

F.B. Gen. 16/11.

HOME OFFICE,  
(Fire Brigades Division)  
CLELAND HOUSE,  
PAGE STREET,  
LONDON, S.W.1.

29th May, 1940.

Sir,

Ship Fires.  
F. B. Circular No. 61/1940.

I am directed by the Minister of Home Security to transmit, for your information, the accompanying copy of a memorandum on the subject of fires in ships, which has been prepared in this Department for guidance of fire authorities and Chief Officers of fire brigades who may be called upon to deal with such fires.

I am, Sir,  
Your obedient Servant.

The Clerk of the  
London County Council.  
The Town Clerk  
The Clerk to the District Council.

J.B. Mac Lach.

Copies sent for information to:-  
Chief Officers of Fire Brigades  
and Chief Constables in England and Wales.

## SHIP FIRES.

1. In the case of ship fires, whether caused by enemy action or otherwise, fire brigades located round the coast may be asked to assist in the extinction of such fires, or may have to take the initiative of attending such fires without having received a call.
2. Under No.43A of the Defence (General) Regulations, dealing with the control of salvage, the Admiralty, or any person authorised by them to act under the Regulation, may give directions for regulating the rendering of salvage services in respect of any vessel (including an aircraft), a cargo or property (including services in saving life from a vessel), and in particular for requiring that any such services shall be accepted, or shall not be rendered, or shall cease to be rendered, by the person to whom the directions are given.

### Responsibility for extinguishing ship fires.

#### Ship fires within the boundary of a fire authority.

3. Under the Fire Brigades Act, 1938, if a ship on fire was beached above low water mark or was anchored or moored within the boundary of the fire authority, the responsibility for extinguishing the ship fire would devolve upon the fire authority in whose area the ship was lying or beached. It will be borne in mind that in certain rivers and estuaries the boundary line between adjacent fire authorities runs approximately down the centre of the river. This boundary mark, however, often ends at some point on the river where the estuary broadens out or becomes practically the sea.

#### Ship fires outside the boundary of a fire authority.

4. In case of a fire on a ship anchored outside the jurisdiction of a fire authority or on a ship at sea, no fire authority has a statutory duty under the Fire Brigades Act to extinguish such fire. Apart from this, however, there will often be good reason for a neighbouring fire authority to act, whether or not at the request of the Admiralty or otherwise.
5. For example, if a ship on fire lying outside a fire authority's district was likely to cause danger, e.g. to ports, docks, munitions, oil stores or other premises of national importance, the fire authority should undoubtedly take all steps in their power to minimise the danger to property likely to be affected. There have been instances both in this country and abroad of ships or barges loaded with petrol or fuel oil which have broken adrift and caused serious fires in property on the banks of a river or estuary.

### Position under the Fire Brigades Regional Orders.

6. In the case of any fire to which the Fire Brigades Regional Orders apply, reinforcements should be obtained through the District Officer as provided in the order for the Region concerned. Special appliances, such as fire boats, would be obtained by him from other Districts or Regions through the Regional Commissioner.\*

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\*Special arrangements for the summoning of fire boats, to ship fires in the Thames and its estuary are under consideration. Fire authorities concerned in Nos.5,4, and 12 Regions will be notified when these are settled.



7. In the case of any other fire to which the Fire Brigade Regional Orders do not apply, e.g. a ship fire outside the boundary of any fire authority's district, it will be for the Minister of Home Security or the Regional Commissioner to apply the Order to the fire under Article 6(1)(c) or (d) of the Fire Brigades Regional Order. This would be done on application by the fire authority, the owners, or the salvors of the ship, and could be done verbally, the District Officer being notified in writing at the earliest possible moment by the Department or Regional Headquarters. In such a case the extension of the Order might be subject to payment of out-of-pocket expenses, by the ship owners, or the salvors, to the assisting fire authorities' brigades.

#### Control at ship fires.

8. In proper cases, e.g. if a ship on fire were endangering a property of national importance such as a munition depot or oil store and special steps were likely to be required to prevent the spread of fire, including the destruction or removal of property, it might be necessary for the Minister or the Regional Commissioner to authorise some individual person to attend and take charge of the fire extinction operations.

#### Responsibility for the ship and her Cargo. Position of the Master.

9. The Master is responsible for the safety of the ship, and his concurrence should be obtained in any action taken by a fire brigade in attendance at a ship fire. (See also paragraphs 2, 8 and 10 of this memorandum).

#### Position of persons salvaging the vessel.

10. If any person or body has undertaken to salvage the vessel, fire brigades when in attendance, should act in close co-operation with the person carrying out the work of salvage. The position of the Admiralty in regard to the control of salvage has been referred to at the outset of this memorandum. It is understood that, in cases where a fire brigade is asked to give assistance by responsible Naval Officers acting on behalf of the Admiralty Salvage Department, that Department will be responsible for any expenses incurred.

#### Position of Underwriters.

11. If the vessel and/or her cargo are insured, Underwriters will have an interest in the matter, and if Lloyds agents are present, due consideration should be paid by local fire brigades to their advice.



Information to be obtained by Fire Brigade Officer in charge of the fire.

12. It will be important for the senior officer of the local fire brigade present at a ship fire to obtain, as soon as he arrives on the scene, information under the following heads:-

(a) The goods or materials stowed in various holds. The ship's manifest will provide particulars.

The storage in holds adjoining the hold or holds on fire would be a most important factor. The position of any "dangerous" materials forming part of the cargo should also be ascertained, i.e. not only such materials as explosives, petroleum and petroleum spirit, celluloid, and so on, but other materials such as carbide and other chemicals which would become dangerous if water were used.

(b) If the ship is oil fired, the position of bunkers and which (if any) are empty. If oil is carried in double bottom, the position and oil content in double bottom below the fire.

(c) A plan showing water-tight bulkheads and run of the "tween decks" should be consulted, if possible.

Notes on the handling of ship fires.

Appliances.

13. If a vessel is in a dock, harbour, or sheltered water, floats or vessels such as tugs or barges mounting trailer pumps will be able to lie alongside and lines of hose can be taken on board.

14. If at sea, beached, or in the mouth of a river or estuary where a sea may get up, the position may be very difficult, as it may be quite impossible to operate lines of hose between the ship and the pumping vessel.

15. If trailer pumps have been taken off, the solution may be to get one or more trailer pumps lifted by the ship's cranes or derricks on to the deck, but in the case of a large vessel or a vessel in ballast, the height between upper deck and the water may be greater than the pump could lift. In this case the pump, or pumps, may have to operate from a lower deck, possibly taking suction through a side cargo hatch. There is on record an instance of a ship fire at which a light trailer pump was operated suspended over the water from a derrick. This could only be done in relatively calm water.

16. If trailer pumps are sent off on the deck of a tug to be lifted on board, light trailers removed from their chassis would probably be handier than large trailers. Alleyways and bulkhead doors on most ships are too narrow to allow passage of anything bigger than a light trailer, but a ship fire would probably require large quantities of water and it might be necessary to send off several of these appliances.



### Examination.

17. One sure indication of the location of a fire is excessive heat. All plates and bulkheads on each side of holds known to be on fire should be examined to see if they are unduly hot. With bulk cargo this may be impossible, but if cargo can be trimmed back from bulkheads, this should be done. Where bulkheads are very hot special attention should be paid to preventing fire from spreading to adjoining holds. Cooling may be attempted by means of a diffuser or spray nozzle, but damage by water might arise and this should not be done unless the heat is sufficient to cause fire in the unaffected hold.

### Smoke and ventilation.

18. Owing to the construction of a ship and the induced drafts in the holds, smoke, even hot smoke, appears at the most unexpected places.

19. The Master, or mates, who would be fully conversant with the ventilation system, should be able to advise on this matter and they should be asked to restrict all ventilation as far as possible until appliances are at hand and ready to deal with a fire. A fire brigade officer should not ask for hatches to be opened until he is ready to deal with the fire. When this is done it is better to remove the covers from one end of the hatch leaving the tarpaulin cover rolled back in case it becomes necessary to batten down again if the fire cannot be handled.

20. When a fire has been checked, a windsail can sometimes be used advantageously to remove smoke from the lower part of a hold or compartment to enable firemen to work below without breathing dresses or smoke helmets.

### Estimation of temperature.

21. An induction thermostat or thermo-couple, which may be obtained from scientific instrument-makers for 25/- or thereabouts, can be used to ascertain high temperature in any area into which the pointed head carrying the thermostatic device can be inserted. This can be forced into certain bulk cargoes such as grain and coal, as well as used to ascertain temperatures of deck plates, plates forming bulkheads, hatch covers and doors.

### Approach to a fire.

22. If the fire involves the boiler room or stokeholds, but not both, pass doors between these two compartments can be used to attack the fire.



23. It is unlikely that water-tight or other doors will be provided in bulkheads between holds. If, however, it were considered advisable to gain access to a hold affected for the purpose of reaching the seat of the fire, or in order to use an induction thermostat or extended branchpipe (see under) an acetylene cutting torch could be used for this purpose. The ship may possess such a torch, but it should be remembered that this equipment is included in the issue to all A.R.P. heavy rescue parties, and it would be well to arrange for the apparatus to be brought to the quay-side or taken off to the ship if she is afloat.

#### Use of smoke helmets or self-contained breathing apparatus.

24. Pipe smoke helmets or self-contained breathing apparatus may enable men to get nearer the seat of a fire than would otherwise be possible, but men should not be sent to lower levels without life lines and trained attendants.

#### Attack on a fire.

25. Ship's pumps. If fire has not affected the engine and boiler rooms, the ship's pumps may suffice but, speaking generally, ships pumps do not provide efficient fire streams. They may, however, be used to provide water for trailer pumps working on the deck.

26. Special nozzles. If fire has broken out in a hold which is not full or has been partially discharged, a revolving nozzle enables streams of water to be delivered under the combings and well out to the ship's side.

27. If this is not available, an improvisation can be provided by using one or more scaling ladders lashed together. Hose is run down the reverse side of the ladder or ladders, and the branch is projected through between the two lowest rungs, a line leading to the deck is attached to the nozzle, elevation and depression being obtained by hauling or slacking off the line, training by twisting the ladder. Another but less effective method is to lower a line of hose and nozzle from one side or end of the cargo hatch, controlling it by a line made fast with a clove hitch round the hose coupling and a half hitch round the nozzle operated by a man on the opposite side or end of the hatch.

28. An extended branchpipe, consisting of a 10 ft. section of 2½" steel piping with a pointed head can be made locally in fire brigade workshops. ⅛" holes can be drilled in the pointed head and in the end of the section adjoining the head. A 2½" instantaneous connection can be fitted to enable a length of hose to be connected. This appliance can be used in grain, coal, or other material. It is most effective when used in conjunction with the induction thermostat mentioned above.

29. Foam. Certain classes of cargo can only be extinguished by the use of foam, but if fuel oil is involved diffuser or spray nozzles used in such a way that the spray impinges directly on the burning oil, are almost as effective as foam.



30. In one case where fuel oil was burning below engine room floor plates, water from a line of hose was used to raise the level of the oil above the floor plates where it was extinguished with foam.

31. Steam and inert gas. Many ships are fitted with connections to allow steam or inert gas to be injected into the holds. With holds containing cotton, hemp, copra and the like this is probably the best method of keeping a fire under control, and possibly extinguishing it. It would probably have to be continued for at least 48 hours. All hatches would have to be battened down and ventilators closed. The canvas ventilator covers carried on ships are the most effective means of closing ventilators.

32. Where cargo is being removed after steaming, a careful watch is necessary to see that "pockets" of fire are not present. There have been instances of "pockets" being found ten days after "steaming" was believed to have extinguished all fire.

33. Flooding. In some cases flooding may be the only remedy. Flooding of one hold may result in saving the remainder. The Master will be the person to decide when this should be done, but he will probably be reluctant to adopt this course until other methods have been tried. If the Master orders a hold, or holds, to be flooded, he will presumably see that ballast tanks are flooded to keep the vessel on an even keel. For flooding, open ended lines of hose should be used. This action will also be necessary if a fire brigade is using large quantities of water on upper and 'tween decks, particularly in the case of a passenger ship in ballast. Neglect of this precaution may cause the ship to capsize.

#### CONCLUSIONS.

34. The construction of ships and cargoes carried vary so much that it is impossible to suggest any universal method of extinction but, unless lines of hose can be got below decks or methods used which will deliver the water at or near the seat of the fire, operating from deck level in the hope that water may reach the fire will really amount to flooding, or partly flooding the hold in question.

35. If the ship is alongside a quay with stevedores and cranes available it may be possible to work out the cargo, till the seat of the fire is discovered and can be attacked. This was done in one case with wool in bales. Flooding the hold was first suggested but working out was tried and very little of the cargo was damaged or lost.