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	<p style="text-align: center;"><b><u>LESSON PLAN</u></b></p> <p style="text-align: center;"><b><u>COMMUNICATION-4: BASIC RADIO TELEPHONY PROCEDURE</u></b></p> <p>Code - C-4</p> <p>Period - Two/one</p> <p>Type - Lecture/Practice</p> <p>Term - II/III</p> <hr/> <p><b><u>Training Aids</u></b></p> <p>1. OHP, Computer slides, pointer, screen, black board and chalk.</p> <p><b><u>Time Plan</u></b></p> <table><tr><td>2.</td><td>(a)</td><td>Introduction.</td><td>-</td><td>05 mins</td></tr><tr><td></td><td>(b)</td><td>Part I – Types of RT Communication</td><td>-</td><td>10 mins</td></tr><tr><td></td><td>(c)</td><td>Part II- Definitions</td><td>-</td><td>20 mins</td></tr><tr><td></td><td>(d)</td><td>Part III- RT Procedure</td><td>-</td><td>20 mins</td></tr><tr><td></td><td>(e)</td><td>Part IV- Practice</td><td>-</td><td>20 mins</td></tr><tr><td></td><td>(e)</td><td>Conclusion</td><td>-</td><td>05 mins</td></tr></table> <p style="text-align: center;"><b><u>INTRODUCTION</u></b></p> <p>3. The procedure is laid out to communicate on the Radio so as to make the conversation secure and successful, which is referred to as “Radio Telephony”. This procedure is very important to avoid utter confusion over radio and is generally used by Defence Forces, air traffic controllers, maritime operations and amateur radio operators. In army RT procedure follows a set of rules. Various advantages/disadvantages of RT procedure and radio communications are as under:-</p> <p>(a) <b><u>Advantages.</u></b></p> <p>(i) Easy to establish.</p> <p>(ii) Flexible.</p>	2.	(a)	Introduction.	-	05 mins		(b)	Part I – Types of RT Communication	-	10 mins		(c)	Part II- Definitions	-	20 mins		(d)	Part III- RT Procedure	-	20 mins		(e)	Part IV- Practice	-	20 mins		(e)	Conclusion	-	05 mins
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(iii) Transmissions to more than one station.

(b) Disadvantages.

(i) Easier to intercept.

(ii) Liable to atmospheric interference and interference from other stations.

(iii) Liable to be jammed.

(iv) Skilled operators required.

4. Need for Standard Procedure. Standard procedure in RT needed to attain Speed, Uniformity, Security and prevents misunderstanding & confusion by use of code signs; link signs etc, which hides identity of an operator and that of a unit. RT procedure needs to be practiced for attaining strict discipline.

5. Principles of RT Procedure. BASS defines the principles of RT procedure.

(a) B - Brevity.

(b) A - Accuracy.

(c) S - Security.

(d) S - Speed.

(a)

**PART I: TYPES OF RT COMMUNICATION.**

6. Types of Communication

(a) RT conversation. This is normal conversation between radio operators, which is not registered.

(a) Unregistered (UR) Message. A user may frequently wish to pass or obtain information which requires no discussion, can do this by giving his message verbally to the operator or by writing it down for transmission by radio as UR message. The only record taken will be in radio operator's logs of the sender and receiver.

(c) Formal Message. It is written down and signed by the originator, will be written on a message form (IAFU-4009). Such messages over RT should be discouraged being cumbersome and slow and are generally cleared on other stable circuits.

(b)

**PART II: DEFINITIONS**

7. Definitions

(a) Radio Net. Stations working on same frequency in order to communicate with each other comprise a Radio Net.

(b) Control Station. Station serving the senior HQ in the Radio Net. It is

responsible for establishment of communications and maintains radio discipline on the net.

(b) Link Sign. It is secret group of letters or combination of letters and figures, allotted to a station on radio net, for concealing the identity of the communicating station. Links signs are changed daily or even earlier if required.

(c) Abbreviated Link Sign. When calling or answering calls on a radio link, only the first letter of the link sign will normally be used. In case two or more stations have the same first letter in their link signs, they will be identified by using the first two letters of their respective link signs.

(d) Code Sign. It is three-letter group allotted to HQ/formation or unit to conceal their identity. These are changed daily.

(e) Derived Link/Code Sign. Sub Units and sub-sub units which are not allotted code signs use code sign derived from the code sign of parent unit. For example: -

<u>Unit Code</u>	<u>Sub Unit</u>	<u>Sub Sub Unit</u>
ABC	ABC 1	ABC 1D

(f) Difference between Code and Link Sign.

<u>Code Sign</u>	<u>Link Sign</u>
Identifies a unit.	Identifies a radio link.
Issued down to unit level.	Issued to all radio stations.
Cannot be abbreviated.	Can be abbreviated.
Can be changed to link sign.	Cannot be changed to code sign.
Not issued to branches of a HQ	Issued to branches of a HQ.
Can be used in text of a Formal message.	It cannot be used in the text of a Formal message.

(g) Long Message. Message that lasts for more than half a minute, generally consisting of more than thirty groups.

(h) Short Message. A short message lasts for half a minute or less.

(j) Phonetic Alphabet. Alpha, Bravo, Charlie...

(k) Standard Phrases. Use of standard procedure ensures that exact meaning of a sender is conveyed to the receiver in minimum time.

(l) Code Word. A code word is a single word used to provide security cover for reference to a classified matter. The allocation of code words is controlled by Army Headquarters who issues a block of code words to Headquarters Commands for further sub-allotment as required. Code word is normally given security classification as SECRET.

(m) Nicknames. A nickname consists of two separate words that do not bear any relationship to each other i.e., PAHAD BANDAR. Nicknames have very little security value and are used for convenience, while referring to geographic locations like names of places etc. Nicknames may be chosen at random by formation/unit requiring them. These are issued by units providing control station as part of signal instructions. Reference to an officer can be by his nickname.

(n) Undirected Net. In this type of net, control authorizes out stations to transmit traffic directly to other stations in the net without obtaining prior permission.

(o) Directed Net. In this type of net, outstations obtains permission from control station prior to comn with other stations on the net. Under bad working conditions and when traffic is heavy or uneven, the control uses the phrase "This is a directed net" to all the stations. To revert to normal working the phrase "This is not a directed net" will be used.

8. Technique of Speaking. While speaking over radio, the technique to be adopted is that the operator speaks with rhythm, slow speed, lower volume & pitch.

9. Standard Phrases. Standard phrases used in RT procedure are as under:-

- (a) ALL AFTER.
- (b) ARE YOU IN COMN WITH?
- (c) AUTHENTICATION.
- (d) BLOCKS ON.
- (e) BLOCKS OFF.
- (f) CHALLENGE.
- (g) I SAY AGAIN.
- (h) OVER.

- (i) CORRECTION.
- (j) DID YOU RECEIVE MSG FROM -----?
- (k) DID YOU RECEIVE MSG FROM ----- SO FAR?
- (l) FIG.
- (m) FROM ----- TO.
- (n) OVER. My transmission has ended and I expect to hear a further transmission from you on this subject. Other stations will not transmit.
- (o) Out. My transmission has ended and I do not expect you to make a further transmission on the subject. Other stations may transmit.
- (p) Wait Out. I have finished for the time being and will call you later. Other stations may transmit.
- (q) Wait. Pause for a few seconds follows. Other stations will not transmit.
- (r) Out to You. I have finished with you and am about to call another station. No reply is expected from you. Other stations will not transmit.
- (s) Roger. Message received and understood.
- (t) Wilco. Message received, understood and will be complied with types of Calls. Calls can be categorized as under:-
  - (a) Single Call. A call when only one station on a net is addressed by any one station of the net.
  - (b) Multiple Call. A call when two or more but not all stations on the net are addressed. The proword "and" will be inserted between the last two call signs e.g. 'A1 for A2 and A3'.
  - (c) Net Call. A call used to address all stations on a net e.g. "All stations Alpha".
  - (d) Net Call with Exceptions. A call used to address all stations on the net except a few. Here a net call is made and stations not called are specified e.g. "all stations Alpha except ABC 3".

10. Establishment of Communications. Preliminary instrs are issued by control. Not sent by radio unless in dire emergency. It contains following:-

- (a) Frequencies.
- (b) Net Diagrams.
- (c) Link signs/code signs.
- (d) Time for opening of nets.
- (e) All freqs incl reserve freqs.
- (f) Code words/nick names.
- (g) Unicode and OTAS.
- (h) Security measures (Spec instructions).

11. On establishment of communications, signal strength will always be confirmed. Link signs will not be abbreviated in bad weather conditions. If a station has not come up during establishment of communication but comes up little later communication will be again establishment. Signal communication will always be established in the following situations:-

- (a) After change of frequency.
- (b) Bad weather.
- (c) After move.
- (d) After lifting of radio silence.
- (e) After change of link sign.

12. Signal Strength.

One : Sig very weak and not readable.

Two : Sig weak readable now & then.

Three : Fairly good, readable with difficulty.

Four : Good Signal, readable.

Five : Very good, perfectly readable.

13. Documentation. Documentation forms a very important aspect of RT procedure. All events need to be documented for future reference in case of a query.

14. Rules on Security. Security over radio is an important issue in defence forces hence there is a need to adopt these procedures and follow certain golden rules.

- (a) Think before you speak.
- (b) Use correct procedure.
- (c) Avoid use of jargon.
- (d) Use official codes only.
- (e) Substitute clear names by code signs.
- (f) Be brief

15. Aids to Security. Security is enhanced by adopting following measures: -

- (a) Unicode is used to encode a grid reference, used only till Bn level. Unicode is changed daily.
- (b) Code Word is a word used to provide security cover to classified matter.
- (c) Control points are used for geographic locations on the map, depicted by allotting numbers.

	(d) OTAS (One Time Authentication Sheet) is used for authenticating a station entering the radio net in a secure manner.
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