

Analysis of Moon sights

A Conditions: (1) Fairly quiet conditions or uniform sky.
(2) Good to medium shadows.

B Conditions: (1) Poor shadow.
(2) Haze, gales, &c.

Error from true position in nautical miles.

Conditions	Number of sights	Altitudes	0' - 5'	+ 5' - 10'	+ 10' - 20'	+ 20'
(A)	42	18° - 62°	26%	26%	24%	24%
(B)	37	„	27%	19%	8%	46%

Compared to modern navigational methods the results are poor, but when a Sun shadow is obtainable, position lines within ten miles, and quite often better, can be obtained under most conditions with an improvised spirit level. No horizon is required and the device can be carried in the waistcoat pocket. Under quiet conditions sights can be obtained at sea and in fog. With household odds and ends, each instrument costs half-a-crown.

If made by an instrument maker, with an easier and more accurate method of setting the style, the results would be appreciably better as it was noted that more errors arose from setting the style than from judging the length of the shadow to a tenth of a millimetre.

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Helicopter Servicing and the Collision Regulations

C. L. Pielow

THE servicing of ships off Cape Town by helicopter with stores and spares is now established practice. In addition, test exercises are in progress with the Rotterdam Port Authorities to embark pilots by helicopter, and preliminary enquiries are under way for helicopter servicing in the Arabian Gulf.

Since the Institute is setting up a working party to consider the revision of the Collision Regulations, this may be a suitable time to raise the question of whether or not a vessel being serviced by helicopter or embarking a pilot by helicopter should be required to exhibit the day-time shapes prescribed in the Collision Regulations under Rule 4(c).

From exchange of correspondence in recent weeks with various interested parties, it is noticeable that there are differences of opinion concerning the necessity for helicopter serviced vessels to exhibit specific shapes, notably those required under Rule 4(c), and due to the non-existence of published official ruling, the following notes may be of general interest.

Relevant articles in the Collision Regulations are thought to be Rules 4(c) and (f), and Rule 27, also Sections 4, 7 and 8 of Annual Notice No. 7-69, and International Code Flag 'D'.

It is believed that the intention of Rule 4(c) in so far as concerns 'replenishment' was to indicate either fuel replenishment by hose connections, or storing alongside from another vessel or craft.

However, it appears that the original intention of the Rule has been superseded by events subsequent to its promulgation, e.g. helicopter servicing, and that the general safety of the serviced vessel, and also all other vessels in the vicinity, would be greatly enhanced if the word 'replenishment' could be accepted to include other ways of replenishment such as helicopter servicing, and also other items of replenishment, such as stores. There would appear to be no reason why this should be the case since the article does not specify either fuel replenishment or hose connections.

It has been said in regard to 'replenishment at Sea' and Sections 7 and 8 of Annual Notice No. 7-69, that at no time is the helicopter connected to the vessel. This opinion is possibly subject to what may be reasonably termed 'a connection'. By interpretation, a connection could be stated to have been made immediately the load enters the confines of the ship's structure and/or is landed on deck, and there remains the possibility that the hook could become fouled on deck, a possibility which is recognized by the requirement for wire cutters, large axe and a crow bar to be in readiness.

The Cape Town helicopter operational instructions require maintenance of course and speed unless otherwise instructed by the helicopter pilot, and also state that the helicopter will hover on the lee-side. It may be that any alternative course instructions from the helicopter will be in order to create a lee, thereby placing the serviced vessel in much the same situation as the naval ships that are governed by Section 4 of Annual Notice No. 7-69.

A shipmaster who has experience of the Cape Town Helicopter Service has said that '. . . it might be advisable to ask the shipping authorities in Cape Town to instruct fishing vessels to keep clear of ships engaged in an operation with a helicopter'.

Another Master states that '. . . during the operation we would have had to make way for a fishing vessel crossing our course, but after we had directed the Aldis lamp on her she made way'.

In the latter case, both the serviced vessel and the fishing vessel, in strict terms, were contravening Regulations, and possibly complications would have arisen had the fishing vessel maintained course and speed as she was required to do so under the Regulations.

A further observation to compliance with International Regulations and the

suggestion that a serviced vessel is not, for all practical purposes, in a position to adequately comply under all circumstances, is the factor that should an alteration of course or speed be called for because of emergency arising as between vessel and helicopter, it might be that in taking or needing to take necessary remedial action, the serviced vessel in so doing may either be forced to take such action as will contravene Regulations in relation to other vessels in the vicinity, or alternatively may be prevented from taking action through the presence of other vessels.

The problem of adequate manoeuvrability *vis-à-vis* Regulations may best be solved for all concerned, were it to be introduced that a vessel undergoing helicopter service is indeed 'Not-Under-Command' as determined by Rule 4(f) and exhibits the statutory shapes. Such a solution at least relieves the serviced vessel of any necessity to alter course or speed during the operation and thus reduces any elements of danger vessel/helicopter, and also informs all other vessels that they need to keep well clear in accordance with Rule 27.

It is beholden upon the prudent owner/operator to endeavour to minimize any risks involved in an operation such as helicopter servicing, and if possible to obtain prior official ruling respecting any part of the operation that may be subject to the International Regulations, and this leads to the important matter of insurance.

It would appear, however, that the question of whether or not a claim presented by owners resulting from damage or casualty during the helicopter operation would be met by underwriters, cannot properly be answered at this stage.

The insured position revolves around the presently indeterminate point of 'due diligence' in the operation of the vessel, and since up to the time of writing no accident has occurred in connection with the helicopter service, the case has not arisen whereby the matter of diligence has been put to the test.

In short, it is not known for certain whether underwriters would meet a claim resulting from direct cause and/or effect of the helicopter service until there has been an accident connected with it.

It could be that owners may be hard pressed to establish due diligence in having exposed crew, ship and cargo to the risk of explosion or other damage (resulting, for example, from ignition of gases, static electricity, failure of helicopter motor or dropping of any metallic object on deck from a considerable height), in order to enable the collection of films and mail, even though initially such collection is intended for the benefit of the crew.

On the other hand, it is argued that the operation is not hazardous in so far as many vessels are reported to be using the service without undue difficulties or dangers arising. Nevertheless, this does not necessarily prove the point, and no doubt considerable re-thinking will take place should an accident occur.

It may also be thought that the very existence of operational instructions requiring adequate fire extinguishers, large axe, crow bar, gantline, wire cutters and rubber gloves against possibility of static discharge, whilst being necessary and commendable, indicate degrees of danger to be present to the extent that they should be insured against. Thus the question remains of whether an owner is exercising 'due diligence' in using a service that by prior preparation requirements alone, may be held to contain dangerous characteristics.

In connection with the text exercises taking place at Rotterdam, it is understood that the authorities have stated that vessels involved should, if possible, comply with Rule 4(c). As is well known, few vessels at the present time carry

the shapes prescribed by this Rule, and the ships so far concerned have apparently flown code flag 'D', presumably on the basis of its being the alternative closest to that which is required. However, the meaning for Code Flag 'D' in its strictest sense, indicates that the intention of the flag is not applicable to the situation.

The indecisiveness of this position again points to the need for official clarification and ruling, since there would seem no legal cause to require vessels embarking a pilot by helicopter to comply either with Rule 4(c) as it presently stands, or under Section 4 of the Annual Notice No. 7-69, and the protection afforded to owners whose vessels comply with Rule 4(c) against any claim through damage or casualty must be questionable.

If Rule 4(c) is to be adjusted to include embarkation of pilots and replenishments of stores, &c. by helicopter, or covered by an Official Notice, then it is apparent that such vessels must indeed become equipped with the shapes prescribed, and that an early decision in the form of a Notice would be extremely valuable to all concerned.

In respect of the application of Rule 4(f) to this problem, *vis-à-vis* more than one vessel awaiting a pilot or the replenishment of stores, I would suggest that since the operation is unlikely to involve more than one helicopter servicing each vessel in turn, the shapes prescribed would be shown by one vessel only at a time in the same area, and then only for a very brief period, thereby requiring all other vessels not immediately similarly engaged to keep clear. In such circumstances, the matter of more than one vessel being subject to the jurisdiction of a revised Rule 4(c) at the same time and in the same vicinity would not arise.

'A Warning to Would-be Designers of Navigational Tables'

On seeing an advance copy of the above article, Mr. Weyer immediately designed a number of replacement pages and paragraphs to overcome the fundamental difficulty in his *Two Star Position Finding—1969*; these are now available, and will presumably be incorporated in copies of the tables.