

# TECHNICAL MANUAL

EXTERNAL SCA INTERFACE MODULE

FOR USE WITH MS-15

994 8377 001





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WARNING

THE CURRENTS AND VOLTAGES IN THIS EQUIPMENT ARE DANGEROUS. PERSONNEL MUST AT ALL TIMES OBSERVE SAFETY REGULATIONS.

This manual is intended as a general guide for trained and qualified personnel who are aware of the dangers inherent in handling potentially hazardous electrical/electronic circuits. It is not intended to contain a complete statement of all safety precautions which should be observed by personnel in using this or other electronic equipment.

The installation, operation, maintenance and service of this equipment involves risks both to personnel and equipment, and must be performed only by qualified personnel exercising due care. HARRIS CORPORATION shall not be responsible for injury or damage resulting from improper procedures or from the use of improperly trained or inexperienced personnel performing such tasks.

During installation and operation of this equipment, local building codes and fire protection standards must be observed. The following National Fire Protection Association (NFPA) standards are recommended as references:

- Automatic Fire Detectors, No. 72E
- Installation, Maintenance, and Use of Portable Fire Extinguishers, No. 10
- Halogenated Fire Extinguishing Agent Systems, No. 12A

#### WARNING

ALWAYS DISCONNECT POWER BEFORE OPENING COVERS, DOORS, ENCLOSURES, GATES, PANELS OR SHIELDS. ALWAYS USE GROUND-ING STICKS AND SHORT OUT HIGH VOLTAGE POINTS BEFORE SERVICING. NEVER MAKE INTERNAL ADJUSTMENTS, PERFORM MAINTENANCE OR SERVICE WHEN ALONE OR WHEN FATIGUED.

Do not remove, short-circuit or tamper with interlock switches on access covers, doors, enclosures, gates, panels or shields. Keep away from live circuits, know your equipment and don't take chances.

#### WARNING

IN CASE OF EMERGENCY ENSURE THAT POWER HAS BEEN DISCONNECTED.

### WARNING

IF OIL FILLED OR ELECTROLYTIC CAPACITORS ARE UTILIZED IN YOUR EQUIPMENT, AND IF A LEAK OR BULGE IS APPARENT ON THE CAPACITOR CASE WHEN THE UNIT IS OPENED FOR SERVICE OR MAINTENANCE, ALLOW THE UNIT TO COOL DOWN BEFORE ATTEMPTING TO REMOVE THE DEFECTIVE CAPACITOR. DO NOT ATTEMPT TO SERVICE A DEFECTIVE CAPACITOR WHILE IT IS HOT DUE TO THE POSSIBILITY OF A CASE RUPTURE AND SUBSEQUENT INJURY.

# TREATMENT OF ELECTRICAL SHOCK

1. IF VICTIM IS NOT RESPONSIVE FOLLOW THE A-B-CS OF BASIC LIFE SUPPORT.

PLACE VICTIM FLAT ON HIS BACK ON A HARD SURFACE



IF UNCONSCIOUS. OPEN AIRWAY



LIFT UP NECK PUSH FOREHEAD BACK CLEAR OUT MOUTH IF NECESSARY OBSERVE FOR BREATHING B) BREATHING

IF NOT BREATHING. BEGIN ARTIFICIAL BREATHING



TILT HEAD PINCH NOSTRILS MAKE AIRTIGHT SEAL

4 QUICK FULL BREATHS

REMEMBER MOUTH TO MOUTH RESUSCITATION MUST BE COMMENCED AS SOON AS POSSIBLE

# CHECK CAROTID PULSE



IF PULSE ABSENT. BEGIN ARTIFICIAL CIRCULATION



APPROX. RATE OF COMPRESSIONS --80 PER MINUTE OF COMPRESSIONS 2 QUICK BREATHS

R MINULE (2 QUICK BREATH

APPROX. RATE OF COMPRESSIONS --60 PER MINUTE TWO RESCUERS 5 COMPRESSIONS 1 BREATH



NOTE: DO NOT INTERRUPT RHYTHM OF COMPRESSIONS WHEN SECOND PERSON IS GIVING BREATH

CALL FOR MEDICAL ASSISTANCE AS SOON AS POSSIBLE.

CIRCULATION

DEPRESS STERNUM 1 1/2 TO 2 INCHES

2. IF VICTIM IS RESPONSIVE.

- A. KEEP THEM WARM
- B. KEEP THEM AS QUIET AS POSSIBLE
- C. LOOSEN THEIR CLOTHING
- D. A RECLINING POSITION IS RECOMMENDED

### FIRST-AID

Personnel engaged in the installation, operation, maintenance or servicing of this equipment are urged to become familiar with first-aid theory and practices. The following information is not intended to be complete first-aid procedures, it is brief and is only to be used as a reference. It is the duty of all personnel using the equipment to be prepared to give adequate Emergency First Aid and thereby prevent avoidable loss of life.

Treatment of Electrical Burns

- 1. Extensive burned and broken skin
  - a. Cover area with clean sheet or cloth. (Cleanest available cloth article.)
  - b. Do not break blisters, remove tissue, remove adhered particles of clothing, or apply any salve or ointment.
  - c. Treat victim for shock as required.
  - d. Arrange transportation to a hospital as quickly as possible.
  - e. If arms or legs are affected keep them elevated.

NOTE

If medical help will not be available within an hour and the victim is conscious and not vomiting, give him a weak solution of salt and soda: 1 level teaspoonful of salt and 1/2 level teaspoonful of baking soda to each quart of water (neither hot or cold). Allow victim to sip slowly about 4 ounces (a half of glass) over a period of 15 minutes. Discontinue fluid if vomiting occurs. (Do not give alcohol.)

- 2. Less severe burns (1st & 2nd degree)
  - a. Apply cool (not ice cold) compresses using the cleanest available cloth article.
  - b. Do not break blisters, remove tissue, remove adhered particles of clothing, or apply salve or ointment.
  - c. Apply clean dry dressing if necessary.
  - d. Treat victim for shock as required.
  - e. Arrange transportation to a hospital as quickly as possible.
  - f. If arms or legs are affected keep them elevated.

REFERENCE: ILLINOIS HEART ASSOCIATION

AMERICAN RED CROSS STANDARD FIRST AID AND PERSONAL SAFETY MANUAL (SECOND EDITION)



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#### SECTION I

#### GENERAL DESCRIPTION

# 1-1. EQUIPMENT PURPOSE

1-2. The External SCA Interface Module allows an external SCA generator to be used instead of the normal MS-15 SCA Module. The external SCA generator is typically an older rack mounted unit or a special unit for unconventional applications of the SCA service. The External SCA Interface Module plugs into the MS-15 exciter in the SCA 1 or SCA 2 position. The external SCA signal is then connected to the SCA AUX INPUT BNC connector on the rear of the MS-15. A control signal indicating SCA "ON" can be optionally applied to the SCA ON terminal on the rear of the MS-15.

### 1-3. TECHNICAL CHARACTERISTICS

1-4. Table 1-1 lists the technical characteristics of the module.

#### SECTION II

#### INSTALLATION

# 2-1. GENERAL

2-2. The physical installation of the External SCA Interface Module is dependent upon the type of blank module cover available.

2-3. Early MS-15 exciters had a blank module that included the swing out module handle/cam with a dummy blank PC board. This style blank module can be easily disassembled and the original blank pc board cut approximately in half to allow the External SCA Interface PC board installation in the rear half of the blank module.

2-4. Some MS-15 Exciters have a blank module consisting of a single L shaped piece of metal about 3-1/2 inches deep. In this case simply insert the External SCA Interface PC board in the exciter guide slots and push to the rear until the edge connector is fully inserted. Be sure the marked side is UP. It will be helpful to temporarly remove the adjacent modules. The small blank module is then inserted to cover the External SCA Interface board. A finger hole is provided to aid in removal.

2-5. Some MS-15 Exciters have a blank module that uses the swingout module handle/cam with a single aluminum plate (approximately 6" high by 8-1/2" deep) that slides into the card guides. In this case cut off and discard the rear 4-1/2 inches of the aluminum plate. Installation then proceeds as described in section 2-4.



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FUNCTION	CHARACTERISTIC
Input Level	When the External Interface Module is used a SCA input signal between 0.1 and 2.4 volts RMS is required at the SCA AUX INPUT connector on the rear of the MS-15 exciter.
Input Impedance	The input impedance at the SCA AUX input connector will be approximate- ly 5000 ohms resistive.
Distortion and Crosstalk	Since the External Interface Module is passive, it contributes no dis- tortion or crosstalk. The external SCA generator should contain all filtering to eliminate crosstalk.
Control Voltage	The "SCA ON" control signal (if used) consists of a continous +6 Vdc (4.2 min, 7.8 max) input. OFF level should be less than 0.5 volt. Note that continuous application of this voltage is required to hold the ex- citer in the SCA ON mode.
Control Current	The "SCA ON" control current (if used) is approximately (the control input voltage plus 6 volts) divided by 100K ohms.

# Table 1-1. Electrical Characteristics

2-6. Connect the external SCA source to the appropriate SCA AUX INPT BNC connector on the rear of the MS-15. If used, the SCA control signal should be connected to the rear of the MS-15 to the SCA ON terminal.



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#### SECTION ILL

## CONTROLS AND INDICATORS

# 3-1. GENERAL

3-2. The External SCA Interface Module contains a single control labeled SCA input level. If the external SCA generator source has a convenient output level adjustment, then the Interface Module adjustment should be set to the maximum clockwise position. SCA insertation level will then be set at the external generator. If it is desired to adjust the SCA input level by use of the control on the Interface Module board the standard MS-15 card extender should be used to allow adjustment while the transmitter is on.

3-3. Use of the SCA ON logic circuits of the MS-15 exciter with the External SCA Interface Module installed is optional. In the SCA 1 position the SCA ON control reduces the baseband gain in the MOD OSC module so that maximum modulation can be automatically maintained as the SCA in turned on and off. In the SCA 2 position the additional function, SCA-2 interlock, is controlled by the SCA ON control signal. These functions are described in paragraph 4-9 of the MOD OSC instructions and paragraph 4-13 of the STEREO DIGITAL MODULE instructions. The SCA ON control signal applied to the rear of the MS-15 exciter with the External SCA Interface Module installed is different than when the normal MS-15 SCA generator module is used. The External Interface module requires continuous application of 6 volts dc rather than a momentary contact to ground.

#### SECTION IV

# PRINCIPLES OF OPERATION

# 4-1. CIRCUIT DESCRIPTION

4-2. The circuit of the External SCA Interface module consists of a simple potentiometer arranged as a variable voltage divider to adjust the SCA insertion level. The signal applied to the SCA AUX input connector is applied to the top of the potentiometer. The wiper then selects some fraction of the input SCA voltage for connection directly to the MOD OSC module. The External Interface Module also connects the SCA ON terminal on the rear of the MS-15 exciter directly to the level switching circuits on the MOD OSC module and, in the case of the SCA 2 position, to the SCA interlock circuits on the STEREO DIGITAL MODULE.

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# SECTION V

# MAINTENANCE

# 5-1. ELECTRICAL PARTS

5-2. The only electrical part is a 5000 ohm, 1/2 watt, 10% Potentiometer. Part number is 550-0913-000.

5-3. Schematic.





