

**WORKSHOP 1 FCS TEST STATION FUNCTIONS AND DESCRIPTIONS
(ATTACHMENT 0003)**

No.	Test Station	Function	TEST COMPONENTS	
			Item	Part No.
1	EGYPT M1A1 TEST STATION (RAYTHEON)	- Perform automatic functional testing of the corresponding M1A1 equipments . - Diagnose and isolate test failures . - Testing , Troubleshooting , and Depot – Level maintenance of the M1A1 System Cardes .	Laser Range Finder (LRF)	
			Power Supply	9376166
			Receiver A – Trigger	12272620
			Power Supply	12272850
			Flash Lamp Trigger	12272855
			Logic	12272870
			Thermal Imaging System (TIS)	
			Pre Amplifier	9376219
			Post Amplifier	9376223
			AMP MUX	9376227
			HSMUX	9376230
			Scan Control	9376233
			Thermal Receiver Unit (TRU)	
			Post AMP A66-71	12272406
			Bias Voltage Regulator	9376084
			CCA – A76 High Speed MUX	12272451
			Scan Position Sensor	12272222
			Scanner Mechanical	12271670
			Thermal Image Control Unit (TICU)	
			Vertical AMP	12271817
			Horizontal AMP	12272297
			Thermal Electronic Unit (TEU)	
			TEU	12272535
			Reticule Generator	9376046
			Azimuth Timing	9376070
			BIT	12271922
			Symbol Decoder	12271952
			Reticule Data Processor	12272324
			Sweep Generator	12272552
			Symbol Generator	12271947
			Miniaturized Electronic Unit (MEU)	
			MEU	9376192
			Electronic Unit CCA	9376196
			Power Control Unit (PCU)	
			Switching Regulator	12272541
			Converter Assembly	12272480
			AC Generator Assembly	12272156
			CCA - A1 Power Switching Unit	12272578
			THERMAL POWER CONTROL UNIT	
			TPCU	12272555
Switching Regulator	12325140			
Linear Regulator I	12272250			
Linear Regulator II	12272260			
EMI Filter	12272395			
Converter	12325150			
AC Generator	12325160			
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EGYPT MIAI TEST STATION (RAYTHEON) - Continue

Commander Weapon Station – Power Control Unit Assembly (CWS – PCU)	
Power Control Unit Assy.	9338228
Computer Control Panel (CCP)	
CCP	12925904
CCP	12911212
I / O and Display	12279566
Tank Commander Control Panel (TCCP)	
Tank Commander Panel	12549800
Computer Electronic Unit (CEU)	
CEU Assy.	9376750
CEU Sub Assy.	12925899
Power Supply Assy.	12279592
Switching Regulator	12279588
Reticule Drive CCA – A1	12279321
Central Processor	12279623 – 1
Re Programmable Memory	9376752
Re Programmable Memory	12925890
Digital I / O #1 A4	12279466
Digital I / O #2 A5	12279639
Power Conditioner	9376745
Sensor Input (23 Ch)	12925896
Sensor Input A7	9376743
Line Of Sight Electronic Unit (LOS - EU)	
LOSEU	12281256
Logic and 19.2 KHz PS	12281134
Stabilization CCA – A5	12281136
Digital Current Power AMP	12903190
15 V Regulator	9377512
400 Hz Power Supply	9377513
Pre – Regulation PS	12281140
Digital Control A9	12281137
Demodulator A7	12281141
Gyro Wheel Supply	12281255
Digital Current Power AMP	12281135
Gun Turret Drive Electronic Unit (GTD - EU)	
GTDEU	12321130
Power Supply	33806 – 3
Traverse Sub Assy.	40888
Elevation Sub Assembly	44105
Turret Network Box (TNB)	
TNB	12549752

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			TNB – A1 CCA	9338442
			TNB – A2 CCA	9338618
			TNB – A3 CCA	12316546
			TNB – A4 CCA	12549748
			Gunner Primary Sight (GPS)	
			CCA – AZ Drive	12548178

No.	Test Station	Function	TEST COMPONENTS		
2	AUTO CABLE TEST STATION	- Testing , Troubleshooting , and Depot – Level maintenance of the M1A1 System Cables .	Cable		
				Part No.	
			1W105 - 9	123224371	
			1W206	12287220	
			1W104	12287204	
			1W106	12287206	
			1W200 - 9	12324468	
			1W207 - 9	12324532	
			1W117 - 9	12549817	
			1W107 - 9	12324407	
			1W212 - 9	12324444	
			1W102 - 9	12548344	
			1W100 - 9	9377486	
			1W204 - 9	12324534	
			1W208 - 9	12324530	
			1W108 - 9	12324533	
			1W201 - 9	12324565	
			1W209 - 9	12324531	
			1W203 - 9	12325514	
			1W202 - 9	12324470	
			1W109	Repair Only - No Test Fixture	12287209
			1W110		1287210
1W101 - 9	12325507				
1W205 - 9	12325511				
1W107 - 2	12287213				
1W111	9377226				
3	HOT MOCKUP TEST STATION	- Isolates problems in the M1A1 Fire Control System to a particular LRU . - A suspect LRU is inserted into a known good Hot Mock Up environment . - The test detects the presence or absence of known signals for a specific LRU using an applicable breakout box to tap those signals under test . - It provides testing of the remaining LRU's in the M1A1 FCS by identifying deviations from normal operations . - To identify a defective unit , a	LRU		
				Part No.	
			Gunner Primary Sight	9338430	
			Image Control Unit	12271800	
			Thermal Receiver Unit	9376000	
			Gun Trunion Resolver	12273251	
			Laser Range Finder	12272600	
			Gunner Control Handle	12283113	
			Commander Control Handle	12283114	
Gun / Turret Drive Electronic Unit	1231130				

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	golden unit is replaced with the LRU in the station . - Once an LRU or multiple LRU's are identified as defective , they're removed from the station , and repaired using the appropriate test station and test procedures , and return to service .	Turret Network Box	12549752
		Commander Control Panel	12549797
		Computer Control Panel	12911212
		Crosswind Sensor	9338559
		Line Of Sight Electronic Unit	12281256
		Thermal Power Control Unit	12272555
		Thermal Electronic Unit	12272535
		Computer Electronic Unit	937750
		Cant Sensor	12548046

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4	THERMAL IMAGING CONTROL UNIT TEST STATION	- Testing , Troubleshooting , and Depot – Level maintenance of the Image Control Unit	Thermal Image Control Unit
5	BALLISTIC COMPUTER TEST STATION	<p align="center">- It Primary tests the interaction of the Computer Electronic Unit (CEU) with its peripherals :</p> <ul style="list-style-type: none"> ▪ Computer Control Panel ▪ Cant Unit Assembly ▪ Crosswind Velocity Sensor <p>- It separately tests the :</p> <ul style="list-style-type: none"> ▪ Computer Electronic Unit ▪ Crosswind Velocity Sensor ▪ Cant Unit Assembly 	Computer Electronic Unit (CEU)
			Computer Control Panel (CCP)
			Cant Unit Assembly

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			Crosswind Velocity Sensor	
6	THERMAL TARGET TEST STATION	- Testing , maintenance , and Depot – Level maintenance of the Gunner's Primary Sight	Item	Part No.
			Gunner's Primary Sight	12549762 – 2
			Gunner's Primary Sight	12549762 – 4
			Gunner's Primary Sight	12549762 - 5
7	SERVO TORQUE DRIVE ASSEMBLY TEST STATION	- Testing , maintenance , and Depot – Level maintenance of the Servo Torque Drive Assembly	Servo Torque Drive Assembly	

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8	CAPTURE LOOP CARD ASSEMBLY TEST STATION	<p>- Determine the integrity of the Capture Loop Card Assembly to perform the function of Gyro Interface as a part of the Servo Torque Drive Assembly .</p> <p>- All operation and testing performed with the station shall be made at : -</p> <p><u>Atmospheric Conditions :</u></p> <ul style="list-style-type: none"> ▪ Atmospheric pressure of (24 to 32 inches) of mercury absolute ▪ Temperature of 25 + 10 degrees Centigrade ▪ Relative Humidity of less than 90 % <p><u>Input Power</u></p> <ul style="list-style-type: none"> ▪ 115 V RMS ▪ Single phase ▪ 50 – 60 HZ 	Capture Loop Card Assembly	12281217

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		<ul style="list-style-type: none"> ▪ 15 A 		
9	GUN TRUNNION RESOLVER TEST STATION	<ul style="list-style-type: none"> - Determine the Gun Trunnion Resolver (GTR) ability to meet design Specifications at room ambient conditions . <p><u>Test Requirements :</u></p> <ul style="list-style-type: none"> - All operation and testing performed with the station shall be made at an : <p><u>Atmospheric Conditions :</u></p> <ul style="list-style-type: none"> ▪ Atmospheric pressure of (24 to 32 inches) of mercury absolute . ▪ Temperature of 25 + 10 degrees Centigrade . ▪ Relative Humidity of less than 90 % <p><u>Input Power</u></p> <ul style="list-style-type: none"> ▪ 115 V RMS ▪ Single phase ▪ 50 – 60 HZ ▪ 15 A <p><u>Facilities</u></p> <ul style="list-style-type: none"> ▪ The 115 VAC power receptacle must be within 15 fet (4.5 M) of the rear of the test station enclosure . <ul style="list-style-type: none"> - These test requirements are the minimum acceptable standards 	Item	Part No.
			Gun Trunnion Resolver	12273251

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10	OPTICAL TEST STATION FOR AZIMUTH DRIVE ASSEMBLY TEST STATION	<ul style="list-style-type: none"> - Allows the operator to determine the serviceability of the Azimuth Drive Assembly (AZD) . - Perform a multifunction test of the AZD . - Supports preshop analysis , test after repair and final assembly testing . 	Azimuth Drive Assembly (AZD)
11	OPTICAL TEST STATION FOR OBJECTIVE LENS RELAY ASSEMBLY	<ul style="list-style-type: none"> - Check component alignment for daylight optical path and thermal optical path using cylindrical Helium Neon Laser Assembly . - Check focus of the daylight optical path and the thermal optical path . - Overhaul operations : <ul style="list-style-type: none"> ▪ Prisms Assemblies ▪ Cell Assembly ▪ Beam Splitter - Supports alignment , final testing , and verifies correct pinning operations . 	Objective and Relay Assembly
12	OPTICAL TEST STATION FOR GUNNER PRIMARY SIGHT EXTENSION	<ul style="list-style-type: none"> - Checking System alignment using cylindrical Helium Neon Laser Assembly - Magnification Test - Resolution Test - Transmission Test - Focusing Ring Torque Test - Component alignment : <ul style="list-style-type: none"> ▪ Front mirrors ▪ Rear mirrors ▪ Cell Assembly 	Gunner's Primary Sight Extension

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13	OPTICAL TEST STATION FOR GUNNER AUXILIARY SIGHT	<ul style="list-style-type: none"> - Parallax Adjustment - Reticle pattern orientation - Reticle switching accuracy Test - Reticle Backlash Adjustment Test - Reticle motion accuracy test - Reticle motion range test - Reticle illumination test - Focusing arm torque test - Boresight knob force and torque test - Diopter torque test 	Gunner Auxiliary Sight					
14	OPTICAL TEST STATION FOR COMMANDER WEAPON STATION SIGHT	<ul style="list-style-type: none"> - Checking System alignment . 	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th data-bbox="784 699 1136 756">Item</th> <th data-bbox="1136 699 1482 756">Part No.</th> </tr> </thead> <tbody> <tr> <td data-bbox="784 756 1136 1163" style="text-align: center;">Commander Weapon Station Sight</td> <td data-bbox="1136 756 1482 1163" style="text-align: center;">12279200</td> </tr> </tbody> </table>	Item	Part No.	Commander Weapon Station Sight	12279200	
Item	Part No.							
Commander Weapon Station Sight	12279200							
15	LASER ENERGY PROTECTION TEST STATION	<ul style="list-style-type: none"> - Tests the laser protection in the Objective and Relay Assembly and within the Thermal Target . - Determines the amount of laser attenuation - Determines minimum amount of attenuation Required . - Capable of testing : <ul style="list-style-type: none"> ▪ GPS ▪ Unity window within GPS ▪ Objective and Relay Assembly - measures the energy at the output . 	Laser Energy					

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16	LASER RANGE FINDER AREA - SUBSYSTEM TEST STATION	<ul style="list-style-type: none"> - Allows the technician to test the repaired LRF in a live fire situation . - It demonstrate the operational capability of the LRF . - It tests the range functionality of the LRF by firing the LRF and deflecting and scattering the laser pulse to a photo-detector . - It converts the optical pulse to an electrical pulse in the photo-detector and sends it to the digital delay / pulse generator . - It then creates a delay pulse corresponding to the time – of – flight of the laser pulse for a predetermined range distance in the digital delay / pulse generator . - It converts this electrical signal simulating the laser pulse into an optical pulse by a laser diode which matches the pulse width and wavelength of the outgoing laser pulse . - Finally , it sends the return optical pulse in the receiver of the LRF which calculates the time – of – flight of the laser pulse and the corresponding range distance . - This range data is sent back to the control consol and displayed . 	Laser Range Finder
17	LASER RANGE FINDER AREA TELESCOPE ASSEMBLY TEST STATION	<ul style="list-style-type: none"> - Allows the technician to test alignment and focus of the telescope . - Alignment is performed so the telescope looks in the same direction as the reticle . 	Laser Range Finder - Telescope Assembly

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18	LASER RANGE FINDER AREA TRANSMITTER ALIGNMENT TEST STATION	<ul style="list-style-type: none"> - Allows the technician to test the energy and divergence of the laser pulses from the laser transmitter and align the resonator mirrors as necessary. - The transmitter is tested passively by aligning a visible laser into the resonator and adjusting the rear mirror so that it is parallel to the front mirror. - The transmitter is then tested in an active mode. - It is fired , pulse energy and divergence checked , and the alignment fine tuned as required . - The laser's beam profile is measured by a CCD camera and beam analysis software determine the divergence of the laser pulse . 	Laser Range Finder - Transmitter Assembly
19	LASER RANGE FINDER AREA TRANSCIEVER TEST STATION	<ul style="list-style-type: none"> - Allows the technician to test and align the telescope reticle with the transmitter laser beam . - The laser Power is adjusted so that the laser produces only one pulse each time is fired . - The transmitter laser beam is monitored by software that reads sensor outputs and gives the technician a profile of the laser's performance . 	Laser Range Finder - Transceiver Assembly