





GTA 19-01-005 Jan 2010

**LIGHTING KIT, MOTION DETECTOR (LKMD) AN/GAR-2**

PMCS	
<b>BEFORE OPERATIONS</b>	<b>STATUS</b>
1) Batteries (Install new batteries).....	GO/NO GO
2) LCD Screens (Check for damage).....	GO/NO GO
3) PIR/Microwave Sensors (Check for damage).....	GO/NO GO
4) Antennas (Check for damage).....	GO/NO GO
5) Seals (Check for damage).....	GO/NO GO
6) Tripods (Check for damage, missing knobs).....	GO/NO GO
7) External Power Cables (Check for damage).....	GO/NO GO
<b>DURING OPERATIONS</b>	<b>STATUS</b>
1) Battery Power Levels (Install new batteries).....	GO/NO GO
2) Field of View (Aiming, coverage, obstructions).....	GO/NO GO
3) PIR/Microwave Sensors (Damage, obstructions).....	GO/NO GO
4) Dirt/Debris (Clean sensors, LCD screens).....	GO/NO GO
<b>AFTER OPERATIONS</b>	<b>STATUS</b>
1) Batteries (Remove, clean compartment).....	GO/NO GO
2) LCD Screens (Clean, check for damage).....	GO/NO GO
3) PIR/Microwave Sensors (Clean, check for damage).....	GO/NO GO
4) Antennas (Check for damage).....	GO/NO GO
5) Seals (Check for damaged).....	GO/NO GO
6) Tripods (Check for damage, missing knobs).....	GO/NO GO
7) External Power Cables (Check for damage).....	GO/NO GO

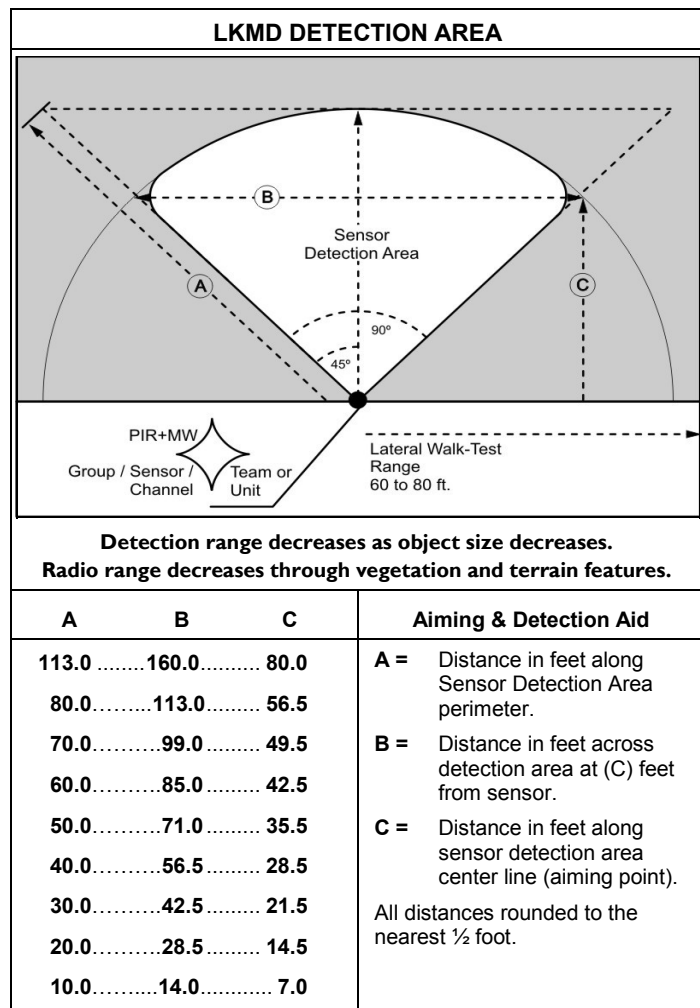
LIST OF ISSUED AND OTHER ITEMS			
Basic Set		Accessory Kit	
RCM	(1)	Tripod	(3)
MSM	(1)	Power Cable	(1)
LM	(2)	Power Supply	(1)
Antenna	(2)	Carrying Case	(1)
Carrying Case	(1)	Extension Strap	(3)
TM-11-6210-299-13&P (Other)	(1)	AA Batteries (Other) (Qty Rqd)	(30)
Serial Number Record			
RCM		LM 1	
MSM		LM 2	

WARNING SUMMARY	
	<b>CHEMICAL</b> —Battery chemicals can cause burns to unprotected skin.
	<b>EAR PROTECTION</b> —Failure to wear ear protection can cause hearing damage or loss.
	<b>LED LIGHT</b> — Direct exposure can cause temporary blindness and permanent damage.
	<b>EXPLOSIVE</b> — Do not Incinerate batteries; dispose of properly.

BATTERY LIFE EXPECTANCY				
Battery Type	Temperature	Device	Mission Life	
			Days	Hours
Lithium	Ambient (+21°C, +70°F)	RCM.....	21	525
		MSM.....	8	200
		LM.....	10	250
	Hot (+49°C, +120°F)	RCM.....	19	473
		MSM.....	7	180
		LM.....	9	225
	Cold (-32°C, -25°F)	RCM.....	16	394
		MSM.....	6	150
		LM.....	7	188
Alkaline	Ambient (+21°C, +70°F)	RCM.....	18	450
		MSM.....	7	175
		LM.....	5	120
	Hot (+49°C, +120°F)	RCM.....	16	405
		MSM.....	6	158
		LM.....	4	108
	Cold (-20°C, -4°F)	RCM.....	10	243
		MSM.....	3	95
		LM.....	2	65
Recharge-able	Ambient (+21°C, +70°F)	RCM.....	13	325
		MSM.....	5	120
		LM.....	6	150
	Hot (+49°C, +120°F)	RCM.....	11	276
		MSM.....	4	102
		LM.....	5	128
	Cold (-20°C, -4°F)	RCM.....	2	65
		MSM.....	1	24
		LM.....	1	30

BASIC EMPLACEMENT PROCEDURES	
<b>PROCEDURE</b>	<b>TM-11-6210-299-13&amp;P</b>
1) Install Batteries, Tripods, Antennas.....	0005-1
2) Test RCM, MSM, and LMs.....	0005-2
3) Configure MSM using Setup Configuration Menu	
a. Change Sensor and Group IDs.....	0008-1
b. Change VHF Channel.....	0008-5
4) Attach LMs.....	0008-8
5) Configure RCM using RCM Setup Menu	
a. Change MSM Sensor and Group IDs.....	0010-1
b. Change VHF Channel.....	0010-4
c. Change MSM Alarm Mode.....	0010-6
d. Enable Tamper Alarm.....	0010-10
6) Position the MSM and LMs	
a. Conduct Walk-Test.....	0006-4
b. Arm System using RCM MSM Control Menu.....	0006-8
7) Set MSM Alarm Responses using MSM	
a. Change the MSM Alarm Mode (Light – Constant/Strobe/Visual).....	0009-1
b. Change the MSM Audio Duration (Audio – On/Off).....	0009-6
8) Arm the System from the RCM.....	0006-8

LKMD EMPLACEMENT DATA	
1) MSM Optimal Intrusion Detection Area	
2) MSM Position (Grid location)	
3) MSM Group ID or Individual MSM ID	
4) Azimuth to MSM (from RCM location)	
5) Distance to MSM (from RCM location)	



### SENSOR / MONITOR SYMBOLS

Sensing technique<sup>1</sup>

Special application and mode designator.

Identification code / channel number for individual sensors<sup>2</sup>

Designation of unit monitoring receiving, or controlling sensor.

Number of sensors in field (if applicable)

Location when depicting individual sensor.

<sup>1</sup> Plus sign (+) between sensing techniques indicates detection of both stimuli to activate response.  
<sup>2</sup> Slash sign (/) between sensing techniques indicates detection of either stimuli to activate response.

SENSORS	MONITORS				
Symbol	Information	Legend	Symbol	Information	Legend
	<p>Type of Sensor(s)</p> <p>Group / Sensor / Channel IDs</p> <p>Emplacing Team, Squad, Platoon</p>	<p>PIR+MW</p> <p>3 / 4 / 100</p> <p>1 Sqd MP Co</p>		<p>Channel</p> <p>Monitoring Team or Unit</p>	<p>100</p> <p>1 Sqd MP Co</p>

### ALARMS REFERENCE

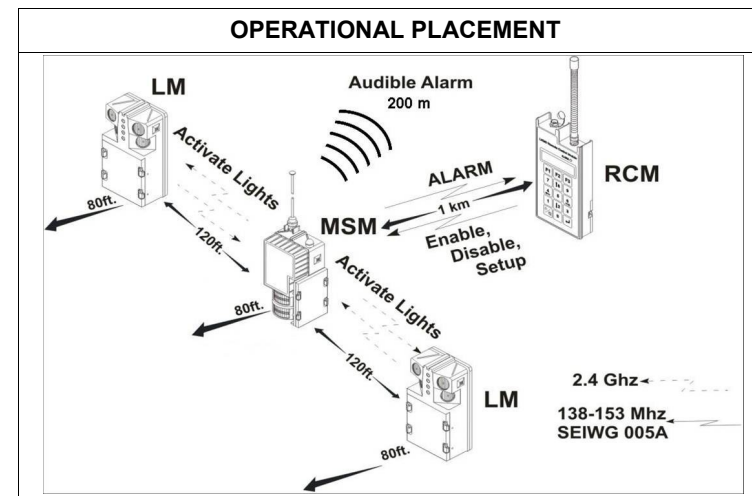
**LKMD Alarms**

Tamper Alarm ..... MSM GRP#-SENSOR ID# T 00:01 (Time elapsed)  
 Intrusion Alarm ..... MSM GRP#-SENSOR ID# I 00:01 (Time elapsed)

**BAIS Alarms**

Tamper Alarm ..... 20/8 (3 Times in a Row)  
 Personnel Detection ..... (ID#) (P)  
 Unclassified Detection ..... (ID#) (-)  
 Vehicle Detection

Tracked Vehicle Detection ..... (ID#) (T)  
 Unclassified Vehicle Detection ..... (ID#) (V)  
 Wheeled Vehicle Detection ..... (ID#) (W)



### TROUBLESHOOTING INDEX

MALFUNCTION/SYMPTOM	TM 11-6210-299-13&P
<b>Module Power</b>	
No Readout on RCM LCD Screen; Power Button Pressed .....	0020-1
No Readout on MSM LCD Screen; Power Button Pressed .....	0020-1
LM Power LED Not Lit; TST button Pressed .....	0020-2
LM Visible Light Turns Off Shortly After Turning On .....	0020-2
LM Turns Off .....	0020-3
LM Visible or IR LEDs do not Illuminate .....	0020-3
TST Button Does Not Activate LM .....	0020-3
<b>Operation Errors</b>	
PIN 1 Fails .....	0020-4
RCM LCD Screen Displays [CHECK MSMS] .....	0020-4
LCD Screen Malfunctions .....	0020-5
<b>Communication Errors</b>	
RCM Displays [COMM ERROR (x,y)] .....	0021-1
RCM Fails to Receive BAIS Messages .....	0021-2
VHF Radio Link Errors or Malfunctions .....	0021-3
RCM and MSM Not Communicating .....	0021-4
RF Radio Link Errors or Malfunctions .....	0021-6
<b>Self-Test Errors</b>	
RCM Displays [VHF MODULE ERROR] .....	0022-1
MSM Displays [VHF MODULE ERROR] .....	0022-2
RCM Displays [CONFIGURATION ERROR] .....	0022-2
MSM Displays [CONFIGURATION ERROR] .....	0022-3
MSM Displays [SENSOR INITIALIZATION ERROR] .....	0022-3