

**ON-BOARD TRAINING RECORD BOOK
FOR
CADET MARITIME
ELECTRICAL OFFICERS**

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Approved by the
ROMANIAN NAVAL AUTHORITY

INTRODUCTION

This “on-board training notebook” drawing up has been guided by the Romanian Naval Authority, following training and examination standards required by I.M.O. in the S.T.C.W. (1995) Convention.

The revised S.T.C.W. Convention stresses on the assessment of the cadet’s practical training, emphasising on evaluating his ability to perform watch keeping and other routine duties on board.

The revised S.T.C.W. Convention (1995) stipulates that a cadet’s seagoing service should be recorded in a training record book approved by the Maritime Administration involved in issuing of certificates.

The completion of this record book is incumbent to the Chief Electrician, or, to the electrician officer in charge with the supervision of training who should mainly consider the competence in the professional skills of the cadet.

According to I.M.O. requirements the minimum length of sea-going service is established by the Maritime Administration, i.e. by the Romanian Naval Authority, as being no less than 6 months.

The present record book for practical training will be submitted to the persons in the maritime institutes and colleges who supervise training and also brought to the certification board of examiners entitled to evaluate the cadet’s practical skills and competence acquired during his service on board.

This is an important document. It is an essential part of your professional development and will be assessed by qualified assessors. It is the sole responsibility of you, the candidate, to ensure its safekeeping and to present it to the Chief electrician at review time which will sign and stamp it.

The training record book will be inspected, signed and stamped monthly by the Chief Engineer.

The evaluation of the cadet’s competences should be made on some unitary criteria:

- Regular checking of activity.
- Understanding specific processes, phenomena and technologies.
- Attitude towards on-board training assignment.
- Priority and quality of competences acquired.
- Periodical recommendations and the way he responds to them.

Guidance for the candidate

- 1 You are responsible for the upkeep and safe keeping of this document at all times.
- 2 Present this document to the Chief electrician for inspection on a regular basis, and at least once each month.
- 3 Present this document for final review and updating in good time before leaving the vessel and well before arrival at the last port, otherwise the opportunity to record valuable experience will have been lost.

Watchkeeping Testimonials

Before leaving the vessel, is to ensure that the Master has completed the Sea Service Testimonial for voyage.

PART ONE

PARTICULARS OF THE MARITIME ELECTRICAL CADET:

Name in full.....
Date of Birth.....Place of Birth.....
Home address.....
Seaman's book.....Series.....No.....Date of issue.....
Sponsoring company.....
Date of beginning the service on board.....
Date of finishing the service on board.....

PARTICULARS OF PROFESSIONAL TRAINING:

Admission to the institute (college):.....(date).....(mean)
1st year. Date.....The mean per year.....
2nd year. Date.....The mean per year.....
3rd year. Date.....The mean per year.....
4th year. Date.....The mean per year.....
5th year. Date.....The mean per year.....

*Endorsement of the
University Secretariat*

PARTICULARS OF IN-SERVICE TRAINING PERIODS:

Ship.....From.....To.....
Ship.....From.....To.....
Ship.....From.....To.....
Ship.....From.....To.....

I.M.O. MODEL COURSES ATTENDED:

Maritime English, Problems of Communication in Human Relationship.....Date.....No.....
Transport and Handling of Dangerous Hazardous and Harmful Cargoes.....Date.....No.....
Prevention of Pollution of the marine environment MARPOL 73/78Date.....No.....
Personal Survival Techniques.....Date.....No.....
Proficiency in Survival Craft and Rescue Boats, other than fast Rescue Boats.....Date.....No.....
Personal Safety and Social Responsibilities on Board Ships.....Date.....No.....
Advanced Fire- Fighting.....Date.....No.....
Medical First Aid.....Date.....No.....

NOTE: The students of the Naval Academy – The Merchant Marine Faculty and those of the Maritime University will acquire the I.M.O. knowledge necessary for the III Officer certificate confirmation (deck, engine, electrical departments) on the basis of the curriculum for the subject matters provided for the last 2 years of study, the certificates-having to be confirmed without any other proofs certifying I.M.O. courses attendance, if the certification examination is sustained 2 years after the faculty graduation.

PART TWO

ON BOARD SERVICE EVALUATION FOR CADET MARITIME ELECTRICAL OFFICER (ENTRIES OF CHIEF ELECTRICIAN AND SUPERVISED BY CHIEF ENGINEER)

Ship	On-board service period	Remarks on: cadet's activity, attitude and competence	Chief electrician full name and signature	Chief Engineer full name and signature. Ship's stamp.

The Company Superintendent's remarks.

PART THREE

ASSIMILATION OF TECHNICAL STANDARDS (OCTS) OCCUPATIONAL SAFETY AND GENERAL SAFETY ON BOARD VESSEL

This specific training is carried out immediately after embarkment and before any other professional duties are assigned. The practice record book must be signed by the officer designated for this training after the completion of the O.C.T.S. training.

Ship	1 st SHIP	2 nd SHIP	3 rd SHIP	4 th SHIP
TRAINING FOR:	FIRST ENGINEER'S NAME DATE AND SIGNATURE	FIRST ENGINEER'S NAME DATE AND SIGNATURE	FIRST ENGINEER'S NAME DATE AND SIGNATURE	FIRST ENGINEER'S NAME DATE AND SIGNATURE
UNDERSTANDING SYMBOLS , SIGNS AND ALARM SIGNALS				
TAKE PERSONAL EMERGENCY ACTION ON BOARD SHIP.				
1. In responding to emergencies on board the candidate is able to : Take initial action in an emergency in accordance with vessel's emergency procedures. Raise the alarm promptly by the most appropriate method available. Implement the necessary evacuation, emergency shut down and isolation procedures. Communicate information to the emergency services promptly and accurately. Take action to comply with the vessel's muster requirements on recognizing an alarm signal.				
2. In proving the knowledge of fire fighting appliances the candidate is able to : To locate and operate the fire alarm main board and repeaters. Recognize and use the portable fire extinguishers as per their type and destination. Recognize and use the fixed fire fighting installations as per type and destination. Recognize and use the fire fighting protective equipment and tools.				
3. In fighting fires at sea the candidate is able to : Maintain personal safety during fire fighting. Use appropriate clothing and equipment with respect to anticipate hazards. Use lifelines and guidelines to comply with accepted fire fighting practice. Take individual actions which are appropriate to the emergency and on instructions received. Select and utilize the appropriate appliance to fight fire. Communicate clearly using recommended procedures.				

<p>4. In simulating surviving at sea in the event of abandonment the candidate is able to : Respond correctly to abandonment signals. Take actions to comply with the vessels muster procedure. Prepare and lounch survival craft correctly. Wear clothing and survival equipment appropriate to the situation. Board a life raft in the correctmanner. Comply fully and promptly with survival instructions. Comply with recommended in – water survival positions and procedures Use survival techniques which maximize the safety of self and others.</p>				
<p>5. In simulating applying immediately basic first aid at sea the candidate is abel to : Assess the situation to ensure the safety of self and others Raise the alarm and assess the casualty \identify the nature and extent of injuries Reasure and calmthe casualty Give initial first aid which is appropriate to injuries.</p>				
<p>6. In taking charge of the launching and recovery of craft the candidate is able to : Direct the preparation, boarding and lounching fo craft, meeting the operational requirements. Ensure the craft clears the vessel safely Ensure the propultion is available Supervise the disembarkation of personnel Take initial action on leaving the vessel to minimize the threat to survival Direct the recovery of the craft , to meet operational requirements</p>				
<p>7. In taking charge of pollution response the candidate is able to : Locate the antipollution store and the antipollution materials. Use in a proper manner the antipollution materials, tools and equipment. To act as per vessel response plan and accordingly with the muster list. To dispose the materials, tools, equipment and the pollution result.</p>				
<p>8. In taking charge of man overboard response the candidate is able to : Identify correctly the emergency signal. Take correct immedialtely action accordingly with vessel's emergency plan.</p>				

PART FOUR

FAMILIARISATION WITH THE SHIP AND HER POWER SYSTEMS (Entries of CADET MARITIME ELECTRICAL OFFICER for each ship he was embarked on)

PARTICULARS	1 st SHIP	2 nd SHIP	3 rd SHIP	4 th SHIP
DIMENSION AND CAPACITIES				
Length DA [m].				
Length BP [m].				
Breadth.				
Maximum height.				
Maximum draft.				
Free-board.				
Net tonnage / Gross tonnage.				
Light ship displacement.				
Sea speed [knots].				
MAIN ENGINES				
Engine [type].				
Engine [(2-stroke or 4 stroke) type].				
Power (HP;KW).				

Nominal rotation (rot/min).				
Fuel (viscosity).				
Type of turboblowers.				
Type of rotation redactor.				
Type of measuring system for the turboblowers rotations.				

AUXILIARY ENGINES

Nominal power [HP; KW].				
Nominal speed [rpm].				
Fuel Oil (viscosity) [cSt].				
Turbo blowers type.				
Type of rotations regulator				
Type of electrical protections for auxiliary engines				
Type of electrical generators				
Content of generator				
Type of system for tension adjustment				

MAIN DISTRIBUTION SWITCHBOARD

Nominal power / frequency.				
Number of sections/power for each section.				
Bus-bar coupling system and generators protection type.				
Selective protections (overload, fire, antipolluting).				
Gauges.				

MARINE BOILERS

Main boilers (type).				
Nominal pressure [MPa].				
Burner type.				
Auxiliary boilers (type).				
Nominal pressure.				
Recovery auxiliary boilers (TH).				
Nominal pressure [MPa].				
Water feeding automation system type.				
Fuel feeding automation system type.				
Air feeding automation system type.				

Burner protections .				
Exhaust -gas boiler protections.				
STEAM TURBINES				
Type.				
Nominal power [HP, KW].				
Speed [rpm].				
Type of electrical protection system.				
FUEL TANKS				
Light Fuel Oil [m ³].				
Heavy Fuel Oil [m ³].				
Level indicator (types).				
BALLAST TANKS				
Central tanks [m ³].				
Lower wing tanks [m ³].				
Upper wing tanks [m ³].				

TECHNICAL WATER TANKS [m³].

Drinking water tanks [m ³].				
Water distiller (type).				
Flow rate [m ³ /h].				

ENGINE ROOM HOISTING UNIT

Type.				
Hoisting capacity [To].				
Electric motor actuating type.				

STEERING GEAR

Type.				
Type of steering gear electric motor.				

ANCHOR GEAR

Winches type.				
Anchor capstans type.				
Winch electromotor types.				

LIFE - SAVING EQUIPMENT

Life boats [No.].				
Life rafts [No.].				
Life rafts dimensions [L,B,T].				
Life boat capacity [No. of persons].				
Life raft capacity [No. of persons].				
Life boat davits (type).				
Types of electric motors.				
Specific protections for actuated davits.				

FIRE – FIGHTING EQUIPMENT

Extinguishers (No; type).				
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WATER FIRE FIGHTING PLANT

-No of pumps.				
-Type of electric motors and specific protections.				

-Main pumps flow rate [m ³ /h].				
-Emergency pumps flow rate [m ³ /h].				
-Emergency pump drive.				

CO₂ PLANT COMPARTMENT (centralized)

-Cylinders [No].				
-Cylinders capacity [Kg./cyl.].				
-Working pressure [bar.].				
-Destination (rooms etc.).				
-Auxiliary electric systems.				

CO₂ PLANT COMPARTMENT (local)

-Cylinders [No].				
-Capacity [Kg./cyl.].				
-Working pressure [bar.].				
-Destination [100 ms., areas].				
-Auxiliary electric systems.				

FOAM EXTINGUISHERS

- Central.				
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- Local.				
- Foam type.				
- Flow rate [m ³ /h].				

DRY POWDER EXTINGUISHERS

- Dry powder type.				
- Capacity.				

OTHER EXTINGUISHER TYPES (capacity):

- Steam.				
- Halogen.				
- Nitrogen.				
- Inert gas.				
- Sprinklers.				

FIRE ALARM INSTALLATIONS

Type.				
Sensors.				
Tension and supply place.				
Type of bells.				

AUTOMATIC BREATHING APPARATUS

Type.				
Autonomy.				

CARGO HANDLING GEAR

Derricks (capacity) [To.].				
Cranes (No. and capacity) [To.].				
Types of electric motor.				

LIQUID CARGO HANDLING GEAR

Pump type.				
- Flow rate [m ³ /h].				
- Drive.				
- Types of electric motor.				

TIGHT DOORS SIGNALLING INSTALLATION

Tension.				
Supply position.				
Signalling stations.				

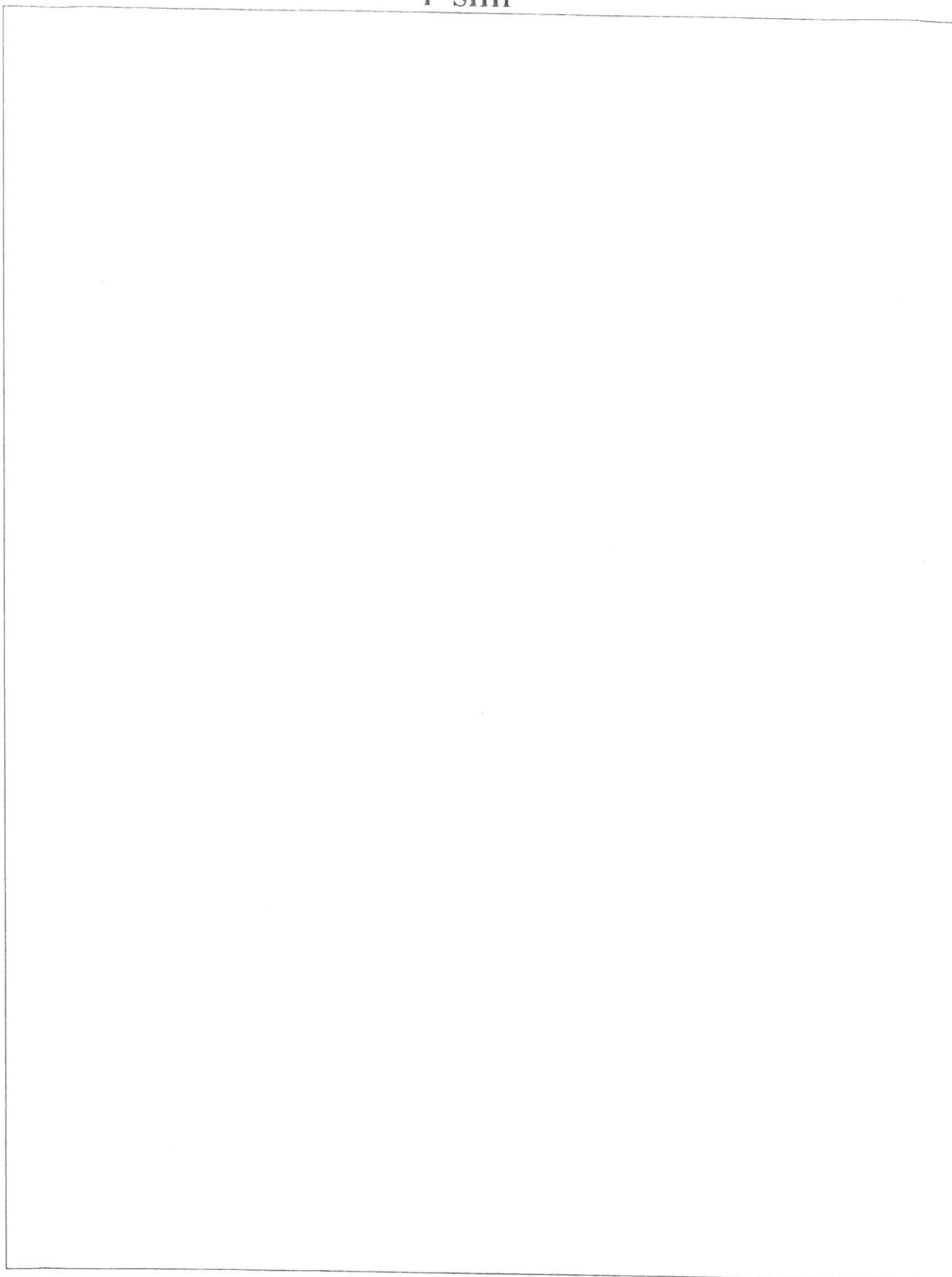
EMERGENCY LIGHTING INSTALLATION

Actuating motor (type, rotations).				
Generator (output, tension).				
Tension regulator (type).				
Automatic operation system.				
Batteries (type).				

RADIONAVIGATION AIDS

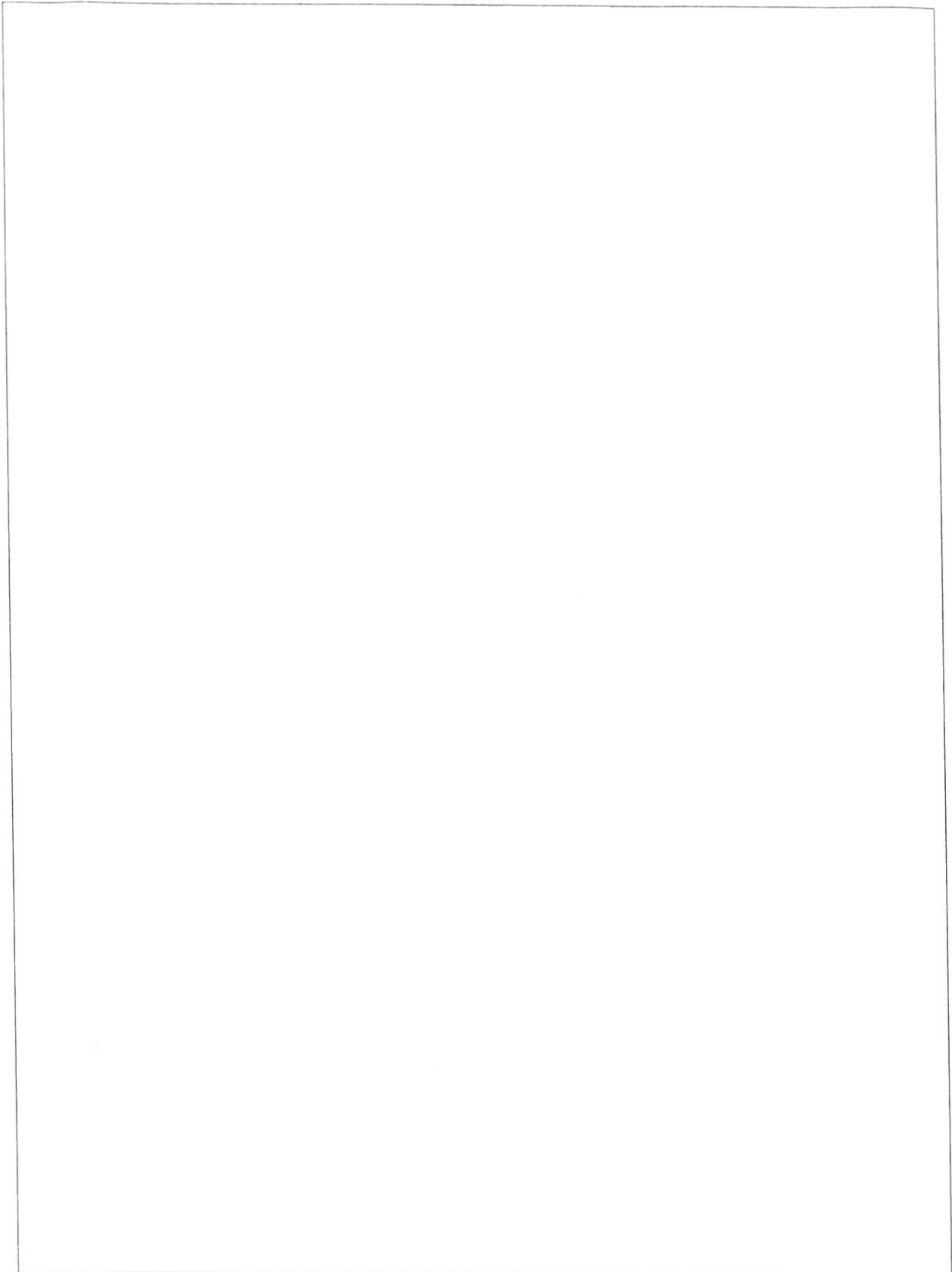
Bottom log (type).				
Gyrocompass (type).				
Echo depth sounder (type).				
Automatic pilot (type).				

PRINCIPLE DIAGRAM OF AUTOMATIC PILOT
(operation, make, interpretation)
1st SHIP



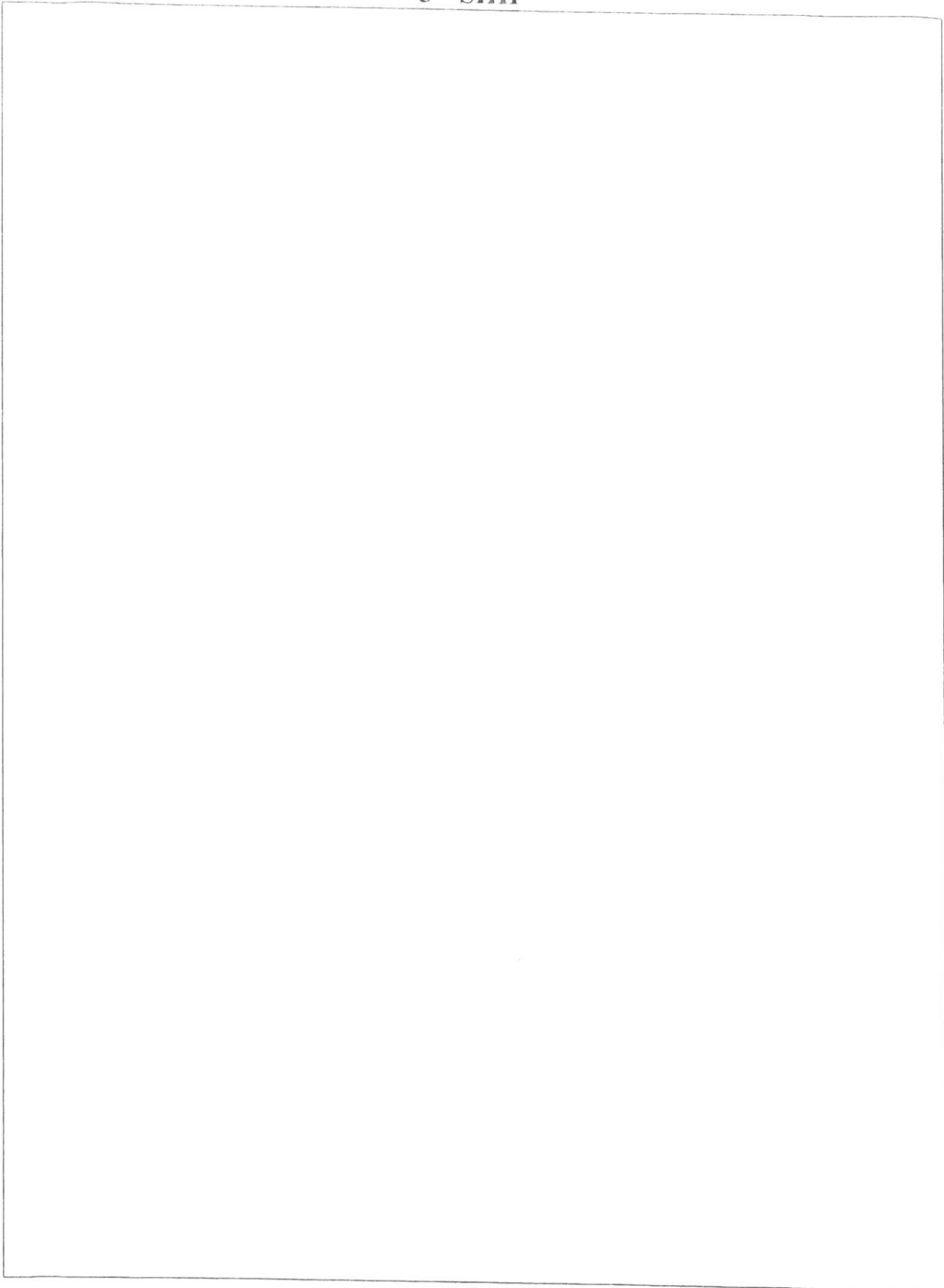
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PRINCIPLE DIAGRAM OF AUTOMATIC PILOT

(operation, make, interpretation)
2nd SHIP



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PRINCIPLE DIAGRAM OF AUTOMATIC PILOT
(operation, make, interpretation)

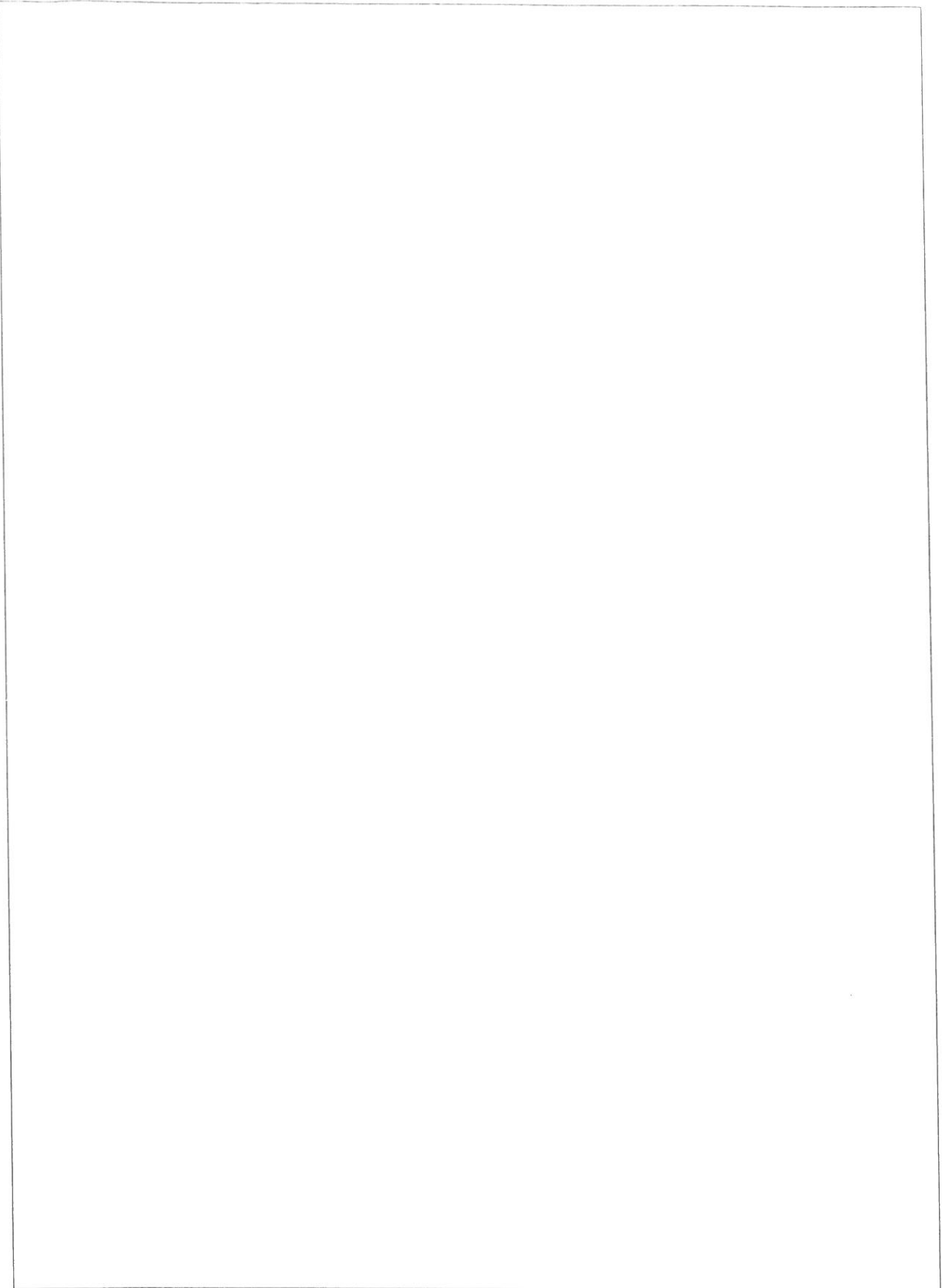
3rd SHIP



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PRINCIPLE DIAGRAM OF AUTOMATIC PILOT
(operation, make, interpretation)
4th SHIP

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PRINCIPLE SCHEME OF GYROCOMPASS
(operation, make, interpretation)
1st SHIP

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PRINCIPLE SCHEME OF GYROCOMPASS
(operation, make, interpretation)
2nd SHIP



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PRINCIPLE SCHEME OF GYROCOMPASS
(operation, make, interpretation)
3rd SHIP

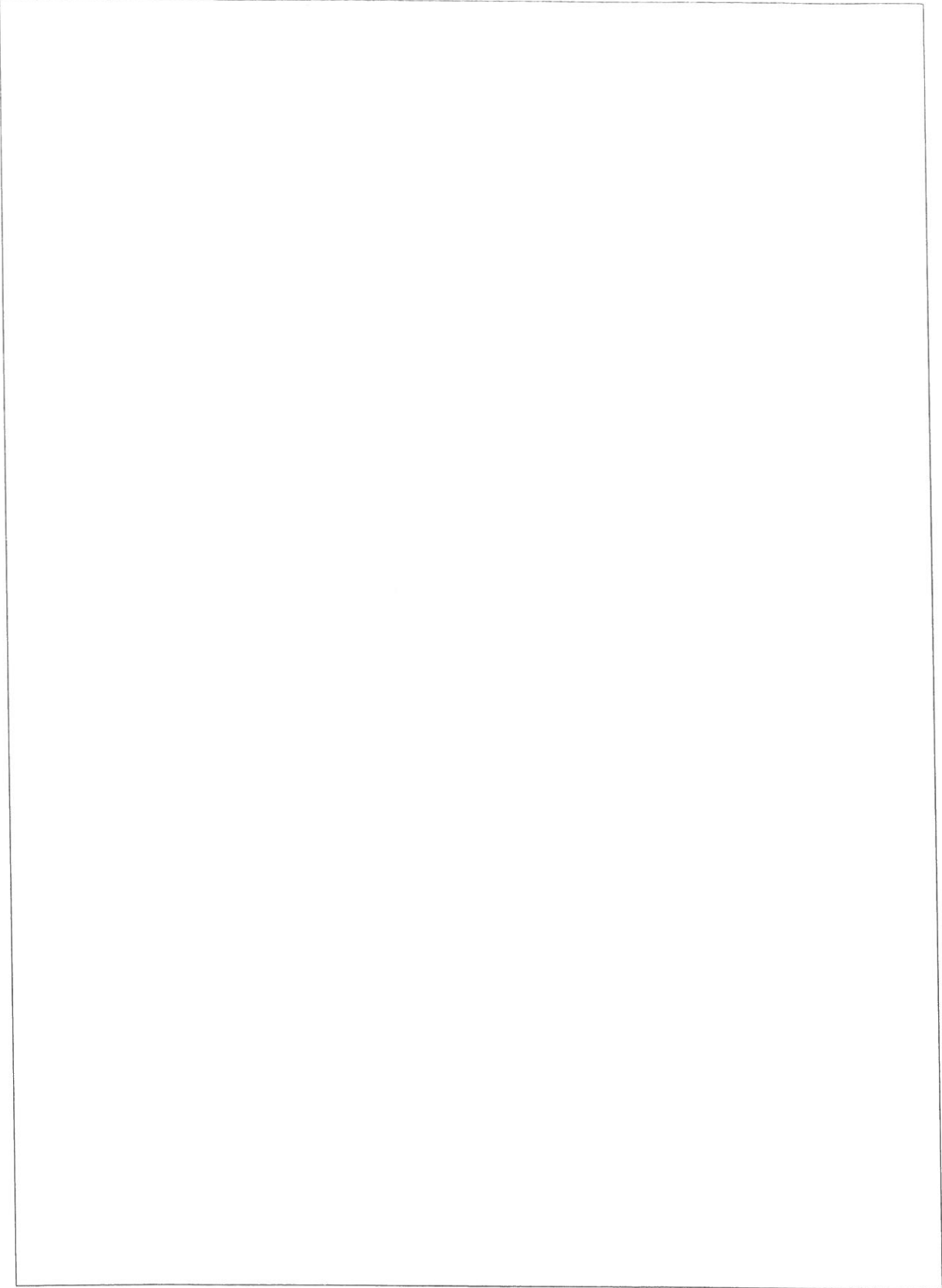
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PRINCIPLE SCHEME OF GYROCOMPASS
(operation, make, interpretation)
4th SHIP

CHECKED BY CHIEF ELECTRICIAN
ANCHOR WINDLASS ELECTRICAL SCHEME
(OPERATION, SPECIFIC PROTECTIONS, MAKE)
1st SHIP

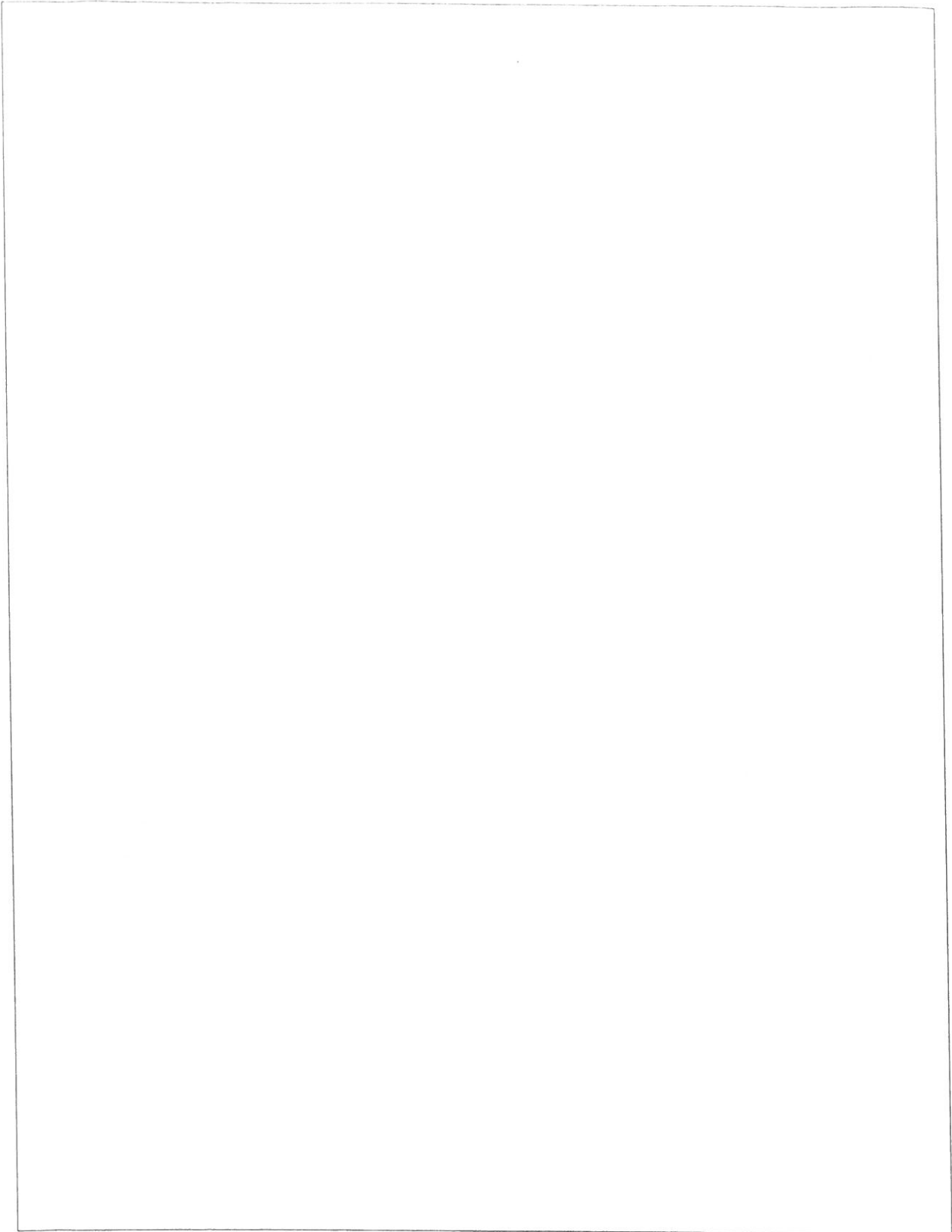
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ANCHOR WINDLASS ELECTRICAL SCHEME
(OPERATION, SPECIFIC PROTECTIONS, MAKE)
2nd SHIP

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ANCHOR WINDLASS ELECTRICAL SCHEME
(OPERATION, SPECIFIC PROTECTIONS, MAKE)
3rd SHIP

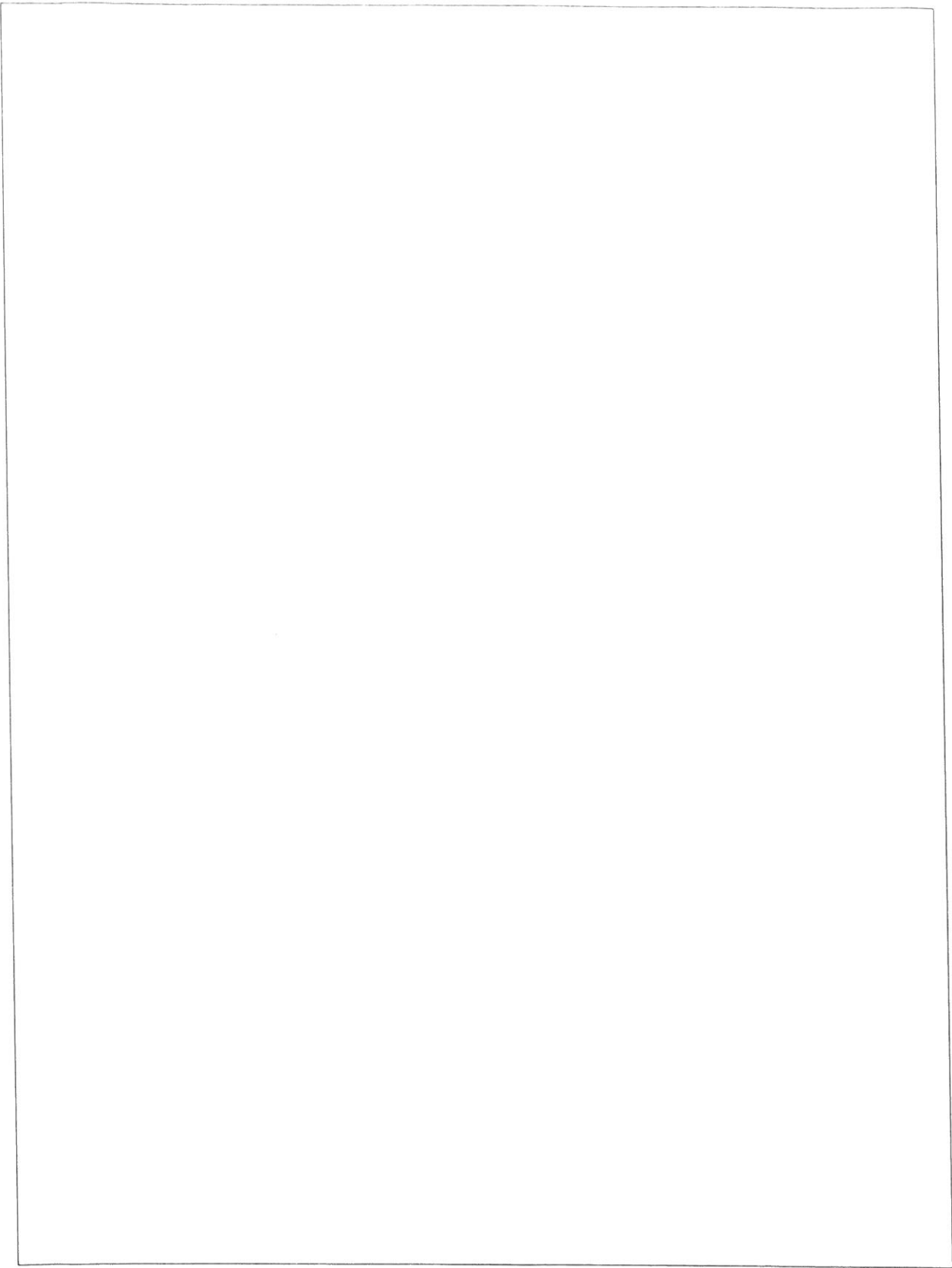
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ANCHOR WINDLASS ELECTRICAL SCHEME
(OPERATION, SPECIFIC PROTECTIONS, MAKE)
4th SHIP



**CHECKED BY CHIEF ELECTRICIAN
ELECTRICAL SCHEME OF HOISTING MECHANISM FOR A DECK
CRANE, DERRICK
(OPERATION, PROTECTIONS, ACTUATION TYPES)
1st SHIP**

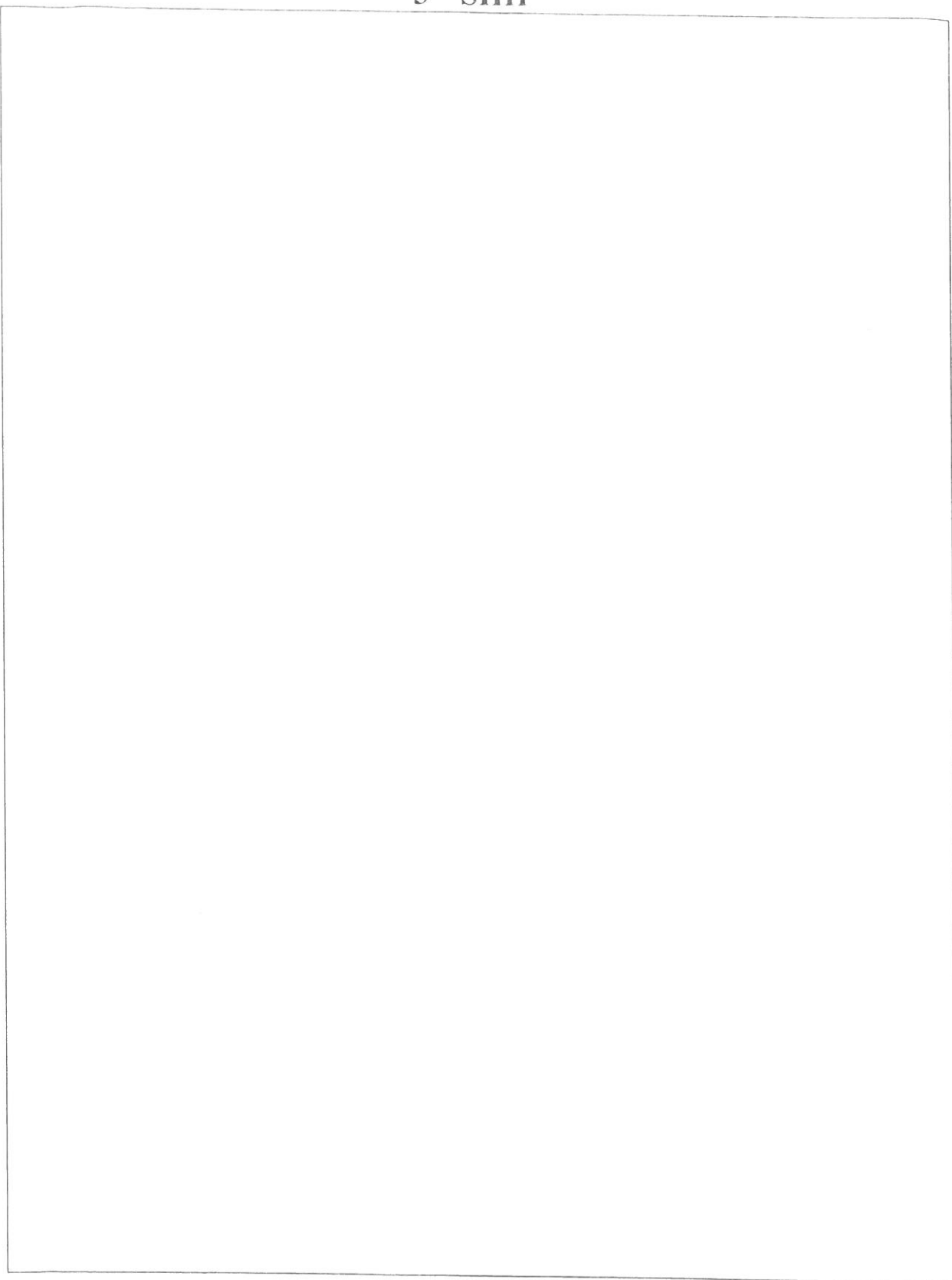


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ELECTRICAL SCHEME OF HOISTING MECHANISM FOR A DECK
CRANE, DERRICK
(OPERATION, PROTECTIONS, ACTUATION TYPES)
2nd SHIP



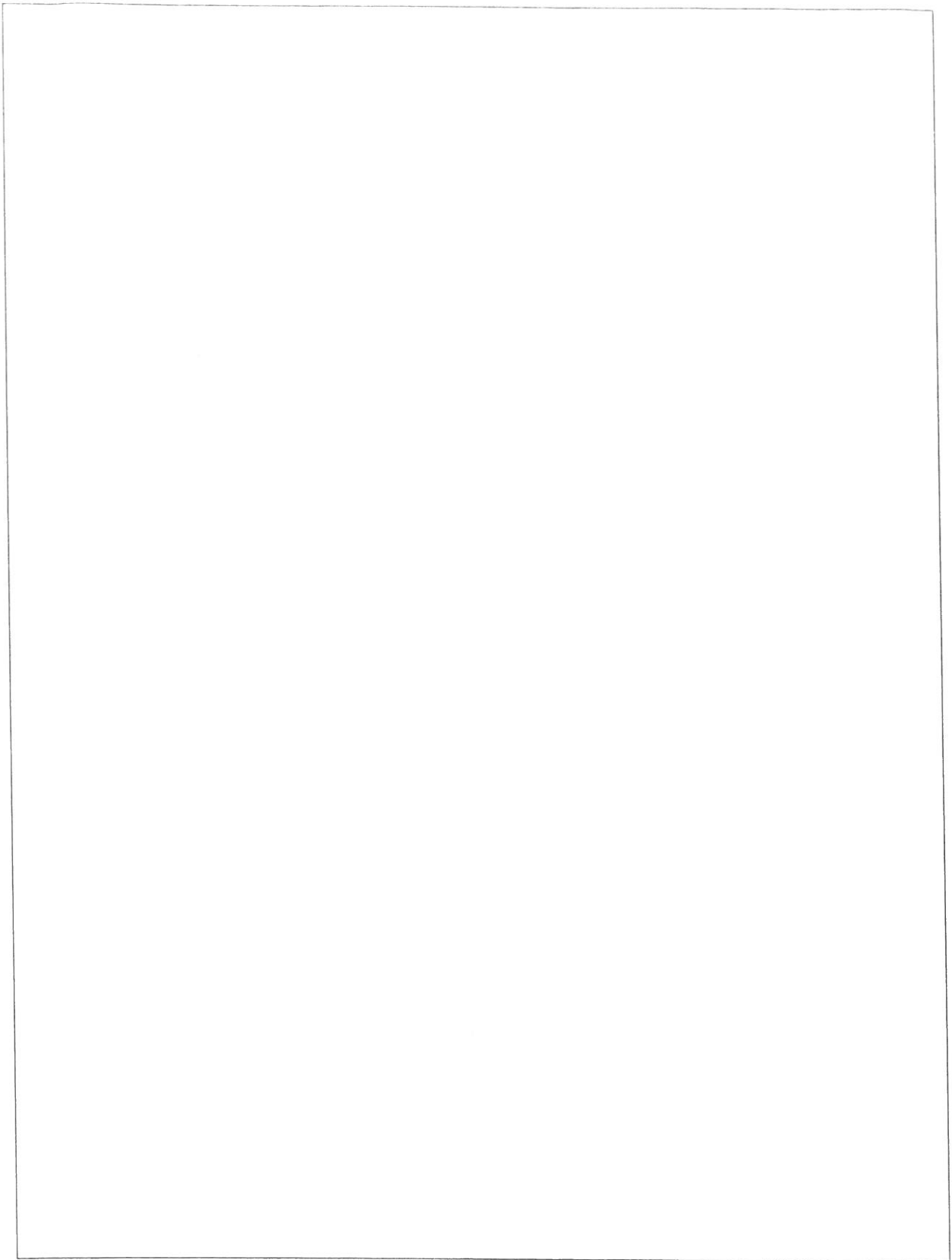
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ELECTRICAL SCHEME OF HOISTING MECHANISM FOR A DECK
CRANE, DERRICK
(OPERATION, PROTECTIONS, ACTUATION TYPES)

3rd SHIP



**CHECKED BY CHIEF ELECTRICIAN
ELECTRICAL SCHEME OF HOISTING MECHANISM FOR A DECK
CRANE, DERRICK
(OPERATION, PROTECTIONS, ACTUATION TYPES)**

4th SHIP



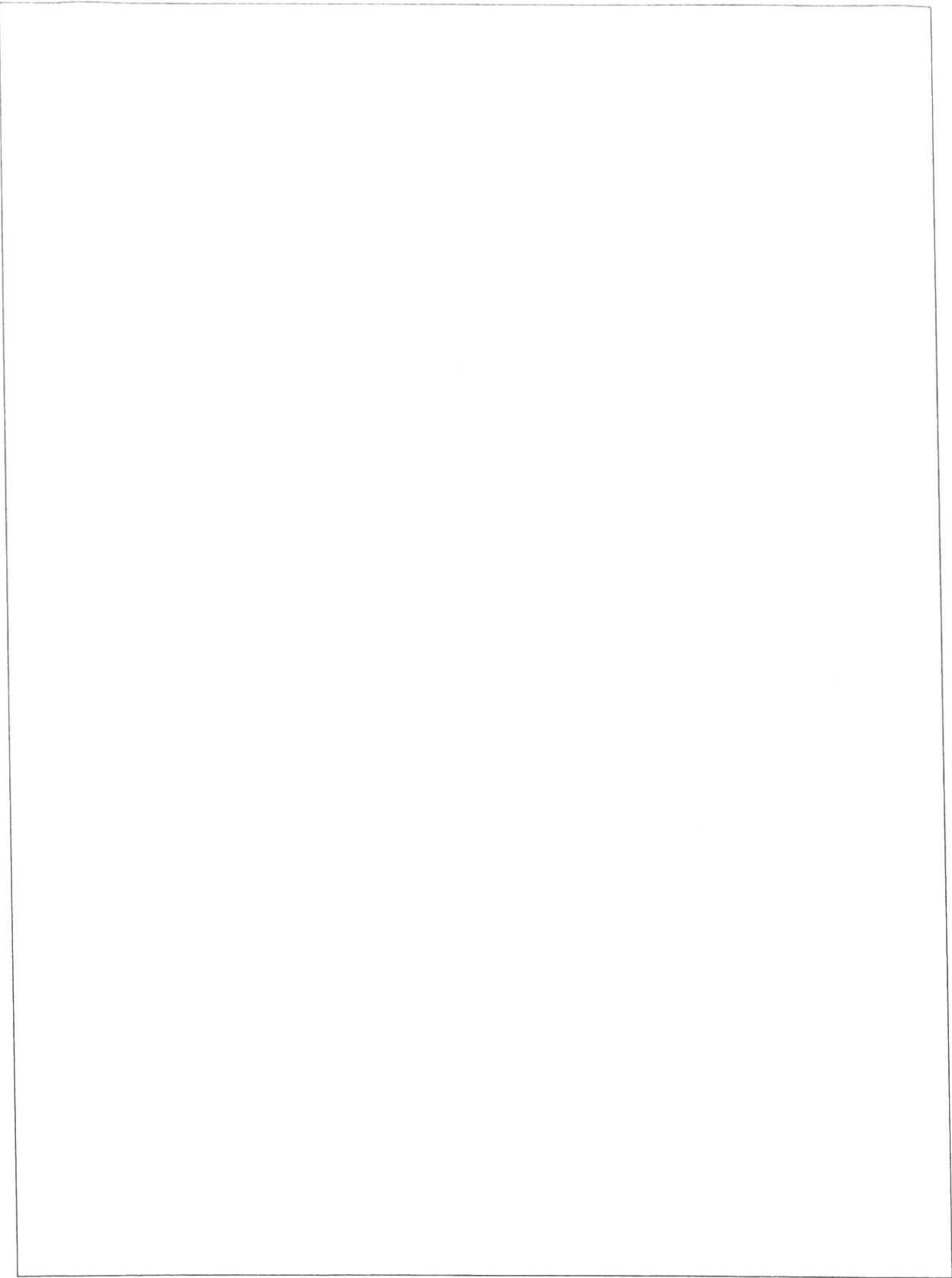
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**ELECTRICAL ACTUATION SCHEME OF A FIRE PUMP
(OPERATION, MAKE, SPECIFIC PROTECTIONS)
1st SHIP**

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ELECTRICAL ACTUATION SCHEME OF A FIRE PUMP
(OPERATION, MAKE, SPECIFIC PROTECTIONS)
2nd SHIP

CHECKED BY CHIEF ELECTRICIAN
ELECTRICAL ACTUATION SCHEME OF A FIRE PUMP
(OPERATION, MAKE, SPECIFIC PROTECTIONS)
3rd SHIP

CHECKED BY CHIEF ELECTRICIAN
ELECTRIC ACTUATION SCHEME OF A FIRE PUMP
(OPERATION, MAKE, SPECIFIC PROTECTIONS)
4th SHIP



CHECKED BY CHIEF ELECTRICIAN
ELECTRICAL ACTUATION SCHEME OF A COMPRESSED AIR
COMPRESSOR
(MAKE, OPERATION, PROTECTION)
1st SHIP

CHECKED BY CHIEF ELECTRICIAN
ELECTRICAL ACTUATION SCHEME OF A COMPRESSED AIR
COMPRESSOR
(MAKE, OPERATION, PROTECTION)
2nd SHIP

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ELECTRICAL ACTUATION SCHEME OF A COMPRESSED AIR
COMPRESSOR
(MAKE, OPERATION, PROTECTION)
3rd SHIP

CHECKED BY CHIEF ELECTRICIAN
ELECTRICAL ACTUATION SCHEME OF A COMPRESSED AIR
COMPRESSOR
(MAKE, OPERATION, PROTECTION)
4th SHIP

CHECKED BY CHIEF ELECTRICIAN
ELECTRICAL SCHEME OF THE SEAWAGE INSTALLATION
(MAKE, OPERATION, PROTECTIONS)
1st SHIP

CHECKED BY CHIEF ELECTRICIAN
ELECTRICAL SCHEME OF THE SEAWAGE INSTALLATION
(MAKE, OPERATION, PROTECTIONS)
2nd SHIP

CHECKED BY CHIEF ELECTRICIAN
ELECTRICAL SCHEME OF THE SEAWAGE INSTALLATION
(MAKE, OPERATION, PROTECTIONS)
3rd SHIP

CHECKED BY CHIEF ELECTRICIAN
ELECTRICAL SCHEME OF THE SEAWAGE INSTALLATION
(MAKE, OPERATION, PROTECTIONS)
4th SHIP

CHECKED BY CHIEF ELECTRICIAN
ELECTRICAL SCHEME OF BILGE WATER SEPARATOR
(MAKE, OPERATION, REQUIREMENTS ACCORDING TO THE
CLASSIFICATION COMPANY)
1st SHIP

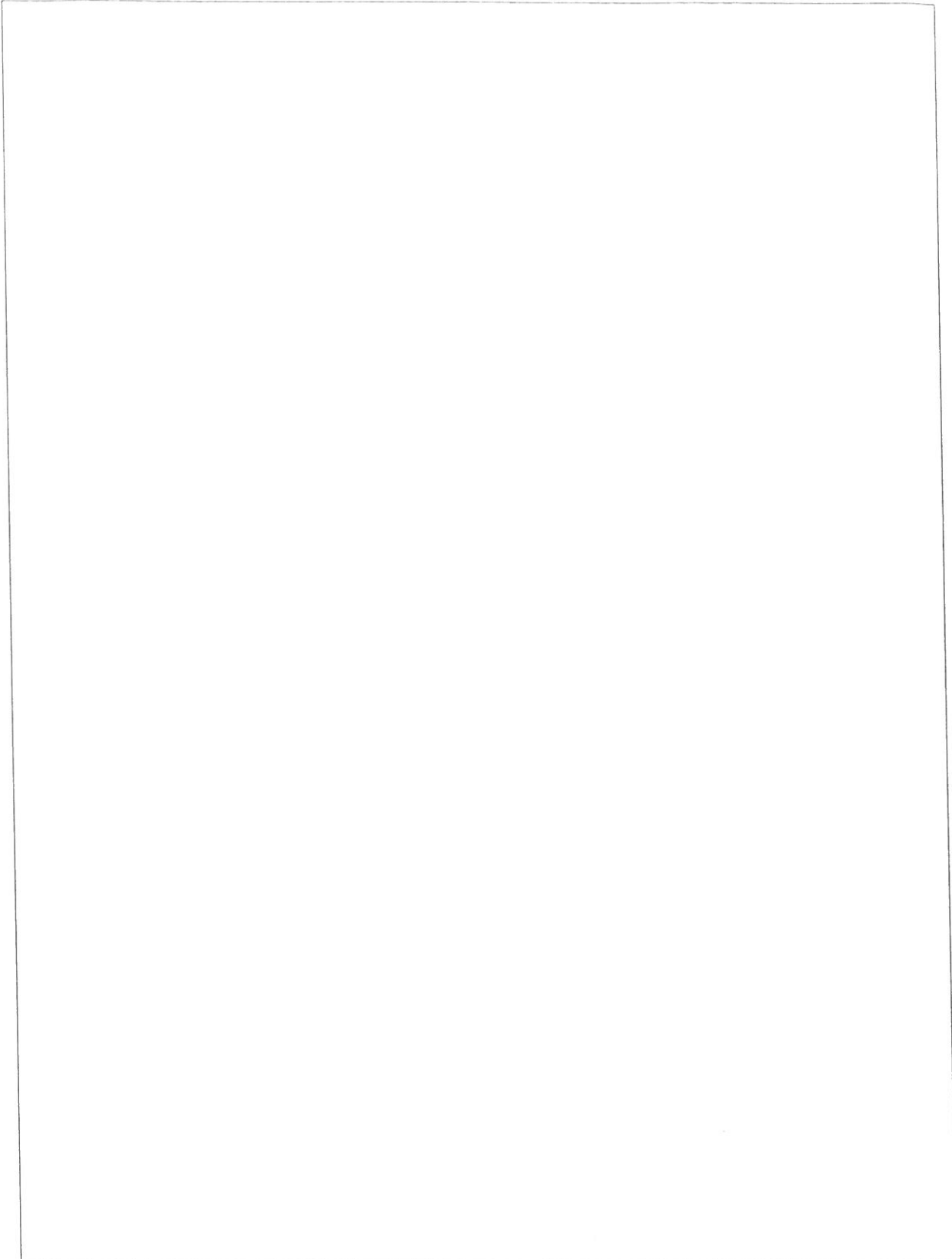
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ELECTRICAL SCHEME OF BILGE WATER SEPARATOR
(MAKE, OPERATION, REQUIREMENTS ACCORDING TO THE
CLASSIFICATION COMPANY)
2nd SHIP

CHECKED BY CHIEF ELECTRICIAN
ELECTRICAL SCHEME OF BILGE WATER SEPARATOR
(MAKE, OPERATION, REQUIREMENTS ACCORDING TO THE
CLASSIFICATION COMPANY)
3rd SHIP

**CHECKED BY CHIEF ELECTRICIAN
ELECTRICAL SCHEME OF BILGE WATER SEPARATOR
(MAKE, OPERATION, REQUIREMENTS ACCORDING TO THE
CLASSIFICATION COMPANY)
4th SHIP**

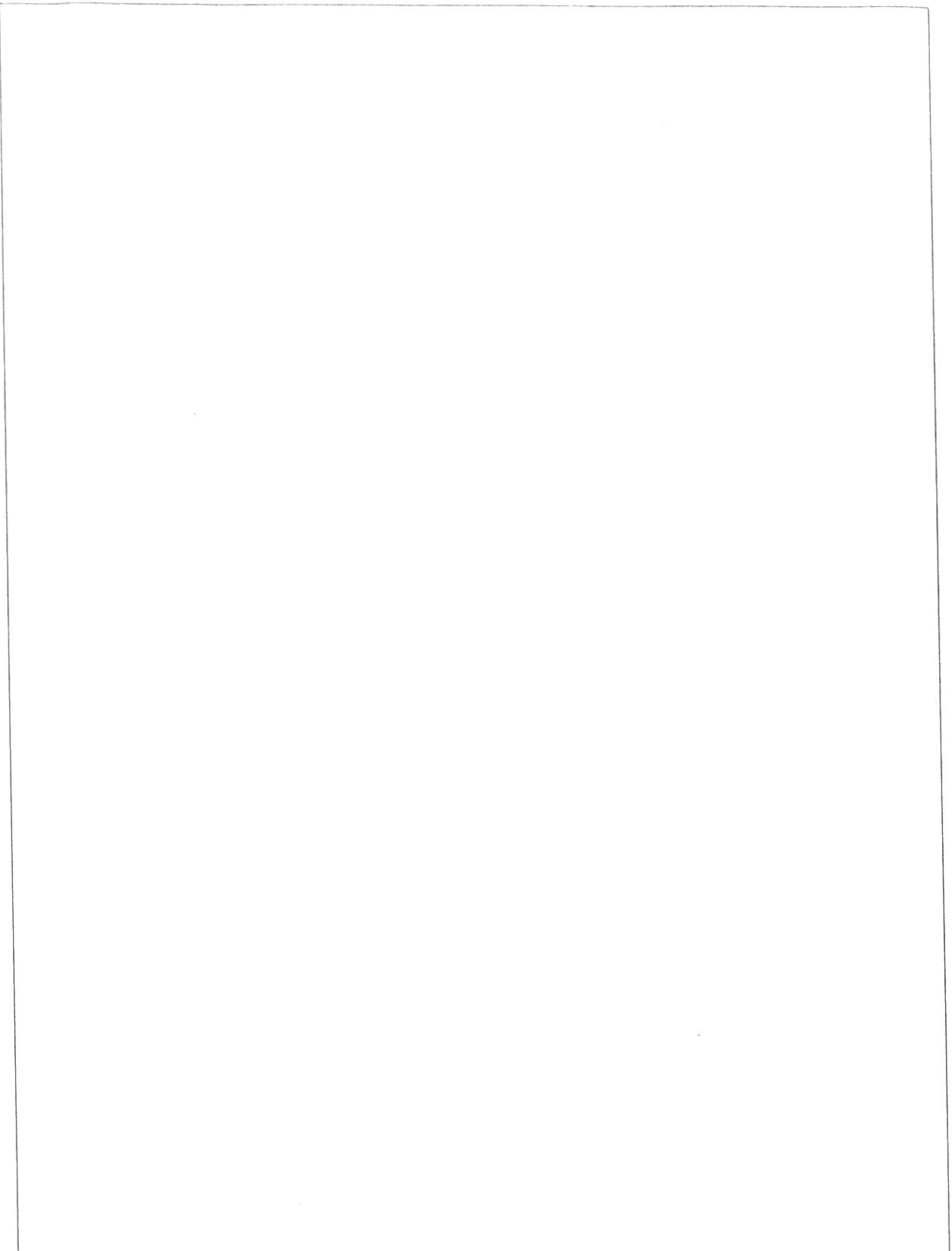
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ELECTRICAL SCHEME OF REFRIGERATING AND AIR-
CONDITIONING INSTALLATIONS FOR THE PROVISION ROOM
(MAKE, OPERATION, PROTECTIONS)
1st SHIP

CHECKED BY CHIEF ELECTRICIAN
ELECTRICAL SCHEME OF REFRIGERATING AND AIR-
CONDITIONING INSTALLATIONS FOR THE PROVISION ROOM
(MAKE, OPERATION, PROTECTIONS)
2nd SHIP



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ELECTRICAL SCHEME OF REFRIGERATING AND AIR-
CONDITIONING INSTALLATIONS FOR THE PROVISION ROOM
(MAKE, OPERATION, PROTECTIONS)
3rd SHIP

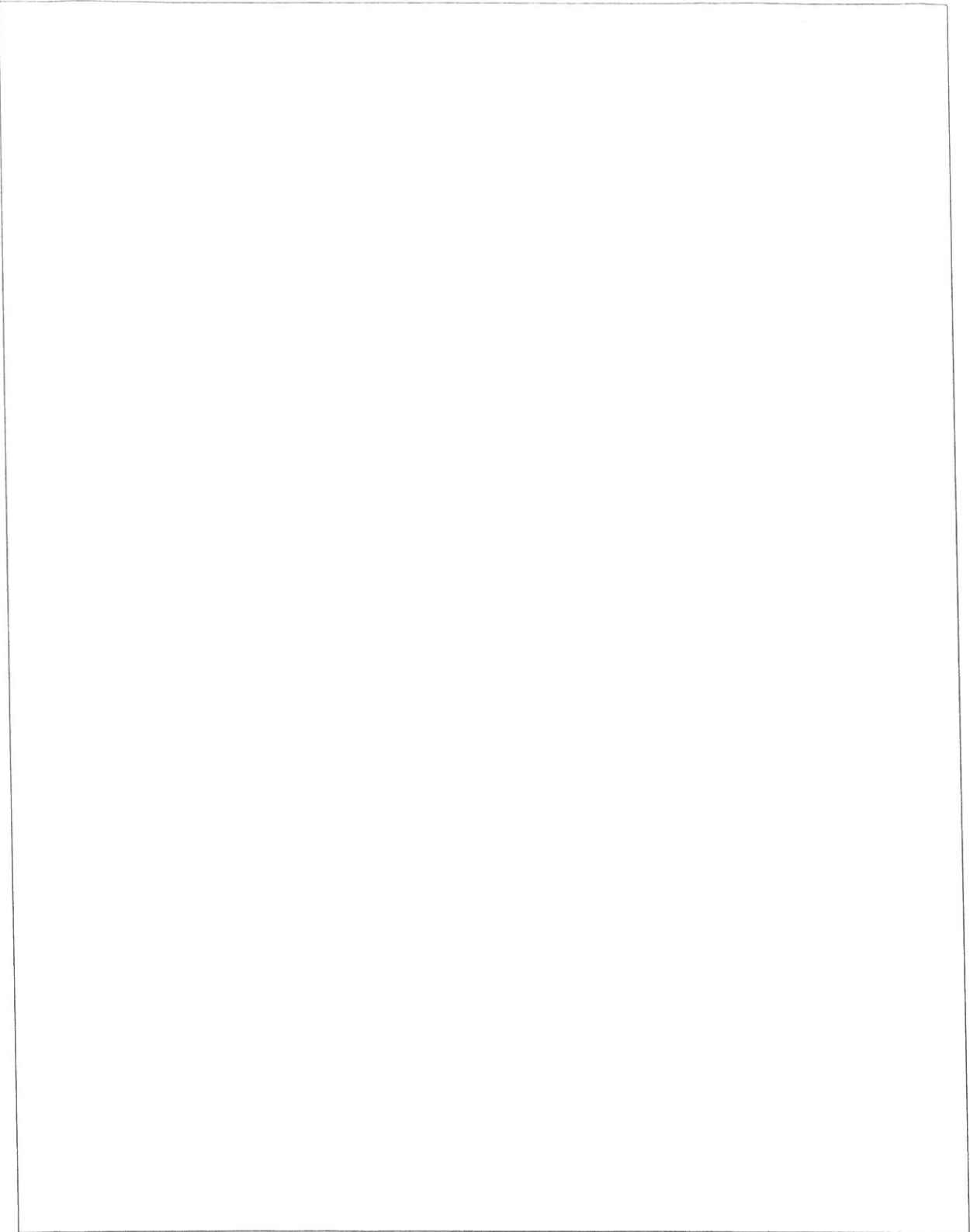
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ELECTRICAL SCHEME OF REFRIGERATING AND AIR-
CONDITIONING INSTALLATIONS FOR THE PROVISION ROOM
(MAKE, OPERATION, PROTECTIONS)
4th SHIP



CHECKED BY CHIEF ELECTRICIAN
ELECTRICAL SCHEME OF A GENERATOR SECTION IN MAIN
DISTRIBUTION SWITCHBOARD
(MAKE, MEASURING DEVICES, SPECIFIC PROTECTIONS,
SELECTIVE PROTECTIONS)

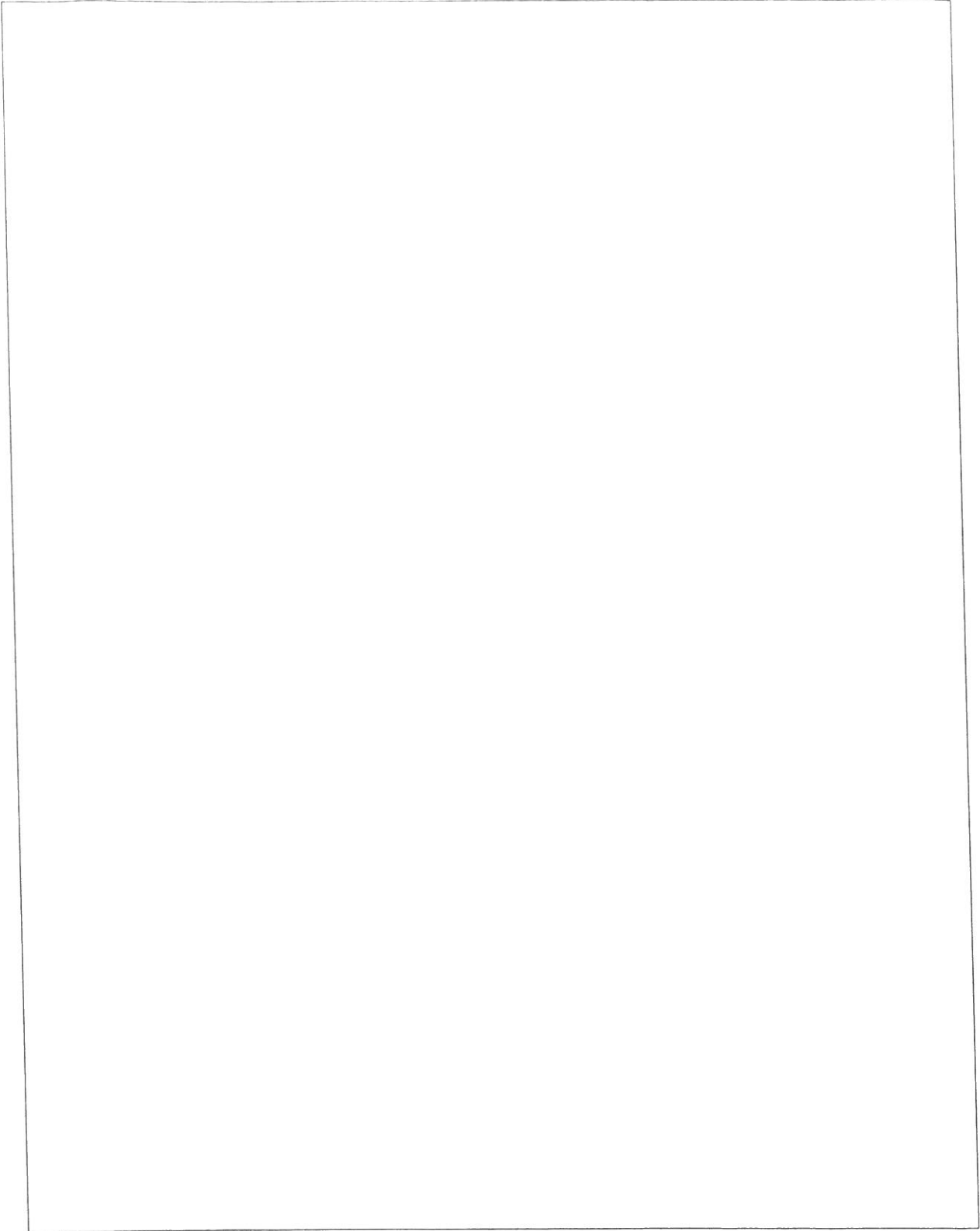
1st SHIP

CHECKED BY CHIEF ELECTRICIAN
ELECTRICAL SCHEME OF A GENERATOR SECTION IN MAIN
DISTRIBUTION SWITCHBOARD
(MAKE, MEASURING DEVICES, SPECIFIC PROTECTIONS,
SELECTIVE PROTECTIONS)
2nd SHIP



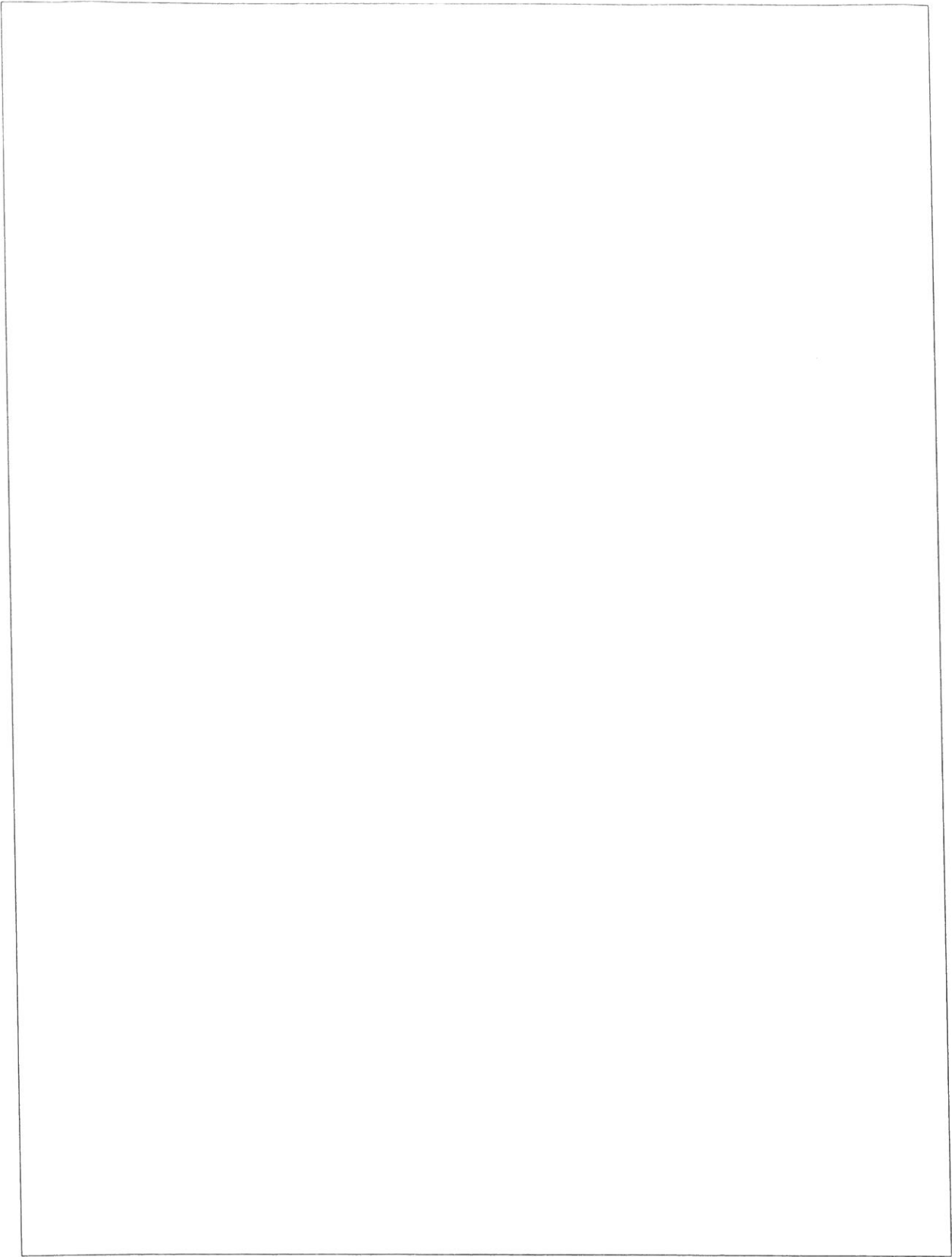
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ELECTRICAL SCHEME OF A GENERATOR SECTION IN MAIN
DISTRIBUTION SWITCHBOARD
(MAKE, MEASURING DEVICES, SPECIFIC PROTECTIONS,
SELECTIVE PROTECTIONS)
3rd SHIP

CHECKED BY CHIEF ELECTRICIAN
ELECTRICAL SCHEME OF A GENERATOR SECTION IN MAIN
DISTRIBUTION SWITCHBOARD
(MAKE, MEASURING DEVICES, SPECIFIC PROTECTIONS,
SELECTIVE PROTECTIONS)
4th SHIP



**CHECKED BY CHIEF ELECTRICIAN
ELECTRICAL ACTUATION SCHEME FOR A SEA-WATER COOLING
PUMP IN MAIN ENGINE
(MAKE, OPERATION, PROTECTIONS)
1st SHIP**

**CHECKED BY CHIEF ELECTRICIAN
ELECTRICAL ACTUATION SCHEME FOR A SEA-WATER COOLING
PUMP IN MAIN ENGINE
(MAKE, OPERATION, PROTECTIONS)
2nd SHIP**



**CHECKED BY CHIEF ELECTRICIAN
ELECTRICAL ACTUATION SCHEME FOR A SEA-WATER COOLING
PUMP IN MAIN ENGINE
(MAKE, OPERATION, PROTECTIONS)
3rd SHIP**

**CHECKED BY CHIEF ELECTRICIAN
ELECTRICAL ACTUATION SCHEME FOR A SEA-WATER COOLING
PUMP IN MAIN ENGINE
(MAKE, OPERATION, PROTECTIONS)
4th SHIP**

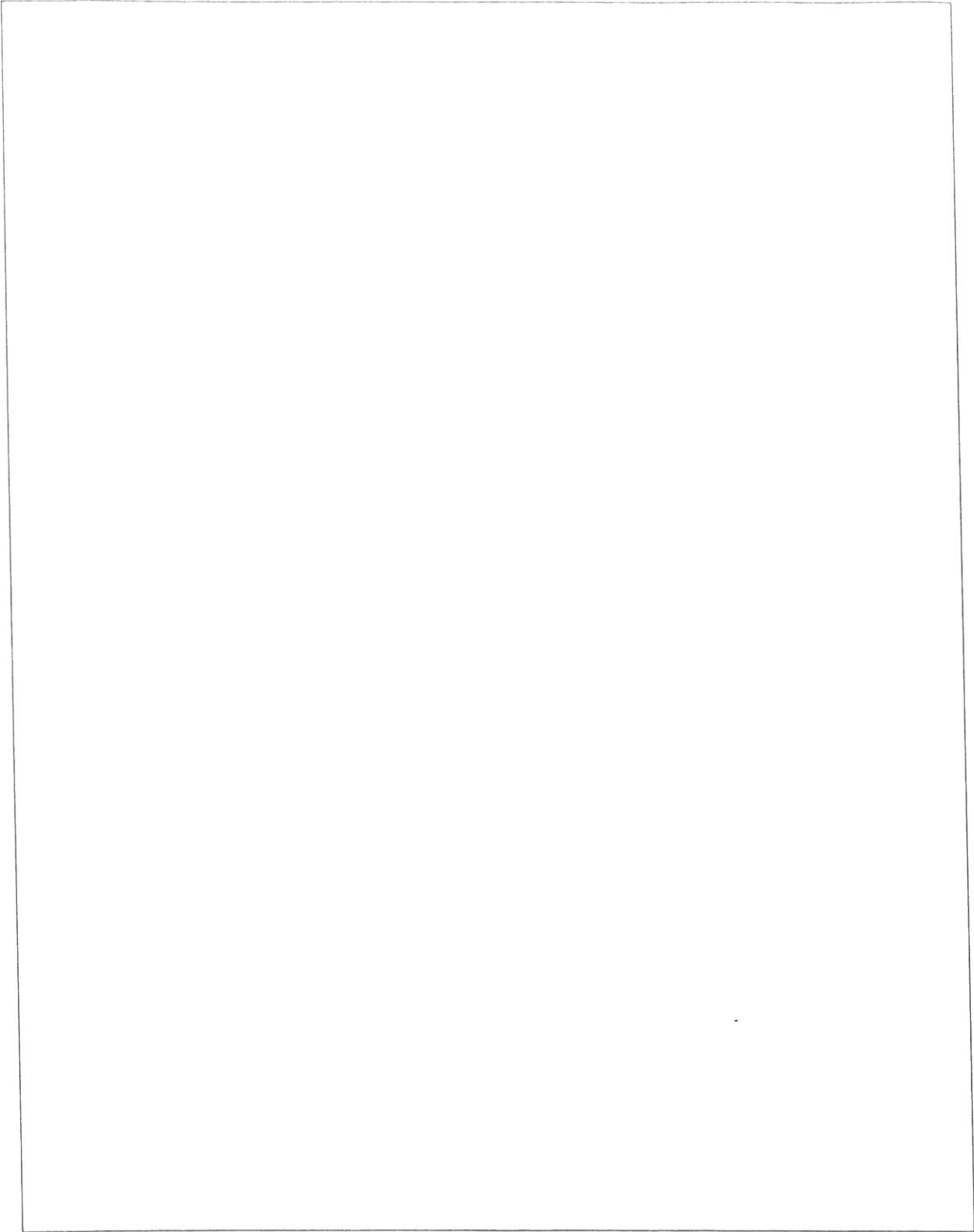
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PARALLEL COUPLING OF TWO GENERATORS
(COUPLING CONDITIONS, ELECTRICAL SCHEME, MEASURING
DEVICES INTERPRETATION, TENSION REGULATOR-
ELECTRICAL SCHEME)

1st SHIP

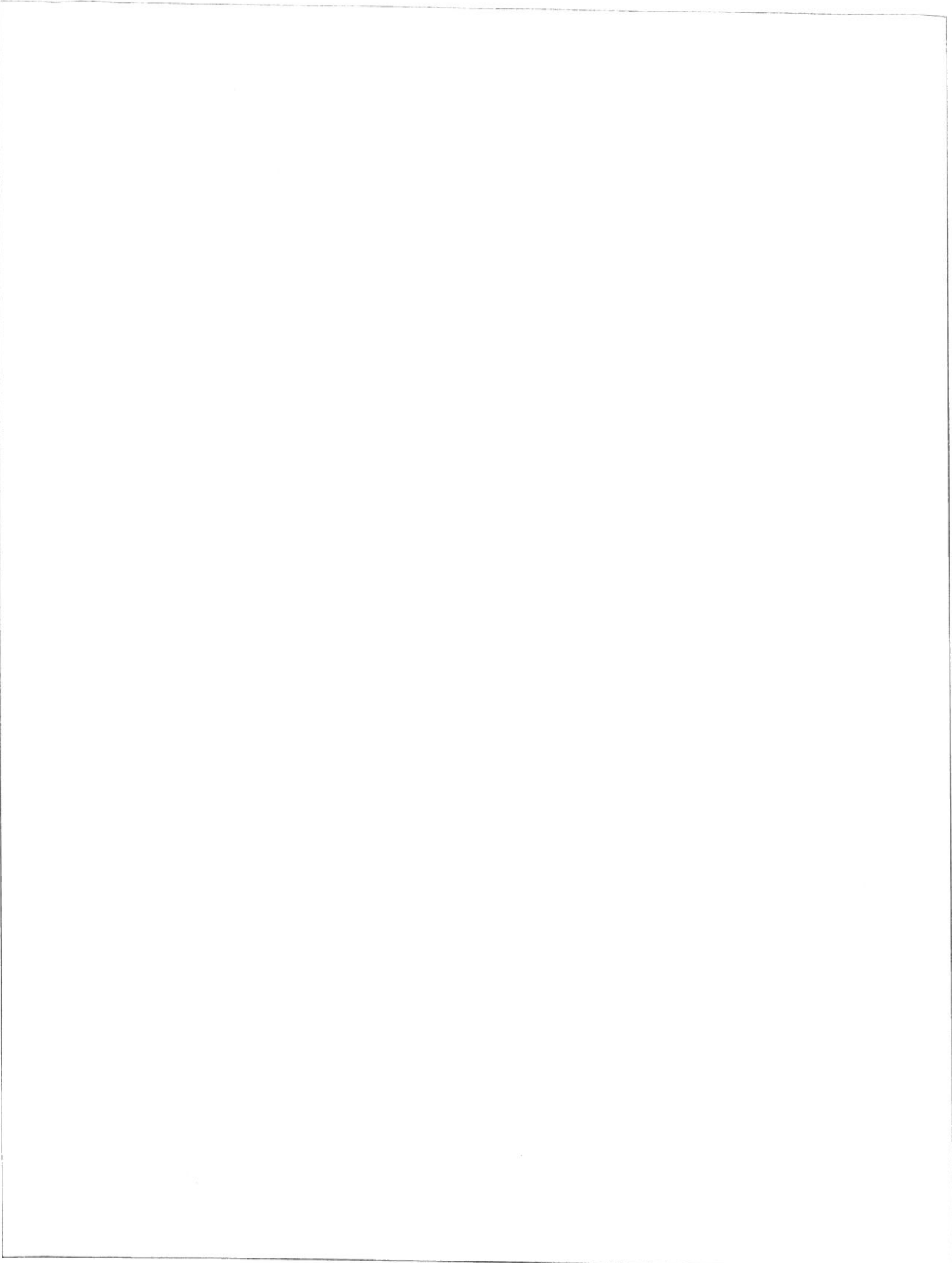
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PARALLEL COUPLING OF TWO GENERATORS
(COUPLING CONDITIONS, ELECTRICAL SCHEME, MEASURING
DEVICES INTERPRETATION, TENSION REGULATOR-
ELECTRICAL SCHEME)
2nd SHIP

CHECKED BY CHIEF ELECTRICIAN
PARALLEL COUPLING OF TWO GENERATORS
(COUPLING CONDITIONS, ELECTRICAL SCHEME, MEASURING
DEVICES INTERPRETATION, TENSION REGULATOR-
ELECTRICAL SCHEME)
3rd SHIP

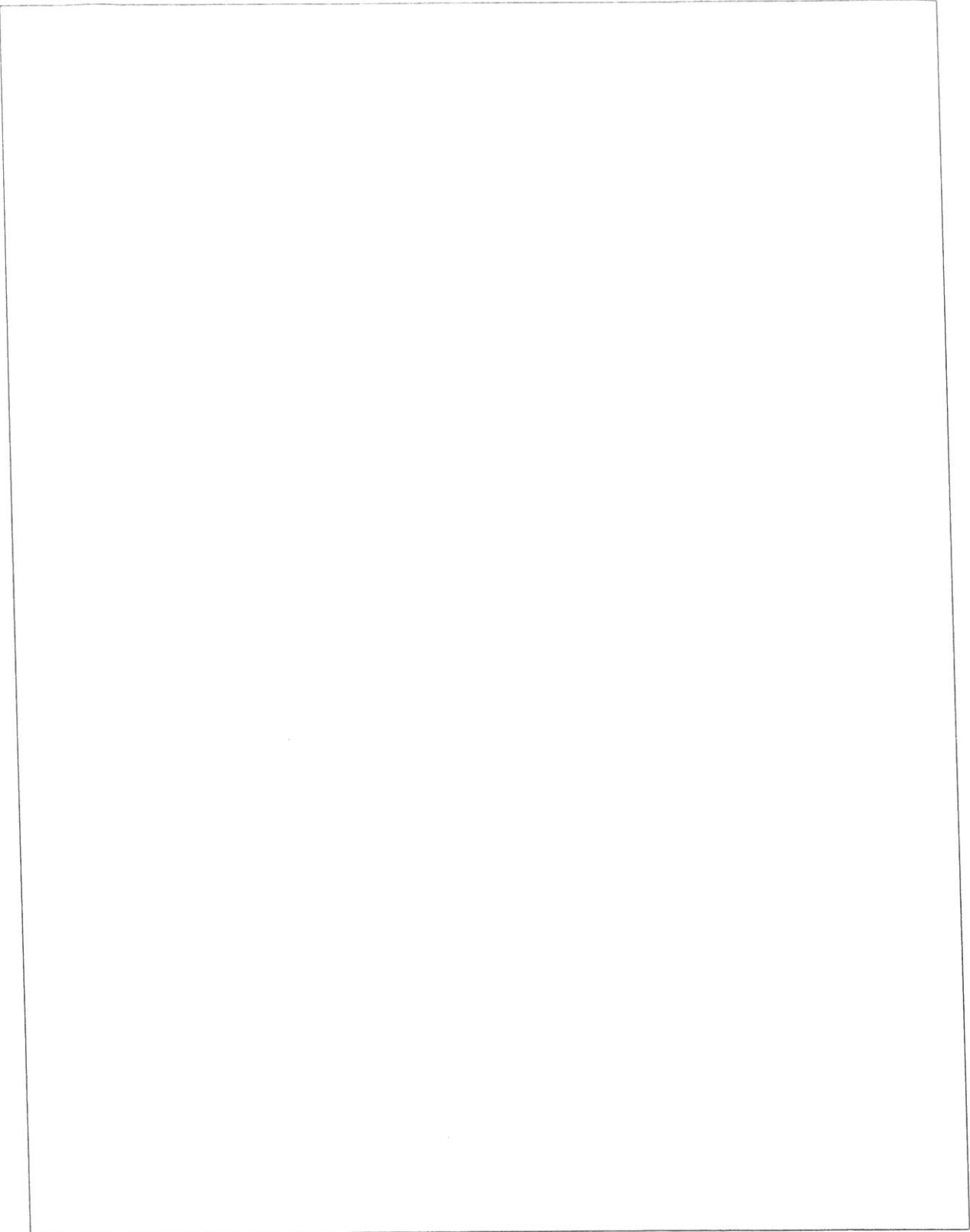
CHECKED BY CHIEF ELECTRICIAN
PARALLEL COUPLING OF TWO GENERATORS
(COUPLING CONDITIONS, ELECTRICAL SCHEME, MEASURING
DEVICES INTERPRETATION, TENSION REGULATOR-
ELECTRICAL SCHEME)
4th SHIP



CHECKED BY CHIEF ELECTRICIAN
PRINCIPLE SCHEME OF SIGNALLING INSTALLATION, STOP,
MAIN ENGINE PROTECTIONS
(MAKE, ELECTRICAL SCHEME, OPERATION)
1st SHIP

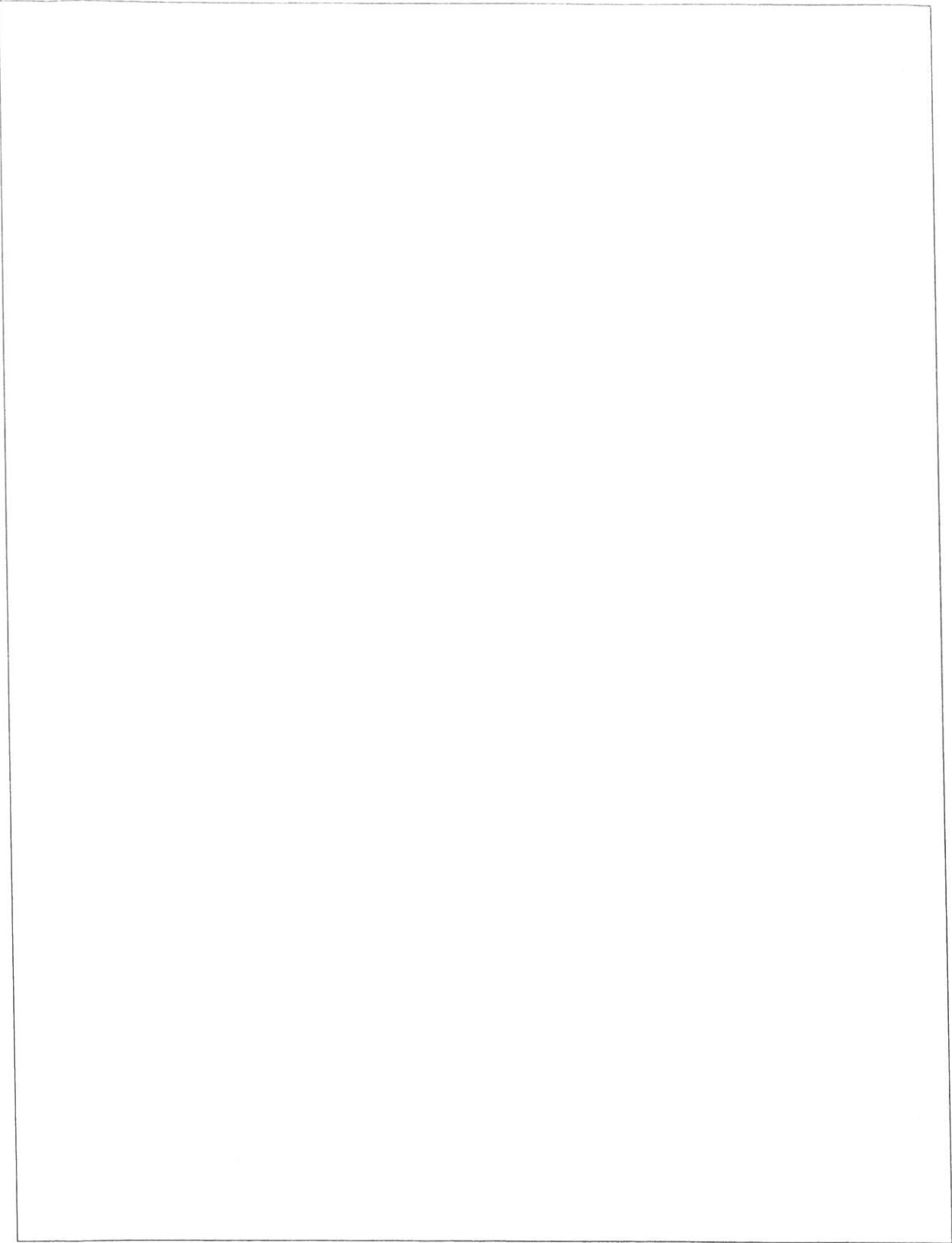


CHECKED BY CHIEF ELECTRICIAN
PRINCIPLE SCHEME OF SIGNALLING INSTALLATION, STOP,
MAIN ENGINE PROTECTIONS (MAKE, ELECTRICAL SCHEME,
OPERATION)
2nd SHIP

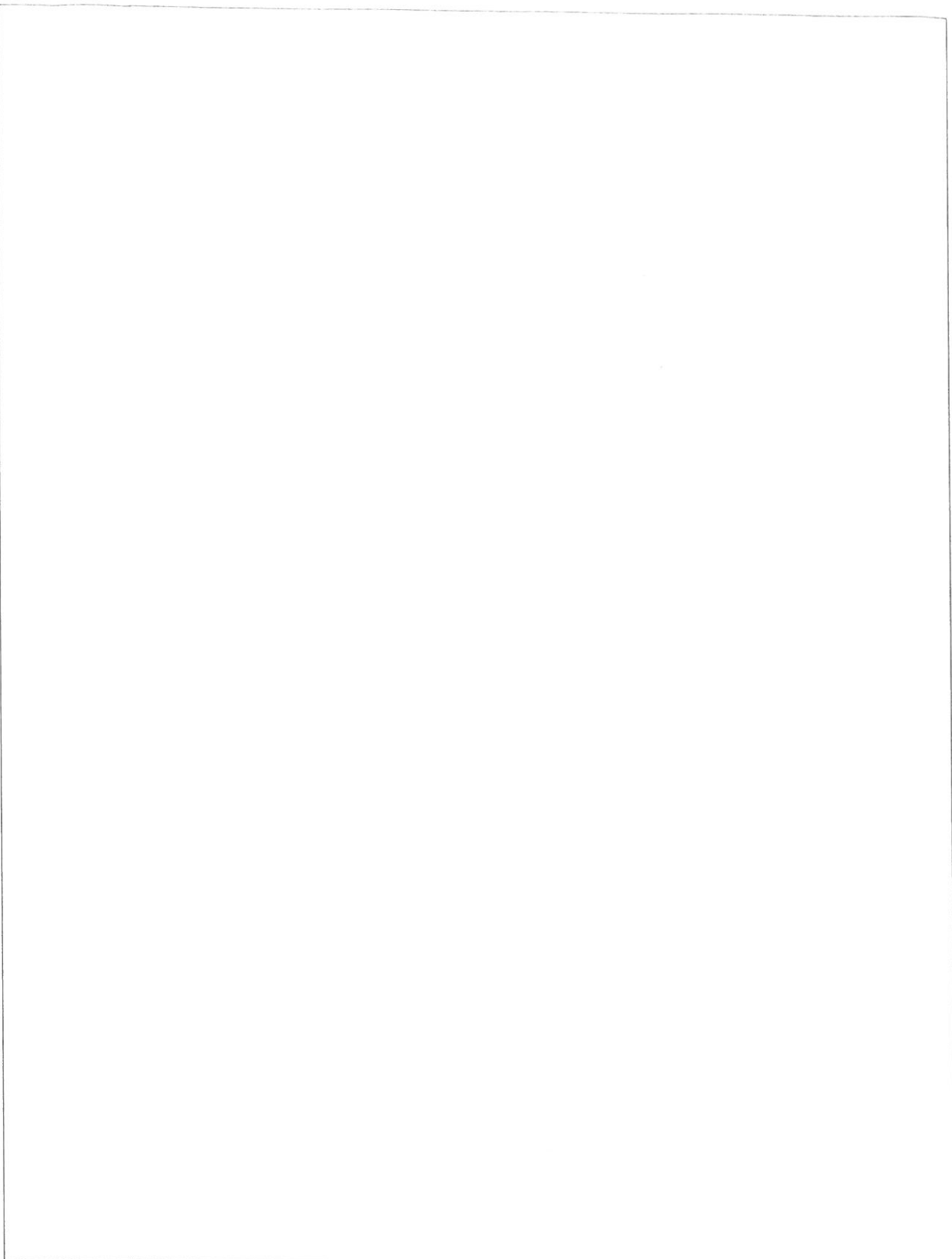


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OPERATION)
3rd SHIP

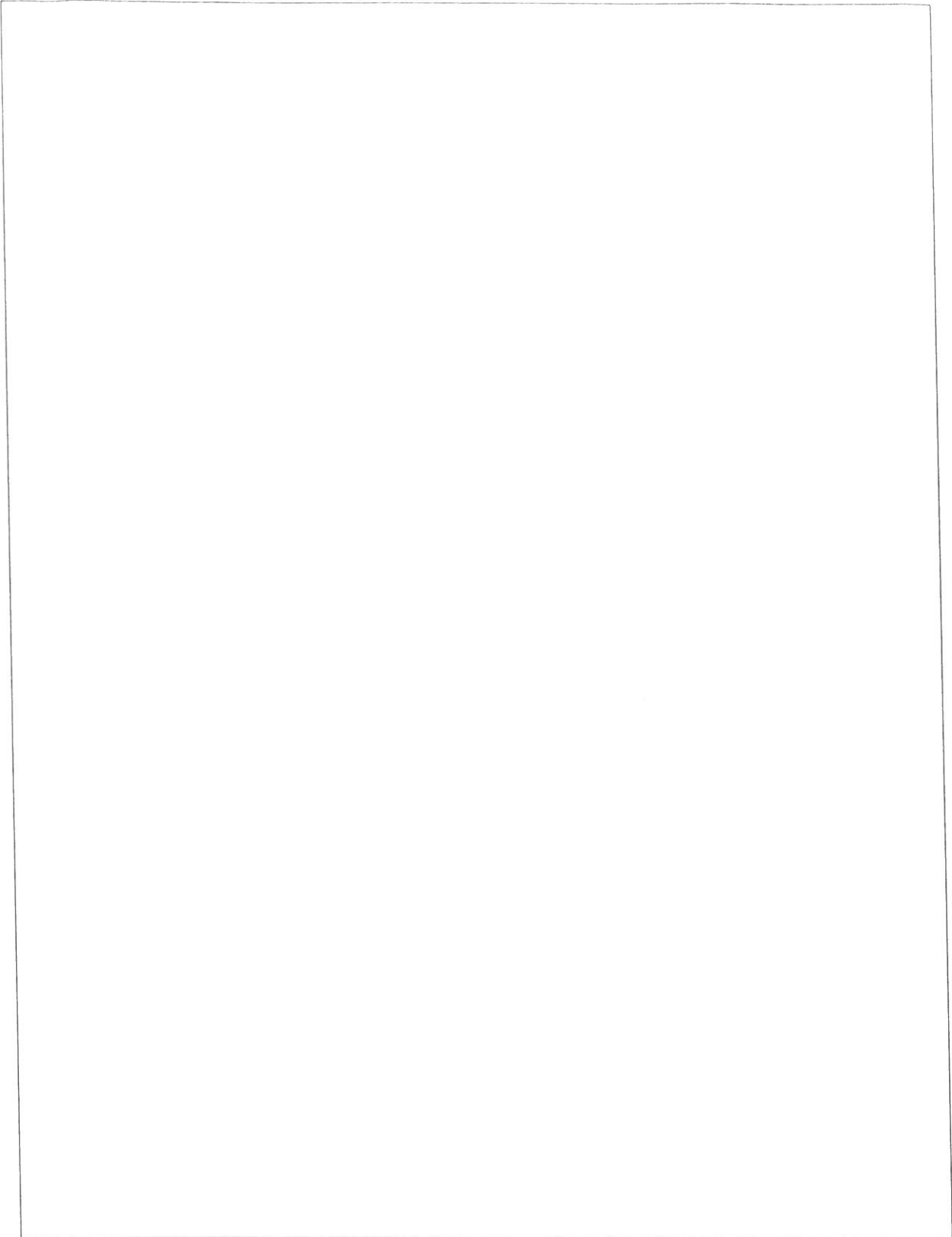
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PRINCIPLE SCHEME OF SIGNALLING INSTALLATION, STOP,
MAIN ENGINE PROTECTIONS (MAKE, ELECTRICAL SCHEME,
OPERATION)
4th SHIP



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PRINCIPLE SCHEME OF SIGNALLING INSTALLATION, STOP,
AUXILLIARY ENGINE PROTECTIONS (MAKE, ELECTRICAL
SCHEME, OPERATION)
1st SHIP

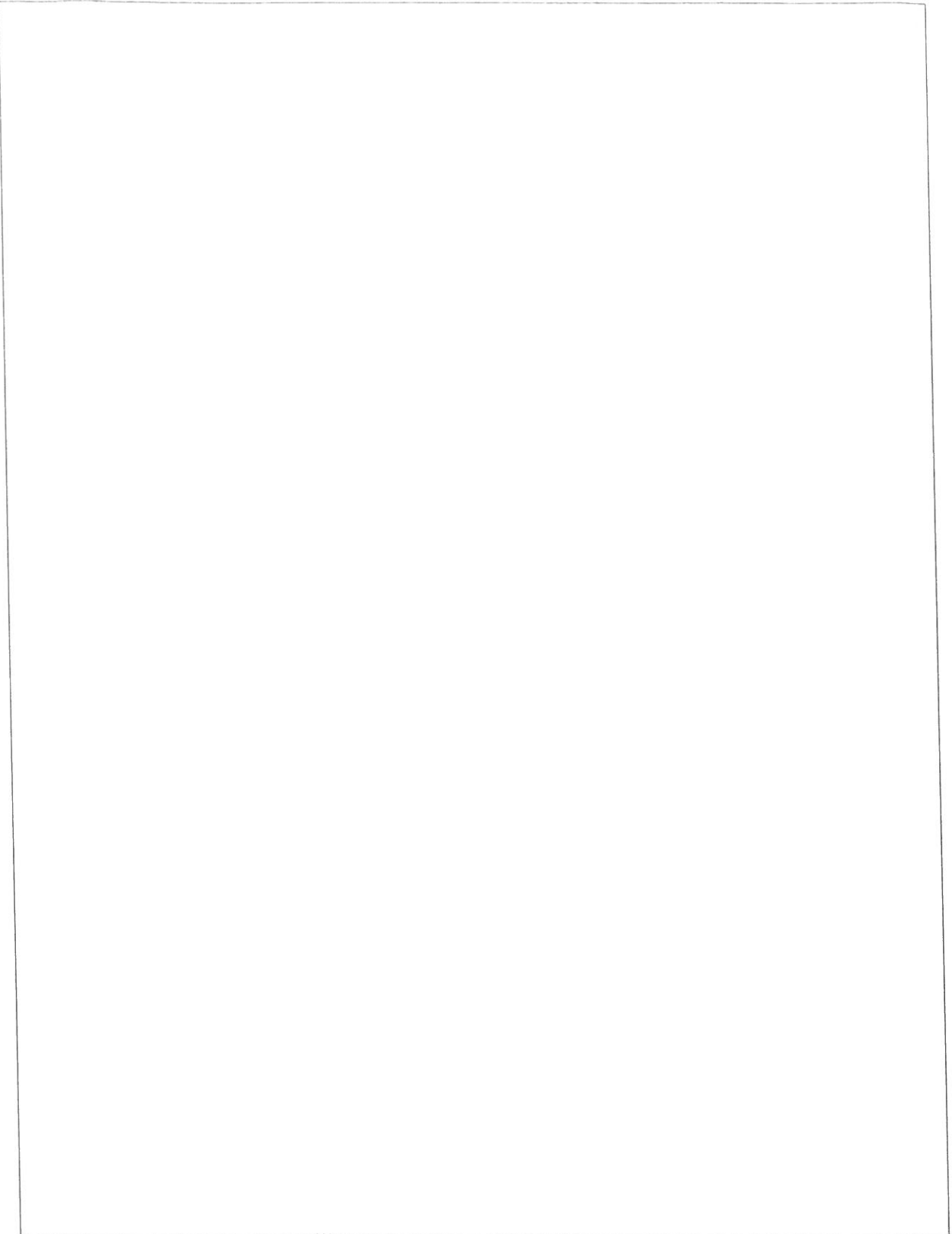


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PRINCIPLE SCHEME OF SIGNALLING INSTALLATION, STOP,
AUXILLIARY ENGINE PROTECTIONS (MAKE, ELECTRICAL
SCHEME, OPERATION)
2nd SHIP



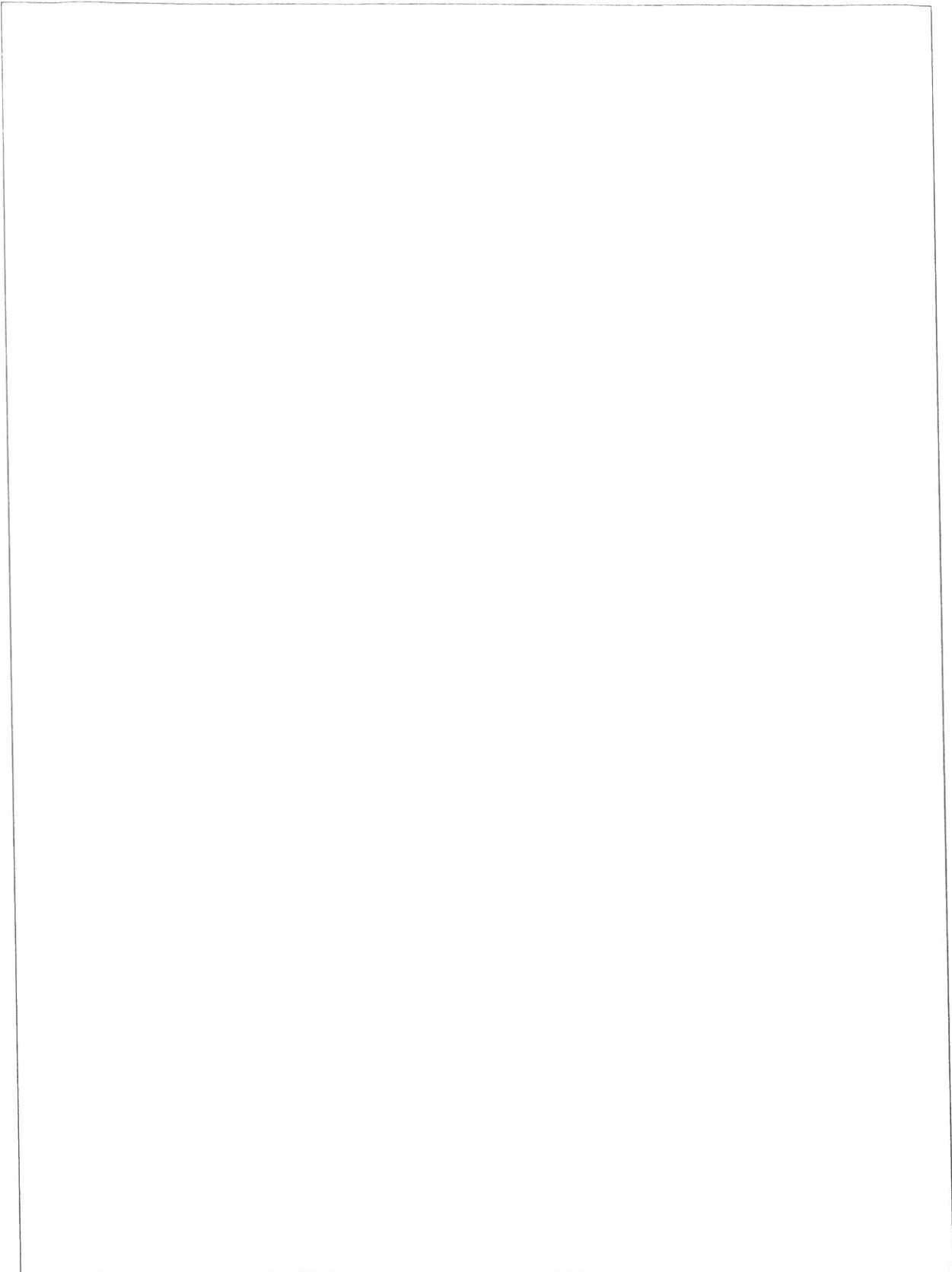
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PRINCIPLE SCHEME OF SIGNALLING INSTALLATION, STOP,
AUXILLIARY ENGINE PROTECTIONS (MAKE, ELECTRICAL
SCHEME, OPERATION)
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PRINCIPLE SCHEME OF SIGNALLING INSTALLATION, STOP,
AUXILLIARY ENGINE PROTECTIONS (MAKE, ELECTRICAL
SCHEME, OPERATION)
4th SHIP

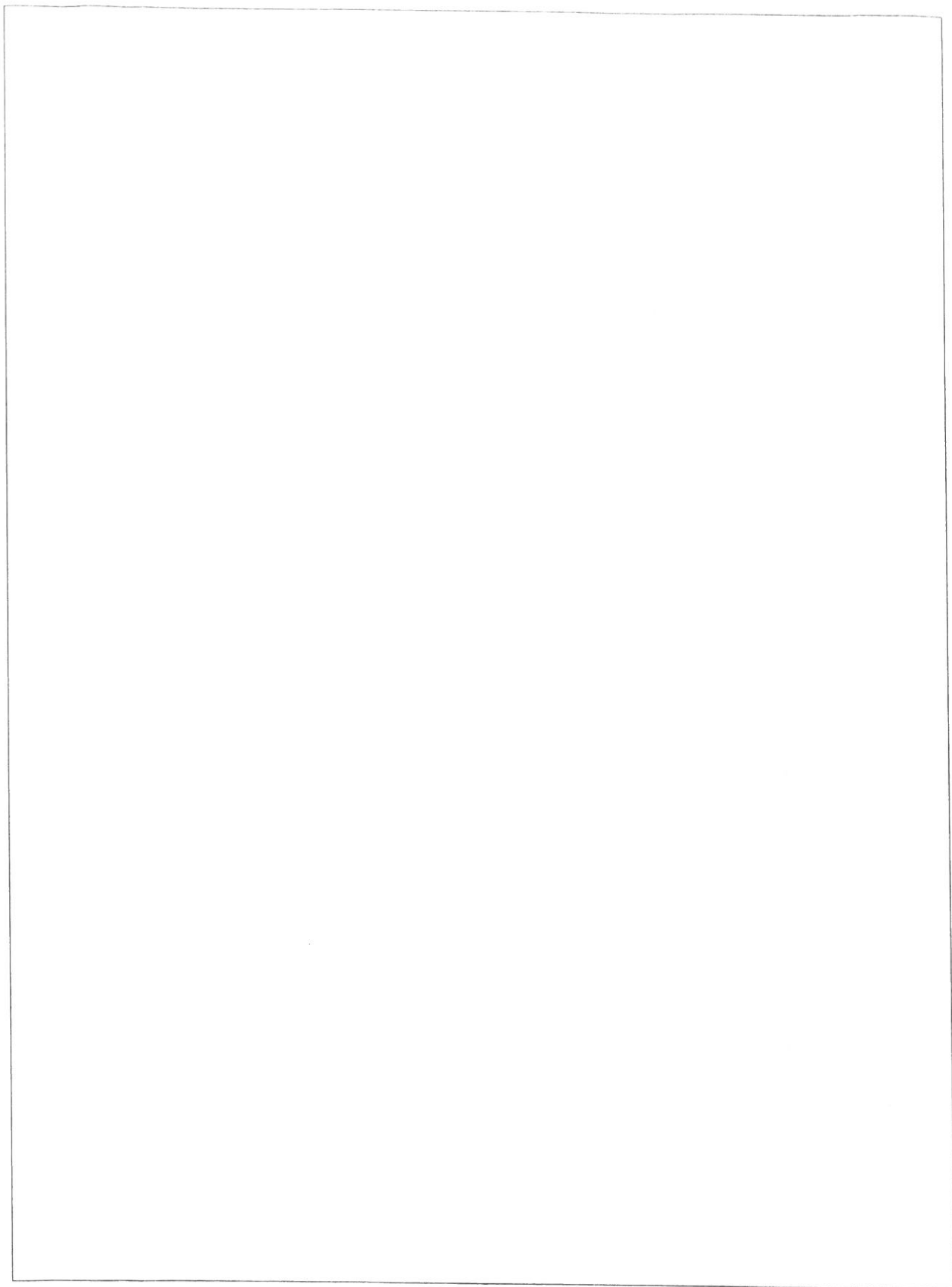


CHECKED BY CHIEF ELECTRICIAN
ELECTRICAL SCHEME OF AN OIL LUBRICATING PUMP IN MAIN
ENGINE (MAKE, PROTECTIONS, STANDBY DOUBLE PUMPS)
1st SHIP

CHECKED BY CHIEF ELECTRICIAN
ELECTRICAL SCHEME OF AN OIL LUBRICATING PUMP IN MAIN
ENGINE (MAKE, PROTECTIONS, STANDBY DOUBLE PUMPS)
2nd SHIP



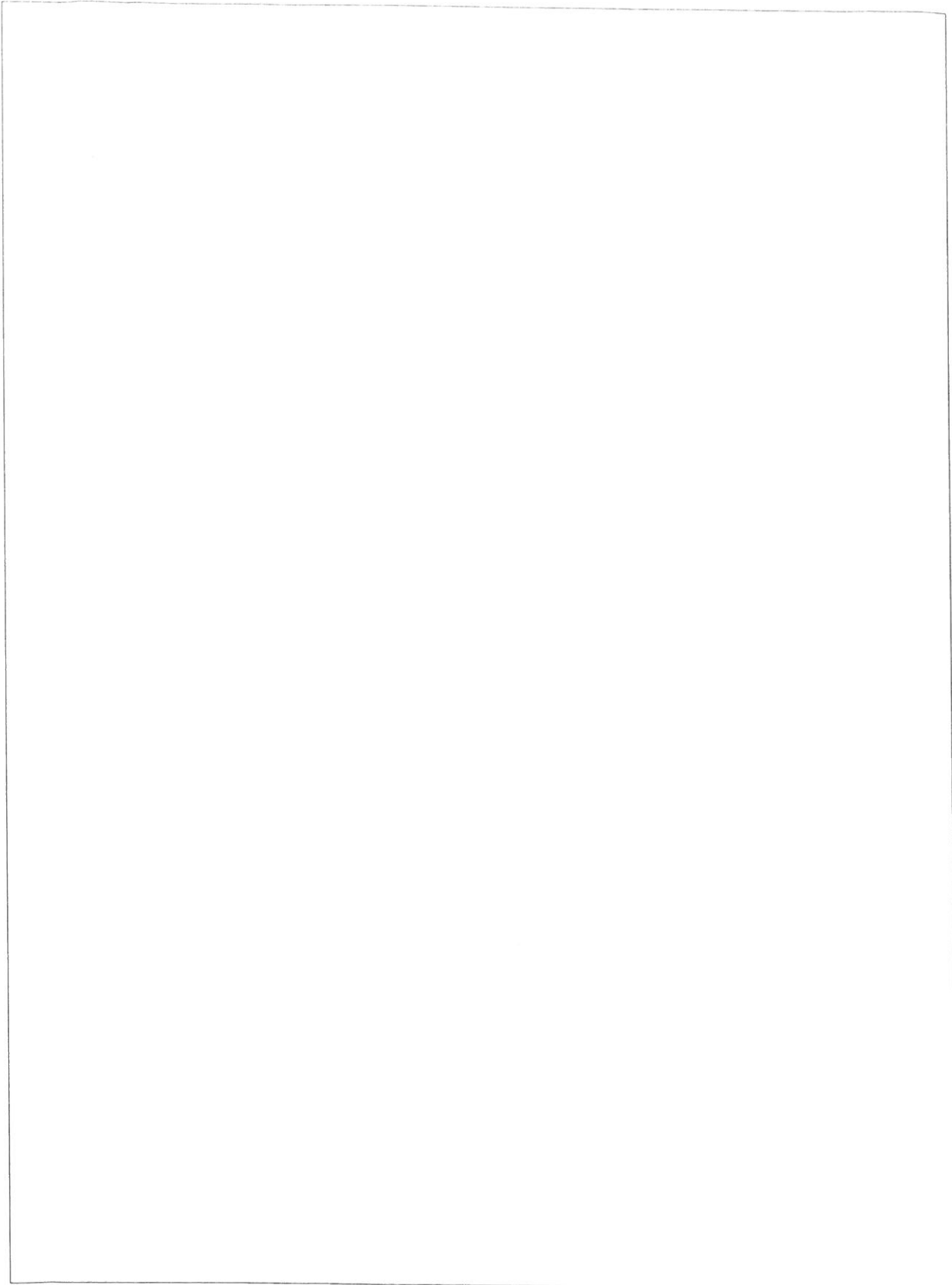
**CHECKED BY CHIEF ELECTRICIAN
ELECTRICAL SCHEME OF AN OIL LUBRICATING PUMP IN MAIN
ENGINE (MAKE, PROTECTIONS, STANDBY DOUBLE PUMPS)
3rd SHIP**



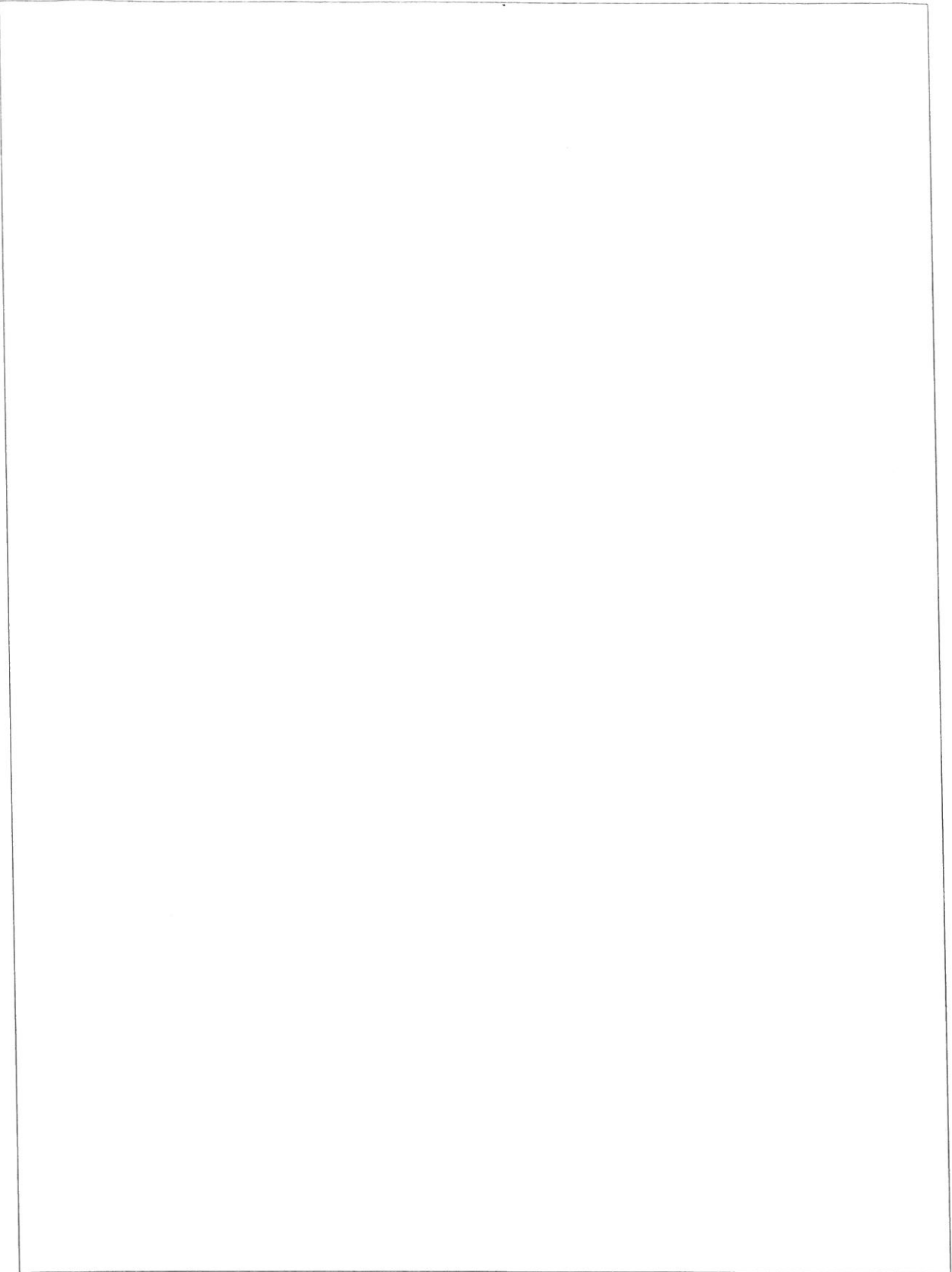
CHECKED BY CHIEF ELECTRICIAN
ELECTRICAL SCHEME OF AN OIL LUBRICATING PUMP IN MAIN
ENGINE (MAKE, PROTECTIONS, STANDBY DOUBLE PUMPS)
4th SHIP



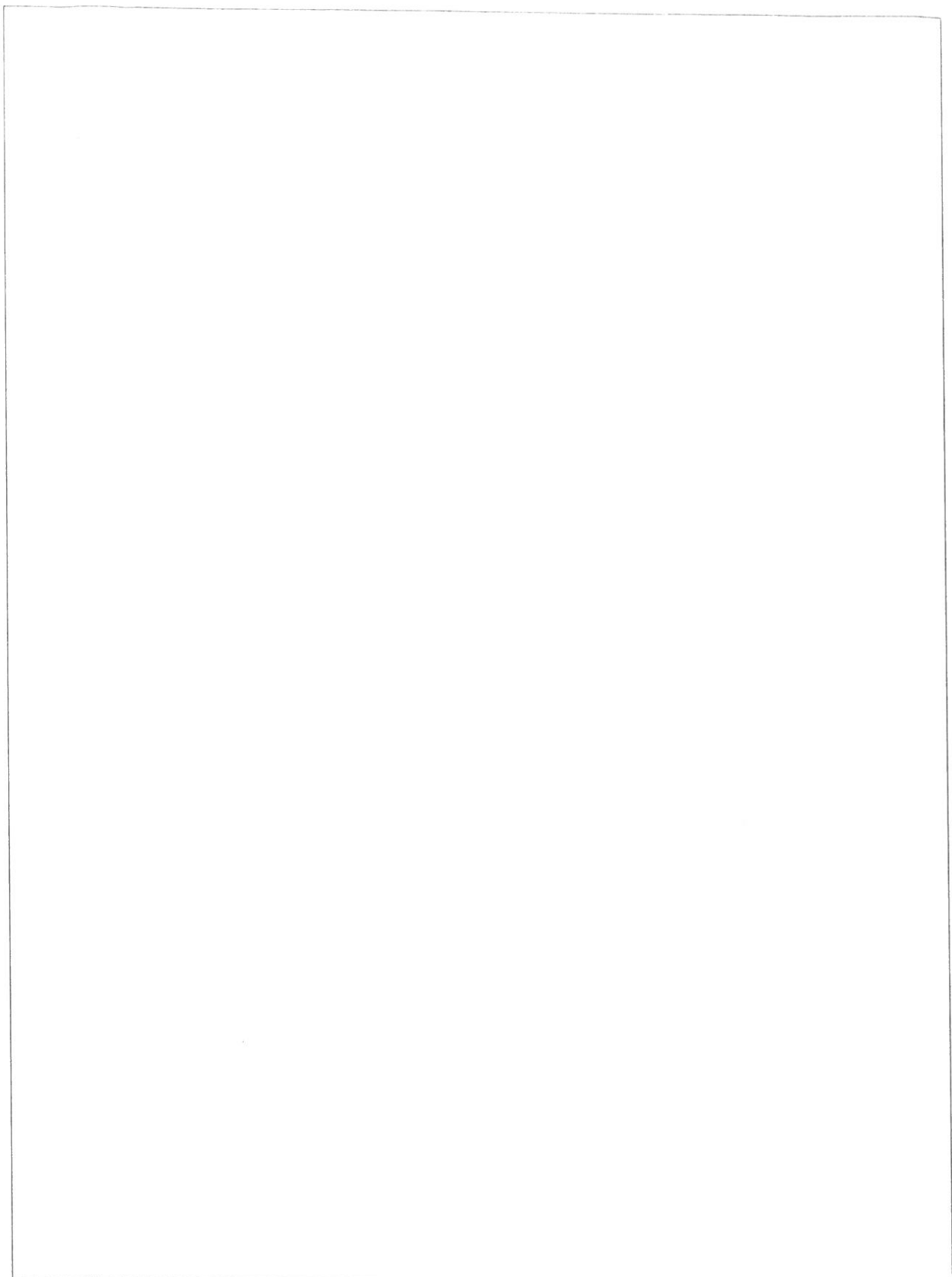
CHECKED BY CHIEF ELECTRICIAN
PRINCIPLE SCHEME OF CO2 SIGNALLING INSTALLATION,
(LOCATION, MAKE, OPERATION)
1st SHIP



CHECKED BY CHIEF ELECTRICIAN
PRINCIPLE SCHEME OF CO2 SIGNALLING INSTALLATION,
(LOCATION, MAKE, OPERATION)
2nd SHIP



CHECKED BY CHIEF ELECTRICIAN
PRINCIPLE SCHEME OF CO2 SIGNALLING INSTALLATION,
(LOCATION, MAKE, OPERATION)
3rd SHIP



CHECKED BY CHIEF ELECTRICIAN
PRINCIPLE SCHEME OF CO2 SIGNALLING INSTALLATION,
(LOCATION, MAKE, OPERATION)
4th SHIP

**CHECKED BY CHIEF ELECTRICIAN
PART FIVE**

In the 5th part of the present on-board training record book the types of tasks and themes to be achieved by any cadet maritime electrical engineer during the probation sea-service are shown in detail. The goal is to acquire knowledge, practical skills and competences required for his own professional progress, and for the achievement of watch keeping engineer officer standards complying with the minimum STCW requirements. (See the STCW Code, table A III/1, listed below).

1. General considerations
2. Use of tools/machines to manufacture electrical elements or to recondition parts or electrical subassemblies
3. Use of apparatus and measuring devices for dismantling, maintaining, repairing and reassembling the installations and electrical equipment
4. Use electric and electronic devices for checking, troubleshooting, maintenance and repair
5. Operate main and auxiliary power systems and connected control, monitoring and protection systems
6. Operate pumping and compressed air systems.
7. Operate the steering gear system.
8. Operate the refrigerating plant.
9. Operate centrifugal separators.
10. Operate deck machinery. Preparations, start, monitor, stop. Maintenance.
11. Operate alternators and automatic control. Monitor and protection.
12. Maintenance, repairs and adjustment of automated electrical, electromechanical and electro pneumatic systems.
13. Signaling and alarm installations.
14. Computerized operation of naval systems and installations
15. Use and maintenance of emergency equipment.
16. Electronavigation aids
17. Environment pollution prevention.
18. Ship construction and endurance.
19. Fire fighting and fire prevention on board.
20. Operation of life-saving appliances.
21. First-aid
22. Use of the English language
23. Complying with IMO rules and conventions regarding safety at sea and marine environment protection.

In order to acquire a minimum standard of knowledge, skills and abilities needed to ensure an independent watch keeping in the Engine Room, and in other compartments, the main tasks to be fulfilled are detailed in the following pages; all tasks are supervised and assessed by the chief electrician on the ships the cadet served on.

Competence is assessed by chief electrician who is to enter his remarks, suggestions and considerations regarding to the cadet's activity on board in this record book.

Competence in:	Assessment of cadet's competency performed by chief electrician			
	1 st ship:	2 nd ship:	3 rd ship:	4 th ship:
1. General considerations				
1. Daily routine inspections				
1.1. Control each electrical motors under operation to get data about their running				
1.2. Check if vents are clean to ensure a good ventilation				
1.3. Check the working light				

1.4.Check the isolation resistance				
2.Record maneuvers transmitted through telegraph in Engine Room control stand				
3.Procedures in case of emergency or damage (stop, start, change from automatic mode to direct monitoring mode or local control mode)				

4.Fill in the log book all current repairs and works performed				
5.Weekly routine inspections				
5.1.Check the emergency lighting installation				
5.2.Balance the emergency mechanisms				

5.3.Check emergency batteries				
5.4.Inspect deck electrical equipment				
5.5.Check acoustic signaling in case of emergency (general alarm)				

5.6.Check optic and acoustic signaling of
CO2 fire extinguishing installation

5.7.Check remote control stop mode

6.Maintenance plan for ship's operation

6.1.Record the overhaul works

6.2.Record the replaced electrical equipment, spare parts and materials				
6.3.Draw up the table with isolation resistance for each electrical equipment				
<p>7. In operating the vessel electrical equipment the candidate is able to :</p> <p>Plan, prepare for and carry out operations to comply with instructions, safety and other relevant legislation and guidelines to ensure safety of operation.</p> <p>Start up and shut down operations as required for safe and efficient equipment operations.</p> <p>Maintain specified electrical conditions and instrument readings within given levels and manufactures recommendations for normal operation</p> <p>Put equipment on line, couple up and changeover safely and correctly.</p> <p>Make adjustments to maintain safe and efficient operation.</p> <p>Give sufficient notice of operations to enable other personnel to carry out their responsibilities safely and efficiently.</p> <p>Locate common faults and take action to prevent damage.</p>				

2. Use of tools/machines to manufacture electrical elements or to recondition parts or electrical subassemblies

1. Apply Lab our Safety Norms in the electrical workshop

2. Choose the materials and specify the quality required by the parameters of the installations or power systems they are used for

Obtain the correct type of safe and serviceable tools, material and equipment to carry out the tasks on machinery and systems.

Accurately identify , record and promptly report potential restrictions and shortfalls of resources

Safely store, handle and secure material and equipment in accordance with procedures, relevant legislation and codes of practice.

Safely isolate the plant electrically and mechanically prior to self or others commencing work.

Prepare and confirm that working area , machinery and equipment are safe for work to proceed and comply with legislative requirements , codes of practice , permit to work procedures and environmental concerns

Ensure that the work area is free form obstruction for receiving and storing materials and resources needed for the work.

Ensure appropriate specifications, plans, material and equipment are available at the work place.

3.Choose the tools and measuring gauges to be used				
3. Use of apparatus and measuring devices for dismantling, maintaining, repairing and reassembling the installations and electrical equipment				
1.Consult documentation and take measurements				
2.Interpret drawings and electrical schemes				

<p>3. In servicing , maintaining and rectifying variations to mechanical machinery and systems the candidate is able to :</p> <p>Confirm that the equipment has been correctly isolated before carrying out work.</p> <p>Carry out repairs and maintenance in accordance with the plan, established safety rules and regulations, manufacturer's instructions and good practice.</p>				
<p>4. Use electric and electronic devices for checking, troubleshooting, maintenance and repair</p>				
<p>1. Apply Lab our Safety Norms for the work at electrical and electronic systems</p>				
<p>2. Knowledge of technical documentation and working principles of D.C. and A.C. electrical equipments.</p>				

<p>3. Calibration and use of specific measuring apparatus for different installations</p>				
<p>4. In monitoring and adjusting the vessel electrical equipment the candidate is able to :</p> <p>Monitor and maintain electrical supplies within defined conditions during normal operations.</p> <p>Confirm that electrical protection devices are reset and enabled as appropriate.</p> <p>Communicate effectively, to those who will use the resources, the care that they must take.</p> <p>Monitor, record and report on the machinery and electrical supply condition to the appropriate person.</p> <p>Check for and identify irregularities in the machinery and electrical supply according to schedule and report promptly and accurately to an appropriate person.</p>				

5. Operate main and auxiliary power systems and connected control, monitoring and protection systems

1. Preliminary operations to start, monitor and stop main and auxiliary engines and related installations				
1.1. Test and adjust protections, where needed				
1.2. Test monitoring elements (lights, bells, etc.)				

1.3.Limit parameters and their consequences for the engine				
1.4. Preliminary operations for emergency maneuver. Stopping				
2. Preliminary operations to start monitor and stop auxiliary engines and connected installations				

2.1. Test and adjust protections, where needed				
2.2. Test monitoring elements (bells, lights, thermostats, pressure controllers, flux meters, etc.)				
2.3. Limit parameters and their consequences for the engine				

2.4. Preliminary operations for emergency maneuver. Stopping				
3.Preliminary operations to start and monitor steam boilers				
3.1.Preparing steam boilers for work				

3.2. Test the protections				
3.3. Stop and prepare for stand				
4. Preliminary operations to start monitor and stop steam- driven turbines				

4.1. Test the automatic monitor systems and protections				
4.2. Stop and prepare for stand				
6. Operate pumping and compressed air systems.				
1. Ballast installation. Starting. Protections				

2. Fuel and oil bunkering discharging and transferring installations. Starting. Protections				
3. Fire - extinguishing installation with water. Starting. Protections				
4. Draining installation. Starting. Protections.				

5. Compressed air installation. Starting. Protections.				
6. Bilge pumping plant. Sewage installation. Starting. Protections.				
7. Monitor waters resulting from different operations on board and their discharge				

7. Operate the steering gear system.

1. Pumps preparation and starting

2. Monitor working parameters.

3. Operate under emergency conditions.

4. Comply with maneuver time and check acoustic and optic signaling during running				
5. Automatic pilot. Type. Usage.				
8. Operate the refrigerating plant.				
1. Start, monitor and stop the installation.				

2. Provision room refrigerating plant. Starting, electrical protections, signaling				
3. Air conditioning system. Starting, electrical protections				
9. Operate centrifugal separators.				
1. Type. Separators running. Starting, electrical protections.				

2. Level protections. Make. Periodical checking. Signaling.				
10. Operate deck machinery. Preparations, start, monitor, stop. Maintenance.				
1. Winches and capstans. Actuation for mooring and anchoring maneuvers.				
1.1. Type of electro motors. Parameters.				

1.2. Specific electrical protections during running				
2. Hatch cover handling system. Type of actuation for electro motors. Protections.				
3.1. Cargo handling gear. Type of actuation for electro motors. Parameters. Protections.				

<p>3.2. Regulations imposed by ship classification companies.</p>				
<p>4. In planning the work required to maintain and repair electrical machinery and systems to instructions the candidate is able to :</p> <p>Define the work sequence in accordance with the overall maintenance plan.</p> <p>Correctly plan own maintenance activities in accordance with technical , legislative , health and safety procedural specifications</p> <p>Identify the potential restrictions and variances to the work schedule.</p>				
<p>5. In preparing work area and resources for maintaining and repairing electrical machinery and systems the candidate is able to :</p> <p>Obtain correct type of safe and serviceable tools, material and equipment to carry out the tasks on machinery and systems.</p> <p>Accurately identify record and promptly report potential restrictions and shortfalls of resources.</p> <p>Safe handle, store and secure material and equipment in accordance with procedures, relevant legislation and code of practice.</p> <p>Prepare and confirm that work areas, machinery and equipment are safe for work</p>				

<p>to proceed and comply with legislative requirements, codes of practice, permit to work procedures and environmental concerns.</p> <p>Ensure that the area is free from obstruction for receiving and storing materials and resources needed for the work.</p> <p>Ensure appropriate specifications, plans, materials and equipment are available at the workplace.</p>				
<p>6. In contributing to the maintenance and repair of electrical machinery and systems the candidate is able to :</p> <p>Confirm that the equipment has been correctly isolated before carrying out work.</p> <p>Carry out maintenance and repair in accordance with instructions, established safety rules and regulations, manufacturer's instructions and good practice.</p> <p>Clean, store and prepare and dismantle parts safely and correctly, for inspection, maintenance and repair to be carried out.</p> <p>Restore the equipment or system to the correct settings and specification using the appropriate method.</p> <p>Complete checks and tests to instructions, statutory and technical requirements.</p> <p>Confirm that the machinery, systems, components and systems are at the required status, quality and to manufacturer's and technical specification.</p> <p>Recognize variances to specification and implement effective corrective action.</p> <p>Identify and record details for further action where equipment and parts fall to meet required performance after maintenance.</p>				

11. Operate alternators and automatic control. Monitor and protection.

1. Power plant. Make-up. Parameters

2. Interpret data on the gauges in the alternators.

3. Distribution of reagent loads. Where they can be read and interpreted.

4. Operate two or more alternators in main switchboard. Coupling, uncoupling, conditions.				
5. Main switchboard sections.				
6. Uncoupling stages for non essential consumers. Make. Selective protections.				

7. Transformers for the lighting installation. Location. Parameters.				
8. Peculiar lab our safety steps.				
12. Maintenance, repairs and adjustment of automated electrical, electromechanical and electro pneumatic systems.				
1. Select and check dedicated documentation for each installation or system.				

2. Use of measurement devices during maintenance and routine repairs.				
3. Uncouple automation systems during running in automated or semi automated mode and their operation in direct monitoring mode.				
<p>4. In contributing to the maintenance and repair of electrical machinery and systems the candidate is able to :</p> <p>Confirm that the equipment has been correctly isolated before carrying out work.</p> <p>Carry out maintenance and repair in accordance with instructions, established safety rules and regulations, manufacturer's instructions and good practice.</p> <p>Clean, store and prepare and dismantle parts safely and correctly, for inspection, maintenance and repair to be carried out.</p> <p>Restore the equipment or system to the correct settings and specification using the appropriate method.</p> <p>Complete checks and tests to instructions, statutory and technical requirements.</p> <p>Confirm that the machinery, systems, components and systems are at the required status, quality and to manufacturers and technical specification.</p> <p>Recognize variances to specification and</p>				

implement effective corrective action. Identify and record details for further action where equipment and parts fail to meet required performance after maintenance.				
13. Signaling and alarm installations.				
1.Fire alarm system				
1.1. Sensors. Type.				

1.2. Tension and feeding place.				
1.3. Type of bell alarms.				
14. Computerized operation of naval systems and installations				
1. Display and interpretation of working parameters.				

2. Check the installations in operation by using the monitoring system.				
3. Listing daily reports for maintenance, repairs and spare parts replacement.				
15. Use and maintenance of emergency equipment.				
1. Emergency electric power.				

1.1. Type of engine, power, rotations.

1.2. Type of tension regulator.

1.3. Automated starting system

1.4. Type of emergency diesel starting accumulators. Number. Parameters.				
1.5.Enumeration of emergency consumers				
1.6. Type of emergency lighting accumulators. Number. Parameters.				

2. Compressed air emergency electrical compressor. Type. Parameters.				
3. Emergency fire extinguishing electrical pump. Type. Location.				
16. Electronavigation aids				
1. Gyrocompass. Type. Feeding tension.				

2. Magnetic compass. Type.				
3. Electrical log. Type. Location.				
4. Echo depth sounder. Type. Location.				

5. Automatic pilot. Type.				
6. G.P.S. Type. Feeding tension.				
7. Radar. Type. Characteristics. Feeding tension.				

8. Rudder angle indicator. Type. Location.				
9. Navigation lights. Type. Feeding tension. Location.				
17. Environment pollution prevention.				
1. Norms and regulations.				

2. Adjust and operate specific equipment.				
3. Measures and procedures for pollution prevention.				
<p>4. In responding to emergencies on board the candidate is able to :</p> <p>Take initial action in an emergency in accordance with vessel's emergency procedures.</p> <p>Raise the alarm promptly by the most appropriate method available.</p> <p>Implement the necessary evacuation, emergency shut down and isolation procedures.</p> <p>Communicate information to the emergency survivors promptly and accurately.</p> <p>Take action to comply with the vessel's muster requirements on recognizing an alarm signal</p>				

18. Ship construction and endurance.

1. Ship compartment.				
2. Water holes. Skill in operating water exhausting installation in a flooded compartment.				
3. In taking charge of pollution response the candidate is able to : Locate the antipollution store and the antipollution materials. Use in a proper manner the antipollution materials, tools and equipment. To act as per vessel response plan and accordingly with the muster list. To dispose the materials, tools, equipment and the pollution result.				

19. Fire fighting and fire prevention on board.

1. Areas with high risk of fire.

2. Constructive protection against fire.

3. Operational protection against fire.
Fire alarm.

3.1. Fire muster bill.				
3.2. Operate fire extinguishing installations.				
<p>4. In proving the knowledge of fire fighting appliances the candidate is able to :</p> <p>To locate and operate the fire alarm main board and repeaters.</p> <p>Recognize and use the portable fire extinguishers as per them type and destination.</p> <p>Recognize and use the fixed fire fighting installations as per type and destination.</p> <p>Recognize and use the fire fighting protective equipment and tools.</p>				

<p>5. In fighting fires at sea the candidate is able to :</p> <p>Maintain personal safety during fire fighting.</p> <p>Use appropriate clothing and equipment with respect to anticipate hazards.</p> <p>Use lifelines and guidelines to comply with accepted fire fighting practice.</p> <p>Take individual actions which are appropriate to the emergency and on instructions received.</p> <p>Select and utilize the appropriate appliance to fight fire.</p> <p>Communicate clearly using recommended procedures.</p>				
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20. Operation of life-saving appliances.

1. Life-saving appliances.				
1.1. Life-boats and life-rafts.				

1.2 Use of life saving devices (radio, thermal protection, diving gear, etc.)				
2. Abandon ship bill.				
3. Abandon ship drills.				

<p>4. In simulating surviving at sea in the event of abandonment the candidate is able to :</p> <p>Respond correctly to abandonment signals.</p> <p>Take actions to comply with the vessels muster procedure.</p> <p>Prepare and launch survival craft correctly.</p> <p>Wear clothing and survival equipment appropriate to the situation.</p> <p>Board a life raft in the correct manner.</p> <p>Comply fully and promptly with survival instructions.</p> <p>Comply with recommended in – water survival positions and procedures</p> <p>Use survival techniques which maximize the safety of self and others.</p>				
<p>5. In simulating applying immediately basic first aid at sea the candidate is able to :</p> <p>Assess the situation to ensure the safety of self and others</p> <p>Raise the alarm and assess the casualty</p> <p>Identify the nature and extent of injuries</p> <p>Reassure and calm the casualty</p> <p>Give initial first aid which is appropriate to injuries.</p>				

21. First-aid in case of:

1. Traumatisms.

2. Drowning.

3. Intoxications.

4. Electrocutions.				
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5. Putting in practice medical advice including radio broadcast.				
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22. Use of the English language (spoken, written) to:

1. Use technical publications.				
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2. Use ship's technical documentation.				
3. Carry out a technical conversation.				
4. Communication with the crew.				

23. Complying with IMO rules and conventions regarding safety at sea and marine environment protection.

1. SOLAS.

2. MARPOL.

