MRL ENGINEERING

1. The MRL is initiated by MARLACT REQUEST (Para 67).

NNNN
VV WCU204N1B202 HH
RR RBDIC
DE RBDNHQH 032 1711620
ZNY RRRRR
R 201430Z JUN 83
FM HMS GLAMORGAN
TO RBDEC/CINCFLEET
INTO RBDNHC/FOST
RBDHOF/HMS ANTRIM
RBDIC/UKNAVCAMS
BT
R E S T R I C T E D
SIC SPM
WESTAXE 2/83
MARLACTREQ
A. ONE ALFA
B. GLAMORGAN/CTG 604.1
C. UKNAVCAMS
D. COMMANDERS AND TRAFFIC CIRCUIT
E. 011100Z JUL
F. 071600Z JUL
BT

48°N 8°W

2. This was approved by CINFLEET (Para 68).

VV WCU157D1A074 HH
RR RBDIC
DE RBDEC 025 1721157
ZNY RRRRR
R 210856Z JUN 83
FM CINCFLEET
TO RBDNHOF/HMS GLAMORGAN
INFO RBDNHC/FOST
RBDHOF/HMS ANTRIM
RBDIC/UKNAVCAMS
RGFBTD/HMS FIFE
BT
R E S T R I C T E D

FREQUENCY PREDICTIONS

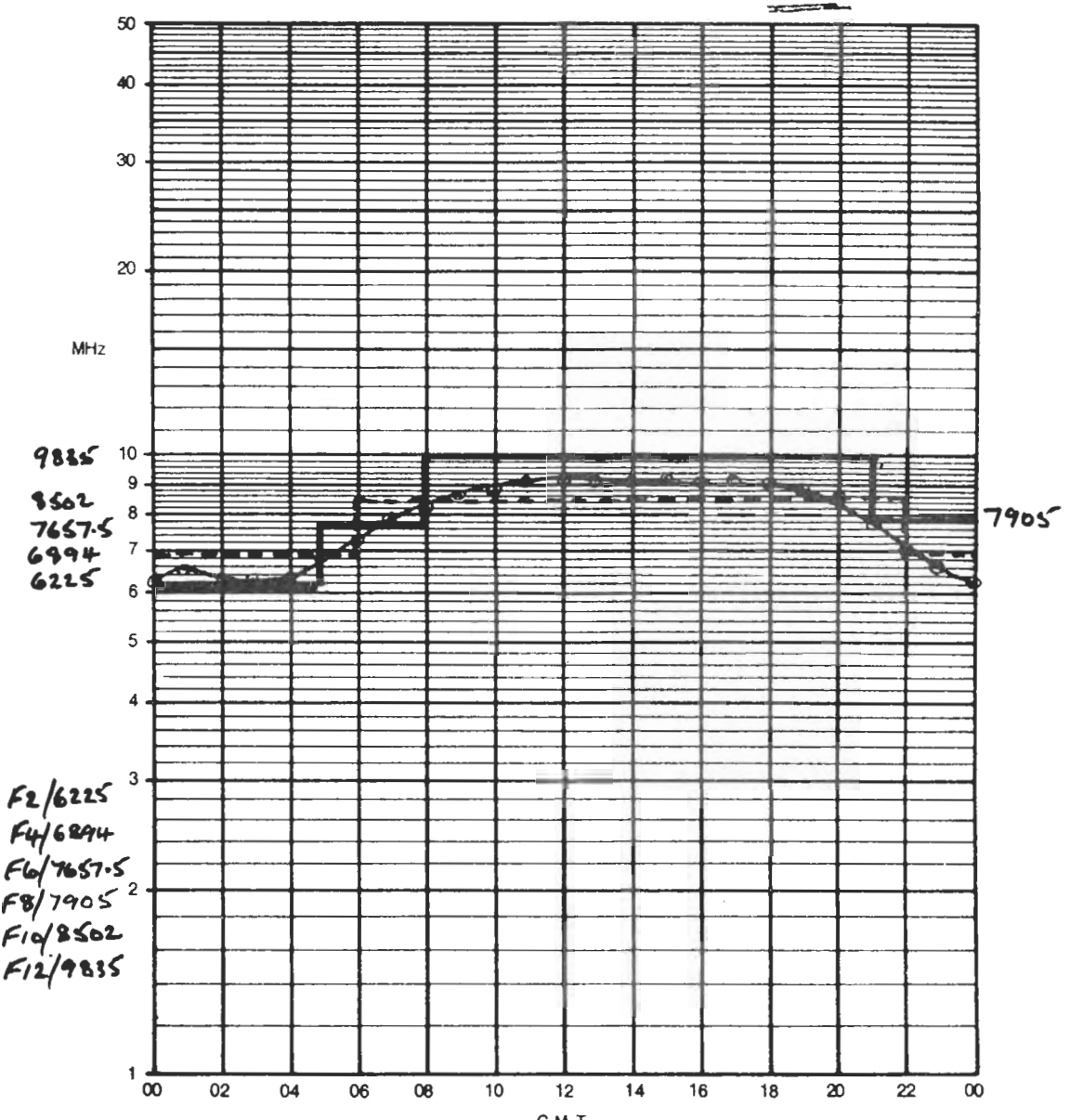
Ref No. MRL 1A.

km Path

FROM: SWAPPS TO: FHQ

FOR GLAMORGAN 1-7 JULY 83

RLAD



SIC SPM
A. YOUR SPM 201430Z JUN 83 (MARLACTREQ MRL 1A) NOTAL
1. APPROVED PERIOD 011100Z - 071600Z JUL
BT

3. On receipt of CINCFLEET's approval WHITEHALL DEO would prepare a frequency prediction curve from his sources listed in Chapter 2. For the sake of clarity it is usual to produce a chart for ADRL and RLAD. Having plotted the curves, the DEO may then select from the available frequencies published in RNCP 1, those which give a "Best Fit". If QLH is available, then two frequency plans for each leg are required. The path length for this MRL was very short and the prediction curves very flat, hence limiting the frequencies available for use. Figs D.1 and D.2 illustrate the predictions.

4. From the curves plotted above the MARLACT ALFA and BRAVO are sent:

HH
PP RBDNHCF RBDEC RBDNHC RBDGH RBDPIO
DE RBDIC 581 1780957
ZNY RRRRR
P 270944Z JUN 83
FM UKNAVCAMS
TO RBDNHCF/HMS GLAMORGAN
INFO RBDEC/CINCFLEET
RBDNHC/FOST
RBDGH/FOREST MOOR
RBDPIO/RNWS CRIMOND
BT
R E S T R I C T E D
SIC SPM
MARLACT ALFA (MRL 1A)
A. 011100Z JUL
B. J2B/850/1/75
C. ADRL TX FREQS: F1/7620, F3/8334, F5/9060, F7/10755, F9/11665.
D RLAD 'TX FREQS: F2/6225, F4/6894, F6/7657PT5, F8/7905, F10/8502, F12/9835.
E. 10755 KHZ
F. 8502 KHZ
G. BRN 666/41
H. B13A

PAGE 2 RBDIC 581 R E S T R I C T E D
J. B11A/B41T
BT

FREQUENCY PREDICTIONS

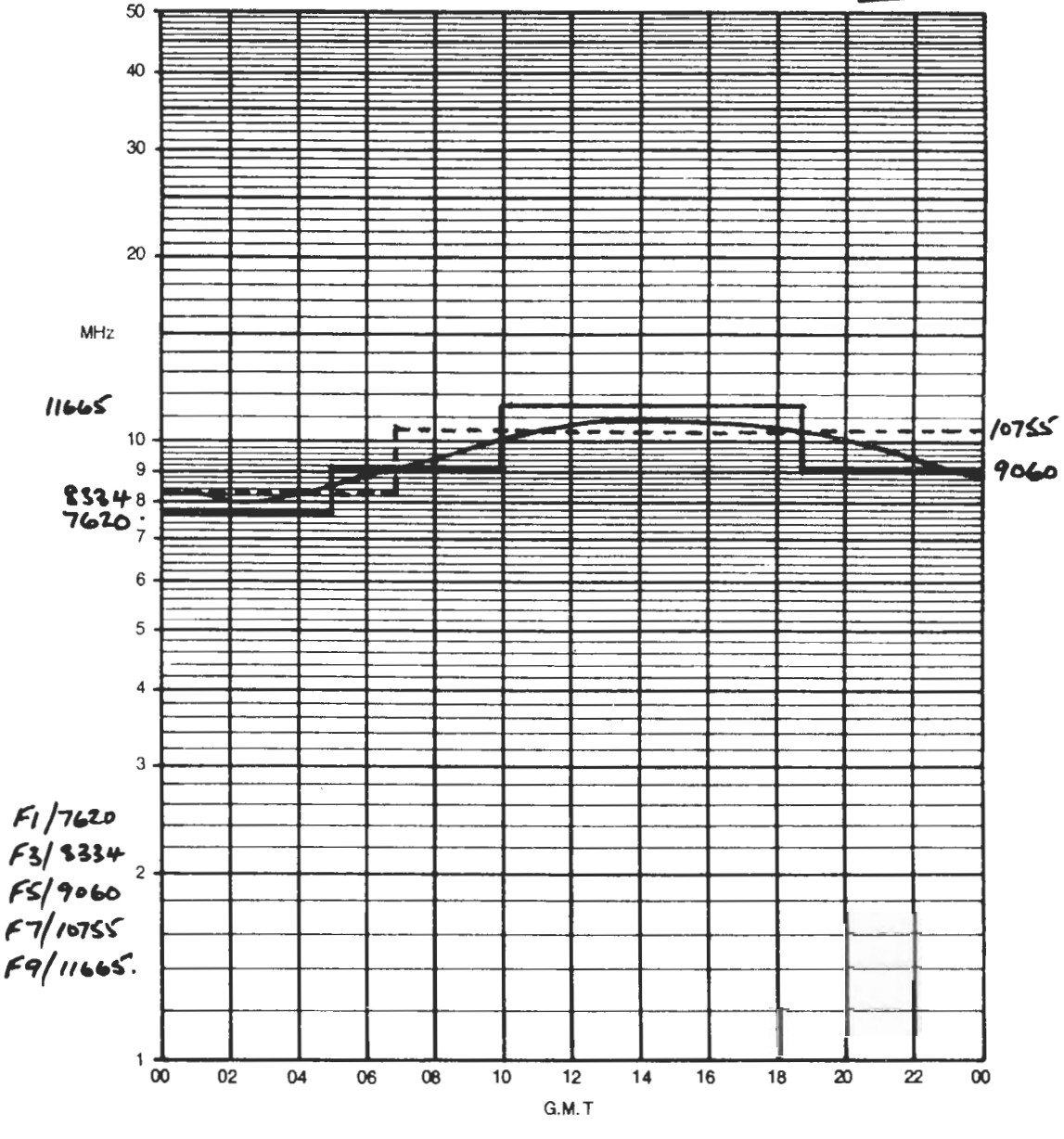
Ref No. MRL1A

km Path

FROM: CRIMOND TO: SWAPPS

FOR GLAMORGAN 1-7 JULY 83.

ADRL



F1/7620
F3/8334
F5/9060
F7/10755
F9/11665.

PP RBDNHCF RBDEC RBDNHC RBDGH RBDPIO
DE RBDIC 582 1780959
ZNY RRRRR
P 270945Z JUN 83
FM UKNAVCAMS
TO RBDNHCF/HMS GLAMORGAN
INFO RBDEC/CINCFLEET
RBDNHC/FOST
RBDGH/FOREST MOOR
RBDPIO/RNWS CRIMOND
BT
R E S T R I C T E D
S I C SPM
MARLACT BRAVO (MRL 1A)
REF UKNAVCAMS SPM (MARLACT ALFA)
A. SHIP-SHORE (RLAD) TX FREQ SCHED (READ IN TWO COLUMNS):-

TIME ZULU	FREQ DESIG
0000 - 0500	F2 QLH F4
0500 - 0600	F4 QLH F6
0600 - 0800	F6 QLH F10
0800 - 2100	F10 QLH F12
2100 - 2200	F10 QLH F8
2200 - 2359	F8 QLH F4

PAGE 2 RBDIC 582 R E S T R I C T E D
B. SHORE-SHIP (ADRL) TX FREQ SCHED. (READ IN TWO COLUMNS):-

TIME ZULU	FREQ DESIG
0000 - 0500	F1 QLH F3
0500 - 0700	F3 QLH F5
0700 - 1000	F5 QLH F7
1000 - 1900	F7 QLH F9
1900 - 2359	F7 QLH F5

C. OUT OF TOUCH PROCEDURE: TRANSMISSIONS TO COMPLY ABOVE SCHEDS AFTER 30 MIN OUTAGE. ENGINEERING MESSAGES' WILL ALSO BE PASSED VIA B13A/B11A IN EVENT OF PROTRACTED OUTAGE.
BT

To which the MOBILE agrees or raises an amendment:

VV WOUO83N1A060 HH
RR RBDIC
DE RBDNHQH 007 1790827
ZNY RRRRR
R 280805Z JUN 83
FM HMS GLAMORGAN
TO RBDIC/UKNAVCAMS
INFO RBDEC/CINCFLEET

FREQUENCY PREDICTIONS

Ref No. MRLIA·

km Path

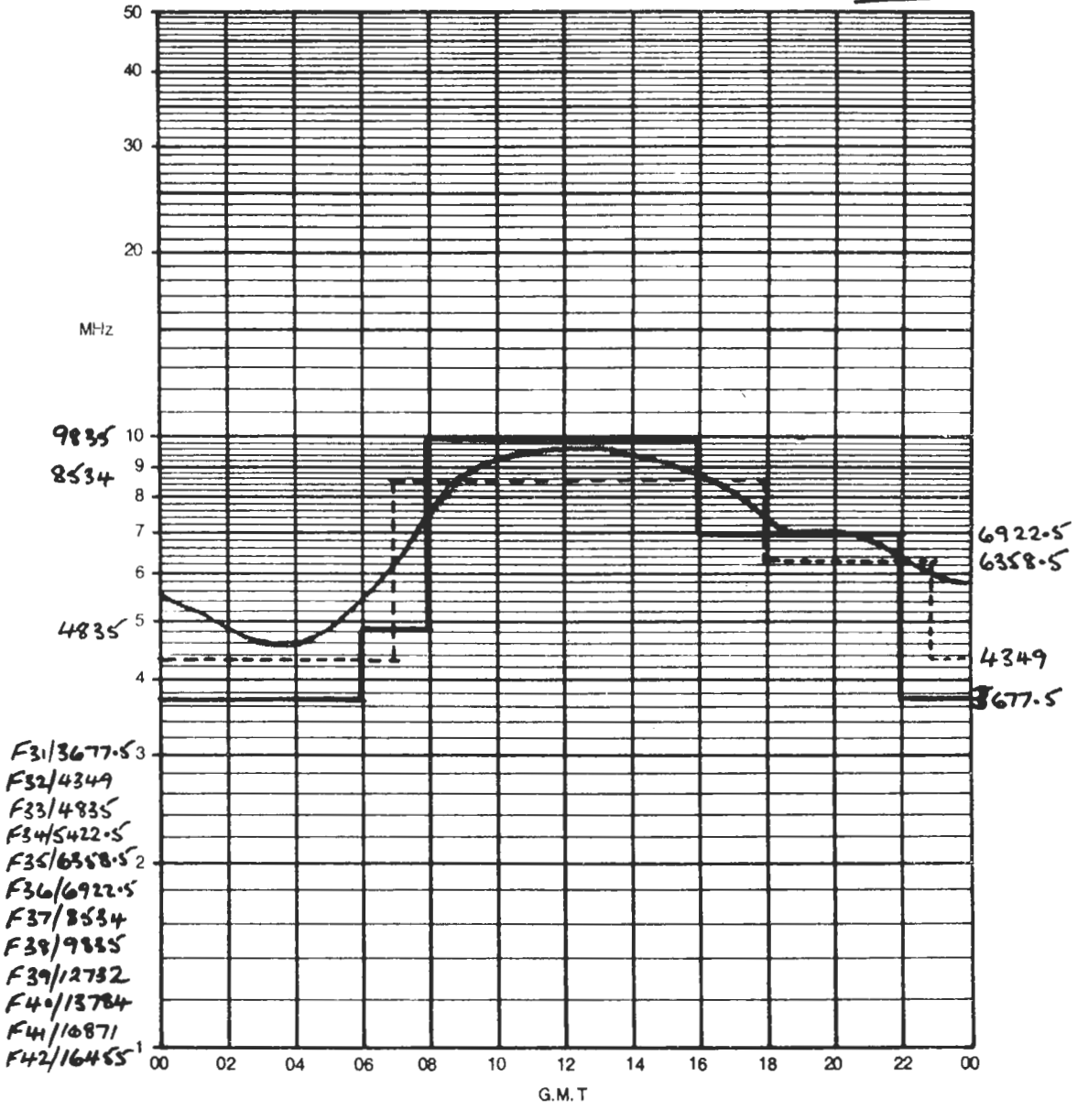
FROM: CRIMOND

TO: SWAPPS,

FOR HMS GLAMORGAN

1-7 JUL 83.

ADRL



FREQUENCY PREDICTIONS

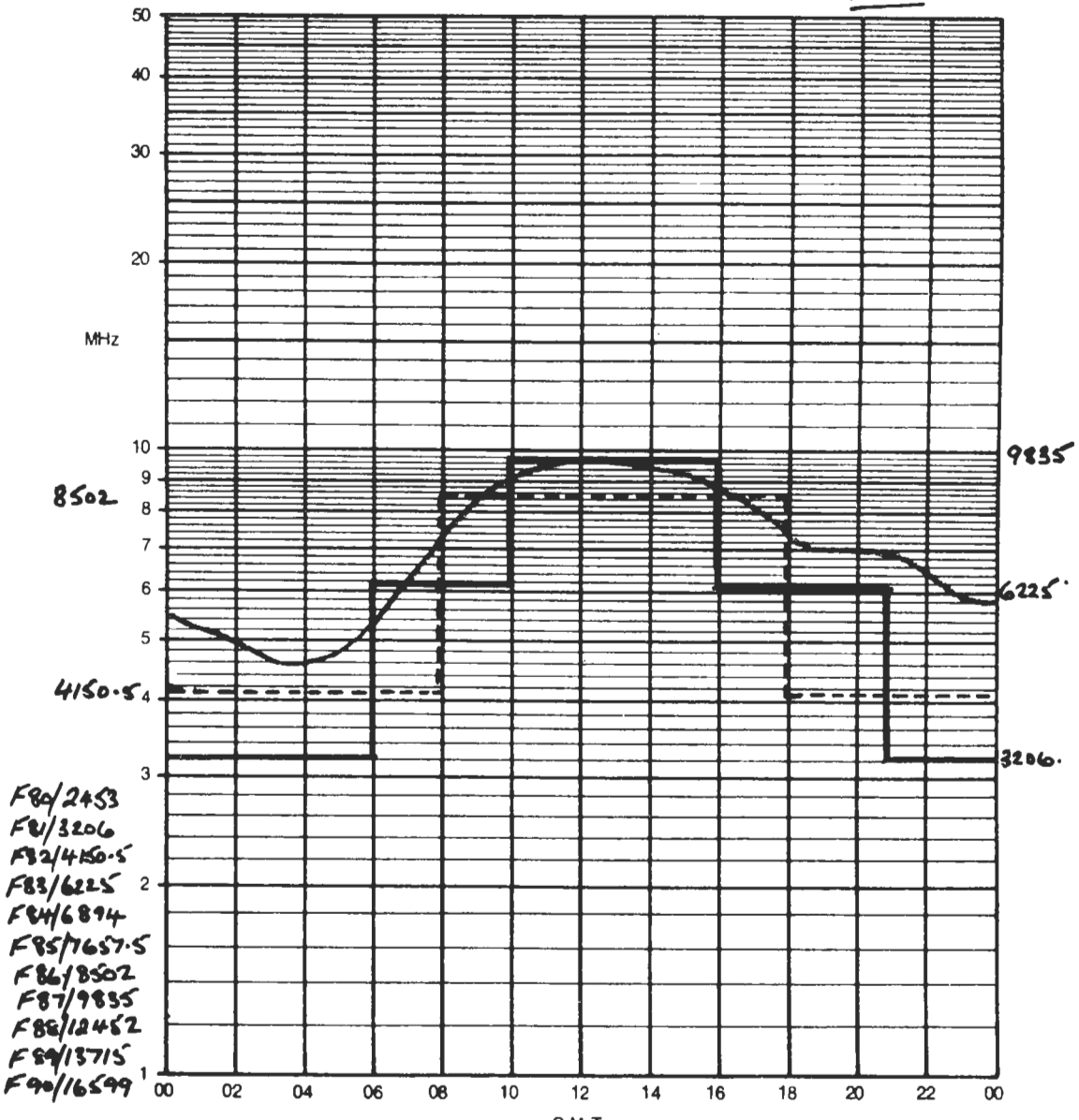
Ref No. MRL 1A.

km Path

FROM: SWANAGE TO: FOREST MOOR

FOR HMS GLAMORGAN 1-7 JUL 83.

RLAD



F80/2453
F81/3206
F82/4150·5
F83/6225
F84/6894
F85/7657·5
F86/8502
F87/9835
F88/12452
F89/13715
F90/16599

BT
R E S T R I C T E D
SIC SPM
YOUR SPM 270945Z JUN (MARLACT BRAVO) AGREE
BT

6. The frequency curves for this MRL were chosen by MINIMUF which because of the short path proved inaccurate and the opening hours failed to produce many periods of communication. A second prediction curve was plotted from RNCP 7 and more frequencies allocated, resulting in a modified MARLACT ALFA & BRAVO. The new curves are illustrated in Figs D3 and D4 and many more frequencies have been allocated to allow QSY flexibility.

7. From these curves MARLACT amendment signals are prepared:

HH
00 RBDHCF RBDGH RBDHXE
DE RBDIC 840 1822036
ZNY RRRRR
0 012015Z JUL 83
FM UKNAVCAMS
TO RBDHCF/HMS GLAMORGAN
INFO RBDGH/FOREST MOOR
RBDHXE/INSKIP
BT
R E S T R I C T E D
SIC SPM
MRL ONE ALFA MARLACT ALFA SUPPLEMENT
A. UKNAVCAMS SPM 270944Z JUN 83 (MARLACT ALFA)
1. FOLLOWING FREQUENCIES ALLOCATED IN PLACE OF EXISTING PARA
CHARLIE AND DELTA OF REF WEF 012300Z JUL 83
ADRL F31/3677PT5 F32/4349 F33/4835 F34/5422PT5 F35/6358PT5 F36/6922PT5 F37/8534 F38/9835 F39/12732 F40/13784 F41/16871PT3 F42/16455
RLAD F80/2453 F81/3206 F82/4150PT5 F83/6225 F84/6894 F85/7657PT5 F86/8502 F87/9835 F88/12452 F89/13715 F90/16599
BT

HH
00 RBDHCF RBDGH RBDHXE
DE RBDIC 841 1822037
ZNY RRRRR
0 012030Z JUL 83
FM UKNAVCAMS
TO RBDHCF/HMS GLAMORGAN
INFO RBDCH/FOREST MOOR
RBDHXE/INSKIP

BT
R E S T R I C T E D
SIC SPM
MRLONE ALFA MARLACT BRAVO SUPPLEMENT
REF UKNAVCAMS SPM 270945Z JUN 83 (MARLACT BRAVO)
FOLLOWING SCHEDULE REPLACES EXISTING PARA A AND B OF REF
WEF
012300Z JUL 83
A. RLAD READ I N TWO COLUMNS

TIME(ZULU)	FREQ DESIG
2300 - 0600	F81 QLH F82
0600 - 0800	F82 QLH F83
0800 - 1000	F83 QLH F86
1000 - 1600	F86 QLH F87
1600 - 1800	F86 QLH F83
1800 - 2100	F83 QLH F82

PAGE 2 RBDIC 841 R E S T R I C T E D

2100 - 2300	F82 QLH F81

B. ADRL

2300 - 0600	F31 QLH F32
0600 - 0700	F32 QLH F33
0700 - 0800	F33 QLH F37
0800 - 1600	F37 QLH F38
1600 - 1800	F37 QLH F36
1800 - 2200	F36 QLH F35
2200 - 2300	F35 QLH F31

BT

8. With this new schedule and extra frequencies the MRL was ZBZ 5 both ways on at least one frequency, for the remainder of the time it was raised. During this time many engineering signals pass both ways and the mobile has the occasional problem:

NNNN

VZCZCWFA066WCX133 UU
00 RBDF
DE RBDFNQ 040 1871158
ZNR UUUU
SITREP
RLAD QLH F82/81 ZBZ 5 ZNI 1 TOTFC
ADRL F36 ZBZ 5 F33 QSA 4

GYA DE MITT
SVC.
WE ARE DUE TO CHP TO CHOP FROM B11A TO B41T AT 0600Z
THE FREQ OF B41T IS 3.1 MHZ AND OUR F81 IS KNOCKING T IT OUT

OUR EZ FILTERS WILL NOT FILTER OUR F81 ENOUGH TO COMPENSATE
SO REQUEST YOU CONSIDER FURTHER QSY DURING THIS MORNING TO A FREQ AWAY FROM THE 3.1 MHZ WE HAVE ON B41T K

GYA DE MTT REF CHILLED WATER ON OUR TX'S.
WE NOW HAVE CHILLED WATER BACK AND HF COMMS IS FULLY OPERATIONAL
INT QSL INT QRV RR K

9. If the MRL has run well, occasionally it earns a BZ!

VV WCU276NIB199 UU
RR RBDIC
DE RBDNHQH 014 1891453
ZNR UUUUU
R 081452Z JUL 83
FM HMS GLAMORGAN
TO RBDFO/UKNAVCAMS
INFO RBDIC/COMMCEN WHITEHALL
RBDEC/CINCFLEET
RBDNHC/FOST
BT
UNCLAS
SIC SPM
THE HIGH AVAILABILITY OF MRL1A DURING WESTAXE 2-83 DID MUCH TO EASE OUR COMMUNICATIONS LOAD. YOUR EFFORTS WERE MOST APPRECIATED
BT
DIST 123 4 6 MHR

NNNN

10. Numerous short engineering messages are passed during an MRL, it being of paramount importance that sufficient SITREP signals are passed. Most messages bear the SIC SVC, if this brings no reaction from the DISTA, then give the message a proper SIC causing it to be distributed correctly in the ship.

11. A general example of a SITREP is shown below:

<u>EXAMPLE OF ENGINEERING FORMAT FOR USE ON MRL OR SINGLE FST SERVICE IE CRL</u>

(1) VVVV YLA 036 UU
(2) PP RBDIOVS
(3) DE RBDI 011 2660150
(4) ZNR UUUUU

BT

(5) SITREP

(6) ADRL 9.4 ZNI 2 ZAI 2

(7) RLAD 13.7 QLH 12.2 - 13.7 ZBZ 3/4 - 12.2 ZGN

(8) QSY 14.2 FROM 12.2

(9) ZUB 02335Z

BT

(10) NNNN

---

(1) SOM Function - Transmission Identity and Serial Number - Classification..

(2) Precedence - Routeing Indicator (Maritime Mobile Ships and Ships Attached UK).

(3) FROM - (RI) Whitehall - Originators Serial Number - Date/Time Julian (Sept 22nd).

(4) OP/SIG - Unclassified.

BT

(5) Situation Report.

(6) Whitehall to Mobile - Frequency - Plain Language - Test Tape.

(7) Mobile to Whitehall - Freq's - Simultaneous Keying - 13.7 Printability 3/4 12.2 Nothing Heard.

(8) Change Frequency 14.6 from 12.2

(9) A This TIME (GMT).

BT

(10) END OF MESSAGE FUNCTION.

STANDBY POWER SUPPLIES

INTRODUCTION

1. The characteristics of maritime telecommunications include a 24-hour capability. For this reason, every telecommunications station must remain continuously operational.

2. The provision of standby power supplies is an integral part of the engineering survivability of the complete shore telecommunications network, since stations normally derive power from the National Grid which is likely to suffer interruptions.

STANDBY GENERATING PLANT

3. Standby power is provided using diesel electric generators installed on site and kept ready for use.

4. These standby supplies vary in capacity and type depending on the station concerned and its functions including:

a. Station load.

b. Site location and arrangement.

c. Site services to be supplied.

d. Site priorities.

5. Generally standby generating plant should start automatically on mains failure and be capable of taking full station load.

6. Maintenance spare capacity is always provided either as two sets each of full station load or three sets each of half station load capacity. For large loads, the three set configuration is generally favoured.

OPERATION

Manned Sites

7. The installation should be such that the engineering staff can make any changes necessary by switching to alternative supplies or standby generators. Reversion to mains supply is to be a manual operation under control of engineering staff.

FIG E.1 TYPICAL UNINTERRUPTED POWER SUPPLY
(Showing one channel only)

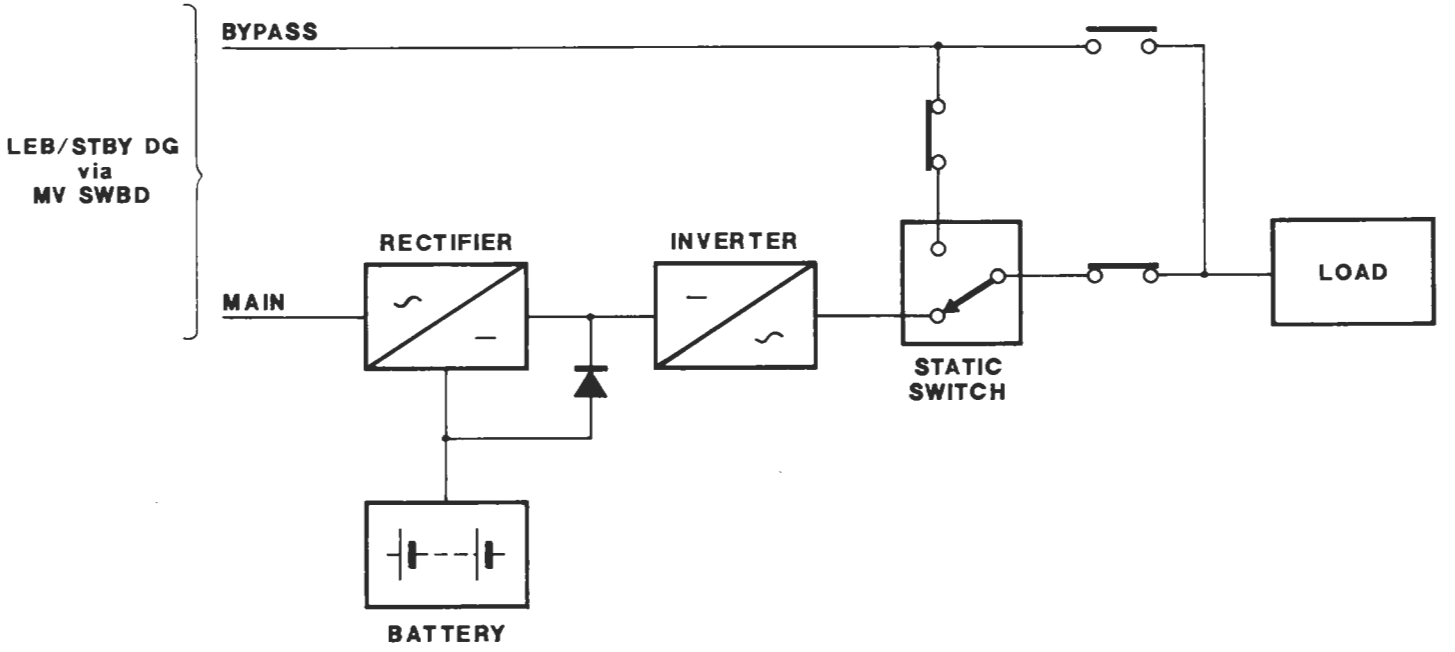


Fig. 6E.1
TYPICAL UNINTERRUPTIBLE POWER SUPPLY
(Showing one channel only)

Unmanned Sites

8. For unmanned stations with a remote controlling station, the installation should be capable of local or remote operation with alarms and indications remoted to the control station. Reversion to mains supply, though normally automatic, may be delayed manually. Standby generator shutdown after transfer should be automatic.

FUEL SUPPLIES

9. The fuel capacity for standby generating plant should be sufficient for a minimum of fourteen (14) days continuous running on full station load.

NO BREAK SUPPLIES (UNINTERRUPTABLE POWER SUPPLIES (UPS))

10. Under some circumstances, any break in power supply caused by mains failures is unacceptable. These include:

a. A loss of power may cause loss or corruption of messages held in the system eg in a computer-based system.

b. A loss of power may cause loss of synchronisation of the system.

c. As a consequence of power failure, sufficient equipment to meet the operational requirement may not be back in service within 5 minutes of restoration of power.

11. An uninterruptable power supply (UPS) can be anything from a battery built into a user device, up to a sophisticated high KVA system. The only essential requirement being that there should be absolutely no break whatever in the ac supply to the load because of a mains fault. The preferred type of UPS is a battery/static inverter system fed from the mains/standby generator by rectifiers.

12. Mains is fed to the input stage rectifier, the dc output of which is fed to the inverter input and to the battery charger, the inverter producing the ac necessary for the load. In the event of a mains failure, the inverter picks up its dc input directly from the standby batteries (Fig 6E.1).

TESTING

13. To ensure that standby power supplies operate satisfactorily in emergency, the facility is to be tested monthly on full operational load.

14. The test is to include the checking of automatic starting and switching facilities and should involve a minimum of four (4) hours continuous operation of the station on standby power once per month.

15. If no-break power supplies are fitted, no advance notice to users is necessary, but if the change to/from standby power causes a break in communications, the shore station is to ensure that all affected users are aware of the testing schedule.

16. To avoid conflict and to prevent numerous stations suffering simultaneous breaks in communications, DCN have agreed fixed days/times for individual station standby power supply testing.

17. Dummy Loads. Shore telecommunications stations are being fitted with a dummy load of capacity greater than the largest generator fitted to enable the standby power supplies to be fully tested following periods of preventive or corrective maintenance. Use of the dummy load does not replace the monthly test on full station load.

HIGH VOLTAGE GENERATING EQUIPMENT

18. Some shore telecommunications stations have been equipped with standby generating equipment operating at 6.6 kV.

19. By law, any person operating such equipment must be qualified as a 'Competent Person'. Accordingly the Engineer Officer and Chiefs of the Watch are required to undergo training at DOE Cardington.

20. This requirement is identified in the Scheme of Complement of the station concerned.

OPERATIONAL CONNECTIVITY MANAGEMENT SYSTEM (OCMS)

1. OCMS is a computerised database containing detailed line information which can be accessed and used for automatic routeing. All lines (channels) currently registered for RN operational use will form the database.

2. The computers involved (1 + 1 spare) are installed in Systems, Commcen Whitehall for the day to day management of the system. Two further computers are installed at ESB where one is used to maintain the accuracy of the database, while the second is used for evaluation and development to meet future requirements.

3. To operate successfully, the OCMS is dependent on the accuracy of static data and on the updating of this data with an overlay of current channel availability. The static data is protected by limited access and security procedures, changes being authorised only by CSE(N). Dynamic data needed to establish the current channel availability is to be provided by System Engineering staff throughout the Naval Shore Telecommunications Network.

Operations and Reports

4. Stations planning future connectivity for Exercises, trials etc will send a Connectivity Request (CONREQ) signal to Commcen Whitehall, who will respond with a Path Allocation signal giving routeing information. The CONREQ originating station will arrange the intermediate patches and channel testing, the time for which is to be taken into account in the timescales concerned.

5. Fault Reporting procedures remain unchanged, each site reporting defects to the local fault cell. If a channel is "out" for a period exceeding one hour, it is to be reported to Commcen Whitehall by Channel Outage signal.

6. When a channel has been restored to service, a Fault Cleared Report is to be sent to Commcen Whitehall.

7. A Channel Outage Report may in itself require Commcen Whitehall to respond with a Path Allocation signal particularly if unplanned connectivity is required to cover circuit losses.

8. When a channel is commissioned/ceases, or the parameters change, an OCMS Channel Change Report is to be rendered at the time the change is executed.

FLEET COMMUNICATIONS MANAGEMENT SYSTEM (FCMS)

1. Provided to the Fleet and Shore Communications Facilities through OPCON, FCMS is an information system for the exchange of communications management and system information. No actions will be taken as a result of FCMS inputs unless followed up by a hard copy signal. FSCO has delegated to OIC Commcen Whitehall the responsibility for controlling FCMS ashore at all times.

2. A number of rules for the conduct of FCMS have been laid down. These include:

(1) FCMS Viewing Guide. On first signing on the system, users must view the FCMS Viewing Guide which will highlight any narratives which individual narrative owners require individual ships/authorities to view. Instructions for use of this narrative is contained in the last page of the file. It is recommended that this guide be viewed at least twice daily.

(2) Narrative Compilation. Narratives provide the means for an informal exchange of communications information. Comments and suggestions must be kept short and concise and aimed at improving the efficiency of Fleet Communications. They are to be updated at 0700Z daily, previous comments are to be deleted unless they are still relevant in which case they should be re-entered under the new DTG. All narrative entries are for information only, but if a receiving agency responds to an input and accepts an action, this becomes as binding as if the exchange had been by signal. The facility is intended to be used in much the same way as a circuit engineering order wire and entries are assumed to carry the authority of the SCO, CO's permission not normally being required. However, sensible circuit discipline is essential and Whitehall is empowered to enforce it.

(3) UKNAVCAMS Broadcast/MRL Traffic Queues. These are supported as an information service to indicate numbers of signals awaiting transmission - being updated every 3-4 hours by UKNAVCAMS staff. Large traffic queues do not necessarily indicate major delays to high precedence traffic. Command is interested in the length of time from the originators DTG before traffic arrives on board.

3. FCMS is a major step forward for communication management provided all facilities available are used in accordance with the guidelines. The system provides a dynamic real time aid to communication management.

Use of FCMS by Shore Stations

4. FCMS is available to all users of the NSTN and full advantage must be taken of it. FSCE is insistent that the facility should be used by System Engineering staff at all nodes.

5. FCMS is of utmost importance in the case of a multiple node failure when it will become necessary to appraise and reconfigure the remaining available assets at short notice.

6. Accordingly each node of the NSTN is to have an FCMS page which will state the functional capabilities and limitations of the node. This page is to be updated daily. Failures drastically affecting availability at a node between normal daily updates can still be passed to UKNAVCAMS by ELTN as required.

7. DEO UKNAVCAMS will copy each node's page daily so that, in the event of a two node failure, the remaining assets an be reorganised.