

MATERIAL LIST

REV

A B C D E F G H J

MODEL ML-FFR-3S

SHEET 1 OF 29

QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION ELECTRICAL/MECHANICAL	REF.	LOCATION		SYMBOLS
						USED ON	QUAN.	
1	A-164-1		2	Coil, B.F.O. Sub-Assembly		A-164-2	1	
1	BI-101-44		1	Lamp, Incandescent, Bayonet		A-2158	1	I100
1	CC21SL050D		2	Capacitor, Fixed, Ceramic-Dielectric		A-465	1	C145
1	CC21SL100D		2	Capacitor, Fixed, Ceramic-Dielectric		A-465	1	C144
1	CC21SL150E		2	Capacitor, Fixed, Ceramic-Dielectric		A-465	1	C143
1	CC21SL220J		2	Capacitor, Fixed, Ceramic-Dielectric		A-464	1	C131
1	CC21SL300J		2	Capacitor, Fixed, Ceramic-Dielectric		A-2147	1	C141
1	CC21SL470K		2	Capacitor, Fixed, Ceramic-Dielectric		A-2147	1	C138
1	CC21SL510J		2	Capacitor, Fixed, Ceramic-Dielectric		A-2147	1	C119
2	CC26SL101K		2	Capacitors, Fixed, Ceramic-Dielectric		A-463	2	C118,121
1	CC-100-9		2	Capacitor, Fixed, Ceramic Disc.		A-464	1	C132
2	CC-100-15		2	Capacitor, Fixed, Ceramic Disc.		A-2111	1	C125,
						A-464	1	C133
19	CC-100-16		2	Capacitor, Fixed, Ceramic Disc.		A-2147	16	C101,102,103,106,7,8,
						A-2147	5	C109,110,113,114,115,
						A-463	1	C122
						A-2147	2	C139,140
						A-465	1	C143,
						A-2111	1	C146,
						A-2158	1	C154,
						A-2147	2	C159,161
3	CC-100-23		2	Capacitor, Fixed, Ceramic, Disc.		A-2147	1	C153A,B,
						A-2149	1	C157A,B,
						A-2181	1	C158A,B
1	CC-100-32		2	Capacitor, Fixed, Ceramic, .1, 500 V		A-2147	1	C160
2	CC-101-2		1	Capacitor, Fixed, Ceramic		A-2147	1	C135,
						A-465	1	C142

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QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION ELECTRICAL/MECHANICAL	REF.	LOCATION		SYMBOLS
						USED ON	QUAN.	
1	CC-101-3		1	Capacitor, Fixed, Ceramic		A-465	1	C134
1	CE52F350R		2	Capacitor, Dry Electrolytic, Octal		A-1592	1	C149A,B
1	CE-100		1	Capacitor, Dry, Electrolytic		A-2148	2	C151
3	CF-100		1	Coil Form		A-157	1	
1	CF-102		1	Coil Form, Slug Tuned		A-164	1	
6	CI-109-18		2	Core, Tuning		A-157	2	
2	CL-101-3		1	Choke, R.F.		A-463 A-465	1 1	L102, L104
2	CM20B471K		2	Capacitor, Fixed, Mica		A-2148	2	C155,156
1	CM20C511G		2	Capacitor, Fixed, Mica		A-164-2	1	C136
6	CM20D621G		2	Capacitor, Fixed, Mica		A-157	2	C104,105,111,112,116, C117
4	CN-100-3		1	Capacitor, Fixed, Moulded Plastic		A-2148 A-464 A-463	1 2 1	C123, C129,130, C152

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QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION ELECTRICAL/MECHANICAL	REF.	LOCATION		SYMBOLS
						USED ON	QUAN.	
1	CP41B1FF405K		2	Capacitor, Fixed, Cylindrical Case		A-1592	1	C148
1	CP53B4EF104L		2	Capacitor, Fixed, Bathtub Case		A-1592	1	C147A,B
1	CP69B1EF105K		2	Capacitor, Fixed, Metallic Case		A-2143	1	C128
1	CP69B4EF504V		2	Capacitor, Fixed, Metallic Case		A-2143	1	C120
1	CR-46/U-.455P		1	Crystal, Unit, Quartz (Supplied Only on Customers Request)			1	Y100
1	CT-104-2		1	Capacitor, Variable, Air, Trimmer		A-2158	1	C137
4	CU-139-2B		1	Ferrule Handle				
1	CV11C300		1	Capacitor, Variable		A-2149	1	C100
1	DL-100-1			Dummy Load, Elec, BNC		A-2150	1	AT100
1	FC-100-6		1	Clip, Component		A-2150	1	
1	FH-100-2		1	Fuse, Extractor, Post		A-2150	1	XF-100
1	FP-102-1 (USE A-139)		8	Chassis Frame				For Commercial & US NAVY For RCAF Only
1	FP-102-2 (USE A-139)		8	Chassis Frame				
1	FP-103 (USE A-156)		8	Chassis Center				
4	FP-108-1		1	Can		A-136	1	
1	FP-109		1	Clamp, Xtal		A-163	1	
1	FP-111(USE A-158)		4	Can	LD-399	A-2143	1	For XY100
1	FU-100-2		1	Fuse		A-2150	1	F100
2	HA-102-2BN-C		2	Handle (Type Gray)		A-2158	2	

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QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION	REF.	LOCATION		SYMBOLS
						USED ON	QUAN.	
ELECTRICAL/MECHANICAL								
1	JJ-034	1		Jack, Telephone		A-2158	1	J106
1	JJ-104	2		Connector, Multi. Coaxial		A-277	1	J-107
1	JJ-115	1		Receptacle, Modified		A-2150	1	J108
1	JJ-120-2	1		Receptacle, 4 Prong		A-2150	1	J105
5	MP-100-4	2		Knob, Instrument, Fluted Type		A-2158	5	
4	MS-132	1		Grounding Strap, I.F. Core		A-131	1	
						A-162	1	
2	MS-145	1		Lock, Link		A-2158	2	
6	MS-154-1	1		Straddle Plate		A-2150	6	
1	MS-181	2		BFO Shield		LD2084	1	
1	MS-182	4		Cover Assembly, Power Supply		A-316	1	
2	MS-183	4		Cover Assembly, Top and Bottom	MS-1283	A-317	1	
1	MS-194	ND		Jack Cover		A-324	1	
7	MS-343	2		Bracket, Terminal Board		A-343	2	
						A-464	2	
						A-465	1	
						A-2111	2	
1	MS-1283	1		Blank Size, Covers	MS-183			
1	MS-1331	1		Cover, Capacitor		A-1581	1	
1	MS-1332	1		Brace, Power Supply Chassis		A-1592	1	
1	MS-1346	8		Chassis, Power Supply	LD-460	A-1592	1	
1	MS-2635	8		Panel, Front	LD-960	A-2158	1	
1	MS-2636	4		Chassis Frame	LD-965	A-2150	1	
1	MS-2637	R		Chassis, Center	LD-961	A-2143	1	

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														SHEET 5	OF 29
QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION	REF.	LOCATION		SYMBOLS							
						USED ON	QUAN.								
ELECTRICAL/MECHANICAL															
1	MS-2645		1	Squelch, Plate	LD-964										
1	MS-2652		1	Bracket, Mounting, Potentiometer											
X	NP *** (USE S-278)		-	Nameplate, Gov't.											
1	NP-102-5		1	Nameplate, Identification (Commercial)		A-2158	1								
1	NP-134		1	Nameplate, Patent		A-2150	1								
1	PM-158		2	Brace, Front Panel, Top		A-2158	1								
1	PM-159		2	Brace, Front Panel, Bottom		A-2158	1								
1	PM-160		2	Brace, Side		A-2149	1								
2	PM-175		1	Brace, Jack		A-2149	2								
2	PM-236		1	Bar, Panel Locking											
3	PX-105		ND	Board, Terminal, I.F.		A-131	1								
1	PX-112		ND	Board, Terminal BFO		A-162	1								
1	PX-166		ND	Board, Terminal, Reactance		A-1179	1								
1	PX-167		ND	Board, Terminal		A-1180	1								
1	PX-168		ND	Board, Terminal, Audio		A-1181	1								
1	PX-169		ND	Board, Terminal, Detector		A-1182	1								
1	RC20GF102J		2	Resistor, Fixed, Composition		A-464	1	R135							
4	RC20GF104K		2	Resistor, Fixed, Composition		A-2147	3	R102, 107, 111, 161							
1	RC20GF105K		2	Resistor, Fixed, Composition		A-2147	1	R157							

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QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION ELECTRICAL/MECHANICAL	REF.	LOCATION		SYMBOLS
						USED ON	QUAN.	
* 1	RC20GF272K		2	Resistor, Fixed, Composition		A-2147	1	R122
1	RC20GF121K		2	Resistor, Fixed, Composition		A-2147	1	R140
5	RC20GF124K		2	Resistor, Fixed, Composition		A-2111	1	R123, R162
						A-464	1	R124,
						A-465	1	R132,
2	RC20GF125K		2	Resistor, Fixed, Composition		A-2147	1	R141
						A-2111	1	R116,
2	RC20GF154J		2	Resistor, Fixed, Composition		A-1592	2	R117
1	RC20GF181K		2	Resistor, Fixed, Composition		A-464	1	R145, 147
1	RC20GF220K		2	Resistor, Fixed, Composition		A-465	1	R134
3	RC20GF221K		2	Resistor, Fixed, Composition		A-2147	3	R150
3	RC20GF222K		2	Resistor, Fixed, Composition		A-2147	3	R101, 106, 110
								R104, 109, 113,
* 2	RC20GF225K		2	Resistor, Fixed, Composition		A-2147	2	R153, 160
1	RC20GF274J		2	Resistor, Fixed, Composition		A-463	1	R115
1	RC20GF274K		2	Resistor, Fixed, Composition		A-2147	1	R100
3	RC20GF333J		2	Resistor, Fixed, Composition		A-2147	1	R105,
						A-463	1	R114,
						A-2147	1	R137
1	RC20GF335K		2	Resistor, Fixed, Composition		A-2148	1	R142
1	RC20GF392J		2	Resistor, Fixed, Composition		A-2148	1	R128
2	RC20GF473K		2	Resistor, Fixed, Composition		A-463	1	R119
						A-2147	1	R139
7	RC20GF474K		2	Resistor, Fixed, Composition		A-463	2	R118, 120,
						A-2111	1	R125,
						A-464	3	R129, 130, 131,
						A-2147	1	R158
1	RC20GF563K		2	Resistor, Fixed, Composition		A-465	1	R138
2	RC20GF682J		2	Resistor, Fixed, Composition		A-1592	2	R144, 146
3	RC20GF683K		2	Resistor, Fixed, Composition		A-2147	3	R103, 108, 112
1	RC20GF823J		2	Resistor, Fixed, Composition		A-464	1	R133
								R156
1	RC32GF102K		2	Resistor, Fixed, Composition		A-2147	1	R152
1	RC32GF103J		2	Resistor, Fixed, Composition		A-2147	1	R151
1	RC32GF274K		2	Resistor, Fixed, Composition				
1	RC32GF683K		2	Resistor, Fixed, Composition		A-2111	1	R159

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															SHEET	7	OF	29
QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION ELECTRICAL/MECHANICAL	REF.	LOCATION		SYMBOLS										
						USED ON	QUAN.											
1	RC42GF152K		2	Resistor, Fixed, Composition				R127										
1	RC42GF241J		2	Resistor, Fixed, Composition		A-2147	1	R126										
1	RV4ATRD105D		2	Resistor, Variable, Composition, 2 Watt		A-2158	1	R121										
1	RV4ATRD252A		2	Resistor, Variable, Composition, 2 Watt		A-2158	1	R155										
1	RV4ATSA252A		2	Resistor, Variable, Composition, 2 Watt		A-2143	1	R136										
1	RV4BTRD503E		2	Resistor, Variable, Composition, 2 Watt		A-2158	1	R143 (S102)										
1	RW-102		1	Resistor, Fixed, W.W., 25 Watts, 600 Ohms		A-1592	1	R149										
1	RW-110-30		1	Resistor, Fixed, W.W., 20 Watts, 600 Ohms		A-1592	1	R148										
1	RY-126		1	Cushion, Capacitor		A-1581	1											
1	SO-239		1	Connector, Receptacle		A-2150	1	J109										
2	ST-12A			Switch, Toggle		A-2158	2	S100, 104										
1	ST22N			Switch, Toggle		A-2158	1	S101										
1	SW-100		1	Switch, Rotary		A-2158	1	S103										

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													SHEET	8 OF 29
QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION ELECTRICAL/MECHANICAL	REF.	LOCATION		SYMBOLS						
						USED ON	QUAN.							
1	TF-100		2	Transformer, Output, Audio		A-2143	1	T104						
1	TF-196		2	Transformer, Power		A-1592	1	T105						
2	TF-5000		2	Inductor		A-1592	2	L100,101						
1	TM-100-3		1	Terminal Strip, Barrier Lug Type		A-2150	1	E100						
2	TM-100-8		1	Terminal Strip, Barrier Lug Type		A-2150	2	E101,102						
1	TR-021 (USE ML-A-165)		-	Transformer Ass'y., Antenna Matching		A-2150	1	T100						
2	TS-101-P01		2	Socket, Octal (USE Cinch No. 51B13405)		A-1592	2	XC149,XV108						
9	TS-102-P01		1	Socket and Shield, 7 Pin Miniature		A-2143	7	XV100,101,102,103, XV105,106,107,						
						A-1592	1	XV109,						
						A-2143	1	XV110						
1	TS-102-U01		1	Socket and Shield, 7 Pin Miniature		A-2142	1							
6	TS-102-U02		1	Socket and Shield, 7 Pin Miniature		A-1592	1	For XV109						
2	TS-102-U03		1	Socket and Shield, 7 Pin Miniature		A-2142	5							
1	TS-103-P01		2	Socket/Shield Noval		A-2142	2							
1	TS-103-U02		2	Socket/Shield Noval		A-2143	1	XV104						
1	TS-104-1		1	Socket, Crystal		A-2142	1							
						A-2143	1	XY100						
1	TS-106-1		1	Socket, Lens, Miniature Bayonet		A-2158	1	XI100						
5	UG-625/U		1	Receptacle		A-2150	5	J100,101,102,103,104						
1	WR-100-4		2	Wrench, Hex.		A-2142	1							

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QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION TUBES & DIODES	REF.	LOCATION		SYMBOLS
						USED ON	QUAN.	
1	5Y3GT		1	Tube, Electron		A-2142	1	V108
1	6AB4		1	Tube, Electron		A-2142	1	V110
1	6AG5		1	Tube, Electron		A-2142	1	V107
1	6AL5		1	Tube, Electron		A-2142	1	V103
1	6AQ5		1	Tube, Electron		A-2142	1	V105
3	6BA6		1	Tube, Electron		A-2142	3	V100,101,102
1	6J6		1	Tube, Electron		A-2142	1	V106
1	6T8		1	Tube, Electron		A-2142	1	V104
1	0A2		1	Tube, Electron		A-2142	1	V109

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SHEET 10 OF 29

QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION HARDWARE	REF.	LOCATION		SYMBOLS
						USED ON	QUAN.	
8	CU-101-1		1	Ferrule, Coaxial Cable		CA-135	2	
						CA-136	2	
						CA-137	1	
						CA-139	1	
						CA-140	1	
						CA-165	1	
8	CU-101-2		1	Ferrule, Coaxial Cable		CA-135	2	
						CA-136	2	
						CA-137	1	
						CA-139	1	
						CA-140	1	
						CA-165	1	
2	CU-102-4		1	Clamp "G" Type		A-2141	2	
1	CU-103-1		1	Clip, Spring		A-2150	1	
2	CU-104-4		1	Clamp, Cable		A-2141	2	
1	CU-118-3S		1	Clamp, Tube		A-1592	1	For V108
11	EY-100-1		1	Eyelet, Flat Flange		A-136	2	
						A-163	2	
						A-324	2	
						A-2150	1	
7	EY-101-1		1	Eyelet, Rolled Flange		A-2143	7	
5	EY-102-4		1	Grommet, Elastic		A-1592	2	
						A-2143	3	
2	EY-102-5		1	Grommet, Elastic		A-2143	2	

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QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION HARDWARE	REF.	LOCATION		SYMBOLS
						USED ON	QUAN.	
16	FS-102-1		1	Spring "S" Type		MS-2636	16	
16	FS-109-3		1	Ring, Stud Retaining		A-316	2	
						A-317	7	
16	FS-110-1		1	Stud, Slotted Head		A-316	2	
						A-317	7	
7	FW06HBN		1	Washer, Flat		A1592	4	
						A-2141	3	
7	LWE04MRN		1	Lockwasher, Ext.		A-2142	3	
						A-2150	4	
17	LWE06MRN		1	Lockwasher, Ext.		A-1592	17	
4	LWE08MRN		1	Lockwasher, Ext.		A-1592	4	
3	LWE10MRN		1	Lockwasher, Ext.		A-1592	3	
2	LWI10LRN		1	Lockwasher, Int.		A-2158	2	
6	LWI25LRN		1	Lockwasher, Int.		A-157	2	
4	LWI37LRN		1	Lockwasher, Int.		A-2143	1	
						A-2158	3	
3	LWI50LRN		1	Lockwasher, Int.		A-2158	3	
32	LWS03MRN		1	Lockwasher, Split		MS-2636	32	

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QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION HARDWARE	REF.	LOCATION		SYMBOLS
						USED ON	QUAN.	
75	LWS04MRN		1	Lockwasher, Split		A-158 A-463 A-464 A-465 A-1592 A-2111 A-2143 A-2149 A-2150	1 4 3 2 4 2 37 10 12	
42	LWS06MRN		1	Lockwasher, Split		A-2141 A-2143 A-2144 A-2148 A-2149 A-2150	7 20 3 3 6 3	
11	LWS08MRN		1	Lockwasher, Split		A-2144 A-2148	7 4	
9	NT-101-4		1	Nut, Strap		A-1592 A-2143	1 8	
1	NT-101-5		1	Nut, Strap		A-2143	1	
6	NT-102		1	Nut		A-157	2	
2	NT-129-632-4		1	Nut, Swage		MS-2652	2	
32	NTH0348BN6		1	Nut, Hex.		MS-2636	32	
2	NTH0440BN6		1	Nut, Hex.		A-2149	2	

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QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION HARDWARE	REF.	LOCATION		SYMBOLS
						USED ON	QUAN.	
33	NTH0440BN8		1	Nut, Hex.		A-463 A-464 A-465 A-2111 A-2143 A-2149 A-2150	4 4 2 4 1 6 12	
50	NTH0632BN8		1	Nut, Hex.		A-1592 A-2141 A-2143 A-2144 A-2149 A-2150	18 10 14 3 2 3	
3	NTH0632BN10		1	Nut, Hex.		A-2148	3	
12	NTH0832BN10		1	Nut, Hex.		A-2144 A-2148	7 5	
4	NTH3732BN16		1	Nut, Hex.		A-2143 A-2158	1 3	
10	SC-107-1		1	Bolt, Spade, Offset		A-136 A-163 A-324	2 2 2	
4	SC-110-1		1	Screw, Thread, Cutting		A-2158	4	
2	SC-112		1	Screw, Captive		A-317	1	

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QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION HARDWARE	REF.	LOCATION		SYMBOLS							
						USED ON	QUAN.								
1	SCBP0440BN3		1	Screw, Machine		A-158	1								
19	SCBP0440BN4		1	Screw, Machine		A-2142	3								
						A-2143	16								
24	SCBP0440BN6		1	Screw, Machine		A-463	4								
						A-464	4								
						A-465	2								
						A-2111	4								
						A-2141	6								
13	SCBP0440BN8		1	Screw, Machine		A-2150	4								
						A-2143	1								
						A-2150	12								
2	SCBP0440BN10		1	Screw, Machine		A-2149	2								
4	SCBP0632BN4		1	Screw, Machine		A-2143	4								
21	SCBP0632BN5		1	Screw, Machine		A-1592	16								
						A-2141	2								
12	SCBP0632BN6		1	Screw, Machine		A-2144	3								
						A-2143	8								
						A-2149	4								
2	SCBP0632BN8		1	Screw, Machine		A-2149	2								
1	SCBP0632BN14		1	Screw, Machine		A-2150	1								
5	SCBP0832BN5		1	Screw, Machine		A-2144	5								
3	SCBP0832BN6		1	Screw, Machine		A-2148	3								
4	SCBP0832BN8		1	Screw, Machine		A-1592	4								

MATERIAL LIST

REV

A B C D E F G H J

MODEL ML-FFR-3S

SHEET 15 OF 29

QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION HARDWARE	REF.	LOCATION		SYMBOLS
						USED ON	QUAN.	
4	SCBP1032BN8		1	Screw, Machine		A-1592	4	
32	SCFP0348BN4		1	Screw, Machine		MS-2636	32	
1	SCFP0440BN5		1	Screw, Machine (TMC Gray)		A-2158	1	
1	SCFP0440BN6		1	Screw, Machine (TMC Gray)		A-2158	1	
2	SCFP0632BN3		1	Screw, Machine		A-2148	2	
5	SCFP0632BN5		1	Screw, Machine		A-2144 A-2148	2 3	
2	SCFP0632BN40		1	Screw, Machine		A-1592	2	
2	SCFP0832BN7		1	Screw, Machine		A-2148	2	
10	SCFP1032BN8		1	Screw, Machine (TMC Gray)		A-2148 A-2158	6 4	
2	SCPP1032BN12		1	Screw, Machine		A-2158	2	
18	SCRPO440BN4		1	Screw, Machine		A-2143	18	
2	SCRPO632BN5		1	Screw, Machine		A-2150	2	
4	SFB0256SN3		1	Screw, Tapping, Thread-Cutting		NP- Mtg.	4	

MATERIAL LIST

REV

A B C D E F G H J

MODEL MT.-FPR-3S

SHEET 16 OF 29

QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION HARDWARE	REF.	LOCATION		SYMBOLS
						USED ON	QUAN.	
2	SM-107-13	1	1	Insert, Hex.		MS-2637	2	
6	SM-110	1	1	Bushing, Mtg., Coil		A-157	2	
2	SM-113	1	1	Nut, Lock		A-2158	2	
2	SM-114	1	1	Nut,		A-2158	2	
1	SM-123	1	1	Standoff, Rivet Type		A-158	1	
6	SP-102	1	1	Spring, Lock		A-157	2	
2	TE0832AL13H		2	Spacer, Threaded, 4½" Long		A-1592	2	
20	TE-102-2	1	1	Terminal, Turret		A-158	1	
						A-1592	2	
						A-2143	14	
						A-2150	2	
						A-2158	1	
8	TE-104-1	1	1	Terminal, Locking		A-2143	3	
						A-2149	1	
						A-2150	4	
6	TE-104-2	1	1	Terminal, Locking		A-464	1	
						A-1592	1	
						A-2141	2	
						A-2143	2	
1	TE-104-3	1	1	Terminal, Locking		A-2148	1	
1	TE-104-4	1	1	Terminal, Locking		A-1592	1	

MATERIAL LIST

REV

A B C D E F G H J

MODEL ML-FFR-3S

SHEET 17 OF 29

QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION HARDWARE	REF.	LOCATION		SYMBOLS
						USED ON	QUAN.	
6	TE-108-6	1	1	Standoff, Rivet Type		A-131	6	
2	TE-108-8	1	1	Standoff, Rivet Type		A-162	2	
12	TE-109-1	1	1	Lug, Terminal		A-131	12	
3	TE-109-3	1	1	Lug, Terminal		A-162	3	
10	TE-110-2	1	1	Lug, Solder		A-463	4	
						A-464	2	
						A-465	2	
7	TE-111-2	1	1	Lug, Solder		A-2111	2	
						A-2150	4	
						A-2158	3	
2	TE-113-.149			Lug, Solder		A-2181	2	
2	TE-116-2	1	1	Lug, Solder		A-2141	1	
						A-2149	1	
2	TE-117-21	1	1	Standoff, Spacer		A-2149	2	
4	TE-120-2	1	1	Lug, Spade		CA-280	2	
1	TE-129	1	1	Lug, Terminal		A-2158	1	
26	TE-131-4	1	1	Term. End, Midget		A-1179	7	
						A-1180	7	
						A-1181	5	
						A-1182	7	
3	WA-100	1	1	Ring, Locking		A-2158	3	
1	WA-101-1	1	1	Washer, Fibre, Flat		A-2143	1	
1	WA-101-10	1	1	Washer, Fibre, Flat		A-2158	1	
4	WA-102-6	1	1	Washer, Fibre, Shoulder		A-1592	4	

MATERIAL LIST

REV

A B C D E F G H J

MODEL ML-FFR-3S

SHEET 18 OF 29

QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION HARDWARE	REF.	LOCATION		SYMBOLS
						USED ON	QUAN.	
1	WA-102-8	1	1	Washer, Fibre, Shoulder		A-2158	1	
2	WA-108	1	1	Ring, Retaining		A-317	1	
4	WA-109-17	1	1	Washer, Fibre		A-2149	4	

MATERIAL LIST

REV

A B C D E F G H J

MODEL ML-FFR-3S

SHEET 19 OF 29

QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION RAW MATERIALS	REF.	LOCATION		SYMBOLS
						USED ON	QUAN.	
X	BS-100			Solder, Soft				
X	CD-101-1-MW		1	Cord, Lacing		CA-113	X	
						CA-134	X	
						CA-636	4-0	
X	GL-101-1		1	Cement, Pliobond		A-1581		
X	GL-103		1	Cement, Duco		A-157		
						A-164		
X	GL-104-2		1	Resin, Synthetic		A-157		
						A-164		
4-3	MWC20(7)U1		2	Cable, Insulated	Brown	CA-113	4-3	
1-9	MWC20(7)U2		2	Cable, Insulated	Red	CA-113	1-9	
						CA-636		
1-11	MWC20(7)U4		2	Cable, Insulated	Yellow	CA-113	1-11	
						CA-636		
1-11	MWC20(7)U8		2	Cable, Insulated	Gray	CA-113	1-11	
2-5	MWC20(7)U9		2	Cable, Insulated	White	CA-113	2-5	
6-8	MWC22(7)SJ9			Cable, Insulated, Shielded	White	CA-134	4-3	
						CA-636	2-5	
1-4	MWC22(7)U0		2	Cable, Insulated	Black	A-277	0-6	
						CA-280	0-3	
						CA-636	0-7	
8-9	MWC22(7)U1		2	Cable, Insulated	Brown	A-277	0-7	
						CA-113	2-9	
						CA-636	5-5	

MATERIAL LIST

REV

A B C D E F G H J

MODEL ML-FFR-3S

SHEET 20 OF 29

QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION RAW MATERIALS	REF.	LOCATION		SYMBOLS
						USED ON	QUAN.	
12-5	MWC22(7)U2		2	Cable, Insulated	Red	A-2145 CA-113 CA-134 CA-636	0-5 6-0 3-8 2-4	
4-1	MWC22(7)U4		2	Cable, Insulated	Yellow	A-2145 CA-134 CA-636	0-3 2-2 1-8	
4-0	MWC22(7)U5		2	Cable, Insulated	Green	A-2145 CA-113 CA-134 CA-636	0-1 0-8 0-8 2-8	
9-6	MWC22(7)U6		2	Cable, Insulated		Blue	A-2145 CA-113 CA-134 CA-636	1-1 3-2 2-1 3-2
2-9	MWC22(7)U7		2	Cable, Insulated	Violet	CA-113 CA-636	1-8 1-1	
2-4	MWC22(7)U8		2	Cable, Insulated	Gray	CA-113	2-4	
5-5	MWC22(7)U9		2	Cable, Insulated	White	A-277 A-2181 CA-113 CA-636	0-5 0-4 2-6 2-2	
5-5	MWC22(7)U91		2	Cable, Insulated	Wh/Brn.	CA-636	5-5	
2-6	MWC22(7)U92		2	Cable, Insulated	Wh/Red	CA-113 CA-636	2-2 0-4	
1-8	MWC22(7)U94		2	Cable, Insulated	Wh/Yellow	CA-636	1-8	
0-3	MWC22(7)U96		2	Cable, Insulated	Wh/Blue	A-464	0-3	
2-2	MWC22(7)UPink		2	Cable, Insulated	Pink	CA-636	2-2	
2-10	MWC22(7)S2		2	Cable, Insulated, Shielded	Red	CA-134	2-10	
3-8	MWC22(7)S3		2	Cable, Insulated, Shielded	Orange	CA-134	3-8	

MATERIAL LIST				REV	A	B	C	D	E	F	G	H	J	MODEL	ML-FFR-3S
														SHEET	21 OF 29
QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION	REF.	LOCATION		SYMBOLS							
						USED ON	QUAN.								
RAW MATERIALS															
1-8	MWC22(7)S4		2	Cable, Insulated, Shielded	Yellow	CA-134	1-8								
1-6	MWC22(7)S5		2	Cable, Insulated, Shielded	Green	CA-134	1-6								
2-8	MWC22(7)S6		2	Cable, Insulated, Shielded	Blue	CA-134	2-8								
0-2	PX-100-1-.106		1	Sleeving, Size 10	Black	A-2149	0-2								
0-5	PX-100-1-.118		1	Sleeving, Size 9	Black	A-277 A-2148 A-2181	0-3 0-1 0-1								
1-1	PX-104-1-.034		1	Sleeving, Size	Black	A-463 A-2141 A-2145 A-2147 A-2148 A-2158 A-2181	0-1 0-1 0-1 0-1 0-2 0-1 0-6								
0-8	PX-104-2-.034		1	Sleeving, Size 20	Yellow	A-463 A-2141 A-2147 A-2149	0-1 0-2 0-1 0-4								
0-3	PX-104-3-.034		1	Sleeving, Size 20	Red	A-1592 A-2147	0-1 0-2								
0-4	PX-104-4-.034		1	Sleeving, Size 20	Green	A-2141 A-2145	0-1 0-3								
0-4	PX-104-5-.034		1	Sleeving, Size 20	Brown	A-2141 A-2145	0-2 0-2								
0-8	PX-104-6-.034		1	Sleeving, Size 20	Blue	A-2111 A-2145 A-2147	0-1 0-5 0-2								

MATERIAL LIST

REV

A B C D E F G H J

MODEL ML-FFR-3S

SHEET 22 OF 29

QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION	REF.	LOCATION		SYMBOLS
						USED ON	QUAN.	
RAW MATERIALS								
0-1	PX-104-1-.106		1	Sleeving, Size 10	Black	A-2141	0-1	
5-9	RG-58/U		1	Cable, Coaxial		CA-113 CA-135 CA-136 CA-137 CA-139 CA-140 CA-165	2-3 0-10 1-2 0-4 0-6 0-4 0-4	
	TA-100-2		1	Tape, Plastic, Vinyl				
7-11	WI-101-4		1	Cable, Shielded, Star.				
	WI-104-541-DSQS		1			A-157		
	WI-104-541-SSE		2	Wire, Litz, 3/41 SSE		A-164-1		
	WI-104-541-SSG		1			A-164		
	WL-100-6		1	Wire, Buss, #20		A-1592		
4-9	WL-100-7		1	Wire, Buss, #22		A-2145 A-2158 A-2181	3-1 0-2 1-6	

MATERIAL LIST

REV

A B C D E F G H J

MODEL ML-FFR-3S

SHEET 23 OF 29

QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION RAW MATERIALS	REF.	LOCATION		SYMBOLS
						USED ON	QUAN.	
28"	WL-100-8		1	Wire, Buss, #24		A-463 A-464 A-465 A-2111	15" 3" 4" 6"	
17"	WL-103-1		1	Shield, Flex.		A-2181 CA-135 CA-136 CA-137 CA-139 CA-140	3" 4" 4" 2" 2" 2"	

MATERIAL LIST

REV

A B C D E F G H J

MODEL ML-FFR-3S
SHEET 24 OF 29

QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION SUPPORTING DRAWINGS	REF.	LOCATION		SYMBOLS
						USED ON	QUAN.	
3	A-131		2	I.F. Terminal Board Assembly		A-157	1	
3	A-136		2	I.F. Can Assembly (USE FP-108-1)		A-157	1	
3	A-157		2	I.F. Transformer Assembly 455 KC		A-2143	3	T101,102,103
1	A-158		4	Can Assembly	LD-399	A-2149	1	
1	A-162		2	B.F.O. Terminal Board Assembly		A-164-2	1	
1	A-163		1	Can Assembly (USE FP-108-1)		A-164-2	1	
1	A-164-2		2	BFO Coil Final Assembly		A-2143	1	L103
1	A-257		2	Brace Assembly		A-2150	1	
1	A-277		2	Jack Assembly		A-2149	1	
1	A-316		4	Cover Assembly Power Supply		A-2142	1	
2	A-317		4	Cover Assembly, Top and Bottom		A-2142	2	
1	A-324		2	Jack Cover Assembly		A-2142	1	
1	A-463		2	Terminal Board Assembly Detector		A-2141	1	
1	A-464		2	Terminal Board Assembly Reactance		A-2141	1	
1	A-465		2	Terminal Board Assembly B.F.O.		A-2141	1	

MATERIAL LIST

REV

A B C D E F G H J

MODEL ML-FFR-3S

SHEET 25 OF 29

QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION SUPPORTING DRAWINGS	REF.	LOCATION		SYMBOLS
						USED ON	QUAN.	
1	A-1179		2	Board, Terminal, Reactance		A-464	1	
1	A-1180		2	Board, Terminal		A-465	1	
1	A-1181		2	Board, Terminal, Audio		A-2111	1	
1	A-1182		2	Board, Terminal, Detector		A-463	1	
1	A-1581		1	Capacitor Cover and Cushion Assembly		A-1592	1	
1	A-1592		8	Power Supply Assembly		A-2148	1	
1	A-2111		2	Terminal Board Assembly Audio				
1	A-2141			Center Chassis, Cable Assembly #2		A-2147	1	
1	A-2142			Final Assembly FFR-3S				
1	A-2143			Center Chassis Mechanical Assembly		A-2145	1	
1	A-2144			Center Chassis And Chassis Frame Assembly		A-2148	1	
1	A-2145			Center Chassis, Jumper Wire Assembly		A-2144	1	
1	A-2146			Center Chassis, Cable Assembly #1		A-2141	1	
1	A-2147			Center Chassis, Component Assembly		A-2149	1	
1	A-2148			Chassis and Front Panel Assembly		A-2142	1	
1	A-2149		8	Center Chassis and Can Assembly		A-2144	1	
1	A-2150			Chassis Frame Assembly		A-2181	1	
1	A-2158			Front Panel Mechanical Assembly		A-2148	1	
1	A-2181		4	Chassis Frame, Jumper Wire Assembly				
1	CA-113		8	Cable Power Supply		A-1592	1	
1	CA-134		8	Cable Assembly Harness Signal		A-2141	1	

MATERIAL LIST

REV A B C D E F G H J

QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION SUPPORTING DRAWINGS	REF.	LOCATION		SYMBOLS
						USED ON	QUAN.	
1	CA-135		1	Cable Assembly, RF		A-2141	1	
1	CA-136		1	Cable Assembly, RF		A-2141	1	
1	CA-137		1	Cable Assembly, RF		A-277	1	
1	CA-139		1	Cable Assembly, RF		A-277	1	
1	CA-140		1	Cable Assembly, RF		A-277	1	
1	CA-165		1	Cable Assembly, RF.		A-277	1	
2	CA-280-2½		1	Cable, Terminal Strip				
1	CA-636			Cable, Assembly, Harness		A-2146	1	
1	CH-208		4	Tube Socket Resistances FFR-3S Receiver				
1	CH-209		4	Tube Socket Voltages FFR-3S Receiver				
	CK-504		R	Schematic Diagram				
1	ID-231		8	Wiring Diagram, Power Supply, CA-113		A-1592	1	
1	LD-399		1	Lettering, Pan	A-158			
1	LD-460		4	Lettering, Power Supply	MS-1346			

MATERIAL LIST

REV A B C D E F G H J

MODEL ML-FFR-3S
SHEET 27 OF 29

QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION SUPPORTING DRAWINGS	REF.	LOCATION		SYMBOLS
						USED ON	QUAN.	
1	LD-960			Front Panel Engraving	MS-2635			
1	LD-961			Lettering, Center Chassis	MS-2637			
1	LD-964		1	Lettering, Plate, Squelch	MS-2645			
1	LD-965			Lettering, Chassis Frame	MS-2636			
1	LD2084/MS181			SHIELD,BFO		A2142	1	

MATERIAL LIST

REV

A B C D E F G H J

MODEL ML-FFR-3S

SHEET 28 OF 29

QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION SPECIFICATIONS	REF.	LOCATION		SYMBOLS
						USED ON	QUAN.	
1	S-101		1	Caustic Dip				
1	S-105		1	Cadmium Plate				
1	S-107		1	Water Dip Lacquer				
1	S-113		1	Fungus Resistant Varnish				
1	S-114		1	Zinc Chromate Primer				
1	S-115		1	Smooth Gray Enamel				
1	S-135		1	Nickel Plate				
1	S-278		1	Nameplate Data				
1	S-404		1	Yellow Iridite				
1	S-608		1	Test Procedure				

MATERIAL LIST

REV

A B C D E F G H J

MODEL ML-FFR-3S

SHEET 29 OF 29

QUAN. PER UNIT	PART NO.	DWG. REV.	DWG. SIZE	DESCRIPTION LOOSE ITEMS	REF.	LOCATION		SYMBOLS
						USED ON	QUAN.	
				<u>SUPPLIED FOR FFR-3S and RCR SYSTEMS</u>				
1	CA-103		1	Cord Assembly				W100
2	IN-149			Instruction Manual				
1	PL-106-1		1	Connector, 4 Prong				
1	PL-259		1	Plug-Navy Type-49190 Signal Corp. Type PL-259				
1	TM-105-8AL		2	Terminal Strip, Fanning				
1	TM-105-8AR		2	Terminal Strip, Fanning				
1	UG-176/U		1	Adapter				
5	UG-260/U		1	Plug				

MATERIAL LISTTO MODIFY FFR-3 COMMUNICATION RECEIVER TO SQUELCH OPERATION

NOTE: To manufacture complete Squelch Receiver use ML-FFR-3S (N. Y.)

SECTION I: Electrical Components and Mechanical Parts

SECTION II: Hardware

SECTION III: Supporting Drawings

SECTION IV: Loose Items supplied with Unit

CHECKED: *L*

APPROVED: *hgy*

TYPED: May 9, 1963 hh

MODIFICATION FOR FFR-3 TO SQUELCH OPERATION

FFR-3 SQUELCH MOD.

BILL OF MATERIAL		MODEL	FFR-3				PROJ. NO.	LIST NO. [REDACTED]			
		ISSUE	[]	[]	[]	[]	SHEET 2 OF 3 SHEETS				
PART NO.	QUAN. PER ONE EQUIP.	DESCRIPTION					REMARKS				
RC30GF274K	1	RESISTOR: Fixed, composition, 270,000 ohms, + 10%, 1 watt					R151				
RC30GF683K	1	RESISTOR: Fixed, composition, 68,000 ohms, + 10%, 1 watt					R159				
RV4ATSA252A	1	RESISTOR: Variable, composition, 2,500 ohms, + 10%, linear					R155				
TE-102-2	5	TERMINAL, TURRET					XV110				
TS-102-PO1	1	SOCKET: Tube, 7 pin, miniature.									
TS-102-UO2	1	TUBE SHIELD					V110				
6AB4	1	TUBE: electron, 6AB4, miniature 7 pin									
WL-100-6	5"	WIRE: buss									
<u>SECTION II: HARDWARE</u>											
LWE04MRN	1	LOCKWASHER : External									
LWE06MRN	1	LOCKWASHER : External									
NT-101-4	1	NUT STRAP									
NT-129-632-4	1	NUT: Swage									
SCBP0440BN3	7	SCREW: machine									
SCBP0632BN4	1	SCREW: machine									
SCFP0632BN4	2	SCREW: machine									
↑ APPLICABLE SPECIFICATIONS. LAST PAGE ↑						CHECKED	APPROVED				

OTTAWA, ONTARIO

TMC(Canada) LIMITED

MODIFICATION FOR FFR-3 TO SQUELCH OPERATION

FFR-3 SQUELCH MOD.

BILL OF MATERIAL		MODEL	FFR-3	PROJ. NO.	LIST NO.
		ISSUE	■		SHEET 3 OF 3 SHEETS
PART NO.	QUAN. PER ONE EQUIP.	DESCRIPTION			REMARKS
		<u>SECTION III: SUPPORTING DRAWINGS</u>			
CK-10095		Schematic Diagram (Mod. to Sub-Assembly)			
LD-964		Engraving, Squelch Plate			MS-2645
S-10008		Modification for Squelch Operation			
S-10073		Squelch Modification Instructions (FFR)			
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OTTAWA, ONTARIO

TMC(Canada)LIMITED

MODIFICATION FOR FFR-3 TO SQUELCH OPERATION

FFR-3 SQUELCH MOD.

BILL OF MATERIAL		MODEL	FFR-3	PROJ. NO.	LIST NO.
		ISSUE			SHEET 1 OF 3 SHEETS
PART NO.	QUAN. PER ONE EQUIP.	DESCRIPTION			REMARKS
SECTION I: Electrical Components and Mechanical Parts					
CC-100-15	1	CAPACITOR: Fixed, ceramic, 0.005 uf, + 20%, 500 VDCW, disc type.			C125
CC-100-16	2	CAPACITOR: Fixed, ceramic, 0.01 uf, + 20%, 500 VDCW, disc type.			C159, C161
CC-100-32	1	CAPACITOR: Fixed, ceramic, 0.1 uf, 500 VDCW, disc type.			C160
MS-2645	1	PLATE: Squelch, FFR-FFR-3S Modification			LD-964
MS-10149	1	POTENTIOMETER: Mounting Bracket			
MWC22(7)UO	5"	WIRE: Electrical			
MWC22(7)U1	12"	WIRE: Electrical			
MWC22(7)U3	25"	WIRE: Electrical			
MWC22(7)U4	20"	WIRE: Electrical			
MWC22(7)U5	8"	WIRE: Electrical			
MWC22(7)U6	10"	WIRE: Electrical			
RC20GF105K	1	RESISTOR: Fixed, composition. 1 megohm, + 10%, 1/2 watt			R157
RC20GF124K	1	RESISTOR: Fixed, composition, 120,000 ohms, + 10%, 1/2 watt			R124 (Not needed for late models)
RC20GF225K	2	RESISTOR: Fixed, composition, 2.2 megohms, + 10%, 1/2 watt			R153, R160
RC20GF474K	1	RESISTOR: Fixed, composition, 470,000 ohms, + 10%, 1/2 watt			R158
RC30GF102K	1	RESISTOR: Fixed, composition, 1,000 ohms, + 10%, 1 watt			R156
RC30GF103J	1	RESISTOR: Fixed, comp., 10,000 ohms, + 5%, 1w.			R152
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