

April 1945.

INSTALLATION SPECIFICATION.

GENERAL INFORMATION FOR FITTING W/T

TRANSMITTING AND RECEIVING AERIALS.

DRAWING ATTACHED:-

No. 31796.

LIST OF CLAUSES:-

1. General.
2. Whip Aerials.
3. Other Types of Aerials.
4. Rig Drawings.
5. Fitting Additional Aerials.
6. Insulation, etc. of Wire Aerials.
7. Typical Aerial Arrangements.
8. Method of Supporting Aerials.
9. Protecting Loops.
10. Special arrangements in Aircraft Carriers.
11. Reference to be made to other Specifications.

1. GENERAL. The type of aerials referred to in this Specification are those which consist of a length of stranded copper or bronze wire supported in space between masts, yards, funnels or some part of the ship's structure.

2. WHIP AERIALS. These are aerials consisting of a rigid metal tube supported vertically, or nearly so, by bracket insulators. Their design is under development and a separate specification will be issued for their fitting.

Preliminary information is contained in Specification B.493.

3. OTHER TYPES OF AERIALS. The "rigid" type of aerial, i.e. those which consist of some form of rod or tube with or without reflectors and direction finding frame coils are dealt with under the various types of W/T or Radar sets and under particular aerial outfits.

For information as to the method of fitting, maximum distances from their W/T and Radar sets, etc. see relevant specifications.

4. RIG DRAWINGS. In new construction or a complete refit, the actual positions of the aerials are to be as shown on the Rig drawing for the ship or class of ship under consideration.

These rig drawings usually show the positions of all aerials required including those referred to under paras. 2 and 3 above. These positions are determined after consideration has been given to all the necessary clearances between them, and to the acceptable distances from their W/T or Radar sets; to length and height; and to ensure, as far as practicable, that some part of the ship's aerial system will remain intact after action damage.

5. FITTING ADDITIONAL AERIALS In fitting additional aerials, where no guidance drawing is available, consideration should be given to the points referred to in para. 4 above as far as ship's conditions permit.

- (a) It should be noted that maximum possible height is of importance.
- (b) The length of an aerial is somewhat dependent on the set to which it is to be connected.

In aerials connected to medium frequency sets the maximum possible length is usually an advantage but with high frequency sets, there is a maximum above which it is not advisable to go.

The specification for the W/T set concerned should be referred to and/or the W/T Fitting out Officer consulted.

- (c) Parallel runs of two or more aerials close together are objectionable on account of interaction between them.

It is particularly important that receiving aerials or feeders should not be run close to and parallel with transmitting aerials or feeders.

- (d) It is realized that ship considerations often make these conditions impossible of achievement in their entirety and the planning of an aerial rig should therefore aim at the best possible compromise.

6. WIRE AERIALS. INSULATION OF, ETC. An aerial must be completely insulated from any earthed structure at each end by means of one or more of the insulators specified and connected by its feeder (or one end of the aerial itself in the case of vertical aerials) to the central conductor of an aerial trunk or receiving insulator.

It should be noted that transmitting aerials and particularly those connected to high power transmitters are at a dangerously high electrical potential and should therefore be so placed or protected that personal contact with them is avoided.

The specified heights of the tops of aerial trunks generally prevent accidental contact at decks but aerial feeders sometimes pass close to bridges or other ship's structure.

In such cases, a screen, consisting of a wire network or lattice supported as necessary, should be provided to prevent accidents to personnel.

7. TYPICAL AERIAL ARRANGEMENTS. The drawing attached to this Specification only shows "typical" methods of fitting aerials generally applicable to various classes of ships.

The arrangements shown are capable of adaptation to the particular positions required provided the electrical conditions are observed, e.g. the "method of outhauling an aerial to the funnel" is equally applicable where it is necessary to outhaul an aerial to any other part of the ship's structure.

8. METHOD OF SUPPORTING AERIALS. In general, transmitting aerials are to be provided with blocks and halyards for hoisting them into position.

Receiving aerials are usually supported by directly shackling their insulators to the mast or yard eye bands.

Cases arise however, where one or both ends of receiving aerials should be provided with a block and halyard.

Convenience of getting the aerial into position and particularly the replacement of an aerial under ship working conditions should be the guiding factor.

9. PROTECTING LOOPS. These are safety devices provided in the halyards of horizontal or nearly horizontal aerials to prevent the aerial falling should shock or the whip of masts cause a rupture of the supporting halyard.

"Link A" (See Drawing 31796) is the weakest part of the supporting system and should rupture first.

"Link B" then (provided the shock is not too severe) holds the aerial in a somewhat slackened position until "Link A" can be replaced.

10. SPECIAL ARRANGEMENTS IN AIRCRAFT CARRIERS. Owing to the high freeboard, short masts and the necessity of keeping the Flight Deck as clear as possible of obstructions, the aerials of Aircraft Carriers when placed to the best advantage, are often far from ideal.

In arranging aerial positions, it is therefore necessary to consider carefully how the aerial arrangements can best be adapted to give the maximum possible efficiency.

In the larger Aircraft Carriers with hinged masts, a point of importance to notice is that the aerials must be capable of remaining in position during the movement of the masts and be taut whether the masts are up or down.

It is therefore necessary that the lower point of attachment of the aerial or its feeder should be in line with the hinge pins of the masts.

Two methods are possible

- (a) That the deck insulator itself should be in line, or
- (b) That an anchoring point is provided in line and the feeder carried to a nearby insulator.

Both these methods are illustrated on Drawing 31796.

11. REFERENCE TO BE MADE TO OTHER SPECIFICATIONS. For information as to the fitting of aerial trunks and receiving insulators to which aerials are to be connected, and all other general W/T information, reference should be made to the specifications enumerated in Specification 9001.

Addendum 'A' to Specification B.608

ADMIRALTY SIGNAL ESTABLISHMENT,  
LYTTON HILL HOUSE,  
HASLEMERE,  
SURREY.

September, 1945.

MODIFICATIONS TO SPECIFICATION NO. B.608

GENERAL INFORMATION FOR FITTING W/T TRANSMITTING

AND RECEIVING AERIALS.

With reference to Clause 3 of Specification B.608. In future all aerial blocks and halyards are to be omitted at the Foremast yard and the aerial insulators shackled direct to the eyes on the yard bands in Destroyers, Leaders and smaller vessels.

2. Roof aerials are to be provided with blocks and wire halyards at the after ends but the double blocks at the bunt may be omitted in the case of very short yards and the halyards led direct from the aerial blocks to the cleats.

3. Where it is necessary to provide outhauls in roof aerials (i.e. ships with H/F D/F forward) the outhauls are to be of steel wire rope insulated at each end by aerial insulators, the length of outhaul being as called for in the appropriate specification for the H/F D/F outfit to be fitted.

ADDENDUM "B" TO SPECIFICATION B.608

ADMIRALTY SIGNAL & RADAR ESTABLISHMENT,  
Lythe Hill House,  
Haslemere,  
Surrey.

June, 1948

FURTHER MODIFICATIONS TO SPECIFICATION NO. B.608

GENERAL INFORMATION FOR FITTING W/T TRANSMITTING AND RECEIVING AERIALS

1. Special Arrangements in Aircraft Carriers

With reference to C1.10 of Spec. B.608, a system of Indicating Lamps is to be fitted to show whether the Hinged Masts are up or down.

The offices in which indicators are to be fitted will normally be the Lower Receiving Room and the Bridge Wireless Office, but may be required in other positions as approved for the particular ship under consideration.

The lamps are to be controlled by switches operated by the Hinged Masts.

The supply of power for the indicating lamps is to be taken from an A.C. source in the Bridge Wireless Office.

2. New Patterns of Insulators

The following patterns of Aerial Insulators are to be substituted for those shown on Drawing No. 31796:-

- (a) Where two insulators are shown in series (either Patt. 3658 and W1476 or Patt. 1041 and W1476) these two insulators are to be replaced by one Patt. ~~55378.1041~~ *Appn F. 7EC 53*  
~~This insulator is similar to Patt. W1476 (details of which are shown on the drawing) but the overall length is 25 $\frac{3}{4}$  inches.~~
- (b) Receiving acrials are to be fitted with Patt. 3125  
Insulator Aerial Glass  $3\frac{3}{8}$  inch long instead of Patt. W1476 shown on the drawing.

3. Tail lines to Aerial Halyards

The  $\frac{3}{8}$  inch or  $\frac{1}{2}$  inch E.S.F.S.W.R. aerial halyards are to be provided with tail lines, consisting of  $1\frac{1}{2}$  inch cordage hawser laid.

These are to be shackled to the wire rope so as to be capable of being removed and stowed when not in use.

January 1949

## INSTALLATION SPECIFICATION

GENERAL INFORMATION FOR FITTING W/T  
TRANSMITTING AND RECEIVING AERIALS  
METHOD OF SUPPORTING "WIRE" AERIALS BETWEEN "WHIP" AERIALS A W C

Drawing attached:-  
No. 31796A

W/T Aerials Transmitting and Receiving.  
Method of rigging wire aerials between  
"whip" and aerials A W C.

1. In some ships, particularly Aircraft Carriers, it is sometimes necessary to support "wire" aerials between the "Whip" Aerials AWC.

The method of doing this is shown on Drawing No. 31796A attached to this addendum.

2. It should be noted that the wire aerial halyards are in electrical contact with the "whip" aerial and that this is a technical requirement.

It is therefore necessary that all the wire halyard should be carefully coiled with no loose ends or bights of wire which can come in contact with any "Earthed" metal.

This is the purpose of the hook or half-cleat in addition to the securing cleat.

The wire halyards should be fitted with rope tail lines in accordance with Addendum B to this specification so as to reduce the length of halyard to be coiled.

The rope tail-lines must, of course, be removed when not in use.

3. For the method of fitting "Whip" Aerials "AWC" see Specification B576.

ADDENDUM 'D' TO SPECIFICATION B608

ADMIRALTY SIGNAL & RADAR ESTABLISHMENT  
Lythe Hill House,  
Haslemere,  
Surrey.

January 1950.

GENERAL INFORMATION FOR FITTING WIRELESS TRANSMITTING

AND RECEIVING AERIALS

Note:- Recipients of this addendum are to insert the number and date in the appropriate place on the cover of the original specification.

NOMENCLATURE

It should be noted that all aerial wire (not halyard wire), aerial insulators and Pattern 5341 shackles required for fitting the aerial arrangements described in this specification are supplied as components of an aerial outfit. The following table gives the nomenclature of the outfit applicable to each class of ship:-

Outfit	Class of ship to which allowed
AOA	Capital ships, Cruisers, Depot and Repair ships.
AOB	Aircraft Carriers.
AOC	Flotilla Leaders
AOD	Destroyers and Fast Minclayers
AOE	Sloops and Frigates
AOF	Minesweepers, Corvettes and Trawlers
AOG	Tugs and other small craft



Admiralty Signal & Radar Establishment,  
Lythe Hill House,  
Haslemere,  
Surrey.

April, 1952.

MODIFICATION TO INSTALLATION SPECIFICATION B608  
FOR  
GENERAL INFORMATION FOR FITTING W/T TRANSMITTING  
AND RECEIVING AERIALS

Note:- Recipients of this Addendum are to insert its distinguishing letter and date in the appropriate place on the cover of the original Specification.

1. AERIAL OUTFIT (WHIP) AWL

Further to Addendum 'C' of the Specification, where it is necessary to support wire aerials between "whip" aerials it may be approved for such whip aerials to be raised and lowered simultaneously by hydraulic power. For this requirement a modified form of Outfit AWC aerial known as "Whip" aerial AWL will be provided. The details of installing wire aerials on AWL "whips" are identical with those shown for AWC on Drawing No. 31796A attached to Addendum 'C'. It is important that the "whip" aerials AWC/AWL supporting wire aerials between them should be mounted so that their axes of rotation are on the same straight line, as shown on the drawing.

Reference should be made to Installation Specification B576 for information regarding Aerial Outfit (Whip) AWL.

2. INDICATING LIGHTS

In connection with Clause 1 of Addendum 'B' it should be noted that the requirement for indicating lamps also applies to hinged "whip" aerials AWC or AWL fitted in Aircraft Carriers. In cases where wire aerials are supported on a group of two or more such "whip" aerials the operating switches for the indicating lamps are only required to be fitted on one "whip" aerial of each such group. This also applies in the case of groups of two or more hinged W/T masts which are raised or lowered together.

3. ORIGINAL SPECIFICATION - CLAUSE 2.

The sentence "preliminary information is contained in Specification B493" should be deleted, as B493 is now superseded by the relevant Installation Specifications for the various types of "whip" aerials which may be fitted.

ADDENDUM "F" TO SPECIFICATION B608

ADMIRALTY SIGNAL & RADAR ESTABLISHMENT,  
Portsmouth,  
Cosham,  
Portsmouth,  
Hants.

Dated December, 1953.

FURTHER MODIFICATION TO SPECIFICATION B608

GENERAL INFORMATION FOR FITTING W/T TRANSMITTING AND RECEIVING AERIALS

NOTE. Recipients of this Addendum are to insert its distinguishing letter and date in the appropriate space on the front cover of the Specification.

INSULATORS FOR TRANSMITTING AERIALS

Para. (a) of Clause 2 of Addendum "B" is to be cancelled and the following substituted in its place:-

- (a) Where two insulators are shown in "series" (either Patt. 3658 and W1476 or Patt. 1041 and W1476) these two insulators are to be replaced by one Pattern 1041.

Suitable notations are to be made on the print of Drawing No. 31796 attached to the Specification.

ADMIRALTY SIGNAL ESTABLISHMENT.

DRAWING N<sup>o</sup> 31796.

SCALE: \_\_\_\_\_

W/T AERIALS-TRANSMITTING  
& RECEIVING.

TYPICAL METHODS OF RIGGING.

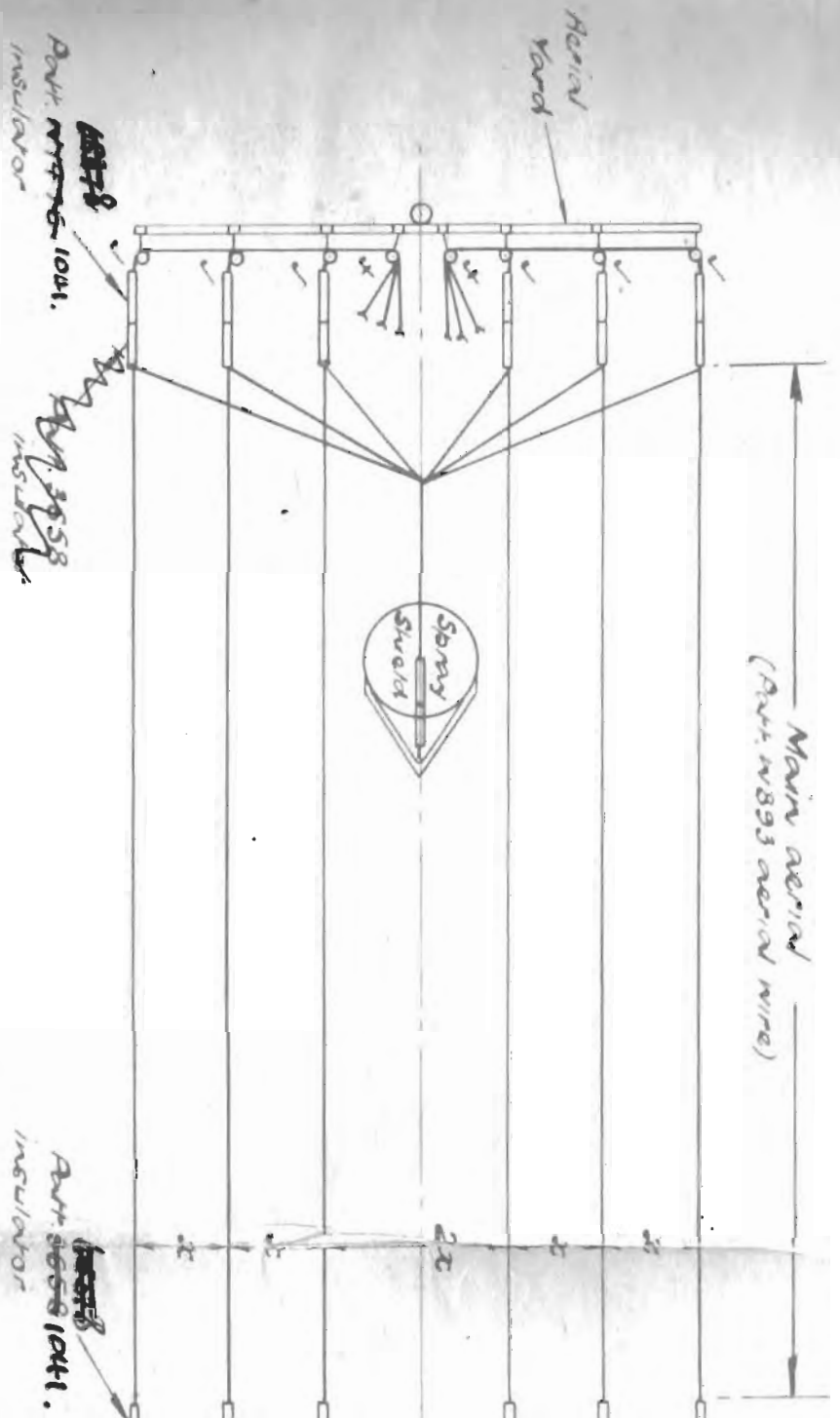
Issues and Changes	Date	Drawn Traced	Checked	Approved
1 Original Drawing	9.1.45	awh.		

Plan of 100' Transmittal

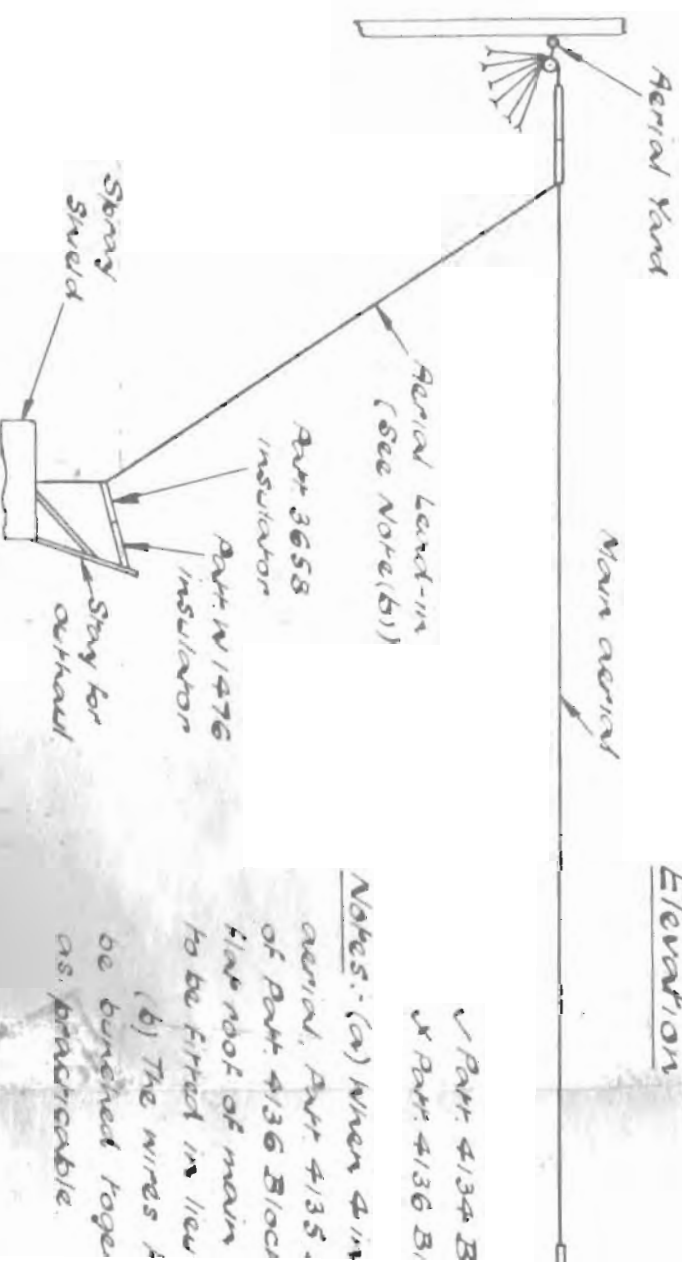
(Consisting of 4 wires)

See Note (a) below

Plan



Elevation



Pat. #4134 B  
 Pat. #4136 B

Notes: (a) When 4 in aerial, Pat. #4135 of Pat. #4136 B (or) fine roof of main to be fitted in lieu (b) The wires to be bunched together as practicable

ing aerial.

2 Wires)

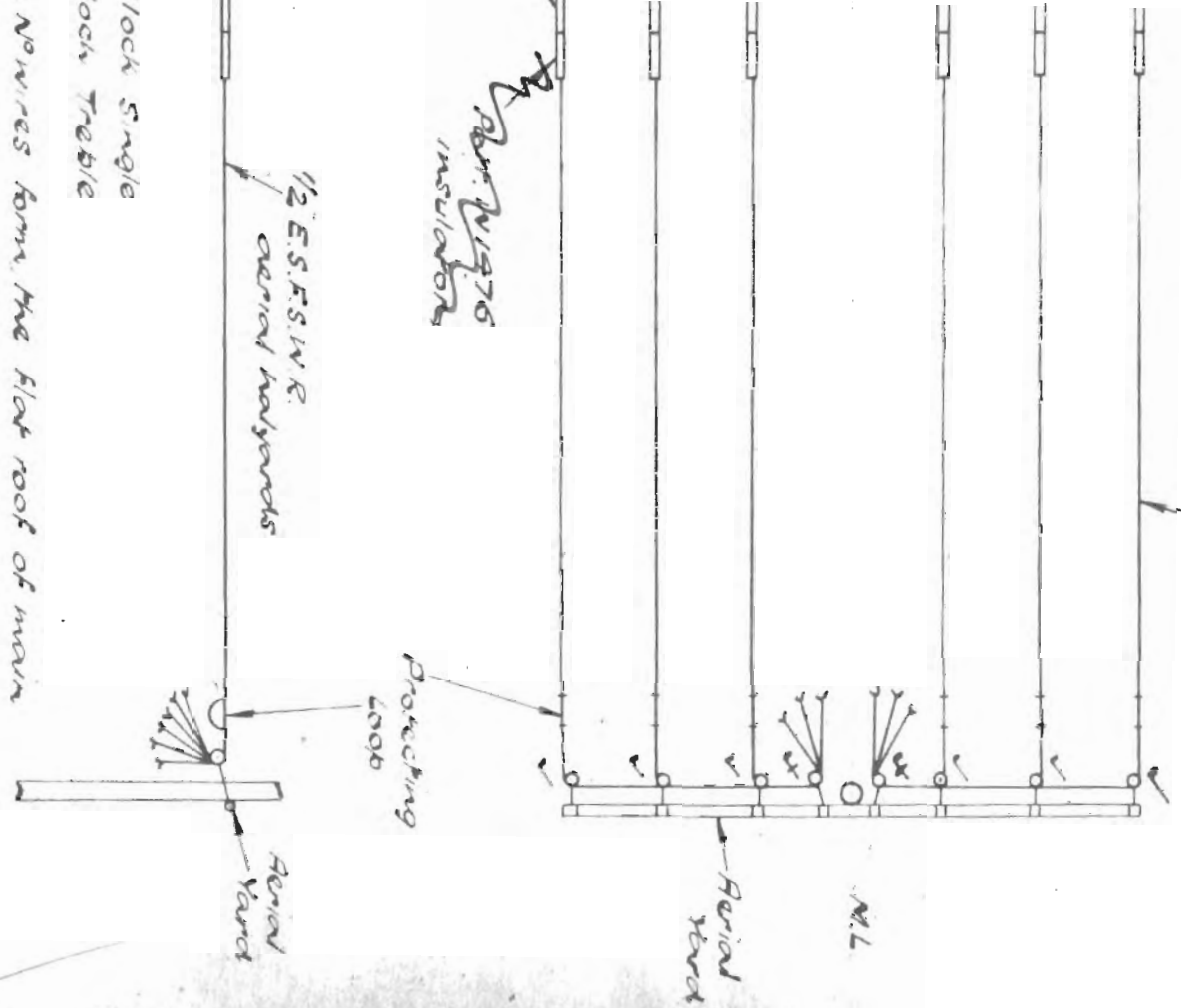
2 Wires

1/2 E.S.F.S.N.R  
Aerial Wires

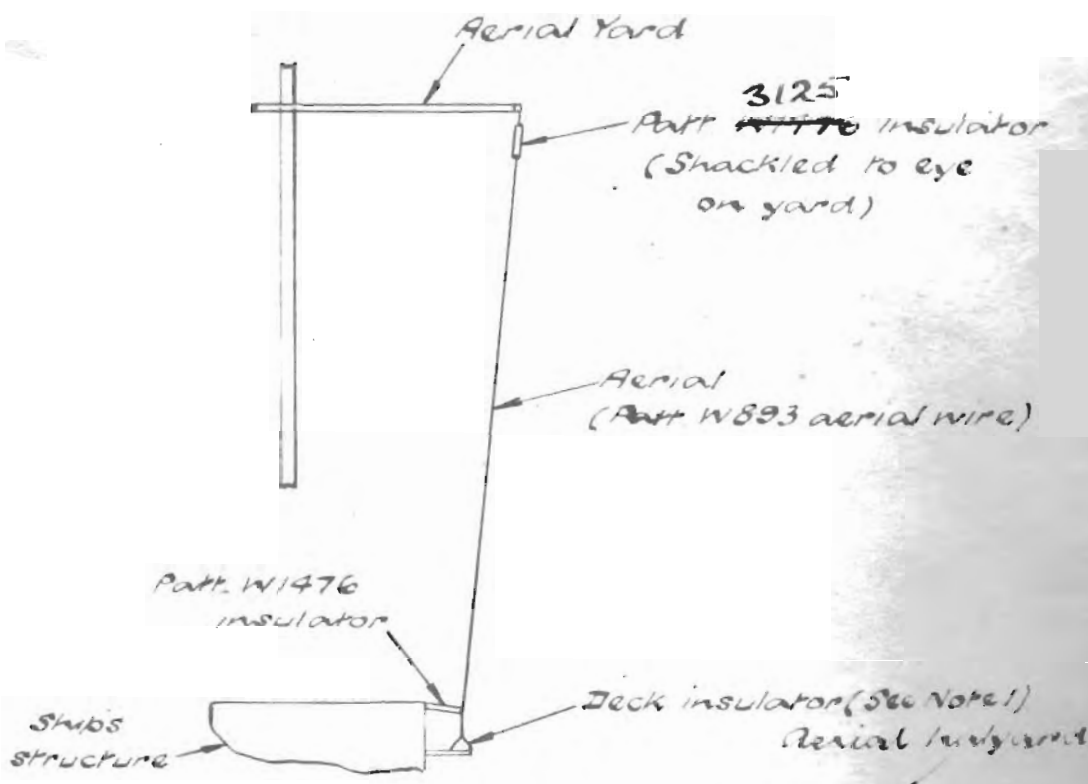
1/2 E.S.F.S.N.R.  
Aerial Wires

1/2 E.S.F.S.N.R.  
insulators

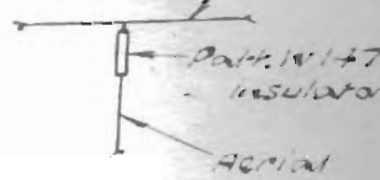
lock Single  
lock Treble



No. wires form the flat roof of main  
Blocks Double, are to be fitted in lieu  
of Treble when 2 in No. wires form the  
aerial. Part 4/34 Blocks Single are  
of Part 4/36 Blocks, Treble.  
forming the aerial lead-in, are to  
be as close under the flat roof



Note: - Receiving aerials may also be supported by the main aerial halyards, as shown



Receiving aerial supported by spur on funnel  
(Normally only used for emergency aerials)

