

RESTRICTED



HOME OFFICE
WIRELESS INSTRUCTIONS
FOR RADIO-TELEPHONY
SCHEMES

JULY
1950

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PREFACE

In order to ensure maximum efficiency in the operation of a wireless scheme there are three essentials:

Definite instructions to operators as to their duties.

Proper control of all stations working in a scheme so as to prevent confusion and mutual interference.

A recognised message "procedure", in order to achieve the maximum speed without risk of ambiguity.

The following instructions to cover the above points in a form appropriate to Police and Fire Service radio telephony schemes have been prepared by the Home Office for the guidance of the personal concerned.

The contents of this book are not to be divulged to unauthorised persons.

Important Notes:

1. The use of wireless for communication between fixed stations is NOT permitted, other than in an emergency such as a failure of line communications, except for

(a) messages broadcast to a number of stations simultaneously;

(b) periodical test transmissions to check the performance of apparatus or to exercise operators.

2. Where a local wireless scheme is shared by the Police and the Fire Service, all operators, and particularly those at control stations, must avoid any tendency to monopolise the scheme for the benefit of their own service. Such schemes exist for the benefit of both services equally and all concerned must co-operate fully.

As a general working rule, however, Fire operational messages should have precedence during actual fires and Police operational traffic at other times.

HOME OFFICE,

1950.

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PART I

ORGANISATION

A. GENERAL DESCRIPTION OF LOCAL VH/F SCHEMES

1. **Types of Scheme.** Schemes may be either "single frequency", where the same frequency is used for transmission by both main and out stations, or "double frequency", where main stations transmit on one frequency and out-stations on another. This latter is always used in multi-station schemes.

Simplex procedure (stations either transmit or receive, but do not do both simultaneously) is used throughout in all standard Home Office schemes, and the following instructions are therefore applicable generally.

Certain special facilities are available, however, at the main control stations of double frequency schemes, as indicated in the relevant portions of these instructions.

2. **"Control" arrangements.**

(a) Normal operating control of a scheme may be exercised from either

(i) the main or master station itself, or

(ii) Police Headquarters or other point remote from the main or master station. This remote control may be by either land line or radio link depending on circumstances. If land line is used, two "pairs" are required for double and one pair for single frequency schemes. A spare pair is usually provided in all cases.

(b) Sub-control of a scheme may be made available at a subsidiary point (e.g. Fire Headquarters) if desired. The main control operator can then transfer direct control of the whole scheme temporarily to this subsidiary point on request. Such sub-control is normally effected by land line but radio may sometimes be used for this purpose in double-frequency schemes. Where land line is used only one "pair" is required in any case, but a spare pair is usually provided in addition.

3. **Facilities at Control Points.**

(a) **Single frequency schemes:**

(i) **Main Control.** Constant reception of out-stations except while transmitting. Immediate control of the transmitter.

(ii) **Sub-Control (by line).** Constant reception of main or out-stations except while transmitting. Control of transmitter on request.

(b) Double frequency schemes:

- (i) Main Control.** Constant reception of out-stations, even while transmitting. Immediate control of the transmitter.
- (ii) Sub-Control—Line or Radio:** Normally constant reception of main station only. When in control constant reception of out-stations—except while transmitting. Control of transmitter on request.

4. Facilities at Out-Stations:

(a) Single frequency schemes. All out-stations can receive the main station, and also all other out-stations within range. Since the area covered by these schemes is usually small, all out-stations will normally be within range of each other and mutual interference due to simultaneous transmissions should not occur.

(b) Double frequency schemes. All out-stations can receive the main station but they cannot normally hear each other (they transmit and receive on different frequencies). In order to avoid mutual interference between out-station transmissions the main station automatically radiates an "engaged" signal (a series of "pips") while receiving from an out-station and no other out-station should transmit while this signal is audible unless its message is of extreme urgency. Arrangements are available at the main control, however, to inter-connect the outgoing and "talk-back" channels so that everything received on the latter is automatically re-transmitted on the former. Under these conditions all stations in the scheme hear all transmissions whether these originate from the main station or from an out-station. This is the facility employed to provide sub-control by radio, but it can be used if and when desired to permit of direct car-to-car working.

B. SECURITY

1. It is important that there should be no misunderstanding as to the "security" of messages sent by wireless.

No wireless transmission is, or can be made, free from risk of interception, either accidental or deliberate. Many receivers available commercially cover the frequencies used in police and fire schemes, and indeed police transmissions are not infrequently audible on receivers used for B.B.C. programmes, especially where these sets are of old design.

2. **Use of Code.** Police messages could therefore only be made secure if a really high-grade cipher was employed, but this is impracticable on account of the delays and complications involved. It must be noted in this connection that the simple substitution code given in Appendix C to this handbook, while it may be used for proper names to reduce the chance of undesirable publicity in the event of accidental interception, provides no security whatever against deliberate interception by undesirable persons. The same applies to the use of simple reference systems, such as the page and line number of street directories, to indicate locations.

3. Practical safeguards. The only practical security safeguard is to ensure that confidential messages are only sent by wireless when no other means can be used and when action is to follow so swiftly that no one intercepting the message would have time to make any use of it which would affect the issue.

When it is essential to issue information about comparatively long-term action to patrol cars by wireless the message should merely instruct them to telephone, or call at, the nearest (or some specified) police station. Where the information is particularly confidential it should be borne in mind that even the telephone is not entirely secure and moreover that, if patrol cars are instructed by wireless to telephone for such information, there may well be a risk of impersonation by someone who has intercepted the wireless instruction.

4. General. It is stressed that the object of this Section is not to discourage the use of wireless for bonafide messages for which no other suitable means of communication is available, but solely to ensure that the security risks inseparable from the use of wireless are appreciated so that all practicable safeguards may be taken.

C. ALLOCATION OF CALL SIGNS

1. General. All stations are identified by means of call signs. Basic call signs for each police force and for certain fire brigades have been allocated by the Home Office in the series M2AA to M2ZZ and these are used by the main control stations of the forces and brigades in question. Example "M2GA".

2. Call signs for Out-Stations. These are allocated locally on the following lines:

(a) **Fixed Stations.** The appropriate basic call sign plus a suffix letter. Example "M2GAD".

The letters C, F, H, Q, S, Y, Z, should not, however, be used for this purpose as they are usually reserved for the following special cases:

C — to form the collective call sign addressing all stations of a force: e.g. "M2GAC".

F — to form the call sign of a fire brigade sub-control (where applicable): e.g. "M2GAF".

H — to form the call sign of an ambulance sub-control (where applicable): e.g. "M2GAH".

Q — to form the collective call sign for the fire brigade concerned: e.g. "M2GAQ".

S — to form the call sign of the stand-by main station: e.g. "M2GAS".

Y — to form a special collective or group call sign as required.

Z — to form the collective call sign addressing all stations of all forces in a scheme shared by a number of forces: e.g. "M2GAZ".

Care in local allocation should also be taken to avoid possible phonetic ambiguity, e.g. B, D, and P; F and S; M and N; etc., though the use of the phonetic alphabet (see Part IV, Appendix A) will assist in avoiding confusion.

(b) **Mobile Stations.** The appropriate basic call sign plus a suffix figure or figures. Example: "M2GA12".

The lower numbers are usually allotted to police mobiles as being in more frequent use, and the higher numbers to fire mobiles and appliances. A suitable gap should be left between the two series to allow for expansion of the police fleet.

By International Regulations the figures "0" and "1" should not be used where risk of confusion with similar letters would result.

D. ADDRESS AND DISTRIBUTION OF MESSAGES

1. The originator of a message is solely responsible for deciding which stations (including any "outside" forces) should receive that message and they must be indicated in the "Address" of the message.

The originator is also responsible that any subsequent amending or cancelling message is given the same distribution.

2. No station addressed should take any action to widen the distribution beyond that indicated by the originator; and no station receiving a message not specifically addressed to it should normally take any action on that message.

These limitations are necessary:

(a) to avoid unnecessary and "automatic" re-broadcasting, which is a waste of time, and

(b) to avoid confusion likely to arise from amending or cancelling messages not receiving the same distribution as the earlier messages to which they refer.

PART II WIRELESS INSTRUCTIONS

A. DEFINITIONS

The meanings of the following terms must be clearly understood.

ADDRESS. This indicates for whom a message is intended and by whom it was originated.

It may be entirely expressed in the "Call" in which case no separate Address is required.

ANSWER. This signifies that a transmission has been received by the station called. It must not be confused with a "Reply".

CALL. This indicates the station or stations to which, and the station by which, a transmission is being sent. It may be identical with and comprise the "Address" of a message.

CONTROL STATION. The station responsible for the control of any wireless scheme. All other stations in the scheme must conform to instructions given by this station.

ENDING. This comprises everything after the Text or Time of Origin.

FINAL INSTRUCTIONS. These form part of the Ending and may include corrections or indications of further traffic waiting.

HEADING. This comprises all before the Text.

MAIN STATION. The main fixed station serving a scheme. There may be more than one (i.e. in multi-station schemes).

MASTER STATION. The chief main station in certain types of multi-station schemes.

MULTI-STATION SCHEMES. Schemes comprising more than one main station. They may consist of two or more main stations, or of a master station and one or more satellite stations.

OUT-STATION. Any subsidiary station in a scheme. While these are mainly mobiles there may be some fixed out-stations.

PREFIX. This forms part of the Heading and contains the indication of priority or type of message and the serial number where these particulars are applicable.

PROCEDURE MESSAGE. A message between operators concerning the conduct of signalling only, such as Test Calls, errors in transmission, etc. An answer is the simplest form of this type of message.

REPLY. A message the text of which replies to the text of a previous message. It must not be confused with "Answer".

ROUTINE TRANSMISSIONS. These include all transmissions, including Time Signals, which are sent at certain pre-arranged times or on certain particular occasions (operational traffic permitting).

SATELLITE STATION. A type of main station only used in conjunction with a Master Station.

SERIAL NUMBERS. Numbers appended by a transmitting station to messages of a particular type sent by that station so that receiving stations may have a check on the traffic received. This applies particularly to messages sent by broadcast method.

SIGN-OFF. The indication that a station has completed its transmission and is prepared to receive.

SUB-CONTROL STATION. A subsidiary station which can be given temporary direct control of the scheme, by line or radio, on request to the main control operator.

TEXT. This comprises everything between the Heading and the Time of Origin.

TIME OF ORIGIN (T. of O.). The time at which a message was authorised by the originator. It remains unaltered throughout the handling of a message and, coupled with the address, forms the main means of identification. It should always be appended by the originator.

TIME OF DESPATCH OR RECEIPT. The time at which transmission or reception of a message is completed. Normally it is only signalled by a fixed station.

NOTES RE TIMES. All times in messages, including any in the Text, should be expressed in four figures using the 24-hour clock: e.g. "1926" instead of "7.26 p.m."; "0215" instead of "2.15 a.m."

In order to avoid any ambiguity as to the date, the time "0000" or "2400" (midnight) is never used; messages calling for such timing being marked "0001" or "2359" in lieu.

All times used are assumed to be G.M.T. or B.S.T. as may be in force at the time unless otherwise stated.

B. INSTRUCTIONS TO OPERATORS

General.

1. The contents of all messages handled by you are confidential and are only to be communicated to other persons as required by your duty.

2. Never leave your microphone "alive" unless you are actually transmitting a message.

3. Whenever an answer is required from you, send it **without delay**. Even if a message addressed to you calls for a reply which will only take a short time to prepare, **answer at once and reply later**.

4. Keep your voice pitched fairly high, but without straining, and do not let it drop at the end of sentences or phrases. **Emphasise your consonants**. Speak close to the microphone at an even level—do **NOT** shout. Take care not to turn your head away from the microphone while transmitting.

5. Always adhere strictly to the authorised procedure in order to avoid confusion and waste of time.

6. Messages or parts of messages which should be written down verbatim by receiving stations should be dictated rather more slowly than you yourself can write. When "broadcasting" such messages, however, the second transmission can be sent at a somewhat higher speed.

7. Important or unusual words should be spelt out. The phonetic alphabet, etc., given in Part IV, Appendix A should always be used when sending separate letters and figures, such as Motor Vehicle Registrations.

Control Stations.

8. Every service message you transmit should bear a Time of Origin. If this is not on the message when it reaches you, insert the time it was handed to you as the T. of O. This must appear on any confirmatory copy sent to the originator.

9. See that every "broadcast" message sent by you bears its correct Serial Number.

10. Remember that some of the stations listening to you may be working under difficult conditions. Do all you can to help them by making your transmission as perfect as possible.

11. See that all Routine transmissions and Time Signals are sent out at the times laid down, unless other traffic is in progress at the time. They provide a valuable check for your out-stations.

12. In "single-frequency" schemes, if you have a series of messages to send, switch to "Receive" for at least five seconds between each to enable an out-station with an urgent message to establish contact. Similarly, if you have a long message to transmit, switch to "Receive" for five seconds approximately every minute (see "Long Message" procedure).

13. The wireless log at Control Stations must contain a record, timed as accurately as possible, of all messages sent or received including the Call, Serial Number (if any) and Time of Origin. (See also Instruction No. 15.)

Your log must be signed by you when you come on and when you go off duty.

14. A copy of each message handled by you should remain available at your station in case corrections or repetitions are required.

15. All messages between out-stations, including those to and from sub-controls, should be taken down at the Control Station if possible so that assistance can be given in clearing such traffic if difficulties arise.

16. Whenever you take a message by telephone, repeat it back phrase by phrase. Similarly, when relaying a message by telephone see that the receiving officer repeats it back correctly.

Mobile Stations.

17. Remember the confidential nature of all transmissions and, when stationary, take all possible steps to prevent bystanders overhearing messages you receive by reducing the loudspeaker volume, or using the handset where provided.

18. Keep your messages and transmissions as short as possible. Try to decide what you are going to say before you start transmitting. Unnecessary transmitting time wastes battery power and creates congestion.

19. If you have a long message to send go over to "Receive" for five seconds at least once a minute in case your control station wishes to interrupt. (See "Long Message" procedure.)

20. If you find you have missed a serial number, take immediate steps to get the message. It may have concerned you.

21. Your wireless log should contain a record of any occurrences affecting your station (e.g. "Receiver failed at . . .") and of all times of ceasing and resuming watch (for meals, etc.).

22. If you fail to receive a routine transmission, or suspect for any other reason that your equipment is not working correctly, try and establish wireless contact with your control station. If unsuccessful report the facts by other means as soon as possible.

23. Operators on Mobile Stations should pay particular attention to the following points:

(a) Your equipment should be in the "stand-by" condition (Receiver on and transmitter ready for immediate use) the whole time you are mobile.

(b) You must always report when you have set watch, as shown in Part III, Section A para. 5.

(c) Whenever you have to leave your vehicle unattended switch off your equipment, but first report to your control as follows:

"Ceasing watch at . . . (location) until about . . . Last message received No. . . ." and await the answer before actually closing down.

(d) When you resume wireless watch again, report as under (b) above.

C. GENERAL INSTRUCTIONS

1. **Methods of Signalling.** The two methods of signalling which may be employed are:

(a) **Direct.** A "Preliminary Call" is used at the beginning of each period of communication. The message is sent once only and the station called answers.

(b) **Broadcast.** No preliminary call is used. The message (except the Call and the Ending) is sent twice through and the stations called do not answer unless specifically directed to do so.

2. **Control of Signalling.** In any wireless scheme there must be one station responsible for the general conduct of signalling. In "Home Office" schemes these functions will be exercised by the main control point which will be referred to as the Control Station.

3. No station may transmit a message other than a procedure message, without obtaining prior permission from the Control Station by means of a "Preliminary Call" (See Part III, Section B).

No station should call unless it is known that the Control Station is free to receive. In single frequency schemes this will be indicated by the facts that the last control station transmission ended with the "General Clearance" (see para. 4, below) and that no other station can be heard transmitting at the time. In double frequency schemes the main transmitter radiates an "engaged" signal (a series of "pips") while the main control is actually receiving a signal and calls should not be made during such periods. In these schemes, however, priority calls may be made while the main control is transmitting, if the calling station is not concerned with the outgoing message.

4. **General Clearance.** In all schemes, it is desirable that the Main Control should indicate when any period of signalling has been completed and the communication channel is free for further traffic. This indication,

known as the "General Clearance" consists of the words "To Standby" and may be sent in the following form:

"Hello GAC. M2GA to stand by. Over."

It may, alternatively, be included in the Ending of a message:

". . . Time now 1125. M2GA to stand by. Over."

5. **Use of Call Signs.** The use of official call signs is essential to avoid confusion, and to assist in identification when interference occurs.

6. In order to facilitate normal working, however, abbreviation of official call signs is permissible, to the following extent only:

The "M2" may be omitted from the call signs of:

- (i) Stations called or addressed, e.g. "Hello (M2) GA. Hello (M2) GA. Message for (M2) GA21. M2GAF Over."
- (ii) Mobile Stations when completing a transmission, e.g. "Hello (M2) GAF. Message received. (M2) GA21 Over."

Note: Main and Sub-Control Stations must use their full call signs at the end of each transmission. Any abbreviation would be open to confusion with the full call sign of a station of another service.

7. As an exception to para. 6 (ii) above, mobile stations may, if desired, be called or addressed by, and sign off with, an even more abbreviated call sign consisting merely of the last letter and the figure(s) of their full call sign. For example, "A4" may be used in such cases in place of "M2GA4" or "GA4". The advantage of such extra abbreviation is, however, very slight and the standard version (GA4) is to be preferred. The use of an arbitrary form of mobile call sign common to many schemes, such as "M1, 2" etc., is not recommended, as this increases the risk of confusion in the event of freak reception from other schemes and has no advantage over the form "A1, 2, 3," etc., referred to above.

8. **Walkie-Talkie Call Signs.** These stations may use figures ("No. 1, "No. 2" etc.), or letters ("A", "B", "C" etc.)—or their phonetic equivalents—as Call Signs.

The control station of a walkie-talkie net may be addressed by and use the call sign "Control". Where such a control point is also equipped to work on the normal scheme frequency, however, it must use its normal call sign on this latter frequency, abbreviated as in para. 6 above if desired.

D. FORM OF MESSAGE

1. A message consists of the following portions:

The Heading—comprising The Call,
The Prefix—if any,
The Address—if not covered by the call.

The Text

The Time of Origin—except in procedure messages.

The Ending—comprising: Corrections
The Time of Despatch or Receipt, } if any
The Final Instructions,
and The Sign-Off.

2. The Heading.

(a) **The Call** consists of the word "Hello", and the call sign(s) of the station(s) called (the whole repeated unless a preliminary call has been made), followed by the word "from" and the call sign of the calling station.

(b) **The Prefix** consists of the words "— message No. —", the first blank being filled by one of the indicators given below, where applicable, and the second by the serial number (if any).

Indicators:

- "EXPRESS" — only for actual "Express Messages".
"PRIORITY" — only on the authority of the senior officer present when the message is originated.
"TEST" — for Test messages.
"EXERCISE" — for Exercise messages.

(c) **Serial Numbers** are inserted by the transmitting operator, a new series commencing after midnight each night, and are usually only used on broadcast messages.

On messages addressed to all stations of a particular force the serial number has as **suffix** the last letter of the call sign of the originating station. On those addressed to all stations of all forces in a combined scheme the serial number has as **prefix** the letter Z and the actual number is allocated by the main Control Station (see under Broadcast Procedure in Part III, Section C).

(d) **The Address** (when used) consists of one of the following phrases:

- "For —",
"From —", or
"For — from —",

the blanks being filled by the call signs of the stations, or the names or codes of the individual officers, concerned.

The Address may include instructions to all or certain addressees to "acknowledge"; e.g.: "GA4 Acknowledge".

3. **The Text** commences and finishes, except in procedure messages, with the words "Begins" and "Ends" respectively. If it contains a verbatim extract from another message or document this passage is preceded and followed by the words "Quote" and "Unquote" respectively.

4. **The Time of Origin** consists of the word "Origin" followed by the time, using the 24-hour clock.

5. The Ending.

(a) **Corrections.** If any errors in the message have been discovered in the course of transmission the necessary corrections may be inserted here—see under Corrections in Part III, Section E, para. 7.

(b) **The Time of Despatch or Receipt** takes the form of the words "Time Now" followed by the time by the 24-hour clock. Normally signalled by fixed stations only.

(c) **The Final Instructions** may include either of the following:

- (i) Indication to certain receiving stations that there is further traffic waiting for them, in the form "Further traffic for GA2".
- (ii) Instruction to a receiving station to acknowledge—where this has not been included in the address.

(d) **The Sign-off.** This forms the last part of every transmission and indicates that the sending station is switching to "receive". It comprises, essentially, the call sign of the sending station followed by the word "over" (or "out"—see below).

e.g. " — " M2GA Over ".

Fixed stations use the word "out" in lieu of "over" when necessary to indicate the transfer of control between main and sub-control stations.

The sign-off may include an indication of which out-station should answer when more than one has been addressed by the preceding message, or which should transmit when it is known that more than one is waiting to do so.

e.g. " — " M2GA to GA6 Over ".

The sign-off may, alternatively, include the General Clearance as shown in Section C, para. 4 above.

PART III

PROCEDURE

A. ROUTINE TRANSMISSIONS

1. These are transmissions sent at certain pre-arranged times or on certain particular occasions.

They are of three main types:

- (a) Routine checks.
- (b) Time Signals.
- (c) Special reports from Mobile Stations.

If operational traffic is in progress at a "Routine" time, the Routine transmission is sent as soon afterwards as possible.

2. Routine Checks. These are intended primarily to check that the equipment at the main station and control point, and at any sub-controls, is operating correctly. They also enable out-stations to ensure that they are up-to-date with broadcast messages. Time Signals are usually included and the checks are initiated by the main control at prearranged times as arranged locally (normally at least once every eight hours).

Sub-controls are tested in turn in alphabetical order of call signs. Control is not transferred to them, but they report the last serial numbers originated by them for promulgation by main control.

Example: Main Control. M2GA.

Sub-Controls. M2GAF (Fire Control).
and M2GD (Headquarters of another police force in the scheme).

Main Control: "Hello GAZ. Hello GAZ. Routine Check. Routine Check. Time Signal Oh Eight Oh Five. Time Signal Oh Eight Oh Five. Stand by . . . STOP. M2GA to GAF Over."

GAF Proceeds: "Hello GA. Check received. M2GAF Over."

Main Control: "Hello GD. Receipt please. M2GA to GD Over."

GD proceeds: "Hello GA. Check received. Last Serial 4D. M2GD Over."

Main Control: "Hello GAZ. Last Serials Z2, 7A and 4D. M2GA to stand by. Over."

3. Time Signals. These not only provide a means of checking clocks but also assure out-stations that their receivers are operating efficiently. Time Signals are normally initiated by the main control at least once an hour (at the hour or other locally prearranged time).

They are, of course, also sent at any time if requested by an out-station. When not combined with Routine Checks as in para 2 above they take the following form:

"Hello GAZ. Hello GAZ. Time Signal Two One Three Oh. Time Signal Two One Three Oh. Stand by . . . STOP. M2GA to stand by. Over".

Note: The transmission is so arranged that the transmission of the word "Stop" coincides exactly with the time announced.

4. Special Reports from Mobile Stations. (Call signs GA2, GD3, GA14). Routine Transmissions in this category usually fall in one of the following classes:

(a) Reports of setting wireless watch at commencement of duty. This both checks the performance of the mobile stations equipment and keeps the control informed as to which mobiles are "on the air".

(b) Special tests for fire appliances to check equipment while standing by at their stations.

(c) Reports of position while on patrol.

Note: Preliminary calls are not used with these reports except when a "sub-control" is concerned (see para 5 (ii) below).

5. Reports on setting Wireless Watch. Whenever wireless watch is set the mobile station concerned will report to its Control as follows:

(i) "Hello GA. Hello GA. Now mobile (on patrol 3). GA2 Over."
Control answers:

"Hello GA2. Message received. Time now 1602. M2GA to stand by. Over."

(ii) Where a sub-control is concerned (e.g. M2GD) the procedure will be as follows:

Mobile: "Hello GD. Hello GD. Message for you, GD3 Over."

Main Control: "Hello GD3. Go ahead with GD. M2GA out" —then transferring control to sub-control.

Mobile: "Hello GD. Now mobile (on patrol 4). GD3 Over."

Sub-Control: "Hello GD3. Message received. Time now 0803. M2GD out."

Main Control: (after resuming control) proceeds: "Hello GAZ. M2GA to stand by. Over."

6. Special Tests for Fire Appliances. From the nature of their duties these appliances will rarely be able to employ the above procedure and, in order to provide the necessary check on their equipment, they may use the following special check procedure while standing-by at their stations, preferably at certain prearranged times. This procedure may also be used by any mobile station at any time if the performance of its equipment is in doubt.

Mobile: "Hello GAF. Hello GAF. Special Test (one to five, or other short test). GA14 Over."

Main Control: "Hello GA14. Test received. (Signals clear strength 6). M2GA to stand by. Over."

Note: All special test calls are dealt with by main control, irrespective of the station called, since this control can supply the answer just as readily as any sub-control and appreciable time is saved thereby.

7. Reports of position while on patrol. Police vehicles may have instructions to report their position at stated intervals (e.g. every half-hour), while on patrol, or such reports may be called for individually by the message "Report Position".

The report is made in the following form:

"Hello GA. Hello GA. Position — stationary (or proceeding —). GA2 Over."

The report is answered in the normal manner.

Notes: (i) If the report is in answer to a specific message the call is of course sent once only.

(ii) Where sub-controls are concerned the procedure is as shown in para 5 (ii).

B. MESSAGE PROCEDURE

DIRECT METHOD

Preliminary Call and Answer.

1. This is used, with the "Direct" method of signalling only, to ascertain that the station required is prepared to receive.

It also facilitates the general conduct of signalling by the main control station.

It consists of the Call (sent twice), the phrase "Message for you (or for —)", and the Sign-off.

2. Provided the station called is ready to receive, and no other transmission is in progress, the answer takes the form "Go Ahead". Otherwise the answer will be "Wait", the instruction "Go Ahead" being given as soon as possible.

Transmission of Messages.

3. When a Preliminary Call has been used (as above), the message is sent once through only. The station called always answers when the "Direct" method is employed.

4. Examples.

M2GA — Main Control Station.

M2GD — A sub-control Station.

M2GAZ — Collective call sign for the scheme.

(M2) GA2 — } Mobile stations of "main" force.
(M2) GA4 — }

(M2) GD3 — Mobile Station of "sub-control" force.

(a) Main Control from Mobile.

Mob.: "Hello GA. Hello GA. Message for you. GA2 Over."

M.C.: "Hello GA2. Go Ahead (or Wait). M2GA Over."

Mob.: "Hello GA. Message begins — ends. GA2 Over."

M.C.: "Hello GA2. Message received. Time now 1102. M2GA to stand by. Over."

(b) Mobile from Main Control.

M.C.: "Hello GA2. Hello GA2. Message for you. M2GA Over."

Mob.: "Hello GA. Go Ahead. GA2 Over."

M.C.: "Hello GA2. Message begins — end. Origin 1030. Time now 1034. M2GA Over."

Mob.: "Hello GA. Message received. GA2 Over."

M.C.: "Hello GAZ. M2GA to stand by. Over."

(c) Sub-Control from Mobile.

Mob.: "Hello GD. Hello GD. Message for you. GD3 Over."

M.C.: "Hello GD3. Go ahead with GD. M2GA Out." (transfers control).

Mob.: "Hello GD. Message begins — ends. GD 3 Over."

S.C.: "Hello GD3. Message received. Time now 1256. M2GD Out."

M.C.: (resumes control) "Hello GAZ. M2GA to stand by. Over."

(d) **Note.** Main Control instructs a Mobile calling a Sub-Control to proceed on the assumption that the Sub-Control is functioning correctly. In case this is not so, however, Main Control should copy all such messages and give a receipt if the Sub-Control fails to do so. Main Control then becomes responsible for clearing the message by other means. For example, if in case (c) above S.C. failed to answer GD3 when the latter completed transmission of its message, Main Control would resume control and proceed:

"Hello GD3. Message for GD received. Time now 1257. M2GA to stand by. Over."

M.C. then clears the message to GD by other means.

(e) Mobile from Sub-Control.

S.C.: "Hello GA. Hello GA. Message for GD3. M2GD Over."

M.C.: "Hello GD. Go ahead with GD3. M2GA Out." (transfers control).

S.C.: "Hello GD3. Hello GD3. Message for you. M2GD Over."

Mob.: "Hello GD. Go Ahead. GD3 Over."

S.C.: "Hello GD3. Message begins — ends. Origin 1206. Time now 1211. M2GD Over."

Mob.: "Hello GD. Message received. GD3 Over."

S.C.: "Hello GA. M2GD out."

M.C.: (resumes control) "Hello GAZ. M2GA to stand by. Over."

(f) Mobile from Mobile.

Mob.: "Hello GA. Hello GA. Message for GA4. GA2 Over."

M.C.: "Hello GA2. Go ahead with GA4. M2GA Out." (In double frequency schemes M.C. then interconnects channels.)

Mob. 1: "Hello GA4. Hello GA4. Message for you. GA2 Over."

Mob. 2: "Hello GA2. Go Ahead. GA4 Over."

Mob. 1: "Hello GA4. Message begins — ends. GA2 Over."

Mob. 2: "Hello GA2. Message received. GA4 Over."

M.C.: (after separating channels in double frequency schemes)
"Hello GAZ. M2GA to stand by. Over."

Note: In examples (c) to (f) the use of the word "out" instead of "over" in the sign-off by main and sub-controls indicates transfer of control.

C. MESSAGE PROCEDURE

BROADCAST METHOD

1. This method is used when transmitting messages addressed to a number of stations, e.g. all stations of any one force, or all stations served by the scheme in question.

No preliminary call is used and the whole message, except the Call and the Ending, is transmitted twice.

No receipts are given for broadcast messages (unless specifically called for—see para 7 below), but all such messages carry serial numbers to enable receiving stations to check that none has been missed.

2. **Serial Numbers.** These, in the form “No. —”, are inserted after the word “message” in the Prefix, a new series commencing after midnight each night.

3. **Force Broadcasts.** Serial numbers for messages broadcast to all stations of any one force will be allocated by the originating control (or sub-control) station; the number being followed by the last letter of the call sign of that station for identification purposes (the last two letters being used in broadcasts originated by Fire Brigade sub-controls).

4. Examples.

M2GA — Main Control Station.

M2GD — A Sub-Control Station.

M2GAC — Collective call sign for “main” force.

M2GDC — Collective call sign for “sub-control” force.

M2GAF — Fire Sub-Control.

M2GAQ — Collective call sign for Fire Brigade.

M2GAZ — Collective call sign for all stations in the scheme.

(a) Main Control to all stations of the “main” force.

“Hello GAC. Hello GAC. Message No. 2A begins — ends. Origin 0924. Message No. 2A begins — ends. Origin 0924. Time now 0928. M2GA to stand by. Over.”

(b) Sub-Control to all stations of “sub-control” force.

S.C.: “Hello GA. Hello GA. Message for GDC. M2GD Over.”

M.C.: “Hello GD. Go ahead with GDC. M2GA Out.” (Transfers control.)

S.C.: “Hello GDC. Hello GDC. Message No. 4D begins — ends. Origin 1112. Message No. 4D begins — ends. Origin 1112. Time now 1115. M2GD Out.”

M.C.: (Resumes control.) “Hello GAZ. M2GA to stand by. Over.”

(c) Fire Sub-Control to all Fire Brigade Stations.

F.S.C.: “Hello GA. Hello GA. Message for GAQ. M2GAF Over.”

M.C.: " Hello GAF. Go ahead with GAQ. M2GA Out." (Transfers control.)

F.S.C.: " Hello GAQ. Hello GAQ. Message No. 2AF begins — ends. Origin 0731. Message No. 2AF begins — ends. Origin 0731. Time now 0736. M2GAF Out."

M.C.: (Resumes control.) " Hello GAZ. M2GA to stand by. Over."

5. General Broadcasts. Serial numbers of messages broadcast to all stations in a scheme will be allocated by the main control station of that scheme, using a common series and including the prefix letter " Z " in place of the usual suffix letter.

6. Examples. (Call Signs as shown in para 4 above.)

(a) **Main Control to all stations in the scheme.**

" Hello GAZ. Hello GAZ. Message No. Z1 begins — ends. Origin 0952. Message No. Z1 begins — ends. Origin 0952. Time now 0955. M2GA to stand by. Over."

(b) **Sub-Control to all stations in the scheme.**

S.C.: " Hello GA. Hello GA. Message for GAZ. M2GD Over."

M.C.: " Hello GD. Go ahead with GAZ No. 3. M2GA Out."

S.C.: " Hello GAZ. Hello GAZ. Message No. Z3 begins — ends. Origin 1404. Message No. Z3 begins — ends. Origin 1404. Time now 1409. M2GD Out."

M.C.: " Hello GAZ. M2GA to stand by. Over."

7. Receipt for Broadcast Messages. In exceptional cases it may be desired to obtain an answer from an out-station to a broadcast message, either to check that transmission was satisfactory or because the message is considered of primary interest to that station.

(a) This can be done by amending the sign-off as follows: (Para 4, example (b) above.)

" — Time now 1115. M2GD to GD3 Over."

Mob.: " Hello GD. Message 4D received. GD3 Over."

S.C.: " Hello GA. M2GD Out."

M.C.: " Hello GAZ. M2GA to stand by. Over."

(b) Alternatively, if the check is desired after transmission has been completed, it may be obtained as follows: (Para 6, example (b) above.)

M.C.: " Hello GA4. Hello GA4. Check receipt of Message Z3 M2GA Over."

Mob.: " Hello GA. Message Z3 received. GA4 Over."

M.C.: " Hello GAZ. M2GA to stand by. Over."

(c) If, when a check receipt is called for, the message in question has not been received, the answer will take the following form: (example (b) above).

" Hello GA. Message Z3 not received. Repeat. GA4 Over."

The message in question must then be retransmitted in full, including a request for receipt in the Ending as in (a) above.

Note. Where this retransmission is given by a station other than the originating station the "address from" must be inserted. In the above case, therefore, Main Control would proceed.

M.C.: "Hello GAZ. Hello GAZ. Message No. Z3 from GD begins — ends. Origin 1404. Message No. Z3 from GD begins — ends. Origin 1404. Time now 1418. M2GA to GA4 Over."

Mob.: "Hello GA. Message Z3 received. GA4 Over."

M.C.: "Hello GAZ. M2GA to stand by. Over."

D. SPECIAL PROCEDURES

1. Long Messages. All wireless transmissions must be kept as short as possible to avoid congestion, but on rare occasions comparatively lengthy messages may be unavoidable.

In order to avoid undue delay should other stations have urgent messages waiting, no period of continuous transmission should exceed one minute.

When long messages have to be sent, therefore, the transmitting station will break off and switch to "receive" for five seconds at approximately one minute intervals.

Examples:

(a) "Hello GAC. Hello GAC. Message No. 6A begins—(one minute)—overcoat, brown hat. Wait. Wait. M2GA Over."

GA then switches to "receive" for five seconds and, if no other station calls, then resumes as follows:

"Hello GAC. Overcoat, brown hat. Last reported — etc."

Note. Subsequent procedure is normal except for any further similar breaks required by the length of the message.

On resuming after each break the last two or three words of the preceding portion are repeated to ensure continuity.

(b) If another station does call during a break the new traffic must be cleared before transmission of the original message is resumed. In such cases resumption of the original message is indicated as follows:

"Hello GAC. Hello GAC. Remainder of long message No. 6A begins: overcoat, brown hat. Last reported — etc."—then as before.

(c) If the long message is being broadcast, as in the above example, the whole must, of course, be repeated as usual and similar breaks at about one minute intervals must be made during the repeat transmission.

(d) If the long message is being sent by direct method, the above procedure applies except, of course, that there will be no serial number and no repeat transmission.

(e) This "long message procedure" can also be employed when a station requires to break its own transmission in order to clear a more

urgent message. In practice, however, there is little to be gained from breaks of this type and, if the current transmission can be completed within 20 to 30 seconds no break should be made.

2. Fire Priority. In view of the safety of life factor urgent operational fire messages must clearly be given precedence over normal traffic, and the following "Fire Priority" procedure has been introduced for this purpose.

This procedure may, however, only be used by mobile stations, and then only while on the way to or during the early stages of attendance at a fire. Moreover, its adoption must always be specifically authorised by the Fire Brigade Officer in charge of the operation, and these officers are required to ensure its cancellation as soon as the initial vital messages have been cleared.

In no case should a request for Fire Priority be made until the mobile station concerned is within three minutes of arrival at the fire.

3. Examples.

M2GA — Main Control.

M2GAF — Fire Sub-Control.

M2GAZ — Collective call sign for all stations in the scheme.

M2GA14 — Fire Mobile.

Fire Mobile: "Hello GAF. Hello GAF. Fire Priority. Fire Priority GA14 Over."

Main Control: "Hello GAZ. Hello GAZ. Fire Priority for GA14. M2GA Out." (Transfers control to GAF.)

No transmissions may then be made, other than by or in response to Mobile GA14, until this Priority is cancelled.

The officer in charge at the fire will initiate his vital report as soon as possible and include cancellation of Fire Priority:

Fire Mobile: "Hello GAF. Message begins — ends. Cancel Priority. GA14 Over."

Sub-Control: "Hello GA14. Message received: Time now —. Cancel Priority. M2GAF Out."

M.C.: "Hello GAZ. Cancel Priority. Cancel Priority. M2GA to stand by. Over."

E. MISCELLANEOUS

1. Every message has a recognised means of identification, which may be one of the following:

(a) The Serial Number (including the prefix or suffix letter) in the case of broadcast messages. e.g. "Message 5A".

(b) The Time of Origin. e.g. "Message 1123".

(c) The time at which it was transmitted, ("Time now —"). e.g. "Message sent at 1652".

2. Any Identity should be followed where necessary by the word "from" and the call sign of the originating station. It may also be amplified to indicate the day, and if required the month, of origination.

Examples:

- (a) "Message 5A/6/9".
- (b) "Message 1123/21 from GD".
- (c) "Message sent at 1652 from GA4".

3. The words "with reference to" are unnecessary and should not be used. "My" or "Your" may, however, be used in place of the "address from" when applicable.

Example:

If reference to message 1123/21 (example (b) in para. 2 above) is made by, or to, GD it may take the form:

"My 1123/21" or "Your 1123/21" respectively.

4. **Cancellations.** These consist of the word "Cancel" followed by the identity of the message in question, e.g. "Cancel my 1123/21", or "Cancel message 5A/6/9".

If desired, further information may be included, such as "Car recovered"; "Man arrested", etc.

All cancellations are official messages and should bear their own Times of Origin, and, if broadcast, their own serial numbers.

5. **Repetitions.** If a station fails to receive part of a message sent to it, the request for repetition should be for that part of the message only and not for the whole message.

For this purpose the expressions "All before —", "All between — and —", and "All after —" should be used.

6. In the following examples it is assumed that M2GA has sent this message:

"Hello GA2. Message begins—147 Station Road Linton. Car accident—Ends. Origin 1231. Time now 1234. M2GA Over."

(a) If all the message up to and including the word "car" had been received, GA2 would proceed:

"Hello GA. Repeat all after car. GA2 Over."

Control: "Hello GA2. Car accident—ends. Origin 1231. Time now 1234. M2GA Over."

The normal receipt would then be given.

(b) If all the message except the words "Car accident" had been received, GA2 would proceed:

"Hello GA. Repeat all between 'Linton' and 'ends'. GA2 Over."

Control: "Hello GA2—Linton, Car accident—ends. M2GA Over."

(c) If everything before the word "road" had been missed (except the Call) GA2 would proceed:

"Hello GA. Repeat all before 'road'. GA2 Over."

Control: "Hello GA2. Message begins—147 Station Road—M2GA Over."

Note. It will be seen that the identifying words used in requesting repetition of part of a message are always included in that repetition.

7. Corrections. Any error made in a transmission is corrected in one of the following ways.

(a) If discovered before transmission has been completed.

The correction is inserted after the Time of Origin and before the Time of Despatch.

Example: In the message given in para. 6 above, if the operator finds, before he completes the transmission, that "Station Road" should have been "Station Street" he proceeds:

"— accident—ends. Origin 1231. Correction. Word after 'Station' should be 'Street'. Time now 1234. M2GA Over."

The normal receipt would then be given.

(b) If the mistake is not discovered before transmission is completed.

A separate message must be sent.

Example: Assuming the mistake to be the same as in (a) above, M2GA would proceed as follows as soon as it was discovered:

"Hello GA4. Correction to my 1231. Word after 'Station' should be 'Street'. Time now 1241. M2GA Over."

GA4 would answer this in the normal manner.

8. Checks. If a station has reason to doubt the accuracy of the text of a message sent to it (e.g., an address which cannot be identified) a verification may be called for.

Example: The following message has been sent:

"Hello GA2. Message begins. 218 Queen's Road. Disturbance. Origin 2136. Time now 2140. M2GA Over."

If, before or after answering, the mobile remembers that there is no such number in Queen's Road, verification is requested as follows:

"Hello GA. Your 2136. Check address. GA2 Over."

Control then finds that the address should have been "48 Queen's Road" and sends the necessary correction:

"Hello GA2. Correction to my 2136. Word before 'Queen's' should be '48'. Time now 2142. M2GA Over."

The normal receipt is then given.

Notes:

- (1) Unless the error is **immediately** apparent to the control operator the request for a check must be answered at once in the normal way and the correction sent as soon as possible.
- (2) Even if the check shows that the original transmission was correct the reply is sent in the same form, i.e. "Correction to my — (etc.)".

PART IV

APPENDIX A

PHONETIC ALPHABET

| | | | | | |
|---|---|-----------|---|---|---------|
| A | — | Andrew | N | — | Nellie |
| B | — | Benjamin | O | — | Oliver |
| C | — | Charlie | P | — | Peter |
| D | — | David | Q | — | Queenie |
| E | — | Edward | R | — | Robert |
| F | — | Frederick | S | — | Sugar |
| G | — | George | T | — | Tommy |
| H | — | Harry | U | — | Uncle |
| I | — | Isaac | V | — | Victor |
| J | — | Jack | W | — | William |
| K | — | King | X | — | Xmas |
| L | — | Lucy | Y | — | Yellow |
| M | — | Mary | Z | — | Zebra |

FIGURES

| | | | | | |
|---|---|-------|---|---|------------|
| 1 | — | Wun | 6 | — | Six |
| 2 | — | Two | 7 | — | Sev-en |
| 3 | — | Three | 8 | — | Ate |
| 4 | — | Four | 9 | — | Niner |
| 5 | — | Fife | 0 | — | Oh or Zero |

Note: The figure "nought" may be written as θ to distinguish it from the letter O.

APPENDIX B

"R" SIGNAL STRENGTH TABLE

| | |
|---------------------------|----------------|
| 0. Inaudible | 5. Rather weak |
| 1. Just audible | 6. Fair |
| 2. Very faint. Unreadable | 7. Good |
| 3. Just readable | 8. Strong |
| 4. Weak | 9. Very strong |

Note: These figures may also be used to indicate the strength of interference.

APPENDIX C

TRANSPOSITION CODES

All names of persons may be "coded" by means of one of these tables when they occur in the text of plain language messages, especially in the Police Service. The code may be used for place names also, if desired. It must be clearly understood, however, that these codes provide no security against enemy interception and they must therefore never be used when this is required.

Any transmission in these codes is to be preceded by the words "Code No. — on" and followed by the words "Code off", e.g. "Code No. 2 on" would indicate the commencement of a passage in code for which No. 2 Table had been used.

TABLE 1

ABCDEFGHIJKLMNOPQRSTUVWXYZ
UVWXYZABCDEFGHIJKLMNQRST

TABLE 2

ABCDEFGHIJKLMNOPQRSTUVWXYZ
NOPQRSTUVWXYZABCDEFGHIJKLM

TABLE 3

ABCDEFGHIJKLMNOPQRSTUVWXYZ
HIJKLMNQRSTUvwxyzABCDEFGHI

Method of use: Find each letter of the word to be coded in the top line of the table in use and replace it by the letter immediately below it.

e.g.: To code "Jones" in Table 1—DIHYM.

Find each letter of a word to be decoded in the bottom line of the table in use and replace it by the letter immediately above it.

e.g.: To decode ZTPAO in Table 3—"Smith".

Note: When transmitting words coded in the above tables, the standard Phonetic Alphabet must be used.



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