MOBILE STATIONS AND NAVAL RADIO VANS

The following remarks on Naval Radio Vans are included in amplification of the statements in C.A.F.O. 1595/44.

PURPOSE OF MOBILE STATIONS

Mobile Stations are designed to provide the naval lines of communication required during a combined operation from the time that the beaches are clear of the enemy until fixed, but temporary, radio installations have been completed.

During the period before the Mobile Stations are landed, the demand for communications is met by the provision of hand portable and transportable forms of equipment, which Mobile Stations are not intended to supplant.

Similarly, "follow up" stores should be provided for captured bases for temporary installation in dugouts or buildings whilst the Mobile Stations are still working, so that the Naval Radio Vans are finally set free for another move.

No attempt is therefore made to fit Mobile Stations so that the sets can be readily removed from the Naval Radio Vans where such an attempt would be at the expense of efficiency, as this would largely defeat the object for which they are provided, which is to ensure maximum efficiency whilst retaining full and immediate mobility. It is worth while at this point to stress the necessity for retaining mobility experienced during the landings in Normandy, where the need for changing the positions of headquarters rapidly entailed some stations being moved every twenty-four hours.

TYPES OF INSTALLATIONS FORMING NAVAL RADIO VANS

Broadly speaking, Naval Radio Vans are composed of different types of installation fitted in:-

(a) House-Type Bodied Vehicles.

(b) Containers for mounting on Vehicles.

(c) Trailers.

(d) Handcarts.

HOUSE-TYPE BODIED VEHICLES

These form easily the best type of Naval Radio Van for the larger types of assembly. Unfortunately, however, the amount of shipping space which would be taken up, if all the larger forms were all house-type bodies for all fighting services, is so large that shipment to overseas bases would be impossible. Another drawback to the use of house type bodies is the fact that the United Nations have agreed to 'zone' all vehicles to facilitate their maintenance and repair and if house type bodies were generally used, this zoning could not be effectively carried out. For the above reasons a decision on a high level has been given that:-

(a) House type bodied vehicles for shipment shall only be used by the three fighting services for highly specialised vans for which this type of body is essential.

(b) All other vans of this nature shall consist of fitted containers, which will take up less space when shipped, for marriage to the vehicle appropriate to the local zone by the user.

CONTAINERS

Several forms of container are used for the reasons given above. The principal form used by the navy is an A.S.E. production, A.P. 53878 which is employed for the construction of Naval Radio Vans whenever possible.

Other forms and sizes are produced when the standard container mentioned above is unsuitable for any reason, e.g. for D/F vans.

Containers are ventilated, mosquito proofed and suitable for use in temperate and tropical conditions. Arcticized containers have also been designed but are no longer in production.

This type of van may in some instances be constructed from containers designed by the Ministry of Supply, but these will only be used for new designs of Naval Radio Van for which they are particularly suitable, because:-

(a) The A.S.E. designs were produced considerably before the Ministry of Supply types, in collaboration with the L.N. & E.R., who are experts in this kind of work.

(b) A changeover to Ministry of Supply types would entail an unacceptable break in production, whilst new drawings and specifications were produced from which A.S.E. contractors can work.

(c) The A.S.E. designs have now been well tried under active service conditions and meet requirements.

(d) The A.S.E. design, with its bolster, is more easily adapted to suit vehicles provided locally, particularly if these have sides and wheel boxes of steel welded on.

(e) The supply position of Ministry of Supply types to the Navy is still uncertain.

All containers are provided with a "bolster" which serves three purposes:-

(a) It provides additional strength to protect the container whilst being shipped.

(b) It forms a platform which is very useful when the container is dismounted on soft, muddy ground.

(c) It carries the channel bars required to attach the container to the chassis and forms a false bottom which can be cut about to suit the vehicle provided locally.

As issued, all bolsters supplied with A.P.53878 series containers are suitable for direct mounting without modification on Bedford, and Ford (Both English and Canadian types) 3 Ton trucks.

Awnings suitable for attachment to A.S.E. containers have also been designed, A.P.56571 being the complete awning assembly (A.S.E. Specification B.278/44) for A.P.53878 containers. Awnings are supplied independently to naval stores overseas and should be drawn

by the user and fitted to containers as necessary. The fitting out process entails drilling a small number of holes in the container to take the various brackets, as shown in the appropriate specification for the awning. The awning canvas has been treated with Cuprinol to make it resistant to attack by rot and termites: if necessary camouflage suitable for the locality of employment should be painted on by the user. Awnings should never be stowed inside the container, except as a temporary measure in emergency, as the damp in the canvas invariably affects the wiring in the radio apparatus in the end.

Radiators are fitted in all containers. These are necessary in the tropics to "dry out", periodically, containers in store. The drying out process should be carried out with the doors closed, or almost closed, and the exhaust fans running.

TRAILERS

Trailers are used for the larger petrol and diesel alternators, as this form of mounting provides the maximum ventilation for the units and, as power supplies are never required without vehicles suitable for towing them, the difficulty which the user would experience in mounting power units in vehicles overseas is avoided.

Experience appears to show, however, that in landing operations over defended beaches strewn with obstacles at night, a wastage of about five to eight per cent is caused by casualties to power trailers. Some of this percentage of casualties is also caused by collisions, particularly with vehicles astern, at night.

In one case a trailer is used for a Naval Radio Van other than a power unit. This is Van No. 80, which contains radar Type 277T.

HANDCARTS

Small sets and their spares, accessories, and books of instructions are supplied fitted in handcarts as a matter of convenience. These sets are built into boxes with some of the accessories, such as masts, carried in brackets attached by screws to the sides of the handcart.

Handcarts themselves are of very doubtful value in operations, although they have a slight advantage over transportable sets when the distance to the objective is long and the going is good.

Handcarts are still supplied, however, to services overseas so that they may be broken up into their components and used for fitting out small vehicles locally. In this connection, it will be remembered that the supply of vehicles already fitted in the United Kingdom to overseas users is banned, as explained above.

When the small vehicle appropriate to the zone has been obtained therefore, the user can fit it out in two ways. He can either take the boxes out of the handcart and simply use the small vehicle to carry the set or, if this is inconvenient he can provide another wooden box suitable to the particular type of vehicle and strip the sets from the boxes provided with the handcart, using the screws and fittings to secure them in his new box. Incidentally, the handcarts, with or without boxes, thus released will be found very useful for carrying stores in dockyards and other miscellaneous services of a like nature.

DEMANDS FOR NAVAL RADIO VANS AND SPARES

Attention is particularly invited to C.A.F.O. 1595/44 para. 21 which states that "All demands for stations and vans should be made to Admiralty, quoting the station code name or van number (e.g. Naval Radio Van 70B)"

This method of demand is absolutely necessary when complete vans are required as, if the van number is not quoted, the fact that the article is a Naval Radio Van is not recognised on receipt and the demand may be marked off internally to what appears to be the appropriate department. This has proved particularly true of prime mover vans, which D.E.E./E. in C. occasionally receive and report cannot be supplied, whilst stocks are available in A.S.E. maintenance park.

Demands for spare parts, on the other hand, should be sent to Admiralty or as otherwise directed in A.F.O.s etc. (e.g. A.F.O. 3711/44 gives instructions regarding replacement parts for prime movers, which A.S.E. and S.N.S.O. Haslemere do not handle), without necessarily specifying the Naval Radio Vans for which they are required.

TYPES OF NAVAL RADIO VANS

A complete list of the types of Naval Radio Vans available, being developed or projected is given in the attached catalogue for ease of reference, as arrangements cannot be made to publish this information in A.F.O.s.

Notes:- W = Waterproofed, i.e. Capable of wading through 3 feet 9 inches of sea water, plus waves 1 foot 6 inches high, for a minimum time of 6 minutes. In general this time can be much exceeded.

E.P.S. = External Power Supply required. The number which follows indicates the Van Number of the lowest power trailer that can be used to provide adequate power for an isolated van. It should be noted, however, that as vans normally work in groups, it is almost always more economical to provide a few higher powered trailers than one each of the type indicated.

U.C. = Under consideration.

CATALOGUE OF NAVAL RADIO VANS
NOW IN PRODUCTION OR PROJECTED

(1)	(2)	(3)	(4)	(5)	(6)
Naval Radio Van No. (and Patt.No. if appropriate).	Name.	Brief List of Contents. Description	Qty.	Body (Container Patt. No. if appropriate) and Vehicle.	Remarks.
1A (53645)	-	Type 65 B28 H.T. Motor Generator. (Patt.No.W2702, 6v. D.C. input, 180v. D.C. output.)	1 1 1	Handcart, War Office KH7909.	Vans 1A, 1B and 2A are used together to form a Single Line H/F Station.
1B (53640)	-	Aerial, Spares and Battery for Van 1A Mast 36 foot.	1 1	"	
2A (53646)	-	Petrol Electric Set, 230v. A.C. and 6v. D.C. output for Van 1A. (Patt. No. 53245 or 54420).	1	"	
3 (W9142)	-	T1083 T1082 with Batteries Mast 36 foot	1 1 - 1	"	Only small stocks of Vans 3 and 4 remain and further production of this obsolete Van will not be undertaken.

(1)	(2)	(3)	(4)	(5)	(6)
4 (W9143)	-	Petrol Generator 360 watts 14/20 volts D.C. (Air Min. 425/2) and Spares for Van 3.	1	Handcart, War Office KH7909	
5B (53210)	-	Type 682 CDK	1 1	"	Vans 5B, 5D (or 5H or 2-6A) and 7 are used together to form a Single line V.H/F. Duplex station.
5D (53212)	-	Aerial Outfit ARS Assembly "D" Mast 36 foot	2 2	"	
5H (56767)	-	Aerial Outfit ARS Assembly "H" Mast 36 foot	2 2	"	
6A (W9145)	-	Aerial Outfit ARV Design "A" Mast 36 foot	1 4	"	
7 (W9146)	-	Petrol Alternator 250 watts 230v. A.C. (Patt.No.55596)	1	"	
11	Low Power Trailer	Hamworthy Petrol Alternator 2 kW (2·5 kVA) 230v. A.C.	1	Beresford Stork Light Trailer, 8 to 9 cwt. 2 wheels.	W

(1)	(2)	(3)	(4)	(5)	(6)
17	Medium Power Trailer.	Ford Nunn Petrol Alternator (Air Min.42FF/1) 4·5 kW (5·6 kVA). 230v. A.C.	1	Beresford Stork Light Trailer, 8 to 9 cwt. 2 wheels.	W
17B	Medium Power Trailer	As Van 17.	1	Air Ministry 15 cwt. Type 2 wheel Trailer (Modified by A.S.E.)	W. (Projected to Replace Van 17) Due 1.1.45.
19A	High Power V.H/F Van.	Type 685 CDK	2 2	(53878) 3 ton.	W. E.P.S. 17. Due 1.11.44.
20	M/F D/F Van.	M/F D/F Outfit FM12	1	(53878) 3 ton.	W. E.P.S.11.
21	H/F D/F Van	H/F D/F Outfit R12 (Mobile Edition, 2-15 Mc/s.)	1	(54633) 3 ton.	W. E.P.S.11. Due 1.1.45.
25A	Maintenance Van	Maintenance. Stores for all Vans and General Test Equipment.	-	(53878) 3 ton.	W. E.P.S.17
27 (55567)	Battery Charging Handcart.	Petrol Generator (War Office ZB111 26) for charging 12v. batteries at 20 amps.	1	Handcart. War Office KH7909	-

(1)	(2)	(3)	(4)	(5)	(6)
28	Medium Power Trailer	Nunn Diesel Alternator (Air Min. 42FF/3) 4·5 kW (5·6 kVA) 230v. A.C.	1	M. of S. Lorry Trailer, 1 Ton, 2 wheel G.S. (Modified by A.S.E.)	W. (Probably obsolete as further trailers are unobtainable)
28A	Medium Power Trailer.	As Van 28.	1	Air Ministry. 15 cwt. Type, 2 wheel Trailer (Modified by A.S.E.)	W.
29	Low Power V.H/F Van.	Type 682 CDK.	2 2	(53878) 3 ton.	W. E.P.S. 17 Due 1.11.44.
30	Single Line W/T Van.	Type 610EFS Type 610FS CDL Van 27. (less Handcart)	1 1 2 1	(53878) 3 ton.	W. E.P.S. 17
31	2 Line W/T Receiving Van.	CDL Minor S.D.O. Facilities Masts 36 foot Petrol Alternator, 250 watts, 230v. A.C. (Patt. No. 55596)	3 2 1	(53878) 3 ton.	W. E.P.S. 11
32	V.H/F, "Y" Van	S27D S27C CDL Type 88RS	2 1 1 1	(53878) 3 ton.	W. E.P.S. 17 Used for "Y" Purposes, 30 - 210 Mc/s.

(1)	(2)	(3)	(4)	(5)	(6)
33	V.H/F D/F "Y" Van.	V.H/F D/F Outfit RV6 (including S27I)	1	(U.C.) 3 ton.	W. E.P.S. 11. Used for "Y" Purposes, Max. Efficiency on 65 - 85 Mc/s. Due 1.12.44.
34	V.H/F D/F Van.	V.H/F D/F Outfit RV7 (including P.48)	1	(U.C.) 3 ton.	W. E.P.S. 11. For R.N.A.S. Due 1.11.44.
35	B.A.B.S. Van.	Type 257S	1	House Type. Bedford 15 cwt. 4 x 2 Truck.	For U.K., R.N.A.S. only (To be converted to Type 257MS).
36	B.A.B.S. Van.	Type 257MS Petrol Alternator 350 watts, 230v. A.C. (Patt. No. 55559)	1 1	(M. of S. 15 cwt. Container) 15 cwt.	W. E.P.S. 11 ? (Projected only)
37	Flying Control Van.	TR 1196D Type 86MS Minor Flying Control Facilities	1 1	U.C.	W. (Projected only)
38	Receiving Van	CDL CDU	3 2	(53878) 3 ton.	W. E.P.S. 17 For R.N.A.S. Due 1.11.44.
39	V.H/F Transmitting Van.	Type 86MS Type 87MS	1 1	(53878) 3 ton.	W. E.P.S. 17 For R.N.A.S. Due 1.10.44.
40	Receiving Van.	CDL	5	(53878) 3 ton.	W. E.P.S. 17.
41	S.D.O. Van.	Typex Teleprinter 7B S.D.O. Facilities	1 1 1	(53878) 3 ton.	W. E.P.S. 17.

(1)	(2)	(3)	(4)	(5)	(6)
42	W/T Beacon Van	YG Beacon	1	U.C.	W. (Projected only) For R.N.A.S.
43	Radar Beacon Van	YJ Beacon	1	U.C.	W. (Projected only) For R.N.A.S.
44	Met. Office Van	CDL Met. Office	2	(53878) 3 ton	W. For R.N.A.S. Due 1.1.45.
51	High Power Transmitting Van	SWB8E	1	R.A.F. Type 200 or Type 203, Scammell 6 wheels, Articulated House Type.	E.P.S. 59 (400 volt 3 phase input necessary).
59	High Power Trailer	Diesel Alternator 15 kW. (18·75 kVA) 400v. 3 phase A.C.	1	Eagle (or Multi-Wheel) Trailer, 4 wheel, 2 ton.	W.
61	High Power Trailer.	Diesel Alternator 22 kW. (27·5 kVA.) 400v. 3 phase A.C.	1	Eagle (or Multi-Wheel) Trailer, 4 wheel, 2 ton.	W.
63	Fuel Tanker.	800 gallon fuel tank, for diesel or petrol.	-	Lorry, 3 ton, 4 x 2, Petrol 800 gallons, Bedford.	W. For U.K. only.
65	Receiving Van.	CDL	5	(53878) 3 ton.	W. E.P.S. 11. Obsolete, being replaced by Van 40.
66	S.D.O. Van	Typex Teleprinter 7B S.D.O. Facilities	1 1	(53878) 3 ton.	W. E.P.S. 11. Obsolete, being replaced by Van 41.

(1)	(2)	(3)	(4)	(5)	(6)
70	Stores Van	Masts, 78 foot Mast Erecting Gear APV Cable WD3 Mk. VI in Mile Drums	3 1 5 6	(53878) 3 ton	W. For R.N.A.S.
70A	Stores Van	Masts, 78 foot Mast Erecting Gear Medical Chest No.7 Cable WD3 Mk. VI in Mile Drums.	2 1 1	(53878) 3 ton	W.
70B	Stores Van	Masts, 78 foot Mast Erecting Gear Medical Chest No.7 Cable WD3 Mk. VI in Mile Drums.	3 1 1	(53878) 3 ton	W.
70C	Stores Van	Masts 78 foot Cable WD3 Mk. VI in Mile Drums	2	(53878) 3 ton	W.
70D	Stores Van	Masts, 36 foot ARV, Design "A" ARS, Assembly "D"	20 4 4	(53878) 3 ton	W.
70H	Stores Van	Masts, 36 foot ARV, Design "A" ARS, Assembly "H"	20 4 4	(53878) 3 ton	W.
70K	Stores Van	Stores for C.C.I., A.M.E.S. Type 15 Mark II (M)	-	(53878) 3 ton	W.

(1)	(2)	(3)	(4)	(5)	(6)
70L	Stores Van	Stores for Type 277T	-	(53878) 3 ton	W.
74	Office Van	Telephone Switchboard, F and F 20 line, (War Office YA 2735) Chart Table Blackboard.	1	(53878) 3 ton	W. E.P.S. 11.
75	Aircraft Direction Van	Training Air Direction Facilities	-	(53878) 3 ton	W. E.P.S. 11.
76	Radar Beacon Van	Type 251 MS Mast 36 foot Aerial	1 1 1	(53878) 3 ton	W. E.P.S. 11.
78	Transmitting Van	Type 88 RS Type 610 FS CDL	1 1 1	(53878) 3 ton	W. E.P.S. 17.
80	Low Cover Radar Van	Type 277 T	1	Special 9½ ton Trailer, 4 wheel	W. E.P.S. 81
81	High Power Trailer	Lister Diesel Alternator, (War Office ZC 15689) 12 kW. (15 kVA) 230v. A.C.	1	M. of S. Trailer 2 ton, 2 wheel, No. 1, Mark III.	W.

(1)	(2)	(3)	(4)	(5)	(6)
82	Heavy Towing Van	Lister Diesel Alternator, (War Office ZC15689) 12 kW. (15 kVA) 230v. A.C. Hand Fuel Pump.	1 1	Matador diesel gun tractor, fitted with winch.	W. Tows Van 80.
83	Accommodation Van	Sleeping facilities and lockers for 4 persons.	-	(53878) 3 ton	W. E.P.S. 11
84	Galley Van	Electrical Cooker Drinking Water Tanks, Victualling Stores.	1	(53878) 3 ton	W. E.P.S. 17
87	Crystal Grinding Van	Testing, Cleaning and Grinding apparatus for Quartz Crystals.		Air Ministry 13 ft. Container 3 ton.	W. E.P.S. 17 Due 1.1.45.
90	R.A.F. Mobile G.C.I., (A.M.E.S.) Type 15, Mark II (M)	Aerial and Aerial Turning		Austin 6 x 4	The types of R.A.F. Vehicles and their contents vary considerably between stations and their numbers, type numbers and descriptions cannot be laid down or forecasted. Two diesel tenders are required per station and one Van 70 K to carry radar stores.
91		Transmitter		"	
92		Receiver, P.P.I. and Plot.		"	
93		Diesel Alternator (Air Min.42AA/800) 16 kW (20 kVA) 230v. A.C.		"	
94		I.F.F. Transmitter and Receiver and Display.		"	
95		Aerial Transporting Truck.		"	

STOP PRESS.

TYPE 291

For those who use the method, and it is the best one, of taking bearing from the Type 291 by using the centre of the two minima, an asdic instrument called Disc, centre bearing, Patt. A.1874 will be of considerable assistance. This is a perspex disc engraved from 0° to 359°. Pivoted in the centre are three pointers, one straight and two dog-legged. The latter are connected to the centre pivot by two sliding links. If the dog-legged pointers are set to the right and left hand minima, the correct bearing can then be read off from the centre pointer.

TYPES 282/3/4/5

Samples of defective Valve Circuit Units Design "C", Patt. CV970 (late W3244) are no longer required in A.S.E.

Preliminary examination indicates that it is still maladjustment of the Common Aerial Switch that causes most failures.