SIEMENS

CONFIGURATION SUMMARY

SEAR II APPLICATION 9V736-A02B PREPARED FOR CSX TRANSPORTATION

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VERSION B

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DOCUMENT HISTORY

Version	Release Date	Sections Changed	Details of Change
A	4/2013		Initial release
A.1	4/2014	all	Rebrand for Siemens
B	7/2014		Table 1, page 3: insert FAIL 3-SECOND TEST Table 1, page 4: insert FRA FAIL: STANDBY POWER 234.251, GROUND FAULT ALARM TIMER, GROUND FAULT CLEAR TIMER Section 4, page 10: revise I1 – I16 LED information Section 5, page 11: revise Test LED information Section 7, page 13: revise Front panel Relay Output references Section 8.1 (table), page 14: revise all LED designations Section 8.1 (table), page 16: insert Alarm #28, "Hold Clear Fail", change Alarm # 26 Sent to Office to "No". Section 8.1 (table), page 18: insert Alarm # 98, "GFT: Health Failed". Section 8.2 (table), page 20: insert Alarm # 198, "GFT Health Good". Section 8.3 (table), page 21: updated inspection results for Alarm# 202, 203, 204 and 205. Section 8.4 (table), page 24: changed Alarm# 252 message to **all Test LEDs are red now**, changed Alarm# 254 message to **all Test LEDs set to Slow Flash Red**, changed Alarm# 256 color to **steady red** when complete, **OFF** at beginning of month for next inspection.

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LIST OF TABLES

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1.0 INTRODUCTION

This document supports installation and maintenance of SEAR II units configured with the 9V736-A02B user program stored in flash memory. This document:

- Explains LED indications

- Lists setup steps unique to 9V736-A02B

- Lists all messages generated by 9V736-A02B

- Links specific tests and alarm messages to specific FRA regulations

- Lists connector / wire tag assignments

- Describes test modes supported by 9V736-A02B

For further information on SEAR II, including configuration of executive software, refer to the SAFETRAN EVENT ANALYZER RECORDER (SEAR II) – Installation & Operation manual (Siemens Rail Automation document no. SIG-00-02-07).

NOTE	**NOTE**
	Siemens Industry, Inc., Rail Automation is not responsible for any misunderstanding or misinterpretation of the federal regulations, or for any changes to the regulations occurring after the release of this document.

2.0 USER MENU ITEMS – SITE SETUP

The following table lists configuration settings that are unique to 9V736-A02B. Each row presents an entry in the site setup sequence. The first column shows the text that appears on the SEAR II screen or in the terminal display. The four middle columns give the options or define the range of values that may be entered. The rightmost column summarizes conditions that determine if that row's step will appear, for example: the 'TOTAL NUMBER OF GCP NODES' entry will appear only if the entry for 'CONSTANT WARNING DEVICE' equals 'GCP'.

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Table 1. Configuration Settings Unique to Application 9V736-A02B

Question	Minimum / Selection 1	Maximum / Selection 2	Selection 3	Selection 4	Selection 5	Selection 6	Condition For Menu Display
RAILROAD NUMBER?	125	125					
CROSSING CONFIGURATION ?	STANDARD	LARGE	SPLIT GATE	ISLAND ONLY	CP COLLECTOR	REMOTE	
NUMBER OF XR INPUTS?	0	4					CROSSING CONFIGURATION <>ISLAND ONLY
NUMBER OF ISL INPUTS?	0	4					
CONSTANT WARNING DEVICE?	GCP	OTHER	NONE				CROSSING CONFIGURATION <>CP COLLECTOR
TOTAL NUMBER OF GCP NODES?	1	5					CONSTANT WARNING DEVICE = GCP
NUMBER OF REDUNDANT GCPS?	0	3					CONSTANT WARNING DEVICE = GCP
CROSSING CONTROLLER 1?	SSCC IIIA/plus	SSCC IV	SSCC II	SSCC III	OTHER	NONE	
CROSSING CONTROLLER 2?	NONE	SSCC IIIA/plus	SSCC IV	SSCC II	SSCC III	OTHER	CROSSING CONTROLLER 1<>NONE
POK2?	NO	YES					CROSSING CONTROLLER 1=OTHER OR NONE
TLITE FUNCTION?	TLITE ONLY	TLITE/POK2					CROSSING CONTROLLER 1=SSCCIIIA/plus OR SSCC IV OR SSCC III OR SSCC II
MAIN / STANDBY?	YES	NO					CONSTANT WARNING DEVICE<>NO
AUXILIARY TRACKS?	0	2					CROSSING CONFIGURATION <>SPLIT GATE
ENTRANCE GATES?	0	2					CROSSING CONFIGURATION <>LARGE
ENTRANCE GATES?	0	8					CROSSING CONFIGURATION =LARGE

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Question	Minimum / Selection 1	Maximum / Selection 2	Selection 3	Selection 4	Selection 5	Selection 6	Condition For Menu Display
Table 1. Configuration Settings Unique to Application 9V736-A02B *continued*							
EXIT GATES?	0	4					CROSSING CONFIGURATION =LARGE, ENTRANCE GATES<5
EXIT GATES?	0	3					CROSSING CONFIGURATION =LARGE, ENTRANCE GATES=5
EXIT GATES?	0	2					CROSSING CONFIGURATION =LARGE, ENTRANCE GATES=6
EXIT GATES?	0	1					CROSSING CONFIGURATION =LARGE, ENTRANCE GATES=7
ENTRANCE GATES CONTROLLED BY XR'S?	0	2					CROSSING CONFIGURATION =SPLIT GATE
ENTRANCE GATES CONTROLLED BY FRR?	0	2					CROSSING CONFIGURATION =SPLIT GATE
GATE POSITION FAIL TIME (SECONDS)?	10	60					
FAIL 3-SECOND TEST	ENABLE	DISABLE					
NUMBER OF UAX INPUTS?	0	2					CROSSING CONFIGURATION <>CP COLLECTOR
BATTERY BANKS?	1	6					
OB RESOLUTION?	0.2	0.5	1.0				
X-B RESOLUTION?	0.2	0.5	1.0	NOT PRESENT			
B-G RESOLUTION?	0.2	0.5	1.0	NOT PRESENT			
X-B2 RESOLUTION?	0.2	0.5	1.0	NOT PRESENT			

Question	Minimum / Selection 1	Maximum / Selection 2	Selection 3	Selection 4	Selection 5	Selection 6	Condition For Menu Display
Table 1. Configuration Settings Unique to Application 9V736-A02B *continued*							
B-G2 RESOLUTION?	0.2	0.5	1.0	NOT PRESENT			
X-B3 RESOLUTION?	0.2	0.5	1.0	NOT PRESENT			
PREEMPTION?	NO	NORMAL	ADVANCED				CROSSING CONFIGURATION < >CP COLLECTOR
EXTERNAL KDR INPUT?	NO	YES					
VHF COMMUNICATOR?	YES	NO					
DTMF ACTIVATION?	NO	YES					VHF COMMUNICATOR =YES
NUMBER OF ACTIVATION CODES?	1	3					DTMF ACTIVATION=YES
ACTIVATION CODE 1?	1	999					ACTIVATION CODES>0
ACTIVATION CODE 2?	1	999					ACTIVATION CODES>1
ACTIVATION CODE 3?	1	999					ACTIVATION CODES>2
ACTIVATION TIMEOUT (SECONDS)?	30	600					DTMF ACTIVATION=YES
iLOD MODULES?	0	6					CROSSING CONFIGURATION < >CP COLLECTOR
ANY LED BULBS USED?	NO	YES					iLOD MODULES>0
AUTO INSPECTIONS?	YES	NO					
FRA FAIL: STANDBY POWER 234.251	ENABLE	DISABLE					
BELL ON?	GATES LOWERING	GATES MOVING	ALWAYS				
GFT'S?	YES	NO					CROSSING CONFIGURATION < >CP COLLECTOR

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Question	Minimum / Selection 1	Maximum / Selection 2	Selection 3	Selection 4	Selection 5	Selection 6	Condition For Menu Display
BATTERIES ON GFT1?	1	2					GFT'S=YES
GROUND FAULT ALARM TIMER (SECONDS?)	1	60					GFT'S=YES
GROUND FAULT CLEAR TIMER (SECONDS?)	60	3600					GFT'S=YES
VHF VOICE CHANNEL?	1	8					VHF COMMUNICATOR =YES
VHF DATA CHANNEL?	1	8					VHF COMMUNICATOR =YES
FULL APPROACH MOVE ALARMS?	ACTIVATE	DO NOT ACTIVATE					CROSSING CONFIGURATION <>CP COLLECTOR

Table 1. Configuration Settings Unique to Application 9V736-A02B
continued

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3.0 DIGITAL INPUT STANDARD CONFIGURATION

The following defines the inputs for the 18 digital inputs at the bottom left of the SEAR II front panel for 9V736-A02B. Table 2 defines input assignments when the Crossing Configuration is not a "Large" or "CP Collector" site. Table 3 defines input assignments when the Crossing Configuration is selected as "Large". Table 4 defines inputs assigned to the external digital I/O unit when a "Large" Crossing Configuration is selected. Once inputs are assigned based on the site setup answers, they cannot be changed.

Table 2. Standard Crossing Configuration, Not "Large" or "CP Collector" Site

Chan	Name	Wire Tag	Normal	Energized	De-energized	Menu Condition
01	XR1	XR1	UP	UP	DOWN	CROSSING CONFIGURATION=STANDARD OR SPLIT GATE
02	XR2	XR2	UP	UP	DOWN	CROSSING CONFIGURATION=STANDARD OR SPLIT GATE, NUMBER OF TRACKS>1
03	ISLAND 1	ISL1	UP	UP	DOWN	CROSSING CONFIGURATION<>REMOTE
04	ISLAND 2	ISL2	UP	UP	DOWN	CROSSING CONFIGURATION<>REMOTE, NUMBER OF ISL INPUTS>1
05	MAIN/ STANDBY	M/S	MAIN	MAIN	STANDBY	MAIN/STANDBY=YES CONSTANT WARNING DEVICE=GCP
05	MAIN/ STANDBY	M/S	MAIN	STANDBY	MAIN	MAIN/STANDBY=YES CONSTANT WARNING DEVICE=OTHER
06	BELL OUT	BELL OUT	OFF	ON	OFF	CROSSING CONFIGURATION<>REMOTE
07	1GP	1GP	UP	UP	DOWN	ENTRANCE GATES>0
08	2GP	2GP	UP	UP	DOWN	ENTRANCE GATES>1
09	1GD	1GD	DOWN	UP	DOWN	ENTRANCE GATES>0
10	2GD	2GD	DOWN	UP	DOWN	ENTRANCE GATES>1
11	GATE CONTROL	GCOUT1	ON	ON	OFF	ENTRANCE GATES>0

Table 2. Standard Crossing Configuration, Not "Large" or "CP Collector" Site –
continued

Chan	Name	Wire Tag	Normal	Energized	De-energized	Menu Condition
12	DTMF IN	DTMF	DOWN	UP	DOWN	EXTERNAL KDR INPUT=YES
12	UAX	UAX	UP	UP	DOWN	EXTERNAL KDR INPUT=NO NUMBER OF UAX INPUTS>0
13	AUX TRACK(S)	AUX	UP	UP	DOWN	CROSSING CONFIGURATION <>SPLIT GATE
13	FOREIGN RAILROAD	FRR	UP	UP	DOWN	CROSSING CONFIGURATION = SPLIT GATE
14	GROUND FAULT TESTER 1	GFT1	GFT	GFT	GFT	GFT'S=YES
15	GROUND FAULT TESTER 2	GFT2	GFT	GFT	GFT	GFT'S=YES, BATTERY BANKS>2
16	PREEMPT	PREEMPT	OFF	ON	OFF	PREEMPTION<>NO
17	120 VAC	120 VAC	ON	ON	OFF	
18	POK2	POK2	ON	ON	OFF	CROSSING CONTROLLER 1 =NO OR OTHER
18	TROUBLE LIGHT	TLITE	ON	ON	OFF	CROSSING CONTROLLER 1 <>NO OR OTHER

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Table 3. Crossing Configuration, When Site Selected as "Large"

Chan	Name	Wire Tag	Normal	Energized	De-energized	Menu Condition
01	MAIN/ STANDBY	M/S	MAIN	MAIN	STANDBY	MAIN/STANDBY= YES CONSTANT WARNING DEVICE=GCP
01	MAIN/ STANDBY	M/S	MAIN	STANDBY	MAIN	MAIN/STANDBY= YES CONSTANT WARNING DEVICE=OTHER
02	BELL OUT	BELL OUT	OFF	ON	OFF	
03	BELL OUT 2	BELL OUT 2	OFF	ON	OFF	
04	1GP	1GP	UP	UP	DOWN	ENTRANCE GATES>0
05	2GP	2GP	UP	UP	DOWN	ENTRANCE GATES>1
06	3GP	3GP	UP	UP	DOWN	ENTRANCE GATES>2
07	4GP	4GP	UP	UP	DOWN	ENTRANCE GATES>3
08	1GD	1GD	DOWN	UP	DOWN	ENTRANCE GATES>0
09	2GD	2GD	DOWN	UP	DOWN	ENTRANCE GATES>1
10	3GD	3GD	DOWN	UP	DOWN	ENTRANCE GATES>2
11	4GD	4GD	DOWN	UP	DOWN	ENTRANCE GATES>3
12	GROUND FAULT TESTER 1	GFT1	GFT	GFT	GFT	GFT'S=YES
13	GROUND FAULT TESTER 2	GFT2	GFT	GFT	GFT	GFT'S=YES, BATTERY BANKS>2
14	GROUND FAULT TESTER 3	GFT3	GFT	GFT	GFT	GFT'S=YES, BATTERY BANKS>4
15	TROUBLE LIGHT	TLITE	ON	ON	OFF	CROSSING CONTROLLER 1 <>NO OR OTHER
15	POK2	POK2	ON	ON	OFF	CROSSING CONTROLLER 1 =NO OR OTHER
16	PREEMPT	PREEMPT	OFF	ON	OFF	PREEMPTION<>NO
17	120 VAC	120 VAC	ON	ON	OFF	

Table 4. Crossing Configuration, When Inputs Assigned to External Digital I/O and Large" Site

Chan	Name	Wire Tag	Normal	Energized	De-energized	Menu Condition
01	XR1	XR1	UP	UP	DOWN	NUMBER OF TRACKS>0
02	XR2	XR2	UP	UP	DOWN	NUMBER OF TRACKS>1
03	XR3	XR3	UP	UP	DOWN	NUMBER OF TRACKS>2
04	XR4	XR4	UP	UP	DOWN	NUMBER OF TRACKS>3
05	ISLAND 1	ISL1	UP	UP	DOWN	NUMBER OF ISL INPUTS>0
06	ISLAND 2	ISL2	UP	UP	DOWN	NUMBER OF ISL INPUTS>1
07	ISLAND 3	ISL3	UP	UP	DOWN	NUMBER OF ISL INPUTS>2
08	ISLAND 4	ISL4	UP	UP	DOWN	NUMBER OF ISL INPUTS>3
09	GATE CONTROL	GCOUT1	ON	ON	OFF	ENTRANCE GATES>0
10	EXIT GATE CONTROL	EGCOUT	ON	ON	OFF	EXIT GATES>0
11	AUX TRACK 1	AUX	UP	UP	DOWN	AUXILLARY TRACKS>0
12	AUX TRACK 2	AUX2	UP	UP	DOWN	AUXILLARY TRACKS>1
13	UAX	UAX	UP	UP	DOWN	NUMBER OF UAX INPUTS>0
14	UAX2/ ENA	UAX2/ ENA	UP	UP	DOWN	NUMBER OF UAX INPUTS>1
15	TROUBLE LIGHT 2	TLITE2	ON	ON	OFF	CROSSING CONTROLLER 2 <>NO OR OTHER
16	5GP	5GP	UP	UP	DOWN	ENTRANCE GATES > 4
16	EXIT 1GP	EXIT 1GP	UP	UP	DOWN	ENTRANCE GATES < 5, EXIT GATES > 0
17	6GP	6GP	UP	UP	DOWN	ENTRANCE GATES > 5
17	EXIT 1GP	EXIT 1GP	UP	UP	DOWN	ENTRANCE GATES = 5, EXIT GATES > 0
17	EXIT 2GP	EXIT 2GP	UP	UP	DOWN	ENTRANCE GATES < 5, EXIT GATES > 1

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Table 4. Crossing Configuration, When Inputs Assigned to External Digital I/O and "Large" Site
Continued

Chan	Name	Wire Tag	Normal	Energized	De-energized	Menu Condition
18	7GP	7GP	UP	UP	DOWN	ENTRANCE GATES > 6
18	EXIT 1GP	EXIT 1GP	UP	UP	DOWN	ENTRANCE GATES = 6, EXIT GATES > 0
18	EXIT 2GP	EXIT 2GP	UP	UP	DOWN	ENTRANCE GATES = 5, EXIT GATES > 1
18	EXIT 3GP	EXIT 3GP	UP	UP	DOWN	ENTRANCE GATES < 5, EXIT GATES > 2
19	8GP	8GP	UP	UP	DOWN	ENTRANCE GATES > 7
19	EXIT 1GP	EXIT 1GP	UP	UP	DOWN	ENTRANCE GATES = 7, EXIT GATES > 0
19	EXIT 2GP	EXIT 2GP	UP	UP	DOWN	ENTRANCE GATES = 6, EXIT GATES > 1
19	EXIT 3GP	EXIT 3GP	UP	UP	DOWN	ENTRANCE GATES = 5, EXIT GATES > 2
19	EXIT 4GP	EXIT 4GP	UP	UP	DOWN	ENTRANCE GATES < 5, EXIT GATES > 3
20	5GD	5GD	DOWN	UP	DOWN	ENTRANCE GATES > 4
20	EXIT 1GD	EXIT 1GD	DOWN	UP	DOWN	ENTRANCE GATES < 5, EXIT GATES > 0
21	6GD	6GD	DOWN	UP	DOWN	ENTRANCE GATES > 5
21	EXIT 1GD	EXIT 1GD	DOWN	UP	DOWN	ENTRANCE GATES = 5, EXIT GATES > 0
21	EXIT 2GD	EXIT 2GD	DOWN	UP	DOWN	ENTRANCE GATES < 5, EXIT GATES > 1
22	7GD	7GD	DOWN	UP	DOWN	ENTRANCE GATES > 6
22	EXIT 1GD	EXIT 1GD	DOWN	UP	DOWN	ENTRANCE GATES = 6, EXIT GATES > 0
22	EXIT 2GD	EXIT 2GD	DOWN	UP	DOWN	ENTRANCE GATES = 5, EXIT GATES > 1
22	EXIT 3GD	EXIT 3GD	DOWN	UP	DOWN	ENTRANCE GATES < 5, EXIT GATES > 2
23	8GD	8GD	DOWN	UP	DOWN	ENTRANCE GATES > 7
23	EXIT 1GD	EXIT 1GD	DOWN	UP	DOWN	ENTRANCE GATES = 7, EXIT GATES > 0
23	EXIT 2GD	EXIT 2GD	DOWN	UP	DOWN	ENTRANCE GATES = 6, EXIT GATES > 1
23	EXIT 3GD	EXIT 3GD	DOWN	UP	DOWN	ENTRANCE GATES = 5, EXIT GATES > 2
23	EXIT 4GD	EXIT 4GD	DOWN	UP	DOWN	ENTRANCE GATES < 5, EXIT GATES > 3
24	DTMF IN	DTMF	UP	UP	DOWN	EXTERNAL KDR INPUT=YES

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4.0 LED CONFIGURATION FOR I1 THROUGH I16

Table 5 and the following material on LED conventions define operation of the red Indicator LEDs for 9V736-A02B. These LEDs are being used for Automatic/Manual inspections.

Table 5. Automatic/Manual Inspection LED Configurations

LED	Designator
I1	234.249 GROUND TEST
I2	234.251 STANDBY POWER
I3	234.253 FLASHING LIGHT UNITS
I4	234.255 GATE ARM AND GATE MECHANISMS
I5	234.257 WARNING SYSTEM OPERATION
I6	234.259 WARNING TIME
17	234.261 TRAFFIC PREEMPTION
I8	MONTHLY MANUAL INSPECTIONS
I9	RESERVED
I10	RESERVED
I11	RESERVED
I12	RESERVED
I13	RESERVED
I14	RESERVED
I15	RESERVED
I16	RESERVED

4.1 TEST LED CONVENTIONS

1. LEDs are OFF when Inspections are not ready to execute.
2. LEDs SLOW FLASH RED when Inspections are Ready To Run, but have not yet executed or are currently executing. (Ex. Awaiting a train arrival).
3. LEDs FAST FLASH RED when an Inspection has failed.
4. LEDs are RED STEADY when an Inspection has passed.
5. The CLEAR ALARM key will not affect these LEDs.
6. After successful PASSED for all tests, the tests are sent in to the Office and LEDs are RED STEADY.

5.0 LED CONFIGURATION FOR T1 THROUGH T8

Table 6 and the following material on conventions define the operation of the tri-color Test LEDs as they operate with 9V736-A02B. These LEDs are being used for the indication of alarms 1 through 99.

Table 6. Alarm LED Configurations

LED	Alarm Numbers	Designator
T1	5, 17-19, 34, 35, 37, 47, 57, 58, 59	POWER
T2	6, 8, 9, 20, 21, 28, 53	GATE
T3	1, 11-14, 16, 25, 45, 46	WARNING DEVICES
T4	2, 3, 4, 15, 22, 23, 33, 50-52	CROSSING
T5	7, 56	ANALYZER FAILURE
T6		RESERVED
T7		RESERVED
T8	10	ONLINE

5.1 ALARM LED CONVENTIONS

1. LEDs are ON (GREEN) steady when in Normal Mode.
2. LEDs FLASH FAST when an alarm condition exists.
3. LEDs FLASH SLOW if an alarm has occurred since the last time the CLEAR ALARM key was pressed, but has been cleared.
4. The CLEAR ALARM key will clear out alarms if the conditions that caused them no longer exist.
5. Any alarm associated with a train move can be cleared by the CLEAR ALARM key even if there has not been a train move without an alarm since the alarm occurred.

6.0 BATTERY INPUT CONFIGURATION

Table 7 shows the 9V736-A02B default names, software designators, and resolutions for the three battery inputs at the lower right-hand corner of the SEAR II front panel.

Table 7. Battery Input Configuration

Chan	Name	Designator	Resolution	Menu Condition
01	OB	OB	.2 VDC	OB RESOLUTION=0.2
01	OB	OB	.5 VDC	OB RESOLUTION=0.5
01	OB	OB	1 VDC	OB RESOLUTION=1.0
02	X-B	X-B	.2 VDC	X-B RESOLUTION=0.2, BATTERY BANKS>1
02	X-B	X-B	.5 VDC	X-B RESOLUTION=0.5, BATTERY BANKS>1
02	X-B	X-B	1 VDC	X-B RESOLUTION=1.0, BATTERY BANKS>1
03	B-G	B-G	.2 VDC	B-G RESOLUTION=0.2, BATTERY BANKS>2
03	B-G	B-G	.5 VDC	B-G RESOLUTION=0.5, BATTERY BANKS>2
03	B-G	B-G	1 VDC	B-G RESOLUTION=1.0, BATTERY BANKS>2
01 Analog Module	X-B2	X-B2	.2 VDC	X-B2 RESOLUTION=0.2, BATTERY BANKS>3
01 Analog Module	X-B2	X-B2	.5 VDC	X-B2 RESOLUTION=0.5, BATTERY BANKS>3
01 Analog Module	X-B2	X-B2	1 VDC	X-B2 RESOLUTION=1.0, BATTERY BANKS>3
02 Analog Module	B-G2	B-G2	.2 VDC	B-G2 RESOLUTION=0.2, BATTERY BANKS>4
02 Analog Module	B-G2	B-G2	.5 VDC	B-G2 RESOLUTION=0.5, BATTERY BANKS>4
02 Analog Module	B-G2	B-G2	1 VDC	B-G2 RESOLUTION=1.0, BATTERY BANKS>4
03 Analog Module	X-B3	X-B3	.2 VDC	X-B3 RESOLUTION=0.2, BATTERY BANKS>5
03 Analog Module	X-B3	X-B3	.5 VDC	X-B3 RESOLUTION=0.5, BATTERY BANKS>5
03 Analog Module	X-B3	X-B3	1.0 VDC	X-B3 RESOLUTION=1.0, BATTERY BANKS>5

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7.0   RELAY OUTPUT CONFIGURATION

Table 8 shows the 9V736-A02B default names and software designators for the two relay outputs at the lower right-hand corner of the SEAR II front panel. Table 9 shows the relay configuration of the Digital I/O unit.

Table 8. Default Names and Software Designators for Front Panel Relay Outputs 1 & 2

Chan	Name	Designator	Normal	Energized	De-energized	Menu Condition
01	GROUND FAULT TESTER	GndFltTEST	OFF	Energized	De-energized	AUTO INSPECTIONS=YES
02	AC POWER TEST	AC_Control	OFF	Energized	De-energized	AUTO INSPECTIONS=YES

Table 9. Relay Configuration of the Digital I/O Unit

Chan	Name	Designator	Normal	Energized	De-energized	Menu Condition
01 Digital I/O Module	KDR1	KDR1	OFF	ON	OFF	CROSSING CONFIGURATION=LARGE, DTMF ACTIVATION=YES, KDN>0
02 Digital I/O Module	KDR2	KDR2	OFF	ON	OFF	CROSSING CONFIGURATION=LARGE, DTMF ACTIVATION=YES, KDN>1
03 Digital I/O Module	KDR3	KDR3	OFF	ON	OFF	CROSSING CONFIGURATION=LARGE, DTMF ACTIVATION=YES, KDN>2
04 Digital I/O Module	LKR	LKR	OFF	ON	OFF	CROSSING CONFIGURATION=LARGE, DTMF ACTIVATION=YES

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8.0 MESSAGES

The tables in the following subsections list all of the messages generated by the 9V736-A02B application. Messages generated by the SEAR II executive are not presented here.

Messages fall into categories defined by message numbers:

0	Internal SEAR II Messages
1-100	Application Alarms
101-200	Application Alarm Clears
201-230	Automatic Inspection Alarms
231-240	Application Information Messages
241-250	Reserved
251-255	Automatic Inspection Information
1000-1099	Office Software Alarms
1099–1199	Office Software Alarm Clears

8.1 APPLICATION ALARMS

The 9V736-A02B application generates these alarms.

Table 10. Application Alarms

Alarm #	LED	Name	Description	Sent To Office	Tested
1	T04	Crossing Controller Failure	TLITE OFF and 120 VAC NORMAL for 30 seconds.	Yes	Always
2	T04	Short Warning TK1	Crossing Activates and ISL1 is down in less than 20 seconds. GCP ONLY Average speed on detected track must be greater than 15 mph.	Yes	Train Move
3	T04	Tail Ring	1. XR drops 2. Island drops 3. Valid warning time 4. XR and Island pick 5. Within 40 seconds XR drops 6. No Island occurs 7. XR picks If GCP and track count > 1 then verify track detection for XR is the same.	Yes	Train Move
4	T04	Crossing Active Too Long	Crossing has been active (CrossingActive TRUE) for 20 minutes or longer.	20 min. intervals	Always
5	I01	AC Power Off For 20 Minutes	120 VAC has been off for 20 minutes or more.	Yes	Always
6	I02	Gate Not Up After Crossing Clear	All gates are not reporting UP after CrossingActive was clear for at least 2 minutes.	Yes	Train Move

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Alarm #	LED	Name	Description	Sent To Office	Tested
7	I05	Analyzer Failure	GFT, VHF, or iLOD stops communicating with SEAR II	Yes	Always
8	T02	Fail 3 Second Test	An entrance gate started down less than 3 seconds after CrossingActive.	Yes	Train Move
9	T02	Gate Position Fail	1. Gate control activates 2. User specified Gate Position Fail time elapses 3. All entrance gates are not DOWN	Yes	Train Move
---	T03	Bulb Out	A single bulb out condition exists in the time between the crossing being active for 11 seconds and the island being active for 2 seconds.	No	Train Move
---	T03	Possible Bulb Out, .7A Drop	A lamp amperage drop of .7A has been detected in the time between the crossing being active for 11 seconds and the island being active for 2 seconds. **ANY LED BULBS USED=YES**	No	Train Move
10	T08	User Test Mode	The SEAR II is in User Test Mode and is ignoring all alarm conditions for the specified time – Display shows **SKIP ALARMS: XX MIN**.	Yes	Always
11	T03	Two Bulbs Out	Two bulbs have been detected out in the time between the crossing being active for 11 seconds and the island being active for 2 seconds.	Yes	Train Move
12	T03	Multiple Bulbs Out	More than two bulbs have been detected out in the time between the crossing being active for 11 seconds and the island being active for 2 seconds.	Yes	Train Move
13	T03	Flash Rate Too Slow	Flash rate is less than 35 FPM in the time between the crossing being active for 11 seconds and the island being active for 2 seconds.	Yes	Train Move
14	T03	Flash Rate Too Fast	Flash rate is greater than 65 FPM in the time between the crossing being active for 11 seconds and the island being active for 2 seconds.	Yes	Train Move
15	T04	Pre-Ring	Non-GCP: 1. CrossingActive TRUE 2. No Island 3. CrossingActive FALSE 4. CrossingActive TRUE 5. IslandOccupied TRUE within 4 minutes GCP: 1. CrossingActive=TRUE/Track detect 2. No Island 3. CrossingActive=FALSE/Prime timeout 4. CrossingActive=TRUE on same track within 4 minutes of previous move. 5. EZ value is less than previous prime timeout EZ+5 6. Island Occupied	Yes	Train move

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Alarm #	LED	Name	Description	Sent To Office	Tested
			Table 10. Application Alarms *continued*		
16	T03	Bell Not Ringing	CrossingActive AND NO Island AND NO Bell Out AND NO Entrance Gate IS DOWN	Yes	Train Move
17	T01	OB Ground Fault Alarm	OB is in FAULT state. This alarm is sent to the office once every 24 hours until it is cleared.	Yes	Always
18	T01	85% LOW OB	OB is less than 85% of calibrated voltage for at least 20 seconds.	Yes	Always
19	T01	85% LOW X-B	X-B is less than 85% of calibrated voltage for at least 20 seconds.	Yes	Always
20	T02	Gates Not Starting	All Entrance Gates have not started down within 10 seconds of CrossingActive.	Yes	Train Move
21	T02	Fail 5 Second Test	Any entrance gate not DOWN within 5 seconds prior to IslandOccupied after CrossingActive for at least 15 seconds	Yes	Train Move
22	T04	Preemption Alarm	CrossingActive and PREEMPT is ON	Yes	Train Move
23	T04	False Detection	Non-GCP: 2. CrossingActive=TRUE. 3. No Island 4. CrossingActive=FALSE. 5. 1 hour elapses with no valid train move. GCP: 1. Track detect with EX<=50 –or- 2. Prime timeout with EZ>(detect-20) – AND- 3. No Island within 30 minutes Note: 'detect' value = EZ value at time of track detection. Value must be ≥ 90.	Yes	Train Move
25	T03	Bell Ringing During Island	**CrossingActive** TRUE > 20 seconds AND **IslandOccupied** TRUE AND (BELL OUT ON) **BELL ON DURING ISLAND MENU OPTION NOT SET**.	Yes	Train Move
26	T04	Slow Train – Possible Switching Move	Train move with warning time less than 20 seconds and average speed is less than 15 mph. Not sent to office. **GCP CROSSINGS ONLY**	No	Train Move
28	T02	Hold Clear Fail	Gate up input toggles >10 times after crossing inactive.	Yes	Train Move
33	T04	Ring-thru	Island is up for 10 seconds and relative XR is still down.	Yes	Train Move
34	T01	X-B Ground Fault Alarm	X-B is in FAULT state. This alarm is sent to the office once every 24 hours until it is cleared.	Yes	Always

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<table>
<tr><td colspan="7">Table 10. Application Alarms
<i>continued</i></td></tr>
<tr><th>Alarm #</th><th>LED</th><th>Name</th><th>Description</th><th>Sent To Office</th><th>Tested</th></tr>
<tr><td>35</td><td>T01</td><td>85%
Low X-B2</td><td>X-B2 is less than 85% of calibrated voltage for at least 20 seconds.</td><td>Yes</td><td>Always</td></tr>
<tr><td>37</td><td>T01</td><td>X-B2 Ground Fault Alarm</td><td>X-B2 is in FAULT state. This alarm is sent to the office once every 24 hours until it is cleared.</td><td>Yes</td><td>Always</td></tr>
<tr><td>45</td><td>T03</td><td>Possible Bulbs Out, >= 2.1A Drop</td><td>A lamp amperage drop of >= 2.1A has been detected in the time between the crossing being active for 11 seconds and the island being active for 2 seconds.

ANY LED BULBS USED=YES</td><td>Yes</td><td>Train Move</td></tr>
<tr><td>46</td><td>T03</td><td>Possible Bulbs Out, 1.4A Drop</td><td>A lamp amperage drop of 1.4A has been detected in the time between the crossing being active for 11 seconds and the island being active for 2 seconds.

ANY LED BULBS USED=YES</td><td>Yes</td><td>Train Move</td></tr>
<tr><td>47</td><td>T01</td><td>AC Not On After Test</td><td>AC power has not come back on after an FRA test has run.</td><td>Yes</td><td>FRA Test</td></tr>
<tr><td>50</td><td>I02</td><td>Short Warning TK2</td><td>Crossing Activates and ISL2 is down in less that 20 seconds.

GCP ONLY
Average speed on detected track must be greater than 15 mph.</td><td>Yes</td><td>Train Move</td></tr>
<tr><td>51</td><td>I02</td><td>Short Warning TK3</td><td>Crossing Activates and ISL3 is down in less that 20 seconds.

GCP ONLY
Average speed on detected track must be greater than 15 mph.</td><td>Yes</td><td>Train Move</td></tr>
<tr><td>52</td><td>I02</td><td>Short Warning TK4</td><td>Crossing Activates and ISL4 is down in less that 20 seconds.

GCP ONLY
Average speed on detected track must be greater than 15 mph.</td><td>Yes</td><td>Train Move</td></tr>
<tr><td>53</td><td>T02</td><td>Exit Gate Not Down</td><td>IslandOccupied and an Exit Gate is still UP.</td><td>Yes</td><td>Train Move</td></tr>
<tr><td>56</td><td>T05</td><td>GCP comm. bad</td><td>Communication has been lost to any GCP node.</td><td>Yes</td><td>Always</td></tr>
<tr><td>57</td><td>T01</td><td>85%
Low B-G</td><td>B-G is less than 85% of calibrated voltage for at least 20 seconds.</td><td>Yes</td><td>Always</td></tr>
<tr><td>58</td><td>T01</td><td>85%
Low B-G2</td><td>B-G2 is less than 85% of calibrated voltage for at least 20 seconds.</td><td>Yes</td><td>Always</td></tr>
<tr><td>59</td><td>T01</td><td>85%
Low X-B3</td><td>X-B3 is less than 85% of calibrated voltage for at least 20 seconds.</td><td>Yes</td><td>Always</td></tr>
</table>

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Alarm #	LED	Name	Description	Sent To Office	Tested
62	T01	93% Low OB	OB is less than 93% of calibrated voltage for at least 20 seconds.	Yes	Always
63	T01	93% Low X-B	X-B is less than 93% of calibrated voltage for at least 20 seconds.	Yes	Always
64	T01	93% Low X-B2	X-B2 is less than 93% of calibrated voltage for at least 20 seconds.	Yes	Always
91	T01	93% Low B-G	B-G is less than 93% of calibrated voltage for at least 20 seconds.	Yes	Always
92	T01	93% Low B-G2	B-G2 is less than 93% of calibrated voltage for at least 20 seconds.	Yes	Always
92	T01	93% Low X-B3	X-B3 is less than 93% of calibrated voltage for at least 20 seconds.	Yes	Always
94	T01	B-G Ground Fault Alarm	B-G is in FAULT state. This alarm is sent to the office once every 24 hours until it is cleared.	Yes	Always
95	T01	B-G2 Ground Fault Alarm	B-G2 is in FAULT state. This alarm is sent to the office once every 24 hours until it is cleared.	Yes	Always
96	T01	X-B3 Ground Fault Alarm	X-B3 is in FAULT state. This alarm is sent to the office once every 24 hours until it is cleared.	Yes	Always
98	---	GFT: Health Failed	Monitors the health state of the GFT modules. Alarm is sent if health is bad.	Yes	Always
231	---	Full Approach Move	A normal train move occurred with valid warning time.	Yes	Train Move
232	I02	Slow Train On Island	IslandOccupied within 5 seconds prior to CrossingActive or Warning time is <2 seconds. Alarms are ignored. **GCP CROSSINGS ONLY**	Yes	Train Move
233	---	GCP Transferred	A GCP has transferred.	Yes	Always

Table 10. Application Alarms *continued*

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8.2   APPLICATION ALARM CLEARS

These messages report cleared alarms.

Table 11. Application Alarm Clears

Alarm #	LED	Name	Description	Sent To Office	Tested
101	---	Crossing Controller Normal	*Crossing controller Fail* alarm clears.	Yes	Clears
104	---	Crossing Normal	*CrossingActive Too Long* alarm clears.	Yes	Clears
105	---	AC Power Back On	*AC Power Off For 20 Minutes* alarm clears for at least 1 minute.	Yes	Clear
106	---	Gate Normal	*Gates Not Up After Crossing Clear* alarm clears.	Yes	Clear
107	---	Analyzer Normal	*Analyzer Failure Alarm Clears*	Yes	Clears
108	---	Gates Normal	*Fail 3 Second Test* alarm clears.	Yes	Clears
109	---	Gates Normal	*Gate Position Fail* alarm clears.	Yes	Clears
111	---	Bulbs Normal	*Two Bulbs Out, Multiple Bulbs Out, Possible Bulb Out, 1.4A Drop, Possible Bulb Out, >=2.1A Drop* alarm clears.	Yes	Clears
---	---	Bulbs Normal	*Single Bulb Out, Possible Bulb Out, .7A Drop* alarm clears.	No	Clears
113	---	Flash Normal	*Flash Rate Too Slow* alarm clears.	Yes	Clears
114	---	Flash Normal	*Flash Rate Too Fast* alarm clears.	Yes	Clears
116	---	Bell Normal	*Bell Not ringing* alarm clears.	Yes	Clears
117	---	GFT Normal	*All Ground Fault* alarms clear.	Yes	Clears
118	---	B12 Normal	*Low B12* alarm clears for 5 seconds.	Yes	Clears
118	---	OB Normal	*Low OB alarm clears* for 5 seconds.	Yes	Clears
119	---	B16 Normal	*Low B16* alarm clears for 5 seconds.	Yes	Clears
119	---	X-B Normal	*Low X-B* alarm clears for 5 seconds.	Yes	Clears
120	---	Gates Not Starting Clear	*Gates Not Starting* alarm clears.	Yes	Clears
121	---	Fail 5 Second Test Clear	*Fail 5 Second Test* alarm clears.	Yes	Clears
122	---	Preempt Normal	*Fail Preempt Test* alarm clears.	Yes	Clears
125	---	Bell Normal	*Bell On During Island* alarm clears.	Yes	Clears
135	---	BATT3 Normal	*Low BATT3 alarm* clears for 5 seconds.	Yes	Clears
135	---	X-B2 Normal	*Low X-B2 alarm* clears for 5 seconds.	Yes	Clears
153	---	Exit Gate Not Down Clear	*Exit Gate Not Down alarm* clears.	Yes	Clears

Alarm #	LED	Name	Description	Sent To Office	Tested
156	---	GCP comm. good	*GCP comm bad* recovers	Yes	Clears
157	---	BATT4 Normal	*Low BATT4 alarm* clears for 5 seconds.	Yes	Clears
157	---	B-G Normal	*Low B-G alarm* clears for 5 seconds.	Yes	Clears
158	---	BATT5 Normal	*Low BATT5 alarm* clears for 5 seconds.	Yes	Clears
158	---	B-G2 Normal	*Low B-G2 alarm* clears for 5 seconds.	Yes	Clears
159	---	BATT6 Normal	*Low BATT6 alarm* clears for 5 seconds.	Yes	Clears
159	---	X-B3 Normal	*Low X-B3 alarm* clears for 5 seconds.	Yes	Clears
198	---	GFT Health Good	Monitors the health state of the GFT modules. Sent when health is good.	Yes	Clears
200	---	Normal Train Move	Generated after **FullApproachMove** TRUE and no *Tail Ring*, *Pre-Ring*, *Ring-thru or Short Warning* occurred, but one of the above occurred previously. The alarm conditions are all cleared.	Yes	Train Move and No Alarm

Table 11. Application Alarm Clears
continued

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8.3 AUTOMATIC INSPECTION ALARMS

The following are generated by 9V736-A02B during automatic inspections.

Table 12. Automatic Inspection Alarms

Alarm #	LED	Name	Description	Inspection Result #
201	T1	FRA FAIL: 234.249 OB GFT	The GFT is tested before checking for active faults. Entire test is as follows: • Turn on GFTTEST output • 4-5 seconds, check for grounds • Turn off GFTTEST 7 seconds later • Check for faults 10 seconds later • Test complete	• Fail 1
202	T1	FRA FAIL: 234.249 NO GFT INSTALLED	No GFT was configured for this location.	• Fail 1 • Fail 13 • Fail 20 • Fail 25 • Fail 28 • Fail 29
203	T2	FRA FAIL: AC OFF 234.251	120 VAC is not NORMAL when Standby Power Test is initiated.	• Fail 2 • Fail 3 • Fail 26 • Fail 27 • Fail 30 • Fail 31
204	T2	FRA FAIL: AC NOT OFF FOR TEST 234.251	SEAR II is unable to set 120 VAC OFF via AC Power Relay for Standby Power Test.	• Fail 2 • Fail 3 • Fail 26 • Fail 27 • Fail 30 • Fail 31
205	T2	FRA FAIL: STANDBY POWER 234.251	Any of the following alarms occur: 1. *AC In Fail, No Test* 2. *AC Not Off, No Test* 3. *Low B12* 4. *Low B16* 5. *Low BATT3* 6. *Low BATT4*	• Fail 2 • Fail 3 • Fail 26 • Fail 27 • Fail 30 • Fail 31
206	T3	FRA FAIL: LAMP TEST 234.253	Any of the following alarms occur: 1. *Single Bulb Out* 2. *Two Bulbs Out* 3. *Multiple Bulbs Out* 4. *Flash Rate Too Slow* 5. *Flash Rate Too Fast*	• Fail 4 – Flash • Fail 5–EB1 Lamp • Fail 6–EN1 Lamp • Fail 7–EB2 Lamp • Fail 8–EN2 Lamp • Fail 21–EB3 Lamp • Fail 22–EN3 Lamp • Fail 23–EB4 Lamp • Fail 24–EN4 Lamp • Fail 32-EB5 Lamp • Fail 33-EN5 Lamp • Fail 34-EB6 Lamp • Fail 35-EN6 Lamp

| | | | Table 12. Automatic Inspection Alarms | |
| | | | *continued* | |
Alarm #	LED	Name	Description	Inspection Result #
207	T3	FRA FAIL: NO LAMP SENSOR 234.253	Crossing not configured with an iLOD for checking lamp current.	• Fail 4 – Flash • Fail 5–EB1 Lamp • Fail 6–EN1 Lamp • Fail 7–EB2 Lamp • Fail 8–EN2 Lamp • Fail 21–EB3 Lamp • Fail 22–EN3 Lamp • Fail 23–EB4 Lamp • Fail 24–EN4 Lamp • Fail 32-EB5 Lamp • Fail 33-EN5 Lamp • Fail 34-EB6 Lamp • Fail 35-EN6 Lamp
208	T4	FRA FAIL: GATE OPERATION 234.255	Any of the following alarms occur: 1. *Fail 3 Second Test* 2. *Gates Not Starting* 3. *Fail 5 Second Test* 4. *Gate Position Fail* 5. *Gate Not Up After Crossing Clear*	• Fail 9
210	T5	FRA FAIL: WARNING SYSTEM 234.257	*Crossing Controller Failure* alarm occurs	• Fail 10
211	T6	FRA FAIL: WARNING TIME 234.259	Either of the following alarms occur: 1. *Approach Too Short* 2. *Switch Short Approach*	• Fail 11
212	T7	FRA FAIL: PREEMPTION 234.261	*Fail Preempt Test* alarm occurs.	• Fail 12
213	T1	FRA FAIL: GFT DEFECTIVE 234.249	One of the GFT units is reporting STUCK LOW, STUCK HIGH or DATA ERROR.	• Fail 1 • Fail 13 • Fail 27 • Fail 28 • Fail 32
214	T1	FRA FAIL: X-B GFT 234.249	The GFT is tested before checking for active faults. Entire test is as follows: • Turn on GFTTEST output • 4-5 seconds, check for grounds • Turn off GFTTEST 7 seconds later • Check for faults 10 seconds later • Test complete	• Fail 13
215	T1	FRA FAIL: B-G GFT 234.249	The GFT is tested before checking for active faults. Entire test is as follows: • Turn on GFTTEST output • 4-5 seconds, check for grounds • Turn off GFTTEST 7 seconds later • Check for faults 10 seconds later • Test complete	• Fail 20 • Fail 27

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Alarm #	LED	Name	Description	Inspection Result #
			Table 12. Automatic Inspection Alarms *continued*	
216	T1	FRA FAIL: X-B2 GFT 234.249	The GFT is tested before checking for active faults. Entire test is as follows: • Turn on GFTTEST output • 4-5 seconds, check for grounds • Turn off GFTTEST 7 seconds later • Check for faults 10 seconds later • Test complete	• Fail 25
217	T1	FRA FAIL: B-G2 GFT 234.249	The GFT is tested before checking for active faults. Entire test is as follows: • Turn on GFTTEST output • 4-5 seconds, check for grounds • Turn off GFTTEST 7 seconds later • Check for faults 10 seconds later • Test complete	• Fail 28
218	T1	FRA FAIL: X-B3 GFT 234.249	The GFT is tested before checking for active faults. Entire test is as follows: • Turn on GFTTEST output • 4-5 seconds, check for grounds • Turn off GFTTEST 7 seconds later • Check for faults 10 seconds later • Test complete	• Fail 29

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8.4 AUTOMATIC INSPECTION INFORMATION MESSAGES

The 9V736-A02B application generates the following informational messages during inspections.

Table 13. Automatic Inspection Information Messages

Alarm #	Name	Description	Sent To Office	Tested
250	Auto Test Complete, Awaiting Manual	Automatic inspections have passed, awaiting monthly Manual inspections. Message will send every 24 hours until Manual tests have passed.	Yes	FRA
251	Automatic Inspection(s) Failed	One or more Inspections failed. Tests will not restart until failed/manual tests are completed or start of next month.	Yes	FRA
252	Automatic Inspections Complete	All Automatic and monthly Manual Inspections were completed successfully. ** *all Test LEDs are red now* **	Yes	FRA
253	Automatic Inspections Local Start	A local request has been issued, placing the Automatic Inspections in Ready To Run mode. **CROSSING CONFIGURATION<>REMOTE, ISLAND ONLY, OR CP COLLECTOR**	Yes	FRA
254	Automatic Inspections Started	One or more of the following occurs: 1. Inspection time elapsed. 2. Office start request. ** *all Test LEDs set to Slow Flash Red* **	Yes	FRA
256	Manual Inspections Complete	**AUTOMATED INSPECTIONS=NO** Sent after all inspections are entered manually. LEDs will all be steady red once complete. The LEDs will return to OFF at the beginning of the month for the next inspection.	Yes	FRA

8.5 OFFICE GENERATED MESSAGES

Office software working with 9V736-A02B sends these messages.

Table 14. Office Generated Messages

Alarm #	Name	Description	Sent To Office	Tested
1000	?? Off Line	*Generated by Office Software when field sites fail to report in as required.*	No	Always
1100	?? On Line	*Generated by Office Software after alarm #1000 has been generated for a site. Indicates the field site is reporting normally again.*	No	Clears

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9.0 SPECIAL TRAIN MOVE CONDITIONS

The following definitions cover train move conditions monitored by the 9V736-A02B application.

CrossingActive

Any XR, ISL, or UAX input is de-energized.

IslandOccupied

Any ISL input is de-energized.

FullApproachMove

CrossingActive TRUE and IslandOccupied TRUE. GCP sites will not send this if train speed <15mph.

10.0 AUTOMATED/MANUAL INSPECTION RESULTS

The following table presents a listing of test numbers that will appear in SEAR II records for 9V736-A02B.

When a test applies only to a specific paragraph within a FRA subsection, it is called out with the alphabetic designator, e.g., 'Test 253c'.

Table 15. Test Number Descriptions

Test #	Test Name	Test Description	Interval	Recorded Value
1	Test 249	OB Ground Fault Detection	Self-test when tests execute, checked 10 seconds later	None
13	Test 249	X-B Ground Fault Detection	Self-test when tests execute, checked 10 seconds later	None
27	Test 249	B-G Ground Fault Detection	Self-test when tests execute, checked 10 seconds later	None
28	Test 249	X-B2 Ground Fault Detection	Self-test when tests execute, checked 10 seconds later	None
31	Test 249	B-G2 Ground Fault Detection	Self-test when tests execute, checked 10 seconds later	None
32	Test 249	X-B3 Ground Fault Detection	Self-test when tests execute, checked 10 seconds later	None

Test #	Test Name	Test Description	Interval	Recorded Value
2	Test 251	OB	A 5 minute test executed once during a train move with AC power removed from battery chargers.	Voltage read
3	Test 251	X-B		Voltage read
29	Test 251	B-G		Voltage read
30	Test 251	X-B2		Voltage read
33	Test 251	B-G2		Voltage read
34	Test 251	X-B3		Voltage read
4	Test 253	Flash rate	One train move	Flashes per minute
5	Test 253	Lamps – EB1	One train move	Current read
6	Test 253	Lamps – EN1	One train move	Current read
7	Test 253	Lamps – EB2	One train move	Current read
8	Test 253	Lamps – EN2	One train move	Current read
21	Test 253	Lamps – EB3	One train move	Current read
22	Test 253	Lamps – EN3	One train move	Current read
23	Test 253	Lamps – EB4	One train move	Current read
24	Test 253	Lamps – EN4	One train move	Current read
9	Test 255	Gates	One train move	None
10	Test 257	Warning System	Continuous	None
11	Test 259	Warning Time	One train move	Warning time in seconds
12	Test 261	Traffic Preemption	One train move	None
15	Test 253c	Lamp Inspection	User entry	PASS/FAIL
25	Test 257	Bell Ringing	User entry	PASS/FAIL
32	Test 253	Lamps – EB5	One train move	Current read
33	Test 253	Lamps – EN5	One train move	Current read
34	Test 253	Lamps – EB6	One train move	Current read
35	Test 253	Lamps – EN6	One train move	Current read

Table 15. Test Number Descriptions
continued

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11.0 **TEST MODES**

Two different test modes may be selected. These settings can be accessed through the User Test button on the SEAR II front panel.

11.1 **USER DIAG**

This mode has selections for disabling alarms and starting automatic inspections locally. When a Field Test is activated it will cause all field-generated alarms numbered 1-200 to be ignored and not processed. These alarms will not be generated in the event buffer nor will they be sent to the Office. The maintainer will have the option of selecting 1, 4, 8 and 12-hour test modes. The local display will show "**SKIP ALARMS: XX MIN**". To disable a Field Test select "Disable – Test Mode".

Selecting "Start – Automatic Inspection" will set the Automatic Inspections to be flagged as Ready To Run. A message is recorded to the event buffer indicating that the tests have been started locally. It is also sent to the Office. Automatic Inspections will not run if the Crossing Configuration is set to Island Only, Remote, or CP Collector.

11.2 **MANUAL INSPECTIONS**

This mode allows for the entry of monthly manual inspections. The list of tests will also include any failed automated tests that now require manual entry. All automated and manual tests must pass in order for results to be sent to the office and for automatic inspections to run again. If all tests have not passed by month end, all remaining results will be sent to the office and saved to that month. Automatic tests will then be able to restart.

12.0 **INSTALLATION NOTES**

12.1 **GCP NODE INSTALLATION**

GCP nodes should be installed top to bottom, redundant to standalone. For instance, if there is 1 redundant GCP onsite, and 1 standalone, the main unit on the first GCP would be node GCP1 and the standby would be node GCP2. The main unit on the second GCP would be node GCP3. Odd numbered nodes should always be assigned to the Main units and even to the Standby. The user will be prompted to install the odd numbered nodes first to reduce the number of transfers necessary for install. The user may be prompted to install other nodes between the installation of GCP1 and GCP3.

12.2 **BATTERY/LAMP CALIBRATIONS**

Upon initial site setup, the user will be prompted to calibrate batteries and lamps. Any time that a battery or lamp is changed out, calibrations should be repeated. These portions of site setup can be performed individually onboard the SEAR II unit. They are located under MENU>SITE SETUP>LAMP CALIBRATIONS and MENU>SITE SETUP>BATTERY CALIBRATIONS. The user can then follow the prompts to re-calibrate.

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<u>NOTES</u>

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