# Attachment 9
# Ice Detector Probe Reliability

| Item | Trx No | Item Desc | Serial No | Trx Date | Store | Charge To Serial |
|---|---|---|---|---|---|---|
| 4100S019-07 | ALB-IS0008731 | ICE DETECTOR PROBE | AC90162 | 02/18/08 | ALB | N188WQ |
| 4100S019-07 | ALB-IS0009279 | ICE DETECTOR PROBE | AC80644 | 03/06/08 | ALB | N188WQ |
| 4100S019-07 | ALB-IS0009954 | ICE DETECTOR PROBE | AC84934 | 03/29/08 | ALB | N187WQ |
| 4100S019-07 | EWR-IS0000089 | ICE DETECTOR PROBE | AC80638 | 03/31/08 | EWR | N187WQ |
| 4100S019-07 | EWR-IS0001211 | ICE DETECTOR PROBE | AC78545 | 09/15/08 | EWR | N190WQ |
| 4100S019-07 | EWR-IS0001578 | ICE DETECTOR PROBE | AC70611 | 10/22/08 | EWR | N209WQ |
| 4100S019-07 | EWR-IS0001644 | ICE DETECTOR PROBE | AC78544 | 10/28/08 | EWR | N209WQ |
| 4100s019-08 | ALB-IS0016976 | PROBE,ICE DETECTOR | AD39789 | 11/10/08 | ALB | N188WQ |
| 4100S019-07 | EWR-IS0001790 | ICE DETECTOR PROBE | AC78545 | 11/12/08 | EWR | N196WQ |
| 4100S019-07 | EWR-IS0001792 | ICE DETECTOR PROBE | AC70615 | 11/12/08 | EWR | N196WQ |
| 4100S019-07 | ALB-IS0017096 | ICE DETECTOR PROBE | 0241M | 11/14/08 | ALB | N190WQ |
| 4100S019-07 | ALB-IS0017097 | ICE DETECTOR PROBE | AB27034M | 11/14/08 | ALB | N190WQ |
| 4100S019-07 | EWR-IS0001968 | ICE DETECTOR PROBE | 0243M | 11/27/08 | EWR | N187WQ |
| 4100S019-07 | EWR-IS0001990 | ICE DETECTOR PROBE | AA10288M | 11/28/08 | EWR | N196WQ |
| 4100S019-07 | ALB-IS0017540 | ICE DETECTOR PROBE | AC78542 | 12/01/08 | ALB | N195WQ |
| 4100S019-07 | EWR-IS0002021 | ICE DETECTOR PROBE | AC61639 | 12/01/08 | EWR | N196WQ |
| 4100S019-07 | EWR-IS0002149 | ICE DETECTOR PROBE | AC90162 | 12/16/08 | EWR | N203WQ |
| 4100S019-07 | EWR-IS0002315 | ICE DETECTOR PROBE | AC84934 | 12/30/08 | EWR | N202WQ |
| 4100s019-08 | EWR-IS0002326 | PROBE,ICE DETECTOR | AD21627 | 12/31/08 | EWR | N190WQ |
| 4100S019-07 | EWR-IS0002775 | ICE DETECTOR PROBE | AD02523 | 02/04/09 | EWR | N202WQ |
| 4100S019-07 | ALB-IS0019476 | ICE DETECTOR PROBE | AC78547 | 02/12/09 | ALB | N200WQ |
| 4100S019-07 | ALB-IS0019634 | ICE DETECTOR PROBE | AC78546 | 02/18/09 | ALB | N188WQ |

| Cwo | Description | Serial | Opened | Closed | Sys | Cause | Corrective Action |
|---|---|---|---|---|---|---|---|
| 0414567 | ICE DETECTION FAIL CAUTION LIGHT ILLUMINATED IN FLIGHT. | N187WQ | 10/21/2008 | 10/21/2008 | 30 | NR | PERFORMED OPS CHECK OF THE ICE DETECTION SYSTEM IAW Q400 AMM 30-80-00-710-801. OPS CHECK GOOD. GERARDO PASSERO 7470 EWR 10-21-08. LG PG 170571 |
| 0415901 | ICE DETECT FAIL LIGHT ILLUMINATED DURING FLIGHT. | N187WQ | 10/28/2008 | 10/28/2008 | 30 | NR | PERFORMED TROUBLESHOOTING OF ICE DETECT FAIL LIGHT IAW FIM TASK 30-80-00-810-801. OPS CHECK GOOD. GP 7470 EWR 10-28-08. GERARDO PASSERO 7470 LG PG 170612 |
| 0421217 | ICE DETECT FAIL ILLUMINATED INFLIGHT | N187WQ | 11/24/2008 | 11/24/2008 | 30 | NR | NO FAULTS CODES RETURNED ON CDS RESET SYSTEM IAW Q400 ... UNREADABLE.... MM 8691 EWR LG PG 174494 |
| 0421461 | ICE DET FAIL LIGHT ILLUMINATED ON CAWP | N187WQ | 11/26/2008 | 11/27/2008 | 30 | NR | R/R ICE DETECT PROBE ON LH SIDE IAW Q400 AMM 30-80-1. OPS CHECK GOOD. P/N ON/OFF 4100S019-07. S/N ON 0243M. S/N OFF AC84934. THIS CLEARS MEL 30-80-2. ID# 33561. M. DORISH 7679 EWR 11/27/08 |
| 0425765 | WORKING/TROUBLESHOOTING DMI 11106 LH ICE DETECTOR PROBE HAS 2 SCREWS STRIPPED IN THE NUT PLATE | N187WQ | 12/15/2008 | 12/15/2008 | 30 | NR | REMOVED AND REPLACED NUT PLATE ON LH ICE DETECTOR PROBE IAW Q4000 SMM 51-42-60 THIS ACTION CLEARED DMI 11106 EMPL- 7348 Roberto Carvajal |
| 0435417 | ICE DETECTED LIGHT IS ON SITTING AT GATE INTERMITTENTLY | N187WQ | 1/30/2009 | 1/30/2009 | 30 | NR | PERFORMED OPERATIONAL TEST OF ICE DETECTION SYS. PER Q400 AMM 30-80-00. OPS CHK NML. ANDREW PACHO 8529 EWR 01/30/09. |

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|---|---|---|---|---|---|---|---|
| 0360994 | ICE DETECT FAIL LIGHT ON | N188WQ | 2/7/2008 | 2/8/2008 | 30 | NR | MEL AS PER MOC /MEL # 30-80-2 CAT C ID# 29259<br>3001- LONNIE COLLAZO<br><br>02-08-08: REMOVED AND REPLACE RH ICE DETECTOR PROBE IAW AMM 30-80-00, OPS CHECK GOOD. P/N 4100S019-07, S/N ON: AC67952, S/N OFF: AC80644<br>MECH# 4254 / ROBERT APPLEGATE |
| 0438721 | LT ICED DETECTOR PROBE FAILED | N188WQ | 2/15/2009 | 2/18/2009 | 30 | NR | EVALUATED AND DEFERRED IAW Q400 MEL 30-80-2 CAT C ID# 34661 LH ICE DETECT FAIL<br>GERARDO PASSERO 7470 EWR<br><br>REMOVED AND REPLACED LH ICE DETECTOR PROBE IAW Q400 MM 30-80-01<br>OPS CHECK GOOD IAW Q400 AMM 30-80-01<br>OPS CHECK GOOD MM 30-80-00-710-801<br>P/N ON 4100S0 |
| 0407143 | WORKING MEL #32607 "ICE DETECT FAIL LIGHT" | N190WQ | 9/15/2008 | 9/15/2008 | 30 | NR | R&R LH ICE DET PROBE IAW Q400 AMM 30-80-01-04. OPS CHECK GOOD. ALSO FOUND RH ICE DET PROBE FAIL MESSAGE IN CDS MX. REMOVED RH PROBE & FOUND CANNON PLUG TO BE DISCONNECTED. RESECURED & INSTALLED IAW Q400 AMM 30-80-01-04. OPS CHECK GOOD THIS CLEARS MEL #32 |
| 0418760 | right ice detector probe robbed for use on a/c 196wq | N190WQ | 11/12/2008 | 11/14/2008 | 30 | NR | Refer to w/o 048732 for work accomplished |
| 0428572 | ICE DETECT FAIL LIGHT ON THE WARNING PANEL ILLUMINATED DURING ICING CONDITIONS | N190WQ | 12/31/2008 | 12/31/2008 | 30 | NR | R+R LH ICE DETECTOR PROBE IAW Q400 AMM 30-80-01 OPS CHECK GOOD P/N ON 4100S019-08 S/N ON AD21627 P/N OFF 4100S019-07 S/N OFF AB27034M VASCO MENDES 7468 EWR 12-31-08<br>LG PG 176623 |

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| 0421223 | ICE DETECT FAIL LIGHT ILLUMINATED MOMENTARY IN FLIGHT | N191WQ | 11/24/2008 | 11/24/2008 | 30 | NR | ERASED FAULTS ON CDS IAW FIM Q400 TASK 30-80-00-810-806 OPS CHECK GOOD MM 8691 EWR LG PG 173711 |
| 0415732 | ICE DETECT FAILED ANNUCATOR ILLUMINATIED IN FLIGHT | N195WQ | 10/28/2008 | 10/28/2008 | 30 | NR | R/R TIMER MONITOR UNIT IAW AMM 30-11-01 OPS CHECK GOOD P/N OFF ON 41005018-06 S/N OFF AB82518 A/N ON AD14797 VASCO MENDES 7468 EWR 10-28-08 LG PG 169910 |
| 0419869 | WORKING MEL 30-8-2 ID 33396 CAT "C" LH ICE DETECTOR PROBE INOP. | N195WQ | 11/17/2008 | 11/17/2008 | 30 | NR | R&R LH ICE DETECTOR PROBE IAW Q400 AMM 30-80-00-000 OPS CHECK IAW Q400 AMM 30-80-00-710-801 LH OPS CHECK GOOD MEL CONTINUES RH PROBE INOP P/N ON/OFF 4100S019-07 S/N ON/OFF AC61639/AC78542 M MCDONALD 8691 EWR 11/17/08 |
| 0415723 | ICE DETECT FAIL MASTER CAUTION ILLUMINATED IN FLIGHT | N196WQ | 10/28/2008 | 10/28/2008 | 30 | NR | TROUBLESHOOT SYSTEM IAW Q400 FIM 30-80-00-810-801-PERFORMED ENGINE RUN AND OPS CHECK IAW Q400 AMM 30-80-00-710-801 OPS CHECKS GOOD MANUAL DORISH 7679 EWR 10/27/08 LG PG 170447 |
| 0415790 | RH ICE DETECTOR PROBE FAILURE. | N196WQ | 10/28/2008 | 11/25/2008 | 30 | NR | works now dom battaglia jr 2044 alb |
| 0417548 | RH ICE DETECTOR PROBE INOP. | N196WQ | 11/6/2008 | 11/6/2008 | 30 | NR | REMOVED RH ICE DETECTOR PROBE IAW CDL 30-3 ID#259 PLACED ON CDL C CARNEY 8043 EWR 11/6/08 LG PG 170792 |
| 0417564 | REMOVED RH ICE DETECTOR PROBE IAW CDL 30-3 ID#259 | N196WQ | 11/6/2008 | 11/12/2008 | 30 | NR | fixed somewhere dom battaglia jr 2044 alb Replaced probe, op checks good 11-12-08 CLOSED IN CAM |

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| 0418146 | Ice detect fail light illuminated in flight | N196WQ | 11/9/2008 | 11/9/2008 | 30 | NR | REMOVED AND REPLACED LT ICE DETECTOR PROBE PERFORMED OPS CHECK OF PROBE OPS CHECK SAT. DONE IAW Q400 MM 30-80-01 S/N OFF AC78546 S/N ON AC90162 BRIAN LAJEUNESSE 6046 BUF LG PG 170799 |
| 0418440 | LH ICE DETECTOR PROBE FAIL | N196WQ | 11/10/2008 | 11/11/2008 | 30 | NR | reset system ops check good iaw w30-80-00 ss 094007 |
| 0418749 | ICE DETECT FAIL LIGHT | N196WQ | 11/12/2008 | 11/12/2008 | 30 | NR | R&R LH ICE DETECTOR IAW Q400 AMM 30-80-1. OPS CHECK GOOD. M DORISH EWR |
| 0418751 | REMOVED RH ICE DETECTOR PROBE IAW CDL 30-3 ID #259 | N196WQ | 11/12/2008 | 11/12/2008 | 30 | NR | INSTALLED RH ICE DETECTOR PROBE IAW Q400 AMM 30-80-1. OPS CHECK GOOD. THIS CLEARS CDL 30-3 ID # 259 |
| 0429149 | ICE DETECTION FAIL LIGHT ILLUMINATES IN FLIGHT | N196WQ | 11/10/2008 | 11/10/2008 | 30 | NR | OPS CHECK THE ICE DETECTOR PROBE IAW 30-30-00-710-801 OPS CHECK GOOD COULD NO DUPLICATE FAULT EMPL- HIREN PATEL |
| 0401611 | NO ICE DETECTED WARNING ILLUMINATED ON ED PANEL WHEN ICE WAS CLEARLY ACCUMULATING ON A/C. | N199WQ | 8/19/2008 | 8/19/2008 | 30 | NR | PEROFRMED OPERATIONAL TEST OF THE ICE DETECTION SYSTEM IAW AMM 30-80-00. OPS CHECKS GOOD. VASCO MENDES 7468 |
| 0415851 | ICE DETECT FAIL LIGHT ON THE CWP-ILLUMINATED | N199WQ | 10/28/2008 | 10/28/2008 | 30 | NR | T/S PER FIM TASK 30-80-00-810 OPS CHECK GOOD CHARLES CARNEY 8043 EWR 10-28-08 LG PG 169333 |

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| 0415861 | ICE DETECT FAIL ANNUNCIATOR ILLUM IN FLIGHT #99458 10-27-08 | N199WQ | 10/27/2008 | 10/27/2008 | 30 | NR | T/S AS PER FIM 30-80-00-810-801 OPS CHECK THE ICE DETECTOR SYS IAW AMM 30-80-00-710 OPS CHECK GOOD NO FURTHER ACTION REQ'S AS DECTATED BY FIM HIREN PATEL 8048 10-27-08 EWR LG PG 169331 |
| 0426063 | ICE DETTECTION MASTER CAUTION LIGHT ILLUMINATED IN FLIGHT AT 12000 IN THE RAIN | N199WQ | 12/16/2008 | 12/16/2008 | 30 | NR | OPS CHECK THE ICE DETECTION SYS IAW Q400 AMM 30-80-01 OPS CHECKED GOOD HIREN PATEL 8048 EWR LG PG 172126 |
| 0426621 | Ice detector fail. | N199WQ | 12/21/2008 | 12/21/2008 | 30 | NR | Cleared and reset the icedetctiobn fault codes. Paid by credit card : WO# 029469. (Prior aviation). |
| 0432255 | "ICE DETECT FAIL" ANNUNCIATOR ILLUMINATED IN FLIGHT | N199WQ | 1/18/2009 | 1/18/2009 | 30 | NR | PERFORMED OPERATIONAL TEST OF ICE DETECTOR IAW Q400 AMM 30-80-00. OPS CHK NML. ANDREW PACHO 8529 EWR 01/18/09. |
| 0435371 | L/H ice detector probe is inop. | N199WQ | 1/30/2009 | 2/2/2009 | 30 | NR | PERFORMED OPERATIONAL CHECK OF L/H ICE PROBE IAW Q400 AMM 30-80-00. OPS GOOD. THIS CLEARS MEL 30-80-2 ID#34431. A PEKARSKY 8575 EWR 2/2/09 |
| 0438009 | ICE DETECTION FAIL AMBER LIGHT ILLUMINATED | N199WQ | 2/12/2009 | 2/12/2009 | 30 | NR | PERFORMED OPS CHECK OF ICE DETECTION SYSTEM IAW FIM TASK IAW FIM TASK 30-80-00-810. OPS CHEK GOOD. NO FURTHER MX REQUIRED. CHRISTIAN AVILA 8049 EWR LG PG 175139 |
| 0440841 | ICE DETECT FAIL LIGHT ILLUMINATED IN FLIGHT | N199WQ | 2/14/2009 | 2/14/2009 | 30 | NR | OPS CK PERFORMED ON ICE DETECTION SYSTEM PER Q400 AMM 30-80-00 OPS CK NRML Andrew Pacho 8529 |

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|---|---|---|---|---|---|---|---|
| 0425626 | IDE DETECT FAIL ILLUMINATED IN FLIGHT AND REMAINED ON. | N202WQ | 12/16/2008 | 12/16/2008 | 30 | NR | PERFORMED OPERATIONAL CHECK OF THE ICE DETECTION SYSTEM IAW Q400 AMM 30-80-00-710-801. OPS CHECK GOOD OPERATING AS DESIGNED. GP 7470 EWR 12-16-08. LG PG 173239 |
| 0427155 | ICE DETECT FAIL CAUTION ANN. ILLUMINATED IN FLIGHT | N202WQ | 12/24/2008 | 12/30/2008 | 30 | NR | PERFORMED OPS CHECK GOD ICE DETECTOR PROBES IAW AMM 30-80-00 LH PROBE AND RH PROBE, FAILED. EVALUATED AND DEFERRED RH PROBE IAW GMM PROCEDURES ASSIGNED LG PG 173250 R+R RH ICE DETECTOR PROBE IAW AMM 30-80-01. OPS CHECK GOOD PN ON AND OFF 4100S019-07 SN |
| 0438054 | INTERMITTENT ED MESSAGE INDICATING ICE DETECTED WHILE ON THE FROUND TEMPERATURE AT SURFACE IS..?? | N202WQ | 2/11/2009 | 2/12/2009 | 30 | NR | PERFORMED OPS CHECK OF DEICE SYSTEM IAW Q400 TASK 30-80-00 OPS CHECK GOOD BIAGIO AMATO 7578 EWR LG PG 175823 |
| 0424700 | Ice detector failed in flight. Isolated down to the R/H probe. | N208WQ | 12/11/2008 | 12/13/2008 | 30 | NR | MX isolated the problem to the R/H probe being bad. R/R R/H ICE DETECT PROBE IAW Q400 AMM 30-80-01. P/N ON/OFF 41005019-07. S/N ON AC90162. S/N OFF AD13776. THIS CLEARS MEL 30-80-2 ID#33735. A PEKARSKY 8575 EWR 12/13/08 |
| 0424928 | ICE DETECT FAIL LIGHT ILLUMINATED IN FLIGHT | N208WQ | 12/12/2008 | 12/12/2008 | 30 | NR | PERFORMED ICE DETECTOR PROBE TEST BOX PROCEDURE IAW CMM 30-80-00 OPS CHECKS GD. VASCO MENDES 7468 EWR 12-12-08 |
| 0414627 | ICE DETECT FAIL AND DE ICE PRESS ANN. ILLUM IN ICING COND IN FLIGHT | N209WQ | 10/22/2008 | 10/22/2008 | 30 | NR | R/R LH ICE DETECTOR PROBE IAW Q400 AMM 30-80-01 OPS CHECK PERFORMED IAW Q400 AMM 30-80-00-710-801. OPS CHECK GOOD. M DORISH EWR 7679 10/22/08 LOG PG 170153 |

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| 0416021 | ICE DETECT FAIL CAUTION LIGHT ILLUMINATED IN FLIGHT | N209WQ | 10/6/2008 | 10/6/2008 | 30 | NR | PERFORMED OPS CHK OF ICE DETECT FAIL IAW Q400 AMM 30-80-00. OPS CHK GOOD<br>4209- BRANDON GUTHINGER ALB 10/06/08 |
| 0423122 | ICE DETECT FAIL LIGHT ILLUMINATED | N209WQ | 12/4/2008 | 12/4/2008 | 30 | NR | TROUBLESHOT DOWN TO A DUAL DISTRIBUTING VALVE<br>performed fim lash 30-8000 ops checks good on ground.Vasco Mendes 7468<br>pulled fault codes for ice protection system cleared codes performed ops check of ice defect system no defects noted.<br>leonard a kutgel aj |
| 0436220 | ICE DETECT FAIL ILLUMINATED IN FLT | N209WQ | 2/2/2009 | 2/2/2009 | 30 | NR | RESET AND PERFORMED OPS CHECK OF ICE DETECT SYSTEM WITH NO DISCREPANICES NOTED. WORK DONE IAW Q400 FIM 308000 CARY VAETH 2405 ALB<br>LG PG 174096 |
| 0438142 | ICE DETECTOR FAIL LIGHT ILLUMINATED IN FLIGHT | N209WQ | 2/13/2009 | 2/13/2009 | 30 | NR | PERFORMED MX PROCEDURE FOR ICE DETECT FAIL LIGHT IAW FIM TASK 30-80-00-710-801. OPS. CHECK GOOD.<br>christian AVILA 8048<br>LG PG 174112 |
| 0439609 | ICE DETECT FAIL LIGHT ILLUMINATED IN FLIGHT | N209WQ | 2/18/2009 | 2/18/2009 | 30 | NR | PERFORMED RETREVIAL OF CDS CODES FOUND LH ICE DEDECTION CODE FAULT SEE WRITE UP Z.M YYZ<br>EMPLOYEE# M806038<br>LG PG 189901 |
| 0439701 | L/H ice detector probe speedtape requires daily reinspect until the next I check. | N209WQ | 2/20/2009 | 2/22/2009 | 30 | NR | DMI CLOSED DUE TO REMOVAL OF LH ICE DETECTOR BLANKING PLATE ALUMINUM FOIL IAW RD 8/4-53-2300<br>SCOTT MACCUE 3044 ALB |

# **Colgan** Q400
## Out of Service Event Register

| Action | Open Date | Issue | Responsible | Action / Status | Due Date |
|---|---|---|---|---|---|
| 23 | 31 Mar 08 | Ice Detectors Blanking Plates | ISE<br>Supplier Liaison / Steve Todd | BBD to look at status of Ice Detector Blanking Plate mod. Colgan stated they have had 4 removals to date. 2x units in for repair. BBD to review possibility with supplier for advance exchanges. BBD to provide feedback if there are any reliability issues. Apr 1: No advance exchanges due to shortage of parts. Colgan has 2 units in for repair for over one month, BBD to look into status and confirm repair TAT. RD 884-53-2248 developed for temp blanking plate repair. Generic RD available Apr 16th. BBD to look if deferral can be added to CDL. Apr: Clogan to send all shipping info related to units sent in for repair. SL to follow up with supplier. Generic RD pending release also BBD looking at new supplier. CDL would have the same limitation as MEL. No action required. Apr 7: New generic RD released #84-53-2302 to remove L/R probe detector and replace with a blanking plate. Parts to be manufactured on site. 2x IDPs sent in for repair 10 days ago and 3rd on Apr 7th. Apr 9: Updates on next call looking for one spare asap. April 11: Glenn Hansen, BA ISE – process problem identified and new process in place. Interim step – blanking plate. S.L. with on wing test procedure by April 18 Apr 18: SL DH8-400-SL-30-011 issued for test IDP procedure to eliminate NNFs. Apr: 23: BBD to confirm Test Box availability. Apr 25: Colgan to send NC PO to supplier. Most boxes to be completed by May 2nd Apr 30: Colgan to confirm if PO was sent. 4 test boxes ready at IN Services. First come first serve. May 2: Colgan confirmed PO sent. Propose to close. May 7: Waiting for test box to arrive in Albany before closing issue. May 12: IN Services not an approved supplier. Colgan to obtain QA approval and process order. May 22 – No update Tony not available. May 29: Ron Legacy @ Colgan to confirm Test Box was received in Albany to close issue. **June 2: Box on dock in Newark. Issue closed** | 2 Apr 08<br>4 Apr 08<br>7 Apr 08<br>11 Apr 08<br>18 Apr 08<br>7 May 08<br>9 May 08<br>22 May 08<br>29 May 08<br>2 June 08<br>**CLOSED** |

# **Colgan** Q400
## Out of Service Event Register

| Action | Open Date | Issue | Responsible | Action / Status | Due Date |
|---|---|---|---|---|---|
| 75 | Jan 15 | IDP- Removal/Installation /RTS instructions | ISE | BA to investigate if improvements can be made to the removal / installation / RTS instructions to reduce turn over time (ADR reference AMAR-09-1541021. PCR 42534 was raised to replace sealant with mechanical gasket.<br>Jan 22 - Bombardier Engineering will be releasing an engineering change modsum by end of first quarter 2009. This will introduce the installation of an IDP conductive gasket and prevent the PCR Faye sealant migrating behind the IDP at installation which is subsequently causing such difficulties at IDP removal.<br>Please see attached FIM task 30-80-00-810-802 the IDP test box procedures have been included in the FIM since July 5 / 2008<br>The latest improvements included in the IDP are as outlined in the attached Service letter and winterization ISAR pages 29 and 30.<br>In parallel Bombardier engineering along with the vendor will be investigating further improvements that could be made to the Ice detector probe these updates will be provided at the next Bombardier Technical ~~steering committee~~ (TSC)<br>Jan 22 - Is there a new design IDP being investigated provide status? When will the installation gasket become available??<br>Jan 29: New conductive gasket being engineered (ECD Mid March) BBD Glen Hanson to visit Colgan to go over Test procedure and training of new IDP Test Box. Date TBC. **Feb 5: Glen Hanson to visit Albany and Newark Feb 18 & 19th. Feb 19: Visit postponed March 4th & 5th. Glen to hand carry test box and leave with Colgan after his visit.** | 22 Jan 09<br>29 Jan 09<br>5 Feb<br>19 Feb<br>**5 Mar** |
| [redacted] | | | | | |

**BOMBARDIER**

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# SERVICE LETTER

## In-Service Engineering and Technical Support

DH8-400-SL-30-011

ATA: 3080

DATE: 17 April 2008

**SUBJECT:** Ice Detector Probe Test Procedures

**MODEL:** Dash 8 Q400

**APPLICABILITY:** All

**REFERENCE:** Aerazur Abbreviated Component Maintenance Manual For Ice Detector Probe 30-80-00 Rev. 4

**PURPOSE:** This Service Letter is being issued to provide Operators with techniques for troubleshooting the Ice detection system and to introduce a new, on wing, test box that will allow Operators to reduce Ice Detector Probe (IDP) No Fault Found (NFF)

**DISCUSSION:**

The purpose of the Ice Detector Probe (IDP) p/n 4100S0019-06/-07/-08 is to detect icing conditions. The IDP works by repeatedly heating the probe to remove any ice accumulation and then checking for ice accumulation over a 60 second period.

If ice is detected by one, or both IDP the "ICE DETECTED" message is displayed on the engine display (ED) for a minimum of 60+/- 5 sec. During this time period the sensor head of the IDP is heated, melting any ice built up on the unit. Once the ice has melted from the IDP and does not accumulate any more ice for a time period of 60+/- 5 seconds the "ICE DETECTED" message will extinguish.

Failure of one IDP is reported to the Timer Monitor Unit (TMU). The TMU stores the failures as a maintenance message that will be displayed on the Central Diagnostic System (CDS). The displayed messages are "LEFT ICE DETECTOR FAIL" or "RIGHT ICE DETECTOR FAIL" for the related left or right IDP failure.
An "ICE DETECT FAIL " caution light will appear on the caution panel if both IDP have failed. Due to system logic a dormant IDP failure could exist. A subsequent failure of the remaining IDP could result in an AOG situation at an out station. To prevent this, Operators are encouraged to perform regular checks of the CDS system per Task 45-00-30-742-802 and Task 45-00-30-743-802. (Retrieval and Erasure of Fault codes)

**OPERATOR ACTION:**

Reports from the vendor indicate that some Operators are not following the proper FIM troubleshooting procedures and are removing both IDP's and sending them out for repair. This often results in a No Fault Found (NFF) on one of the returned units. Operators are reminded to follow the applicable FIM Task 30-80-00-810-802 and FIM task 30-80-00-810-803 when performing troubleshooting of the Ice detection system. This consists of first retrieving the CDS fault messages, erasing the message and then performing an operational test of the IDP per Task 30-80-00-710-801.

Operators should ensure the IDP bonding procedures are carried out following installation of the IDP as per TASK 51-80-00-760-805. A reported "ICE DETECTED" message lasting less than 60 seconds is indication of a poorly bonded IDP. System logic is designed that once the ice message is activated the IDP heater and message shall remain for a minimum of 60 sec +/- 5 sec.

To further reduce unnecessary removals, Aerazur has recently introduced new damage scratch tolerance limits as detailed in the attached Abbreviated Component Maintenance Manual (ACMM) 30-80-00.

Operators are encouraged to review these new surface damage tolerances. In addition Aerazur has designed a test box to assist operators in determining a true IDP failure from a NFF while the IDP is still on wing. If an IDP should pass using the test box, Operators can concentrate troubleshooting efforts elsewhere in the IDP system.

Operators may build this test box themselves or alternatively they may obtain a unit from Aerazur customer support at one of the following addresses:

| IN-SERVICES AMERICAS | IN-SERVICES EUROPE | IN-SERVICES ASIA |
|---|---|---|
| W175 N5737 Technology Drive, Menomonee Falls, WI 53051, USA<br>Phone: (262) 293 1000<br>Fax: (262) 293 1010<br>www.insa-zodiac.com | 7, avenue du Parana<br>BP 303<br>91958 COURTABOEUF Cedex FRANCE<br>Phone: +33 1 64 86 69 19<br>Fax: +33 1 64 86 69 79<br>www.in-services.com | 80, Chun Choi Street<br>Tseung Kwan O<br>New territories<br>HONG KONG, CHINA<br>Phone: (852) 2260 6688<br>Fax: (852) 2260 4052<br>www.in-services.com |

Details to manufacture the IDP test box are outlined in the ACMM, and designated a Ground Service Equipment part number of p/n GSB 3080002.
The Fault Isolation Manual (FIM) has been revised to reflect the new tolerance limits and the test box troubleshooting procedures.

Please direct responses and inquiries to your Bombardier Regional Aircraft Field Service Representative or the Technical Help Desk in Toronto at telephone number (416) 375-4000 or facsimile (416) 375-4539 or e-mail: thd.qseries@aero.bombardier.com.

Glenn Hansen
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- FRANCE -
TEL: (33) 2.32.96.56.00 - FAX (33) 2 32 96 56 02

# ABBREVIATED

# COMPONENT MAINTENANCE MANUAL

## ICE DETECTOR PROBE

**AERAZUR**

**P/N: 4100S019-06**

**P/N: 4100S019-07**

**P/N: 4100S019-08**

## BOMBARDIER P/N: 8SC0909

**ORIGINAL ISSUE: March 9, 2004**
**Revision April 10, 2008**


## 30-80-00

# AERAZUR

## ABBREVIATED COMPONENT MAINTENANCE MANUAL

## ICE DETECTOR PROBE



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### RECORD OF REVISIONS

• Retain this record in the front of the manual. On receipt of a revision, insert the revised pages into the manual, and enter the revision number, date inserted, and initials.

| REVISION NUMBER | REVISION DATE | ENGINEER APPROVAL | DESCRIPTION OF CHANGE | DATE INSERTED | BY (INITIALS) |
|---|---|---|---|---|---|
| 0 | Mar 9/04 | BAC | Original Issue. | | |
| 1 | November 8, 2005 | BAC | Introduce New IDP part number 4100S019-07.<br>-Page T1, RR1 and LEP1 are revised to reflect the change.<br>-Add page RCPV<br>-Page Intro 1"Add the PN4100S019-07.<br>-Page 1: Add difference between the two part number on the flange.<br>-Page 3 Add difference between the two part number<br>-Page 4, 5 Change wording<br>-Page 6 Introduce Check procedure for PN4100S019-07<br>-Page 7, 12 Add information for 4100S019-06 and 07<br>-Page 14 and 5 Introduce 4100S019-07 Figure 2 IPL | | |
| 2 | December 21, 2005 | BAC | -Page T1, RR1 and Lep1 are revised to reflect the change.<br>-Add Page SB1: Introduce -SB EW147-30-001<br>-Page INTRO-1: Aérazur address is updated<br>-Page 7: Specify that all 4100S019-06 probes returned for inspection/ repair will be returned in 4100S019-07 version. | | |
| 3 | March 28, 2008 | JCD | -Page T1, RR1 and Lep1 are revised to reflect the change.<br>-Page INTRO-1: Aérazur address is updated<br>-Page 4 Add Test Box | | |
| 4 | April 10,2008 | JCD | -Modify electrical wiring diagram on page 4<br>-Add Diode PZD3.3 for Test and RESET switches.<br>Increase resistor Power on R1A, R2A, R3A > 1.3W<br>Add instruction for flange | | |

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### SERVICE BULLETIN RECORD

| SERVICE BULLETIN | OTHER DIRECTIVES | DATE INCORPORATED INTO MANUAL |
|---|---|---|
| SB VM EW147-30-001 | | DEC 21/05 |

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### LIST OF EFFECTIVE PAGES

| CHAPTER/SECTION | PAGE | REV. DATE |
|---|---|---|
| Title | T-1 | April 10/08 |
| | T-2 | Mar 9/04 |
| Record of revisions | RR-1 | April 10/08 |
| | RR-2 | Mar 9/04 |
| Service Bulletin | SB-1 | Dec 21/05 |
| | SB-2 | Dec 21/05 |
| List of effective pages | LEP-1 | Dec 21/05 |
| | LEP-2 | Mar 9/04 |
| Recapitulative of proposed version | RPCV1 | Nov 8/05 |
| | RPCV2 | Nov 8/05 |
| Introduction | INTRO-1 | Dec 21/05 |
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| IPL | 20 | April 10/08 |
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### RECAPITULATIVE OF PROPOSED VERSION /
### RECAPITULATIF DE LA VERSION PROPOSEE

| CONTENTS OF VERSION | CONTENU DE LA VERSION | « O » AND « I » LEVEL | "D" LEVEL | REFER TO REPAIR CARD N°/ VOIR CARTE DE REPARATION N° |
|---|---|---|---|---|
| **List of applicable repair cards (general and specific)** | ***Liste des cartes de réparations générales et spécifiques applicables*** | 6 | 6 | |
| **Summary of applicable repair cards** | ***Récapitulatif des cartes de réparation applicables*** | 6 | 6 | |
| Repair Procedure / procedure de réparation | | | | |
| Component maintenance manual IDP | Manuel d'entretien équipement IDP | N/A | X | 30-80-00 |

NOTE : Applicable editions of CMM are included within the "Technical Documentation revision status" available on Aérazur website: http://www.elastomeres.zodiac.com / Les éditions applicables des CMM sont disponibles sur le site d'Aérazur http://www.elastomeres.zodiac.com dans l'index des publications techniques.

NOTE : The repair cards mentionned above are only provided to the autorized repair stations / Les cartes de réparation citées ci-dessus sont fournies uniquement aux stations de réparations autorisées.

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1. List of Authorized Repair Station

AERAZUR
Repair Station
4, rue Lesage Maille
76320 CAUDEBEC LÈS ELBEUF - FRANCE

Phone N°: (33) 2 32 96 41 44
Fax N°: (33) 2 32 96 56 90

NOTE: IDP shall be sent to Aérazur for more investigations (test, warranty issue, ...). Use the nearest IN-SERVICES location to ship the unit to Aérazur as defined below.

2. List of approved distributors

| NAME | ADDRESS |
|---|---|
| USA:<br>IN-SERVICES AMERICAS | W175 N5737 Technology Drive<br>MENOMONEE FALLS, WI 53051<br>USA<br>Phone: (262) 293 1000<br>Phone AOG: (262) 293 1111<br>Fax: (262) 293 1010 |
| ASIA:<br>IN-SERVICES ASIA | 80,Chun Choi Street<br>Tseung Kwan O, New Territories<br>HONG KONG<br>CHINA<br>Phone: (852) 2260 6688<br>Phone AOG: (852) 9869 9332<br>Fax: (852) 2260 4052<br>Mail: weber.insasia@haeco.com<br>Phone: (852) 2260 4054 |
| EUROPE:<br>AERAZUR | Repair Station4,<br>rue Lesage Maille<br>76320 CAUDEBEC LES ELBEUF<br>FRANCE<br>Phone: (33) 2 32 96 56 91<br>Fax: (33) 2 32 96 56 90<br>AERAZUR website: www.elastomeres.zodiac.com |

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# AERAZUR
## ABBREVIATED COMPONENT MAINTENANCE MANUAL
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## DESCRIPTION AND OPERATION

A. The Ice Detector Probe (IDP) is mounted on the fuselage of the aircraft; its primary task is to detect icing conditions surrounding the aircraft. The IDP has fast de-icing capabilities, which makes cyclic measurement possible and allow continuous monitoring of icing conditions.

B. If ice is detected, the IDP activates the "ICE" output to indicate that the ice detection threshold is reached. The IDP activates the "SEVERITY" output to indicate that ten ice detection thresholds have been reached within a set period of time. The activation of the "SYSTEM OK" output indicates that the IDP operates correctly.

| Characteristic | Specification, Limit |
|---|---|
| GENERAL (Physical) | |
| Dimensions | |
| - Length | 247 mm (9.72 inches) |
| - Diameter | 101.6 mm (4 inches) |
| Housing Material | (nickel-plated aluminium alloy) |
| Max. Weight | 700 grams (1,55 lbs) |
| Temperature | |
| Max. Operating | -55°C to +70°C (-67°F to + 158°F) |
| Humidity | Relative humidity up to 95 % at 65°C (149°F) |
| Altitude | |
| Max. Operating | 10700 m (35105 ft) |
| Current Consumption | |
| Max. current without heating | 50 mA |
| Max. current with heating | 3 A |
| Main Components | |
| 1 Digital Control Module (DCM) | P/N 447 -134 -110 - xxx |
| 1 Signal Supply Module (SSM) | P/N 447-134-120-xxx |
| 1 Power Control Module (PCM) | P/N 447-134-130-xxx |
| General (electrical) | |
| Power Supply | 115 VAC, 400 Hz |
| Main unit connector | Type M83723/74RI2I2N |
| Flange Material | |
| 4100S019-06 | -Flange Nickel plated protection |
| 4100S019-07 | -Primer: Green Epoxy F19 Type 2<br>-Top Coat: Glossy grey Polyurethane Enamel F24 Type 4 |
| 4100S019-08 | Same as 4100S019-07 |

C. Ice Detection

(1) When the ice is detected by one or both Ice Detector Probes, the "ICE_DETECTED" message is displayed on the Engine Display (ED) for 60 ± 5s. The OR logic is performed by the Avionics System.

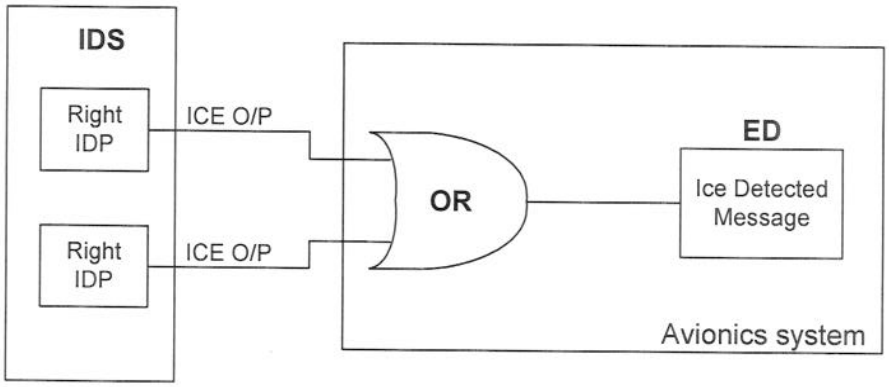



FIGURE 1

D. Failure Annunciation

(1) Failure of one Ice Detector Probe (IDP) is reported to the Timer Monitor Unit (TMU). The TMU stores the failure as a maintenance message that will be displayed on the Centralized Diagnostic System (CDS). The displayed message "LEFT ICE DETECTOR FAIL" or RIGHT ICE DETECTOR FAIL" for the related left or right IDP failure.
The "ICE DETECT FAIL" Caution Light will appear On the Caution Panel only if both IPD are failed.

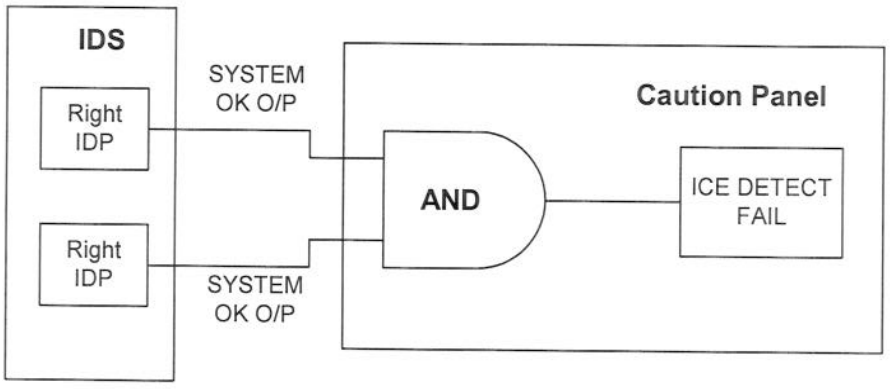
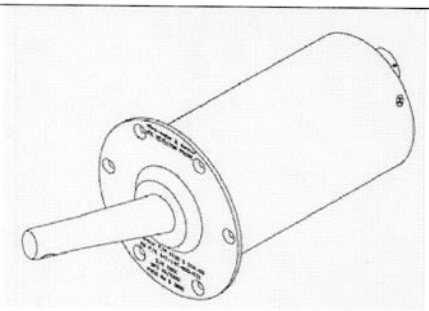
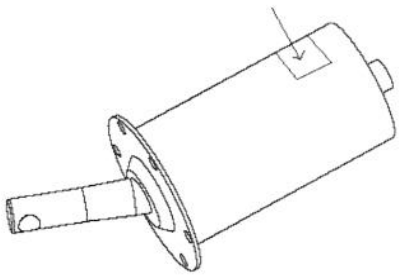



FIGURE 2

D. Difference between the two Part Number

(1). Part Number 4100S019-06: Actual Ice Detector Probe with flange nickel plated protection. The marking label is engraved on the IDP flange.
. Part Number 4100S019-07: New Ice Detector Probe with primer and coating applied on the flange. The marking label is placed on the IDP housing.

| P/N 4100S019-06 | P/N 4100S019-07 & P/N 4100S019-08 |
|---|---|
| NOTE: Marking:<br>**On the Top**:<br>Vibro-meter & Aerazur<br>ICE DETECTOR PROBE<br><br>**On the Down:**<br>Aerazur P/N **4100 S 019-06**<br>VM P/N: 447-147-000-021<br>S/N: XXXX<br>MFD: XX-XXXX<br>FSCM No S 3960 | NOTE: Marking:<br>**On the probe housing**:<br>Vibro-meter & Aerazur<br>ICE DETECTOR PROBE<br><br>Aerazur **P/N 4100 S 019-07 or P/N 4100S019-08**<br>VM P/N: 447-147-000-022<br>S/N: XXXX<br>MFD: XX-XXXX<br>FSCM No S 3960 |
|  |  |

ICE DETECTOR PROBE

FIGURE 3

## TESTING AND FAULT ISOLATION

### 1. . General

Aérazur has introduced the possibility to the Q400 operators to test the component directly in the fields, without Ice Detector Probe aircraft removal. This section describes the general bench specification (major guidelines) and an IDP Test procedure which will allow the operator to replace the component "in service". If at the beginning or at the end of the test, a problem is suspected, send the unit to Aérazur for investigation and test.

Ice Detector Probe Test box (PNR GSB 3080002) can be obtained through In Service distributors (INTRO 1 of this document).

### 2. General bench specification

In order to verify the Ice Detector Probe status (NFF or Failure state), the following "test functionality procedure" shall be used. This procedure shall permit to declare a No Fault Found or Failure status.

2.1 Safety

WARNING: THE IDP TEST OPERATION AND HANDLING MUST BE PERFORMED BY QUALIFIED PERSONNEL, WHO HAS READ THE INSTRUCTIONS OF THIS PROCEDURE

ALL HANDLING OPERATIONS MUST BE PERFORMED AFTER POWER SUPPLY AND AIR SUPPLY DISCONNECTION.

CAUTION: OBEY THE PRECAUTIONS THAT FOLLOWS WHEN YOU HAVE FINISHED THE TEST:

- SHUTDOWN AC AND DC POWER SUPPLY.

2.2 Bench Description

The Test Box used to test the Ice Detector Probe shall be able to detect the component status and shall be installed between the Aircraft electrical harness and the Ice Detector probe mating connector.
The following Figure 4 describes the wiring diagram.

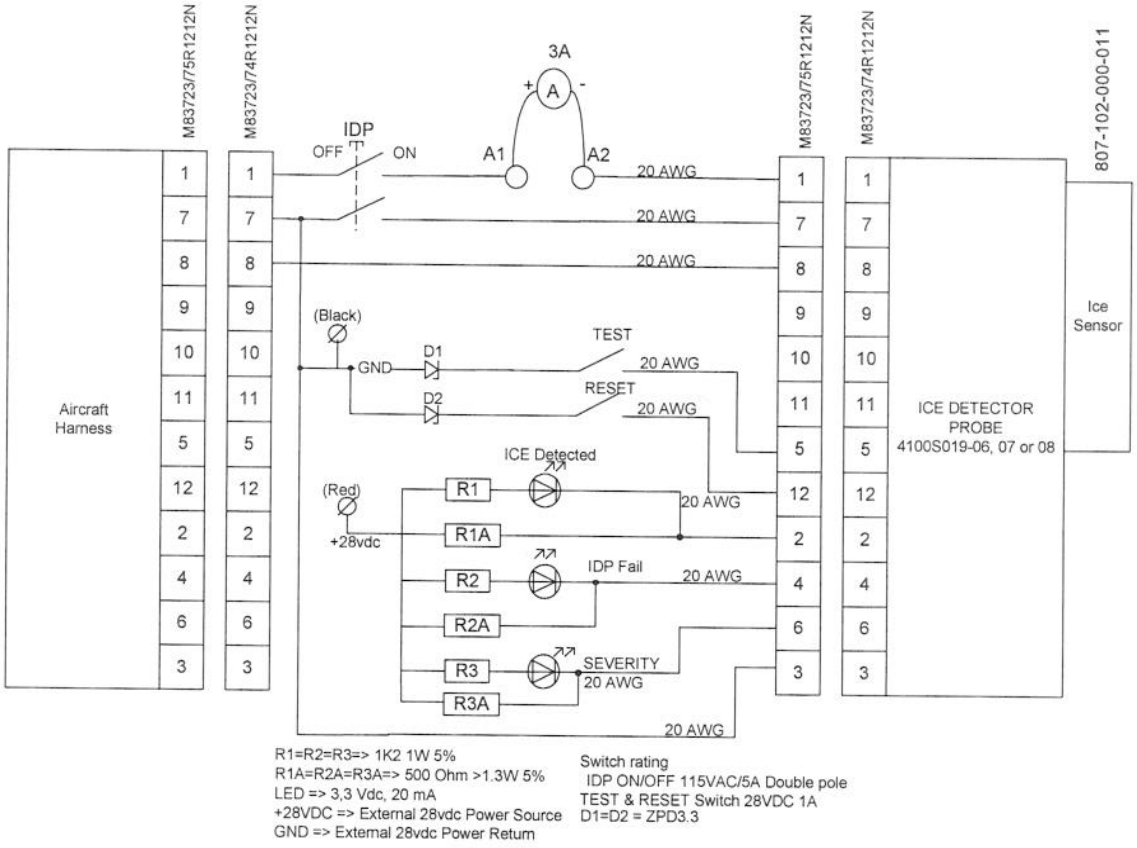



Figure 4

3. Test Procedure

   a. Connector on Aircraft harness and Ice detector Probe:

      i. Ensure aircraft AC power is off. Disconnect the Ice Detector Probe canon plug M83723/75R1212N and connect it to the test box M83723/74R1212N.

      ii. Connect the test box canon plug M83723/75R1212N to the Ice Detector Probe M83723/74R1212N

b. Test box procedure (review entire procedure prior to application)

i. Verify if the sensing element is clean of damage or moisture.

ii. Sensor without Ice

1. Connect Amperemeter (automatic AC scale) to point A1 and A2 on the test box.

2. Apply External 28vdc and apply Aircraft AC 115VAC400Hz power and switch ON the IDP switch. (Length of 20 gauge wire with jacks, sufficient to power unit from the maintenance panel's available 28VDC supply, may be used instead of a bench power supply. Ensure 2 amp CB / fuse is used to protect the test unit / wire)

3. Check the following led status.

a. Ice Detected led shall be extinguished.

b. IDP Fail led shall be illuminated

c. Severity led can be illuminated or extinguished.

4. Push and hold "Test" Switch for 2 seconds

NOTE: If no failure is detected during the test, the outputs of the Ice Detector Probe shall indicate during 2 seconds the following lights status.

a. Ice Detected illuminated.

b. IDP Fail extinguished

c. Severity illuminated.

5. After 2 seconds, the following lights status shall change and return to the following status

a. Ice Detected extinguish

b. IDP Fail illuminate

c. Severity illuminates or extinguish.

5. Check that current on the Amperemeter is lower than 50 mA RMS

iii. Sensor with Ice (simulation and cold)

CAUTION: The head detector can become very hot during this test, do not touch the tube.

1. Change Amperemeter calibration to 3A AC
2. Apply cooling spray for a 2 second duration on the probe sensor (surface 1) at a distance of 2 centimeters (Refer Figure 5)

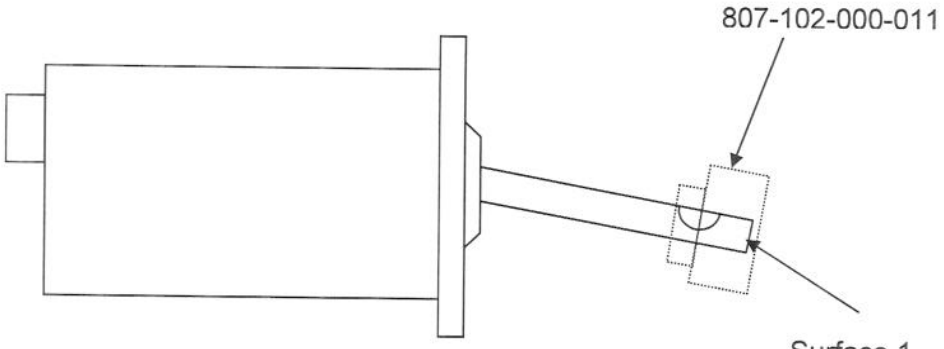



Figure 5 IDP Detector

3. Immediately apply 807-102-000-011 '"Ice Detector Probe" detector to the sensing element
    a. When Ice Detected LED illuminates, remove the 807-102-000-011 tester.

Requirements: The Ice Detected LED shall illuminate

4. Measure and record the current on the Amperemeter during ice simulation and immediately switch OFF the IDP switch.

Requirements: Current consumption displayed on the amperemeter shall be between 2Amps AC RMS minimum and 3Amps AC RMS maximum.

iv. Sensor with Ice (simulation only)

1. Power-up again the unit
2. Check the consumption on the Amperemeter (maximum 50mA AC).
3. Apply the 807-103-000-011 "Ice Detector Probe" detector to the sensing element
    a. When Ice detected LED illuminates, remove the 807-102-000-011 tester.
4. Measure and record the current on the Amperemeter. The value shall be under or equal to 50 mA AC.
5. Shutdown the external 28 vdc and the 115 Vac 400Hz
6. Remove test box connector and reinstall the A/C harness canon plug to the Ice Detector Probe mating connector.

## DISASSEMBLY

Not applicable.

## CLEANING

1. Cleaning Materials/Tools

CAUTION: SUBSTITUTES FOR LISTED CLEANING MATERIALS / TOOLS MUST BE APPROVED BY AERAZUR

| REFERENCE | DESIGNATION | AVAILABILITY |
|---|---|---|
| Commercially available | Isopropyl alcohol | Local Purchase |
| Commercially available | Cloth Lint-free | Local Purchase |
| Commercially available | Brush, soft-bristled | Local Purchase |

2. General

A. This page contains all of the data necessary to clean the metal parts of the Ice Detector Probe (IDP).

3. Cleaning Procedure for P/N 4100S019-06 or P/N 4100S019-07 or P/N 4100S019-08

A. Metal Parts

WARNING: DO NOT BREATHE THE ISOPROPYL ALCOHOL GASES OR PERMIT THE ISOPROPYL ALCOHOL TO TOUCH THE SKIN. USE THE ISOPROPYL ALCOHOL ONLY IN A LOCATION THAT IS OPEN TO THE AIR. INJURY TO PERSONS CAN OCCUR IF YOU DO NOT OBEY THIS INSTRUCTION.

WARNING: USE EYE PROTECTION WHEN YOU USE COMPRESSED AIR AND DO NOT POINT AIR AGAINST THE SKIN. INJURY TO PERSONS CAN OCCUR IF YOU DO NOT OBEY THIS INSTRUCTION.

(1) Clean dirt and grease off the metal parts. Use the isopropyl alcohol and apply with a lint-free cloth or a soft-bristled brush.

(2) Dry the clean metal parts with dry compressed air at low pressure, less than 0.34 bar (5 psi).

B. Electrical Parts

WARNING: DO NOT BREATHE THE ISOPROPYL ALCOHOL GASES OR PERMIT THE ISOPROPYL ALCOHOL TO TOUCH THE SKIN. USE THE ISOPROPYL ALCOHOL ONLY IN A LOCATION THAT IS OPEN TO THE AIR. INJURY TO PERSONS CAN OCCUR IF YOU DO NOT OBEY THIS INSTRUCTION.

(1) Clean dirt and grease off the electrical parts. Use the isopropyl alcohol and apply with a lint-free cloth or a soft-bristled brush.

(2) Dry the clean metal parts with dry compressed air at low pressure, less than 34.48 kPa (5 psi).

## CHECK

1. General

A. The check can be made without the aid of special devices otherwise indicated herein.

B. This page block contains instructions to make a visual inspection of the IDP. If required, return the IDP to authorized repair station for inspection.

2. Check Procedure for the P/N4100S019-06

A. Do the subsequent check procedures before to release the IDP into operation

(1) Make sure that the IDP agrees with the general view given in figure 3 DESCRIPTION AND OPERATION section of this manual.

(2) Make sure that the eight mounting screws used to secure the housing are tightly installed.

(3) Make sure that the connector is not damaged. Make sure that the surface of the connector is clean and that there is no unwanted material. Make sure that the connector nut is tightly installed. Make sure that there are no loose or bent pins. Make sure the pins are clean and untarnished.

(4) Visually examine the sensing element. No cracks or damage are permitted.

(5) Visually examine the probe (extending tube) except the sensing element. No cracks or damage are permitted other than wear and abrasion which are acceptable up to a maximum depth of 0.1 mm (0.004 inches) of the original contour.

(6) Make sure that the mounting flange is in good condition, no cracks are permitted. The limit of damage for nicks or dents is up to 0.2 mm (0.008 inches). Lifting of the nickel coating is permitted up to 2 $mm^2$ (0.003 square inches).

(7) Make sure that the housing is in good condition, no cracks are permitted. The limit of damage for nicks or dents is up to 0.2 mm (0.008 inches). Lifting of the nickel coating is permitted up to 2 $mm^2$ (0.003 square inches).

NOTE: Refer to the repair section if the lifting of the nickel coating is upper than 2 $mm^2$ (0.003 square inches) on the flange.

2. Check Procedure for the P/N4100S019-07 an 4100S019-08

A. Do the subsequent check procedure before to release the IDP into operation

(1) Make sure that the IDP agrees with the general view given in figure 3 DESCRIPTION And OPERATION section of this manual.

(2) Make sure that the eight mounting screws used to secure the housing are tightly installed.

(3) Make sure that the connector is not damaged. Make sure that the surface of the connector is clean and that there is no unwanted material. Make sure that the connector nut is tightly installed. Make sure that there are no loose or bent pins. Make sure the pins are clean and untarnished.

(4) Visually examine the sensing element. No cracks or damage are permitted.

(5) Visuallly examine the flange surface: See figure 6

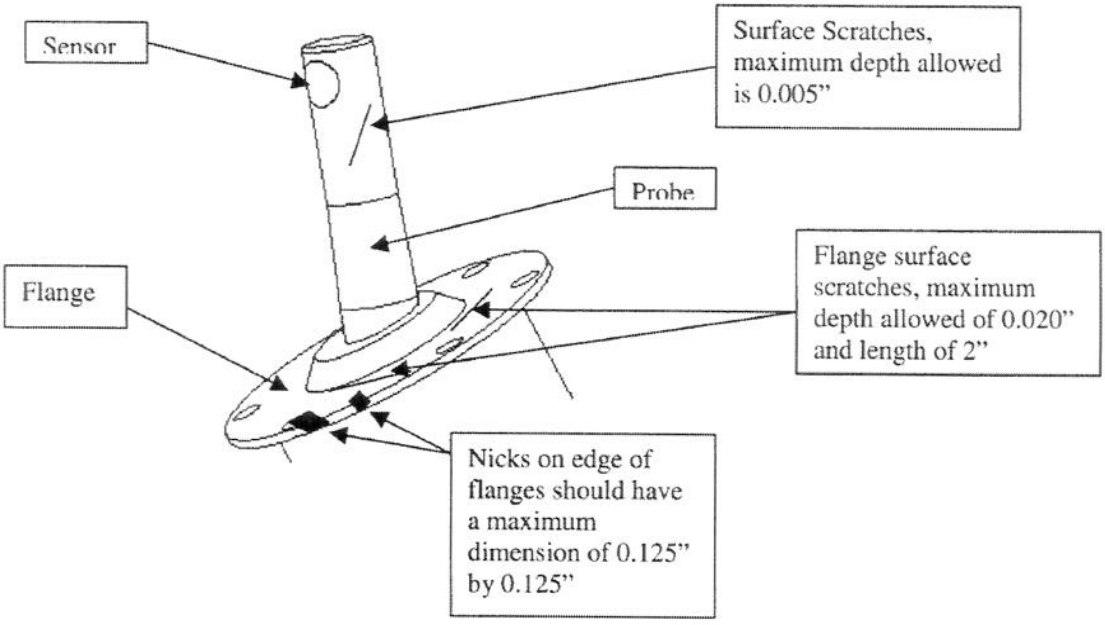



Figure 6

NOTE: Any damage to flange surface may be blended to remove sharp edges. Damage to the surface of the flange or its edge that does not impact fir or function of the IDP is acceptable. In addition, the painted surface may be left as in "received condition". Slight scratches on the probe that do not touch the sensor are acceptable up to a maximum depth of 0.005".

(6) Make sure that the housing is in good condition, no cracks are permitted. The limit of damage for nicks or dents is up to 0.2 mm (0.008 inches). Lifting of the nickel coating is permitted up to 2 $mm^2$ (0.003 square inches).

### REPAIR

1. Repair Materials/Tools for the P/N 4100S019-06

NOTE: The 4100S019-07 is not repairable, the unit shall be returned to Aérazur for investigation.

| REFERENCE | DESIGNATION | AVAILABILITY |
|---|---|---|
| Commercially available | Biddle DLRO 247000 Test meter or an equivalent milliohm meter (i.e 10 amps for 0-6mΩ) | Local Purchase |
| Commercially available | Alodine 1200/1200S according to spec MIL-C-5541 - | Local Purchase |
| Tempo 4500-PB-40 (F19) | Epoxy Primer | Tempo paint and Varnish Co 205 Fenmar Drive, Weston M9L2X4, CANADA |
| Tempo 6600 (F24) | Polyurethane Enamel | Tempo paint and Varnish Co 205 Fenmar Drive, Weston M9L2X4, CANADA |

2. General

A. The IDP is an operator non-repairable item except for the flange repair. If required, send the part to Aérazur repair station for investigation.

NOTE: All probe P/N 4100S019-06 returned to Aérazur for inspection and or repair will be returned in ARZ P/N 4100S019-07 or 4100S019-08 version.

3. Rework procedure for the outer face of the IDP mounting flange

NOTE: The Ice detector probe outer flange is made of aluminum and has a copper nickel flash coating for corrosion protection. Bubbling, blistering or flaking of this coating is cosmetic only and does not affect the function of the probe. However once the aluminum material has been exposed it is more susceptible to corrosion pitting.
Therefore if corrosion pitting is observed in the aluminum base material the Ice detection probe should be reworked as necessary at the next convenient opportunity.

A. If pitting is noted, carefully place a cover over the Ice detector tube assembly and remove probe to carry out this blending procedure.

B. Remove probe in accordance with AMM Task 30-80-01-000-801. Mask to protect surrounding area of probe assembly. This blending procedure can be performed on localized area only if that is all that is affected, or the entire outer face.

C. Polish the outer face of the probe flange to remove all corrosion and leave a smooth surface.

CAUTION: CAREFUL NOT TO CAUSE ANY EXCESSIVE SHOCK OR UNNECESSARY VIBRATION AS THIS MAY DAMAGE INTERNAL ELECTRONIC COMPONENTS.

CAUTION: MAXIMUM ACCEPTABLE BLEND DEPTH 0.254MM (.010") (MINIMUM REMAINING FLANGE THICKNESS TO BE 1.98MM (.078") ALLOWING FOR THICKNESS TOLERANCE VARIATIONS).

E. Do not damage attachment screws countersinks (NAS7402-4 ref). On completion of blending check that screw heads still sit flush.

F. All blended areas are to be smooth, even and have no sharp edges, nicks or gouges. Surface finish smoothness to be equal to original or better.

G. Visually inspect probe flange for cracks – no cracks permitted. This repair is void if cracks or any other type of damage is found.

H. If part marking is made unclear (or removed) by rework, Mark the serial number and Aérazur part number 4100S019-06 with a suitable Label and attach to the probe body (shown in figure 4).

I. Alodine any bare metal in accordance with the instructions of the DASH 8 Q400 Structural Repair Manual PSM 1-84-3, Chapter 51-21-10.

NOTE: Alodine treatment should extend down holes and countersinks (Remove detector if holes and countersinks are to be alodined).
Do not apply primer and enamel into screw holes and countersinks, as good electrical contact is required with screw heads for electrical bonding purposes. However, primer and enamel may be applied over top of screw heads after installation.

I. After the flange has been alodined the unit is to be Epoxy primed in accordance with the Instructions of the DASH 8 Q400 Structural Repair Manual PSM 1-84-3, Chapter 51-25-10. A final polyurethane enamel top coat is then applied in accordance with the instructions of the DASH 8 Q400 Structural Repair Manual, PSM 1-84-3 Chapter 51-25-15.

J. Reinstall probe in accordance with DASH 8 Q400 Aircraft Maintenance Manual Task 30-80-01-400-801. Do not attach electrical connector (P33, P34).

K. After installation of the Ice Detection Probe (IDP) it shall be tested for electrical bonding to the aircraft structure using the Biddle DLRO 247000 test meter or an equivalent milliohm meter.
The meter should be used on the lowest scale setting, to ensure maximum applied test current (i.e. 10 amps for 0- 6 mΩ range).

L. The electrical bonding test shall be conducted as follows: (refer to figure 5)

- Gain access to the IDP electrical connector P33 or P34 through inspection panel 121AL or 122AR adjacent to applicable IDP.
- Disconnect applicable connector P33 or P34 of Ice Detector Probe to be tested.
- Connect a long test lead to the LH passenger seat rail accessed out through the main cabin Door to the test meter. <<<< OR >>>>
  If a long test lead is not available connect the test lead to a ground stud adjacent to the IDP, this point is identified as test point 1 (TP1) (refer to figure 5)
- Connect the second test lead from the test meter to the receptacle back shell of the IDP this point is identified as test point 2 (TP2) (refer to figure 5).
- Measure & record the resistance between (TP2) receptacle back shell and (TP1) the seat rail or adjacent ground stud.

NOTE: The Bonding resistance shall be less than or equal to ≤ 10 mΩ.

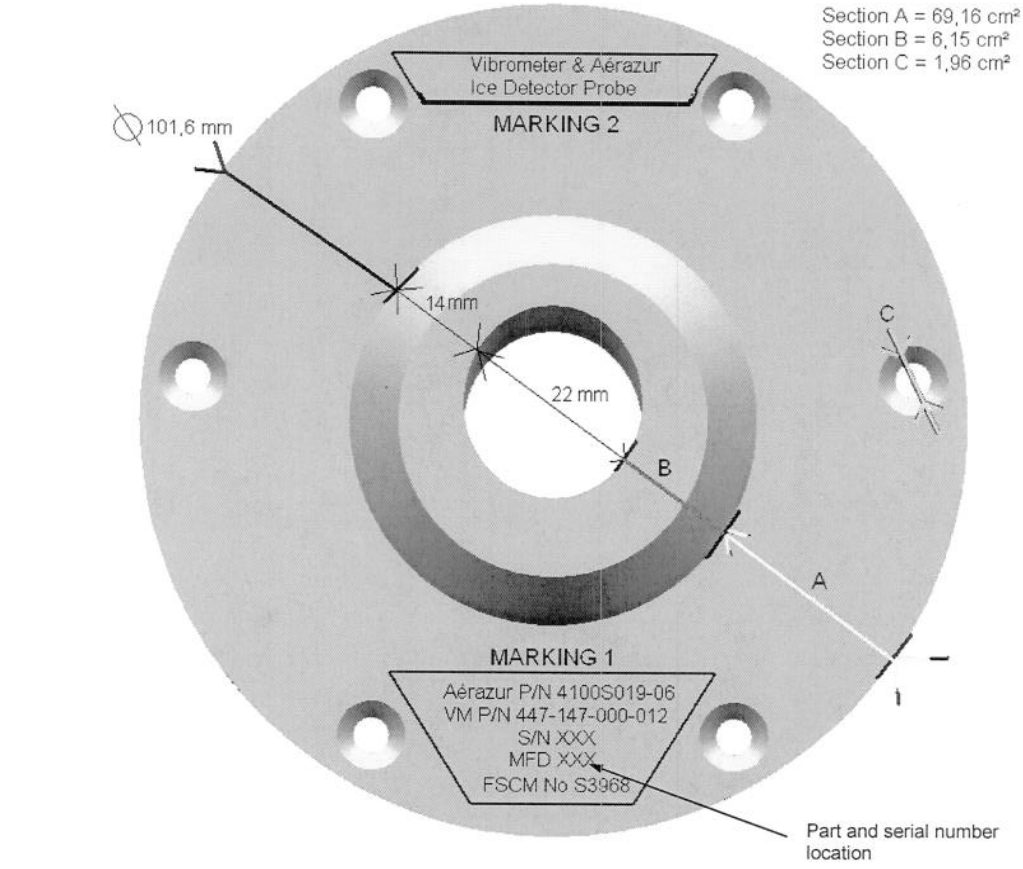
M. If recorded value does not meet the specified bonding value the IDP should be reworked as per item 2. C through item 2. K as necessary, or replace Ice detector probe.

N. After bonding check is successfully completed re-install removed electrical connector and close removed access panels. Remove tube cover from probe assembly, mentioned in step item 2. C and ensure all mask tape removed.

O. Complete AMM Task 30-80-01-400-801 Installation of Ice Detector Probe.

P. Complete AMM Task 30-80-00-710-801 Operational Test of the Ice Detection System.

Q. Complete AMM Task 51-23-00-390-801 General Sealing Practices.


Section A = 69,16 cm²
Section B = 6,15 cm²
Section C = 1,96 cm²
Vibrometer & Aérazur
Ice Detector Probe
MARKING 2
101,6 mm
14 mm
22 mm
C
B
A
MARKING 1
Aérazur P/N 4100S019-06
VM P/N 447-147-000-012
S/N XXX
MFD XXX
FSCM No S3968
Part and serial number location

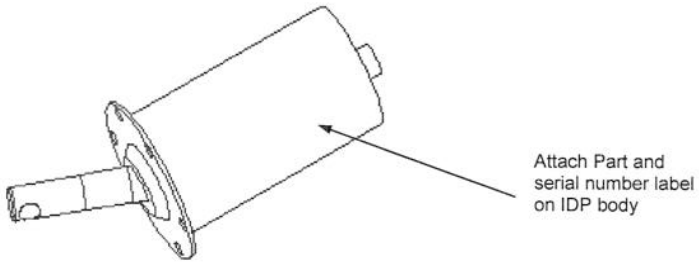

Attach Part and serial number label on IDP body

FIGURE 7

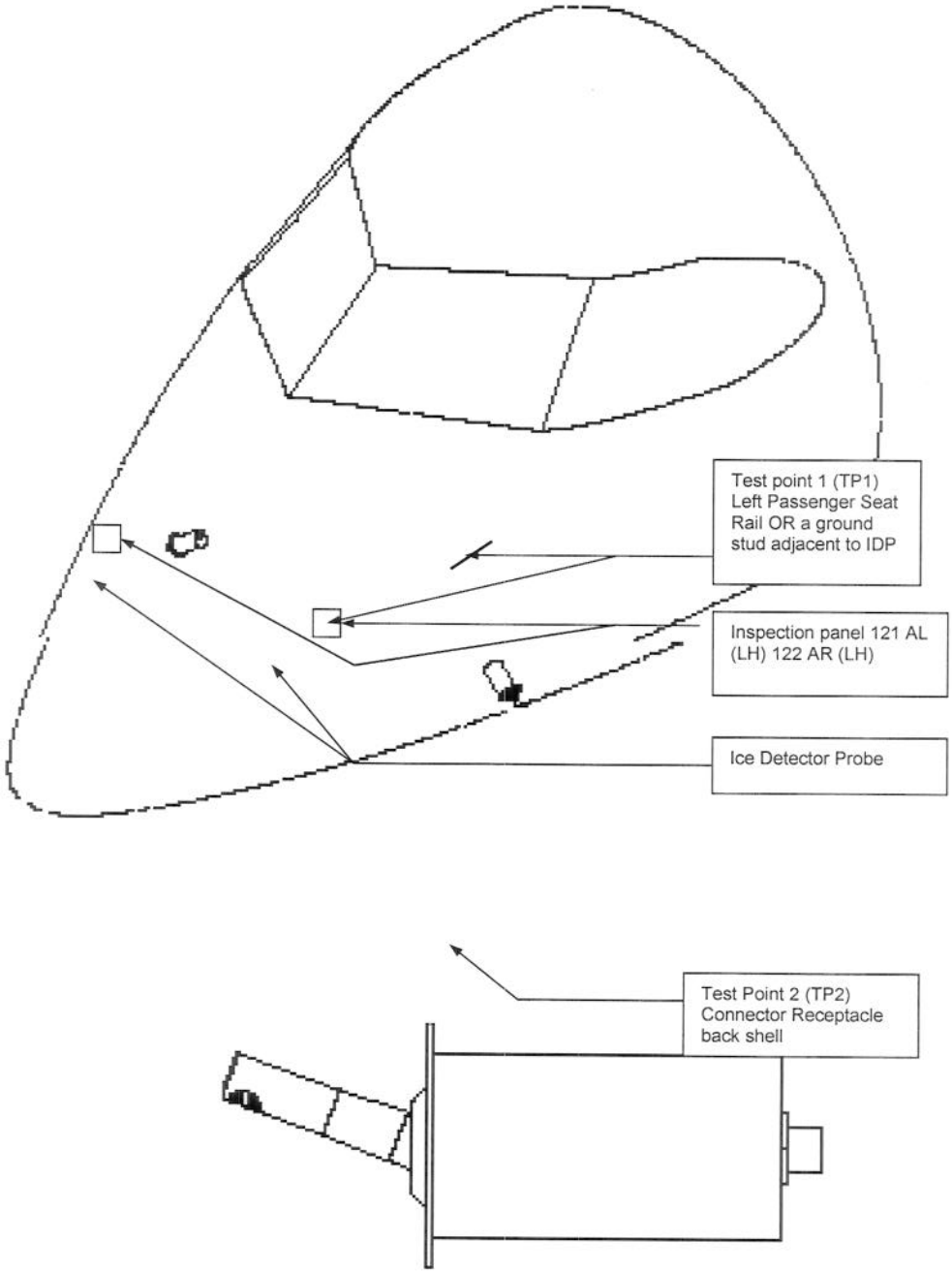

Test point 1 (TP1)
Left Passenger Seat
Rail OR a ground
stud adjacent to IDP
Inspection panel 121 AL
(LH) 122 AR (LH)
Ice Detector Probe
Test Point 2 (TP2)
Connector Receptacle
back shell

FIGURE 8

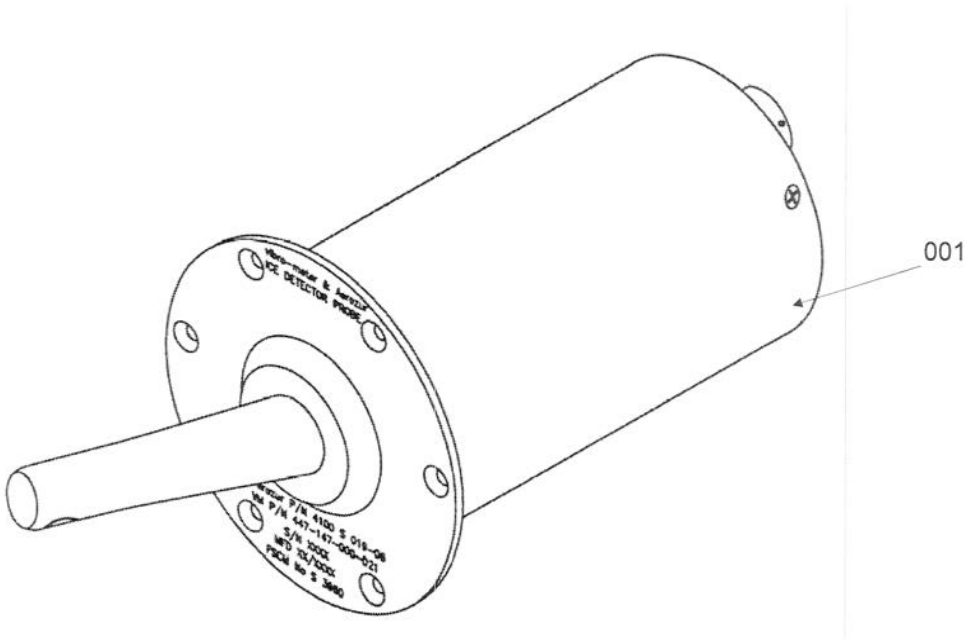
## ASSEMBLY

Not applicable.

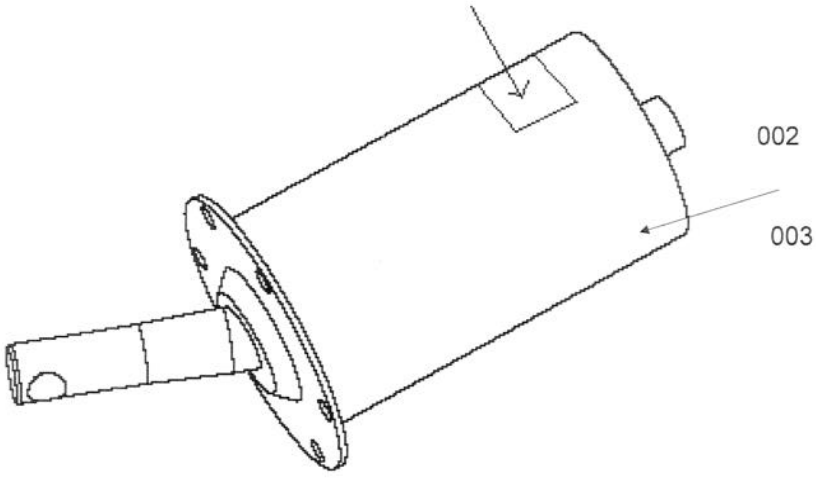
## STORAGE

1. Storage Instructions for both Part Number (4100S019-06 or 4100S019-07 or 4100S019-08)
   A. Before storage, clean the Ice Detector Probe (IDP) in accordance with the instructions given in the Cleaning section of this manual, page block 401. If the IDP was used, or was open, to humid conditions, dry the IDP for a time of four hours at the temperature of 45°C (113°F).
   B. No more protection is necessary when you keep IDP in a clean, dry, controlled location.
   C. Prepare IDP's which are not kept in a clean, controlled location as follows:
      (2) Cap the electrical connector by means of rubber plug.
      (3) Put the IDP in an applicable polythene bag, with a volume of approximately two times that the IDP.
      (4) Make sure that the polythene bag is fully closed at one end.
      (5) Remove as much air from the polythene bag as possible and seal it.
      (6) Put the polythene bag with IDP in its original shipping box or equivalent box if the original box is not available.
      (7) Fill the space around the bag with foam rubber material.
      (8) Seal the container and write clearly the contents, part number, serial number, date of storage and all other data which is necessary for identification, on the container.
   D. Specific storage conditions
      (1) Atmospheric pressure.
      (2) Temperature: from +5°C (+41° F) to +35°C (+95°F).
      (3) Humidity rate: < 85%.

## ILLUSTRATED PARTS LIST




IDP
IPL FIGURE 1




IDP
IPL FIGURE 2

| Fig. Item | Part number | AIRLINE PART NO | NOMENCLATURE 1234567 | Usage Code | Units per assy |
|---|---|---|---|---|---|
| 1 | | | | | |
| 001 | 4100S019-06 | | Ice Detector Probe | | REF |
| 2 | | | | | |
| 002 | 4100S019-07 | | Ice Detector Probe | | REF |
| 3 | | | | | |
| 002 | 4100S019-08 | | Ice Detector Probe | | REF |

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# Bombardier Q400

## All Operator Message No. 292

ATTN: Director/Manager of: Maintenance
Engineering
Quality Control
Flight Operations
Procurement/Spares

DATE: 09 APR 08

ATA: 3080 MODEL: Q400

SUBJECT: Ice Detector Probe (IDP), Parts Availability

REFERENCE: RD 8/4-53-2302 – Installation of a Blanking Plate

The following message is being sent to all Bombardier Aerospace Regional Aircraft Q400 Operators and Bombardier Aerospace Regional Aircraft Field Service Representatives.

This message contains information requiring attention and/or action. Please ensure timely and appropriate distribution within maintenance and flight operations departments.

**DISCUSSION**:

Bombardier has recently been advised by Aerazur of a part availability issue at their supplier for the Ice Detector Probe (IDP) PN 4100S019. This is impacting the production of new units, and the repair and overhaul of existing units.

Bombardier and Aerazur are currently working to resolve the part availability issue. As an interim measure we have developed generic RD 8/4-53-2302. This RD details the installation of a blanking plate at either left or right IDP, subject to the requirements of PSM 1-84-16A - Master Minimum Equipment List. The RD has been released and is posted in RACS.

The RD allows removal of one IDP, and installation of a blanking plate, for the length of the MEL relief. This will allow Operators additional time to send the IDP's for repair.

We are in the process of negotiating an increase to the MEL relief to 30 days as follows:

- Transport Canada approval expected by the end April of 2008
- EASA approval expected by the end May of 2008
- FAA approval expected 1st Quarter 2009

Bombardier are also investigating other means to provide additional relief, details to be communicated by AOM as they become available.

Due to the limited number of parts currently available, parts will be restricted to cover actual AOG situations only. Operators are asked to contact the Bombardier Technical Help Desk with details to verify the AOG requirement, prior to placing their order with the Spares AOG desk (phone no. 416 375-4020, Fax no. 416 375-3231).

Please direct responses and inquiries to your Bombardier Aerospace Regional Aircraft Field Service Representative or the Technical Help Desk in Toronto at telephone (416) 375-4000 or facsimile (416) 375-4539 or e-mail: thd.qseries@aero.bombardier.com

Alisa Turk Manager, Technical Help Desk, and Martin Elliott, Director, In-Service Engineering Systems & Technical Support, Bombardier Aerospace Regional Aircraft.