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Originator BRENT BINKLEY	Checked By SK	Page 1 of 4	Reference ATP-017-40	Class 40

SUBJECT: **FACTORY ACCEPTANCE PRESSURE TEST PROCEDURE - ELECTRICAL
FLUID-FILLED AND MOLDED TERMINATION CABLE ASSEMBLIES**

1.0 **PURPOSE**

1.1 TO PROVIDE A BASIS FOR FINAL ACCEPTANCE OF ELECTRICAL FLUID-FILLED AND MOLDED TERMINATION CABLE ASSEMBLIES.

2.0 **SCOPE**

2.1 THIS PROCEDURE COVERS THE ELECTRICAL FLUID-FILLED AND MOLDED TERMINATION CABLE ASSEMBLIES.

3.0 **EQUIPMENT**

3.1 PRESSURE TEST FACILITY

3.2 PRESSURE GAUGE

3.3 MEGOHM METER

3.4 MULTIMETER

3.5 PRESSURE TEST ADAPTOR

3.6 TEST LEADS

3.7 TEST OR STANDARD RECEPTACLE/PLUG

3.8 TIMER

|| 3.9 CALIPERS ||

3.10 TEST FIXTURE

|| 3.11 ETHERNET METER (OMNI SCANNER OR EQUIVALENT) ||

3.12 D/N 13217 (ATP-017-42) TEST LOG SHEET

3.13 D/N 30322 (ATP-017-42-S1) SUPPLEMENTAL CONTINUITY LOG SHEET

|| 3.14 D/N 74560 (ATP-017-42-S3) SUPPLEMENTAL ETHERNET TESTING LOG SHEET. ||

3.15 D/N 30323 (ATP-017-42-S2) SUPPLEMENTAL INSULATION RESISTANCE LOG SHEET

3.16 D/N 10802 (A99B) FINAL ACCEPTANCE PROCEDURE

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4.0 PRESSURE TEST

NOTE: VERIFY THAT TEST OR STANDARD RECEPTACLE/PLUG CAN SAFELY BE TESTED TO THE MAXIMUM PRESSURE SPECIFIED IN THE ASSEMBLY PROCEDURE. CONTACT ENGINEERING IF THERE IS ANY QUESTION ABOUT CAPABILITY OF CONNECTORS THAT WILL BE USED FOR TESTING.

NOTE: FOR ASSEMBLIES WITH FREE ISSUED ASSEMBLIES/COMPONENTS, RECORD THE SERIAL OR LOT NUMBER FOR EACH FREE ISSUED ASSEMBLY/COMPONENT ON THE DATA SHEET.

NOTE: MARK STEPS WHICH ARE NOT APPLICABLE TO THE BUILD "N/A" IN THE RECORDING AREA.

NOTE: IF PRESSURE COMPENSATING PISTON IS PRESENT MEASURE PRIOR TO PRESSURE PER ATTACHMENT TO PART IN IFS. RECORD ON LOG SHEET D/N 13217 (ATP-017-42).

4.1 PLACE THE TEST LEADS ON THE SOLDER POTS OF THE HIGH PRESSURE NAUTILUS TEST CONNECTOR, AND PLACE IT INTO THE TEST ADAPTOR.

4.2 MATE THE CABLE ASSEMBLY TO THE TEST CONNECTOR, AND SECURE IT WITH THE TEST FIXTURE, IF REQUIRED.

4.3 FOR CABLE ASSEMBLIES WITH EXPOSED PLUG PIN(S), WATER BLOCK AS FOLLOWS: INJECT SOME SILICONE LUBRICANT INTO THE APPROPRIATE NUMBER OF RUBBER MODULE BLADDERS (DEPENDS ON THE NUMBER OF PINS IN THE PLUG). BE SURE THE FREE END OF THE MODULE BLADDER IS PLUGGED AND FITS THE BLADDERS OVER THE PINS OF THE PLUG SO THAT THEY COVER THE CONDUCTIVE PORTION OF THE PIN. DO NOT ALLOW THE BLADDERS TO COVER MORE THAN HALF OF THE PIN SHAFT.

4.4 FILL THE PRESSURE CHAMBER WITH FLUID, AND VENT ALL AIR.

4.5 RECORD TEST INFORMATION ON TEST LOG SHEET 13217, PAGE 1, AS REQUIRED BY THE ASSEMBLY PROCEDURE/TEST SCHEDULE. RECORD THE CUSTOMER PART NUMBER, IF SPECIFIED.

4.6 MEASURE INSULATION RESISTANCE FROM CIRCUIT TO GROUND AND FROM CIRCUIT TO CIRCUIT AT THE TEST VOLTAGE FOR TEST #X. MEASUREMENTS LESS THAN TEST ACCEPTANCE VALUE FOR TEST #X ARE CAUSE FOR INVESTIGATION. THE TEST ACCEPTANCE VALUE FOR SHIELDS OF SHIELDED CABLES IS 500 MΩ OR AS SPECIFIED ON THE ASSEMBLY PROCEDURE OR TEST SCHEDULE. RECORD RESULTS ON LOG SHEET D/N 13217 (ATP-017-42). D/N 30323 (ATP-017-42-S2) MAY BE USED FOR ADDITIONAL MEASUREMENTS.

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4.7 MEASURE ETHERNET CIRCUITS IF PRESENT IN ACCORDANCE WITH ATTACHED TEST SCHEDULE TO PART NUMBER IN IFS. RECORD RESULTS ON THE SUPPLEMENTAL LOG SHEET D/N 74560 (ATP-017-42-S3).

4.8 MEASURE CONTINUITY FOR EACH CIRCUIT IF APPLICABLE IN ACCORDANCE WITH TEST PROCEDURE/TEST SCHEDULE ATTACHED TO PART NUMBER IN IFS. RECORD RESULTS ON THE LOG SHEET D/N 13217 (ATP-017-42) D/N 30322 (ATP-017-42-S1) MAY BE USED FOR ADDITIONAL MEASUREMENTS.

4.9 INCREASE PRESSURE:

TO TEST PRESSURE FOR TEST #X.

FOR TEST TIME FOR TEST #X; MINIMUM AS REQUIRED BY THE ASSEMBLY PROCEDURE.

4.10 IF ELECTRICAL TESTING IS REQUIRED, REPEAT STEPS 4.6, 4.7, AND 4.8 FOR SPECIFIC TEST USING ADDITIONAL LOG SHEETS AS NEEDED, THEN RETURN TO ATMOSPHERIC PRESSURE AFTER TESTING. OTHERWISE, RETURN TO ATMOSPHERIC PRESSURE BEFORE NEXT TEST.

4.11 AFTER ALL HYDROSTATIC TESTING IS COMPLETE, REDUCE CHAMBER PRESSURE TO ATMOSPHERIC. REMOVE THE CABLE ASSEMBLIES FROM THE TANK, THEN CLEAN AND DRY.

5.0 BENCH TESTING

NOTE: IF PRESSURE COMPENSATING PISTON IS PRESENT MEASURE AFTER PRESSURE PER ATTACHMENT TO PART IN IFS. RECORD ON LOG SHEET D/N 13217 (ATP-017-42).

5.1 MATE THE TEST OR STANDARD NAUTILUS CONNECTORS TO THE CABLE ASSEMBLY.

5.2 FOR JUMPER ASSEMBLIES, READ CONTINUITY FOR EACH CIRCUIT, END TO END, FOLLOWING PIN-OUT SCHEMATICS FOR CORRECT PINS OR WIRES. AN OPEN CIRCUIT, OR GREATER THAN 0.2 OHMS PER PIN/RECEPTACLE PHYSICAL CONTACT OVER THAT WHICH IS ATTRIBUTED TO THE ASSOCIATED WIRE, IS CAUSE FOR INVESTIGATION. REFER TO THE ASSEMBLY PROCEDURE FOR THE CONTINUITY RESISTANCE VALUE OF EACH WIRE. IF RAYCHEM SPEC 44 WIRE IS USED, REFER TO THE TABLE BELOW TO CALCULATE THE ANTICIPATED RESISTANCE. RECORD RESULTS ON LOG SHEET 13217 (ATP-017-42). D/N 30322 (ATP-017-42-S1) MAY BE USED FOR ADDITIONAL MEASUREMENTS.

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RESISTANCE PER FOOT FOR COPPER WIRE

AWG #	RESISTANCE PER FOOT (Ω /FT)
10	0.00126
12	0.00202
14	0.00306
16	0.00481
18	0.00623
20	0.00988
22	0.0162
24	0.0262
26	0.0413
28	0.0686
30	0.108

TABLE 1

5.3 FOR HARNESSSES WITH FREE ISSUE SENSORS, VERIFY INSTRUMENT FUNCTIONALITY PER THE MANUFACTURER'S INSTRUCTIONS.

5.4 AS REQUIRED, DOCUMENT OIL PRESSURE ON LOG SHEET (SEE ASSEMBLY PROCEDURE FOR IFS PART).

6.0 **VISUAL INSPECTION**

6.1 PERFORM VISUAL INSPECTION PER ASSEMBLY DRAWING, AND RECORD WEIGHT OF EACH JUMPER ASSEMBLY.

6.2 QUALITY ASSURANCE TO FINAL INSPECT PER PROCEDURE 10802 (A99B).