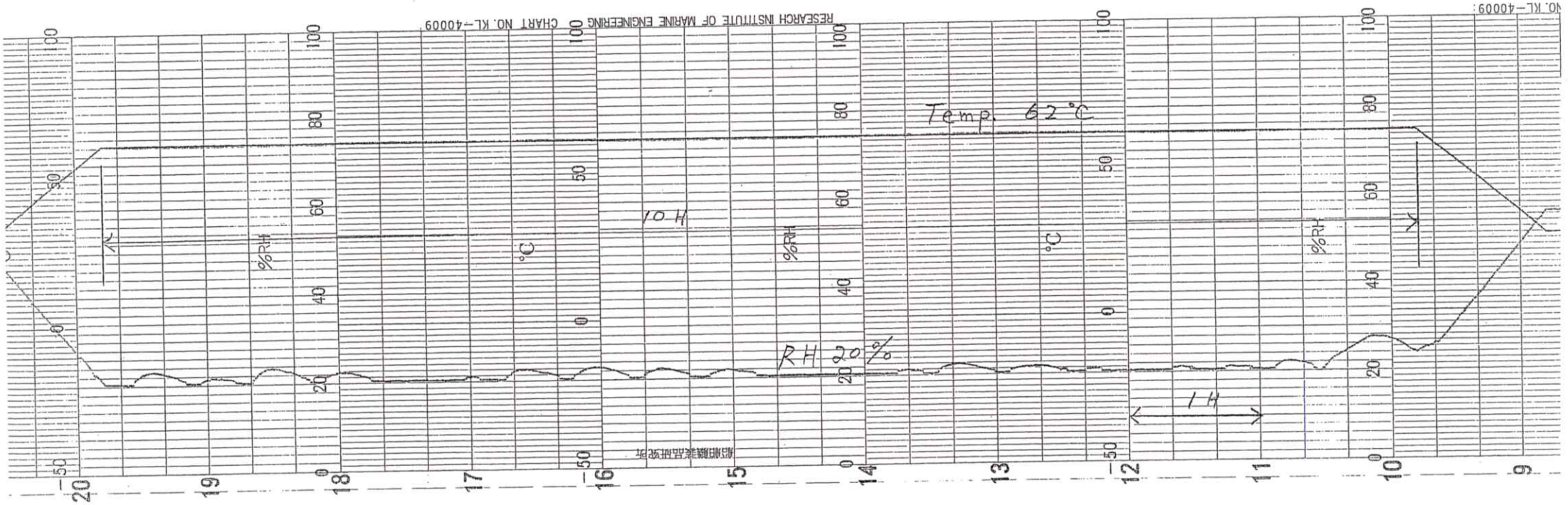

Fig. 2 Dry heat test

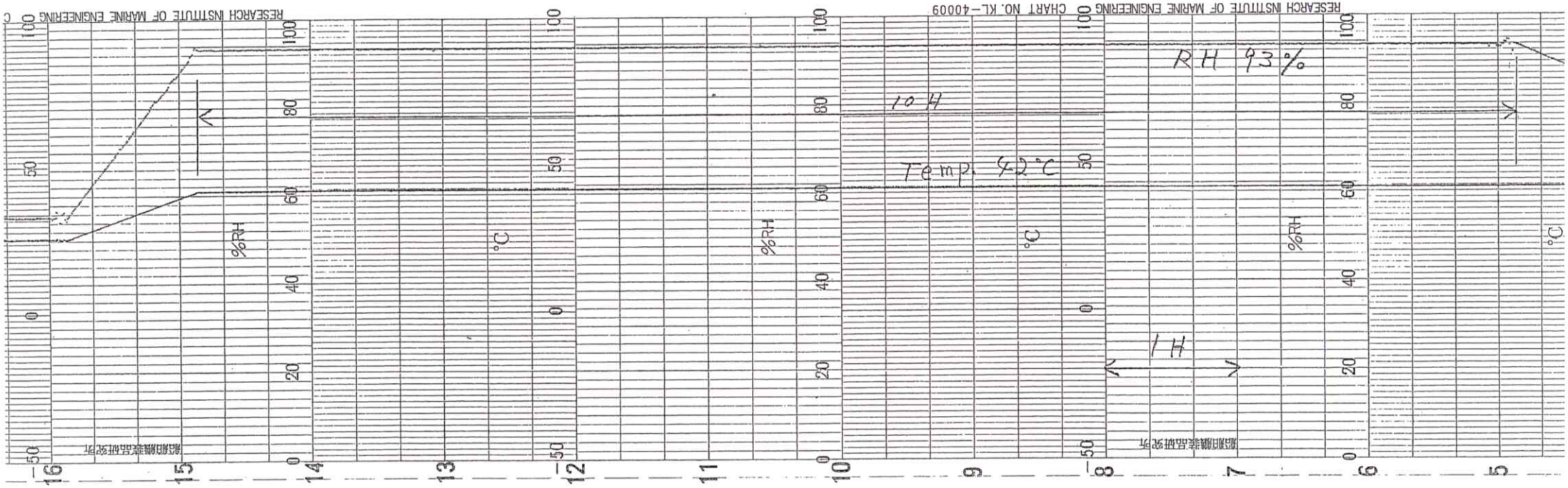

Fig. 3 Damp heat test

Test Report No.05-243(E)
Issued on August 31, 2005

RESEARCH INSTITUTE OF MARINE ENGINEERING HIGASHI MURAYAMA

TEST REPORT

ON

IEC 60945 Rain and spray Test

Reference Number: No.71020

Name of Specimen: Binnacles for Magnetic Compass
SR-165S

Name and Address of Applicant: Saura keiki Seisakusho CO., Ltd
339-1, Ohkubo-Ryoke, Sakuraku,
Saitama, Saitama, Japan

This test report describes the results of the above test.
Cover 1 sheet, Text 4 sheets and attachment 1 sheet (Total 6 sheets) are included.

Tested and Reported by

M. Fujiyoshi

Masatoshi Fujiyoshi
Chief Researcher
Containers & Electric Devices Division

Approved by

Tsuneo Itagaki

Tsuneo Itagaki
Vice Director
Research and Development

JAPAN SHIP MACHINERY QUALITY CONTROL ASSOCIATION
RESEARCH INSTITUTE OF MARINE ENGINEERING
1-5-12 Fujimicho, Higashimurayama, Tokyo 189-0024 Japan
Tel: 81-42-394-3611 Fax: 81-42-394-1119

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1 . Date of testing : August 23, 2005

2 . Specimen

2.1 Name of specimen : Binnacles for Magnetic Compass

2.2 Model of product : SR-165S

2.3 Construction and dimensions: The details is shown in attached drawing.

2.4 Name of manufacturer : Saura keiki Seisakusho CO., Ltd

3 . Test contents

3.1 Test items

Rain and spray

3.2 Test standard

This test is carried out in accordance with "IEC 60945 –2002: Maritime navigation and radiocommunication equipment and systems – General requirements – Methods of testing and required test results (paragraph 8.8)".

3.3 Test method

The test shall be carried out by spraying the EUT from all practicable directions with a stream of water from a standard test nozzle (hose) as shown in figure 6 of IEC 60529. The EUT shall operate throughout the test.

The conditions to be observed are as follows:

- internal diameter of nozzle : 12.5 mm;
- delivery rate : 100 l/min ± 5 %;
- water pressure : to be adjusted to achieve the specified delivery rate;
- core of substantial stream : circle of approximately 120 mm diameter at distance 2.5 m from nozzle;
- test duration : approximately 30 min;
- distance from nozzle to the equipment surface : approximately 3 m;

At the end of test the EUT shall be subjected to a performance check, and shall then be examined for damage and for unwanted ingress of water. Following examination, the EUT shall be resealed in accordance with the manufacturer's instructions.

Alternatively, if these are no external signs of unwanted ingress of water, an

internal examination which involves disturbance to seals may be carried out after all environmental tests have been completed.

Further guidance is given in IEC 60529, table 3, second characteristic numeral : protected against powerful water jets.

4 . Test apparatus

Spray nozzle — Toyo shinku kogyo

5 . Test results

Entry of water(very small amount) in the bottom of specimen was noted, but these water did not cause any harmful effect to the specimen.

Photo 1 shows the appearance of the specimen during the test.

Photo 2 to photo 4 show the inside appearance of the specimen after the test.

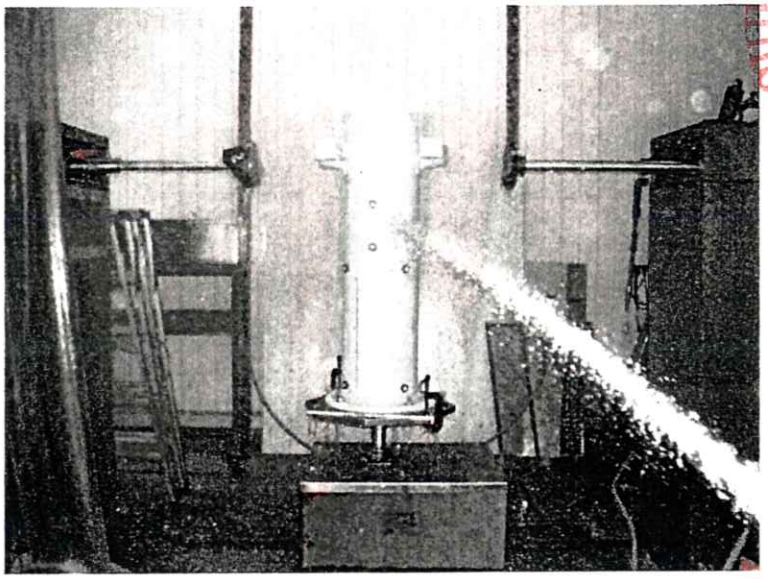

Photo 1 During the Rain and spray test

Photo 2 After the Rain and spray test (inside of the specimen)

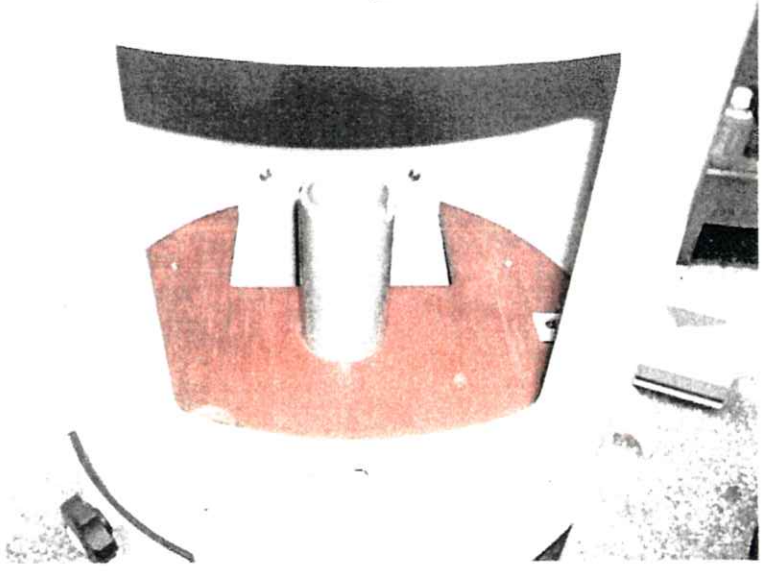

Photo 3 After the Rain and spray test (inside of the specimen)

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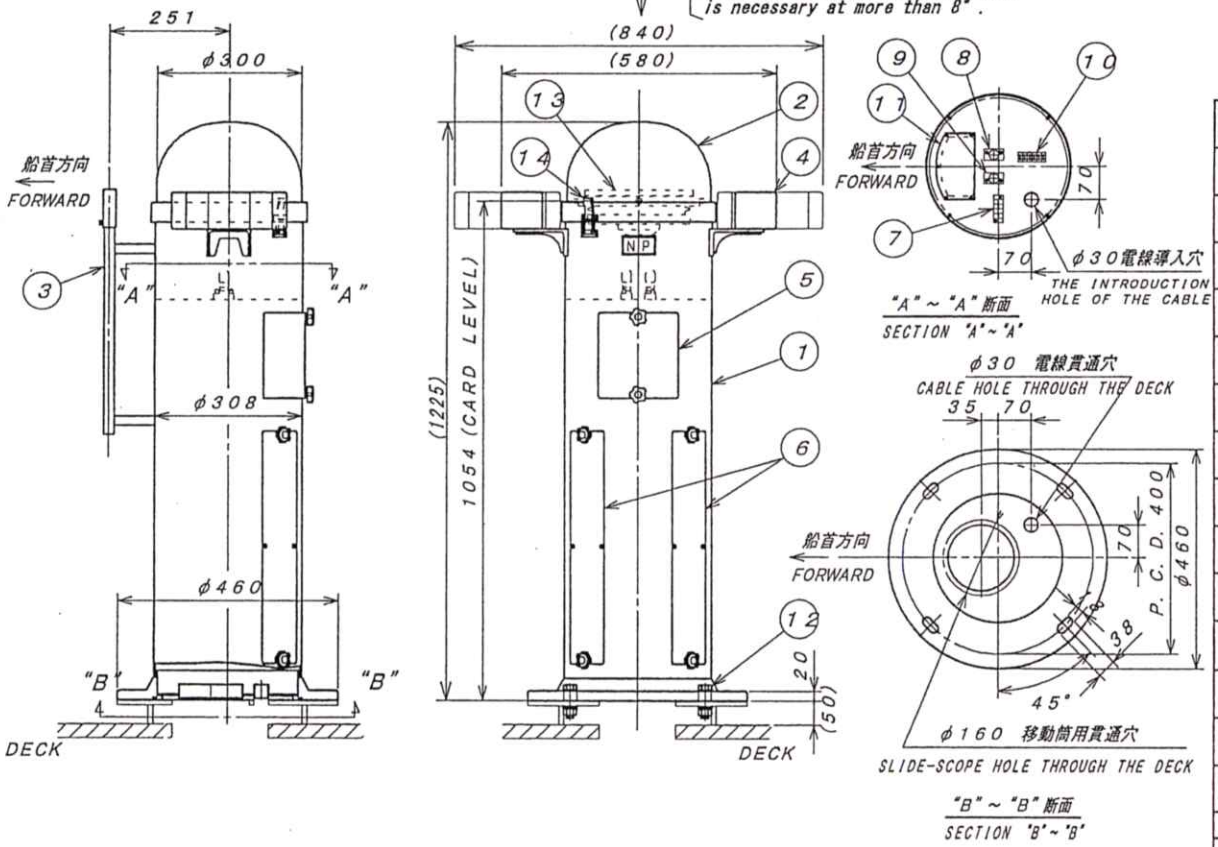
Photo 4 After the Rain and spray test (inside of the specimen)



塗装色
COLOR MUNSELL No. 10B6. 5/2

NO	名称 NAME OF PART	材質 MATERIAL	数量 QUANTITY	摘要 REMARKS
15				
14	ハッチクリップ HATCH CLIPS	PLASTIC	2	CP-297-A-5-2
13	コンパス羅盆 COMPASS BOWL		1	SR-165M
12	六角ボルト・ナット HEXAGON BOLTS&NUTS	SUS304	4	M16×65 (メーカー支給品) MAKER SUPPLIED
11	レンズ LENS	PLASTIC	1	
10	端子台 TERMINAL BLOCK		1	LK-4P
9	電球 LAMP		1	100or110or220V 10W By the main power supply.
8	電球 LAMP		1	24 or100V 10W By the emergency power supply.
7	端子台 TERMINAL BLOCK	NYLON	1	ML-150M-6P
6	"B" "C" 修正蓋 "BC" CORRECTOR COVER	A1050P CR	2	
5	傾船差修正蓋 "H" CORRECTOR COVER	A1050P CR	1	
4	"D" 修正箱 "D" CORRECTING BOX	ABS	2	"D" 修正用 FOR THE "D" CORRECTING
3	フリンダースバーケース FLINDERS BAR CASE	WOOD	1	
2	ヘルメット HELMET	A1050P	1	
1	ビナクル スタンド BINNACLE STAND	AC7A A1050P	1	SR-165S

名称 NAME	反映式磁気コンパス SR-165 REFLECTOR TYPE MAGNETIC COMPASS SR-165	尺度 SCALE NTS

質量 MASS	製作番号 WORK NO	製図 DRAWING	設計 DESIGN	検図 CHECK	単位 UNIT	作図年月日 DATE OF DRAWING
25kg	RS2356	M SEKIGUCHI			m/m	28. Jun. 2004

株式会社 佐浦計器製作所
SAURA KEIKI SEISAKUSHO CO., LTD.

図番 DRAWING NO 0404-952-B