



## Service Information Letter SIL-1-33204-0111 Rev. C

SIL#: SIL-1-33204-0111  
Rev C

SUBJECT: MARATHONNORCO AEROSPACE BATTERY

TYPE: M<sup>3</sup>-44-22

APPLICABILITY: 19-44M<sup>3</sup>120, MNAI P/N: 33204-001.

### SUMMARY:

This Service Information Letter informs operators of a design improvement in the M<sup>3</sup>-44-22 battery that is original equipment on various AgustaWestland Helicopters.

### BACKGROUND:

AgustaWestland requested MarathonNorco Aerospace, Inc (MNAI) to change the M<sup>3</sup>-44-22 battery from a 19-cell battery to a 20-cell battery in order to optimize battery performance.

### DISCUSSION:

MNAI has designed a new 20-cell battery with the same overall dimensions as the original 19-cell model. A conversion kit has been created to allow modification in the field. The conversion kit P/N is 33306-001 which contains one new 44M<sup>3</sup>120 cell, a new spacer, and all the necessary hardware and instructions that will enable the operator to perform this conversion in the field. The P/N of the modified battery will change from 33204-001 to 33204-002. The new 20-cell battery will be MNAI type M3-44-27.

### MODIFICATION OF M<sup>3</sup>-44-22:

The following procedure should be performed to convert the original M<sup>3</sup>-44-22 battery to the new M<sup>3</sup>-44-27 configuration. The following are required to perform this conversion:

- MNAI OMM 24-34-08
- M<sup>3</sup>-44-22 Battery Conversion Kit – MNAI P/N 33306-001 which includes the following:
  - (2) Screw, SHC P/N 10488-011
  - (2) Washer, Bellville, P/N 16128-034
  - (1) Spacer, P/N 27291-004
  - (1) Connector, Offset, P/N 16167-006
  - (1) Connector, Offset, P/N 16167-007
  - (1) Assembly, Cell 44M<sup>3</sup>120, P/N 32637-001
  - (1) Label, Nameplate, P/N 33300-002
  - (1) Cable tie, P/N 29247-001
  - (1) Service Information Letter, P/N SIL-1-33204-0111
- Battery Maintenance Kit – MNAI P/N 33178-001
- Torque Wrench

### 1.0 INSTRUCTIONS – Refer to IPL-1049 for the M<sup>3</sup>-44-22 battery (Pages 4 – 6) on disassembly (Steps 1.1 through 1.15) and IPL-1054 for the M3-44-27 battery (Pages 7 – 9) for assembly (Steps 1.16 and on).

1.1 Discharge battery per sections 7.0 and 8.0 of the OMM.

1.2 Let battery stand for a minimum of 4 hours.

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- 1.3 Remove short-out clips from the cells.
- 1.4 Remove screws (Item 91) and washers (Item 81) from all cells and the main receptacle (Item 110).
- 1.5 Cut cable tie on inter-cell connector holding temperature sensor wire in place and discard.
- 1.6 Remove all inter-cell connectors and keep separated by size (Items 71 – 73).
- 1.7 Thread the Universal Cell Puller into one of the terminals of the cell in center of the middle row of cells and remove the cell. Repeat for one cell in each of the other two rows.
- 1.8 Remove all cells.
- 1.9 Remove main receptacle (Item 110) and rectangular sealing ring (Item 111) by removing the four screws (Item 112).
- 1.10 Remove large nut on the temp sensor (Item 120) connector from the outside of the battery can and remove the temperature sensor from inside the battery can. Test sensor in accordance with OMM. Clean sensor assembly and O-ring and reattach O-ring to temp sensor.
- 1.11 Remove spacer (Item 20).
- 1.12 Remove all shims (Items 51) taking note of number and type of shim at each location.
- 1.13 Remove all liners (Items 41 - 43).
- 1.14 Clean all components, except the spacer (Item 20 – P/N 32852-002), with distilled or deionized water and dry thoroughly.
- 1.15 Discard the old spacer (Item 20– P/N 32852-002).
- 1.16 Place bottom liner (Item 41) into the battery can, followed by the side liners (item 42) and center liner (Item 43).
- 1.17 Replace shims (Items 51) in the locations noted in step 1.12. Use these shims to ensure that the cells fit into the battery can tightly. It may not be necessary to use all the shims removed in step 1.12. Additional shims are provided in the conversion kit if needed.
- 1.18 Insert the new spacer (Item 20 – P/N 27291-004) into battery can and attach temperature sensor assembly through hole in spacer and through the hole in the battery can. Attach nut to temperature sensor assembly and torque nut to 28 - 34 inch-pounds.
- 1.19 Place rectangular ring (Item 111) onto receptacle assembly (Item 110) and secure with four screws (Item 112). Torque screws to 15 – 20 inch-pounds.
- 1.20 Place all cells (Item 30) into the battery can. Make certain to arrange cells in the correct orientation with respect to the positive and negative terminals of the cells.
- 1.21 Place all inter-cell connectors (Items 71 – 74) in the correct place. Verify that all connectors attach the negative terminal of one cell to the positive terminal of the next cell (Except for cell #1 and cell #20 that connect to the receptacle assembly).
- 1.22 Place washers (Item 81) and screws (Item 91) onto all cell terminals. Hand tighten only.
- 1.23 Place washer (Item 81) and screw (Item 91) through inter-cell connector and into threaded holes on the receptacle assembly. Torque to 100- 125 Inch-pounds.

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- 1.24 Torque all screws (Item 81) to 100 – 125 inch-pounds.
- 1.25 Apply cable tie (Item 123) to intercell connector to hold harness assembly wire in place (See page 8 for correct location).
- 1.26 Transfer battery S/N and date of manufacture from the original can onto label with an indelible marker.
- 1.27 Peel paper off the back of the name-plate label and apply to battery over name-plate information.
- 1.28 Charge battery per OMM. Reference flow chart, new battery, page 1201 of OMM.
- 1.29 Battery is now ready for return to service.

#### **INTERCHANGEABILITY INFORMATION:**

The original battery and the battery modified by this SIL are completely interchangeable and intermixable.

#### **MARATHONNORCO AEROSPACE CONTACT INFORMATION:**

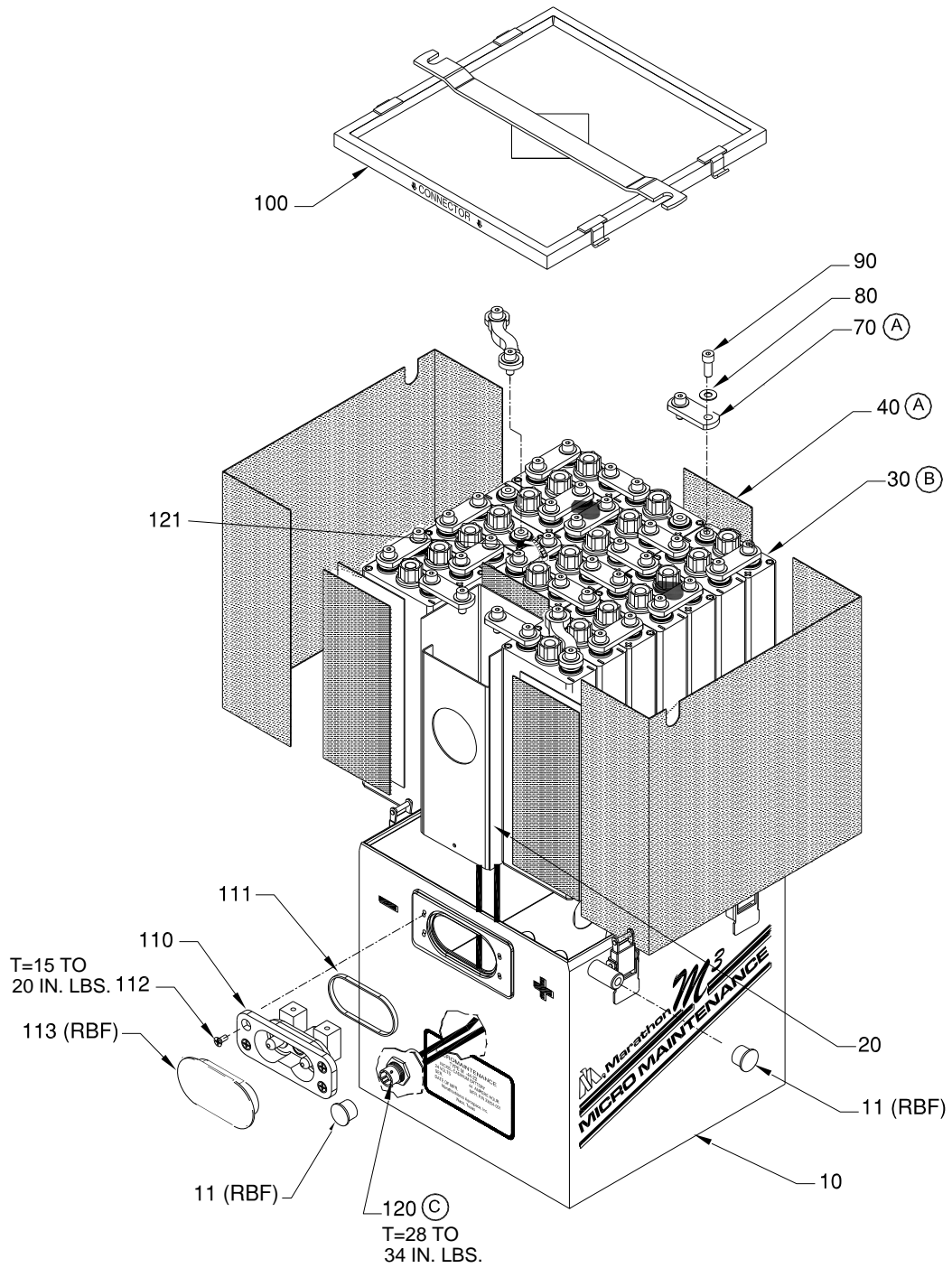
Any inquiries or comments should be addressed to:

Attn: Mr. Tom Elkjer – Sales Engineer

MarathonNorco Aerospace, Inc.  
8301 Imperial Drive  
P.O. Box 8233  
Waco, Texas 76714-8233  
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Fax: (254) 776-6558

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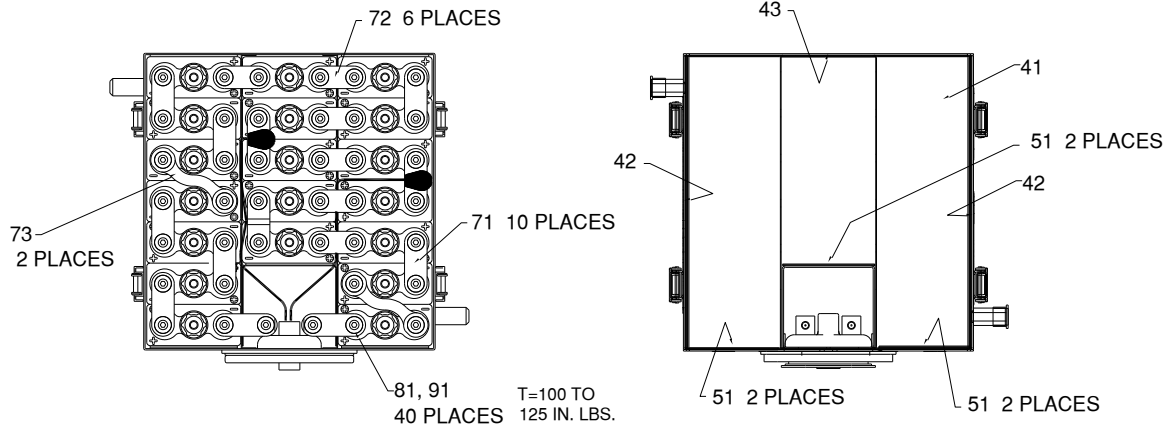


T=TORQUE (IN. LBS.)  
EXPLODED VIEW

IPL-1049 M<sup>3</sup>-44-22

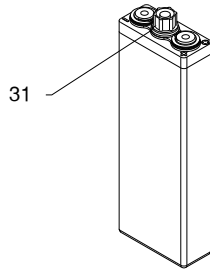
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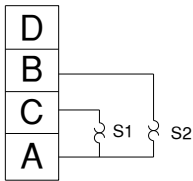


T=100 TO  
125 IN. LBS.

40-90 REF.  
T=TORQUE (IN. LBS.)  
DETAIL A



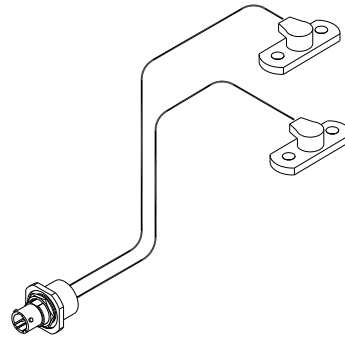
DETAIL B  
30 REF.



MS3114P8-4P

SCHEMATIC

S1 AND S2  
NORMALLY OPEN ON RISE  
CLOSES  $160^{\circ} \pm 5^{\circ} \text{F}$   
RE-OPENS  $145^{\circ} \pm 5^{\circ} \text{F}$



120 REF.  
T=TORQUE (IN. LBS.)  
DETAIL C

IPL-1049 M<sup>3</sup>-44-22

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## ILLUSTRATED PARTS LIST

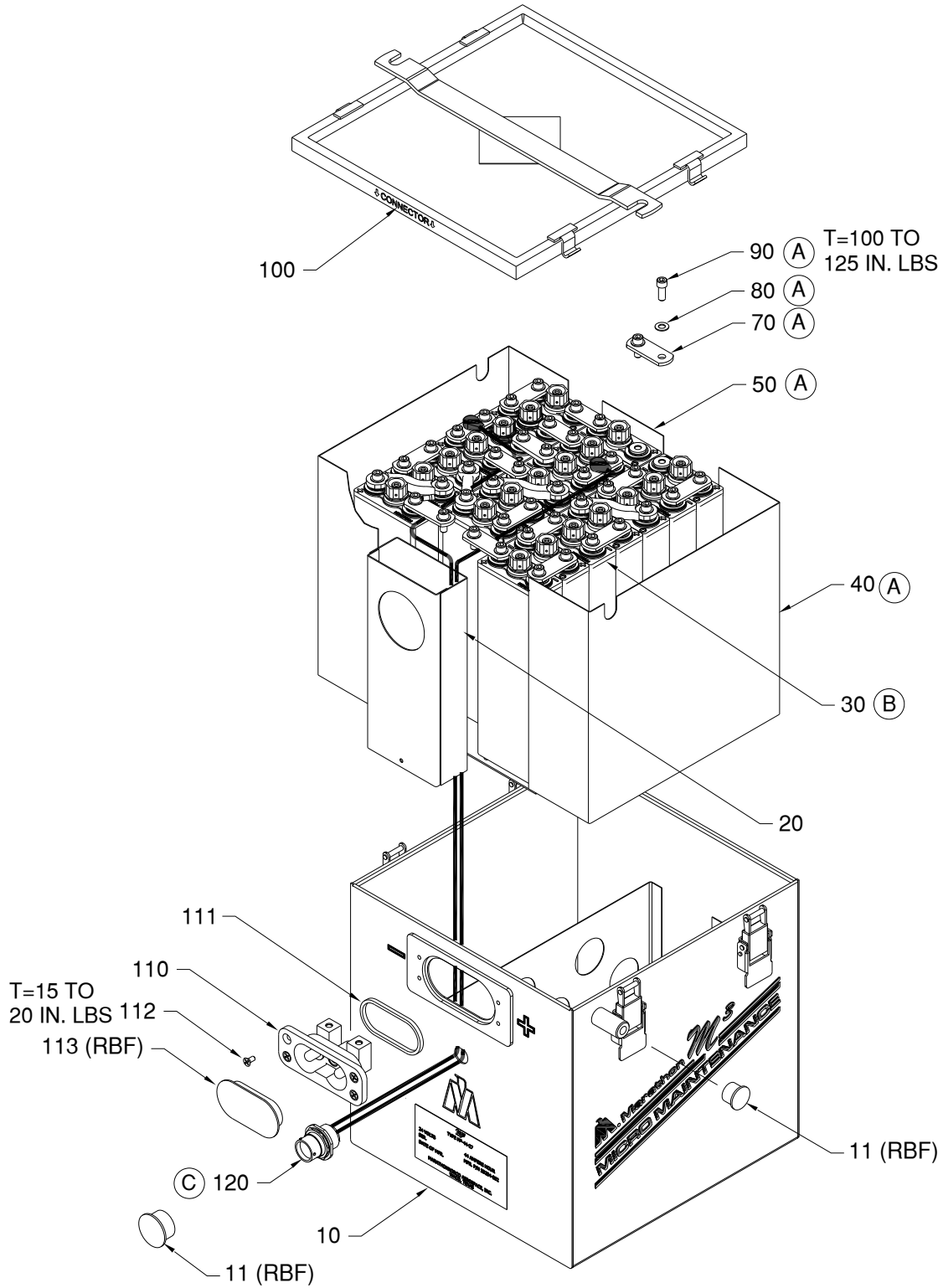
Figure item	Part Number	Nomenclature	Units Per Assy
-1	33204-001	BATTERY, M <sup>3</sup> -44-22 19-44M <sup>3</sup> 120 NI-CD	1
-10	40616-002	CAN ASSEMBLY, MARKED (AGUSTAWESTLAND)	1
-11	16065-012	DUST CAP <b>(RBF)</b>	3
-20	32852-002	SPACER	1
-30	32637-001	CELL ASSEMBLY, 44M <sup>3</sup> 120	19
31	16934-009	ASSEMBLY, FILLER CAP & VENT	19
-40		LINERS	
41	32194-003	LINER, BOTTOM	1
42	32194-002	LINER, SIDE	2
43	32194-004	LINER, CENTER	1
-50		SHIMS	
51	9988-209	SHIM	6
-60		BARRIERS	
-70		CONNECTORS	
71	16102-135	CONNECTOR	10
72	16102-160	CONNECTOR	6
73	16167-006	CONNECTOR,S	2
-80		WASHERS	
81	16128-034	BELLEVILLE WASHER	40
-90		SCREWS & NUTS	
91	10488-011	SCREW, SOCKET HD. CAP	40
-100	40273-002	ASSEMBLY, COVER MARKED	1
-110	16163-023	ASSEMBLY RECEPTACLE	1
-111	24583-001	RING, RECTANGULAR	1
-112	23084-001	SCREW, FL.HD. SEMS	4
-113	26916-006	COVER, INSULATOR M <sup>3</sup> <b>(RBF)</b>	1
-120	32899-001	ASSEMBLY, HARNESS	1
-121	29247-001	CABLE TIE NYLON	1

**RBF - REMOVE BEFORE FLIGHT**

IPL-1049 M<sup>3</sup>-44-22

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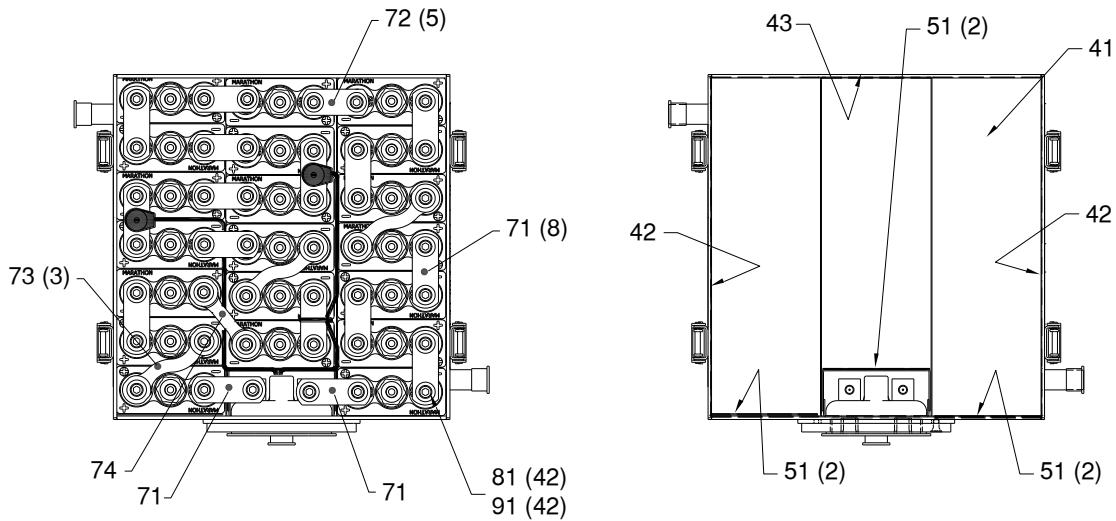
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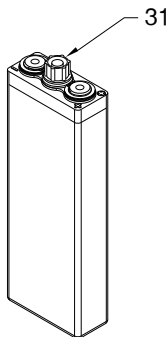
IPL-1054 M<sup>3</sup>-44-27

# Service Information Letter

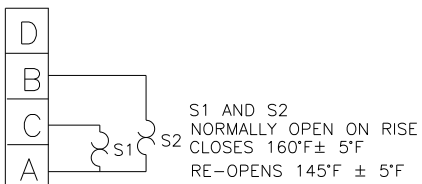
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40-90 REF  
T=TORQUE (IN. LBS.)  
**DETAIL A**

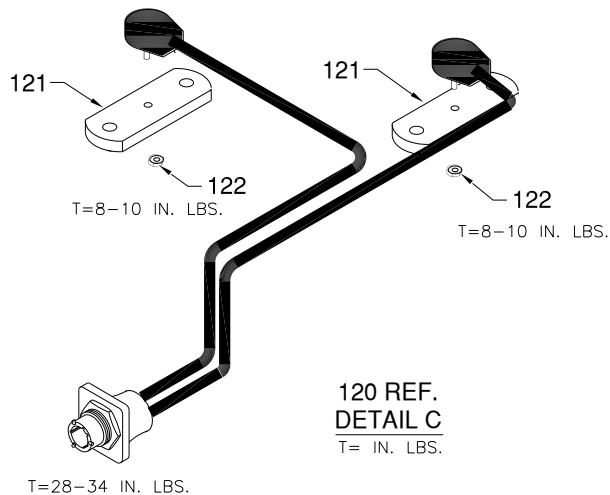


**DETAIL B**  
30 REF



MS3114P8-4P  
RECEPTACLE

**SCHEMATIC**



120 REF.  
**DETAIL C**  
T= IN. LBS.

IPL-1054 M<sup>3</sup>-44-27

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**ILLUSTRATED PARTS LIST**

<b>Figure item</b>	<b>Part Number</b>	<b>Nomenclature</b>	<b>Units Per Assy</b>
-1	33204-002	BATTERY 20-44M <sup>3</sup> 120 M <sup>3</sup> -44-27	1
-10	40616-003	CAN ASSY, MARKED	1
-11	16065-012	DUST CAP (RBF)	3
-20	27291-004	SPACER	1
-30	32637-001	CELL ASSEMBLY, 44M <sup>3</sup> 120	20
31	16934-009	FILLER CAP ASSEMBLY & VENT	20
-40		LINERS	
41	32194-003	LINER, BOTTOM	1
42	32194-002	LINER, SIDE	2
43	32194-004	LINER, CENTER	1
-50		SHIMS	
51	9988-209	SHIM	6
-60		BARRIERS	
-70		CONNECTORS	
71	16102-135	CONNECTOR, BATTERY	10
72	16102-160	CONNECTOR, BATTERY	5
73	16167-006	CONNECTOR, S	3
74	16167-007	CONNECTOR	1
-80		WASHERS	
81	16128-034	BELLEVILLE WASHER	42
-90		SCREWS & NUTS	
91	10488-011	SCREW, SOCKET HD. CAP	42
-100	33305-001	ASSEMBLY COVER LINED	1
-110	16163-023	ASSEMBLY RECEPTACLE	1
-111	24583-001	RING, RECTANGULAR	1
-112	23084-001	SCREW, FL.HD. SEMS	4
-113	26916-006	COVER, INSULATOR M <sup>3</sup> (RBF)	1
-120	32899-001	ASSEMBLY, TEMP. SENSOR	1
121	28847-046	CONNECTOR	2
122	15013-009	NUT, ESNA	2
123	24816-001	TIE, CABLE	1

**RBF - REMOVE BEFORE FLIGHT**

**IPL-1054 M<sup>3</sup>-44-27**