Contents

RULES FOR INTEGRATED FIRE CONTROL SYSTEMS

Chapter 1 GENERAL

1.1 General

1.1.1 Scope

The Rules for Integrated Fire Control Systems (hereinafter referred to as "the Rules") apply to fire control systems of ships classified by the NIPPON KAIJI KYOKAI (hereinafter referred to as "the Society") and intended to be registered under **Chapter 3 of the Regulations for the Classification and Registry of Ships**.

1.1.2 Equivalency

Integrated fire control systems which do not fully comply with the requirements of the Rules may be accepted provided that they are deemed by the Society to be equivalent to those specified in the Rules.

1.1.3 Integrated Fire Control Systems with a Novel Concept

In cases where Integrated fire control systems are designed or installed based on concepts different from those given in the Rules, the Society may apply the requirements of the Rules so far as practicable as well as any other requirements as necessary.

1.1.4 Installations Characters

1 The Installation Character "**IFC・M**" is used for those integrated fire control systems which comply with the requirements given in **Chapter 1** to **Chapter 5** of the Rules.

2 The Installation Character "**IFC・A**" is used for those integrated fire control systems which comply with the requirements given in **Chapter 1** to **Chapter 3** as well as **Chapter 6** of the Rules.

3 The Installation Character "**IFC・AM**" is used for those integrated fire control systems which comply with the requirements given in **Chapter 1** to **Chapter 6** of the Rules.

1.1.5 Passenger Ships

Integrated fire control systems of passenger ships are to be separately deemed appropriate by the Society.

1.1.6 Definitions

Terms used in the Rules are defined in the following **(1)** to **(3)** in addition to those terms defined in **Part R of Rules for the Survey and Construction of Steel Ships** (hereinafter referred to as "the Rules for Steel Ships").

(1) Flammable oils are those oils listed in the following **(a)** to **(g)**.
- (a) Cargo oil
- (b) Fuel oil
- (c) Lubricating oil
- (d) Hydraulic oil (except for non-flammable oils)
- (e) Thermal oil
- (f) Waste oil
- (g) Fuel oil additives

(2) Fire risk objects are those piping systems and equipment, listed in the following **(a)** to **(i),** which contain flammable oils and represent a particular danger in case of fire.
- (a) Flammable oil pipes including their joints attached to reciprocating internal combustion engines
- (b) Joints in flammable oil pipes
- (c) Flammable oil pumps
- (d) Flammable oil strainers
- (e) Heat exchangers for flammable oil
- (f) Flammable oil purifiers and clarifiers

(g) Fuel oil burning units for boilers, thermal oil heaters, inert gas generators and incinerators

(h) Level gauges, fittings and oil trays for flammable oil tanks

(i) Sounding pipe heads for double bottom fuel oil tanks

(3) Sources of ignition are listed in the following **(a)** to **(f)**.

(a) Exhaust gas pipes

(b) Steam pipes

(c) Turbochargers

(d) Electrical equipment

(e) Boilers, thermal oil heaters and incinerators

(f) Open flames (if any)

Chapter 2 SURVEYS

2.1 General

2.1.1 Kinds of Surveys

Integrated fire control systems which are registered or intended to be registered are to be subjected to the following surveys:

(1) Surveys for the registration of integrated fire control systems (hereinafter referred to as "Registration Surveys")

(2) Surveys for maintaining the registration of integrated fire control systems (hereinafter referred to as "Registration Maintenance Surveys"), which are:

(a) Special Surveys

(b) Intermediate Surveys

(c) Annual Surveys

(d) Occasional Surveys

(e) Unscheduled Surveys

2.1.2 Time of Registration Survey and Intervals of Registration Maintenance Surveys

The timing of Registration Surveys and the intervals for Registration Maintenance Surveys are as in the following **(1)** and **(2)**. Surveys, as a rule, are to be carried out at the same time as Classification Surveys.

(1) Registration Surveys are to be carried out at the time of application for registration.

(2) Registration Maintenance Surveys are to be carried out at the following intervals:

(a) Special Surveys are to be carried out at those intervals specified in **1.1.3-1(3)(a), Part B of the Rules for the Survey and Construction of Steel Ships**.

(b) Intermediate Surveys are to be carried out at those intervals specified in **1.1.3-1(2), Part B of the Rules for the Survey and Construction of Steel Ships**.

(c) Annual Surveys are to be carried out at those intervals specified in **1.1.3-1(1), Part B of the Rules for the Survey and Construction of Steel Ships**.

(d) Notwithstanding **(a)** to **(c)** above, Occasional Surveys are to be carried out independently of Special Surveys, Intermediate Surveys and Annual Surveys in cases. To implement the survey, in lieu of the traditional ordinary surveys where a surveyor is in attendance, the Society may approve the survey methods which it considers to be able to obtain information equivalent to that obtained through traditional ordinary surveys.

i) Any main parts of systems have been damaged, repaired or renewed.

ii) Any systems are modified or altered.

iii) Any time considered necessary by the Society.

(e) The classed ships may be subject to Unscheduled Surveys when the confirmation of the status of systems by survey is deemed necessary in cases where the Society considers the systems to be subject to **1.4-3, Conditions of Service for Classification of Ships and Registration of Installations**.

2.1.3 Surveys Carried Out in Advance, etc.

1 Surveys carried out in advance

The requirements for Special Surveys, Intermediate Surveys and Annual Surveys carried out in advance are to be in accordance with those provisions specified in **1.1.4, Part B of the Rules for the Survey and Construction of Steel Ships**.

2 Postponement of Special Surveys

The requirements for the postponement of Special Surveys are to be in accordance with those provisions specified in **1.1.5-1(1)** or **1.1.5-1(2), Part B of the Rules for the Survey and Construction of Steel Ships**.

2.1.4 Preparation for Surveys

1 All such preparations required for surveys to be carried out as well as any preparations which may be required by Surveyors as necessary in accordance with the requirements given in the Rules are to be made by survey applicants. Such preparations are to include provisions for easy and safe access, necessary facilities and necessary records for survey execution. Any inspection,

measuring and test equipment, which Surveyors rely on to make decisions affecting classification are to be individually identified and calibrated to standards deemed appropriate by the Society. However, Surveyors may accept simple measuring equipment (*e.g.* rulers, measuring tapes, weld gauges, micrometers) without individual identification or confirmation of calibration, provided that they are of standard commercial design, properly maintained and periodically compared with other similar equipment or test pieces. Surveyors may also accept equipment fitted on board ship and used in the examination of shipboard equipment (*e.g.* pressure, temperature or rpm gauges and meters) based either on calibration records or comparison of readings with multiple instruments.

2 Survey applicants are to arrange supervisors who are well conversant with those survey items intended for survey preparation in order to provide any necessary assistance to Surveyors according to their requests during surveys.

3 Surveys may be suspended in cases where the necessary preparations have not been made, any appropriate supervisor mentioned in **-2** above is not present, or Surveyors consider that safety for survey execution is not ensured.

2.1.5 Recommendations

In cases where repairs are deemed necessary as a result of a survey, Surveyors will inform ship owners or their representatives of their recommendations. Upon notification, repairs are to be made to the satisfaction of the Surveyor.

2.1.6 Laid-up Ships

1 Laid-up ships are not subject to Registration Maintenance Surveys. However, Occasional Surveys may be carried out at the request of owners.

2 When laid-up ships are about to be re-entering service, the following surveys and surveys for specific matters which have been postponed due to being laid-up, if any, are to be carried out.

(1) If the due dates for Registration Maintenance Surveys have not transpired while the ship was laid-up, then an equivalent to the Annual Surveys specified in **2.3.3** is to be carried out.

(2) If the due dates for Registration Maintenance Surveys have transpired while the ship was laid-up, then these Registration Maintenance Surveys are, in principle, to be carried out. However, in cases where two or more kinds of Registration Maintenance Surveys are due, only the superlative survey may be carried out.

2.2 Registration Surveys

2.2.1 Submission of Plans and Documents

1 In the case of integrated fire control systems to be registered, if a system or an apparatus is installed in accordance with the requirements given in applicable chapters, the plans and documents specified in **(1)** to **(6)** below are to be submitted to the Society for approval.

(1) Plans showing locations and arrangements of integrated fire control stations.

(2) List of systems and apparatuses which are remote controlled and monitored from integrated fire control stations.

(3) Particulars and arrangements of those systems or apparatuses listed in the following **(a)** to **(d)**:

  (a) Fixed fire detection and fire alarm systems

  (b) TV monitoring systems for machinery spaces of category *A*

  (c) Fixed local fire-extinguishing systems

  (d) Automatic sprinkling systems (containing fire detection and fire alarm systems) or water-spraying fire-extinguishing systems which have been deemed appropriate by the Society

(4) Plans showing details of remote control and monitoring including line diagrams of control circuits and of power supplies to remote control and monitoring systems as well as descriptions of operations concerning any of the systems or apparatuses listed in **(a)** to **(o)** below:

  (a) Fire pumps and fire mains

  (b) Fixed carbon dioxide fire-extinguishing systems

  (c) Fixed high-expansion foam fire-extinguishing systems

  (d) Fixed pressure water-spraying fire-extinguishing systems

  (e) Ventilating fans and closing appliances serving machinery spaces of category *A*

  (f) Flammable oil pumps

  (g) Valves for flammable oil tank suctions in machinery spaces of category *A*

(h) TV monitoring systems for machinery spaces of category *A*

(i) Fixed local fire-extinguishing systems

(j) Ventilating fans and closing appliances serving cargo pump rooms for ships carrying flammable liquids in bulk

(k) Fixed deck foam fire-extinguishing systems for oil tankers

(l) Water spray systems for ships carrying liquefied gases in bulk

(m) Fixed dry chemical powder fire-extinguishing systems for ships carrying liquefied gases in bulk

(n) Automatic sprinkling systems (containing fire detection and fire alarm systems) or water-spraying fire-extinguishing systems which have been deemed appropriate by the Society

(o) Ventilating fans serving accommodation spaces and service spaces

(5) Fire-protection and fire-fighting manuals showing the following items:

(a) Means of escape in case of fire

(b) Locations, instructions for use and instructions for maintenance of fire protection and fire extinguishing systems including those which are installed according to the Rules

(c) Fire-fighting drills

(6) Any other plans and documents deemed necessary by the Society.

2 The plans and documents specified in **-1** above are to be submitted the Society in accordance with **(1)** to **(3)** below.

(1) Where the submission of plans and documents by paper, 2 sets for the Society and necessary sets for returning to the applicant are to be submitted.

(2) Where the submission of plans and documents electrically, the plans and documents are to be submitted using the systems prepared by the Society.

(3) Where the submission of plans and documents by means other than **(1)** and **(2)** above, the plans and documents are to be submitted by the means deemed appropriate by the Society.

2.2.2 Tests and Examinations

During Registration Surveys, systems or apparatuses forming integrated fire control systems, in cases where equipped, are to be tested and examined in accordance with the following **(1)** to **(18)** and all results are to be satisfactory.

(1) Fixed fire detection and fire alarm systems

Verification that any sections in which detectors have been activated are indicated at integrated fire control stations.

(2) Fire pumps and fire mains

(a) In the case of main fire pumps and fixed emergency fire pumps, hose tests performed by remote control from integrated fire control stations. However, hydrants do not necessarily need to be remote controlled from integrated fire control stations.

(b) Verification that those items specified in **Table 3.2** are being monitored at integrated fire control stations.

(3) Fixed carbon dioxide fire-extinguishing systems

(a) Initiation tests of those alarms for the release of fire extinguishing mediums at integrated fire control stations.

(b) Verification that those items specified in **Table 3.3** are being monitored at integrated fire control stations.

(4) Fixed high-expansion foam fire-extinguishing systems

(a) Operation tests of water supply pumps, foam liquid pumps and associate valves performed by remote control from integrated fire control stations.

(b) Verification that those items specified in **Table 3.4** are being monitored at integrated fire control stations.

(5) Fixed pressure water-spraying fire-extinguishing systems

(a) Operation tests of water supply pumps and distribution valves performed by remote control from integrated fire control stations.

(b) Verification that those items specified in **Table 3.5** are being monitored at integrated fire control stations.

(6) Flammable oil pumps

(a) Stop tests of flammable oil pumps performed by remote control from integrated fire control stations.

(b) Verification that those items specified in **Table 3.6** are being monitored at the integrated fire control stations.

(7) Valves for flammable oil tank suctions in machinery spaces of category *A*

(a) Close tests of valves for flammable oil tank suctions in machinery spaces of category *A* performed by remote control from integrated fire control stations.

(b) Verification that those items specified in **Table 3.6** are being monitored at integrated fire control stations.

(8) Ventilation fans serving machinery spaces of category *A* and boiler draught fans

(a) Stop tests of ventilation fans serving machinery spaces of category *A* and boiler draught fans performed by remote control from integrated fire control stations.

(b) In cases where fixed carbon dioxide fire-extinguishing systems are installed in machinery spaces of category *A*, automatic stop tests on the fire-extinguishing medium releases of those ventilation fans serving machinery spaces of category *A* and boiler draught fans.

(c) Verification that those items specified in **Table 3.7** are being monitored at integrated fire control stations.

(9) Ventilation fans for the release of smoke serving machinery spaces of category *A*

(a) Start and stop tests of ventilation fans for the release of smoke serving machinery spaces of category *A* performed by remote control from integrated fire control stations.

(b) Verification that those items specified in **Table 3.7** are being monitored at integrated fire control stations.

(10) Closing appliances of machinery spaces of category *A*

(a) Open and close tests of dampers in the openings of machinery spaces of category *A* performed by remote control from integrated fire control stations.

(b) In cases where fixed carbon dioxide fire-extinguishing systems are installed in machinery spaces of category *A*, automatic close tests of the dampers in the openings of machinery spaces of category *A* before the release of any fire-extinguishing mediums.

(c) Verification that those items specified in **Table 3.7** are being monitored at integrated fire control stations.

(11) TV monitoring systems for machinery spaces of category *A*

Verification that images machinery spaces of category *A* are being monitored at integrated fire control stations.

(12) Fixed local fire-extinguishing systems

(a) Pressure tests of pressurized parts. Test pressures are to be 1.5 times working pressures.

(b) Draught tests of piping. (Air may be used.)

(c) Operation tests performed by remote control from integrated fire control stations.

(d) Verification that those items specified in **Table 3.9** are being monitored at the integrated fire control stations.

(13) Ventilation fans and closing appliances serving cargo pump rooms

(a) Stop tests of ventilation fans serving cargo pump rooms and close tests of dampers in cargo pump room openings performed by remote control from integrated fire control stations.

(b) In cases where fixed carbon dioxide fire-extinguishing systems are installed in cargo pump rooms, automatic stop tests of ventilation fans serving cargo pump rooms as well as automatic close tests of the dampers in cargo pump room openings before the release of any fire-extinguishing mediums.

(c) Verification that those items specified in **Table 3.10** are being monitored at integrated fire control stations.

(14) Fixed deck foam fire-extinguishing systems

(a) Operation tests of water supply pumps, foam liquid pumps and associate valves performed by remote control from integrated fire control stations.

(b) Verification that those items specified in **Table 3.11** are being monitored at integrated fire control stations.

(15) Water spray systems

(a) Water spray tests performed by remote control from integrated fire control stations.

(b) Verification that those items specified in **Table 3.12** are being monitored at integrated fire control stations.

(16) Fixed dry chemical powder fire-extinguishing systems

Verification that those items specified in **Table 3.13** are being monitored at integrated fire control stations.

(17) Automatic sprinkling systems (containing fire detection and fire alarm systems) or water-spraying fire-extinguishing systems which have been deemed appropriate by the Society

(a) Pressure tests of pressurized parts. Test pressures are to be 1.5 times working pressures.

(b) Operation tests of water supply pumps, etc. by activating one detector of a system.

(c) Operation tests of water supply pumps performed by remote control from integrated fire control stations.

(d) Verification that those items specified in **Table 3.14** are being monitored at integrated fire control stations.

(18) Ventilating fans serving accommodation spaces and service spaces

(a) Automatic stop tests of ventilation fans serving accommodation spaces and service spaces upon the detection of fire alarms from fixed fire detection and fire alarm systems.

(b) Stop tests of ventilation fans serving accommodation spaces and service spaces performed by remote control from integrated fire control stations.

(c) Verification that those items specified in **Table 3.15** are being monitored at integrated fire control stations.

2.3 Registration Maintenance Surveys

2.3.1 Special Surveys

During Special Surveys, systems or apparatuses forming integrated fire control systems, in cases where equipped, are to be tested and examined in accordance with the following **(1)** to **(18)** and all results are to be satisfactory.

(1) Fixed fire detection and fire alarm systems

Verification that any sections in which detectors have been activated are indicated at integrated fire control stations.

(2) Fire pumps and fire mains

(a) In the case of main fire pumps and fixed emergency fire pumps, hose tests performed by remote control from integrated fire control stations. However, hydrants do not necessarily need to be remote controlled from integrated fire control stations.

(b) Verification that those items specified in **Table 3.2** are being monitored at integrated fire control stations.

(3) Fixed carbon dioxide fire-extinguishing systems

(a) Pressure measurements of pressure sources for medium releases

(b) Initiation tests of the alarms of extinguishing medium releases at integrated fire control stations.

(c) Verification that those items specified in **Table 3.3** are being monitored at integrated fire control stations.

(4) Fixed high-expansion foam fire-extinguishing systems

(a) Operation tests of water supply pumps, foam liquid pumps and associate valves performed by remote control from integrated fire control stations.

(b) Verification that those items specified in **Table 3.4** are being monitored at integrated fire control stations.

(5) Fixed pressure water-spraying fire-extinguishing systems

(a) Operation tests of water supply pumps and distribution valves performed by remote control from integrated fire control stations.

(b) Verification that those items specified in **Table 3.5** are being monitored at integrated fire control stations.

(6) Flammable oil pumps

(a) Stop tests of flammable oil pumps performed by remote control from integrated fire control stations.

(b) Verification that those items specified in **Table 3.6** are being monitored at integrated fire control stations.

(7) Valves for flammable oil tank suctions in the machinery space of category *A*

(a) Close tests of valves for flammable oil tank suctions in machinery spaces of category *A* performed by remote control from integrated fire control stations.

(b) Verification that those items specified in **Table 3.6** are being monitored at integrated fire control stations.

(8) Ventilation fans serving machinery spaces of category *A* and boiler draught fans

(a) Stop tests of ventilation fans serving machinery spaces of category *A* and boiler draught fans performed by remote control from integrated fire control stations.

(b) In cases where fixed carbon dioxide fire-extinguishing systems are installed in machinery spaces of category *A*, automatic stop tests of ventilation fans serving machinery spaces of category *A* as well as boiler draught fans before the release of any fire-extinguishing mediums.

(c) Verification that those items specified in **Table 3.7** are being monitored at integrated fire control stations.

(9) Ventilation fans for the release of smoke serving the machinery spaces category *A*

(a) Start and stop tests of ventilation fans for the release of smoke serving machinery spaces of category *A* performed by remote control from integrated fire control stations.

(b) Verification that those items specified in **Table 3.7** are being monitored at integrated fire control stations.

(10) Closing appliances of machinery spaces of category *A*

(a) Open and close tests of dampers in openings of machinery spaces of category *A* performed by remote control from integrated fire control stations.

(b) In cases where fixed carbon dioxide fire-extinguishing system are installed in machinery spaces of category *A*, automatic close tests of the dampers in the openings of machinery spaces of category *A* before the release of any fire-extinguishing mediums.

(c) Verification that those items specified in **Table 3.7** are being monitored at integrated fire control stations.

(11) TV monitoring systems for machinery spaces of category *A*

Verification that images of machinery spaces of category *A* are being monitored at integrated fire control stations.

(12) Fixed local fire-extinguishing systems

(a) Draught tests of piping. (Air may be used.)

(b) Operation tests performed by remote control from integrated fire control stations.

(c) Verification that those items specified in **Table 3.9** are being monitored at integrated fire control stations.

(13) Ventilation fans and closing appliances serving cargo pump rooms

(a) Stop tests of ventilation fans serving cargo pump rooms and close tests of dampers in cargo pump room openings performed by remote control from integrated fire control stations.

(b) In cases where fixed carbon dioxide fire-extinguishing system are installed in cargo pump rooms, automatic stop tests of ventilation fans serving cargo pump rooms as well as automatic close tests of the dampers in the cargo pump room openings before the release of any fire-extinguishing mediums.

(c) Verification that items specified in **Table 3.10** are being monitored at integrated fire control stations.

(14) Fixed deck foam fire-extinguishing systems

(a) Operation tests of water supply pumps, foam liquid pumps and associate valves performed by remote control from integrated fire control stations.

(b) Verification that those items specified in **Table 3.11** are being monitored at integrated fire control stations.

(15) Water spray systems

(a) Water spray tests performed by remote control from integrated fire control stations.

(b) Verification that those items specified in **Table 3.12** are being monitored at integrated fire control stations.

(16) Fixed dry chemical powder fire-extinguishing systems

(a) Pressure measurements of pressure sources for medium releases.

(b) Pressure measurements of pressurizing mediums.

(c) Verification that those items specified in **Table 3.13** are being monitored at integrated fire control stations.

(17) Automatic sprinkling systems (containing fire detection and fire alarm systems) or water-spraying fire-extinguishing systems which have been deemed appropriate by the Society

(a) Operation tests of water supply pumps, etc. by activating one detector of each distribution line.

(b) Operation tests of water supply pumps performed by remote control from integrated fire control stations.

(c) Verification that those items specified in **Table 3.14** are being monitored at integrated fire control stations.

(18) Ventilating fans serving accommodation spaces and service spaces

(a) Automatic stop tests of ventilation fans serving accommodation spaces and service spaces upon the detection of fire alarms from fixed fire detection and fire alarm systems.

(b) Stop tests of ventilation fans serving accommodation spaces and service spaces performed by remote control from integrated fire control stations.

(c) Verification that those items specified in **Table 3.15** are being monitored at integrated fire control stations.

2.3.2 Intermediate Surveys

During Intermediate Surveys, systems or apparatuses forming integrated fire control systems, in cases where equipped, are to be tested and examined in accordance with the requirements for Special Surveys and all results are to be satisfactory.

2.3.3 Annual Surveys

During Annual Surveys, systems or apparatuses forming integrated fire control systems, in cases where equipped, are to be tested and examined in accordance with the following **(1)** to **(18)** and all results are to be satisfactory.

(1) Fixed fire detection and fire alarm systems

Verification that any sections in which detectors have been activated are indicated at integrated fire control stations.

(2) Fire pumps and fire mains

(a) In the case of main fire pumps and fixed emergency fire pumps, hose tests performed by remote control from integrated fire control stations. However, hydrants do not necessarily need to be remote controlled from integrated fire control stations.

(b) Verification that those items specified in **Table 3.2** are being monitored at integrated fire control stations.

(3) Fixed carbon dioxide fire-extinguishing systems

(a) Initiation tests of the alarms of extinguishing medium releases at integrated fire control stations.

(b) Verification that those items specified in **Table 3.3** are being monitored at integrated fire control stations.

(4) Fixed high-expansion foam fire-extinguishing systems

Verification that those items specified in **Table 3.4** are being monitored at integrated fire control stations.

(5) Fixed pressure water-spraying fire-extinguishing systems

Verification that those items specified in **Table 3.5** are being monitored at integrated fire control stations.

(6) Flammable oil pumps

(a) Stop tests of flammable oil pumps performed by remote control from integrated fire control stations.

(b) Verification that those items specified in **Table 3.6** are being monitored at integrated fire control stations.

(7) Valves for flammable oil tank suctions in machinery spaces of category *A*

(a) Close tests of valves for flammable oil tank suctions in machinery spaces of category *A* performed by remote control from integrated fire control stations.

(b) Verification that those items specified in **Table 3.6** are being monitored at integrated fire control stations.

(8) Ventilation fans serving machinery spaces of category *A* and boiler draught fans

(a) Stop tests of ventilation fans serving machinery spaces of category *A* and boiler draught fans performed by remote control from integrated fire control stations.

(b) In cases where fixed carbon dioxide fire-extinguishing systems are installed in machinery spaces of category *A*, automatic stop tests of ventilation fans serving machinery spaces of category *A* as well as boiler draught fans before the release of any fire-extinguishing mediums.

(c) Verification that those items specified in **Table 3.7** are monitored at integrated fire control stations.

(9) Ventilation fans for the release of smoke serving machinery spaces of category *A*

(a) Start and stop tests of ventilation fans for the release of smoke serving machinery spaces of category A performed by remote control from integrated fire control stations.

(b) Verification that those items specified in **Table 3.7** are being monitored at integrated fire control stations.

(10) Closing appliances of machinery spaces of category *A*

(a) Open and close tests of dampers in the openings of machinery spaces of category *A* performed by remote control from integrated fire control stations.

(b) In cases where fixed carbon dioxide fire-extinguishing systems are installed in machinery spaces of category *A*, automatic close test of the dampers in the openings of machinery spaces of category *A* before the release of any fire-extinguishing mediums.

(c) Verification that those items specified in **Table 3.7** are being monitored at integrated fire control stations.

(11) TV monitoring systems for machinery spaces of category *A*

Verification that images of machinery spaces of category *A* are being monitored at integrated fire control stations.

(12) Fixed local fire-extinguishing systems

Verification that those items specified in **Table 3.9** are being monitored at integrated fire control stations.

(13) Ventilation fans and closing appliances serving cargo pump rooms

(a) Stop tests of ventilation fans serving cargo pump rooms and close tests of dampers in cargo pump room openings performed by remote control from integrated fire control stations.

(b) In cases where fixed carbon dioxide fire-extinguishing systems are installed in cargo pump rooms, automatic stop tests of ventilation fans serving cargo pump rooms as well as automatic close tests of the dampers in the cargo pump room openings before the release of any fire-extinguishing mediums.

(c) Verification that those items specified in **Table 3.10** are being monitored at integrated fire control stations.

(14) Fixed deck foam fire-extinguishing systems

Verification that those items specified in **Table 3.11** are being monitored at integrated fire control stations.

(15) Water spray systems

Verification that those items specified in **Table 3.12** are being monitored at integrated fire control stations.

(16) Fixed dry chemical powder fire-extinguishing systems

Verification that those items specified in **Table 3.13** are being monitored at integrated fire control stations.

(17) Automatic sprinkling systems (containing fire detection and fire alarm systems) or water-spraying fire-extinguishing systems which have been deemed appropriate by the Society

Verification that those items specified in **Table 3.14** are being monitored at integrated fire control stations.

(18) Ventilating fans serving accommodation spaces and service spaces

(a) Automatic stop tests of ventilation fans serving accommodation spaces and service spaces upon the detection of fire alarms from fixed fire detection and fire alarm systems.

(b) Stop tests of ventilation fans serving accommodation spaces and service spaces performed by remote control from integrated fire control stations.

(c) Verification that those items specified in **Table 3.15** are being monitored at integrated fire control stations.

2.3.4 Unscheduled Surveys

At Unscheduled Surveys, investigations, examinations or tests are to be made to the satisfaction of the Surveyor with respect to the matters concerned.

Chapter 3 INTEGRATED FIRE CONTROL SYSTEMS - GENERAL

3.1 Integrated Fire Control Stations

3.1.1 General

1 Integrated fire control stations are to be provided on navigation bridges, in cargo control rooms or in other suitable compartments which are readily accessible from accommodation spaces. In cases where integrated fire control stations are located in places other than navigation bridges, such stations are to be provided with two escape routes, one of which leads to an open deck.

2 Those items listed in Table 3.1 to Table 3.15 of any of the applicable systems or apparatuses listed in the following **(1)** to **(15)**, in cases where equipped, are to be able to be operated by remote control or monitored from integrated fire control stations.

(1) Fixed fire detection and fire alarm systems

(2) Fire pumps and fire mains

(3) Fixed carbon dioxide fire-extinguishing systems

(4) Fixed high-expansion foam fire-extinguishing systems

(5) Fixed pressure water-spraying fire-extinguishing systems

(6) Valves for flammable oil tank suctions in machinery spaces of category *A* and flammable oil pumps

(7) Ventilation systems serving machinery spaces of category *A* and boiler draught fans

(8) TV monitoring systems for machinery spaces of category *A*

(9) Fixed local fire-extinguishing systems

(10) Ventilation systems serving cargo pump rooms

(11) Fixed deck foam fire-extinguishing systems

(12) Water spray systems

(13) Fixed dry chemical powder fire-extinguishing systems

(14) Automatic sprinkling systems (containing fire detection and fire alarm systems) or water-spraying fire-extinguishing systems which have been deemed appropriate by the Society

(15) Ventilating fans serving accommodation spaces and service spaces

3 Remote control and monitoring from integrated fire control stations are not to be inferior to control and monitoring at local positions. Remote control and monitoring are to be operable in the event of any failure of main electrical power supplies.

4 Failure of remote control and monitoring are not to prevent any systems and apparatuses from performing their individual functions.

5 Remote control and monitoring are to be designed with self-monitoring properties that initiate alarms in the cases of failure.

6 In cases where integrated fire control stations are located in places other than navigation bridges, alarms which are provided at such integrated fire control stations are also to be provided on navigation bridges. However, alarms on navigation bridges may use group indication.

Table 3.1 Remote Monitoring of Fixed Fire Detection and Fire Alarm Systems

Items	Monitoring	
	Indication	Alarm
In accommodation spaces, in service spaces and in machinery spaces	Section of fire	Fire Electric power failure

Table 3.2 Remote Control and Monitoring of Fire Pumps and Fire Mains

Items	Control	Monitoring	
		Indication	Alarm
Main fire pumps	Start/Stop	Run/Stop	Abnormal Electric power failure[1)]
Emergency fire pumps	Start/Stop	Run/Stop	Electric power failure[1)]
Fire mains	—	Pressure	Low pressure
Associated valves[2) 3)]	Open/Close	Open/Close	—

Note:

1. Applicable only to those pumps driven by electric motors.
2. Valves which are always used in their open positions may be dispensed with.
3. Hydrants are excluded.

Table 3.3 Remote Control and Monitoring of Fixed Carbon Dioxide Fire-extinguishing Systems

Items	Control	Monitoring	
		Indication	Alarm
Electric power for medium releases (if applicable)	—	—	Electric power failure
Pressure sources for medium releases (if applicable)	—	—	Low pressure
Medium release alarms	Initiation	—	Medium release
Distribution control valves and select valves	Open	Open/Close	—

Table 3.4 Remote Control and Monitoring of Fixed High-expansion Foam Fire-extinguishing Systems

Items	Control	Monitoring	
		Activation	Alarm
Systems	Activation/Stop	Activation	Abnormal[*)]
Distribution valves	Open/Close	Open/Close	—

Note:

* Low pressures of foam liquid lines and of water supply lines are to be included in abnormal alarms.

Table 3.5 Remote Control and Monitoring of Fixed Pressure Water-spraying Fire-extinguishing Systems

Items	Control	Monitoring	
		Indication	Alarm
Water supply pumps	Start/Stop	Run/Stop	Abnormal Electric power failure[*)]
Water pressure of the System	—	—	Low pressure
Distribution valves	Open/Close	Open/Close	—

Note:

* Applicable only to those pumps driven by electric motors.

Table 3.6 Remote Control and Monitoring of Flammable Oil Pumps, etc.

Items	Control	Monitoring	
		Indication	Alarm
Flammable oil pumps	Stop	Run/Stop	—
Valves for flammable oil tank suctions in machinery spaces of category *A*	Close	Open/Close	—

Table 3.7 Remote Control and Monitoring of Ventilation Systems Serving Machinery Spaces of Category *A* and Boiler Draught Fans

Items	Control	Monitoring	
		Indication	Alarm
Ventilation fans serving machinery spaces of category *A* and boiler draught fans	Stop	Run/Stop	—
Ventilation fans for the release of smoke serving machinery spaces of category *A*	Start/Stop	Run/Stop	—
Dampers in openings of machinery spaces of category *A*	Open*)/Close	Open/Close	—

Note:

* Applicable only to those openings for the release of smoke.

Table 3.8 Remote Monitoring of Machinery Spaces of Category *A* by TV Monitoring Systems

Items	Monitoring	
	Indication	Alarm
Machinery space of category *A*	Image	—

Table 3.9 Remote Control and Monitoring of Fixed Local Fire-extinguishing Systems

Items	Control	Monitoring	
		Indication	Alarm
System	Start/Stop	Activated area	—
Water pressure of systems	—	Pressure	Low pressure

Table 3.10 Remote Control and Monitoring of Ventilation Systems Serving Cargo Pump Rooms

Items	Control	Monitoring	
		Indication	Alarm
Ventilation fans serving cargo pump rooms	Stop	Run/Stop	—
Dampers in cargo pump room openings	Close	Open/Close	—

Table 3.11 Remote Control and Monitoring of Fixed Deck Foam Fire-extinguishing Systems

Items	Control	Monitoring	
		Indication	Alarm
Water supply pumps	Start/Stop	Run/Stop	Abnormal Electric power failure[1)]
Pressure of water supply lines	—	Pressure	Low pressure
Foam liquid pumps (if applicable)	Start/Stop	Run/Stop	Abnormal Electric power failure[1)]
Pressure of foam liquid lines (in cases where foam liquid pumps are installed)	—	Pressure	Low pressure
Associated valves[2) 3)]	Open/Close	Open/close	—

Note:

1. Applicable only to those pumps driven by electric motors.
2. Valves which are always used in their open positions may be dispensed with.
3. Valves attached to monitors are excluded.

Table 3.12 Remote Control and Monitoring of Water Spray Systems

Items	Control	Monitoring	
		Indication	Alarm
Water supply pumps	Start/Stop	Run/Stop	Abnormal Electric power failure[*)]
Distribution valves	Open/Close	Open/Close	—

Note:

* Applicable only to those pumps driven by electric motors.

Table 3.13 Remote Control and Monitoring of Fixed Dry Chemical Powder Fire-extinguishing Systems

Items	Control	Monitoring	
		Indication	Alarm
Electric power for medium releases (if applicable)	—	—	Electric power failure
Pressure sources for medium releases (if applicable)	—	—	Low pressure
Pressurized mediums	—	—	Low pressure
Distribution valves for monitors	Open	Open/Close	—

Table 3.14 Remote Control and Monitoring of Automatic Sprinkling Systems

Items	Control	Monitoring	
		Indication	Alarm
Systems	—	Activated area	Activation
Water supply pumps	Start/Stop	Run/Stop	Abnormal Electric power failure[*)]
Water pressure of systems	—	Pressure	Low pressure

Note:

* Applicable only to those pumps driven by electric motors.

Table 3.15 Remote Control and Monitoring of Ventilation Fans Serving Accommodation Spaces and Service Spaces

Items	Control	Monitoring	
		Indication	Alarm
Ventilation fans serving accommodation spaces and service spaces	Stop	Run/Stop	—

3.1.2 Means of Communication

1 At integrated fire control stations, means of vocal communication which are operable in the event of any failure of main electric power supplies are to be provided to communicate with other control stations including machinery control stations. In cases where automatic exchange telephones are installed as such means of vocal communication, such telephones are to have call interruption capabilities.

2 At integrated fire control stations, means of vocal radio communication which are operable in the event of any failure of main electric power supplies are to be provided to enable fire-fighters in fireman outfits to communicate with integrated fire control stations.

3.1.3 Public Address Systems

At integrated fire control stations, public address systems which are operable in the event of any failure of main electric power supplies are to be provided. Such public address systems are to be operable from integrated fire control stations and are to be audible throughout accommodation spaces, service spaces and other control stations including machinery control stations.

3.1.4 Lighting Systems

At integrated fire control stations, emergency lighting systems providing sufficient illumination necessary for safety are to be provided.

3.2 Fireman's Outfits

3.2.1 Number of Fireman's Outfits

The number of fireman's outfits required by **23.2.1, Part R** and **11.6.1, Part N of the Rules for the Survey and Construction of Steel Ships** is to be at least four.

3.2.2 Breathing Apparatus

1 Breathing apparatuses are to be self-contained compressed air-operated breathing apparatuses and the volume of air contained in their cylinders is to be at least 1,200*l*.

2 Each breathing apparatus is to be provided with means of vocal radio communication to enable communication between personnel and with integrated fire control stations.

3 Each breathing apparatus provided in accordance with **3.2.1** are to be provided with spare compressed air cylinders of 200% capacity.

3.3 Fire-protection and Fire-fighting Manuals

3.3.1 General

Fire-protection and fire-fighting manuals are to be provided on board.

Chapter 4 INTEGRATED FIRE CONTROL SYSTEMS - MACHINERY SPACES OF CATEGORY *A*

4.1 General

4.1.1 Application

The requirements given in this chapter apply to integrated fire control systems intending to obtain Installation Characters "**IFC･M**" or "**IFC･AM**".

4.2 Fixed Fire Detection and Fire Alarm Systems

4.2.1 General

1 In machinery spaces of category *A*, fixed fire detection and fire alarm systems which comply with the requirements given in **Chapter 29, Part R of the Rules for the Survey and Construction of Steel Ships** are to be provided.

2 Fixed fire detection and fire alarm systems required by **-1** above are to be capable of denoting sections in which of the following **(1)** to **(9)** subdivision units that detectors have been activated.

(1) Enclosed spaces such as machinery control rooms

(2) Spaces above reciprocating internal combustion engines used as main propulsion machinery

(3) Spaces in the vicinity of reciprocating internal combustion engines driving generators

(4) Spaces in the vicinity of boilers

(5) Spaces in the vicinity of thermal oil heaters

(6) Spaces in the vicinity of inert gas generators

(7) Spaces in the vicinity of flammable oil purifiers

(8) Spaces in the vicinity of main switchboards

(9) Any other spaces deemed necessary by the Society

4.3 Countermeasures to Prevent Fire due to Flammable Oil Equipment, etc.

4.3.1 Countermeasures to Prevent Fire due to Flammable Oil Pumps

Flammable oil pumps are to be capable of being stopped from integrated fire control stations and from spaces located in the vicinity of entrances to machinery spaces of category *A*.

4.3.2 Countermeasures to Prevent Fire due to Valves for Flammable Oil Tank Suctions

1 Valves for flammable oil tank suctions are to be capable of being closed from integrated fire control stations and from spaces located in the vicinity of entrances to machinery spaces of category *A* as well as at local positions in cases where such valves are normally used in their open positions.

2 Visual and audible alarms are to be activated in cases where pressure sources (hydraulic pressure, pneumatic pressure, etc.) for remote closings drops.

4.4 Ventilating Fans and Closing Appliances

4.4.1 Ventilating Fans

1 Ventilation fans and boiler draught fans are to be capable of being stopped from integrated fire control stations and any spaces located in the vicinity of entrances to machinery spaces of category *A*. Any means provided for stopping ventilation fans serving machinery spaces of category *A* are to be entirely separate from those means provided for stopping ventilation fans serving other spaces.

2 Mechanical ventilation fans of exhaust type or reversible type are to be provided for the release of smoke from machinery spaces of category *A*. Such ventilation fans are to be power supplied from emergency sources of electrical power and are to be capable

of being started and stopped from integrated fire control stations and spaces located in the vicinity of entrances to machinery spaces of category *A*.

3 In cases where fixed carbon dioxide fire-extinguishing systems are installed in machinery spaces of category *A*, means are to be provided so that all ventilation fans stop automatically before any fire-extinguishing mediums are released.

4.4.2 Closing Appliances

1 Dampers in the openings of machinery spaces of category *A* are to be capable of being opened*) and closed from integrated fire control stations.

Note: * Only applicable to those openings for the release of smoke.

2 In cases where fixed carbon dioxide fire-extinguishing systems are installed in machinery spaces of category *A*, means are to be provided so that all dampers in openings close automatically before any fire-extinguishing mediums are released.

4.5 TV Monitoring Systems

4.5.1 TV Monitoring Systems

In order to confirm any fire detected and alarms activated by fixed fire detection and fire alarm systems and all speedy fire-fighting responses at the early stage of any fire, TV monitoring systems capable of monitoring images of those spaces listed in the following **(1)** to **(9)** located within machinery spaces of category *A* are to be provided in integrated fire control stations.

(1) Spaces in the vicinity of fuel oil injection pipes of reciprocating internal combustion engines
(2) Spaces in the vicinity of exhaust pipes of reciprocating internal combustion engines
(3) Spaces in the vicinity of turbochargers of reciprocating internal combustion engines
(4) Spaces in the vicinity of boiler burning units
(5) Spaces in the vicinity of thermal oil heater burning units
(6) Spaces in the vicinity of inert gas generator burning units
(7) Spaces in the vicinity of flammable oil purifiers
(8) Spaces in the vicinity of main switchboards
(9) Any other spaces deemed necessary by the Society

4.6 Fixed Local Fire-extinguishing Systems

4.6.1 General

1 Fixed local fire extinguishing systems capable of being activated from integrated fire control stations and local positions are to be provided in machinery spaces of category *A*.

2 Fixed local fire extinguishing systems are to be approved by the Society.

3 Fixed local fire extinguishing systems are to be fixed installations and are to be effective for fighting fires in those spaces listed in the following **(1)** to **(8)**:

(1) Spaces in the vicinity of exhaust pipes of reciprocating internal combustion engines
(2) Spaces in the vicinity of turbochargers of reciprocating internal combustion engines
(3) Spaces in the vicinity of boiler burning units
(4) Spaces in the vicinity of thermal oil heater burning units
(5) Spaces in the vicinity of inert gas generator burning units
(6) Spaces in the vicinity of incinerator burning units
(7) Spaces in the vicinity of flammable oil purifiers
(8) Any other spaces deemed necessary by the Society

4 Fixed local fire-extinguishing systems are to be capable of operating independently for those spaces listed in **-3** above.

5 Fixed local fire-extinguishing systems are, as a rule, to be fresh water spraying types.

6 Fixed local fire-extinguishing systems are not, as a rule, to be activated automatically.

Chapter 5 INTEGRATED FIRE CONTROL SYSTEMS - CARGO AREAS

5.1 General

5.1.1 Application

The requirements given in this chapter apply to integrated fire control systems intending to obtain Installation Characters "**IFC・M**" or "**IFC・AM**".

5.2 Cargo Pump Rooms of Ships Carrying Flammable Liquids in Bulk

5.2.1 Ventilating Fans and Closing Appliances

1 Ventilation fans serving cargo pump rooms are to be capable of being stopped from integrated fire control stations and appropriate spaces outside such cargo pump rooms. Any means provided for stopping ventilation fans serving cargo pump rooms are to be entirely separate from those means provided for stopping ventilation fans serving other spaces.

2 Dampers in cargo pump room openings are to be capable of being closed from integrated fire control stations.

3 In cases where fixed carbon dioxide fire-extinguishing systems are installed in cargo pump rooms, means are to be provided so that all ventilation fans serving such cargo pump rooms stop automatically and all dampers in such cargo pump room openings close automatically before any fire-extinguishing mediums are released.

Chapter 6 INTEGRATED FIRE CONTROL SYSTEMS - ACCOMMODATION SPACES AND SERVICE SPACES

6.1 General

6.1.1 Application

The requirements given in this chapter apply to integrated fire control systems intending to obtain Installation Characters "**IFC･A**" or "**IFC･AM**".

6.2 Fixed Fire Detection and Alarm Systems

6.2.1 General

Fire detectors of fixed fire detection and fire alarm systems provided in accommodation spaces and service spaces in accordance with those requirements given in **7.5, Part R of the Rules for the Survey and Construction of Steel Ships** are to be smoke detectors.

6.3 Fixed Fire-extinguishing Systems

6.3.1 General

Accommodation spaces and service spaces are to be provided with automatic sprinkling systems (containing fire detection and fire alarm systems) complying with those requirements given in **Chapter 28, Part R of the Rules for the Survey and Construction of Steel Ships** or water-spraying fire-extinguishing systems which have been deemed appropriate by the Society.

6.4 Ventilating Fans

6.4.1 General

1 Ventilating fans serving accommodation spaces and service spaces are to be capable of being stopped from integrated fire control stations and appropriate spaces outside those compartments in which such ventilating fans are provided.

2 Ventilating fans serving accommodation spaces and service spaces are to be capable of being automatically stopped upon the detection of fire alarms from fixed fire detection and fire alarm systems.