**Applicability:**

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| **UMBRA P/N** | **CUSTOMER P/N** |
| 09720P510-08 | TP190234 |

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# INTRODUCTION

## Purpose

The goal of this document is to describe CMM [RD1] tests performed in case software retrofit from P/N TP0225 to P/N TP190234 and justify the tests not done don’t impact on the verification performed.

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# RELATED DOCUMENTS

## Reference Document

[RD1] CMM PBCU TP-A-72-99-60 Issue 01

[RD2] ATP0184 Rev H

## 

## Abbreviations/Definitions/Acronyms

The following table will include the acronyms and abbreviations specific for the document

|  |  |
| --- | --- |
| **Acronyms and Abbreviations** | |
| ATP | Acceptance Test Procedure |
| CAN | Analog Digital Converter |
| CMM | Control Maintenance Manuel |
| ECU | Electronic Control Unit |
| PBCU | Propeller Brake Control Unit |
| ESS | Environmental Stress Screening |

# SOFTWARE RETROFIT P/N TP190234

## Visual inspection

### Mechanical data

In case software retrofit from P/N TP190225 to P/N TP190234, the mechanical data is measured as described in the CMM [RD1].

### Maximum Weight

In case software retrofit from P/N TP190225 to P/N TP190234, the weight is measured as described in the CMM [RD1].

## P/N and S/N verification

### P/N Verification

In case software retrofit from P/N TP190225 to P/N TP190234, the P/N is checked as described in the CMM [RD1].

### S/N Verification

In case software retrofit from P/N TP190225 to P/N TP190234, the S/N is checked as described in the CMM [RD1].

## Functional Test Procedure

This same functional test is performed after bonding test (§3.4) and environmental stress screening test (§3.5) as described in section 3.6 (Final Functional Test) of [RD2].

Therefore, in case software retrofit from P/N TP190225 to P/N TP190234, the functional test isn’t performed.

## Bonding

In case software retrofit from P/N TP190225 to P/N TP190234, the new software has no impact on bonding test but the test is needed to confirm the PBCU values of electric resistance are already acceptable.

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## Environmental Stress Screening (ESS)

ESS test can be skipped for following reasons:

* Software uploaded via connector J03 has no effect on PBCU hardware
* ESS is intended to test hardware only

Therefore, in case software retrofit from P/N TP190225 to P/N TP190234, the environmental stress screening (ESS) test isn’t performed because software has no impact on ESS test.

## Final Functional Test

### ECU Discrete Control

In case software retrofit from P/N TP190225 to P/N TP190234, the ECU discrete control is performed as described in the CMM [RD1].

### A/C Discrete Control

In case software retrofit from P/N TP190225 to P/N TP190234, the A/C discrete control is performed as described in the CMM [RD1].

### CAN Bus

In case software retrofit from P/N TP190225 to P/N TP190234, the CAN Bus is performed as described in the CMM [RD1].

### Temperature Monitor

In case software retrofit from P/N TP190225 to P/N TP190234, the Temperature Monitor test is performed as described in the CMM [RD1].

### Propeller Speed Sensors

In case software retrofit from P/N TP190225 to P/N TP190234, the Propeller Speed Sensor test is performed as described in the CMM [RD1].

### Inrush current

In case software retrofit from P/N TP190225 to P/N TP190234, the Inrush current is measured as described in the CMM [RD1].

### Dynamic Braking Performances

In case software retrofit from P/N TP190225 to P/N TP190234, the Dynamic Braking test is performed as described in the CMM [RD1].

# CONCLUSION

In case PBCU software retrofit from P/N TP190225 to P/N TP190234, the CMM [RD1] performs the tests on PBCU before delivery.

As functional test is redundant with final functional test, the functional test isn’t performed as well as environmental stress screening because they have no impact on software verification.