

THE CHARTING IMPLICATIONS OF IALA BUOYAGE SYSTEM "A"

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ABSTRACT

As Superintendent of Chart Maintenance at the UK Hydrographic Department, the author has been actively engaged in the discussions since 1975 with the International Association of Lighthouse Authorities to determine the hydrographic implications of the introduction of the new IALA Buoyage System "A". His paper outlines the effects on charts and other hydrographic publications, the problems of acquiring the data and the need for a co-ordinated programme to ensure the buoyage changes and chart amendments keep in step.

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1. In his paper entitled "The Background of IALA Buoyage System 'A'" (*) Captain J.E. BURY, Chairman of the IALA Technical Committee on Buoyage described how, in June 1967, action was taken which led, 8 years later, to international agreement on a new maritime buoyage system. It was in February 1975 that the proposals of the IALA committee were first presented to a joint IALA/IMCO conference. Commodore A.H. COOPER (**) represented IHO at that meeting and registered due warning that "consideration must be given to problems relating to the introduction of any new system, including its promulgation and the revision of nautical documents and charts". In this paper is given a brief description of the charting implications, and of the arrangements set up during the past 3 years to facilitate the action which must be carried out by hydrographers as part of the System 'A' implementation.

2. Action taken by any authority to change navigational aids, be they lights, buoys, radio systems or routeing arrangements, will be ineffective and possibly downright dangerous if chart users are not notified of the changes by issue of radio warnings, notices to mariners, corrected charts and amended sailing directions. In the UK, these promulgation responsi-

(*) *I.H. Review*, Vol. LV (1), January 1978, pp. 135-143.

(**) *I.H. Bulletin*, IV, April 1975, p. 98.

lities rest almost entirely with the Hydrographer, as publisher of an extensive series of charts used by ships of many nations. Accordingly, in April 1975, the Chairman and Secretary of the IALA committee, Captain BURY, and Mr. MATTHEWS of Trinity House (the UK buoyage authority) were invited to visit Taunton to see for themselves what would be involved if early decisions were taken requiring alteration to all the buoyage symbols on the charts of Northwest Europe. As a result, from then on, participation by hydrographic representatives of various nations (Belgium, Denmark, Federal Republic of Germany, Finland, France, German Democratic Republic, Italy, Netherlands, UK, USA) and of the IHB became a feature of subsequent meetings of the IALA technical committee and opportunity was thus afforded to explain to the buoyage representatives why the chart amendment task must constitute the major factor in the schedule of System 'A' implementation. Agreement on this was formally recorded at the 34th Session of the IMCO Maritime Safety Committee in May 1976 when "IALA agreed to keep a close liaison with all the hydrographic authorities involved, including IHO, and to develop its programmes in accordance with chart producers' capability" (*).

3. The main aspects of the charting problem are as follows :

(a) It is easy to underestimate the full cartographic implications of even a single buoy change. For example, the alteration to the South Inner Gabbard lightbuoy (51°51'N 1°52'E approx) affected no less than 14 Admiralty charts ; the detailed description in the Sailing Directions also had to be altered. Admittedly, this is an extreme case, but it illustrates the need for a careful study of all the charts and publications to ensure that the full extent of the cartographic commitment is accurately assessed.

(b) The symbols being used on nautical charts in 1975 did not cater for all the features of the new System 'A' buoys. Even before the IALA documentation on the new system was completed, work was in hand with the North Sea International Chart Commission to design new symbols for implementation on NSICC nations' charts. A special publication (NP 735, *IALA Maritime Buoyage System 'A'*) was prepared at Taunton to explain to the mariner the basic principles of System 'A' and how the details would be portrayed on Admiralty charts (see fig. 1).

(c) The cartographic implications of the IALA System 'A' buoyage are heavy ; they are also unique. Normally chart action is taken *after* a change has been implemented, although in significant cases, prior warning is given by issue of Preliminary Notices to Mariners. Moreover, for charts outside the national areas of some hydrographic offices, action is dependent on receipt of other agencies' notices and charts. Right at the outset, it was apparent that, in the case of IALA buoyage, the normal promulgation processes would not suffice. The significance and extent of the changes involved in each year cannot be dealt with by retrospective action. By its very nature, chart making and distribution is a relatively slow process and it is conceivable that a period of 12 months or more could elapse before the details of the changed buoyage in a particular area, already carried out, would be in the hands of the mariners. There is, therefore, an imperative

(*) IHB Circular Letter 41/1976, 13 October 1976.

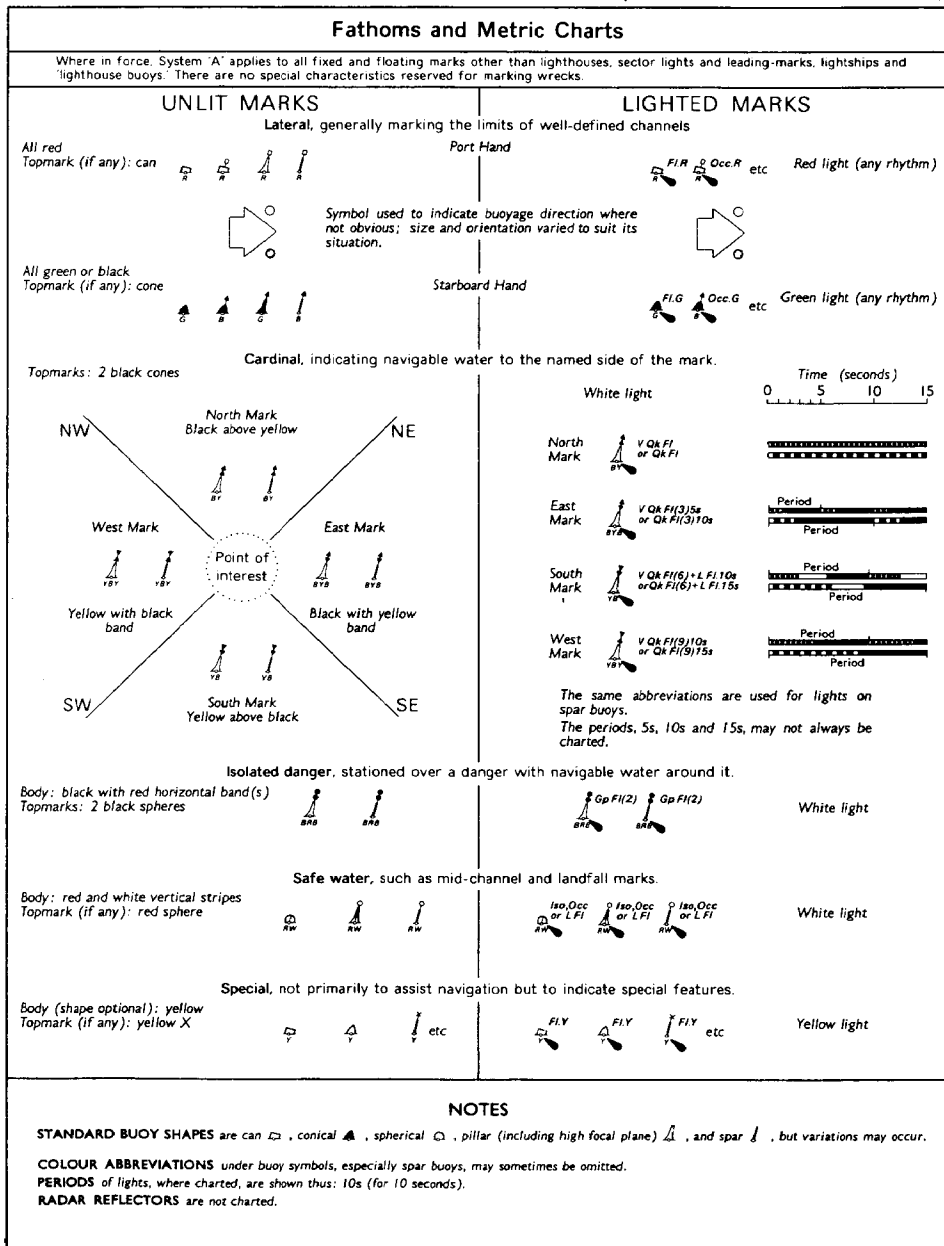
To accompany Admiralty Notice to Mariners No.1276 of 1976

This new page for the Book Edition of chart 5011 illustrates the symbols and abbreviations for the buoyage to be introduced into European waters from April 1977.

Buoys and Beacons IALA Buoyage System 'A'

L70

The combined Cardinal and Lateral System (Red to Port)



Block for Chart No.5011

FIG. 1

(Editor's Note: This two-tone reproduction shows the light patches, the arrows to indicate buoyage direction and the note in the top left hand corner in black. They are, in fact, printed in magenta on the original).

need for an effective data supply system giving advance notification of the changes. The understanding on which the operation is proceeding at present is that the buoyage authorities, at home and abroad, will :

(i) Give 12 months' notice of the details of all proposed changes and supply the information direct to any hydrographic office needing it for amendment of charts.

(ii) List the details of each new or amended buoy, using the approved form and agreed codings (see Annex). The list must also include details of any buoy which, during the change-over, will be lifted without replacement.

(iii) Incorporate in the list the details of *all* relevant buoys lying within national waters, including those coming under the jurisdiction of other government agencies, local harbour boards, yachting clubs etc.

(iv) Subsequent to the supply of the buoyage data — keep changes to the absolute minimum : in the case of unavoidable changes caused by alterations in channels or pilotage needs, supply details as soon as possible by issue of supplementary updating lists to the hydrographic offices concerned.

(v) Supply information to the national radio warning system and to the NAVAREA co-ordinator for promulgation by Radio Navigational Warnings.

Experience so far has indicated that acquisition of the complete data is one of the most difficult aspects of the task. The responsibility for buoys is split among a large number of authorities at local, regional or national level. During the process of co-ordinating and integrating the input from all these sources for the purpose of compiling a full list of the changes, and for amendment of charts, a very large number of queries arise, both as regards the details of the buoys and the implementation schedules. To resolve these queries and discrepancies, the hydrographers have to engage in much liaison work direct with the separate buoyage authorities.

(d) Another major problem has been the tendency of some buoyage authorities to plan a changeover programme without fully appreciating the excessive task thereby imposed on national charting offices, and even more so on those with chart commitments in more than one area where System 'A' is adopted. Obviously, the initiation of a number of separate but contemporaneous regional programmes can add up, in any one year, to a cartographic workload beyond the capabilities of any hydrographic office. At the IALA meetings, the case had to be put very strongly for adoption of a co-ordinated programme which, in each year, will not impose excessive charting tasks. This principle has been accepted by both IALA and IMCO and the situation is kept under review. Initially IALA had proposed a 3-year schedule for Northwest Europe, but in the light of the hydrographic facts this was amended to a period of at least 5 years. The current Target Programme, which is still subject to modification, is shown on the diagram issued with Admiralty Notice to Mariners 164 of 1978 (see fig. 2). The previous version was issued in 1977 and the major change was the decision to postpone by 1 year the buoyage changes in North Scotland and West Ireland, and in Norway, north of Lista. Not indicated on the diagram are

To accompany Admiralty Notice to Mariners No. 164 of 1978

I.A.L.A. BUOYAGE SYSTEM 'A' IMPLEMENTATION
TARGET PROGRAMME 1978-1983

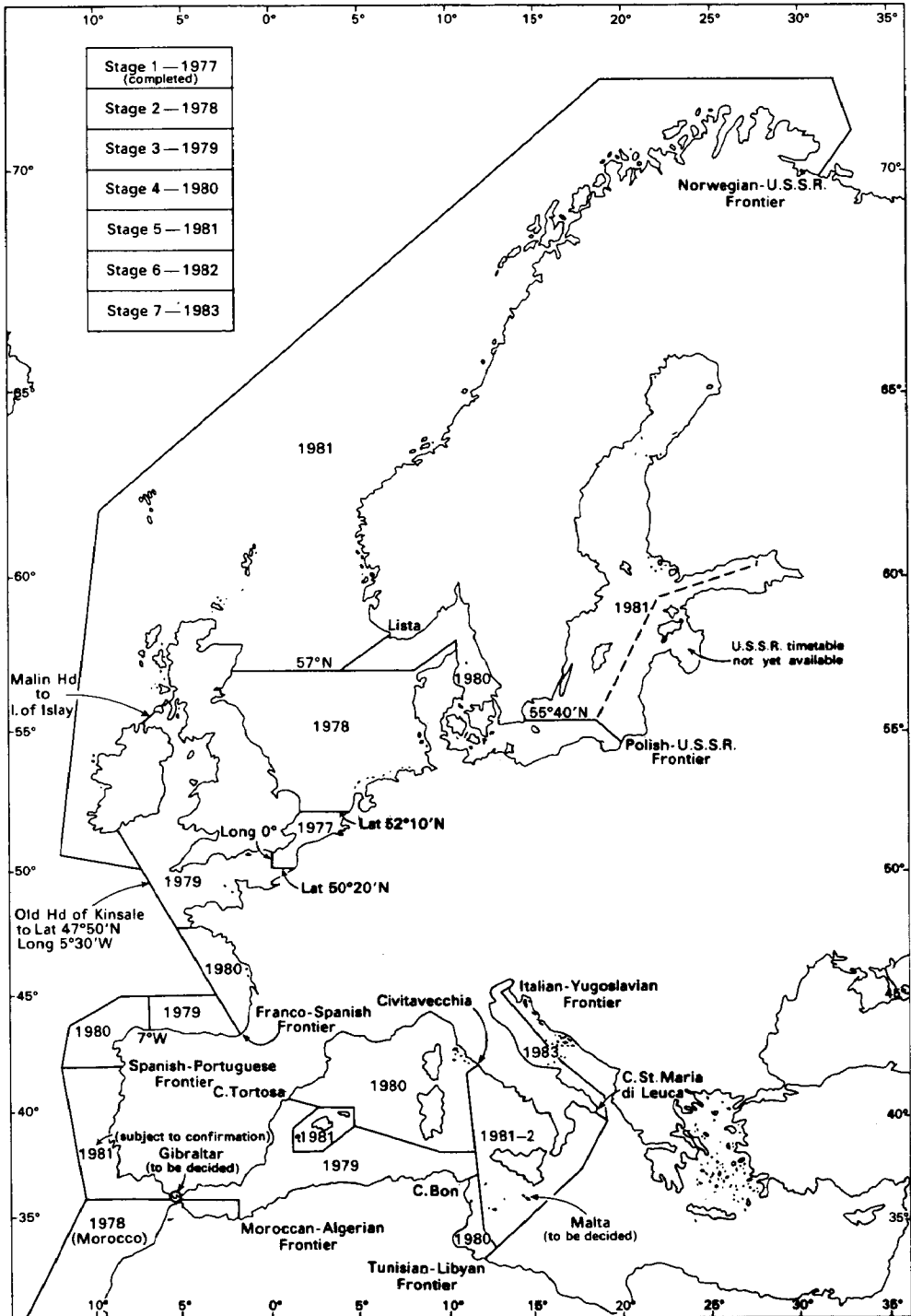


FIG. 2

the schedules for Australia (1978-81), Hong Kong (1979-80), Malaysia (1979) and Singapore (1977-8). Apart from the areas in the scheduled programme, System 'A' buoyage may also be introduced into newly-marked harbours or channels, if this can be done without causing confusion for mariners with regard to the buoyage in general use in the locality concerned.

4. In each annual stage, the promulgation publications and services are as follows :

(a) Preliminary charts are prepared by overprinting relevant information on a few small scale charts covering the whole area affected. In the case of all off-shore and significant marks, details of both the old and the new buoys are shown. Also portrayed are the limits of lettered sub-areas into which the area is divided for reference purposes in the buoy list (see para. b) and radio warnings (see para. e).

(b) A list is issued as an annex to Notices to Mariners giving details of all the proposed new and amended buoys.

(c) About a month before the implementation date, new editions of affected charts are published, each carrying a warning note advising mariners to retain the cancelled edition until the change-over is complete.

(d) A series of Notices to Mariners are issued to give advance notification of the changes and the promulgation services, to indicate the charts affected, to record the progress of the implementation and finally, to advise mariners when the old versions of the charts need no longer be retained. In Stage 1 (1977), 45 notices were issued by UK, for example.

(e) Radio Navigational Warnings are broadcast to give appropriate information before, during and on completion of the changes as the process proceeds throughout the area. A total of 96 radio warnings were issued by UK during Stage 1 (1977).

As far as is known, the promulgation services proved very satisfactory in Stage 1 (1977), and similar action took place in Stage 2 (1978).

5. The number of new editions required in Stage 1 was relatively low — in the case of Admiralty charts, for instance, there were 76, including latticed versions. However, at that time, the initial arrangements and preparation of information and educational documents also created a heavy commitment. In Stage 2 and subsequent years, the size of the chart amendment task increases considerably, and the number of new editions which the system (including printing, dispatching and distribution by agents) can cope with during the seasonal change-over period becomes a critical factor. Moreover, to devote excessive effort to IALA buoyage changes would create an unacceptable limitation on other important information awaiting inclusion in the charts. It was considered by hydrographic representatives at meetings of the IALA technical committee that at least 1500 new editions of charts will be needed to change the buoyage world wide, and that the programme should not be less than a 10-year one, 1977 to 1986. The IALA Executive Committee has accepted this as a reasonable schedule ; the problem now is how to persuade a sufficient number of nations to wait until the second half of the decade. In February 1978, in a Circular Letter to members, the IALA Secretary-General stated that " The programme from now until the end of 1981 has reached saturation point and charting author-

ities cannot cope with any more changes during this period". He invited other nations to consider participation but reminded them that such changes cannot now be catered for before 1982, at the earliest.

6. Hydrographic offices need to be wary of buoyage authorities' tendency to underestimate the cartographic implications of changing the world's buoyage. The work pressures involved in acquiring the data and carrying out, to a strict schedule, the promulgation and chart amendment processes, place a very heavy commitment on charting organisations, most of which are already operating under strain as a result of the upsurge in hydrographic data which has been a feature of recent years. Inevitably, the diversion of effort over the next decade to deal with the buoyage commitment will set back to some extent the routine chart updating programmes, and the long-felt ambitions to achieve international standardisation in the details of medium and large-scale charting.

ANNEX

International Association of Lighthouse Authorities

MARITIME BUOYAGE SYSTEMS : IMPLEMENTATION OF SYSTEM " A "

General Information for Correction of Navigational Documents

Hydrographic Offices have stipulated that a *minimum* of 12 months' notice is required to enable charts and other documents to be corrected and distributed to mariners before the implementation date.

1. Name, address, telex and telephone number of the Buoyage Authority to which any queries should be addressed :
.....
.....
.....
2. Date of information :
3. Are all special buoys (e.g. sewer outfall, spoil ground, military exercise area marks) included in the attached list ?
If not, when will further information be supplied ?
4. Are any changes to fixed (as opposed to floating) marks to be made at the same time as the buoy changes ?
If so, please give details on a separate sheet.
5. General remarks, e.g. : Is it proposed to introduce any variations on the standard System " A " ? If so, what ?
Will the *positions* of all buoys remain unchanged ?
Is the direction of buoyage changed in any areas ?
6. Names of organizations to which copies of the attached lists are being sent

IALA Buoy Changes**KEY TO ENTRIES ON BUOY LIST****REFERENCE NUMBER :**

For general reference purposes the items on the list should be numbered consecutively.

STATION :

Name and/or number, in the form in which it will be painted on the buoy. If name does not appear on buoy, insert brackets round it.

ASSIGNED POSITION :

Latitude and longitude, to the nearest second, of the intended position of the buoy. New positions resulting from IALA changes indicated by *.

CHART No. :

Number of national chart (largest scale) from which position has been read. The nationality of the chart should be quoted : eg Neths 1347.

SHAPE OF BUOY :

Can : Can, or cylindrical (Fr, Bouée-tonne. Ger, Stumpftonne).

Cone : Conical (Fr, Conique. Ger, Spitztonne).

Pillar : Buoy having a tall central structure on a broad base and no distinctive shape to show on which side it should be passed.

Spar : Spar (Fr, Espar. Ger, Spierentonne).

Sph : Spherical (Fr, Sphérique. Ger, Kugeltonne).

Other : Specify in Remarks column (for IALA buoys only).

COLOUR :

B : Black

BRB : Black with red band(s)

Bu : Blue

BWCH : Black & white chequers

G : Green

BWHB : Black & white horizontal bands

Or : Orange

BWVS : Black & white vertical stripes

R : Red

BY : Black above yellow

W : White

BYB : Black with yellow band

Y : Yellow

RWBHB : Red, white & black horizontal bands

RWCH : Red & white chequers

RWHB : Red & white horizontal bands

RWVS : Red & white vertical stripes

YB : Yellow above black

YBY : Yellow with black band

RHYTHM OF LIGHTS :

F	Fixed
Fl	Flashing
Gp Fl(2)	Group Flashing (with number of flashes)
Gp Occ(3)	Group Occulting (with number of occultations)
Int Qk Fl	Interrupted Quick Flashing
Iso	Isophase
L Fl	Long Flashing (flash of 2 seconds or more)
Occ	Occulting
Qk Fl	Quick Flashing (60 or 50 flashes per minute)
Qk Fl(3)	Interrupted Quick Flashing, with 3 flashes
V Qk Fl	Very Quick Flashing (120 or 100 flashes per minute)
V Qk Fl(9)	Interrupted Very Quick Flashing, with 9 flashes
V Qk Fl(6) + L Fl	Interrupted Very Quick Flashing, with 6 flashes, followed immediately by a long flash.

PERIOD :

The time taken to exhibit one complete sequence. s = seconds.

TYPE OF BUOY :

E Car	East Cardinal
N Car	North Cardinal
S Car	South Cardinal
W Car	West Cardinal
Is D	Isolated Danger (danger isolé)
Safe	Safe Water (eaux saines)
Port	Lateral buoy to be left to port (babord)
Star	Lateral buoy to be left to starboard (tribord)
Spec	Special mark (explain, if necessary, under "Remarks")

TOPMARK :

(E)	Two black cones, one above the other, base to base
(N)	Two black cones, one above the other, points upward
(S)	Two black cones, one above the other, points downward
(W)	Two black cones, one above the other, point to point
(Is D)	Two black spheres, one above the other

Sph	Single red sphere (insert "Sph" only if topmark is fitted)
Cone	Single green cone, point up. Add " B " if black
Can	Single red can
X	Single yellow "X" shape

FOG SIGNAL :

Bell	Bell actuated by wave action
Gong	Gong actuated by wave action
Whis	Whistle actuated by wave action

If the fog signal is powered by some other means, give the period, eg, Bell 30 s. Give reserve signal, if any, under "Remarks".

RADAR REFLECTOR :

Insert "yes" if fitted. Insert "Racon" where appropriate.

FORECAST DATE :

Estimated date on which buoy will be changed, eg VII.77 if likely to be July 1977.

REMARKS :

Examples :

- " Withdrawn " if removed without replacement.
- "100 metres N of wreck" to give exact position.
- "Marks end of outfall pipe".

IMPORTANT GENERAL POINTS :

Normally all buoys should be listed, whether changed or not. However, a number of unchanged channel buoys may be grouped together in the list and covered by a general note.

In Scandinavian waters, where buoys may not be named or numbered, the list may best be supplemented by annotated copies of charts. It is recommended that a corrected transparent overlay to the largest scale charts affected should be prepared, and dyeline copies sent by direct arrangement to those Hydrographic Offices known to chart the waters. It is important for Hydrographic Offices to be told as early as possible what changes are to be made, even if the actual number of changes is small.

Page 1 of 6 pages			I.A.L.A. CHARACTERISTICS											
Ref. No.	STATION Name Number	Assigned Position : if moved	EXISTING CHARACTER			LIGHT							Fore-cast date	REMARKS
			Chart No. Brit	BODY Shape Colour	LIGHT Rhythm Period	Top-mark	Co-lour	Type of buoy	Top-mark sign	Fog sign	W	u		
1	Rolling Ground	51°55'28"N 01°19'48"E	1491	Sph RWnB	QkFl R	-	W	S Car	(S) Whis 15s	-	Yes VII 77			
2	S. Falls Head	51°28'17"N 01°50'20"E	2051	Can R	GpFl(4) 15s W	-	W	N Car	(N) Bell	-	VI 77	Moved 352° 1.7 NMiles		
3	Sea Reach No 1	51°29'25"N 00°52'40"E	1185	Pillar RWVS	IntQkFl 10s W	-	W	Safe Sph	-	-	IX 77			
4	Shingles Patch	51°32'59"N 01°15'28"E	1605	Can R	LFl 10s	-	R	Port	-	-	IV 77	New station		
5	W Shoebury	51°30'12"N 00°45'50"E	1185	Cone BNCH	Fl 2.5s W	-					IX 77	Withdrawn		
6	(Exe) I	50°36'11"N 03°22'48"W	2290	Cone B	QkFl W	-	G	Star Cone	-	-	VI 78	Body to be painted green at later date		
7	Nab I	50°41'17"N 00°56'26"W	2050	Cone BuOr	QkFl Or	-	Y	Spec X	-	Yes V 78		Edge of dredged channel Direction reversed		
8	Collimer	51°59'18"N 01°16'26"W	2693	(Unchanged)	Fl 5s	-	R	Port	-	-	IX 77			
9	(R. Orwell) (13 buoys)	Unlighted unchanged		red car buoys in all respects.	Collimer Point and Ipswich Dock	-					-			
10	(R. Orwell) (12 buoys)	Unlighted painted green.		black conical buoys in all other respects.	Collimer Point and Ipswich Dock	-					IX 77			

SPECIMEN

Compiled by Checked by

Fig. 3