

AZDEC LTD

**SETTING TO WORK PROCEDURES
FOR
WORKS ORDER No. EXAMPLE**

(EXAMPLE)

Two Way Infra Red Communications System

(TWIRC)

DOCUMENT No.	ISSUE	APPROVED BY		DATE
EXAMPLE/032	1		Sig:-	-

AZDEC LIMITED

SETTING TO WORK PROCEDURES FOR WORKS ORDER No. EXAMPLE

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APPENDIX

CONFIGURATION RECORDS

0.1 Amendment Record

Issue	Date	Comment
1	-	Final Issue

0.2 Known Updates

No known updates.

LIST OF REFERENCE DRAWINGS

- 1. 970306/210 Auxiliary Power Supply General View**
- 2. 970306/206 Base Station (Base Line) General View**
- 3. 970306/207 Base Station (Enhanced) General View**
- 4. 970306/209 Antenna General View**
- 5. 970306/201 Headset and Mobile Unit - Noise Attenuating - General View**
- 6. 970306/202 Headset and Mobile Unit - Single Side - General View**
- 7. 970306/203 Battery Pack - Baseline - General View**
- 8. 970306/204 Battery Pack - Enhanced - General View**
- 9. 970306/211 Headset and Mobile Noise Attenuating Enhanced - General View**

1. INTRODUCTION

1.1 Scope

This document details the Setting to Work Procedures for the TWIRC System. The document is not ship specific and therefore does not specify the quantities and settings for a particular ship installation. These will be detailed in other documents. This document assumes that the system has been installed following the procedures identified in document reference EXAMPLE/021 Installation Guide.

It is recommended that the complete document is read prior to starting the Setting to Work Procedure.

The Setting to Work procedure assumes starting at section 2 and proceeding through each section. It is assumed that the operations of preceding sections have been completed successfully. Should any of the operations not be successful the fault should be identified and corrected prior to proceeding.

1.2 System Description

The Two Way Infra-Red Communication System is a system designed to allow the user to be mobile in an area and to maintain communication with other users of the TWIRC system and users of the Ship's Communication system.

Each TWIRC user will have a Headset & Mobile Unit which allows them to listen to other users using their earpiece and to speak to other users using their microphone. The power for the Headset & Mobile Unit will be provided by a small belt mounted battery pack on which will be mounted the user controls e.g. the Press to Speak key. The battery pack is designed to allow the user to operate in the TWIRC area for at least 4 hours without changing the battery pack (assuming a fully charged battery).

The system consists a collection of Antenna mounted above head height in the designated area. The users Headset & Mobile Unit will communicate with the Antenna using Infra-Red signals in both directions. These Antenna are wired to a fixed Base Station which in turn is wired to the Ship's Communication system.

The infra-red communication to and from the Headset & Mobile Unit on any discrete system is not to any particular Antenna, therefore the user may be mobile in the area as long as the system maintains infra-red communication. For this reason the Headset & Mobile Unit is designed such that the infra-red devices are located on the top of the unit.

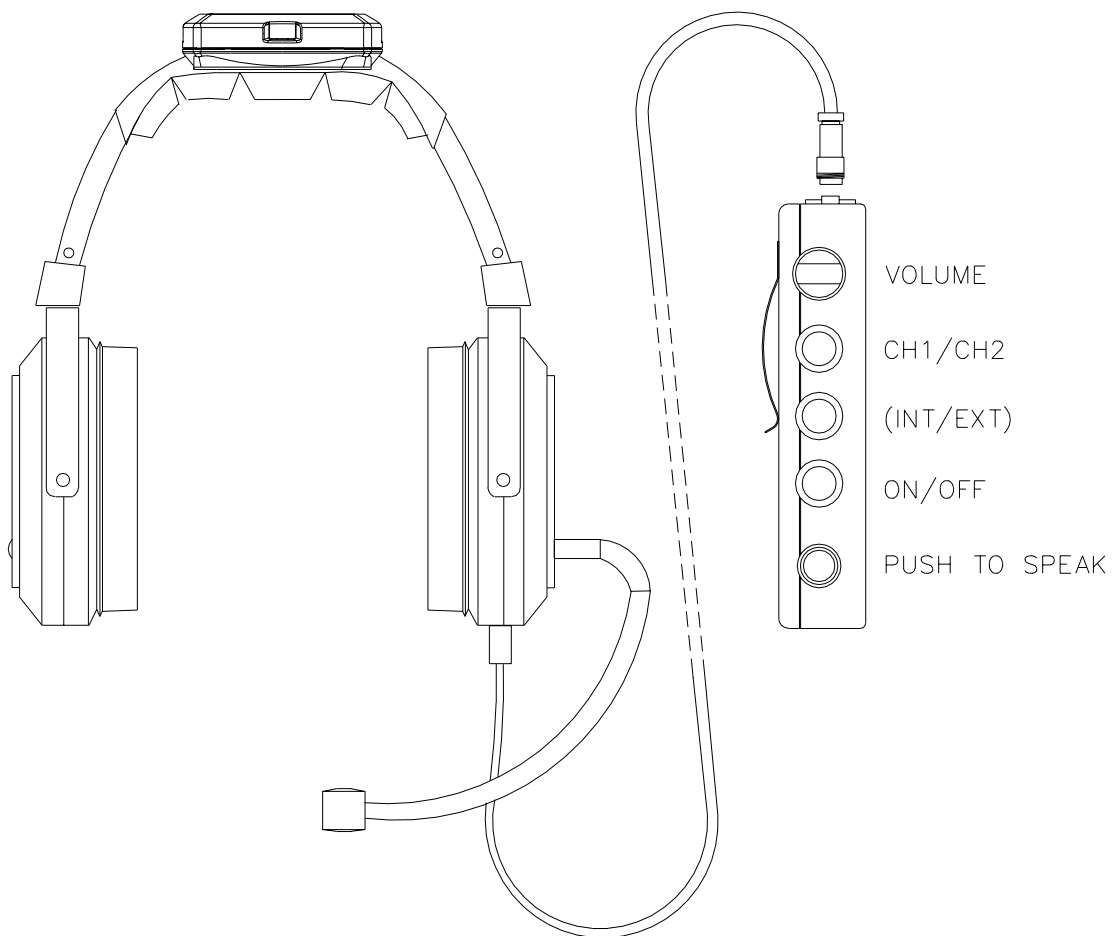


Figure 1 Man on the Move Equipment

Error! Reference source not found. shows a typical “Man on the Move” equipment which consists of two units:

the **Headset & Mobile Unit** and the **Battery Pack**.

The TWIRC system is a digital communication system which allow the users access to up to 2 channels (Baseline System). The system is such that all users may hear the signal on the particular channel selected. In order to speak on one of the two channels the user must press the Press To Speak (PUSH TO SPEAK) key. Normal PUSH TO SPEAK discipline is necessary to ensure all users have access to the channels in order to speak.

When the system is being used to communicate with the Ship’s Communication System the TWIRC system is provided with a user’s sidetone signal such that the signal from the user speaking is fed back to the all user’s earpieces together with the incoming voice signal from the Ship’s Communication System.

Two systems are available the Baseline System and the Enhanced System. The Baseline system allows the user to communicate with other users on the TWIRC system and on the Ship's Internal Communication System. The Enhanced System has all the facilities of the Baseline System but has the additional feature of being able to communicate with the Ship's External Communication System.

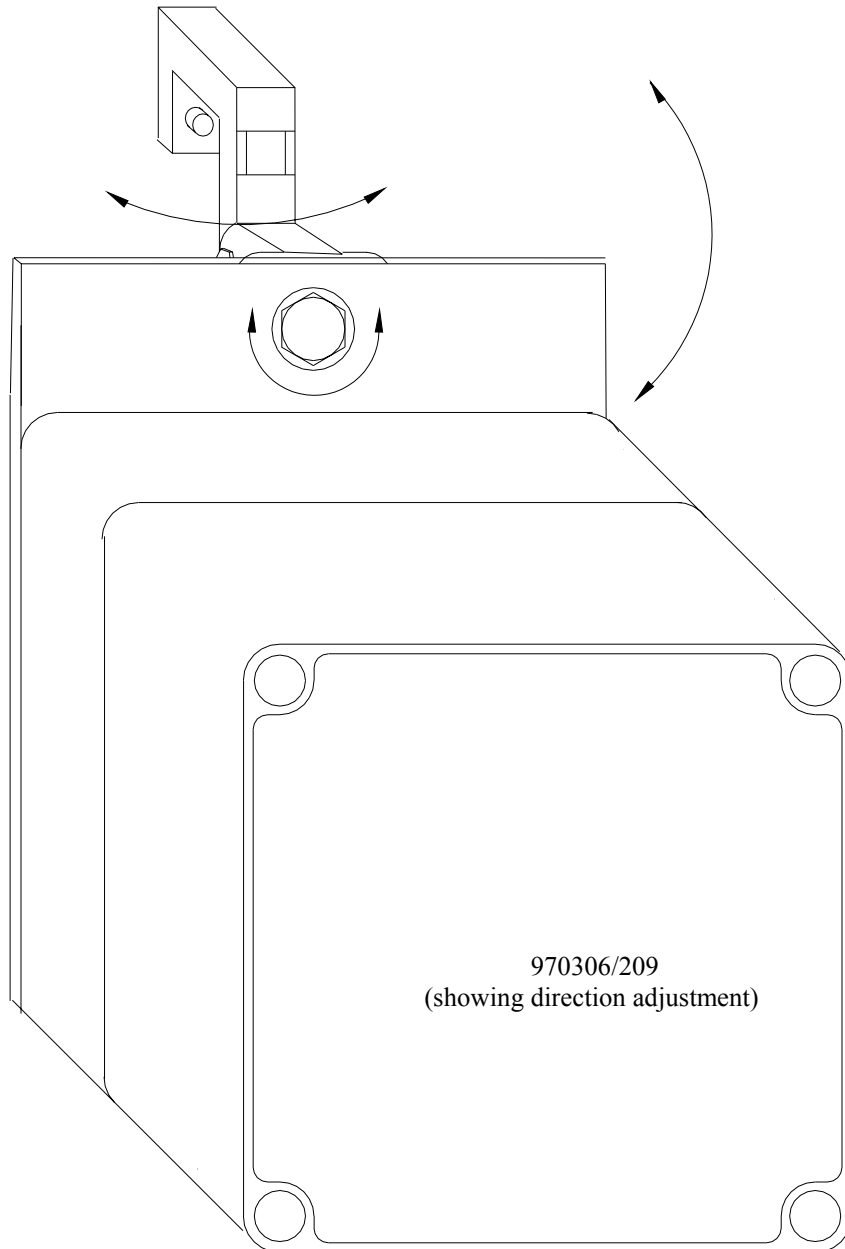


Figure 2 - Antenna

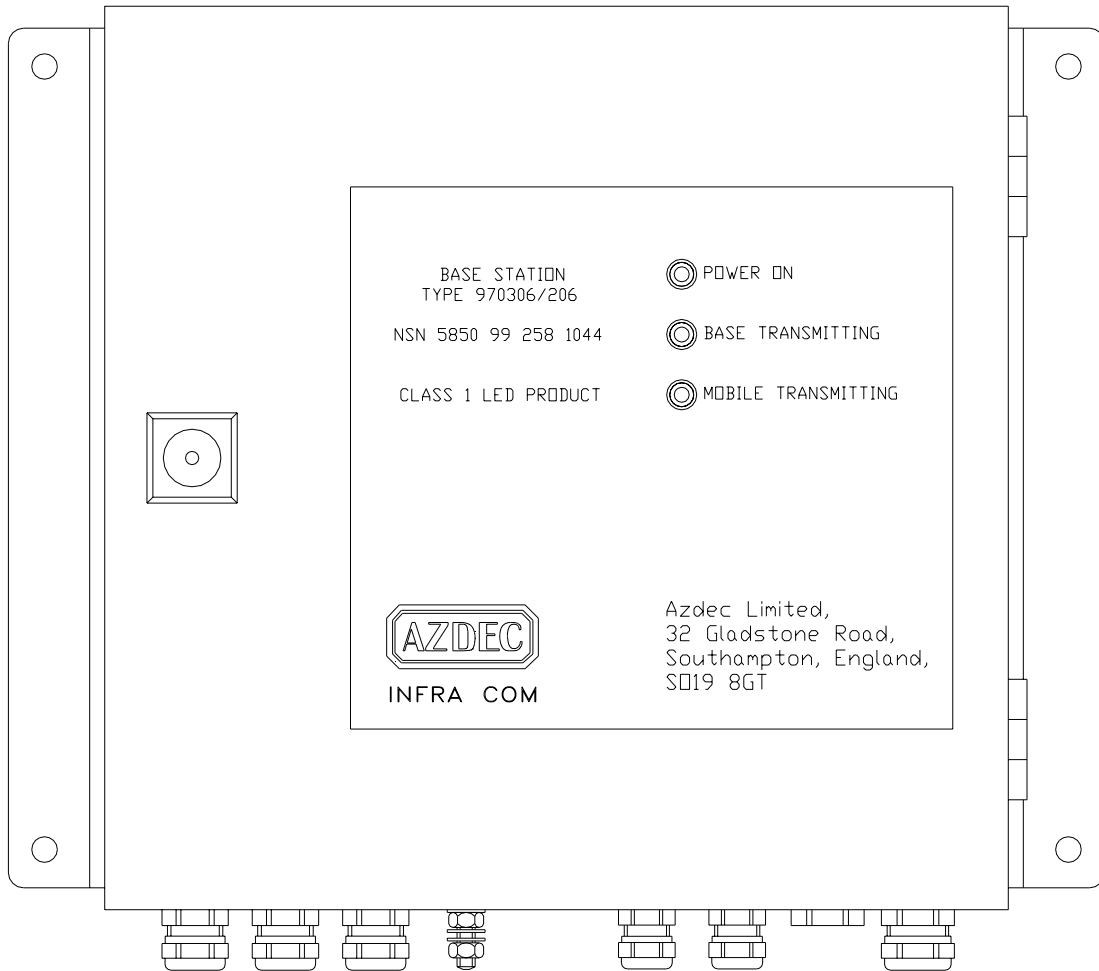


Figure 3 - Base Station

970306/206
(970306/207 and
970306/210 Auxiliary
Power Supply similar
but not shown)

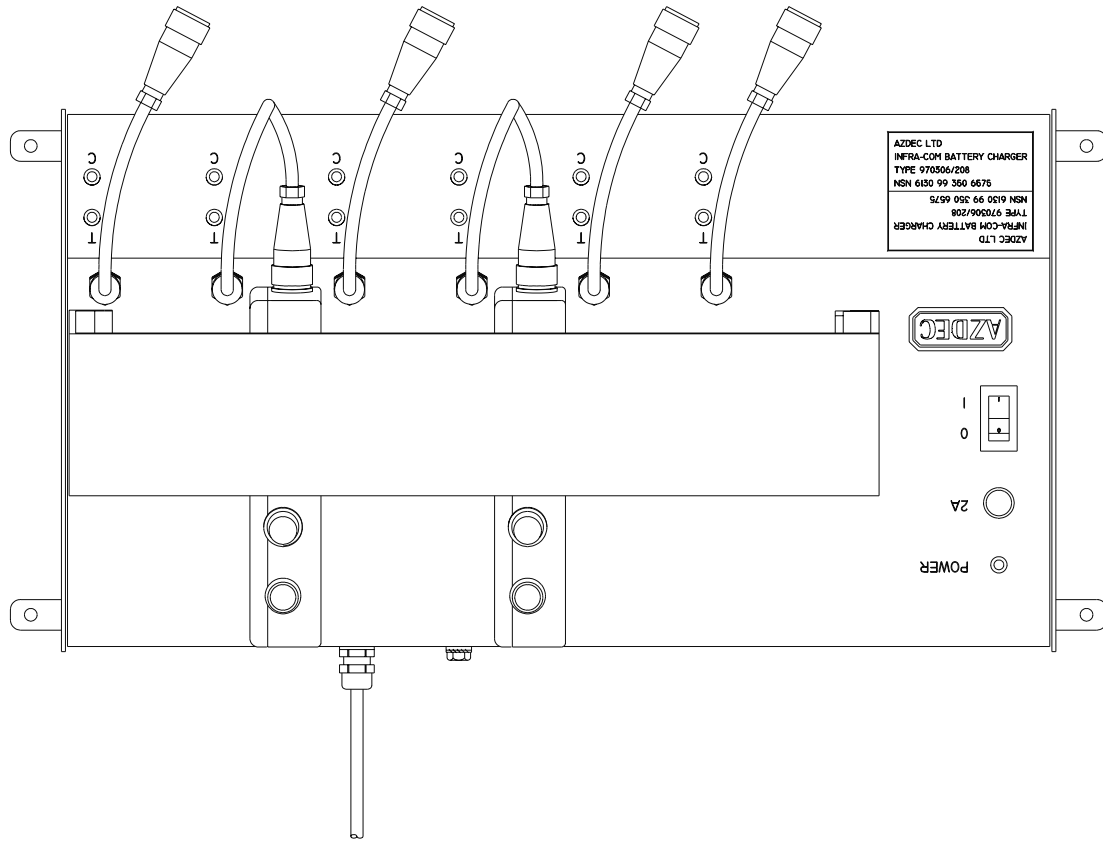


Figure 4 - Battery Charger

970306/208
 (including 2 Battery
 Packs loaded)

2. Inspection of the System

The following procedure shall be followed prior to connecting any power to the system.

2.1 Visual inspection of connections

The System shall be inspected to confirm that the connections have been correctly made during installation and that none of the equipment has been damaged.

2.2 Power Supplies

The 24V power supply shall be confirmed as being correctly identified and its polarity shall be determined prior to connection to the Base Unit. It shall be confirmed that each 24V supply is fused at a maximum of 15A.

The 115V single phase ac power supply shall be confirmed as being correctly identified prior to connection to the Battery Charger.

2.3 Battery Charger

Reference: EXAMPLE/022 - User Guide
 970306/208 - Battery Charger General View
 970306/203 - Battery Pack (Baseline) General View
 970306/204 - Battery Pack (Enhanced) General View

- a) The Battery Charger should be located in a position where Battery Pack may be loaded on the Charger and be left to be charged.
- b) The Charger may then be connected to the 115V single phase ac supply and the on/off switch changed to the on position.
- c) The Power Supply LED should be noted as being on.
- d) One of the Battery Packs shall be installed on the Battery Charger as identified in the User Guide document reference EXAMPLE/022.
- e) The Charge cycle shall be initiated and it shall be confirmed that the Battery Charge Status and Temperature LEDs are operating normally.
- f) A further 5 Battery Packs shall be loaded onto the Battery Charger and it shall be confirmed that all 6 charging ports are operating correctly.
- g) The 6 Battery Packs shall be left to complete the charging cycles which may take up to 4 hours.

2.4 Antenna

Reference:

970306/209 Antenna - Long Cable General View

In order to check and set the Antenna it is necessary to carefully remove the black top of the enclosure.

- a) The wiring to each Antenna shall be confirmed as correct. This check is essential as any incorrect connections will cause significant damage when power is applied.
- b) The path of the cable from the Base Station via the Antenna shall be confirmed as being of a Bus structure and the order of the Antenna recorded.
- c) The last Antenna on the Bus shall have its switch set to loop back, all other Antenna shall be set to normal. See the reference above for the position of the switch.
- d) The Black top of each Antenna shall then be carefully replaced ensuring that the pip in one corner of the top locates in the hole in the base.
- e) The Antenna fixing joint (see the reference above) shall be partially released and the Antenna shall be adjusted to point into the direction as identified on the Ship Specific Setting To Work Instructions.
- f) The fixing joint shall then be locked.

2.5 Base Station

Reference: 970306/206 Base Station (Baseline) General View
970306/207 Base Station (Enhanced) General View
Figure 6 Base Station Options & Switch Settings

- a) The Base Station ON/OFF switch shall be set to OFF
- b) The wiring to the Base Station shall be confirmed as correct. This check is essential as any incorrect connections will cause significant damage when power is applied. All connections should be checked including the cables and sockets not yet connected to the to their plugs on the Base Station.
- c) The MASTER/SLAVE switch S7 (see reference above) shall be set to MASTER.
- d) The CH1/CH2 switch S8 (see reference above) shall be set to CH1.
- e) The Base Station INT/EXT switch S9 shall be set to INT.
- f) The Audio Interface(s) shall be set as the Ship Specific Instructions. The Table below should be completed to indicate the Ship Specific options selected from the general set shown in Figure 6 Base Station Options & Switch Settings. At this stage the Sidetone Enable Switch(s) shall be set ON.

Baseline & Internal Interface on Enhanced System

Transmit Impedance	S3,	A			B	
Transmit Gain	S1(1),	OFF			ON	
	S1(2),	OFF			ON	
Receive Impedance	S2,	A			B	
Receive Gain	S1(3),	OFF			ON	
	S1(4),	OFF			ON	
Sidetone enabled	S1(5),	OFF			ON	
Voice Detect	S1(6),	OFF			ON	
	S1(7),	OFF			ON	
	S1(8).	OFF			ON	

External Interface on Enhanced System

Transmit Impedance	S6,	A			B	
Transmit Gain	S5(1),	OFF			ON	
	S5(2),	OFF			ON	
Receive Impedance	S4,	A			B	
Receive Gain	S5(3),	OFF			ON	
	S5(4),	OFF			ON	
Sidetone enabled	S5(5),	OFF			ON	
Voice Detect	S5(6),	OFF			ON	
	S5(7),	OFF			ON	
	S5(8).	OFF			ON	

2.6 Auxiliary Power Supply

Reference: 970306/206 Auxiliary Power Supply General View

- a) The wiring to the Auxiliary Power Supply shall be confirmed as correct. This check is essential as any incorrect connections will cause significant damage when power is applied.

3. Power on

Prior to connecting power to the system all of the operations and checks of section 2 shall have been performed and confirmed as being correct. In addition the Power shall only be connected to the Base Station with the ON/OFF switch set to the OFF position.

When the power has been connected, but still with the switch on the OFF position the voltage on the input terminals shall be confirmed as of the correct polarity and that it is within the limits of 18V to 36V.

Port 5 Terminal 1	Positive Input
Port 5 Terminal 2	Negative input
Voltage difference between Port 5 Terminal 1 and Terminal 2	18V to 36V.

3.1 Base Station & Auxiliary Power Supply

Reference: 970306/206 Base Station (Baseline) General View
970306/207 Base Station (Enhanced) General View
970306/209 Antenna General View
970306/210 Auxiliary Power Supply

- a) The ON/OFF switch on the Base Station and the Auxiliary Power Supply shall be set to the OFF position.
- b) The connections to Port 2 (and/or Port 3) shall be confirmed as Red connected to Pin 1 and Blue Connected to Pin 2. This is an essential check to be carried out prior to operating the ON/OFF switch. Any incorrect termination of the Power cable at the Base Station or the Antenna will cause significant damage to the units.
- c) The 24V supply to the Base Station should be connected. All LEDs on the on the front panel of the Base Station shall be confirmed as off.
- d) The 24V supply to the Auxiliary Power Supply should be connected. All LEDs on the on the front panel of the Auxiliary Power Supply shall be confirmed as off.

For the Base Station

At this stage there should be no connections to any port on the Base Station except Port 5, the 24V input.

- e) The ON/OFF switch shall be set to the ON position.
- f) The POWER ON LED should now be on.
- g) The ON/OFF switch shall be set to the OFF position.
- h) The POWER ON LED should now be off.
- i) The connections to ALL Antenna shall have been confirmed as correct prior to proceeding further.

- j) The Antenna Power Cable(s) shall be connected to PORT 2 (and PORT 3) see the reference above
- k) The Antenna Data Cable shall be connected to PORT 1 see the reference above.

For the Auxiliary Power Supply if fitted.

At this stage there should be no connections to any port on the Auxiliary Power Supply except Port 5, the 24V input.

- l) The ON/OFF switch shall be set to the ON position.
- m) The POWER ON LED should now be on.
- n) The ON/OFF switch shall be set to the OFF position.
- o) The POWER ON LED should now be off.
- p) The connections to ALL Antenna shall have been confirmed as correct prior to proceeding further.
- q) The Antenna Power Cable(s) shall be connected to PORT 2 (and PORT 3) see the reference above

For Base Station and Auxiliary Power Supply

- r) The ON/OFF switch shall be set to the ON position.
- s) The POWER ON LED should now be on.
- t) The BASE TRANSMITTING LED on the Base Station shall be on.
- u) The EXTERNAL SELECTED LED on the Base Station shall be off. (If Fitted)
- v) After waiting for 1 minute the LED (D1) on each Antenna shall be confirmed as being on.

4. Mobile Equipment

4.1 First Headset & Mobile Unit

Reference: 970306/201 Headset & Mobile Unit - Noise Attenuating - General View

970306/202 Headset & Mobile Unit - Single Side - General View

970306/203 Battery Pack - Baseline - General View

970306/204 Battery Pack - Enhanced - General View

970306/211 Headset & Mobile Unit - Noise Attenuating Enhanced - General View

- a) The Headset & Mobile Unit shall be inspected for damage.
- b) A fully charged Battery Pack shall be obtained see section 2.3.
- c) The Battery Pack ON/OFF switch shall be set to the OFF position.
- d) The Battery Pack CH1/CH2 switch shall be set to the CH1 position.
- e) The Battery Pack INT/EXT switch shall be set to the INT position (if fitted).
- f) The Cable from the Headset and Mobile Unit shall be connected to the Battery Pack.
- g) The Headset & Mobile Unit shall be fitted to the Head.
- h) The Battery Pack ON/OFF switch shall be set to the ON position.
- i) The Battery Pack LED should be on.
- j) The User should be located in the Infra-Red Area for the following tests.
- k) When the Earpiece is placed close to the ear the user shall be able to hear a beep in the earpiece. This indicates that Infra-Red signals are being received.
- l) The user shall press the PUSH TO SPEAK key on the Battery Pack and speak into the microphone.
- m) The user should be able to hear their own voice in the earpiece.
- n) With the PUSH TO SPEAK key still pressed the Base Station MOBILE TRANSMITTING LED shall be confirmed as being on.
- o) The user shall release the PUSH TO SPEAK key and note that the Beep is heard in the earpiece.
- p) The Battery Pack ON/OFF switch shall be set to the OFF position.
- q) Note that the beep in the earpiece stops and that the Battery Pack LED is off.
- r) The Battery Pack ON/OFF switch shall be set to the ON position.

4.2 Second Headset & Mobile Unit

The procedure identified in section 4.1 shall be followed for the second and subsequent headsets. In addition the following system tests shall be performed.

- a) The user of the second headset shall operate the PUSH TO SPEAK key and speak into the microphone.

- b) The user of the first headset shall confirm that they hear the speech in their earpiece.
- c) The user of the second headset shall release the PUSH TO SPEAK key.
- d) Both users shall confirm that the Beep is heard in their earpiece.
- e) The user of the first headset shall operate the PUSH TO SPEAK key and speak into the microphone.
- f) The user of the second headset shall confirm that they hear the speech in their earpiece.
- g) The user shall release the PUSH TO SPEAK key.

4.3 Alternative Channel

Reference: 970306/206 Base Station (Baseline) General View
970306/207 Base Station (Enhanced) General View
Figure 6 Base Station Options & Switch Settings

The TWIRC System is a digital system and has more than one communication channel. The following procedure is used to confirm the operation of the second internal channel CH2.

The procedure involves adjustment of the operating Base Station, it is therefore necessary to take care when adjusting the selection switches. The Base Station ON/OFF switch shall be set to the OFF position prior to changing the settings

- a) Set the Base Station channel selection switch S8 to CH2.
- b) Switch the Base Station ON/OFF switch to the ON position and wait 1 minute to ensure that the system is fully functional.
- c) Set the Battery Pack connected to the first Headset & Mobile Unit to select CH2.
- d) The User should be located in the Infra-Red Area for the following tests.
- e) When the Earpiece is placed close to the ear the user shall be able to hear a beep in the earpiece. This indicates that Infra-Red signals are being received.
- f) The user shall press the PUSH TO SPEAK key on the Battery Pack and speak into the microphone.
- g) The user should be able to hear their own voice in the earpiece.
- h) With the Second User's Battery Pack set to CH1 they should confirm that they can not hear the first user.
- i) The second user should then select CH2 and confirm that the first user can now be heard in their earpiece.
- j) The first user should release the PUSH TO SPEAK key.
- k) The procedure shall then be repeated with the second user operating the PUSH TO SPEAK key and the first user listening.

5. Co-Located System - Second Channel

This procedure is only necessary if a system installed has two co-located systems, that is there are 2 Base Stations and 2 sets of Antenna. Should there only be one Base Station for the system then proceed to section 6.

5.1 Configuration

Reference: 970306/206 Base Station (Baseline) General View
970306/207 Base Station (Enhanced) General View
970306/209 Antenna General View
Figure 6 Base Station Options & Switch Settings

The procedure involves adjustment of the operating Base Station, it is therefore necessary to take care when adjusting the selection switches. The Base Station ON/OFF switch shall be set to the OFF position prior to changing the settings

Prior to the following procedure the procedures in sections 2 - 4 shall be confirmed as having been completed on each system separately. During the testing of each system separately only the system being tested shall be switched on. When these procedures have been completed then the following steps should be followed to ensure the systems is operational as a co-located system.

- a) One of the co-located Systems shall be designated the Master System and one the Slave System. If one of the systems is an Enhanced System with an External Interface then this must be the Master System. The Master System must be set to transmit on CH1 and the Slave on CH2.
- b) The MASTER SLAVE Switch S7 on the Master System must be set to MASTER.
- c) The MASTER SLAVE Switch on the Slave System must be set to SLAVE.
- d) The CH1/CH2 switch on the Master system must be set to CH1.
- e) The CH1/CH2 switch on the Slave system must be set to CH2.
- f) If either of the Base Stations is enhanced then only one may be set to EXT and this must be the Master Base Station. The Slave Base Station must be set to INT.
- g) The Master/Slave cable shall be connected to PORT6 on the electronics assembly as shown in the reference above. This shall be completed for both Base Stations.
- h) The LINK 1 on the power supply of the SLAVE shall be cut.
- i) The Power for both Base Station shall be switched on.
- j) The POWER ON LED and the BASE TRANSMITTING LED shall be on for both Base Stations.
- k) After waiting for 1 minute the LED (D1) on each Antenna shall be confirmed as being on.

5.2 Speech Test

These procedures shall be followed after those in section 5.1 have been completed. The successful completion of these procedures confirms that the co-located systems are functional.

- a) Set the Battery Pack connected to the first Headset & Mobile Unit to select CH1.
- b) The User should be located in the Infra-Red Area for the following tests.
- c) When the Earpiece is placed close to the ear the user shall be able to hear a beep in the earpiece. This indicates that Infra-Red signals are being received.
- d) The user shall press the PUSH TO SPEAK key on the Battery Pack and speak into the microphone.
- e) The user should be able to hear their voice in the earpiece.
- f) The second user should then select CH1 and confirm that the first user can now be heard in their earpiece.
- g) The first user should release the PUSH TO SPEAK key.
- h) The first user shall select CH2.
- i) The user shall press the PUSH TO SPEAK key on the Battery Pack and speak into the microphone.
- j) The second user shall confirm that they can not hear the first user in their earpiece.
- k) The second user shall then select CH2 and confirm that they can now hear the first user.
- l) The procedure shall be repeated with the second user operating the PUSH TO SPEAK key and speaking and the first user listening.

6. Ship's Internal Communications

Reference: 970306/206 Base Station (Baseline) General View
970306/207 Base Station (Enhanced) General View
Figure 6 Base Station Options & Switch Settings

This section defines the procedure for Setting to Work of the interface to and from the Ship's internal communication system.

The procedure involves the connection to and adjustment of the operating Base Station, it is therefore necessary to take care when connecting the interface and when setting the impedance and setting the gain of the interface. The Base Station ON/OFF switch shall be set to the OFF position prior to changing the settings or connecting to the Ship's Communication System.

- a) Confirm that the Internal Transmit Audio Interface to the setting defined in the Ship Specific Instructions. *Transmit Impedance S3, Transmit Gain S1(1), S1(2),*
- b) Confirm that the Internal Receive Audio Interface to the setting defined in the Ship Specific Instructions. *Receive Impedance S2, Receive Gain S1(3), S1(4), Voice Detect S1(6), S1(7), S1(8).*
- c) Set the Sidetone switch, S1(5), as defined in the ship specific instructions.
- d) Ensure that the INT/EXT switch S9 on the Base Station is set to INT.
- e) Confirm that the Ship's Interface connector is correctly wired and if correct connect the Ship's Internal Communication Interface cable to the PORT 4 on the electronics assembly.
- f) Switch the ON/OFF switch to the ON position and wait for 1 minute.
- g) Using the Ship's Internal Communication System a user shall send a speech signal to the interface. See the Ship Specific Instructions for method of operation, this may involve adjustment of gain settings of the ship's communication interface to nominal levels.
- h) Set a mobile to the Channel being used by the Base Station, either CH1 or CH2.
- i) Confirm that the speech signal from the Ship's Communication System is heard in the earpiece of the Mobile User.
- j) The mobile user shall operate the PUSH TO SPEAK key and speak into the microphone.
- k) The Ship's Communication System user shall confirm that they can hear the Mobile user.

Notes:

If a co-located system has been installed then there will be two interfaces to the Ship's Internal Communication System. The procedure above shall be used to confirm communication first on CH1 and then on CH2.

The gain on the ship's interface should be such that the operator using the TWIRC system appears to be at a similar level to typical headset.

The Voice Detect setting should be set to the minimum value possible consistent with the operator hearing the Infra-Red area confidence tone when there is no speech signal being received from the ship's interface. If the Ship's interface is very noisy then the Voice detect circuit will need to be set to a high level or the TWIRC will not generate the Infra-Red Area tone.

The setting of the Side tone enabled switch depends on the type of Ship's Communication system. If the Ship's Communication system provides sidetone then the switch should be set to the off state. If no sidetone is provided by the Ship's Communication system the set the switch to the enabled state.

7. Ship's External Communications

Reference: 970306/207 Base Station (Enhanced) General View
970306/204 Battery Pack - Enhanced - General View
970306/211 Headset & Mobile Unit - Noise Attenuating Enhanced -
General View
Figure 6 Base Station Options & Switch Settings

This section defines the procedure for Setting to Work of the interface to and from the Ship's external communication system. This procedure is only necessary for an Enhanced System.

The procedure involves the connection to and adjustment of the operating Base Station, it is therefore necessary to take care when connecting the interface and when setting the impedance and setting the gain of the interface. The Base Station ON/OFF switch shall be set to the OFF position prior to changing the settings or connecting to the Ship's Communication System.

- a) Confirm that the External Transmit Audio Interface to the setting defined in the Ship Specific Instructions. *Transmit Impedance S6, Transmit Gain S5(1), S5(2),*
- b) Confirm that the External Receive Audio Interface to the setting defined in the Ship Specific Instructions. *Receive Impedance S4, Receive Gain S5(3), S5(4), Voice Detect S5(6), S5(7), S5(8).*
- c) Set the Sidetone switch, S5(5), as defined in the ship specific instructions.
- d) Connect the Ship's External Communication Interface cable to PORT 7 on the electronics assembly. (Must be on the Master System if co-located system)
- e) Switch the ON/OFF switch to the ON position and wait for 1 minute.
- f) Using the Ship's External Communication System a user shall send a speech signal to the interface. See the Ship Specific Instructions for method of operation, this may involve adjustment of gain settings to nominal levels.
- g) Set the Base Station INT/EXT Switch to EXT.
- h) Confirm that the EXTERNAL SELECTED LED on the Base Station is on.
- i) Set a mobile to the INT channel.
- j) Confirm that the speech signal from the Ship's External Communication System is heard in the right earpiece of the Mobile User.
- k) Confirm that the external selected tone (long beep) is not heard in the earpiece.
- l) The mobile user shall operate the PUSH TO SPEAK key and speak into the microphone.
- m) The Ship's External Communication System user shall confirm that they can not hear the Mobile user.
- n) Set the mobile to the EXT channel.
- o) Confirm that the speech signal from the Ship's External Communication System is heard in the both earpieces of the Mobile User.
- p) Confirm that the external selected tone (long beep) is heard in the earpiece.
- q) The mobile user shall operate the PUSH TO SPEAK key and speak into the microphone.

- r) The Ship's External Communication System user shall confirm that they can hear the Mobile user.
- s) Set the Base Station INT/EXT Switch to INT.
- t) Confirm that the EXTERNAL SELECTED LED on the Base Station is off.
- u) Set the mobile to the INT channel.
- v) Confirm that the speech signal from the Ship's External Communication System is not heard in the either earpieces of the Mobile User.
- w) Confirm that the external selected tone (long beep) is not heard in the earpiece.
- x) Set the mobile to the EXT channel.
- y) Confirm that the speech signal from the Ship's External Communication System is not heard in the either earpieces of the Mobile User.
- z) Confirm that the external selected tone (long beep) is not heard in the earpiece.
- aa) The mobile user shall operate the PUSH TO SPEAK key and speak into the microphone.
- bb) The Ship's External Communication System user shall confirm that they can not hear the Mobile user.

Notes:

The gain on the ship's interface should be such that the operator using the TWIRC system appears to be at a similar level to typical headset.

The Voice Detect setting should be set to the minimum value possible consistent with the operator hearing the Infra-Red area confidence tone when there is no speech signal being received from the ship's interface. If the Ship's interface is very noisy then the Voice detect circuit will need to be set to a high level or the TWIRC will not generate the Infra-Red Area tone.

The setting of the Side tone enabled switch depends on the type of Ship's Communication system. If the Ship's Communication system provides sidetone then the switch should be set to the off state. If no sidetone is provided by the Ship's Communication system the set the switch to the enabled state.

8. Infra-Red Area - Coverage

The Ship Specific Installation and Setting to Work instructions will identify the location of the Antenna for a particular area. The Antenna are fitted with an adjustable mounting such that the maximum area may be covered by each Antenna. To determine when a user is within the infra-red area the headset transmits a confidence beep into the earpiece. Therefore a user may confirm the area covered by the Antenna by walking round the area, listening for the beep, talking back and listening to the return of their own voice. Should it be found that an area where coverage is required is not receiving the beep then the orientation of the Antenna may be adjusted to improve the coverage. This adjustment should only be minor. **Additional Antenna may be added, subject to sufficient power being available, in order to extend the area of coverage or to include an area of poor reception.**

9. Completion of Setting to Work

When the Setting to Work Procedures as defined in sections 2 - 8 have been completed and the recorded sheets for the system are fully completed the system will be ready for use. To complete this process the Base Station enclosure should be locked and the record sheets for the system stored.

Figure 5 Two Way Infra Red Communication System

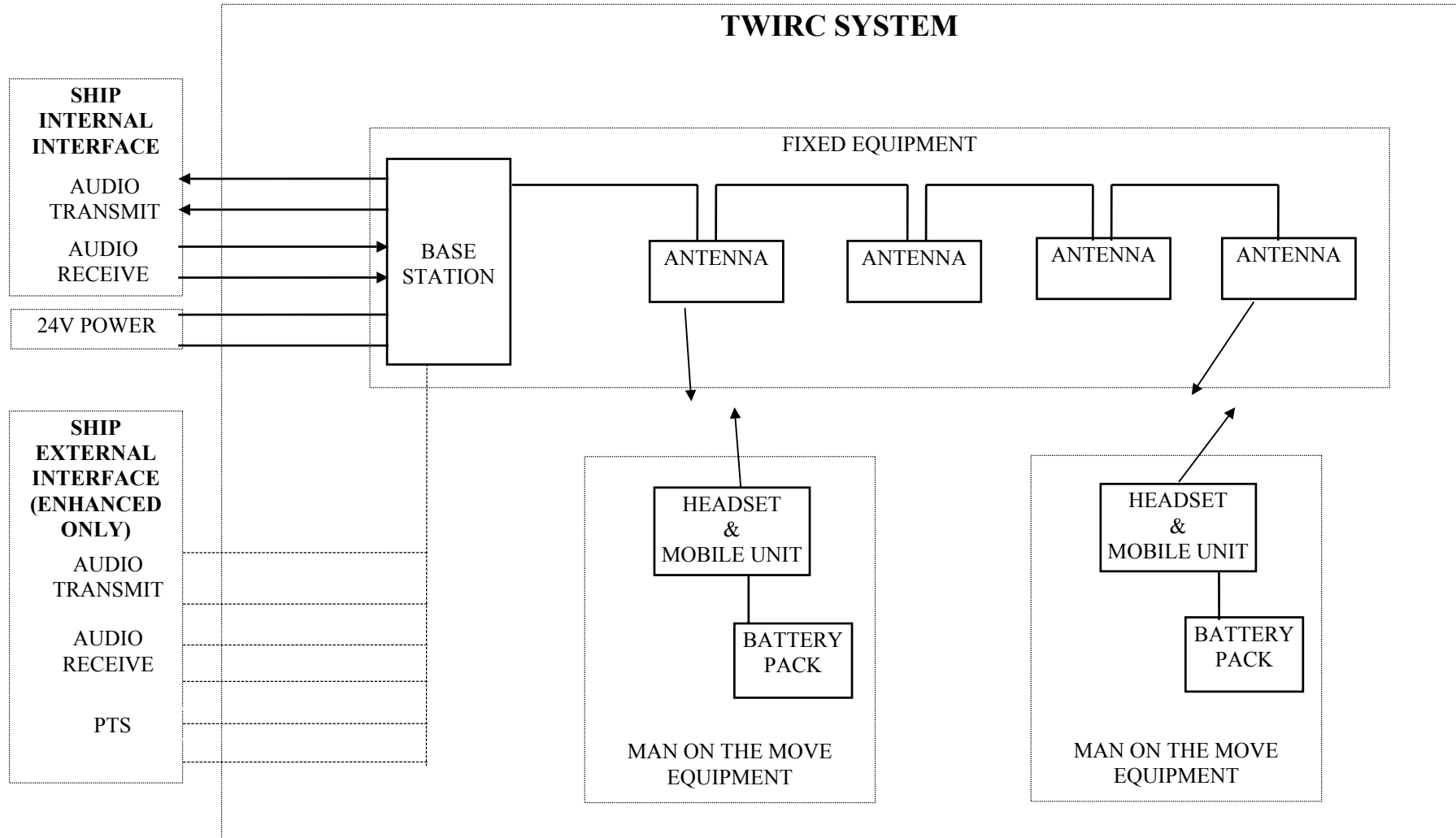
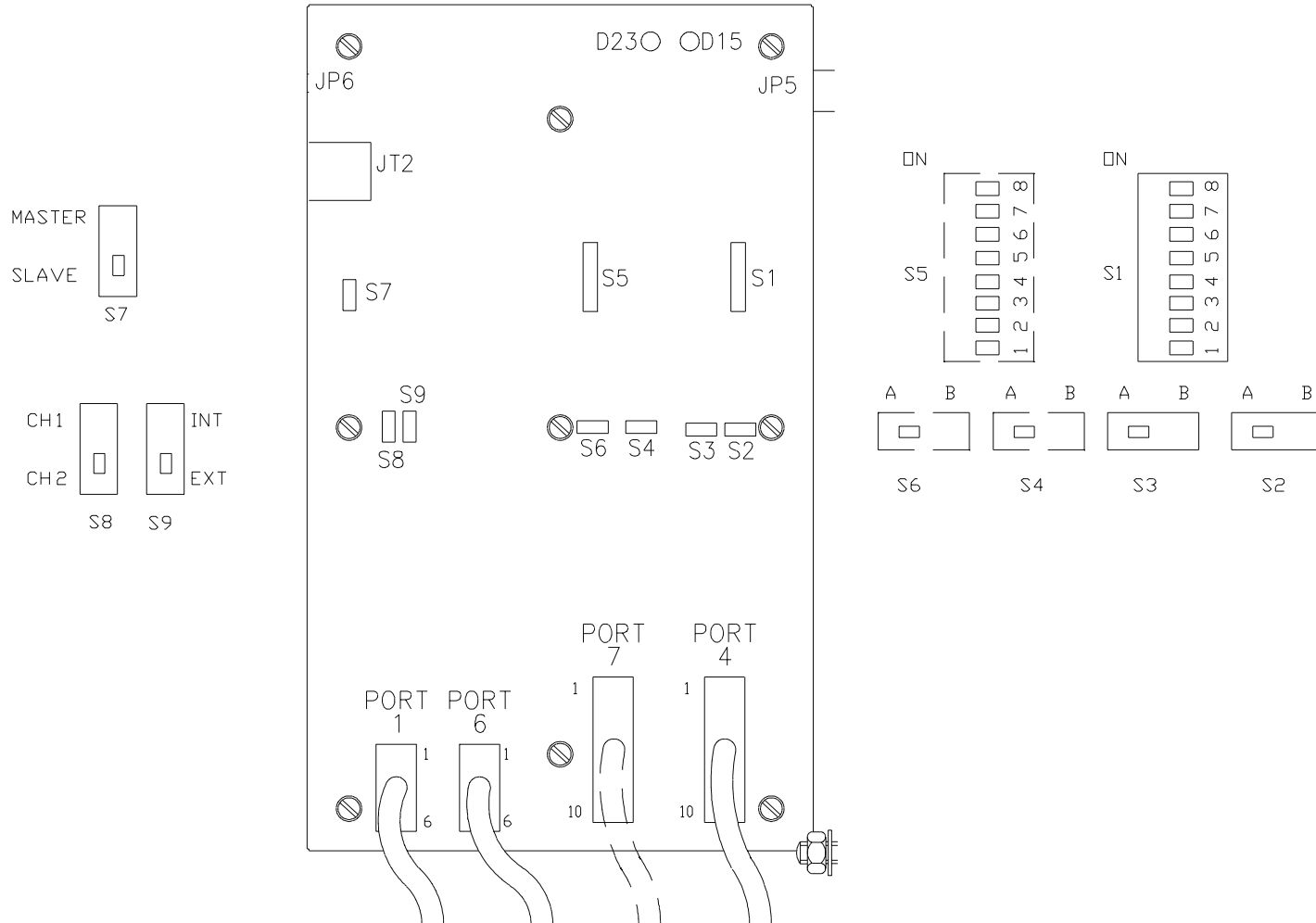


Figure 6 Base Station Options & Switch Settings

sheet 1 of 3



BASE STATION AUDIO SWITCH SETTINGS

sheet 2 of 3

Internal Interface

	S1								Setting
	A	B	C	D	E	F	G	H	
S2A	X	X	O	O	X	X	X	X	high level input, 600Ω, highest gain
S2A	X	X	C	O	X	X	X	X	high level input, 600Ω, higher gain
S2A	X	X	O	C	X	X	X	X	high level input, 600Ω, nominal 3.2V rms input
S2A	X	X	C	C	X	X	X	X	high level input, 600Ω, lower gain
S2B	X	X	O	O	X	X	X	X	input 600Ω, highest gain
S2B	X	X	C	O	X	X	X	X	input 600Ω, higher gain
S2B	X	X	O	C	X	X	X	X	input 600Ω, nominal 0.775V rms input
S2B	X	X	C	C	X	X	X	X	input 600Ω, lower gain
S3A	O	O	X	X	X	X	X	X	output low level, 200Ω, higher output
S3A	C	O	X	X	X	X	X	X	output low level, 200Ω, lower output
S3A	O	C	X	X	X	X	X	X	output low level, 200Ω, nominal 1mV rms output
S3B	O	O	X	X	X	X	X	X	output, 600/62Ω, higher output
S3B	C	O	X	X	X	X	X	X	output, 600/62Ω, lower output
S3B	O	C	X	X	X	X	X	X	output, 600/62Ω, nominal 0.775V rms output

	S1								Setting
	A	B	C	D	E	F	G	H	
	X	X	X	X	O	X	X	X	No side tone provided internal to the Infra-Com
	X	X	X	X	C	X	X	X	Side tone provided internal to the Infra-Com
	X	X	X	X	X	O	O	O	No background noise from Ship's Interface
	X	X	X	X	X	C	O	O	increasing
	X	X	X	X	X	O	C	O	levels
	X	X	X	X	X	C	C	O	of
	X	X	X	X	X	O	O	C	noise
	X	X	X	X	X	C	O	C	∇
	X	X	X	X	X	O	C	C	∇
	X	X	X	X	X	C	C	C	Very high level of noise from Ship's interface

X = DO NOT CARE

O = OPEN

C = CLOSED

Enhanced Interface

	S5								Setting
	A	B	C	D	E	F	G	H	
S4A	X	X	O	O	X	X	X	X	high level input, 600Ω, highest gain
S4A	X	X	C	O	X	X	X	X	high level input, 600Ω, higher gain
S4A	X	X	O	C	X	X	X	X	high level input, 600Ω, nominal 3.2V rms input
S4A	X	X	C	C	X	X	X	X	high level input, 600Ω, lower gain
S4B	X	X	O	O	X	X	X	X	input 600Ω, highest gain
S4B	X	X	C	O	X	X	X	X	input 600Ω, higher gain
S4B	X	X	O	C	X	X	X	X	input 600Ω, nominal 0.775V rms input
S4B	X	X	C	C	X	X	X	X	input 600Ω, lower gain
S6A	O	O	X	X	X	X	X	X	output low level, 200Ω, higher output
S6A	C	O	X	X	X	X	X	X	output low level, 200Ω, lower output
S6A	O	C	X	X	X	X	X	X	output low level, 200Ω, nominal 1mV rms output
S6B	O	O	X	X	X	X	X	X	output, 600/62Ω, higher output
S6B	C	O	X	X	X	X	X	X	output, 600/62Ω, lower output
S6B	O	C	X	X	X	X	X	X	output, 600/62Ω, nominal 0.775V rms output

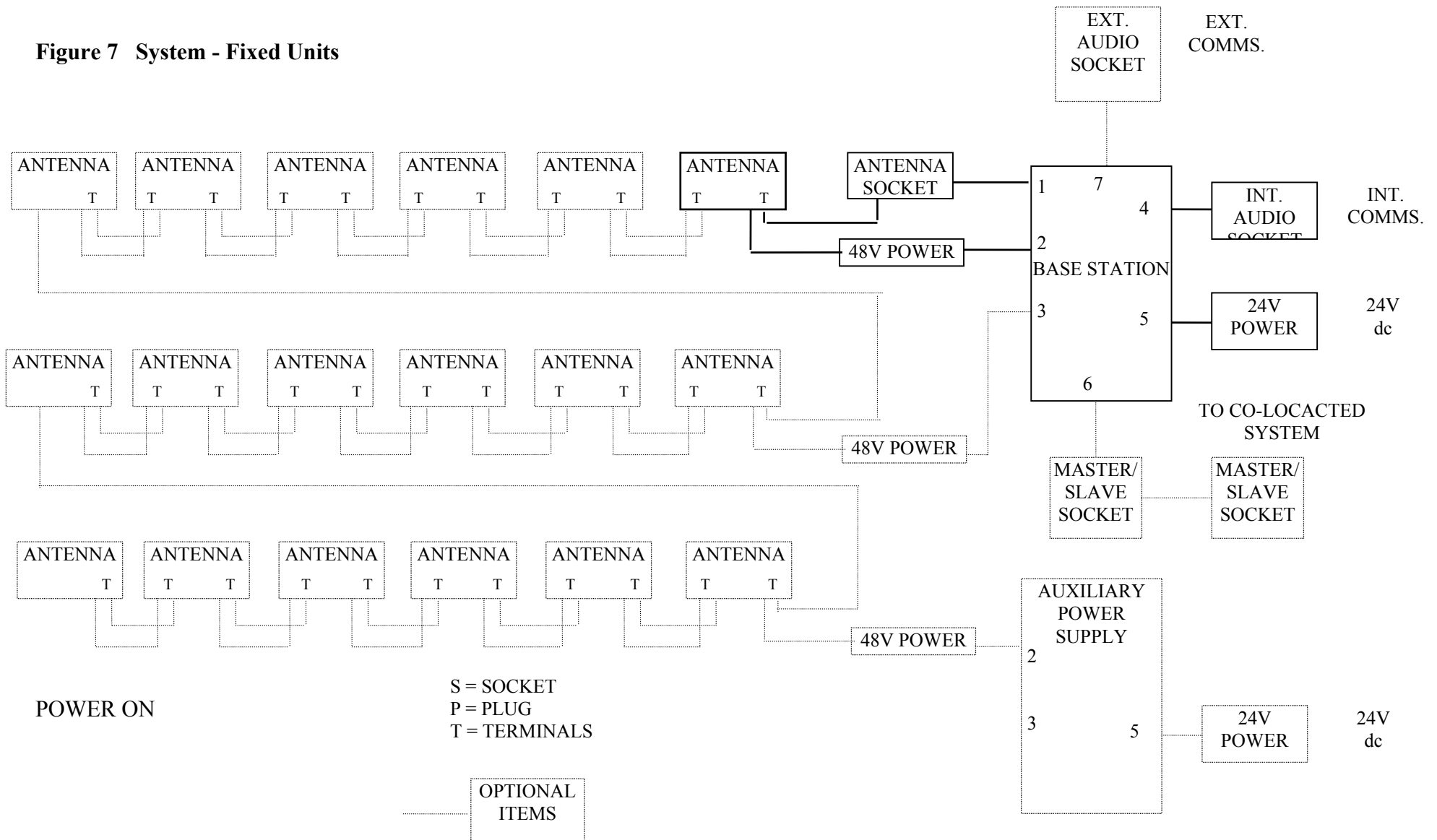
	S5								Setting
	A	B	C	D	E	F	G	H	
	X	X	X	X	O	X	X	X	No side tone provided internal to the Infra-Com
	X	X	X	X	C	X	X	X	Side tone provided internal to the Infra-Com
	X	X	X	X	X	O	O	O	No background noise from Ship's Interface
	X	X	X	X	X	C	O	O	increasing
	X	X	X	X	X	O	C	O	levels
	X	X	X	X	X	C	C	O	of
	X	X	X	X	X	O	O	C	noise
	X	X	X	X	X	C	O	C	∇
	X	X	X	X	X	O	C	C	∇
	X	X	X	X	X	C	C	C	Very high level of noise from Ship's interface

X = DO NOT CARE

O = OPEN

C = CLOSED

Figure 7 System - Fixed Units



APPENDIX

CONFIGURATION RECORDS

(for co-located systems duplicated record sheets as necessary)

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. 1 Visual Inspection Section 2

Battery Charger: Serial Number:

	Power Supply	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6
Battery Charger Checked							

Base Station Serial Number:

	No Damage	24V	48V Output 1	48V Output 2	Data Output	Internal Audio	External Audio	Master/Slave
Visual Inspection								

	On/Off Switch	MASTER/SLAVE	CH1/CH2	INT/EXT	Audio Internal.	Audio External.
Set Up for initial test						

Auxiliary Power Supply Serial Number:

	No Damage	24V	48V Output 1	48V Output 2	On/Off Switch
Visual Inspection					

Headset & Mobile Unit	Type Noise Attenuating/ Lightweight	Serial Number	Comment
1			
2			
3			
4			
5			
6			

Battery Pack	Type Baseline/Enhanced	Serial Number	Comment
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

Antenna

Antenna	Serial Number	Visual Inspection	Cable Connections Correct	Antenna Bus Correct	Through/ Loop Back	Top Replaced	Direction Set & Locked
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

Incoming Power

Action	Correct	Date	Comment
24V Supply Checked			
115V Supply Checked			

. 2 Power On Section 3

	Input Voltage	Antenna Power Correct		Power Led	Base Transmit Led	Mobile Transmit Led	Ext Selected Led	Antenna LED (D1)											
		2	3					1	2	3	4	5	6	7	8	9	10	11	12
	5																		
24V Applied to Base Station																			
Base Station On																			
Base Station Off																			

	Input Voltage	Antenna Power Correct		Power Led	Antenna LED (D1)														
		2	3																
	5																		
24V Applied to Auxiliary Power Supply																			
Auxiliary Power Supply On																			
Auxiliary Power Supply Off																			

User 1 Mobile Serial Number

User 2 Mobile Serial Number.....

Channel	Infra Red OK	Own Signal Received	Mobile Transmitting LED OK	Two Way OK
CH1				
CH2				

. 4 Co-Located Systems Section 5

Co-Located System Serial Number

User 1 Mobile Serial Number

User 2 Mobile Serial Number.....

This System's settings:

MASTER/SLAVE	CHAN1/CHAN2	INT/EXT

Channel	Infra Red OK	Own Signal Received	Mobile Transmitting LED OK	Two Way OK	No Signal on Other Channel
CH1					
CH2					

. 5 Ship's Internal Communications Section 6

Base Station Setting

Transmit Impedance	Transmit Gain		Receive Impedance	Receive Gain		Sidetone	Voice Detect		
S3	S1(1)	S1(2)	S2	S1(3)	S1(4)	S1(5)	S1(6)	S1(7)	S1(8)

Two Way Speech

Channel	TWIRC to Ship OK	Ship to TWIRC OK
1		
2		

. 6 Ship's External Communications Section 7

Base Station Setting

Transmit Impedance	Transmit Gain		Receive Impedance	Receive Gain		Sidetone	Voice Detect		
S6	S5(1)	S5(2)	S4	S5(3)	S5(4)	S5(5)	S5(6)	S5(7)	S5(8)

Communications

Base Station Int/Ext	Base Station LED	Battery Pack Int/Ext	External Received	External Selected Tone Received	External Transmitted
Ext	On	Int	Right ear	No	No
Ext	On	Ext	Both ears	Yes	Yes
Int	Off	Ext	No	No	No

Infra Red Area Confirmed

Records Complete